



TOWN OF FAIRFAX

STAFF REPORT

January 18, 2016

TO: Mayor and Town Council

FROM: Garrett Toy, Town Manager *GT*

SUBJECT: Approval of preliminary design for Meadow Way Bridge replacement project needed to proceed with the environmental analysis for the project.

RECOMMENDATION

Approve the preliminary design for the Meadow Way Bridge replacement project to allow staff to proceed with the environmental analysis for the project.

BACKGROUND

In October 2013, the Council awarded a contract to CIC to provide preliminary engineering, community outreach, environmental, and design services for five bridges in Fairfax, including the Meadow Way Bridge. Since that time, the Council has amended the contract with CIC for various phases of the Meadow Bridge project. Since 2013, the Town has spent approximately \$65,000 to make repairs to the bridge to ensure it will remain useable until it can be replaced. The last contract amendment was in September 2015 to allow CIC to complete unfinished reports/studies and continue with the next step in the process, which was another community workshop to discuss conceptual designs for bridge types.

This workshop was conducted in June 2016 and also provided residents an opportunity to ask questions and hear directly from Caltrans staff who attended the workshop. Subsequent to the workshop, staff prepared a comprehensive "FAQ" sheet to summarize the workshop discussions, address follow-up questions, and provide additional clarification on issues. Attached is the FAQ addressing the numerous questions (over 30) regarding the project.

DISCUSSION

The results from the workshop and subsequent survey of the residents (see attached) would seem to indicate that a majority of the neighborhood would prefer:

- Concrete bridge with architectural features
- Conventional erosion control walls (i.e., concrete) with sloped top living wall

Attached are renderings and drawings showing the type of bridge and wall. At the meeting, CIC will provide more detailed information regarding the bridge type and wall configuration. Of the three options (wood, concrete, steel), a concrete bridge requires the least maintenance and would last the longest (i.e., 100 yr. service life). All the bridge options will require two seasons (April – October) to construct.

Staff did request funding from Caltrans for an accelerated construction schedule with the goal of trying to complete the project in one season. Caltrans denied our request for funding for accelerated construction because the project benefits few residents (i.e., does not meet Caltrans criteria). It should be noted that an accelerated schedule would require working on weekends, longer construction hours during the day, and the possibility would exist that it could not be accomplished in one season even under an accelerated schedule (e.g., permitting agency may not allow work in the creek due to rainy season).

The other key project concepts for Council consideration are:

- The bridge will be located in the center of the Town's ROW.
- There will be a need for some type of temporary access road into creek.
- It will be a one lane bridge with pedestrian/bicyclist access subject to Caltrans' minimum width standards for bridges (21.5 ft).
- While the project cannot provide formal access to the creek, it will try to maintain the informal access.
- The Town will need to obtain temporary construction easements and finalize right-of-way and property lines.

Council approval of the preliminary design will allow CIC to move forward with the environmental analysis (NEPA, CEQA) for the project. While some environmental studies have been completed, the Council action establishes the project description needed for the environmental analysis to fully begin. We anticipate this environmental phase will take upwards of 12 months to complete. Staff will provide the Council and residents an update in approximately 6 months which should represent the mid-point of the environmental analysis. At that Council meeting, CIC would provide update on any changes to preliminary design caused by the environmental analysis.

FISCAL IMPACT

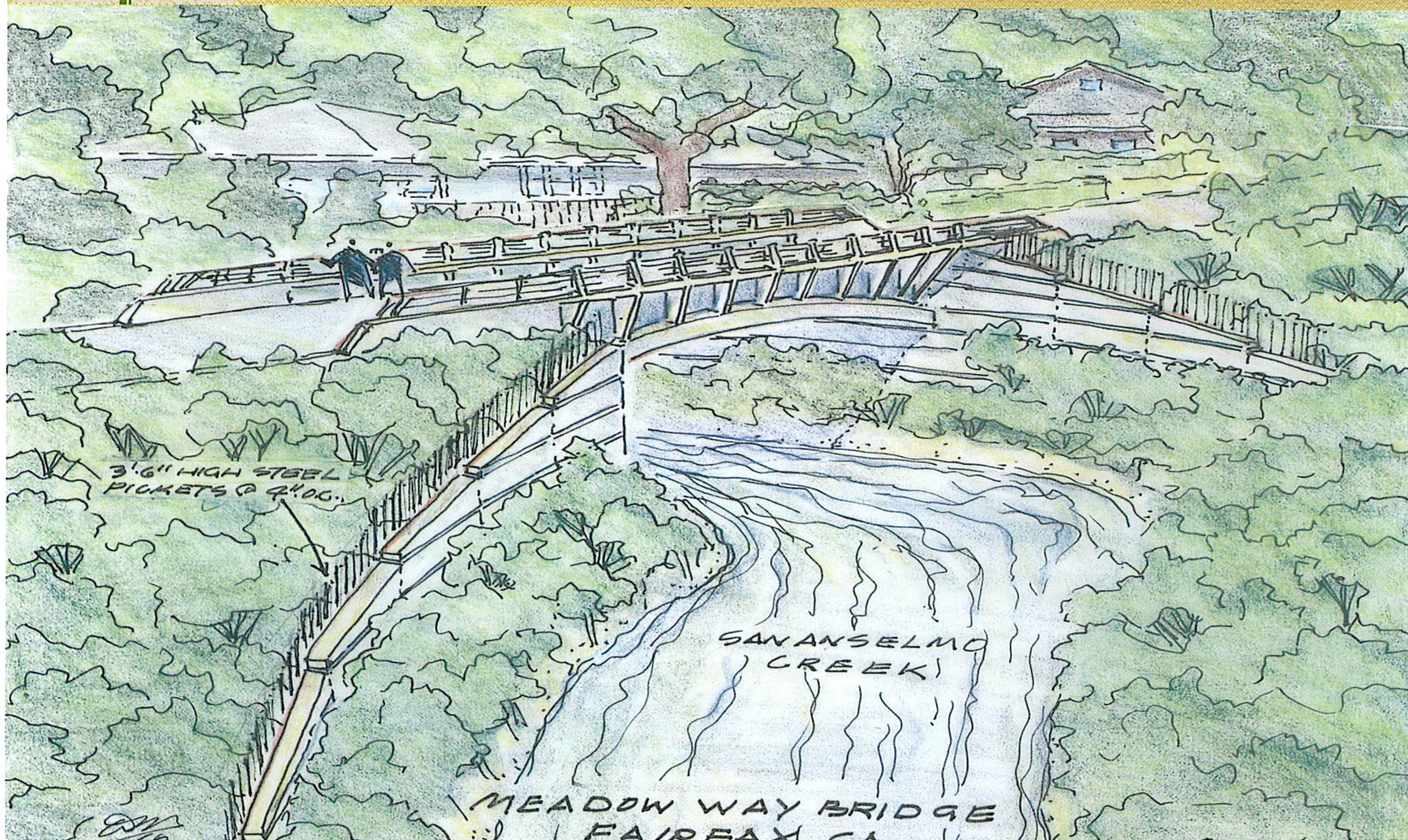
Design costs are included in the FY16-17 Capital Improvement Program and funded with a federal grant.

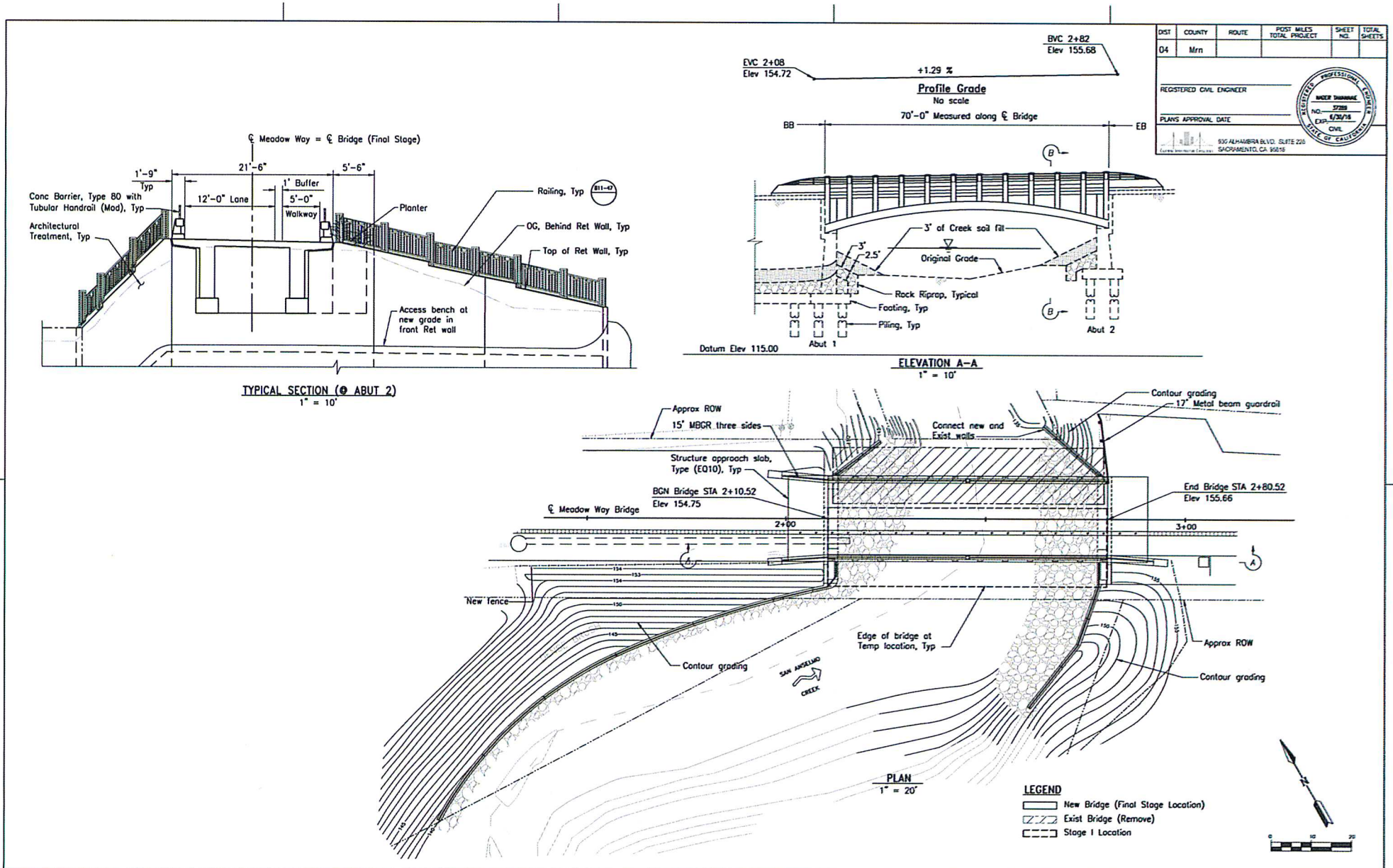
ATTACHMENTS

1. Bridge rendering
2. Bridge Plan
3. Planting (Wall) elevation
4. Wall layout plan
5. Planting Plan
6. Riparian Habitat plan
7. FAQ's
8. Survey results



