SUBJECT: Update on Lower Codornices Creek Maintenance and Restoration

REPORT BY: Claire Griffing, Sustainability & Resilience Manager
Jeff Bond, Community Development Director

SUMMARY

Staff has been working with the City of Berkeley, UC Berkeley, and Restoration Design Group (RDG) to develop a maintenance plan for Codornices Creek. RDG has also completed 75% plans for Phase IV of the Codornices Creek Restoration Project.

STAFF RECOMMENDATION

That the Council:

1. Review and comment on Lower Codornices Creek Management Actions Memo
2. Authorize expenditure of funds for creek monitoring and maintenance in the Codornices Creek Fund (#71236019) per the Memorandum of Understanding
3. Review and comment on 75% plans for Phase IV of the Codornices Creek Restoration Project

BACKGROUND

The planning and implementation of the restoration of Codornices Creek between Kains Avenue to Interstate 80 has been ongoing since the late 1990’s, and involves the City of Albany, the City of Berkeley, and the University of California. Lower Codornices Creek forms the boundary between the cities of Berkeley and Albany, and on the Albany side, the primary owner is the University of California (University Village). The original master plan was prepared in 2001 and the City Council approved a Mitigated Negative Declaration in 2004, pursuant to the requirements of the California Environmental Quality Act. In addition, in 2004, the City entered into a three-way Memorandum of Understanding with the University of California and the City of Berkeley in 2004 for maintenance and restoration of the segment of creek that runs from the railroad tracks on the west to San Pablo Avenue on the east.

Three phases of the restoration project, from 8th Street downstream to the railroad tracks, have been completed to date. As a result of earlier creek projects, native riparian habitats have been
created. In addition, bicycle-pedestrian shared use trail has been constructed that connects to local and regional bicycle trail networks, and provides recreational, educational and stewardship opportunities, as well as restoring habitat to native Steelhead Trout, and improving community resilience by reducing exposure to flooding at UC Village student housing. In 2010, the first phases of restoration of Codornices Creek won the ABAG Growing Smarter Together Award in the category of “Protecting and Preserving the Environment” for advancing smart or “focused” growth in the Bay Area. In May 2017, the City Council received a briefing on the status of Creek and Albany Hill projects.

Future Phases 4 and 5 of the creek project address the remaining unrestored sections of the creek, from San Pablo Avenue to 8th Street. The current Capital Improvement Plan approved by the City Council in March 2018 included a partially funded project for continued restoration of Codornices Creek. The City has been working with Restoration Design Group (RDG) to design Phase 4 of the project, which includes a trail connection from 8th Street to 10th Street and vegetation improvements. The conceptual plan for Phase 5, between San Pablo and 10th Street, includes removal of a culvert underneath 10th Street, construction of a pedestrian bridge to maintain pedestrian and bicycle access from Albany to Berkeley on 10th Street, and a full ecological creek restoration project in the creek channel. Phase 5 is a future project, likely to be funded by grants.

DISCUSSION

Codornices Creek Maintenance Activities

Beginning in early 2018, staff from the cities of Albany and Berkeley, along with UC Berkeley, have been meeting on a regular basis and reviewing the Memorandum of Understanding (MOU) for lower Codornices Creek maintenance. Some issues, particularly the presence encampments and associated debris along the creek, have surfaced since the MOU was negotiated, and require a modified approach to creek maintenance. After a site walk by all three agencies on August 22nd, Restoration Design Group (RDG) developed the attached vegetation management memo, which will be used to update management agreements for Codornices Creek. The agreements will articulate which agency handles various maintenance actions in different reaches of the creek between San Pablo Avenue and Eastshore Highway. This includes policing, trash and debris removal, trail maintenance, graffiti abatement, removal of invasive vegetation and other actions.

The vegetation management plan proposes removing invasive plants by hand, pruning vegetation to approximately 6’ high, and preserving higher vegetation to continue to shade the creek channel. The intent of pruning is to create sightlines and reduce the creeks attraction for illegal encampments while preserving the shading and habitat functions of the native vegetation. Tree and shrub pruning for improved sightlines and public safety - will require review and approval by the Regional Water Quality Control Board, California Department of Fish and Wildlife, and possibly the Army Corps of Engineers.
The City and its partners will meet with staff from the regulatory agencies on site in early 2019 to discuss management of the creek vegetation, determine what is an acceptable amount of pruning, and identify any new permits or permit amendments that may be necessary. The City will work with RDG to develop the necessary documentation for any required permits, and RDG will assist with necessary permit applications. City and UC staff will identify responsible parties and frequency for each management recommendation by location. The three agencies plan to hold the 2019 annual maintenance meeting on January 10th to discuss the maintenance plan for the year and will hold bi-monthly meetings after that.

