

**DELINEATION OF ORDINARY HIGH WATER MARK  
AND RIPARIAN HABITAT FOR THE  
ALUM ROCK PARK  
PROPOSED PROJECT AREAS 1-11  
SAN JOSE, CALIFORNIA  
APNs 595-07-015, 599-25-001 & 612-46-001**

March 2010

Prepared for:

City of San Jose  
Parks, Recreation and Neighborhood Services  
200 E. Santa Clara Street  
San Jose, CA 95113  
Phone (408) 793-5552

Prepared by:

Winzler & Kelly  
633 Third Street  
Eureka, CA 95501-0417  
(707) 443-8326

**TABLE OF CONTENTS**

	<b><u>Page</u></b>
<b>I. SUMMARY .....</b>	<b>1</b>
<b>II. INTRODUCTION.....</b>	<b>1</b>
<b>III. ORDINARY HIGH WATER MARK AND RIPARIAN DELINEATION METHODOLOGY .....</b>	<b>2</b>
<b>IV. RESULTS OF THE ORDINARY HIGH WATER MARK AND RIPARIAN DELINEATION .....</b>	<b>3</b>
<b>V. CONCLUSIONS .....</b>	<b>6</b>
<b>VI. RECOMMENDATIONS.....</b>	<b>6</b>
<b>VII. SPECIAL TERMS AND CONDITIONS.....</b>	<b>6</b>
<b>VIII. REFERENCES.....</b>	<b>7</b>

**APPENDICES**

**Appendix A: Ordinary High Water & Riparian Habitat Delineation Figures**

**DELINEATION OF THE ORDINARY HIGH WATER MARK  
AND RIPARIAN HABITAT FOR THE  
ALUM ROCK PARK  
PROPOSED PROJECT AREAS 1-11  
SAN JOSE, CALIFORNIA  
APNs #595-07-015, 599-25-001 & 612-46-001**

**I. SUMMARY**

On February 9-10, 2010, a delineation of the Ordinary High Water Mark (OHWM) and riparian habitat was conducted for the City of San Jose Parks, Recreation and Neighborhood Services Department at eleven proposed project sites on Penitencia Creek in Alum Rock Park, San Jose, CA in City owner properties, Assessor's Parcel Numbers (APNs) 595-07-015, 599-25-001 and 612-46-001. The OHWM location procedure was completed pursuant to the U.S. Army Corps of Engineers (USACE) guidance for OHWM identification using physical characteristics criteria for making OHWM determinations (USACE, 2005). The identification for riparian habitat (WCB, 2010) was made by on-site establishment of the average outer tree drip line (away from the stream), for those individual trees established adjacent to proposed bank or in-stream work, which appear to provide sufficient creek shading. Wetlands generally occur as small and isolated inclusions within the delineated OHWM and typically consist of vegetated portions of gravel bars or, occasionally, as small terraces along a stream bank. Because much of Upper Penitencia Creek, within the project area, is constrained by rock walls, rock outcrops, or steep banks, bordering wetlands are not common and they occur within the OHWM limits.

**II. INTRODUCTION**

The overall project includes 12 sub-project locations within Alum Rock Park to be implemented over a four-year period (2010-2013). Proposed activities include two bridge abutment repairs, ten bank repair sites, floodplain restoration and a fish passage improvement project. Several of the specific project elements are intended to restore habitat in ways likely to benefit aquatic and semi-aquatic species (floodplain restoration, weir modification and stream channel roughing to enhance fish passage) or prevent future impacts from occurring (bank repair, bridge abutment and footing repair). Project related construction has the potential to result in temporary impacts, many of which can be avoided or minimized.

Work would generally occur in immediate proximity to Upper Penitencia Creek. Floodplain restoration would extend as much as 40 feet away from the existing bank; most other project activities would not extend beyond top of bank except for vehicle parking and temporary stockpiling of materials. Most individual project activities are very limited in spatial extent.

For clarity, project activities are presented in spatial (not numerical) sequence from upstream to downstream, and are grouped into three distinct clusters. The upstream cluster extends over an area of about 1,000 linear feet, from the Creekside Bridge to just below Bridge K, and includes Sites 1, 11, 3, 10, and 4. The middle cluster begins about 1,000 feet downstream, extends about 1,200 feet from Bridge I to about 250 feet below the Visitor's Center Bridge, and includes Sites

2, 5, 6, and 9 (including the CEMAR fish passage improvement project). The downstream cluster begins nearly a mile below the middle cluster, extends for about 600 feet, and includes Site 7 and 8. The sub-projects have been individually described in the City of San Jose's Alum Rock Park Bridge and Bank Repair and Stream Restoration Projects Initial Study (2008).

The locations and extent of the OHWM and the limits of the riparian habitat of the various projects are presented on Figures located in Appendix A.

### **III. ORDINARY HIGH WATER MARK and RIPARIAN DELINEATION METHODOLOGY**

The OHWM and riparian habitat delineation was conducted by Winzler & Kelly following the USACE (2005) OHWM guidance criteria. Field Work for the OHWM and riparian habitat delineation was completed by Gary Lester of Winzler & Kelly on February 9-10, 2010. This delineation report includes a discussion of site conditions, sampling methodology, sampling results, and conclusions as well as a map delineating wetland boundaries, and riparian boundaries in the eleven project areas. A set of project location figures illustrating the extent of the OHWM and riparian habitat within each project site is included in Appendix A.

#### **A. Ordinary High Water Mark Identification Methodology**

USACE (2005) defines the term "ordinary high water mark" as:

"...that line on the shore established by fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris or other appropriate means that consider the characteristics of the surrounding areas."

In practice, the means used at the time of this survey was the existing Penitencia Creek flow line and recent flow lines marked by matted down vegetation.

#### **B. Riparian Habitat Identification Methodology**

Riparian habitat is composed of the trees and other vegetation and physical features normally found on the stream banks and flood plains associated with streams, lakes or other bodies of water (WCB, 2010). Further interpretation of riparian vegetation was made on-site for trees which would provide creek water cover or shade, not necessarily restricted to those trees normally (or naturally) found on California water ways.

Therefore long standing Alum Rock landscape trees planted along Penitencia Creek were also recognized as providing riparian-like shade quality. Care was taken to determine the extent of these riparian habitat features at the farthest limits away from the established OHWM. The extent was determined to be the average edge of the riparian tree or shrub drip-line.

Once OHWM and riparian habitat characteristics were determined for a specific project area, a flag was placed to delineate the limits of the boundary. Point numbers for the OHWM boundary or extent of riparian average drip-line were written on flags. Points were based on field determinations to mark a change in the direction of the boundary and

were not predetermined by aerial or topographic maps. Flag locations were surveyed by BGT Land Surveying, the results of which are provided in the figures in Appendix A.

#### **IV. RESULTS OF ORDINARY HIGH WATER MARK AND RIPARIAN HABITAT DELINEATION**

The sub-projects are individually discussed in detail below. The project locations, survey of the OHWM and outer extent of riparian habitat identified at the project locations are presented in figures located in Appendix A. The OHWM is identified on each bank of the creek. Riparian is identified on the bank where the project will take place or was delineated on both stream banks in significant project areas where in-stream activities, such as diversions or coffer dams will be temporarily employed.

##### **Project 1. Creekside Bridge Abutment Repair**

Project 1 is located at the upstream section of the Creekside Bridge along the existing left (south) bank. The left bank at this location is the outside bank at the end of a minor bend. This bend is causing erosion to occur at the left (south) abutment just before the entrance of the bridge. The erosion is causing riprap that was placed as artificial fill during the bridge construction to be exposed and migrate downstream. The erosion of the riprap and fill on the left bank is exposing the left abutment and has the potential to undermine the abutment and cause the bridge to fail.

The riparian habitat was delineated at the Project 1 location on each bank of Penitencia Creek for approximately 100 feet above Creekside Bridge and 100 feet below. The riparian habitat primarily consisted of small white alders (*Alnus rhombifolia*) and a few larger California sycamores (*Platanus racemosa*) and California bays (*Umbellularia californica*).

##### **Project 11: Creekside Bridge Floodplain Expansion**

This sub-project consists of expansion of the floodplain immediately downstream of Creekside Bridge. A segment 200 to 300 feet downstream of the Creekside Bridge currently has a stacked rock wall on the left (east) bank. Much of the eastern bank consists of old fill material and presently supports a picnic area. Floodplain restoration is proposed along the east bank downstream of the bridge. Fill will be excavated and removed, and the area will be graded to an elevation equal to the 1.5-year design flow. All existing walls will be removed, and the picnic area relocated.

The riparian habitat was delineated on the left bank of Penitencia Creek for approximately 100 feet above the floodplain expansion and extending through Project Areas 3 and 10 below. The riparian habitat primarily consisted of small white alders, a few larger California sycamores and the canopy of a few larger coast live oaks (*Quercus agrifolia*). One tree, a sycamore within the delineated riparian habitat, will be removed.

