IVES PARK

7400 Willow Street
Sebastopol California
APL: 004-201-023

MASTER PLAN REPORT

Prepared for

The City of Sebastopol

Prepared by

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Landscape Architects and Planners

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ACKNOWLEDGEMENTS

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MASTER PLAN BACKGROUND

In the last several years, the Sebastopol City Council has received a number of comments from members of the community regarding Ives Park. Issues raised were related to park safety, maintenance, facility upgrades, and creek restoration, among other topics. In light of recent discussions regarding these issues, the City Council identified a need for potential improvements to Ives Park. The City Council tasked the Planning Commission with serving as the review body in evaluating Ives Park issues.

The City of Sebastopol hired Royston Hanamoto Alley & Abey to review the existing park condition, conduct public workshops and outreach, prepare a Master Plan and cost estimate based on City direction. The Master Plan for Ives Park was developed by Royston Hanamoto Alley & Abey in close coordination with the City of Sebastopol Planning Department, Public Works Department and members of the Ives Park community.

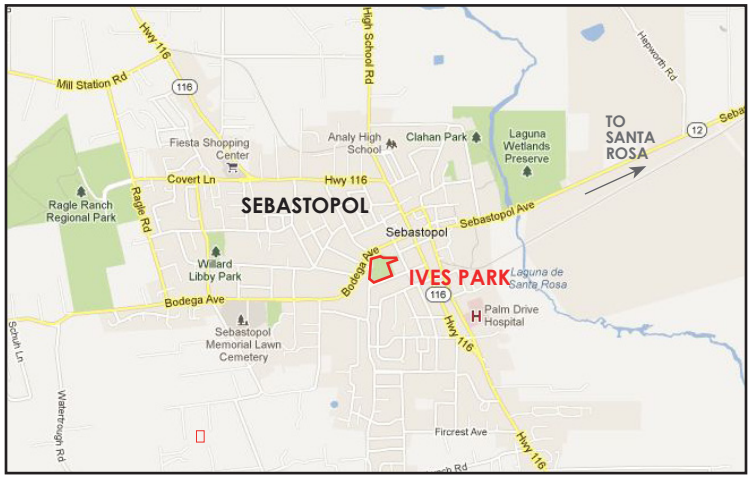
MASTER PLAN PURPOSE

The Ives Park Master Plan is a general guide and living document that serves as a long-range vision and blueprint for future park updates and programming. It provides a cohesive framework that will guide decision making when making physical changes to the park and in managing its landscape and structures. The plan is conceptual in nature and is not intended to address detailed issues related to engineered site design or park operations.

The Master Plan is intended to provide a practical, implementation-oriented, schematic plan for park renovation and improvements. The plan is not expected to provide construction-level detail. Due to budget limitation, the Plan will likely be implemented over a number of years as funding permits.

2 HISTORY & EXISTING CONDITIONS

SITE LOCATION & DESCRIPTION



Vicinity Map - Google.com

City of Sebastopol

The City of Sebastopol is a small town located on the western edge of the Santa Rosa plain, directly adjacent to the Laguna de Santa Rosa. The City's population of 7,800 belies Sebastopol's importance as the primary service area for more than 50,000 residents of West Sonoma County. Located approximately 50 miles north of San Francisco, Sebastopol acts as a gateway to the Russian River resorts and the Sonoma County coast. The City provides a transition from the urban environment of Santa Rosa to the rural, agricultural lands of West Sonoma County.

The City of Sebastopol does not have a Park Commission. The Planning Commission has been charged with advisory responsibility for park projects and park policy.

Ives Park

Ives Park is located in the downtown area of the City of Sebastopol. The park is situated in a predominantly residential neighborhood adjacent to the downtown commercial district. It is bordered by Willow St to the south, Jewell Ave to the west, and the Sebastopol Fire Department is adjacent to the baseball field in the northwest corner of the park. The southeast corner of the park is occupied by the Veteran's Hall at the corner of Willow St and South High St. The eastern edge of the park runs along South High St which is lined with a number of commercial and residential properties. The park is one block west of Main St, the city's downtown commercial district. The terrain inside the park is relatively flat but has relatively steep slopes along the south and west edges.

Ives Park includes a Little League baseball field (Polley Field), public swimming pool (Ives Pool), playground, two outdoor stages, and several lawn areas. Calder Creek, the most prominent feature in the park, flows west to east, bisecting the park. The majority of the creek was channelized in an open concrete culvert two decades ago, with the exception of a small pond and 'meadow' area, located on the western portion of the park. The entire length of the creek within the park, including the pond and meadow area, is fenced off with chain-link fencing. The Veteran's Hall, owned and operated by the County of Sonoma, borders the park to the east. It has recently been leased to the Sebastopol Center for the Arts.

PARK HISTORY

Ives Park, Sebastopol's oldest park, was founded in the 1940's as a bequest by Mrs. Ives of San Francisco who had enjoyed playing in the area as a child. Ives Pool opened in April 1946, and aerial photos from that time show that other than the major remodeling of the pool area, the park had changed little since then.

Before the park was established, George Calder's grist mill was located nearby, powered by a mill pond on Calder Creek, likely near the current pond site. Later, a tannery was located near the site of the present-day Veterans building. The tannery owners probably channelized the creek as a flood control measure. They probably also dammed the creek at the current pond to give themselves a water supply for their operation. Most of the existing fencing was likely installed in the 1970's.

EXISTING CONDITIONS

Ives Pool

Ives Pool was constructed in 1941, with funds donated by Katherine Ives. It is 25 yards long and 16 yards wide and holds 200,000 gallons of water. The original pool house was located in a small building along Willow Street, uphill from the pool. Initially, the pool was operated by the City of Sebastopol during the summer months only. In the 1980's the present pool house was constructed and the City entered into an agreement with the YMCA to operate the pool. The YMCA operated the pool for approximately one year. As the year came to a close, the Western Sonoma County Swimmers group, a non-profit corporation, formed and began operating the pool. The City has continued to be the owner of the Ives Pool facility; however, the Swimmers group has operated the pool via an agreement with the City. Per the agreement, the Swimmers are responsible for establishing fees and programs for the pool and management of the pool. The pool is open 7 days per week from 6 AM until 9:30 PM. The Swimmers also provide all janitorial services and cleaning of the pool, and pay the utility bills; however the City provides water without cost. In 2004, the City loaned the Swimmers money to install solar panels along the south facing facility roof, which has saved them considerable money over the past 6 years, and will continue to do so. The City provides electrical and plumbing repairs and some other maintenance without cost. The current contract with the Swimmers has been in effect since 2003.

Veteran's Hall

The Veteran's Hall, bordering the park to the east, was constructed in 1958. The 17,800 square foot building, and the parking area and landscaping surrounding the building, are owned and maintained by the County of Sonoma. The Regional Parks Department has leased the facility to the Sebastopol Center for the Arts, who oversees scheduling of events and maintenance. The building serves as a dedicated Veteran's memorial. The Veteran's Hall is utilized by the Veterans of Foreign Wars Post and Auxiliary group for meetings and events. The Hall is also leased out to various organizations, including the City of Sebastopol, for meetings and events.

The physical location of the Veteran's Hall poses a challenge to Ives park in regard to visibility to the park. Currently, the entrance to the park and playground on the east side is located behind the Veteran's Hall, on the west side of the parking lot, through a sliding, locking, chain link gate. There is a secondary side entrance along the northern border of the Veteran's Hall; a strip of land that the City owns, which runs along the creek and leads into the park via a concrete path.

This entrance to the park is not clearly marked at the street and could be improved upon. There is a fair amount of chain link fencing along both sides of the entrance, as well as along the creek leading up to the entrance.

Little League (Polley Field)

Polley Field was constructed in 1957 and has been the home of Sebastopol Little League ever since. The City owns the field, including the light fixtures, concession stand, bleachers, and fencing; however the field, concession stand, and restrooms are managed and maintained by the League. The field is used by the League every day except Sundays, March through November, and for tournaments in June and July. The field is used twice weekly and Saturdays, August through November. In addition, the field is used for adult softball games on weekday evenings in the summer and fall months.

Due to the field's high cost of maintenance and past vandalism, the field is locked during all hours that it is not in use by the Little League, adult league, or other group with prior reservations for the field through the Little League. According to League representatives, this arrangement was agreed upon between the League and the former City Manager; however the Lease Agreement was not revised and continues to state that "when not in use by the League, the property shall be available for use by the public." Groups who wish to use the field are required to obtain permission from the League, in addition to a Special Event permit from the City of Sebastopol. Field use is restricted prior to 9 AM and after 10 PM.

Playground

The playground is located in the central portion of the park and has been a feature of the park for more than 50 years. It has been replaced several times, most recently in 2003, funded by a donation by the Sebastopol Rotary.

The school age play zone contains a 2-bay swing set, a free standing slide, a balance beam, and three free-standing climbing pieces. The tot age play area contains two single bay swing sets with two bucket seats each, two post and platform play structures and a square sand play area. The engineered wood play surfacing is enclosed by white plastic PVC tubes. The tot age zone is boarded by a perimeter chain-link fence. Three benches are located inside the tot area, and two picnic tables are located alongside the school age play area. Trees located inside the play area provide shade. One drinking fountain exists in the park, located near the playground.

The playground is heavily used by the Little League children and students of the Sebastopol Charter School. During the summer months, summer camp programs also utilize the play equipment, as do children attending fairs and festivals in the park.

Calder Creek

Calder Creek runs inside an open concrete channel, designed to look like stacked stones, through Ives Park. The creek's journey to the east and west of the park occurs underground, in conduits that carry the water underneath both private and public City properties and on out to the Laguna. A portion of the creek sometimes pools to form a small pond. Until recent years, larger pools were made possible via a weir consisting of boards erected in the

creek channel during the spring months. The City has not constructed the weir in recent years. The creek is currently fenced along both sides of the channel and around the perimeter of the pond. The creek channel is passable via several bridges crossing over it, connecting to paved paths throughout the park.

The channel is deep and narrow, and it can be difficult to see the water. It is currently inaccessible to park visitors. The creek walls are failing in several areas, in particular at the weir area near the pond, where the water appears to be flanking the wall. Invasive plants species have been found growing around the pond and along the creek.

Picnic Areas

There are a variety of picnic arrangements scattered throughout Ives Park, including group picnic, single tables, BBQ, a serving table and a variety of table sizes. The picnic tables get good use and are highly used during festivals and events. Generally, the picnic areas are in good shape, with some of the tables being only several years old.

Park Entrances

The primary entrances to the park are on Jewell Avenue, where there are 3 steps that drop to the park level; the stairway to Ives Pool, located on Willow Street; and behind the Veteran's Hall, via a chain-link gate. The park can be accessed on the south, west, and east sides by additional small paths through trees, and alongside the Veteran's Hall to the north. The only accessible entrance is from the Veteran's hall parking lot near the playground. There are two crosswalks at Ives Park. One crosswalk exists on South High Street for access to the Veterans Building and another crosswalk located on Willow Street at midpoint of the pool.

Paths & Paving

Several paved pathways traverse the park, many of which are not accessible due to steepness and condition such as cracking and heaving due to tree roots. Additional paving is located near the western-most bridge, along the pathway leading from the restrooms to the playground, and surrounding the picnic areas along Jewell Avenue. The sidewalk paths along the perimeter of the park and pool entry are concrete and the internal paths are asphalt.

Restrooms

2 restrooms exist in Ives Park. One restroom is attached to Ives Pool near Calder Creek. The entry slopes to these restroom exceed recommended accessibility codes. The second restroom is located near the ballfield and contains an additional room for concessions. Both restrooms are in need of upgrades.

Existing Bridges

Three pedestrian bridges exist crossing Calder Creek. They are constructed out of wood, including the railings. All bridges are approximately 7 feet wide. The easternmost and westernmost bridges are 14 feet in length and the central bridge is 16 feet in length.

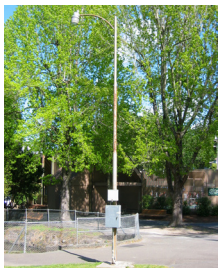
Wood Stage

Since 1993, the Sonoma County Repertory Theater produced two outdoor plays per year at Ives Park. An outdoor stage, which was constructed in 2003 as a joint project between the theater and the Sebastopol Rotary Club, is utilized for productions between June and September. The stage is wooden and has begun to show signs of wear. Informal seating is provided on the lawn area in front of the stage and at the adjacent picnic tables.

Concrete Stage

A second stage is located across from the wood stage, adjacent to the western facing Ives Pool facility fence. This stage, which is concrete, was constructed in the 1990's as a joint project between volunteers and the City. The purpose of the stage is to provide a place for bands to play live music. An electrical outlet is provided adjacent to the stage to accommodate musical equipment. Since its construction, the stage has not been heavily used.

Lighting



Light fixtures are located throughout the park and provide only security lighting. The fixtures are approximately 20 feet high and are standard industrial aluminum street lights. The fixtures are in poor condition with rust on the posts. Due to the heavy foliage from the trees and vegetation, many areas of the park remain shaded. Much of the light from neighboring streets and properties are also blocked by vegetation from entering the park.

Landscaping

The majority of the park is comprised of lawn area; however, there are a number of substantial trees planted throughout the park, including redwoods and oaks. A number of the Redwood trees appear to be unhealthy. Dense foliage is planted along the north side of the creek and ball field, and the east side of the park, abutting the Veteran's Hall parking lot. The foliage consists of dense brush and small trees. These areas have become attractive to loiterers and posed security problems in the past.

A small rose garden is located on the park's northeastern lawn. The garden is currently being maintained by City staff but interest has been expressed in finding a volunteer group to maintain the garden.

Pool staff and volunteers have landscaped the southern entrance to the park, along the stairwell leading to the pool.

Topography

Several aspects of the topography at Ives Park present a challenge when trying to increase accessibility and visibility. The majority of the park is lower in elevation than the adjacent streets to the south and west, and the buildings to the north. The elevation at South High Street is level with the park and provides the most accessible access. At its most extreme, elevations from Willow Street are approximately +/- 19 feet above park elevations. Topography creates intimate spaces that can be desirable but can also separate uses and encourage activities that are not desired.

Education

The Sebastopol Charter School uses the park on a frequent basis and students are taken there for recreational purposes. Summer camp programs also use the park, playground equipment and pool in the summer months.

Festivals

Ives Park is home to a variety of festivals including the Apple Blossom Festival in April, the Roma Festival in May, and the Cajun Festival in September.

The Apple Blossom Festival is hosted and organized by the Sebastopol Area Chamber of Commerce with the support of local businesses. The festival includes a parade, food, wine garden, live music, crafts, art, and activities for children. The festival has run almost continuously since 1947 and is the Chamber's biggest community promotion project.

The Annual California Herdeljezi Festival, a traditional Romani (Gypsy) folk arts festival, celebrates the folk art and traditions of the Roma. The festival features traditional music, songs, dances, stories, foods, crafts, and customs of the Roma. It was designed as a means of preserving and sharing the cultural traditions and folk arts of the Romani people in the United States, while building a sense of community among the friends and neighborhoods who help make it happen.

The annual Cajun Zydeco Festival is hosted by the Rotary Club of Sebastopol Sunrise. The festival includes live music, dancing, food, and drinks. Zydeco is the music of Southwestern Louisiana's Black Creoles, a group of people of mixed African, Afro-Caribbean, Native American and European Descent.

3 MASTER PLAN

MASTER PLAN INTENT

Ives Park is one of the most diverse and heavily used parks in Sebastopol. The park provides diverse activities ranging from passive recreation and bird watching to active sports play. Over the years, Ives Park has struggled with balancing its increasing popularity with its site limitations. The park has been identified by the City of Sebastopol as being incohesive with physically disjointed park amenities that contribute to a lack of a clear identity. Significant upgrades have not been made to the park for a number of years and many aspects of the park are in need of attention.

The goal of the Master Plan for Ives Park is to create a cohesive and beautiful design that meets the needs and reflects the vision of the community, allow for future phasing and flexibility, create a park identity, and is environmentally sustainable. The plan proposes to strengthen physical and visual connections, both internally and externally, to increase the overall cohesiveness, improve accessibility, circulation, and safety, and contribute to the ambiance and identity of the park. The redesign of the park will also provide upgrades to park amenities such as restrooms, playgrounds, performance and gathering spaces, and site furnishings improving the overall experience of the park.

Master Plan Goals

- Develop overall park cohesiveness.
- Strengthen physical/visual connections internally and externally.
- Enhance sense of identity.
- Improve ambience.
- Increase sustainability.
- Improve accessibility.
- Update amenities.

MASTER PLAN PROCESS

The City of Sebastopol Planning Commission and City Council/Community Development Agency provided a series of recommendations for improvements to Ives Park. These recommendations served as a starting point for identifying overall goals and elements for the development of the park.

The Conceptual Master Plan for Ives Park was developed with input from the City and the community over public meetings and meetings with various organizations.

06/01/12: Meetings held with the Cajun Festival organizers, Creek Stewards and the Ives Park Pool Manager.

06/03/11: Conference call with the Apple Blossom festival organizers.

06/07/11: Conference call with the County Public Facilities Manager.

06/28/11: Planning Commission Presentation with public comment.

10/16/12: Meeting with the Creek Stewards.

10/23/12: Planning Commission Presentation with public comment.

10/10/12: Meeting with the Charter School and the director for the Center for the Arts.

11/12/12: Planning Commission Discussion.

02/06/13: Presentation to City Council with public comment.

<u>Desired components from the public outreach process</u>

- Restore Calder Creek to a more natural state.
- Improve access and circulation.
- Increase visibility and safety.
- Upgrade park amenities - restrooms, playground, stage, bridges, site furniture, fencing, lighting.
- Include into park the island at Jewell Avenue and Willow Street.
- Improve planting.
- Incorporate sustainable stormwater and irrigation measures.
- Remove fencing around creek.
- Install interpretive/educational signage.

ACCESSIBILITY

The guidelines listed in this report are intended to convey to City Staff general information regarding accessibility standards and recommendations for compliance. Guidelines for accessibility design are continually changing as the Federal Access Board incorporates new standards in to the Americans with Disabilities Act of 1990, creating new guidelines effective March 15, 2012. It should be noted that generally, existing facilities, while subject to certain ADA requirements, are not addressed by ADAAG except where altered. Additional information can be found though the following sources:

- California Code of Regulations (CCR), Title 24 (T24), part of the California building code (CBC).

- Americans with Disabilities Act Accessibility "Guidelines for Buildings, Facilities and Outdoor Recreation" (ADAAG) which includes the "Accessibility Guidelines for Recreation Facilities," June 2003 (03 AG)

- "Regulatory Negotiation Committee on Accessibility's Guidelines for Outdoor Developed Areas (99 AG).

<u>ADA Playground Guidelines</u>
American Society for Testing and Materials
F-1487-07: standard Consumer Safety Performance Specification for Playground Equipment for Public Use.
F-2223-04: Standard Guide for ASTM Standards on Playground Surfacing

Consumer Product Safety Commission (CPSC) Handbook for Public Playground Safety.

United States Access Board Accessibility Guidelines for Play Areas.

United States Consumer Product Safety Commission (CPSC) National Electronic Injury Surveillance System (NEISS)

MASTER PLAN IMPROVEMENT ZONES

For the purpose of project phasing, the proposed park improvements have been broken into 11 separate zones. See the Appendix F for a diagram map of these zones.

1. Entrance Accessibility
2. Art Entry Zone
3. North Creek Restoration
4. South Creek Restoration
5. Picnic & Passive Play Zone
6. Pool Perimeter Improvements
7. Ballfield Perimeter Improvements
8. New Restroom
9. New Play Area
10. Performance Zone
11. Corner Capture

In addition to zone improvements, general park improvements, which relate to the park as a whole, have been divided out into a separate section.

Zone 1: Entrance Accessibility
The Entrance Accessibility zone is subdivided into 4 major park entrances. The park's topography presents accessibility challenges at each entry point that need to be addressed. Entry points along Willow Street have the greatest set of challenges due to the higher grade differential.