Escrow Fund Update

Per the MOU, $452,000 was being held by an escrow company set aside for monitoring, trail and landscape maintenance, culverts, and bridge maintenance in Berkeley and Albany. A transfer of maintenance funds from the escrow account to Albany was completed in November of this year. This funding will cover the cost of the RDG contract and future maintenance activities. UC Berkeley and the City of Berkeley will invoice the City of Albany for maintenance performed in line with the agreement, to be paid with these funds. As a procedural step, the City Council is requested to approve the appropriation of the funds pursuant to the terms of the agreement.

Codornices Creek Restoration Project: Phase 4

City staff have been working with Restoration Design Group to develop plans for Phase 4 of the Codornices Creek Restoration Project (Project), which includes a bicycle and pedestrian shared-use path from 8th-10th Streets, a crossing at 8th street to link to the Phase 3 project, and minor vegetation management. Staff completed a site walk with RDG in June, followed by a kick-off meeting with stakeholders that are currently active in the project area, including an adjacent property owner, Ecocity Builders, Friends of Five Creeks, Albany Little League, and UC Village to generate. Out of these discussions, a concept plan was developed. A 60% plan set was reviewed by key environmental, transportation, and public works staff at the cities of Albany and Berkeley as well as UC over the past few months. A second round of input was also solicited from stakeholders that are currently active in the project area at a meeting in November, and an additional site walk has been scheduled to discuss the best way for the trail to pass to the south the Little League fields. The attached 75% plans reflect this stakeholder input.

The plans include a raised crosswalk at 8th Street in the City of Berkeley to connect to the existing trail to the west. The 10-foot ADA compliant trail will continue east along the existing dirt trail, along the UC Village staff parking lot, and to the south of the Little League fields. Existing fencing along the creek will be replaced with a split-rail fence to improve sightlines, and an interpretive feature will be placed near the Little League fields. The plans retain existing trees where possible.
RDG will complete 90% plans in late January, and 100% plans in April, along with specifications and estimates. The Traffic & Safety Commission is scheduled to review the plans at their December 18, 2018 meeting.

SUSTAINABILITY IMPACT

Codornices Creek is a perennial stream that flows from the hills east of San Francisco Bay. The approximately 1.5 square mile watershed extends from the headwaters in the Berkeley Hills and drains to the San Francisco Bay. It is one of the most open creeks in this area of San Francisco Bay and represents an important fish run along the Bay. Maintenance activities are necessary to protect the creek and its fish habitat.

FINANCIAL IMPACT

Construction costs for Phase 4 are currently estimated at just under $950,000. This Project is partially funded in the current approved CIP through Measure R open space funds. Update to project funding will be incorporated into a forthcoming update to the CIP expected in spring 2019.

Attachments
1. Lower Codornices Creek Management Actions Memo
2. Lower Codornices Creek Parcel Map
3. 75% plans for Phase IV of the Codornices Creek Restoration Project
LOWER CODORNICES CREEK
MANAGEMENT ACTIONS
October 11, 2018

On August 22, 2018, representatives of the cities of Albany and Berkeley and the University of California, Berkeley attended a creek walk to discuss management activities for Lower Codornices Creek and its trail (San Pablo Avenue to Union Pacific Railroad). Meeting notes dated September 10, 2018 documented the discussions and decisions of the group.

This memo intends to further the discussion of management actions between the cities, university, and the permitting agencies who will need to approve some of the proposed vegetation management actions.

Table 1 (below) lists the management actions agreed to by the cities and university. As part of the next round of decisions, the group should assign responsibilities and confirm or modify the frequencies recommended in the table.