Wall and Bridge Concepts Voted on by Majority in the Neighborhood





DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Mtn				

REGISTERED CIVIL ENGINEER	
PLANS APPROVAL DATE	
330 ALHAMBRA BLVD. SUITE 210 SACRAMENTO, CA 95819	

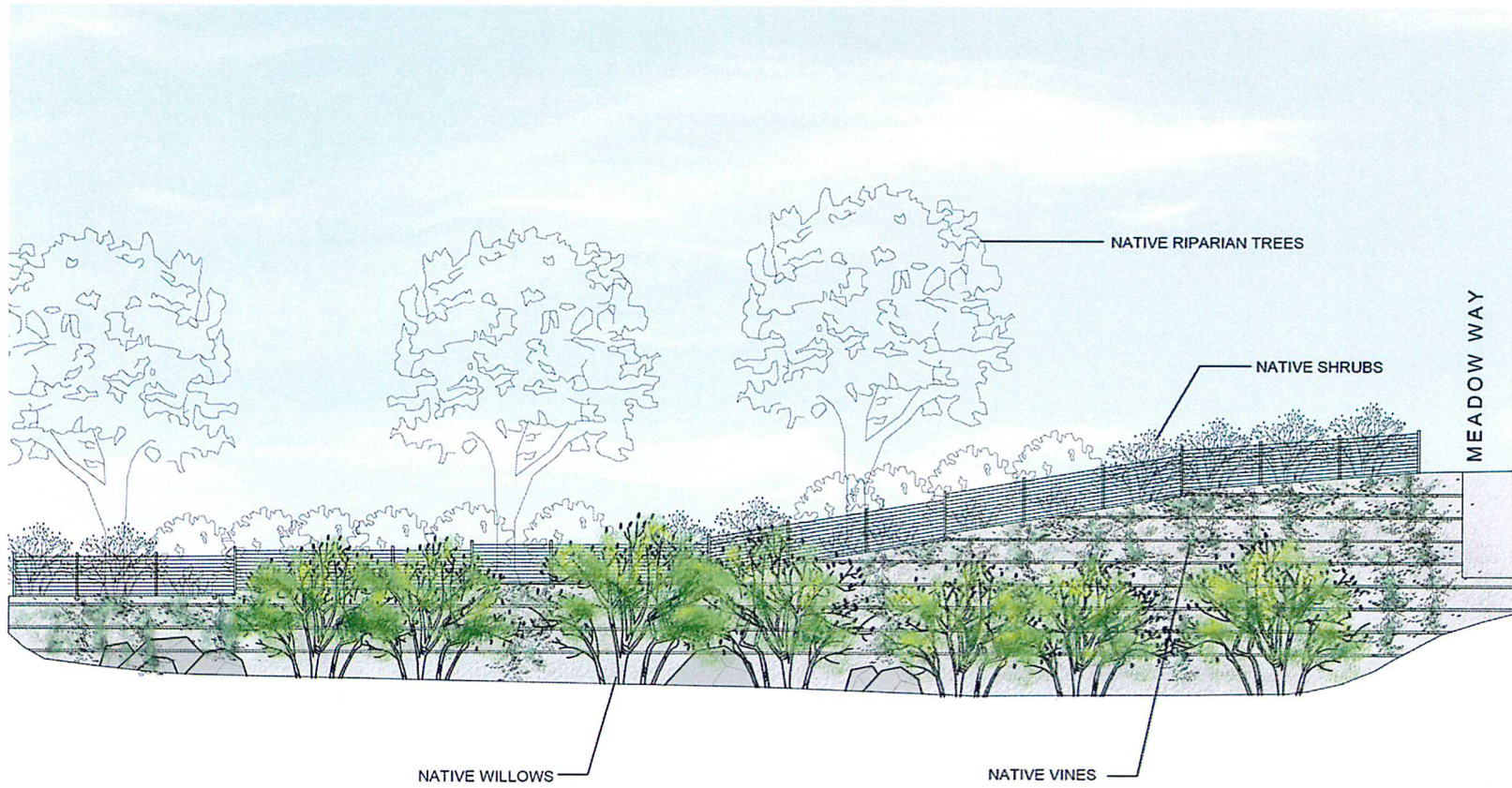
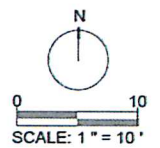
DESIGN	BY D. Vang	CHECKED	LOAD & RESISTANCE FACTOR DESIGN	LINE LOADING: HL93 AND PERMIT DESIGN VEHICLE	PREPARED FOR THE TOWN OF FAIRFAX DEPARTMENT OF PUBLIC WORKS	DESIGNED BY Nader Tamannaie, PE	BRIDGE No. 27C-0008	MEADOW WAY BRIDGE OVER SAN ANSELMO CREEK
DETAILS	BY J. Caravallho	CHECKED	LAYOUT	BY N. Tamannaie	PLANS AND SPECS COMPARED	POST MILE	---	GENERAL PLAN
QUANTITIES	BY	CHECKED	SPECIFICATIONS	BY	ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	CU EA	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES (PRELIMINARY STAGE ONLY)

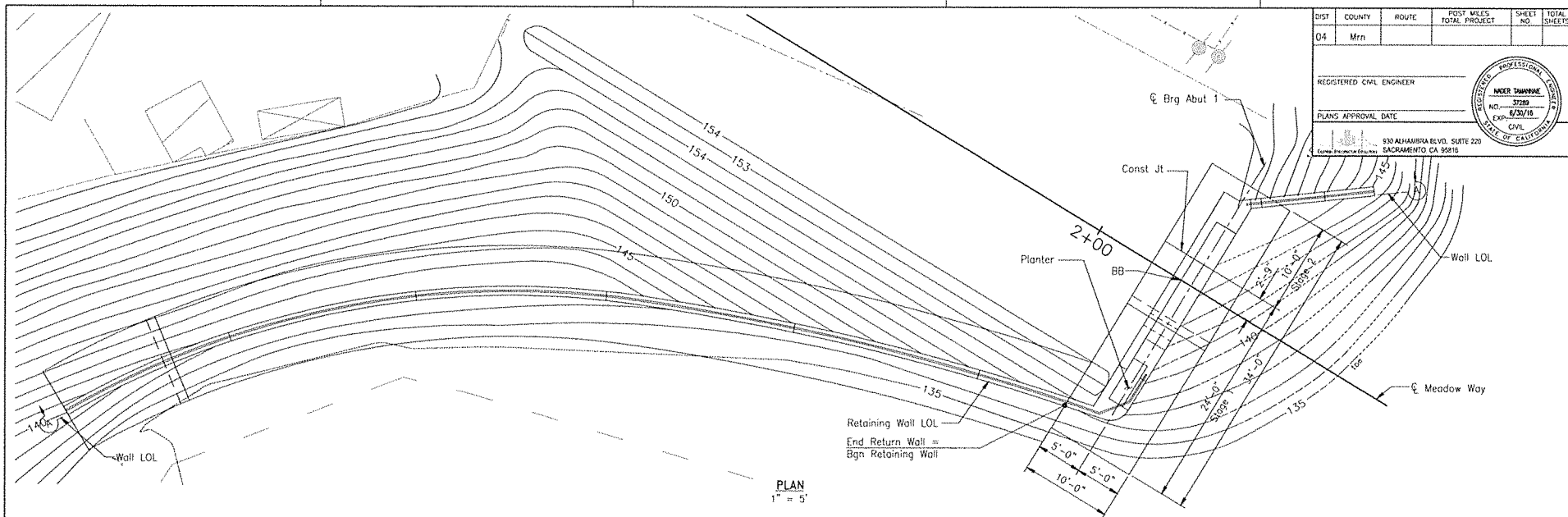
ATTACHMENT 2

Meadow Way
Bridge
Fairfax, California

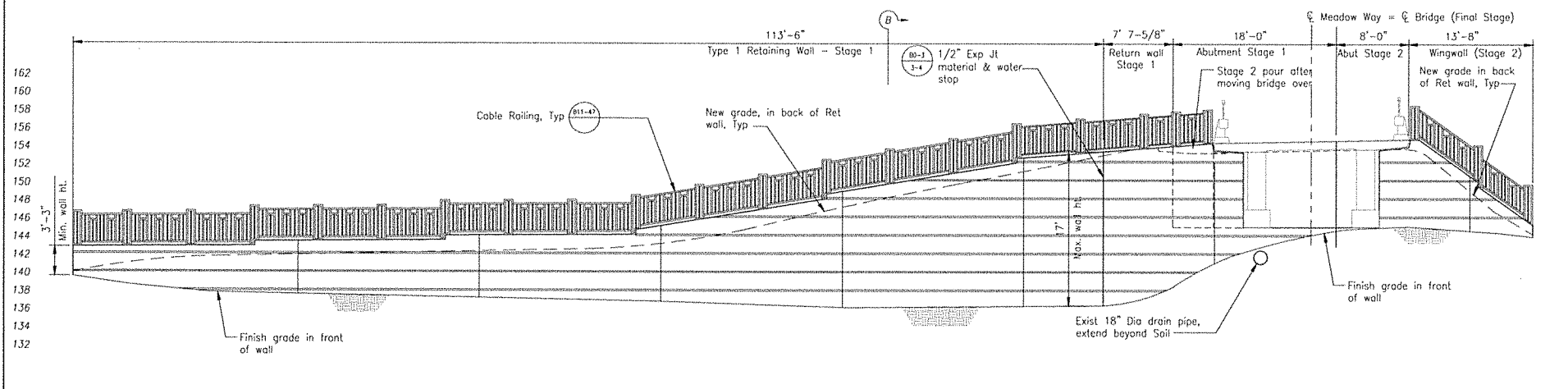
Preliminary
Planting
Elevation A-A

Date: Jan 2017
Figure By: RFP





DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Mfn				
REGISTERED CIVIL ENGINEER					
PLANS APPROVAL DATE					
530 ALHAMBRA BLVD., SUITE 220 SACRAMENTO CA 95815					



DEVELOPED ELEVATION A-A
1" = 5'