Goal
To improve accessibility, safety and park identity.

Entrance Point A Improvements
Entrance point off of Willow Street north of the pool. This park entry point is also shared with Ives Pool. In order to enter Ives Park at this point, you must currently walk down one flight of stairs to the first landing where the path intersects. From here, the path travels in a counter clockwise curve to ground level. The slope of this path exceeds recommended accessible grades.

It is recommended that the path connect at the top stair landing to increase accessibility and circumvent the flight of stairs. It is also recommended that the path be regraded to include a series of 3 accessible ramps, not exceeding 8.33% in slope. These ramps should include appropriate landings and handrails per code.

Entrance Point B Improvements
There are 2 entrances in this stretch located off of Willow Street, south of Ives Pool.

The first entrance, closest to the pool, also serves as maintenance vehicular access to the park. The path arches clockwise, traveling down to access the picnic tables. The path's slope currently exceeds recommended accessible grades. It is recommended that the path be regraded to include 1 accessible ramp, not exceeding 8.33% in slope and the remaining path to be graded under 5% slope.

The second entrance is closer to the intersection of Willow Street and Jewell Avenue. It is a smaller minor park entrance that is used to access the picnic areas from Willow Street. Due to the lack of space and the grade changes from street level to park level, it is recommended that a staircase of 4 stairs be installed.

Entrance Point C Improvements

Entrance point off of Jewell Avenue near the redwood grove: a staircase of 3 steps exists at this location. The grades of the walk from Jewell Avenue to the staircase and from the staircase into the park exceed recommended accessible grades.

It is recommended that the staircase be replaced with a new staircase consisting of 6 steps. In addition, it is recommended that an accessible switchback ramp be installed in conjunction with the new staircase. The installation of a new staircase and an accessible ramp would provide park users two options to enter the park. The stairs will provide the quickest access, while the ramp will provide an accessible path of travel.

Entrance Point D Improvements

Entrance point from the Sebastopol Fire Department on Bodega Avenue: this entrance, located behind the baseball backstop, is primarily used by pedestrians from Bodega Avenue. It is not visible from the street. It contains a ramp and 13 stairs leading down to park grade.

It is recommended that a switchback accessible ramp be installed alongside the stairs. The installation of a new staircase and an accessible ramp would provide park users two options to enter the park. The stairs will provide the quickest access while the ramp will provide an accessible path of travel.

Zone 2: Art Entry

This zone is located between the Veterans Memorial parking to the north and an Ives Park walking path that runs parallel to Calder Creek. The area is currently planted with turf grass and is primarily used only during festivals as tent space. This entry zone is often a visitor's first impression when walking on Main Street. This zone provides an opportunity to showcase artwork by the Sebastopol Center for the Arts, located in the Veterans Memorial building.

Goal

To better utilize this area as a major park focal and welcoming point and create identity through the use of outdoor public art.

Improvements

- Install sculpture garden along entry walk from High Street – install concrete pads that can accommodate rotating sculptural art exhibits
- Update flatwork to be ADA compliant and develop new entry node at High Street entrance. This includes paving that will differentiate the area as an entry node, decorative planting and a new park entrance sign
- Plant no mow fescue in order to reduce maintenance costs and water use
- Improve seating and trash receptacles

Calder Creek Restoration (Zone 3 & 4)

Calder Creek is the key feature and natural resource of the park, but perimeter chainlink fencing and steep walls make it inaccessible and visually unappealing. The creek bisects

the major use areas and therefore is also a major contributor to the parks incohesive and fragmented feel.

The proposed creek improvements are divided into two sections, north and south, with the dividing line at the existing central bridge. These sections were divided based on their existing conditions. The south creek section is the most naturalized portion of the creek and the northern section is channelized with walls. Cost estimates for each section were made assuming the sections would be improved independently. In the case that both areas are restored concurrently, the costs related to site preparation would be reduced.

Goal

To naturalize the creek for visual, accessible, environmental and educational purposes. The creek should become the central element, or spine, that links all park features together creating a more unified park.

Zone 3: Calder Creek North Creek Restoration

The restoration of the north section of Calder Creek proposes to remove a large portion of the concrete channel and fencing to restore the channel and improve access. The area designated for the restoration would be expanded beyond the existing channel into the rose garden and requires the relocation of the northern bridge. For safety purposes, it may not be possible to remove all of the fencing as part of the restoration. It is recommended that the remaining fencing be replaced with more aesthetically pleasing fencing.

Improvements

- Restore and realign creek channel providing naturalized creek profile
- Remove all chainlink fencing along creek
- Install new decorative guard rail where creek wall is to remain
- Remove hazards/patch and repair creek walls that are to remain
- Install new bridge at north end capable of holding maintenance vehicles
- Replace central bridge
- Add natural creek edge and seating
- Add new accessible entry plaza at entrance from Veteran's Building parking lot
- Thin vegetation at "onion patch"
- Install interpretive signage about the creek ecology and its history

Zone 4: Calder Creek South Creek Restoration

In the "meadow" area, the creek is released from the confines of its concrete channel and was, at one time, flooded to create a pond. The proposed plan slightly enlarges this area by moving the wall at the back of the baseball field to capture space. The fence would be removed and the creek channel restored allowing for planting of native riparian species. Accessibility and usage of the area both improve by replacing the central bridge and installing natural seating along the edges.

Improvements

- Remove chain link fencing and guardrails
- Restore creek channel
- Add natural creek edge and seating
- Move wall at back of ball field to capture space
- Install interpretive signage about the creek ecology and its history

Zone 5: Picnic and Passive Play Zone
This turf open space, located between Ives Pool and the Veterans building, provides an informal space for people to gather, picnic, play games, and enjoy passive activities. The master plan relocates the playground from this zone and as a result creates a larger space that is more open and better connected to Calder Creek.

Goal
To provide better park connections, provide better perimeter visibility and to create a large, passive multi-use space.

Improvements
- Provide a new large central green space by relocating playground to area adjacent to Jewell Ave entrance and new restroom facilities
- Install trellis structure and seating area that could be used as a secondary performance space
- Remove shrubs separating the park from Veterans' Hall parking lot
- Install new entrance points from Veterans' Hall parking lot into park
- Install stormwater filtration garden
- Install new picnic areas

Zone 6: Pool Perimeter Improvements
Ives Pool is visually disconnected from the rest of the park. Visitors of the pool can not see out into the park, and visitors of the park can not see into the pool. The proposed plan replaces the existing opaque slat chain-link fencing with one that provides visual access between the pool and the park, creating a greater sense of integration. Additionally, the perimeter planting area outside the fence provides an opportunity for the addition of gardens and bioswales. The plan proposes to install edible gardens in this area that both screen pool infrastructure and provide a garden with which the community can interact.

The Swimmers group is anticipating expanding the women's locker room by 296 square feet. The addition would be located on the front of the pool house building and extend east toward the Veteran's Hall. The board is also considering enclosing an alcove located underneath the solar paneled roof on the north side of the facility to create a meeting room. They would also like to potentially construct a storage room at the northwest corner of the facility.

Goal
To increase visibility and integration with the park

Improvements
- Replace existing opaque slat chain-link fence with transparent fencing that is aesthetically pleasing
- Remove concrete stage at west end of pool
- Install edible gardens
- Screen pool equipment with planting

Zone 7: Baseball Field Perimeter Improvements
Polley Field is visually separated from the park with a billboard lined chain-link fence. The linear space on the north side of the field between the residential houses is largely unused space. The goal is to activate and utilize this area as parkland.

Goal
To increase visibility and integration with the park

Improvements
- Remove selected billboards at baseball field to increase visibility
- Add planting along outfield perimeter to soften edge
- Install new perimeter path behind the baseball field

Zone 8: Restroom Improvements
It is recommended that the park consolidate its two restrooms into one new restroom. The structure should be vandal resistant, ADA compliant, contain an external drinking fountain and designed to be aesthetically fitting for Ives Park. The floor plan should consist of separate women's and men's rooms with a minimum of 2 stalls each. It should also include a storage/mechanical room and a concession room able to prepare and heat prepackaged foods and beverages. Floor plans should be reviewed by the City and park users to determine appropriate room sizes based on usage.

Goal
Provide a safe and clean restroom and concession facility for park users and nearby access from the new playground and ballfield.

Improvements
- Convert existing park restroom at Ives Pool into storage for pool needs
- Replace existing restroom and concession stand at ballfield with a new prefabricated structure. New restroom to include drinking fountain and snack bar area

Zone 9: New Play Area
The existing location of the playground sits very close the creek and is surrounded by chainlink fencing. It obstructs views and access to the turf open space and impedes the central walk running parallel to the creek. During larger events, this area becomes a pinch point. It is recommended that the playground be relocated next the new restroom. This location will provide greater visibility and better access to restrooms. It will also allow a parent who has one child playing ball to have another close by playing on the playground.

New play equipment should focus on themed and imaginative play opportunities with sensory and creative play features. The equipment should be age-specific, made from sustainable materials and be accessible. New play structures on the market are providing greater accessibility and play value than the traditional post and platform structures. The theme and materials used in the play equipment should represent and fit within the park context. The layout of new play equipment should be coordinated with rubberized safety matting, shade elements, a sand play feature and perimeter seatwalls. Benches should be located throughout the area providing places for parents to sit and watch their children. The play area footprint should be modified to meet the fall zone requirements. Improvements to the playground should comply with ASTM Standard Specifications, the Americans with Disabilities Act, the U.S. Consumer Product Safety Commission and the National Playground Safety Institute.

Goal
Provide a safe, active, and imaginative play area for kids of all ages and abilities

Improvements

- Relocate playground as shown on master plan
- Install diverse types of play equipment to encourage a variety of active play as well as social and creative play
- Separate tot and school age play areas
- Incorporate perimeter seatwalls and interior bench seating
- Install shade structures or trees
- Install resilient matting play surfacing for accessibility
- Install perimeter safety fencing

Zone 10: Performance

Two stages exist in Ives Park: a wood stage and a concrete stage. The Sonoma County Repertory Theater utilizes the larger wood stage for productions during the summer months. The wood stage faces three issues: it is not ADA compliant, the location does not provide adequate space for the audience, and there is concern about the longevity of the structure. In response, the plan proposes to create a larger lawn area by covering the creek channel, install a new, larger and accessible stage in the current stage location, and move the central picnic areas to the edges of the space. A perimeter path would provide access to the western side of the area where new picnic areas and edible gardens would be installed. Because the concrete stage is rarely used and its location is undesirable, it is recommend that it be removed.

The recommendation to cover the existing portion of the creek in zone 10 serves as a balance between active and natural spaces. By creating more usable park active space in Zone 10, it allows for the full creek restoration in zones 3 and 4. Returning the creek to a natural state in zone 10 would have resulted in the removal of redwood and oak trees. It would have also required a large amount of space, due to the depth of the creek in this location.

Goals

- Provide a balance of active and passive natural space.
- Provide a large flat open space for park events and festivals.
- Increase visibility and connectivity.
- Provide a variety of picnicking opportunities.

Improvements

- Cap creek channel from corner to vehicular bridge to form a large central green space.
- Replace pedestrian bridge
- Re-grade lawn area to a maximum 2% slope.
- Add perimeter path.
- Install new stage with accessible ramp.
- Relocate picnic areas from center to perimeter.
- Remove failing redwoods; plant new trees.
- Remove hedges at edges for increased visibility.
- Plant edible gardens along the western edge of the park adjacent to Jewell Ave.
- Install stormwater treatment areas.

Zone 11: Corner Capture

The existing corner of Willow Street and Jewell Avenue contains a separate right turn lane, traveling from Willow to Jewell Avenue. This lane is separated from the intersection by a planted island containing 2 trees. There have been instances of cars speeding around this corner since there is no required stop. This poses a safety concern when pedestrians approach this corner.

The master plan proposes to remove the separate turn lane and capture it, along with the existing island, as park space. This new park space is proposed as an interpretive garden, potentially including native plants and plants used by the Native American peoples.

Goals

- To increase park space by converting underutilized paved street space
- To increase pedestrian safety at street crosswalks

Improvements

- Remove paved turning lane
- Connect new sidewalk with existing sidewalk
- Plant new trees and groundcover
- Install an interpretive garden
- Install decomposed granite paths through interpretive garden

GENERAL PARK IMPROVEMENTS

Site Improvements

The City has identified numerous aspects of the park that are in need of attention including pathways and access, site furnishings, play equipment, landscaping and irrigation, fencing, lighting, security, and restrooms. The master plan includes overall circulation system for the park that provides a network of asphalt paths that connect the various activity areas and facilitates passive recreation. The circulation paths vary from 6 to 16 feet in width, with the main circulation path being 12 feet wide. Site furnishings along the paths shall include trash and recycling receptacles, benches and security lighting. The paths will be designed and constructed to accommodate maintenance and/or emergency vehicles. The majority of these improvements are made within the individual zones, however, some improvements such as electrical and irrigation infrastructure need to be addressed on a site-wide basis.

- Improve electrical infrastructure
- Improve water infrastructure
- Update irrigation system with smart controller
- Incorporate water saving strategies
- Install educational signage about park history and ecology
- Replace park lighting with improved security lights

Entry Features

There are three main access points into Ives Park from the surrounding neighborhoods: one on each of Jewell Ave, Willow St, and S. High St. In order to signify and call attention to these entrances, the plan proposes the addition of an entry feature at all major entrances. The features could consist of decorative overhead structures, sculpture, special paving, planting, or signs. All entry features would work to strengthen the park's identity and highlight the importance of the major park entrances.

Park Signage

To help community members navigate the park, signage describing and locating individual park amenities will be provided. Signs will be located at all entry and high traffic nodes in and around the site. The signage will be developed to match the overall concept and design intent of the site.

- Install new entrance sign at S. High St entrance

Off-site Improvements

The plan identifies several ways in which small additions to the areas adjacent to the park would improve safety and access. Installing crosswalks with bump outs would help slow traffic and increase safety for pedestrians crossing into the park.

- Improve pedestrian safety by adding bulb outs and crosswalks at major crossings

Connections Beyond the Park

Ives Park occupies a prominent position near the center of Sebastopol, being one block from the South Main St commercial district and several more from the Joe Rodata trailhead. The proximity of the park to these features provides an opportunity to create physical and visual access between them. The plan proposes to provide a framework for establishing these connections in order to increase safety and accessibility for pedestrians moving between the nearby features.

4 FUNDING

FUNDING

The primary City source for park improvements has been the Park Impact Fee Fund, which receives revenues from impact fees paid by residential development. The fund is far from adequate to implement the Master Plan. Little residential development is anticipated in the foreseeable future. No funding is currently available for improvements.

Ives Park improvements should be considered in light of funding, staffing, and maintenance constraints to develop plans or accomplish implementation.

This section provides future grant sources, granting foundations and other fund-raising options related to Ives and is broken down into the following sub-sections:

Fund-Raising, Social Media, Community Outreach and Private Donations

- Project Preparation for Applications (Community Input, Sustainable Design and CEQA/NEPA Compliance, CCC)
- Grant and Funding Opportunities
- Additional Funding Sources
- Additional Resources

Those seeking funding for park renovation must be diligent and persistent in seeking out and competing for grant and foundation funds. Despite the variety of federal, state, local and private funding sources, historically and for the foreseeable future, there are more projects than funding available. Typically most granting agencies have annual cycles. Since deadlines can be extended and funding renewed, these identified sources should be reviewed on a regular basis for updated information.

Fund-Raising, Social Media, Community Outreach and Private Donations:
Creating awareness of any potential project will be critical in raising private donations and having a successful fund-raising campaign. It is expected that a slogan for any Ives Park project would be a highly effective marketing tool. Creating a clear and concise message for potential donors and partners will be critical for ongoing donation requests.

A web-site exclusively for Ives Park could also be developed as a fund-raising tool. To aid in any identified future project fund-raising, additional information could be added to this page. Creating a compelling story, including the historical uses of the site along with the project funding need, would immediately reach all patrons searching for additional information on the project. A "Donate Now" button on the web-site will also allow for residents and park patrons to give money immediately to the project.

Several options are available to create a "Donate Now" button. Network for the Good (www.support.networkforgood.org), is a national non-profit that provides tools for online fund-raising. Instant donations and up-to-date donation tracking information is all available immediately with just one click. This is a good option for project specific fund-raising, as it eliminates questions of where donations will be going or how much funding has been raised.

The utilization of free and popular social media platforms in conjunction with a project web-site, is recommended. Keeping the public informed is critical in raising awareness

and making a successful fundraising campaign. Facebook is currently one of the most popular social media platforms and are already used by the city. Social media platforms will organically spread the awareness of the funding need for the project. These platforms are also great for keeping residents informed of construction schedules and other project updates.

Project Preparation for Applications (Community Input, Sustainable Design and CEQA/ NEPA Compliance, CCC)

Recently, the California Office of Grants and Local Services (OGALS) created new guidelines for many of the grants in which they administer. New guidelines focus on project readiness, sustainable design and community involvement. Nearly all State funding is requiring projects to focus on green or sustainable building. Incorporating green elements where possible will help prepare the project to be competitive for future funding. In addition, there are other funding opportunities to promote green building that can be explored more fully as the project scope is further developed.

Community input is also very important for successful grant writing. It is recommended that at least five community meetings take place for any project within the park. This way the project will meet the minimum requirements of several OGALS grant guidelines. Community input may be in the form of a meeting dedicated to the project, presentations to local boards or informational booths at local community events. The Master Plan process can be used to meet the requirement for five meetings.

Additional key elements to prepare for applications include:

- CEQA or NEPA compliance. Preparation of these documents will show project readiness and are required for State and Federal applications
- Raising at least a portion of the project costs with local sources. This will demonstrate community commitment and will provide a source of matching funds
- Incorporation of the California Conservation Corps (CCC) with the project. In many cases grants will award more points for projects that work in conjunction with the CCC or the local chapter of the CCC (Conservation Corps North Bay). Having a letter of commitment from the local CCC office will ensure these points will be awarded.
- Grants.gov is used by several granting agencies. If the City is unfamiliar with the Grants.gov application process, it is highly recommended that a DUNS number is requested and a project administer is assigned. These processes may take several weeks and will help with the application process.
- Partnerships with local non-profits are also looked upon favorably by several of the granting agencies. Establishing these partnerships early on will demonstrate project readiness, community commitment and additional support.