Table 1. List of Management Actions

<table>
<thead>
<tr>
<th>UPPR to 5th Street (Phase I)</th>
<th>Frequency</th>
<th>Permit Required?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prune limbs where necessary up to 6’ feet to improve and maintain sightlines from the trail into the creek</td>
<td>Annually</td>
<td>Yes</td>
</tr>
<tr>
<td>Remove climbing vines (bindweed) by hand</td>
<td>Biannually</td>
<td>No</td>
</tr>
<tr>
<td>Remove other invasive vegetation by hand</td>
<td>Biannually</td>
<td>No</td>
</tr>
<tr>
<td>Trash removal as necessary</td>
<td>Weekly</td>
<td>No</td>
</tr>
<tr>
<td>Debris removal as necessary</td>
<td>Annually</td>
<td>No</td>
</tr>
<tr>
<td>Mow along trail to maintain a 2’ clearance</td>
<td>Monthly</td>
<td>No</td>
</tr>
<tr>
<td>Police the area for illegal encampments</td>
<td>Weekly</td>
<td>No</td>
</tr>
<tr>
<td>Maintain decomposed granite trail surfacing as necessary</td>
<td>Inspect monthly, repair as necessary</td>
<td>No</td>
</tr>
<tr>
<td>Close off the fence and gate areas attracting illegal encampments</td>
<td>Once</td>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>5th Street to 6th Street (Phase II)</th>
<th>Frequency</th>
<th>Permit Required?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prune limbs on the north bank where necessary up to 6’ feet to improve and maintain sightlines from the trail into the creek</td>
<td>Annually</td>
<td>Yes</td>
</tr>
<tr>
<td>Remove climbing vines (bindweed) by hand</td>
<td>Biannually</td>
<td>No</td>
</tr>
<tr>
<td>Remove other invasive vegetation by hand</td>
<td>Biannually</td>
<td>No</td>
</tr>
<tr>
<td>Trash removal as necessary</td>
<td>Weekly</td>
<td>No</td>
</tr>
<tr>
<td>Debris removal as necessary</td>
<td>Annually</td>
<td>No</td>
</tr>
<tr>
<td>Action</td>
<td>Frequency</td>
<td>Status</td>
</tr>
<tr>
<td>-----------------------------------------------------------------------</td>
<td>--------------------</td>
<td>--------</td>
</tr>
<tr>
<td>Graffiti abatement on interpretive signs</td>
<td>As necessary</td>
<td>No</td>
</tr>
<tr>
<td>Mow along trail to maintain a 2’ clearance</td>
<td>Monthly</td>
<td>No</td>
</tr>
<tr>
<td>Police the area for illegal encampments</td>
<td>Weekly</td>
<td>No</td>
</tr>
<tr>
<td>Maintain trail pavement as necessary</td>
<td>Inspect monthly, repair as necessary</td>
<td>No</td>
</tr>
</tbody>
</table>

**6th Street to 8th Street (Phase III)**

<table>
<thead>
<tr>
<th>Action</th>
<th>Frequency</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prune limbs on the south bank up to 6’ feet to establish and maintain sightlines from the trail into the creek</td>
<td>Annually</td>
<td>Yes</td>
</tr>
<tr>
<td>Leave coyote bush <em>(Baccharis sp.)</em> in the floodplain un-pruned</td>
<td>Annually</td>
<td>No</td>
</tr>
<tr>
<td>Remove invasive vegetation by hand</td>
<td>Biannually</td>
<td>No</td>
</tr>
<tr>
<td>Trash removal as necessary</td>
<td>Weekly</td>
<td>No</td>
</tr>
<tr>
<td>Debris removal as necessary</td>
<td>Annually</td>
<td>No</td>
</tr>
<tr>
<td>Graffiti abatement on wall and trail</td>
<td>As necessary</td>
<td>No</td>
</tr>
<tr>
<td>Mow along trail to maintain a 2’ clearance</td>
<td>Monthly</td>
<td>No</td>
</tr>
<tr>
<td>Police the area for illegal encampments</td>
<td>Weekly</td>
<td>No</td>
</tr>
<tr>
<td>Repair and maintain permeable trail pavement</td>
<td>Inspect monthly, repair as necessary</td>
<td>No</td>
</tr>
</tbody>
</table>

**8th Street to 10th Street**

<table>
<thead>
<tr>
<th>Action</th>
<th>Frequency</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prune limbs on the north bank up to 6’ feet to establish and maintain sightlines from the trail into the creek</td>
<td>Annually</td>
<td>Yes</td>
</tr>
<tr>
<td>Remove invasive vegetation by hand</td>
<td>Biannually</td>
<td>No</td>
</tr>
<tr>
<td>Trash removal as necessary</td>
<td>Weekly</td>
<td>No</td>
</tr>
<tr>
<td>Debris removal as necessary</td>
<td>Annually</td>
<td>No</td>
</tr>
<tr>
<td>Graffiti abatement on wall and trail</td>
<td>Annually</td>
<td>No</td>
</tr>
<tr>
<td>Mow along trail to maintain a 2’ clearance</td>
<td>Monthly</td>
<td>No</td>
</tr>
<tr>
<td>Police the area for illegal encampments</td>
<td>Weekly</td>
<td>No</td>
</tr>
<tr>
<td>Repair and maintain trail pavement</td>
<td>Inspect monthly, repair as necessary</td>
<td>No</td>
</tr>
</tbody>
</table>

**10th Street to San Pablo Avenue**

<table>
<thead>
<tr>
<th>Action</th>
<th>Frequency</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prune limbs on the north bank (outside of fence) up to 8’ feet</td>
<td>Annually</td>
<td>Yes</td>
</tr>
<tr>
<td>Remove invasive vegetation by hand</td>
<td>Biannually</td>
<td>No</td>
</tr>
<tr>
<td>Trash removal as necessary</td>
<td>Weekly</td>
<td>No</td>
</tr>
<tr>
<td>Debris removal as necessary</td>
<td>Annually</td>
<td>No</td>
</tr>
<tr>
<td>Police the area for illegal encampments</td>
<td>Weekly</td>
<td>No</td>
</tr>
<tr>
<td>Maintain trail pavement as necessary</td>
<td>Inspect monthly, repair as necessary</td>
<td>No</td>
</tr>
</tbody>
</table>
Vegetation Management Actions

Most of the management actions do not require further explanation or approval from permitting agencies. However, modifying the vegetation within the creek and riparian zones require additional detail both for the management group and for the permitting agencies.

