



BOARD OF DIRECTORS  
SAN LORENZO VALLEY WATER DISTRICT  
AGENDA  
December 1, 2016

MISSION STATEMENT: Our Mission is to provide our customers and future generations with reliable, safe and high quality water at an equitable price; to create and maintain outstanding service and community relations; to manage and protect the environmental health of the aquifers and watersheds; and to ensure the fiscal vitality of the San Lorenzo Valley Water District.

Notice is hereby given that a regular meeting of the Board of Directors of the San Lorenzo Valley Water District will be held on **Thursday, December 1, 2016 at 6:00 p.m.**, at the Operations Building, 13057 Highway 9, Boulder Creek, California.

*In compliance with the requirements of Title II of the American Disabilities Act of 1990, the San Lorenzo Valley Water District requests that any person in need of any type of special equipment, assistance or accommodation(s) in order to communicate at the District's Public Meeting can contact the District Secretary's Office at (831) 430-4636 a minimum of 72 hours prior to the scheduled meeting.*

*Agenda documents, including materials related to an item on this agenda submitted to the Board of Directors after distribution of the agenda packet, are available for public inspection and may be reviewed at the office of the District Secretary, 13060 Highway 9, Boulder Creek, CA 95006 during normal business hours. Such documents are also available on the District website at [www.slvwd.com](http://www.slvwd.com) subject to staff's ability to post the documents before the meeting.*

1. Convene Meeting/Roll Call

2. Additions and Deletions to Agenda:

*Additions to the Agenda, if any, may only be made in accordance with California Government Code Section 54954.2 (Ralph M. Brown Act) which includes, but is not limited to, additions for which the need to take action is declared to have arisen after the agenda was posted, as determined by a two-thirds vote of the Board of Directors (or if less than two-thirds of the members are present, a unanimous vote of those members present).*

3. Oral Communications:

*This portion of the agenda is reserved for Oral Communications by the public for items which are on the Closed Session portion of the Agenda. Any person may address the Board of Directors at this time, on Closed Session items. Normally, presentations must not exceed three (3) minutes in length, and individuals may only speak once during Oral Communications. No actions may be taken by the Board of Directors on any Oral Communications presented; however, the Board of Directors may request that the matter be placed on a future agenda.*

*Please state your name and town/city of residence at the beginning of your statement for the record.*

4. Adjournment to Closed Session:

*At any time during the regular session, the Board may adjourn to Closed Session in compliance with, and as authorized by, California Government Code Section 54956.9 and Brown Act, Government Code Section 54950. Members of the public will be given the opportunity to address any scheduled item prior to adjourning to closed session.*

a. CONFERENCE WITH LEGAL COUNSEL-EXISTING LITIGATION

Government Code Section 54956.9(d)(1)

Case Number CV180394-Bruce Holloway, Plaintiff, v. Terry Vierra; San Lorenzo Valley Water District; Showcase Realty Agents, Inc.; Gregory Dildine; Edwige Dildine; and Does 1 to 25, Defendants.

b. CONFERENCE WITH LABOR NEGOTIATORS

Government Code Section 54957.6

Agency designated representative: Brian Lee

Employee Organizations: Classified Employees Unit and Management, Advisory and Confidential Employees Unit

c. CONFERENCE WITH LEGAL COUNSEL- EXISTING LITIGATION

Paragraph (1) of subdivision (d) of Government Code Section 54956.9

Name of Case: Charlene DeBert v. SLVWD

5. Convene to Open Session at 7:00 p.m. (time certain)

6. Report of Actions Taken

7. Additions and Deletions to Agenda:

*Additions to the Agenda, if any, may only be made in accordance with California Government Code Section 54954.2 (Ralph M. Brown Act) which includes, but is not limited to, additions for which the need to take action is declared to have arisen after the agenda was posted, as determined by a two-thirds vote of the Board of Directors (or if less than two-thirds of the members are present, a unanimous vote of those members present).*

8. Oral Communications:

*This portion of the agenda is reserved for Oral Communications by the public for items which are not on the Agenda. Please understand that California law (The Brown Act) limits what the Board can do regarding issues raised during Oral Communication. No action or discussion may occur on issues outside of those already listed on today's agenda. Any person may address the Board of Directors at this time, on any subject that lies within the jurisdiction of the District. Normally, presentations must not exceed three (3) minutes in length, and individuals may only speak once during Oral Communications. Any Director may request that the matter be placed on a future agenda or staff may be directed to provide a brief response.*

9. Written Communications:

a. LETTER from SLV HIGH SCHOOL-EXPO

10. Consent Agenda:

*The Consent Agenda contains items which are considered to be routine in nature and will be adopted by one (1) motion without discussion. Any Board member may request that an item be withdrawn from the Consent Agenda for separate discussion.*

- a. MINUTES OF THE BOARD OF DIRECTORS MEETING FROM  
NOVEMBER 3, 2016  
Consideration and possible action by the Board to approve minutes for the November 3, 2016 Board of Directors meeting.
- b. MINUTES OF THE BOARD OF DIRECTORS MEETING FROM  
NOVEMBER 17, 2016  
Consideration and possible action by the Board to approve minutes for the November 3, 2016 Board of Directors meeting.
- c. BILL LIST FOR PERIOD ENDNG DECEMBER 1, 2016  
Consideration and possible action by the Board to approve the Bill List for the period ending December 1, 2016.

11. Unfinished Business:

*Members of the public will be given the opportunity to address each scheduled item prior to Board action. The Chairperson of the Board may establish a time limit for members of the public to address the Board on agendum.*

- a. PROBATION TANK NOTICE OF INTENT  
Discussion and possible action by the Board regarding the Probation Tank NOI.

12. New Business:

*Members of the public will be given the opportunity to address each scheduled item prior to Board action. The Chairperson of the Board may establish a time limit for members of the public to address the Board on agendum.*

- a. INTERTIES 2, 3 & 4 - NOTICE OF COMPLETION  
Discussion and possible action by the Board regarding Interties 2, 3 & 4 Notice of Completion.
- b. WATER/SEWER RATES AND CHARGES  
Discussion by the Board regarding water/sewer rates and charges.

13. District Manager Reports:

*Information reports by the District Manager, Staff, Committee and Board of Directors.*

- a. MANAGER
  - (1) Department Status Reports  
Receipt and consideration by the Board of Department Status Reports regarding ongoing projects and other activities.

- (i) Q & A from prior Board Meetings
- (ii) Administration
- (iii) Environmental

b. BOARD OF DIRECTORS MEETINGS:

(1) Future Board of Director Meeting Agenda Items

- (i) Scheduled for the second meeting in December (12.15.16)
  - (a) Oath of Office for the new Board member
  - (b) Election of Officers
  - (c) Set Board meetings for the year
  - (d) Committee appointments
  - (e) Board of Directors Policy Manual 2017
  - (f) Sexual Harassment Policy 2017
  - (g) Personnel System Rules & Regulations 2017
  - (h) Respectful Workplace Policy 2017
- (ii) Scheduled for future meetings
  - (a) AB 1234-Ethics Education & Training (within 1 year of election and every other year after)
  - (b) Form 700-Statement of Economic Interests (annually by April 1)
  - (c) Evaluation of District Manager and Counsel (annually)
  - (d) Final 2015 UWMP Presentation

c. COMMITTEE/DIRECTOR REPORTS:

(1) Future Committee Meeting Agenda Items

- (i) Admin
- (ii) Budget & Finance
- (iii) EEP
  - (a) Copper & Lead Exceedance
- (iv) LAOC

(2) Committee Meeting Notes

14. Informational Material: None

15. Adjournment

**Certification of Posting**

I hereby certify that on November 23, 2016 I posted a copy of the foregoing agenda in the outside display case at the District Office, 13060 Highway 9, Boulder Creek, California, said time being at least 72 hours in advance of the meeting of the Board of Directors of the San Lorenzo Valley Water District (Government Code Section 54954.2).

Executed at Boulder Creek, California on November 23, 2016

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Holly B. Morrison, Dist. Secretary  
San Lorenzo Valley Water Dist.

LETTER FROM SLV HIGH SCHOOL – CAREER EXPO COORDINATOR  
November 16, 2016

Hello and Good Morning Holly,

I want to thank you for your companies participation in the San Lorenzo Valley High School Career Expo, your staff were great. I truly believe that this Expo was a wonderful experience for our students and it was all because of each of the participants. You gave the students a glimpse into the path beyond there everyday and into their future. I am truly grateful that your company and yourself for be willing and interested in helping our next generation succeed. On behalf of our students thank you for your generous gift.

Sincerely,  
Coco Raner-Walter  
Career panel/Expo Coordinator  
Your Future is Our Business

**SAN LORENZO VALLEY WATER DISTRICT  
BOARD MEETING MINUTES**

November 3, 2016

6:00 p.m.

**CONVENE MEETING/ROLL CALL:**

President Brown convened the meeting at 6:00 p.m.

Dirs. Bruce, Baughman and Ratcliffe were present. District Manager Lee, and Legal Counsel Hynes were also present.

**ORAL COMMUNICATION:** None

**ADJOURNMENT TO CLOSED SESSION:**

President Brown adjourned to closed session at 6:03 p.m.

**RECONVENE TO OPEN SESSION:**

Pres. Brown reconvened the meeting to open session at 7:02 p.m.

Director Bruce made a motion to excuse the absence of Director Hammer.

**ROLL CALL:**

Ayes: Baughman, Brown, Ratcliffe, Bruce

Noes:

Abstain:

Absent: Hammer

**REPORT ACTIONS TAKEN IN CLOSED SESSION:** None

**ADDITIONS AND DELETIONS TO AGENDA:** None

**ORAL COMMUNICATIONS:**

Ed Frech, Felton, addressed the Board (see comments Exhibit A).

Debra Loewen, Felton, addressed the Board (see comments Exhibit B).

Charlene DeBert, Boulder Creek, addressed the Board to say that she is here for the 4<sup>th</sup> anniversary of her claim regarding a pipe through her property. She thanked Brian Lee for verifying the cross claim. She went on to say that it was a big mistake. She said that the District is spending \$16,000 on her case in 2 months. She says she deserves an apology. She said that she doesn't see Dist. Mgr. Lee as the bad guy and the Board should be more engaged.

**WRITTEN COMMUNICATIONS:**

Pres. Brown noted that there are 2 written communications. He said that he just wanted to say 1 thing about Debra's comment, it's easy to mistake approval for deference. The Board does review the agendas and talk with staff about the agenda. Generally, staff and the Board see eye to eye.

**CONSENT AGENDA:**

Pres. Brown noted that the agenda listed the wrong date under 10a.

10a MINUTES FROM OCTOBER 13, 2016 Special BoD

10b MINUTES FORM OCTOBER 20, 2016 BoD

10c BILL LIST FOR PERIOD ENDNG October 20, 2016

Pres. Brown moved for approval of the Consent Agenda.

**ROLL CALL:**

Ayes: Bruce, Baughman, Ratcliffe, Brown

Noes:

Abstain:

Absent: Hammer

**NEW BUSINESS:**

12a PUBLIC HEARING AND POSSIBLE ADOPTION - 2015 URBAN WATER MANAGEMENT PLAN

DM Lee introduced the 2015 UWMP. It is a requirement of the State of California every 5 years. The District completed the 2010 UWMP in February 2016. The 2015 UWMP was due in July of this year, so we are behind schedule. DM Lee added that he is simply trying to check off a box with this completed 2015 UWMP.

Dir Bruce understands that the template for the UWMP is a compilation of specific reports, but she questions if the District is still updating climate action plans, vehicle emission goals, etc. in preparation of the 2020 UWMP.

DM Lee said that is exactly what he is planning. He said that the UWMP should be a compilation of documents that already exist.

Pres. Brown said that the he noted several items to help the fish situation. It requires working with other agencies.

Dir. Bruce questioned if the completion of the 2015 UWMP is a component of SRF Loans.

DM Lee said that the completion of the 2010 UWMP made us eligible for SRF Loans.



Dir. Baughman said that he likes the narrative of this document. 2010 was data rich and this is more abbreviated.

Dir. Ratcliffe said that she looks at the document as a snapshot of the District. It's understandable.

Pres. Brown said that it's a good overview.

Environmental Programs Manager Michelsen said that DM Lee covered it pretty well. She said that the climate change was covered in the 2010 UWMP. There are a lot of assessments going on and grants in process but not ready for submitting to the State.

Dir. Bruce noted that paragraph 6.8.2, the last sentence doesn't make sense.

Dir. Baughman asked for clarification of 6.4.2, the figures don't exist. He also noted that there is an area of the basin west of Zayante that is unclear and Nick has a very good map that can go there.

DM Lee said that the water loss audit is not a requirement of the UWMP so it is a place holder that was never intended to be filled. The 2010 UWMP was created by scientists for scientists, the 2015 UWMP was created by engineers for government.

At 7:36 pm called the Public Meeting.

John Calaprice, Felton, addressed the Board with data gaps in the plan and with suggestions for improvement (see comments Exhibit C).

Pres. Brown thanked Dr. Calaprice for his thoughtful comments.

DM Lee said he was tempted to clap and applause broke out.

Pres. Brown noted that we are working on many of the projects Dr. Calaprice mentioned.

Dir. Baughman noted that the District has a lot of storage capacity.

Dir. Bruce invited Dr. Calaprice to participate in the Environmental/Engineering/Planning Committee and thanked him for his comments.

Dir. Ratcliffe addressed the focus of the 2015 UWMP. She said that it is necessary to allow our participation in SRF loans for projects related to his concerns.

Environmental Programs Manager Michelsen added that we currently are working on projects related to fish restoration in the valley.

Dir. Bruce noted that SLVWD participates Santa Cruz Mountain stewardship projects with a multi-agency working group.

Dr. Calaprice said that it would be nice to let the public know about all of these projects.

John Fasolas, Felton, said that the District is involved in a lot of things trying to develop data on our carbon footprint, the Santa Margarita Aquifer, etc.

Pres. Brown noted that the Santa Margarita group is no longer an advisory commission it is now becoming an agency.

John Fasolas said that he would like to see the District take a lead role in the new agency. He welcomed Dr. Calaprice to the area and invited him to meet like-minded individuals.

Pres. Brown noted that climate change will help define sustainability.

Debra Loewen, Felton, reported that all of the streams and rivers in the state are being impacted by marijuana cultivation and she wishes that Dir. Hammer was there to address that issue.

Ms. Michelsen said that marijuana cultivation is an issue that she and the District is very involved in through the County Supervisors. She has prepared strong response to the environmental impact report.

Rick Moran, Environmental/Engineering/Planning Committee member, he said that he sees this plan as an introductory tool to educate the public. He is most interested in the gallons per day per individual's use. He likes that the plan has an equitable conservation plan.

Pres. Brown noted that there was an additional comment letter questioning why Lompico wasn't included in the 2015 UWMP.

DM Lee said that the 2015 UWMP information ended on 12/31/15 and Lompico didn't become part of the District until 6/2/16. He said that this plan is not a master plan for the District, just a small part of the overall plan.

The Public Hearing closed 8:07 pm.

Dir. Baughman noted that the RFP allowed up to 3 meetings with representatives that prepared the plan and he hasn't seen them once. He thinks he can learn a lot from them presenting the plan.

DM Lee he said that they can come back with the Final 2015 UWMP with all changes brought up tonight.

Dir. Bruce made a motion to accept the plan in its draft form with the minor changes to be made and upgrades to graphs, charts & maps and that they present the Final at the next meeting.

ROLL CALL:

Ayes: Baughman, Brown, Ratcliffe, Bruce  
Noes:  
Abstain:  
Absent: Hammer

DM Lee noted that this is for Resolution No. 13 (16-17).

12b REFINANCING OF SOLAR LEASE

DM Lee described the item.

Dir. Baughman said that he thought this is a good idea. He questioned if it would require additional insurance.

Dist. Counsel Hynes noted that we already have the system insured.

DM Lee noted that this is a low interest rate.

John Fasolas, Felton, said that this solar equipment lowered the District's carbon footprint. The amount of electricity the District is saving should more than offset the cost of the loan.

Pres. Brown question the viability of the system.

Mr. Fasolas said that inverters wear out but this system is only 5 years old and should last 25 or 30 years.

Dir. Ratcliffe made a motion to approve the purchase of the Solar Equipment and adopt Resolution No. 12 (16-17).

ROLL CALL:

Ayes: Bruce, Baughman, Brown, Ratcliffe  
Noes:  
Abstain:  
Absent: Hammer

12c LOMPICO OVERSIGHT COMMITTEE

DM Lee described the item. This item went to the Administration Committee last week and that committee recommended the clarifying language for the Oversight Committee as listed in the board packet. Since the agenda was published it was brought to his attention that there are 2 key nouns in the sentence; the assessment district 2016-1 and Lompico service area. This could be confusing. He proposed that *Lompico service area* be struck and replaced with *overlying*. He went over, item by item, the proposed Lompico Oversight Committee meeting agenda provided by Toni Norton, committee chair, for relevance to committee.

DM Lee noted that the Lompico Notice of Copper Exceedance does not belong on the Lompico Assessment Oversight Committee (LAOC).

Dir. Bruce offered that the Notice should be on the Environmental/Engineering/Planning Committee. She asked for clarification on the projects listed on the agenda. She noted 3 core issues; expenses, revenues and surcharge.

DM Lee noted that the surcharge discussion is more appropriate for the Admin Committee.

Dir. Bruce noted that we are not 2 separate water districts and it is appropriate for discussion of projects and other issues to be discussed by the appropriate committee.