Grant and Funding Opportunities

<u>California Youth Soccer and Recreation Development Grant</u>
Intended for the acquisition or development of land and/or facilities to improve the

communities access and use for youth soccer, baseball, softball and basketball opportunities. This is not a matching program, but those communities willing to match funds will be more competitive in the selection process.
http://www.parks.ca.gov/grants

Cal Ripken Sr. Foundation Grants
The Cal Ripken, Sr. Foundation provides a variety of grants to community groups and schools that meet their eligibility requirements, in order to support the growth of youth baseball and softball, as well as promote character growth in children. Please visit the title link for information about the grants and downloadable applications.
http://www.ripkenfoundation.org/grants/grant/

Baseball Tomorrow Fund
The Baseball Tomorrow Fund is intended to provide funding for incremental programming and facilities for youth baseball and softball programs, not as a substitute for existing funding or fund-raising activities. Baseball Tomorrow Fund generally considers projects that include capital expenditures for youth baseball and softball programs such as baseball/softball equipment and uniforms, basic baseball/softball field renovations and construction (e.g. infield mix, sod/seeding, bases, dugouts, fencing, field lighting, irrigation system, grading, etc.)
http://mlb.mlb.com/mlb/official_info/community/btf.jsp?content=about

Nature Education Facilities Program
The NEF will fund projects for development of nature education facilities, buildings, structures and exhibit galleries that present collections to inspire and educate the public and for marine wildlife conservation research equipment and facilities. This grant was offered in 2010. It has not been determined whether it will be available in future years.
http://www.parks.ca.gov/?Page_id=26026

American Academy of Dermatology- Shade Structure Grant Program
The American Academy of Dermatology offers a Shade Structure Grant program with grants of $8,000 each to fund permanent outdoor shade structures designed to provide shade and ultraviolet ray protection. The program awards grants on an annual basis.
http://www.aad.org/public/sun/grants.html

KaBOOM! Community Partnership Grants
KaBOOM! is a national non-profit that envisions a place for children to play within walking distance to local residences in North America.
http://www.kaboom.org/

Lowe's Charitable and Educational Foundation
Support for education and community improvement: Lowe's Charitable and Educational Foundation awards more than $1.5 million annually to individuals and organizations across the United States. Founded in 1957, the Foundation's primary philanthropic focus areas include community improvement projects, education scholarships for trade disciplines and environmental initiatives that enhance the natural environment.
http://www.lowes.com/lowes/lkn?action=pg&p=AboutLowes/Community

Urban Park and Recreation Recovery (UPARR)
Since 1978, the UPARR program awarded nearly $272 million for 1,461 grants to 380 local jurisdictions in 43 States, the District of Columbia and Puerto Rico. UPARR grants provid-

ed recreation opportunities for all ages, all ethnic groups, and people with and without disabilities, senior citizens to at-risk youth, latchkey children, and young adults.
Types of recreation facilities rehabilitated through the UPARR program include:
playgrounds - recreation centers - ball fields - neighborhood parks
picnic areas - tennis courts & basketball courts - hike/bike/exercise trail
http://www.nps.gov/ncrc/programs/uprr/program_inbrief.html

Tire-Derived Product Grant Program
The California Department of Resources Recycling and Recovery (CalRecycle) offers the Tire-Derived Product (TDP) Grant Program to promote markets for recycled-content products derived from waste tires generated in California and decrease the adverse environmental impacts created by unlawful disposal and stockpiling of waste tires. Only one application per qualifying entity will be accepted. Eligible applicants include public entities which include: California cities, counties, public school districts, public colleges and universities, special districts, park districts, public recreational facilities, and state agencies (including offices, departments, bureaus, and boards).
http://www.calrecycle.ca.gov/Tires/Grants/Product/

Land and Water Conservation Fund
The purposes of the LWCF program is to assist in preserving, developing and assuring accessibility to all citizens of the United States of America of present and future generations a quality and quantity of outdoor recreation resources. LWCF funds can be used for acquisition or development. This source could likely be used for interpretative signage about the Marsh and possibly for dock improvements.

Applicants may not begin construction until a grant contract is fully executed. Projects will not be considered for funding if:

- The time line indicates that the project is not likely to be completed within the contract performance period and/or the applicant does not demonstrate that they, or their Project manager(s), are capable of completing the project within the contract performance period.

There is no minimum or maximum limit on grant request amounts, however it should be noted that in the 2011 cycle of funding there was only about $700,000 available for all of northern California.

- 50% match is required
- In 2011, $1,740,000 in funding was available, split 60% for southern California and 40% for northern California.

Ineligible Projects include, but are not limited to the following:
- Combination acquisition and development projects
- Interpretive facilities which go beyond interpreting the project site and its immediate surrounding area
- Convention facilities
- Commemorative exhibits and monuments

- Facilities marginally related to outdoor recreation
- Indoor facilities such as community centers and gymnasiums
- Facilities used primarily for spectator sports
- Acquisition, restoration or preservation of historic structures
- Employee residences

It should be noted, that all projects funded by the LWCF must be retained in perpetuity for public outdoor recreational use (Public Law 88-578, 16 U.S.C. 460l-6(f)(3)). At this time funding for the LWCF is limited. However, it is anticipated that new legislation will be signed and additional funding will be made available in the coming funding cycles.

Application guide available at:
http://www.parks.ca.gov/pages/1008/files/lwcf_app_guide_5-2010_draft.pdf

Habitat Conservation Fund

- There is no maximum or minimum grant request amount limit.
- There is a required non-state dollar-for-dollar match.

The Habitat Conservation Fund (HCF) Program allocates approximately $2 million per year to the California Department of Parks and Recreation for grants to cities, counties, and districts to provide for nature interpretation and other non-capital outlay programs which bring urban residents into park and wildlife areas, to protect fish, wildlife and native plant resources or to acquire or develop wildlife corridors and trails. This grant would apply to marsh restoration for Ives Park.

The HCF identifies seven categories that are eligible for funding. Applicants will need to refer to these guides in preparing their application. In addition, the Grant Administration Guide is available for additional information if funding is received.

- Deer/Mountain Lion Habitat (not applicable)
- Rare, Endangered, Threatened or Fully Protected Species Habitat
- Wetlands - http://www.parks.ca.gov/pages/1008/files/hcf_wetlands_guide-2010.pdf
- Anadromous Salmonids and Trout Habitat - http://www.parks.ca.gov/pages/1008/files/hcf_anadromous_guide-2010.pdf
- Riparian Habitat - http://www.parks.ca.gov/pages/1008/files/hcf_riparian_guide-2010.pdf
- Trails - http://www.parks.ca.gov/pages/1008/files/hcf_trails_guide-2010.pdf
- Wildlife Area Activities - http://www.parks.ca.gov/pages/1008/files/hcf_wildlife_guide-2010.pdf

Grant Administration Guide - http://www.parks.ca.gov/pages/1008/files/HCF_Grant_Admin_Guide-2010.pdf

Integrated Regional Water Management (IRWM) Grant program

- 25% match required

The IRWM Grant Program is designed to encourage integrated regional management of water resources and provide funding for projects that support integrated water management planning and implementation. This PSP works in conjunction with the IRWM Program Guidelines to disburse this first round of implementation grant funding under

the Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act 2006 (Proposition 84). Focus is on storm water management projects outside of the state plan of flood control that reduce flood damage.

Application guide available at:
http://www.water.ca.gov/irwm/docs/ImplementationGrants/Prop84_Round1/Imp_PSP_Final_07_20_10.pdf

Additional Resources and Potential Partners

Parks and Recreation Funding in California (Trust for Public Land)
This article is a good overview of the local, state and federal opportunities for funding related to parks and open space. Additional articles are linked within the document.

Additional information available at:
http://www.tpl.org/content_documents/hphc/hphc_ParksRecreationFundingCA.pdf

California State Parks Department
The State of California offers many opportunities for park and trail funding through grants on a yearly basis, however these change based on adopted yearly State budgets.
http://www.parks.ca.gov/?page_id=1008

The Foundation Center
Established in 1956 and today supported by close to 550 foundations, the Foundation Center is a national nonprofit service organization recognized as the nation's leading authority on organized philanthropy, connecting nonprofits and the grantmakers supporting them to tools they can use and information they can trust. Its audiences include grantseekers, grantmakers, researchers, policymakers, the media, and the general public. The Center maintains the most comprehensive database on U.S. grantmakers and their grants; issues a wide variety of print, electronic, and online information resources; conducts and publishes research on trends in foundation growth, giving, and practice; and offers an array of free and affordable educational programs.

Additional information available at: http://foundationcenter.org/

5 SUSTAINABLE STRATEGIES

SUSTAINABLE STRATEGIES

Sebastopol is a small, but progressive minded community that has taken action to reduce its environmental impact. The City has identified sustainability as an important goal of the City, with the adoption of such elements as the Sustainable Sebastopol Plan, Green Building Standards Code, and a Pest Management Plan based on integrated pest management principles.

The following are sustainable strategies that the City of Sebastopol may need either to legally comply with State and Federal Ordinances or to comply with their sustainability goals.

C.3 Stormwater Regulations

In 1972, the EPA created the National Pollutant Discharge Elimination System (NPDES) permit program, in an effort to improve water quality throughout the country. These controls, and specifically an NPDES permit, are intended to regulate point source pollutants that are discharged into U.S. waters. NPDES permits are administered typically by states. C.3 regulations are a provision of the NPDES permit and relates directly to the control of stormwater - specifically with regard to new development and redevelopment.

For any future park development or redevelopment in Ives Park, it will be required to meet the NPDES C.3 regulations. Prior to any construction, during early design phases, the City can reduce its impact on water quality by reducing impervious surfacing, use of green roofs, installing rain gardens, and creation of vegetated bio-swales. Prior to and during construction, such elements as an erosion control plan noting the BMP's (Best Management Practices) that will be used on site must be prepared along with implementation of control and treatment measures.

Sebastopol, as part of Sonoma County, must comply with the regulations under the Sonoma County Storm Water Pollution Prevention Program (MCSTOPPP). This program was formed in response to the standards set by the Federal Clean Water Act and Water Quality Control Plan for the San Francisco Bay Region. The requirements of this program apply to both private and municipal capital improvement projects and address such issues as BMP's treatment measures, control measures (quality and quantity), and site design principles.

Although the City should always keep storm water runoff control and quality as a top priority during any type of planning and construction, it should pay special attention to those areas of the park adjacent to the marsh. This is a great opportunity to undertake projects which protect this fragile natural resource, while also using the projects as an educational tool to inform the public of the importance of storm water reduction and water resource protection.

Green Building and Construction

There is great opportunity to use sustainable strategies through thoughtful use of landscape materials and green building practices which will supplement the adopted Green Building Standards Code. National programs such as the LEED (Leadership in Energy and Environmental Design) rating system is a voluntary program that provides guidelines for a wide range of building projects with many "'points"' awarded to the use of sustainable materials and practices in the landscape, www.usgbc.org. Another program, the Sustainable Sites Initiative, is more landscape focused and provides "voluntary national guidelines and performance benchmarks for sustainable land design, construction and maintenance practices."

Below is a summary of different ways to make Ives Park more sustainable:

- Use restroom facilities that incorporate green building designs including low water use fixtures. These buildings should be educational opportunities and also integrate all aspects of green building design.
- Specify landscape materials and site furnishings which utilize post and pre-consumer recycled material, and/or are constructed from materials that are easily recyclable; and/or from

those manufacturers which practice energy efficiency, minimize resource consumption and lessen their overall impact on the environment. Examples of such materials include, but are not limited to: fly ash, aluminum, plastic, bamboo and steel.

- Promote the use of regional materials, by incorporating landscape materials extracted, harvested or recovered as well as manufactured or grown, within 500 miles or less from Sebastopol.

- Include both abundant planting of shade trees and the use of paving that is light in color and/or pervious wherever possible. Heat island Effect is caused by dark, non-reflective surfaces such as asphalt, which absorb and radiate heat, raising the surrounding temperatures. Planting shade trees in conjunction with any paved area will help to reduce heat island effect.

- Use lumber that is sustainably harvested. Many of the wood products used today are from trees harvested from around the world. Purchasing products that are Forest Stewardship Council (FSC) certified helps to guarantee that the wood used was obtained through sustainable methods that help protect and manage forests properly.

- Select furnishings and materials that do not require intensive maintenance such as painted surfaces or materials that are susceptible to rust and weathering.

- Use plants and landscape materials that are durable, drought-tolerant and low-maintenance. Specify plants that do not produce excessive litter or require excessive pruning. Purchase plant materials from vendors who practice sustainable plant production. Use organic soil amendments and organic, slow-release fertilizers (non-petroleum based).

- Reduce the use of potable water for irrigation.

- Ensure all maintenance personnel are trained in proper pruning techniques based on species and/or managed by a certified tree care professional.

- Promote composting of on-site materials generated through maintenance practices (wood chips, lawn trimmings) and use in the landscape. Collect and compost excess organic materials such as limbs or leaf litter that may contribute to fire fuel loads.

- Create a landscape monitoring plan and checklist to detect plant health or potential problems, including introduction and control of invasive species.

- Properly maintain all gas-powered maintenance equipment. Incorporate non-gas powered technology as it becomes available to minimize both air and noise pollution.

- Limit the use of high-pressure blower machinery to reduce the removal of natural duff and mulch which plays an important role in weed control, nutrient cycling and soil moisture retention. Balance this effort with all fire safety guidelines.

6 APPENDIX

APPENDIX A
AERIAL PHOTO

PROJECT

Ives Park Renovation Master Plan - Site Aerial

Sebastopol, Ca

MONTH 06 DAY 01 YEAR 2011

RHAA

// Royston Hanamoto Alley & Abey Landscape Architects and Planners

APPENDIX B
EXISTING CONDITIONS SURVEY

LEGEND

- TURF
- STAGE
- PLAYGROUND
- CIRCULATION
- CREEK
- PICNIC
- PLANTED AREAS

LITTLE LEAGUE POLLEY FIELD

LITTLE LEAGUE RESTROOM & CONCESSION

ENTRANCE

JEWELL AVE.

PICNIC PADS

BRIDGE

SHAKESPEARE STAGE

PICNIC PADS

ENTRANCE

BRIDGE

PLAYGROUND

ROSE GARDEN

"ONION PATCH"

BRIDGE

ENTRANCE

ENTRANCE

S HIGH ST.

S HIGH STREET

PUBLIC RESTROOMS

IVES POOL

CONCRETE STAGE

OPEN TURF

ENTRANCE

POOL ENTRANCE

PICNIC PADS

VETERANS BUILDING

ENTRANCE

ENTRANCE

ENTRANCE

WILLOW STREET

WILLOW ST.

scale 1" = 30' feet

PROJECT

Ives Park Renovation Master Plan - Existing Conditions Site Survey

Sebastopol, Ca

MONTH 06 DAY 28 YEAR 2011

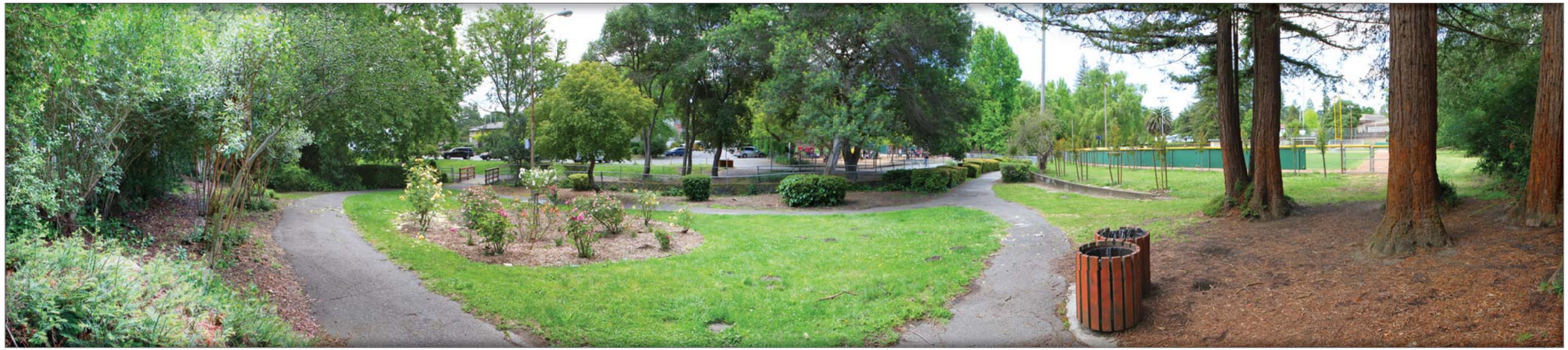
RHAA

// Royston Hanamoto Alley & Abey Landscape Architects and Planners

APPENDIX C
SITE PHOTOS

SEBASTOPOL PIPER PARK - SITE PHOTOS

SEBASTOPOL PIPER PARK - SITE PHOTOS



SEBASTOPOL PIPER PARK - SITE PHOTOS

APPENDIX D
PREVIOUS PLAN ALTERNATIVES

Alternative 1

Alternative 2

Alternative 3

APPENDIX E
MASTER PLAN

Creek improvements
1. Remove chain link fencing & guardrails. Remove safety hazards from creek walls. Patch and repair creek wall as necessary. Restore natural channel in meadow area and rose garden area; underground creek in picnic area. Expand to rose garden area. Remove central bridge and relocate northern bridge. Add natural creek edge and seating.

Site improvements
2. Install sculpture garden along entry walk from High Street.

3. Install new ADA ramp and stairs, develop new entry node.

4. Install new ADA ramp.

5. Update flatwork to be ADA compliant & develop a new entry node.

6. Convert existing park restrooms into storage for pool needs.

7. Remove selected billboards at baseball field to increase visibility and add shrubs .

8. Provide new large central green space by relocating playground (see 14).

9. Cap creek to form a large central green space and relocate picnic areas along a new perimeter walk.

10. Install new stage.

11. Install a new perimeter path behind the baseball field.

12. Relocate pool fencing along Willow Street to allow more space for pedestrians. Install planting to screen chain link fencing. Replace sections of the perimeter pool screen with transparent panels to allow for more visibility and park connection

13. Remove existing baseball restroom structure and install new prefabricated restroom structure with new drinking fountain that accomodates the park and baseball users.

14. Install new trellis/seating/performance area

15. Install new entrance gateway features

Playground improvements
16. Relocate new playground adjacent to open turf park area and restrooms. Install diverse types of play equipment to encourage a variety of active play as well as social and creative play.

Planting improvements
17. To improve security and access, reduce or remove areas of perimeter planting along Jewell Ave. and Willow St.

18. To improve security and access, reduce or remove areas of perimeter planting between the Veterans Hall and the park

19. Replace redwood trees that are in declining state. Move to edge of turf to open up area for informal use.

20. Remove and thin out planting at the "onion patch."

21. Remove and thin out planting between the baseball field and residential lots. Coordinate with home owners.

22. Install edible gardens.

23. Install bio-basin / stormwater filter

24. Remove concrete stage at west end of pool.

25. Convert turning lane to parkland and interpretive garden.

Off-site improvements
26. Look for opportunities to provide direct pedestrian access to South Main Street

27. Improve pedestrian safety by adding bulb outs and crosswalks at major crossings.

General
- Update irrigation system and incorporate water savings strategies.
- Install educational signage about park history and ecology.
- Replace park lighting with improved security lights.
- New site furnishings (lighting, benches, trash receptacles,recycling, drinking fountains).
- New park planting to be native.
- Asphalt & concrete flatwork to be replaced; install root barriers.