The intent of managing the vegetation is two-fold. First, the removal of invasive species will improve habitat conditions for native plants and wildlife using the stream channel and riparian area. Second, Lower Codornices Creek attracts illegal encampments, associated garbage, and other creek impacts. These encampments tend to make use of vegetation screens and other types of refuge within the creek. Providing sight lines into the creek zone from the adjacent trail and ballfields will hopefully reduce the attractiveness of the creek to illegal encampments and reduce the related impacts and required policing.

Typically, as the creek vegetation matures, it will naturally create better sight lines. For the first ten years after a creek restoration project is complete, the vegetation along tends to be dominated by shrubs and dense willows. As it ages, these willows increase in height, other trees start to dominate the site, and the taller trees shade the lower canopy, preventing dense vegetation and improving site lines. Phase I (5th Street to the UPRR) is about 14 years old now and the interior canopy is 20 feet tall. Sightlines have improved in the past five years. By contrast, Phase III (6th to 8th Street) is only about seven years old and is dominated by dense willows preventing any sightlines to the creek or across the creek channel.

Even in the areas with older trees and less lower canopy vegetation, leaves and branches growing along the edge of the riparian area between the creek and trail (where sunlight is most abundant) will need to be pruned to maintain sightlines.

Removal of Invasive Plants

Removal of non-native vegetation by hand does not require agency approval and may be required or strongly encouraged by the terms of the permits that cover the various restoration projects along this reach of Codornices Creek. Bindweed, blackberry, broom, ivy, fennel, and other invasive plants impair visibility and should be removed immediately and repeatedly.

Because it does not require agency approval (if done by hand), the responsible parties can immediately begin removing invasive plants, particularly those that block visibility into and through the riparian area. The parties should consult with RDG, a botanist, or other creek specialist to determine the best time and method to remove invasive plants. Conspicuous invasive plants that block visibility in this reach include bindweed, English and Algerian ivy, Himalayan blackberry, broom, and fennel.
Bindweed

Bindweed is a thin, climbing vine with arrowhead shaped leaves and white trumpet-shaped flowers that wraps itself around other vegetation, fences, and bridges. These delicate looking plants have large, durable root systems and will require multiple attempts to remove completely.

The most effective technique for removing bindweed by hand is to prune it to the ground repeatedly until its roots have exhausted their stored supply of energy.

Broom

Broom is an upright shrub with round stems, small leaves in groups of three, and small yellow flowers. Scotch and French broom both grow in disturbed areas in the East Bay.

Broom should be removed at the roots with a weed wrench. While it will remove the shrub, it will also disturb the soil and disperse broom seeds so follow up weeding will be necessary until the broom is gone and the area is occupied by other plants. Alternately, broom may be removed by saw-cutting the shrub in late summer, mulch the site with 4 inches of sterile mulch, and return to the site every summer to remove new seedlings. Place the removed shrub and plant material on a tarp and dispose of offsite.
Ivy
Several types of ivy grow along Lower Codornices Creek. Removal techniques are similar across species. Remove ivy roots, remove the ivy from the site for disposal and mulch (or sheet mulch with cardboard) the area to prevent its return. Like any invasive plant, it will require follow up to remove new seedlings and sprouts until the stored energy in the roots is spent.

Fennel
Fennel is a large perennial herb that blooms in the summer. Root systems can grow to ten feet in depth and seeds can remain in the soil for years. It is less a concern for visibility but prevents native plants from establishing themselves along the creek.

Depending on the size of the plant, remove by hand or with trowels, hoes, or shovels. Large plants may require picks to remove the deep taproot. Remove the root to 3” to 6” in depth. Removal is easiest when the soil is wet. Complete removal may take up to four years.

Pruning
The intent of pruning is to create sightlines and reduce the creeks attraction for illegal encampments while preserving the shading and habitat functions of the native vegetation. Pruning limbs and leaves between the trail and creek requires agency approval and sensitivity to the habitat impacts it could cause if done improperly.

Pruning should preserve upper canopy shade but allow for reasonable sight lines from the trail into and across the creek channel.

Other than at the culverts, the vegetation in the creek channel from San Pablo Avenue to the UPRR creates a nearly contiguous canopy of shade. Along much of the channel, the canopy is naturally 10’ and higher above the creek channel.
What prevents visibility into the channel is often just the vegetation on the edge of the riparian zone between the trail and creek.

The photo on the left shows low-hanging willow branches upstream of 6th Street creating a screen between the trail and creek. Two small illegal encampments were just behind the vegetation when the photo was taken. The yellow measuring tape is 6 feet tall. The pruning of the lower limbs up to about 5 feet would allow for more visibility into the creek channel similar to the creek immediately downstream of 6th Street (see photo on right).