Toni Norton noted that initially the committee had a broader charter so at that time they thought the surcharge was part of their oversight. She noted ~~that Lompico had instigated a loan, for which they are paying interest, in anticipation of needing funds for the startup costs. Lompico would like to start using their water sources.~~

~~...as you know its 2.9 million dollars that we're bringing and there's a list of projects and that one of the expenses is a loan that San Lorenzo could have chosen and in fact we've already we're being charged interest for, to for you to be able to get ahead and start on the projects. And as Pete, that's my husband, he mentioned that, so he did bring up that we do have 2 great sources of water in Lompico that we really like, we need to start using that water and that so in order to get the water flowing we need to...~~

~~They would also like to start getting information on assessment funds that have already been spent.~~

DM Lee explained that there are already committees set up for the other issues. Copper and lead issues are not isolated to Lompico. The LAOC should concentrate on the assessment and customers can contact the other committees for other issues.

Dir. Ratcliffe noted that the LAOC doesn't have any Board members so they can participate in all other committees and board meetings.

Debra Loewen, Felton, said that she wants a formal written report presented to the committee from management that details all of this, not just come in and talk about it. She added that she wants something on the SLVWD website where these things are posted. She thinks this should go back to the committee for ratification before the Board makes any decisions.

Ms. Norton said that the word "projects" was in the agreement and she would like it to be included in the committee.

DM Lee said that we are all working for the same goal. He suggested that the following be the language of the LAOC; the committee shall be responsible to review matters of revenue and expenses that are directly related to Assessment District 2016-1 projects.

Dir. Bruce suggested that cut sheets for the Lompico projects, similar to the CIP projects, be produced.

DM Lee said he plans to do that.

Ed Frech, Felton, asked if there is a critical path generated on these projects?

DM Lee said there is not a critical path at this moment, but there will be.

Dir. Bruce made a motion to approve Resolution No. 13 (16-17) with the modification of oversight recommended language.

ROLL CALL:

Ayes: Brown, Baughman, Ratcliffe, Bruce

Noes:

Abstain:

Absent: Hammer

#### 12d FINAL REPORT FOR THE FALL CREEK WATERSHED VIDEO

Environmental Programs Manager Michelsen said that in order to close the contract with Fred & Roberta McPherson regarding the Education Grant for the Fall Creek Watershed Video, she requests that the Board approve the final report and final payment on the project.

All agreed that it is a fine effort and well done.

Pres. Brown made a motion to approve the final report and final payment.

ROLL CALL:

Ayes: Bruce, Baughman, Ratcliffe, Brown

Noes:

Abstain:

Absent: Hammer

### **DISTRICT MANAGER REPORTS**

#### **Administration**

DM Lee shared highlights from the status report.

#### **Environmental**

Environmental Programs Manager Michelsen shared highlights from the status report.

### **ADJOURNMENT:**

President Brown adjourned the meeting at 9:02 p.m.

**SAN LORENZO VALLEY WATER DISTRICT  
BOARD MEETING MINUTES  
November 17, 2016  
6:00 p.m.**

**CONVENE MEETING/ROLL CALL:**

President Brown convened the meeting at 6:00 p.m.

Dirs. Bruce, Baughman and Ratcliffe were present. District Manager Lee, and Legal Counsel Hynes were also present.

**ORAL COMMUNICATION:** None

**ADJOURNMENT TO CLOSED SESSION:**

President Brown adjourned to closed session at 6:02 p.m.

**RECONVENE TO OPEN SESSION:**

Pres. Brown reconvened the meeting to open session at 7:02 p.m.

Director Bruce made a motion to excuse the absence of Director Hammer.

**ROLL CALL:**

Ayes: Brown, Baughman, Ratcliffe, Bruce

Noes:

Abstain:

Absent: Hammer

**REPORT ACTIONS TAKEN IN CLOSED SESSION:** None

**ADDITIONS AND DELETIONS TO AGENDA:**

DM Lee suggested that item 13c1iv moved up to accommodate LAOC Committee Chair Norton.

**ORAL COMMUNICATIONS:**

Lois Henry, Felton, requested a couple of extra minutes. She said she “would like to say to you President Brown, thank you for your service. A few times she has heard it mentioned but she can’t quote directly where it was said that I thought we decided an audit before talking about the surcharge and I also heard somebody say that the manager calls and talks to him but doesn’t say what he says to other Board members but I would like to read you something from the attorney general about serial meetings and the Brown Act”.

Ms. Henry then read from an excerpt purported to be from an attorney general but a copy was not provided to staff. It was an opinion regarding information sharing between a manager and board of directors and the possibility of serial meetings.

“I have to wonder what it is you expect from the audit. I know you will know the assets and liabilities from July 1, 2015 to June 2016. The surcharge was based on what the income from Lompico would be when we became your customers and the cost to run the district as a standalone plus 2 debts. You need to be looking at the money that’s coming in from Lompico so you can determine if we are not fulfilling the surcharge, in other words, paying for our share of the cost because we are standalone at the moment and also the 2 debts that are included in that that have been paid. I don’t know about you but I went to Sacramento when I was elected to the board. I, you know, the 2 day meeting ‘How to be a Board Member’ I assume the rest of you have gone to that, and I remember the first thing they showed was a flow chart and it showed the area of responsibility, Board, manager, staff. The Board needs to see that the manager follows policies and procedures, but not micro manager the manager. Also to make sure the agenda meets the Brown Act requirements.”

Ms. Henry the read an excerpt from the Brown Act regarding the agenda and what must be included, again, a copy was not provided to staff.

“Now I came to you in April of this year asking for the surcharge to be on the agenda. It has yet to be on the agenda. There has never been anything that says surcharge on that agenda. And when I talked about lack of respect, in October, April I came to you. Here it is almost December and it’s still never been on the agenda. Even though President Brown said he wanted it on the agenda. I understand but it was not on the agenda. And there was a bunch of things under one category we got 5 minutes to talk and if each one of those items we were talking about would have been on the agenda we would have 3 minutes on each thing, so I feel we were shortened. So I just, I understand the Brown is a pain in the butt, anyway there’s been some comments by your manager, one that the audit was unexpected and I talked to him about it in March. That we’ve accumulated 2 years of debt, I have no idea what that might be. The PowerPoint presentation was in poor taste and last but not least, what was very upsetting to me was that at the oversight committee he made the comment that you wonder why we’re pushing to get you to talk about the surcharge because you think we must be hiding something, I don’t even think we have any dead bodies buried anywhere, at the moment. And I might say you are our elected officials, we have the right to criticize, and you shouldn’t be criticizing us. It’s not professional, it’s unseemly and I would like to say, Director Baughman, I hope you’re the next president. Thank you.”

Toni Norton, Felton and chairperson of the LAOC, “as a public citizen I promised that when I attended the last meeting before it became the new assessment committee, that I would make one last statement that when we were shutting down the surcharge, we would appreciate it that since it was stated at your previous meeting that you would review the audit and at that point you’ll revisit the issue of the surcharge. So what we would really appreciate and the citizens that attended and the other committee members, if you would please just make a motion at future meeting that that will take

place and vote on it, just so it will be in the record. Specify sometime in the spring. Thank you very much.”

Ed Frech, Lompico, said “I would like to remind the Board that you are still collecting for third party debt paid in full by the Lompico prior to the merger. You were notified as far back as April that it should be removed. In justification for not removing this overcharge to Lompico’s customer, in a timely manner, at last week’s oversight meeting Manager Brian Lee said, and I quote, ‘There’s seems to be an immediacy to this and from the current Board’s standing we are wondering what the rush is? What is hidden in this assessment district? And may come out.’ To me this sounds like you’re still angry about the Felton deal. The Lompico merger is nothing like that. Lompico is a special district just like San Lorenzo Valley Water District, Lompico’s books were open and reviewed by SLV during the formation of the merger agreement and to the present. SLV staff was familiar with the Lompico water system as anyone. Lompico Water did not hide anything from SLV staff or Board. I feel because of the Felton acquisition you are ready to believe the worse of us. Lompico deserves better than this. What we brought, when we brought this to the District’s attention I heard Brian Lee tell Debbie, my wife, that Lompico customers will never, never receive a refund or credit for this debt overcharge, regardless of any Board decision. This is why Deb and I feel immediacy is warranted and why we are here again to talk to about this. Thank you.”

Debra Loewen, Felton, “and I want to speak about the overcharge to Lompico customers. You’re probably annoyed that I am still here and still talking about the same thing. On September 9<sup>th</sup> the general manager that that overcharge will never be on the agenda and he also said he intended to collect the full surcharge for 1 year and there would be no refund or credit to Lompico customers regardless of any decision by the Board. This is before there was any talk about (unintelligible) or liability. He said just wait 1 year and I said this is not the arena. With respect, last year we did bring this to the manager. At 2 public meetings Brian said that he would honor the updated paid reduction of the surcharge. When I reminded him earlier this year that he said that he said that he forgot that he said that. He also said that he’d tell the Board that he forgot if it ever came up. With respect, and last year and also in July there was a liaison with Baughman and Ratcliffe and the district manager and all agreed that quote staffing positions are part of the LAFCO agreement, saying that it was one of the 4 points of the agreement but staffing is not in the 4 page agreement, it is part of the backup materials just like the Lompico paid debt reduction schedule. Now as a Board you tell me that if it’s not in those 4 pages of the LAFCO agreement it doesn’t exist. And with respect to District Counsel in just the past 2 meetings he’s attended I’ve hear him make a statement about a legal position when questioned and then with a little more information, changed his opinion, and I think this could also apply to the LAFCO agreement, if given some time. And with respect, I question a couple of errors in some bills that Brian had given me early in October. And I said these don’t look like Lompico liabilities, and yet two weeks later they were included in a Board packet to you on October 20<sup>th</sup> as liabilities that Lompico incurred. Last week at the oversight committee meeting, Brian was a little miffed about this and said he’d never claimed that the bills he presented to you were accurate. Again at the October 20<sup>th</sup> meeting, Dir. Hammer assured us that money could be refunded and I think this is going to be an interesting



next few months cause I have (unintelligible) new information. With respect under these circumstances I think there is a just cause to form a special ad hoc citizens' community whatever meeting to review these Lompico liabilities and things before it is presented in your review. I've requested this many times in the past, I have also requested to meet with Board members to discuss this. I really just want this to be accurate. I would love to work collaboratively. I'm getting a little pushback about it. So you can understand why I am still here and I'm also saying we're going to stand our ground. Thank you."

**WRITTEN COMMUNICATIONS:**

Pres. Brown noted that there was a letter about pipeline problems. DM Lee said that staff is looking into it, we don't have enough data at this time.

**CONSENT AGENDA:**

- 10a MINUTES FROM NOVEMBER 3, 2016 BoD
- 10b BILL LIST FOR PERIOD ENDNG NOVEMBER 17, 2016
- 10c ATTENDANCE OF ACWA CONFERENCE BY DIR. BRUCE
- 10d FINANCIAL SUMMARY FOR SEPTEMBER 30, 2016

Dir. Bruce moved for approval of the 4 items on the Consent Agenda.

Pres. Brown noted that he liked where the financial summary is getting to. Stephanie is not here to hear that but he wants her to know that she is doing well.

Dir. Baughman said that he chimed in on that also. He asked that it be added to the next finance meeting for discussion.

Toni Norton, Felton, said that she would like to make a correction to the minutes. She noticed on the minutes that it mentioned a statement she made that she feels is incorrect.

DM Lee suggested that we pull the minutes and review the audio tape, then bring the minutes back at the next Board meeting.

Dir. Bruce amended her motion to reflect the removal of the minutes from Nov. 3, 2016.

**ROLL CALL:**

- Ayes: Brown, Baughman, Ratcliffe, Bruce
- Noes:
- Abstain:
- Absent: Hammer

**COMMITTEE/DIRECTOR REPORTS:**

13c1iv LAOC

Toni Norton said that she appreciated the Board moving her report up in the agenda.

She said they had a very successful meeting. They spoke about the change in the charter to limit the committee to matters related to the assessment district. She thanked DM Lee for allowing Lompico access to a website link.

The LAOC has set their regular meeting for the second Thursday of the month at 5:30 pm.

**NEW BUSINESS:**

12a 2017 STRATEGIC PLAN

DM Lee introduced the 2017 Strategic Plan.

Dir. Ratcliffe noted that the Plan references the Public Relations Committee s/b the Admin Committee.

Pres. Brown requested that hydro power be added.

Dir. Bruce questioned the omission of the Groundwater Sustainability Act - JPA, from the introduction. It is in the body but consistency she would like it added to the introduction. There may be other similar omissions, please review. Also, she would like to see conjunctive water use in the Plan.

Dir. Baughman agreed and requested that the GSA tie in for Loch Lomond water be added. He also requested that the water supply management not be specifically for Felton but to include the whole system.

DM Lee said that Loch Lomond is a capital project. He suggested that item 1.3 be changed to Conjunctive Use.

Dir. Bruce suggested that the North South Intertie should be included in Conjunctive Use.

Pres. Brown suggested that the introduction should include water supply and Loch Lomond.

DM Lee is concerned that this document is not going to be approved. He says that it is constantly changing.

Dir. Ratcliffe suggested that the Plan have broad categories with estimated timelines.

Dir. Baughman noted that the Plan is revisited every year.

DM Lee suggested that the conjunctive use projects be broken out into the Capital Program and the Capital Program identifies them as conjunctive use projects. Then refer to the Capital Program for more information in the Strategic Plan.

Dir. Baughman suggested an appendix.

Dir. Ratcliffe noted the changes in the last 2 years to the cooperation with strategic partners.

Dir. Baughman suggested that in the section Water Supply Management, Felton should be changed to the whole system.

Dir. Ratcliffe noted that this is a high level document and too many specifics are not needed or wanted.

Dir. Baughman questioned the Watershed Stewardship item 2.2, wondering if something agricultural should be listed.

Pres. Brown questioned the location of habitat restoration in the document.

DM Lee said that habitat restoration is part of 2.1.

Dir. Baughman noted 3 typos:

- 4.1 add "a" Prop 218 process
- 6.4 should say manner not manor
- 7.3 the GSA section, the date June 20, 2017 should be June 30, 2017 but technically it should be 2 years from the basin boundary finalization.

DM Lee noted that basins that don't require adjustments with have the June 30, 2017 deadline.

Bill Smallman, Felton, asked where this information can be found.

DM Lee said that the current draft Plan is in the packet and the currently adopted Plan is on the website. He recommended kicking this back to the Admin Comm for polishing.

Dir. Bruce noted that the changes are clerical.

John Fasolas, Felton, suggested that this document is ready with a few changes.

DM Lee asked for one final pass at this and bring it back to the Board.

### **DISTRICT MANAGER REPORTS:**

#### **Finance**

DM Lee shared highlights from the status report. Still working on the yearend audit. He is optimistic that we will have a Comprehensive Annual Financial Report this year.

#### **Operations**

Director of Operations Rogers said it has been a quiet month.

Dir. Bruce questioned the copper exceedance in Lompico.

DO Rogers said that they are no longer in violation of the State copper exceedance, just testing a final time.

### **ADJOURNMENT:**

President Brown adjourned the meeting at 8:10 p.m.

