COUNTY OF SAN MATEO
PLANNING AND BUILDING DEPARTMENT

DATE: August 9, 2017

TO: Planning Commission

FROM: Planning Staff

SUBJECT: EXECUTIVE SUMMARY: Consideration a Coastal Development Permit, a Grading Permit, and adoption of an Initial Study and Mitigated Negative Declaration to allow for the stabilization and restoration of an unnamed tributary channel of Tunitas Creek. This project is appealable to the California Coastal Commission.

County File Number: PLN 2015-00486
(Waterways Consulting, Inc./
Pitcher Properties, LLC)

PROPOSAL

The applicant, Waterways Consulting, Inc., is proposing to stabilize and rehabilitate 313 linear feet of channel and banks along an unnamed tributary channel of Tunitas Creek. The channel is significantly incised with signs of recent headcut migration and bank failures. The project involves the clearing of vegetation and, 534 cubic yards of grading of channel and banks in order to improve bank stability, reduce failure and channel incision that have resulted in transport of sediment to environmentally sensitive areas downstream. The project also includes the construction of a temporary access road, staging area, re-vegetation of work areas, and permanent cattle exclusion fencing to protect the rehabilitated channel.

RECOMMENDATION

That the Planning Commission adopt the Initial Study and Mitigated Negative Declaration and approve the Coastal Development Permit and Grading Permit, County File Number PLN 2015-00486, by adopting the required findings and conditions of approval listed in Attachment A.

SUMMARY

The project site is located approximately 10 miles south of the incorporated City of Half Moon Bay. The subject parcel is developed with a residence and barn. In addition to the residential use, the property is also utilized for cattle grazing. The property is otherwise undisturbed and consists of grassy pastures which are bisected by a small

tributary drainage channel. The channel begins upstream of the project site where a series of gullies cross under Lobitos Creek Cut-Off through a number of culverts before combining to form a single channel within the project area. Once within the project parcel the channel flows in a southwesterly direction to the west of the existing residence and barn. The surrounding parcels are largely utilized for agricultural activities with sporadic very low density development. The property is located within the Tunitas Creek County Scenic Corridor.

Staff completed a review of the project including all the submitted documents and reports in order to determine the project's conformity to applicable policies. The project was found to be consistent with the County's General Plan, Local Coastal Program, Zoning Regulations, and Grading Ordinance. The analysis includes specific discussion of sensitive habitats, special status species, historical/archaeological resources, water quality, agriculture, and visual resources. Potential impacts to sensitive habitats and special status species were identified. For the purposes of compliance with the California Environmental Quality Act (CEQA), an Initial Study and Mitigated Negative Declaration were circulated through the State of California Office of Planning and Research. No comments were received and mitigation measures to reduce potential impacts to less than significant levels have been included as conditions of approval in Attachment A of this report.

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COUNTY OF SAN MATEO
PLANNING AND BUILDING DEPARTMENT

DATE: August 9, 2017

TO: Planning Commission

FROM: Planning Staff

SUBJECT: Consideration of a Coastal Development Permit, pursuant to Section 6328.4 of the County Zoning Regulations and a Grading Permit, pursuant to Section 9287 of the County Grading Ordinance, and adoption of a Mitigated Negative Declaration pursuant to the California Environmental Quality Act, to allow for the stabilization and restoration of an unnamed tributary channel of Tunitas Creek. This project is appealable to the California Coastal Commission.

County File Number: PLN 2015-00486
(Waterways Consulting, Inc./
Pitcher Properties, LLC)

PROPOSAL

The applicant, Waterways Consulting, Inc., is proposing to stabilize and rehabilitate 313 linear feet of channel and banks along an unnamed tributary channel of Tunitas Creek. The channel is significantly incised with signs of recent headcut migration and bank failures. The project involves the clearing of vegetation and 534 cubic yards of grading of channel and banks in order to improve bank stability, and to reduce failure and channel incision that have resulted in transport of sediment to environmentally sensitive areas downstream. The project also includes the construction of a temporary access road, staging area, re-vegetation of work areas, and permanent cattle exclusion fencing to protect the rehabilitated channel.

RECOMMENDATION

That the Planning Commission approve the Coastal Development Permit and Grading Permit, and adopt the Initial Study and Mitigated Negative Declaration, County File Number PLN 2015-00486, by adopting the required findings and conditions of approval listed in Attachment A.

BACKGROUND

Report Prepared By: Angela Chavez, Project Planner, Telephone 650/599-7217

Applicant: Waterways Consulting, Inc.

Owner: Pitcher Properties, Inc.

Location: 1451 Lobitos Creek Cut-Off, Unincorporated Half Moon Bay

APN: 066-320-060

Size: 189.70 acres

Existing Zoning: PAD/CD (Planned Agricultural District/Coastal Development District)

General Plan Designation: Agriculture/Rural

Local Coastal Plan Designation: Agriculture

Williamson Act: Yes. The project parcel is a Williamson Act contracted parcel. Contract number AP67-08 (Pitcher and Valentine).

Existing Land Use: Cattle grazing and a single-family residence.

Water Supply: The property was previously served by a spring for domestic service. However, in 2016 the spring failed which resulted in an emergency permit for a domestic well which was approved, drilled, and currently serves the single residence on the property.

Sewage Disposal: There is an existing septic system present on the site which serves the single-family residence.

Flood Zone: Zone X. Areas determined to be outside the 0.2% annual chance floodplain. FEMA Community Panels 06081C0270E; effective October 16, 2012.

Environmental Evaluation: An Initial Study and Mitigated Negative Declaration were prepared for this project and circulated from March 14, 2017 to April 13, 2017. No comments were received.

Setting: The project site is located approximately 10 miles south of the City of Half Moon Bay. The subject parcel is developed with a residence and barn. In addition to the residential use, the property is also utilized for cattle grazing. The property is otherwise undisturbed and consists of grassy pastures which are bisected by a small tributary drainage channel. The channel begins upstream of the project site where a series of gullies cross under Lobitos Creek Cut-Off through a number of culverts before combining to form a single channel within the project area. Once within the project parcel, the channel flows in a southwesterly direction to the west of the existing residence and barn. The surrounding parcels are largely utilized for agricultural

activities with sporadic very low density development. The property is located within the Tunitas Creek County Scenic Corridor.

DISCUSSION

A. KEY ISSUES

1. Conformance with the General Plan

Staff has reviewed the project and found it to be in compliance with the policies of the General Plan. The relevant policies are discussed below.

a. Vegetative, Water, Fish and Wildlife Resources

Policy 1.28 (*Regulate Development to Protect Sensitive Habitats*) regulates land uses and development activities within and adjacent to sensitive habitats in order to protect critical vegetative, water, fish, and wildlife resources; protect rare endangered and unique plans and animals from reduction in their range or degradation of their environment; and protect and maintain the biological productivity of important plant and animal habitats. According to the biological assessment submitted as part of the permit application, the project site supports arroyo willow riparian habitat and has the potential to serve as habitat for eleven special status wildlife species. The report notes that there are three habitat types present on the site. Arroyo willow riparian habitat is present along the drainage and will be directly impacted by the project; annual grassland/ruderal vegetation occupies the majority of the parcel; and residential landscaping is present in the area immediately adjacent to the single-family residence and arroyo willow riparian habitat. The current incision along the channel has resulted in overly steep banks and failures in the lower reaches of the project area. These failures and steepened banks threaten the arroyo willow habitat as well as the single-family residence, septic system, and barn which are all located on site adjacent to the banks. The proposed project will involve the removal of all willows along 313 linear feet of the channel. However, the project includes a restoration/ monitoring plan which requires the applicant to utilize willow stakes and plant 20 willow rootwad transplants along the banks, and to provide follow-up monitoring to ensure the success of the plants. In addition, at project completion, cattle exclusion fencing will also be installed to protect the rehabilitated habitat from the ongoing grazing activities. Two eucalyptus trees will also be removed from the lower reach of the tributary as part of the stabilizing efforts and to ensure success of the transplanted willows. The project will also impact approximately 5,500 sq. ft. of annual grassland/ruderal habitat. These impacts will largely involve trampling associated with construction

access and staging. However, this area will be hydroseeded with a native seed mix, post construction. The biological assessment notes that with the mitigation measures included as part of the project, all impacts to habitat are temporary and that there will be no net loss of riparian habitat.

The project site also provides potential habitat for eleven special-status wildlife species. Specifically, the biological assessment identifies California red-legged frog or CRLF (*Rana draytoni*), San Francisco garter snake or SFGS (*Thamnophis sirtalis tetrataenia*), loggerhead shrike (*Lanius ludovicianus*), Yellow warbler (*Setophaga petechia*), San Francisco common yellowthroat (*Geothlypis trichas sinuosa*), pallid bat (*Antrozous pallida*), western red bat (*Lasiurus blossevillii*), ringtail (*Bassariscus astutus*), American badger (*Taxidea taxus*), and San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*) all having the potential to occur on the site. The San Francisco garter snake has been observed at a stock pond on the property, but outside of the project site. Seven potential impacts were identified in the biological assessment as having potential direct harm to wildlife, as well as indirect disturbances to nesting birds and roosting bats due to the proximity of project-related activities. The assessment notes that vegetation removal and grading have the potential to take CRLF and SFGS; removal of willows would temporarily degrade potential dispersal habitat for the CRLF and SFGS; removal of the eucalyptus trees could result in direct or indirect take of nesting special status birds; removal of eucalyptus trees could result in disruption of potential roost sites and displacement of special-status pallid bats; removal of eucalyptus trees could also result in harm to foliage roosting special-status western red bats; construction activities could disrupt habitat for ringtails and badgers if present; and vegetation removal and grading activities could result in the direct take of woodrats and their houses. However, measures to avoid or minimize impacts to less-than-significant levels for all of these species were included in the biological assessment. These measures include pre-construction surveys, construction monitoring, worker's environmental awareness training, work exclusion fencing of environmentally sensitive areas (ESA), scheduling to avoid impacts, and implementing buffer zones, as needed. Therefore, the recommended measures were included as mitigation in the Mitigated Negative Declaration prepared for this project and as Conditions of Approval in Attachment A.

Policy 1.30 (*Uses Permitted in Sensitive Habitats*) regulates land uses and development activities that are compatible with the protection of sensitive habitats, such as fish and wildlife management activities, nature education and research, trails and scenic overlooks, and at a

minimum level, necessary public service and private infrastructure. The biological assessment notes that the general project area has known occurrences for the CRLF and SFGS but that the over steepened slopes of the channel would make the channel itself unsuitable habitat for anything more than dispersal. However, the proposal to lay back the channel slopes can provide easier access to the channel for special status species. The proposed rehabilitated vegetation and altered streambed can also provide a more hospitable habitat for special status species through decreased velocity of water flow and dispersal areas.

The subject channel runs parallel to the portion of the property utilized for residential development. The septic system which serves the residence is located within the area identified as residential landscaping in the biological assessment and is immediately adjacent to the upper reach of the channel. In the event that the incision and bank failures continue, they have the potential to result in the failure of the septic system. Due to the proximity of the system to the channel, the release of effluent into the channel is probable in the event of a septic system failure. Considering that this channel serves as a tributary to Tunitas Creek, failure of the septic system and the release of effluent could have significant environmental impacts.

Tunitas Creek is a known habitat for steelhead salmon and rainbow trout. However, the number of fish are considered relatively low due to a number of factors including low water quality and sedimentation. While improving this small tributary will not correct the overall issues of the watershed, it can contribute to reducing the release of sedimentation downstream.

b. Soil Resources

Policy 2.17 (*Regulate Development to Minimize Soil Erosion and Sedimentation*) aims to minimize soil erosion and sedimentation by minimizing the removal of vegetative cover, ensuring stabilization of disturbed areas, protecting and enhancing natural plant communities and nesting and feeding areas of fish and wildlife. The project's main objective is to reduce soil erosion and the continued release of sedimentation into the downstream portions of the channel. While the grading activities will disturb the existing vegetative cover, the completed project will provide a more supportive habitat for wildlife via reduced steepness in the channel banks allowing for greater access to the water, reduced velocity in the flow of water, and dispersal area. The areas to be disturbed are limited to locations immediately adjacent to the channel, and leave the majority of the parcel undisturbed. Where areas are to be disturbed they will be

reseeded with native plant species, thereby restoring and enhancing the surrounding plant community.

Policy 2.21 (*Protect Productive Soil Resources against Soil Conversion*) regulates land use and subdivision of productive soil resources and encourages appropriate management practices to protect against soil conversion. While the project area does not support prime agricultural soils it is within the Planned Agricultural District Zoning District and does support ongoing agricultural activities. The proposed project does not constitute the conversion of agricultural soils as the areas proposed for modifications are within the existing channel, banks, and vegetated area. By reducing the steepness in banks the project will help to alleviate the continued bank failures which are spreading outward from the channel thereby endangering agricultural lands.

c. Visual Quality

Policy 4.22 (*Scenic Corridors*) calls for the protection and enhancement of the visual quality of scenic corridors by managing the location and appearance of structural development. The project parcel is located within the Tunitas Creek County Scenic Corridor. The channel work extends for approximately 313 feet from Lobitos Creek Cut-Off with the majority of the work taking place within the channel itself. The project, however, does include the construction of cattle exclusion fencing which is minimal in nature and commonly found throughout this area. Further, the project area itself is not visible from the scenic roadway due to distance, topography, and existing vegetation.

Policy 4.25 (*Earthwork Operations*) calls for keeping grading or earthmoving operations to a minimum. This policy also states that where grading is necessary, graded areas blend with adjacent landforms through the use of contour grading rather than harsh cutting or terracing of the site. As discussed previously, the bank failures have resulted in steep slopes and downstream erosion. The project proposes approximately 534 cubic yards of cut and fill to reduce the steepness of the slopes and reduce bank failures. The project also includes plans to revegetate the disturbed areas with native plants and seeds to ensure the stability of the resurfaced banks. The grading activities are limited to the channel and the areas immediately adjacent to it minimizing disruption of other surrounding areas.

d. Historical and Archaeological/Paleontological Resources

Policy 5.20 (*Site Survey*) requires that a study be prepared to determine if sites proposed for new development contain

archaeological/paleontological resources. Prior to approval of development on sites determined to have the potential to contain such resources, Policy 5.20 requires that a mitigation plan, adequate to protect the resource and prepared by a qualified professional, be reviewed and implemented as a part of the project. Due to the potential for natural or cultural resources to occur on the site, a referral of the project was sent to the California Historical Resources Information System Northwest Information Center (CHRIS) for potential resource impacts. In response to the CHRIS recommendation, the applicant submitted an Archaeological Survey Report, prepared by Mark Hylkema, MA, RPA Archaeologist. The report concluded that no significant archaeological features or isolated artifacts were found within the survey area. The report provides conditions to address what should occur if inadvertent finds were to be discovered during project construction. Conditions of approval have been included in Attachment A to address inadvertent finds should they occur during project related activities.

2. Conformance with the Local Coastal Program (LCP)

Staff has reviewed the project and found it to be in compliance with the policies of the Local Coastal Program. The relevant policies are discussed below.

a. Sensitive Habitats

Policy 7.9 (*Permitted Uses In Riparian Corridors*) limits the permissible uses within corridors to only the following uses: (1) education and research, (2) consumptive uses as provided for in the Fish and Game Code and Title 14 of the California Administrative Code, (3) fish and wildlife management activities, (4) trails and scenic overlooks on public land(s), and (5) necessary water supply projects. As discussed previously the incision and bank failures have resulted in less than optimal habitat for CRLF and the SFGS in that the overly steepened banks inhibit ingress and egress to the water. In addition, the incision has increased the velocity of water which flows through the channel which makes the channel inhospitable to the CRLF. In reducing the slopes, greater ingress and egress will be possible. The alterations to the streambed itself will slow the speed of water which will both reduce the impacts associated with erosion and release of sedimentation, but also will make the channel more conducive to habitat and conditions which support CRLF and SFGS. Further, the subject channel acts a tributary to Tunitas Creek which supports sensitive habitat, special status species, and serves as the water source for development along the creek. Therefore, the failure of the single-family residence, barn, and potentially the septic system which are all located adjacent to the

channel has the potential to result in adverse impacts to the overall health of the channel and downstream portions of the creek.

Policy 7.10 (*Performance Standards in Riparian Corridors*) requires that development permitted in corridors do the following: (1) minimize removal of vegetation, (2) minimize land exposure during construction and use temporary vegetation or mulching to protect critical areas, (3) minimize erosion, sedimentation, and runoff by appropriately grading and replanting modified areas, (4) use only adapted native or non-invasive exotic plant species when replanting, (5) provide sufficient passage for native and anadromous fish as specified by the State Department of Fish and Game, (6) minimize adverse effects of waste water discharges and entrainment, (7) prevent depletion of groundwater supplies and substantial interference with surface and subsurface waterflows, (8) encourage waste water reclamation, (9) maintain natural vegetation buffer areas that protect riparian habitats, and (10) minimize alteration of natural streams. While the proposed project takes a robust approach to restoration, the applicant provided an alternatives analysis which details options for addressing the channel incision and bank failures and rationale supporting the proposed options. This analysis was completed by a team of engineers and environmental consultants which specialize in the restoration of surface water environments. The alternatives analysis explored four options including a no project option. The no project option was eliminated from consideration due to risks to downstream sensitive habitats, the single-family residence, septic leach field, barn, and the road (Lobitos Creek Cut-Off). A second alternative included not grading the banks or raising the channel bed. This option instead would have added rock check dams and rock chutes at various locations in an attempt to slow the water flows and allow the channel banks to continue to erode and stabilize over time. This option was not chosen as it would have resulted in a less natural channel geometry and more likely failures at areas where water flows would be concentrated (i.e., the check dams). This option would also allow for the continued release of fine sediment which would impact the water quality downstream. Finally, in not reducing the banks this option would leave the vertical banks un-vegetated and would continue the inhospitable riparian conditions for special status species. The third alternative would lay back unstable banks and would use willow wall check dams, willow cuttings, coir logs, and fabric to stabilize the channel bed and banks. The excavated materials would be hauled off-site and long term stabilization would rely on the establishment of the planted riparian vegetation. This option was not chosen as there is greater risk for failure as certain measures can help to control bank erosion but not necessarily channel incision. The vegetative methods used for stabilization can also be difficult to manage as vegetation

does not immediately adjust to fill areas which have been undercut, does not establish evenly as the plants compete for resources, and will not necessarily take in steep slopes. The project as proposed includes revegetation, importing of rock, and channel shaping in order to reduce the velocity of water and to provide the optimal conditions for success associated with the grading and re-vegetation efforts. The proposed project will improve the quality of the riparian plant cover and special status species migration corridor. Further, by reducing bank failures, the project will aid in improving the habitat and water quality downstream of the channel. Further, the applicant has coordinated with the State of California Department of Fish and Wildlife to secure a streambed alteration agreement and United States Army Corps of Engineers to secure a Section 404 permit in order to avoid impacts to wetlands, streams and other aquatic resources and to protect existing fish and wildlife resources. The applicant also has applied for a Section 401 permit with the State of California Regional Water Quality Control Board. A condition of approval has been added in Attachment A requiring that the Section 401 permit be secured and that a copy of the permit be provided to the Planning and Building Department prior to issuance of the building permit.

b. Agriculture

Policy 5.6 (*Permitted Uses on Lands Suitable for Agriculture Designated as Agriculture*) calls for permitting agricultural and agriculturally related development on land suitable for agriculture while conditionally permitting other types of uses. The proposed project does not introduce a new or propose a change of use on the subject property. Existing development includes a house, its septic system, and a barn which are all located immediately adjacent to the channel. The parcel is also used for cattle grazing operations. The proposed project will impact lands immediately adjacent to the channel as it proposes to lay back the banks. While this will widen the area in which the channel occupies it does not result in a land conversion away from farmland. If no action is taken, the bank failures will continue to widen the channel which could impact both the agricultural activities of the parcel and the existing development. The proposed repair of the channel does not introduce any new use on to the property. The project does include the construction of cattle exclusion fencing to protect the rehabilitated slopes, but this type of fencing is commonplace with grazing activities. Therefore, the project will not result in any permanent impacts on the parcel's ability to continue to support agricultural activities.

c. Visual Resources

Policy 8.6 (*Streams, Wetlands, and Estuaries*) calls for development to be set back from the edge of streams and other natural waterways a sufficient distance to preserve the visual character of the waterway and to prohibit structural development which would adversely affect the visual quality of perennial streams and associated riparian habitat, except for those permitted by the Sensitive Habitats Component Policies. The proposed project does not result in structural development, beyond the cattle exclusion fencing, which would alter the natural visual character of the site. While the proposed project has temporary impacts to the natural vegetation the project is designed to fit within the natural setting and enhance the site aesthetics. Further, while the channel has been classified by the biologist as intermittent, it does support riparian habitat and therefore compliance with the Sensitive Habitats Component Policies remains relevant. As, discussed previously in Section 2.a of this report, the project is compliant with the applicable policies of the Sensitive Habitats Component.

Policy 8.9 (*Trees*) calls for tree removal to be minimized and to prohibit removal of trees in the case where the trees measure 55 inches or more when measured at 4.5 feet above the average surface of the ground and/or are located within scenic corridors except when complaint with LCP Policies regarding development, or permitted under the Timber Harvesting Ordinance, or for the reason of danger to public health, life, and/or property. The proposed project includes the removal of two eucalyptus trees which are located immediately adjacent to the existing barn along the banks of the channel. Generally, eucalyptus trees grow shallow root systems which grow horizontally outward from the tree. This shallow root growth pattern is visible in the subject eucalyptus trees as their root balls are partially visible due to the erosion at the channel banks. The failure in the banks has undermined their stability and their ability to act as a stabilizing agent for the banks. Further, the applicant notes that the large canopy provided by the eucalyptus trees prevents light and alters the soil chemistry which in combination hinder the growth of native plants which often provide increased channel stability. Further, the trees are not visible from the scenic roadway (Tunitas Creek Road) due to the distance to the roadway, existing topography, and mature vegetation. While the trees are visible from Lobitos Creek Cut-Off, their removal poses no impacts to the overall scenic viewshed as there are other significant trees and a background of mature vegetation in the immediate project vicinity. The area in which the trees are located will be re-vegetated and is included as part of the overall restoration planned for the channel.

3. Conformance with the Grading Ordinance

The proposed grading activities for this project involve cut and fill activities which will modify the existing channel and its banks to reduce the flow of sedimentation downstream and to stabilize the banks of the channel. The project will also attempt to correct the incision of the channel by adding fill along with engineered streambed material to the bed of the channel. Approximately 282 cubic yards of excavation and 252 cubic yards of fill will be used in order to complete the proposed project. Generally, projects which involve less than 1,000 cubic yards of grading activity do not require a public hearing. However, because the subject property is located within a County Scenic Corridor, the Grading Ordinance requires that the Planning Commission consider the permit.

The following findings must be made by the Planning Commission pursuant to Section 9290.1 of the Grading Ordinance.

a. That the granting of the permit will not have significant adverse effect on the environment.

A biologist's report was submitted as part of the project application and identifies both sensitive habitats and the potential for the presence of special status species. The project will have temporary impacts for which mitigation measures have been included in both the Mitigated Negative Declaration and in Attachment A of this report which ensure that impacts are less than significant.

b. That the project conforms to the criteria of this chapter, including the standards referenced in Section 9296.

The project has been conditioned to include erosion and sediment control measures to be installed prior to grading activities and must be maintained during the duration of the project activities. In addition, the project has also been conditioned to include dust control measures as needed to mitigate excessive dust generation resulting from grading activities.

c. That the project is consistent with the General Plan.

The project has been reviewed and found to be in compliance with the applicable policies of the General Plan, specifically Soil Resource Policy 2.17 (*Regulate Development to Minimize Soil Erosion and Sedimentation*) discussed in Section A.1 of this staff report.

4. Conformance with the Zoning Regulations

While the proposed project qualifies as development, it does not require the issuance of a Planned Agricultural District (PAD) Permit as defined in Section 6353 of the Zoning Regulations. Accordingly, the proposed project is consistent with the Zoning Regulations.

5. Response to Agency Comments

The California Coastal Commission responded to the initial project referral of November 12, 2015 with a comment letter which has been provided as Attachment F of this report. While the majority of policies noted in the letter were discussed in Section 2.a of this report, staff did not include discussion of LCP Policy 9.9 noted in the Project Alternative(s) Section of the letter. Local Coastal Program Policy 9.9 was not discussed as it is not applicable to this project. This policy addresses the regulation of development in floodplains and the project area is not located within a floodplain. As noted in the Background Section of this report the project area is within a FEMA map designation of X which is defined as areas determined to be outside the 0.2% annual chance floodplain. However, as discussed previously, the applicant did provide an alternatives analysis as part of the project submittal which examined different potential approaches and the rationale explaining why the proposed project was determined to be the optimal approach.

B. ENVIRONMENTAL REVIEW

An Initial Study and Mitigated Negative Declaration were prepared for this project and circulated from March 14, 2017 to April 13, 2017. The documents were also sent to the State Clearinghouse for circulation as the project does require the issuance of other permits. No comments were received during the comment period. Mitigation measures have been included as Conditions of Approval 4 through 21 in Attachment A. Minor modifications were made to the mitigation measures in order to provide greater clarity regarding timing and responsibility. These modifications are not substantive and do not necessitate re-circulation of the document.

C. REVIEWING AGENCIES

Building Inspection Section
Geotechnical Section
Environmental Health Division
Department of Public Works
California Coastal Commission
Cal-Fire
Sonoma State University, California Historical Resources Information System

State of California Department of Fish and Wildlife
United States Army Corps of Engineers
State of California Regional Water Quality Control Board

ATTACHMENTS

A. Recommended Findings and Conditions of Approval
B. Location Map
C. Project Plans
D. Initial Study and Mitigated Negative Declaration
E. Alternatives Analysis
F. California Coastal Commission Comment Letter

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Attachment A

County of San Mateo
Planning and Building Department

RECOMMENDED FINDINGS AND CONDITIONS OF APPROVAL

Permit or Project File Number: PLN 2015-00486 Hearing Date: August 9, 2017

Prepared By: Angela Chavez, Project Planner For Adoption By: Planning Commission

RECOMMENDED FINDINGS

Regarding Environmental Review, Find:

1. That the Planning Commission does hereby find that this Mitigated Negative Declaration reflects the independent judgment of San Mateo County.

2. That the Mitigated Negative Declaration is complete, correct, and adequate and prepared in accordance with the California Environmental Quality Act (CEQA) and applicable State and County Guidelines.

3. That, on the basis of the Initial Study, comments received hereto, and testimony presented and considered at the public hearing, there is no substantial evidence that the project will have a significant effect on the environment.

4. That the mitigation measures in the Mitigated Negative Declaration and agreed to by the owner and placed as conditions on the project have been incorporated into the Mitigation Monitoring and Reporting Plan in conformance with the California Public Resources Code Section 21081.6.

Regarding the Coastal Development Permit, Find:

5. That the project, as described in the application and accompanying materials required by Section 6328.7 of the San Mateo County Zoning Regulations and as conditioned in accordance with Section 6328.14 of the San Mateo County Zoning Regulations, conforms to the plans, policies, requirements and standards of the San Mateo County Local Coastal Program as described in Section A.2 of this staff report.

6. That the project conforms to the specific findings required by policies of the San Mateo County Local Coastal Program relating to Agriculture, Sensitive Habitats, and Visual Resources. The project minimizes risks of failure of existing

development and infrastructure, improves sensitive habitats, and limits the project area to those areas immediately adjacent to the existing channel thereby preserving agricultural lands.

Regarding the Grading Permit, Find:

7. That this project, as conditioned, will not have a significant adverse effect on the environment. The project has been reviewed by the Planning staff and mitigation measures have been included as part of project, which ensure that the project can be completed without significant harm to the environment, as conditioned.

8. That this project, as conditioned, conforms to the criteria of the San Mateo County Grading Ordinance and is consistent with the General Plan. Planning staff and the Department of Public Works have reviewed the project and have determined it conforms to the criteria of Chapter 5, Division VII, San Mateo County Ordinance Code, including the standards referenced in Section 9296 and the San Mateo County General Plan.

RECOMMENDED CONDITIONS OF APPROVAL

Current Planning Section

1. The approval applies only to the proposal as described in this report and materials submitted for review and approval by the Planning Commission on August 9, 2017. The Community Development Director may approve minor revisions or modifications to the project if they are found to be consistent with the intent of and in substantial conformance with this approval.

2. This permit shall be valid for one (1) year from the date of approval in which time a building permit shall be issued. Any extension of this permit shall require submittal of an application for permit extension and payment of applicable extension fees sixty (60) days prior to the expiration date.

3. The Department of Fish and Game has determined that this project is not exempt from Department of Fish and Game California Environmental Quality Act filing fees per Fish and Game Section 711.4. The applicant shall pay to the San Mateo County Recorder's Office an amount of $2,266.25 which includes the applicable recording fee at the time of filing of the Notice of Determination by the County Planning and Building Department staff within ten (10) business days of the approval.

Mitigation Measures from the Mitigated Negative Declaration (changes made to the mitigation measures as presented in the Mitigated Negative Declaration are shown in strike-through and underline format):

4. **Mitigation Measure 1:** The applicant shall implement the following dust control measures during grading and construction activities:

   a. Water all active construction and grading areas at least twice daily.

   b. Cover all truck hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard.

   c. Apply water two times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at the project site.

   d. Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets/roads.

   e. Enclose, cover, water twice daily or apply (non-toxic) soil binders to exposed stockpiles (dirt, sand, etc.).

5. **Mitigation Measure 2:** Within 72 hours of project commencement~~start~~, a qualified wildlife biologist ~~should~~ shall perform a pre-construction survey for California red-legged frog (CRLF) and San Francisco garter snake (SFGS) in appropriate habitat within and immediately adjacent to the project site. The pre-construction surveys ~~should~~ shall include one daytime survey for both species and one nocturnal survey for the CRLF. If either species is observed, the United States Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW) ~~should~~ shall be contacted for further guidance. No work ~~should~~ shall proceed until authorization from the agencies has been obtained.

6. **Mitigation Measure 3:** Prior to the start of construction activities, a worker's environmental training shall be performed by a qualified biologist. The training ~~should~~ shall include information on species identification, natural history, the protection measures to be implemented, and the penalties for non-compliance. Each worker ~~should~~ shall sign a certification sheet on completion of the training. All new workers ~~should~~ shall be trained prior to their involvement in construction activities.

7. **Mitigation Measure 4:** A qualified biologist ~~should~~ shall conduct a survey of the project site each morning before the start of construction activities and ~~should~~ shall be present during vegetation removal and initial (new) grading activities. Once the vegetation removal and initial grading activities have been completed, morning surveys prior to the start of each day's work ~~should~~ shall be adequate.

8. **Mitigation Measure 5:** Removal of the willows ~~should~~ shall be performed with hand tools to remove the limbs down to the base of the trunk. The root base ~~could~~ may be removed by an excavator under the direct supervision of the qualified monitoring biologist.

9. **Mitigation Measure 6:** If CRLF or SFGS are observed in or immediately adjacent to the project site during construction activities, all work must cease and the agencies identified in Mitigation Measure 2 shall be contacted for further guidance. Work ~~should~~ shall not proceed until approval from the agencies has been obtained.

10. **Mitigation Measure 7:** Prior to the start of construction activities, the project boundary, including storage and staging areas, access routes and environmentally sensitive areas (ESA) ~~should~~ shall be clearly delineated with orange construction fencing or flagging. No storage of equipment or materials, vegetation removal or maintenance of equipment ~~should~~ shall be performed outside of the project site boundaries.

11. **Mitigation Measure 8:** The applicant shall ~~D~~design and implement a riparian habitat restoration plan that ~~would~~ will achieve a no net loss of riparian habitat removed during the bank stabilization project. The plan ~~should~~ shall include plant species consistent with the existing habitat, a monitoring schedule, success criteria, and provide for adaptive strategies to help meet the success criteria, in the event of restoration failures.

12. **Mitigation Measure 9:** If construction activities, especially vegetation removal, are scheduled between February 15 and September 1, a pre-construction survey for nesting birds ~~should~~ shall be conducted by a qualified biologist within two weeks prior to the start of the project. One to two surveys ~~should~~ shall be performed, depending on the degree of difficulty in determining the nesting status of birds. The survey area ~~should~~ shall include habitats within 250 feet of the project sites for passerines and 500 feet for raptors, where practical. These survey zones are consistent with California Department of Fish and Wildlife (CDFW) recommendations. The alternative to performing pre construction surveys is to schedule the project outside of the nesting season.

13. **Mitigation Measure 10:** If active nests are located within the survey areas, the applicant shall delineate buffer zones around each nest site. Buffer zones ~~should~~ shall begin at 250 feet for passerines and 500 feet for raptors. If nest sites are closer to project activities than the recommended buffer distances, appropriate reductions in buffer zone width ~~should~~ shall be determined by the qualified biologist, based on species, site specific conditions and level of construction activities. Where buffer zone reductions are implemented, signs or flagging delimiting the boundaries of the buffer zones ~~should~~ shall be established, prior to the start of construction activities and the nest sites monitored daily during construction by a qualified biologist, to avoid potential take of active nests due to construction-related disturbances. The monitoring biologist shall have the authority to stop work if project activities are negatively affecting nesting bird behaviors (e.g., feeding, nest attendance). Tree removal and other project activities ~~could~~ may resume when the monitoring biologist has determined that the nestlings have fledged.

14. **Mitigation Measure 11:** Prior to the start of construction activities, a bat specialist ~~should~~ shall survey the barn for roosting bats. If present, implement recommendations of the bat specialist.

15. **Mitigation Measure 12:** If bats are present, the applicant shall avoid climbing on to the roof of the barn to access tree limbs and, during cutting, prevent limbs from falling onto the barn roof.

16. **Mitigation Measure 13:** The applicant shall schedule the removal of eucalyptus trees between September 1 and October 15. This ~~would~~ will minimize the likelihood of disturbing western red bats and avoid disruptions to active bird nesting as well. No focused surveys ~~would~~ will be necessary under this schedule. If tree removal is scheduled to take place between October 15 and February 28, a bat specialist should conduct surveys for foliage roosting bats and, if present, implement measures developed by the bat specialist, as needed.

17. **Mitigation Measure 14:** In the event that archaeological features are encountered during project implementation (a late discovery), all work at the immediate location of the find must temporarily stop until a qualified archaeologist can be consulted and provide recommendations regarding the find. All contractors and sub-contractors shall be made aware of these requirements and shall adhere to all applicable laws including State Cultural Preservation Laws.

18. **Mitigation Measure 15:** In the event that human skeletal remains are encountered, all work at the immediate location of the find must temporarily stop. Public Resource Code 5097 and local ~~h~~Health and ~~s~~Safety codes establish a procedure for notifying the County Coroner's Office and possibly the State Native American Heritage Commission to seek recommendations from a Most Likely Descendant (Tribal Contact) before any further action at the location of the find can proceed. All contractors and sub-contractors shall be made aware of these requirements and shall adhere to all applicable laws including State Cultural Preservation laws.

19. **Mitigation Measure 16:** Prior to commencement of the project, the applicant shall submit to the Planning and Building Department for review and approval an erosion and drainage control plan that shows how the transport and discharge of soil and pollutants from and within the project site shall be minimized. The plan shall be designed to minimize potential sources of sediment, control the amount of runoff and its ability to carry sediment by diverting incoming flows and impeding internally generated flows, and retain sediment that is picked up on the project site through the use of sediment-capturing devices. The plan shall also limit application, generation, and migration of toxic substances, ensure the proper storage and disposal of toxic materials, and apply nutrients at rates necessary to establish and maintain vegetation without causing significant nutrient runoff to surface waters. Said plan shall adhere to the San Mateo County Wide

Stormwater Pollution Prevention Program “General Construction and Site Supervision Guidelines,” including:

a. Sequence construction to install sediment-capturing devices first, followed by runoff control measures and runoff conveyances. No construction activities shall begin until after all proposed measures are in place.

b. Minimize the area of bare soil exposed at one time (phased grading).

c. Clear only areas essential for project activities.

d. Within five days of clearing or inactivity, stabilize bare soils through either non-vegetative Best Management Practices (BMPs), such as mulching, or vegetative erosion control methods such as seeding. Vegetative erosion control shall be established within two weeks of seeding/planting.

e. Project site entrances shall be stabilized immediately after grading and frequently maintained to prevent erosion and control dust.

f. Control wind-born dust through the installation of wind barriers such as hay bales and/or sprinkling.

g. Soil and/or other construction-related material stockpiled on-site shall be placed a minimum of 200 feet from all wetlands and drain courses. Stockpiled soils shall be covered with tarps at all times of the year.

h. Intercept runoff above disturbed slopes and convey it to a permanent channel or storm drains by using earth dikes, perimeter dikes or swales, or diversions. Use check dams where appropriate.

i. Provide protection for runoff conveyance outlets by reducing flow velocity and dissipating flow energy.

j. Install storm drain inlet protection that traps sediment before it enters any adjacent storm sewer systems. This barrier shall consist of filter fabric, straw bales, gravel, or sand bags.

k. Install sediment traps/basins at outlets of diversions, channels, slope drains, or other runoff conveyances that discharge sediment-laden water. Sediment traps/ basins shall be cleaned out when 50% full (by volume).

l. Use silt fence and/or vegetated filter strips to trap sediment contained in sheet flow. The maximum drainage area to the fence should be 0.5-acre or less per 100 feet of fence. Silt fences shall be inspected regularly and sediment removed when it reaches 1/3 the fence height. Vegetated filter strips should have relatively flat slopes and be vegetated with erosion-resistant species.

m. Utilize coir fabric/netting on sloped graded areas to provide a reduction in water velocity, erosive areas, habitat protection, and topsoil stabilization.

n. Throughout the construction period, the applicant shall conduct regular inspections of the condition and operational status of all structural BMPs required by the approved Erosion Control Plan.

20. **Mitigation Measure 17:** The applicant shall implement the following basic construction measures at all times:

a. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California Airborne Toxic Control Measure Title13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.

b. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified visible emissions evaluator.

c. Post a publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This person, or his/her designee, shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

21. **Mitigation Measure 18:** Noise sources associated with demolition, construction, repair, remodeling, or grading of any real property shall be limited to the hours from 7:00 a.m. to 6:00 p.m. weekdays and 9:00 a.m. to 5:00 p.m. Saturdays. Said activities are prohibited on Sundays, Thanksgiving and Christmas (San Mateo Ordinance Code Section 4.88.360).

22. No grading shall be allowed during the winter season (October 1 to April 30) to avoid potential soil erosion.

23. No grading activities shall commence until the property owner has been issued a grading permit (issued as the "Hard Card" with all necessary information filled out and signatures obtained) by the Current Planning Section and the building permits shall be issued at the same time. No grading activities shall commence until all permits have been issued.

24. The applicant is required to replace any vegetation removed during construction, including ground cover. Per San Mateo County Zoning Regulations Section 6324.2, vegetation for stabilization of all graded and disturbed areas or for replacement of existing vegetation shall be selected and located to be compatible with surrounding vegetation, recognizing climate, soil and ecological

characteristics of the region. This shall occur and be confirmed prior to the building permit's final inspection approval.

25. The provisions of the San Mateo County Grading Ordinance shall govern all grading on and adjacent to this site. Per San Mateo County Ordinance Code Section 9296.5, all equipment used in grading operations shall meet spark arrester and firefighting tool requirements, as specified in the California Public Resources Code.

26. The engineer who prepared the approved grading plan shall be responsible for the inspection and certification of the grading as required by Section 9297.2 of the Grading Ordinance. The engineer's responsibilities shall include those relating to non-compliance detailed in Section 9297.4 of the Grading Ordinance.

27. Erosion and sediment control during the course of grading work shall be installed and maintained according to a plan prepared and signed by the engineer of record, and approved by the Department of Public Works and the Current Planning Section. Revisions to the approved erosion and sediment control plan shall be prepared and signed by the engineer, and must be reviewed and approved by the Department of Public Works and Current Planning Section.

28. It shall be the responsibility of the engineer of record to regularly inspect the erosion control measures for the duration of all grading activities, especially after major storm events, and determine that they are functioning as designed and that proper maintenance is being performed. Deficiencies shall be immediately corrected, as determined by and implemented under the observation of the engineer of record.

29. For the final approval of the grading permit, the property owner shall ensure the performance of the following activities within thirty (30) days of the completion of grading at the project site:

    a. The engineer shall submit written certification that all grading has been completed in conformance with the approved plans, conditions of approval, and the grading regulations, to the Department of Public Works and the Planning and Building Department's Geotechnical Engineer.

    b. The geotechnical consultant shall observe and approve all applicable work during construction and sign Section II of the Geotechnical Consultant Approval Form, for submittal to the Planning and Building Department's Geotechnical Engineer and Current Planning Section.

30. Prior to the issuance of the building permit the applicant shall provide a copy of the approved Section 401 permit from the State of California Regional Water Quality Control Board.

Department of Public Works

31. Prior to the issuance of the building permit or planning permit (for Provision C3 Regulated Projects), the applicant shall have prepared, by a registered civil engineer, a drainage analysis of the proposed project and submit it to the Department of Public Works for review and approval. The drainage analysis shall consist of a written narrative and a plan. The flow of the stormwater onto, over, and off of the property shall be detailed on the plan and shall include adjacent lands as appropriate to clearly depict the pattern of flow. The analysis shall detail the measures necessary to certify adequate drainage. Post-development flows and velocities shall not exceed those that existed in the pre-developed state. Recommended measures shall be designed and included in the improvement plans and submitted to the Department of Public Works for review and approval.

32. A grading plan shall be prepared and signed by the engineer, and shall be submitted to the Department of Public Works and the Planning and Building Department for approval prior to commencing any work.

33. All channel improvement measures shall be inspected annually and minor repairs made as needed prior to October 1, of each year. The property owner shall co-ordinate with the Department of Public Works to conduct a yearly inspection monitoring the willows each year for the first 5 years or until the willows have been established. Thereafter, the site shall be monitored once every 5 years for 10 years. The owner shall have repairs made immediately to minimize damage to the slopes. Appropriate permits shall be filed as required.

Geotechnical Section

34. The applicant shall comply with all requirements of the Geotechnical Section prior to the issuance of the building permit and during the construction phase of the project.

Building Inspection Section

35. The applicant shall comply with all requirements of the Building Inspection Section prior to the issuance of the building permit and during the construction phase of the project.

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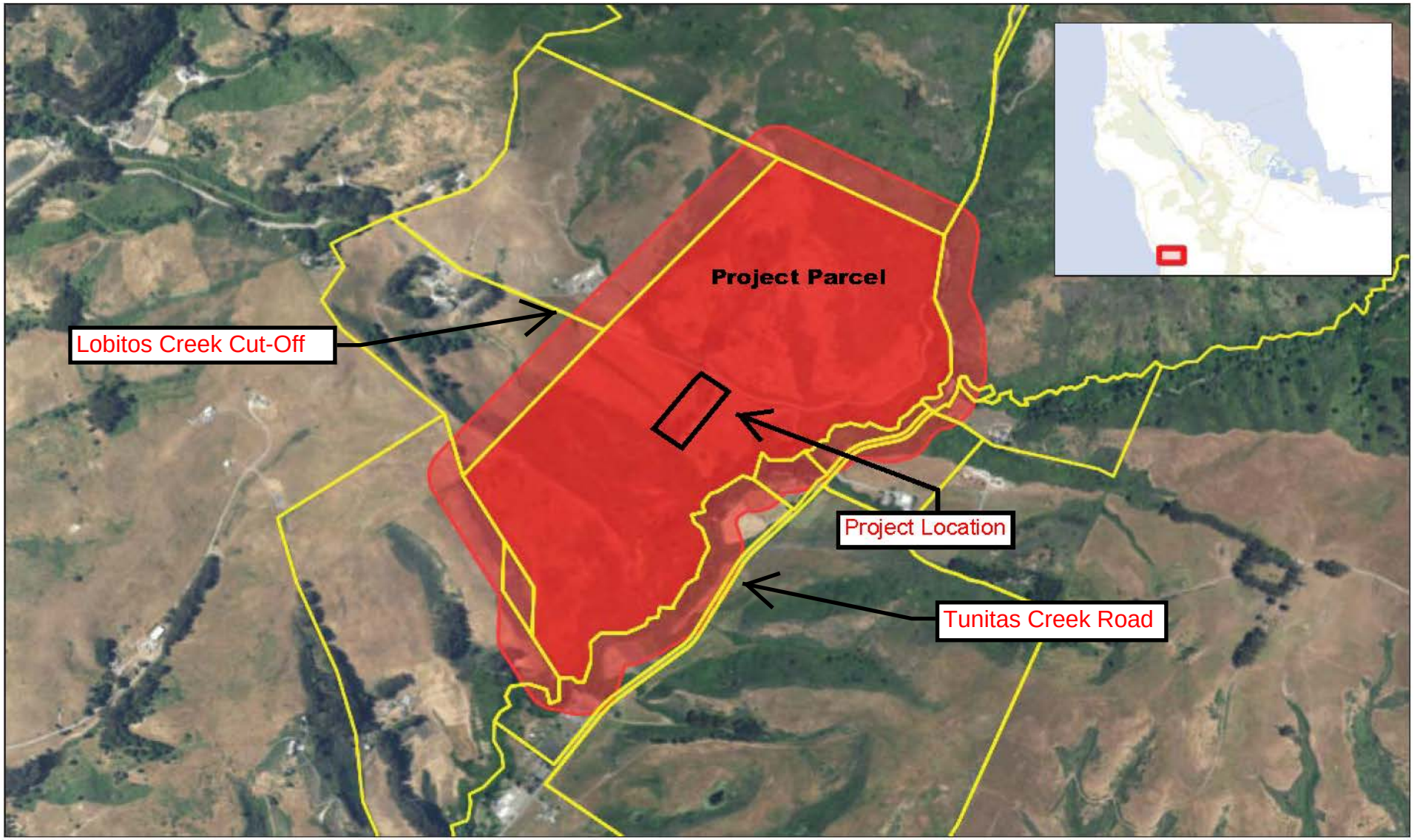
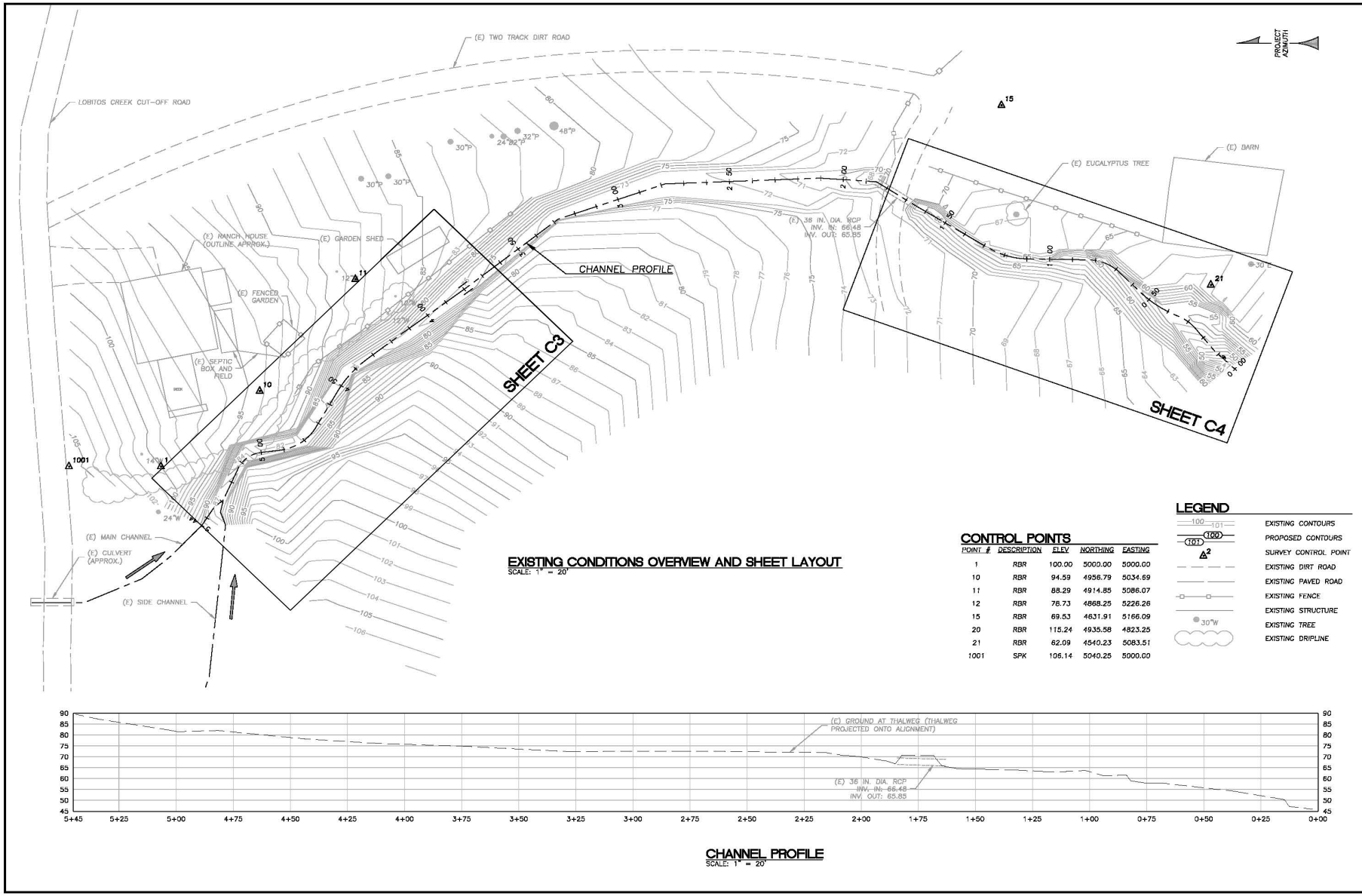


San Mateo County Planning Commission Meeting

Owner/Applicant: **Pitcher Properties, LLC/ Waterways Consulting, Inc** Attachment: **B**

File Numbers: **PLN2015-00486**



EXISTING CONDITIONS OVERVIEW AND SHEET LAYOUT
SCALE: 1" = 20'

CONTROL POINTS

POINT #	DESCRIPTION	ELEV	NORTHING	EASTING
1	RBR	100.00	5000.00	5000.00
10	RBR	94.59	4956.79	5034.69
11	RBR	88.29	4914.85	5086.07
12	RBR	76.73	4868.25	5226.26
15	RBR	69.53	4831.91	5166.09
20	RBR	115.24	4935.58	4823.25
21	RBR	62.09	4840.23	5083.51
1001	SPK	106.14	5040.25	5000.00

LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- SURVEY CONTROL POINT
- EXISTING DIRT ROAD
- EXISTING PAVED ROAD
- EXISTING FENCE
- EXISTING STRUCTURE
- EXISTING TREE
- EXISTING DRIPLINE

CHANNEL PROFILE
SCALE: 1" = 20'

WATERWAYS CONSULTING INC.
509A SWIFT ST.
SANTA CRUZ, CA 95060
PH:(831)425-0201 FAX:(888)819-6947
WWW.WATWAYS.COM

DRAFT
NOT FOR CONSTRUCTION

PREPARED AT THE REQUEST OF:
PITCHER PROPERTIES

EXISTING CONDITIONS OVERVIEW AND SHEET LAYOUT

PITCHER PROPERTIES
CHANNEL STABILIZATION
CONCEPT LEVEL PLAN
(alternatives 2 + 3)

DESIGNED BY: B.M.S.
DRAWN BY: B.M.S.
CHECKED BY: M.W.W.
DATE: 9/21/15
JOB NO.: 13-059

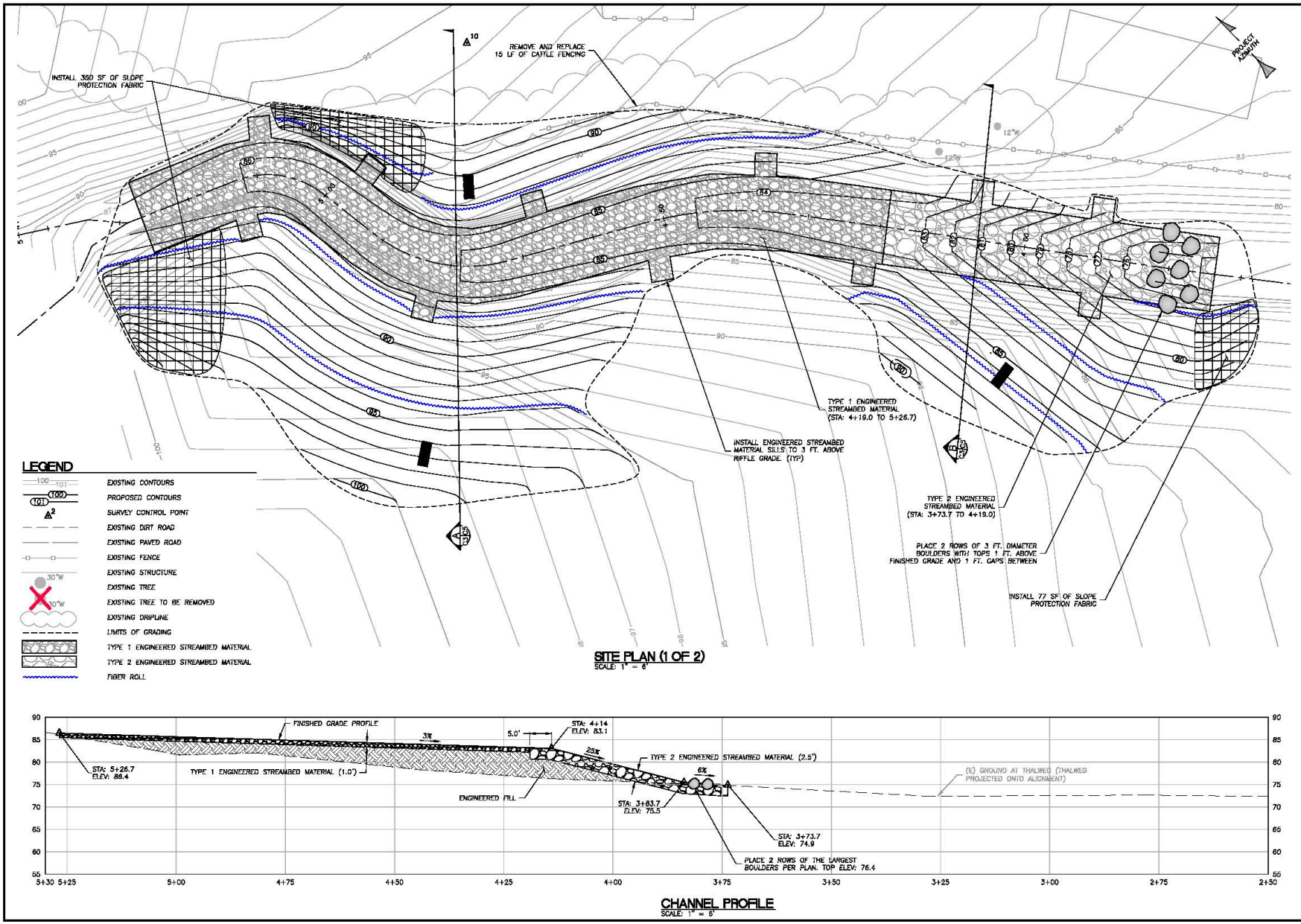
BAR IS ONE INCH ON ORIGINAL DRAWING, ADJUST SCALES FOR REDUCED PLOTS
0 1"