**UPRR to 5th Street**

Figure 1. Parcel Map shows Lower Codornices Creek. 5th Street to the UPRR (also known as Phase I) is the lowest reach. This reach was restored in 2004 and the mature vegetation has begun to shade out lower canopy vegetation. Vegetation along the edges of the riparian area and fences and dense willow trunks still interrupt sightlines from the adjacent playing fields. Several persistent illegal encampments exist downstream of the 4th Street bridge, in part because the trail does not extend below the bridge. Additionally, as shown in the photo below, some encampments are extremely visible from the adjacent ballfields and more frequent policing rather than improved sightlines may be the necessary approach.

**Vegetation Management**: Remove broom, bindweed, and other invasive plants by hand. Prune vegetation along north and south edges of the riparian zone to approximately 6’ high.
5th Street to 6th Street
5th Street to 6th Street (Phase II) was restored in 2005. Like Phase I immediately downstream, the upper canopy is beginning to shade out the lower canopy creating natural sightlines. However, leaves, branches, and bindweed along the edge still create a barrier to visibility.

Vegetation Management: Remove bindweed and other invasive plants by hand. Prune vegetation along north edge of the riparian zone (along trail) to approximately 6’ high.

6th Street to 8th Street
6th Street to 8th Street (Phase III) is only about seven years old. The vegetation is still dominated by shrubs and dense willows. There are almost no sightlines into or across the channel. The vegetation shelters two to three small illegal encampments. Pruning will be most significant in this reach.

Vegetation Management: Remove fennel and other invasive plants by hand. Prune vegetation along south edge of the riparian zone (along trail) to approximately 6’ high to provide sightline into and across the channel. Preserve higher vegetation to continue to shade the creek channel.

8th Street to 10th Street
8th Street to 10th Street was restored over twenty years ago. The upper canopy is tall and mature. Dappled sunlight near the creek allows for some lower canopy vegetation that screens the creek from the planned trail along the ballfields. Recent illegal encampments have cut down some vegetation already.

Vegetation Management: Remove invasive plants by hand. Prune vegetation along north edge of the riparian zone and down to creek channel to approximately 6’ high to provide sightline into and across the channel. Preserve higher vegetation to continue to shade the creek channel.
10th Street to San Pablo Avenue

The reach between San Pablo and 10th Street is slated for a restoration project sometime in the future. It is fenced on four sides and has not attracted illegal encampments in the way that other reaches downstream have.

Vegetation Management: Pruning should be focused on the mostly invasive vegetation (ivy, Himalayan blackberry, and acacia) on the north side of the channel. Vegetation should be pruned back to the fence and up to approximately 8 feet in height (in line with the fence).
1. MAINTAIN PROJECT PERIMETER FENCE FOR THE DURATION OF THE CONSTRUCTION PERIOD.
2. PROTECT ALL IMPROVEMENTS NOT NOTED FOR DEMOLITION.
3. PP ALL UTILITIES UNLESS OTHERWISE NOTED.
4. LEGALLY DISPOSE OF ALL MATERIAL CLEARED, GRUBBED, DEMOLISHED, OR SALVAGED BUT NOT UTILIZED FOR PROJECT OR ACCEPTED BY OWNER. STOCKPILE ALL MATERIALS NOTED ON PLANS FOR REUSE.
5. SALVAGE (E) IRRIGATION COMPONENTS AS FEASIBLE AND RETURN TO OWNER. SALVAGED COMPONENTS, IF DEEMED IN PROPER WORKING ORDER AND IF APPROVED BY O.R. MAY BE RE-USED IN PROJECT IRRIGATION INSTALLATION.

DEMOLECION LEGEND

- PROPERTY BOUNDARY
- EASEMENT
- LIMIT OF WORK (SHOWN SCHEMATICALLY)
- AREA TO BE CLEARED AND GRUBBED; SEE DEMOLITION NOTES.
- PAVING TO BE DEMOLISHED AND REMOVED; SEE DEMOLITION NOTES AND SPECIFIC NOTES ON PLAN.
- FENCING, GATES, WALLS, AND CURB/GUTTER TO BE REMOVED CONSTRUCTION ACCESS
- TREE TO BE REMOVED
- TREE TO BE TRANSPLANTED

EROSION CONTROL NOTES

1. PROVIDE SWPPP AND ENSURE COMPLIANCE THROUGHOUT THE DURATION OF CONSTRUCTION.
2. SEE GRADING PLAN FOR ADDITIONAL EROSION CONTROL NOTES.