# Accounts Payable

## Outstanding Invoices

User: KendraNegro  
 Printed: 11/21/2016 - 11:52 AM  
 Date Type: JE Date  
 Date Range: 11/10/2016 to 11/21/2016

## BILL LIST SUMMARY

Check Register Total : \$62,078.53  
 AP Outstanding Total: \$47,201.22  
 TOTAL FOR APPROVAL: \$109,279.75



13060 Highway 9  
 Boulder Creek, CA 95006-9119  
 (831) 338-2153 phone  
 (831) 338-7986 fax

### Vendor

Account Number	JE Date	Invoice Date	Invoice No	Journal Entry	Amount	Description
00046 - RED WING SHOE STORE						
01-400-5171	11/18/2016	11/11/2016	3-822A	00137-05-2017	208.75	SAFETY BOOTS_ROBUSTELLI_155
01-400-5171	11/18/2016	11/11/2016	3-822B	00137-05-2017	235.70	SAFETY BOOTS_BEASLEY_212
01-400-5171	11/18/2016	11/11/2016	3-822C	00137-05-2017	295.79	SAFETY BOOTS_SIFTON_213
Total for Vendor 00046 - RED WING SHOE STORE:					740.24	
00047 - SOIL CONTROL LAB						
01-800-5202	11/18/2016	11/9/2016	6110081	00137-05-2017	86.00	METAL DIGESTION, MANGANESE, IRON
Task Label:		Type:		PO Number: 0000100704		
01-800-5202	11/18/2016	11/10/2016	6110304	00137-05-2017	145.00	WATER ANALYSIS_GENERAL PHYSICAL
Task Label:		Type:		PO Number: 0000100704		
Total for Vendor 00047 - SOIL CONTROL LAB:					231.00	
00183 - SDRMA						
01-100-5660	11/18/2016	11/3/2016	110316	00137-05-2017	5,000.00	LOMPICO_PROPERTY DEDUCTABLE
Task Label: EXP-1516004A		Type: E		PO Number:		
Total for Vendor 00183 - SDRMA:					5,000.00	
00312 - DOCTORS ON DUTY						
01-800-5200	11/18/2016	10/3/2016	703979	00137-05-2017	75.00	EMPLOYEE PHYSICAL
Total for Vendor 00312 - DOCTORS ON DUTY:					75.00	
00362 - ACCELA, INC #774375						
01-200-5610	11/18/2016	10/31/2016	ACC25357	00137-05-2017	2,049.00	WEB PAYMENTS_BANK FEE
01-200-5200	11/18/2016	10/31/2016	ACC25357	00137-05-2017	185.00	WEB PAYMENTS_CONTRACT SERVICES
Total for Vendor 00362 - ACCELA, INC #774375:					2,234.00	
00415 - CA BANK & TRUST/GOV SVC DEPT						

**Vendor**

Account Number	JE Date	Invoice Date	Invoice No	Journal Entry	Amount	Description
<b>00415 - CA BANK &amp; TRUST/GOV SVC DEPT</b>						
01-000-1130	11/18/2016	11/17/2016	DEC 2016	00137-05-2017	15,581.43	1976 SAFE WATER BOND
Total for Vendor 00415 - CA BANK & TRUST/GOV SVC DEPT:					15,581.43	
<b>00450 - EUROFINS EATON ANALYTICAL, INC</b>						
01-800-5202	11/18/2016	11/9/2016	290823	00137-05-2017	10.00	LEAD _11214 OCEANVIEW
Task Label: EXP-1516004A		Type: E	PO Number:			
01-800-5202	11/18/2016	11/9/2016	290824	00137-05-2017	80.00	LEAD TOTALS_LOMPICO
Task Label: EXP-1516004A		Type: E	PO Number:			
Total for Vendor 00450 - EUROFINS EATON ANALYTICAL, INC:					90.00	
<b>00512 - RIVERSIDE LIGHTING</b>						
01-800-5420	11/18/2016	11/7/2016	145293	00137-05-2017	136.81	LYON PLANT ELECTRICAL
Total for Vendor 00512 - RIVERSIDE LIGHTING:					136.81	
<b>00540 - STATE OF CALIFORNIA</b>						
01-800-5320	11/18/2016	11/8/2016	5288283	00137-05-2017	219.89	PERMIT
01-800-5320	11/18/2016	11/8/2016	5333793	00137-05-2017	183.92	PERMIT
01-800-5300	11/18/2016	11/8/2016	5381178	00137-05-2017	170.07	PERMIT
01-800-5320	11/18/2016	11/8/2016	5475971	00137-05-2017	169.21	PERMIT
01-800-5320	11/18/2016	11/8/2016	5527658	00137-05-2017	157.39	PERMIT
01-800-5300	11/18/2016	11/8/2016	5557665	00137-05-2017	151.78	PERMIT
01-800-5320	11/18/2016	11/8/2016	5566260	00137-05-2017	157.39	PERMIT
01-800-5300	11/18/2016	11/8/2016	5577565	00137-05-2017	1,000.00	PERMIT
Total for Vendor 00540 - STATE OF CALIFORNIA:					2,209.65	
<b>00722 - SWRCB</b>						
01-800-5320	11/18/2016	11/2/2016	ea 0217-2117	00137-05-2017	2,193.00	ELAP ANNUAL FEE
Total for Vendor 00722 - SWRCB:					2,193.00	
<b>00729 - ALPHA ANALYTICAL LABS</b>						
02-600-5202	11/18/2016	11/11/2016	6111894	00137-05-2017	1,687.00	BCEWW MONITORING
Task Label:		Type:	PO Number:	0000100700		
02-600-5202	11/18/2016	11/11/2016	6111895	00137-05-2017	1,687.00	BCEWW MONITORING
Task Label:		Type:	PO Number:	0000100700		
Total for Vendor 00729 - ALPHA ANALYTICAL LABS:					3,374.00	

**Vendor**

Account Number	JE Date	Invoice Date	Invoice No	Journal Entry	Amount	Description
00750 - FEDAK & BROWN, LLP						
01-200-5201	11/18/2016	10/28/2016	102816	00137-05-2017	2,000.00	SERVICES RENDERED _OCT 2016
Task Label: EXP-1516004A		Type: S	PO Number:			
Total for Vendor 00750 - FEDAK & BROWN, LLP:					2,000.00	
10025 - BADGER METER, INC						
01-400-5200	11/18/2016	10/31/2016	80009001	00137-05-2017	525.10	ORION CELLULAR SERVICE
Total for Vendor 10025 - BADGER METER, INC:					525.10	
10072 - WATER SYSTEMS CONSULTING, INC						
01-500-5200	11/18/2016	10/31/2016	2268	00137-05-2017	7,298.15	SERVICES RENDERED-10/1 - 10/31_UWMP
Total for Vendor 10072 - WATER SYSTEMS CONSULTING, INC:					7,298.15	
10081 - INFRASTRUCTURE ENGINEERING CORP.						
01-000-1565	11/18/2016	10/28/2016	9408	00137-05-2017	4,569.84	BCEWW PLANT IMPROVEMENTS
Task Label: CAP-1617001A		Type: E	PO Number:			
Total for Vendor 10081 - INFRASTRUCTURE ENGINEERING CORP.:					4,569.84	
10106 - CEL ANALYTICAL, INC						
01-800-5200	11/18/2016	11/4/2016	5503	00137-05-2017	943.00	LYON TANK MONITORING
Total for Vendor 10106 - CEL ANALYTICAL, INC:					943.00	
Report Total:					47,201.22	

# Accounts Payable

## Checks by Date - Detail by Check Number

User: KendraNegro  
Printed: 11/21/2016 11:51 AM



13060 Highway 9  
Boulder Creek, CA 95006-9119  
(831) 338-2153 phone  
(831) 338-7986 fax

Check No	Vendor No Invoice No	Vendor Name Description	Check Date Reference	Void Checks	Check Amount
12027	00784	HD SUPPLY WATERWORKS,LTD	11/16/2016		
	G331143	MODEL 520R MXU-2 PORT			1,225.00
	G331143	ELL 90 GALV 4"			57.00
	G331143	COMPRESSION COUPLING 1" G/T			262.66
	G331143	NIPPLE BRASS 1" X 0"			12.25
	G375355	NIPPLE GALV 1/2" X 2"			2.60
Total for Check Number 12027:				0.00	1,559.51
12028	00711	ROBERTS & BRUNE CO.	11/16/2016		
	S1594459.002	FULL CIRCLE 3.73-4.00 7.50"			46.19
	S1594459.002	REPAIR CLAMP 3/4" X 6"			335.85
	S1594459.002	FULL CIRCLE 1"-3" REDI-CLP 244			63.26
	S1594459.002	REPAIR CLAMP 1" X 3"			274.15
	S1594459.002	FULL CIRCLE 3/4-3 REDI-CLP 244			99.15
	S1594459.002	FULL CIRCLE 2"-6" REDI-CLP 244			134.57
	S1604398.001	GATE VALVE 1"			129.82
	S1604398.001	BELL REDCR GALV 3/4" X 1/2"			2.30
	S1604398.001	MTR CPLG PIPE-MTR FEM 3/4" X 5/8"			172.57
	S1604398.001	FLANGE RING GASKETS 4" NO BLT			24.86
	S1604398.001	BUSHING GALV 1" X 3/4"			17.04
	S1604398.001	TEE GALV 1"			13.92
	S1604398.001	BUSHING GALV 4" X 3"			14.16
	S1604398.001	ELL 90 GALV 1-1/2"			28.62
	S1604398.001	ELL 90 GALV 1/2"			4.17
	S1604398.001	BLUE PAINT WATERBASE #3620			55.78
Total for Check Number 12028:				0.00	1,416.41
12029	00142 80066	SAN LORENZO LUMBER MISC TOOLS	11/16/2016		61.09
Total for Check Number 12029:				0.00	61.09
12030	00589 7232	ALLARD'S SEPTIC HOLDING TANK/HAUL AWAY_KWTP	11/17/2016		300.00
Total for Check Number 12030:				0.00	300.00
12031	00055	AT&T	11/17/2016		
	110116	TELEPHONE SERVICE_ADMIN			148.38
	110116	TELEPHONE SERVICE_BCEWW			330.63
	110116	TELEPHONE SERVICE_WTP			1,660.82
	110116	TELEPHONE SERVICE_OPS			3,183.90
Total for Check Number 12031:				0.00	5,323.73
12032	00378	BANK OF THE WEST	11/17/2016		
	092916	ADVERTISING			50.00
	093016	ADVERTISING			349.00

Check No	Vendor No Invoice No	Vendor Name Description	Check Date Reference	Void Checks	Check Amount
	100416	RAIN GEAR_WTP			379.00
	100416	RAIN GEAR_OPS			1,357.00
	100616	LUNCHEON MEETING			9.16
	100716	CLOUD SERVICES			153.45
	101016	OFFICE SUPPLIES			181.80
	101216	CREDIT			-209.40
	101316	LUNCHEON MEETING			20.60
	101416	CREDIT			-181.80
	101716	OFFICE SUPPLIES_RESENT DAMAGED PAI			181.80
	102016	LUNCHEON MEETING			23.82
	102316	MAIL CHIMP			50.00
	102416	LUNCHEON MEETING			75.49
	102416B	LUNCHEON MEETING			23.11
	102716	WEB HOSTING			93.91
	102816	UNIFORMS_SALES TAX			31.27
	102816	UNIFROMS_SALES TAX			111.95
	110916	SALES TAX			-143.22
			Total for Check Number 12032:	0.00	2,556.94
12033	00788	COMCAST	11/17/2016		
	110316	INTERNET SERVICE_545 FALL CREEK DR			162.12
			Total for Check Number 12033:	0.00	162.12
12034	00444	COSTCO-CAPITAL ONE COMMERCIAL	11/17/2016		
	092816	OFFICE SUPPLIES_ADMIN			64.55
	101816	OFFICE SUPPLIES_ADMIN			64.48
	101816B	OFFICE SUPPLIES_WTP			116.79
	102416	OFFICE SUPPLIES_FINANCE			78.13
	92816	OFFICE SUPPLIES_ADMIN			16.66
			Total for Check Number 12034:	0.00	340.61
12035	00080	GRANITE CONSTRUCTION CO	11/17/2016		
	1075311	BASE ROCK_MAIN REPAIRS			98.72
			Total for Check Number 12035:	0.00	98.72
12036	10005	ICMA RETIREMENT C/O M & T RETIRI	11/17/2016		
	102259589	RETIREMENT WITHHOLDING			1,635.00
			Total for Check Number 12036:	0.00	1,635.00
12037	UB*00200	INTERMOUNTAIN SLURRY SEAL INC	11/17/2016		
		Refund Check			17.87
			Total for Check Number 12037:	0.00	17.87
12038	00441	MISSION COMMUNICATIONS,LLC	11/17/2016		
	1004970	MADRONE BOOSTER_LOMPICO			97.68
			Total for Check Number 12038:	0.00	97.68
12039	UB*00201	GEORGE STAGNARO	11/17/2016		
		Refund Check			35.13
			Total for Check Number 12039:	0.00	35.13
12040	00262	BERTRAND STROUD	11/17/2016		
	04-429	HEATER REPAIR_OPS			155.00



Check No	Vendor No Invoice No	Vendor Name Description	Check Date Reference	Void Checks	Check Amount
			Total for Check Number 12040:	0.00	155.00
12041	00599	WEX BANK	11/17/2016		
	47423527	FUEL_OPS			3,233.33
	47423527	FUEL_WTP			1,293.51
			Total for Check Number 12041:	0.00	4,526.84
12042	00711	ROBERTS & BRUNE CO.	11/17/2016		
	S1594459.001	COUPLING GALV 2"			22.49
	S1594459.001	TEE GALV 1"			12.22
	S1594459.001	FULL CIRCLE 2.35-2.63 7.50"			135.52
	S1594459.001	FULL CIRCLE 6.56-6.96 12.50"			111.74
	S1594459.001	COLLAR LEAK CLAMP 2" X 7.5"			96.11
	S1594459.001	MTR CPLG PIPE-MTR FEM 3/4" X 5/8"			571.17
	S1594459.001	COMPRESSION COUPLING 1" G/T			162.92
	S1594459.001	CORP PIPE-COPPER IP 1"			362.54
	S1594459.001	FLEX COUPLING 3/4" X 4.5"			321.20
	S1594459.001	UNION GALV 2"			38.32
	S1594459.001	ELL 45 GALV 2"			34.62
	S1594459.001	NIPPLE GALV 1/2" X 2"			4.04
	S1594459.001	BUSHING GALV 1" X 3/4"			13.59
	S1594459.002	SHIPPING FEE			26.71
	S1596375.001	DUO CK VALVES			735.25
			Total for Check Number 12042:	0.00	2,648.44
12043	00001	ROYAL WHOLESALE ELECTRIC	11/17/2016		
	608892	MISC ELECTRICAL			50.34
	609084	MISC ELECTRICAL			217.13
			Total for Check Number 12043:	0.00	267.47
12044	10023	AT & T CAPITAL SERVICES, INC	11/18/2016		
	2999330	TELEPHONE MAINTENANCE			396.07
			Total for Check Number 12044:	0.00	396.07
12045	00687	AT&T U-VERSE	11/18/2016		
	110516	INTERNET SERVICE_13057 HWY 9			70.00
	110616	INTERNET SERVICE_MANANA WOODS			80.00
	110716	INTERNET SERVICE_345 QUAIL TERRACE			70.00
			Total for Check Number 12045:	0.00	220.00
12046	00231	JODI McGRAW, Ph.D	11/18/2016		
	070516	INTERTIE #2			35.18
	070516	INTERTIE #3			1,478.23
			Total for Check Number 12046:	0.00	1,513.41
12047	00711	ROBERTS & BRUNE CO.	11/18/2016		
	S1604398.002	MTR VLV PIPE-MTR STRT 3/4X5/8"			544.85
	S1604398.003	REPAIR CLAMP 4" X 3"			82.87
	S1604398.003	FLEX COUPLING 3/4" X 4.5"			352.22
	S1604398.003	FULL CIRCLE 6.56-6.96 12.50"			68.39
	S1604398.003	REPAIR CLAMP 6OD" X 3"			20.72
	S1604398.003	REPAIR CLAMP 2" X 3"			178.50
	S1604398.003	FULL CIRCLE 7.05-7.45 12.50"			68.39
	S1604398.003	COLLAR LEAK CLAMP 2" X 7.5"			153.19
	S1604398.003	AIR RELIEF VALVE 2"			323.00

Check No	Vendor No Invoice No	Vendor Name Description	Check Date Reference	Void Checks	Check Amount
	S1604398.003	FULL CIRCLE 3.96-4.25 7.50"			111.27
			Total for Check Number 12047:	0.00	1,903.40
12048	00555 5353706	STORDOK DOCUMENT SHREDDING	11/18/2016		45.00
			Total for Check Number 12048:	0.00	45.00
12049	00729 6111298 6111331	ALPHA ANALYTICAL LABS BCEWW MONITORING BCEWW MONITORING	11/18/2016		1,687.00 390.00
			Total for Check Number 12049:	0.00	2,077.00
12050	00145 309460	BATTERIES PLUS MWTP RTU BATTERY	11/18/2016		77.20
			Total for Check Number 12050:	0.00	77.20
12051	00342 24634	BRASS KEY LOCKSMITH JOHNSON BUILDING RE-KEY	11/18/2016		259.91
			Total for Check Number 12051:	0.00	259.91
12052	00566 59101	C S S C ANSWERING SERVICE_9/22- 10/21/16	11/18/2016		242.24
			Total for Check Number 12052:	0.00	242.24
12053	10102 R40848	ACCOUNTING/RECEIVABLES CALIFO FELTON LIBRARY INVASIVE PLANT REMC	11/18/2016		2,400.00
			Total for Check Number 12053:	0.00	2,400.00
12054	00290 7756	CONTRACTOR COMPLIANCE & MONI INTERTIES 2,3,4 PROJECT	11/18/2016		27.50
			Total for Check Number 12054:	0.00	27.50
12055	00273 81739165 81739165	CORELOGIC, INC. REALQUESTSERVICE_ENG REALQUEST SERVICE_FINANCE	11/18/2016		93.75 93.75
			Total for Check Number 12055:	0.00	187.50
12056	00703 195494	DATAFLOW BUSINESS SYSTEMS, INC SAVIN COPIER MAINTENANCE	11/18/2016		32.41
			Total for Check Number 12056:	0.00	32.41
12057	00076 677434 678068	ERNIE'S AUTO CENTER WIPER BLADES MISC BULBS	11/18/2016		21.50 44.88
			Total for Check Number 12057:	0.00	66.38
12058	00343 55054 55257	ERNIE'S SERVICE CENTER EXHAUST MANIFOLD BOLTS/LEAK VEHICLE SERVICE	11/18/2016		1,535.26 766.73
			Total for Check Number 12058:	0.00	2,301.99