##### **Projects 3 and 10: Bridge L Wall Repair and Floodplain Expansion**

This sub-project consists of repair of the rock wall and expansion of floodplain downstream of Bridge L. Immediately downstream of Bridge L, a rock wall on the east bank is undercut for a length of approximately 25 feet. The wall constrains the stream, which is only 25 feet wide at this location, which results in increased channel velocity and scour. The restoration action at site

3 includes re-establishing the natural width of the channel by removing the rock and concrete wall downstream of the bridge, and creating approximately 0.14-acres of floodplain (up to 40 feet wide) along the eastern bank. There will be no fill or increase in water surface. A new section of wall will be constructed to protect the existing bridge footing.

The riparian habitat was delineated on the left bank of Penitencia Creek above Bridge L contiguous with Project 11 and extending below Project Areas 3 and 10 for approximately 100 feet. The riparian habitat primarily consisted of only a few scattered small white alders and willows (*Salix* spp.), growing within the OHWM.

#### **Project 4: Bridge K Rock Wall Repair**

This sub-project consists of repair of an undercut section of rock wall on the east bank downstream of historic Bridge K. A rock and mortar wall immediately downstream of Bridge K has failed, exposing unstable soil and making additional sections of wall and a nearby asphalt path vulnerable to storm damage. In-kind repair is proposed, using native rocks and mortar and with the addition of weep holes. The project is more than 15 horizontal feet and 7 vertical feet away from the ordinary high water line of Upper Penitencia Creek and is limited to bank repair work. There will be no impacts to waters or wetlands. The repair activities will reduce the future risk of erosion and sedimentation.

A small extent of riparian habitat formed by California buckeyes (*Aesculus californicus*) located on the left bank, was delineated 100 feet above and below Project 4.

#### **Project 2: Youth Sciences Institute Bridge Abutment Repair**

At the Youth Sciences Institute (YSI) Bridge along the left (south) bank, just upstream of the bridge the existing left abutment is constricting the flow of the creek as it passes underneath the bridge. High velocities from turbulence associated with flow constrictions are the likely cause of the erosion located just upstream of the abutment and potential undermining of the abutment. The erosion extends to the top of the bank, where erosion is occurring underneath the wall.

The riparian habitat was delineated at the Project 2 location on each bank of Penitencia Creek for approximately 100 feet above the YSI Bridge and contiguous with Project Area 5 below. The riparian habitat consisted primarily of mature coast live oaks and a few California bays.

#### **Project 5. Repair Eroded Rill and Wall Downstream of YSI Bridge**

This sub-project consists of repair of eroded rill at the end of the north bank vertical rock wall adjacent to a grade control structure.

The riparian habitat was delineated at the Project 5 location on each bank of Penitencia Creek for approximately 100 feet below the Project Area 5 area and contiguous with the YSI Bridge habitat delineation above. The riparian habitat consisted primarily of mature coast live oaks and a few California bays and a big-leaf maple (*Acer macrocarpa*).

#### **CEMAR Fish Passage Improvement**

Design details for these proposed activities is described in the *Final Design Report for a Fish Passage Improvement Project on Upper Penitencia Creek* (Winzler & Kelly, 2008), and was

completed for the Center for Ecosystem Management and Restoration (CEMAR). An undercut weir serving as a grade control structure 75 feet downstream of the YSI bridge has caused a scour pool and a 4.5-foot vertical drop from the crest of the weir to the normal pool surface, creating a salmonid migration barrier. Simple weir removal could allow upstream channel degradation and threaten the structural integrity of the bridge. This project proposes to leave the weir in place and to create a stable roughened channel suitable for fish passage. The new roughened channel will extend for 225 linear feet, with a chute and pool design to allow fish resting places. As a result of the channel design, the OHWM will be elevated through the restored channel reach. There will be no net change in channel cross section, area of jurisdictional waters, or wetted area other than a slightly increased elevation of both channel bed and the OHWM. There will be a significant improvement in fish migration capability, and there will also be a net gain in aquatic habitat quality.

Associated bank improvements include slope regrading, rock wall removal, and revegetation in the downstream part of the project reach, with some rock protection placed at the toe of slope. The riparian habitat present at the CEMAR Fish Passage Project location for approximately 100 feet below the area and contiguous with the Project 5 habitat delineation above consists of scattered mature coast live oaks, several California bays, California sycamores and clusters of small willows. Much of the entire right bank opposite the project is existing frontage of visitor parking and steep creek banks, lacking significant riparian cover.

#### **Project 6: Visitor's Center Bank Protection Repair**

This sub-project consists of repair of failed bank protection adjacent to the Visitor's Center. About 175 feet upstream of the Visitor Center Bridge, a previous bank protection project on the south bank has failed, possibly because of runoff from the adjacent parking lot. An approximately 50-foot long by 5-foot high crib wall has broken and no longer retains the slope. About 30 feet upstream a 6 by 15-foot rock and mortar wall has failed and slid into the channel. Downstream of the crib wall, a 7-by-20-foot section of rock and mortar bank facing has been undercut by erosion and has slid down to the edge of the stream. In this area of multiple failures, a 30-to-40 foot long section of the bank protrudes into the channel and is near vertical.

The riparian habitat was delineated on both banks of Penitencia Creek above the Visitor's Center Bridge the length of Project 6 to approximately 100 feet above and extending below to Project Area 9. The riparian habitat primarily consisted of both dense small willows and mature coast live oaks.

#### **Project 9: Visitor's Center Bridge Abutments Repair and Fish Passage Improvement**

This sub-project consists of repair/protection of bridge abutments/footings, repair of the rock railing, bank repair, and fish passage improvement at the Visitor's Center Bridge. The Visitor's Center Bridge is a rock and mortar arch footbridge with a 40-foot span supported on approximately 9-by-4 foot rock and mortar abutments. Damage to the north abutment includes undercutting of the upstream edge of the footing. A rock and mortar bank wall upstream of the bridge has also been undercut. Damage to the south abutment includes erosion of the footing and rock railing. A concrete and rock and mortar weir is present 12 feet upstream of the bridge. The weir is undercut, is in marginal condition, and has been identified as a potential barrier to

salmonid migration under certain flow conditions. The weir has caused a scour pool and contributed to the failures identified above.

The riparian habitat was delineated at the Project 9 location on each bank of Penitencia Creek for approximately 100 feet below the Project Area 9 area and contiguous with the Visitor's Center Bridge habitat delineation above. The riparian habitat consisted primarily of mature coast live oaks, white alders, California bays and big-leaf maples.

**Project 7: Bank Repair Downstream of Quail Hollow**

This sub-project consists of repairing/protecting the failing south bank along a trail downstream of Quail Hollow. Just downstream of Quail Hollow, a 10-foot section of bank has failed on the outside of a bend in the channel. Repair will include minor excavation of the upper slope, replacement of excavated material with rip rap, and filling of voids with soil to promote growth of vegetation. Work will take place well above the ordinary high water mark, and there will be no impacts to waters or wetlands.

A small extent of riparian habitat formed by white alders located on the left bank, was delineated 100 feet above and below Project 7.

**Project 8: Repair Concrete Wall Downstream of Quail Hollow**

This sub-project consists of repairs to a failing north bank sack concrete wall. On the outer bank of a 90-degree bend in the stream a 40-foot long sack concrete wall has been undercut, exposing the concrete footing. A large culvert extends through the undercut wall. A 50-foot long adjacent upstream section of bank has failed, damaging a portion of the pavement edge of a roadway on top of the bank. The road has been relocated. The banks opposite and downstream are constrained by large bedrock outcrops. The proposed action includes placement of rip rap protection along the exposed footing of the sack concrete wall, which is otherwise in good condition. The failed bank will be repaired with a vertical Hilfiker Retaining Wall system.

Extensive riparian habitat formed by numerous species (primarily white alders, coast live oaks and willows) located on both banks, was delineated 100 feet above and below Project 8.

**V. CONCLUSIONS**

The OHWM and riparian habitat delineation of February 9-10, 2010, delineated the OHWM and riparian habitat outside of the OHWM on 12 project areas in Alum Rock Park. The OHWM and the riparian habitats were delineated during the same period. The riparian habitat was identified as per the WCB (2010) definition and the U.S. Army Corps of Engineers Ordinary High Water Mark ("waters" of the U.S) definition by USACE (2005). All delineated boundaries as well as recorded transect points can be identified on Figures 1-6 (Appendix A).

**VI. RECOMMENDATIONS**

Prior to proceeding with any activity with the potential to cause disturbance to the jurisdictional waters or riparian buffer areas delineated herein, Winzler and Kelley recommends that a COE Jurisdictional Determination and a DFG Streambed Alteration Agreement be obtained.