DEMOLITION NOTES

1. MAINTAIN PROJECT FENCE OR FENCE FOR THE DURATION OF THE CONSTRUCTION PERIOD.
2. PROTECT ALL IMPROVEMENTS NOT NOTED FOR DEMOLITION.
3. PP ALL UTILITIES UNLESS OTHERWISE NOTED.
4. LEGALLY DISPOSE OF ALL MATERIAL CLEARED, GRUBBED, DEMOLISHED, OR SALVAGED BUT NOT UTILIZED FOR PROJECT OR ACCEPTED BY OWNER. STOCKPILE ALL MATERIALS NOTED ON PLANS FOR REUSE.
5. SALVAGE (E) IRRIGATION COMPONENTS AS FEASIBLE AND RETURN TO OWNER. SALVAGED COMPONENTS, IF DEEMED IN PROPER WORKING ORDER AND IF APPROVED BY O.R. MAY BE RE-USED IN PROJECT IRRIGATION INSTALLATION.
Prepare construction corridor through community garden and restore channel of trees and shrubs where all affected. Delineation and temporary irrigation to transplanted plants. See plans for additional information.

City of Albany and UC Berkeley

Ball fields

Preparation work shall include transplanting or removal of trees and shrubs, mulching all affected vegetation, and temporary irrigation to transplanted plants. See plans for additional information.

City of Berkeley

No work in channel

Bldg. site

Pp ballfield fencing

Salvage bleachers. Remove 4" height concrete pad. Re-install bleachers per plans. Coordinate all work with project stakeholders prior to project start.

Pp trees, uon. clear and grub by hand under trees to remain.

Remove wood header and plastic fabric.

Remove dead elm tree and grouping of elm trees, including roots per o.r. direction. Pp box elder trees and other native trees per o.r. direction.

Remove wood in channel per o.r. direction.

Remove approximately 10 elm trees up to 9" diameter per o.r. direction. Pp buckeye trees.

Remove chain-link fencing and all concrete footings as directed by o.r.
SAVAGE AND RELocate BLEACHERS, SEE LAYOUT PLANS. REPLACE MISSING OR LOOSE BOLTS TO SECURE LOOSE BENCHES. COORDINATE ALL WORK WITH PROJECT STAKEHOLDERS PRIOR TO PROJECT START.

REMOVE CHAIN-LINK FENCING , CONCRETE FOOTINGS, AND WOOD HEADERS, TYP.

PP UTILITY POLES, TYP.

PP BULLPEN FENCING, MOWBAND, ETC.

PP CHAIN-LINK FENCING, UON

PP BALLFIELD FENCING

CLEAR AND GRUB AND REMOVE ALL NON-NATIVE TREES TO TOP OF BANK, PP NATIVE PLANTS PER OR.

SAW-CUT AND REMOVE AC PAVING AND SIDEWALK TO ALLOW FOR NEW IMPROVEMENTS, SEE PLANS.

PP YELLOW BOLLARDS, TYP.

REMOVE CHAIN-LINK FENCE PANEL, MISCELLANEOUS POSTS AND FOOTINGS.

NO WORK IN CHANNEL
1. PROVIDE SHOP DRAWINGS AND AS-BUILTS AS NOTED IN SPECIFICATIONS.
2. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS ON THE SITE AND NOTIFY O.R. OF ALL DISCREPANCIES. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING MINOR SITE ADJUSTMENTS TO GRADING, ALIGNMENT, AND LAYOUT TO PROPOSED SITE IMPROVEMENTS AT NO COST TO THE OWNER.
3. DIMENSIONS AS SHOWN ARE TO BE VERIFIED WITH THE O.R. PRIOR TO INSTALLING THE IMPROVEMENTS. IF MINOR FIELD ADJUSTMENTS ARE REQUIRED, THEY SHALL BE COMPLETED BY THE CONTRACTOR AT NO COST TO THE OWNER.
4. PROTECT, PROTECT AND RESTORE ALL EXISTING ADJACENT IRRIGATION EQUIPMENT AND SYSTEMS TO PROVIDE COMPLETE EFFICIENT HEAD TO HEAD COVERAGE.
5. SITE IMPROVEMENTS INCLUDING BUT NOT LIMITED TO: FENCES, GUARDRAILS, SWALES, CURBS, AND PAVING SHALL BE STAKED IN THE FIELD FOR REVIEW AND APPROVAL BY O.R. PRIOR TO INSTALLATION.
- Ensure smooth transition between new and existing aggregate paving.
- Hold concrete paving flush with concrete pad at bleachers.
- Ensure positive drainage from pathway.
- Provide 1' wide band at edge of paving to support guardrail.
- Wood guardrail.
- Hold concrete paving flush with new and existing aggregate paving.
- Site boulder, TYP.
- Aggregate paving at pullout.
- Aggregate paving at reinstallation per O.R. direction.
- Build accessible concrete ramp.
- Hand grade around new pathway and rockery; ensure positive drainage from pathway.
- Aggregate paving.
- Road fence.
- Bicycle rack.
- Approximate location of interpretive element.
LOG SEATING

- Log length per plans. Final log selection and seating height per O.R. direction. See plans and specifications for species.
- Cut top face of log to provide level surface per O.R. direction. Sand smooth for seating and edge edges. Finish per specifications.
- Core drill for pipe and fill with redwood cored plug. Install final plug, 3" long. Glue, then cut plug flush and sand smooth.
- 1-1/2" diameter galvanized pipe driven to refusal (6'-0" minimum overall length). Drive top 3" below top of log surface. (3) pipe stakes per 10' log, (4) pipe stakes per 10'+ log.