Check No	Vendor No Invoice No	Vendor Name Description	Check Date Reference	Void Checks	Check Amount
12059	00450	EUROFINS EATON ANALYTICAL, INC	11/18/2016		
	288614	WATER ANALYSIS_MANANA WOODS			300.00
	288712	WATER ANALYSIS_LOMPICO			440.00
	288718	WATER ANALYSIS_PEAVINE CREEK			40.00
	288917	WATER ANALYSIS_PASO WELLS			60.00
	288918	WATER ANALYSIS_PASO, BOB'S LN			60.00
	289356	WATER ANALYSIS_LEWIS WELL			750.00
	289861	WATER ANALYSIS_LOMPICO			120.00
	289862	WATER ANALYSIS_OCEANVIEW			40.00
		Total for Check Number 12059:		0.00	1,810.00
12060	00365	FREITAS + FREITAS	11/18/2016		
	16009	LOMPICO RD WATER MAIN REPLACEMEN			2,284.20
		Total for Check Number 12060:		0.00	2,284.20
12061	00080	GRANITE CONSTRUCTION CO	11/18/2016		
	1067934	HOTMIX / PAVING			90.50
	1069421	LOMPICO HYDRANT REPAIRS			171.04
		Total for Check Number 12061:		0.00	261.54
12062	00768	HD SUPPLY FACILITIES MAINTENANC	11/18/2016		
	90355	RICCA PH BUFFER			125.18
		Total for Check Number 12062:		0.00	125.18
12063	00058	IHWY, INC.	11/18/2016		
	12206	BUSINESS HOSTING			25.00
		Total for Check Number 12063:		0.00	25.00
12064	00336	LAND TRUST OF SANTA CRUZ CNTY	11/18/2016		
	OCTOBER 2016	OLYMPIA PATROL SERVICE			751.50
		Total for Check Number 12064:		0.00	751.50
12065	10104	MCGILLOWAY, RAY, BROWN & KAUF	11/18/2016		
	2,000,019,133	SERVICE RENDERED FOR LWD			434.30
		Total for Check Number 12065:		0.00	434.30
12066	00539	MILLER-MAXFIELD, INC	11/18/2016		
	0916SLV	PUBLIC OUTREACH CONSULTING SERVIC			593.75
		Total for Check Number 12066:		0.00	593.75
12067	10067	NBS	11/18/2016		
	916000492	COST OF SERVICE FINANCIAL STUDY			3,060.10
	916000515	1915 ACT ASSESSMENT DISTRICT ADMIN ;			2,500.00
		Total for Check Number 12067:		0.00	5,560.10
12068	00944	PHIL NEUMAN	11/18/2016		
	2108	MONTHLY SERVER BACKUP			415.00
		Total for Check Number 12068:		0.00	415.00
12069	00263	RAYNE WATER CONDITIONING	11/18/2016		
	103116	WATER CONDITIONER SVC			31.75

Check No	Vendor No Invoice No	Vendor Name Description	Check Date Reference	Void Checks	Check Amount
			Total for Check Number 12069:	0.00	31.75
12070	00046 822	RED WING SHOE STORE SAFETY BOOTS_139	11/18/2016		240.30
			Total for Check Number 12070:	0.00	240.30
12071	00040 5834195	SANTA CRUZ SENTINEL NOTICE OF PUBLIC HEARING	11/18/2016		157.04
			Total for Check Number 12071:	0.00	157.04
12072	00047 6100607 6100794 6100795 6100796 6110080	SOIL CONTROL LAB WATER ANALYSIS_TOTAL PHOSPHATE WATER ANALYSIS_GENERAL PHYSICAL WATER ANALYSIS_METALS DIGESTION, M WATER ANALYSIS_METALS DIGESTION, IF WATER ANALYSIS_GENERAL PHYSICAL	11/18/2016		39.00 145.00 37.00 98.00 145.00
			Total for Check Number 12072:	0.00	464.00
12073	00722 LW-1007900 LW-1007904	SWRCB WATER SYSTEM FEES_4410002 WATER SYSTEM FEES_4410014	11/18/2016		1,636.09 7,370.91
			Total for Check Number 12073:	0.00	9,007.00
12074	00721 4578167	UNITED SITE SVCS.,INC PORTO-TOILET	11/18/2016		157.18
			Total for Check Number 12074:	0.00	157.18
12075	00407 SJ780864	UNIVAR USA SODIUM HYPOCHLORITE FOR PLANT	11/18/2016		3,936.37
			Total for Check Number 12075:	0.00	3,936.37
12076	10099 0000002	DAWN WASHBURN SERVICES RENDERED THROUGH OCT 16	11/18/2016		2,271.75
			Total for Check Number 12076:	0.00	2,271.75
12077	00398 8424759	WATSONVILLE METAL CO.,INC RECYCLE METAL	11/18/2016		600.00
			Total for Check Number 12077:	0.00	600.00
			Report Total (51 checks):	0.00	62,078.53

## MEMO

TO: Board of Directors

FROM: District Manager

PREPARED BY: Environmental Analyst

SUBJECT: Low-Effect Habitat Conservation Plan Revision for the San Lorenzo Valley Water District's Probation Tank Replacement Project & Letter of Intent to the Land Trust of Santa Cruz County

DATE: November 14, 2016

### **RECOMMENDATION**

It is recommended that the Board of Directors review this memo and accept the revision to the Low-Effect Habitat Conservation Plan for the San Lorenzo Valley Water District's Probation Tank Replacement Project and ratify the Letter of Intent to the Land Trust of Santa Cruz County to transfer the development rights in order to acquire the USFWS permit.

### **BACKGROUND**

On August 20, 2015 your Board of Directors accepted the Low-Effect Habitat Conservation Plan (HCP) for the Probation Tank Replacement Project located in sand parkland habitat. To mitigate the unavoidable impacts to the listed species, the District proposed to set aside and manage 0.895 acres of high-quality sandhills habitat which supports the three covered species within the Olympia Wellfield—a 170-acre property owned by the District, which is used for water supply and watershed protection. Since August 2015 the design footprint has been expanded slightly and the mitigation area has expanded accordingly to 0.995 acres, this also increased the total cost of the mitigation. The 0.995 acres was proposed to be used as off-site mitigation for this project will be part of an approximately 5.5-acre area of high quality, sand parkland habitat that the District will set aside and manage within the Olympia Wellfield. The District will use the remainder of this habitat set-aside area (4.6 acres), to mitigate the

impacts of future water supply projects that impact the special-status species. Such mitigation will be the subject of future plans developed pursuant Section 10(a)1(b) or Section 7 of the federal Endangered Species Act.

Summer 2016, upon review of the submitted HCP, the US Fish and Wildlife Service asked the District to provide assurances that the 5.5 acres of high quality sand parkland will be permanently protected through a conservation easement. After investigating several options for a conservation easement, staff approached the Land Trust of Santa Cruz County in October 2016 with a proposed conservation easement. The Land Trust, by approval of their full board, has agreed to take the conservation easement.

The HCP has been revised to include language detailing the conservation easement. Details are provided in the attached HCP with track changes. Language in the HCP has been changed to include the following:

*Habitat within the set-aside area will be permanently protected by the District through dedication of a conservation easement or through other deed restrictions that permanently run with the land and are approved by the US Fish and Wildlife Service. The easement or deed restriction will protect the conservation values of the habitat set aside for the covered species by precluding development including for water infrastructure and instead limit its use to activities that are compatible with protection of habitat and rare species populations.*

The USFWS, the Land Trust of Santa Cruz County the District, and Jodi McGraw met to discuss the details of the process, and it was agreed that the Land Trust would begin it's due diligence once it has received a Letter of Intent from the District, including a \$5000 non-refundable retainer to ensure the District will follow through with the commitment. Details regarding the process to transfer development rights through a conservation easement are included in the Letter of Intent (attached).

Total costs for the mitigation have been adjusted to account for the cost of the Conservation Easement and land acquisition costs. Total Mitigation Costs up to \$265,667 and include:

Non-wasting endowment: \$116,667

Land Trust = \$75,000 - \$100,000:

\$5000- Retainer

\$40,000- Stewardship Donation at the closing of the Conservation Easement conveyance to the LTSC's Sandhill Stewardship Fund

\$30,000- Land Acquisition Costs

In order to ensure permit to construct the Probation Tank Replacement Project it is recommended that the Board of Directors review this memo and accept the revision to the Low-Effect Habitat Conservation Plan for the San Lorenzo Valley Water District's Probation Tank Replacement Project and ratify the Letter of Intent to the Land Trust of Santa Cruz County to transfer the development rights to be submitted to the US Fish and Wildlife Service for review.

FISCAL IMPACT:

\$265,557

STRATEGIC PLAN:

Strategic Element 2.2 Environmental Review of Impacts to San Lorenzo River Watershed

Strategic Element 2.4 Watershed Stewardship

Strategic Element 3.0 Capital Improvement Program



November 8, 2016

Brian C. Lee  
District Manager  
San Lorenzo Valley Water District  
13060 Hwy 9  
Boulder Creek, CA 95006

Re: Letter of Intent- Olympia Watershed Property

Dear Mr. Lee,

We are writing to confirm the substance of your recent discussions with Dan Medeiros and Barry Baker regarding our mutual interest in pursuing the potential grant to the Land Trust of Santa Cruz County ("Land Trust") of a conservation easement that will be used to satisfy certain mitigation requirements to which the District is subject. The proposed conservation easement would encumber approximately 5.5 acres of sandhill habitat in Santa Cruz County ("Property"), which is of a type and location that satisfy the criteria established by the Land Trust for acquisition of a conservation easement.

This letter will serve as a letter of intent ("LOI") setting forth the understanding between the Land Trust and the San Lorenzo Valley Water District ("District") concerning the preliminary steps for undertaking this project.

The parties agree as follows:

1. The Property consists of a portion of each of Santa Cruz County APNs: 071-141-02 and 071-141-14, which make up approximately 5.5 acres of sandhill habitat.
2. The District agrees to cover the Land Trust's costs for due diligence, staff, and legal expenses associated with the project ("Acquisition Costs"). These costs may include, but are not limited to, survey work to delineate the Property boundaries, a Phase 1 environmental review, a biological assessment, and conservation easement drafting. The District agrees to cover the Land Trust's Acquisition Costs up to \$30,000; if additional costs are anticipated, the Land Trust and District will discuss the extent of the additional costs and the District's ability to cover such costs. A \$5,000 initial retainer will be required to begin work on the project.

617 Water Street  
Santa Cruz, CA 95060  
831-429-6116  
Fax 831-429-1166  
info@landtrustsantacruz.org  
www.landtrustsantacruz.org

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3. The District also agrees to make a donation of \$40,000 (“Stewardship Donation”) at the closing of the conservation easement conveyance to the Land Trust’s Sandhill Stewardship Fund for the perpetual monitoring and stewardship of the Property.
4. Except for the District’s obligation to pay for the Acquisition Costs and, upon conveyance of the conservation easement, the donation of the Stewardship Endowment, as noted above, which shall be binding on the District, the Land Trust and the District agree that this LOI is not contractually binding on either party and is only an expression of the intent of the parties to use good faith reasonable efforts to pursue a conveyance of the conservation easement to the Land Trust.
5. The Land Trust’s determination of whether or not it will continue with the project or ultimately accept the conservation easement shall be in the Land Trust’s sole and absolute discretion. The District has the sole and absolute discretion to withdraw its request for Land Trust to complete this project at any time as well. If such request is withdrawn, the Land Trust will cease the work contemplated by this LOI but may retain any sums paid to the Land Trust by the District as of the time of the District’s withdrawn request and shall be entitled to payment by the District of any incurred, but yet unreimbursed, Acquisition Costs.
6. By agreeing to undertake this work, however, the Land Trust does not guarantee that it will ultimately accept the conservation easement or that the conservation easement will satisfy the District’s mitigation requirements. In addition, the Land Trust’s participation in this project does not constitute or create an agency or partnership relationship between the Land Trust and District and does not constitute the Land Trust’s endorsement of the District’s project.
7. Upon the District’s request, the Land Trust will provide an accounting of the staff time and other expenses incurred and charged against the retainer.
8. This LOI supersedes any other previous written or oral proposals or communications on the subject matter contained in this LOI.

If this LOI accurately reflects your present understanding with respect to the above, please sign the enclosed copy of this letter and return it to the above address at your earliest convenience. The Land Trust is looking forward to working with you on this exciting conservation project.

Please call me if you have any questions.


Sincerely,



Dan Medeiros  
Projects Director  
(831) 429-6116  
[Dan.medeiros@landtrustsantacruz.org](mailto:Dan.medeiros@landtrustsantacruz.org)

Read and Agreed:

San Lorenzo Valley Water District

By:  \_\_\_\_\_

Title: District Manager

Date: November 14, 2016

**Final**  
**Low-Effect Habitat Conservation Plan for the**  
**San Lorenzo Valley Water District's**  
**Probation Tank Replacement Project**  
**3650 Graham Hill Road (APN: 061-371-16)**  
**Felton, Santa Cruz County, California**



***Prepared by:***

Jodi McGraw, Ph.D.  
Principal and Ecologist  
Jodi McGraw Consulting  
PO Box 221  
Freedom, CA 95019

***Prepared for:***

Brian Lee  
District Manager  
San Lorenzo Valley  
Water District  
13060 Highway 9  
Boulder Creek, CA 95006

***Submitted to:***

Mr. Steve Henry  
Field Supervisor  
US Fish and Wildlife Service  
2493 Portola Road, Suite B  
Ventura, CA 93003

**October 10, 2016**

# Contents

<b>Executive Summary</b>	<b>1</b>
<b>Section 1. Introduction and Background</b>	<b>5</b>
Overview/Background .....	5
Permit Holder/Permit Duration .....	5
Permit Boundary/Covered Lands .....	5
Species to be Covered by Permit .....	7
Regulatory Framework .....	7
Federal Endangered Species Act.....	7
The Section 10 Process - Habitat Conservation Plan Requirements and Guidelines .....	9
National Environmental Policy Act .....	9
National Historic Preservation Act .....	10
California Endangered Species Act .....	10
California Environmental Quality Act .....	10
County of Santa Cruz Sensitive Habitat Ordinance .....	11
<b>Section 2. Project Description/Activities Covered by Permit</b>	<b>12</b>
Project Description .....	12
Activities Covered by Permit.....	14
<b>Section 3. Environmental Setting/Biological Resources</b>	<b>16</b>
Environmental Settings.....	16
Climate .....	16
Topography/Geology .....	17
Hydrology/Streams, Rivers, Drainages .....	17
Existing Land Use .....	17
Plant Communities.....	18
Adjacent Land Use .....	18
Covered Species .....	19
Mount Hermon June beetle .....	19
Zayante Band-Winged Grasshopper .....	22
Ben Lomond Spineflower .....	24
Other Sandhills Endangered Species in the Region .....	25
<b>Section 4. Potential Biological Impacts/Take Assessment</b>	<b>27</b>
Direct Impacts .....	27
Indirect Impacts .....	30
Anticipated Take of each Covered Wildlife or Fish Species .....	30
Effects on Critical Habitat .....	31

Anticipated Impacts of the Taking.....	32
Cumulative Impacts.....	32
<b>Section 5. Conservation Program</b>	<b>34</b>
Biological Goals and Objectives .....	34
Avoidance, Minimization, and Mitigation Measures .....	35
Measures to Minimize Impacts .....	35
Measures to Mitigate Unavoidable Impacts .....	37
Monitoring .....	43
Reporting.....	43
<b>Section 6. Plan Implementation</b>	<b>45</b>
Changed Circumstances .....	45
Summary of Circumstances .....	45
Listing of New Species.....	46
Discovery of Currently Listed Species in Project Site .....	46
Unforeseen Circumstances .....	46
Amendments .....	47
Minor Amendments.....	47
Major Amendments.....	47
Suspension/Revocation.....	47
Renewal of the Section 10(a)(1)(B) Permit .....	48
Permit Transfer.....	48
<b>Section 7. Funding</b>	<b>50</b>
Costs of HCP Implementation .....	50
Funding Source(s).....	50
<b>Section 8. Alternatives</b>	<b>54</b>
Summary.....	54
Alternative 1: No Action Alternative .....	54
Alternative 2: Redesign Project .....	524
Alternative 3: Proposed Project .....	55
<b>Literature Cited</b>	<b>57</b>

## Appendices

### Appendix A. Project Plans

Appendix B: Funding Assurances Letter

## Tables and Figures

<b>Table</b>	<b>Page</b>
1 Size of Proposed Project Areas .....	14
2 Special-Status Species of the Sandhills.....	26
3 Temporary and Permanent Project Impacts.....	29
4 Estimated Costs to Implement the Conservation Strategy .....	41
5 Estimated Costs to Implement the Conservation Strategy .....	52
6 Five-year cost schedule for management and endowment .....	53

<b>Figure</b>	<b>Page</b>
1 Map of Project Vicinity .....	6
2 Map of Project Site .....	13
3 Mount Hermon June Beetle .....	20
4 Zayante Band-Winged Grasshopper.....	22
5 Ben Lomond Spineflower.....	24
6 Off-site Mitigation Areas .....	42

## Executive Summary

The San Lorenzo Valley Water District (District) is seeking an incidental take permit, under Section 10(a)(1)(B) of the Federal Endangered Species Act, to cover take of three federally endangered species: Mount Hermon June beetle (*Polyphylla barbata*), Zayante band-winged grasshopper (*Trimerotropis infantilis*), and Ben Lomond spineflower (*Chorizanthe pungens* var. *hartwegiana*). The incidental take will result from replacement of an existing, dilapidated 100,000-gallon, redwood water tank with a new, 527,000-gallon, welded steel water tank. The new tank is needed to provide adequate water for existing domestic use by 700 households as well as for firefighting and other emergencies.

The tank will be located within the District's existing 0.443-acre easement area on the northern portion of the County of Santa Cruz's 28-acre parcel of land located at 3650 Graham Hill Road between the City of Scotts Valley and Felton, an unincorporated town within the County of Santa Cruz in central coastal California (APN: 061-371-16; Figure 1). The new tank will be situated in the location of the existing tank; however, the larger tank will cover adjacent intact habitat. The total project disturbance envelope, which includes the space required for the 8-foot wide paved path, utilities, and associated appurtenances, as well as that required for staging equipment and materials, is 18,800 sf (0.432 acre; Figure 2).