## **VII. SPECIAL TERMS AND CONDITIONS**

To achieve the delineation objectives stated in this report, we based our conclusions on the information available during the period of the investigation, February 9-10, 2010. This report does not authorize any individuals to develop, fill or alter the waters or riparian habitat delineated. Verification of the delineation by jurisdictional agencies, including the U. S. Army Corps of Engineers, the California Department of Fish and Game, the California Regional Water Quality Control Board and the City of San Jose is necessary prior to the use of this report for site development purposes. Permits to affect wetlands must be obtained from the involved government agencies. If permits are obtained to develop the delineated wetlands after agency review and written verification, the delineation is given a 5-year expiration period. Land use practices and regulations can change thereby affecting current conditions and delineation results.

This report was prepared for the exclusive use of the City of San Jose. Winzler & Kelly is not liable for any action arising out of the reliance of any third party on the information contained within this report.

## **VIII. REFERENCES**

City of San Jose, 2008. Alum Rock Park Bridge and Bank Repair and Stream Restoration Projects, Intial Study. San Jose, CA.

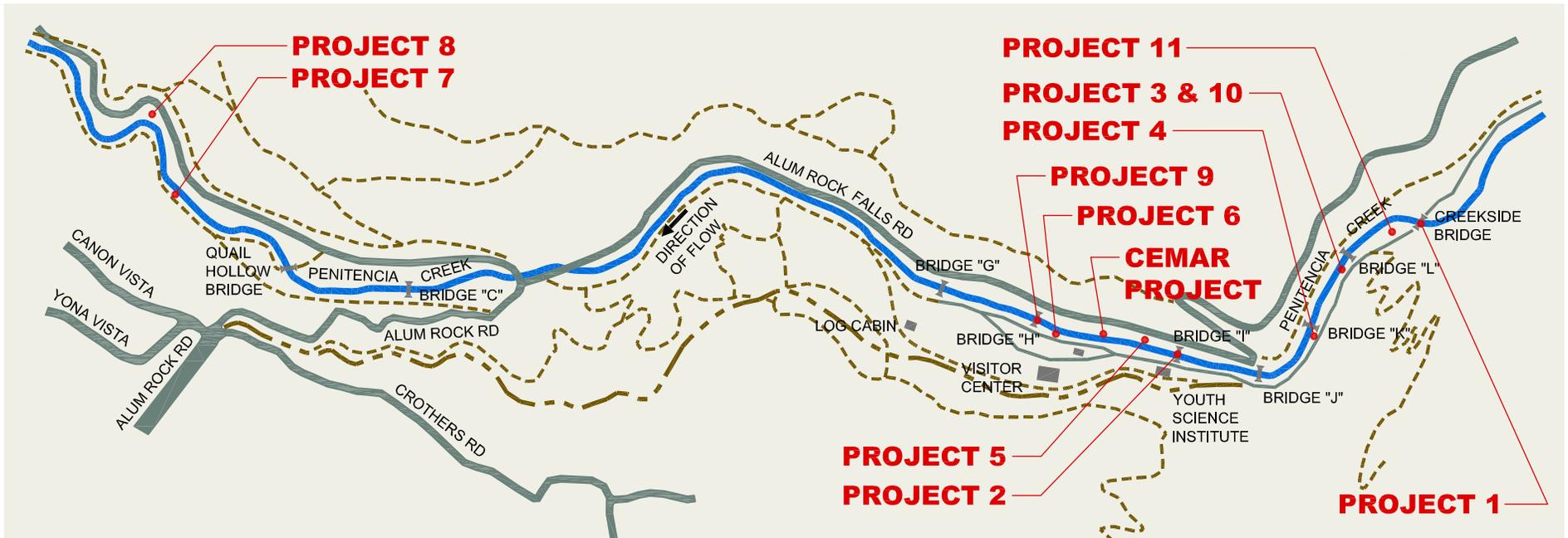
United States Department of the Army Corps of Engineers, Regulatory Guidance Letter, Ordinary High Water Identification, No. 05-05, December 2005.

Wildlife Conservation Board, 2010. State of California. California Riparian Habitat Conservation Program. Sacramento, CA.  
[http://www.wcb.ca.gov/Pages/california\\_riparian\\_habitat\\_conservation\\_program.asp](http://www.wcb.ca.gov/Pages/california_riparian_habitat_conservation_program.asp).

Winzler & Kelly, 2008. *Final Design Report for a Fish Passage Improvement Project on Upper Penitencia Creek*. Center for Ecosystem Management and Restoration. Oakland, CA.

---

**Appendix A**  
**Figures**



**PROJECT 1**

Creekside bridge repair: retaining wall, new concrete apron, revetment slope, grading.

**PROJECT 2**

Youth Science Institute bridge repair: retaining wall, new asphalt concrete pavement, revetment slope, grading.

**PROJECTS 3 AND 10**

Repair of rock wall (Project 3) and expansion of floodplain on east bank immediately downstream of historic foot bridge "L" (Project 10).

**PROJECT 4**

Repair of undercut section of rock wall on east bank immediately downstream of historic foot bridge "K".

**PROJECT 5**

Repair of eroded rill at end of north bank vertical rock wall directly adjacent to grade control structure.

**PROJECT 6**

Repair of failed bank protection project adjacent to Visitors Center. This project was originally constructed as part of the Phase II projects in 2001 (RMP, "Site #18").

**PROJECT 7**

Repair/protect failing south bank along trail downstream of Quail Hollow Bridge.

**PROJECT 8**

Repair of failing north bank sack concrete wall at sharp bend in top of bank road.

**PROJECT 9**

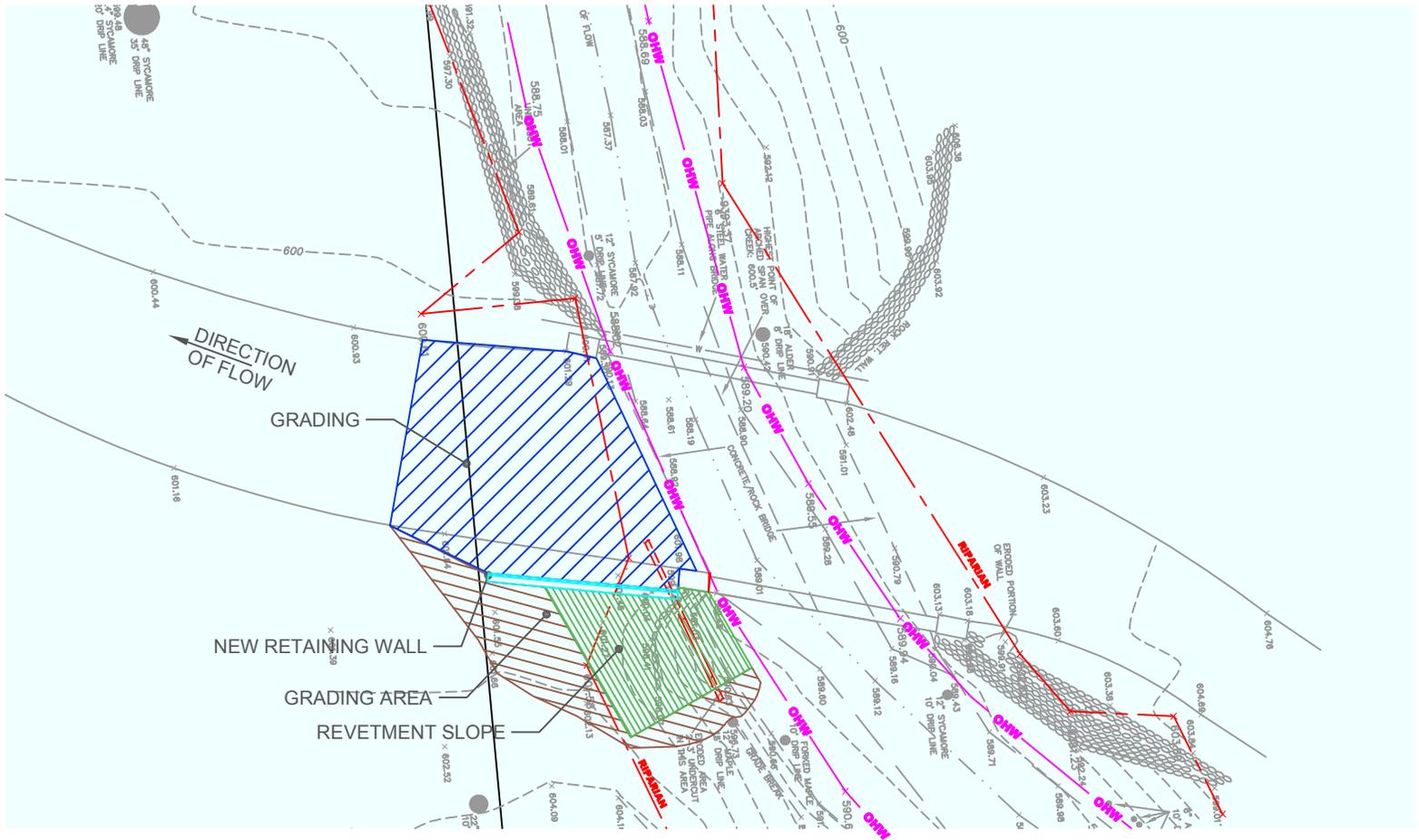
Repair/protection of the abutments/footings, repair of the rock railing, and bank repair at the Visitors Center Bridge (Bridge "H").