C2 | 2 OF 8

San Mateo County Planning Commission Meeting

Owner/Applicant: **Pitcher Properties, LLC/ Waterways Consulting, Inc** Attachment: **C**

File Numbers: **PLN2015-00486**

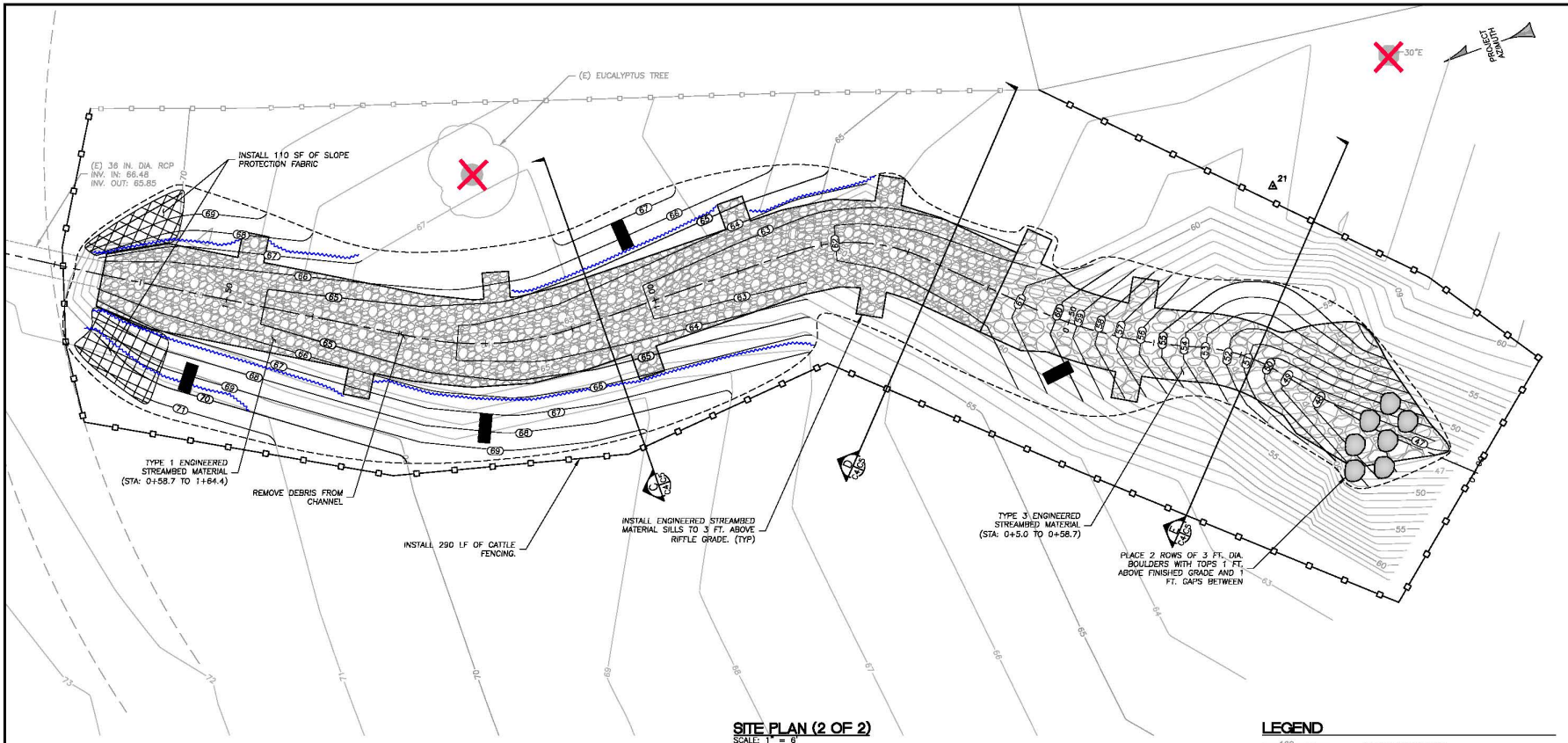


San Mateo County Planning Commission Meeting

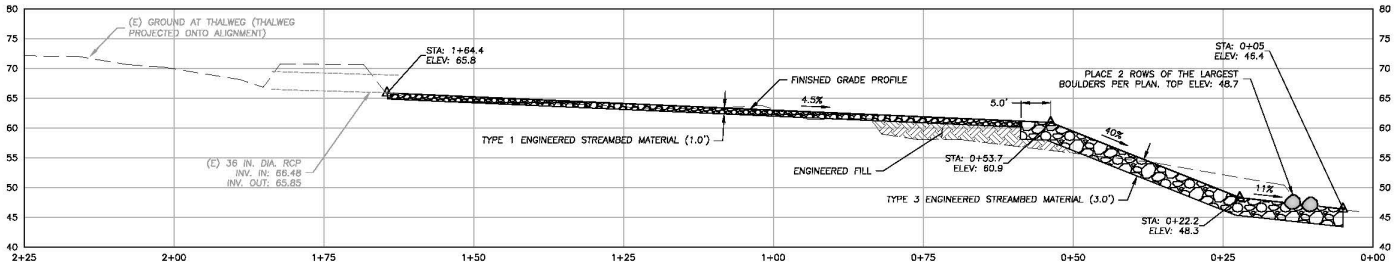
Owner/Applicant: **Pitcher Properties, LLC/ Waterways Consulting, Inc**

Attachment: **C**

File Numbers: **PLN2015-00486**



SITE PLAN (2 OF 2)
SCALE: 1" = 6'



CHANNEL PROFILE
SCALE: 1" = 6'

LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- SURVEY CONTROL POINT
- EXISTING DIRT ROAD
- EXISTING PAVED ROAD
- EXISTING FENCE
- EXISTING STRUCTURE
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- EXISTING DRIPLINE
- LIMITS OF GRADING
- TYPE 1 ENGINEERED STREAMBED MATERIAL
- TYPE 3 ENGINEERED STREAMBED MATERIAL
- FIBER ROLL

WATERWAYS CONSULTING INC.
509A SWIFT ST.
SANTA CRUZ, CA 95060
PH:(831)423-9291 // FAX:(888)818-4847
WWW.WATERWAYS.COM

DRAFT
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PREPARED AT THE REQUEST OF:
PITCHER PROPERTIES

SITE PLAN
(2 OF 2)

PITCHER PROPERTIES
CHANNEL STABILIZATION
CONCEPT LEVEL PLAN
(alternatives 2 + 3)

DESIGNED BY: B.M.S.
DRAWN BY: B.M.S.
CHECKED BY: M.W.W.
DATE: 9/21/15
JOB NO.: 13-059

BAR IS ONE INCH ON ORIGINAL DRAWING, ADJUST SCALES FOR REDUCED PLOTS
0 1"

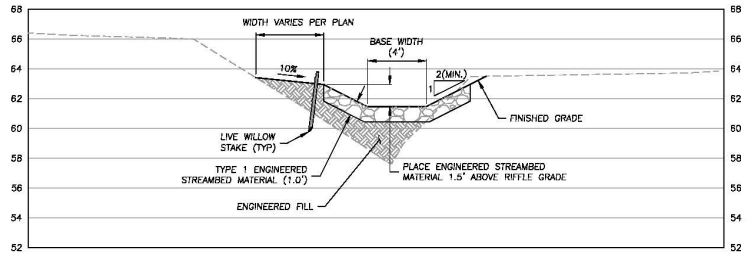
C4 | 4 OF 8

San Mateo County Planning Commission Meeting

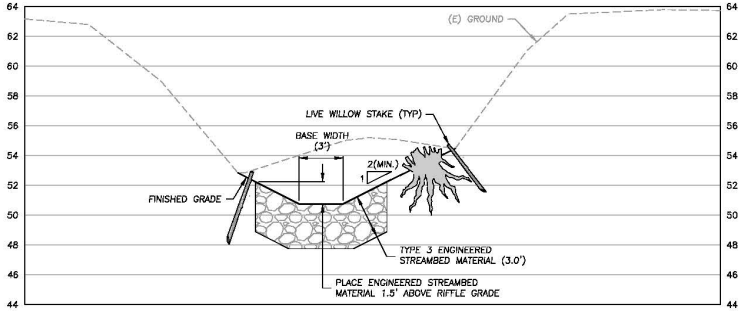
Owner/Applicant: **Pitcher Properties, LLC/ Waterways Consulting, Inc**

Attachment: **C**

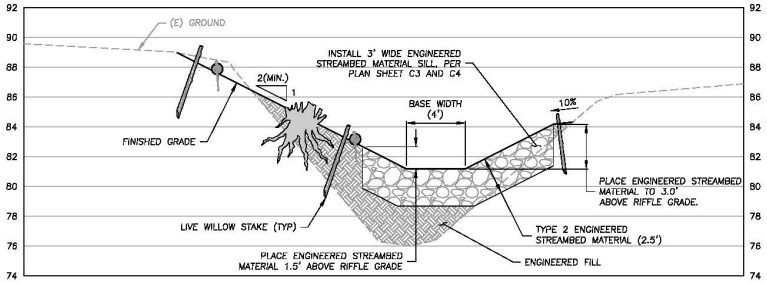
File Numbers: **PLN2015-00486**



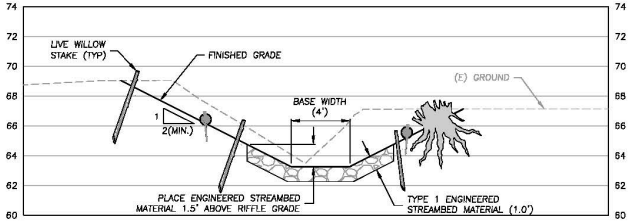
SECTION D C4|C5
SCALE: 1"=4'



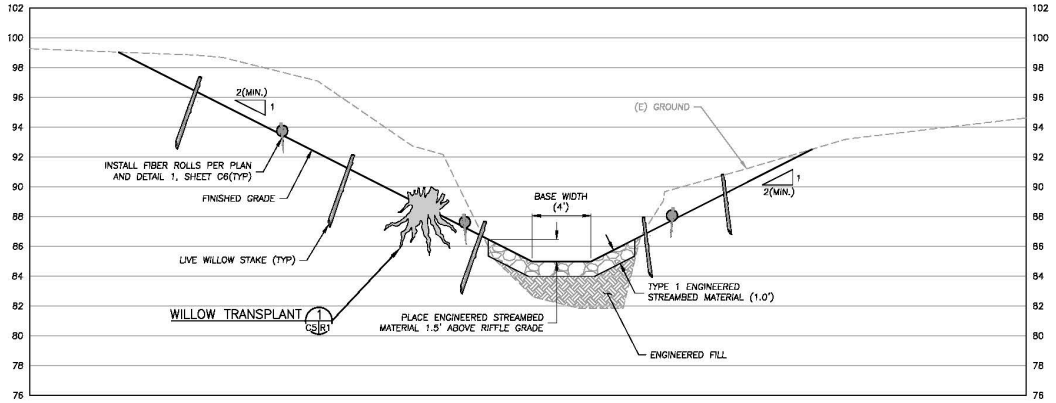
SECTION E C4|C5
SCALE: 1"=4'



SECTION B C3|C5
SCALE: 1"=4'



SECTION C C4|C5
SCALE: 1"=4'



SECTION A C3|C5
SCALE: 1"=4'

NOTE:
INSTALL LIVE WILLOW STAKES AT 10' O.C. SPACING.

WATERWAYS CONSULTING INC.
2256 SWIFT ST.
SANTA CRUZ, CA 95060
PH:(831)421-9251 // FAX:(888)819-6947
WWW.WATWAYS.COM

DRAFT
NOT FOR CONSTRUCTION

PREPARED AT THE REQUEST OF
PITCHER PROPERTIES

TYPICAL SECTIONS

PITCHER PROPERTIES
CHANNEL STABILIZATION
CONCEPT LEVEL PLAN
(alternatives 2 + 3)

DESIGNED BY:	B.M.S.
DRAWN BY:	B.M.S.
CHECKED BY:	M.W.W.
DATE:	9/21/15
JOB NO.:	13-059

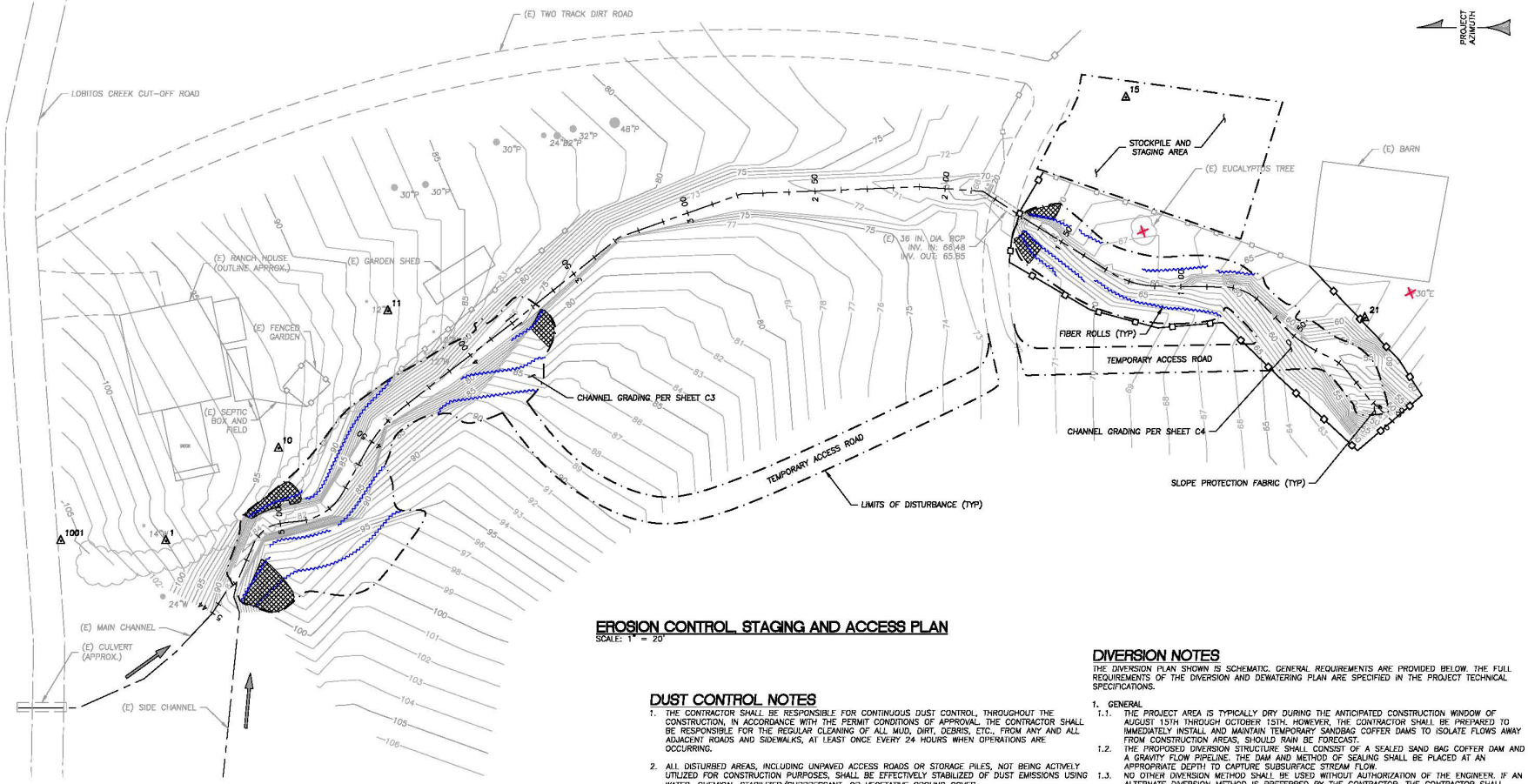
BAR IS ONE INCH ON ORIGINAL DRAWING. ADJUST SCALES FOR REDUCED PLOTS
0 1"

C5 | 5 OF 8

San Mateo County Planning Commission Meeting

Owner/Applicant: **Pitcher Properties, LLC/ Waterways Consulting, Inc** Attachment: **C**

File Numbers: **PLN2015-00486**

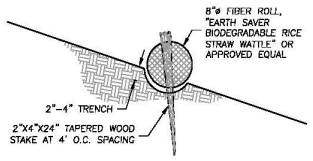


EROSION CONTROL, STAGING AND ACCESS PLAN

SCALE: 1" = 20'

LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- SURVEY CONTROL POINT
- EXISTING DIRT ROAD
- EXISTING PAVED ROAD
- EXISTING FENCE
- EXISTING STRUCTURE
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- EXISTING DRIPLINE
- FIBER ROLL
- SLOPE PROTECTION FABRIC



FIBER ROLL

SCALE: 1"=1'

DUST CONTROL NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTINUOUS DUST CONTROL THROUGHOUT THE CONSTRUCTION, IN ACCORDANCE WITH THE PERMIT CONDITIONS OF APPROVAL. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REGULAR CLEANING OF ALL MUD, DIRT, DEBRIS, ETC., FROM ANY AND ALL ADJACENT ROADS AND SIDEWALKS, AT LEAST ONCE EVERY 24 HOURS WHEN OPERATIONS ARE OCCURRING.
2. ALL DISTURBED AREAS, INCLUDING UNPAVED ACCESS ROADS OR STORAGE PILES, NOT BEING ACTIVELY UTILIZED FOR CONSTRUCTION PURPOSES, SHALL BE EFFECTIVELY STABILIZED OF DUST EMISSIONS USING WATER, CHEMICAL STABILIZER/SUPPRESSANT, OR VEGETATIVE GROUND COVER.
3. ALL GROUND-DISTURBING ACTIVITIES (E.G., CLEARING, GRUBBING, SCRAPING, AND EXCAVATION) SHALL BE EFFECTIVELY CONTROLLED OF FUGITIVE DUST EMISSIONS UTILIZING APPLICATION OF WATER OR BY PRE-SOAKING.
4. ALL MATERIALS TRANSPORTED OFFSITE SHALL BE COVERED OR EFFECTIVELY WETTED TO LIMIT DUST EMISSIONS.
5. FOLLOWING THE ADDITION OF MATERIALS TO, OR THE REMOVAL OF MATERIALS FROM, THE SURFACES OF OUTDOOR STORAGE PILES, SAID PILES SHALL BE EFFECTIVELY STABILIZED OF FUGITIVE DUST EMISSIONS UTILIZING SUFFICIENT WATER OR CHEMICAL STABILIZER/SUPPRESANT.
6. ONSITE VEHICLE SPEED ON UNPAVED SURFACES SHALL BE LIMITED TO 15 MPH.
7. DISTURBED AREAS SHALL BE SEEDED PRIOR TO OCTOBER 15TH OR EARLIER AS REQUIRED BY THE APPLICABLE PERMIT CONDITIONS.

ACCESS AND STAGING AREA NOTES

1. UTILIZE ONLY THE APPROVED ACCESS POINTS, AS SHOWN ON THE DRAWINGS. MATERIALS SHALL BE STOCKPILED WITHIN AN EXISTING FLAT AND PREVIOUSLY DISTURBED AREA.
2. ACCESS PLAN IS SCHEMATIC. CONTRACTOR SHALL SUBMIT A SITE ACCESS PLAN FOR APPROVAL BY THE ENGINEER.
3. THE DOWNSLOPE PERIMETER OF STAGING OR STOCKPILE AREAS SHALL BE CONTAINED WITH SILT FENCE.
4. ALL EQUIPMENT AND MATERIALS SHALL BE STORED, MAINTAINED AND REFUELED IN A DESIGNATED PORTION OF THE STAGING AREA.

DIVERSION NOTES

THE DIVERSION PLAN SHOWN IS SCHEMATIC. GENERAL REQUIREMENTS ARE PROVIDED BELOW. THE FULL REQUIREMENTS OF THE DIVERSION AND DEWATERING PLAN ARE SPECIFIED IN THE PROJECT TECHNICAL SPECIFICATIONS.

1. GENERAL
   - 1.1. THE PROJECT AREA IS TYPICALLY DRY DURING THE ANTICIPATED CONSTRUCTION WINDOW OF AUGUST 15TH THROUGH OCTOBER 15TH. HOWEVER, THE CONTRACTOR SHALL BE PREPARED TO IMMEDIATELY INSTALL AND MAINTAIN TEMPORARY SANDBAG COFFER DAMS TO ISOLATE FLOWS AWAY FROM CONSTRUCTION AREAS, SHOULD RAIN BE FORECAST.
   - 1.2. THE PROPOSED DIVERSION STRUCTURE SHALL CONSIST OF A SEALED SAND BAG COFFER DAM AND A GRAVITY FLOW PIPELINE. THE DAM AND METHOD OF SEALING SHALL BE PLACED AT AN APPROPRIATE DEPTH TO CAPTURE SUBSURFACE STREAM FLOW.
   - 1.3. NO OTHER DIVERSION METHOD SHALL BE USED WITHOUT AUTHORIZATION OF THE ENGINEER. IF AN ALTERNATE DIVERSION METHOD IS PREFERRED BY THE CONTRACTOR, THE CONTRACTOR SHALL SUBMIT A PLAN TO THE ENGINEER FOR APPROVAL, DETAILING THE DESIRED DIVERSION METHOD.
   - 1.4. INSTALL THE COFFER DAMS WHEN THE FIVE-DAY RAIN PROBABILITY EXCEEDS 50 PERCENT AS DETERMINED FROM THE NATIONAL WEATHER FORECAST OFFICE: WWW.SRH.NOAA.GOV.
   - 1.5. MAINTAIN THE COFFER DAMS DURING THE COURSE OF THE CONSTRUCTION WORK.
   - 1.6. DIVERT FLOW ONLY WHEN THE DIVERSION CONSTRUCTION IS COMPLETE. FOLLOWING ENGINEER'S APPROVAL OF THE COMPLETED WORK, REMOVE DIVERSION BEGINNING AT THE DOWNSTREAM LIMIT, IN AN UPSTREAM DIRECTION.
   - 1.7. IN THE EVENT OF A SIGNIFICANT STORM, THE CONTRACTOR SHALL BE PREPARED TO TAKE NECESSARY MEASURES TO INSURE SAFE PASSAGE OF STORM WATER FLOW THROUGH THE PROJECT AREA, WITHOUT DAMAGE TO EXISTING STRUCTURES, OR INTRODUCTION OF EXCESSIVE SEDIMENT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TEMPORARY EROSION CONTROL B.M.P.'S.
2. DEWATERING OF CONSTRUCTION AREAS
   - 2.1. ANY DEWATERING ACTIVITIES WHICH MAY BE REQUIRED FOR CONSTRUCTION PURPOSES SHALL BE CONDUCTED IN A MANNER WHICH DOES NOT VIOLATE ANY WATER QUALITY STANDARDS ESTABLISHED BY THE CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD.
   - 2.2. DISCHARGE OF WATER FROM THE DEWATERED CONSTRUCTION SITE, EITHER BY GRAVITY OR PUMPING, SHALL BE PERFORMED IN A MANNER TO PREVENT EXCESSIVE TURBIDITY FROM ENTERING THE RECEIVING WATERWAYS AND TO PREVENT SCOUR AND EROSION OUTSIDE OF THE CONSTRUCTION SITE. PUMPED WATER SHOULD BE PRE-FILTERED WITH SAND/GRAVEL PACK AROUND SUMPS FOR SUBSURFACE FLOWS AND A SILT FENCE OR HAY BALES AROUND PUMPS FOR SURFACE FLOW. PUMPED WATER SHALL BE DISCHARGED INTO ISOLATED LOCAL DEPRESSIONS, FILTER BAGS, SETTLING (BAKER) TANKS, OR TEMPORARY SEDIMENT BASINS, AS NECESSARY TO MEET WATER QUALITY REQUIREMENTS. WHERE WATER TO BE DISCHARGED INTO THE CREEK WILL CREATE EXCESSIVE TURBIDITY, THE WATER SHALL BE ROUTED THROUGH A SEDIMENT INTERCEPTOR OR OTHER FACILITIES TO REMOVE SEDIMENT FROM WATER. CONTRACTOR SHALL SUPPLY ALL NECESSARY PUMPS, PIPING, FILTERS, SHORING, AND OTHER TOOLS AND MATERIALS NECESSARY FOR DEWATERING.
   - 2.3.

WATERWAYS CONSULTING INC.
509A SWIFT ST.
SANTA CRUZ, CA 95060
PH:(831)454-8761 FAX:(866)819-6847
WWW.WATWAYS.COM

DRAFT
NOT FOR CONSTRUCTION

PREPARED AT THE REQUEST OF:
PITCHER PROPERTIES

EROSION CONTROL, STAGING AND ACCESS PLAN

PITCHER PROPERTIES
CHANNEL STABILIZATION
CONCEPT LEVEL PLAN
(alternatives 2 + 3)

DESIGNED BY:	B.M.S.
DRAWN BY:	B.M.S.
CHECKED BY:	M.W.W.
DATE:	9/21/15
JOB NO.:	13-059

BAR IS ONE INCH ON ORIGINAL DRAWING. ADJUST SCALES FOR REDUCED PLOTS
0 1"

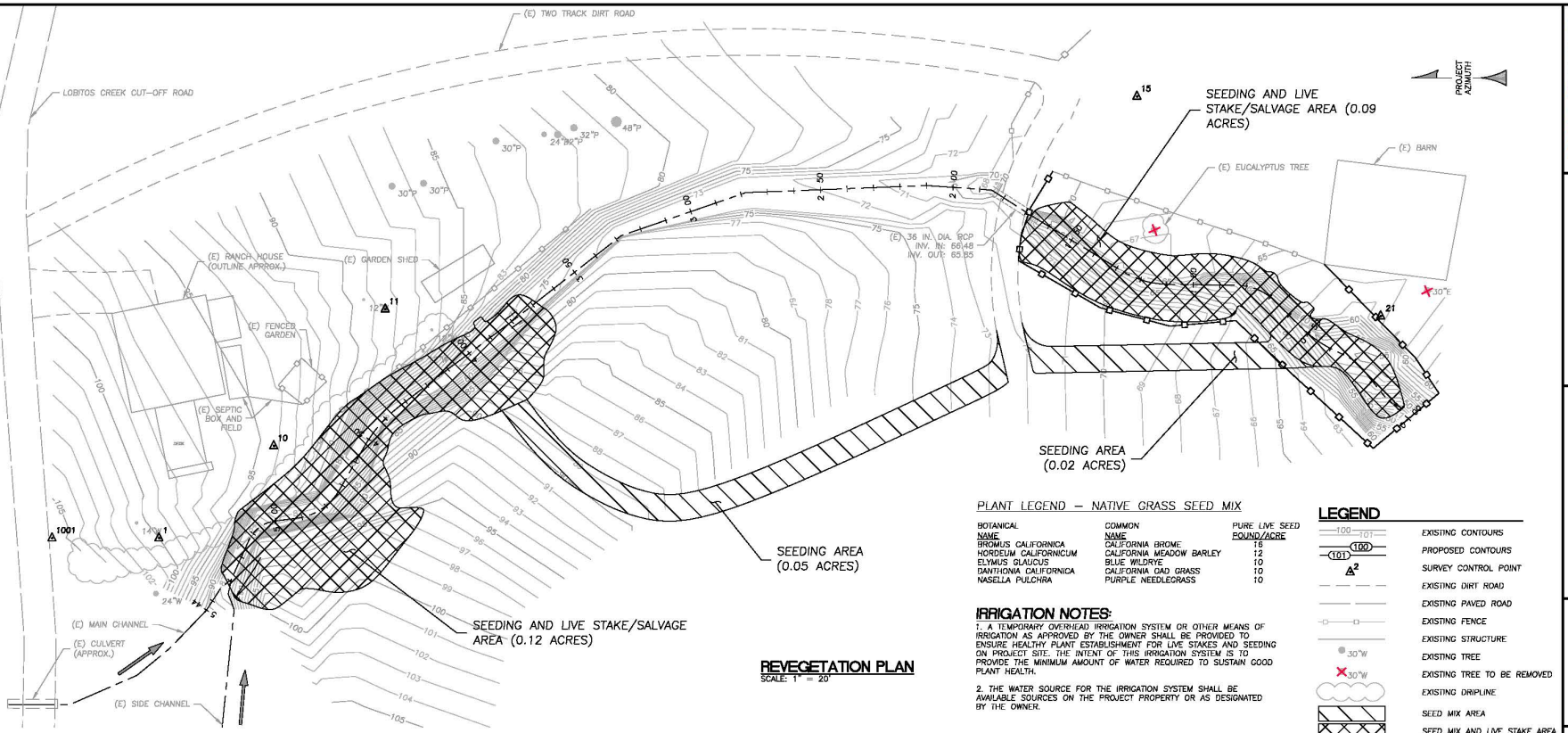
C6 | 6 OF 8

San Mateo County Planning Commission Meeting

Owner/Applicant: **Pitcher Properties, LLC/ Waterways Consulting, Inc**

Attachment: **C**

File Numbers: **PLN2015-00486**



REVEGETATION PLAN
SCALE: 1" = 20'

PLANT LEGEND – NATIVE GRASS SEED MIX

BOTANICAL NAME	COMMON NAME	PURE LIVE SEED POUND/ACRE
BROMUS CALIFORNICA	CALIFORNIA BROME	16
HORDEUM CALIFORNICUM	CALIFORNIA MEADOW BARLEY	12
ELYMUS GLAUCUS	BLUE WILDRYE	10
DANTHONIA CALIFORNICA	CALIFORNIA OAD GRASS	10
NASELLA PULCHRA	PURPLE NEEDLEGRASS	10

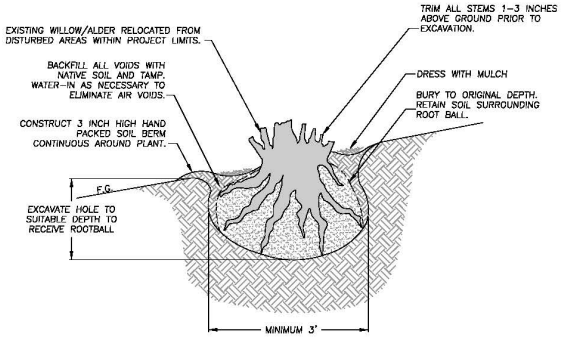
IRRIGATION NOTES:

1. A TEMPORARY OVERHEAD IRRIGATION SYSTEM OR OTHER MEANS OF IRRIGATION AS APPROVED BY THE OWNER SHALL BE PROVIDED TO ENSURE HEALTHY PLANT ESTABLISHMENT FOR LIVE STAKES AND SEEDING ON PROJECT SITE. THE INTENT OF THIS IRRIGATION SYSTEM IS TO PROVIDE THE MINIMUM AMOUNT OF WATER REQUIRED TO SUSTAIN GOOD PLANT HEALTH.

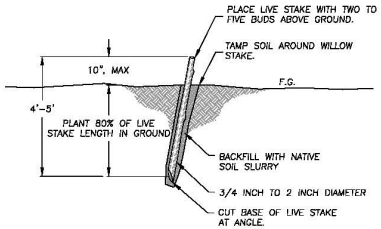
2. THE WATER SOURCE FOR THE IRRIGATION SYSTEM SHALL BE AVAILABLE SOURCES ON THE PROJECT PROPERTY OR AS DESIGNATED BY THE OWNER.

LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- SURVEY CONTROL POINT
- EXISTING DIRT ROAD
- EXISTING PAVED ROAD
- EXISTING FENCE
- EXISTING STRUCTURE
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- EXISTING DRIPLINE
- SEED MIX AREA
- SEED MIX AND LIVE STAKE AREA



WILLOW/ALDER RELOCATION DETAIL 1
SCALE: N.T.S.



LIVE STAKE 2
SCALE: N.T.S.

WATERWAYS CONSULTING INC.
SOPA SWIFT FL 315060
SANTA CRUZ, CA 95060
PH:(831)421-9251 // FAX:(888)819-6847
WWW.WATWAYS.COM

DRAFT
NOT FOR CONSTRUCTION

PREPARED AT THE REQUEST OF:
PITCHER PROPERTIES

REVEGETATION PLAN

PITCHER PROPERTIES CHANNEL STABILIZATION CONCEPT LEVEL PLAN (alternatives 2 + 3)

DESIGNED BY:	B.M.S.
DRAWN BY:	B.M.S.
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BAR IS ONE INCH ON ORIGINAL DRAWING, ADJUST SCALES FOR REDUCED PLOTS
0 1"

R1 | 1 OF 8

San Mateo County Planning Commission Meeting

Owner/Applicant: **Pitcher Properties, LLC/ Waterways Consulting, Inc** Attachment: **C**

File Numbers: **PLN2015-00486**

ATTACHMENT: D

COUNTY OF SAN MATEO, PLANNING AND BUILDING DEPARTMENT

POSTING ONLY

ANSHU NAND

NOTICE OF INTENT TO ADOPT
MITIGATED NEGATIVE DECLARATION

MAR 14 2017

A notice, pursuant to the California Environmental Quality Act of 1970, as amended (Public Resources Code 21,000; et seq.), that the following project: *Channel Stabilization and Restoration*, when adopted and implemented, will not have a significant impact on the environment.

FILE NO.: PLN 2015-00486

OWNER: Pitcher Properties, LLC

APPLICANT: Waterways Consulting, Inc.

ASSESSOR'S PARCEL NO.: 066-320-060

LOCATION: 1451 Lobitos Creek Cut-off, Unincorporated Half Moon Bay

PROJECT DESCRIPTION: The project proposes stabilize and rehabilitate 313 linear feet of channel and banks. The channel is currently significantly incised with signs of recent headcut migration and bank failures. The project involves requires clearing of vegetation, re-vegetation and grading in the amount of 282 cubic yards (c.y.) of cut and 252 c.y. of fill, totaling 534 c.y. of channel and banks in order to improve bank stability, reduce failure, and channel incision that would result in transport of sediment to environmentally sensitive areas downstream. The project also includes the construction of permanent exclusion fencing to protect the rehabilitated channel and a temporary access road and staging area.

FINDINGS AND BASIS FOR A MITIGATED NEGATIVE DECLARATION

The Current Planning Section has reviewed the initial study for the project and, based upon substantial evidence in the record, finds that:

1. The project will not adversely affect water or air quality or increase noise levels substantially.

2. The project will not have adverse impacts on the flora or fauna of the area.

3. The project will not degrade the aesthetic quality of the area.

4. The project will not have adverse impacts on traffic or land use.

5. In addition, the project will not:

    a. Create impacts which have the potential to degrade the quality of the environment.

    b. Create impacts which achieve short-term to the disadvantage of long-term environmental goals.

c. Create impacts for a project which are individually limited, but cumulatively considerable.

d. Create environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly.

The County of San Mateo has, therefore, determined that the environmental impact of the project is insignificant.

MITIGATION MEASURES included in the project to avoid potentially significant effects:

Mitigation Measure 1: The applicant shall implement the following dust control measures during grading and construction activities:

a. Water all active construction and grading areas at least twice daily.

b. Cover all truck hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard.

c. Apply water two times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at the project site.

d. Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets/roads.

e. Enclose, cover, water twice daily or apply (non-toxic) soil binders to exposed stockpiles (dirt, sand, etc.).

Mitigation Measure 2: Within 72 hours of project start, a qualified wildlife biologist should perform a pre-construction survey for California red-legged frog (CRLF) and San Francisco garter snake (SFGS) in appropriate habitat within and immediately adjacent to the project site. The pre-construction surveys should include one daytime survey for both species and one nocturnal survey for the CRLF. If either species is observed, the United States Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW) should be contacted for further guidance. No work should proceed until authorization from the agencies has been obtained.

Mitigation Measure 3: Prior to the start of construction activities, a worker's environmental training shall be performed by a qualified biologist. The training should include information on species identification, natural history, the protection measures to be implemented, and the penalties for non-compliance. Each worker should sign a certification sheet on completion of the training. All new workers should be trained prior to their involvement in construction activities.

Mitigation Measure 4: A qualified biologist should conduct a survey of the project site each morning before the start of construction activities and should be present during vegetation removal and initial (new) grading activities. Once the vegetation removal and initial grading activities have been completed, morning surveys prior to the start of each day's work should be adequate.

Mitigation Measure 5: Removal of the willows should be performed with hand tools to remove the limbs down to the base of the trunk. The root base could be removed by an excavator under the direct supervision of the qualified monitoring biologist.

Mitigation Measure 6: If CRLF or SFGS are observed in or immediately adjacent to the project site during construction activities, all work must cease and the agencies contacted for further guidance. Work should not proceed until approval from the agencies has been obtained.

Mitigation Measure 7: Prior to the start of construction activities, the project boundary, including storage and staging areas, access routes and environmentally sensitive areas (ESA) should be clearly delineated with orange construction fencing or flagging. No storage of equipment or materials, vegetation removal or maintenance of equipment should be performed outside of the project site boundaries.

Mitigation Measure 8: Design and implement a riparian habitat restoration plan that would achieve a no net loss of riparian habitat removed during the bank stabilization project. The plan should include plant species consistent with the existing habitat, a monitoring schedule, success criteria, and provide for adaptive strategies to help meet the success criteria, in the event of restoration failures.

Mitigation Measure 9: If construction activities, especially vegetation removal, are scheduled between February 15 and September 1, a pre-construction survey for nesting birds should be conducted by a qualified biologist within two weeks prior to the start of the project. One to two surveys should be performed, depending on the degree of difficulty in determining the nesting status of birds. The survey area should include habitats within 250 feet of the project sites for passerines and 500 feet for raptors, where practical. These survey zones are consistent with California Department of Fish and Wildlife (CDFW) recommendations. The alternative to performing pre-construction surveys is to schedule the project outside of the nesting season.

Mitigation Measure 10: If active nests are located within the survey areas, delineate buffer zones around each nest site. Buffer zones should begin at 250 feet for passerines and 500 feet for raptors. If nest sites are closer to project activities than the recommended buffer distances, appropriate reductions in buffer zone width should be determined by the qualified biologist, based on species, site specific conditions and level of construction activities. Where buffer zone reductions are implemented, signs or flagging delimiting the boundaries of the buffer zones should be established, prior to the start of construction activities and the nest sites monitored daily during construction by a qualified biologist, to avoid potential take of active nests due to construction-related disturbances. The monitoring biologist shall have the authority to stop work if project activities are negatively affecting nesting bird behaviors (e.g., feeding, nest attendance). Tree removal and other project activities could resume when the monitoring biologist has determined that the nestlings have fledged.

Mitigation Measure 11: Prior to the start of construction activities, a bat specialist should survey the barn for roosting bats. If present, implement recommendations of the bat specialist.

Mitigation Measure 12: If bats are present, avoid climbing on to the roof of the barn to access tree limbs and, during cutting, prevent limbs from falling onto the barn roof.

Mitigation Measure 13: Schedule the removal of eucalyptus trees between September 1 and October 15. This would minimize the likelihood of disturbing western red bats and would avoid disruptions to active bird nesting as well. No focused surveys would be necessary under this schedule. If tree removal is scheduled to take place between October 15 and February 28, a

bat specialist should conduct surveys for foliage roosting bats and, if present, implement measures developed by the bat specialist, as needed.

Mitigation Measure 14: In the event that archaeological features are encountered during project implementation (a late discovery), all work at the immediate location of the find must temporarily stop until a qualified archaeologist can be consulted and provide recommendations regarding the find. All contractors and sub-contractors shall be made aware of these requirements and shall adhere to all applicable laws including State Cultural Preservation Laws.

Mitigation Measure 15: In the event that human skeletal remains are encountered, all work at the immediate location of the find must temporarily stop. Public Resource Code 5097 and local Health and Safety codes establish a procedure for notifying the County Coroner's Office and possibly the State Native American Heritage Commission to seek recommendations from a Most Likely Descendant (Tribal Contact) before any further action at the location of the find can proceed. All contractors and sub-contractors shall be made aware of these requirements and shall adhere to all applicable laws including State Cultural Preservation laws.

Mitigation Measure 16: Prior to commencement of the project, the applicant shall submit to the Planning Department for review and approval an erosion and drainage control plan that shows how the transport and discharge of soil and pollutants from and within the project site shall be minimized. The plan shall be designed to minimize potential sources of sediment, control the amount of runoff and its ability to carry sediment by diverting incoming flows and impeding internally generated flows, and retain sediment that is picked up on the project site through the use of sediment-capturing devices. The plan shall also limit application, generation, and migration of toxic substances, ensure the proper storage and disposal of toxic materials, and apply nutrients at rates necessary to establish and maintain vegetation without causing significant nutrient runoff to surface waters. Said plan shall adhere to the San Mateo County Wide Stormwater Pollution Prevention Program "General Construction and Site Supervision Guidelines," including:

a. Sequence construction to install sediment-capturing devices first, followed by runoff control measures and runoff conveyances. No construction activities shall begin until after all proposed measures are in place.

b. Minimize the area of bare soil exposed at one time (phased grading).

c. Clear only areas essential for project activities.

d. Within five days of clearing or inactivity, stabilize bare soils through either non-vegetative Best Management Practices (BMPs), such as mulching, or vegetative erosion control methods such as seeding. Vegetative erosion control shall be established within two weeks of seeding/planting.

e. Project site entrances shall be stabilized immediately after grading and frequently maintained to prevent erosion and control dust.

f. Control wind-born dust through the installation of wind barriers such as hay bales and/or sprinkling.

g. Soil and/or other construction-related material stockpiled on-site shall be placed a minimum of 200 feet from all wetlands and drain courses. Stockpiled soils shall be covered with tarps at all times of the year.

h. Intercept runoff above disturbed slopes and convey it to a permanent channel or storm drains by using earth dikes, perimeter dikes or swales, or diversions. Use check dams where appropriate.

i. Provide protection for runoff conveyance outlets by reducing flow velocity and dissipating flow energy.

j. Install storm drain inlet protection that traps sediment before it enters any adjacent storm sewer systems. This barrier shall consist of filter fabric, straw bales, gravel, or sand bags.

k. Install sediment traps/basins at outlets of diversions, channels, slope drains, or other runoff conveyances that discharge sediment-laden water. Sediment traps/ basins shall be cleaned out when 50% full (by volume).

l. Use silt fence and/or vegetated filter strips to trap sediment contained in sheet flow. The maximum drainage area to the fence should be 0.5-acre or less per 100 feet of fence. Silt fences shall be inspected regularly and sediment removed when it reaches 1/3 the fence height. Vegetated filter strips should have relatively flat slopes and be vegetated with erosion-resistant species.

m. Utilize coir fabric/netting on sloped graded areas to provide a reduction in water velocity, erosive areas, habitat protection, and topsoil stabilization.

n. Throughout the construction period, the applicant shall conduct regular inspections of the condition and operational status of all structural BMPs required by the approved Erosion Control Plan.

Mitigation Measure 17: The applicant shall implement the following basic construction measures at all times:

a. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California Airborne Toxic Control Measure Title13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.

b. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified visible emissions evaluator.

c. Post a publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This person, or his/her designee, shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

Mitigation Measure 18: Noise sources associated with demolition, construction, repair, remodeling, or grading of any real property shall be limited to the hours from 7:00 a.m. to 6:00 p.m. weekdays and 9:00 a.m. to 5:00 p.m. Saturdays. Said activities are prohibited on Sundays, Thanksgiving and Christmas (San Mateo Ordinance Code Section 4.88.360).

RESPONSIBLE AGENCY CONSULTATION: None

INITIAL STUDY: The San Mateo County Current Planning Section has reviewed the Environmental Evaluation of this project and has found that the probable environmental impacts are insignificant. A copy of the initial study is attached.

REVIEW PERIOD: March 14, 2017 to April 13, 2017

All comments regarding the correctness, completeness, or adequacy of this Negative Declaration must be received by the County Planning and Building Department, 455 County Center, Second Floor, Redwood City, no later than **5:00 p.m., April 13, 2017.**

CONTACT PERSON

Angela Chavez
Project Planner, 650/599-7217
achavez@smcgov.org

Angela Chavez, Project Planner

AC:pac - ACCBB0092_WPH.DOCX

County of San Mateo
Planning and Building Department

INITIAL STUDY
ENVIRONMENTAL EVALUATION CHECKLIST
(To Be Completed by Planning Department)

1. **Project Title:** Channel Stabilization and Restoration

2. **County File Number:** PLN 2015-00486

3. **Lead Agency Name and Address:** San Mateo County Planning and Building Department 455 County Center, 2nd Floor, Redwood City, CA 94063

4. **Contact Person and Phone Number:** Angela Chavez, 650/599-7217

5. **Project Location:** 1451 Lobitos Creek Cutoff, Unincorporated Half Moon Bay

6. **Assessor's Parcel Number and Size of Parcel:** 066-320-060; 189.70 acres

7. **Project Sponsor's Name and Address:** Pitcher Properties, 4701 Red Fox Drive, Annandale, VA 22003

8. **General Plan Designation:** Agriculture Rural

9. **Zoning:** Planned Agricultural District/ Coastal Development District (PAD/CD)

10. **Description of the Project:** The project proposes stabilize and rehabilitate 313 linear feet of channel and banks. The channel is currently significantly incised with signs of recent headcut migration and bank failures. The project involves requires clearing of vegetation, re-vegetation and grading in the amount of 282 cubic yards (c.y.) of cut and 252 c.y. of fill, totaling 534 c.y. of channel and banks in order to improve bank stability, reduce failure, and channel incision that would result in transport of sediment to environmentally sensitive areas downstream. The project also includes the construction of permanent exclusion fencing to protect the rehabilitated channel and a temporary access road and staging area.

11. **Surrounding Land Uses and Setting:** The project site is located approximately 10 miles south of the City of Half Moon Bay. The subject parcel is developed with a residence and barn. In addition to the residential use the property is also utilized for cattle grazing. The property is otherwise undisturbed and consists of grassy pastures which are bisected by a small tributary drainage channel. The channel begins upstream of the project site where a series of gullies cross under Lobitos Creek Road through a number of culverts before combining to form a single channel within the project area. Once within the project parcel the channel flows in a southwesterly direction to the west of the existing residence and barn. The surrounding parcels are largely utilized for agricultural activities with sporadic very low density development. The property is located within the Tunitas Creek County Scenic Corridor.

12. **Other Public Agencies Whose Approval is Required:** United States Department of Fish and Wildlife, United States Army Corps of Engineers, California Department of Fish and Wildlife, State of California Regional Water Quality Control Board.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" or "Significant Unless Mitigated" as indicated by the checklist on the following pages.

	Aesthetics	X	Climate Change		Population/Housing
	Agricultural and Forest Resources		Hazards and Hazardous Materials		Public Services
X	Air Quality		Hydrology/Water Quality		Recreation
X	Biological Resources		Land Use/Planning		Transportation/Traffic
X	Cultural Resources		Mineral Resources		Utilities/Service Systems
	Geology/Soils	X	Noise	X	Mandatory Findings of Significance

EVALUATION OF ENVIRONMENTAL IMPACTS

1. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4. "Negative Declaration: Less Than Significant with Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analyses," as described in 5. below, may be cross-referenced).

5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration (Section 15063(c)(3)(D)). In this case, a brief discussion should identify the following:

   a. Earlier Analysis Used. Identify and state where they are available for review.

b. Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

c. Mitigation Measures. For effects that are "Less Than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7. Supporting Information Sources. Sources used or individuals contacted should be cited in the discussion.

1. AESTHETICS. Would the project:

	Potentially Significant Impacts	*Significant Unless Mitigated*	*Less Than Significant Impact*	*No Impact*
1.a. Have a significant adverse effect on a scenic vista, views from existing residential areas, public lands, water bodies, or roads?			X	

Discussion: The project area is scenic in nature due to the lack of overall development in the area. The subject parcel and surrounding parcels largely consist of grassy rolling hills and pasturelands and are served by a 20-foot wide two lane country road. However, the proposed project is limited to project site and is within the immediate vicinity of the channel. The proposed project will impact approximately 313 linear feet of the channel. The existing willows that line the upper portions of the channel will be impacted by the project. These areas will be revegetated with willow cuttings and transplantation of affected willows to other areas to help establish stability in the banks.

Source: Project Location, Project Plans.

1.b. Significantly damage or destroy scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?			X	

Discussion: The project parcel is not located within a state scenic highway but is located within the Tunitas Creek Road County Scenic Corridor. The project proposes to remove two 30-inch eucalyptus trees located adjacent to the channel. The trees are visible from Lobitos Creek cut-off but are not visible from the scenic corridor due to distance, topography, and mature vegetation. The project will also impact the willows that line the channel as the banks will be laid back to create a more stable angle. The banks will then be revegetated with willow pole cuttings, willow tree

transplants, and native erosion control seeding. The project poses no impact to any rock outcroppings or historic buildings. **Source:** Project Location, Project Plans.					
1.c.	Significantly degrade the existing visual character or quality of the site and its surroundings, including significant change in topography or ground surface relief features, and/or development on a ridgeline?			X	
Discussion: The project involves approximately 534 cubic yards of cut and fill activity. The proposed work focuses on the subject channel and the banks in its immediate vicinity. The removal of vegetation that lines the banks of the channel along with tree removal will temporarily impact the visual character of the site. However, the project includes revegetation of the disturbed areas which ensures that the visual character will be restored and that there will be no permanent impacts to the natural quality of the site. The project otherwise does not involve any development on a ridgeline or any significant change to the topography of the site. **Source:** Project Plans, Project Location.					
1.d.	Create a new source of significant light or glare that would adversely affect day or nighttime views in the area?				X
Discussion: The proposed project does not include involve any features which would result in any new source of light or glare which would impact either day or nighttime views in the area. **Source:** Project Plans.					
1.e.	Be adjacent to a designated Scenic Highway or within a State or County Scenic Corridor?			X	
Discussion: The project site is locate located within the Tunitas Creek Road County Scenic Corridor. However, the project site is not visible from the scenic roadway due to distance, existing topography, development, and mature vegetation. **Source:** Project Location.					
1.f.	If within a Design Review District, conflict with applicable General Plan or Zoning Ordinance provisions?				X
Discussion: The project is not located within a Design Review District. **Source:** San Mateo County Zoning Regulations, San Mateo County General Plan.					
1.g.	Visually intrude into an area having natural scenic qualities?			X	
Discussion: See discussion under Section 1.a, 1.b., and 1.c., above. **Source:** Project Plans, Project Location.					

2.	**AGRICULTURAL AND FOREST RESOURCES.** In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the State's inventory of forestland, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
		Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
2.a.	For lands outside the Coastal Zone, convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				X
Discussion: The parcel is located within the Coastal Zone. **Source:** Project Location.					
2.b.	Conflict with existing zoning for agricultural use, an existing Open Space Easement, or a Williamson Act contract?			X	
Discussion: The project parcel is located within the Planned Agricultural District Zoning District. The parcel is not covered by an existing open space easement. The parcel is a Williamson Act contracted parcel. While the proposed project qualifies as development the contract regulates the permissible uses on the parcel. The proposed repair of the channel does not introduce any new use on to the property and does involve construction of permanent structures. Therefore, the project will not result in any permanent impacts on the parcels' ability to continue to support agricultural activities. **Source:** Project Location, San Mateo County Zoning Regulations.					
2.c.	Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forestland to non-forest use?				X
Discussion: The channel is actively incising which has resulted in significant bank failures all along the channel. These failures threaten the existing development as the house, its septic system, and the barn are all located immediately adjacent to the channel. The proposed project will impact lands immediately adjacent to the channel as the project proposes to lay back the banks. While this will					

widen the area in which the channel occupies, it does not result in a land conversion away from farmland. If no action is taken, the bank failures will continue to widen the channel which could impact both the agricultural activities of the parcel and the existing development. The proposed repair of the channel does not introduce any new use on to the property and does involve construction of permanent structures. Therefore, the project will not result in any permanent impacts on the parcels' ability to continue to support agricultural activities.

Source: Project Location, Project Plans.

2.d. For lands within the Coastal Zone, convert or divide lands identified as Class I or Class II Agriculture Soils and Class III Soils rated good or very good for artichokes or Brussels sprouts?			X	

Discussion: The project site does contain an area which has soils which are identified as Class III but non-irrigated. However, these lands are not rated for artichokes or Brussels sprouts but are rated appropriately for grazing. The proposed project does not propose to convert or divide these lands.

Source: Project Location, Natural Resources Conservation Service Web Soil Survey.

2.e. Result in damage to soil capability or loss of agricultural land?			X	

Discussion: The banks of the channel are actively failing and while the proposed repairs will widen the channel by cutting back the banks if no action were to be taken the failures will continue. As the channel widens uncontrolled the loss of agricultural viable lands increases. As the incision continues the adjacent banks will continue to widen and fail which will result in increased sedimentation into the channel which can result in bank failures and incision in the connecting downstream tributaries and eventually Tunitas Creek. Therefore, these failures have the potential to impact agricultural lands both on and off the parcel should they be allowed to continue uncontrolled.

Source: Project Location, Natural Resources Conservation Service Web Soil Survey.

2.f. Conflict with existing zoning for, or cause rezoning of, forestland (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))? *Note to reader: This question seeks to address the economic impact of converting forestland to a non-timber harvesting use.*				X

Discussion: The project parcel is not located in an area zoned for, nor does the project result in, the rezoning of forestland or timberland. The subject parcel is zoned Planned Agricultural District and no proposed zoning changes are included as part of the project.

Source: Project Location, San Mateo County Zoning Regulations

3.	**AIR QUALITY.** Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:	*Potentially Significant Impacts*	*Significant Unless Mitigated*	*Less Than Significant Impact*	*No Impact*
3.a.	Conflict with or obstruct implementation of the applicable air quality plan?			X	

Discussion: A temporary increase in the number of vehicles and dust is expected during the project execution. However, construction vehicles are required to meet California Air Resources Board regulations to reduce air pollution (e.g., limits on idling). Operational emissions, which are those emissions occurring after construction and for the life of the development, aren't expected in association with this project.

Source: Project Location, Project Plans, Bay Area Air Quality Management District.