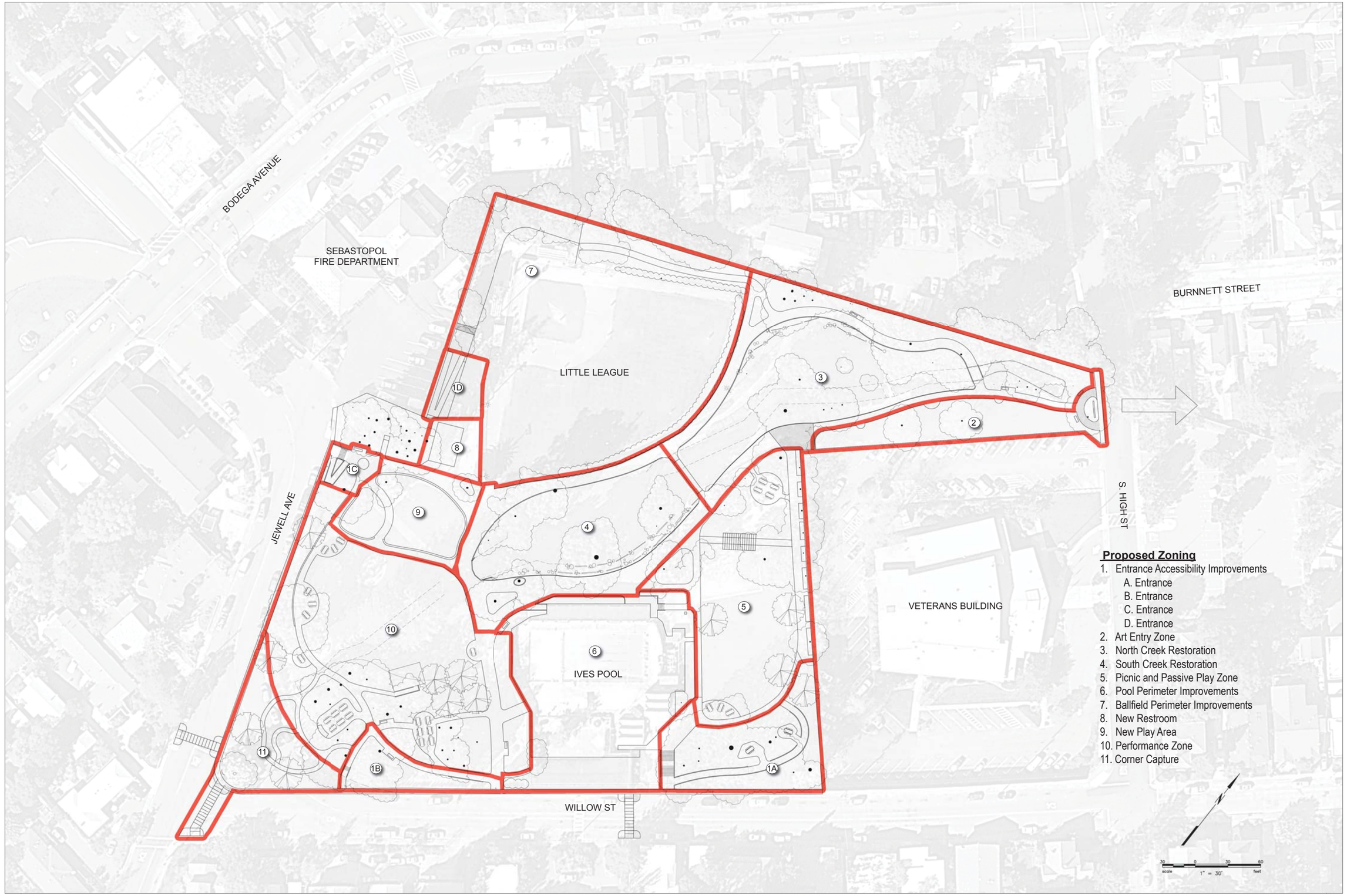
scale 1" = 30' feet

PROJECT
Ives Park Renovation Master Plan - Proposed Master Plan
Sebastopol, CA

MONTH DAY YEAR
01 23 2013

RHAA
// Royston Hanamoto Alley & Abey Landscape Architects and Planners

APPENDIX F
ZONE DIAGRAM



PROJECT

Ives Park Renovation Master Plan - Proposed Master Plan

Sebastopol, CA

MONTH 1 DAY 23 YEAR 2013

RHAA

// Royston Hanamoto Alley & Abey Landscape Architects and Planners

APPENDIX G
MASTER PLAN COST ESTIMATE

Ives Park Master Plan							
Sebastopol, CA							
Zone 1 - Accessibility Improvements							
preliminary cost estimate 11/06/2012							
		Item	**Qty.**	**Unit**	**Cost**	**Total**	**Notes**
Zone 1A							
A.	**Site Preparation**						
	1.	Site survey and layout	1	ls	$2,000	$2,000	
	2.	Site clearing, grubbing & demolition	11,650	sf	$0.15	$1,748	
	3.	Rough grading	11,650	sf	$0.51	$5,942	
	4.	Demo AC paving	2,626	sf	$3.00	$7,878	
	5.	SWPPP_High risk site	0.10	ac	$20,000.00	$2,000	
					Sub-Total	$19,567	
B.	**Site Amenities**						
	1.	Receptacles (trash & recycling)	1	ea	$2,000.00	$2,000	
					Sub-Total	$2,000	
C.	**Site Improvements**						
	1.	AC- 2" over 6" Base- Pedestrian	1,681	sf	$4.50	$7,565	
	2.	Concrete ramp with railing	157	lf	$210.00	$32,970	
	3.	Concrete stairs	230	sf	$70.00	$16,100	
	4.	Concrete curb	366	lf	$22.00	$8,052	
	5.	Railing	38	lf	$150.00	$5,700	
					Sub-Total	$70,387	
D.	**Planting & Irrigation**						
	1.	Irrigation improvements	8,830	sf	$1.00	$8,830	
					Sub-Total	$8,830	
			Zone 1A Construction sub-total			**$100,784**	
		30% Design and construction contingencies and professional services				**$30,235**	
					Zone 1A Total	**$131,019**	
Zone 1B							
A.	**Site Preparation**						
	1.	Site survey and layout	1	ls	$2,000	$2,000	
	2.	Site clearing, grubbing & demolition	4,032	sf	$0.15	$605	
	3.	Rough grading	4,032	sf	$0.51	$2,056	
	4.	Demo AC paving	1,831	sf	$3.00	$5,493	
	5.	SWPPP_High risk site	0.10	ac	$20,000.00	$2,000	
					Sub-Total	$12,154	
B.	**Site Amenities**						
	1.	Benches	1	ea	$1,400.00	$1,400	
	2.	Receptacles (trash & recycling)	1	ea	$2,000.00	$2,000	
					Sub-Total	$3,400	
C.	**Site Improvements**						
	1.	AC- 2" over 6" Base- Pedestrian	1,143	sf	$4.50	$5,144	
	2.	Concrete ramp with railing	32	lf	$210.00	$6,720	
	3.	Concrete stairs	20	sf	$70.00	$1,400	
	4.	Concrete curb	64	lf	$22.00	$1,408	

		Item	Qty.	Unit	Cost	Total	Notes
	5.	Railing	8	lf	$150.00	$1,200	
					Sub-Total	$15,872	
D.	**Planting & Irrigation**						
	1.	Irrigation improvements	2,677	sf	$2.00	$5,354	
					Sub-Total	$5,354	
			Zone 1B Construction sub-total			**$36,780**	
		30% Design and construction contingencies and professional services				**$11,034**	
					Zone 1B Total	**$47,814**	

		Item	Qty.	Unit	Cost	Total	Notes
Zone 1C							
A.	**Site Preparation**						
	1.	Site survey and layout	1	ls	$2,000	$2,000	
	2.	Site clearing, grubbing & demolition	1,752	sf	$0.15	$263	
	3.	Rough grading	1,752	sf	$0.51	$894	
	4.	Demo AC paving	1,000	sf	$3.00	$3,000	
	5.	SWPPP_High risk site	0.10	ac	$20,000.00	$2,000	
					Sub-Total	$8,156	
B.	**Site Amenities**						
	1C						
	1.	Benches	1	ea	$1,400.00	$1,400	
	2.	Receptacles (trash & recycling)	1	ea	$2,000.00	$2,000	
					Sub-Total	$3,400	
C.	**Site Improvements**						
	1.	AC- 2" over 6" Base- Pedestrian	930	sf	$4.50	$4,185	
	2.	Concrete ramp with railing	50	lf	$210.00	$10,500	
	3.	Concrete stairs	65	sf	$70.00	$4,550	
	4.	Concrete retaining wall	174	cf	$37.00	$6,438	
	4.	Concrete curb	40	lf	$22.00	$880	
	5.	Railing	12	lf	$150.00	$1,800	
					Sub-Total	$28,353	
D.	**Planting & Irrigation**						
	1.	Irrigation improvements	424	sf	$3.00	$1,272	
					Sub-Total	$1,272	
			Zone 1C Construction sub-total			**$41,181**	
		30% Design and construction contingencies and professional services				**$12,354**	
					Zone 1C Total	**$53,536**	
Zone 1D							
A.	**Site Preparation**						
	1.	Site survey and layout	1	ls	$2,000	$2,000	
	2.	Site clearing, grubbing & demolition	2,667	sf	$0.15	$400	
	3.	Rough grading	2,667	sf	$0.51	$1,360	
	4.	Demo AC paving	1,170	sf	$3.00	$3,510	
	5.	SWPPP_High risk site	0.10	ac	$20,000.00	$2,000	
					Sub-Total	$9,270	
B.	**Site Amenities**						
					Sub-Total	$0	
C.	**Site Improvements**						
	1.	AC- 2" over 6" Base- Pedestrian	1,425	sf	$4.50	$6,413	
	2.	Concrete ramp with railing	120	lf	$210.00	$25,200	
	3.	Concrete retaining wall	400	cf	$37.00	$14,800	
	4.	Concrete curb	112	lf	$22.00	$2,464	
					Sub-Total	$48,877	

		Item	Qty.	Unit	Cost	Total	Notes
D.	**Planting & Irrigation**						
	1.	Irrigation improvements	545	sf	$3.00	$1,635	
					Sub-Total	$1,635	
			Zone 1D Construction sub-total			**$59,782**	
		30% Design and construction contingencies and professional services				**$17,935**	
					Zone 1D Total	**$77,716**	

Ives Park Master Plan							
Sebastopol, CA							
Zone 2 - Art Entry							
preliminary cost estimate 11/06/2012							
		Item	**Qty.**	**Unit**	**Cost**	**Total**	**Notes**
A.	**Site Preparation**						
	1.	Site survey and layout	1	ls	$2,000	$2,000	
	2.	Site clearing, grubbing & demolition	7,650	sf	$0.15	$1,148	
	3.	Rough grading	7,650	sf	$0.51	$3,902	
	4.	Demo AC paving	212	sf	$3.00	$636	
	5.	SWPPP_High risk site (near creek)	0.20	ac	$20,000.00	$4,000	
					Sub-Total	$11,685	
B.	**Site Amenities**						
	1.	Benches	1	ea	$1,400.00	$1,400	
	2.	Park Entrance Sign	1	ls	$8,000.00	$8,000	
	3.	Receptacles (trash & recycling)	1	ea	$2,000.00	$2,000	
					Sub-Total	$11,400	
C.	**Site Improvements**						
	1.	Concrete sculpture pads	110	sf	$10.00	$1,100	
	2.	Special Paving (entry plaza)	367	sf	$28.00	$10,276	
					Sub-Total	$11,376	
D.	**Irrigation**						
	1.	Lawn irrigation	6,178	sf	$1.25	$7,723	
	1.	Drip irrigation	238	sf	$1.50	$357	
					Sub-Total	$8,080	
E.	**Planting**						
	1.	No-mow fescue (sod)	6,178	sf	$0.50	$3,089	
	2.	Entry planting	238	sf	$4.00	$952	
					Sub-Total	$4,041	
					Construction sub-total	**$46,582**	
		30% Design and construction contingencies and professional services				**$13,974**	
					Zone 2 Total	**$60,556**	

Ives Park Master Plan							
Sebastopol, CA							
Zone 3 - North Creek Restoration							
preliminary cost estimate 11/06/2012							
		Item	**Qty.**	**Unit**	**Cost**	**Total**	**Notes**
A.	**Site Preparation**						
	1.	Site survey and layout	1	ls	$5,000	$5,000	
	2.	Site clearing & grubbing	33,899	sf	$0.15	$5,085	
	3.	Fence and guardrail demo	835	lf	$2.50	$2,088	
	4.	Channel demo	1,787	sf	$5.00	$8,935	
	5.	Bridge demo	2	ea	$8,000.00	$16,000	
	6.	24" diameter tree removal	12	ea	$1,200.00	$14,400	
	7.	Demo AC paving	7,055	sf	$3.00	$21,165	
	8.	Excavate	900	cy	$30.00	$27,000	
	9.	Rough grading	33,899	sf	$0.51	$17,288	
	10.	SWPPP_High risk site (near creek)	0.80	ac	$20,000.00	$16,000	
	11.	*Dewatering	1	ls	$10,000.00	$10,000	
					Sub-Total	$142,961	
B.	**Site Amenities**						
	1.	Benches	3	ea	$1,400.00	$4,200	
	2.	Perimeter fence surrounding channel	189	lf	$70.00	$13,230	
	3.	Protective creek grate	2	ea	$8,000.00	$16,000	
	4.	Receptacles (trash & recycling)	2	ea	$2,000.00	$4,000	
					Sub-Total	$37,430	
C.	**Site Improvements**						
	1.	AC- 2" over 8" Base	8,684	sf	$5.50	$47,762	
	2.	Special Paving (entry plaza)	644	sf	$35.00	$22,540	
	3.	Concrete Paving (creek area edge)	640	lf	$28.00	$17,920	
	4.	Repair channel walls	1	ls	$5,000.00	$5,000	
	5.	New 6' x 40' pedestrian bridge (south)	1	ea	$63,000.00	$63,000	
	6.	New 12' x 14' pedestrian/vehicular bridge (north)	1	ea	$60,000.00	$60,000	
	7.	Creekside terrace	1	ls	$15,000.00	$15,000	
	8.	Boulders in creek	20	ea	$300.00	$6,000	
	9.	Bank stabilization	18,018	sf	$3.00	$54,054	
					Sub-Total	$291,276	
D.	**Irrigation**						
	1.	Drip irrigation (creek)	18,018	sf	$1.50	$27,027	
	2.	Drip irrigation (junction planting)	281	sf	$1.50	$422	
					Sub-Total	$27,449	
E.	**Planting**						
	1.	Native creek planting, Incl. soil prep and fine grading	18,018	sf	$1.00	$18,018	
	2.	Trees 24 gal	6	ea	$130.00	$780	
	3.	Walkway junction planting	281	sf	$4.00	$1,124	
	4.	Bark mulch above bank	6,026	sf	$0.90	$5,423	
					Sub-Total	$25,345	
					Construction sub-total	**$524,461**	
		40% Design and construction contingencies and professional services				**$209,784**	
					Zone 3 Total	**$734,245**	

*Dewatering if done separately from zones 4 and 10. Reduction if done in a unit to $20,000 total for zones 3, 4, and 10

Ives Park Master Plan							
Sebastopol, CA							
Zone 4 - South Creek Restoration							
preliminary cost estimate 11/06/2012							
		Item	**Qty.**	**Unit**	**Cost**	**Total**	**Notes**
A.	**Site Preparation**						
	1.	Site survey and layout	1	ls	$5,000	$5,000	
	2.	Site clearing & grubbing	25620	sf	$0.15	$3,843	
	3.	Fence and guardrail demo	500	lf	$2.50	$1,250	
	4.	Demo AC paving	9900	sf	$3.00	$29,700	
	5.	Excavate	84	cy	$30.00	$2,520	
	6.	Rough grading	25620	sf	$0.51	$13,066	
	7.	SWPPP_High risk site (near creek)	0.60	ac	$20,000.00	$12,000	
	8.	*Dewatering	1	ls	$10,000.00	$10,000	
					Sub-Total	$67,379	
B.	**Site Amenities**						
	1.	Protective creek grate	1	ea	$8,000.00	$8,000	
	2.	Receptacles (trash & recycling)	1	ea	$2,000.00	$2,000	
					Sub-Total	$10,000	
C.	**Site Improvements**						
	1.	AC- 2" over 8" Base	7,900	sf	$5.50	$43,450	
	2.	Concrete Paving (creek area edge)	520	lf	$28.00	$14,560	
	3.	Creekside terrace	1	ls	$15,000.00	$15,000	
	4.	Boulders in creek	20	ea	$300.00	$6,000	
	5.	Bank stabilization	2,260	sf	$3.00	$6,780	
					Sub-Total	$79,010	
D.	**Irrigation**						
	1.	Drip irrigation (creek)	14,486	sf	$1.50	$21,729	
	2.	Drip irrigation (junction planting)	368	sf	$1.50	$552	
					Sub-Total	$22,281	
E.	**Planting**						
	1.	Native creek planting	14,486	sf	$1.00	$14,486	
	2.	Trees 24 gal	6	ea	$130.00	$780	
	3.	Walkway junction planting	368	sf	$4.00	$1,472	
					Sub-Total	$16,738	
					Construction sub-total	**$195,408**	
		40% Design and construction contingencies and professional services				**$78,163**	
					Zone 4 Total	**$273,571**	

*Dewatering if done separately from zones 3 and 10. Reduction if done in a unit to $20,000 total for zones 3, 4, and 10

Ives Park Master Plan							
Sebastopol, CA							
Zone 5 - Picnic and Passive Play							
preliminary cost estimate 11/06/2012							
		Item	**Qty.**	**Unit**	**Cost**	**Total**	**Notes**
A.	**Site Preparation**						
	1.	Site survey and layout	1	ls	$5,000	$5,000	
	2.	Site clearing, grubbing & demolition	22092	sf	$0.15	$3,314	
	3.	Demo AC paving	3950	sf	$3.00	$11,850	
	4.	Remove PVC Piping at edge Play Area, incl. disposal	203	sf	$20.00	$4,060	
	5.	Remove and recycle play equipment	1	ls	$4,000.00	$4,000	
	6.	Perimeter shrub removal	1	ls	$1,000.00	$1,000	
	7.	Rough grading	22,092	sf	$0.51	$11,267	
	8.	SWPPP_High risk site	0.50	ac	$20,000.00	$10,000	
					Sub-Total	$50,491	
B.	**Storm Drainage**						
	1.	Storm Drain	1	ls	$4,200.00	$4,200	
	1.	Bioswale	150	lf	$25.00	$3,750	
					Sub-Total	$7,950	
C.	**Site Amenities**						
	1.	Picnic Tables	7	ea	$1,500.00	$10,500	
	2.	Receptacles (trash & recycling)	1	ea	$2,000.00	$2,000	
					Sub-Total	$12,500	
E.	**Site Improvements**						
	1.	AC- 2" over 8" Base	7,010	sf	$5.50	$38,555	
					Sub-Total	$38,555	
F.	**Irrigation**						
	1.	Turf irrigation	15,750	sf	$1.25	$19,688	
	2.	Drip irrigation (junction planting)	854	sf	$1.50	$1,281	
					Sub-Total	$20,969	
G.	**Planting**						
	1.	Turf Hydroseed	15,750	sf	$0.80	$12,600	
	2.	Walkway junction planting	854	sf	$4.00	$3,416	
	4.	Trees 24 gal	4	ea	$130.00	$520	
					Sub-Total	$16,536	
					Construction sub-total	**$155,000**	
		30% Design and construction contingencies and professional services				**$46,500**	
					Zone 5 Total	**$201,500**	

Ives Park Master Plan							
Sebastopol, CA							
Zone 6 - Pool Perimeter Improvements							
preliminary cost estimate 11/06/2012							
		Item	**Qty.**	**Unit**	**Cost**	**Total**	**Notes**
A.	**Site Preparation**						
	1.	Site survey and layout	1	ls	$2,000	$2,000	
	2.	Site clearing, grubbing & demolition	6,670	sf	$0.15	$1,001	
	7.	Demo AC paving	1120	sf	$3.00	$3,360	
	3.	Concrete stage demo	1	ls	$4,000.00	$4,000	480 sf
	4.	Existing fence demo	300	lf	$2.50	$750	
	5.	Rough grading	6,670	sf	$0.51	$3,402	
	5.	SWPPP_High risk site	0.20	ac	$20,000.00	$4,000	
					Sub-Total	$18,512	
B.	**Site Amenities**						
	1.	Perimeter Fence	300	lf	$120.00	$36,000	
	2.	Benches	2	ea	$1,400.00	$2,800	
					Sub-Total	$38,800	
C.	**Site Improvements**						
	1.	AC- 2" over 6" Base- Pedestrian	496	sf	$4.50	$2,232	
	2.	Concrete ramp with railing	16	lf	$210.00	$3,360	
	4.	Concrete curb	24	lf	$22.00	$528.00	
	3.	Crosswalk	1	ls	$3,000.00	$3,000	
					Sub-Total	$9,120	
D.	**Irrigation**						
	1.	Drip irrigation	5,810	sf	$1.50	$8,715	
					Sub-Total	$8,715	
E.	**Planting**						
	1.	Screen planting	518	sf	$5.00	$2,590	
	2.	Edible garden	4,962	sf	$4.00	$19,848	
					Sub-Total	$22,438	
				Construction sub-total		**$97,585**	
		30% Design and construction contingencies and professional services				**$29,276**	
					Zone 6 Total	**$126,861**	