**PROJECT 11**

Expansion of floodplain immediately downstream of Creek Side Bridge.

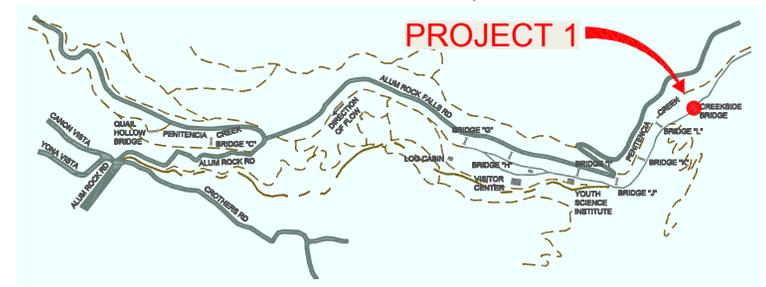
**CEMAR PROJECT**

Create a fish passage.



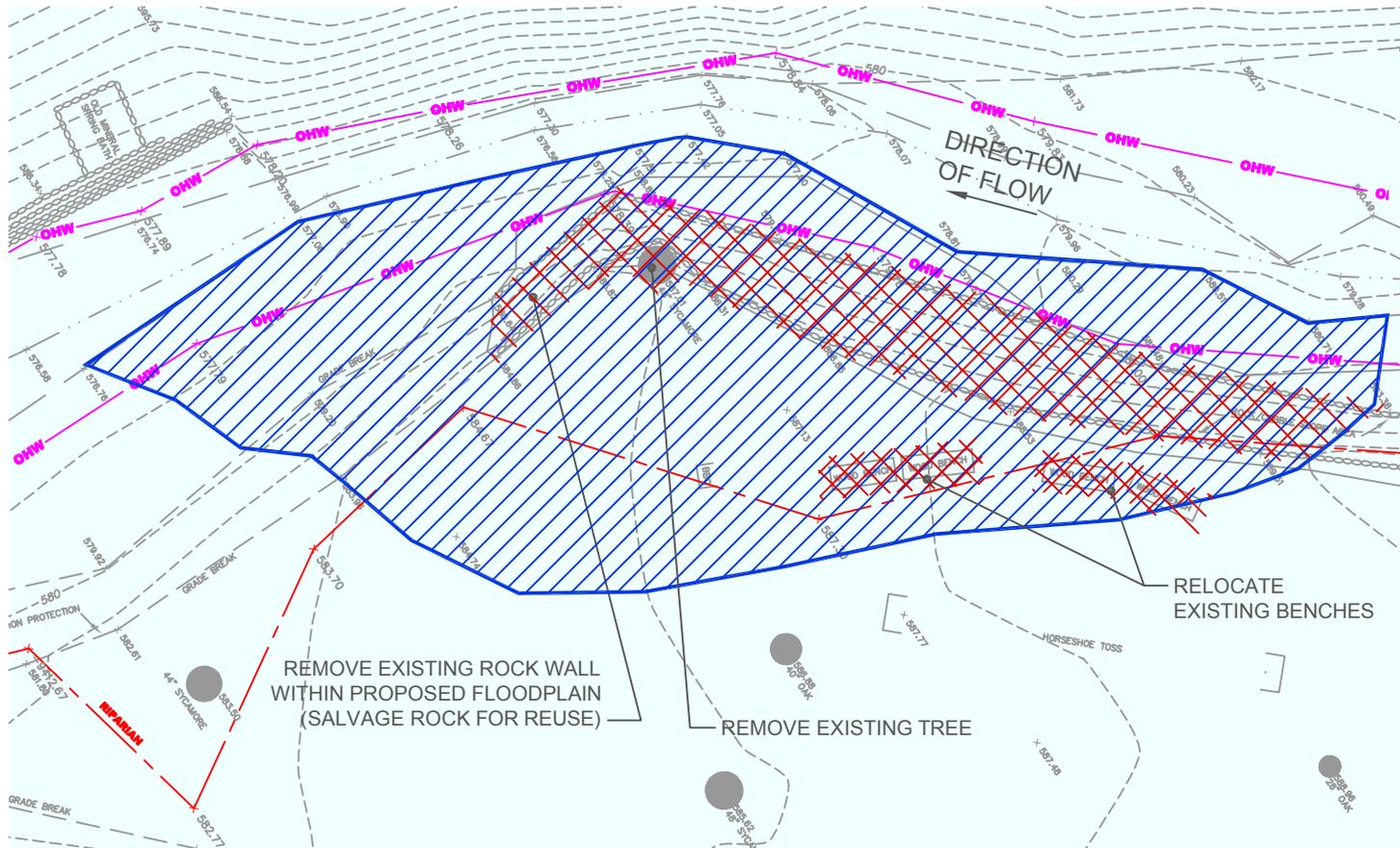
**SITE PLAN**

SCALE: 1"=20'



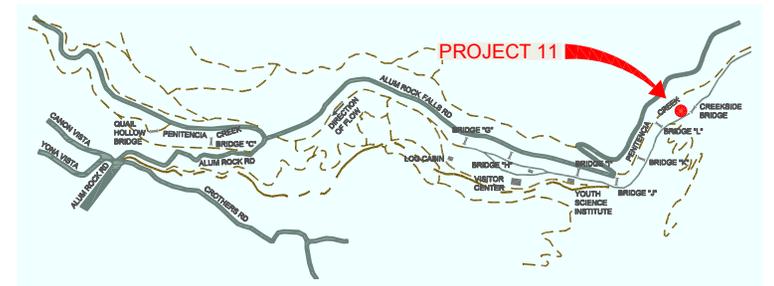
**KEY MAP - ALUM ROCK PARK**





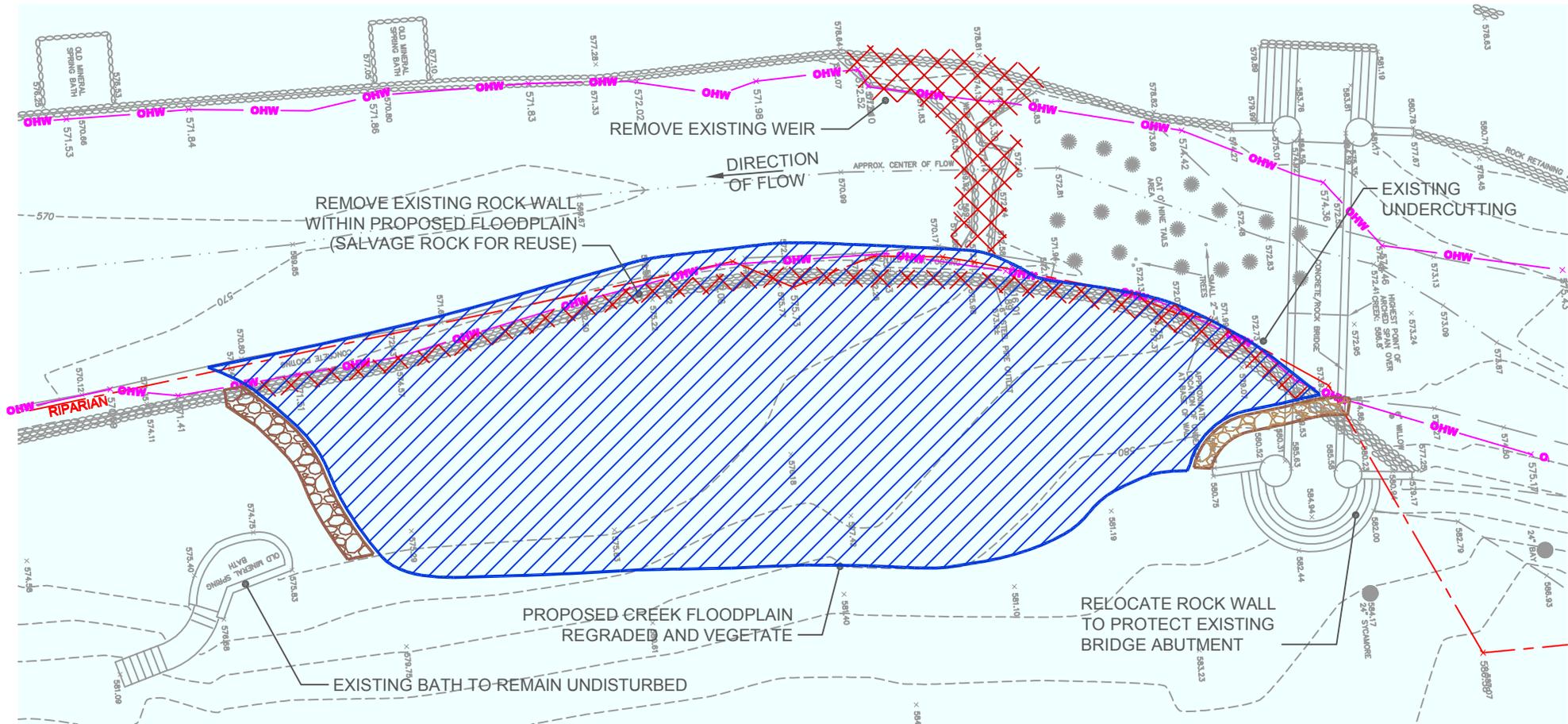
**SITE PLAN**

SCALE: 1"=20'