3.b.	Violate any air quality standard or contribute significantly to an existing or projected air quality violation?				X

Discussion: There are no known air quality violations in this area. Given that the proposed project only seeks to set back the banks of the channel in an effort to stabilize and restore the adjacent lands and does not include the construction of buildings there is no expected new contribution to air quality.

Source: Project Location, Bay Area Air Quality Management District.

3.c.	Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable Federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?			X	

Discussion: As of December 2012, San Mateo County is a non-attainment area for PM-2.5. A temporary increase in the project area is anticipated during construction since these PM-2.5 particles are a typical vehicle emission. The temporary nature of the proposed construction and California Air Resources Board vehicle regulations reduce the potential effects to a less than significant impact.

Source: Bay Area Air Quality Management District.

3.d.	Expose sensitive receptors to significant pollutant concentrations, as defined by BAAQMD?				X

Discussion: There are no mapped sensitive receptors in the project area and the project does not involve emissions of significant or permanent pollutant concentrations.

Source: Project Plans, Project Location.					
3.e.	Create objectionable odors affecting a significant number of people?				X
Discussion: The project does not involve any aspects which would result in objectionable odors. Further, the project area is rural in nature and the adjacent properties are large in size thereby limiting the number of people generally present in the area. **Source:** Project Plans.					
3.f.	Generate pollutants (hydrocarbon, thermal odor, dust or smoke particulates, radiation, etc.) that will violate existing standards of air quality on-site or in the surrounding area?		X		

Discussion: The project is expected to have temporary impacts associated with the grading activities necessary to cut back the banks and install the temporary roadway to access the project staging area. This work is expected to generate a temporary increase in dust, motor vehicle and diesel particulate matter in the area. This temporary increase is not expected to violate existing standards of on-site air quality given required vehicle emission standards required by the State of California for vehicle operations. To mitigate for the temporary increase in dust, Mitigation Measure 1, below, is recommended. Mitigation Measure 2 under Section 7.a., below, is further recommended to minimize particulate matter and greenhouse gasses.

Source: Project Plans, Bay Area Air Quality Management, California Environmental Protection Agency Air Resources Board.

Mitigation Measure 1: The applicant shall implement the following dust control measures during grading and construction activities:

a. Water all active construction and grading areas at least twice daily.

b. Cover all truck hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard.

c. Apply water two times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at the project site.

d. Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets/roads.

e. Enclose, cover, water twice daily or apply (non-toxic) soil binders to exposed stockpiles (dirt, sand, etc.).

4.	BIOLOGICAL RESOURCES. Would the project:				
		Potentially Significant Impacts	*Significant Unless Mitigated*	*Less Than Significant Impact*	*No Impact*
4.a.	Have a significant adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?		X		

Discussion: A biological assessment was submitted as part of the project application. The report completed by Bryan Mori, wildlife biologist, of Bryan Mori Biological Consulting Services, notes that a qualitative habitat assessment was performed on September 14, 2015 (Mori, 2015). Per the assessment the project site supports arroyo willow riparian and annual grassland/ruderal vegetation. The project site also provides potential habitat for eleven special-status wildlife species. Specifically, the report identifies California red-legged frog or CRLF (Rana draytoni), San Francisco garter snake or SFGS (*Thamnophis sirtalis tetrataenia*), loggerhead shrike (*Lanius ludovicianus*), yellow warbler (*Setophaga petechia*), San Francisco common yellowthroat (*Geothlypis trichas sinuosa*), pallid bat (*Antrozous pallida*), western red bat (*Lasiurus blossevillii*), ringtail (Bassariscus astutus), American badger (*Taxidea taxus*), and San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*) all of having the potential to occur on the site. The San Francisco garter snake was observed at a stock pond on the property, but outside of the project site. Seven potential impacts were identified as having potential direct harm to wildlife, as well as indirect disturbances to nesting birds and roosting bats from the proximity of project related activities. Therefore, measures to avoid or minimize impacts include pre-construction surveys; construction monitoring; worker's environmental awareness trainings; work exclusion fencing of environmentally sensitive areas (ESA); scheduling to avoid impacts, and implementing buffer zones, as needed. These measures are detailed below:

Source: Mori, 2015, Project Plans, Project Location, California Natural Diversity Database.

Mitigation Measure 2: Within 72 hours of project start, a qualified wildlife biologist should perform a pre-construction survey for California red-legged frog (CRLF) and San Francisco garter snake (SFGS) in appropriate habitat within and immediately adjacent to the project site. The pre-construction surveys should include one daytime survey for both species and one nocturnal survey for the CRLF. If either species is observed, the United States Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW) should be contacted for further guidance. No work should proceed until authorization from the agencies has been obtained.

Mitigation Measure 3: Prior to the start of construction activities, a worker's environmental training shall be performed by a qualified biologist. The training should include information on species identification, natural history, the protection measures to be implemented, and the penalties for non-compliance. Each worker should sign a certification sheet on completion of the training. All new workers should be trained prior to their involvement in construction activities.

Mitigation Measure 4: A qualified biologist should conduct a survey of the project site each morning before the start of construction activities and should be present during vegetation removal and initial (new) grading activities. Once the vegetation removal and initial grading activities have been completed, morning surveys prior to the start of each day's work should be adequate.

Mitigation Measure 5: Removal of the willows should be performed with hand tools to remove the limbs down to the base of the trunk. The root base could be removed by an excavator under the direct supervision of the qualified monitoring biologist.

Mitigation Measure 6: If CRLF or SFGS are observed in or immediately adjacent to the project site during construction activities, all work must cease and the agencies contacted for further guidance. Work should not proceed until approval from the agencies has been obtained.

Mitigation Measure 7: Prior to the start of construction activities, the project boundary, including storage and staging areas, access routes and environmentally sensitive areas (ESA) should be clearly delineated with orange construction fencing or flagging. No storage of equipment or materials, vegetation removal or maintenance of equipment should be performed outside of the project site boundaries.

Mitigation Measure 8: Design and implement a riparian habitat restoration plan that would achieve a no net loss of riparian habitat removed during the bank stabilization project. The plan should include plant species consistent with the existing habitat, a monitoring schedule, success criteria, and provide for adaptive strategies to help meet the success criteria, in the event of restoration failures.

4.b.	Have a significant adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?		X		

Discussion: The existing arroyo willow (*Salix lasiolepis*) lines the channel at is upper reach and are confined to the immediate banks. In this area the willows form a thick and continuous stand with little understory vegetation. The lower reach is drastically different with very little riparian vegetation present except for at the very end of the where young willows, red dogwood (*Cornus* sericea), and poison oak are present. The biologist report notes that the proposed grading of the channel bed and banks will require the temporary removal of all willow trees along the 313 linear feet. These willows are all less than 6 inches in diameter. However, due to the density of growth along the banks, an accurate count of individual willows was infeasible. While this removal would violate the County's Local Coastal Program as well as other State and Federal habitat preservation goals, the project includes discussion of a restoration plan. The details provided state that willow stakes and 20 willow root wad transplants will be planted along the banks and monitored to ensure successful establishment and survival. Further, if plantings fail, willows will be replanted until plantings are successful. Cattle exclusion fencing will also be installed along the upstream and downstream project reaches to protect the planting and banks from cattle. However, the biologist included Mitigation Measure 8 listed in Section 4.a., above, to address this potential impact.

Source: Project Location, Mori, 2015, California Natural Diversity Database.

4.c.	Have a significant adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?				X

Discussion: There are no identified wetlands within the project site vicinity.

Source: Project Location.

4.d.	Interfere significantly with the movement of any native resident or migratory fish or wildlife species or with established native resident migratory wildlife corridors, or impede the use of native wildlife nursery sites?		X		

Discussion: While no migratory fish were identified in the project area, special status birds along with all native birds and their nests are covered by the Migratory Bird Treaty Act (MBTA). The biologist notes 15 bird species during their survey but notes that this represented a limited sample given the time of year the survey was conducted. Given this, the biologist report notes that depending on the timing of construction activities, the removal of riparian vegetation and the eucalyptus trees could result in the direct or indirect take of nesting special-status birds (loggerhead shrike, yellow warbler, San Francisco common yellowthroat) and other birds protected under the MBTA. Further, the removal of eucalyptus trees adjacent to the staging area around the barn could result in the disruption of potential roost sites and displacement of special-status pallid bats, if present. Lastly, that depending on the season, removal of the eucalyptus trees could also result in harm to foliage roosting special-status western red bats, if present. These impacts are considered significant and the following mitigation measures were provided to address these impacts:

Source: Mori, 2015, Project Location, Project Plans.

Mitigation Measure 9: If construction activities, especially vegetation removal, are scheduled between February 15 and September 1, a pre-construction survey for nesting birds should be conducted by a qualified biologist within two weeks prior to the start of the project. One to two surveys should be performed, depending on the degree of difficulty in determining the nesting status of birds. The survey area should include habitats within 250 feet of the project sites for passerines and 500 feet for raptors, where practical. These survey zones are consistent with California Department of Fish and Wildlife (CDFW) recommendations. The alternative to performing pre-construction surveys is to schedule the project outside of the nesting season.

Mitigation Measure 10: If active nests are located within the survey areas, delineate buffer zones around each nest site. Buffer zones should begin at 250 feet for passerines and 500 feet for raptors. If nest sites are closer to project activities than the recommended buffer distances, appropriate reductions in buffer zone width should be determined by the qualified biologist, based on species, site specific conditions and level of construction activities. Where buffer zone reductions are implemented, signs or flagging delimiting the boundaries of the buffer zones should be established, prior to the start of construction activities and the nest sites monitored daily during construction by a qualified biologist, to avoid potential take of active nests due to construction-related disturbances. The monitoring biologist shall have the authority to stop work if project activities are negatively affecting nesting bird behaviors (e.g., feeding, nest attendance). Tree removal and other project activities could resume when the monitoring biologist has determined that the nestlings have fledged.

Mitigation Measure 11: Prior to the start of construction activities, a bat specialist should survey the barn for roosting bats. If present, implement recommendations of the bat specialist.

Mitigation Measure 12: If bats are present, avoid climbing on to the roof of the barn to access tree limbs and, during cutting, prevent limbs from falling onto the barn roof.

Mitigation Measure 13: Schedule the removal of eucalyptus trees between September 1 and October 15. This would minimize the likelihood of disturbing western red bats and would avoid disruptions to active bird nesting as well. No focused surveys would be necessary under this schedule. If tree removal is scheduled to take place between October 15 and February 28, a bat specialist should conduct surveys for foliage roosting bats and, if present, implement measures developed by the bat specialist, as needed.					
4.e.	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance (including the County Heritage and Significant Tree Ordinances)?				X
Discussion: The project proposes to remove two eucalyptus trees located along the barn side of the lower reach. The eucalyptus trees are both considered significant given that they are both larger than 55 inches in circumference. While the County's significant tree ordinance generally prohibits the removal of significant trees it does allow their removal in cases of actual or potential danger to life or property. In this case, should the bank failures continue, both the trees and the adjacent barn would be at risk for failure given the channel instability.					
Source: San Mateo County Significant Tree Removal Ordinance, Project Location, Proposed Project.					
4.f.	Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, other approved local, regional, or State habitat conservation plan?				X
Discussion: The project area is not covered by a Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or State habitat conservation plan. **Source:** Project Location, San Mateo County General Plan.					
4.g.	Be located inside or within 200 feet of a marine or wildlife reserve?				X
Discussion: The project parcel is not located within 200 feet of a marine or wildlife reserve. **Source:** Project Location.					
4.h.	Result in loss of oak woodlands or other non-timber woodlands?				X
Discussion: The proposed project will not result in the loss of oak woodlands or non-timber woodlands as the area is not located in an area designated as woodlands nor are any trees classified as woodland trees impacted by the project. **Source:** Project Plans, Project Location.					

5. CULTURAL RESOURCES. Would the project:				
	Potentially Significant Impacts	*Significant Unless Mitigated*	*Less Than Significant Impact*	*No Impact*
5.a. Cause a significant adverse change in the significance of a historical resource as defined in CEQA Section 15064.5?		X		

Discussion: An archaeological study was conducted by Past Lifeways Archaeological Studies (Hylkema, 2016) and a report was submitted as part of the project application. The report findings were negative for resources. The report summary notes that no significant archaeological features or artifacts were found. While the report does cite the presence of historic buildings (early 20th Century), it notes that these buildings are not within the "area of direct impact." However, given the location and the potential for historic resources the report does include the following mitigation measure in the event that inadvertent finds are made during project execution.

Source: Hylkema, 2016

Mitigation Measure 14: In the event that archaeological features are encountered during project implementation (a late discovery), all work at the immediate location of the find must temporarily stop until a qualified archaeologist can be consulted and provide recommendations regarding the find. All contractors and sub-contractors shall be made aware of these requirements and shall adhere to all applicable laws including State Cultural Preservation Laws.

5.b. Cause a significant adverse change in the significance of an archaeological resource pursuant to CEQA Section 15064.5?				X

Discussion: See discussion under Section 5.a., above.

Source: Hylkema, 2016.

5.c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?				X

Discussion: See discussion under Section 5.a., above.

Source: Hylkema, 2016.

5.d. Disturb any human remains, including those interred outside of formal cemeteries?		X		

Discussion: There are no known human remains located on the site and none were identified in the archaeological study. However, the study did include a mitigation measure to be utilized in the event remains were encountered.

Source: Hylkema, 2016.

Mitigation Measure 15: In the event that human skeletal remains are encountered, all work at the immediate location of the find must temporarily stop. Public Resource Code 5097 and local Health

and Safety codes establish a procedure for notifying the County Coroner's Office and possibly the State Native American Heritage Commission to seek recommendations from a Most Likely Descendant (Tribal Contact) before any further action at the location of the find can proceed. All contractors and sub-contractors shall be made aware of these requirements and shall adhere to all applicable laws including State Cultural Preservation laws.

6. **GEOLOGY AND SOILS**. Would the project:				
	Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
6.a. Expose people or structures to potential significant adverse effects, including the risk of loss, injury, or death involving the following, or create a situation that results in:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other significant evidence of a known fault? *Note: Refer to Division of Mines and Geology Special Publication 42 and the County Geotechnical Hazards Synthesis Map.*				X
Discussion: The project area is not located within a Seismic Hazard Act mapped zone. Therefore, the site does not require the investigation mandated by the act. **Source:** State of California Department of Conservation.				
ii. Strong seismic ground shaking?			X	
Discussion: The project parcel is located within an area designated as susceptible to moderate to very strong earthquake shaking. The project does not involve the construction of habitable structures and no additional or increased occupancy of the project is expected post project completion. Therefore, the project poses little risk to health and safety. **Source:** San Mateo County Earthquake Shaking Fault Maps (San Gregorio, San Andreas Fault, Hayward Fault), Association of Bay Area Governments Resilience Program Maps.				
iii. Seismic-related ground failure, including liquefaction and differential settling?				X
Discussion: The project parcel is located in an area identified as having low to very low probability for earthquake liquefaction. However, as stated previously the project does not involve the construction of habitable structures; there is no perceived impact at this time.				

Source: Association of Bay Area Governments Resilience Program Maps: United States Geological Service Open-File Reports 00-444 and 2006-1037.				
iv. Landslides?			X	
Discussion: The project area is classified as an area consisting of Mostly Landslides. However, as stated previously the project does not involve the construction of habitable structures; there is no perceived impact at this time. **Source:** Association of Bay Area Governments Resilience Program Maps: California Geologic Survey (CGS) Seismic Hazards Zonation Program.				
v. Coastal cliff/bluff instability or erosion? *Note to reader: This question is looking at instability under current conditions. Future, potential instability is looked at in Section 7 (Climate Change).*				X
Discussion: The project parcel is located approximately 1.47 miles inland from the nearest coastal ~~bluff/cliff and therefore not subject to any sort of coastal cliff or bluff instability.~~ **Source:** Project Location.				
6.b. Result in significant soil erosion or the loss of topsoil?		X		
Discussion: Significant erosion is currently occurring on the project site and is the impetus for this project. The proposed project seeks to minimize further failures along the banks of the channel. However, to ensure that project construction does not result in additional erosion and/or sedimentation the following mitigation measure has been added. **Source:** Project Plans. **Mitigation Measure 16:** Prior to commencement of the project, the applicant shall submit to the Planning Department for review and approval an erosion and drainage control plan that shows how the transport and discharge of soil and pollutants from and within the project site shall be minimized. The plan shall be designed to minimize potential sources of sediment, control the amount of runoff and its ability to carry sediment by diverting incoming flows and impeding internally generated flows, and retain sediment that is picked up on the project site through the use of sediment-capturing devices. The plan shall also limit application, generation, and migration of toxic substances, ensure the proper storage and disposal of toxic materials, and apply nutrients at rates necessary to establish and maintain vegetation without causing significant nutrient runoff to surface waters. Said plan shall adhere to the San Mateo County Wide Stormwater Pollution Prevention Program "General Construction and Site Supervision Guidelines," including: a. Sequence construction to install sediment-capturing devices first, followed by runoff control measures and runoff conveyances. No construction activities shall begin until after all proposed measures are in place. b. Minimize the area of bare soil exposed at one time (phased grading). c. Clear only areas essential for project activities. d. Within five days of clearing or inactivity, stabilize bare soils through either non-vegetative Best Management Practices (BMPs), such as mulching, or vegetative erosion control methods such				

as seeding. Vegetative erosion control shall be established within two weeks of seeding/planting.

e. Project site entrances shall be stabilized immediately after grading and frequently maintained to prevent erosion and control dust.

f. Control wind-born dust through the installation of wind barriers such as hay bales and/or sprinkling.

g. Soil and/or other construction-related material stockpiled on-site shall be placed a minimum of 200 feet from all wetlands and drain courses. Stockpiled soils shall be covered with tarps at all times of the year.

h. Intercept runoff above disturbed slopes and convey it to a permanent channel or storm drains by using earth dikes, perimeter dikes or swales, or diversions. Use check dams where appropriate.

i. Provide protection for runoff conveyance outlets by reducing flow velocity and dissipating flow energy.

j. Install storm drain inlet protection that traps sediment before it enters any adjacent storm sewer systems. This barrier shall consist of filter fabric, straw bales, gravel, or sand bags.

k. Install sediment traps/basins at outlets of diversions, channels, slope drains, or other runoff conveyances that discharge sediment-laden water. Sediment traps/ basins shall be cleaned out when 50% full (by volume).

l. Use silt fence and/or vegetated filter strips to trap sediment contained in sheet flow. The maximum drainage area to the fence should be 0.5-acre or less per 100 feet of fence. Silt fences shall be inspected regularly and sediment removed when it reaches 1/3 the fence height. Vegetated filter strips should have relatively flat slopes and be vegetated with erosion-resistant species.

m. Utilize coir fabric/netting on sloped graded areas to provide a reduction in water velocity, erosive areas, habitat protection, and topsoil stabilization.

n. Throughout the construction period, the applicant shall conduct regular inspections of the condition and operational status of all structural BMPs required by the approved Erosion Control Plan.

6.c.	Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, severe erosion, liquefaction or collapse?			X

Discussion: As mentioned previously the purpose of the project is to stabilize soils which are currently eroding and unstable. In stabilizing the channel and its adjacent banks the project seeks to minimize erosion occurring both on the site as well as protecting existing buildings which are located in the proximity of the channel. The subject parcel is mapped as having a low to very low probability for earthquake induced liquefaction. Given this classification lateral spreading is not expected.

Source: Association of Bay Area Governments Resilience Program Maps: United States Geological Service Open-File Reports 00-444 and 2006-1037, Project Location.

6.d.	Be located on expansive soil, as noted in the 2010 California Building Code, creating significant risks to life or property?				X
Discussion: While the presence of expansive soils is undetermined, the project does not propose the construction of new buildings or introduce an activity that would result in an intensity of use or occupancy on the subject parcel. **Source:** Project Plans.					
6.e.	Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?				X
Discussion: The project does not involve nor does it require the installation of a septic tank or alternative wastewater disposal systems. **Source:** Project Plans.					

7.	**CLIMATE CHANGE**. Would the project:	*Potentially Significant Impacts*	*Significant Unless Mitigated*	*Less Than Significant Impact*	*No Impact*
7.a.	Generate greenhouse gas (GHG) emissions (including methane), either directly or indirectly, that may have a significant impact on the environment?		X		

Discussion: A minor temporary increase in greenhouse gasses during the construction phase may occur. Vehicles are subject to California Air Resources Board emission standards. Although the project scope is not likely to significantly generate greenhouse gases, the following mitigation measure is recommended.

Source: California Air Resources Board, San Mateo County Energy Efficiency Climate Action Plan.

Mitigation Measure 17: The applicant shall implement the following basic construction measures at all times:

a. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California Airborne Toxic Control Measure Title13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.

b. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified visible emissions evaluator.

c. Post a publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This person, or his/her designee, shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.					
7.b.	Conflict with an applicable plan (including a local climate action plan), policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?			X	
Discussion: The project does not conflict with the San Mateo County Energy Efficiency Climate Action Plan provided that the mitigation measure outlined in Section 7.a, above is implemented. **Source:** San Mateo County Energy Efficiency Climate Action Plan.					
7.c.	Result in the loss of forestland or conversion of forestland to non-forest use, such that it would release significant amounts of GHG emissions, or significantly reduce GHG sequestering?				X
Discussion: The subject parcel is not classified as forestland nor would the proposed project result in the loss of forestland elsewhere. **Source:** Project Plans, Project Location.					
7.d.	Expose new or existing structures and/or infrastructure (e.g., leach fields) to accelerated coastal cliff/bluff erosion due to rising sea levels?				X
Discussion: The project parcel is located approximately 1.47 miles (as the crow flies) inland from the nearest coastal cliff/bluff. Due to the topography of the general area and distance from the coast the project parcel is not mapped as an area expected to be impacted by sea level rise. **Source:** Project Plans, Project Location.					
7.e.	Expose people or structures to a significant risk of loss, injury or death involving sea level rise?				X
Discussion: See Section 7.d., above. **Source:** Project Location.					
7.f.	Place structures within an anticipated 100-year flood hazard area as mapped on a Federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?				X
Discussion: The project parcel is not located within a mapped area anticipated for a 100-year flood hazard on a Federal Flood Hazard Boundary or Flood Insurance Rate Map. The project parcel has					

a mapped flood designation of Zone X, which is defined as areas determined to be outside the 0.2% annual chance floodplain. Community Panel No. 06081C0270E, effective date October 16, 2012. **Source:** Federal Emergency Management Agency.				
7.g. Place within an anticipated 100-year flood hazard area structures that would impede or redirect flood flows?				X
Discussion: The project is not located in such an area and there are no proposed buildings proposed as part of the project. However, portions of the proposed stabilization measures will be located within the channel. Specifically, the project proposes to cut back the channel banks and utilize the excavated native soils to fill the bed of the channel. In addition, chutes will also be constructed in two locations within the channel to slow the velocity of water flow. While these measures will be located within the channel they are not intended to impede or redirect the natural flow of the channel. Instead these measures are intended to re-establish stable channel banks, reduce fine sediment and its downstream impacts, and protect the existing development present on the site. This is to be accomplished by establishing a stable profile grade at the bottom of the channel which will transition into a chute. Each chute will have a thickened end to assist the channel in managing future incision. Native vegetation will then be utilized to stabilize the laid back banks of the channel. **Source:** Project Plans, Federal Emergency Management Agency.				

8. **HAZARDS AND HAZARDOUS MATERIALS.** Would the project:	*Potentially Significant Impacts*	*Significant Unless Mitigated*	*Less Than Significant Impact*	*No Impact*
8.a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials (e.g., pesticides, herbicides, other toxic substances, or radioactive material)?				X
Discussion: The proposed project does not involve the transport, use, or disposal of hazardous materials. **Source:** Project Plans.				
8.b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?				X
Discussion: The use of hazardous materials are not proposed as part of the project. **Source:** Project Plans.				

8.c.	Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?				X
Discussion: The project location is not within 1/4-mile of an existing or proposed school. Further, the emissions of hazardous materials, substances, or waste are not proposed as part of the project. **Source:** Project Plans, Project Location.					
8.d.	Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				X
Discussion: The project site is not located in an area identified as a hazardous materials site. **Source:** California Department of Toxic Substances Control					
8.e.	For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, result in a safety hazard for people residing or working in the project area?				X
Discussion: The project parcel is not located in an area covered by airport land use plan and is not within 2 miles of a public airport or public use airport. **Source:** Project Location.					
8.f.	For a project within the vicinity of a private airstrip, result in a safety hazard for people residing or working in the project area?				X
Discussion: There is no private airstrip located in the project vicinity. **Source:** Project Location.					
8.g.	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?				X
Discussion: The proposed creek restoration is contained completely within the subject parcel boundaries. The project does not result in any permanent buildings and does not involve any aspects that would impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. **Source:** San Mateo County Office of Emergency Services.					

8.h.	Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?				X
Discussion: There are no proposed habitable structures as part of this project. While the project site is mapped as a Moderate Fire Severity Zone, the proposed project will not result in any intensity of use of the parcel and is not expected to expose any additional structures or people to significant risk of loss, injury, or death involving wildland fires. **Source:** Project Plans, Project Location.					
8.i.	Place housing within an existing 100-year flood hazard area as mapped on a Federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?				X
Discussion: No housing is proposed as part of this project. **Source:** Federal Emergency Management Agency Flood Insurance Rate Map No. 06081C0270E, Effective October 16, 2012.					
8.j.	Place within an existing 100-year flood hazard area structures that would impede or redirect flood flows?				X
Discussion: See discussion under Section 7.f., above. **Source:** Federal Emergency Management Agency Flood Insurance Rate Map No. 06081C0270E, Effective October 16, 2012.					
8.k.	Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?				X
Discussion: There are no structures proposed as part of the project. The project site is not mapped as a location susceptible to flooding and is not located within the inundation zone for a levee or dam. **Source:** Project Plans, Project Location.					
8.l.	Inundation by seiche, tsunami, or mudflow?				X
Discussion: The project parcel is not located in an area which has mapped susceptibility for inundation by seiche, tsunami, or mudflow. **Source:** Project Location.					

9. HYDROLOGY AND WATER QUALITY. Would the project:				
	Potentially Significant Impacts	*Significant Unless Mitigated*	*Less Than Significant Impact*	*No Impact*
9.a. Violate any water quality standards or waste discharge requirements (consider water quality parameters such as temperature, dissolved oxygen, turbidity and other typical stormwater pollutants (e.g., heavy metals, pathogens, petroleum derivatives, synthetic organics, sediment, nutrients, oxygen-demanding substances, and trash))?				X
Discussion: The project seeks to restore the channel by grading the channel itself and the banks in order to reduce failures and further channel incision. In correcting these issues the transport of fine sediment to the downstream reaches that support threatened and endangered species would be greatly minimized. The plans also include revegetating the slopes with riparian vegetation in order to improve bank stability and riparian habitat. **Source:** Project Plans.				
9.b. Significantly deplete groundwater supplies or interfere significantly with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?				X
Discussion: The proposed project does not involve drawing on any additional groundwater supplies either during or after project completion. **Source:** Project Plans.				
9.c. Significantly alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in significant erosion or siltation on- or off-site?			X	
Discussion: The proposed project does include work within and adjacent to the existing channel. However, the project does not propose alteration of the existing course of the channel but rather rehabilitation of the channel to reverse existing erosion and reverse the existing channel incision. **Source:** Project Plans.				

9.d.	Significantly alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or significantly increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?			X	
Discussion: The project does not propose to alter the existing drainage pattern nor does it include measures that would increase the rate or amount of surface runoff which could result in on- or off-site flooding. The proposed project will involve grading and alterations to the channel and its banks but does not include any new impervious at grade surfaces or buildings which could result in surface runoff. Given the current channel incision and steep bank failures the natural channel adjustments are resulting in new and widening bank failures. These failures result in the release of fine sediments which compromise the health of plant and animal species downstream. In addition, the continued sedimentation release could result in flooding downstream as the various tributaries converge with Tunitas Creek. **Source:** Project Plans, Project Location.					
9.e.	Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide significant additional sources of polluted runoff?				X
Discussion: The proposed project will not create or contribute runoff water which would exceed capacity of existing stormwater drainage systems or provide a source of polluted runoff. The project does not include new buildings or imperious areas which would result in new or added runoff water. **Source:** Project Plans, Project Location.					
9.f.	Significantly degrade surface or ground-water water quality?				X
Discussion: No degradation of surface or groundwater water quality is expected in association with the proposed project. The project seeks to improve surface water quality but reducing the amount of sedimentation introduced into adjacent tributaries and to Tunitas Creek. **Source:** Project Plans.					
9.g.	Result in increased impervious surfaces and associated increased runoff?				X
Discussion: No new impervious surfaces are proposed as part of the project. **Source:** Project Plans.					

10. LAND USE AND PLANNING. Would the project:				
	Potentially Significant Impacts	*Significant Unless Mitigated*	*Less Than Significant Impact*	*No Impact*
10.a. Physically divide an established community?				X
Discussion: There is no land division or development proposed that would result in the division of an established community. **Source:** Project Plans.				
10.b. Conflict with any applicable land use plan, policy or regulation of an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?		X		
Discussion: While the project is not mapped as sensitive habitat in the County's General Plan there are other mapped resources in the general project area. Further, the submitted biological assessment, environmental consultants whom designed the project, and site inspections provides ample evidence that the channel does qualify as sensitive habitat. The County's General Plan has policies regarding the protection of sensitive habitats, establishment of buffer zones, and regulation of development in both sensitive habitats and buffer zones. The County's Local Coastal Program also has policies that protect both sensitive habitat and special status species. These policies prohibit development that would have an adverse impact to sensitive habitat and special status species. There are also specific policies limiting the alteration of streams. As discussed previously, a no project or reduced project scope would allow the current incision and bank failures to continue uncontrolled. Given the channel's close proximity to the existing development, should the structures or septic system fail, the impacts to the channel would be significant. In addition, the downstream impacts of continued release of sediment put additional sensitive habitats and special status species at risk as the channel is a tributary to Tunitas Creek. The mitigation measures included in Sections 4 and 6 are sufficient to ensure that there are no permanent adverse impacts. **Source:** Project Plans, Project Location, San Mateo County General Plan, San Mateo County Local Coastal Program.				
10.c. Conflict with any applicable habitat conservation plan or natural community conservation plan?				X
Discussion: There is no conservation plan that covers the project parcel. **Source:** San Mateo County General Plan.				
10.d. Result in the congregating of more than 50 people on a regular basis?				X

Discussion: The completed project will not result in the congregating of more than 50 people on a regular basis. **Source:** Project Plans.				
10.e. Result in the introduction of activities not currently found within the community?				X
Discussion: The proposed project does not introduce a new use which is not currently present in the community. **Source:** Project Plans.				
10.f. Serve to encourage off-site development of presently undeveloped areas or increase development intensity of already developed areas (examples include the introduction of new or expanded public utilities, new industry, commercial facilities or recreation activities)?				X
Discussion: The project does not include or require the introduction or expansion of public utilities, new industry, commercial facilities, or recreation activities. The proposed channel stabilization is limited to the project site only and does not serve to encourage any off-site development. **Source:** Project Plans.				
10.g. Create a significant new demand for housing?				X
Discussion: As mentioned proposed project is contained completely on-site with the scope of work limited to efforts to stabilize the channel. The project will not result in any new buildings or introduce new uses to the site. Therefore, the project does not involve aspects which result in a demand for housing. **Source:** Project Plans.				

11. MINERAL RESOURCES. Would the project:	***Potentially Significant Impacts***	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
11.a. Result in the loss of availability of a known mineral resource that would be of value to the region or the residents of the State?				X
Discussion: There are no known mineral resources located on the parcel site. Areas to the north of the project site are mapped as areas containing significant mineral resources. However, the				

project does not propose any off-haul of graded materials, and therefore would not result in the loss of availability if a mineral resource was present on the site. **Source:** Project Plans, Project Location, San Mateo County General Plan.				
11.b. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?				X
Discussion: There are no mineral resource recovery sites delineated on the County's General Plan, on a specific plan, or any other land use plan. **Source:** Project Location, San Mateo County General Plan.				

12. NOISE. Would the project result in:	*Potentially Significant Impacts*	*Significant Unless Mitigated*	*Less Than Significant Impact*	*No Impact*
12.a. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?		X		
Discussion: During project construction, excessive noise could be generated. Mitigation Measure 18, as described below, is proposed to reduce the construction noise impact to a less than significant level. Once construction is complete, the project is not expected to generate significant amounts of noise. **Source:** Project Plans, San Mateo County Noise Ordinance. **Mitigation Measure 18:** Noise sources associated with demolition, construction, repair, remodeling, or grading of any real property shall be limited to the hours from 7:00 a.m. to 6:00 p.m. weekdays and 9:00 a.m. to 5:00 p.m. Saturdays. Said activities are prohibited on Sundays, Thanksgiving and Christmas (San Mateo Ordinance Code Section 4.88.360).				
12.b. Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels?				X
Discussion: While earthwork is necessary in order to complete the project it is not expected to result in excessive ground-borne vibration or ground-borne noise levels. Given the focused scope of work and distance between the subject property and the neighboring properties no impacts are expected. **Source:** Project Plans, Project Location.				

12.c. A significant permanent increase in ambient noise levels in the project vicinity above levels existing without the project?				X
Discussion: There will be no significant permanent increase in ambient noise levels in the project area. Given that no change of use is proposed once the project is completed the area should return to its' pre-project noise levels. **Source:** Project Plans.				
12.d. A significant temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?				
Discussion: A temporary increase in ambient noise levels during the construction phase of the project is expected. However, due to the project scope, this exposure expected to be minimal. Post construction, the site should not result in any additional ambient noise. **Source:** Project Plans, Project Location, San Mateo County Noise Ordinance.				
12.e. For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, exposure to people residing or working in the project area to excessive noise levels?				X
Discussion: The project site is not located within an area covered by an airport land use plan or within 2 miles of a public airport or public use airport **Source:** Project Location.				
12.f. For a project within the vicinity of a private airstrip, exposure to people residing or working in the project area to excessive noise levels?				X
Discussion: The project site is not located within the vicinity of a private airstrip. **Source:** Project Location.				

13. POPULATION AND HOUSING. Would the project:				
	Potentially Significant Impacts	*Significant Unless Mitigated*	*Less Than Significant Impact*	*No Impact*
13.a. Induce significant population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?				X
Discussion: The proposed project does not propose any new homes or business and does not involve the extension of roads or other infrastructure. The project is limited to the project site and proposes only stabilization and rehabilitation of an existing channel. **Source:** Project Plans.				
13.b. Displace existing housing **(including low- or moderate-income housing)**, in an area that is substantially deficient in housing, necessitating the construction of replacement housing elsewhere?				X
Discussion: The proposed project does not propose or involve the demolition or removal of existing housing. **Source:** Project Plans.				

14. PUBLIC SERVICES. Would the project result in significant adverse physical impacts associated with the provision of new or physically altered government facilities, the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
	Potentially Significant Impacts	*Significant Unless Mitigated*	*Less Than Significant Impact*	*No Impact*
14.a. Fire protection?				X
14.b. Police protection?				X
14.c. Schools?				X
14.d. Parks?				X
14.e. Other public facilities or utilities (e.g., hospitals, or electrical/natural gas supply systems)?				X

Discussion: There are no expected impacts to public services as the proposed project proposes to stabilize and rehabilitate an existing natural channel. No new uses or increased intensity of uses are proposed as part of this project.

Source: Project Plans.

15. RECREATION. Would the project:				
	Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
15.a. Increase the use of existing neighborhood or regional parks or other recreational facilities such that significant physical deterioration of the facility would occur or be accelerated?				X

Discussion: The proposed channel stabilization and rehabilitation are entirely located on the subject privately owned parcel. Given the limited scope of the proposed project, there is no expected increase in the use of existing neighborhood or regional parks or other recreational facilities that would result in physical deterioration of any such facility as a result of completion of the project.

Source: Project Plans.

15.b. Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?				X

Discussion: No recreational facilities are proposed as part of this project.

Source: Project Plans.

16. TRANSPORTATION/TRAFFIC. Would the project:				
	Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
16.a. Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including, but not limited to,				X

	intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?				
Discussion: As discussed previously, the proposed project is to occur completely on the subject privately owned parcel. The project does not involve a level of development that would adversely impact any plan, ordinance or policy which establishes measures of effectiveness for the performance of the circulation system. **Source:** Project Plans, Project Location.					
16.b.	Conflict with an applicable congestion management program, including, but not limited to, level of service standards and travel demand measures, or other standards established by the County congestion management agency for designated roads or highways?				X
Discussion: No. See discussion under Section 16.a., above. **Source:** Project Location.					
16.c.	Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in significant safety risks?				X
Discussion: No. The proposed project does not include any elements that would impact air traffic patterns. **Source:** Project Location.					
16.d.	Significantly increase hazards to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?				X
Discussion: The project does not propose any alterations to existing design features or include any incompatible uses. **Source:** Project Plans.					
16.e.	Result in inadequate emergency access?				X
Discussion: The proposed project has existing routine and emergency access. The project also includes a temporary construction access road in order to ensure adequate access to the project site during construction. This area will be revegetated post construction phase. The resulting project does not result in habitable structures which would require emergency access. **Source:** Project Plans, Project Location.					

16.f. Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?				X
Discussion: No impacts. See discussion under Section 16.a., above. **Source:** Project Plans.				
16.g. Cause noticeable increase in pedestrian traffic or a change in pedestrian patterns?				X
Discussion: No. The proposed project does not result in changes outside of the parcel boundaries. There is no expectation of an increase to or change in the pedestrian patterns in the area. **Source:** Project Plans.				
16.h. Result in inadequate parking capacity?				X
Discussion: No impact. The proposed project does not trigger a need for parking. However, the 189.70-acre parcel can adequately accommodate the temporary parking for construction related vehicles. **Source:** Project Plans, San Mateo County Zoning Regulations.				

17. UTILITIES AND SERVICE SYSTEMS. Would the project:				
	Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
17.a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?				X
Discussion: The proposed project does not require wastewater treatment measures to be installed as part of the project. **Source:** Project Plans, Project Location, San Francisco Bay Regional Water Quality Control Board.				
17.b. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?			X	
Discussion: The proposed project seeks to stabilize and rehabilitate an existing channel. An existing septic system which serves the single-family residence is located in close proximity to the channel. Given the failing banks, the goal of the project is to stabilize the channel and protect the				

existing infrastructure. Failure of the existing waste water system would leach into the channel which serves as a tributary to Tunitas Creek which provides habitat to a number of protected species. Therefore, while the project does not require the construction of a new system or expansion of the existing system, the failure of the existing system could cause significant environmental impacts.

Source: Project Plans.

17.c. Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?				X

Discussion: The proposed project does not require the installation of stormwater drainage facilities given the project scope. Repair of the existing channel will, however, improve the natural drainage conditions of the immediate project area.

Source: Project Plans.

17.d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?				X

Discussion: The existing development on the site is served by private wells. The project does not require additional or expanded water supplies to serve the project as it does not result in any intensity of use of the site or the construction of new buildings.

Source: Project Plans.

17.e. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?				X

Discussion: No impact. The project site is not served by a municipal wastewater treatment provider.

Source: Project Plans, Project Location.

17.f. Be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs?				X

Discussion: The proposed project will not result in development which requires municipal trash pick-up service. Further, the proposed project will not result in any off-haul of graded materials. Any construction related debris is not expected to be pro-longed or sufficient to cause any landfill to exceed its permitted capacity.

Source: Project Plans, Project Location.

17.g. Comply with Federal, State, and local statutes and regulations related to solid waste?				X
Discussion: The proposed project is not expected to release any additional solid waste after project completion. Any construction related waste will be subject to standard disposal requirements (i.e., off-haul to proper disposal location or recycling center). **Source:** Project Plans.				
17.h. Be sited, oriented, and/or designed to minimize energy consumption, including transportation energy; incorporate water conservation and solid waste reduction measures; and incorporate solar or other alternative energy sources?				X
Discussion: The proposed project does not result in the construction of any new buildings. The project does not include elements which would require the incorporation of design features to address energy consumption, including transportation energy; water conservation and solid waste reduction measures; and/or incorporate solar or other alternative energy sources. **Source:** Project Plans.				
17.i. Generate any demands that will cause a public facility or utility to reach or exceed its capacity?				X
Discussion: No. See discussion of utility usage in Section 17.a.-h., above. **Source:** Project Plans.				

18. MANDATORY FINDINGS OF SIGNIFICANCE.				
	Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
18.a. Does the project have the potential to degrade the quality of the environment, significantly reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?		X		

Discussion: The project does have the potential to impact sensitive habitats, special status plants and animals, and historical resources. However, as mitigated the project can be completed in a manner that protects the known and potential resources on the project site. Further, the completed project has the potential to improve the habitat on and downstream of the project site due to reduced sedimentation, expanded areas for native vegetation, and protection of replanted areas through proposed exclusion fencing.

Source: Project Plans; Project Location; Hylkema, 2016; Mori, 2016.

18.b.	Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)		X		

Discussion: The project could have impacts downstream of the project site if the sedimentation were allowed to continue uncontrolled. However, as proposed and mitigated the anticipated impacts are intended to be positive. By improving water quality, reduced sedimentation, and increased natural vegetation the site has potential improve sensitive habitats both on and off the project site.

Source: Project Plans, Project Location.

18.c.	Does the project have environmental effects which will cause significant adverse effects on human beings, either directly or indirectly?				X

Discussion: The project is not expected to have any significant adverse effects on human beings. However, if no action is taken the existing residence, septic system, and barn are all at risk of failure. Further, the continued release of sedimentation could have adverse impacts downstream. Impacts to water quality, habitat for fish, and overall health of the watershed could be negatively impacted if no action is taken.

Source: Project Plans, Project Location

RESPONSIBLE AGENCIES. Check what agency has permit authority or other approval for the project.

AGENCY	YES	NO	TYPE OF APPROVAL
U.S. Army Corps of Engineers (CE)	X		Section 401/404 Permit
State Water Resources Control Board		X	
Regional Water Quality Control Board	X		
State Department of Public Health		X	

AGENCY	YES	NO	TYPE OF APPROVAL
San Francisco Bay Conservation and Development Commission (BCDC)		X	
U.S. Environmental Protection Agency (EPA)		X	
County Airport Land Use Commission (ALUC)		X	
CalTrans		X	
Bay Area Air Quality Management District		X	
U.S. Fish and Wildlife Service	X		
Coastal Commission		X	
City		X	
Sewer/Water District:		X	
Other: California Department of Fish and Wildlife	X		Streambed Alteration Agreement

MITIGATION MEASURES

	Yes	No
Mitigation measures have been proposed in project application.	X	
Other mitigation measures are needed.	X	

The following measures are included in the project plans or proposals pursuant to Section 15070(b)(1) of the State CEQA Guidelines:

Mitigation Measure 1: The applicant shall implement the following dust control measures during grading and construction activities:

a. Water all active construction and grading areas at least twice daily.

b. Cover all truck hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard.

c. Apply water two times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at the project site.

d. Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets/roads.

e. Enclose, cover, water twice daily or apply (non-toxic) soil binders to exposed stockpiles (dirt, sand, etc.).

Mitigation Measure 2: Within 72 hours of project start, a qualified wildlife biologist should perform a pre-construction survey for California red-legged frog (CRLF) and San Francisco garter snake (SFGS) in appropriate habitat within and immediately adjacent to the project site. The pre-construction surveys should include one daytime survey for both species and one nocturnal survey for the CRLF. If either species is observed, the United States Fish and Wildlife Service

(USFWS) and California Department of Fish and Wildlife (CDFW) should be contacted for further guidance. No work should proceed until authorization from the agencies has been obtained.

Mitigation Measure 3: Prior to the start of construction activities, a worker's environmental training shall be performed by a qualified biologist. The training should include information on species identification, natural history, the protection measures to be implemented, and the penalties for non-compliance. Each worker should sign a certification sheet on completion of the training. All new workers should be trained prior to their involvement in construction activities.

Mitigation Measure 4: A qualified biologist should conduct a survey of the project site each morning before the start of construction activities and should be present during vegetation removal and initial (new) grading activities. Once the vegetation removal and initial grading activities have been completed, morning surveys prior to the start of each day's work should be adequate.

Mitigation Measure 5: Removal of the willows should be performed with hand tools to remove the limbs down to the base of the trunk. The root base could be removed by an excavator under the direct supervision of the qualified monitoring biologist.

Mitigation Measure 6: If CRLF or SFGS are observed in or immediately adjacent to the project site during construction activities, all work must cease and the agencies contacted for further guidance. Work should not proceed until approval from the agencies has been obtained.

Mitigation Measure 7: Prior to the start of construction activities, the project boundary, including storage and staging areas, access routes and environmentally sensitive areas (ESA) should be clearly delineated with orange construction fencing or flagging. No storage of equipment or materials, vegetation removal or maintenance of equipment should be performed outside of the project site boundaries.

Mitigation Measure 8: Design and implement a riparian habitat restoration plan that would achieve a no net loss of riparian habitat removed during the bank stabilization project. The plan should include plant species consistent with the existing habitat, a monitoring schedule, success criteria, and provide for adaptive strategies to help meet the success criteria, in the event of restoration failures.

Mitigation Measure 9: If construction activities, especially vegetation removal, are scheduled between February 15 and September 1, a pre-construction survey for nesting birds should be conducted by a qualified biologist within two weeks prior to the start of the project. One to two surveys should be performed, depending on the degree of difficulty in determining the nesting status of birds. The survey area should include habitats within 250 feet of the project sites for passerines and 500 feet for raptors, where practical. These survey zones are consistent with California Department of Fish and Wildlife (CDFW) recommendations. The alternative to performing pre-construction surveys is to schedule the project outside of the nesting season.

Mitigation Measure 10: If active nests are located within the survey areas, delineate buffer zones around each nest site. Buffer zones should begin at 250 feet for passerines and 500 feet for raptors. If nest sites are closer to project activities than the recommended buffer distances, appropriate reductions in buffer zone width should be determined by the qualified biologist, based on species, site specific conditions and level of construction activities. Where buffer zone reductions are implemented, signs or flagging delimiting the boundaries of the buffer zones should be established, prior to the start of construction activities and the nest sites monitored daily during construction by a qualified biologist, to avoid potential take of active nests due to construction-related disturbances. The monitoring biologist shall have the authority to stop work if project activities are negatively affecting nesting bird behaviors (e.g., feeding, nest attendance). Tree removal and other project activities could resume when the monitoring biologist has determined that the nestlings have fledged.

Mitigation Measure 11: Prior to the start of construction activities, a bat specialist should survey the barn for roosting bats. If present, implement recommendations of the bat specialist.

Mitigation Measure 12: If bats are present, avoid climbing on to the roof of the barn to access tree limbs and, during cutting, prevent limbs from falling onto the barn roof.

Mitigation Measure 13: Schedule the removal of eucalyptus trees between September 1 and October 15. This would minimize the likelihood of disturbing western red bats and would avoid disruptions to active bird nesting as well. No focused surveys would be necessary under this schedule. If tree removal is scheduled to take place between October 15 and February 28, a bat specialist should conduct surveys for foliage roosting bats and, if present, implement measures developed by the bat specialist, as needed.

Mitigation Measure 14: In the event that archaeological features are encountered during project implementation (a late discovery), all work at the immediate location of the find must temporarily stop until a qualified archaeologist can be consulted and provide recommendations regarding the find. All contractors and sub-contractors shall be made aware of these requirements and shall adhere to all applicable laws including State Cultural Preservation Laws.

Mitigation Measure 15: In the event that human skeletal remains are encountered, all work at the immediate location of the find must temporarily stop. Public Resource Code 5097 and local Health and Safety codes establish a procedure for notifying the County Coroner's Office and possibly the State Native American Heritage Commission to seek recommendations from a Most Likely Descendant (Tribal Contact) before any further action at the location of the find can proceed. All contractors and sub-contractors shall be made aware of these requirements and shall adhere to all applicable laws including State Cultural Preservation laws.

Mitigation Measure 16: Prior to commencement of the project, the applicant shall submit to the Planning Department for review and approval an erosion and drainage control plan that shows how the transport and discharge of soil and pollutants from and within the project site shall be minimized. The plan shall be designed to minimize potential sources of sediment, control the amount of runoff and its ability to carry sediment by diverting incoming flows and impeding internally generated flows, and retain sediment that is picked up on the project site through the use of sediment-capturing devices. The plan shall also limit application, generation, and migration of toxic substances, ensure the proper storage and disposal of toxic materials, and apply nutrients at rates necessary to establish and maintain vegetation without causing significant nutrient runoff to surface waters. Said plan shall adhere to the San Mateo County Wide Stormwater Pollution Prevention Program "General Construction and Site Supervision Guidelines," including:

a. Sequence construction to install sediment-capturing devices first, followed by runoff control measures and runoff conveyances. No construction activities shall begin until after all proposed measures are in place.

b. Minimize the area of bare soil exposed at one time (phased grading).

c. Clear only areas essential for project activities.

d. Within five days of clearing or inactivity, stabilize bare soils through either non-vegetative Best Management Practices (BMPs), such as mulching, or vegetative erosion control methods such as seeding. Vegetative erosion control shall be established within two weeks of seeding/planting.

e. Project site entrances shall be stabilized immediately after grading and frequently maintained to prevent erosion and control dust.

f. Control wind-born dust through the installation of wind barriers such as hay bales and/or sprinkling.

g. Soil and/or other construction-related material stockpiled on-site shall be placed a minimum of 200 feet from all wetlands and drain courses. Stockpiled soils shall be covered with tarps at all times of the year.

h. Intercept runoff above disturbed slopes and convey it to a permanent channel or storm drains by using earth dikes, perimeter dikes or swales, or diversions. Use check dams where appropriate.

i. Provide protection for runoff conveyance outlets by reducing flow velocity and dissipating flow energy.

j. Install storm drain inlet protection that traps sediment before it enters any adjacent storm sewer systems. This barrier shall consist of filter fabric, straw bales, gravel, or sand bags.

k. Install sediment traps/basins at outlets of diversions, channels, slope drains, or other runoff conveyances that discharge sediment-laden water. Sediment traps/ basins shall be cleaned out when 50% full (by volume).

l. Use silt fence and/or vegetated filter strips to trap sediment contained in sheet flow. The maximum drainage area to the fence should be 0.5-acre or less per 100 feet of fence. Silt fences shall be inspected regularly and sediment removed when it reaches 1/3 the fence height. Vegetated filter strips should have relatively flat slopes and be vegetated with erosion-resistant species.

m. Utilize coir fabric/netting on sloped graded areas to provide a reduction in water velocity, erosive areas, habitat protection, and topsoil stabilization.

n. Throughout the construction period, the applicant shall conduct regular inspections of the condition and operational status of all structural BMPs required by the approved Erosion Control Plan.

Mitigation Measure 17: The applicant shall implement the following basic construction measures at all times:

a. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California Airborne Toxic Control Measure Title13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.

b. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified visible emissions evaluator.

c. Post a publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This person, or his/her designee, shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

Mitigation Measure 18: Noise sources associated with demolition, construction, repair, remodeling, or grading of any real property shall be limited to the hours from 7:00 a.m. to 6:00 p.m. weekdays and 9:00 a.m. to 5:00 p.m. Saturdays. Said activities are prohibited on Sundays, Thanksgiving and Christmas (San Mateo Ordinance Code Section 4.88.360).

DETERMINATION (to be completed by the Lead Agency).

On the basis of this initial evaluation:

_____ I find the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared by the Planning Department.

X I find that although the proposed project could have a significant effect on the environment, there WILL NOT be a significant effect in this case because of the mitigation measures in the discussion have been included as part of the proposed project. A NEGATIVE DECLARATION will be prepared.