Ives Park Master Plan							
Sebastopol, CA							
Zone 7 - Ballfield Perimeter Improvements							
preliminary cost estimate 11/06/2012							
		Item	**Qty.**	**Unit**	**Cost**	**Total**	**Notes**
A.	**Site Preparation**						
	1.	Site survey and layout	1	ls	$2,000	$2,000	
	2.	Site clearing, grubbing & demolition	12050	sf	$0.15	$1,808	
	3.	Rough grading	12050	sf	$0.51	$6,146	
	4.	SWPPP_High risk site (near creek)	0.30	ac	$20,000.00	$6,000	
					Sub-Total	$9,953	
B.	**Site Improvements**						
	1.	AC- 2" over 6" Base- Pedestrian	3,153	sf	$4.50	$14,189	
					Sub-Total	$14,189	
C.	**Irrigation**						
	1.	Drip irrigation	5,810	sf	$1.50	$8,715	
	2.	Turf irrigation	5,058	sf	$1.25	$6,323	
					Sub-Total	$15,038	
D.	**Planting**						
	1.	No-mow fescue (sod)	1,865	sf	$0.50	$933	
	2.	Shrubs, grasses & groundcover	3,920	sf	$5.00	$19,600	
	3.	Screen planting	1,138	sf	$5.00	$5,690	
	4.	Bark mulch	1,976	ea	$0.90	$1,778	
					Sub-Total	$28,001	
					Construction sub-total	**$67,180**	
		30% Design and construction contingencies and professional services				**$20,154**	
					Zone 7 Total	**$87,334**	

Ives Park Master Plan							
Sebastopol, CA							
Zone 8 - New Restroom							
preliminary cost estimate 11/06/2012							
		Item	**Qty.**	**Unit**	**Cost**	**Total**	**Notes**
A.	**Site Preparation**						
	1.	Site survey and layout	1	ls	$2,000.00	$2,000	
	2.	Site clearing & grubbing	2600	sf	$0.15	$390	
	3.	Existing restroom demo	1	ls	$7,000.00	$7,000	
	4.	AC paving demo	1485	sf	$3.00	$4,455	
	5.	Rough grading	2600	sf	$0.51	$1,326	
	6.	SWPPP_High risk site	0.10	ac	$20,000.00	$2,000	
					Sub-Total	$17,171	
B.	**Storm Drainage**						
	1.	Storm Drain	1	ls	$2,320.00	$2,320	
					Sub-Total	$2,320	
C.	**Site Amenities**						
	1.	Pre-fab restroom facility	1	ls	$250,000.00	$250,000	assumed reuse of existing utilities
	2.	Receptacles (trash & recycling)	1	ea	$2,000.00	$2,000	
					Sub-Total	$252,000	
D.	**Site Improvements**						
	1.	AC- 2" over 8" Base	1,720	sf	$5.50	$9,460	
					Sub-Total	$9,460	
				Construction sub-total		**$280,951**	
		30% Design and construction contingencies and professional services				**$84,285**	
					Zone 8 Total	**$365,236**	

Ives Park Master Plan							
Sebastopol, CA							
Zone 9 - New Play Area							
preliminary cost estimate 11/06/2012							
		Item	**Qty.**	**Unit**	**Cost**	**Total**	**Notes**
A.	**Site Preparation**						
	1.	Site survey and layout	1	ls	$2,000	$2,000	
	2.	Site clearing, grubbing & demolition	8,725	sf	$0.15	$1,309	
	3.	Rough grading	8,725	sf	$0.51	$4,450	
	4.	AC paving demo	1090	sf	$3.00	$3,270.00	
	5.	SWPPP_High risk site	0.20	ac	$20,000.00	$4,000	
					Sub-Total	$11,029	
B.	**Storm Drainage**						
	1.	Storm Drain	1	ls	$8,400.00	$8,400	
					Sub-Total	$8,400	
C.	**School Age Play Area**						
	1.	Resilient Matting (includes 4" agg sub base)	4,166	sf	$25.00	$104,150	
	2.	School age play equipment	1	ls	$65,000.00	$65,000	
					Sub-Total	$169,150	
D.	**Tot Play Area**						
	1.	Resilient Matting (includes 4" agg sub base)	1,278	sf	$25.00	$31,950	
	2.	Tot play equipment	1	ls	$45,000.00	$45,000	
					Sub-Total	$76,950	
E.	**Site Amenities**						
	1.	Concrete seatwall with texture	196	lf	$280.00	$54,880	
	2.	Benches	4	ea	$1,400.00	$5,600	
	3.	Shade structure	1	ea	$70,000.00	$70,000	
	4.	Perimeter play area fencing (4' high metal picket)	90	lf	$80.00	$7,200	
	5.	Play entry gates (metal locking)	1	ea	$3,000.00	$3,000	
	6.	Receptacles (trash & recycling)	1	ea	$2,000.00	$2,000	
					Sub-Total	$142,680	
F.	**Site Improvements**						
	1.	AC- 2" over 6" Base- Pedestrian	1,148	sf	$4.50	$5,166	
	2.	AC- 2" over 8" Base	1,164	sf	$5.50	$6,402	
					Sub-Total	$11,568	
G.	**Irrigation**						
	1.	Drip irrigation (walkway junction)	130	sf	$1.50	$195	
					Sub-Total	$195	
H.	**Planting**						
	1.	Walkway junction planting	130	sf	$4.00	$520	
					Sub-Total	$520	
					Construction sub-total	**$420,492**	
		30% Design and construction contingencies and professional services				**$126,147**	
					Zone 9 Total	**$546,639**	

Ives Park Master Plan							
Sebastopol, CA							
Zone 10 - Performance Zone							
preliminary cost estimate 11/06/2012							
		Item	**Qty.**	**Unit**	**Cost**	**Total**	**Notes**
A.	**Site Preparation**						
	1.	Site survey and layout	1	ls	$5,000.00	$5,000	
	2.	Site clearing, grubbing & demolition	35,930	sf	$0.15	$5,390	
	3.	Demo AC paving, including base rock	7,225	sf	$3.00	$21,675	
	4.	Perimeter shrub removal	1	ls	$3,000.00	$3,000	
	5.	Rough grading	7,225	sf	$0.51	$3,685	
	6.	SWPPP_High risk site (near creek)	0.85	ac	$20,000.00	$17,000	
	7.	Environmental Fees for mitigation (could be offset by creek expansion and restoration in zones 3 and 4)	1	allow	$100,000.00	$100,000	
					Sub-Total	$155,749	
B.	**Pipe Burial**						
	Site Demolition						
	1.	tree removal					
		48" diameter	8	ea	$1,500.00	$12,000	
		24" diameter	2	ea	$1,000.00	$2,000	
	2.	Earthwork	250	cy	$10.00	$2,500	
	4.	Channel walls	2,100	sf	$5.00	$10,500	
	3.	Fence and guardrail demo	350	lf	$2.50	$875	
	5.	*Dewatering	1	ea	$10,000.00	$10,000	
	Site Improvements						
	1.	Pipe for channel	170	lf	$570.00	$96,900	
					Sub-Total	$134,775	
C.	**Storm Drainage**						
	1.	Bioswale	110	lf	$25.00	$2,750	
					Sub-Total	$2,750	
D.	**Site Electrical**						
	1.	Electrical for stage	1	ls	$8,000.00	$8,000	
					Sub-Total	$8,000	
E.	**Site Amenities**						
	1.	Benches	2	ea	$1,400.00	$2,800	
	2.	Receptacles (trash & recycling)	1	ea	$2,000.00	$2,000	
	3.	Stage	1	ls	$20,000.00	$20,000	
					Sub-Total	$24,800	
F.	**Site Improvements**						
	1.	AC- 2" over 8" Base	1,656	sf	$5.50	$9,108	
	2.	AC- 2" over 6" Base- Pedestrian	4,259	sf	$4.50	$19,166	
	3.	Concrete mow band (in landscape)	150	lf	$24.00	$3,600	
	4.	Concrete retaining wall	260	cf	$37.00	$9,620.00	
	5.	Bark mulch	9,345	sf	$0.90	$8,410.50	
	6.	Fine grading - lawn	15,116	sf	$0.30	$4,534.80	
	7.	Relocate picnic tables	12	ea	$200.00	$2,400.00	
					Sub-Total	$56,839	
G.	**Planting**						

		Item	Qty.	Unit	Cost	Total	Notes
	1.	Turf Hydroseed (inc. soil preparation & fine grading)	15,116	sf	$0.80	$12,093	
	2.	Planting improvements	9,345	sf	$4.00	$37,380	
	3.	Edible garden planting	4,404	sf	$4.00	$17,616	
	4.	Trees 24 gal	9	ea	$130.00	$1,170	
					Sub-Total	$68,259	
				Construction sub-total		**$440,422**	
		40%Design and construction contingencies and professional services				**$176,169**	
				Zone 10 Total		**$616,591**	

*Dewatering if done separately from zones 3 and 4. Reduction if done in a unit to $20,000 total for zones 3, 4, and 10

Ives Park Master Plan							
Sebastopol, CA							
Zone 11 - Corner Capture							
preliminary cost estimate 11/06/2012							
		Item	**Qty.**	**Unit**	**Cost**	**Total**	**Notes**
A.	**Site Preparation**						
	1.	Site survey and layout	1	ls	$2,000.00	$2,000	
	2.	Site clearing & grubbing	7,375	sf	$0.15	$1,106	
	3.	Curb and gutter demo	250	lf	$3.50	$875	
	4.	Excavation	665	cy	$10.00	$6,650	
	5.	Demo AC Paving, including base rock	5,300	sf	$3.00	$15,900	
	6.	Rough grading	6,743	sf	$0.51	$3,439	
	7.	SWPPP_High risk site	0.20	ac	$20,000.00	$4,000	
					Sub-Total	$33,970	
B.	**Storm Drainage**						
	1.	Storm Drain/bioswale	1	allow	$7,000.00	$7,000	
					Sub-Total	$7,000	
C.	**Site Amenities**						
	1.	Receptacles (trash & recycling)	1	ea	$2,000.00	$2,000	
					Sub-Total	$2,000	
D.	**Site Improvements**						
	1.	Concrete street sidewalk	1,765	sf	$3.25	$5,736	
	2.	Curb and gutter	353	lf	$12.10	$4,271	
	3.	Decomposed Granite, stabilized	1,270	sf	$6.50	$8,255	
	3.	Crosswalk	1	ls	$3,000.00	$3,000	
					Sub-Total	$21,263	
E.	**Irrigation**						
	1.	Drip irrigation,	7,375	sf	$1.50	$11,063	
					Sub-Total	$11,063	
F.	**Planting**						
	1.	Interpretive garden planting	1,768	sf	$4.00	$7,072	
	2.	Shrub/ groundcover	4,975	sf	$2.25	$11,194	
	3.	Trees	2	ea	$200.00	$400	
					Sub-Total	$18,666	
					Construction sub-total	**$93,961**	
		30% Design and construction contingencies and professional services				**$28,188**	
					Zone 11 Total	**$122,149**	

Ives Park Master Plan							
Sebastopol, CA							
General Site Improvements							
preliminary cost estimate 11/06/2012							
		Item	**Qty.**	**Unit**	**Cost**	**Total**	**Notes**
A.	**Site Electrical**						
	1.	Pole lights	14	ea	$6,000.00	$84,000	
	2.	Electrical service	1	ls	$28,000.00	$28,000	
	3.	Conduit, wiring, boxes pedestals and hardware	1	ls	$30,000.00	$30,000	
					Sub-Total	$142,000	
B.	**Irrigation**						
	1.	Controller	1	ea	$9,000.00	$9,000	
	2.	Master valve, flow meter	1	ea	$1,500.00	$1,500	
	3.	Dedicated water meter	1	ea	$20,000.00	$20,000	
	4.	Backflow assembly & cage	1	ea	$2,000.00	$2,000	
	5.	Main Line & Sleeves	2,200	lf	$13.00	$28,600	
					Sub-Total	$61,100	
C.	**Optional Site Amenities**						
	1.	Benches		ea	$1,400.00	$0	
	2.	Picnic Tables		ea	$1,500.00	$0	
	3.	Bike Racks		ea	$800.00	$0	
	4.	Receptacles (trash & recycling)		ea	$2,000.00	$0	
	5.	Dog Bag Dispensers		ea	$600.00	$0	
	2.	Park Entrance Sign		ea	$8,000.00	$0	
					Sub-Total	$0	
					Construction sub-total	**$203,100**	
		30% Design and construction contingencies and professional services				**$60,930**	
					Site Improvements Total	**$264,030**	

Ives Park Master Plan				
Sebastopol, CA				
totals				
preliminary cost estimate 11/06/2012				
Zone	**Area**	**Total**		
1	Accessibility Improvements			
	1A	$131,019		
	1B	$47,814		
	1C	$53,536		
	1D	$77,716		
2	Art Entry	$60,556		
3	North Creek Restoration	$734,245		
4	South Creek Restoration	$273,571		
5	Picnic and Passive Play	$201,500		
6	Pool Perimeter Improvements	$126,861		
7	Ballfield Perimeter Improvements	$87,334		
8	New Restroom	$365,236		
9	New Play Area	$546,639		
10	Performance Zone	$616,591		
11	Corner Capture	$122,149		
	Site Improvements	$264,030		
	Note: Costs reflects each zone constructed seperately			

APPENDIX H
HYDROLOGY STUDY

BkF
ENGINEERS / SURVEYORS / PLANNERS

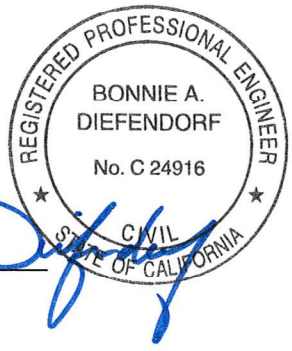
JOB NO. 20119008

HYDROLOGY REPORT

IVES PARK

SEBASTOPOL, CA

FEBRUARY 6, 2013



BONNIE DIEFENDORF
R.C.E. NO. 24916
LIC. EXP. 12/31/13

IVES PARK RENOVATION
HYDROLOGY ANALYSIS APPROACH

As part of the Ives Park Renovation Master Plan, a portion of the waterway through the park is proposed to be placed underground. The purpose of this report is to analyze the impacts of storm drain improvements associated with this work. The Park Master plan proposes to use the area now occupied by the upper reaches of the creek where it passes through a lined channel for a central green space. The plan also proposes to soften the edges of the creek channel through the rest of the site to get a more natural creek bank and channel section.

The historical records used for this analysis are contained in the City of Sebastopol's Storm Drain System Utility Master Plan document dated December 2005. BKF Engineers ("BKF") reviewed the hydrology and hydraulic information contained in the Utility Master Plan prepared by Coastland Civil Engineering Inc, in December 2005 ("Master Plan"). The Master Plan developed a hydraulic model analyzing the 10 year storm event using the Rational Method in accordance with the Sonoma County Water Agency Flood Control Design Criteria. Supporting data and calculations have been included in Appendix 'A' for reference.

Where available, BKF used the general plan build out figures in the report for anticipated flows. The Park is in the Calder Creek drainage area. Several pipe outlet into the portion of the creek in Ives Park, most notably a 60-inch, P-487; a 42-inch, P-756; and a 36-inch, P-584, pipe. The anticipated flows are given in the referenced report along with travel times and velocities. The 60-inch pipe enters the Park at the south end of the park and follows a lined channel. Through the park and under several bridges, both free span and culvert crossings. The one 60-inch CMP culvert, P-721, at the main pedestrian crossing is undersized for the flows indicated in the referenced report and will overtop in a 10-year event storm.

The headwaters of this culvert cause the upstream channel to flow full during a 10-year event and therefore increase the travel time from the outfall of the 60-inch pipe to the 60-inch CMP culvert. That travel time is 0.75 minutes based on an average area of the channel of 48 square feet and a flow of 174.24 CFS from the outfall of the 60-inch pipe.

The Master Plan shows a system time of concentration at the Jewel Avenue Outfall as 46.48 minutes, and the time of concentration at the 60-inch CMP culvert as 48.00 minutes. This indicates 1.52 minutes of travel time for the upstream 165 lineal feet of channel. The 10-year flow at the Jewel Outfall is shown as 174.54 Cubic Feet per Second (CFS). Using this 10-year flow, the proposed 60-inch storm drain was analyzed for travel time. The travel time of the 10-year flow in the new pipe to the CMP culvert is calculated at 0.20 minutes, thus reducing the system travel time by 1.33 minutes over the Utility Study figures and 0.77 minutes over our figures.
At this point, a box culvert of approximately 53" by 84" would be needed to keep the height of the system low enough to obtain cover over the conduit and reduce the HGL levels in the system closer to what is currently in the Jewel conduit.

The rational method models storm event intensity inversely to travel time, therefore the decrease in travel time will increase the model storm intensity. The adjusted system time of concentration was used to calculate the increase in model storm intensity and flow at the downstream end of Ives park. These calculated flows were used to determine the impact of the

proposed improvements. The formulas and data contained in the Master Plan were used and it was determined that the increase in intensity used in the Rational Method calculations was 0.02 inches/hour.

Intensity I = K x 5.12 y(power 0.1469)(Tc (power -0.526)) K = 1.17 for Sebastopol
Tc currently = 52.92 minutes I = 1.04

Tc Post improvement = 51.59 minutes
I = 1.06

Conservatively the increase in flow was analyzed in the 48-inch RCP located at the downstream end of the existing channel. The system was analyzed for each interval storm event to assess the potential increase in Hydraulic Grade Line ("HGL") due to the increased flow. The analysis was performed assuming the pipe was in backwater condition. In cases where the flow will be inlet controlled, the increases will be less than reported hereon.
The resulting increases in flow are tabled below for the 48-inch conduit:

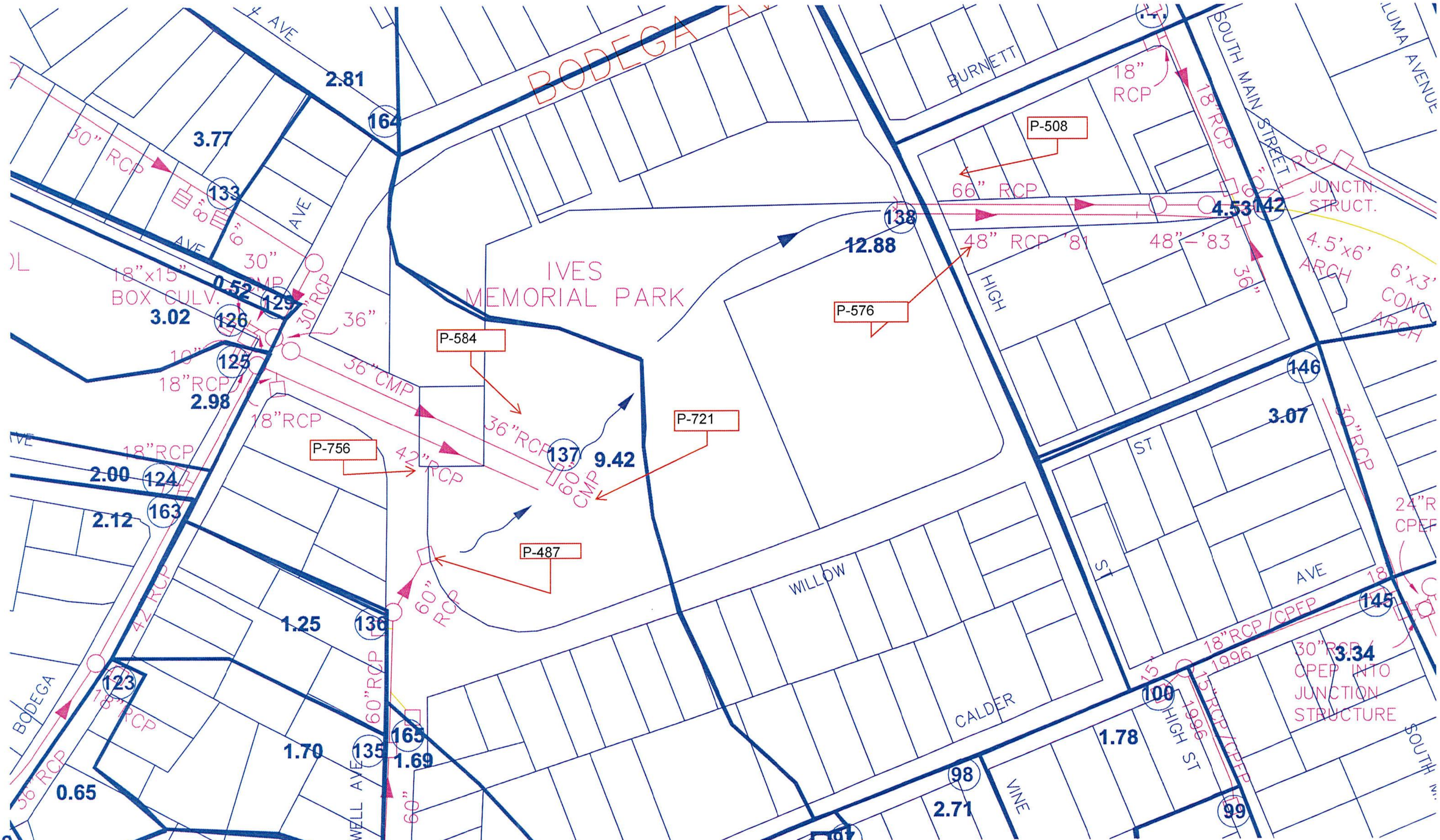
Storm Event	Increase in flow
10-year	3.05 CFS

The resulting increases in upstream HGL would be as tabled below:

Storm Event	HGL Elevation increase
10-year	0.21'

However, it is expected that the added flows will be directed toward the 66-inch culvert exiting Ives Park, as the water surface elevations for these two pipes will be the same at the inlets. If the added 3.05 CFS is taken by the 66-inch storm drain, the increase in HGL is only 0.05 FT. This is too minor to be measurable given the methods used to determine area hydrology.