Of the 18,800 sf (0.432 acre) within the project disturbance envelope, 1,700 sf is covered by the existing tank and other areas of impervious surface, and is therefore not habitat for the listed species. The remaining 17,100 sf (0.392 acre) features Zayante soils which can support the fossorial Mount Hermon June beetle. Of this area, the 13,100 sf (.301 acre) surrounding the existing tank has the potential to feature dispersing Zayante band-winged grasshopper; the 4,000 sf staging area does not feature suitable habitat for this species. Of the 17,100 sf (0.392 acre) of habitat to be impacted, 925 sf (0.021 acres) featured an aboveground occurrence of the Ben Lomond spineflower—an annual plant that may also occur as dormant seed in the soil (i.e. a seed bank) elsewhere within the project area.

Installation of the tank and associated improvements including a paved walkway and permanent fence will permanently impact 4,580 ft<sup>2</sup> (0.105 acre) of habitat. The remaining 12,520 ft<sup>2</sup> (0.2875 acre) will be temporarily impacted as a result of vegetation removal and soil disturbance associated with the project. This area includes a 4,000 square foot staging and materials lay down area which will be situated on an existing dirt access road (Figure 2).

A 20-year permit term is requested to address incidental take of the Mount Hermon June beetle and Zayante band-winged grasshopper, and impacts to the Ben Lomond spineflower, that may result from implementation of the tank replacement project during construction as well as during the implementation of off-site habitat management as part of the proposed conservation strategy. During tank replacement, take may result from installation of temporary storage tanks, demolition of the existing tank, and installation of the replacement tank. Construction is anticipated to occur within a six-month period but may require up to three years if construction delays are encountered. The take permit is also requested to cover short-term, negative impacts to the covered species that result from restoration of the 8,520 sf (0.196 acre) area surrounding

the tank during the three years following completion of the project. Finally, the take permit is requested to cover short-term impacts of habitat management and restoration activities that are proposed to compensate for the tank replacement project impacts, as outlined below.

Due to the small size of the facility, and its proposed construction within an area that features existing utilities and is therefore of only moderate long-term conservation value, the project is not anticipated to significantly impact the persistence of the listed species within the 28-acre parcel or the larger sandhills habitat patch in the Felton area on which it is located; moreover, the project is highly unlikely to affect persistence of the three species overall.

This plan's conservation strategy includes the following measures designed to minimize the project's impacts:

1. During the summer prior to construction, a qualified biologist will collect the seed of all the Ben Lomond spineflower from within the project impact area, for use in restoration of the area as outlined below.
2. The project will be conducted outside of the adult activity period for the Mount Hermon June beetle (May-August) and Zayante band-winged grasshopper (June-October), if at all possible. If soil-disturbing activities occur during the Mount Hermon June beetle flight season, tarps will be used to cover exposed soil, in order to prevent dispersing male beetles from burrowing into the construction site.
3. A qualified biologist will be on site during all ground-disturbing activities, to capture any Mount Hermon June beetle observed in the construction area and relocate them outside to intact sandhills habitat that supports appropriate soils and vegetation. The biologist will also herd out of harm's way and Zayante band-winged grasshoppers observed in the project area.
4. The project will not entail installation of outdoor lights, which can disrupt the behavior of nocturnal insects including Mount Hermon June beetle.
5. Landscaping elements that degrade habitat for the three covered species, including weed matting, landscape rock, and turf grass, will be avoided.
6. Following completion of the project, the District will restore the 8,520 sf (0.196 acre) area of temporary habitat impacts around the tank, which includes the 925-square-foot area occupied by the Ben Lomond spineflower. Restoration will include recontouring the soil, preventing erosion, sowing seed of native plant species collected on site, including the seed salvaged from Ben Lomond spineflower during the summer prior to construction, and also planting native plants from site-collected propagules, as needed.

To mitigate the unavoidable impacts to the listed species, the District will set aside and manage 0.995 acres of high-quality sandhills habitat which supports the three covered species. The habitat set aside will be located within the Olympia Wellfield—a 170-acre property owned by the District, which is used for water supply and watershed protection (Figure 6). Of the 0.995 acres, 0.420 acres will be set aside to mitigate the project's permanent impacts to 0.105 acres at a 4:1 ratio—this reflects the high quality of the habitat that will be lost in the tank replacement area. The remaining 0.575 acres will mitigate the temporary impacts of the project (0.288 acres) at a



2:1 ratio. This lower ratio is appropriate, as the 0.196 acres of habitat that will be temporarily impacted in the tank replacement area will be restored, and the 0.092 acres in the staging area consists of a dirt road that is already highly degraded habitat.

The 0.995 acres of habitat that will be used as off-site mitigation for this project will be part of an approximately 5.5-acre area of high quality, sand parkland habitat that the District will set aside and manage within the Olympia Wellfield (Figure 6). Located on the southern portion of the property, the proposed set aside is of exceptional conservation value for the covered sandhills species the following reasons: 1) it is in relatively pristine conditions and features diverse populations of native plant species, 2) it supports known populations of six of the seven endemic sandhills species, including all four federally listed endangered sandhills species, and 3) it is located adjacent to other protected sandhills habitat, which it will expand and buffer. The District will use the remainder of this habitat set-aside area (4.5 acres), to mitigate the impacts of future water supply projects that impact the special-status species. Such mitigation will be the subject of future plans developed pursuant Section 10(a)1(b) or Section 7 of the federal Endangered Species Act.

The precise boundaries of the habitat set-aside will be delimited using a land survey. Habitat within the set aside area will be permanently protected by the District through dedication of a conservation easement or through other deed restrictions that permanently run with the land and are approved by the US Fish and Wildlife Service. The easement or deed restriction will protect the conservation values of the habitat set aside for the covered species by precluding development including for water infrastructure and instead limit its use to activities that are compatible with protection of habitat and rare species populations.

The methods that the District will use to manage and monitor the 5.5-acre habitat set-aside will be identified in a habitat management and monitoring plan (HMMP), which will also describe the measures that will be taken to minimize adverse effects to the listed species resulting from the management and monitoring activities. The HMMP will be developed by a qualified biologist within six months of permit issuance, and will be subject to approval by the US Fish and Wildlife Service.

As an alternative to the off-site mitigation described above, the District may elect to purchase 26,260 sf conservation credits at the Zayante Sandhills Conservation Bank. Of these, 13,740 sf credits will be purchased to mitigate the 4,580 sf of permanent habitat impacts at a ratio of 3:1; this reflects the high quality of much of the habitat surrounding the existing tank, which will be covered by the tank or associated improvements including paved walkway. An additional 12,520 sf credits will be purchased to mitigate the temporary habitat impacts at a ratio of 1:1. This lower ratio is appropriate because the 8,520 sf of habitat that will be temporarily impacted in the tank replacement area will be restored, and the 4,000 sf of habitat in the staging area consists of a dirt road that is already highly degraded habitat.

The District will fund all elements of the plan conservation strategy, including one of the two alternative forms of offsite habitat mitigation. If the District opts to mitigate off-site at the conservation bank, it will purchase the conservation credits prior to permit issuance. If the District instead decides to mitigate off-site at the Olympia Wellfield, it will establish a non-wasting endowment to fund long-term management and monitoring of the 0.995-acre portion of

the habitat set-aside within five years of permit issuance. Until the endowment is fully funded, the District will fund the annual management and monitoring from its annual operations budget (Appendix B). The District will also fund any endowment or fees required by the easement holder, to monitor and, if necessary, legally defend the easement. A qualified biologist will conduct monitoring to ensure compliance with the conservation strategy, and to evaluate success toward the biological goals and objectives. Monitoring results will be provided to the U.S. Fish and Wildlife Service in a project report provided by January 31 following each year that the permit is active.

## Section 1

# Introduction and Background

## 1.1 Overview and Background

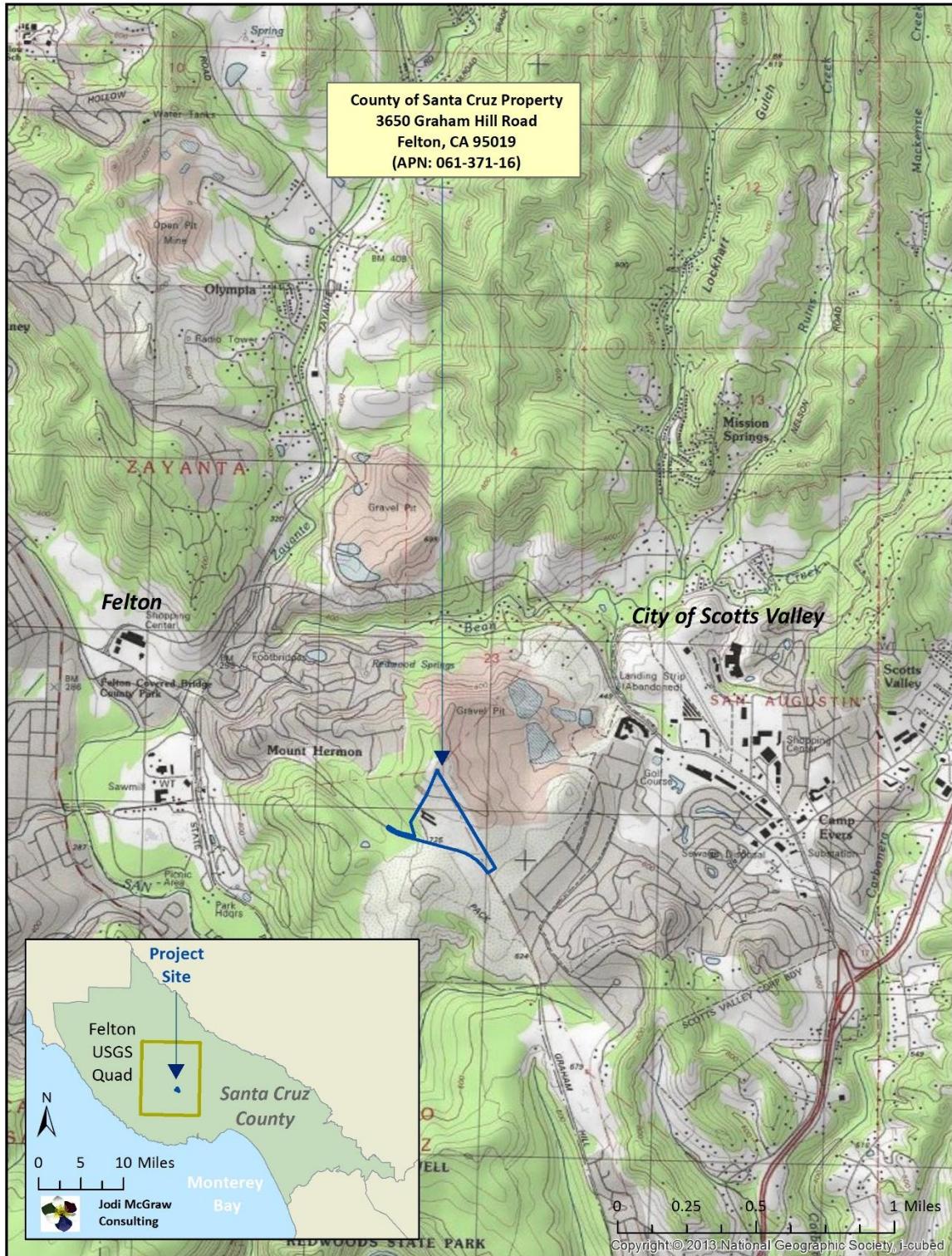
This Habitat Conservation Plan (HCP) for proposed replacement of a water tank at the County of Santa Cruz parcel 061-371-16 at 3650 Graham Hill Road near Felton, California has been prepared pursuant to the requirements of Section 10(a)(1)(B) of the Federal Endangered Species Act of 1973, as amended (Act). The HCP is intended to provide the basis for issuance of a Section 10(a)(1)(B) permit to the San Lorenzo Valley Water District, the owner of a 0.443-acre easement on the parcel, to authorize incidental take of the Mount Hermon June beetle (*Polyphylla barbata*) and Zayante band-winged grasshopper (*Trimerotropis infantilis*), and impacts to Ben Lomond spineflower (*Chorizanthe pungens* var. *hartwegiana*), which occur within the project area. Replacement of the existing, dilapidated tank with a new, larger tank, will involve ground-disturbing activities, including excavation and covering of open soil with impervious surfaces, as well as staging of equipment and materials; these activities will impact individuals of, as well as permanently remove habitat for, these three federally endangered species.

## 1.2 Permit Holder/Permit Duration

The San Lorenzo Valley Water District (District) requests an incidental take permit to cover take of the three federally-listed endangered species for twenty years commencing on the date of permit approval. Project construction is anticipated to require less than one year; however, seasonal restrictions and unforeseen logistical issues with construction may delay the project. Moreover, the implementation of habitat management and restoration as part of conservation strategy has the potential to cause short-term, negative impacts to the covered species. For this reason, a 20-year take permit is requested.

## 1.3 Permit Boundary/Covered Lands

A permit is requested to authorize the incidental take of Mount Hermon June beetle, Zayante band-winged grasshopper, and Ben Lomond spineflower within the Project Area: an approximately 18,800-square-foot (0.432-acre) area located in the northern tip of the 28-acre parcel (APN: 061-371-16) situated at 3650 Graham Hill Road, Felton, central Santa Cruz County, central coastal California. The project site is located within the Felton United States Geological Survey (USGS) topographic quadrangle, near the center of Section 23 of Township 10S, Range 2W of the Mount Diablo Base and Meridian (Figure 1).



**Figure 1:** Location of proposed project parcel, the County of Santa Cruz parcel (APN: 061-371-16), within the Felton US Geological Survey Quadrangle in Ben Lomond, central Santa Cruz County.

## 1.4 Species to be Covered by Permit

The following species are referred to as a "covered species" related to the Incidental Take Permit if it is issued.

<u>Covered Species</u>	<u>Federal Status/State Status</u>
Mount Hermon June beetle ( <i>Polyphylla barbata</i> )	Federally Endangered
Zayante band-winged grasshopper ( <i>Trimerotropis infantilis</i> )	Federally Endangered
Ben Lomond spineflower ( <i>Chorizanthe pungens</i> var. <i>hartwegiana</i> )	Federally Endangered

Take coverage is requested for these species, as they are federally listed as endangered, and they are known or likely to occur within the project area.

The following additional federally-endangered species occur in the general region but will not be impacted by the project and therefore will not be covered under the requested Incidental Take Permit nor will they be further addressed in this HCP. The Santa Cruz (Ben Lomond) wallflower does not occur on the project parcel, though does occur on the adjacent parcel to the east. The project area does not feature suitable breeding habitat for the California red-legged frog and is also highly unlikely to disperse into the project area. The species was not observed during the course of pre-project surveys or construction monitoring conducted in winter 2015 as part of the San Lorenzo Valley Water District's Regional Intertie Project (Arnold and Bandel 2014, J. McGraw, unpublished data).

<u>Additional List Species</u>	<u>Federal Status/State Status</u>
Santa Cruz (Ben Lomond) wallflower ( <i>Erysimum teretifolium</i> )	Federally Endangered/ CA State Endangered
California red-legged frog ( <i>Rana draytonii</i> )	Threatened/Species of Special Concern

## 1.5 Regulatory Framework

### 1.5.1 Federal Endangered Species Act

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption.

Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the U.S. Fish and Wildlife Service (Service) as an intentional or negligent act or omission that creates the likelihood of injury to listed species by annoying them to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity.

Pursuant to section 11(a) and (b) of the Act, any person who knowingly violates section 9 of the Act or any permit, certificate, or regulation related to section 9, may be subject to civil penalties of up to \$25,000 for each violation or criminal penalties up to \$50,000 and/or imprisonment of up to one year.

Individuals and State and local agencies proposing an action that is expected to result in the incidental take of federally listed species are encouraged to apply for an incidental take permit under section 10(a)(1)(B) of the Act to be in compliance with the law. Such permits are issued by the Service when take is not the intention of and is incidental to otherwise legal activities. An application for an incidental take permit must be accompanied by a HCP. The regulatory standard under section 10 of the Act is that the effects of authorized incidental take must be minimized and mitigated to the maximum extent practicable. Under Act section 10, a proposed project also must not appreciably reduce the likelihood of the survival and recovery of the species in the wild, and adequate funding for a plan to minimize and mitigate impacts must be ensured.

Section 7 of the Act requires Federal agencies to ensure that their actions, including issuing permits, do not jeopardize the continued existence of listed species or destroy or adversely modify listed species' critical habitat. "Jeopardize the continued existence of..." pursuant to 50 CFR 402.2, means to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species. Issuance of an incidental take permit under section 10(a)(1)(B) of the Act by the Service is a Federal action subject to section 7 of the Act. As a Federal agency issuing a discretionary permit, the Service is required to consult with itself (i.e., conduct an internal consultation). Delivery of the HCP and a section 10(a)(1)(B) permit application initiates the section 7 consultation process within the Service.

The requirements of section 7 and section 10 substantially overlap. Elements unique to section 7 include analyses of impacts on designated critical habitat, analyses of impacts on listed plant species, if any, and analyses of indirect and cumulative impacts on listed species. Cumulative effects are effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area, pursuant to section 7(a)(2) of the Act. The action area is defined by the influence of direct and indirect impacts of covered activities. The action area may or may not be solely contained within the HCP boundary.

These additional analyses are included in this HCP to meet the requirements of section 7 and to assist the Service with its internal consultation.