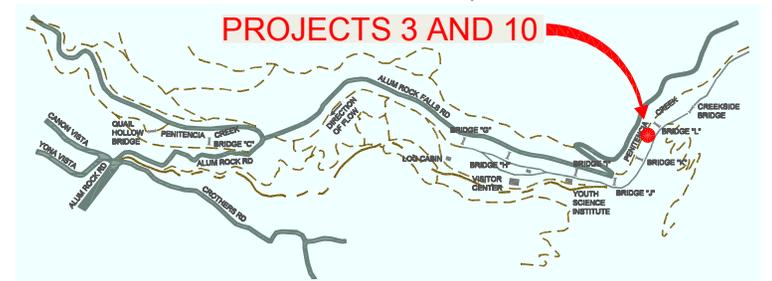
**KEY MAP - ALUM ROCK PARK**





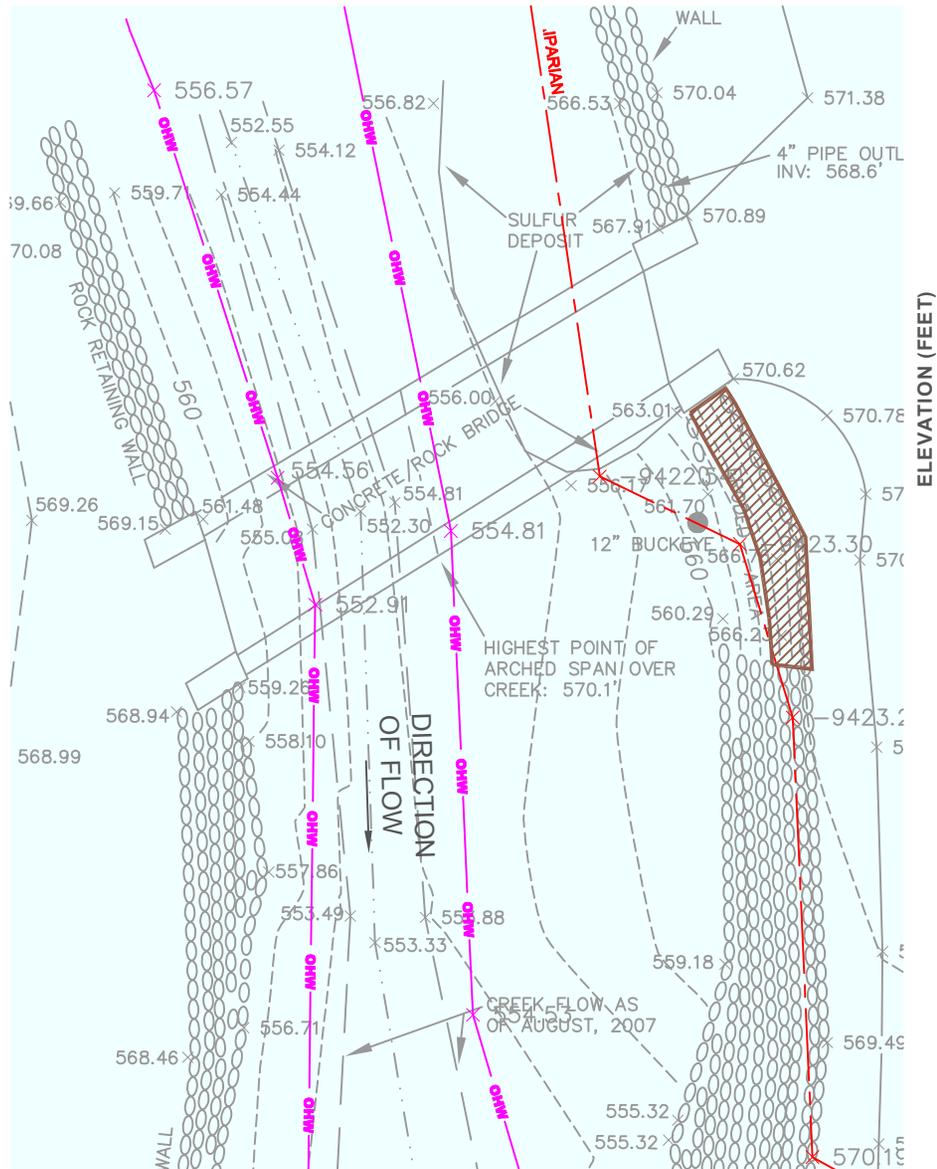
**SITE PLAN**

SCALE: 1"=20'



**KEY MAP - ALUM ROCK PARK**





ELEVATION (FEET)

DIRECTION OF FLOW

HIGHEST POINT OF ARCHED SPAN OVER CREEK: 570.1'

CREEK FLOW AS OF AUGUST, 2007

**SITE PLAN**  
SCALE: 1"=10'



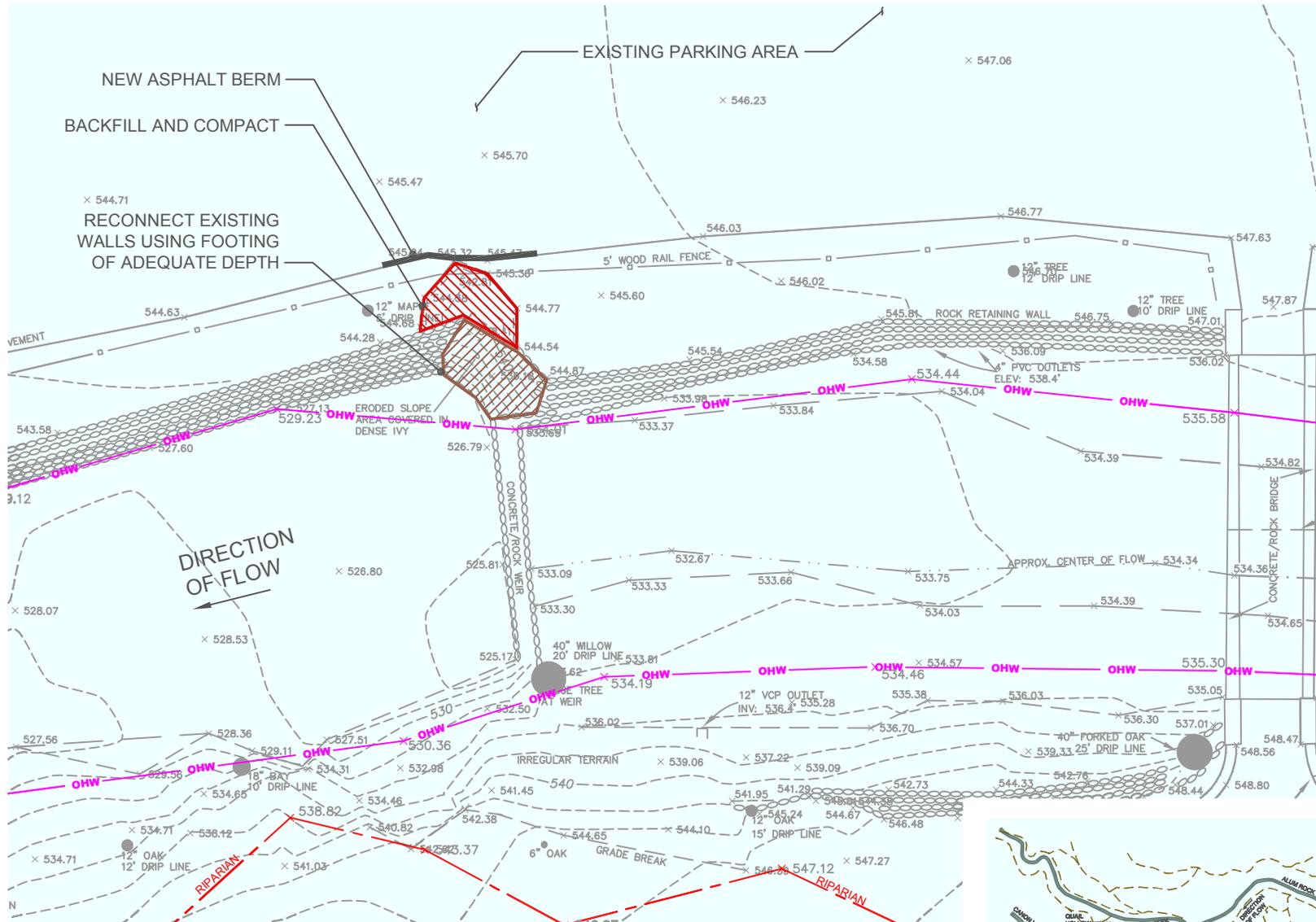
DISTANCE (FEET)