The park project proposes to soften the edges of the existing channels to allow a more natural look for the creek. The extent that this can provide hydraulic capacity increases and slow the flow rate to the downstream end will determine the eventual effect on the downstream culverts. In addition, as the area below the Weir structure is widened as part of the bank softening, some additional detention capacity can be developed to assist in offsetting the minor increase in the flows anticipated with the undergrounding of part of the creek channel. At this point, without any slowing of the flows, the increases in the hydraulic grade line at the downstream end of the park are minor and within the level of error expected for this analysis.


IVES
MEMORIAL PARK
BODEGA
SOUTH MAIN STREET
BURNETT
HIGH
WILLOW
CALDER
VINE
HIGH ST
ST
AVE
AVE
BODEGA
WELL AVE
LUMA AVENUE
P-508
P-576
P-584
P-721
P-756
P-487
66" RCP
48" RCP '81
48"–'83
36"
18" RCP
18"
RCP
JUNCTN.
STRUCT.
4.5'x6'
ARCH
6'x3'
CONC
ARCH
30"RCP
24"R
CPEF
18"RCP/CPEP
1996
15" RCP/CPEP
1996
30"RCP/
CPEP INTO
JUNCTION
STRUCTURE
36"CMP
36"RCP
42"RCP
60"
CMP
60"
RCP
60"RCP
18"RCP
18"RCP
18"RCP
42"RCP
36"RCP
30" RCP
30"
CMP
30"RCP
18"x15"
BOX CULV.
36"
138
12.88
142
4.53
146
3.07
145
3.34
100
1.78
99
98
2.71
137
9.42
164
2.81
133
3.77
129
0.52
126
3.02
125
2.98
124
2.00
163
2.12
136
1.25
165
1.69
135
1.70
123
0.65

CITY OF SEBASTOPOL

STORM DRAIN SYSTEM
UTILITY MASTER PLAN

December 2005

Scenario: Build-out According to General Plan

Calder Creek - Jewell Ave North

Label	Inlet Area (acres)	Inlet C	Inlet CA (acres)	Tc (min)	External CA (acres)	External Tc (min)	System CA (acres)	System Flow Time (min)	System Intensity (in/hr)	System Rational Flow (cfs)	Full Capacity (cfs)	Line Size (in)	LIne Shape	Line Length (ft)	Line Slope (ft/ft)	Veloc. In (ft/s)	Veloc. Out (ft/s)	EGL In (ft)	EGL Out (ft)	HGL In (ft)	HGL Out (ft)
Pipe-1160							1.43	10.04	2.46	3.56	9.04	15	Circular	37	0.0227	4.55	3.78	141.58	140.78	141.26	140.56
SDMH-788							13.88	17.97	1.81	25.37						7.06	7.06	131.50	131.28	130.72	130.51
P-488							13.88	17.97	1.81	25.37	148.26	30	Circular	91	0.1515	7.06	6.53	131.28	117.51	130.51	116.85
POC 102	0.39	0.90	0.35	7.00	0.00	0.00	1.79	10.13	2.45	4.41						4.96	4.96	140.94	140.89	140.56	140.51
P-16							1.79	10.13	2.45	4.41	20.97	15	Circular	224	0.1222	4.96	3.89	140.89	113.60	140.51	113.37
POC 104	0.37	0.80	0.30	7.00	0.00	0.00	14.18	18.03	1.81	25.86						7.12	7.12	117.63	117.52	116.85	116.73
Pipe-1156							14.18	18.03	1.81	25.86	83.16	30	Circular	112	0.0477	7.12	5.99	117.52	112.27	116.73	111.72
POC 103	1.12	0.56	0.63	10.00	0.00	0.00	2.41	10.40	2.42	5.88						5.69	5.69	113.87	113.76	113.37	113.26
Pipe-1157							2.41	10.40	2.42	5.88	13.73	15	Circular	50	0.0524	5.69	4.79	113.76	111.96	113.26	111.60
POC 105	1.36	0.56	0.77	10.00	0.00	0.00	0.77	10.00	2.47	1.91						2.43	2.43	102.06	102.06	101.96	101.96
Pipe-1161							0.77	10.00	2.47	1.91	8.41	15	Circular	30	0.0197	2.43	1.56	102.06	102.02	101.96	101.98
BC 5							16.59	18.16	1.80	30.16						7.65	7.65	112.51	112.44	111.60	111.53
Pipe-1155							16.59	18.16	1.80	30.16	83.15	30	Circular	214	0.0477	7.65	6.85	112.44	102.29	111.53	101.56
POC 107	6.70	0.53	3.55	10.00	130.61	45.53	134.16	45.53	1.11	150.33						7.66	7.66	95.65	95.65	94.74	94.74
Pipe-1141							134.16	45.53	1.11	150.33	58.65	60	Circular	68	0.0006	7.66	7.66	95.65	95.39	94.74	94.48
SDMH-753							17.36	18.39	1.79	31.34						7.80	7.80	102.51	102.31	101.56	101.37
89.50							17.36	18.39	1.79	31.34	89.28	30	Circular	202	0.0550	7.80	6.39	102.31	94.69	101.37	94.05
POC 106	0.39	0.85	0.33	7.00	0.00	0.00	151.85	45.68	1.11	169.86						8.65	8.65	95.22	95.04	94.05	93.88
P-485							151.85	45.68	1.11	169.86	177.85	60	Circular	159	0.0054	8.65	8.65	95.04	94.26	93.88	93.10
POC 135	1.70	0.62	1.05	10.00	0.00	0.00	152.91	45.98	1.11	170.44						8.68	8.68	94.27	94.20	93.10	93.03
Pipe-1143							152.91	45.98	1.11	170.44	178.77	60	Circular	86	0.0055	8.68	8.68	94.20	93.77	93.03	92.60
POC 165	1.69	0.60	1.01	10.00	2.53	11.11	3.54	11.11	2.33	8.34						7.15	7.15	94.72	94.72	93.93	93.93
Pipe-1144							3.54	11.11	2.33	8.34	19.98	15	Circular	52	0.1110	7.15	6.80	94.72	93.66	93.93	92.95
BC 1							156.45	46.15	1.10	174.07						8.87	8.87	93.82	93.74	92.60	92.51
Pipe-1146							156.45	46.15	1.10	174.07	177.62	60	Circular	76	0.0054	8.87	8.87	93.74	93.34	92.51	92.12
POC 136	1.25	0.60	0.75	10.00	0.00	0.00	0.75	10.00	2.47	1.87						3.64	3.64	93.35	93.35	93.14	93.14
Pipe-1147							0.75	10.00	2.47	1.87	32.80	15	Circular	20	0.2990	3.64	1.52	93.35	92.06	93.14	92.02
BC 2							157.20	46.29	1.10	174.62						8.89	8.89	93.25	93.24	92.02	92.01
Pipe-1145							157.20	46.29	1.10	174.62	177.98	60	Circular	24	0.0054	8.89	8.89	93.24	93.12	92.01	91.89
SDMH-754							157.20	46.34	1.10	174.53						8.90	8.90	93.12	92.67	91.89	91.44
P-487							157.20	46.34	1.10	174.53	179.43	60	Circular	89	0.0055	8.90	8.89	92.67	92.23	91.44	91.00
Ives Memorial Park							157.20	46.48	1.10	174.24						0.00	0.00	91.00	91.00	91.00	91.00

Scenario: Existing Condition

Calder Creek - Dutton

Label	Inlet Area (acres)	Inlet C	Inlet CA (acres)	Tc (min)	External CA (acres)	External Tc (min)	System CA (acres)	System Flow Time (min)	System Intensity (in/hr)	System Rational Flow (cfs)	Full Capacity (cfs)	Line Size (in)	LIne Shape	Line Length (ft)	Line Slope (ft/ft)	Veloc. In (ft/s)	Veloc. Out (ft/s)	EGL In (ft)	EGL Out (ft)	HGL In (ft)	HGL Out (ft)
CB-168	0.00	0.00	0.00	10.00	0.00	0.00	0.00	10.00	0.00	0.00						0.00	0.00	119.04	119.04	119.04	119.04
P-593							0.00	10.00	0.00	0.00	7.19	12	Circular	46	0.0472	0.00	0.00	119.04	118.88	119.04	118.88
POC 130	0.36	0.90	0.32	7.00	0.00	0.00	0.32	7.00	2.98	0.97						0.73	0.73	118.59	118.59	118.58	118.58
P-594							0.32	7.00	2.98	0.97	12.43	18	Circular	40	0.0162	0.73	0.55	118.59	118.58	118.58	118.58
POC 127	3.29	0.60	1.97	8.50	0.00	0.00	1.97	8.50	2.69	5.35						4.89	4.89	119.33	119.33	118.96	118.96
P-595							1.97	8.50	2.69	5.35	13.68	18	Circular	61	0.0197	4.89	3.03	119.33	118.93	118.96	118.79
POC 118	2.82	0.62	1.75	8.50	5.95	13.16	10.00	13.16	2.14	21.52						7.72	7.72	119.51	119.46	118.58	118.53
P-592							10.00	13.16	2.14	21.52	29.24	24	Circular	80	0.0194	7.72	6.85	119.46	118.31	118.53	117.58
SDMH-758							10.00	13.29	2.12	21.41						7.70	7.70	118.50	117.90	117.58	116.98
P-591							10.00	13.29	2.12	21.41	29.36	24	Circular	363	0.0195	7.70	10.20	117.90	111.11	116.98	109.50
SDMH-759							10.00	13.88	2.08	20.92						6.52	6.52	110.49	110.45	109.82	109.78
Pipe-1183							10.00	13.88	2.08	20.92	42.53	30	Circular	344	0.0125	6.52	5.50	110.45	106.22	109.78	105.75
POC 133	3.77	0.60	2.26	13.50	1.36	16.50	3.62	16.50	1.90	6.92						5.64	5.64	106.52	106.52	106.03	106.03
Pipe-1185							3.62	16.50	1.90	6.92	7.02	15	Circular	19	0.0137	5.64	5.64	106.52	106.27	106.03	105.78
CB-501	0.00	0.00	0.00	10.00	0.00	0.00	0.00	10.00	0.00	0.00						0.00	0.00	105.04	105.04	105.04	105.04
P-587							0.00	10.00	0.00	0.00	2.01	12	Circular	19	0.0037	0.00	0.00	105.04	105.04	105.04	105.04
POC 126 & 129	3.54	0.80	2.83	11.00	0.00	0.00	2.83	11.00	2.35	6.70						8.53	8.53	108.38	108.38	107.25	107.25
P-588							2.83	11.00	2.35	6.70	4.40	12	Circular	52	0.0177	8.53	8.53	108.38	106.25	107.25	105.12
BC 7							13.62	16.56	1.89	25.98						7.13	7.13	106.54	106.47	105.75	105.68
Pipe-1184							13.62	16.56	1.89	25.98	55.76	30	Circular	139	0.0214	7.13	5.29	106.47	104.42	105.68	103.99
SDMH-1423							2.83	11.10	2.34	6.67						8.56	8.56	106.18	106.03	105.04	104.89
P-586							2.83	11.10	2.34	6.67	13.66	12	Circular	23	0.1704	8.56	8.49	106.03	103.07	104.89	101.95
SDMH-757							13.62	16.76	1.88	25.81						5.26	5.26	104.42	104.08	103.99	103.65
P-589							13.62	16.76	1.88	25.81	20.30	30	Circular	115	0.0083	5.26	5.87	104.08	102.63	103.65	102.10
SDMH-862							16.45	17.13	1.86	30.83						6.96	6.96	102.71	102.55	101.95	101.80
P-585							16.45	17.13	1.86	30.83	119.51	36	Circular	29	0.0372	6.96	6.43	102.55	101.49	101.80	100.85
SDMH-756							16.45	17.16	1.86	30.79						6.96	6.96	101.60	101.47	100.85	100.72
P-584							16.45	17.16	1.86	30.79	119.44	36	Circular	389	0.0372	6.96	4.36	101.47	88.30	100.72	88.00
Calder POC I	0.00	0.00	0.00	10.00	213.31	47.98	213.31	47.98	1.08	232.52						11.84	11.84	91.78	91.78	89.60	89.60
Pipe-721 – CMP CULVERT							213.31	47.98	1.08	232.52	76.50	60	Circular	17	0.0029	11.84	12.93	91.78	91.35	89.60	88.75
Outlet at Ives Prk							229.76	48.00	1.08	250.38						0.00	0.00	88.00	88.00	88.00	88.00

Coastland Civil Engineering, Inc.
37 Brookside Road Waterbury, CT 06708 USA +1-203-755-1666

Scenario: Existing Condition with Improvements

Calder Creek - East-into JCT

Label	Inlet Area (acres)	Inlet C	Inlet CA (acres)	Tc (min)	External CA (acres)	External Tc (min)	System CA (acres)	System Flow Time (min)	System Intensity (in/hr)	System Rational Flow (cfs)	Full Capacity (cfs)	Line Size (in)	LIne Shape	Line Length (ft)	Line Slope (ft/ft)	Veloc. In (ft/s)	Veloc. Out (ft/s)	EGL In (ft)	EGL Out (ft)	HGL In (ft)	HGL Out (ft)
CB-1137	0.00	0.00	0.00	10.00	113.00	52.92	113.00	52.92	1.03	116.99						8.83	8.83	77.21	77.21	76.00	76.00
P-508							113.00	52.92	1.03	116.99	321.05	66	Circular	349	0.0106	8.83	4.92	77.21	76.12	76.00	75.74
SDMH-790							113.00	53.39	1.02	116.45						4.90	4.90	76.12	76.10	75.74	75.72
P-509							113.00	53.39	1.02	116.45	321.12	66	Circular	66	0.0106	4.90	4.90	76.10	76.00	75.72	75.63
SDMH-789							113.00	53.61	1.02	116.19						4.89	4.89	76.00	75.97	75.63	75.60
Pipe-1179							113.00	53.61	1.02	116.19	322.17	66	Circular	74	0.0107	4.89	4.89	75.97	75.87	75.60	75.50
POC 142 at JCT STR							113.00	53.86	1.02	115.90						0.00	0.00	75.50	75.50	75.50	75.50
POC 139	2.53	0.90	2.28	7.00	4.78	17.05	7.06	17.05	1.86	13.26						7.87	7.87	84.20	84.20	83.24	83.24
P-581							7.06	17.05	1.86	13.26	15.76	18	Circular	49	0.0161	7.87	7.50	84.20	83.60	83.24	82.72
CB-330	0.00	0.00	0.00	10.00	0.00	0.00	0.00	10.00	0.00	0.00						0.00	0.00	82.62	82.62	82.62	82.62
P-582							0.00	10.00	0.00	0.00	2.00	12	Circular	30	0.0037	0.00	0.00	82.62	82.62	82.62	82.62
POC 140	0.33	0.90	0.30	7.00	0.00	0.00	7.35	17.13	1.86	13.78						6.18	6.18	83.21	83.02	82.62	82.43
P-580							7.35	17.13	1.86	13.78	25.89	24	Circular	214	0.0152	6.18	5.22	83.02	79.83	82.43	79.41
POC 141	2.24	0.90	2.02	7.00	0.00	0.00	9.37	17.56	1.83	17.33						6.85	6.85	80.14	80.07	79.41	79.34
P-579							9.37	17.56	1.83	17.33	28.39	24	Circular	46	0.0183	6.85	6.56	80.07	79.24	79.34	78.57
CB-319	0.00	0.00	0.00	10.00	0.00	0.00	0.00	10.00	0.00	0.00						0.00	0.00	78.50	78.50	78.50	78.50
P-583							0.00	10.00	0.00	0.00	0.00	18	Circular	20	0.0000	0.00	0.00	78.50	78.50	78.50	78.50
SDMH-1422							9.37	17.64	1.83	17.29						6.85	6.85	79.23	79.23	78.50	78.50
P-578							9.37	17.64	1.83	17.29	19.98	24	Circular	221	0.0090	6.85	6.59	79.23	77.23	78.50	76.56
CB-318	0.00	0.00	0.00	10.00	0.00	0.00	9.37	18.15	1.80	17.03						6.79	6.79	77.28	77.21	76.56	76.49
P-577							9.37	18.15	1.80	17.03	75.87	24	Circular	45	0.1304	6.79	5.42	77.21	76.13	76.49	75.67
CB-1127	0.00	0.00	0.00	10.00	0.00	0.00	0.00	10.00	0.00	0.00						0.00	0.00	75.63	75.63	75.63	75.63
Pipe-2019							0.00	10.00	0.00	0.00	227.85	36	Circular	85	0.0691	0.00	0.00	75.63	75.63	75.63	75.63
CB-1138	0.00	0.00	0.00	10.00	123.46	52.92	123.46	52.92	1.03	127.82						10.17	10.17	81.82	81.82	80.22	80.22
P-576							123.46	52.92	1.03	127.82	121.81	48	Circular	464	0.0083	10.17	10.17	81.82	77.56	80.22	75.96
CB-317	0.00	0.00	0.00	10.00	0.00	0.00	132.83	53.68	1.02	136.49						6.95	6.95	76.38	76.36	75.63	75.61
Pipe-795							132.83	53.68	1.02	136.49	469.63	60	Circular	35	0.0377	6.95	6.95	76.36	76.25	75.61	75.50
JCT STR							132.83	53.76	1.02	136.38						0.00	0.00	75.50	75.50	75.50	75.50

Scenario: Existing with Improvements

Calder Creek - Bodega Ave

Label	Inlet Area (acres)	Inlet C	Inlet CA (acres)	Tc (min)	External CA (acres)	External Tc (min)	System CA (acres)	System Flow Time (min)	System Intensity (in/hr)	System Rational Flow (cfs)	Full Capacity (cfs)	Line Size (in)	LIne Shape	Line Length (ft)	Line Slope (ft/ft)	Veloc. In (ft/s)	Veloc. Out (ft/s)	EGL In (ft)	EGL Out (ft)	HGL In (ft)	HGL Out (ft)
Pipe-1188							49.91	22.53	1.61	80.96	156.50	42	Circular	181	).0281	9.78	8.41	104.68	100.15	103.19	99.05
SDMH-755							51.69	22.71	1.60	83.50						9.96	9.96	99.96	99.69	98.42	98.15
P-756							51.69	22.71	1.60	83.50	144.58	42	Circular	415	).0240	9.96	8.68	99.69	92.67	98.15	91.50
Outlet at Ives Prk							51.69	23.16	1.59	82.66						0.00	0.00	91.50	91.50	91.50	91.50