CONCRETE SEATWALL

- Top and bottom rail and vertical post members: Structural tubing: 1-1/2" X 1" X 3/16". All joints shall be welded and ground smooth.
- VERTICAL PICKETS: 1/2" X 1/2" solid square steel. Weld all around at top and bottom.
- GUARDRAIL CONNECTION: OVERLOOK STRUCTURE: SPACE POSTS AT 4'-6" O.C., UN. HOLD TOP OF GUARDRAIL LEVEL. BAD: MAX. 4" OPENING BETWEEN VERTICALS: 42" MIN.
- GUARDRAIL SHALL BE HOT DIP GALVANIZED AFTER FABRICATION. TOUCH UP FIELD WELDS PER SPECIFICATIONS.

GUARDRAIL POST 1-1/2" X 1" X 4' FIELD WELD TO BASE PLATE. NOTE: ALL JOINTS SHALL BE FULLY WELDED AND GROUND SMOOTH.
- BASE PLATE 3/8" THICK, 3-1/2" SQUARE EMBEDDED STEEL PLATE WITH ANCHORS.
- H/D REBAR STUD ANCHORS, IN 1-1/2" SQUARE PATTERN LENGTHS VARY. SEE NOTE. USE 12" LENGTH ANCHORS AT CONCRETE FOOTING WELD TO BOTTOM OF BASE PLATE.

- CONCRETE SEATWALL JOINING AS DIRECTED BY O.R. IN FIELD.
- SEATWALL, HORIZONTAL REBAR: (3) #4 TOP, (2) #4 MID-HEIGHT AND (3) #4 BOTTOM AS SHOWN.
- CONCRETE PAVING, DOWEL INTO SEATWALL AT 18" OC WITH 5/8" DIAMETER SMOOTH, GALVANIZED STEEL DOWEL, MID DEPTH OF SLAB.

- Sand smooth for seating and ease edges. Finish per specifications.
- Core drill for pipe and fill with redwood cored plug. Install final plug, 3" long. Glue, then cut plug flush and sand smooth.
- CONCRETE SEATWALL JOINING AS DIRECTED BY O.R. IN FIELD.
- CONCRETE PAVING, DOWEL INTO SEATWALL AT 18" OC WITH 5/8" DIAMETER SMOOTH, GALVANIZED STEEL DOWEL, MID DEPTH OF SLAB.
1. POST CONSTRUCTION HEART REDWOOD, USE 1 MAX FOR LINE, CORNER AND END POSTS. SPACE 8" O.C. MAX. LOCATE POSTS 6" CLR OF PAVING, TYP.

2. RAILS, CONSTRUCTION HEART REDWOOD, 2" X 6" CONTINUOUS ON TRAIL SIDE. POSTS RAILS SHALL SPAN 3 POSTS MINIMUM WHERE POSSIBLE. BUTT JOINTS AT 1/2 OF POSTS IN ALTERNATE JOINTS. SET IN LINE 5 GALLON OR LARGER.

3. CONCRETE POST FOOTING, SLOPE TOP TO DRN.

4. COMPACTED BASE COURSE

5. COMPACTED SUBGRADE

1. WOOD GUARDRAIL

2. RAIL FENCE
1. Container plants shall be restoration grade native plants. Cultivars of native species will not be accepted. County of origin for each plant shall be noted in submittal.

2. Final layout of container plants to be approved by O.R. in the field. Contractor to provide means of marking plant locations.

3. Contractor shall provide plants in container sizes noted in legend. In some circumstances container sizes may be substituted with O.R. approval. The following are plant quantity ratios for plant container size substitutions. Contractor to provide a submittal for all proposed substitutions. See specifications:
   - 15 gallon pot = no substitutions
   - 5 gallon pot to 4 gallon = 1:1.2
   - 1 gallon pot to 4 gallon = 1:1.2
   - 1 gallon pot to 1 gallon = 1:1.4
   - 1 gallon pot to D-40 = 1:2

4. Plants shall be unevenly spaced, unless directed otherwise by O.R. in the field.

5. Irrigation design shall be provided by contractor as bidder design irrigation plans submittal. (See specifications). Contractor shall provide bidder design irrigation plan as shop drawing for review and approval by O.R. Contractor is responsible for all connections and specific notes on irrigation plan.

6. Bidder design irrigation plan shall ensure all spray irrigation provides head to head coverage, matched precipitation & avoids overspray onto paved or non-planted areas.