_____ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

(Signature)

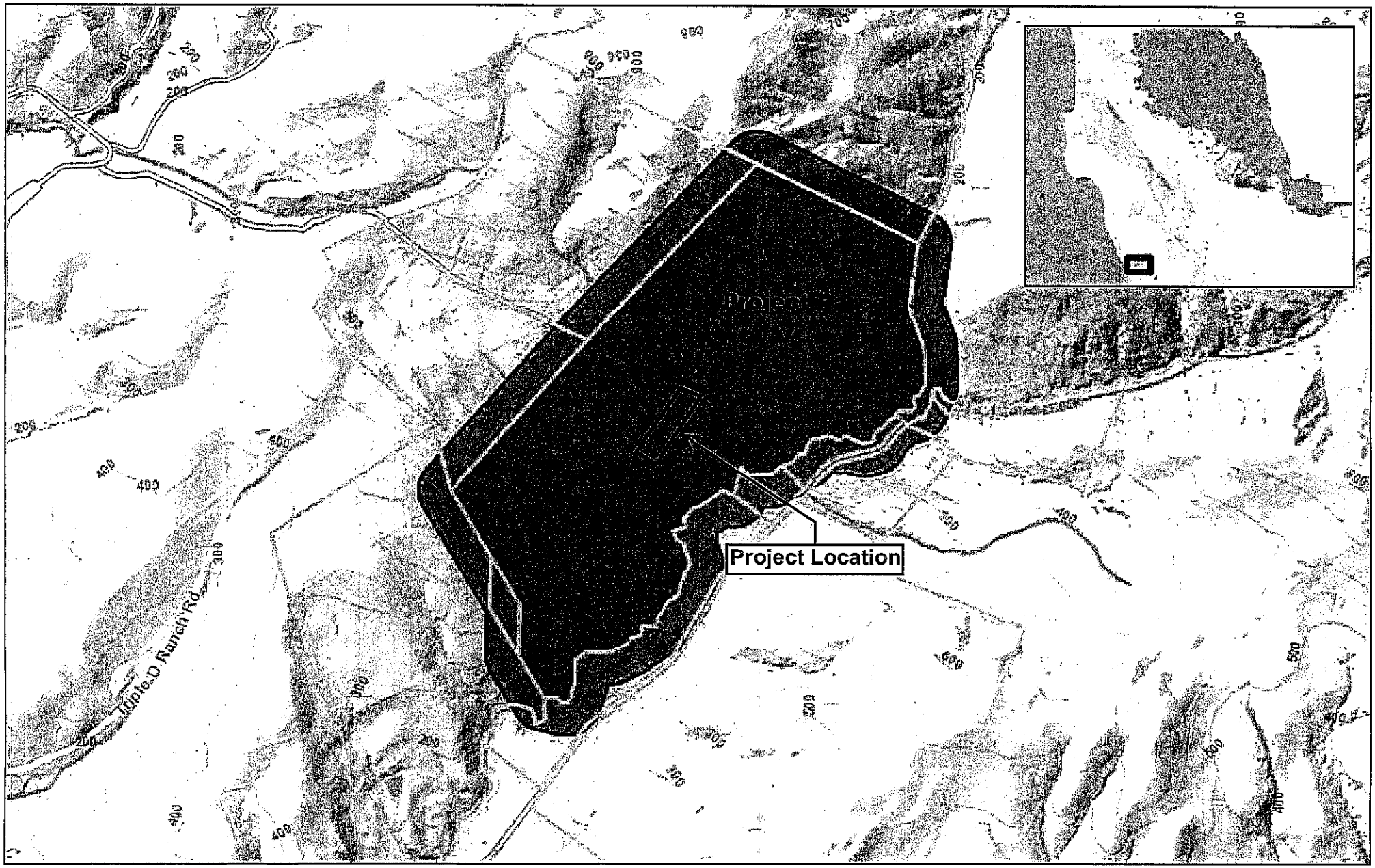
March 13, 2017 — Date

Planner III — (Title)

AC:pac - ACCBB0091_WPH.DOCX
Initial Study Checklist 10.17.2013.docx

San Mateo County

1451 Lobitos Creek Cutoff



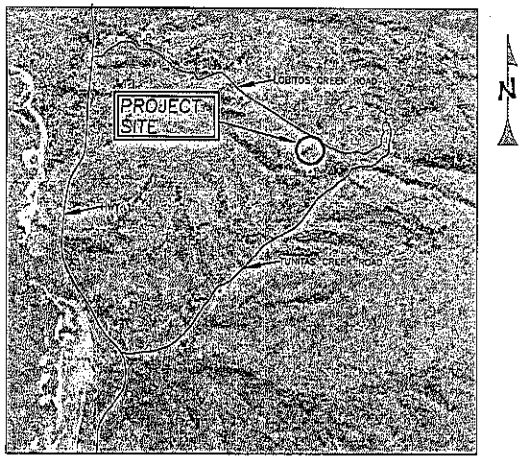
0.57 0 0.28 0.57 Miles

WGS_1984_Web_Mercator_Auxiliary_Sphere

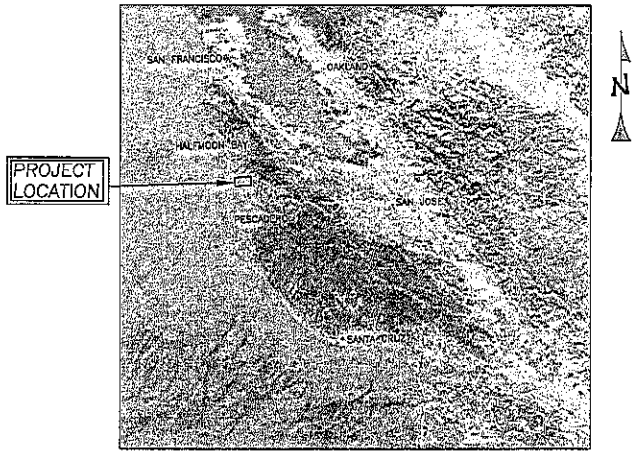
1:18,055

PITCHER PROPERTIES
STREAM AND BANK STABILIZATION PROJECT

90% DESIGN SUBMITTAL



VICINITY MAP
N.T.S. (GOOGLE)



REGIONAL MAP
N.T.S. (GOOGLE)

SHEET INDEX

GENERAL NOTES

1. TOPOGRAPHIC MAPPING WAS PERFORMED BY:
   WATERWAYS CONSULTING, INC.
   509A SWIFT STREET
   SANTA CRUZ, CA 95060
   SURVEY DATE: 7-24-14
2. ELEVATION DATUM: AN ASSUMED ELEVATION OF 100.00' WAS ESTABLISHED AT SURVEY CONTROL POINT #1 (REBAR).
3. BASIS OF BEARINGS: BASIS OF BEARINGS BETWEEN POINTS #1 AND #10 IS S38°45'20.04"E.
4. CONTOUR INTERVAL IS ONE FOOT. ELEVATIONS AND DISTANCES SHOWN ARE IN DECIMAL FEET.
5. THIS IS NOT A BOUNDARY SURVEY. PROPERTY LINES ARE NOT SHOWN HEREON.
6. ALL CONSTRUCTION AND MATERIALS SHALL CONFORM TO THE 2010 EDITION OF THE STATE OF CALIFORNIA STANDARD SPECIFICATIONS, ISSUED BY THE DEPARTMENT OF TRANSPORTATION (HEREAFTER REFERRED TO AS "STANDARD SPECIFICATIONS").

ABBREVIATIONS

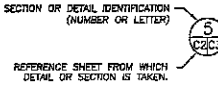
AVG.	AVERAGE
CC	CONCRETE
CY	CUBIC YARDS
DBH	DIAMETER AT BREAST HEIGHT
DIA.	DIAMETER
E	EXISTING
E.G.	EXISTING GROUND
ELEV.	ELEVATION
DI	DRAINAGE INLET
FG	FINISH GRADE
FT	FEET
INV	INVERT
N	NEW
N.T.S	NOT TO SCALE
O.C.	ON CENTER
RSP	ROCK SLOPE PROTECTION
SPK	SPIKE
SQ.FT.	SQUARE FOOT
T	TREE
T.B.D.	TO BE DETERMINED
TYP	TYPICAL
UNK	UNKNOWN
WSE	WATER SURFACE ELEVATION
YR	YEAR

TREE SPECIES	
ALDER	ALDER
BAY	BAY
M	MAPLE
O	OAK
P	PINE
W	WALNUT

PROJECT DESCRIPTION

THESE DRAWINGS PROVIDE 90% DESIGN LEVEL DETAILS FOR THE STABILIZATION OF A DEGRADED TRIBUTARY CHANNEL LOCATED ON LANDS OWNED BY PITCHER PROPERTIES. THE CHANNEL AT PITCHER RANCH IS A TRIBUTARY TO YUNITAS CREEK IN SAN MATEO COUNTY, CALIFORNIA.

SECTION AND DETAIL CONVENTION



WATERWAYS CONSULTING INC.
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WWW.WATWAYS.COM

DRAFT
NOT FOR CONSTRUCTION

PREPARED AT THE REQUEST OF:
PITCHER PROPERTIES

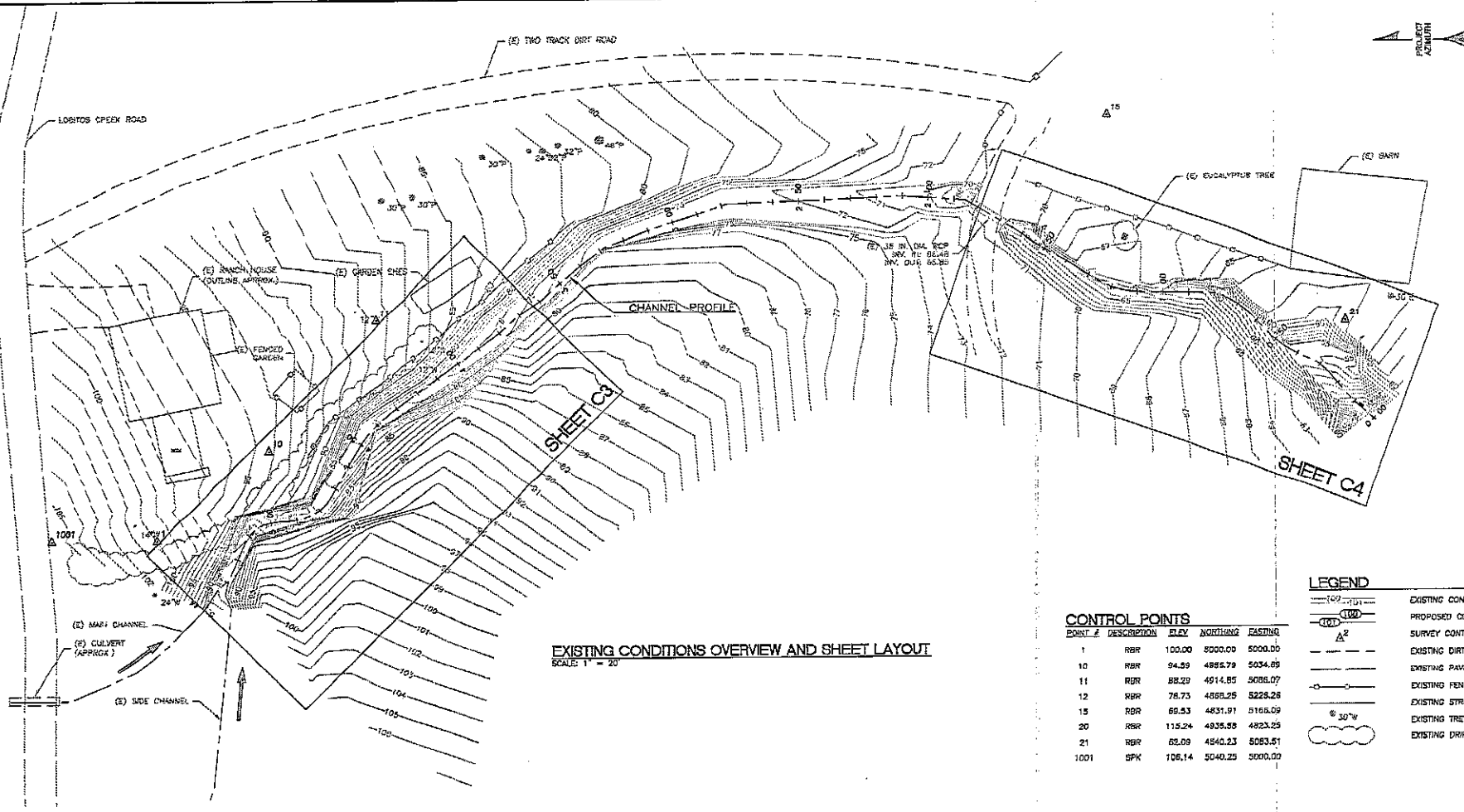
COVER SHEET

PITCHER PROPERTIES
CHANNEL AND BANK
STABILIZATION PROJECT
90% DESIGN PLAN

DESIGNED BY:	B.M.S.
DRAWN BY:	B.M.S.
CHECKED BY:	M.W.W.
DATE:	9/21/15
JOB NO.:	13-059

BAR IS ONE INCH ON ORIGINAL DRAWING. ADJUST SCALES FOR REDUCED PLOTS
0 1"

C1 | 1 OF 8



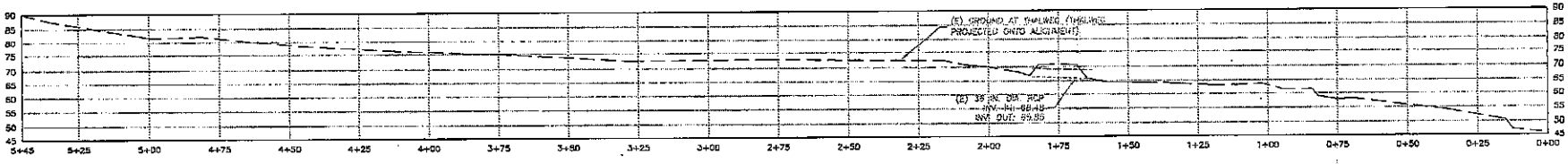
EXISTING CONDITIONS OVERVIEW AND SHEET LAYOUT
SCALE: 1" = 20'

CONTROL POINTS

POINT #	DESCRIPTION	ELEV	NORTHING	EASTING
1	RBR	100.00	5000.00	5000.00
10	RBR	94.59	4955.79	5034.89
11	RBR	88.29	4914.85	5086.07
12	RBR	78.73	4868.25	5228.26
15	RBR	69.53	4831.91	5166.09
20	RBR	115.24	4935.58	4823.25
21	RBR	62.09	4840.23	5083.51
1001	SPK	106.14	5040.25	5000.00

LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- SURVEY CONTROL POINT
- EXISTING DIRT ROAD
- EXISTING PAVED ROAD
- EXISTING FENCE
- EXISTING STRUCTURE
- EXISTING TREE
- EXISTING DRIPLINE



CHANNEL PROFILE
SCALE: 1" = 20'

WATERWAYS CONSULTING INC.
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PH: (831) 421-9281 / FAX: (888) 815-6847
WWW.WATWAYS.COM

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PREPARED AT THE REQUEST OF:
PITCHER PROPERTIES

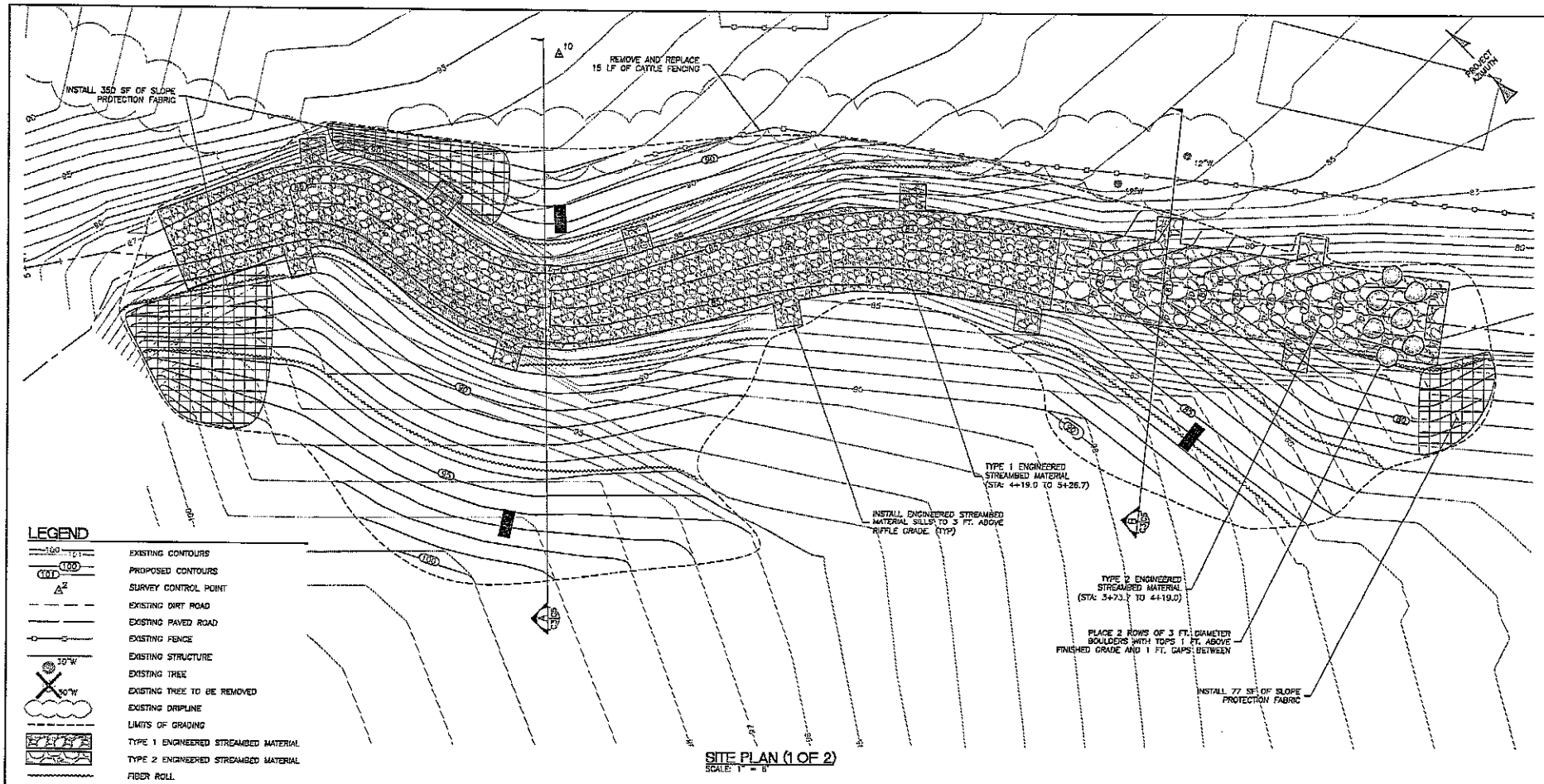
EXISTING CONDITIONS OVERVIEW AND SHEET LAYOUT

PITCHER PROPERTIES
CHANNEL AND BANK STABILIZATION PROJECT
90% DESIGN PLAN

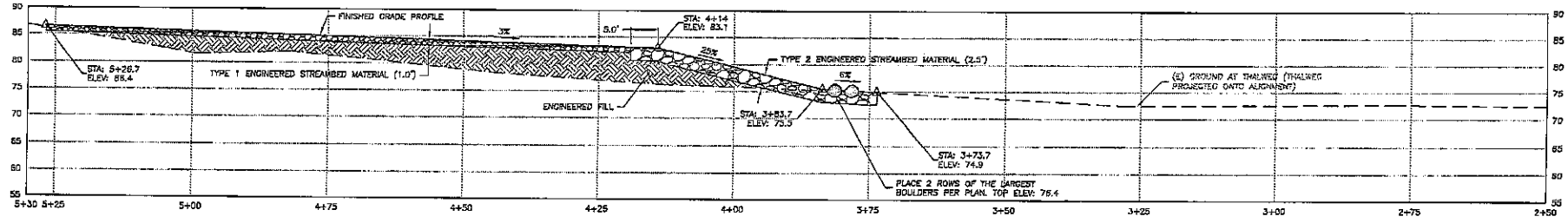
DESIGNED BY: B.M.S.
DRAWN BY: B.M.S.
CHECKED BY: M.W.W.
DATE: 9/21/15
JOB NO.: 13-059

BAR IS ONE INCH ON ORIGINAL DRAWING. ADJUST SCALES FOR REDUCED PLOTS
0 1"

C2



SITE PLAN (1 OF 2)
SCALE: 1" = 8'



CHANNEL PROFILE
SCALE: 1" = 8'

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WWW.WATWAYS.COM

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NOT FOR CONSTRUCTION

PREPARED AT THE REQUEST OF:
PITCHER PROPERTIES

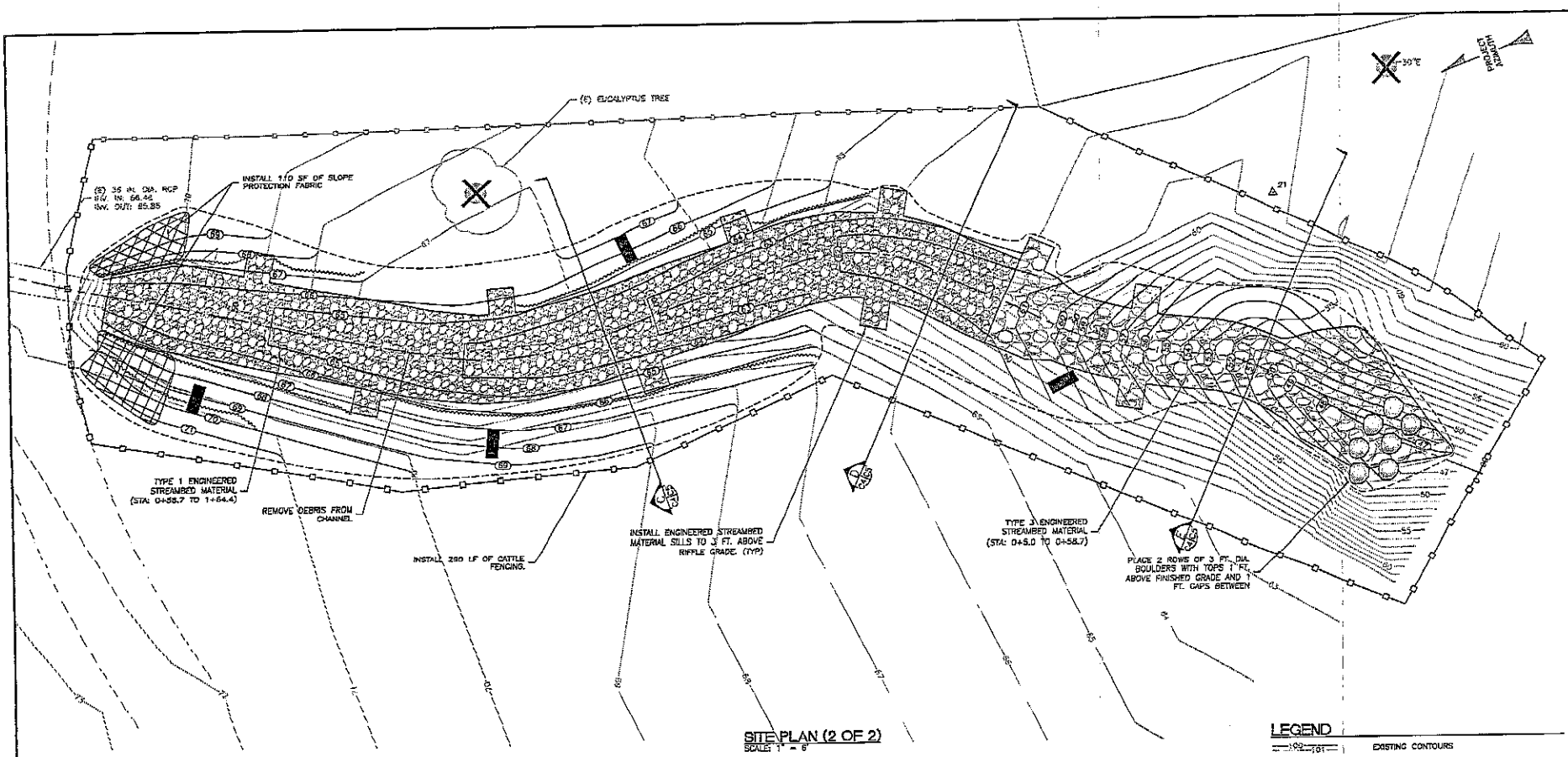
SITE PLAN (1 OF 2)

PITCHER PROPERTIES
CHANNEL AND BANK STABILIZATION PROJECT
90% DESIGN PLAN

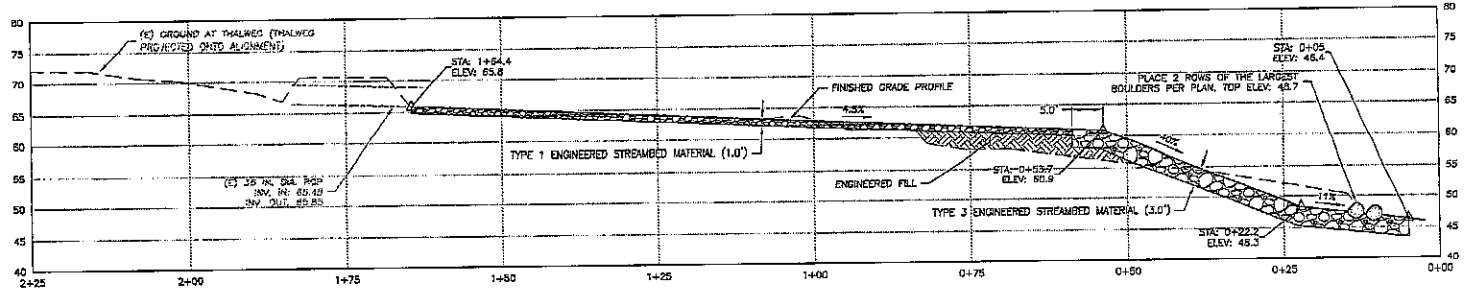
DESIGNED BY:	B.M.S.
DRAWN BY:	B.M.S.
CHECKED BY:	M.W.W.
DATE:	9/21/15
JOB NO.:	13-039

BAR IS ONE INCH ON ORIGINAL DRAWING, ADJUST SCALES FOR REDUCED PLOTS
0 1"

C3 | 3 of 8



SITE PLAN (2 OF 2)
SCALE: 1" = 6'



CHANNEL PROFILE
SCALE: 1" = 6'

LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- SURVEY CONTROL POINT
- EXISTING DIRT ROAD
- EXISTING PAVED ROAD
- EXISTING FENCE
- EXISTING STRUCTURE
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- EXISTING DRIPLINE
- LIMITS OF GRADING
- TYPE 1 ENGINEERED STREAMBED MATERIAL
- TYPE 3 ENGINEERED STREAMBED MATERIAL
- FIBER ROLL

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DRAFT
NOT FOR CONSTRUCTION

PREPARED AT THE REQUEST OF:
PITCHER PROPERTIES

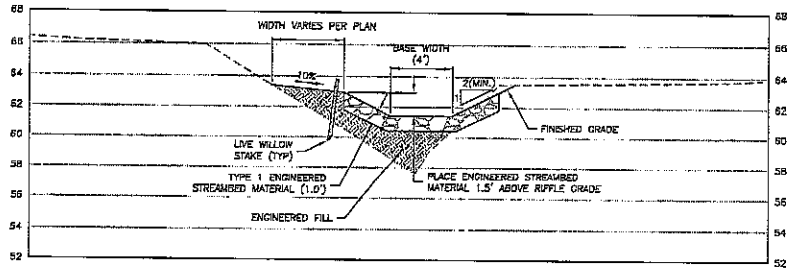
SITE PLAN
(2 OF 2)

PITCHER PROPERTIES
CHANNEL AND BANK
STABILIZATION PROJECT
90% DESIGN PLAN

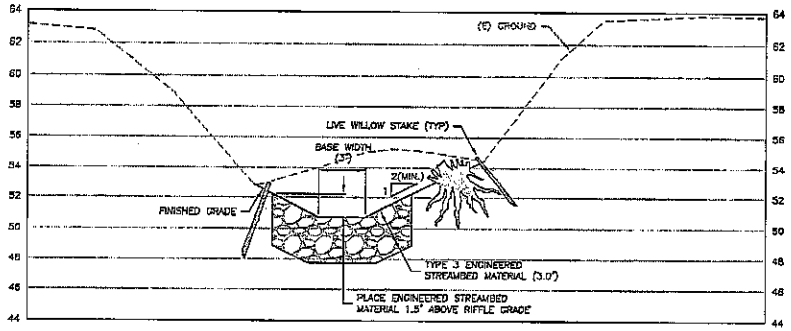
DESIGNED BY:	B.M.S.
DRAWN BY:	B.M.S.
CHECKED BY:	M.W.W.
DATE:	9/21/15
JOB NO.:	13-059

BAR IS ONE INCH ON ORIGINAL DRAWING. ADJUST SCALES FOR REDUCED PLOTS
0 1"

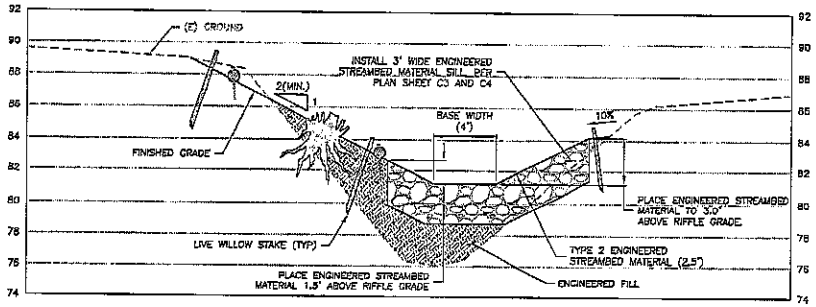
C4
4 OF 8



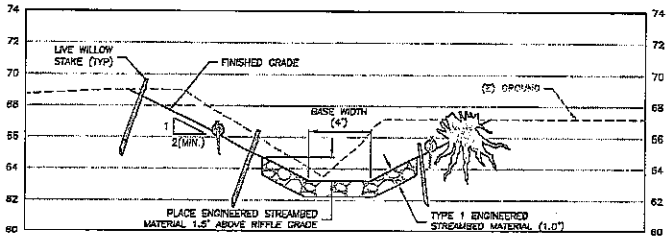
SECTION D
SCALE: 1"=4' 04|C5



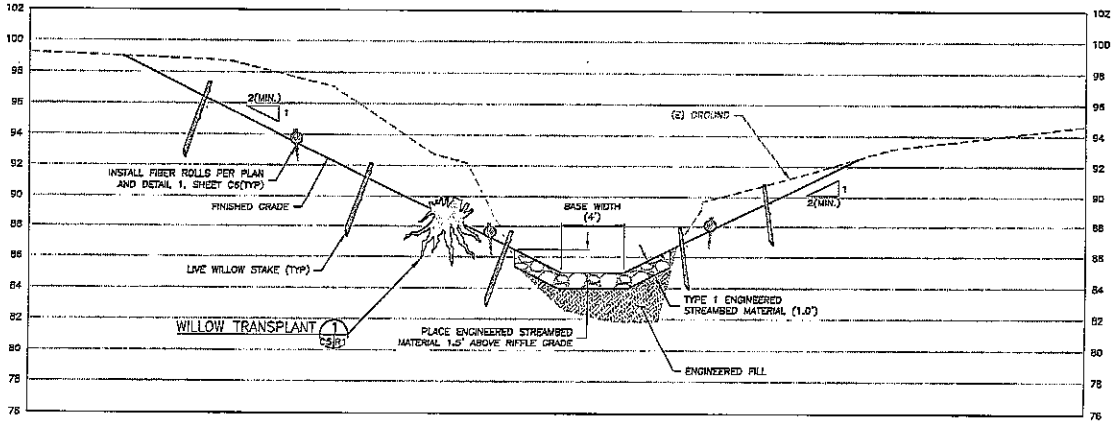
SECTION E
SCALE: 1"=4' 04|C5



SECTION B
SCALE: 1"=4' 03|C5



SECTION C
SCALE: 1"=4' 04|C5



SECTION A
SCALE: 1"=4' 03|C5

NOTE:
INSTALL LIVE WILLOW STAKES AT 10' O.C. SPACING.

WATERWAYS CONSULTING INC.
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SANTA CRUZ, CA 95060
PH:(831)423-2231 // FAX:(858)459-6647
WWW.WATWAYS.COM

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NOT FOR CONSTRUCTION

PREPARED AT THE REQUEST OF:
PITCHER PROPERTIES

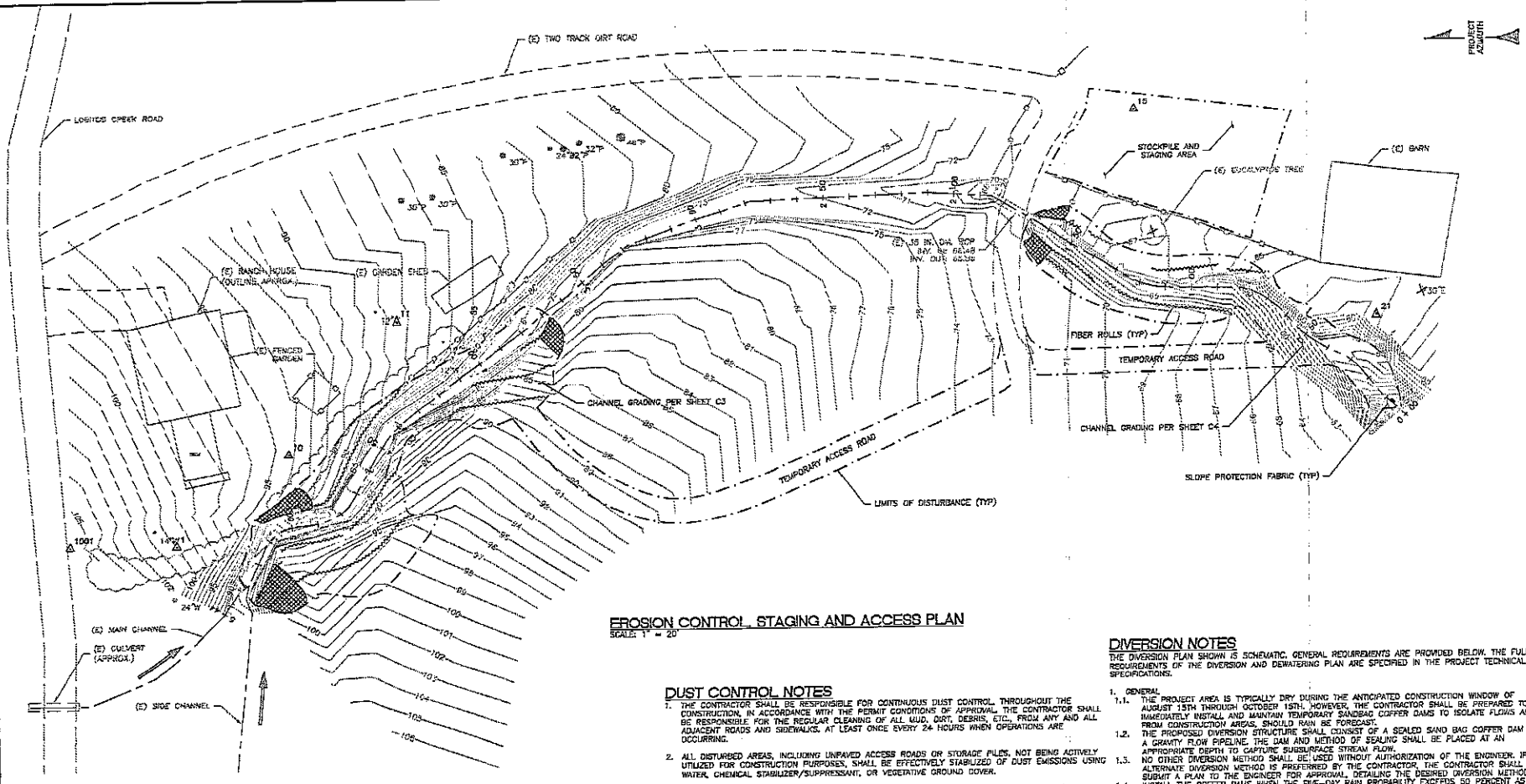
TYPICAL SECTIONS

PITCHER PROPERTIES
CHANNEL AND BANK STABILIZATION PROJECT
90% DESIGN PLAN

DESIGNED BY:	B.M.S.
DRAWN BY:	B.M.S.
CHECKED BY:	M.W.W.
DATE:	9/21/15
JOB NO.:	13-059

BAR IS ONE INCH ON ORIGINAL DRAWING. ADJUST SCALES FOR REDUCED PLOTS
0 1"

C5 | 5 OF 8



EROSION CONTROL, STAGING AND ACCESS PLAN

SCALE: 1" = 20'

DUST CONTROL NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTINUOUS DUST CONTROL THROUGHOUT THE CONSTRUCTION, IN ACCORDANCE WITH THE PERMIT CONDITIONS OF APPROVAL. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REGULAR CLEANING OF ALL MUD, DIRT, DEBRIS, ETC., FROM ANY AND ALL ADJACENT ROADS AND SIDEWALKS, AT LEAST ONCE EVERY 24 HOURS WHEN OPERATIONS ARE OCCURRING.
2. ALL DISTURBED AREAS, INCLUDING UNPAVED ACCESS ROADS OR STORAGE PILES, NOT BEING ACTIVELY UTILIZED FOR CONSTRUCTION PURPOSES, SHALL BE EFFECTIVELY STABILIZED OF DUST EMISSIONS USING WATER, CHEMICAL STABILIZER/SUPPRESSANT, OR VEGETATIVE GROUND COVER.
3. ALL GROUND-DISTURBING ACTIVITIES (E.G., CLEARING, GRUBBING, SCRAPING, AND EXCAVATION) SHALL BE EFFECTIVELY CONTROLLED OF FUGITIVE DUST EMISSIONS UTILIZING APPLICATION OF WATER OR BY PRE-SOAKING.
4. ALL MATERIALS TRANSPORTED OFFSITE SHALL BE COVERED OR EFFECTIVELY WETTED TO LIMIT DUST EMISSIONS.
5. FOLLOWING THE ADDITION OF MATERIALS TO, OR THE REMOVAL OF MATERIALS FROM, THE SURFACES OF OUTDOOR STORAGE PILES, SAID PILES SHALL BE EFFECTIVELY STABILIZED OF FUGITIVE DUST EMISSIONS UTILIZING SUFFICIENT WATER OR CHEMICAL STABILIZER/SUPPRESANT.
6. ONSITE VEHICLE SPEED ON UNPAVED SURFACES SHALL BE LIMITED TO 15 MPH.
7. DISTURBED AREAS SHALL BE SEEDED PRIOR TO OCTOBER 15TH OR EARLIER AS REQUIRED BY THE APPLICABLE PERMIT CONDITIONS.

ACCESS AND STAGING AREA NOTES

1. UTILIZE ONLY THE APPROVED ACCESS POINTS, AS SHOWN ON THE DRAWINGS. MATERIALS SHALL BE STOCKPILED WITHIN AN EXISTING FLAT AND PREVIOUSLY DISTURBED AREA.
2. ACCESS PLAN IS SCHEMATIC. CONTRACTOR SHALL SUBMIT A SITE ACCESS PLAN FOR APPROVAL BY THE ENGINEER.
3. THE DOWNSLOPE PERIMETER OF STAGING OR STOCKPILE AREAS SHALL BE CONTAINED WITH SILT FENCE.
4. ALL EQUIPMENT AND MATERIALS SHALL BE STORED, MAINTAINED AND REFUELED IN A DESIGNATED PORTION OF THE STAGING AREA.

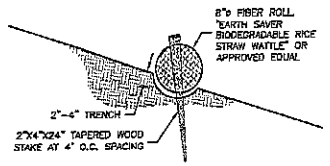
DIVERSION NOTES

THE DIVERSION PLAN SHOWN IS SCHEMATIC. GENERAL REQUIREMENTS ARE PROVIDED BELOW. THE FULL REQUIREMENTS OF THE DIVERSION AND DEWATERING PLAN ARE SPECIFIED IN THE PROJECT TECHNICAL SPECIFICATIONS.

1. GENERAL
   - 1.1. THE PROJECT AREA IS TYPICALLY DRY DURING THE ANTICIPATED CONSTRUCTION WINDOW OF AUGUST 15TH THROUGH OCTOBER 15TH. HOWEVER, THE CONTRACTOR SHALL BE PREPARED TO IMMEDIATELY INSTALL AND MAINTAIN TEMPORARY SANDBAG COFFER DAMS TO ISOLATE FLOWS AWAY FROM CONSTRUCTION AREAS, SHOULD RAIN BE FORECAST.
   - 1.2. THE PROPOSED DIVERSION STRUCTURE SHALL CONSIST OF A SEALED SAND BAG COFFER DAM AND A GRAVITY FLOW PIPELINE. THE DAM AND METHOD OF SEALING SHALL BE PLACED AT AN APPROPRIATE DEPTH TO CAPTURE SUBSURFACE STREAM FLOW.
   - 1.3. NO OTHER DIVERSION METHOD SHALL BE USED WITHOUT AUTHORIZATION OF THE ENGINEER. IF AN ALTERNATE DIVERSION METHOD IS PREFERRED BY THE CONTRACTOR, THE CONTRACTOR SHALL SUBMIT A PLAN TO THE ENGINEER FOR APPROVAL, DETAILING THE DESIRED DIVERSION METHOD.
   - 1.4. INSTALL THE COFFER DAMS WHEN THE FIVE-DAY RAIN PROBABILITY EXCEEDS 50 PERCENT AS DETERMINED FROM THE NATIONAL WEATHER FORECAST OFFICE: WWW.SRH.NOAA.GOV.
   - 1.5. MAINTAIN THE COFFER DAMS DURING THE COURSE OF THE CONSTRUCTION WORK.
   - 1.6. DIVERT FLOW ONLY WHEN THE DIVERSION CONSTRUCTION IS COMPLETE. FOLLOWING ENGINEER'S APPROVAL OF THE COMPLETED WORK, REMOVE DIVERSION BEGINNING AT THE DOWNSTREAM LIMIT, IN AN UPSTREAM DIRECTION.
   - 1.7. IN THE EVENT OF A SIGNIFICANT STORM, THE CONTRACTOR SHALL BE PREPARED TO TAKE NECESSARY MEASURES TO INSURE SAFE PASSAGE OF STORM WATER FLOW THROUGH THE PROJECT AREA, WITHOUT DAMAGE TO EXISTING STRUCTURES, OR INTRODUCTION OF EXCESSIVE SEDIMENT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TEMPORARY EROSION CONTROL B.M.P.'S.
2. DEWATERING OF CONSTRUCTION AREAS
   - 2.1. ANY DEWATERING ACTIVITIES WHICH MAY BE REQUIRED FOR CONSTRUCTION PURPOSES SHALL BE CONDUCTED IN A MANNER WHICH DOES NOT VIOLATE ANY WATER QUALITY STANDARDS ESTABLISHED BY THE CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD.
   - 2.2. DISCHARGE OF WATER FROM THE DEWATERED CONSTRUCTION SITE, EITHER BY GRAVITY OR PUMPING, SHALL BE PERFORMED IN A MANNER TO PREVENT EXCESSIVE TURBIDITY FROM ENTERING THE RECEIVING WATERWAYS AND TO PREVENT SCOUR AND EROSION OUTSIDE OF THE CONSTRUCTION SITE. PUMPED WATER SHOULD BE PRE-FILTERED WITH SAND/GRAVEL PACK AROUND SUMPS FOR SUBSURFACE FLOWS AND A SILT FENCE OR HAY BALES AROUND PUMPS FOR SURFACE FLOW. PUMPED WATER SHALL BE DISCHARGED INTO ISOLATED LOCAL DEPRESSIONS, FILTER BAGS, SETTLING (BAKER) TANKS, OR TEMPORARY SEDIMENT BASINS, AS NECESSARY TO MEET WATER QUALITY REQUIREMENTS. WHERE WATER TO BE DISCHARGED INTO THE CREEK WILL CREATE EXCESSIVE TURBIDITY, THE WATER SHALL BE ROUTED THROUGH A SEDIMENT INTERCEPTOR OR OTHER FACILITIES TO REMOVE SEDIMENT FROM WATER. CONTRACTOR SHALL SUPPLY ALL NECESSARY PUMPS, PIPING, FILTERS, SHORING, AND OTHER TOOLS AND MATERIALS NECESSARY FOR DEWATERING.
   - 2.3.

LEGEND

- EXISTING CONTOURS (100 / 101)
- PROPOSED CONTOURS (100 / 101)
- SURVEY CONTROL POINT
- EXISTING DIRT ROAD
- EXISTING PAVED ROAD
- EXISTING FENCE
- EXISTING STRUCTURE
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- EXISTING DRIPLINE
- FIBER ROLL
- SLOPE PROTECTION FABRIC



FIBER ROLL
SCALE: 1"=1'

WATERWAYS CONSULTING INC.

8104 SWIFT ST.
SANTA CRUZ, CA 95060
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WWW.WATWAYS.COM

DRAFT
NOT FOR CONSTRUCTION

PREPARED AT THE REQUEST OF:
PITCHER PROPERTIES

EROSION CONTROL, STAGING AND ACCESS PLAN

PITCHER PROPERTIES
CHANNEL AND BANK STABILIZATION PROJECT
90% DESIGN PLAN

DESIGNED BY:	B.M.S.
DRAWN BY:	B.M.S.
CHECKED BY:	M.W.W.
DATE:	9/21/15
JOB NO.:	13-059

BAR IS ONE INCH ON ORIGINAL DRAWING. ADJUST SCALES FOR REDUCED PLOTS
0 1"

C6 6 OF 8

GENERAL NOTES

1. PREPARED AT THE REQUEST OF:
   PITCHER PROPERTIES, INC.
   4701 RED FOX DRIVE
   ANNANDALE, VA 22003

2. NOTIFY THE ENGINEER AT LEAST 48 HOURS PRIOR TO CONSTRUCTION. THE ENGINEER OR A DESIGNATED REPRESENTATIVE SHALL OBSERVE THE CONSTRUCTION PROCESS, AS NECESSARY TO ENSURE PROPER INSTALLATION PROCEDURES.

3. EXISTING UNDERGROUND UTILITY LOCATIONS:

   F. CALL UNDERGROUND SERVICE ALERT (1-800-642-2444) TO LOCATE ALL UNDERGROUND UTILITY LINES PRIOR TO COMMENCING CONSTRUCTION.

   G. PRIOR TO BEGINNING WORK, CONTACT ALL UTILITIES COMPANIES WITH REGARD TO WORKING OVER, UNDER, OR AROUND EXISTING FACILITIES AND TO OBTAIN INFORMATION REGARDING RESTRICTIONS THAT ARE REQUIRED TO PREVENT DAMAGE TO THE FACILITIES.

   H. EXISTING UTILITY LOCATIONS SHOWN ARE COMPILED FROM INFORMATION SUPPLIED BY THE APPROPRIATE UTILITY AGENCIES AND FROM FIELD MEASUREMENTS TO ABOVE GROUND FEATURES READILY VISIBLE AT THE TIME OF SURVEY. LOCATIONS SHOWN ARE APPROXIMATE. THE CONTRACTOR IS CAUTIONED THAT ONLY ACTUAL EXCAVATION WILL REVEAL THE DIMENSIONS, SIZES, MATERIALS, LOCATIONS, AND DEPTH OF UNDERGROUND UTILITIES.

   I. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE LOCATION AND/OR PROTECTION OF ALL EXISTING AND PROPOSED PIPING, UTILITIES, TRAFFIC SIGNAL EQUIPMENT (BOTH ABOVE GROUND AND BELOW GROUND), STRUCTURES, AND ALL OTHER EXISTING IMPROVEMENTS THROUGHOUT CONSTRUCTION.

   J. PRIOR TO COMMENCING FABRICATION OR CONSTRUCTION, DISCOVER OR VERIFY THE ACTUAL DIMENSIONS, SIZES, MATERIALS, LOCATIONS, AND ELEVATIONS OF ALL EXISTING UTILITIES AND POTHOLE THOSE AREAS WHERE POTENTIAL CONFLICTS ARE LIKELY OR DATA IS OTHERWISE INCOMPLETE.

   K. TAKE APPROPRIATE MEASURES TO PROTECT EXISTING UTILITIES DURING CONSTRUCTION OPERATIONS. CONTRACTOR IS SOLELY RESPONSIBLE FOR THE COST OF REPAIR/REPLACEMENT OF ANY EXISTING UTILITIES DAMAGED DURING CONSTRUCTION.

   L. UPON LEARNING OF THE EXISTENCE AND/OR LOCATIONS OF ANY UNDERGROUND FACILITIES NOT SHOWN OR SHOWN INACCURATELY ON THE PLANS OR NOT PROPERLY MARKED BY THE UTILITY OWNER, IMMEDIATELY NOTIFY THE UTILITY OWNER AND THE COUNTY BY TELEPHONE AND IN WRITING.

   M. UTILITY RELOCATIONS REQUIRED FOR THE CONSTRUCTION OF THE PROJECT FACILITIES WILL BE PERFORMED BY THE UTILITY COMPANY, UNLESS OTHERWISE NOTED.

4. IF DISCREPANCIES ARE DISCOVERED BETWEEN THE CONDITIONS EXISTING IN THE FIELD AND THE INFORMATION SHOWN ON THESE DRAWINGS, NOTIFY THE ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.

5. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO BE FULLY INFORMED OF AND TO COMPLY WITH ALL LAWS, ORDINANCES, CODES, REQUIREMENTS AND STANDARDS WHICH IN ANY MANNER AFFECT THE COURSE OF CONSTRUCTION OF THIS PROJECT, THOSE ENGAGED OR EMPLOYED IN THE CONSTRUCTION AND THE MATERIALS USED IN THE CONSTRUCTION.

6. ANY TESTS, INSPECTIONS, SPECIAL OR OTHERWISE, THAT ARE REQUIRED BY THE BUILDING CODES, LOCAL BUILDING DEPARTMENTS, OR THESE PLANS, SHALL BE DONE BY AN INDEPENDENT INSPECTION COMPANY. JOB SITE VISITS BY THE ENGINEER DO NOT CONSTITUTE AN OFFICIAL INSPECTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT THE REQUIRED TESTS AND INSPECTIONS ARE PERFORMED.

7. PROJECT SCHEDULE: PRIOR TO COMMENCEMENT OF WORK, SUBMIT TO THE ENGINEER FOR REVIEW AND APPROVAL A DETAILED CONSTRUCTION SCHEDULE. DO NOT BEGIN ANY CONSTRUCTION WORK UNTIL THE PROJECT SCHEDULE AND WORK PLAN IS APPROVED BY THE ENGINEER. ALL CONSTRUCTION SHALL BE CLOSELY COORDINATED WITH THE ENGINEER SO THAT THE QUALITY OF WORK CAN BE CHECKED FOR APPROVAL. PURSUE WORK IN A CONTINUOUS AND DILIGENT MANNER TO ENSURE A TIMELY COMPLETION OF THE PROJECT.

8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DESIGN, PERMITTING, INSTALLATION, AND MAINTENANCE OF ANY AND ALL TRAFFIC CONTROL MEASURES DEEMED NECESSARY.

9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR GENERAL SAFETY DURING CONSTRUCTION. ALL WORK SHALL CONFORM TO PERTINENT SAFETY REGULATIONS AND CODES. THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR FURNISHING, INSTALLING, AND MAINTAINING ALL WARNING SIGNS AND DEVICES NECESSARY TO SAFEGUARD THE GENERAL PUBLIC AND THE WORK, AND PROVIDE FOR THE PROPER AND SAFE ROUTING OF VEHICULAR AND PEDESTRIAN TRAFFIC DURING THE PERFORMANCE OF THE WORK. THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR COMPLIANCE WITH ALL APPLICABLE PROVISIONS OF OSHA IN THE CONSTRUCTION PRACTICES FOR ALL EMPLOYEES DIRECTLY ENGAGED IN THE CONSTRUCTION OF THIS PROJECT.

10. CONSTRUCTION CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONSTRUCTION CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS, AND CONSTRUCTION CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY AND HOLD DESIGN PROFESSIONAL HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTION LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF DESIGN PROFESSIONAL. NEITHER THE PROFESSIONAL ACTIVITIES OF CONSULTANT NOR THE PRESENCE OF CONSULTANT OR HIS OR HER EMPLOYEES OR SUB-CONSULTANTS AT A CONSTRUCTION SITE SHALL RELIEVE THE CONTRACTOR AND ITS SUBCONTRACTORS OF THEIR RESPONSIBILITIES INCLUDING, BUT NOT LIMITED TO, CONSTRUCTION MEANS, METHODS, SEQUENCE, TECHNIQUES OR PROCEDURES NECESSARY FOR PERFORMING, SUPERINTENDING OR COORDINATING ALL PORTIONS OF THE WORK OF CONSTRUCTION IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND APPLICABLE HEALTH OR SAFETY REQUIREMENTS OF ANY REGULATORY AGENCY OR OF STATE LAW.

11. MAINTAIN A CURRENT, COMPLETE, AND ACCURATE RECORD OF ALL AS-BUILT DEVIATIONS FROM THE CONSTRUCTION AS SHOWN ON THESE DRAWINGS AND SPECIFICATIONS, FOR THE PURPOSE OF PROVIDING THE ENGINEER OF RECORD WITH A BASIS FOR THE PREPARATION OF RECORD DRAWINGS.

12. MAINTAIN THE SITE IN A NEAT AND ORDERLY MANNER THROUGHOUT THE CONSTRUCTION PROCESS. STORE ALL MATERIALS WITHIN APPROVED STAGING AREAS.

13. PROVIDE, AT CONTRACTOR'S SOLE EXPENSE, ALL MATERIALS, LABOR AND EQUIPMENT REQUIRED TO COMPLY WITH ALL APPLICABLE PERMIT CONDITIONS AND REQUIREMENTS.

14. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION STAKING AND LAYOUT, UNLESS OTHERWISE SPECIFIED.

15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION AND PRESERVATION OF ALL SURVEY MONUMENTS OR PROPERTY CORNERS. DISTURBED MONUMENTS SHALL BE RESTORED BACK TO THEIR ORIGINAL LOCATION AND SHALL BE CERTIFIED BY A REGISTERED CIVIL ENGINEER OR LAND SURVEYOR AT THE SOLE EXPENSE OF THE CONTRACTOR.

16. TREE DIMENSIONS: TRUNK DIAMETERS SHOWN REPRESENT DIAMETER AT BREAST HEIGHT (DBH), MEASURED IN INCHES. DBH IS MEASURED 4.5 FT ABOVE GROUND FOR SINGLE TRUNKS AND TRUNKS THAT SPLIT INTO SEVERAL STEMS CLOSE TO THE GROUND. THE DBH FOR TREES THAT SPLIT INTO SEVERAL STEMS CLOSE TO THE GROUND MAY BE CONSOLIDATED INTO A SINGLE DBH BY TAKING THE SQUARE ROOT OF THE SUM OF ALL SQUARED STEM DBH'S, UNLESS OTHERWISE NOTED. WHERE TREES FORK NEAR BREAST HEIGHT, TRUNK DIAMETER IS MEASURED AT THE NARROWEST PART OF THE MAIN STEM BELOW THE FORK. FOR TREES ON A SLOPE, BREAST HEIGHT IS REFERENCED FROM THE UPPER SIDE OF THE SLOPE. FOR LEANING TREES, BREAST HEIGHT IS MEASURED ON THE SIDE THAT THE TREE LEANS TOWARD. TREES WITH DBH LESS THAN 8" ARE TYPICALLY NOT SHOWN.

    12"P = 12" DBH PINE

17. TREE SPECIES ARE IDENTIFIED WHEN KNOWN. HOWEVER, FINAL DETERMINATION SHOULD BE MADE BY A QUALIFIED BOTANIST. REFER TO THE LEGEND FOR TREE SPECIES SYMBOLS.

GENERAL NOTES (CONTINUED)

1. TREE TRUNK DIMENSIONS MAY BE SHOWN OUT-OF-SCALE FOR PLOTTING CLARITY. CAUTION SHOULD BE USED IN DESIGNING NEAR TREE TRUNKS. THERE ARE LIMITATIONS ON FIELD ACCURACY, DRAFTING ACCURACY, MEDIUM STRETCH AS WELL AS THE "SPREAD" OR "LEANING" OF TREES. REQUEST ADDITIONAL TOPOGRAPHIC DETAIL WHERE CLOSE TOLERANCES ARE ANTICIPATED. INDIVIDUAL TREES ARE NOT TYPICALLY LOCATED WITHIN DRIPLINE CANOPY AREAS SHOWN.

2. CONTRACTOR IS REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.

3. THE EVENT THAT HUMAN REMAINS AND/OR CULTURAL MATERIALS ARE FOUND, ALL PROJECT-RELATED CONSTRUCTION SHALL CEASE WITHIN A 100-FOOT RADIUS. THE CONTRACTOR SHALL, PURSUANT TO SECTION 7050.5 OF THE HEALTH AND SAFETY CODE, AND SECTION 5097.94 OF THE PUBLIC RESOURCES CODE OF THE STATE OF CALIFORNIA, NOTIFY THE SAN MATEO COUNTY CORONER IMMEDIATELY.

EARTHWORK NOTES

1. ALL GRADING SHALL COMPLY WITH THE RECOMMENDATIONS OF WITH THE APPLICABLE REQUIREMENTS OF THE SAN MATEO COUNTY GRADING ORDINANCE.