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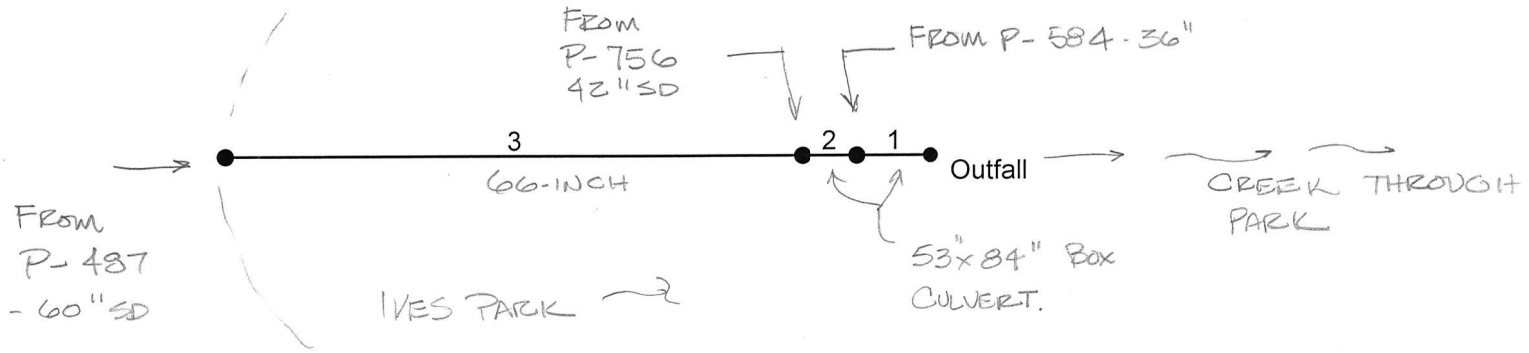
119008-DS check



Project File: IVES EXTENSION BOX.stm	Number of lines: 3	Date: 2/7/2013

Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr Line No.	Line Length (ft)	Defl angle (deg)	Junc Type	Known Q (cfs)	Drng Area (ac)	Runoff Coeff (C)	Inlet Time (min)	Invert El Dn (ft)	Line Slope (%)	Invert El Up (ft)	Line Size (in)	Line Shape	N Value (n)	J-Loss Coeff (K)	Inlet/ Rim El (ft)	
1	End	20.0	-180.0	MH	20.27	0.00	0.00	17.2	102.11	0.80	102.27	60X84	Box	0.014	0.15	108.00	
2	1	15.0	0.0	MH	55.87	0.00	0.00	23.2	102.27	0.80	102.39	60X84	Box	0.014	0.15	108.00	
3	2	158.0	0.0	MH	174.24	0.00	0.00	46.5	102.39	0.80	103.66	60	Cir	0.014	1.00	112.00	

119008-DS check

Number of lines: 3

Date: 2/7/2013

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	20.0	0.00	0.00	0.00	0.00	0.00	17.2	46.8	0.0	250.4	427.4	11.43	x 60 b	0.80	102.11	102.27	105.00	105.68	108.00	108.00	
2	1	15.0	0.00	0.00	0.00	0.00	0.00	23.2	46.7	0.0	230.1	427.4	9.92	x 60 b	0.80	102.27	102.39	105.68	105.61	108.00	108.00	
3	2	158.0	0.00	0.00	0.00	0.00	0.00	46.5	46.5	0.0	174.2	216.8	11.61	60	0.80	102.39	103.66	105.78	107.44	108.00	112.00	

119008-DS check | Number of lines: 3 | Run Date: 2/7/2013

NOTES:Intensity = 7.08 / (Inlet time + 0.00) ^ 0.53; Return period =Yrs. 10 ; c = cir e = ellip b = box

Hydraulic Grade Line Computations

Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
	(in)	(cfs)	Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)	(ft)	Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)	Ave Sf (%)	Enrgy loss (ft)	(K)	(ft)
1	60 84 B	250.4	102.11	105.00	2.89	20.23	12.38	1.71	106.71	0.000	20.0	102.27	105.68	3.41**	23.87	10.49	1.71	107.39	0.000	0.000	n/a	0.15	n/a
2	60 84 B	230.1	102.27	105.68	3.41	23.87	9.64	1.62	107.30	0.000	15.0	102.39	105.61 j	3.22**	22.56	10.20	1.62	107.23	0.000	0.000	n/a	0.15	0.24
3	60	174.2	102.39	105.78	3.39*	14.19	12.28	1.86	107.65	0.000	158.0	103.66	107.44	3.78**	15.92	10.94	1.86	109.30	0.000	0.000	n/a	1.00	n/a

119008-DS check | Number of lines: 3 | Run Date: 2/7/2013

Notes: * Normal depth assumed.; ** Critical depth.; j-Line contains hyd. jump. ; c = cir e = ellip b = box

Culvert Report

Hydraflow Express Extension for AutoCAD® Civil 3D® 2012 by Autodesk, Inc. Thursday, Feb 7 2013

Circular Culvert

Invert Elev Dn (ft)	= 101.92
Pipe Length (ft)	= 30.00
Slope (%)	= 0.30
Invert Elev Up (ft)	= 102.01
Rise (in)	= 60.0
Shape	= Circular
Span (in)	= 60.0
No. Barrels	= 1
n-Value	= 0.024
Culvert Type	= Circular Corrugate Metal Pipe
Culvert Entrance	= Headwall
Coeff. K,M,c,Y,k	= 0.0078, 2, 0.0379, 0.69, 0.5

Embankment

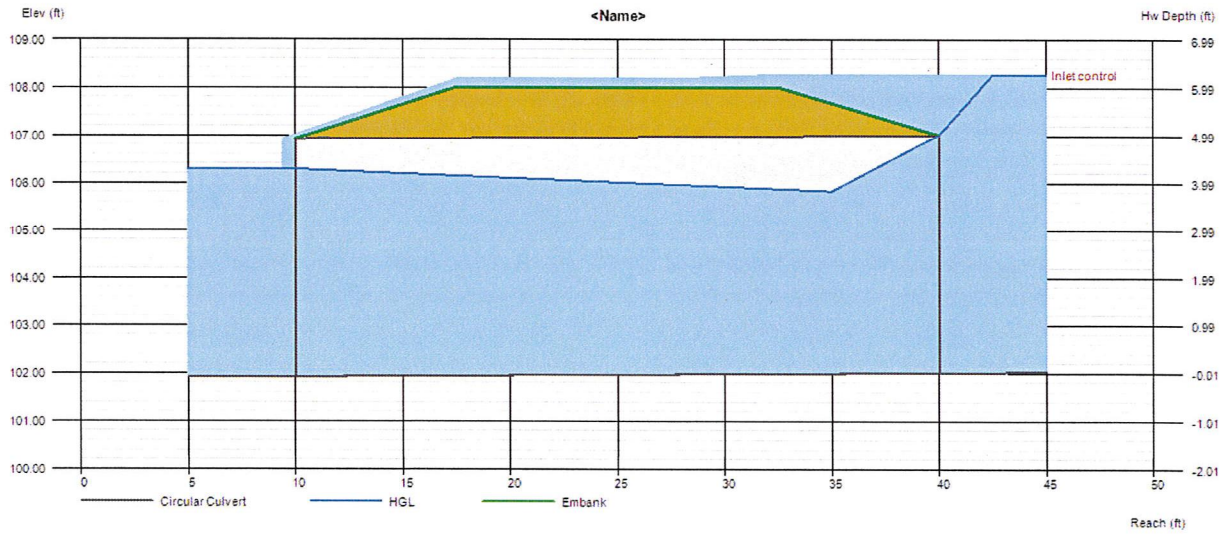
Top Elevation (ft)	= 108.00
Top Width (ft)	= 15.00
Crest Width (ft)	= 15.00

Calculations

Qmin (cfs)	= 0.00
Qmax (cfs)	= 250.00
Tailwater Elev (ft)	= (dc+D)/2

Highlighted

Qtotal (cfs)	= 175.00
Qpipe (cfs)	= 169.07
Qovertop (cfs)	= 5.93
Veloc Dn (ft/s)	= 9.30
Veloc Up (ft/s)	= 10.78
HGL Dn (ft)	= 106.28
HGL Up (ft)	= 105.73
Hw Elev (ft)	= 108.26
Hw/D (ft)	= 1.25
Flow Regime	= Inlet Control

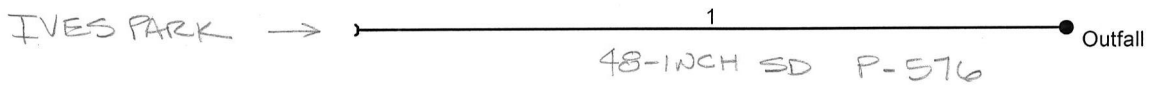


60-INCH CMP

P-721

OVERTOPPING @ 10-YR EVENT

P-576 POST PROJECT



PRE-DEV.

Project File: 119008-DS check.stm	Number of lines: 1	Date: 2/7/2013

Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr Line No.	Line Length (ft)	Defl angle (deg)	Junc Type	Known Q (cfs)	Drng Area (ac)	Runoff Coeff (C)	Inlet Time (min)	Invert El Dn (ft)	Line Slope (%)	Invert El Up (ft)	Line Size (in)	Line Shape	N Value (n)	J-Loss Coeff (K)	Inlet/ Rim El (ft)	
1	End	464.00	-180.00	Hdwl	130.86	0.00	0.00	54.3	87.95	0.83	91.81	48	Cir	0.014	1.00	99.00	

P-576 POST PROJECT

Number of lines: 1

Date: 2/7/2013

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	464.00	0.00	0.00	0.00	0.00	0.00	54.3	54.3	0.0	130.9	121.7	10.41	48	0.83	87.95	91.81	94.50	98.97	95.00	99.00	

P-576 POST PROJECT

Number of lines: 1

Run Date: 2/7/2013

NOTES:Intensity = 6.40 / (Inlet time + 0.00) ^ 0.46; Return period =Yrs. 10 ; c = cir e = ellip b = box

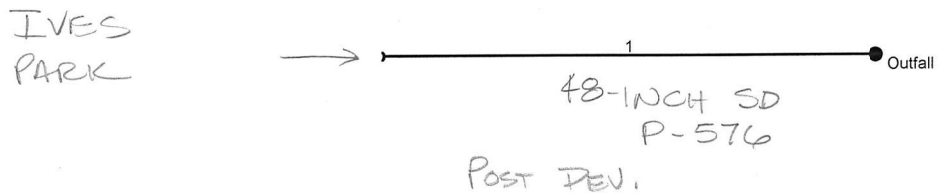
Hydraulic Grade Line Computations

Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
			Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)		Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)	Ave Sf (%)	Enrgy loss (ft)		
	(in)	(cfs)									(ft)											(K)	(ft)
1	48	130.9	87.95	94.50	4.00	12.56	10.42	1.69	96.19	0.963	464.00	91.81	98.97	4.00	12.57	10.41	1.69	100.65	0.963	0.963	4.467	1.00	1.69

P-576 POST PROJECT | Number of lines: 1 | Run Date: 2/7/2013

; c = cir e = ellip b = box

P-576 PRE PROJECT



Project File: P-576 PRE PROJ.stm	Number of lines: 1	Date: 2/7/2013

Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr Line No.	Line Length (ft)	Defl angle (deg)	Junc Type	Known Q (cfs)	Drng Area (ac)	Runoff Coeff (C)	Inlet Time (min)	Invert El Dn (ft)	Line Slope (%)	Invert El Up (ft)	Line Size (in)	Line Shape	N Value (n)	J-Loss Coeff (K)	Inlet/ Rim El (ft)	
1	End	464.00	-180.00	Hdwl	127.82	0.00	0.00	52.9	87.95	0.83	91.81	48	Cir	0.014	1.00	99.00	

P-576 PRE PROJECT | Number of lines: 1 | Date: 2/7/2013

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	464.00	0.00	0.00	0.00	0.00	0.00	52.9	52.9	0.0	127.8	121.7	10.17	48	0.83	87.95	91.81	94.50	98.76	95.00	99.00	

P-576 PRE PROJECT

Number of lines: 1

Run Date: 2/7/2013

NOTES:Intensity = 6.40 / (Inlet time + 0.00) ^ 0.46; Return period =Yrs. 10 ; c = cir e = ellip b = box

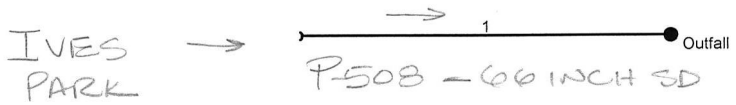
Hydraulic Grade Line Computations

Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
			Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)		Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)	Ave Sf (%)	Enrgy loss (ft)		
	(in)	(cfs)									(ft)											(K)	(ft)
1	48	127.8	87.95	94.50	4.00	12.56	10.17	1.61	96.11	0.919	464.00	91.81	98.76	4.00	12.57	10.17	1.61	100.37	0.918	0.918	4.262	1.00	1.61

P-576 PRE PROJECT | Number of lines: 1 | Run Date: 2/7/2013

; c = cir e = ellip b = box

P-508 PRE PROJECT



Project File: P-508 PRE PROJ.stm	Number of lines: 1	Date: 2/7/2013

Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr Line No.	Line Length (ft)	Defl angle (deg)	Junc Type	Known Q (cfs)	Drng Area (ac)	Runoff Coeff (C)	Inlet Time (min)	Invert El Dn (ft)	Line Slope (%)	Invert El Up (ft)	Line Size (in)	Line Shape	N Value (n)	J-Loss Coeff (K)	Inlet/ Rim El (ft)	
1	End	349.00	-180.00	Hdwl	116.99	0.00	0.00	52.9	88.11	1.06	91.81	66	Cir	0.014	1.00	99.70	

P-508 PRE PROJECT | Number of lines: 1 | Date: 2/7/2013

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	349.00	0.00	0.00	0.00	0.00	0.00	52.9	52.9	0.0	117.0	321.1	6.88	66	1.06	88.11	91.81	93.61	94.81	95.00	99.70	

I = 1.04

TOP OF BANK ≅ 99.70'

P-508 PRE PROJECT

Number of lines: 1

Run Date: 2/7/2013

NOTES:Intensity = 6.40 / (Inlet time + 0.00) ^ 0.46; Return period =Yrs. 10 ; c = cir e = ellip b = box

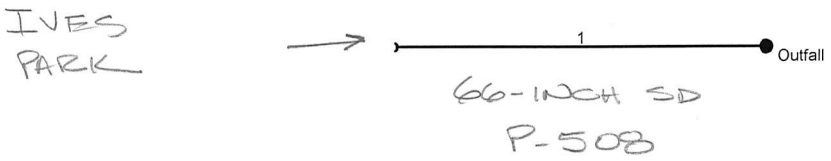
Hydraulic Grade Line Computations

Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
			Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)		Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)	Ave Sf (%)	Enrgy loss (ft)		
	(in)	(cfs)									(ft)											(K)	(ft)
1	66	117.0	88.11	93.61	5.50	13.24	4.93	0.38	93.99	n/a	349.00	91.81	94.81	3.00**	13.24	8.84	1.21	96.02i	n/a	n/a	n/a	1.00	n/a

P-508 PRE PROJECT | Number of lines: 1 | Run Date: 2/7/2013

Notes: ; ** Critical depth. ; c = cir e = ellip b = box

P-508 POST DEV



Project File: P-508 P0ST PROJ.stm	Number of lines: 1	Date: 2/7/2013

Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr Line No.	Line Length (ft)	Defl angle (deg)	Junc Type	Known Q (cfs)	Drng Area (ac)	Runoff Coeff (C)	Inlet Time (min)	Invert El Dn (ft)	Line Slope (%)	Invert El Up (ft)	Line Size (in)	Line Shape	N Value (n)	J-Loss Coeff (K)	Inlet/ Rim El (ft)	
1	End	349.00	-180.00	Hdwl	122.83	0.00	0.00	54.2	88.11	1.06	91.81	66	Cir	0.014	1.00	99.70	

P-508 POST DEV | Number of lines: 1 | Date: 2/7/2013

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	349.00	0.00	0.00	0.00	0.00	0.00	54.2	54.2	0.0	122.8	321.1	7.08	66	1.06	88.11	91.81	93.61	94.89	95.00	99.70	

Q = 113 (I) + 3.05 CFS I = 1.06
= 122.8 CFS

P-508 POST DEV

Number of lines: 1

Run Date: 2/7/2013

NOTES:Intensity = 6.40 / (Inlet time + 0.00) ^ 0.46; Return period =Yrs. 10 ; c = cir e = ellip b = box

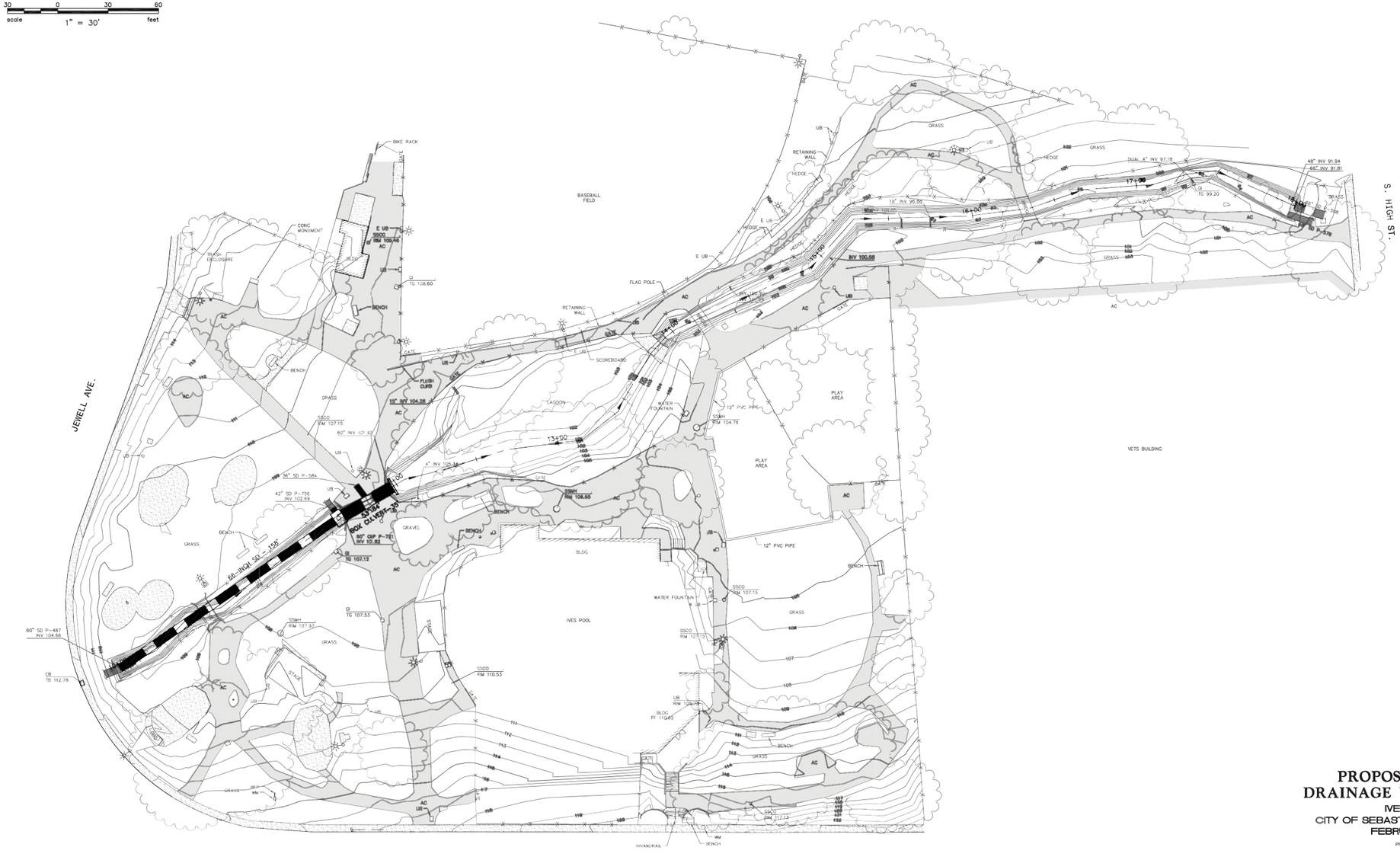
Hydraulic Grade Line Computations

Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
			Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)		Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)	Ave Sf (%)	Enrgy loss (ft)		
	(in)	(cfs)									(ft)											(K)	(ft)
1	66	122.8	88.11	93.61	5.50	13.67	5.17	0.42	94.03	n/a	349.00	91.81	94.89	3.08**	13.67	8.99	1.26	96.14i	n/a	n/a	n/a	1.00	n/a

P-508 POST DEV | Number of lines: 1 | Run Date: 2/7/2013

Notes: ; ** Critical depth. ; c = cir e = ellip b = box

30 0 30 60
scale 1" = 30' feet



PROPOSED STORM DRAINAGE IMPROVMENTS

IVES PARK
CITY OF SEBASTOPOL, CALIFORNIA
FEBRUARY 2013

PREPARED BY

BKF
ENGINEERS / SURVEYORS / PLANNERS
325 TESCONI CIRCLE SANTA ROSA, CA 95401
(707) 583-8500 FAX: (707) 583-8539

JOB NO. 20119008 SHEET 1 OF 1 SHEETS

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APPENDIX I
BIOLOGICAL CONSTRAINTS

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M E M O R A N D U M

DATE: January 30, 2013

TO: Tom Fitzgerald
Royston Hanamoto Alley & Abey

FROM: Laura Lafler

SUBJECT: Biological Constraints for the Ives Park Project, City of Sebastopol, Sonoma County

LSA Associates, Inc. (LSA) submits this memorandum describing the results of the reconnaissance-level biological assessment conducted for the above-referenced project. This assessment has been prepared to provide an evaluation of the potential presence of special-status species and/or sensitive habitats on and in the immediate vicinity of the site, as well as to identify potential biological resource constraints associated with project implementation.