DESIGN	BY N. Tamannaie	CHECKED		PREPARED FOR THE TOWN OF FAIRFAX DEPARTMENT OF PUBLIC WORKS	Nader Tamannaie, PE PROJECT ENGINEER	BRIDGE No. 27C-0008 POST MILE --	MEADOW WAY BRIDGE OVER SAN ANSELMO CREEK ABUT 1 LAYOUT
DETAILS	BY J. Carvalho	CHECKED					
QUANTITIES	BY	CHECKED					

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

CONTRACT NO. CU EA

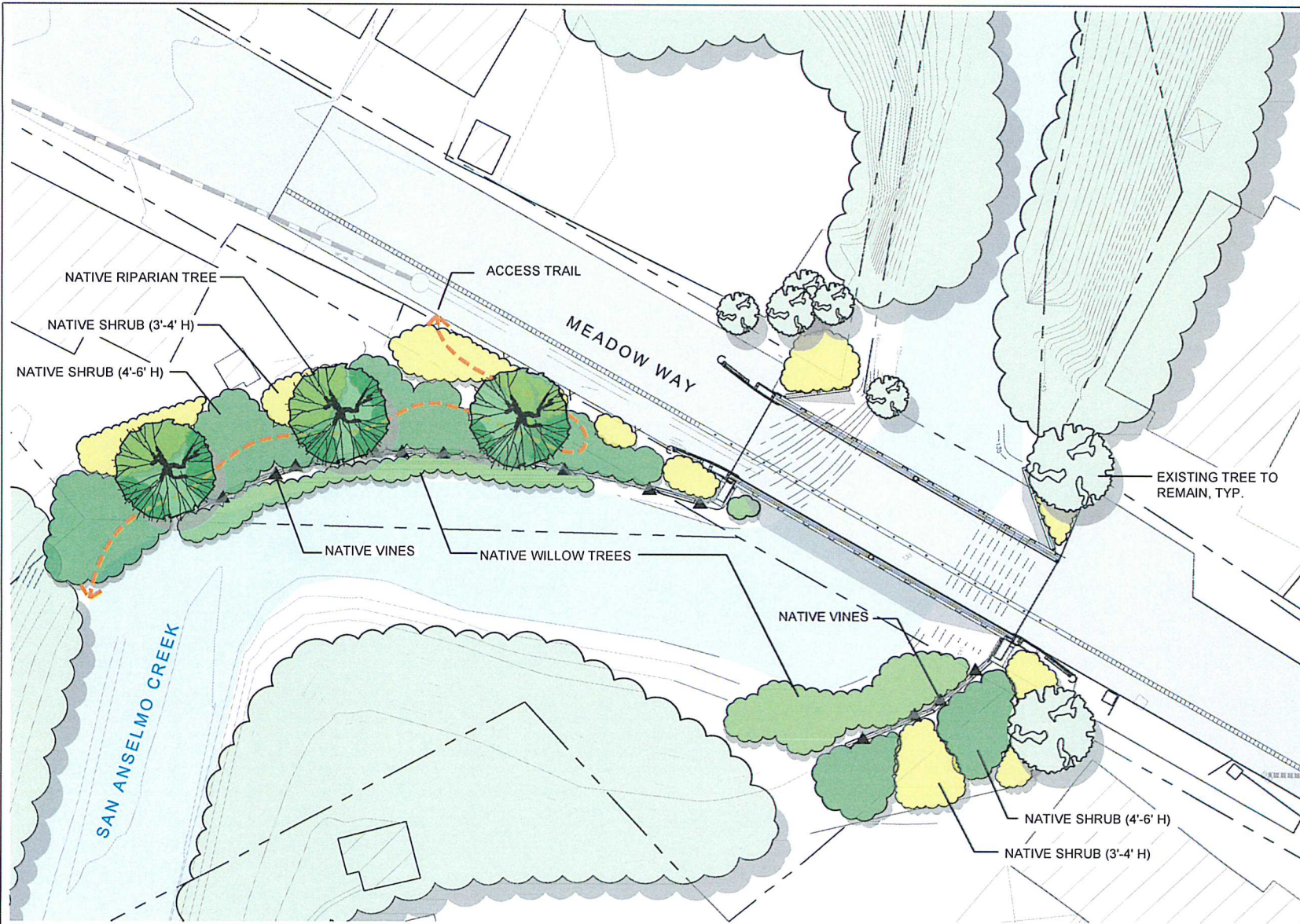
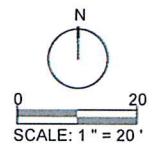
DISREGARD PRINTS BEARING EARLIER REVISION DATES

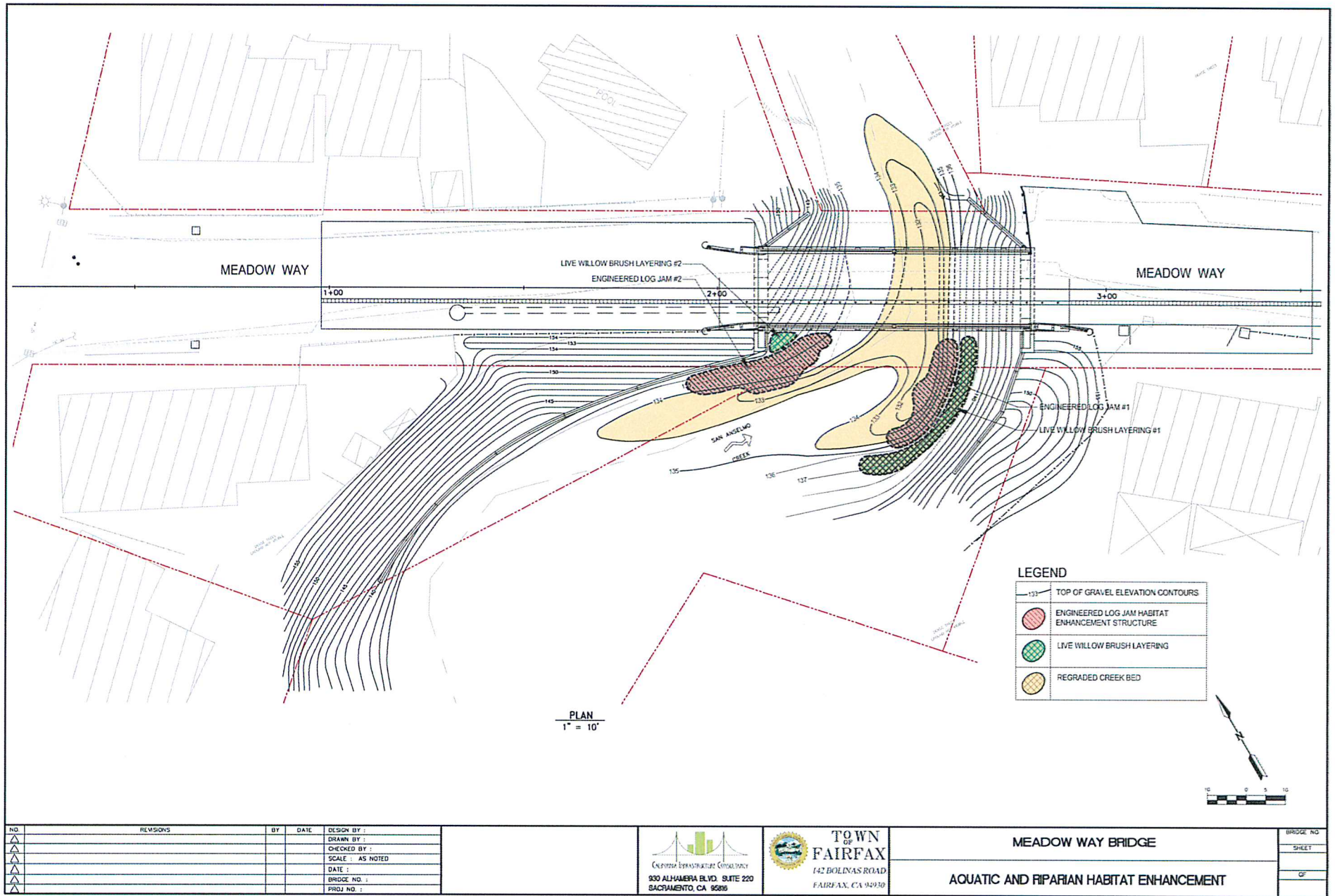


Meadow Way Bridge
Town of Fairfax,
California

Preliminary
Planting Plan

Date: Dec 2016
Figure By: RFP





PLAN
1" = 10'

LEGEND	
	TOP OF GRAVEL ELEVATION CONTOURS
	ENGINEERED LOG JAM HABITAT ENHANCEMENT STRUCTURE
	LIVE WILLOW BRUSH LAYERING
	REGRADED CREEK BED

NO.	REVISIONS	BY	DATE	DESIGN BY :
△				DRAWN BY :
△				CHECKED BY :
△				SCALE : AS NOTED
△				DATE :
△				BRIDGE NO. :
△				PRJ. NO. :

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California Infrastructure Consulting
930 ALHAMBRA BLVD, SUITE 220
SACRAMENTO, CA 95896

TOWN OF FAIRFAX
142 BOLDINAS ROAD
FAIRFAX, CA 94930

MEADOW WAY BRIDGE	BRIDGE NO.
AQUATIC AND RIPARIAN HABITAT ENHANCEMENT	SHEET
	OF

Summary of Questions and Answers Exchanged During and Since the Workshop of June 29, 2016, for Replacement of Meadow Way Bridge

The Town conducted a community workshop on June 29th regarding the Meadow Way Bridge. Town staff and its consulting team (CIC) made a presentation and answered numerous questions regarding the bridge. This FAQ sheet summarizes the workshop discussion and includes follow-up information and clarification by staff and CIC on topics such as bridge repair.

Q1: Can the existing bridge be rehabilitated instead of replaced?

A1: A preliminary rehabilitation study for bridge's rehabilitation concluded such action would be an expensive exercise in keeping up a bridge that would be fully enclosed by another structural frame and support system, resulting in a structure afterwards that would not look anything like it does today. Additionally, Caltrans indicated it would not agree to cover the costs of further rehabilitation studies or fund such a rehabilitation project. Caltrans will only fund the replacement of the bridge.

Q2: What is the state of the wood planks on the existing bridge?