2. GRADING SUMMARY:

TOTAL CUT VOLUME =	282 CY
TOTAL FILL VOLUME =	282 CY
OFFHAUL =	00 CY

   THE ABOVE QUANTITIES ARE APPROXIMATE IN-PLACE VOLUMES CALCULATED AS THE DIFFERENCE BETWEEN EXISTING GROUND AND THE PROPOSED FINISH GRADE, PREPARED FOR PERMITTING PURPOSES ONLY. EXISTING GROUND IS DEFINED BY THE TOPOGRAPHIC CONTOURS AND/OR SPOT ELEVATIONS ON THE PLAN. PROPOSED FINISH GRADE IS DEFINED AS THE DESIGN SURFACE ELEVATION OF WORK TO BE CONSTRUCTED. THE QUANTITIES HAVE NOT BEEN FACTORED TO INCLUDE ALLOWANCES FOR BULKING, CLEARING AND GRUBBING, SUBSIDENCE, SHRINKAGE, OVER EXCAVATION, AND RECOMPACTION, UNDERGROUND UTILITY AND SUBSTRUCTURE SPOILS AND CONSTRUCTION METHODS.

   THE CONTRACTOR SHALL PERFORM AN INDEPENDENT EARTHWORK ESTIMATE FOR THE PURPOSE OF PREPARING BID PRICES FOR EARTHWORK. THE BID PRICE SHALL INCLUDE COSTS FOR ANY NECESSARY IMPORT AND PLACEMENT OF EARTH MATERIALS OR THE EXPORT AND PROPER DISPOSAL OF EXCESS OR UNSUITABLE EARTH MATERIALS.

3. PRIOR TO COMMENCING WORK, PROTECT ALL AREAS TO REMAIN UNDISTURBED WITH TEMPORARY FENCING.

4. DO NOT DISTRURB AREAS OUTSIDE OF THE DESIGNATED LIMITS OF DISTURBANCE, UNLESS AUTHORIZED IN WRITING BY THE ENGINEER. ALL WORK ASSOCIATED WITH RESTORATION AND REVEGETATION OF DISTURBED AREAS OUTSIDE THE DESIGNATED LIMITS OF DISTURBANCE, AS SHOWN ON THE DRAWINGS, SHALL BE BORN SOLELY BY THE CONTRACTOR.

5. ALL EXCESS SOILS SHALL BE REMOVED TO AN APPROVED DUMP SITE OR DISPOSED OF ON SITE AT A LOCATION TO BE APPROVED BY THE ENGINEER, IN A MANNER THAT WILL NOT CAUSE EROSION.

6. CLEARING AND GRUBBING, SUBGRADE PREPARATION AND EARTHWORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 19 OF THE STANDARD SPECIFICATIONS, THESE DRAWINGS, AND THE TECHNICAL SPECIFICATIONS.

7. PRIOR TO STARTING WORK ON THE PROJECT, THE CONTRACTOR SHALL SUBMIT FOR ACCEPTANCE BY THE ENGINEER A HAZARDOUS MATERIALS CONTROLS AND SPILL PREVENTION PLAN. THE PLAN SHALL INCLUDE PROVISIONS FOR PREVENTING HAZARDOUS MATERIALS FROM CONTAMINATING SOIL OR ENTERING WATER COURSES, AND SHALL ESTABLISH A SPILL PREVENTION AND COUNTERMEASURE PLAN.

8. UNSUITABLE SOIL OR MATERIALS, NOT TO BE INCLUDED IN THE WORK INCLUDE:

   A. ORGANIC MATERIALS SUCH AS PEAT, MULCH, ORGANIC SILT OR SOD.
   B. SOILS CONTAINING EXPANSIVE CLAYS.
   C. MATERIAL CONTAINING EXCESSIVE MOISTURE.
   D. POORLY GRADED COURSE MATERIAL, PARTICLE SIZE IN EXCESS OF 6 INCHES.
   E. MATERIAL WHICH WILL NOT ACHIEVE SPECIFIED DENSITY OR BEARING.

9. FINE GRADING ELEVATIONS AND SLOPES NOT SHOWN SHALL BE DETERMINED BY THE CONTRACTOR IN THE FIELD TO OBTAIN DRAINAGE IN THE DIRECTION INDICATED, ALL FINAL GRADING SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER.

10. THE TOP 8" OF SUBGRADE UNDER ALL PAVED SURFACES SUBJECT TO VEHICULAR USE SHALL BE COMPACTED TO A MINIMUM OF 95% RELATIVE COMPACTION, IN ACCORDANCE WITH ASTM-D1557. ALL OTHER FILL TO BE COMPACTED TO A MINIMUM OF 90% MAXIMUM DENSITY AS DETERMINED BY ASTM-D1557 AND SO CERTIFIED BY TESTS AND REPORTS FROM THE CIVIL ENGINEER IN CHARGE OF THE GRADING CERTIFICATION.

11. FILL MATERIAL SHALL BE SPREAD IN LIFTS OF APPROXIMATELY 8 INCHES, MOISTENED OR DRIED TO NEAR OPTIMUM MOISTURE CONTENT AND RECOMPACTED. THE MATERIALS FOR ENGINEERED FILL SHALL BE APPROVED BY A REGISTERED CIVIL ENGINEER. ANY IMPORTED MATERIALS MUST BE APPROVED BEFORE BEING BROUGHT TO THE SITE. THE MATERIALS USED SHALL BE FREE OF ORGANIC MATTER AND OTHER DELETERIOUS MATERIALS.

12. ALL CONTACT SURFACES BETWEEN ORIGINAL GROUND AND RECOMPACTED FILL SHALL BE EITHER HORIZONTAL OR VERTICAL. ALL ORGANIC MATERIAL SHALL BE REMOVED AND THE REMAINING SURFACE SCARIFIED TO A DEPTH OF AT LEAST 12 INCHES, UNLESS DEEPER EXCAVATION IS REQUIRED BY THE ENGINEER.

EROSION CONTROL NOTES

1. THE EROSION CONTROL PLAN SHOWN IS INTENDED FOR THE SUMMER CONSTRUCTION SEASON (APRIL 15TH TO OCTOBER 15TH). IF THE DRAINAGE FEATURES SHOWN ON THESE DRAWINGS ARE NOT COMPLETED AND DISTURBED AREAS STABILIZED BY OCTOBER 1ST, CONSULT THE ENGINEER FOR ADDITIONAL RAINY SEASON EROSION CONTROL MEASURES.

2. PRIOR TO COMMENCING WORK, AREAS TO REMAIN UNDISTURBED SHALL BE PROTECTED WITH ESA FENCING, AS SHOWN ON THE DRAWINGS. ADDITIONAL FENCING MAY BE REQUIRED AT THE DIRECTION OF THE ENGINEER.

3. CONTRACTOR SHALL UTILIZE ONLY THE APPROVED HAUL ROADS AND ACCESS POINTS (AS SHOWN ON THE DRAWINGS) FOR TRANSPORT OF MATERIALS AND EQUIPMENT.

4. BETWEEN OCTOBER 15 AND APRIL 15, EXPOSED SOIL SHALL BE PROTECTED FROM EROSION AT ALL TIMES. DURING CONSTRUCTION, SUCH PROTECTION MAY CONSIST OF MULCHING AND/OR PLANTING OF NATIVE VEGETATION OF ADEQUATE DENSITY. BEFORE COMPLETION OF THE PROJECT, ANY EXPOSED SOIL ON DISTURBED SLOPES SHALL BE PERMANENTLY PROTECTED FROM EROSION.

5. A STANDBY CREW FOR EMERGENCY WORK SHALL BE AVAILABLE AT ALL TIMES DURING THE RAINY SEASON (OCTOBER 15 THROUGH APRIL 15). NECESSARY MATERIALS SHALL BE AVAILABLE AND STOCKPILED AT CONVENIENT LOCATIONS TO FACILITATE RAPID CONSTRUCTION OF TEMPORARY DEVICES.

6. CONSTRUCT TEMPORARY EROSION CONTROL MEASURES AS SHOWN ON THIS PLAN AND/OR AS DIRECTED BY THE ENGINEER TO CONTROL DRAINAGE WHICH HAS BEEN AFFECTED BY GRADING AND/OR TRENCHING OPERATIONS.

7. THE CONTRACTOR SHALL INCORPORATE ADEQUATE DRAINAGE PROCEDURES DURING THE CONSTRUCTION PROCESS TO ELIMINATE EXCESSIVE PONDING AND EROSION.

8. CONSTRUCT AND MAINTAIN EROSION CONTROL MEASURES TO PREVENT THE DISCHARGE OF EARTHEN MATERIALS TO THE CREEK FROM DISTURBED AREAS UNDER CONSTRUCTION AND FROM COMPLETED CONSTRUCTION AREAS.

9. INSTALL ALL PROTECTIVE DEVICES AT THE END OF EACH WORK DAY WHEN THE FIVE-DAY RAIN PROBABILITY EQUALS OR EXCEEDS 50 PERCENT AS DETERMINED FROM THE NATIONAL WEATHER SERVICE FORECAST OFFICE: WWW.SRH.NOAA.GOV.

10. AFTER A RAINSTORM, ALL SILT AND DEBRIS SHALL BE REMOVED FROM CHECK BERMS AND SEDIMENTATION BASIN AND THE BASIN PUMPED DRY.

11. THE EROSION CONTROL DEVICES ON THIS PLAN ARE A SCHEMATIC REPRESENTATION OF WHAT MAY BE REQUIRED. EROSION CONTROL DEVICES MAY BE RELOCATED, DELETED, OR ADDITIONAL ITEMS MAY BE REQUIRED DEPENDING ON THE ACTUAL SOIL CONDITIONS ENCOUNTERED, AT THE DISCRETION OF THE ENGINEER.

12. THE CONTRACTOR IS RESPONSIBLE TO KEEP IN FORCE ALL EROSION CONTROL DEVICES AND TO MODIFY THOSE DEVICES AS SITE PROGRESS DICTATES.

13. THE CONTRACTOR SHALL MONITOR THE EROSION CONTROL DEVICES DURING STORMS AND MODIFY THEM IN ORDER TO PREVENT PROGRESS OF ANY ONGOING EROSION.

14. THE CONTRACTOR IS RESPONSIBLE FOR CLEANING ANY EROSION OR DEBRIS SPILLING ONTO A PUBLIC STREET.

15. THE CONTRACTOR SHALL CONTACT THE ENGINEER IN THE EVENT THAT THE EROSION CONTROL PLAN AS DESIGNED REQUIRES ANY SUBSTANTIAL REVISIONS.

16. CONTRACTOR SHALL BE FAMILIAR WITH THE CONDITIONS OF APPROVAL OF ALL REQUIRED PROJECT PERMITS AND SHALL IMPLEMENT ALL REQUIRED BMP'S PRIOR TO COMMENCING GRADING OPERATIONS.

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SANTA CRUZ, CA 95062
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DRAFT
NOT FOR CONSTRUCTION

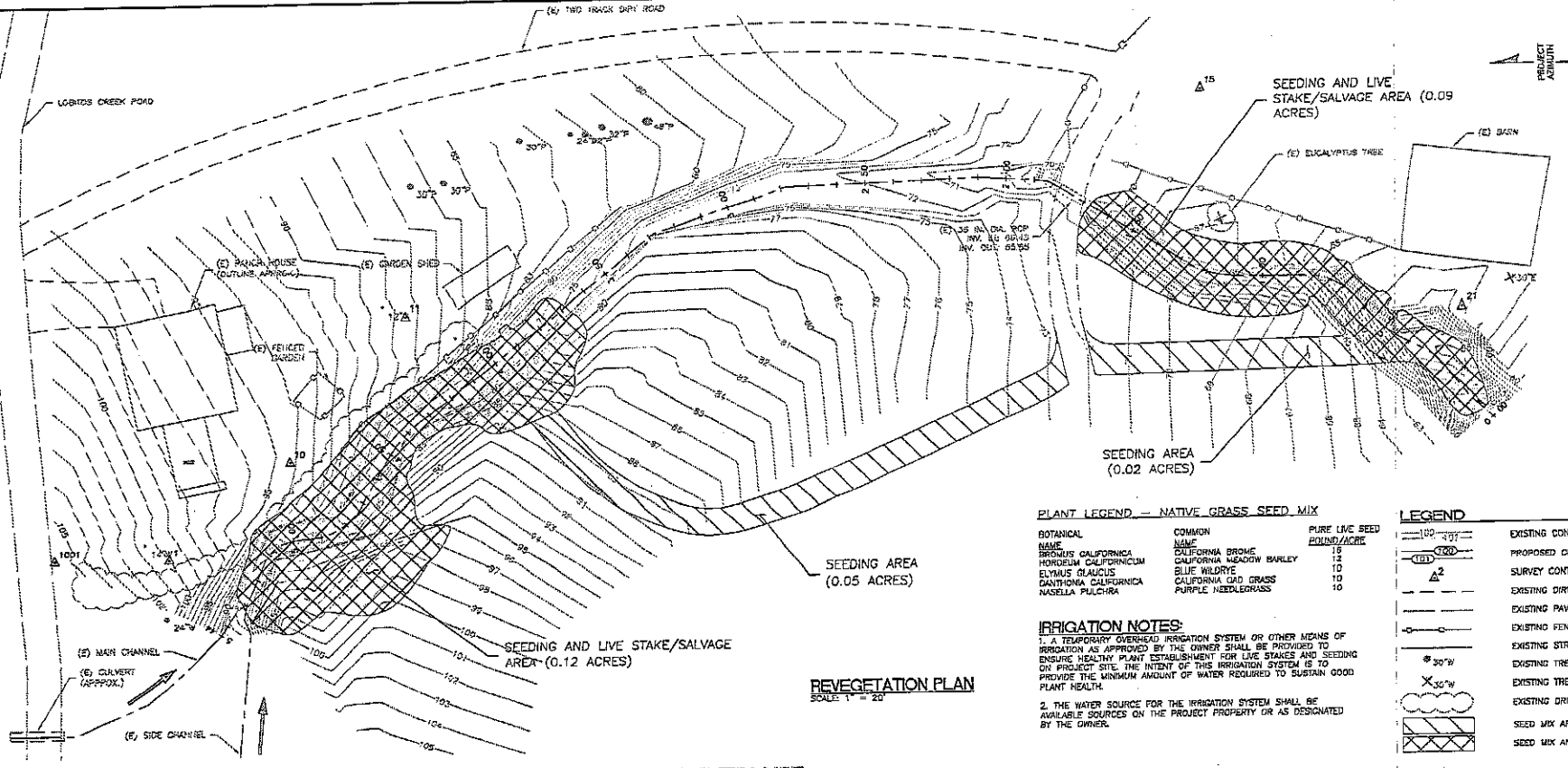
PREPARED AT THE REQUEST OF:
PITCHER PROPERTIES

GENERAL NOTES

PITCHER PROPERTIES
CHANNEL AND BANK
STABILIZATION PROJECT
90% DESIGN PLAN

DESIGNED BY:	B.M.S.
DRAWN BY:	B.M.S.
CHECKED BY:	M.W.W.
DATE:	9/21/15
JOB NO.:	13-059

BAR IS ONE INCH ON ORIGINAL DRAWING, ADJUST SCALES FOR REDUCED PLOTS
0 1"



REVEGETATION PLAN
SCALE: 1" = 20'

PLANT LEGEND – NATIVE GRASS SEED MIX

BOTANICAL NAME	COMMON NAME	PURE LIVE SEED POUND/ACRE
BROMUS CALIFORNICA	CALIFORNIA BROME	15
HORDEUM CALIFORNICUM	CALIFORNIA MEADOW BARLEY	12
ELYMUS GLAUCUS	BLUE WILDRYE	10
DANTHONIA CALIFORNICA	CALIFORNIA OAT GRASS	10
NASELLA PULCHRA	PURPLE NEEDLEGRASS	10

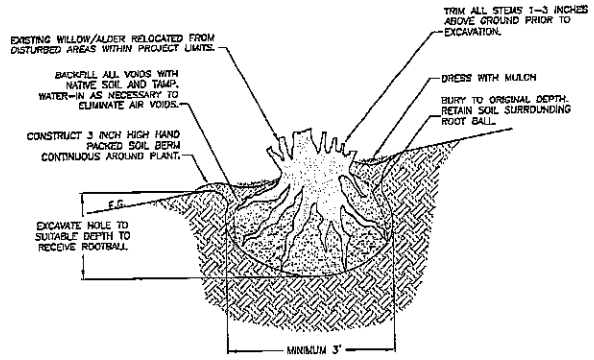
LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- SURVEY CONTROL POINT
- EXISTING DIRT ROAD
- EXISTING PAVED ROAD
- EXISTING FENCE
- EXISTING STRUCTURE
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- EXISTING DRIPLINE
- SEED MIX AREA
- SEED MIX AND LIVE STAKE AREA

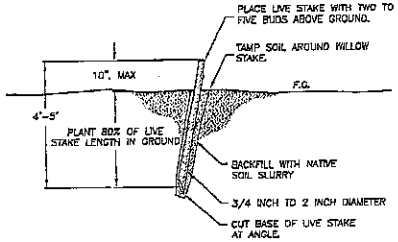
IRRIGATION NOTES:

1. A TEMPORARY OVERHEAD IRRIGATION SYSTEM OR OTHER MEANS OF IRRIGATION AS APPROVED BY THE OWNER SHALL BE PROVIDED TO ENSURE HEALTHY PLANT ESTABLISHMENT FOR LIVE STAKES AND SEEDING ON PROJECT SITE. THE INTENT OF THIS IRRIGATION SYSTEM IS TO PROVIDE THE MINIMUM AMOUNT OF WATER REQUIRED TO SUSTAIN GOOD PLANT HEALTH.

2. THE WATER SOURCE FOR THE IRRIGATION SYSTEM SHALL BE AVAILABLE SOURCES ON THE PROJECT PROPERTY OR AS DESIGNATED BY THE OWNER.



WILLOW/ALDER RELOCATION DETAIL (1)
SCALE: N.T.S.



LIVE STAKE (2)
SCALE: N.T.S.

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909A SWIFT ST.
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DRAFT
NOT FOR CONSTRUCTION

PREPARED AT THE REQUEST OF:
PITCHER PROPERTIES

REVEGETATION PLAN

PITCHER PROPERTIES
CHANNEL AND BANK STABILIZATION PROJECT
90% DESIGN PLAN

DESIGNED BY:	B.M.S.
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BAR IS ONE INCH ON ORIGINAL DRAWING. ADJUST SCALES FOR REDUCED PLOTS
0 1"

R1

BRYAN MORI BIOLOGICAL CONSULTING SERVICES
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SAN MATEO COUNTY BIOLOGICAL IMPACT FORM
PITCHER RANCH

REPORT SUMMARY

The project site supports arroyo willow riparian and annual grassland/ruderal vegetation. The project site provides potential habitat for eleven special-status wildlife species, including California red-legged frog (*Rana draytoni*) and San Francisco garter snake (*Thamnophis sirtalis tetrataenia*), the former observed at a stock pond on the property, but outside of the project site. Potential impacts could include direct harm to wildlife, as well as indirect disturbances to nesting birds and roosting bats from the proximity of project related activities. Measures to avoid or minimize impacts include pre-construction surveys; construction monitoring; worker's environmental awareness trainings; work exclusion fencing of environmentally sensitive areas (ESA); scheduling to avoid impacts, and implementing buffer zones, as needed.

1. PROJECT PROPERTY AND DESCRIPTION

The property occurs within a small, gently-sloping plain of the Tunitas Creek watershed (Figure 1). The property encompasses 189.7 acres and includes a seasonal tributary drainage to Tunitas Creek as well as a stock pond. The property is used for cattle-grazing and supports a single-family residential unit, barn and corral. The surrounding landscape supports rural land uses and is sparsely populated. Habitats in the project region are a mosaic of scrub, grassland and riparian vegetation.

2. METHODS

A qualitative habitat assessment was performed on 14 September 2015. The assessment focused on the tributary drainage and the immediately adjacent uplands of the proposed project site. The project reach and relevant adjacent uplands were surveyed on foot, with habitats and wildlife species observed recorded in a field notebook. A pair of 10 x 40 binoculars was used to aid in species identification and photographs were taken of existing site conditions. In addition to the project reach, a small stock pond on the property west northwest of the project site was surveyed cursorily, as well as the upstream drainage crossing at Lobitos Creek Cutoff Road (Figure 1).

Prior to the field visit, a background literature search was conducted to identify special-status species that have the potential to inhabit the project area, based on documented occurrences, species' range distributions, and on-site habitat conditions. The primary sources for this search included the California Natural Diversity Data Base (CNDDB) La Honda, Half Moon Bay, San Gregorio and Woodside quads; the San Mateo County Breeding Birds Atlas (Sequoia Audubon Society 2001); and various publications of species accounts, including Reptile and Amphibian Species of Special Concern in California (Jennings and Hayes 1994), California Bird Species of Special Concern (Shuford and Gardall 2008) and Draft Terrestrial Mammal Species of Special Concern in California (Bolster 1998). No focused protocol-level surveys for special-status wildlife were performed as part of this habitat assessment.

3. RESULTS

The project site encompasses three principal habitat types – arroyo willow riparian along the drainage and annual grassland/ruderal and residential landscaping in the adjacent uplands.

Arroyo Willow Riparian

The drainage corridor of the project site mostly supports a monotypic stand of arroyo willow (*Salix lasiolepis*) (Figure 2). Approximately 0.19 acres are contained within the project boundaries. For much of the upstream reach of the project alignment, the willows are confined to the immediate banks and form a dense, continuous and nearly impenetrable stand. Because of the dense growth of willows, the understory vegetation is lacking or fairly simple typified by poison oak (*Toxicodendron diversilobum*) and California blackberry (*Rubus ursinus*), where small openings are present from cattle grazing or other disturbances. Roughly mid-point along the project reach, an engineered dirt crossing is present. From just upstream of the dirt crossing down towards the lower end of the project reach, the character of the riparian corridor changes abruptly. Here, the willows and understory vegetation are largely absent, especially along the western bank. In-channel vegetation increases at the downstream end of the project reach, where young willows, red dogwood (*Cornus sericea*) and poison oak are present along with downed woody material. A small grove of eucalyptus (*Eucalyptus sp.*) trees in the adjacent uplands creates a broken canopy above the downstream reach of the drainage. No water was observed in the drainage channel throughout the project reach. The drainage appears to be highly seasonal, perhaps supporting flows only following significant rainfall. The drainage channel is deeply incised downstream of the crossing and the substrate is mostly composed of fines with small cobbles.

Annual Grassland/Ruderal

Annual grassland/ruderal vegetation borders much of the drainage corridor and is the primary habitat on the property (Figure 2). Approximately 0.14 acres of this habitat occurs within the project boundaries, mostly along the access route and staging area. The proposed access roads and staging area at the barn/corral occur within this habitat type. During the site visit, the habitat was heavily grazed, with hardly any living vegetation present. The ground cover was comprised mostly of a thin layer of thatch and bare ground was visible throughout. Singular and/or small clusters of milk thistle (*Silybum marianum*) and spiny cocklebur (*Xanthium spinosum*) were thinly scattered about. Near the single-family dwelling, patches of Bermudagrass (*Cynodon dactylon*) and English plantain (*Plantago lanceolata*) were present.

Residential Landscaping

This habitat type borders the drainage and upstream reach of the project site and consists of landscape ornamental trees and shrubs and turf associated with the dwelling unit (Figure 2). A few small black locust (*Robinia pseudoacacia*) trees are present in the backyard, with a stand of Monterey pines (*Pinus radiata*) present farther south. Turf occupies much of the backyard and may consist of Bermudagrass. Shrubs are scattered about the margins of the dwelling area.

4. DIRECT AND INDIRECT IMPACTS TO HABITAT

Current incision along the seasonal Tunitas Creek headwater tributary is causing over-steepened banks that are prone to failure. Continued incision will increase the risk of losing arroyo willow riparian habitat and the farm structures situated near the left bank (looking downstream). The objective of the project is two-fold: 1) stabilize the channel and banks to limit further incision and prevent catastrophic bank failures and 2) improve the native riparian habitat by removing invasive Eucalyptus and regrading the banks. Channel stabilization will require the grading of channel bed and banks along 313 linear feet of stream. The grading of the channel bed and banks will require the temporary removal of all willow trees along the 313 linear feet. All willows are less than 6 inches in diameter. Willows are dense along the banks, making it difficult to obtain a count of individual willows. As part of the restoration plan, willow stakes and 20 willow rootwad transplants will be planted along the banks and monitored to ensure successful establishment and survival. If plantings fail, willows will be replanted until plantings are successful. Cattle exclusion fencing will be installed along the upstream and downstream project reaches to protect the planting and banks from cattle. Two eucalyptus trees will also be removed as part of the restoration plan. The access roads and staging area would trample approximately 5500 square feet of annual grassland/ruderal habitat. This area will be hydroseeded with a native seed mix of grassland species. There are no cumulative impacts to consider because all impacts are temporary and there will be no net loss of riparian habitat.

5. IMPACTS TO SPECIAL-STATUS SPECIES

Special-Status Wildlife

Special-status species are herein defined as species with state or federal endangered/threatened status, candidates for federal or state listing, California species of special concern, and other species of local significance which could receive protection under CEQA Section 15380(d). Based on literature review, CNDDB records, personal knowledge of species distributions and habitat requirements, and project site conditions, ten special-status species are thought to potentially occur at or adjacent to the project site (Table 1).

Migratory Bird Treaty Act

In addition to the special-status wildlife listed on Table 1, all native birds and their active nests are protected under the Migratory Bird Treaty Act (MBTA), regardless of their lack of regulatory status (e.g., state/federal listing, species of special concern, etc.). The MBTA excludes protection for migratory birds that have been introduced to the US, such as rock pigeon (*Columba livia*), house sparrow (*Passer domesticus*) and European starling (*Sturnus vulgaris*). The MBTA is administered by the US Fish and Wildlife Service (FWS). On the state level, it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, under California Department of Fish and Wildlife Code 3503.

Fifteen bird species were observed in the project area during the reconnaissance survey: turkey vulture (*Cathartes aura*), red-tailed hawk (*Buteo jamaicensis*), northern flicker (*Colaptes auratus*), black phoebe (*Sayornis nigricans*), western scrub-jay (*Aphelocoma californica*), common raven (*Corvus corax*), chestnut-backed chickadee (*Poecile rufescens*), Bewick's wren (*Thryomanes bewicki*), wrentit (*Chamaea fasciata*), European starling (*Sturnus vulgaris*), spotted towhee (*Pipilo maculatus*), California towhee (*Melozone crissalis*), song sparrow (*Melospiza melodia*), dark-eyed junco (*Junco hyemalis*), house finch (*Carpodacus mexicanus*), Brewer's blackbird (*Euphagus cyanocephalus*) and American goldfinch (*Carduelis tristis*). All of these species have the potential to nest in the project vicinity, and all, except for the European starling, are protected. These species represent a limited sample of the birds potentially nesting in the project area, as the habitat assessment was conducted outside of the general breeding season.

Potential Impacts

Bio Impact 1: Vegetation removal and earth-moving activities could result in the direct take of CRLF and SFGS that may be present in the drainage corridor. This impact would be in violation of state and federal regulations and is considered significant.

Bio Impact 2: Removal of willow riparian habitat would temporarily degrade potential dispersal habitat for the endangered CRLF and SFGS and is considered significant. A riparian habitat restoration plan is a component of the project.

Bio Impact 3: Depending on the timing of construction activities, the removal of riparian vegetation and the eucalyptus trees could result in the direct or indirect take of nesting special-status birds (loggerhead shrike, yellow warbler, San Francisco common yellowthroat) and other birds protected under the MBTA. This impact is considered significant.

Bio Impact 4: Project activities, especially the removal of eucalyptus trees adjacent to the staging area around the barn could result in the disruption of potential roost sites and displacement of special-status pallid bats, if present. This impact is considered significant.

Bio Impact 5: Depending on the season, removal of the eucalyptus trees could result in harm to foliage roosting special-status western red bats, if present. This impact is considered significant.

Bio Impact 6: Construction activities could cause ringtails and badgers to utilize habitats elsewhere, if these species are present in the general project area. However, since these species are not expected to den within the project site boundaries, no direct take is expected. No significant impacts are anticipated as a result of the project.

Bio Impact 7: Vegetation removal and earth-moving activities could result in the direct take of woodrat houses and woodrats, as well as indirect impacts that could displace woodrats that may be present in the drainage corridor. This impact is considered significant.

6. Significant Impacts and Mitigation Measures

(Please refer to Table 2, below)

Table 1. Special-Status Wildlife – Pitcher Ranch Channel and Bank Stabilization Project, San Mateo County, CA

Species	Status	Natural History	Occurrence Status in the Project Area
California Red-legged Frog (*Rana draytoni*)	FT, SSC	In breeding season, inhabits ponds, sloughs and quiet waters of streams with depths typically greater than ~1.5 feet. Adults can travel up to 1.7 miles between breeding and non-breeding habitat, although at perennial sites most frogs remain year-round. Over-summering and dispersal habitats include riparian and freshwater marsh vegetation, as well as moist conditions in forests.	**POTENTIAL.** The drainage does not appear to provide suitable CRLF breeding habitat due to its highly seasonal nature. CRLF, however, could inhabit the riparian corridor during dispersal and migration and may use the corridor as summering habitat in normal rainfall years. Three CRLF morphs were observed at the stock pond on the property approximately .2 mile WNW of the project site and several observations of road kill CRLF on Lobitos Creek Cutoff Rd adjacent to the property are present in the CNDDB.
San Francisco Garter Snake (*Thamnophis sirtalis tetrataenia*)	FE SE	Distribution is confined to San Mateo County. Primarily occupies ponds and marshes with dense emergent vegetation and large populations of frogs; aquatic habitat typically in open, sunny areas, which are utilized as basking sites. Adjacent uplands, including grasslands, scrub and willow corridors are utilized for cover during dispersal and migration. Small mammal burrows may be used as winter hibernacula.	**POTENTIAL.** Several observations of SFGS from the general project region are recorded in the CNDDB. One record is from Tunitas Creek, about 0.8 mile downstream of the project site. The project drainage does not appear to provide optimal habitat for prey, due to its ephemeral nature, however, the dense vegetation offers cover for migrating and dispersing snakes. The CRLF breeding pond on the property may serve as a foraging site for SFGS.
Loggerhead Shrike (*Lanius ludovicianus*)	SSC (nesting)	Loggerhead shrikes (LOSH) inhabit valley and foothill grasslands, wetlands and agricultural areas supporting scattered trees and shrubs. Areas of bare ground and short cover are preferred for hunting. Nests are usually built in densely foliaged trees and shrubs, preferably with thorns; however, structures such as telephone poles, abandoned buildings and machinery, and brush piles are also used.	**POTENTIAL.** The CNDDB does not contain any records of LOSH for the project vicinity. Confirmed nesting has been recorded from the project region (Sequoia Audubon Society 2001). Trees along the drainage may provide potential nest sites for LOSH.

Table 1. Special-Status Wildlife – Pitcher Ranch Channel and Bank Stabilization Project, San Mateo County, CA.

Species	Status	Natural History	Occurrence Status in the Project Area
Yellow Warbler (*Setophaga petechia*)	SSC (nesting)	Nests in willow riparian and extensive willow thickets of meadows and wetlands. Optimal habitat includes the presence of water and tall tress used as song perches (e.g., cottonwoods).	**POTENTIAL.** The project site drainage appeared marginal as nesting habitat, due to its arid, seasonal status, however, habitat conditions could be more favorable for nesting during normal rainfall years. Probable nesting records of this species are present from the region (Sequoia Audubon Society 2001).
San Francisco Common Yellowthroat (*Geothlypis trichas sinuosa*)	SSC (nesting)	Primary nesting habitat is freshwater and salt water marsh, wooded swamps and riparian with freshwater marsh components.	**POTENTIAL.** The project site drainage corridor appeared marginal as nesting habitat, due to its arid condition and seasonal status. However, habitat conditions could be more favorable for nesting during normal rainfall years. The CNDDB contains several records of this species in the region.
Pallid Bat (*Antrozous pallida*)	SSC	Found in a variety of habitats from low desert to high elevation forests. A colonial species that roosts in buildings, tree hollows, rock crevices and under concrete bridges. Considered to be non-migratory.	**POTENTIAL.** No records of pallid bat are listed in the CNDDB for the project vicinity, but they are known from the general region. Suitable pallid bat roosting habitat may be present at the barn.
Western Red Bat (*Lasiurus blossevillii*)	SSC	A migratory species that occurs coastally from the San Francisco Bay area south, during winter, and in the Central Valley in summer, where it prefers warmer temperatures for reproduction (80s – 90s F). Roosts mostly in foliage of deciduous trees and shrubs in edge habitats near streams and open fields; orchards used in Central Valley; eucalyptus trees can be used in winter.	**POTENTIAL.** No records of western red bat are listed in the CNDDB for the project region. Suitable red bat winter roosting habitat may be present in the in the eucalyptus trees of the project site.
Ringtail (*Bassariscus astutus*)	FP	Occupy a variety of habitats including oak woodland, scrub, conifer forests and deserts, especially in areas of abundant prey (rodents). Dens are located in rock piles, rock recesses, hollow trees and burrows constructed by other species. Ringtails are strictly nocturnal.	**POTENTIAL.** Suitable denning habitat appears to be absent along the drainage corridor, but ringtails may forage at night along the riparian corridor, where woodrats are present.

Table 1. Special-Status Wildlife – Pitcher Ranch Channel and Bank Stabilization Project, San Mateo County, CA.

Species	Status	Natural History	Occurrence Status in the Project Area
American Badger (*Taxidea taxus*)	SSC	Most abundant in drier, open stages of shrub, forest, and grassland habitats, with friable soils and abundant prey (small burrowing mammals).	**POTENTIAL.** No records of this species are listed in the CNDDB for the project vicinity. Potential foraging and denning habitat is present in the grasslands adjacent to the project site, and wandering individuals could move through the project area. However, no den sites were observed within the project site boundaries.
San Francisco Dusky-footed Woodrat (*Neotoma fuscipes annectens*)	SSC	The dusky-footed woodrat is found in a variety of wooded habitats with dense understory, including riparian, oak woodland, scrub, chaparral and redwood forests. Woodrats typically build houses of sticks and other debris on the ground, in the lower branches of trees and occasionally in tree cavities and rock crevices.	**POTENTIAL.** Woodrat houses were observed in the drainage channel upstream of the project site where the vegetation was accessible. Other houses could be present within the project corridor.

Status Codes: FE = Federal endangered; **FT** = Federal threatened status; **SE** = State endangered; **ST** = State threatened; **FP** = State fully-protected; **SSC** = California Species of Special Concern

Table 2: Mitigation Measures – Pitcher Ranch Channel and Bank Stabilization Project, San Mateo County.	
Impact	**Mitigation Measure**
Bio Impact 1: Potential direct take of CRLF and SFGS, resulting from earthmoving and vegetation removal in the drainage corridor.	Bio MM 1: Within 72 hours of project start, a qualified wildlife biologist should perform a pre-construction survey for CRLF and SFGS in appropriate habitat within and immediately adjacent to the project site. The pre-construction surveys should include one daytime survey for both species and one nocturnal survey for the CRLF. If either species is observed, the USFWS and CDFW should be contacted for further guidance. No work should proceed until authorization from the agencies has been obtained. Bio MM 2: Prior to the start of construction activities, a worker's environmental training shall be performed by a qualified biologist. The training should include information on species identification, natural history, the protection measures to be implemented, and the penalties for non-compliance. Each worker should sign a certification sheet on completion of the training. All new workers should be trained prior to their involvement in construction activities. Bio MM 3: A qualified biologist should conduct a survey of the project site each morning before the start of construction activities and should be present during vegetation removal and initial (new) grading activities. Once the vegetation removal and initial grading activities have been completed, morning surveys prior to the start of each day's work should be adequate. Bio MM 4: Removal of the willows should be performed with hand tools to remove the limbs down to the base of the trunk. The root base could be removed by an excavator under the direct supervision of the qualified monitoring biologist. Bio MM 5: If CRLF or SFGS are observed in or immediately adjacent to the project site during construction activities, all work must cease and the agencies contacted for further guidance. Work should not proceed until approval from the agencies has been obtained. Bio MM 6: Prior to the start of construction activities, the project boundary, including storage and staging areas, access routes and environmentally sensitive areas (ESA) should be clearly delineated with orange construction fencing or flagging. No storage of equipment or materials, vegetation removal or maintenance of equipment should be performed outside of the project site boundaries.
Bio Impact 2: Temporary degradation of possible CRLF and SFGS dispersal habitat within the drainage corridor, resulting from earthmoving and vegetation removal in the drainage corridor.	Bio MM 7: Design and implement a riparian habitat restoration plan that would achieve a no net loss of riparian habitat removed during the bank stabilization project. The plan should include plant species consistent with the existing habitat, a monitoring schedule, success criteria, and provide for adaptive strategies to help meet the success criteria, in the event of restoration failures.

Table 2: Mitigation Measures – Pitcher Ranch Channel and Bank Stabilization Project, San Mateo County	
Impact	**Mitigation Measure**
Bio Impact 3: Construction activities could lead to direct and/or indirect take of active nests of special-status species and other birds protected under the MBTA.	Bio MM 8: If construction activities, especially vegetation removal, are scheduled between 15 Feb and 1 September, a pre-construction survey for nesting birds should be conducted by a qualified biologist within two weeks prior to the start of the project. One to two surveys should be performed, depending on the degree of difficulty in determining the nesting status of birds. The survey area should include habitats within 250 feet of the project sites for passerines and 500 feet for raptors, where practical. These survey zones are consistent with California Department of Fish and Wildlife (CDFW) recommendations. The alternative to performing pre-construction surveys is to schedule the project outside of the nesting season. Bio MM 9: If active nests are located within the survey areas, delineate buffer zones around each nest site. Buffer zones should begin at 250 feet for passerines and 500 feet for raptors. If nest sites are closer to project activities than the recommended buffer distances, appropriate reductions in buffer zone width should be determined by the qualified biologist, based on species, site specific conditions and level of construction activities. Where buffer zone reductions are implemented, signs or flagging delimiting the boundaries of the buffer zones should be established, prior to the start of construction activities and the nest sites monitored daily during construction by a qualified biologist, to avoid potential take of active nests due to construction-related disturbances. The monitoring biologist shall have the authority to stop work if project activities are negatively affecting nesting bird behaviors (e.g., feeding, nest attendance). Tree removal and other project activities could resume when the monitoring biologist has determined that the nestlings have fledged.
Bio Impact 4: Potential disturbance to a possible pallid bat roost site at the staging area barn.	Bio MM 10: Prior to the start of construction activities, a bat specialist should survey the barn for roosting bats. If present, implement recommendations of the bat specialist. Bio MM 11: If bats are present, avoid climbing on to the roof of the barn to access tree limbs and, during cutting, prevent limbs from falling onto the barn roof.
Bio Impact 5: Removal of the eucalyptus trees could result in the take or displacement of roosting red bats.	Bio MM 12: Schedule the removal of eucalyptus trees between 1 September and 15 October. This would minimize the likelihood of disturbing western red bats and would avoid disruptions to active bird nesting, as well. No focused surveys would be necessary under this schedule. If tree removal is scheduled to take place between 15 October and 28 February, a bat specialist should conduct surveys for foliage roosting bats and, if present, implement measures developed by the bat specialist, as needed.

Table 2. Mitigation Measures – Pitcher Ranch Channel and Bank Stabilization Project, San Mateo County.	
Impact	**Mitigation Measure**
Bio Impact 6: Project activities could disturb badgers or ringtails that may be present in the general project area. No dens of these species are expected within the project site boundaries, thus, No significant impacts to these species are expected	No mitigation measures are recommended for these species.
Bio Impact 7: Project activities could result in the direct take or displacement of S.F. dusky-footed woodrats.	Bio MM 13: Prior to the start of project activities, a qualified biologist should perform a pre-construction survey for woodrat houses within the project boundaries and a 25-foot buffer around the project site perimeter. Flag and establish a 25-foot buffer around each woodrat house observed. If a woodrat house is present within the project site and cannot be avoided, then contact CDFW for guidance on woodrat relocation. This could involve a three-night trapping effort and the construction of alternate houses in adjacent suitable habitat. The woodrat relocation action must be performed by a qualified biologist possessing a Scientific Collection Permit authorizing the handling of woodrats. Authorization by CDFW must be obtained prior to the implementation of this measure.

WATERWAYS CONSULTING, INC.

Ecological Restoration Design ~ Civil Engineering ~ Natural Resource Management

TECHNICAL MEMORANDUM

To: Pitcher Properties

From: Waterways Consulting, Inc.

Date: February 26, 2015

Re: Pitcher Properties Channel Stabilization- Alternatives Analysis

Introduction

Waterways Consulting, Inc. performed an initial site investigation at the Pitcher Ranch property located at 1451 Lobitos Creek Cutoff, Half Moon Bay on July 24th, 2014. Our investigation included topographic mapping of the channel and banks from immediately upstream of the ranch house down to the barn, including approximately 525 linear feet of channel and cross sections. We performed a visual assessment of the two culverts at Lobitos Creek road as well as the channel within and adjacent to the project area.

The goal of our investigation was to develop and present concept level project alternatives to stabilize and revegetate the channel bed and banks, with a focus on protection of areas where existing structures may be threatened by bank failure. This memorandum was originally prepared to summarizes our methodology and findings and describe concept level design alternatives that provide a technical basis to inform Pitcher Properties' selection of a preferred restoration and stabilization alternative to move forward. We have reformatted the memorandum at the request of resource agencies and the owners to describe the alternatives selection process and provide supporting details for the preferred project design elements.

General Project Setting

The project area is within the lower Tunitas Creek Watershed, a coastal drainage located in San Mateo County, approximately 10 miles south of Half Moon Bay. The project area includes a residence and barn located on a grassy south facing slope that is bisected by a small tributary drainage channel. The channel flows in a southwesterly direction, and is located just to the west of the structures. The channel headwaters begin approximately 3000 feet upstream of the project area as a series of gullies crossing a south-facing grass covered hillside, just north of Lobitos Creek Road. The gullies cross under Lobitos Creek Road through multiple culverts and then combine to form a single channel within the project area (**Figure 1**). Downstream of the project area, the channel continues for approximately 900 linear feet before the confluence with Tunitas Creek. Tunitas Creek then continues another two miles before entering the Pacific Ocean. Tunitas Creek contains NOAA Fisheries-designated Critical Habitat for Central California Coast Steelhead and Central California Coast Coho Salmon. Limiting future fine sediment delivery from bank failures in the project reach will help to protect the critical Steelhead and Coho habitat.

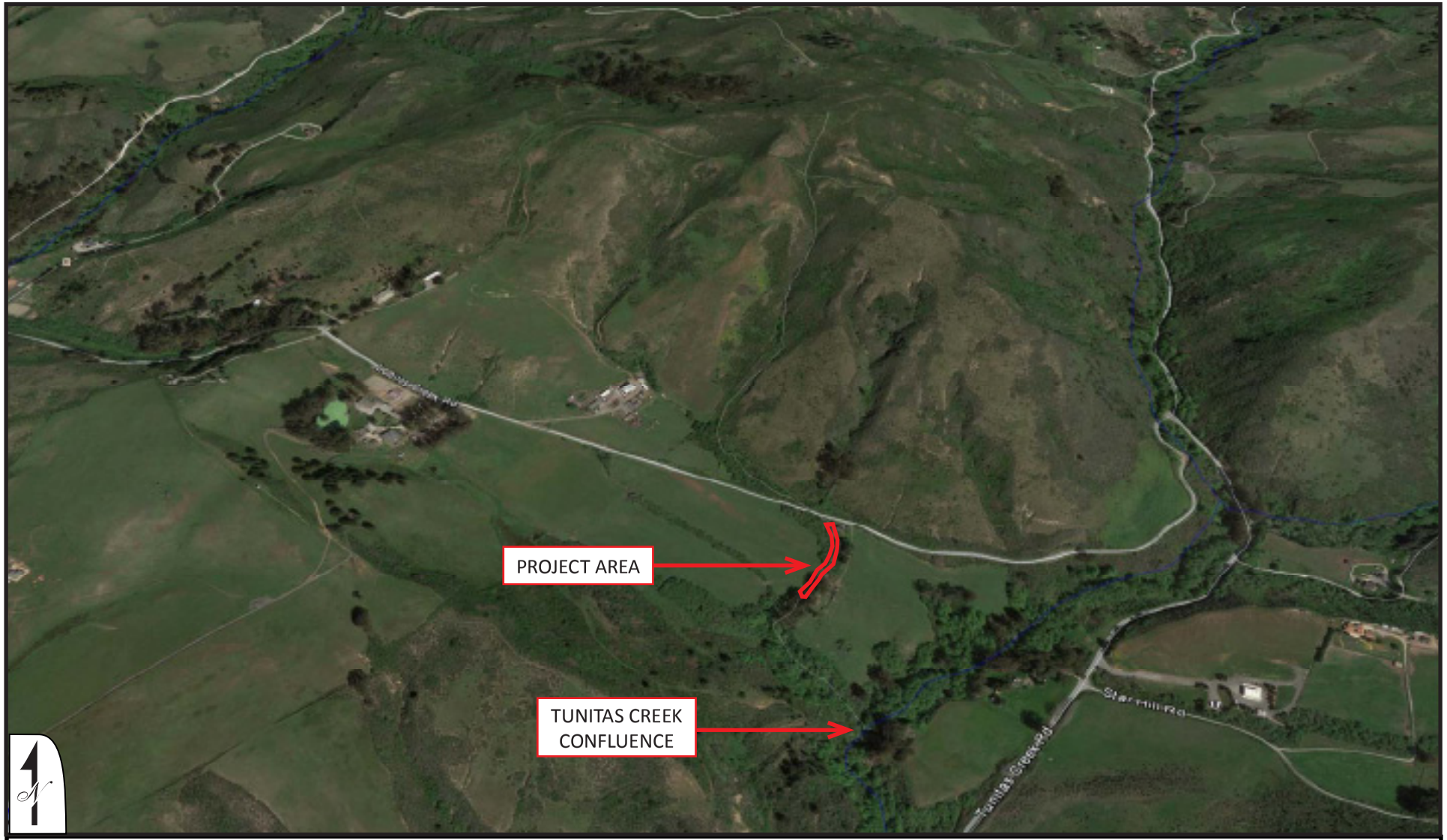

FIGURE 1

Image depicting the headwaters of the tributary, the location of the project area, and the confluence between the tributary and Tunitas Creek.

WATERSHED OVERVIEW

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Soil types delineated in the tributary watershed include: Lobitos loam, Cayucos clay loam, and mixed alluvial (NRCS Soil Map, Mendocino County). The upper watershed is dominated by the Lobitos loam, with steep slopes, low permeability, and high runoff rates, and is classified as easily erodible. The lower watershed is dominated by Cayucos clay loam.

The tributary channel drops approximately 850 feet in elevation, from a peak at 983 feet to an elevation of approximately 126 feet at the confluence with Tunitas Creek. Peak flow calculations provided in Appendix 1 estimate the 2-yr flow at 11cfs and the 100-yr at 162 cfs.

The channel headwaters upstream of the project area are steep and characterized by slot channels or gullies that have incised into bedrock. Within the project area, the channel gradient is less, but the channel remains significantly incised and shows signs of recent erosion and ongoing headcut migration and related bank failures. There is evidence of a long history of efforts to stabilize the channel through placement of debris, slash, and rock within the bed and along the banks, though none of these addressed the issue in a comprehensive manner nor successfully.

Just downstream of the project limits, the tributary channel conflues with another unnamed tributary channel before they both meet Tunitas Creek another 800 feet downstream. This other tributary has incised to form a bedrock-controlled gorge. Mapping was not extended into this area due to the prohibitively steep sidewalls and profile. Based on our visual observations and judgement, we believe that rapid and ongoing incision through the project area is partially the result of the loss of downstream control at the confluence with this other deeper tributary, but that the rate of downstream incision has slowed now that the channel has reached bedrock. Within the project area, incision is still active and headcuts are numerous. Many banks are currently at risk of failure, threatening to transport fine sediment to Tunitas Creek (**Photo 1**).

Channel incision has exposed bedrock in the main channel. The bedrock is composed of soft mudstone which is easily erodible and sleeves at planes. The channel substrate within the project area is well-graded with sizes ranging from fines to gravels amidst areas of exposed bedrock. Where the channel is severely incised, the exposed banks are nearly vertical, exposing clay loam soils. Vertical clay loam banks are predominately found upstream of the project area and downstream of the culvert at the barn location. Debris was found at many locations within the channel and along the banks near the Barn area. In one location, these rigid materials forced water into the banks and caused erosion.

The culvert just upstream of the barn is a 36'' reinforced concrete pipe and sized adequately to pass flood flows. The culvert is in need of maintenance to remove accumulated sediments and debris blocking conveyance at the upstream end. Near the culvert there is some light trampling of the right bank from cattle impacting the vegetation.

Willow trees dominate the riparian area near the residence, while eucalyptus trees dominate in the vicinity of the barn. While willows provide a moderate level of stability to channel banks (in the absence of severe incision), the eucalyptus trees have shallow root systems that are easily undermined and thus minimally stabilize the banks. Eucalyptus trees are not native to the area; past land use practices favored these for use as wind breaks, due to their rapid growth rates and large shade cover potential. The large canopy cover prevents light penetration and alters soil chemistry, inhibiting the growth of native groundcover that would typically enhance channel stability.

Problem Statement

The channel at Pitcher Properties is actively incising, resulting in widespread bank failures that threaten existing improvements and discharge large volumes of sediment to nearby Tunitas Creek, which provides habitat to threatened steelhead trout. The channel adjustments appear to result from downstream changes in the base elevation as well as upstream hydromodification influenced by road construction, farming, grazing, and diversions. The primary cause of the downstream channel degradation is not known and would require a watershed scale geomorphic investigation that included review of Tunitas Creek. Several factors that are likely contributing to channel degradation include the following:

- Tunitas Creek may have been channelized from road encroachment, dredging, or the installation of culverts or bridge crossings. Channelization reduces the length of the channel resulting in a steeper slope and an adjustment in gradient that propagates to upstream reaches in the absence of grade control features.

- Historic changes in vegetative cover associated with farming and ranching have altered the hydrologic response and changed the resistance of the channel bed and banks.

- The drainage network upstream of the project area appears highly altered, with significant gullying, ditching, re-routing of runoff, and concentration of flows directed toward the project area. Each of these alterations compounds the others and results in increased erosive potential.

The proposed improvements are situated on two distinct reaches of the channel that are separated by a road crossing and culvert (Sheet C2 of 8, Appendix 2). The individual reaches are described below in detail.

Reach 1- Channel and Bank at Residence

Reach 1 extends from River Station (RS) 1+60 to the upstream end of the project at RS 5+25. The left bank (looking downstream) between RS 4+00 and RS 5+35 is actively eroding at the toe with exposed roots perched on the bank. The left bank is vertical to undercut and approximately 8-10 feet high, resulting from recent channel incision and toe erosion. The bank will continue to erode to a stable angle, causing the loss of adjacent yard area and threatening the existing septic leach field. The top of the bank has recently retreated approximately 5 feet to the east and is at the fence line.

The channel gradient is steep at this upper section, with a slope of 10%. On our return visit to the site in January 2016, Waterways staff and resource agency representatives witnessed an approximately 24-inch high knickpoint at RS 4+75(+/-), progressing toward the county road. This area is heavily vegetated with willows at the top of banks, but largely devoid of vegetation within the channel due to shading and rapid rates of erosion.

Reach one begins to stabilize downstream of RS 3+00 due to the grade control influence of the existing culvert. Banks are shallower here and vegetation extends to the channel edge.

Reach 2-Channel and Bank at Barn

Reach 2 extends from RS 1+60 downstream to RS 0+00. The channel is more deeply incised here with depths of approximately 12 feet. The profile steepens to an average of 12%, with numerous knickpoints that extend downstream beyond our survey limits. There is a four-foot drop near RS 1+40, and a three-foot drop near RS 0+20. The left bank recently failed in response to channel incision and large cracks along the top of bank indicate that additional failures are imminent. There is a large pile of anthropogenic debris in the bed and banks, coupled with additional large debris from a fallen Eucalyptus tree in the channel between RS 0+85 and RS 1+40.

Site Specific Opportunities and Constraints

Opportunities

1. The culvert located at the road crossing near the barn serves as a hydraulic control that has likely reduced the actual incision that may have propagated upstream, and will continue to do so if maintained.
2. There is potential to reduce future bank retreat by installing grade control features to reduce headcutting and stabilize the channel bed in place.
3. Excavating inset floodplain benches within the incised channel would reduce bank mass wasting and increase riparian function and stability by reducing hydraulic stresses and erosive forces.
4. All required backfill material for raising the channel bed is available by creating an interior floodplain bench and balancing the cut and fill grading on site.
5. Onsite willows are available and appropriate for revegetation and bank stabilization.
6. Robust vegetation that exists along the banks may be transplanted successfully.
7. The barn is located approximately 16.5’ from the top of the bank. There is a significant buffer preventing bank failure from reaching the barn.
8. Existing large Eucalyptus trees could be removed to enhance opportunities for native vegetation.
9. There is ample room on the right bank (looking downstream) to lay banks back and provide room for future channel adjustments to occur away from the residence.

CONSTRAINTS

1. The channel has become deeply incised and is actively eroding. The severity and extents of downstream incision cannot be feasibly addressed and may – in time – progress further upstream toward the project area causing additional channel adjustment.
2. Eucalyptus trees established along the slopes near the barn area have shallow root systems, and exacerbate the mass wasting of the bank when they fail. Further, these trees chemically alter the soils and prevent establishment of dense, erosion resistant understory vegetation.
3. Treatment methods will be limited to addressing immediate causes of erosion, such as measures for providing bank stabilization, gully reversal (aggradation), and/or grade control versus addressing the existing causes of erosion, such as hydromodification of the contributing watershed or downstream channel degradation.

Our analysis has led to the development of three Concept Level Design Alternatives for consideration, each recognizing the need to reduce overall project costs, use on-site materials, and provide the greatest long-term stabilization benefits. These do not represent the full range of options, but reflect the range of biomechanical treatment methods that seem appropriate.

DESIGN GOALS

1. Provide recommendations for a geomorphically stable channel;
2. Use an organic approach that fits within the natural setting, enhances site aesthetics, and would be favorably reviewed by resource agencies;
3. Focus design solutions near the vicinity of the existing residence, downstream culvert crossing, and potentially at the barn, and
4. Prepare design alternatives that minimize cost and long term maintenance.