**KEY MAP - ALUM ROCK PARK**







**SITE PLAN**

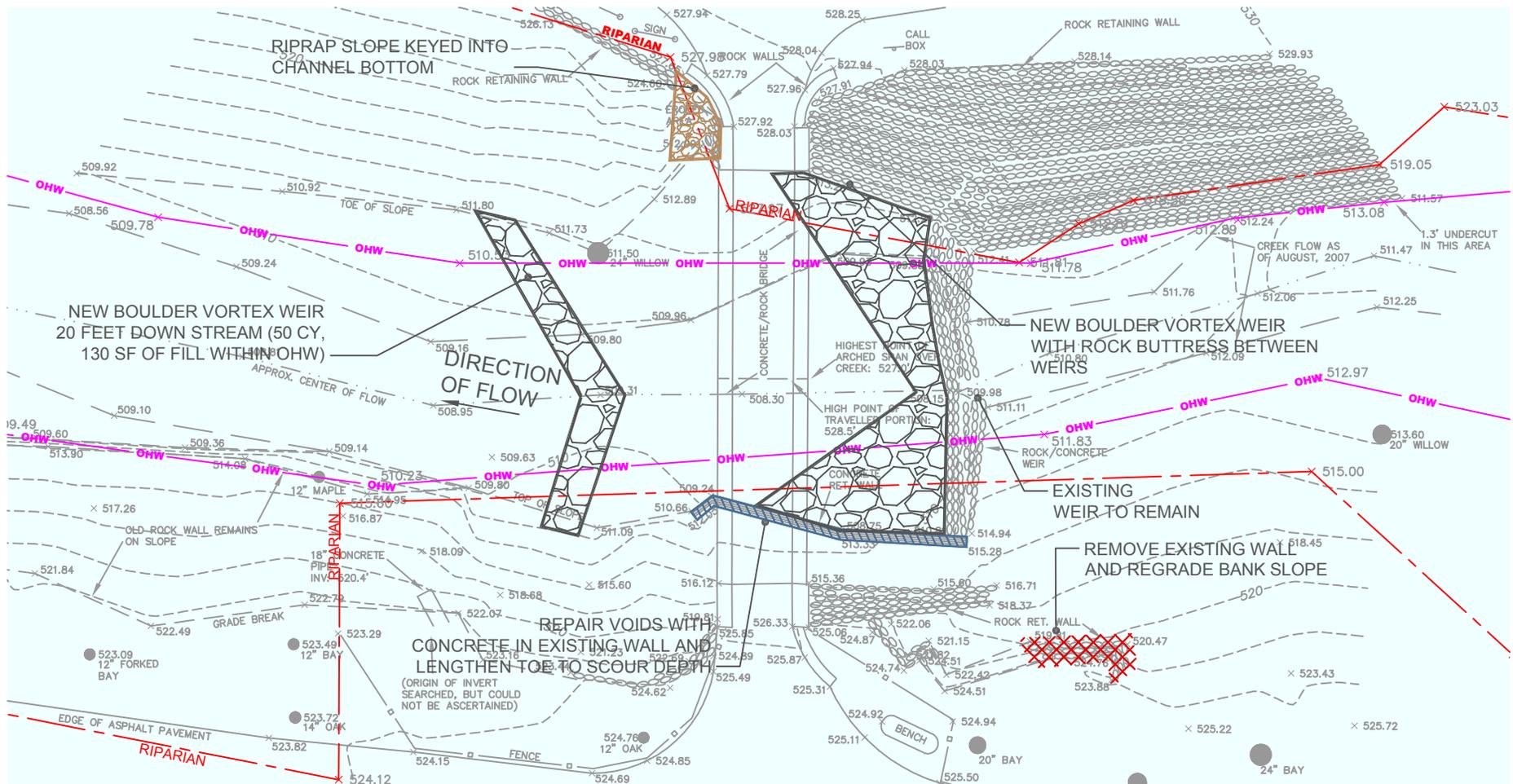
SCALE: 1"=15'



**KEY MAP - ALUM ROCK PARK**

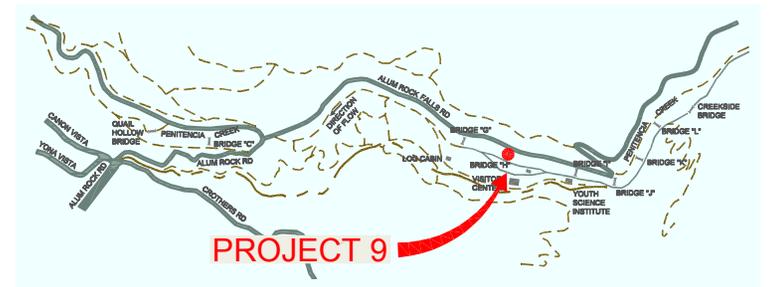






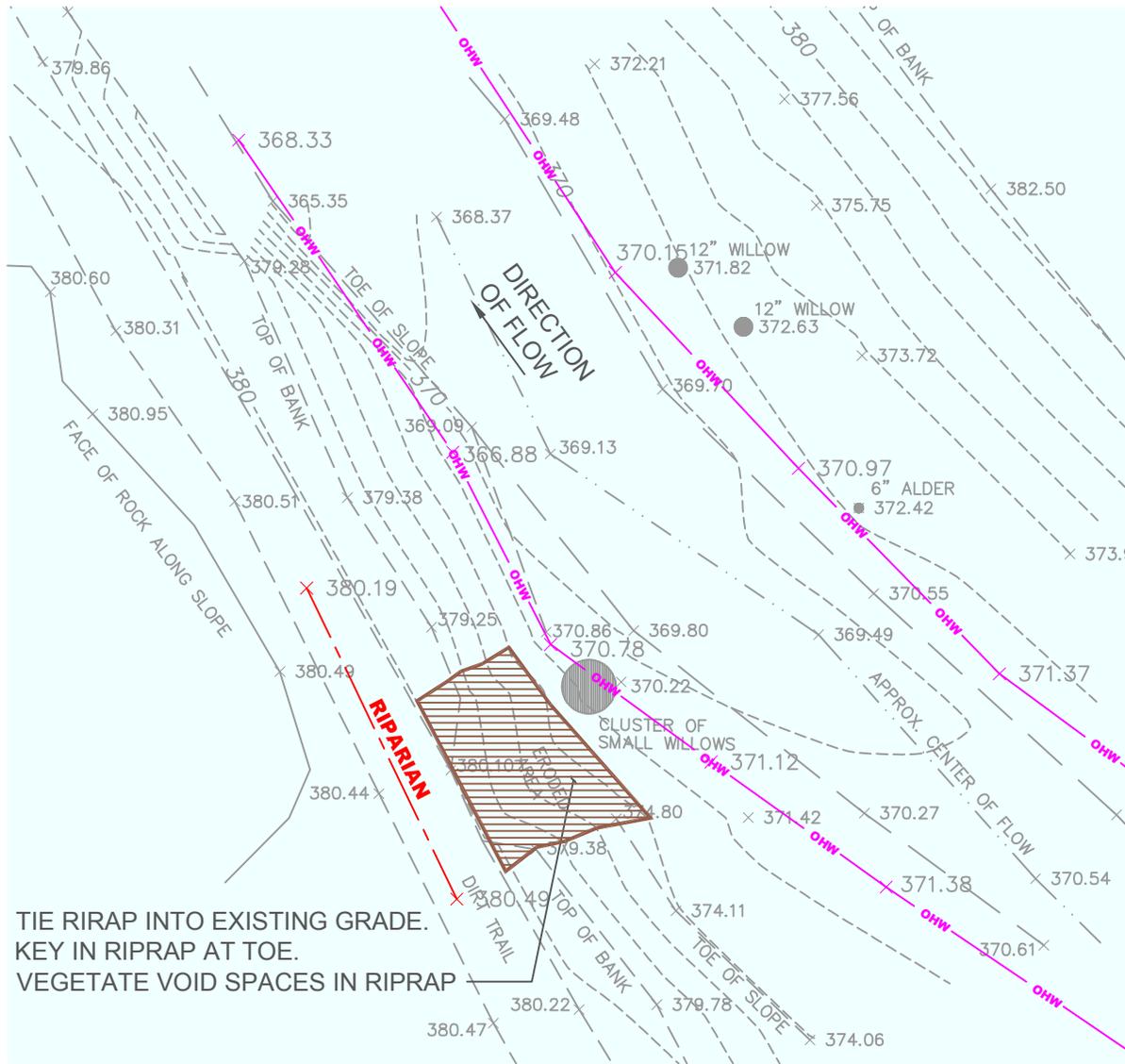
**SITE PLAN**

SCALE: 1"=15'