### **1.5.2 The Section 10(a)(1)(B) Process - Habitat Conservation Plan Requirements and Guidelines**

The Section 10(a)(1)(B) process for obtaining an incidental take permit has three primary phases: (1) the HCP development phase; (2) the formal permit application processing phase; and (3) the post-issuance phase.

During the HCP development phase, the project applicant prepares a plan that integrates the proposed project or activity with the protection of listed species. An HCP submitted in support of an incidental take permit application must include the following information:

- impacts likely to result from the proposed taking of the species for which permit coverage is requested;
- measures that will be implemented to monitor, minimize, and mitigate impacts; funding that will be made available to undertake such measures; and procedures to deal with unforeseen circumstances;
- alternative actions considered that would not result in take; and
- additional measures USFWS may require as necessary or appropriate for purposes of the plan.

The HCP development phase concludes and the permit processing phase begins when a complete application package is submitted to the appropriate permit-issuing office. A complete application package consists of: 1) an HCP, 2) an Implementing Agreement (IA), 3) a permit application, and 4) a \$100 fee from the applicant. An implementing agreement is not required for an HCP that qualifies as a low-effect HCP. The Service prepares an Intra-Service Section 7 Biological Opinion; and also prepares a Set of Findings, which evaluates the Section 10(a)(1)(B) permit application in the context of permit issuance criteria (see below). An Environmental Action Statement, Environmental Assessment, or Environmental Impact Statement serves as the Service's record of compliance with the National Environmental Policy Act (NEPA). The Service must publish a Notice of Availability of the HCP package in the Federal Register to allow for public comment. The draft NEPA document, HCP, and IA (if applicable) are made available for public review during this 30-day to 90-day comment period. A Section 10(a)(1)(B) incidental take permit is granted upon a determination by the Service that all requirements for permit issuance have been met. Statutory and regulatory criteria for issuance of the permit, pursuant to section 10(a)(2)(b) of the Act and 50 CFR 17.22 (b)(2) and 17.32 (b)(2) specify that:

- the taking will be incidental;
- the impacts of incidental take will be minimized and mitigated to the maximum extent practicable;
- adequate funding for the HCP and procedures to handle unforeseen

- circumstances will be provided;
- the taking will not appreciably reduce the likelihood of survival and recovery of the species in the wild;
  - the applicant will provide additional measures that the Service requires as being necessary or appropriate; and
  - the Service has received assurances, as may be required, that the HCP will be implemented.

During the post-issuance phase, the Permittee and other responsible entities implement the HCP, and USFWS monitors the Permittee's compliance with the HCP as well as the long-term progress and success of the HCP. The public is notified of permit issuance by means of the Federal Register.

### **1.5.3 National Environmental Policy Act**

The purpose of the National Environmental Policy Act (NEPA) is two-fold: to ensure that Federal agencies examine environmental impacts of their actions (in this case deciding whether to issue an incidental take permit) and to utilize public participation. NEPA serves as an analytical tool on direct, indirect, and cumulative impacts of the proposed project alternatives to help the Service decide whether to issue an incidental take permit (ITP or section 10(a)(1)(B) permit). NEPA analysis must be done by the Service for each HCP as part of the incidental take permit application process.

### **1.5.4 National Historic Preservation Act**

All Federal agencies are required to examine the cultural impacts of their actions (e.g. issuance of a permit). This may require consultation with the State Historic Preservation Office (SHPO) and appropriate American Indian tribes. All incidental take permit applicants are requested to submit a Request for Cultural Resources Compliance form to the Service. To complete compliance, the applicants may be required to contract for cultural resource surveys and possibly mitigation.

### **1.5.5 California Endangered Species Act (CESA)**

The California Endangered Species Act (CESA) provides for the designation of native species or subspecies of fish, wildlife, and plants as endangered or threatened (CESA Section 2062-2067). The Mount Hermon June beetle, Zayante band-winged grasshopper, and Ben Lomond spineflower are not listed under CESA. Therefore, this HCP will not further address CESA permitting requirements.

### **1.5.6 California Environmental Quality Act (CEQA)**

The California Environmental Quality Act (CEQA) (Pub. Res. Code §21000 seq.) requires state and local governmental agencies to complete an environmental review of discretionary projects that could impact environmental resources. CEQA differs from



NEPA in that it requires that significant environmental impacts of proposed projects be reduced to a less-than significant level through adoption of feasible avoidance, minimization, or mitigation measures unless overriding considerations are identified and documented. As the lead agency, the District prepared an initial study and mitigated negative declaration for the project (Biotic Resources Group 2015). This CEQA compliance document incorporates the species protection measures and mitigation proposed for the species covered in this HCP.

### **1.5.7 County of Santa Cruz Sensitive Habitat Ordinance**

The County oversees a Sensitive Habitat Protection Ordinance, which is designed to minimize disturbance in sensitive habitats and to protect these areas for their genetic, scientific, and educational values. The County defines a “sensitive habitat” as “any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments” (County of Santa Cruz 1994). Sensitive habitats include, but are not limited to, areas where sensitive species live, areas necessary for the survival of sensitive species, and any location where disturbance is likely to lower population numbers. Based on the findings of a biotic review, the County may require the project proponent to avoid, minimize, and mitigate impacts to the sensitive habitat by: (1) limiting the portion of sensitive habitat to be disturbed; (2) deeding an easement to protect undisturbed portions of this habitat; (3) restoring portions of degraded sensitive habitat; and/or (4) restricting land uses.

Sites that are occupied by the listed species are protected under the Sensitive Habitat Protection Ordinance. However, as a special district, the San Lorenzo Valley Water District is exempt from County zoning and planning regulations related to facilities for the storage or transmission of water (M. Johnston, pers. comm. 2015).

Nonetheless, the conservation strategy developed in this plan, which includes measures to avoid, minimize, and mitigate impacts to the federally-listed species as required in this incidental take permit, will overlap with requirements under the Sensitive Habitat Protection Ordinance.

## Section 2

# Project Description/ Activities Covered by Permit

## 2.1 Project Description

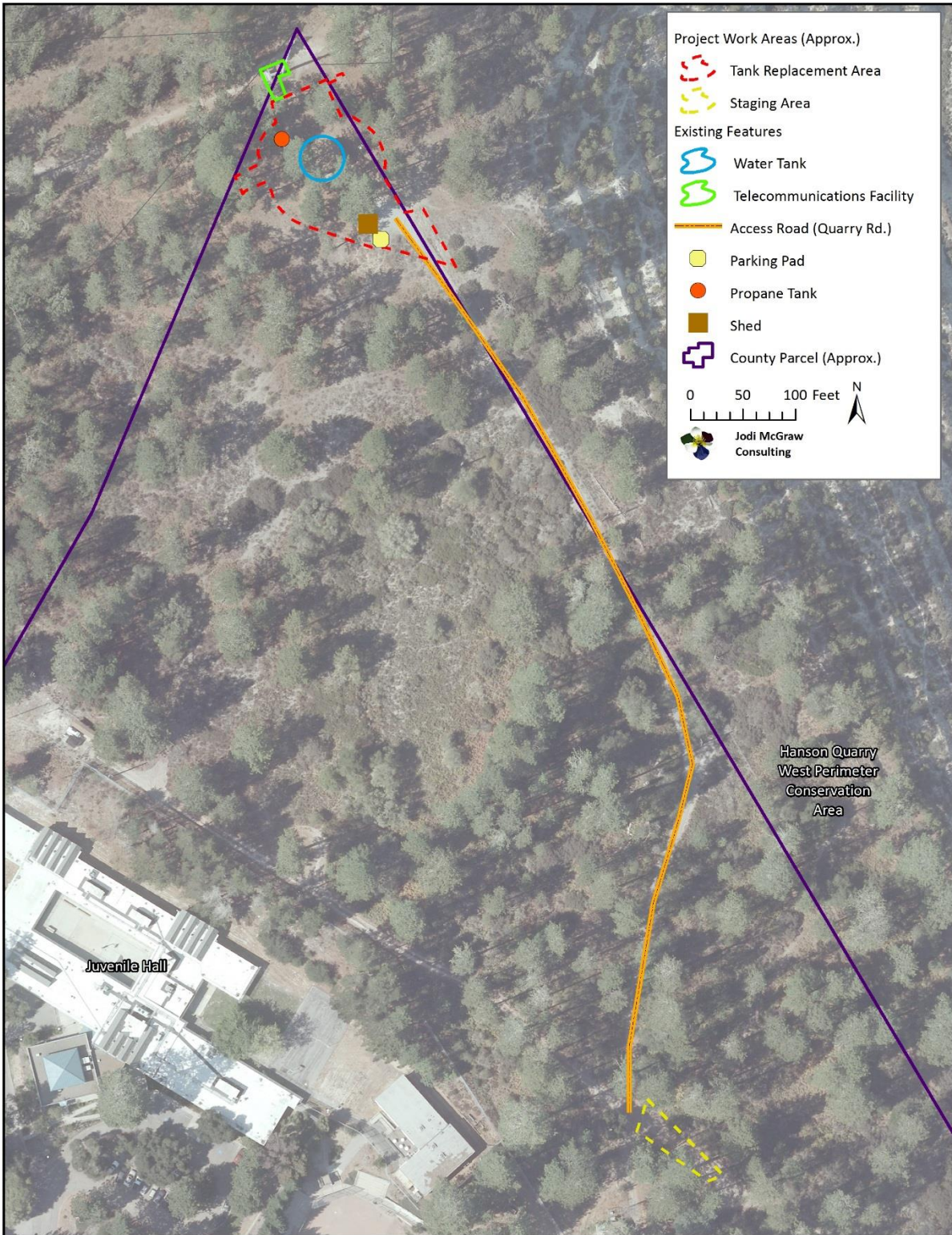
The San Lorenzo Valley Water District (District) is seeking to replace a dilapidated, 100,000-gallon, redwood water tank with a new 527,000-gallon, welded-steel water tank. The project will occur in the District's Easement A—an 0.443-acre area located in the northern portion of the County of Santa Cruz's Juvenile Probation Center parcel (APN 061-371-16), which is located at 3650 Graham Hill Road between the two of Felton and the City of Scotts Valley (Figures 1 and 2).

The existing 100,000 gallon tank, which is 30 feet in diameter and 20 feet tall, must be replaced because it is leaking and cannot be repaired because the wood is rotten. To provide adequate water for firefighting, and to supply the approximately 700 existing households served by the water tank, the new tank will be 60 feet in diameter and 32 feet tall.

The tank replacement project will include the following additional improvements and activities:

- Installation of a concrete foundation on which the tank will be mounted;
- Installation of soldier beam retaining walls to hold back excavated slopes west and east of the tank;
- Installation of an eight-foot-wide access path around the base of the tank, for maintenance;
- Replacement/re-routing of a paved footpath to the telecommunications facility located north of the tank;
- installation of stormwater drains for runoff from the tank and paths;
- re-routing utilities to avoid the tank and associated improvements; and
- installation of a permanent chain-link perimeter fence to protect the facility.

The above activities will all occur within a 14,800 sf (0.340 acre) area located inside of the District's easement in the northern portion of the parcel, more or less centered on the existing tank. Construction vehicles, equipment, and materials needed to create and assemble the metal tank will be staged in a 20' x 200' (4,000 sf or 0.092 acre) area located on an existing gravel access road approximately 1,000 feet south-southeast of the tank replacement area (Figure 2). This location will reduce impacts relative to staging in the intact habitat adjacent to the tank replacement area.



**Figure 2:** Location of proposed project work areas as well as existing features within the County of Santa Cruz parcel at 3650 Graham Hill Road, Felton, Santa Cruz County, California.

**Table 1: Size of proposed project areas (Figure 2).**

Project Area	Area	
	Square Feet	Acres
Tank Replacement Area	14,800	0.340
Staging Area	4,000	0.092
<b>Total</b>	<b>18,800</b>	<b>0.432</b>

## 2.2 Activities Covered by Permit

An incidental take permit is requested to cover impacts to the listed species that may occur during implementation of the project. The following is the sequence of anticipated steps to complete the project, showing the estimated duration of each.

1. **Remove Vegetation (1 week):** Six mature ponderosa pine (*Pinus ponderosa*) within the footprint of the new tank, pathway, and retaining wall will be removed. Additional herbs, shrubs, and smaller trees that will impede work will also be removed.
2. **Temporarily Relocate Shed and Propane Tank (1 week):** An existing, 4.25' X 8' shed that houses the District's two-way radio repeater, which boosts the radio signal in the Felton/Scotts Valley areas, will be temporarily moved to the area north of the existing location. The area will be used for the temporary water tanks. Additionally, the existing propane tank that powers the adjacent telecommunications facility will need to be relocated to accommodate the new walkway.
3. **Install Temporary Water Tanks (1 week):** Three 10,000 gallon polyethylene water tanks will be installed on the existing parking area (current shed location). This step may require some light grading to level the site.
4. **Remove Existing Tank (2 weeks):** The existing redwood tank will be dismantled and trucks will be used to haul the wood planks and metal stays from the site.
5. **Creation of the Water Tank Pad (8 weeks):** Land within the tank pad will be excavated, compacted, and then the concrete ring upon which the tank will sit will be poured; the ring will be filled with oiled sand, which is designed to reduce rust. Soldier beam walls constructed of steel beams and wood lagging will be installed to hold back the adjacent slopes to the northeast and southwest of the tank.
6. **Tank Assembly and Installation (8 weeks):** The steel tank will be erected on the pad and the coated.
7. **Installation of the Walkways (2 weeks):** The walkway around the tank and the re-routed walkway to the telecommunications tower will be graded, compacted, and paved.
8. **Installation of Storm Drain Outlet and Protection (two days):** An outlet for storm drains on the tank and adjacent walkway will be installed northwest of the tank, in the

location of the existing drainage swale. The outlet will feature geotextile fabric and rocks to dissipate the energy of the runoff.

9. **Install a permanent fence (1 week):** To protect the facility and public water supply, a six-foot-tall chain link fence will be installed around its perimeter. The approximately 450-foot long fence will tie into the existing fence on the eastern property boundary. The chain link will be mounted on metal posts cemented into the ground with approximately one-square-foot footings located every six feet. Gates enabling vehicle access will be installed on the existing access road. This task may occur earlier in the sequence to secure the work area during construction.

Additional tasks will take place off-site to prepare the tank, and may occur concurrently with the tasks above, or add to the timeframe. Project delays due to weather or the availability of materials or work crews could lengthen the construction period such that the anticipated six-month project could require as much as three years to complete.

Because implementation of the conservation strategy, including restoration on-site as well as off-site habitat management and monitoring, may cause short-term, negative impacts to the covered species (Section 5), a 20 -year incidental take permit is being requested.

The covered activities are further described in Section 4.1, which assess their impacts on the covered species.

## Section 3

# Environmental Setting/ Biological Resources

### 3.1 Environmental Setting

#### 3.1.1 Climate

Located in central Santa Cruz County, the project area experiences a Mediterranean climate, characterized by cool, wet winters and hot, dry summers. Summer temperatures range from 45°F to 95°F, with an average of 68°F. Winter temperatures range from 36°F to 65°F, with an average of 51°F.

Annual precipitation is 44 inches, with most falling as rain. The rainy season is from October to May, with the majority of the rainfall occurring between December and March.

#### 3.1.2 Topography/Geology

The project site is located on a south-facing slope of Mount Hermon. A portion of the project area has been previously graded to install the existing water tank and a telecommunications facility upslope, including to install parking area. The project site is located at approximately 880 feet above mean sea level, just 30 feet below the peak of Mount Hermon.

The soil in the area of the proposed project is a light to medium, grey to grey brown, loose sand soil characteristic of the Zayante series, which is an excessively well-drained, low-nutrient soil derived from the weathering of marine sediments and sandstones of the Santa Margarita Formation (U.S. Department of Agriculture 1980). Exposed soil within portions of the proposed project disturbance envelope footprint has been modified by land uses. Specifically, the access road and existing parking pad where the temporary tanks will be installed has been compacted and features base rock in the upper horizon. Similarly, soil in the dirt access road that will be used for staging has been compacted as a result of prior vehicle use. Soil on the north and eastern portions of the existing tank have been inundated as a result of chronic water leaks from the tank.

### 3.1.3 Hydrology/Streams, Rivers, Drainages

The project site is located on the western portion of the Lower San Lorenzo River Subwatershed near the border of the Bean Creek Subwatershed of the San Lorenzo Watershed. The San Lorenzo River is located 1.1 miles west of the project area; Bean Creek is located 0.6 miles north of the project area.

The project area is within upland habitat and not within a flood zone or alluvial fan.

### 3.1.4 Existing Land Use

The proposed project will occur within the District's 0.433-acre easement located in the northern portion of the County of Santa Cruz's 28-acre parcel. The parcel is partially developed and features the following improvements (Figure 2):

- **Juvenile Hall:** a facility constructed beginning in 1968, which currently consists of 18,039 ft<sup>2</sup> of buildings, an approximately 0.5-acre fenced yard north of the buildings, and approximately 2 acres of asphalt and gravel parking lots used by facility staff and visitors, as well as people using the baseball field.
- **Michael Gray Field:** an approximately 1.5-acre baseball field used by the community, which was developed in 1986.
- **A telecommunications facility:** a 550-sf fenced enclosure near the top of Mount Hermon contains a monopole supporting cellular telecommunications, as well as emergency services antennas, and associated power and telecommunications equipment boxes; a propane tank that supplies the equipment is located outside of the fenced enclosure.
- **Public Water Facility:** The San Lorenzo Valley Water District operates three water wells in addition to the as the existing 30-foot diameter, 100,000 gallon redwood tank.
- **Access Roads:** An approximately 0.27 mile long, ten-foot wide paved road labeled in some databases as "Quarry Road" provides access to the parking area on the south side of the existing water tank (Figure 2). This road is used by personnel to access the telecommunications facilitate north of the tank as well as District personnel accessing the tank. Additionally, a 0.24 mile long, 10 to 20-foot wide gravel road connects the District's wells on the eastern and western portions of the parcel to the paved access road (Quarry Road).