SAN MATEO COUNTY LOCAL COASTAL PROGRAM COMPLIANCE

The proposed project area contains riparian habitat, which is defined by the Local Coastal Program Policy (LCPP) 7.1 as sensitive habitat. The riparian habitat within the project area has the potential to support ten special status species. However, the riparian habitat quality is poor due to tall, vertical banks that frequently fail. The bank conditions make it difficult and dangerous for species such as the California Red-Legged Frog and the San Francisco Garter Snake to use the riparian habitat for cover and as a migratory corridor. In addition, each time the banks fail, a significant volume of fine sediment is transported downstream into sensitive fish habitat. The fine sediment that is deposited downstream within Tunitas Creek continues to degrade the quality of this spawning and rearing habitat.

LCPP 7.3 prohibits land use that would have a significant adverse impact on sensitive habitat areas. The proposed project and preferred alternative will help improve riparian habitat quality and downstream fish habitat. Per LCPP 7.4 and 7.9, this project alters the stream to enhance fish and wildlife habitat. By laying back the banks and planting willows, the project will improve the quality of the riparian plant cover and migratory corridor through the project area. In addition, the placement of cattle exclusion fencing will reduce the risk that ranching operations

harm special status species. Laying back the banks will also reduce bank failure, minimizing further degradation of the sensitive fish habitat located downstream of the project reach.

Methods

Tasks performed to support the development of the concept level designs and final plans included the following:

- Review of existing local and regional studies and data;
- Topographic mapping of the project area (Appendix 2);
- Reconnaissance level site evaluation by the project geomorphologist and engineer;
- Hydrologic investigation;
- Development of Conceptual Designs (Appendix 2);
- Development of preliminary Construction Cost Estimates;
- Preparation of a supporting technical memorandum;
- Refinement of the selected alternative to 100% level of design;
- Meeting on site with resource agencies; and
- Updates to this technical memorandum for submittal to resource agencies.

CONCEPT LEVEL DESIGN ALTERNATIVES

Please note that although concept level designs are discussed here and presented in Appendix 3, we have already selected a preferred alternative (Alternative 1) that has been developed to the 90% level of completion and submitted for permit approvals. This report has been updated following permit submittal and is being provided as background to assist resource agencies with gaining more understanding of the project background and selection process.

ALTERNATIVE 0 (DO NOTHING)

It is clear from the presence of numerous active headcuts and failing banks in the vicinity the residence and barn that a lack of immediate action will result in further incision and additional risk to the area near the septic leach field, home, and barn. Further, the ongoing incision will eventually make its way to the County Road where it may threaten road stability. Tunitas Creek, which is located approximately 1600 feet downstream of the project area and provides quality habitat for steelhead trout, would continue to receive large volumes of fine sediment as the incision process continues.

ALTERNATIVE 1

Alternative 1 attempts to restore a more stable geometry to the channel by partially reversing the incision process within reaches 1 and 2. This alternative is best viewed on the final drawings (Appendix 2), as this concept was selected for advancement beyond the concept level. The adjacent banks would be laid back to a stable angle of 2H:1V and revegetated. The excavated native soils would be used to fill the bed of the incised channel and establish a more stable profile grade of 3 to 4.5 percent, allowing the channel to be protected by native vegetation. A rock-lined transition slope or “chute” would be constructed at the downstream end of each reconstructed reach to conform to the downstream channel. A thickened end section would be provided at the downstream end of the rock transition channel to

accommodate the potential for future incision. A thin veneer of gravels and cobbles would be placed on the channel bed to provide stability until vegetation becomes established. Calculations performed to establish channel dimensions and substrate gradation are provided in Appendix 1. Revegetation would be accomplished with willow pole cuttings, willow tree transplants, and native and erosion control seeding. Although this project has the largest initial disturbance, we strongly feel that it has the greatest chance of success.

ALTERNATIVE 2

Alternative 2 was developed to present a lower cost and lower disturbance alternative that still retained a high degree of stability. Alternative 2 does not lay back the banks or raise the channel bed. Instead, this approach uses rock check dams (Photo 2) and rock chutes (Photo 3) at select locations to dissipate energy and induce aggradation of the channel with native materials as banks continue to erode to a stable slope. Appendix 3 shows the Alternative 2 profile in blue. Reach 1 is shown receiving rock check dams spaced at 25 feet on center, while reach 2 is shown with rock chutes protecting existing headcut locations. A typical detail of the rock check dams is provided on Sheet C5 of Appendix 3.

Although Alternative 2 is a lower cost option with less initial disturbance, the result is a less natural channel geometry and higher risk of eventual failure at locations where hydraulic forces are concentrated, such as at the check dams. Fine sediment would continue to be introduced through bank failures as the banks continue to adjust to the recent incision. Although some of this locally derived material would likely settle behind the check dams, much of it would be transported downstream, due to the fine particle size characteristic to the banks. Also, this alternative does not lay back the banks to allow for rapid reestablishment of native riparian cover. The vertical banks would remain largely unvegetated and would provide less than optimum riparian habitat conditions.

ALTERNATIVE 3

Alternative 3 was developed to present the lowest cost, least impacting alternative. Alternative 3 uses only native vegetation and biodegradable materials, avoiding the use of imported rock. Unstable banks would be laid back, but fill would not be placed in the channel to raise the profile grade. Rather, excavated bank materials would be exported and stockpiled elsewhere on site. The channel would initially be stabilized through the use of coir fabric treatments, but would rely on the establishment of dense native riparian vegetation for long term stability.

This alternative would use willow wall check dams, dense willow cuttings, and coir logs and fabric to attempt to stabilize the channel bed and banks and to retain sediment. Willow and coir log check dams (Photo 3) would be placed at approximately 25 feet on center across the channel base, at the same locations as the rock check dams shown on sheet C3 of Appendix 3. The coir logs would capture sediment to aggrade the channel in the short term, while the willows would serve to provide enhanced long term stability. Existing headcuts would be protected by placing coir logs transverse to flow, over coir fabric, and then densely planted with willow pole cuttings, at the “rock chute” locations shown on C4 of Appendix 3.

The success of this approach would be dependent on removal of the eucalyptus trees. Otherwise, the shade and chemicals produced by the Eucalyptus will prevent dense willow establishment. Complete exclusion of cattle from the channel will also be a necessity, as with the other alternatives.

The benefit of this approach is that that it eliminates the need for imported rock. However, this comes with a greater risk of failure and much higher long term maintenance cost. The willow walls are very effective at preventing bank erosion, but can be challenging when used to prevent channel incision. Headcuts are difficult to arrest with vegetative methods because the vegetation, unlike rock, will not immediately adjust to fill areas that are flanked or undercut. Also, not all vegetation will become established evenly. Over the long term, some willows will out-compete others and the density of material at the channel bed and low banks will diminish. This is great for development of habitat and even bank stabilization, but can be ineffective at providing grade control. Also, the over-steepened banks (roughly 10 foot high and vertical in some locations) would be very difficult to vegetate effectively without laying them back. This excavated material would then need to be exported instead of placed in the channel bed, due to the heightened risk of failure and remobilization without rock armoring.

Recommendations

We suggest an alternative that combines revegetation with the benefits of imported rock and channel shaping to reduce hydraulic forces and provide the optimum conditions for success of the stabilization and revegetation efforts (Alternative 1). Although the use of imported rock will not result in a true “restoration” of the site, it seems necessary and justified to meet project objectives while assuring an acceptable level of risk. The site is receiving an unnatural amount of runoff from an altered watershed and is rapidly adjusting in response. Given the high velocities modeled within the transitional reaches (over 10 fps), the potential risks associated with further bank failures, and the relatively high implementation cost of all three alternatives, we recommend Alternative 1. We simply cannot guarantee the success of an approach that relies solely on vegetation for long term stability in the presence of large headcuts.

Conceptual Restoration Components

The various restoration tools discussed above are described below in greater detail for your reference.

ROCK GRADE CONTROL STRUCTURES OR "CHUTES"

Grade control structures are recommended to be installed at three locations to restore channel stability and reduce active headcutting. These structures are recommended to be keyed into the banks to prevent headcutting and lateral flanking. These structures would consist of rock materials that may launch and shift as headward erosion occurs and continue to function as grade control (Photo 4). The invert elevations are approximated for conceptual planning. Final elevations for these structures would need further investigation to ensure the structures promote sediment deposition behind the drops and pass flood flows without creating significant scour or increasing water surface elevations.

Grade control structures constructed of rock material are recommended over using gabion or similar fixed structures because they last longer and conform to the channel as they settle and adjust over time. The exclusive use of native wood materials for grade control is not recommended because such structures are more rigid, prone to piping failure, and decompose over time. In short, they would not respond well to potential channel adjustments.

ROCK CHECK DAMS

Rock check dams are a possible alternative to rock grade control structures. These structures fix the stream bed profile locally and trap sediments to aggrade the channel over time, allowing vegetation to naturally establish as banks adjust to stable angles and bed levels slowly agrade. Check dams may be constructed of materials that can be hand placed to reduce construction disturbance and overall costs to the project. Rock check dams present a lower construction cost and reduce the initial disturbance to the site, but they come with drawbacks that include reduced functionality and higher risk.

While some bank sediments would be trapped behind the check dams at low and moderate flows, the majority of bank sediments mobilized at higher flow events would be transported downstream. Further, they have a tendency to create higher localized energy at each structure and present a heightened risk of failure by flanking if not properly maintained free of large debris. As a result, these structures provide a lesser degree of stability against active headcutting compared to rock grade control structures or other treatments with a larger footprint and greater redundancy. Check dams may be constructed of materials that can be hand placed to reduce construction disturbance and overall costs to the project.

BANK GRADING AND BENCHING

At present, the channel banks are near vertical and the bed is below the rooting depth of the channel vegetation, which is primarily willow. Laying back the vertical banks and using the excavated material to grade the channel bed will restore a more stable channel cross sectional geometry and enhance the ability of native vegetation to thrive at locations where root structure will be capable of protecting the entire bank. A restored geometry reduces hydraulic

forces on the banks by reducing flow depths and velocities for a given discharge. This is accomplished by the increased wetted area and enhanced vegetative roughness.

WOODY DEBRIS GULLY PLUGS

The introduction of large woody debris may be used to increase the hydraulic roughness of the channel, thereby promoting sediment deposition and reducing erosive forces. However, woody debris is typically not a cost effective means of providing long term profile grade control unless there are large redwoods or conifers locally available at low cost. There are many large eucalyptus trees on the property that would be useful in the short term stabilization of the channel, but these trees decompose quickly. Further, they contain oil that is harmful to aquatic life and are therefore not usually recommended for use in wetted channels. The oil prevents the establishment of other riparian vegetation that is better suited to provide bank stability and habitat benefits. For this reason, removal of eucalyptus should be considered. Since these trees are not optimum for use in the channel, woody debris was considered as too costly an option and has been omitted from consideration.

REVEGETATION

Native riparian vegetation is important for providing long-term stability and reducing bank mass wasting. Native vegetation, such as willows, has a dense root system that penetrates into deeper sediments. Establishing robust willow vegetation will help reinforce bank materials and provide hydraulic roughness to dissipate energy and reduce bank shear stresses. Woody vegetation may be established by seeding, by transplanting onsite root masses and by harvesting onsite willows branches for pole planting.

Woody vegetation would be supplemented with erosion control seeding to provide short term stability until shrubs become established.

MONITORING AND FUTURE ACTIONS

Developing a monitoring program with established cross sections (particularly downstream near the barn) will provide information necessary to evaluate the progression of the headward migration that may be occurring near the barn. A monitoring program will inform preventative actions. For example, if monitoring of cross sections show significant mass wasting at the barn and warrant action, a future stabilization wall may be required to stabilize the bank and protect the barn from falling into the channel. The figure below shows a schematic of the erosion potential if the channel were to headcut to the elevation of the downstream nick point at RS 0+20.

References

United States Department of Agriculture, Natural Resource Conservation Service; Web Soil Survey, Mendocino County, California, cited on August 8, 2014. http://websoilsurvey.sc.egov.usda.gov

United States Geological Survey, Stream States Application, cited on August 10th, 2014. http://streamstatsags.cr.usgs.gov

Pitcher Ranch
Channel Stabilization Project

APPENDIX 1

Drainage Report

WATERWAYS CONSULTING, INC.

ENGINEERING CALCULATIONS

FOR PITCHER RANCH CHANNEL STABILIZATION

LOCATED ON APN 066320060
WITHIN THE COUNTY OF SAN MATEO

Date: 1/8/2016

Project No. 13-059

Calculated By: JWP

Checked By: BMS

ATTACHMENT 1

HYDROLOGIC CALCULATIONS

Job No: 13-059 Calcs by: JWP
Project: Pitcher Ranch Channel Stabilization Checked by: BMS
Date: 12/31/2015

Hydrology calculations were performed to determine peak flow rates at the project site using the Rational Method and Regional Regression Equations developed for the North Coast Region (see attached calculations) The project site drainage area of 0.19 sq.mi. is at the low end of the range used to develop the Regional Regression equations and probably under predicts the peak flow rates at the site. Results of the Rational Method were adopted for use in determining hydraulics at the project site.

HYDROLOGY CALCULATIONS USING RATIONAL METHOD

A. Time of Concentration

Time of concentration determined from time of concentration nomograph (See attached)
where: H1 = elevation in feet of most remote point of watershed above point of concentration
H2 = elevation in feet at point of concentration
L = length of channel from most remote point to point of concentration.

B. Rational Method

Q = C i A F
where: C = Runoff Coefficient i = Rainfall intensity (in/hr)
A = Contributing area (acres) F = Intensity factor

Reference: San Mateo County Rainfall Runoff Data

Parameter	Watershed	Unit	Description
A	125	acres	
C	0.3	-	Parks and Cemeteries
F	1.2	-	
i_{10}	2.45	in/hr	for Tc=10 min
i_{100}	3.6	in/hr	for Tc=10 min

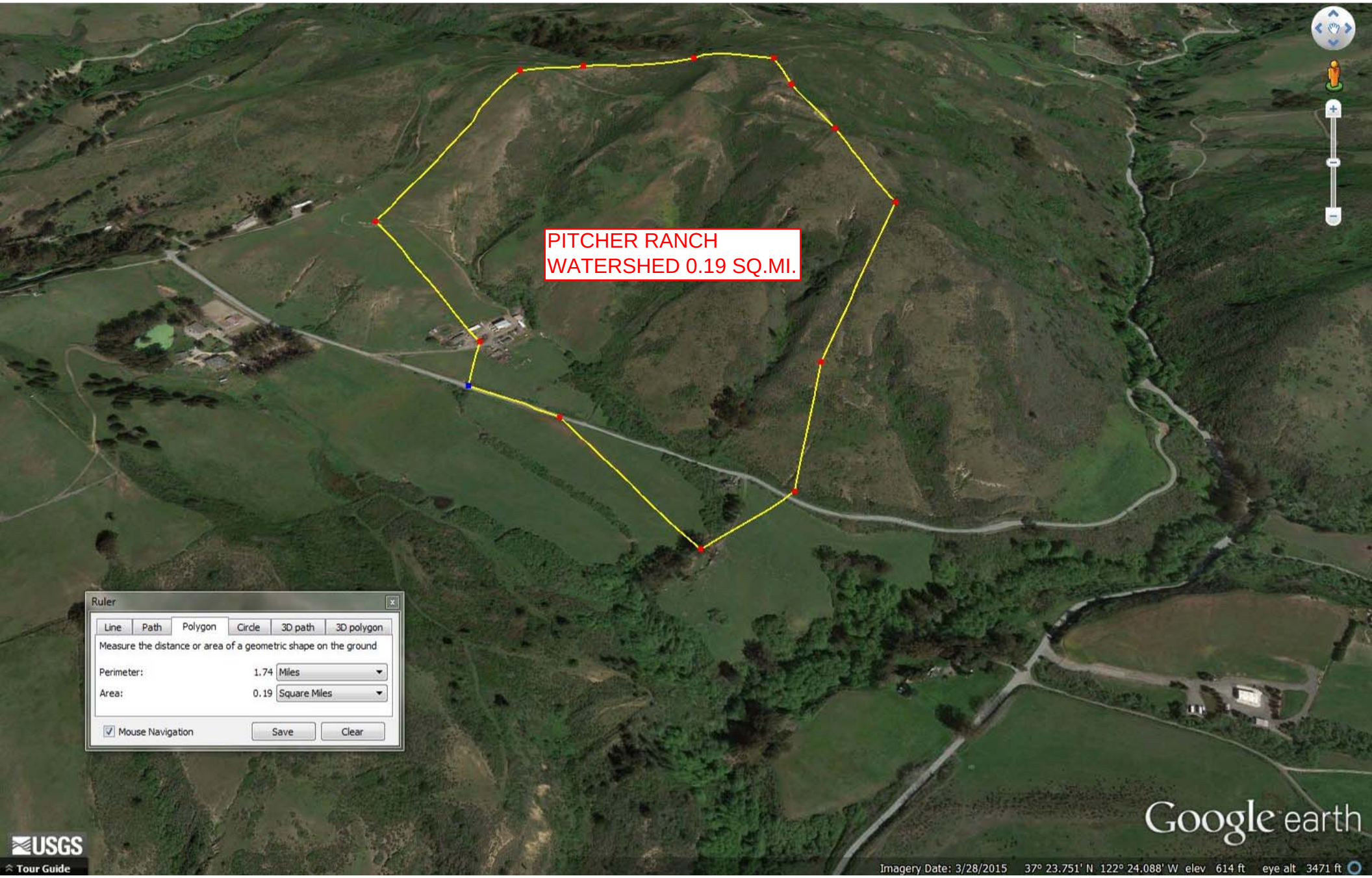
Peak Flow Rates at Project Site

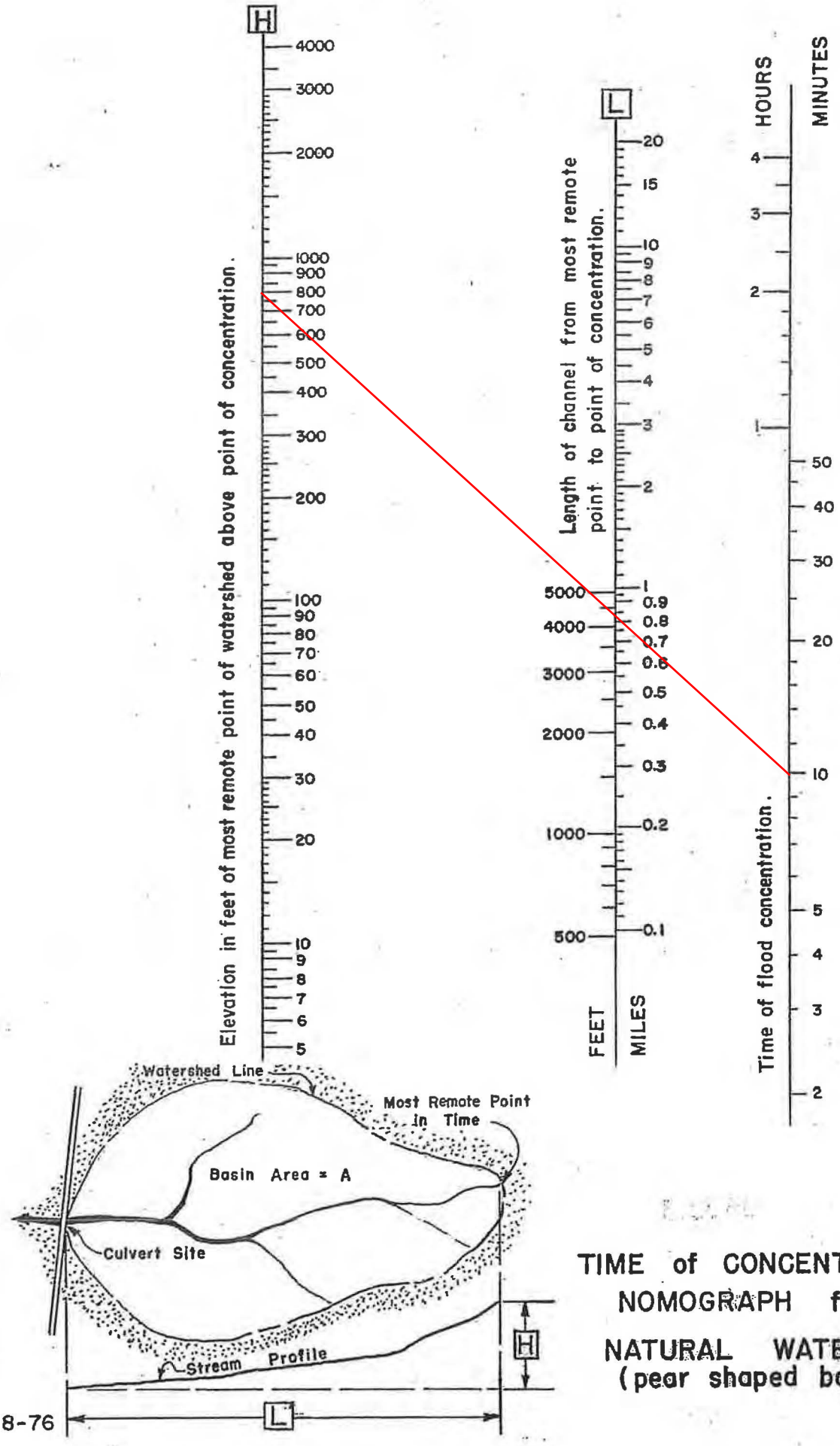
Parameter	10-yr	100-year
Q (cfs) =	110.3	162.0

Values adopted for the Project Site

Conclusions

A 100-year peak flow rate of 162 cfs and the 10-year peak flow rate of 110 cfs were adopted for the design of channel dimensions and rock sizing at the project site.


PITCHER RANCH
WATERSHED 0.19 SQ.MI.
Ruler
Line
Path
Polygon
Circle
3D path
3D polygon
Measure the distance or area of a geometric shape on the ground
Perimeter: 1.74 Miles
Area: 0.19 Square Miles
Mouse Navigation
Save
Clear
USGS
Tour Guide
Google earth
Imagery Date: 3/28/2015 37° 23.751' N 122° 24.088' W elev 614 ft eye alt 3471 ft



TIME of CONCENTRATION NOMOGRAPH for NATURAL WATERSHEDS (pear shaped basins)

REV. 8-76

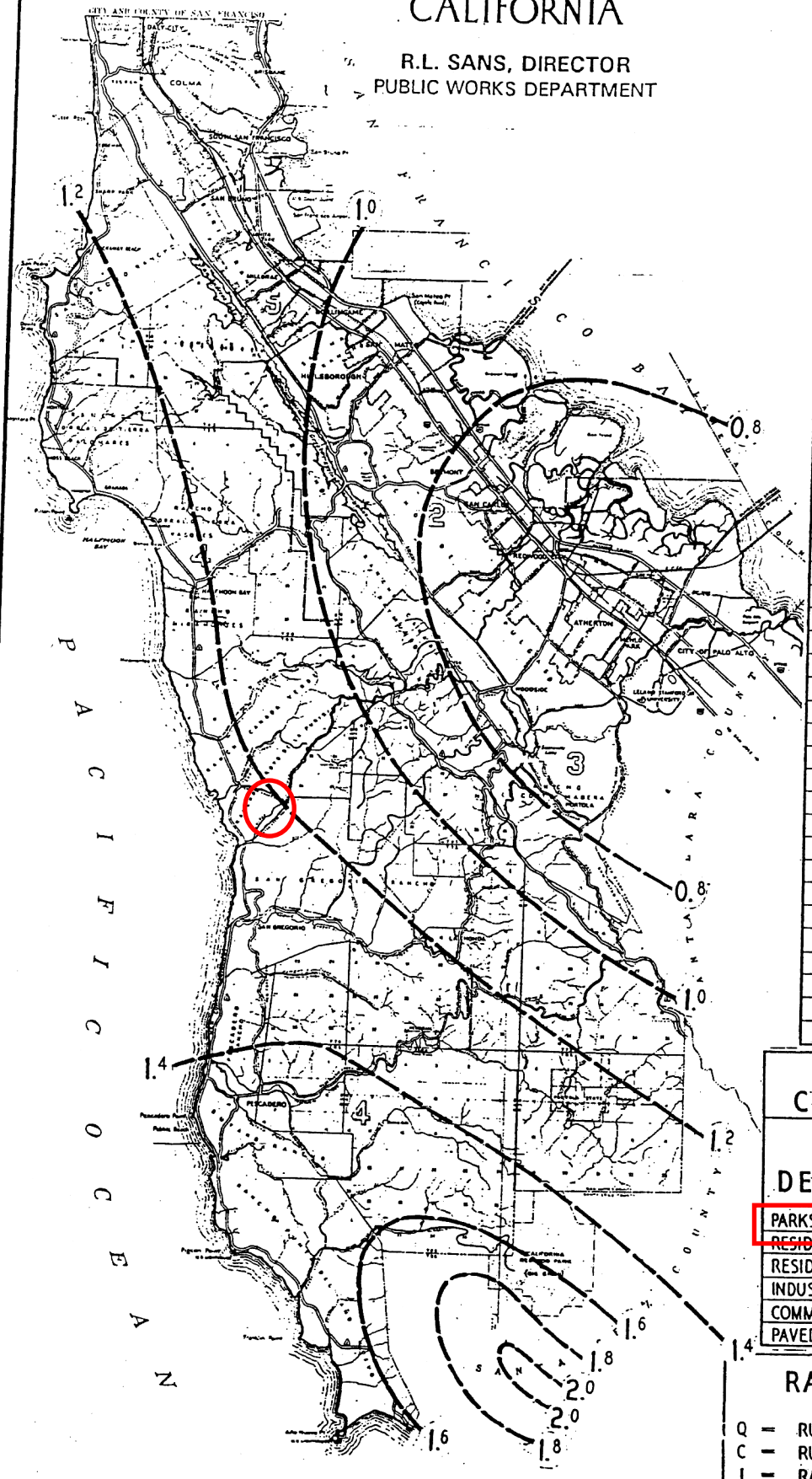
FIG. SWM-4

RAINFALL RUNOFF DATA

SAN MATEO COUNTY

CALIFORNIA

R.L. SANS, DIRECTOR
PUBLIC WORKS DEPARTMENT



SCALE - MILES

RAINFALL		
TIME OF CONCENTRATION	INTENSITY INCHES PER HOUR	
HRS. MIN	10 YR	100 YR
0 — 10	2.45	3.60
0 — 15	2.05	3.00
0 — 20	1.73	2.55
0 — 25	1.50	2.22
0 — 30	1.33	1.95
0 — 35	1.20	1.75
0 — 40	1.10	1.61
0 — 45	1.02	1.49
0 — 50	0.95	1.37
0 — 55	0.90	1.28
1 — 00	0.86	1.21
1 — 15	0.75	1.07
1 — 30	0.67	0.95
1 — 45	0.61	0.87
2 — 00	0.56	0.80
2 — 30	0.49	0.70
3 — 00	0.44	0.63
3 — 30	0.40	0.57
4 — 00	0.37	0.53
4 — 30	0.34	0.49
5 — 00	0.32	0.45
6 — 00	0.29	0.41
7 — 00	0.26	0.38
8 — 00	0.24	0.35
9 — 00	0.23	0.33
10 — 00	0.21	0.30
12 — 00	0.19	0.27
24 — 00	0.13	0.18

RUNOFF COEFFICIENTS	
TYPE OF DEVELOPMENT	COEF.
PARKS AND CEMETERIES	0.30
RESIDENTIAL - ACRES	0.40
RESIDENTIAL - REGULAR	0.50
INDUSTRIAL	0.65
COMMERCIAL	0.75
PAVED AREAS	0.85

RATIONAL FORMULA

Q = C. I. A. F.

Q = RUNOFF - CUBIC FEET PER SECOND
C = RUNOFF COEFFICIENT - PERCENT
I = RAINFALL INTENSITY - INCHES PER HOUR
A = DRAINAGE AREA - ACRES
F = INTENSITY FACTOR (FROM MAP)

Dr. 22-1846

Project: Pitcher Ranch Channel Stabilization
Project #: 13-059
Date: 8/19/2015
Calculated by: BRS
Checked by: BMS

U.S. Geological Survey Scientific Investigations Report 2012-5113

North Coast Region

Q2 =	1.82	A^	0.904	P^	0.983
Q10 =	14.8	A^	0.88	P^	0.696
Q50 =	36.3	A^	0.87	P^	0.589
Q100 =	48.5	A^	0.866	P^	0.556

where: Q = Peak discharge (cfs)
A = Area (sq. mi)
P = Mean annual precipitation (Rantz, 1969)

Parameter	Value	Units	Reference
Area =	0.19	sq. mi.	see attached
P value =	29.7	in	see attached

Peak Flow Rates at Project Site

Q2 =	11.4	cfs	
Q10 =	36.4	cfs	
Q50 =	63.1	cfs	**These values were not adopted for the project site**
Q100 =	75.9	cfs	

Basin Characteristics Ungaged Site Report

Date: Wed Aug 19, 2015 10:48:04 AM GMT-7
NAD 1983 Latitude: 37.3758 (37 22 33)
NAD 1983 Longitude: -122.3831 (-122 22 59)

Label	Value	Units	Definition
~~DRNAREA~~	~~0.1~~	~~square miles~~	~~Area that drains to a point on a stream~~
RELIEF	804	feet	Maximum - minimum elevation
ELEVMAX	983	feet	Maximum basin elevation
MINBELEV	180	feet	Minimum basin elevation
LAKEAREA	0	percent	Percentage of Lakes and Ponds
EL6000	0	percent	Percent of area above 6000 ft
OUTLETELEV	180	feet	Elevation of the stream outlet in thousands of feet above NAVD88.
BASINPERIM	2.27	miles	Perimeter of the drainage basin as defined in SIR 2004-5262
RELRELF	353	feet per mi	Basin relief divided by basin perimeter
ELEV	628	feet	Mean Basin Elevation
BSLDEM30M	30.1	percent	Mean basin slope computed from 30 m DEM
FOREST	0.74	percent	Percentage of area covered by forest
LC11IMP	0	percent	Percentage of impervious area determined from NLCD 2011 impervious dataset
PRECIP	29.7	inches	Mean Annual Precipitation
JANMAXTMP	58.57	degrees F	Mean Maximum January Temperature
JANMINTMP	41.19	degrees F	Mean Minimum January Temperature
ALTIND	0.52	thousand feet	Altitude Index
LC11DEV	0.3	percent	Percentage of land-use from NLCD 2011 classes 21-24
LFPLENGTH	1	miles	Length of longest flow path

ATTACHMENT 2

HYDRAULIC CALCULATIONS

Engineered Streambed Material Calculations (Page 1 of 2)

Project:	Pitcher	Calculated by:	BRS
Project #:	13-059	Checked by:	BMS
Date:	8/19/2015		

The following calculations were used to determine the median (D50) rock size for the three segments of the rock lined channel. The calculations use multiple equations to calculate the median rock diameter and then engineering judgement is used to select an appropriate median rock size for the project. Rock is designed to remain stable during the 100-year flood event.

1. Inputs

Proposed Conditions Site Data (4.5% Channel Slope)		
Design Flow*	162	cfs
Channel Width =	17	ft
q =	9.5	cu.ft./sec ft
gravity, g	32.2	ft/sec^2
Slope, S	0.045	ft/ft

*100-yr event based on Rational Equation

Proposed Conditions Site Data (25% Channel Slope)		
Design Flow*	162	cfs
Channel Width =	13	ft
q =	12.5	cu.ft./sec ft
gravity, g	32.2	ft/sec^2
Slope, S	0.25	ft/ft

*100-yr event based on Rational Equation

Proposed Conditions Site Data (40% Channel Slope)		
Design Flow*	162	cfs
Channel Width =	12	ft
q =	13.5	cu.ft./sec ft
gravity, g	32.2	ft/sec^2
Slope, S	0.4	ft/ft

*100-yr event based on Rational Equation

2. Outputs

Bathhurst (1987)

developed for: slope (0.23 to 9%)
particle dia. (0.35 to 11 inches)

D_{50} = 3.56 q^2/3 S^.75 / g^1/3

D_{50} = 0.5 ft

Robinson et al. (1998)

developed for: slope (2% to 40%)
particle dia. (0.6 to 11 inches)

$D_{50} = [q_{design} / (8.07 \times 10^{-6} S^{-0.58})]^{0.529}$

q_{design} (m^3/s/m) = 0.89
D_{50} (mm) = 179

D_{50} = 0.6 ft

Abt and Johnson (1991)

developed for: slope (1% to 20%)
particle dia. (1 to 6 inches)

D_{50} = 0.436 q_{sizing}^0.56 S^0.43
q_{sizing} = q * sizing factor
sizing factor = 1.35

D_{50} = 0.5 ft

Choose D50 = 0.5 ft

Robinson et al. (1998)

developed for: slope (2% to 40%)
particle dia. (0.6 to 11 inches)

$D_{50} = [q_{design} / (8.07 \times 10^{-6} S^{-0.58})]^{0.529}$

q_{design} (m^3/s/m) = 1.16
D_{50} (mm) = 349

D_{50} = 1.1 ft

Abt and Johnson (1991)

developed for: slope (1% to 20%)
particle dia. (1 to 6 inches)

D_{50} = 0.436 q_{sizing}^0.56 S^0.43
q_{sizing} = q * sizing factor
sizing factor = 1.35

D_{50} = 1.2 ft

Choose D50 = 1.2 ft

Robinson et al. (1998)

developed for: slope (2% to 40%)
particle dia. (0.6 to 11 inches)

$D_{50} = [q_{design} / (8.07 \times 10^{-6} S^{-0.58})]^{0.529}$

q_{design} (m^3/s/m) = 1.25
D_{50} (mm) = 421

D_{50} = 1.4 ft

Abt and Johnson (1991)

developed for: slope (1% to 20%)
particle dia. (1 to 6 inches)

D_{50} = 0.436 q_{sizing}^0.56 S^0.43
q_{sizing} = q * sizing factor
sizing factor = 1.35

D_{50} = 1.5 ft

Choose D50 = 1.5 ft

Engineered Streambed Material Calculations (Page 2 of 2)

3. Develop Grain Size Distribution Utilizing the Calculated D_{50}

Washington Department of Fish and Wildlife Grain Size Distribution (WDFW, 2003)

D_{84}/D_{100} =	0.4	D_{84}/D_{100} =	0.4	D_{84}/D_{100} =	0.4
D_{84}/D_{50} =	2.5	D_{84}/D_{50} =	2.5	D_{84}/D_{50} =	2.5
D_{84}/D_{16} =	8	D_{84}/D_{16} =	8	D_{84}/D_{16} =	8
WDFW Substrate Gradation		**WDFW Substrate Gradation**		**WDFW Substrate Gradation**	
D_{100} =	3.1 ft	D_{100} =	7.5 ft	D_{100} =	9.4 ft
D_{84} =	1.3 ft	D_{84} =	3.0 ft	D_{84} =	3.8 ft
D_{50} =	0.5 ft	D_{50} =	1.2 ft	D_{50} =	1.5 ft

Note: WDFW gradation above is based on wide variety of stream beds in different environments. The D_{84}/D_{100} ratio of 0.4 may give too large of boulder size. Judgment should be made to adjust size to something reasonable for the site. ACOE EM 1110-2-1601 suggests using $D_{100}=2xD_{50}$.

Rock Structures: Use D_{84} to D_{100}
Engineered Streambed Material: Use <D_{84}
Bankline Rock: Use D_{50} to D_{84}

Resulting Engineered Streambed Material Gradation for Channel

Type 1 ESM (3% and 4.5% Channel)

Size Class	Particle Diameter
D_{100} =	1.0 ft
D_{84} =	0.8 ft
D_{50} =	0.5 ft
D_{16} =	1.0 in
D_8 =	0.08 in

Type 2 ESM (25% Channel)

Size Class	Particle Diameter
D_{100} =	2.5 ft
D_{84} =	1.8 ft
D_{50} =	1.2 ft
D_{16} =	2.0 in
D_8 =	0.08 in

Type 3 ESM (40% Channel)

Size Class	Particle Diameter
D_{100} =	3.0 ft
D_{84} =	2.2 ft
D_{50} =	1.5 ft
D_{16} =	2.0 in
D_8 =	0.08 in

Justification

Choose largest size of Engineered Streambed Material to be equal to the D_{84} calculated using the WDFW gradation. This size is similar to what is observed in the existing channel and exceeds the ACOE recommendation of $D_{100}=2 \times D_{50}$.

4. ESM Thickness

Thickness greater or equal to max($1.5XD_{50}$ or D_{100}) (ACOE EM 1110-2-1601)

or if D_{100} is set to protrude above surface by 1/3 then use $0.67D_{100}$ (Flosi et.al.)

T_{1ESM} = 1.0 ft
T_{2ESM} = 2.5 ft
T_{3ESM} = 3.0 ft

5. References

1.) U.S. Department of the Interior Bureau of Reclamation. 2007. Rock Ramp Design Guidelines.
2.) Washington Department of Fish and Wildlife. 2003 Design of Road Culverts for Fish Passage
3.) U.S. Army Corps of Engineers. 1994. Hydraulic Design of Flood Control Channels, EM-1110-2-1601
4.) California Department of Fish and Game (CDFG). 2009. Fish Passage Design and Implementation: Part XII of the California Salmonid Stream Habitat Restoration Manual. Sacramento, CA, CA Department of Fish and Game.

Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Thursday, Feb 25 2016

Proposed Rock-Lined Channel 4.5% (Sta. 0+54 to 1+64)

Trapezoidal

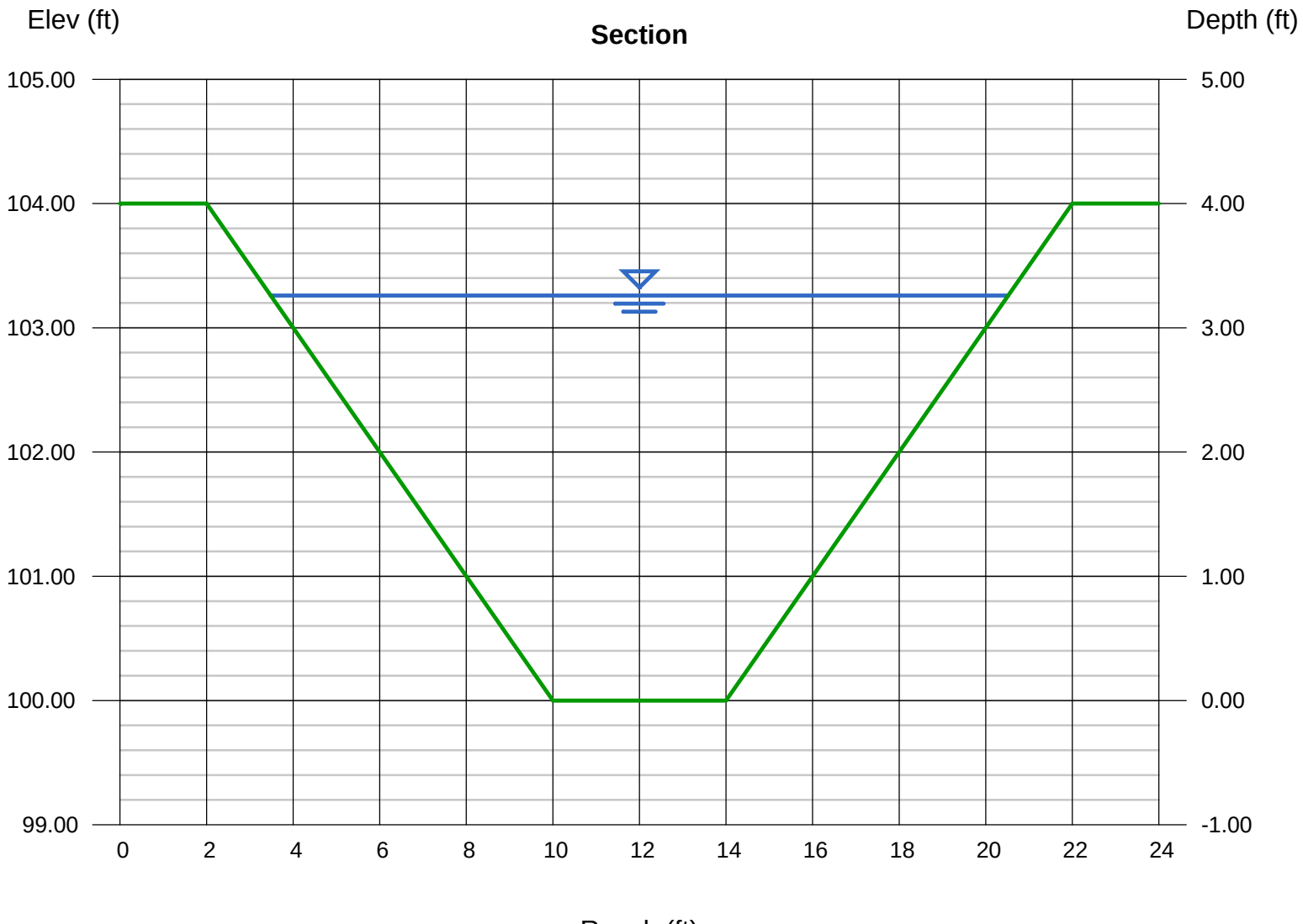
Bottom Width (ft)	= 4.00
Side Slopes (z:1)	= 2.00, 2.00
Total Depth (ft)	= 4.00
Invert Elev (ft)	= 100.00
Slope (%)	= 4.50
N-Value	= 0.100

Calculations

Compute by:	Known Q
Known Q (cfs)	= 162.00

Highlighted

Depth (ft)	= 3.26
Q (cfs)	= 162.00
Area (sqft)	= 34.30
Velocity (ft/s)	= 4.72
Wetted Perim (ft)	= 18.58
Crit Depth, Yc (ft)	= 2.51
Top Width (ft)	= 17.04
EGL (ft)	= 3.61



Channel Report

Proposed Rock-Lined Chute 25% (Sta. 3+84 to 4+41)

Trapezoidal

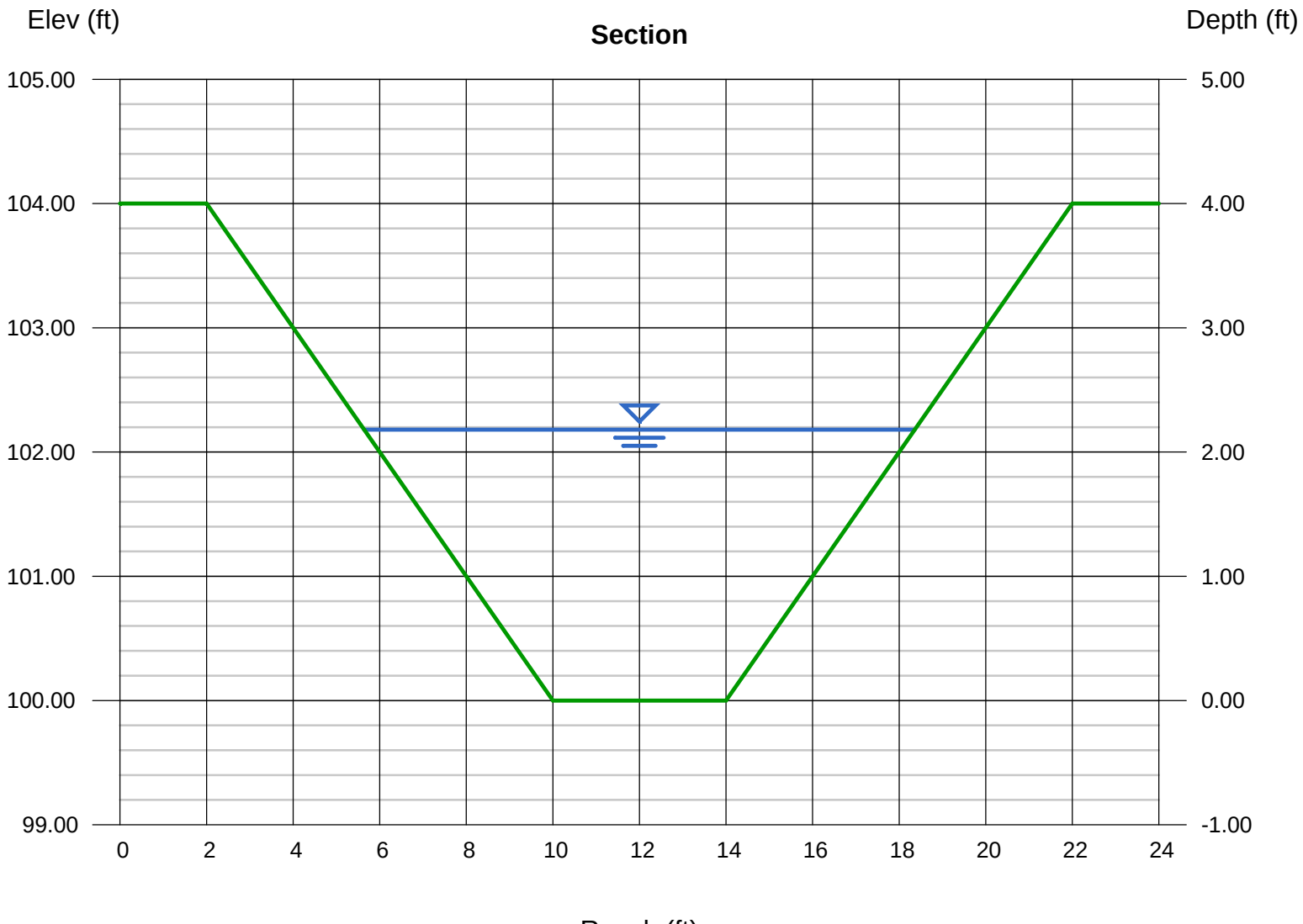
Bottom Width (ft)	= 4.00
Side Slopes (z:1)	= 2.00, 2.00
Total Depth (ft)	= 4.00
Invert Elev (ft)	= 100.00
Slope (%)	= 25.00
N-Value	= 0.100

Calculations

Compute by:	Known Q
Known Q (cfs)	= 162.00

Highlighted

Depth (ft)	= 2.18
Q (cfs)	= 162.00
Area (sqft)	= 18.22
Velocity (ft/s)	= 8.89
Wetted Perim (ft)	= 13.75
Crit Depth, Yc (ft)	= 2.51
Top Width (ft)	= 12.72
EGL (ft)	= 3.41



Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Thursday, Feb 25 2016

Proposed Rock-Lined Chute 40% (Sta. 0+22 to 0+54)

Trapezoidal

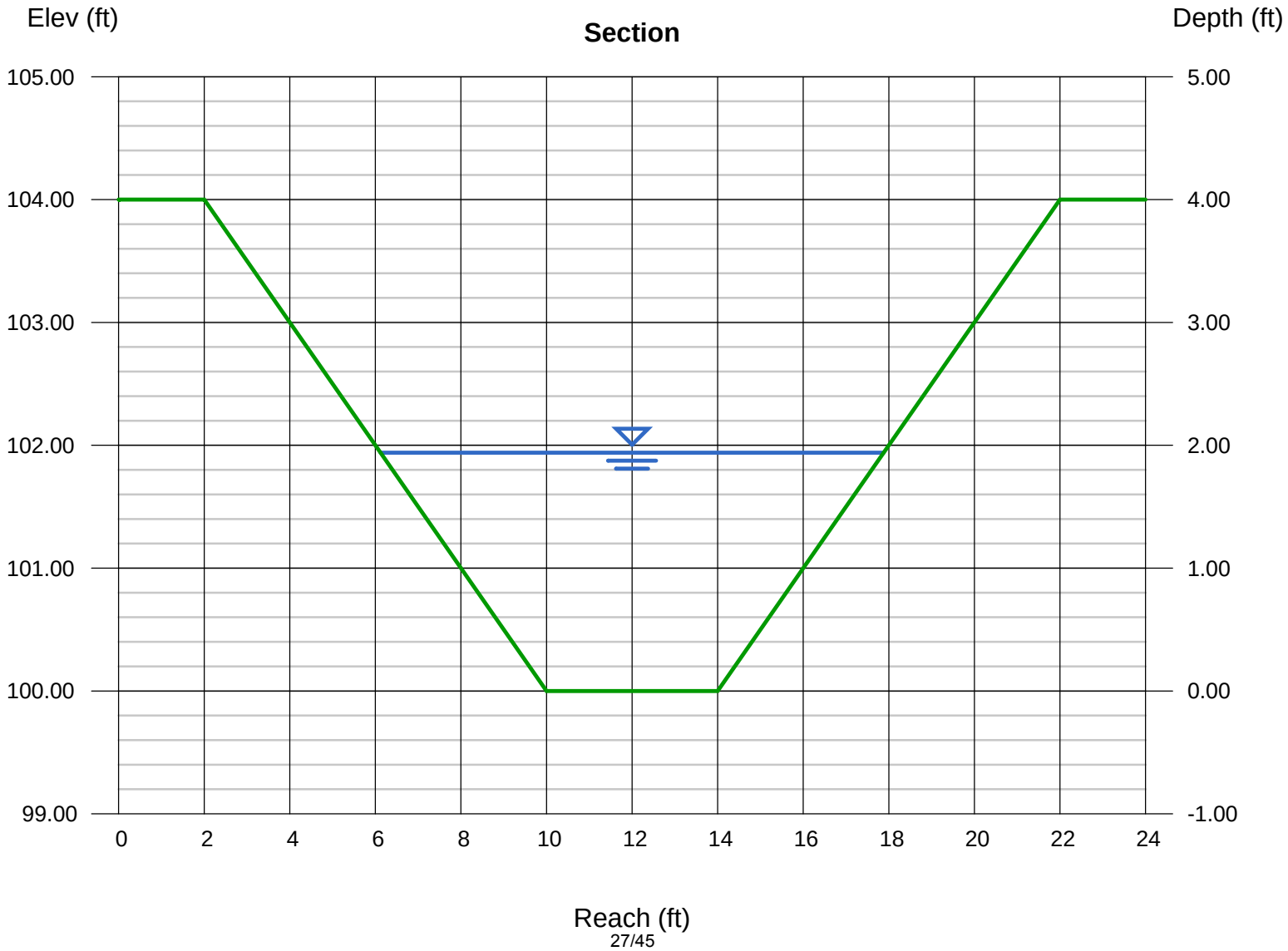
Bottom Width (ft)	= 4.00
Side Slopes (z:1)	= 2.00, 2.00
Total Depth (ft)	= 4.00
Invert Elev (ft)	= 100.00
Slope (%)	= 40.00
N-Value	= 0.100

Calculations

Compute by:	Known Q
Known Q (cfs)	= 162.00

Highlighted

Depth (ft)	= 1.94
Q (cfs)	= 162.00
Area (sqft)	= 15.29
Velocity (ft/s)	= 10.60
Wetted Perim (ft)	= 12.68
Crit Depth, Yc (ft)	= 2.51
Top Width (ft)	= 11.76
EGL (ft)	= 3.69



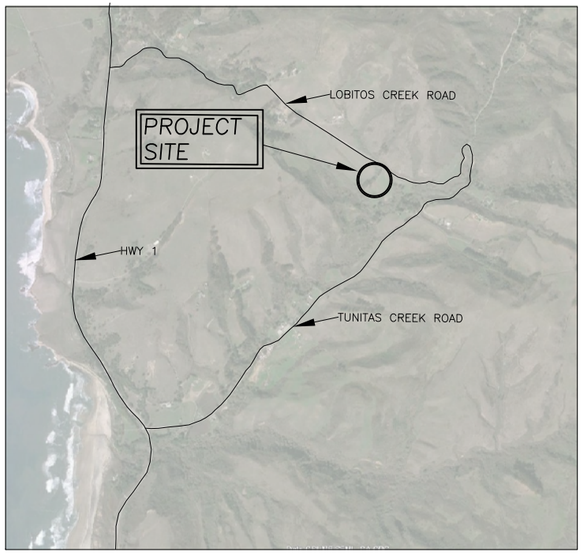
Pitcher Ranch
Channel Stabilization Project

APPENDIX 2

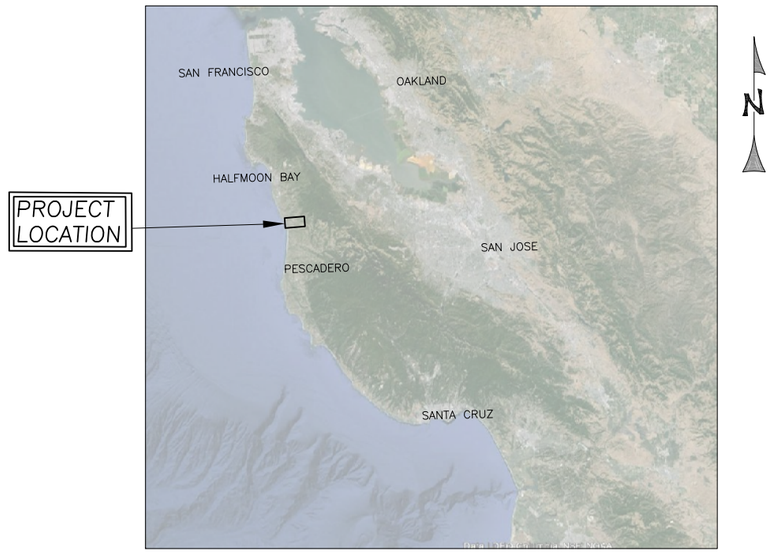
90% Engineering Designs

PITCHER PROPERTIES
STREAM AND BANK STABILIZATION PROJECT

90% DESIGN SUBMITTAL



VICINITY MAP
N.T.S. (GOOGLE)



REGIONAL MAP
N.T.S. (GOOGLE)

SHEET INDEX

GENERAL NOTES

1. TOPOGRAPHIC MAPPING WAS PERFORMED BY:
   WATERWAYS CONSULTING, INC.
   509A SWIFT STREET
   SANTA CRUZ, CA 95060
   SURVEY DATE: 7-24-14
2. ELEVATION DATUM: AN ASSUMED ELEVATION OF 100.00' WAS ESTABLISHED AT SURVEY CONTROL POINT #1 (REBAR).
3. BASIS OF BEARINGS: BASIS OF BEARINGS BETWEEN POINTS #1 AND #10 IS S38°45'20.04"E.
4. CONTOUR INTERVAL IS ONE FOOT. ELEVATIONS AND DISTANCES SHOWN ARE IN DECIMAL FEET.
5. THIS IS NOT A BOUNDARY SURVEY. PROPERTY LINES ARE NOT SHOWN HEREON.
6. ALL CONSTRUCTION AND MATERIALS SHALL CONFORM TO THE 2010 EDITION OF THE STATE OF CALIFORNIA STANDARD SPECIFICATIONS, ISSUED BY THE DEPARTMENT OF TRANSPORTATION (HEREAFTER REFERRED TO AS "STANDARD SPECIFICATIONS").