**KEY MAP - ALUM ROCK PARK**





TIE RIPRAP INTO EXISTING GRADE.  
 KEY IN RIPRAP AT TOE.  
 VEGETATE VOID SPACES IN RIPRAP

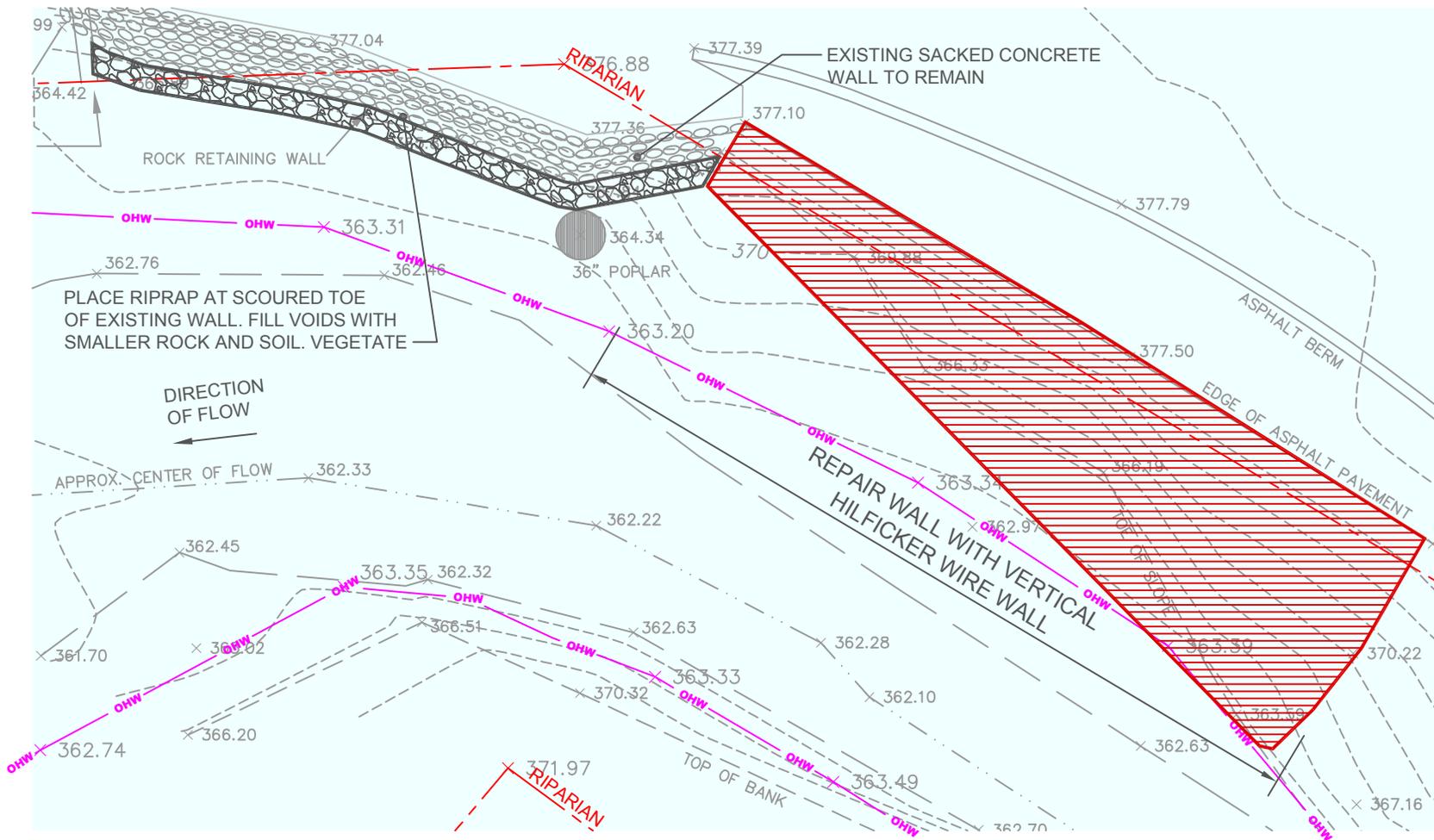
**SITE PLAN**

SCALE: 1"=10'



**KEY MAP - ALUM ROCK PARK**

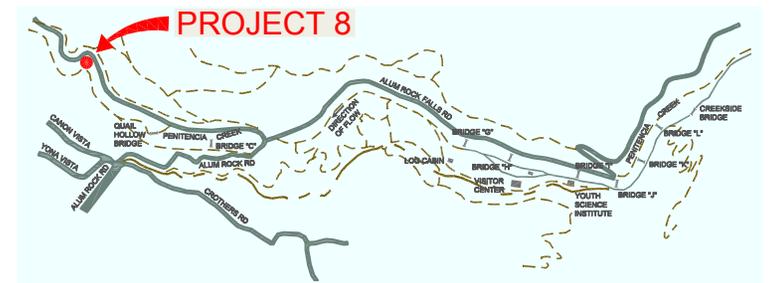




**SITE PLAN**

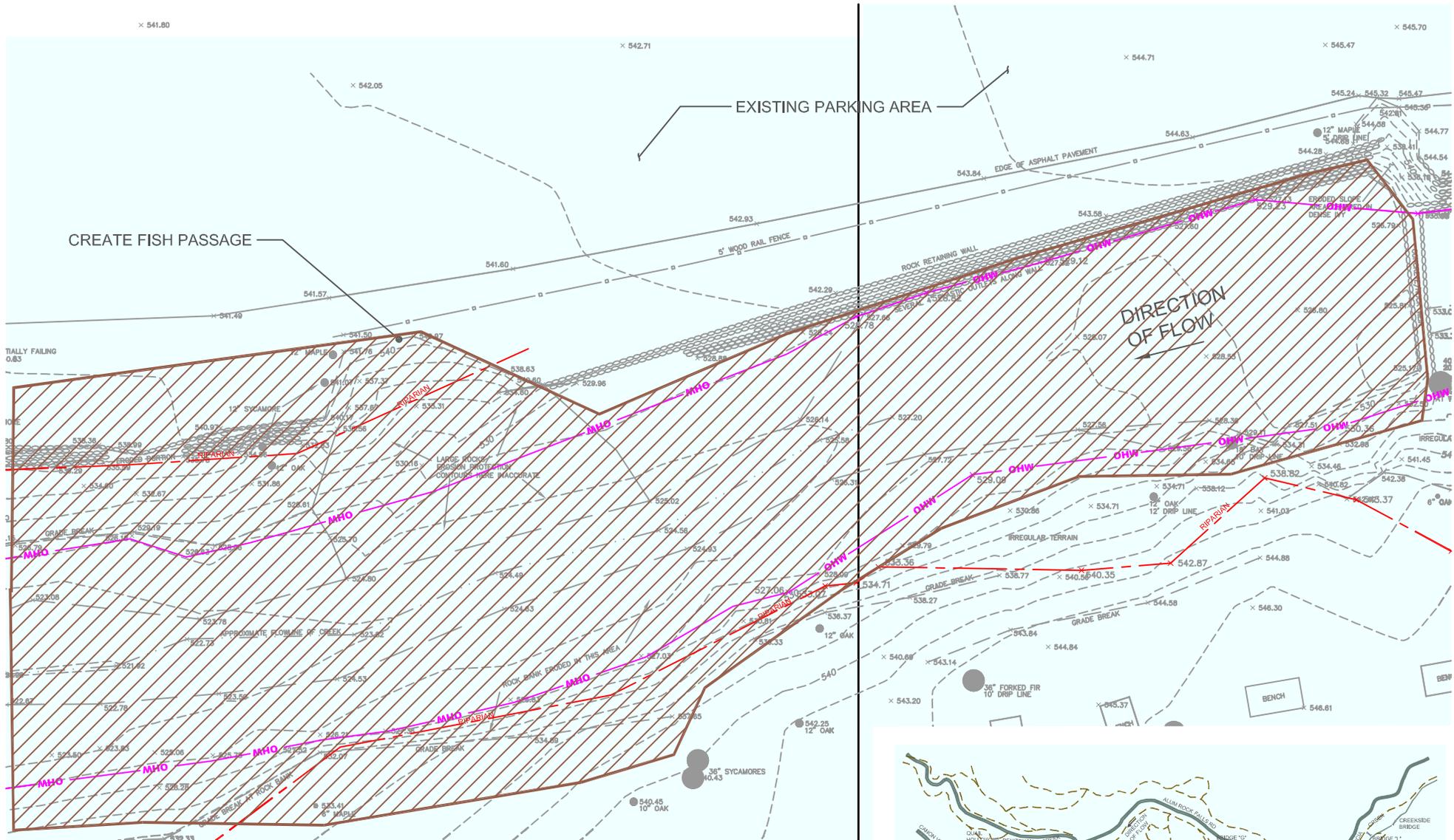
SCALE: 1"=10'