The 14,800 square foot disturbance envelope surrounding the existing tank features existing improvements including: a) a 30-foot diameter, 20' foot tall water tank, b) the northern terminus of the paved access road, c) the leveled parking area with rock surface, d) a wooden boardwalk on the northeastern perimeter of the tank, e) the existing propane tank for the telecommunications facilitate, f) a 4.25' x 8' shed for the water tank, and g) a drainage ditch that diverts storm water from the tank to the adjacent habitat (Figure 2).

### 3.1.5 Plant Communities

The remainder of the parcel supports native sandhills communities characteristic of the sandhills ecosystem which occurs on Zayante soils in central Santa Cruz County.

- **Ponderosa Pine Forest:** This community, which is the predominate type within the County parcel, is characterized by relatively dense canopy of ponderosa pine, coast live oak (*Quercus agrifolia*), and pacific madrone (*Arbutus menziesii*). The tree understory is comprised primarily of shrubs including silverleaf manzanita (*Arctostaphylos silvicola*), Santa Cruz Mountains manzanita (*A. crustaceae* ssp. *crinita*), coffee berry (*Frangula californica*), poison oak (*Toxicodendron diversilobum*), and sticky monkeyflower (*Mimulus aurantiacus*); herbs including bracken fern (*Pteridium aquilinum* var. *pubescens*) and cudweed (*Pseudognaphalium beneolens*) occur in canopy gaps.
- **Silverleaf manzanita chaparral with ponderosa pine:** Located downslope of the tank replacement area, this community is dominated by silverleaf manzanita and features scattered Santa Cruz Mountains manzanita and sticky monkeyflower; native herbaceous plants occur in the canopy gaps and include Ben Lomond spineflower (*Chorizanthe pungens* var. *hartwegiana*) and holly leaf navarretia (*Navarretia atractyloides*).
- **Sand Parkland:** The area southwest of the tank supports open sand parkland, which is characterized by a relatively sparse stand (<30% canopy cover) of ponderosa pine, a lack of woody shrubs, and a diverse suite of native herbaceous plants and subshrubs including silver bush lupine (*Lupinus albifrons* var. *albifrons*), Ben Lomond buckwheat (*Eriogonum nudum* var. *decurrens*), common sandaster (*Corethrogyne filaginifolia*), sessile false goldenaster (*Heterotheca sessiliflora* ssp. *echioides*), and Ben Lomond spineflower. This community also supports a suite of non-native annual grasses and forbs that includes smooth cat's ears (*Hypochaeris glabra*), ripgut brome (*Bromus diandrus*), rattlesnake grass (*Briza maxima*), sheep's sorrel (*Rumex acetosella*).

The drainage from the existing water tank gives rise to a human-created wetland that supports species adapted to higher soil moisture including flat tall flatsedge (*Cyperus eragrostis*), spreading rush (*Juncus patens*) fringed willow-leaf herb (*Epilobium ciliatum* ssp. *ciliatum*), and Canadian horseweed (*Erigeron canadensis*), as well as a grove of juvenile Pacific madrone trees, which line the channel.

### 3.1.6 Adjacent Land Use

The County parcel is located atop Mount Hermon. On its eastern border is the Hanson Quarry Property, which features a relatively narrow conservation area that separates the County parcel from the approximately 185-acre sand quarry further east. Across Graham Hill Road to the south is the 1,750-acre Henry Cowell State Park. To the east, the parcel is contiguous with open space land managed by the Mount Hermon Association as part of its private conference center (Figure 1).



The community of Mount Hermon and the neighborhood known as Whispering Pines, both of which feature relatively high-density residential development, are located just 0.5 miles northwest and 0.3 miles southeast of the proposed project area, respectively (Figure 1). These communities, which were developed in early and middle portions of the last century, are included in the “Mount Hermon” and “Whispering Pines” planning units in the *Interim Programmatic Habitat Conservation Plan for the Endangered Mount Hermon June Beetle and Ben Lomond Spineflower* (USFWS et al. 2011).

## 3.2 Covered Species

Take coverage is requested for three federally listed endangered species: Mount Hermon June beetle, Zayante band-winged grasshopper, and Ben Lomond spineflower.

### 3.2.1 Mount Hermon June beetle (*Polyphylla barbata*)

#### Status and Distribution

The Mount Hermon June beetle is a member of the family Scarabaeidae (Insecta: Coleoptera; Figure 3). The Mount Hermon June beetle was listed as federally endangered on January 24, 1997 (USFWS 1997). Critical habitat has not been designated for this species.

The Mount Hermon June beetle occurs in association with Zayante sand soil in central Santa Cruz County. Outcroppings of Zayante soils support a unique ecosystem known as the Zayante (or Santa Cruz) Sandhills (Sandhills). Within the Sandhills, the Mount Hermon June beetle has been recorded from approximately 150 locations in the vicinity of Mount Hermon, Felton, Ben Lomond, Zayante, Scotts Valley, and Bonny Doon (Arnold 2004, USFWS et al. 2011).

While the entire known range of the Mount Hermon June beetle encompasses 10,000 acres, suitable habitat for the endangered insect is only known to occur within approximately 2,800 acres (McGraw 2004b) of that area. The amount of habitat which is presently occupied by the Mount Hermon June beetle is unknown.

#### Habitat Characteristics

The Mount Hermon June beetle occurs in the various plant assemblages or communities of the Sandhills, including those broadly categorized as coast range ponderosa pine forest and northern maritime chaparral. The endangered beetle has also been observed in areas where native Sandhills plant species have been removed, including those that are disturbed through development or feature ornamental or other non-native plant species (Arnold 2004). Mount Hermon June beetle also inhabits ecotones between Sandhills communities and non-Sandhills vegetation, including coast live oak woodland and mixed evergreen forests (J. McGraw pers. obs.).



**Figure 3:** Mount Hermon June beetle adult male (left) and larva (right). Photographs by Jodi McGraw.

### **Occurrence within the Project Area**

Mount Hermon June beetles have been recorded on the project parcel on numerous occasions; the species occurs at relatively high abundance within the sand parkland community on the northern portion of the parcel (Arnold 2004, McGraw 2006, 2010, 2011, 2012, 2013; USFWS 2009).

Given the numerous documented occurrences of Mount Hermon June beetle with the project parcel, and the occurrence of Zayante soils, which provide suitable habitat for the species, within the proposed project area, the species is assumed to inhabit all open soil not covered by impervious surfaces, including the paved road and existing water tank.

Abundance of the Mount Hermon June beetle likely varies within the project area, reflecting variable habitat conditions. Abundance is anticipated to be low in the rocked parking area and the dirt access road that will be used for a staging area, where plant cover is low, limiting the availability of plant roots and mycorrhizae on which the larvae feed. Nonetheless, *Polyphylla* larvae have been recovered from areas lacking aboveground plant cover during monitoring of prior projects (McGraw 2015b).

Mount Hermon June beetle abundance may also be low in the portions of the project footprint that are inundated as a result of leaks and drainage from the water tank, as the saturated soils may not provide appropriate habitat conditions for this fossorial species.

The remainder of the project area features high-quality habitat for Mount Hermon June beetle, which includes relatively loose sand soil and relative dense cover of herbaceous plants, as well as sparse cover of ponderosa pines. As a result of its

relatively high density of Mount Hermon June beetles, the sand parkland habitat southwest of the project area is often used as a 'reference' or 'control' site in presence/absence surveys designed to evaluate occupancy in other sites. During such surveys, adult male Mount Hermon June beetles are recovered at high abundance in black light traps located in this area (McGraw 2009, 2010, 2011a, 2012, 2013, 2014b, 2015a).

### **Life History**

The Mount Hermon June beetle is univoltine (i.e., has only one generation per year). The majority of the life cycle of the Mount Hermon June beetle occurs beneath the soil surface. Though little research has been conducted on below-ground stages of the life cycle of the Mount Hermon June beetle (e.g., eggs, larvae, pupae, and portions of the adult stage), information can be cautiously inferred from other species of *Polyphylla* that are well-studied, including the tenlined June beetle (*Polyphylla decemlineata*).

The life cycle of the Mount Hermon June beetle is estimated to require two to three years. After mating during the summer, adult females lay eggs beneath the soil surface on, or in close proximity to, host plant roots. Eggs hatch into larvae that feed on roots of host plants. As the larvae grow, they molt from first to second, and finally third instars. Third instar larvae pupate below the soil surface, and eventually male and female adults emerge from pupae. Adult emergence and seasonal activity often begins in May and continues through about mid-August (activity period). However, seasonal activity may vary from year to year depending on weather conditions (Arnold 2004).

Mount Hermon June beetles are polyphagous, or generalist feeders. Frass pellets of *Polyphylla* larva obtained from Mount Hermon June beetle mating locations contained tissue from flowering plants, ferns, and fungi (Hill and O'Malley 2009).

During the summer, adult Mount Hermon June beetles are active between approximately 7:00 p.m. and 10:00 p.m., with peak activity usually between 8:45 p.m. and 9:30 p.m. At dusk, adult males emerge from the soil, fly up through herbs and shrubs, and then fly low to the ground in search of flightless females, which emerge from the soil but remain on the surface of the ground and can be found by males which sense their pheromones. After mating occurs on the soil surface, females burrow underground where they presumably lay eggs.

A seasonal capture-recapture study suggested that adult males live no longer than eight days and that most males have home ranges of less than a few acres (Arnold 2001). The maximum dispersal distance documented for adult male Mount Hermon June beetles is 923 feet (Arnold 2000). Similar data on lifespan and dispersal of females are lacking at this time because they are so infrequently observed.

The Mount Hermon June beetle can be distinguished from three congeners (species of the same genus) which also occur in central Santa Cruz County by the presence of relatively dense, long, erect hairs that are scattered over the elytra (leathery forewings), and short erect hairs on the pygidium (last abdominal segment) (Young 1967, 1988). Adult males are typically 20 millimeters (mm) long and 9.7 mm wide, while the slightly larger females are approximately 22 mm long and 12 mm wide (Hill and O'Malley 2009).

### 3.2.2 Zayante band-winged grasshopper (*Trimerotropis infantilis*)

#### Status

The Zayante band-winged grasshopper is a member of the family Acrididae (Insecta: Orthoptera; Figure 4). The species was listed as federally endangered on January 24, 1997 (USFWS 1997). Critical habitat has been designated for this species in 2001 (USFWS 2001).

#### Description and Life History

The Zayante band-winged grasshopper is a small (0.5-0.9 inch), pale grey to light brown grasshopper (that features pale yellow hindwings, pale blue tibiae and a band across the eyes (Figure 4). This univoltine species features a one-year lifecycle in which it undergoes hemimetabolous (incomplete) metamorphosis. During the adult flight season, which is between May and October (USFWS 2001), grasshoppers mate and lay eggs which overwinter in the soil.



**Figure 4:** Zayante band-winged grasshopper. Photograph by Jodi McGraw.

Little information is available about the timing and factors influencing egg hatching. Nymphs have been observed as early as April, suggesting eggs hatch in early spring. The timing of the flight season appears to be influenced by temperature; McGraw (2014) found that the peak of the flight season in the Quail Hollow Quarry Conservation areas was negatively correlated with mean average daily temperature between November 1 and October 31.

Nymphs (immatures) develop through five instars during the spring and early summer. Adults are observed as early as May (USFWS 2001), although adult activity typically peaks in July and August (Arnold 2004). Adults remain active until the first hard rainfall event, which typically occurs in October or early November (Arnold 2004).

#### Distribution and Habitat Characteristics

The Zayante band-winged grasshopper occurs in the sandhills ecosystem, which occurs on Zayante sand soil in central Santa Cruz County. Zayante band-winged grasshoppers are known from approximately 20 historic locations, though are currently

thought to occur in just five primary areas in the vicinity of Mount Hermon, Felton, Ben Lomond, Zayante, and Scotts Valley (Arnold 2004, USFWS 2009). The amount of habitat which is presently occupied by the Zayante band-winged grasshopper is unknown; however, given the limited distribution of open sandhills habitat, it is likely less than 500 acres.

Within the sandhills, the species is primarily associated with open, sunlit areas that are sparsely vegetated, including open sand parkland habitat. The species is most commonly observed within the five sand parkland plant associations (i.e. vegetation types) within the Sandhills, where it feeds on silver bush lupine (*Lupinus albifrons* var. *albifrons*) and golden aster (*Heterotheca sessiliflora* ssp. *echioides*), as well as grasses (Poaceae; Chu 2002). However, Zayante band-winged grasshopper is also observed within the other associations, which occur as a complex mosaic within the sandhills.

### **Critical Habitat**

In 2001, the Service designated 10,560 acres in central Santa Cruz County within the known distribution of the Zayante band-winged grasshopper as critical habitat for the Zayante band-winged grasshopper. The primary constituent elements of critical habitat for the Zayante band-winged grasshopper are the presence of Zayante soils, the occurrence of Zayante Sandhills habitat and the associated plant species, and certain microhabitat conditions, including areas that receive large amounts of sunlight, widely scattered tree and shrub cover, bare or sparsely vegetated ground, and loose sand (USFWS 2001).

This proposed project occurs within the boundaries of designated critical habitat for the Zayante band-winged grasshopper. Areas of sand parkland that surround the tank constitute critical habitat for this species.

### **Occurrence within the Project Area**

The Zayante band-winged grasshopper occurs in the sand parkland habitat atop Mount Hermon (McGraw 2011b), and in the adjacent Western Perimeter Set Aside of the Hanson Quarry, to the east of the project area. A 2011 presence/absence survey of the County parcel failed to detect the species; however, it was observed in adjacent sand parkland habitat 200 feet north of the water tank. Additionally, the species was reportedly observed sunning in the graveled portion of the access road that lies between the existing probation water tank and the Quarry Road (Arnold and Bandel 2014).

### 3.3.3 Ben Lomond spineflower (*Chorizanthe pungens* var. *hartwegiana*)

#### Description and Conservation Status

The Ben Lomond spineflower is a small annual herb of the buckwheat family (Polygonaceae). It can grow up to 10 inches high, but more typically grows no more than a few inches above ground. Flower clusters and associated structures are pink with small distinct heads. Whorls of bracts below the flowers are 0.06 to 0.09 inch long and have pink margins (Figure 5).

The Ben Lomond spineflower was listed as federally endangered on February 4, 1994 (USFWS 1994). Critical habitat has not been designated for the Ben Lomond spineflower.



**Figure 5:** Ben Lomond spineflower inflorescence (left) and patch of plants (right). Photographs by Jodi McGraw.

#### Distribution and Habitat Requirements

The Ben Lomond spineflower is endemic to the Sandhills and restricted to sandy soils of the Zayante series. Specifically, the Ben Lomond spineflower requires sandy soils in open, sparsely vegetated areas (McGraw and Levin 1998, McGraw 2004a,b). The core of current and historical populations of the species occurs in the vicinity of Mount Hermon, Felton, Ben Lomond, Zayante, Scotts Valley, and Bonny Doon. Population sizes vary widely from year to year due to interannual variability in climate, particularly rainfall (McGraw 2004b). No information is available regarding the current or historical number of populations. However, a very rough estimate of total potential habitat is approximately 900 to 2,000 acres (USFWS 2007).

## Life History

The Ben Lomond spineflower is a short-lived annual species. Seeds germinate in late fall after the first substantial rains. Plants form a basal rosette of leaves in the winter, bolt in late February and early March, flower March-May, then seed between June and July. (McGraw and Levin 1998, McGraw 2004a, McGraw 2004b). In open habitat, the Ben Lomond spineflower can reach seedling densities of hundreds to thousands per square meter (Kluse and Doak 1999; McGraw 2004b). When in bloom, the Ben Lomond spineflower often appears as a spreading mat of small, showy, pink flowers.

## Occurrences within the Project Area

The Ben Lomond spineflower occurs patchily and at overall low frequency and abundance within the County parcel, where it is found in canopy gaps in the silverleaf manzanita chaparral and areas of sparse herbaceous plant cover in the sand parkland. Surveys of the project area during May and June 2015 for this project identified occurrences of this species along the paved access road (Biotic Resources Group 2015) and on the south and west-facing slope of the leveled parking pad that will be used for the temporary tanks (J. McGraw, pers. obs.). These areas feature frequent soil disturbances which create opportunities for the Ben Lomond spineflower to establish, survive, and reproduce in Sandhills areas that are otherwise dominated by competitive, non-native herbaceous plants (McGraw 2004a, 2004b).

## 3.3 Other Sandhills Endangered Species in Region

The Sandhills communities support other special-status plant and animal species, including three other federally-endangered species (Table 2). Santa Cruz kangaroo rat (*Dipodomys venustus venustus*) occurs within County's parcel and the Western Perimeter Set Aside of the Hanson Quarry (Biosearch Associates 2013). This nocturnal small mammal was observed in two traps located 150' north of Graham Hill Road, along the paved access road on the eastern portion of the project area (Biosearch Associates 2013). Impacts to this species during construction will be avoided by conducting construction during daylight hours and installing construction fencing (ESA fencing) to restrict vehicle access to the paved roadway; erecting such fencing around the project footprint will prevent impacts to adjacent habitat.