ABBREVIATIONS

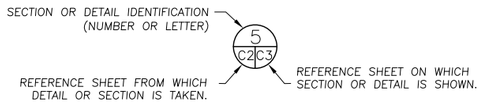
AVG.	AVERAGE
CC	CONCRETE
CY	CUBIC YARDS
DBH	DIAMETER AT BREAST HEIGHT
DIA.	DIAMETER
E	EXISTING
E.G.	EXISTING GROUND
ELEV.	ELEVATION
DI	DRAINAGE INLET
FG	FINISH GRADE
FT	FEET
INV	INVERT
N	NEW
N.T.S	NOT TO SCALE
O.C.	ON CENTER
RSP	ROCK SLOPE PROTECTION
SPK	SPIKE
SQ.FT.	SQUARE FOOT
T	TREE
T.B.D.	TO BE DETERMINED
TYP	TYPICAL
UNK	UNKNOWN
WSE	WATER SURFACE ELEVATION
YR	YEAR

TREE SPECIES	
ALDER	ALDER
BAY	BAY
M	MAPLE
O	OAK
P	PINE
W	WALNUT

PROJECT DESCRIPTION

THESE DRAWINGS PROVIDE 90% DESIGN LEVEL DETAILS FOR THE STABILIZATION OF A DEGRADED TRIBUTARY CHANNEL LOCATED ON LANDS OWNED BY PITCHER PROPERTIES. THE CHANNEL AT PITCHER RANCH IS A TRIBUTARY TO TUNITAS CREEK IN SAN MATEO COUNTY, CALIFORNIA.

SECTION AND DETAIL CONVENTION



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PREPARED AT THE REQUEST OF:
PITCHER PROPERTIES

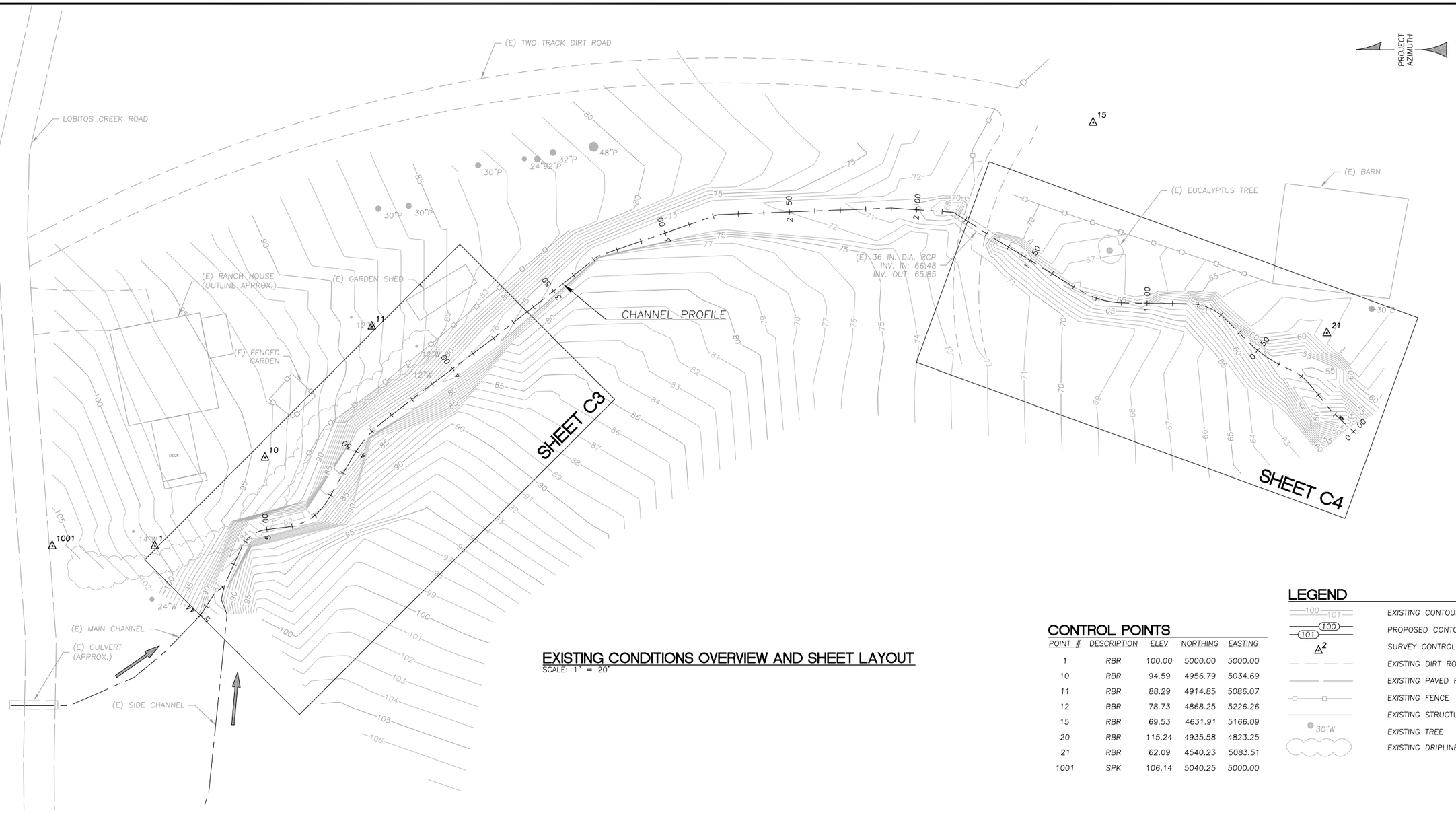
COVER SHEET

PITCHER PROPERTIES
CHANNEL AND BANK
STABILIZATION PROJECT
90% DESIGN PLAN

DESIGNED BY:	B.M.S.
DRAWN BY:	B.M.S.
CHECKED BY:	M.W.W.
DATE:	9/21/15
JOB NO.:	13-059

BAR IS ONE INCH ON ORIGINAL DRAWING, ADJUST SCALES FOR REDUCED PLOTS
0 1"

C1 | 1 OF 8



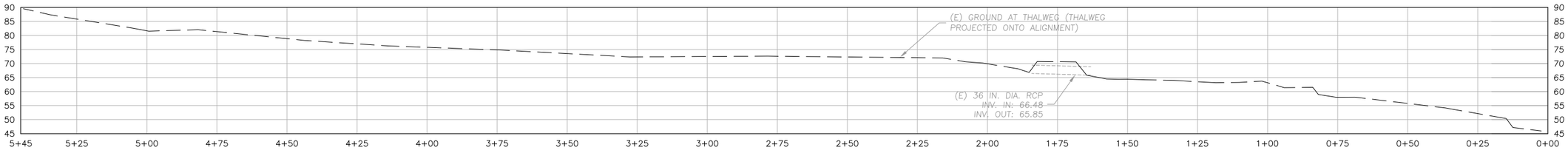
EXISTING CONDITIONS OVERVIEW AND SHEET LAYOUT
SCALE: 1" = 20'

CONTROL POINTS

POINT #	DESCRIPTION	ELEV	NORTHING	EASTING
1	RBR	100.00	5000.00	5000.00
10	RBR	94.59	4956.79	5034.69
11	RBR	88.29	4914.85	5086.07
12	RBR	78.73	4868.25	5226.26
15	RBR	69.53	4631.91	5166.09
20	RBR	115.24	4935.58	4823.25
21	RBR	62.09	4540.23	5083.51
1001	SPK	106.14	5040.25	5000.00

LEGEND

EXISTING CONTOURS
PROPOSED CONTOURS
SURVEY CONTROL POINT
EXISTING DIRT ROAD
EXISTING PAVED ROAD
EXISTING FENCE
EXISTING STRUCTURE
EXISTING TREE
EXISTING DRIPLINE



CHANNEL PROFILE
SCALE: 1" = 20'

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PITCHER PROPERTIES

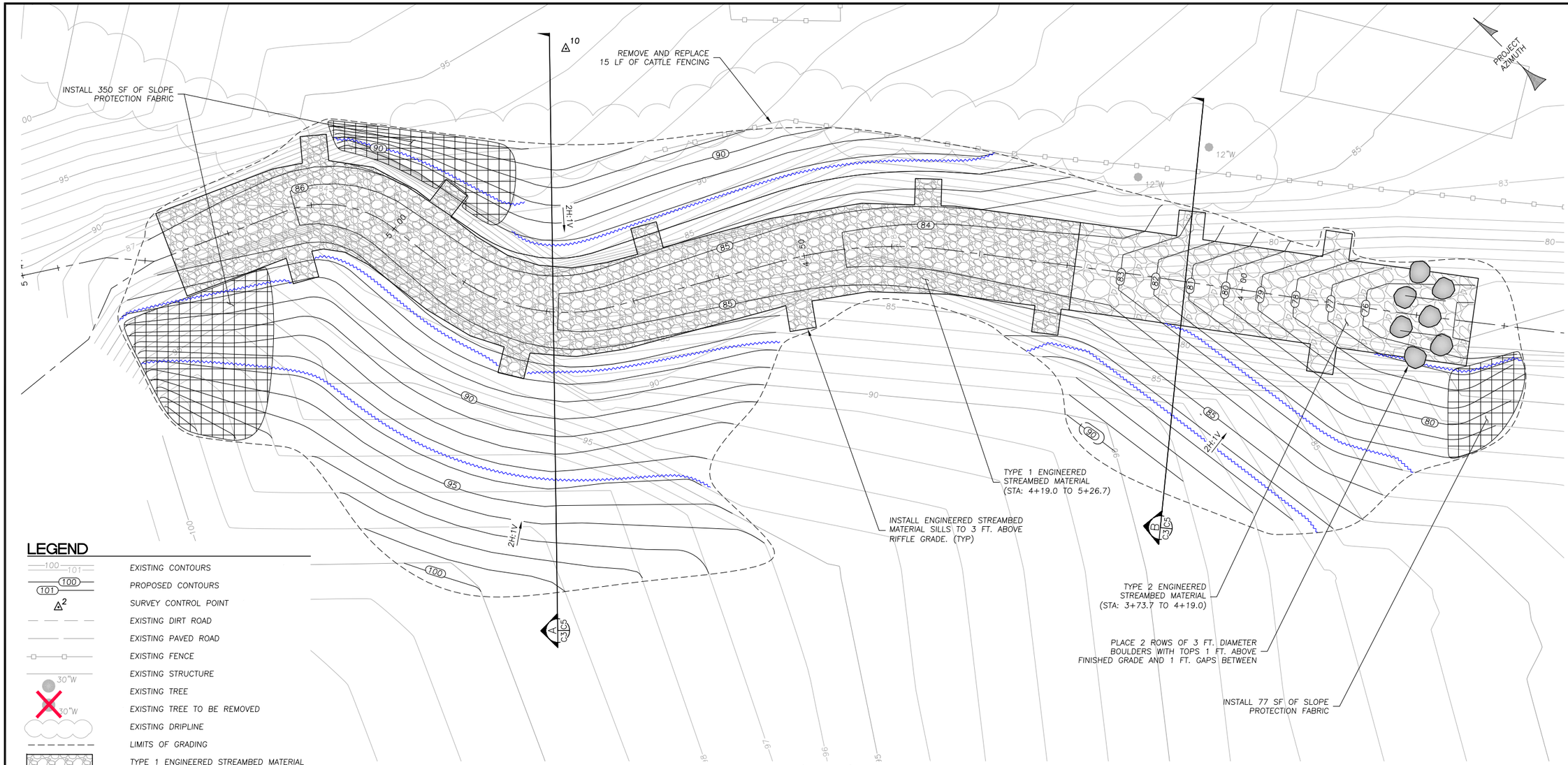
EXISTING CONDITIONS OVERVIEW AND SHEET LAYOUT

PITCHER PROPERTIES
CHANNEL AND BANK STABILIZATION PROJECT
90% DESIGN PLAN

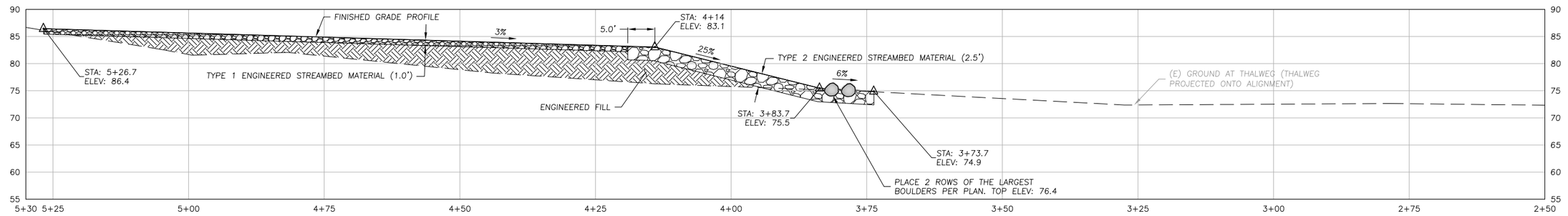
DESIGNED BY:	B.M.S.
DRAWN BY:	B.M.S.
CHECKED BY:	M.W.W.
DATE:	9/21/15
JOB NO.:	13-059

BAR IS ONE INCH ON ORIGINAL DRAWING, ADJUST SCALES FOR REDUCED PLOTS
0 1"

C2 | 2 OF 8



SITE PLAN (1 OF 2)
SCALE: 1" = 6'



CHANNEL PROFILE
SCALE: 1" = 6'

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NOT FOR CONSTRUCTION

PREPARED AT THE REQUEST OF:
PITCHER PROPERTIES

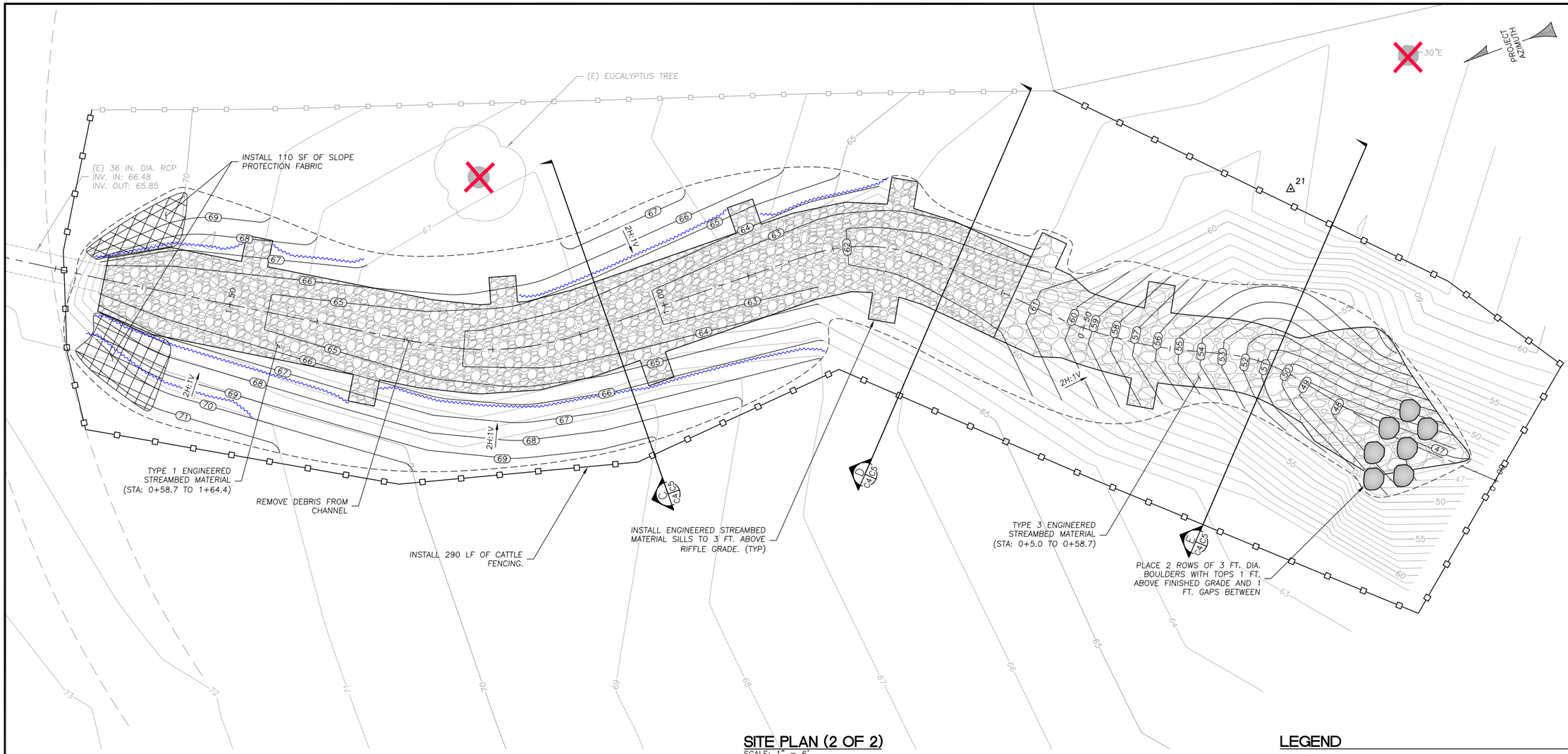
SITE PLAN
(1 OF 2)

PITCHER PROPERTIES
CHANNEL AND BANK
STABILIZATION PROJECT
90% DESIGN PLAN

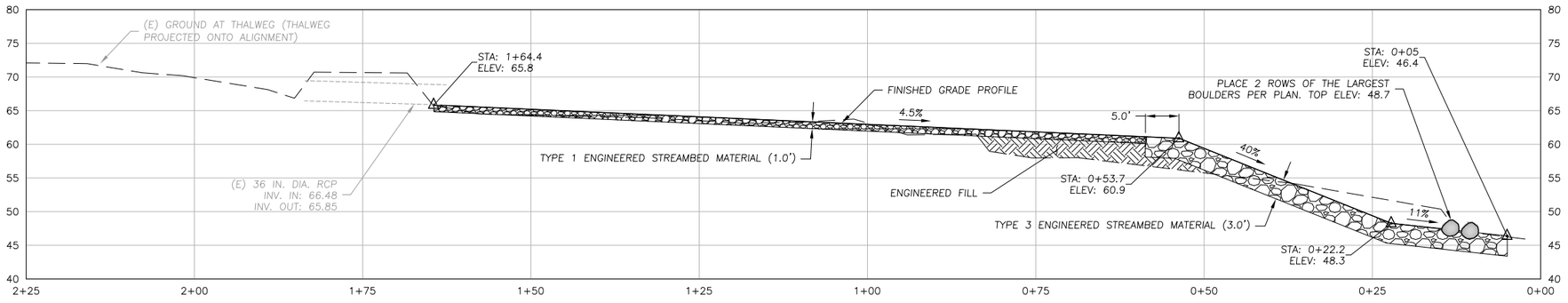
DESIGNED BY:	B.M.S.
DRAWN BY:	B.M.S.
CHECKED BY:	M.W.W.
DATE:	9/21/15
JOB NO.:	13-059

BAR IS ONE INCH ON ORIGINAL DRAWING, ADJUST SCALES FOR REDUCED PLOTS
0 1"

C3 | 3 OF 8



SITE PLAN (2 OF 2)
SCALE: 1" = 6'



CHANNEL PROFILE
SCALE: 1" = 6'

LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- SURVEY CONTROL POINT
- EXISTING DIRT ROAD
- EXISTING PAVED ROAD
- EXISTING FENCE
- EXISTING STRUCTURE
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- EXISTING DRIPLINE
- LIMITS OF GRADING
- TYPE 1 ENGINEERED STREAMBED MATERIAL
- TYPE 3 ENGINEERED STREAMBED MATERIAL
- FIBER ROLL

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PREPARED AT THE REQUEST OF:
PITCHER PROPERTIES

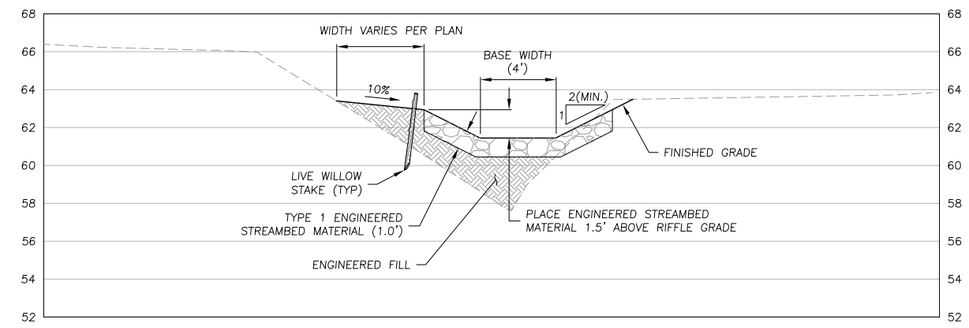
SITE PLAN (2 OF 2)

PITCHER PROPERTIES
CHANNEL AND BANK STABILIZATION PROJECT
90% DESIGN PLAN

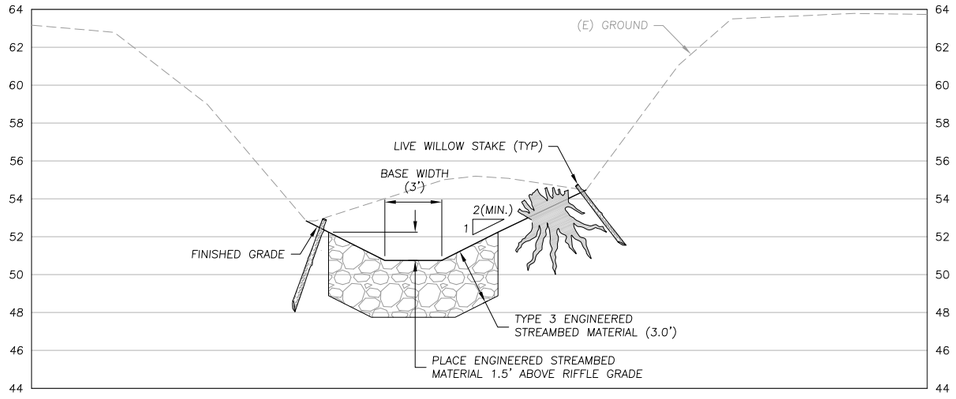
DESIGNED BY:	B.M.S.
DRAWN BY:	B.M.S.
CHECKED BY:	M.W.W.
DATE:	9/21/15
JOB NO.:	13-059

BAR IS ONE INCH ON ORIGINAL DRAWING, ADJUST SCALES FOR REDUCED PLOTS
0 1"

C4 | 4 OF 8



SECTION D C4 C5
SCALE: 1"=4'



SECTION E C4 C5
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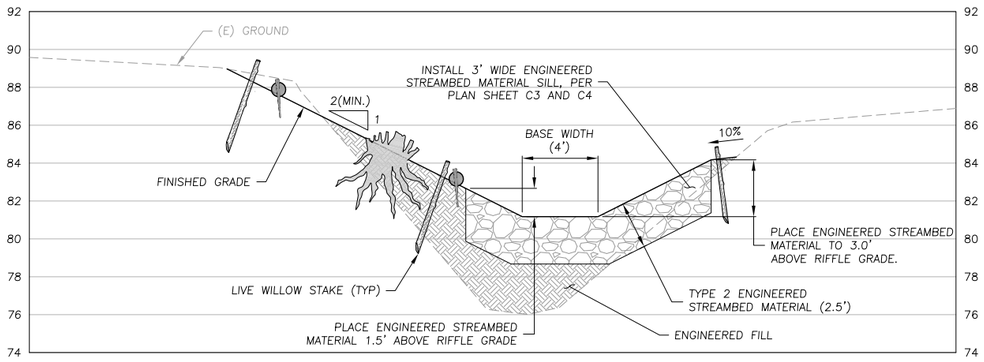
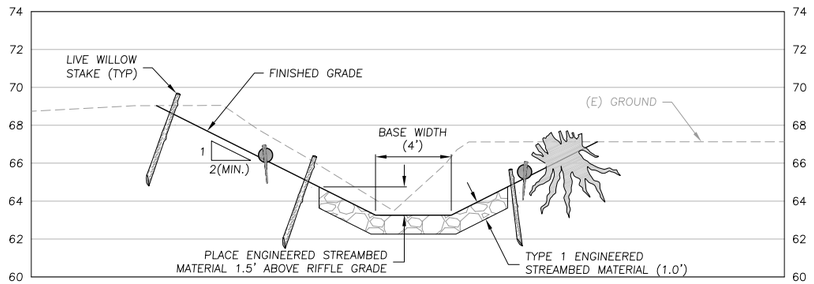
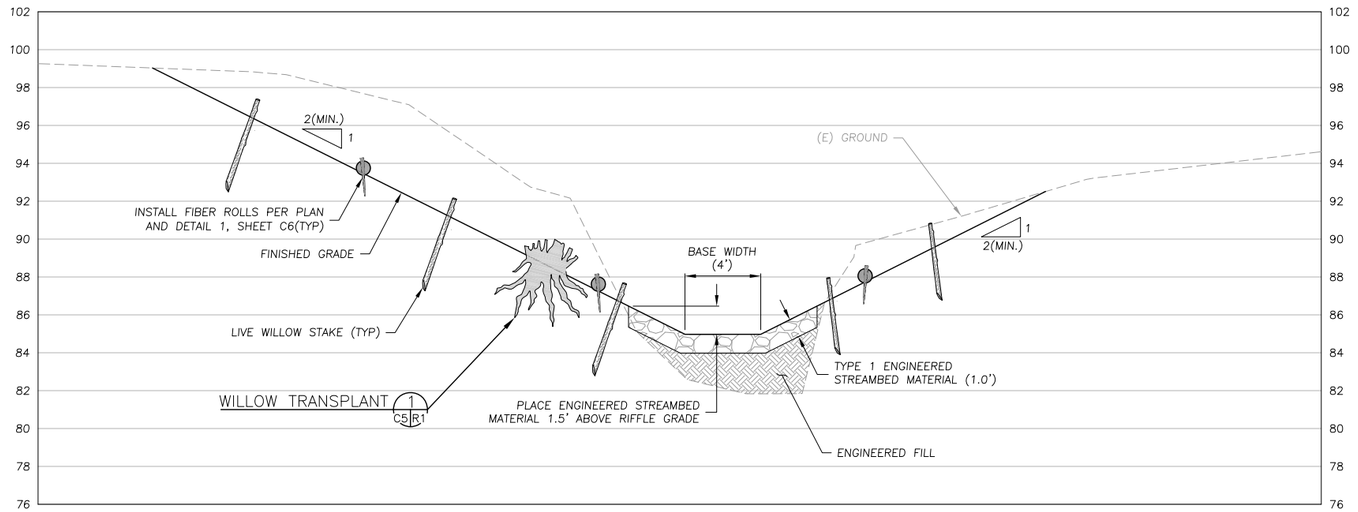


SECTION B C3 C5
SCALE: 1"=4'



SECTION C C4 C5
SCALE: 1"=4'



SECTION A C3 C5
SCALE: 1"=4'

NOTE:
INSTALL LIVE WILLOW STAKES AT 10' O.C. SPACING.

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PREPARED AT THE REQUEST OF:
PITCHER PROPERTIES

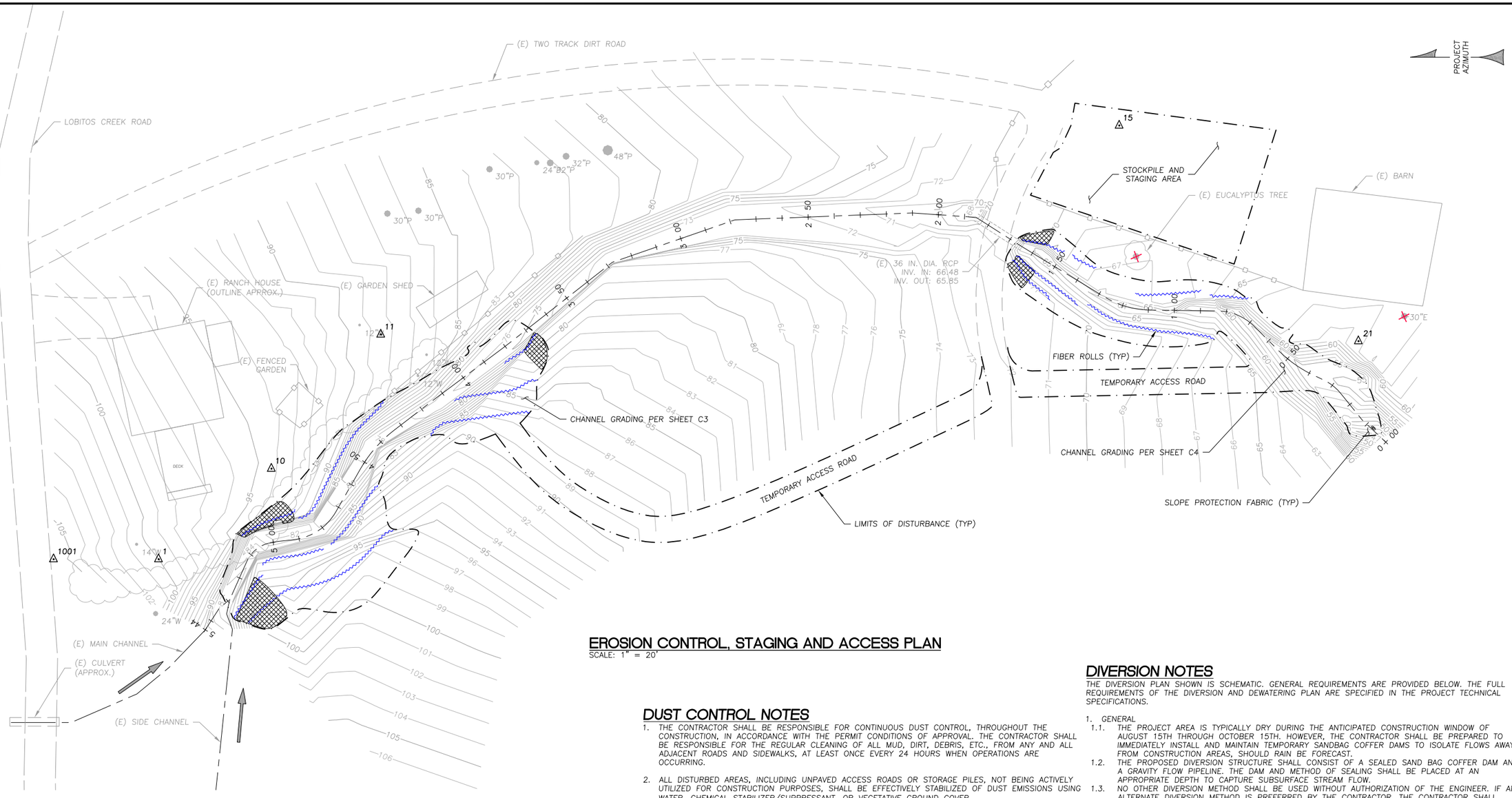
TYPICAL SECTIONS

PITCHER PROPERTIES
CHANNEL AND BANK
STABILIZATION PROJECT
90% DESIGN PLAN

DESIGNED BY:	B.M.S.
DRAWN BY:	B.M.S.
CHECKED BY:	M.W.W.
DATE:	9/21/15
JOB NO.:	13-059

BAR IS ONE INCH ON ORIGINAL DRAWING. ADJUST SCALES FOR REDUCED PLOTS
0 1"

C5 | 5 OF 8

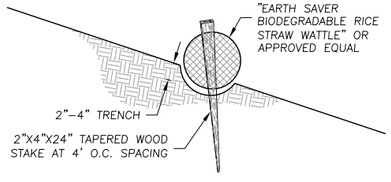


EROSION CONTROL, STAGING AND ACCESS PLAN

SCALE: 1" = 20'

LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- SURVEY CONTROL POINT
- EXISTING DIRT ROAD
- EXISTING PAVED ROAD
- EXISTING FENCE
- EXISTING STRUCTURE
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- EXISTING DRIPLINE
- FIBER ROLL
- SLOPE PROTECTION FABRIC



FIBER ROLL

SCALE: 1"=1'

DUST CONTROL NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTINUOUS DUST CONTROL, THROUGHOUT THE CONSTRUCTION, IN ACCORDANCE WITH THE PERMIT CONDITIONS OF APPROVAL. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REGULAR CLEANING OF ALL MUD, DIRT, DEBRIS, ETC., FROM ANY AND ALL ADJACENT ROADS AND SIDEWALKS, AT LEAST ONCE EVERY 24 HOURS WHEN OPERATIONS ARE OCCURRING.
2. ALL DISTURBED AREAS, INCLUDING UNPAVED ACCESS ROADS OR STORAGE PILES, NOT BEING ACTIVELY UTILIZED FOR CONSTRUCTION PURPOSES, SHALL BE EFFECTIVELY STABILIZED OF DUST EMISSIONS USING WATER, CHEMICAL STABILIZER/SUPPRESSANT, OR VEGETATIVE GROUND COVER.
3. ALL GROUND–DISTURBING ACTIVITIES (E.G., CLEARING, GRUBBING, SCRAPING, AND EXCAVATION) SHALL BE EFFECTIVELY CONTROLLED OF FUGITIVE DUST EMISSIONS UTILIZING APPLICATION OF WATER OR BY PRE–SOAKING.
4. ALL MATERIALS TRANSPORTED OFFSITE SHALL BE COVERED OR EFFECTIVELY WETTED TO LIMIT DUST EMISSIONS.
5. FOLLOWING THE ADDITION OF MATERIALS TO, OR THE REMOVAL OF MATERIALS FROM, THE SURFACES OF OUTDOOR STORAGE PILES, SAID PILES SHALL BE EFFECTIVELY STABILIZED OF FUGITIVE DUST EMISSIONS UTILIZING SUFFICIENT WATER OR CHEMICAL STABILIZER/SUPPRESANT.
6. ONSITE VEHICLE SPEED ON UNPAVED SURFACES SHALL BE LIMITED TO 15 MPH.
7. DISTURBED AREAS SHALL BE SEEDED PRIOR TO OCTOBER 15TH OR EARLIER AS REQUIRED BY THE APPLICABLE PERMIT CONDITIONS.

ACCESS AND STAGING AREA NOTES

1. UTILIZE ONLY THE APPROVED ACCESS POINTS, AS SHOWN ON THE DRAWINGS. MATERIALS SHALL BE STOCKPILED WITHIN AN EXISTING FLAT AND PREVIOUSLY DISTURBED AREA.
2. ACCESS PLAN IS SCHEMATIC. CONTRACTOR SHALL SUBMIT A SITE ACCESS PLAN FOR APPROVAL BY THE ENGINEER.
3. THE DOWNSLOPE PERIMETER OF STAGING OR STOCKPILE AREAS SHALL BE CONTAINED WITH SILT FENCE.
4. ALL EQUIPMENT AND MATERIALS SHALL BE STORED, MAINTAINED AND REFUELED IN A DESIGNATED PORTION OF THE STAGING AREA.

DIVERSION NOTES

THE DIVERSION PLAN SHOWN IS SCHEMATIC. GENERAL REQUIREMENTS ARE PROVIDED BELOW. THE FULL REQUIREMENTS OF THE DIVERSION AND DEWATERING PLAN ARE SPECIFIED IN THE PROJECT TECHNICAL SPECIFICATIONS.

1. GENERAL
   - 1.1. THE PROJECT AREA IS TYPICALLY DRY DURING THE ANTICIPATED CONSTRUCTION WINDOW OF AUGUST 15TH THROUGH OCTOBER 15TH. HOWEVER, THE CONTRACTOR SHALL BE PREPARED TO IMMEDIATELY INSTALL AND MAINTAIN TEMPORARY SANDBAG COFFER DAMS TO ISOLATE FLOWS AWAY FROM CONSTRUCTION AREAS, SHOULD RAIN BE FORECAST.
   - 1.2. THE PROPOSED DIVERSION STRUCTURE SHALL CONSIST OF A SEALED SAND BAG COFFER DAM AND A GRAVITY FLOW PIPELINE. THE DAM AND METHOD OF SEALING SHALL BE PLACED AT AN APPROPRIATE DEPTH TO CAPTURE SUBSURFACE STREAM FLOW.
   - 1.3. NO OTHER DIVERSION METHOD SHALL BE USED WITHOUT AUTHORIZATION OF THE ENGINEER. IF AN ALTERNATE DIVERSION METHOD IS PREFERRED BY THE CONTRACTOR, THE CONTRACTOR SHALL SUBMIT A PLAN TO THE ENGINEER FOR APPROVAL, DETAILING THE DESIRED DIVERSION METHOD.
   - 1.4. INSTALL THE COFFER DAMS WHEN THE FIVE–DAY RAIN PROBABILITY EXCEEDS 50 PERCENT AS DETERMINED FROM THE NATIONAL WEATHER FORECAST OFFICE: WWW.SRH.NOAA.GOV.
   - 1.5. MAINTAIN THE COFFER DAMS DURING THE COURSE OF THE CONSTRUCTION WORK.
   - 1.6. DIVERT FLOW ONLY WHEN THE DIVERSION CONSTRUCTION IS COMPLETE. FOLLOWING ENGINEER'S APPROVAL OF THE COMPLETED WORK, REMOVE DIVERSION BEGINNING AT THE DOWNSTREAM LIMIT, IN AN UPSTREAM DIRECTION.
   - 1.7. IN THE EVENT OF A SIGNIFICANT STORM, THE CONTRACTOR SHALL BE PREPARED TO TAKE NECESSARY MEASURES TO INSURE SAFE PASSAGE OF STORM WATER FLOW THROUGH THE PROJECT AREA, WITHOUT DAMAGE TO EXISTING STRUCTURES, OR INTRODUCTION OF EXCESSIVE SEDIMENT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TEMPORARY EROSION CONTROL B.M.P.'S.
2. DEWATERING OF CONSTRUCTION AREAS
   - 2.1. ANY DEWATERING ACTIVITIES WHICH MAY BE REQUIRED FOR CONSTRUCTION PURPOSES SHALL BE CONDUCTED IN A MANNER WHICH DOES NOT VIOLATE ANY WATER QUALITY STANDARDS ESTABLISHED BY THE CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD.
   - 2.2. DISCHARGE OF WATER FROM THE DEWATERED CONSTRUCTION SITE, EITHER BY GRAVITY OR PUMPING, SHALL BE PERFORMED IN A MANNER TO PREVENT EXCESSIVE TURBIDITY FROM ENTERING THE RECEIVING WATERWAYS AND TO PREVENT SCOUR AND EROSION OUTSIDE OF THE CONSTRUCTION SITE. PUMPED WATER SHOULD BE PRE–FILTERED WITH SAND/GRAVEL PACK AROUND SUMPS FOR SUBSURFACE FLOWS AND A SILT FENCE OR HAY BALES AROUND PUMPS FOR SURFACE FLOW. PUMPED WATER SHALL BE DISCHARGED INTO ISOLATED LOCAL DEPRESSIONS, FILTER BAGS, SETTLING (BAKER) TANKS, OR TEMPORARY SEDIMENT BASINS, AS NECESSARY TO MEET WATER QUALITY REQUIREMENTS. WHERE WATER TO BE DISCHARGED INTO THE CREEK WILL CREATE EXCESSIVE TURBIDITY, THE WATER SHALL BE ROUTED THROUGH A SEDIMENT INTERCEPTOR OR OTHER FACILITIES TO REMOVE SEDIMENT FROM WATER.
   - 2.3. CONTRACTOR SHALL SUPPLY ALL NECESSARY PUMPS, PIPING, FILTERS, SHORING, AND OTHER TOOLS AND MATERIALS NECESSARY FOR DEWATERING.

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DRAFT

NOT FOR CONSTRUCTION

PREPARED AT THE REQUEST OF:

PITCHER PROPERTIES

EROSION CONTROL, STAGING AND ACCESS PLAN

PITCHER PROPERTIES
CHANNEL AND BANK STABILIZATION PROJECT
90% DESIGN PLAN

DESIGNED BY:	B.M.S.
DRAWN BY:	B.M.S.
CHECKED BY:	M.W.W.
DATE:	9/21/15
JOB NO.:	13–059

BAR IS ONE INCH ON ORIGINAL DRAWING, ADJUST SCALES FOR REDUCED PLOTS

0 1"

C6 | 6 OF 8

GENERAL NOTES

1. PREPARED AT THE REQUEST OF:
   PITCHER PROPERTIES, INC.
   4701 RED FOX DRIVE
   ANNANDALE, VA 22003

2. NOTIFY THE ENGINEER AT LEAST 48 HOURS PRIOR TO CONSTRUCTION. THE ENGINEER OR A DESIGNATED REPRESENTATIVE SHALL OBSERVE THE CONSTRUCTION PROCESS, AS NECESSARY TO ENSURE PROPER INSTALLATION PROCEDURES.

3. EXISTING UNDERGROUND UTILITY LOCATIONS:

   F. CALL UNDERGROUND SERVICE ALERT (1-800-642-2444) TO LOCATE ALL UNDERGROUND UTILITY LINES PRIOR TO COMMENCING CONSTRUCTION.

   G. PRIOR TO BEGINNING WORK, CONTACT ALL UTILITIES COMPANIES WITH REGARD TO WORKING OVER, UNDER, OR AROUND EXISTING FACILITIES AND TO OBTAIN INFORMATION REGARDING RESTRICTIONS THAT ARE REQUIRED TO PREVENT DAMAGE TO THE FACILITIES.

   H. EXISTING UTILITY LOCATIONS SHOWN ARE COMPILED FROM INFORMATION SUPPLIED BY THE APPROPRIATE UTILITY AGENCIES AND FROM FIELD MEASUREMENTS TO ABOVE GROUND FEATURES READILY VISIBLE AT THE TIME OF SURVEY. LOCATIONS SHOWN ARE APPROXIMATE. THE CONTRACTOR IS CAUTIONED THAT ONLY ACTUAL EXCAVATION WILL REVEAL THE DIMENSIONS, SIZES, MATERIALS, LOCATIONS, AND DEPTH OF UNDERGROUND UTILITIES.

   I. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE LOCATION AND/OR PROTECTION OF ALL EXISTING AND PROPOSED PIPING, UTILITIES, TRAFFIC SIGNAL EQUIPMENT (BOTH ABOVE GROUND AND BELOW GROUND), STRUCTURES, AND ALL OTHER EXISTING IMPROVEMENTS THROUGHOUT CONSTRUCTION.

   J. PRIOR TO COMMENCING FABRICATION OR CONSTRUCTION, DISCOVER OR VERIFY THE ACTUAL DIMENSIONS, SIZES, MATERIALS, LOCATIONS, AND ELEVATIONS OF ALL EXISTING UTILITIES AND POTHOLE THOSE AREAS WHERE POTENTIAL CONFLICTS ARE LIKELY OR DATA IS OTHERWISE INCOMPLETE.

   K. TAKE APPROPRIATE MEASURES TO PROTECT EXISTING UTILITIES DURING CONSTRUCTION OPERATIONS. CONTRACTOR IS SOLELY RESPONSIBLE FOR THE COST OF REPAIR/REPLACEMENT OF ANY EXISTING UTILITIES DAMAGED DURING CONSTRUCTION.

   L. UPON LEARNING OF THE EXISTENCE AND/OR LOCATIONS OF ANY UNDERGROUND FACILITIES NOT SHOWN OR SHOWN INACCURATELY ON THE PLANS OR NOT PROPERLY MARKED BY THE UTILITY OWNER, IMMEDIATELY NOTIFY THE UTILITY OWNER AND THE COUNTY BY TELEPHONE AND IN WRITING.

   M. UTILITY RELOCATIONS REQUIRED FOR THE CONSTRUCTION OF THE PROJECT FACILITIES WILL BE PERFORMED BY THE UTILITY COMPANY, UNLESS OTHERWISE NOTED.

4. IF DISCREPANCIES ARE DISCOVERED BETWEEN THE CONDITIONS EXISTING IN THE FIELD AND THE INFORMATION SHOWN ON THESE DRAWINGS, NOTIFY THE ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.

5. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO BE FULLY INFORMED OF AND TO COMPLY WITH ALL LAWS, ORDINANCES, CODES, REQUIREMENTS AND STANDARDS WHICH IN ANY MANNER AFFECT THE COURSE OF CONSTRUCTION OF THIS PROJECT, THOSE ENGAGED OR EMPLOYED IN THE CONSTRUCTION AND THE MATERIALS USED IN THE CONSTRUCTION.

6. ANY TESTS, INSPECTIONS, SPECIAL OR OTHERWISE, THAT ARE REQUIRED BY THE BUILDING CODES, LOCAL BUILDING DEPARTMENTS, OR THESE PLANS, SHALL BE DONE BY AN INDEPENDENT INSPECTION COMPANY. JOB SITE VISITS BY THE ENGINEER DO NOT CONSTITUTE AN OFFICIAL INSPECTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT THE REQUIRED TESTS AND INSPECTIONS ARE PERFORMED.

7. PROJECT SCHEDULE: PRIOR TO COMMENCEMENT OF WORK, SUBMIT TO THE ENGINEER FOR REVIEW AND APPROVAL A DETAILED CONSTRUCTION SCHEDULE. DO NOT BEGIN ANY CONSTRUCTION WORK UNTIL THE PROJECT SCHEDULE AND WORK PLAN IS APPROVED BY THE ENGINEER. ALL CONSTRUCTION SHALL BE CLOSELY COORDINATED WITH THE ENGINEER SO THAT THE QUALITY OF WORK CAN BE CHECKED FOR APPROVAL. PURSUE WORK IN A CONTINUOUS AND DILIGENT MANNER TO ENSURE A TIMELY COMPLETION OF THE PROJECT.

8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DESIGN, PERMITTING, INSTALLATION, AND MAINTENANCE OF ANY AND ALL TRAFFIC CONTROL MEASURES DEEMED NECESSARY.

9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR GENERAL SAFETY DURING CONSTRUCTION. ALL WORK SHALL CONFORM TO PERTINENT SAFETY REGULATIONS AND CODES. THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR FURNISHING, INSTALLING, AND MAINTAINING ALL WARNING SIGNS AND DEVICES NECESSARY TO SAFEGUARD THE GENERAL PUBLIC AND THE WORK, AND PROVIDE FOR THE PROPER AND SAFE ROUTING OF VEHICULAR AND PEDESTRIAN TRAFFIC DURING THE PERFORMANCE OF THE WORK. THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR COMPLIANCE WITH ALL APPLICABLE PROVISIONS OF OSHA IN THE CONSTRUCTION PRACTICES FOR ALL EMPLOYEES DIRECTLY ENGAGED IN THE CONSTRUCTION OF THIS PROJECT.

10. CONSTRUCTION CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONSTRUCTION CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS, AND CONSTRUCTION CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY AND HOLD DESIGN PROFESSIONAL HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTION LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF DESIGN PROFESSIONAL. NEITHER THE PROFESSIONAL ACTIVITIES OF CONSULTANT NOR THE PRESENCE OF CONSULTANT OR HIS OR HER EMPLOYEES OR SUB-CONSULTANTS AT A CONSTRUCTION SITE SHALL RELIEVE THE CONTRACTOR AND ITS SUBCONTRACTORS OF THEIR RESPONSIBILITIES INCLUDING, BUT NOT LIMITED TO, CONSTRUCTION MEANS, METHODS, SEQUENCE, TECHNIQUES OR PROCEDURES NECESSARY FOR PERFORMING, SUPERINTENDING OR COORDINATING ALL PORTIONS OF THE WORK OF CONSTRUCTION IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND APPLICABLE HEALTH OR SAFETY REQUIREMENTS OF ANY REGULATORY AGENCY OR OF STATE LAW.

11. MAINTAIN A CURRENT, COMPLETE, AND ACCURATE RECORD OF ALL AS-BUILT DEVIATIONS FROM THE CONSTRUCTION AS SHOWN ON THESE DRAWINGS AND SPECIFICATIONS, FOR THE PURPOSE OF PROVIDING THE ENGINEER OF RECORD WITH A BASIS FOR THE PREPARATION OF RECORD DRAWINGS.

12. MAINTAIN THE SITE IN A NEAT AND ORDERLY MANNER THROUGHOUT THE CONSTRUCTION PROCESS. STORE ALL MATERIALS WITHIN APPROVED STAGING AREAS.

13. PROVIDE, AT CONTRACTOR'S SOLE EXPENSE, ALL MATERIALS, LABOR AND EQUIPMENT REQUIRED TO COMPLY WITH ALL APPLICABLE PERMIT CONDITIONS AND REQUIREMENTS.

14. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION STAKING AND LAYOUT, UNLESS OTHERWISE SPECIFIED.

15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION AND PRESERVATION OF ALL SURVEY MONUMENTS OR PROPERTY CORNERS. DISTURBED MONUMENTS SHALL BE RESTORED BACK TO THEIR ORIGINAL LOCATION AND SHALL BE CERTIFIED BY A REGISTERED CIVIL ENGINEER OR LAND SURVEYOR AT THE SOLE EXPENSE OF THE CONTRACTOR.

16. TREE DIMENSIONS: TRUNK DIAMETERS SHOWN REPRESENT DIAMETER AT BREAST HEIGHT (DBH), MEASURED IN INCHES. DBH IS MEASURED 4.5 FT ABOVE GROUND FOR SINGLE TRUNKS AND TRUNKS THAT SPLIT INTO SEVERAL STEMS CLOSE TO THE GROUND. THE DBH FOR TREES THAT SPLIT INTO SEVERAL STEMS CLOSE TO THE GROUND MAY BE CONSOLIDATED INTO A SINGLE DBH BY TAKING THE SQUARE ROOT OF THE SUM OF ALL SQUARED STEM DBH'S, UNLESS OTHERWISE NOTED. WHERE TREES FORK NEAR BREAST HEIGHT, TRUNK DIAMETER IS MEASURED AT THE NARROWEST PART OF THE MAIN STEM BELOW THE FORK. FOR TREES ON A SLOPE, BREAST HEIGHT IS REFERENCED FROM THE UPPER SIDE OF THE SLOPE. FOR LEANING TREES, BREAST HEIGHT IS MEASURED ON THE SIDE THAT THE TREE LEANS TOWARD. TREES WITH DBH LESS THAN 8" ARE TYPICALLY NOT SHOWN.

    12"P = 12" DBH PINE

17. TREE SPECIES ARE IDENTIFIED WHEN KNOWN. HOWEVER, FINAL DETERMINATION SHOULD BE MADE BY A QUALIFIED BOTANIST. REFER TO THE LEGEND FOR TREE SPECIES SYMBOLS.

GENERAL NOTES (CONTINUED)

1. TREE TRUNK DIMENSIONS MAY BE SHOWN OUT-OF-SCALE FOR PLOTTING CLARITY. CAUTION SHOULD BE USED IN DESIGNING NEAR TREE TRUNKS. THERE ARE LIMITATIONS ON FIELD ACCURACY, DRAFTING ACCURACY, MEDIUM STRETCH AS WELL AS THE "SPREAD" OR "LEANING" OF TREES. REQUEST ADDITIONAL TOPOGRAPHIC DETAIL WHERE CLOSE TOLERANCES ARE ANTICIPATED. INDIVIDUAL TREES ARE NOT TYPICALLY LOCATED WITHIN DRIPLINE CANOPY AREAS SHOWN.

2. CONTRACTOR IS REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.

3. THE EVENT THAT HUMAN REMAINS AND/OR CULTURAL MATERIALS ARE FOUND, ALL PROJECT-RELATED CONSTRUCTION SHALL CEASE WITHIN A 100-FOOT RADIUS. THE CONTRACTOR SHALL, PURSUANT TO SECTION 7050.5 OF THE HEALTH AND SAFETY CODE, AND SECTION 5097.94 OF THE PUBLIC RESOURCES CODE OF THE STATE OF CALIFORNIA, NOTIFY THE SAN MATEO COUNTY CORONER IMMEDIATELY.

EARTHWORK NOTES

1. ALL GRADING SHALL COMPLY WITH THE RECOMMENDATIONS OF WITH THE APPLICABLE REQUIREMENTS OF THE SAN MATEO COUNTY GRADING ORDINANCE.

2. GRADING SUMMARY:

TOTAL CUT VOLUME =	282 CY
TOTAL FILL VOLUME =	252 CY
OFFHAUL =	30 CY

   THE ABOVE QUANTITIES ARE APPROXIMATE IN-PLACE VOLUMES CALCULATED AS THE DIFFERENCE BETWEEN EXISTING GROUND AND THE PROPOSED FINISH GRADE, PREPARED FOR PERMITTING PURPOSES ONLY. EXISTING GROUND IS DEFINED BY THE TOPOGRAPHIC CONTOURS AND/OR SPOT ELEVATIONS ON THE PLAN. PROPOSED FINISH GRADE IS DEFINED AS THE DESIGN SURFACE ELEVATION OF WORK TO BE CONSTRUCTED. THE QUANTITIES HAVE NOT BEEN FACTORED TO INCLUDE ALLOWANCES FOR BULKING, CLEARING AND GRUBBING, SUBSIDENCE, SHRINKAGE, OVER EXCAVATION, AND RECOMPACTION, UNDERGROUND UTILITY AND SUBSTRUCTURE SPOILS AND CONSTRUCTION METHODS.

   THE CONTRACTOR SHALL PERFORM AN INDEPENDENT EARTHWORK ESTIMATE FOR THE PURPOSE OF PREPARING BID PRICES FOR EARTHWORK. THE BID PRICE SHALL INCLUDE COSTS FOR ANY NECESSARY IMPORT AND PLACEMENT OF EARTH MATERIALS OR THE EXPORT AND PROPER DISPOSAL OF EXCESS OR UNSUITABLE EARTH MATERIALS.

3. PRIOR TO COMMENCING WORK, PROTECT ALL AREAS TO REMAIN UNDISTURBED WITH TEMPORARY FENCING.

4. DO NOT DISTRURB AREAS OUTSIDE OF THE DESIGNATED LIMITS OF DISTURBANCE, UNLESS AUTHORIZED IN WRITING BY THE ENGINEER. ALL WORK ASSOCIATED WITH RESTORATION AND REVEGETATION OF DISTURBED AREAS OUTSIDE THE DESIGNATED LIMITS OF DISTURBANCE, AS SHOWN ON THE DRAWINGS, SHALL BE BORN SOLELY BY THE CONTRACTOR.

5. ALL EXCESS SOILS SHALL BE REMOVED TO AN APPROVED DUMP SITE OR DISPOSED OF ON SITE AT A LOCATION TO BE APPROVED BY THE ENGINEER, IN A MANNER THAT WILL NOT CAUSE EROSION,

6. CLEARING AND GRUBBING, SUBGRADE PREPARATION AND EARTHWORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 19 OF THE STANDARD SPECIFICATIONS, THESE DRAWINGS, AND THE TECHNICAL SPECIFICATIONS.

7. PRIOR TO STARTING WORK ON THE PROJECT, THE CONTRACTOR SHALL SUBMIT FOR ACCEPTANCE BY THE ENGINEER A HAZARDOUS MATERIALS CONTROLS AND SPILL PREVENTION PLAN. THE PLAN SHALL INCLUDE PROVISIONS FOR PREVENTING HAZARDOUS MATERIALS FROM CONTAMINATING SOIL OR ENTERING WATER COURSES, AND SHALL ESTABLISH A SPILL PREVENTION AND COUNTERMEASURE PLAN.