A2: The deterioration of the bridge's topside has been noted in Caltrans's most recent Bridge Inspection Report (2015) without any action items assigned to it. However, the Town and its consulting engineer (CIC) have been keeping an eye on them. The deck's transverse wood planks are not really load bearing. Any deck wood removal most likely would not be a simple repair and could have a cascading effect (i.e., fixing one thing may require fixing many other things). That being said, in a very recent visit by the Town and CIC, it was decided that the Town would bring a contractor to the site to evaluate interim repairs to the deteriorated deck planks and screws sticking out of the two main wheel runners on the deck. Clearly, the bridge has started to cost the Town more maintenance dollars and it could get worse. The previous emergency repair of the bridge in late 2015 cost the Town approximately \$40,000, which is not eligible for reimbursement under the grant.

Q3: What fire truck can the existing bridge handle?

A3: The weight limitations listed on signs at both bridge ends are correct. At the meeting, we stated that Ross Valley Fire can only use its Type 3, the smaller engines, to cross the bridge. The weight limit sign posted by Caltrans limits the 2-axle truck's weight to 16 tons, which works for Fairfax Type 3 Engines (15 tons) and not the Type 1 (21 tons). The fire department needs to be able to use the larger truck. The sign is a regulatory one (mandatory) for all truck traffic and self-policing. Garbage, cement and other heavy trucks have to meet both the weight and axle requirements to avoid mishap and liability.

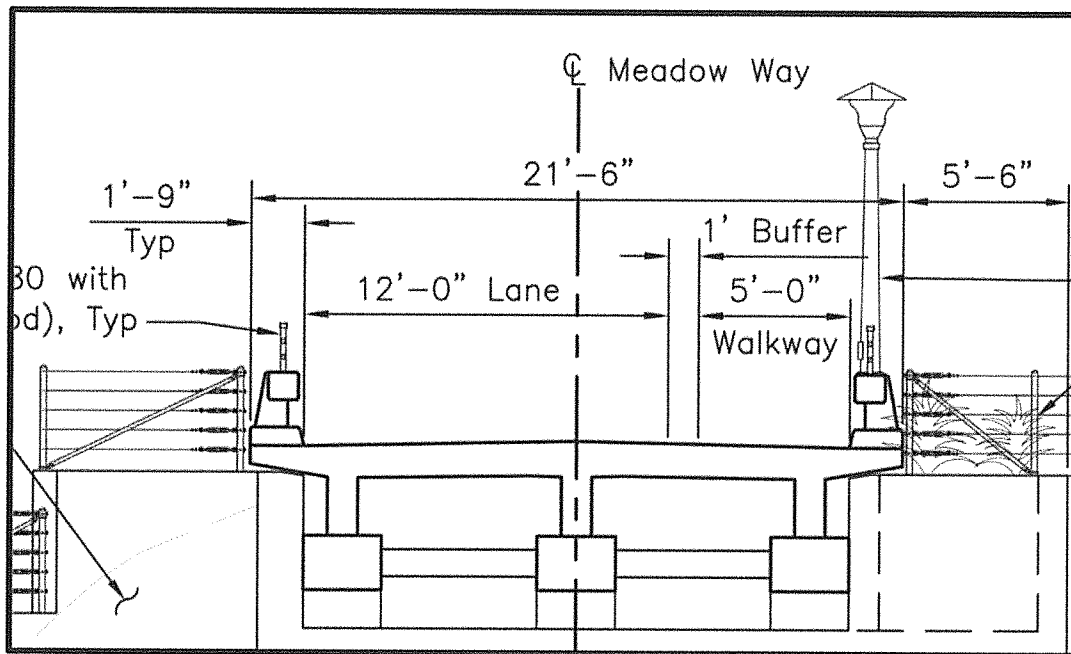
We have checked with Central Marin Sanitation Agency and have learned their garbage trucks weigh 40,000 pounds, or 20 tons. This is over the weight limit on the bridge for a 2-axle truck. Ten percent of their fleet is equipped with trucks that can switch to three axles. The Town will be requesting that the Agency use the 3-axle truck only over the bridge. In addition, a fully loaded typical concrete truck with a rotating drum, having the capacity of carrying up to 10 cubic yards of concrete, would weigh approximately 33 tons. The truck alone weighs 13 tons and, therefore, can only carry one cubic yard of concrete crossing the existing bridge. The Meadow Way residents should notify their concrete vendors of these facts when having large amounts of concrete delivery for their home projects.

Q4: Can the replacement bridge have only a single lane?

A4: Caltrans has agreed to a single-lane bridge as long as its width, curb-to-curb, is a minimum of 18'. This bridge will also need another 3.5 feet for barrier railings, making it a total of 21.5 feet wide

Meadow Way Bridge Replacement
Frequently Asked Questions

edge-to-edge. The existing bridge is 14 feet wide. Please see below for details of the width of the new bridge.



Q5: Can a glulam wood bridge be one of the alternates?

A5: Caltrans has agreed with glulam wood as an alternate bridge construction material. We indicated at the meeting that we had to appeal to the Federal Highway Administration (FHWA) to allow an option for a wood bridge since Caltrans initially denied the request. We made the appeal because some residents wanted to have that option.

Q6: What is the width of the Town right-of-way on Meadow Way?

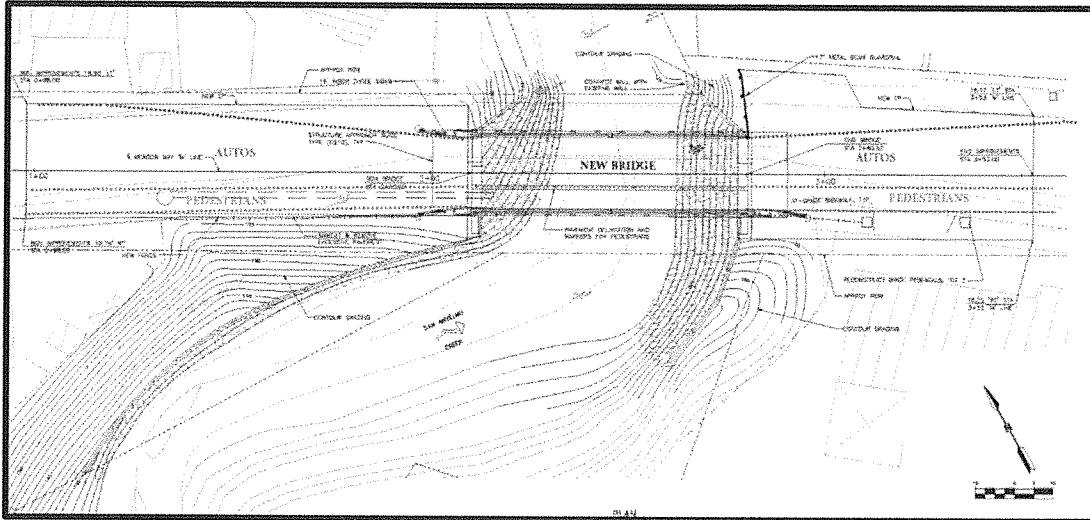
A6: The Right-of-way (ROW) has been researched through review of officially filed notices of surveys, the original subdivision maps, and review of the existing survey monumentation when the site was surveyed by CIC's subconsultant. The original subdivision maps strongly imply the ROW width is 40 feet, both by scaling and the precedent set by most other street widths on the map. This width varies up and down the street due to apparent discrepancies in records. One survey shows the ROW width at the bridge is approximately 38.5 feet at the tightest point. (The CIC surveyor maintains this reduction in width is not supported by the survey records or deeds.)

At the workshop, Mr. Wasserman at #6 Meadow Way handed out a signed and sealed records search statement from his surveyor. The letter seems to question the ROW width in front of his property, not directly impacting the bridge location. The letter is being reviewed by CIC's surveyor, who will then be contacting Mr. Wasserman's surveyor to clarify the issues, as needed. We will report back to the residents on the final outcome of the discussions between the surveyors.

The final bridge location and its construction staging will be entirely within the Town ROW. However, temporary construction encroachment from few property owners (Horton, Thompson-Davis and Linscott) will need to be negotiated and agreed upon. The bridge is intentionally located in the middle of the ROW. The approach to the bridge on each side will become straightened instead of the current curved approach. The road remains the current width without changes. The bridge approaches will be 10-foot long concrete approach slabs followed by asphalt pavement

Meadow Way Bridge Replacement Frequently Asked Questions

conforming to the existing pavement 100 feet or so from the bridge on each side. Please see below where the pedestrian path is delineated with green lines and text and the path for autos is shown transitioning at the bridge in its final location with red lines.



Q7: Can the residents have continued access to the creek bed?

A7: Formal access to the creek is not a component of the project nor is it funded by Caltrans. Formal access cannot be provided due to ADA compliance requirements and Town liability. However, informal access to the creek, similar to what exists today, would not be hampered by the project. Access by wildlife around the site will also remain unhampered by the final form of the project.

Q8: What are the environmental issues and required documents for the project?

A8: Staging, Traffic, Noise, Hazardous Materials, Water Quality, Floodplain, Biological Resources and Cultural Resources are the specific issues that studies will be conducted on. As the lead agency for CEQA, the Town would be filing for Initial Study/Mitigated Negative Declaration (IS/MND). This means conducting and completing the various studies noted above, receiving regulatory agency approvals and permits, providing any mitigation needed and leaving no negative impact on the environment. Completion of the technical reports and their approvals by the agencies will also allow Caltrans, as the lead agency for NEPA, to file a Categorical Exclusion (CE) under the National Environmental Policy Act. The project will include measures to protect any Special-Status Species of plant, fish and wildlife. As a design refinement, the riprap would be covered by two feet of earth for fish-friendly passage through the site.

Permits from Regional Water Quality Control Board and U.S. Army Corps of Engineers, as well as an agreement with California Department of Fish and Wildlife will be necessary. Other agencies to sign off on the environmental documents include NOAA Fisheries, U.S. Fish and Wildlife, and Caltrans.

Q9: How long will the environmental process take and when will the project go to construction?

A9: The estimated time to complete the studies and acquire permits would be 18-24 months. This means completing the studies and applying for the agency permits roughly 2 years from now (by mid-2018), followed by design completion, project advertisement and bid for construction. This puts the approximate beginning of construction in mid-2019.

Q10: What types of bridges are being considered?

A10: Bridges with primary structural members made from three types of materials, wood, concrete and

Meadow Way Bridge Replacement
Frequently Asked Questions

steel, have been considered for the site. Each bridge type would have a concrete deck and crash-tested barriers and all would be single-span bridges. The concrete and wood alternates would be below-deck arch bridges. For steel, the option studied has been a Vierendeel Truss with either painted or CORTEN finish look (a rusting steel, where a superficial layer of rust is intentionally allowed to develop to protect the steel itself). Concepts drawings of the three options were presented at the meeting and are available on the website in the Bridge Type Selection Report.