7. All underground irrigation shall be installed prior to the installation, operational test and approval of the system by O.R.

8. Install irrigation components as noted in the specifications.

9. Coordinate irrigation point of connection and power source with client and project planning team. Provide all necessary connections.

10. Container plants shall be restoration grade native plants. Cultivars of native species will not be accepted. County of origin for each plant shall be noted in submittal.

11. Final layout of container plants to be approved by O.R. in the field. Contractor to provide means of marking plant locations.

12. Contractor shall provide plants in container sizes noted in legend. In some circumstances container sizes may be substituted with O.R. approval. The following are plant quantity ratios for plant container size substitutions. Contractor to provide a submittal for all proposed substitutions. See specifications:
   - 15 gallon pot = no substitutions
   - 5 gallon pot to 4 gallon = 1:1.2
   - 1 gallon pot to 4 gallon = 1:1.2
   - 1 gallon pot to 1 gallon = 1:1.4
   - 1 gallon pot to D-40 = 1:2

13. Plants shall be evenly spaced, unless directed otherwise by O.R. in the field.

14. Irrigation design shall be provided by contractor as bidder design irrigation plans submittal. (See specifications). Contractor shall provide bidder design irrigation plan as shop drawing for review and approval by O.R. Contractor is responsible for all connections and specific notes on irrigation plan.

15. Bidder design irrigation plan shall ensure all spray irrigation provides head to head coverage, matched precipitation & avoids overspray onto paved or non-planted areas.

16. All underground irrigation shall be installed prior to the installation, operational test and approval of the system by O.R.

17. Install irrigation components as noted in the specifications.

18. Coordinate irrigation point of connection and power source with client and project planning team. Provide all necessary connections.
MATCHLINE
ALBANY
BERKELEY
CB
8TH STREET
L.O.W.
MATCHLINE
MULCH IN PLANTER
IRRIGATE WITH DRIP IRRIGATION
IRRIGATE CONTAINER PLANTS WITH BUBBLERS
MULCH IN PLANTED AREAS TO TOP OF BANK, TYP.
IRRIGATE CONTAINER PLANTS WITH BUBBLERS
MULCH ALONG CREEK SIDE OF CONCRETE PAVING TO TOP OF BANK OR AS REQUIRED TO COVER ALL AREAS AFFECTED BY CONSTRUCTION
IRRIGATE CONTAINER PLANTS WITH BUBBLERS
LOCATE IRRIGATION CONTROLLER ALONG 8TH STREET. CONNECT ACROSS STREET TO PHASE 3?
1" = 10'-0"

8TH STREET
10TH STREET
WEST
CENTER
EAST
CODORNICES CREEK
CITY OF ALBANY
AND UC BERKELEY
CITY OF BERKELEY
KEY:
BUILDING

REVEGETATION WEST
L-3.1
NO WORK IN CHANNEL

MULCH THESE AREAS UNDER DIRECT SUPERVISION OF O.R AND COMMUNITY GARDEN REPRESENTATIVE

IRRIGATE CONTAINER PLANTS AND TREES W/ BUBBLERS.

(E) TREES, TYP, PP
**TREE STAKING**

1. **LARGE CONTAINER TREE** (5 gallon or larger)
2. **ARBORTIE TREE TIES** (2) 3/8" wide loops around tree. Reduce ambients 4" min from top of stake. Direct and approve of installation by O.R.
3. **TREE STAKES** set vertical outside rootball. Keep top of stakes 6" min clear of limbs. Set in line with creek flow direction.
4. **FINISH GRADE**
5. **MULCH**
6. **CREEK FLOW DIRECTION**

**PLANT - SHRUB**

7. **TREE OR SHRUB ROOTBALL** (1 gallon or larger), set crown 1-2" above finished grade
8. **PIT DIAMETER** twice times the rootball diameter. Excavate pit 2" shallower than container. Secure beyond rootball. Place rootball on center mound as shown.
9. **EDGE OF PIT, FRAGMENT & SCARIFY.**
10. **NATIVE SOIL, BACKFILL TO HAND-COMPACT IN 6" LIFTS.**
11. **WATERING BASIN LIP** 4" height. Down slope edge only in sloped condition: complete perimeter in level condition.
12. **MULCH**
13. **ORIGINAL GRADE, SLOPED CONDITION**
14. **FINISHED GRADE, SLOPED CONDITION**

**PLANT - SMALL**

15. **PLANT GROWN IN RESTORATION CONTAINER** (smaller than 1 gallon)
16. **PLANTING PIT** equal diameter to container. Use dibble or hand spade. Set crown above finish grade. Push native soil tight against roots.
17. **MULCH / SEEDING, SEE PLANS AND SPECIFICATIONS. KEEP MULCH CLEAR OF CROWN.**
18. **SLOPED CONDITION - SET PLANT PLUMB**