METHODS

LSA searched the California Natural Diversity Database (CNDDB; CDFG 2012) for records of special-status species occurrences within 5 miles of the site. The California Native Plant Society (CNPS) On-line Inventory of Rare and Endangered Plants (CNPS 2013) was also reviewed for species in the *Sebastopol, Guerneville, Healdsburg, Santa Rosa, Cotati, Mark West Springs, Camp Meeker, Valley Ford,* and *Two Rock* U.S. Geological Survey (USGS) 7.5-minute quadrangles. Using these database sources, special-status plants and animals were evaluated to determine their potential to occur on or in the vicinity of the site.

LSA biologist Dan Sidle visited the site on January 25, 2013, to assess current habitat conditions and evaluate the site's potential to support special-status plant and animal species. The survey involved walking throughout the project site to ensure that all habitat types and features on the site were identified. All plants and animals observed were recorded in field notes

Plant taxonomy and nomenclature in this report follow Baldwin et al. (2012). Common and scientific names for animals are based on Crother (2012) for amphibians and reptiles, the American Ornithologists' Union (AOU) *Check-list of North American Birds* (AOU 1998) and supplements for birds, and Baker et al. (2003) for mammals.

EXISTING CONDITIONS

The project site is located within the City of Sebastopol, Sonoma County, California. The site is surrounded by urban development and is bordered to the south by Willow Street, to the north by Bodega Avenue, and to the east by South High Street, and to the west by Jewell Avenue and Bodega Avenue. The project site is occupied by Ives Park, which includes a little league ballpark, a swimming pool, a playground, picnic areas, a performance stage, turf grass, landscaped trees and shrubs, and a portion of the Calder Creek channel.

Soils

The soil units on the site are mapped as Sebastopol sandy loam, 2-9 and 9-15 percent slopes (U.C. Davis Soil Resource Laboratory 2013). The Sebastopol sandy loam soil type is listed as a well-drained, non-hydric soil.

Vegetation

Vegetation within the project site consists of landscaped native and ornamental trees and shrubs, ruderal and non-native annual grassland vegetation within a meadow area of the Calder Creek enclosure, and turf grass. Trees include coast redwood (*Sequoia sempervirens*), oak (*Quercus agrifolia* and *Quercus* sp.), liquidamber (*Liquidambar styraciflua*), cypress (*Cupressus* sp.), juniper (*Juniperus* sp,), pine (*Pinus* sp.), date palm (*Phoenix* sp.), and weeping willow (*Salix* sp.). Ground cover beneath the trees is mostly bare dirt and leaf litter, but some of the trees had periwinkle (*Vinca* sp.) and English ivy (*Hedera helix*) growing at the base of their trunks. Shrubs observed include the native toyon (*Heteromeles arbutifolia*) and various non-native ornamental species. A meadow area along Calder Creek supports mostly ruderal forbs and non-native annual grass species, including Himalayan blackberry (*Rubus armeniacus*), tall flatsedge (*Cyperus eragrostis*), wild radish (*Raphanus sativus*), dandelion (*Taraxacum officinale*), filaree (*Erodium* sp.), and pampas grass (*Cortaderia selloana*). Oak seedlings and a California buckeye (*Aesculus californica*) sapling were also observed in the meadow area.

Animals

The disturbed condition of the site reduces the site's suitability for many native animals, but several animal species that have adapted to urban settings could be present. Animal species observed on or near the site during the reconnaissance-level survey consist of Sierran treefrog (*Pseudacris sierra*), cattle egret (*Bubulcus ibis*), American crow (*Corvus brachyrhynchos*), black phoebe (*Sayornis nigricans*), yellow-rumped warbler (*Setophaga coronate*), bushtit (*Psaltriparus minimus*), American robin (*Turdus migratorius*), white-crowned sparrow (*Zonotrichia leucophrys*), and fox squirrel (*Sciurus niger*).

SENSITIVE BIOLOGICAL RESOURCES

Waters of the United States/State

Potentially jurisdictional features observed on the site consist of Calder Creek and an associated seasonal wetland in the meadow area immediately south of the creek. Calder Creek flows east-west within an open concrete channel through the park. A portion of the creek is released from the confines of its concrete channel and was, at one time, flooded to create a small pond that was made possible via a weir consisting of board erected in the creek channel during the spring months (RHA 2013). A potential seasonal wetland, which contained tall flatsedge, a wetland plant species, was observed in the meadow area of the creek, likely in a location where the pond may have previously pooled water. Calder Creek and the associated seasonal wetland are likely subject to regulation by the U.S. Army Corps of Engineers (Corps), the Regional Water Quality Control Board (RWQCB), and/or California Department of Fish and Wildlife (CDFW).

Special-Status Species

Special-Status Plants. Disturbance at the project site and the site's location within an urban setting make the site unsuitable for special-status plant species. Although a number of special-status plant species are known to occur in grasslands and wet meadows within the region based on records from the CNDDB (CDFW 2012) and the CNPS On-line Inventory of Rare and Endangered Plants (2013), such species would not occur in the park setting where the all the habitats are disturbed and dominated by ornamental and ruderal species. Even the creek channel and meadow area are highly modified by grading, mowing, and the introduction of non-native plants, thereby precluding the presence of special-status plants.

Special-Status Animals. The project site's location within an urban park surrounded by urban development with no connection to natural open space limits the site's potential for special-status animal species. Special-status animal species that have potential to occur on or in the general vicinity of the site include of the following:

- **California tiger salamander** (*Ambystoma californiense*) is known to occur east of the site on the Santa Rosa Plain, but the location of the park outside the geographic range of the species, lack of suitable breeding and upland habitat at the park, and the isolation of the park from occupied habitat by urban development, prohibits this species from occurring on the site.
- **California red-legged frog** (*Rana draytonii*) is not known to occur in Calder Creek or on the Santa Rosa Plain. The closest CNDDB records are sensitive locations suppressed by CDFW (CDFW 2012). The constructed Calder Creek channel is shallow and appears to flow very rapidly during rain events making it unsuitable as breeding habitat for this species. The urban setting of Calder Creek, lack of emergent vegetation to provide cover for the frogs, and the creek's isolated location from occupied natural habitat prevents this species from occurring on the site. Likewise, the unlined channel section was not ponded during the winter breeding season and therefore does not provide suitable breeding habitat for California red-legged frogs (not deep enough or with a sufficient period of ponding).
- **Western pond turtle** (*Actinemys marmorata*) is known to occur approximately 0.75 mile northeast of the park in the Laguna de Santa Rosa (CDFW 2012). Although the Laguna de Santa Rosa has a hydrological connection to Calder Creek, it is separated from Calder Creek by several underground culverts. It is unlikely that pond turtles make regular movements through the culverts and the inhospitable urban habitat that separates the site from the Laguna. If turtles were to reach the site, there is no suitable breeding, basking, or nesting habitat in the park for this species.
- **White-tailed kite** (*Elanus leucurus*) could nest in the trees within or adjacent to the park, but the park's urban location and lack of suitable foraging habitat on or immediately adjacent to the park likely precludes their presence.
- **Bats** such as the Townsend's western big-eared bat (*Corynorhinus townsendii townsendii*), pallid bat (*Antrozous pallidus*), and other non-special-status bat species could forage over the park, but are unlikely to have day or maternity roosts on the park due to the lack of suitable roosting habitat such as caves and abandoned buildings.

POTENTIAL BIOLOGICAL CONSTRAINTS

Based on the reconnaissance-level survey and review of the database searches, LSA identified the following potential biological resource constraints for the proposed project:

- **Presence of Jurisdictional Areas**. A formal wetland delineation and regulatory permits from the Corps, RWQCB, and CDFW would likely be required if Calder Creek and the adjacent areas exhibiting seasonal wetland vegetation are impacted by the project. Removing portions of the concrete channel, realigning the creek channel, and planting native riparian vegetation within the channel banks would require permits from the Corps, RWQCB, and CDFW.
- **Nesting Birds**. Pre-construction surveys for nesting birds would likely be required if construction occurs during the nesting season (February 1 through August 31).
- **Tree Removal**. Removal or pruning of more than one-third of trees larger than 10 inches diameter at breast height (dbh), except for acacia, wattle, eucalyptus, plume albizia, poplar, tamarisk, and salt cedar, may require a permit from the City of Sebastopol.

REFERENCES

American Ornithologists' Union (AOU). 1998. Check-list of North American birds. 7th edition. American Ornithologists' Union, Washington, D.C.

Baker, R.J., L.C. Bradley, R .D. Bradley, J.W. Dragoo, M.D. Engstrom, R.S. Hoffmann, C.A. Jones, F. Reid, D.W. Rice, and C. Jones. 2003. Revised checklist of North American mammals north of Mexico, 2003. Museum of Texas Tech University Occasional Papers 229.

Baldwin, B. G., D. H. Goldman, D. J. Keil, R. Patterson, T. J. Rosatti, and D. H. Wilken, editors. 2012. The Jepson Manual: Vascular Plants of California, Second Edition. University of California Press, Berkeley.

California Department of Fish and Wildlife (CDFW). 2012. Query of the California Natural Diversity Database for special-status species occurrences within 5 miles of the project site. Biogeographic Data Branch, California Department of Fish and Game, Sacramento. December 1, 2012.

California Native Plant Society (CNPS). 2001. Inventory of Rare and Endangered Vascular Plants of California. California Native Plant Society, Sacramento, California.

_____. 2013. On-line Inventory of Rare and Endangered plants version 7-10a. *Sebastopol, Guerneville, Healdsburg, Santa Rosa, Cotati, Mark West Springs, Camp Meeker, Valley Ford,* and *Two Rock* USGS quadrangles. Accessed at <http://cnps.web.aplus.net/cgi-bin/inv/inventory.cgi> on January 28, 2013.

Crother, B.I. (ed). 2012. Scientific and Standard English Names of Amphibians and Reptiles of North America North of Mexico, pp. 1-92. SSAR Herpetological Circular 39.

University of California, Davis Soil Resource Laboratory. 2013. Online Soil Survey, California Soil Resource Laboratory. Accessed at <http://casoilresource.lawr.ucdavis.edu/drupal/node/27> on January 25, 2013.

APPENDIX J
CULTURAL CONSTRAINTS

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SAN LUIS OBISPO

M E M O R A N D U M

DATE: February 6, 2013

TO: Cordy Hull and Tom Fitzgerald, RHAA

FROM: Michael Hibma, Cultural Resources Manager, LSA Associates, Inc.

SUBJECT: Cultural Resources Constraints Summary for the Ives Park Renovation Master Plan, Sebastopol, Sonoma County, California (LSA #RHA1101)

This memorandum presents the results of background research and a brief pedestrian field review conducted by LSA Associates, Inc. (LSA), to identify potential cultural resource constraints for the Ives Park Renovation Master Plan. The study area for this summary includes the approximately 8-acre Ives Park site at 7400 Willow Street in Sebastopol, Sonoma County, California. The summary was prepared by LSA Architectural Historian Michael Hibma, M.A., RPH #603. This summary does not include an evaluation of the eligibility of Ives Park for inclusion in the California Register of Historical Resources, nor an assessment of potential impacts to historical resources pursuant to *CEQA Guidelines* §15064.5. It is based on archival research and qualitative observations.

BACKGROUND RESEARCH

Background research consisted of a records search and a review of materials provided by the City of Sebastopol (City). Each step is described below.

On January 29, 2013, LSA conducted a records search (File #12-0759) of the study area and adjacent properties at the Northwest Information Center (NWIC) of the California Historical Resources Information System, Sonoma State University, Rohnert Park. The NWIC is the official state repository of cultural resource records and reports for Sonoma County.

As part of the records search, the following federal and State of California inventories were reviewed:

- *California Inventory of Historic Resources* (California Department of Parks and Recreation 1976);
- *Five Views: An Ethnic Historic Site Survey for California* (California Office of Historic Preservation 1988);
- *California Points of Historical Interest* (California Office of Historic Preservation 1992);
- *California Historical Landmarks* (California Office of Historic Preservation 1996);
- *Directory of Properties in the Historic Property Data File* (California Office of Historic Preservation, April 5, 2012). The directory, updated quarterly, includes the listings of the National Register of Historic Places, National Historic Landmarks, the California Register of Historical Resources, California Historical Landmarks, and California Points of Historical Interest.

Background Research Results

The records search did not identify any previously recorded cultural resources in or adjacent to the study area (California Office of Historic Preservation 2012). A copy of a property deed dated March 3, 1941, indicates that the land that eventually contained Ives Park was conveyed to the City by the estate of Mrs. Katherine Ives on the condition that the park be used for children's sporting activities, such as Little League baseball and swimming. Background information provided in a 2010 City Planning Commission Staff Report states that Ives Park opened in April of 1946. The Little League field (built in 1957 and known as Irene "Grandma" Polley Field), Ives Pool (since demolished and rebuilt in 1981), and playground area were built "shortly thereafter." The portion of Ives Park dedicated to a children's playground has been a feature of the park "for more than 50 years," and contemporary aerial photographs show that, other than a major remodeling of Ives Pool in 1981, ". . . the park has changed little since then" (City of Sebastopol 2010).

FIELD REVIEW

On January 29, 2013, LSA Architectural Historian Michael Hibma, M.A., RPH #603 conducted a pedestrian field review of the entire study area to identify landscape and built environment elements that are integral to the park's original design and aesthetic, as well as its current use. The review was documented with field notes and photographs.

POTENTIAL CONSTRAINTS

Ives Park contains natural and built environment features that appear to date from the early years of its inception. These features, as observed during the field review, define the spatial and functional characteristics of the park, determine how visitors use and enjoy the facilities, and convey some aspects of the design intent of the park's architect. As such, these features could be considered "character defining" and central to the present appearance and function of the landscape, as well as visitor experience and perception. Changes to these elements would alter the function and presentation of the park as they have evolved since its construction. The guidance provided in *National Register Bulletin 18: How to Evaluate and Nominate Designed Historic Landscapes* (National Park Service n.d.) was reviewed to identify the conceptual components that comprise the landscape, its elements, and potential sources of functional continuity through time.

The following categories reflect the elements that traditionally convey a sense of order, design, and spatial organization to designed landscapes such as Ives Park.

Existing Topography and Grading

- Gently sloping down from south to north, central area mostly flat, bisected by channelized Calder Creek

Natural Features

- Calder Creek
- Meadow-like area in an enclosed area on the north bank of along Calder Creek.

Land Uses

- Picnic areas
- Playground
- Little League baseball field
- Open grassy areas for recreation, repose, open space
- BBQ areas
- Community pool

Circulation

- Asphalt paths
- Entry points at the eastern, southern, and western edges of the park
- Main path follows channelized Calder Creek, which is spanned by several pedestrian bridges

Views and Vistas

- Calder Creek and grassy areas beyond
- Oak groves
- Surrounding neighborhood context

Vegetation

- Native and ornamental trees and shrubs
- Turf lawn
- Coast redwood
- Oak (mature and seedlings)
- Liquidambar
- Cypress
- Juniper
- Pine
- Date palm -- likely over 75 years old based on comparable size and condition of similar trees of known age
- Weeping willow
- California buckeye

Landscape Dividers

- Channelized Calder Creek with chain link fence enclosure
- Fence around Polley Field
- Raised area with curved concrete retaining wall beyond Polley Field outfield fence
- Fence enclosure around Playground area
- Concrete dam in Calder Creek east of the meadow area

Site Furnishings

- Benches
- Picnic tables
- BBQ pits

- Playground equipment (swing sets, slides, sandboxes, etc.)
- Little League baseball backstop, dugouts, aluminum bleacher seats
- Masonry stone drinking fountain (non-operational)
- Two wood stages

Lighting

- Standard galvanized lampposts

Buildings

- Ives Community Pool and Bathhouse
- Polley Field equipment storage and concession stand

Signs

- Conventional park signage regarding rules and regulations
- Irene "Grandma" Polley Field
- Various ads from local boosters at Polley Field
- BBQ pit plaques and playground plaque

Bodies of Water

- Channelized Calder Creek

Sculpture and Other Art

- Rotary International "Service Above Self" art piece. Dedicated June 2005 (west of Polley Field)

SUMMARY

Ives Park has not been previously identified as a historical resource as defined at California Public Resources Code Section 21084.1. The landscape elements identified above were observed during the field review and appear to comprise the public space, facilities, and appurtenances that define the form, function, and appearance of Ives Park. The destruction or displacement of these elements would result in a change to the character of Ives Park, the way it is perceived by its visitors, and the means by which it is utilized as a recreational amenity.

REFERNECES CITED

California Office of Historic Preservation

1976 *California Inventory of Historic Resources*. California Department of Parks and Recreation, Sacramento.

1988 *Five Views: An Ethnic Historic Site Survey for California*. California Department of Parks and Recreation, Sacramento.

1992 *California Points of Historic Interest*. California Department of Parks and Recreation, Sacramento.

1996 *California Historical Landmarks*. California Department of Parks and Recreation, Sacramento.

2009 *Directory of Properties in the Historic Property Data File*, April 5, 2012. California Department of Parks and Recreation, Sacramento.

City of Sebastopol

2010 Staff Report – Planning Commission. *Community Forum and Public Hearing – Ives Park Improvements*. May 25, 2010. On file at City of Sebastopol Planning Commission, Sebastopol, California.

National Park Service

n.d. *National Register Bulletin 18: How to Evaluate and Nominate Designed Historic Landscapes*. National Park Service, Washington D.C. Electronic document, http://www.nps.gov/nr/publications/bulletins/pdfs/nrb18.pdf, accessed February 6, 2013.

Sonoma County Recorder

1941 Deed. Volume 533 of Official Records, Page 147, Sonoma County Recorder. 3 March 1941. On file at Sonoma County Recorder's Office, Santa Rosa, California.