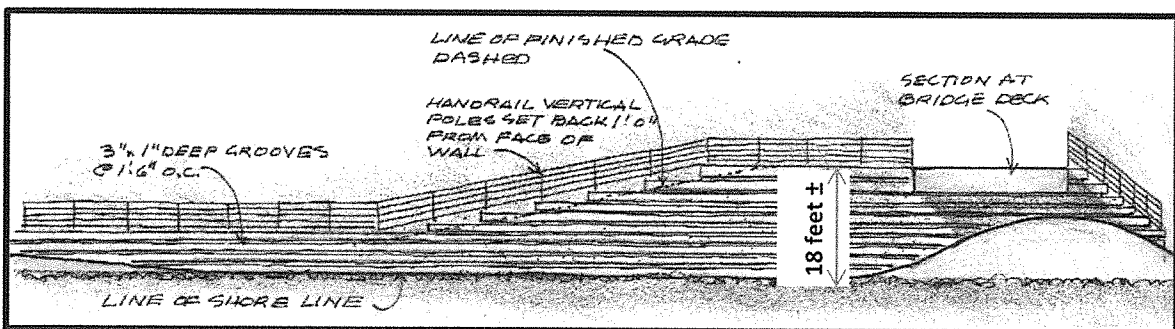
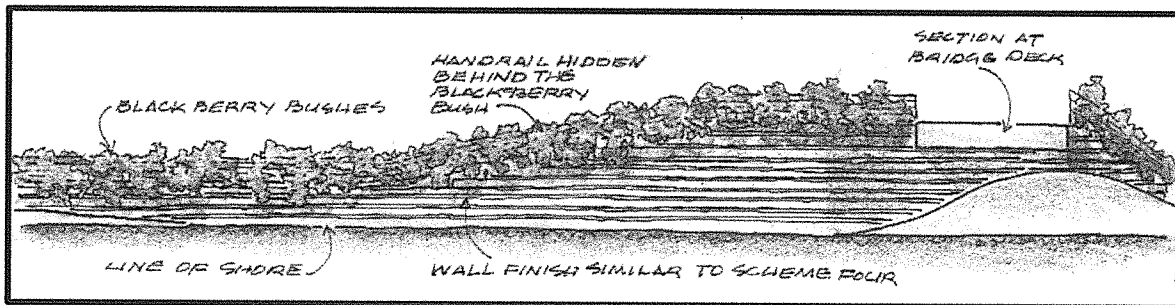
Q11: Why is a retaining wall needed?

A11: A retaining wall at the southwest bridge quadrant is needed to protect the bridge and embankment from bank erosion and foundation scour as the fast, high-stage flows negotiate the S-bend in the creek.

Q12: What wall types have been considered?

A12: Two types of walls, a conventional concrete wall and a mechanically stabilized embankment (MSE) wall, each with three different surface finishes, including a living green surface, have been considered. The non-green walls would receive surface architectural treatment for aesthetics. Each of these wall alternates may have a stepping top with 2'-3' high steps as the wall height diminishes from the bridge toward the wall's end. Renderings and examples of the two wall types were presented at the meeting and are available on the Town website in the Bridge Type Selection Report.

At the latest meeting, some residents expressed concern regarding the size and height of the retaining wall. Since then, a new wall top that follows the finished slope behind it with short steps (8"-10" high) has been developed as well. This will help to visually give the impression of a shorter wall. This additional wall option will be in the survey to be sent to the residents to mark their wall choices. Please see below for the two additional concept drawings for the wall.



Meadow Way Bridge Replacement
Frequently Asked Questions

Q13: How long and high is this retaining wall?

A13: The wall is about 115' long. At the last workshop, the wall height was reported to be 25 feet, which is not correct. The 25 feet height is the difference between the elevations of the bridge deck and the deepest part of the creek bed. The creek bed slopes from the middle of the creek toward the two bridge abutments and this wall. As such, it will raise the bases of the abutments, this retaining wall and the wingwalls at the other three bridge corners. This results in an approximately 18-foot maximum exposed wall height at the southwest abutment corner, diminishing to near zero at the end of the wall. (Please see the previous diagram.)

Q14: Will there be a fence on top of the wall?

A14: Cable railing has been planned for safety so far. However, this bridge, being in a residential area may require a mesh-type fence to meet the building code for protecting small children from falling through the fence openings. CIC will design a customized fence and mesh system (not a chain link fence) for this project.

Q15: Why is a temporary construction access road needed?

A15: The temporary construction access road will be needed to transport vehicles, equipment, materials and personnel to the creek bed level for construction. These include haul trucks for excavated soils, pile drilling rig, small loaders, etc. The access road would hug the creek bank slope adjacent to the Davis-Thompson home behind the future retaining wall, making its way down to the creek bed. The access road will be removed after construction and the ground regraded to a natural and stable slope behind the retaining wall. Layout and plan view of the access road has been shown in the Bridge Type Selection Report in 2-D, as well in the PowerPoint presentation (in 3-D). As stated above, a temporary construction easement will need to be negotiated with the affected property owners.

Q16: How will the bridge construction be staged?

A16: Please refer to the Bridge Type Selection Report for stage construction drawings. Using the access road, the retaining wall and southern portions of the east and west bridge abutments would be built in Stage 1A. In Stage 1B, the new bridge would then be erected south of the existing bridge while traffic continues using the latter. Then in stage 2, the traffic is diverted to the new bridge, the existing bridge is removed and the northerly portions of the two bridge abutments and wingwalls are constructed. Then in Final Stage, the new bridge is either lifted or pushed hydraulically sideways to the middle of the Town ROW. This location is the most appropriate place for the bridge for four reasons: 1) it's ideal for flow conveyance under the bridge, 2) it's a straight shot from Cascade Dr. to the end of Meadow Way (the current bridge is offset and not centered relative to the roadway), 3) it minimizes the extent of high abutment and retaining walls needed, and 4) its location would be impartial and equally fair to the residents on both sides of the bridge. The stages of the bridge and approach roadways construction would remain located in the Town ROW.

Q17: Will there be additional street pavement on Meadow Way?

A17: No additional permanent paved surfaces will be needed since the bridge will be in the middle of the currently paved street. Initially, for stage construction, the short approaches to the new bridge in the southern half of ROW will be paved for the temporary traffic (Stage 2). However, the temporary pavement will be removed after moving the bridge to the middle in the Final Stage. For this, the travelway beyond the bridge on each side will be transitioned to the bridge and properly delineated.

Meadow Way Bridge Replacement
Frequently Asked Questions

Q18: Can the empty lot over to the dirt portion of Meadow Way be considered for creek crossing up at Cascade Drive to avoid stage construction?

A18: Although not out of the question, this option would require gaining approval from another group of residents impacted by this temporary bridge (i.e., more cars in their neighborhood). The difficulty in gaining approval would be to demonstrate why such a project would be of benefit to that neighborhood. In addition, the temporary bridge would be on private property requiring the Town to negotiate a temporary easement with that property owner. Any other access road away from the current location would also increase the footprint of the project, present new impacts and delays, and complicate the environmental and agency permits process.

Q19: What trees will be removed and will they be marked?

A19: The environmental process and construction procedures will dictate marking the trees to be removed at the proper time in the process. The bay tree cluster at the southwest corner of the bridge will need to be removed. There is also a bay tree down the abutment slope on the northwest corner that will be in the way of the future bridge wingwall near the Wasserman property. (The higher tree near the road level at this location appears to be safe.) The Town ordinance for tree removal would be followed (i.e., requires Tree Committee approval), but these are not heritage trees or sensitive species. Blackberry bushes all around the bridge will be impacted. Part of project mitigation measures would be new restoration landscaping using native and noninvasive trees and plants.

Q20: How long will the project take to build?

A20: The contractor would have approximately 3.5 months to work in the creek in any given year because of steelhead regulations. This pushes construction to two seasons for any of the bridge alternates. The contractor would have 3.5 months to work in the creek and may do few other tasks up at the roadway level during off-season time. Since this is mainly a bridge replacement project, the first construction season will be 5-6 months long, at the most. At the end of the first season, the site will be "winterized" and everything, except sediment control and slope protection measures, would be removed from the site until the next season. There will be no equipment or materials left stored at the site off-season.

Q21: Can the project be done in one season with long workdays, weekend work and incentives to the contractor?

A21: Wood and steel bridge alternates may have an outside chance of being built in one season with overtime work 6-7 days per week, and with additional incentives. Caltrans may or may not approve this higher cost strategy. We will explore the one-year construction concept with Caltrans during design to assess its possibility and report our findings. A concrete bridge will require two construction seasons because of the required formwork for cast-in-place concrete.

Q22: How will dust and noise be handled during construction?

A22: Both are expected. In an effort to mitigate some of the impact to the adjacent residences, CIC will put measures in the project's construction specifications for dust abatement, erection of temporary soundwalls, maximum allowable noise decibel levels and limits of work hours. The construction site and surroundings will be photo- and videographed as part of pre-construction documentation of the site conditions.

Q23: What is the basis of recommendations for bridge and wall types by the consulting team?

A23: A scoring system has been implemented to compare six attributes of each bridge alternate. These attributes are Initial cost, lifecycle cost, ease of construction, temporary site impacts, longevity and aesthetics. As a result, steel and concrete both scored 56 out of 60 and wood came in at 52. Even

Meadow Way Bridge Replacement Frequently Asked Questions

with tied scores, steel would provide the advantages of speed of construction and less construction impacts in the creek over concrete.

The retaining wall alternates were also compared using the same six attributes. A conventional wall and a mechanically stabilized embankment (MSE), each with a living green vs. architecturally treated surface, constituting four alternates, were compared. The two additional concepts developed since the workshop (with sloping top vs. stepped) provide a total of six choices for the residents to choose from. The conventional wall with architecturally enhanced surfaces, with or without sloping top, scored the highest, 58 out of 60.

Q24: How will the residents be involved in the bridge and wall selection process?

A24: A survey (Survey Monkey) will be sent to the residents shortly, containing graphics, descriptions and other information, requesting the residents to pick the bridge type (and finish), wall type (conventional or MSE) and wall surface finish (architectural or green). At the last workshop, the residents filled out comment cards and since then we have received emails from some of the residents regarding their choices. The new survey will consolidate the response of the residents, encourage everyone to vote, bring the new wall concepts into the picture, dovetail with the benefits of the information in this memo, and formalize the process.

Q25: What are the next steps?

A25: New informational materials, the workshop's presentation and comment card contents will be posted on the web site and the Town will be asking for your votes through the Survey Monkey tool. Next, the selected bridge and wall alternates will be taken to the Council for conceptual approval. The design and environmental studies will move forward and another outreach meeting will be held when we have completed the environmental studies and the preliminary bridge design.