8. UNSUITABLE SOIL OR MATERIALS, NOT TO BE INCLUDED IN THE WORK INCLUDE:

   A. ORGANIC MATERIALS SUCH AS PEAT, MULCH, ORGANIC SILT OR SOD.
   B. SOILS CONTAINING EXPANSIVE CLAYS.
   C. MATERIAL CONTAINING EXCESSIVE MOISTURE.
   D. POORLY GRADED COURSE MATERIAL, PARTICLE SIZE IN EXCESS OF 6 INCHES.
   E. MATERIAL WHICH WILL NOT ACHIEVE SPECIFIED DENSITY OR BEARING.

9. FINE GRADING ELEVATIONS AND SLOPES NOT SHOWN SHALL BE DETERMINED BY THE CONTRACTOR IN THE FIELD TO OBTAIN DRAINAGE IN THE DIRECTION INDICATED. ALL FINAL GRADING SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER.

10. THE TOP 6" OF SUBGRADE UNDER ALL PAVED SURFACES SUBJECT TO VEHICULAR USE SHALL BE COMPACTED TO A MINIMUM OF 95% RELATIVE COMPACTION, IN ACCORDANCE WITH ASTM-D1557. ALL OTHER FILL TO BE COMPACTED TO A MINIMUM OF 90% MAXIMUM DENSITY AS DETERMINED BY ASTM-D1557 AND SO CERTIFIED BY TESTS AND REPORTS FROM THE CIVIL ENGINEER IN CHARGE OF THE GRADING CERTIFICATION.

11. FILL MATERIAL SHALL BE SPREAD IN LIFTS OF APPROXIMATELY 8 INCHES, MOISTENED OR DRIED TO NEAR OPTIMUM MOISTURE CONTENT AND RECOMPACTED. THE MATERIALS FOR ENGINEERED FILL SHALL BE APPROVED BY A REGISTERED CIVIL ENGINEER. ANY IMPORTED MATERIALS MUST BE APPROVED BEFORE BEING BROUGHT TO THE SITE. THE MATERIALS USED SHALL BE FREE OF ORGANIC MATTER AND OTHER DELETERIOUS MATERIALS.

12. ALL CONTACT SURFACES BETWEEN ORIGINAL GROUND AND RECOMPACTED FILL SHALL BE EITHER HORIZONTAL OR VERTICAL. ALL ORGANIC MATERIAL SHALL BE REMOVED AND THE REMAINING SURFACE SCARIFIED TO A DEPTH OF AT LEAST 12 INCHES, UNLESS DEEPER EXCAVATION IS REQUIRED BY THE ENGINEER.

EROSION CONTROL NOTES

1. THE EROSION CONTROL PLAN SHOWN IS INTENDED FOR THE SUMMER CONSTRUCTION SEASON (APRIL 15TH TO OCTOBER 15TH). IF THE DRAINAGE FEATURES SHOWN ON THESE DRAWINGS ARE NOT COMPLETED AND DISTURBED AREAS STABILIZED BY OCTOBER 1ST, CONSULT THE ENGINEER FOR ADDITIONAL RAINY SEASON EROSION CONTROL MEASURES.

2. PRIOR TO COMMENCING WORK, AREAS TO REMAIN UNDISTURBED SHALL BE PROTECTED WITH ESA FENCING, AS SHOWN ON THE DRAWINGS. ADDITIONAL FENCING MAY BE REQUIRED AT THE DIRECTION OF THE ENGINEER.

3. CONTRACTOR SHALL UTILIZE ONLY THE APPROVED HAUL ROADS AND ACCESS POINTS (AS SHOWN ON THE DRAWINGS) FOR TRANSPORT OF MATERIALS AND EQUIPMENT.

4. BETWEEN OCTOBER 15 AND APRIL 15, EXPOSED SOIL SHALL BE PROTECTED FROM EROSION AT ALL TIMES. DURING CONSTRUCTION, SUCH PROTECTION MAY CONSIST OF MULCHING AND/OR PLANTING OF NATIVE VEGETATION OF ADEQUATE DENSITY. BEFORE COMPLETION OF THE PROJECT, ANY EXPOSED SOIL ON DISTURBED SLOPES SHALL BE PERMANENTLY PROTECTED FROM EROSION.

5. A STANDBY CREW FOR EMERGENCY WORK SHALL BE AVAILABLE AT ALL TIMES DURING THE RAINY SEASON (OCTOBER 15 THROUGH APRIL 15). NECESSARY MATERIALS SHALL BE AVAILABLE AND STOCKPILED AT CONVENIENT LOCATIONS TO FACILITATE RAPID CONSTRUCTION OF TEMPORARY DEVICES.

6. CONSTRUCT TEMPORARY EROSION CONTROL MEASURES AS SHOWN ON THIS PLAN AND/OR AS DIRECTED BY THE ENGINEER TO CONTROL DRAINAGE WHICH HAS BEEN AFFECTED BY GRADING AND/OR TRENCHING OPERATIONS.

7. THE CONTRACTOR SHALL INCORPORATE ADEQUATE DRAINAGE PROCEDURES DURING THE CONSTRUCTION PROCESS TO ELIMINATE EXCESSIVE PONDING AND EROSION.

8. CONSTRUCT AND MAINTAIN EROSION CONTROL MEASURES TO PREVENT THE DISCHARGE OF EARTHEN MATERIALS TO THE CREEK FROM DISTURBED AREAS UNDER CONSTRUCTION AND FROM COMPLETED CONSTRUCTION AREAS.

9. INSTALL ALL PROTECTIVE DEVICES AT THE END OF EACH WORK DAY WHEN THE FIVE-DAY RAIN PROBABILITY EQUALS OR EXCEEDS 50 PERCENT AS DETERMINED FROM THE NATIONAL WEATHER SERVICE FORECAST OFFICE: WWW.SRH.NOAA.GOV.

10. AFTER A RAINSTORM, ALL SILT AND DEBRIS SHALL BE REMOVED FROM CHECK BERMS AND SEDIMENTATION BASIN AND THE BASIN PUMPED DRY.

11. THE EROSION CONTROL DEVICES ON THIS PLAN ARE A SCHEMATIC REPRESENTATION OF WHAT MAY BE REQUIRED. EROSION CONTROL DEVICES MAY BE RELOCATED, DELETED, OR ADDITIONAL ITEMS MAY BE REQUIRED DEPENDING ON THE ACTUAL SOIL CONDITIONS ENCOUNTERED, AT THE DISCRETION OF THE ENGINEER.

12. THE CONTRACTOR IS RESPONSIBLE TO KEEP IN FORCE ALL EROSION CONTROL DEVICES AND TO MODIFY THOSE DEVICES AS SITE PROGRESS DICTATES.

13. THE CONTRACTOR SHALL MONITOR THE EROSION CONTROL DEVICES DURING STORMS AND MODIFY THEM IN ORDER TO PREVENT PROGRESS OF ANY ONGOING EROSION.

14. THE CONTRACTOR IS RESPONSIBLE FOR CLEANING ANY EROSION OR DEBRIS SPILLING ONTO A PUBLIC STREET.

15. THE CONTRACTOR SHALL CONTACT THE ENGINEER IN THE EVENT THAT THE EROSION CONTROL PLAN AS DESIGNED REQUIRES ANY SUBSTANTIAL REVISIONS.

16. CONTRACTOR SHALL BE FAMILIAR WITH THE CONDITIONS OF APPROVAL OF ALL REQUIRED PROJECT PERMITS AND SHALL IMPLEMENT ALL REQUIRED BMP'S PRIOR TO COMMENCING GRADING OPERATIONS.

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DRAFT

NOT FOR CONSTRUCTION

PREPARED AT THE REQUEST OF:
PITCHER PROPERTIES

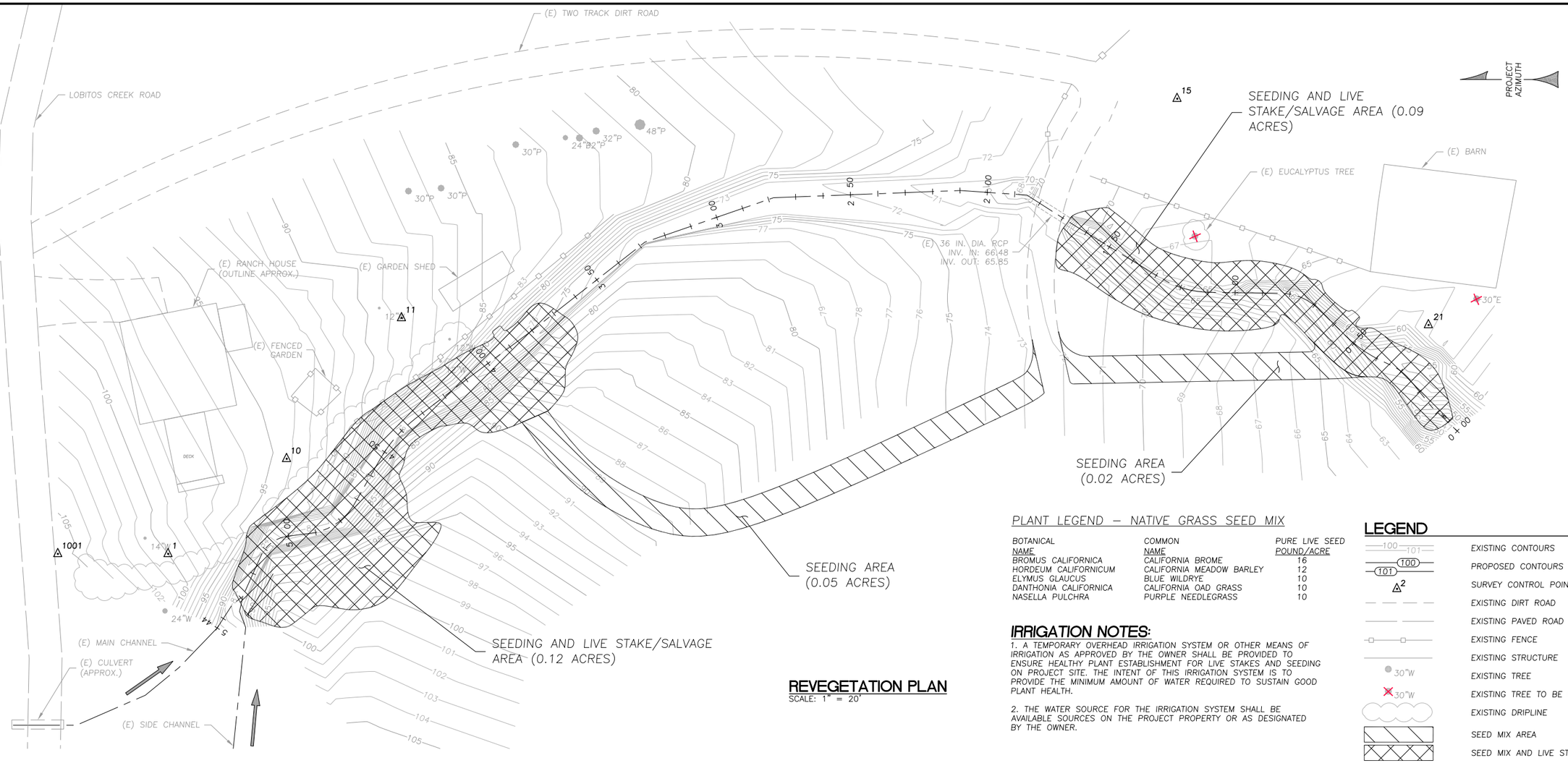
GENERAL NOTES

PITCHER PROPERTIES
CHANNEL AND BANK
STABILIZATION PROJECT
90% DESIGN PLAN

DESIGNED BY:	B.M.S.
DRAWN BY:	B.M.S.
CHECKED BY:	M.W.W.
DATE:	9/21/15
JOB NO.:	13-059

BAR IS ONE INCH ON ORIGINAL DRAWING, ADJUST SCALES FOR REDUCED PLOTS
0 1"

C7 | 7 OF 8



REVEGETATION PLAN
SCALE: 1" = 20'

PLANT LEGEND – NATIVE GRASS SEED MIX

BOTANICAL NAME	COMMON NAME	PURE LIVE SEED POUND/ACRE
BROMUS CALIFORNICA	CALIFORNIA BROME	16
HORDEUM CALIFORNICUM	CALIFORNIA MEADOW BARLEY	12
ELYMUS GLAUCUS	BLUE WILDRYE	10
DANTHONIA CALIFORNICA	CALIFORNIA OAD GRASS	10
NASELLA PULCHRA	PURPLE NEEDLEGRASS	10

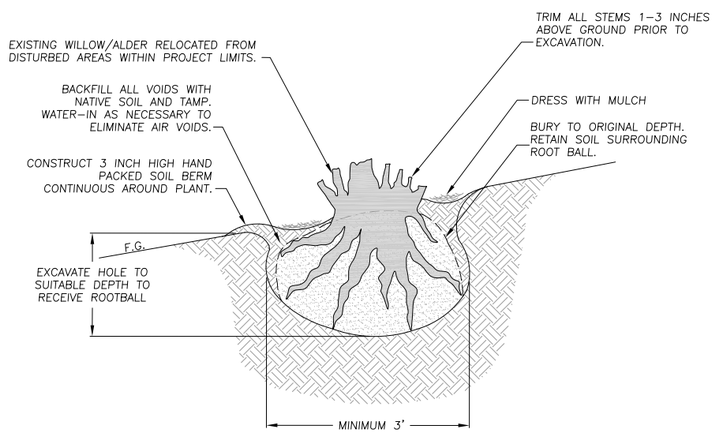
LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- SURVEY CONTROL POINT
- EXISTING DIRT ROAD
- EXISTING PAVED ROAD
- EXISTING FENCE
- EXISTING STRUCTURE
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- EXISTING DRIPLINE
- SEED MIX AREA
- SEED MIX AND LIVE STAKE AREA

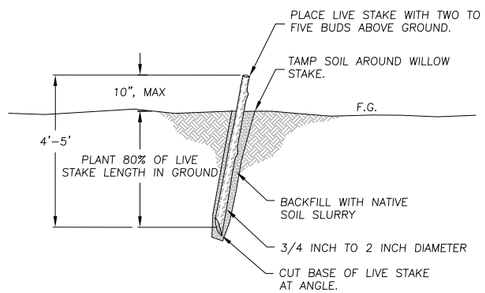
IRRIGATION NOTES:

1. A TEMPORARY OVERHEAD IRRIGATION SYSTEM OR OTHER MEANS OF IRRIGATION AS APPROVED BY THE OWNER SHALL BE PROVIDED TO ENSURE HEALTHY PLANT ESTABLISHMENT FOR LIVE STAKES AND SEEDING ON PROJECT SITE. THE INTENT OF THIS IRRIGATION SYSTEM IS TO PROVIDE THE MINIMUM AMOUNT OF WATER REQUIRED TO SUSTAIN GOOD PLANT HEALTH.

2. THE WATER SOURCE FOR THE IRRIGATION SYSTEM SHALL BE AVAILABLE SOURCES ON THE PROJECT PROPERTY OR AS DESIGNATED BY THE OWNER.



WILLOW/ALDER RELOCATION DETAIL
SCALE: N.T.S.



LIVE STAKE
SCALE: N.T.S.

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PREPARED AT THE REQUEST OF:
PITCHER PROPERTIES

REVEGETATION PLAN

PITCHER PROPERTIES
CHANNEL AND BANK
STABILIZATION PROJECT
90% DESIGN PLAN

DESIGNED BY:	B.M.S.
DRAWN BY:	B.M.S.
CHECKED BY:	M.W.W.
DATE:	9/21/15
JOB NO.:	13-059

BAR IS ONE INCH ON ORIGINAL DRAWING, ADJUST SCALES FOR REDUCED PLOTS
0 1"

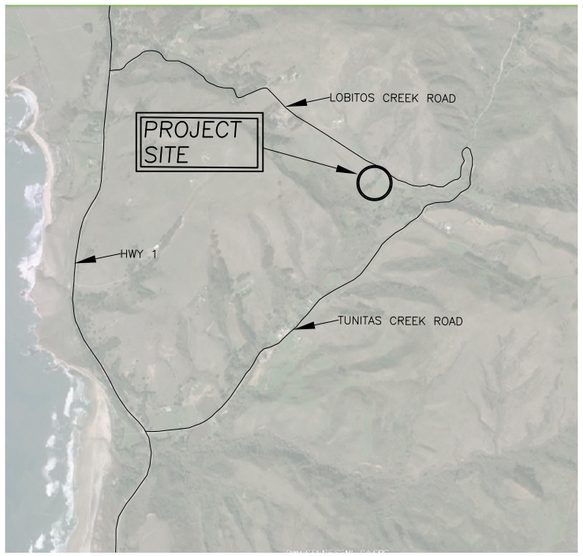
R1 | 1 OF 8

Pitcher Ranch
Channel Stabilization Project

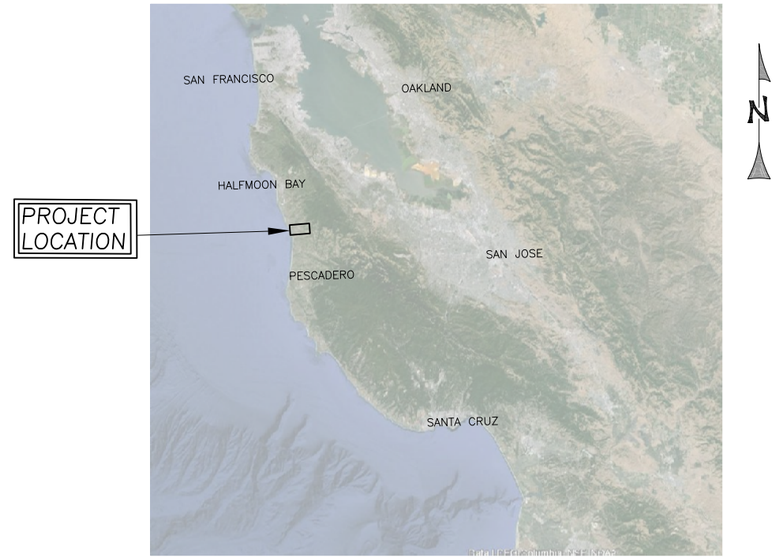
APPENDIX 3

Concept Level Designs

PITCHER PROPERTIES
STREAM STABILIZATION PROJECT
CONCEPT LEVEL DESIGN SUBMITTAL



VICINITY MAP
N.T.S. (GOOGLE)



REGIONAL MAP
N.T.S. (GOOGLE)

SHEET INDEX

GENERAL NOTES

1, TOPOGRAPHIC MAPPING WAS PERFORMED BY:
WATERWAYS CONSULTING, INC.
509A SWIFT STREET
SANTA CRUZ, CA 95060
SURVEY DATE: 7-24-14

2. ELEVATION DATUM IS ARBITRARY

3. CONTOUR INTERVAL IS ONE FOOT. ELEVATIONS AND DISTANCES ARE SHOWN IN DECIMAL FEET.

4. THIS IS NOT A BOUNDARY SURVEY. PROPERTY LINES ARE NOT SHOWN HEREON.

5. THESE DRAWINGS ARE FOR CONCEPT LEVEL PLANNING AND NOT FOR CONSTRUCTION.

ABBREVIATIONS

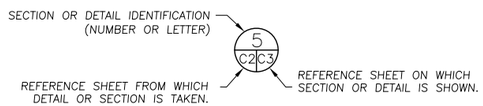
AVG.	AVERAGE
CC	CONCRETE
CY	CUBIC YARDS
DBH	DIAMETER AT BREAST HEIGHT
DIA.	DIAMETER
E	EXISTING
E.G.	EXISTING GROUND
ELEV.	ELEVATION
DI	DRAINAGE INLET
FG	FINISH GRADE
FT	FEET
INV	INVERT
N	NEW
N.T.S	NOT TO SCALE
O.C.	ON CENTER
RSP	ROCK SLOPE PROTECTION
SPK	SPIKE
SQ.FT.	SQUARE FOOT
T	TREE
T.B.D.	TO BE DETERMINED
TYP	TYPICAL
UNK	UNKNOWN
WSE	WATER SURFACE ELEVATION
YR	YEAR

TREE SPECIES	
ALDER	ALDER
BAY	BAY
M	MAPLE
O	OAK
P	PINE
W	WALNUT

PROJECT DESCRIPTION

THESE DRAWINGS PROVIDE CONCEPT DESIGN LEVEL DETAILS FOR THE STABILIZATION OF A DEGRADED TRIBUTARY CHANNEL LOCATED ON LANDS OWNED BY PITCHER PROPERTIES. THE CHANNEL AT PITCHER RANCH IS A TRIBUTARY TO TUNITAS CREEK IN SAN MATEO COUNTY, CALIFORNIA.

SECTION AND DETAIL CONVENTION



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DATE
MATT W. WELD
No. 62235
Exp. 9-30-15
REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA

PREPARED AT THE REQUEST OF:
PITCHER PROPERTIES

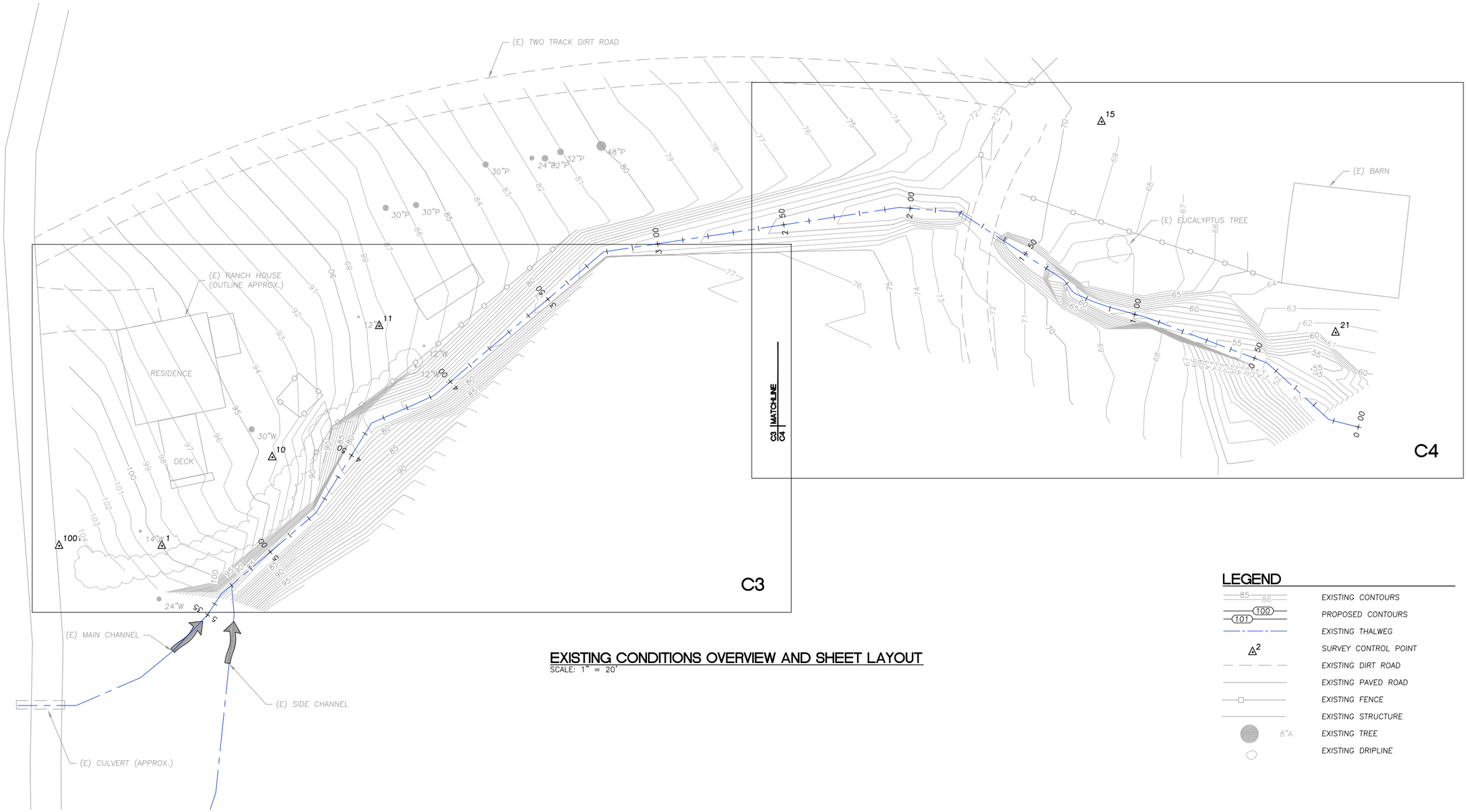
COVER SHEET

PITCHER PROPERTIES
CHANNEL STABILIZATION
CONCEPT LEVEL PLAN
(alternatives 2 + 3)

DESIGNED BY: –
DRAWN BY: –
CHECKED BY: M.W.W.
DATE: 9/21/15
JOB NO.: 13-059

BAR IS ONE INCH ON ORIGINAL DRAWING, ADJUST SCALES FOR REDUCED PLOTS
0 1"

C1 | 1 OF 5



EXISTING CONDITIONS OVERVIEW AND SHEET LAYOUT

SCALE: 1" = 20'

LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- EXISTING THALWEG
- SURVEY CONTROL POINT
- EXISTING DIRT ROAD
- EXISTING PAVED ROAD
- EXISTING FENCE
- EXISTING STRUCTURE
- EXISTING TREE
- EXISTING DRIPLINE

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PREPARED AT THE REQUEST OF:

PITCHER PROPERTIES

PROJECT OVERVIEW

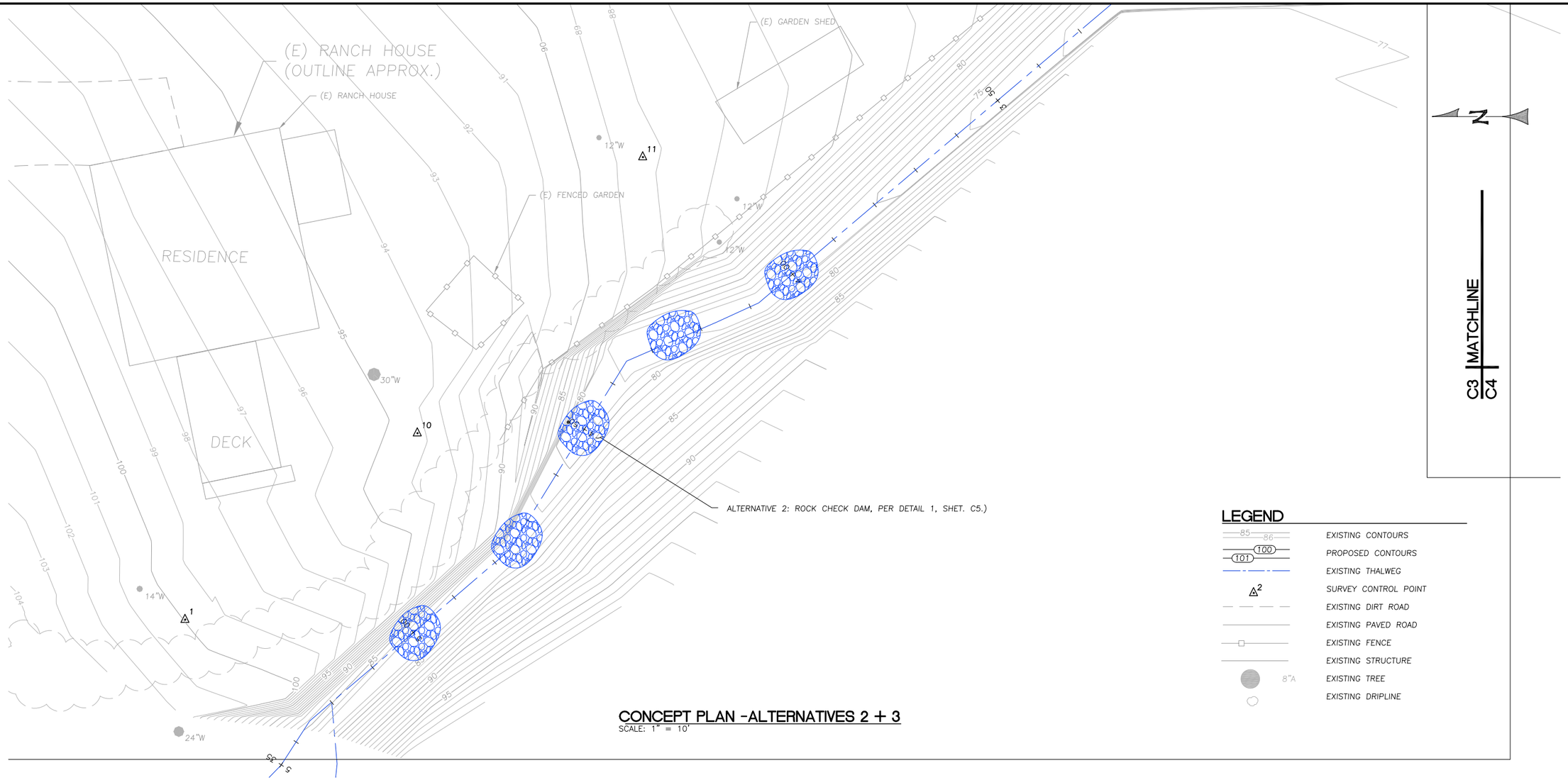
PITCHER PROPERTIES
CHANNEL STABILIZATION
CONCEPT LEVEL PLAN
(alternatives 2 + 3)

DESIGNED BY:	–
DRAWN BY:	–
CHECKED BY:	M.W.W.
DATE:	9/21/15
JOB NO.:	13-059

BAR IS ONE INCH ON ORIGINAL DRAWING, ADJUST SCALES FOR REDUCED PLOTS

0 1"

C2 | 2 OF 5

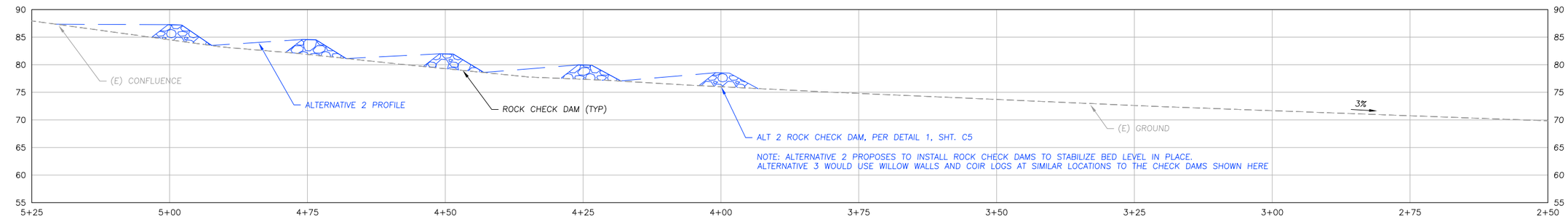


CONCEPT PLAN -ALTERNATIVES 2 + 3

SCALE: 1" = 10'

NOTES:

1. CHANNEL DIMENSIONS AND INVERT ELEVATIONS SHOWN FOR THE ALTERNATIVES ARE APPROXIMATE AND BASED ON CONCEPT LEVEL DESIGN.



CHANNEL PROFILE RESIDENCE AREA

SCALE: 1" = 10'

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Exp. 9-30-15
REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA

PREPARED AT THE REQUEST OF:
PITCHER PROPERTIES

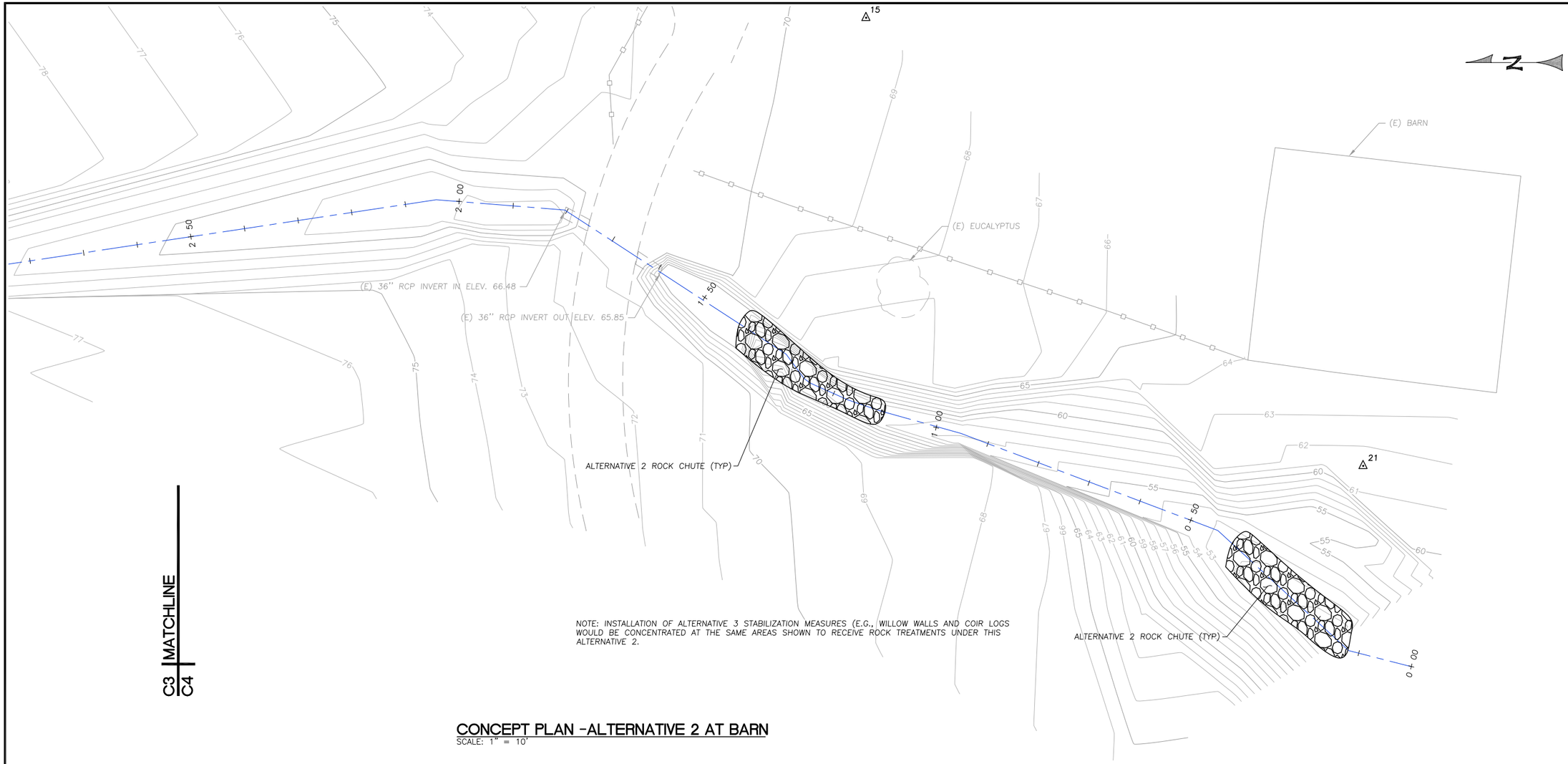
CONCEPT PLAN
RESIDENCE
AREA

PITCHER PROPERTIES
CHANNEL STABILIZATION
CONCEPT LEVEL PLAN
(alternatives 2 + 3)

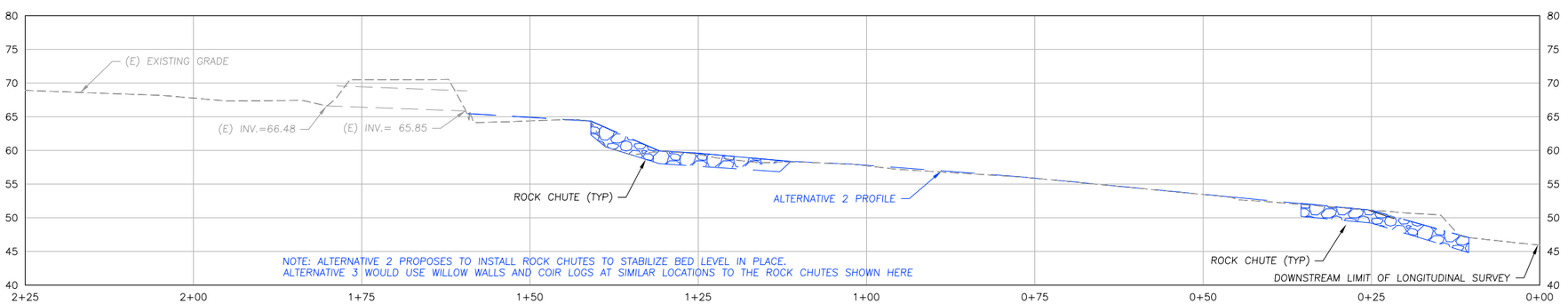
DESIGNED BY:
DRAWN BY:
CHECKED BY:
DATE: 9/21/15
JOB NO.: 13-059

BAR IS ONE INCH ON ORIGINAL DRAWING, ADJUST SCALES FOR REDUCED PLOTS
0 1"

C3 | 3 OF 5



CONCEPT PLAN -ALTERNATIVE 2 AT BARN
SCALE: 1" = 10'



CHANNEL PROFILE-AREA 2
SCALE: 1" = 10'

LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- EXISTING THALWEG
- SURVEY CONTROL POINT
- EXISTING DIRT ROAD
- EXISTING PAVED ROAD
- EXISTING FENCE
- EXISTING STRUCTURE
- EXISTING TREE
- EXISTING DRIPLINE

NOTES:
1. CHANNEL DIMENSIONS AND INVERT ELEVATIONS SHOWN FOR THE ALTERNATIVES ARE APPROXIMATE AND BASED ON CONCEPT LEVEL DESIGN.

WATERWAYS CONSULTING INC.
509A SWIFT ST.
SANTA CRUZ, CA 95060
PH:(831)421-9291 // FAX:(888)819-6847
WWW.WATWAYS.COM

DRAFT
NOT FOR CONSTRUCTION
DATE
MATT W. WELD
No. 62235
Exp. 6-30-16
REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA

PREPARED AT THE REQUEST OF:
PITCHER PROPERTIES

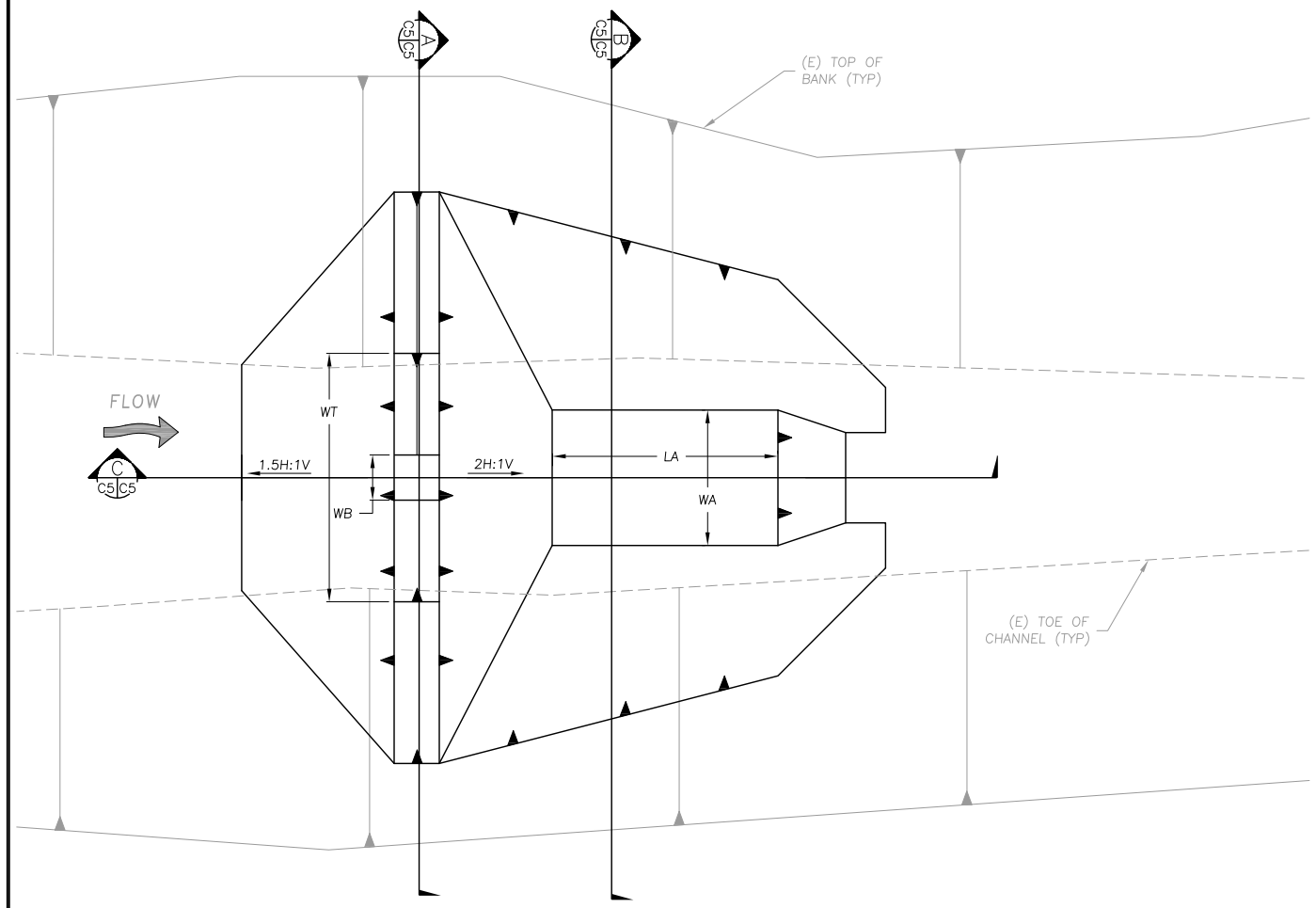
CONCEPT PLAN
BARN AREA

PITCHER PROPERTIES
CHANNEL STABILIZATION
CONCEPT LEVEL PLAN
(alternatives 2 + 3)

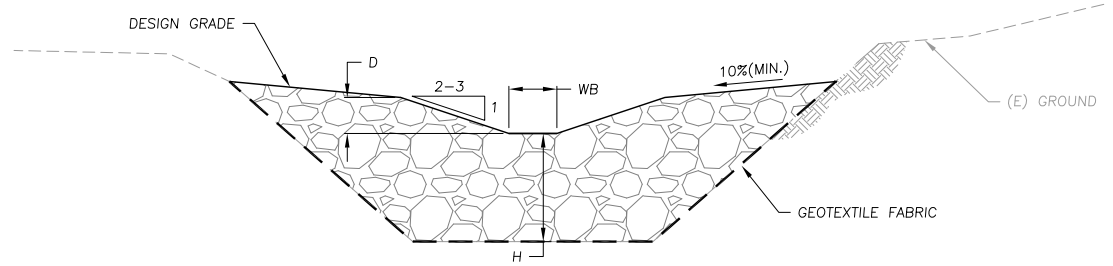
DESIGNED BY: –
DRAWN BY: –
CHECKED BY: M.W.W.
DATE: 9/21/15
JOB NO.: 13-059

BAR IS ONE INCH ON ORIGINAL DRAWING, ADJUST SCALES FOR REDUCED PLOTS
0 1"

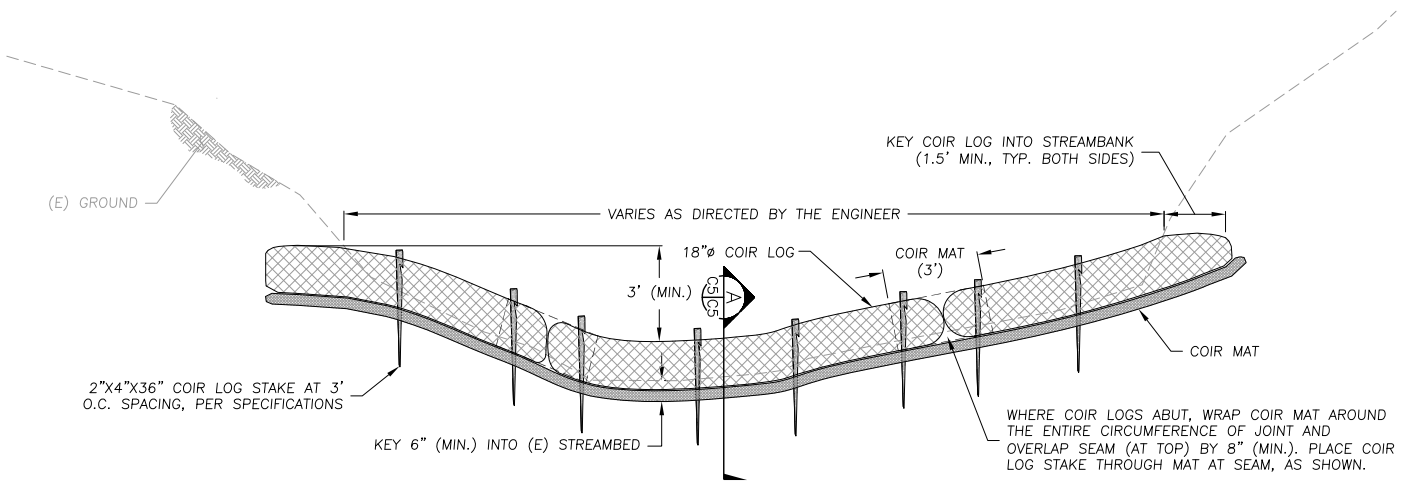
C4 | 4 OF 5



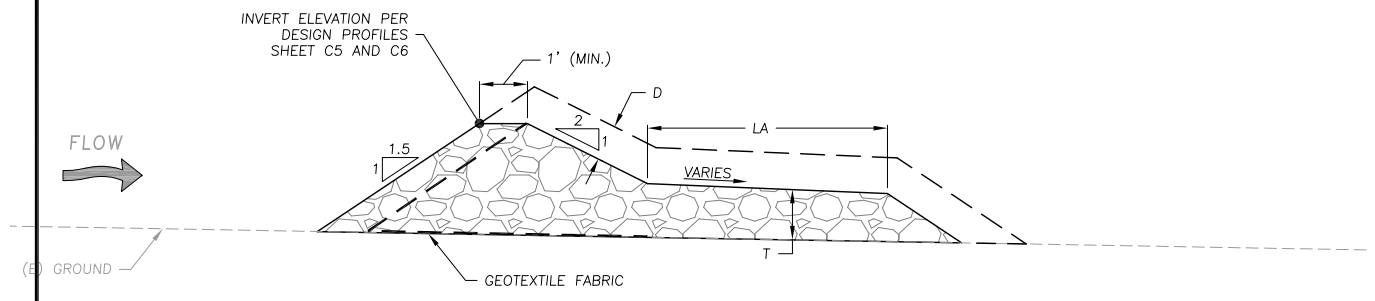
EXAMPLE CHECK DAM DETAIL (1 C3|C5)
SCALE: 1"=2'



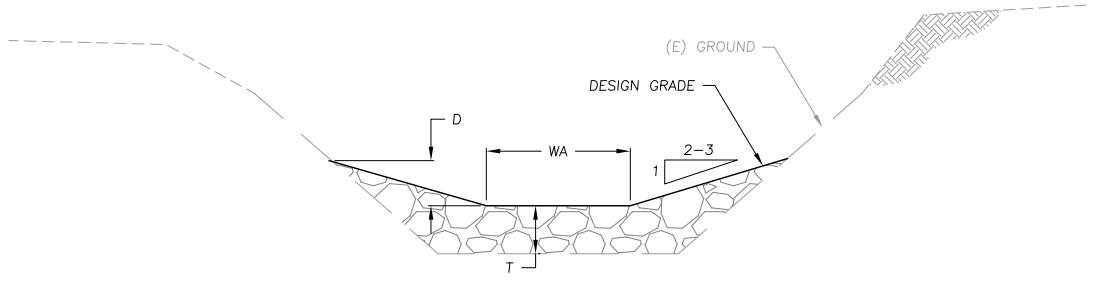
EXAMPLE CHECK DAM SECTION AT CREST (A C3|C7)
SCALE: 1"=2'



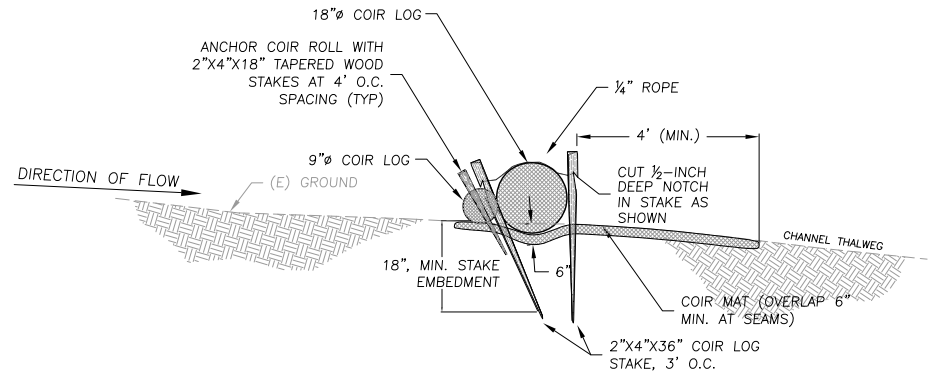
COIR LOG CHECK DAM SECTION (2 C3|C5)
SCALE: 1"=3'



EXAMPLE CHECK DAM PROFILE (C C5|C5)
SCALE: 1"=2'



EXAMPLE CHECK DAM SECTION AT CREST (B C5|C5)
SCALE: 1"=2'



COIR LOG CHECK DAM PROFILE (A C5|C5)
SCALE: 1"=2'

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PREPARED AT THE REQUEST OF:
PITCHER PROPERTIES

EXAMPLE DETAILS CHECK DAM

PITCHER PROPERTIES
CHANNEL STABILIZATION
CONCEPT LEVEL PLAN
(alternatives 2 + 3)

DESIGNED BY:	–
DRAWN BY:	–
CHECKED BY:	M.W.W.
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BAR IS ONE INCH ON ORIGINAL DRAWING, ADJUST SCALES FOR REDUCED PLOTS
0 1"

C5 | 5 OF 5

Pitcher Ranch
Channel Stabilization Project

PHOTOS

WATERWAYS CONSULTING, INC.
Santa Cruz, CA | watways.com | Portland, OR

Photo 1: The right bank (looking downstream) within the project area. The fractured soil indicates a bank failure may occur.
Photo 2: Example of a rock check dam used on a similar sized drainage

Photo 3: Example of a coir log check dam used to promote channel aggradation.
Photo 4: Example of a recently constructed rock chute within a formerly incised channel

STATE OF CALIFORNIA—NATURAL RESOURCES AGENCY EDMUND G. BROWN JR., GOVERNOR

CALIFORNIA COASTAL COMMISSION
NORTH CENTRAL COAST DISTRICT OFFICE
45 FREMONT STREET, SUITE 2000
SAN FRANCISCO, CA 94105
PHONE: (415) 904-5260
FAX: (415) 904-5400
WEB: WWW.COASTAL.CA.GOV

December 18, 2015

Angela Chávez, Project Planner
San Mateo County Planning and Building Department
455 County Center, 2nd Floor
Redwood City, California 94063

Re: San Mateo County Planning Case Number PLN2015-00486 (Samantha Greene)

Dear Ms. Chávez,

Thank you for forwarding the project referral for County Planning Case Number PLN2015-00486 dated November 12, 2015 and received in our San Francisco office on November 16, 2015. We appreciate the opportunity to provide you with comments and your flexibility regarding the timeline for receiving them. The proposed project is located on a property off of Tunitas Creek Road, in San Gregorio, San Mateo County. The applicant is requesting a Coastal Development Permit (CDP) and Grading Permit for the proposed stabilization of a degraded tributary channel of Tunitas Creek. The proposed project would occur along 313 linear feet of a stream and would involve clearing vegetation, re-vegetation, grading of 534 cubic yards of channel and bank area, and "hardening" of the channel by placing engineered streambed material in order to improve bank stability. The materials submitted indicate that the purpose of the project is to reduce the risk of bank failure and channel incision that would result in the transport of sediment to an environmentally sensitive habitat area located on the property.

Project Purpose
It is not clear why the proposed project is needed to protect environmentally sensitive habitat on the property, particularly because the project itself would result in impacts to sensitive habitat areas. Please elaborate on the stated project purpose and the sensitive habitat that is being protected by the bank stabilization.

Biological Resources
The proposed project area contains riparian habitat, which is defined by the Local Coastal Program (LCP) Policy 7.1 as sensitive habitat; and designated as such under LCP Policy 7.2. Sensitive habitat areas include riparian areas, wetlands, and other areas that contain or support special status species. The referral indicates that there are ten special-status species that have the potential to occur at the proposed project site. Species associated with the habitat within the project site include federally-listed as threatened and state species of special concern, California red-legged frog (CRLF); the federal and state endangered San Francisco Garter Snake (SFGS); loggerhead shrike and San Francisco Dusky-Footed Woodrat, both state species of special concern; and San Francisco common yellowthroat.

LCP Policy 7.3 prohibits any development or land use that would have a significant adverse impact on sensitive habitat areas and development shall be sited and designed to prevent impacts that could significantly degrade sensitive habitat. LCP Policy 7.4 limits uses to resource-

dependent uses. Only project activities consistent with those listed in LCP Policy 7.4 shall be allowed in the corresponding sensitive habitat areas. Without further information on the stated purpose of the project, it is not clear that the project is a resource-dependent use allowable in sensitive habitat areas. Please provide evidence that the project is a resource-dependent use consistent with LCP Policy 7.4.

Project Alternative(s)

The proposed project, as mentioned above, would entail "hardening" of the channel by placing engineered streambed material. LCP Policy 9.9 limits the alteration of streams to necessary water supply projects, flood control projects where no other method for protection of existing development exists, or developments to enhance fish and wildlife habitat. Based upon our review of the submitted project materials, it does not appear that the proposed project is allowable, consistent with LCP Policy 9.9. Please submit evidence that the project is consistent with LCP Policy 9.9, including any alternatives examined that would result in a more stable system without the need for engineered material or vegetation removal, such as controlling runoff into the channel.

Please feel free to contact me if you have questions regarding our comments. I can be reached by phone at (415) 904-5292 or e-mail at rananda@coastal.ca.gov.

Sincerely,

Renée Ananda

Renée Ananda
Coastal Program Analyst
North Central Coast District