NORTH

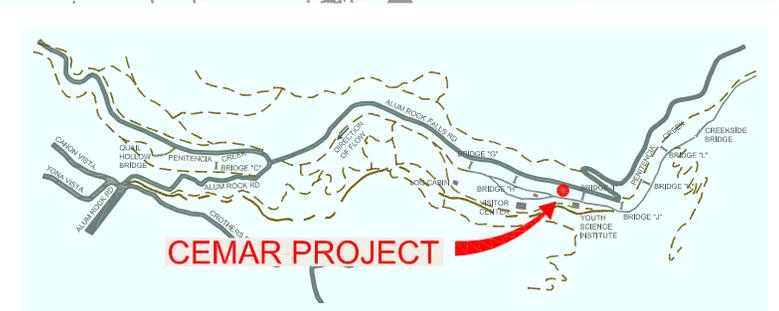


**KEY MAP - ALUM ROCK PARK**

NORTH



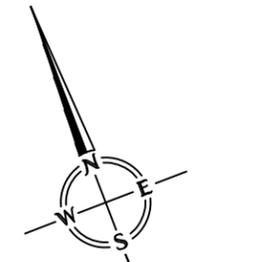
**SITE PLAN**  
**SCALE: 1"=20'**



**KEY MAP - ALUM ROCK PARK**



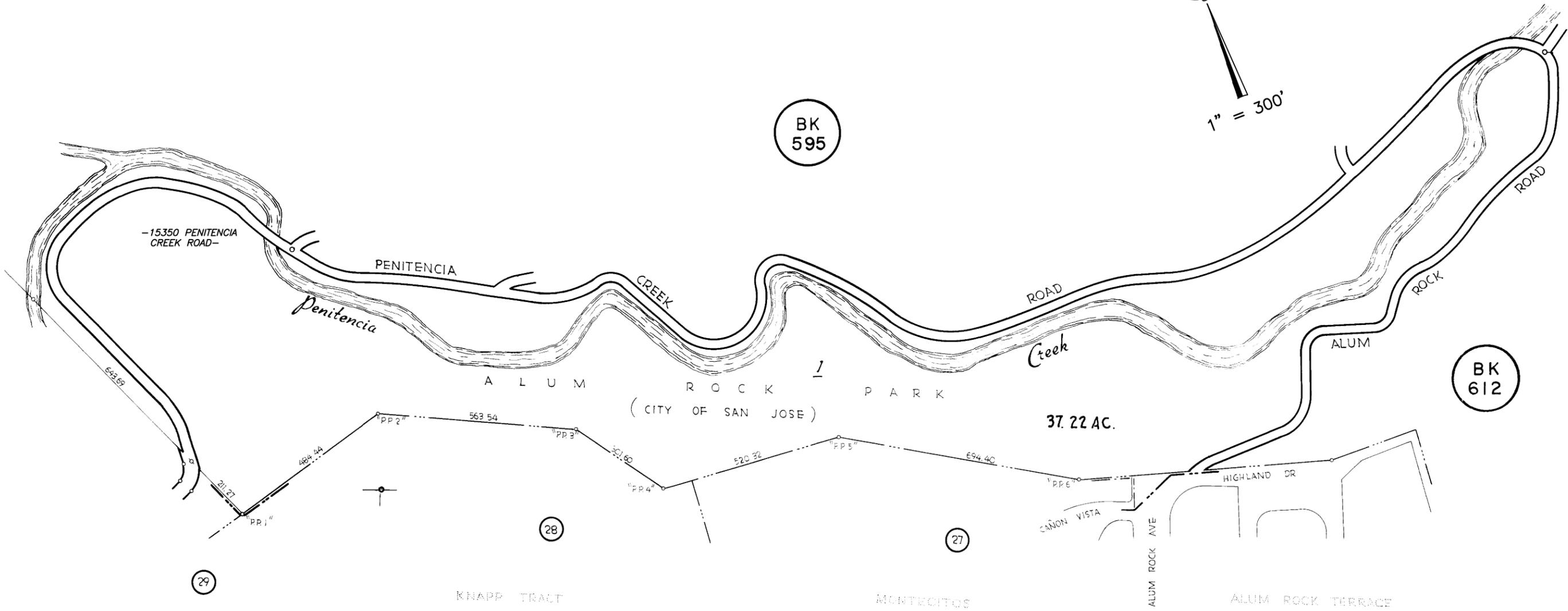


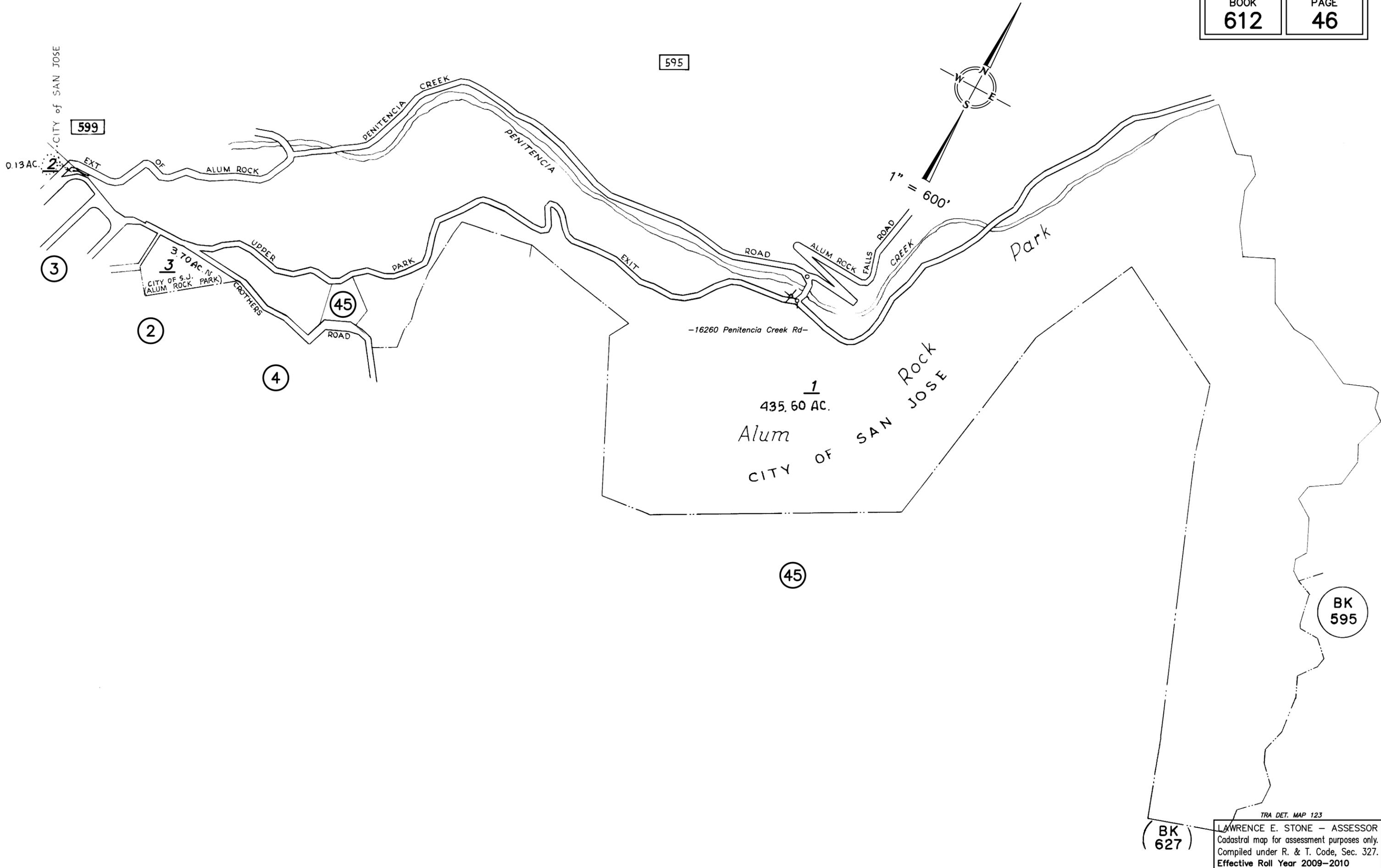


1" = 300'

BK 595

BK 612





BK 627

BK 595

TRA DET. MAP 123  
 LAWRENCE E. STONE — ASSESSOR  
 Cadastral map for assessment purposes only.  
 Compiled under R. & T. Code, Sec. 327.  
 Effective Roll Year 2009-2010