Q26: Can Fairfax save money and time using a prefabricated steel superstructure?

A26: At the community workshop, we discussed the option of a steel bridge. The concept included a prefabricated bridge. CIC worked with Excel Bridge Company, a steel bridge prefabricator, and consulted with them for the Meadow Way project. They gave us a verbal quote of approximately \$130 K to deliver the typical shell of a prefabricated steel bridge to the site. The bridge will have to be delivered in 2 or more segments due the difficulty of transporting a 21' wide X 70' long bridge in one piece. It would then have to be put together, painted and erected at the site. CIC used \$180 K in its cost estimate for these reasons. The steel bridge alternate in the Bridge Type Selection Report, posted on the project web site, shows this line item among 33 or so overall construction items.

The majority of the costs for the steel bridge is similar to the other options which is the construction of the concrete bulkheads to support the bridge. The overall cost of the three bridge alternates were pretty close, approx. \$2,000,000, as various construction items compensate for each other among the three alternates. Please note the entire construction cost for all three options is federally funded. Steel will be faster to build because of prefabrication.

At the meeting, we also indicated we would explore the possibility of constructing the bridge in one season. The construction season in the creek is typically July to Oct. 15th. However, the entire project will not be possible to complete within a 3.5-month season, regardless of the bridge type. That being said, CIC is looking into ways to possibly stretch the construction season from April 15th to Oct. 15th with the concept of completing in one season. A one-season construction project would require the bridge to be made of steel. It appears from the on-line survey that majority of the residents prefer a concrete bridge. To complete a project in one season would most likely require a contractor to work 6 days a week and longer days, which would require the payment of overtime. We also agreed to discuss with Caltrans the concept of receiving funding to cover the additional costs associated with completing the project in one season, if possible.

Meadow Way Bridge Replacement Frequently Asked Questions

Q27: Why is the bridge being recommended to be moved from its current location to the middle of the right-of-way (ROW)?

A27: We are recommending the new bridge be located in the middle of the ROW for four (4) primary reasons:

- 1) The primary reason for locating the bridge in the middle of the ROW (i.e. road) is to avoid having to move the bridge later due to potential discrepancies in ROW. We recognize there are discrepancies in the width of Meadow Way (refer to recorded surveys) at various locations along the road. By placing the new bridge in the middle of the ROW it ensures the bridge is not impacted by any discrepancies since it is wholly within the Town owned ROW under any scenario.
- 2) Locating the new bridge in the middle of the ROW seems the most fair approach as it would place the bridge equal distances from the adjacent property owners.
- 3) The new location actually aligns better with the existing roadway. Currently, when you turn off Meadow Way from Cascade you make a slight jog in the road to cross the bridge (see diagram on page 3 of this document)
- 4) Hydraulically, the location of the bridge in the middle of the road is better for the creek flows. This adjustment provides a better transition to downstream of the bridge once the flows negotiate the S-turn at the upstream approach to, and through, the bridge opening.

Q28: How was the consultant, CIC, selected?

A28: The Council authorized the issuance of a RFP for bridge design services in March 2013. The design services were for five bridges including Meadow Way. The selection process followed Caltrans (i.e., federal) guidelines. Five firms responded to the RFP. The selection panel consisting of three consulting engineers, one Caltrans engineer, and the Town Manager interviewed the five firms. The panel recommended CIC as the firm best suited for the project. The Council awarded the contract to CIC for Meadow Way Bridge in September 2013.

Q29: What is the status of NEPA (National Environmental Protection Act) and CEQA (California Environmental Quality Act) processes? Who are the lead agencies and why? Who are the primary contacts?

A29: The NEPA and CEQA environmental studies have been moving in a very preliminary fashion. NEPA is needed because federal dollars are involved and the CEQA is required by state law. Caltrans and the Town conducted the Preliminary Environmental Scoping (PES) process for the bridge in 2014. The PES is a document that indicates what environmental studies/technical memorandums must be prepared for the project. The PES was approved by Caltrans in January 2015 and recently posted on the web site. Please note that little work has been done pursuant to the PES since we could not begin the various environmental studies until the bridge type, its footprint and the larger area of construction were established. However, now with over 61% of the neighbors voting for a concrete arch bridge, and over 67% for a conventional, living retaining wall, we anticipate the project will be submitted to the Town Council in fall 2016 for final concept approval. After this point, CIC and WRA (environmental subconsultant) will determine the Area of Potential Effect (APE) map, get its approval from Caltrans, and begin the environmental studies in earnest.

With regard to regulatory agency leads for NEPA and CEQA, the following applies:

Meadow Way Bridge Replacement Frequently Asked Questions

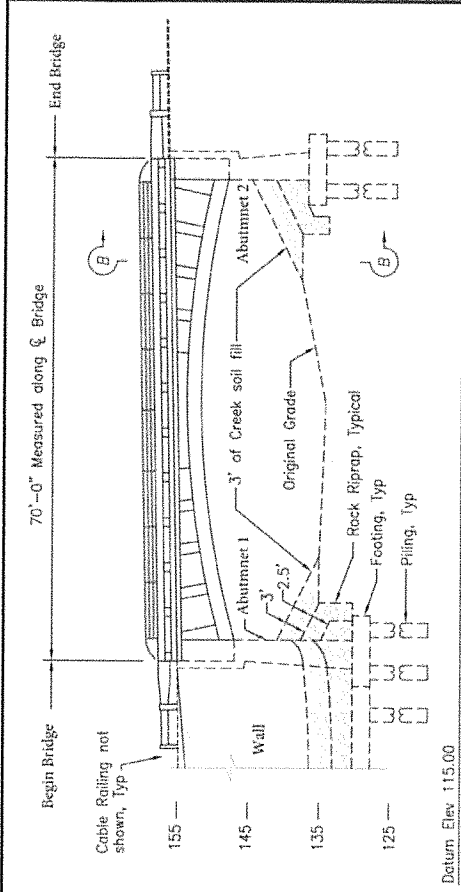
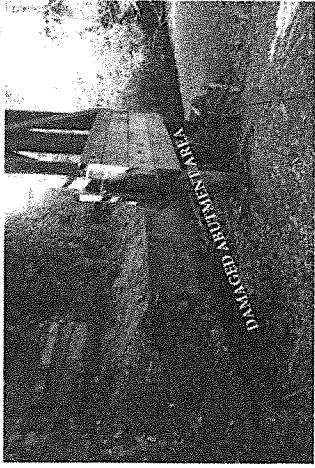
- Regarding NEPA, the contact at Caltrans is Hugo Ahumada (Hugo_Ahumada@dot.ca.gov, 415-622-8790). Mr. Ahumada states the following with regard to the state agency's role in NEPA: "When federal money is used to fund local transportation proposals in California, Caltrans assumes environmental review responsibilities under NEPA pursuant to a Memorandum of Agreement executed between Federal Highway Administration and Caltrans. Because the Town of Fairfax has applied for federal funding in support of the Highway Bridge Program (HBP), Caltrans will assume the lead agency role pursuant to the National Environmental Policy Act."
- The lead for CEQA is the Town of Fairfax and the Town's environmental team conducts the studies and prepares reports on Town's behalf. The draft and final environmental document (ED) will be reviewed for approval by the Town's Planning Department. The PES for Meadow Way bridge requires an Initial Study/Mitigated Negative Declaration (IS/MND). These types of projects do not require a scoping meeting. Scoping meetings are fairly common when an Environmental Impact Report (EIR), matching a far more complex project, is required. That being said, we can discuss the PES requirements at the next meeting for the project and we continue to be receptive to input provided on the project. Towards that end, we will inform the neighborhood residents via email when the draft IS/MND is available for public comments. This will be in addition to the statutory notification requirements.

In terms of an in-house environmental contact for the project, questions can be directed by email to the project manager, Nader Tamannaie (ntamannaie@califstructure.com), and, as before, any inquiry can be made through this project web site. The latter method will more easily enable several project lead persons, who would confer on the question, to see it readily. Nader will then respond back after vetting the question with responsible parties.

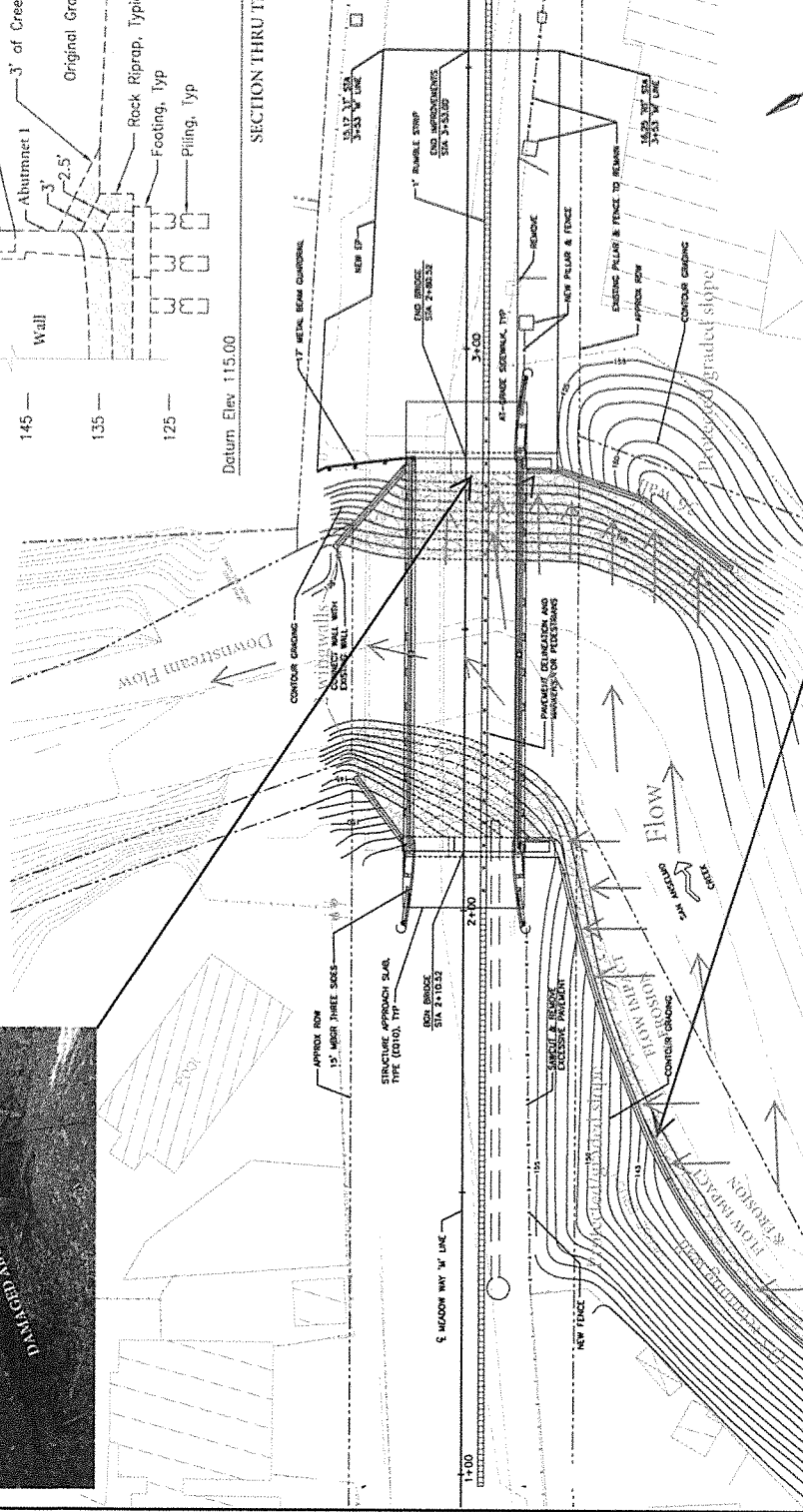
FAQ30: Why are retaining walls adjacent to the bridge needed?

A30: This topic has been covered in the Bridge Type Selection report, available on line, which has been summarized below. In order to adapt the bridge abutments to the creek banks, they need to connect with site-appropriate walls at the four corners of the bridge. These wingwall/retaining walls, along with bio-engineering methods, will help to improve creek conditions and habitat. Conversely, lack of proper abutment wingwalls or retaining walls would lead to more erosion, scour, undermining of the bridge abutments and their eventual failure, as well as poor habitat. The height of each wall depends on how high the bridge sits above the creek bed. The length of each wall depends on how fast it can be transitioned from that height to near zero at the other end, given the site's 3-D geometry, location of the bridge, type of soil and creek flow, to name few factors.

The bridge sits in the middle of an S-curve in the creek's course and erosion problems are already prominent at the site. The peak 100-year design flow volume and velocity for the creek are 1,310 CFS (cubic feet/second) and 4.5 FPS (feet/second), respectively. Starting with these flows, the creek geometry causes them to pack a different kind of punch at the site. On the west creek bank and just upstream of the bridge, at the bottom curve on the S, the head-on flows have caused the creek bank to erode to a nearly vertical face, to the extent that only the ghost of a former timber retaining wall remains there. After colliding with this side, the flows bounce to the east bank of the creek and cause erosion just upstream of the bridge and at the abutment there. Attempts have been made to contain this erosion with a massive unreinforced concrete fortification at the belly of the east bridge abutment slope, which has been nonetheless scoured under precariously.



SECTION THRU THE BRIDGE



- LEGEND:
- ▬ RETAINING WALL
 - ▬ APPROACH ROW
 - ▬ CREEK FLOW

NO.	REVISIONS	BY	DATE	DESIGN BY	PROJ. NO.

MEADOW WAY BRIDGE		BRIDGE NO.	
CONSTRUCTION DETAILS - FINAL STAGE		SHEET	
		OF	

Meadow Way Bridge Replacement Frequently Asked Questions

The longest retaining wall starts at the southwest corner of the bridge and moves upstream to contain the currently battered embankment behind it. The reworked embankment will have grade contours that represent a 1½ to 1 (Horizontal to vertical) slope, which would be the maximum slope possible for the natural soils at this site. The wall goes from roadway level height to near zero in 113 feet so that the bank behind it does not encroach onto the creek with its future flatter, stable slope. The wall is curved along the S-curve to guide and deflect the flows smoothly. As such, it also protects the bridge abutment by transitioning the high-stage flows that would otherwise impact it sideways and undermine it. On the other three bridge corners, the walls have similar functions but to a lesser extent, and are shorter in length. The largest of these is a 36-foot long wall at the erosion-prone location on the east upstream bank. Erosion from the top of the bank all the way down to the creek, as well as foundation scour forces from the flows, require this wingwall from the bridge until it bends in the bank upstream of the bridge. The other two wingwalls are on the downstream side. One connects with an existing retaining wall on the east bank and the other blends into the west creek bank, both a short distance from the bridge.

An additional key erosion and scour control requirement is protecting the abutment and wall foundations with moderately heavy rock riprap. The structure foundations, sitting atop concrete piles, will be buried low enough underground to be topped with a two-foot thick course of rock riprap first, then with three feet of natural creek soil that will blend into the creek bed contours at the surface. When all are done, the creek's course through the project site will resemble a trough of natural soil, the sides of which reach up on the retaining walls and abutments (and hide portions of them) to provide for natural fish passage.

The Town's consulting team has two specialized, Marin-based firms on board to address the specific challenges of this site. The two firms are experts in hydrology, creek hydraulics and geomorphology for complete management of the creek flow, erosion and foundation scour control, and habitat improvement. The creek geomorphologist will present the concept of a woody habitat for fish at the site later during design. This would be similar to what he created a few years ago at Lagunitas Road Bridge in Ross. The exposed portions of the walls will be architecturally treated for better aesthetics and will eventually be covered with plants seeded at the end of construction. In the case of Meadow Way, the walls are integral and important elements of the improvements and constitute over a quarter of the overall construction costs.

Meadow Way Bridge Replacement Frequently Asked Questions

FAQ 31: Why is a temporary access road to build parts of the structures in creek needed? Why can't the equipment be simply lowered onto the creek bed to avoid building the access road?

A31: Based on the preliminary project geotechnical report, the abutments and walls need to be founded on piles. The geotechnical engineer has also determined the soil below the roadway surface will be liquefiable to a depth of nearly 50 feet during a major earthquake. Therefore, the piles will need to be long enough, possibly as long as 50 feet, to penetrate the soil layers below the liquefiable zone. The design team will use a series of two-foot diameter, cast-in-drilled-hole (CIDH) reinforced concrete piles, installed with far less noise relative to driven piles and without the impact vibrations the latter type has.

To install these piles, build bridge falsework, fortify the existing bridge for construction machinery weights, and build portions of the concrete structures in the creek, several vehicles are needed: dump truck, drill rig, crane, concrete truck, concrete pump and a truck to contain the drilling fluids will need access. These relatively large vehicles and equipment will be impossible to operate from the top in the limited available space while vehicular and foot traffic continue on the street and bridge. It is not feasible to lower these very heavy, wheeled machines down to the creek with cranes.

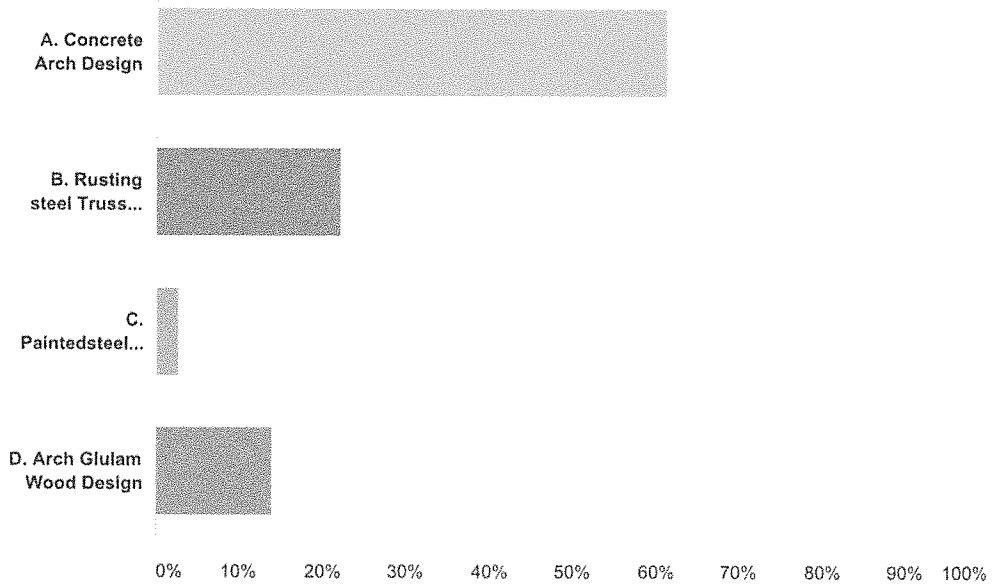
A minimal access road will be needed for construction vehicles and equipment. The temporary road will be benched into the side of the bank as it descends to creek bed level. Temporarily steepened slopes for construction of this narrow road will be held back with soil nails. Ultimately, after the work in the creek is completed, the ground will be either contour graded or terraced for stability.

The design and environmental processes anticipate the need for this road and must address it in advance. That is the reason for showing the concept during the second workshop. The Town has begun to negotiate with the neighbors on whose creek property the temporary access road will be located, and has their understanding of the project. While the footprint of the access road has been investigated and shown to the neighbors for its practicality and constructability, its exact design will not be specified and left up to the contractor. If the contractor proposes a better plan to lessen the temporary footprint of the operations, the Town will be open to it. There is a process and period for contractor submittals after the contract is let, during which time such proposals will be evaluated by the Town.

Fairfax Bridge Design

Q1 Which of the three bridge designs do you prefer for the Meadow Way Bridge replacement?

Answered: 36 Skipped: 1

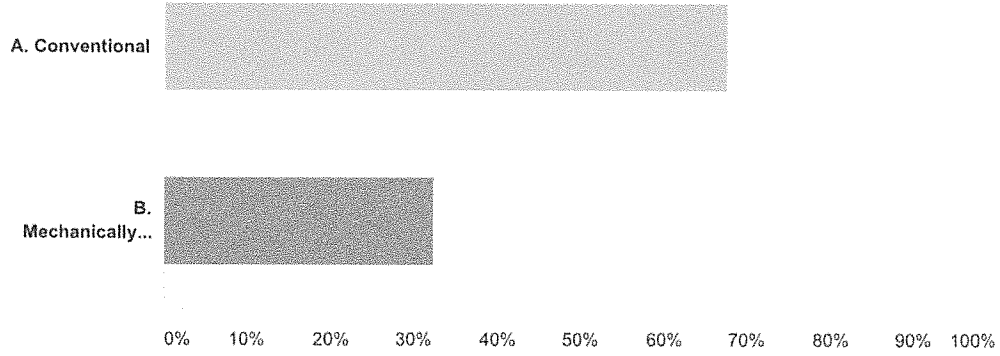


Answer Choices	Responses	
A. Concrete Arch Design	61.11%	22
B. Rusting steel Truss Design	22.22%	8
C. Paintedsteel Truss Design	2.78%	1
D. Arch Glulam Wood Design	13.89%	5
Total		36

Fairfax Bridge Design

Q2 Which Erosion Control Wall Treatment do you prefer for the Meadow Way Bridge.

Answered: 31 Skipped: 6

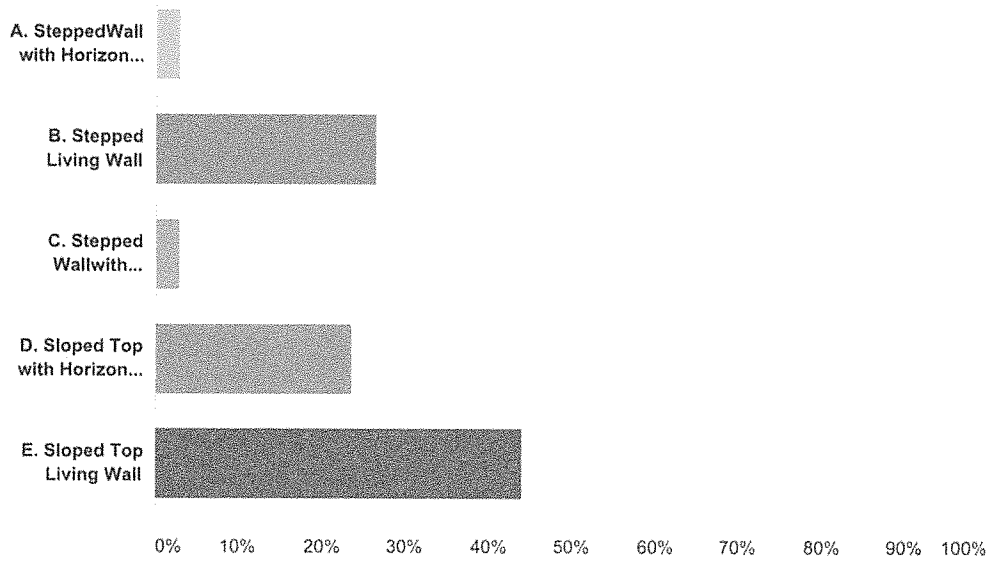


Answer Choices	Responses	
A. Conventional	67.74%	21
B. Mechanically Stabilized Embankment	32.26%	10
Total		31

Fairfax Bridge Design

Q3 Which of the above Erosion Control Wall finishes do you prefer for the Meadow Way Bridge?

Answered: 34 Skipped: 3



Answer Choices	Responses
A. SteppedWall with Horizontal Grooves	2.94% 1
B. Stepped Living Wall	26.47% 9
C. Stepped Wallwith Two-Way Grooves	2.94% 1
D. Sloped Top with Horizontal Grooves	23.53% 8
E. Sloped Top Living Wall	44.12% 15
Total	34

Fairfax Bridge Design

Q4 Have additional thoughts? Please provide any additional comments you may have about the Meadow Way Bridge design concepts.

Answered: 23 Skipped: 14

#	Responses	Date
1	want the bridge to be built in 1 year am not committed to any design or wall except that like the living wall want to minimize potential litigation and neighborhood unrest Good luck with all of this	7/30/2016 4 41 PM
2	Thanks for all the work on this am grateful for the opportunity to express my opinion but don't feel very qualified to make a choice expect will be happy with whatever is decided am not in favor of a lot of lighting in view of its impact on wildlife s the town considering reducing street lighting on a town wide basis anyway?	7/30/2016 3 13 PM
3	'd rather not have street lights on the bridge Or if we have to have them make them low down and low powered Or only go on if a car/bicycle/person crosses the bridge Keep the night dark	7/30/2016 12 04 PM
4	vote to do the drop in bridge [REDACTED]	7/30/2016 8 05 AM
5	i would prefer if it was wood [REDACTED]	7/29/2016 8 47 PM
6	there MUST be CREEK ACCESS for W LDL FE [REDACTED]	7/29/2016 2 18 PM
7	Please deal with the usual obstructionist in a manner that does not further delay the project don't think you will find much objection but small voices are loud and organized Thanks for being supportive to our neighborhood	7/29/2016 10 13 AM
8	like the concrete arch design the best but the way the LED lights are drawn is sort of confusing would hope that any lighting would light the roadbed and pedestrian areas adequately while not illuminating upwards Further lighting fixtures should be in a style appropriate to this rural small town bridge Perhaps downlights in the bridge rail itself combined with relatively short posts with caps on the upper part of the light would do the job and also look nice during the day	7/28/2016 6 34 PM
9	To whom it may concern Please be mindful that the most popular choice is usually not the best choice from an engineering standpoint	7/28/2016 5 21 PM
10	My preference for bridge type is based on the speed of the construction and the lack of impact to my property	7/28/2016 4 25 PM
11	n my preference for a concrete arch bridge vastly prefer that the bridge sides have open "window" between the concrete as shown in the drawing above (as opposed to the SOL D concrete sides shown in the 3 D illustration) probably would prefer that the bridge and retaining wall be constructed of colored concrete in an earthy color The only change to this preference would be to a preference for a steel bridge ONLY if that would make the bridge's completion in one season EXTREMELY likely rather than just a remote possibility and even then it would depend on a clearer sense of the hours of construction (even assuming work would proceed for 7 days a week)	7/28/2016 3 51 PM
12	Need pedestrian access from meadow way bank to creek bed for general access and fire egress in emergency	7/28/2016 3 14 PM
13	The north side of the new bridge should align with the north side of the existing bridge Moving the bridge 7' to the south is not acceptable	7/28/2016 2 58 PM
14	[REDACTED] Can the north alignment of the road stay the same? t looks like the bridge will be moved to the south	7/28/2016 11 27 AM
15	[REDACTED] STRONGLY prefer no lights on the bridge need to understand better the different kinds of retaining walls in order to state a preference but think the 2 homes adjacent to the walls should have the loudest vote	7/27/2016 9 50 PM
16	Thanks for all the detail and ability to provide input [REDACTED]	7/24/2016 9 29 PM
17	Steel drop in bridge to expedite process 1year process natural creek access least amount of concrete as possible cal trans has just approved 10 foot lanes on the El Camino Real down the Peninsula why do we need 12 foot lane??	7/24/2016 12 44 PM
18	Could a concrete bridge have wood railings or could concrete railings be covered with wood?	7/22/2016 7 31 PM

Fairfax Bridge Design

19	<p>Thank you for asking for comments 1a Span type Aesthetically prefer the wood glulam alternative but have concerns about its longevity Between concrete and steel suppose could go with a CoreTen span but imagine your description "rusting steel" will limit desire of this choice and makes it moot Project data indicates a concrete span will be cheaper heard that it would also be quicker to build on site than steel That's hard to believe when steel can be fabricated off site and bolted together on site And there's no forming redundancy with a steel span s your time and material cost data of the span accurate? f time and costs are equal could go either way guess 'm a little concerned with anti rust problems with CoreTen but then a cracked and porous concrete span (earthquake or creep stress?) could allow rusting re bar don't know enough about this... 1b Railing prefer the railing design shown on the steel span sketch and 3D drawing 1c Lights No lights please 1d Most importantly strongly prefer a narrower bridge one that has an 11 foot wide lane and a 3 foot wide pedestrian path f the new bridge were narrower it would be centered further downstream and create less of a hardship for #6 Meadow Way (Horton) As the design is now #6 stands to lose almost all its parking not to mention a lot of its fence and some yard Shifting the bridge further downstream appears problematic due to the sewer pipe it would be more in scale with our neighborhood and traffic levels This bridge serves only 29 homes State highways have 12 foot lanes Our existing bridge lane is 9' 10" between curbs Even the largest trucks (like PG&E's crazy largest seen maybe once on Meadow Way) only need 10 feet of width SF fire trucks have an extreme tire width of 8' 3" The existing bridge is less than 15 feet wide almost 6 feet narrower than what's planned there'd be less likelihood of two opposing cars attempting to cross the bridge at the same time See 1e it could be built in its full width (including the downstream railing) BEFORE being slid into final position all abutments and retaining walls could be made the SAME for an 18 5 foot wide bridge as for the planned 21 5 foot wide bridge it would allow more space for trees at the NW corner of the bridge where bays and buckeyes grow now (it may not come to this but) it would offer a less costly solution than detouring cars through the creek 1e Lane/path buffer Paint and reflective tags alone will not do There needs to be a raised buffer of 6x9 to 12x12 inch section Wood is maybe best f the concern is problems stemming for motor vehicle strikes consider the choice A motorist striking the buffer or a motorist striking a pedestrian Plenty of people use this bridge to watch the creek f two motorists (or one of them) seeing only paint and reflectors decide to make the bridge a two way affair and a pedestrian is on the bridge (perhaps enjoying the view) well you can imagine A raised buffer serves as a scofflaw deterrent one that has worked on Meadow Way for many decades 2 find these two drawings too vague and could not find enough information in your April and June PDFs to make a valid choice n the lower drawing can't tell what the many horizontal lines indicate The other main differences between the two drawings are what appear to be concrete wall sections but they are not named What are the salient points to consider? Maybe this is a place to say a vertical wall would be better than a battered wall? A vertical wall would allow more space at the top of the wall at the bridge's NW corner to replant the removed bay and buckeye trees 3 've indicated my preference as D imagine some kind of greenery could be good but blackberry is much too invasive especially the non native (good eating) variety nformal access to the creek will likely be along these walls and blackberry vine growth would be difficult abate imagine the fact that the vertical aspect of D and E drawings is significantly reduced will skew the vote toward these two choices Anyway it's the horizontal lines and sloped fences find appealing A handsome new alternative which flows with the creek Thank you Additional have created digital drawings showing my suggested 18 5 width bridge Would be happy to share [REDACTED]</p>	7/22/2016 7 18 PM
20	NO lights above rails Must have creek access regardless of type of retaining walls for wild life neighbors and as emergency exit if Cascade Drive is closed	7/21/2016 4 49 PM
21	What effect will the different wall texture treatments have on flow turbidity flow speed and maintenance of the channel? Will the pretty "living wall" result in maintenance issues and reductions in flow or capacity similar to issues caused by ivy growing at the Morningside neighborhood bridges?	7/21/2016 4 40 PM
22	voted for the conventional wall construction mostly because believe the MSE approach cannot be done in the area next the to the bridge due to excavation requirements without closing the road for an extended period	7/21/2016 3 36 PM
23	Please ensure that local sources of native plants are incorporated local to the watershed	7/21/2016 3 23 PM