Ben Lomond buckwheat occurs scattered throughout the disturbance envelope centered on the probation tank, including on the slope that will be excavated to widen the pad, and the area along the Quarry Road where equipment will be parked to assemble the new tank.

Silverleaf manzanita is widespread on the County's parcel though does not occur within the disturbance envelope of the proposed project. The species lines the Quarry Road and occurs adjacent to, though not within, the section of dirt road proposed for staging.

**Table 2: Occurrence of special-status species within the Santa Cruz Sandhills within the San Lorenzo Valley Water District Project Area**

Common Name	Status	Occurrence Within	
		Project Area	Project Parcel
Santa Cruz kangaroo rat ( <i>Dipodomys venustus venustus</i> )	California Species of Special Concern	Present	Present
Mount Hermon June beetle ( <i>Polyphylla barbata</i> )	Federally Endangered	Present	Present
Zayante band-winged grasshopper ( <i>Trimerotropis infantilis</i> )	Federally Endangered	Present	Present
Ben Lomond spineflower ( <i>Chorizanthe pungens</i> var. <i>hartwegiana</i> )	Federally Endangered; List 1B.1 <sup>1</sup>	Present	Present
Santa Cruz wallflower ( <i>Erysimum teretifolium</i> )	Federally Endangered; California Endangered; List 1B.1	Absent	Absent
silverleaf manzanita ( <i>Arctostaphylos silvicola</i> )	List 1B.3	Present	Present
Ben Lomond buckwheat ( <i>Eriogonum nudum</i> var. <i>decurrens</i> )	List 1B.1	Present	Present

<sup>1</sup> Most rare, threatened, or endangered plants in California and elsewhere (CNPS 2015)



## Section 4

# Potential Biological Impacts/ Take Assessment

## 4.1 Direct and Indirect Impacts

### 4.1.1 Direct Impacts

The proposed project to cause take of Mount Hermon June beetles and Zayante band-winged grasshopper and impacts to the Ben Lomond spineflower by causing mortality of individuals and both permanent and temporary habitat loss. Computer aided design (CAD) drawings of the proposed project were used to calculate the following aspects of each project, which are listed in Table 3:

1. **Footprint:** The actual area of the project improvements and activities, including the new tank area.
2. **Adjacent Disturbance:** The area adjacent to the project footprint that will be disturbed (covered, displaced, etc.) during construction.
3. **Total Disturbance Envelope:** The footprint plus the adjacent disturbance.
4. **Non-Habitat within the Disturbance Envelope:** The area within the Total Disturbance Envelope that does not consist of habitat, because it is already covered by existing, impervious surfaces, including the existing tank and adjacent pavement.
5. **Total Habitat Disturbed:** The Total Disturbance Envelope minus the Non-Habitat within the Disturbance Envelope.
6. **Temporary Habitat Disturbance:** The area of habitat that will be disturbed to construct the project, but will *not* be permanently impacted as by covering with impervious surfaces, and instead will be restored following implementation of the project.
7. **Permanent Habitat Disturbance:** The Total Habitat Disturbed minus that area of Temporary Habitat Disturbance.

#### Permanent Habitat Loss

Replacement of the probation water tank and associated improvements will result in the permanent loss of 4,580 ft<sup>2</sup> (0.105 acre) of habitat (Table 3). This is the area of existing open soil that will be permanently covered by the footprint of the project components, including the tank, paved walkway, and perimeter fence. Much or all of this area provides breeding habitat for the Mount Hermon June beetle and potentially suitable habitat for dispersal and feeding of Zayante band-winged grasshopper, though the latter species is unlikely to breed in this area

based on the low frequency of observations and the dense vegetation and high shade conditions it creates. This area was not occupied by the Ben Lomond spineflower.

The 4,580 ft<sup>2</sup> (0.105 acre) of habitat that will be lost has been degraded as a result of prior land use activities, including installation and maintenance of the existing water tank and adjacent telecommunications tower. These activities have compacted the soil and reduced the abundance of plants and thus the food supply for the listed insects. Nonetheless, the habitat supports native plants including Ben Lomond buckwheat, Ben Lomond spineflower, ponderosa pine, coast live oak, and silver bush lupine, among other native species that occur in the sandhills and may be important for the listed species.

### Temporary Habitat Loss

Vegetation removal and soil disturbance are anticipated to cause temporary habitat loss within 12,520 ft<sup>2</sup> (0.2875 acres). Of this, 8,520 sf (0.196 acre) surrounds the existing probation tank, and includes a mix of intact sand parkland habitat, and areas such as the parking pad which have been degraded as a result of soil compaction and installation of base rock. The area of relatively intact habitat includes 925 sf (0.021 acres) occupied by the Ben Lomond spineflower.

The remaining 4,000 sf of habitat that will be temporarily disturbed is located in the staging area along the dirt access road south of the tank. This habitat is highly degraded as a result of prior vehicle use, which has compacted the soil and removed all aboveground plant cover. The soil likely still features roots from adjacent vegetation, and may be occupied by Mount Hermon June beetles which has been recovered in such denuded areas. The fossorial species could be further impacted by compaction associated with vehicle use and parking, and materials stockpiling and lay down during construction. Such activities will not impact Zayante band-winged grasshopper or Ben Lomond spineflower, which do not occur in this portion of the project parcel.

Following construction, the 6,500 sf area of habitat around the probation tank, which includes the 925-square-foot area occupied by the Ben Lomond spineflower. Restoration will include recontouring the soil and sowing seed of native plant species collected on site, including the seed salvaged from Ben Lomond spineflower during the summer prior to construction (2016). Given the species' adaptation to soil disturbance (McGraw 2004), the Ben Lomond spineflower population is anticipated to increase relative to what is currently found within the site (13 plants in 2015). Mount Hermon June beetles are anticipated to recolonize the disturbed soil following restoration, which is similarly anticipated to restore the plant community structure and species composition of the sand parkland habitat that supports Zayante band-winged grasshopper. Thus, the impacts to habitat for listed species in this area are anticipated to be temporary.

As the dirt access road used for staging will continue to be used by vehicles not associated with the project, it will not be restored; it may be naturally recolonized by native plants from seed in adjacent habitat or the soil seed bank if vehicle use is infrequent.

**Table 3: Size (square feet) of temporary and permanent impacts in the two project areas (Figure 2). The habitat disturbed is the total disturbance envelope minus the area of non-habitat (e.g. existing impervious surfaces) within the project's total disturbance envelope. Habitat area disturbed that will ultimately be covered by impervious surfaces constitute permanent habitat removal, while adjacent areas of soil disturbance are temporary.**

Column Identifier	Project Area (Square feet)			4	Habitat Disturbed (square feet)		
	1	2	3		5	6	7
Project Component	Footprint	Adjacent Disturbance	Total Disturbance Envelope (1+2)	Non-Habitat within Disturbance Envelope	Total (3-4)	Temporary	Permanent (5-6)
Tank Replacement	6,280	8,520	14,800	1,700	13,100	8,520	4,580
Staging	4,000	0	4,000	0	4,000	4,000	0
<b>Total</b>	<b>10,280</b>	<b>8,520</b>	<b>18,800</b>	<b>1,700</b>	<b>17,100</b>	<b>12,520</b>	<b>4,580</b>

### **4.1.2 Indirect Effects**

Indirect impacts are effects caused by covered activities that may occur at a different time or in a different place than the direct impacts. The project is designed to minimize indirect effects for the Mount Hermon June beetle, Zayante band-winged grasshopper, and Ben Lomond spineflower. During construction, any exposed soil created during construction within the Mount Hermon June beetle flight season will be covered before 7 p.m. each night with tarps, to prevent dispersing males from burrowing into soil within the project area and then being impacted by ongoing construction. The District will not install outdoor lights, which might otherwise facilitate emergency maintenance of the tank at night and deter trespass and vandalism. Avoiding installation of outdoor night lights will prevent disruption of the species' breeding behavior, since male Mount Hermon June beetles are attracted to lights. Additionally, the District will install an 8-foot-wide pedestrian path rather than typical 15-foot-wide road around the tank for maintenance. This will avoid vehicle collisions with the listed insects in the area surrounding the tank. Any maintenance activities will be confined to this path and the adjacent area of permanent habitat loss.

## **4.2 Anticipated Take of Covered Species**

### **4.2.1 Mount Hermon June Beetle**

The proposed project could cause mortality of Mount Hermon June beetles that might occur within the 17,100 ft<sup>2</sup> (0.393 acre) of suitable habitat that will be disturbed and/or covered by as a result of the project. Anticipated to be implemented between December and April, the project would most likely affect larva and pupae, with a lower likelihood of causing take of adults. Impacts to individuals will be reduced by having a biologist on site to capture and relocate any beetles observed during construction, though some of these individuals may suffer morbidity or mortality due to translocation.

The project will also permanently remove 4,580 ft<sup>2</sup> (0.105 acre) of habitat for the Mount Hermon June beetle. Based on the consistently high density of Mount Hermon June beetle trapped during surveys of the site, much of this habitat surrounding the tank is considered to be of high quality for this species.

Following restoration, the Mount Hermon June beetle is anticipated to recolonize portions of the 8,520 sf (0.196 acre) area of temporary habitat disturbance where it might be eliminated as a result of construction activities, including vegetation removal and grading. The restoration will incorporate native plant species upon which the Mount Hermon June beetle feeds.

### **4.2.2 Zayante Band-Winged Grasshopper**

The proposed project could impact Zayante band-winged grasshoppers within the 13,100 sf (0.301 ac) of potentially suitable habitat located in the tank replacement area. During the anticipated period of construction (December to April), the site may be occupied by eggs and nymphs; adults are less likely to be present during this time of year. The biologist on site will

herd any Zayante band-winged grasshoppers out of harm's way, thus reducing impacts to individuals.

The project will also permanently remove 4,580 ft<sup>2</sup> (0.105 acre) of habitat for the Zayante band-winged grasshopper atop Mount Hermon. Due to the relatively dense tree canopy, dense litter cover on the soil surface, and only low frequency of observations of the species in this project area, relatively to adjoining habitat with more open canopy conditions where the species is more frequently observed, the habitat that will be removed by this project is considered to be of only moderate quality for Zayante band-winged grasshopper.

The Zayante band-winged grasshopper is anticipated to be able to utilize the 8,520 sf (0.196 acre) area of temporary habitat disturbance that will be restored following completion of the project. Restoration will be designed to re-create the plant community structure and species composition of open sand parkland habitat, in which this species primarily occurs.

#### **4.2.3 Ben Lomond Spineflower**

The proposed project will impact Ben Lomond spineflower seeds, seedlings, and flowering plants within the 13,100 sf (0.301 acre) disturbance envelope surrounding the existing tank. In 2015, 13 individual Ben Lomond spineflower were observed aboveground within a 925 sf (0.021 acres) east of the access road. The aboveground population may change in future years. Moreover, other portions of the project disturbance envelope may contain dormant seed of this species within the soil (i.e. a soil seed bank). Therefore, the project is anticipated to impact up to 13,100 sf of habitat with the potential to be occupied by Ben Lomond spineflower.

To limit the impacts on Ben Lomond spineflower, seed of aboveground plants will be salvaged prior to construction. The collected seed will be dispersed into suitable habitat as part of work to restore the 8,520 sf (0.196 acre) area of temporary habitat disturbance following completion of the project. Given the species' adaptation to disturbance, Ben Lomond spineflower populations are anticipated to be greater following completion of this project.

#### **4.3 Effects on Critical Habitat**

This proposed project occurs within the boundaries of designated critical habitat for the Zayante band-winged grasshopper. The sand parkland habitat that occurs within the 13,100 sf (0.393 acre) disturbance envelope surrounding the tank constitutes critical habitat for this species. Therefore, the proposed project will permanently remove 4,580 sf (0.105 acres) of critical habitat for the Zayante band-winged grasshopper. An additional 8,520 sf (0.197 acre) of critical habitat will be temporarily removed but then actively restored as part of the proposed project.

The staging area occurs on a denuded and likely compacted dirt road located in an area of otherwise dense ponderosa pine forest which does not feature the open, sparsely vegetated, loose sand soil that represents the primary constituent elements of critical habitat for the Zayante band-winged grasshopper. Critical habitat has not been designated for the Mount Hermon June beetle or Ben Lomond spineflower.

## 4.4 Anticipated Impacts of the Taking

Neither the mortality of the listed species occupying up to the 17,100 ft<sup>2</sup> (0.393 acre) of suitable habitat proposed to be disturbed during project construction, nor the permanent removal of 4,580 ft<sup>2</sup> (0.105 acre) of habitat due to replacement of the existing probation water tank with a larger tank, are anticipated to affect the viability of the three listed species within the Mount Hermon area, or persistence of the species as a whole. Moreover, the project is extremely unlikely to influence successful recovery of the endangered species. This assessment is made based on several interrelated factors including:

1. The small area of habitat that will be removed;
2. The degraded nature of portions of the habitat immediately surround the tank and in the staging area; and
3. The existing development within the project area.

As a result of historic land use, sandhills habitat surrounding the existing probation tank has been degraded. Despite this, the habitat may support persisting populations of the endangered Mount Hermon June beetle, which lives 99% of its live cycle below ground. Likewise, Ben Lomond spineflower likely features a below-ground seed bank from which populations can re-establish following disturbances which recreate suitable habitat (McGraw 2004a,b). The Zayante band-winged grasshopper can utilize areas of disturbance as well, particularly if the disturbances creates and maintain open, sunlit conditions characterized by sparse plant cover.

Nonetheless, occurrence of the project area within an existing utility easement area featuring water and telecommunications facilities greatly limits opportunities for permanent conservation through acquisition or conservation easements. The facilities located atop Mount Hermon are important for water supply and cellular telephone as well as emergency telecommunications.

Habitat outside of developed portion of the County parcel is of very high conservation value. It supports six of the seven endemic Sandhills species (Table 2). The site is utilized as a control or reference site for presence/absence surveys, as Mount Hermon June beetles are often observed at the site during the flight season. These surveys suggest that the density of Mount Hermon June beetle within the parcel is high, even relative to other conservation areas featuring high-quality sandhills habitat (McGraw 2009, 2010, 2011a, 2012, 2013, 2014b, and 2015a). Given the apparently large population, the relatively large size of the parcel, the intact nature of the habitat, and its location adjacent to other protected habitat (Henry Cowell State Park and Hanson Quarry Conservation Area), maintaining remaining habitat within the County parcel can promote persistence of the Mount Hermon June beetle, as well as other special-status species (Table 2). These sandhills species face numerous threats from on-going activities associated with development and associated land use, including: landscaping, irrigation, and mowing; night lighting; existing infrastructure, including buildings, recreational areas (swimming pool and play fields), and paths (USFWS et al. 2011).

## 4.5 Cumulative Impacts

In contrast with the analysis of cumulative impacts under section 7, section 10 of the Act and HCPs analyze cumulative impacts as incremental impacts of the action on the environment

when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. The geographic area for analysis should be defined by the manifestation of direct or indirect impacts as a result of covered activities. Cumulative impacts under section 10 of the Act can result from individually minor but collectively significant actions taking place over a period of time.

The impacts of the proposed project on the persistence of the endangered Mount Hermon June beetle are very low, owing not only to the small size of the project, but also its occurrence in an already developed portion of the County's parcel. Other activities on the site, including maintenance and expansion of the telecommunications facility north of the tank site, and the County Juvenile Detention Facility in the southern portion of the parcel, may continue to reduce habitat for the species. Notably, the County is currently applying for permits to construct a multi-use facility within the existing fenced yard of the detention facility. This project is anticipated to impact 8,225 sf (0.189 acres) of habitat for Mount Hermon June beetle on site, though will not affect the other federally endangered species. As part of the County's habitat conservation plan for the project, the County proposes to mitigate impacts to the Mount Hermon June beetle by controlling invasive plants, including Portuguese broom (*Cytisus striatus*) and French broom (*Genista monspessulana*) within a 4.4-acre area of the parcel, including much of the area between the facility and the Probation Water Tank (McGraw 2015c). If implemented, that project will enhance habitat for Mount Hermon June beetle, as well as Ben Lomond spineflower and Zayante band-winged grasshopper within the County parcel.

Given its adjacency to protected lands, including Henry Cowell State Park and the Hanson Quarry West Perimeter Set Aside (Figure 2), it is unlikely that facility development within the County parcel will extirpate the Mount Hermon June beetle from the patch of sandhills habitat on which it occurs. Likewise, impacts to Ben Lomond spineflower in the 925 sf area are unlikely to impact the population, which instead is anticipated to increase as a result of revegetation efforts implemented as part of the project. Finally, expansion of the tank footprint is unlikely to affect persistence of the Zayante band-winged grasshopper in the sand parkland atop Mount Hermon. As a result, the cumulative impacts of this project on the persistence of the three federally listed species are anticipated to be small.

## Section 5

# Conservation Program/Measures to Minimize and Mitigate for Impacts

## 5.1 Biological Goals and Objectives

Section 10(a)(2)(A) of the Act requires that an HCP specify the measures that the permittee will take to minimize and mitigate to the maximum extent practicable the impacts of the taking of any federally listed animal species as a result of activities addressed by the plan.

As part of the “Five Point” Policy adopted by the Service in 2000, HCPs must establish biological goals and objectives (65 *Federal Register* 35242, June 1, 2000). The purpose of the biological goals is to ensure that the operating conservation program in the HCP is consistent with the conservation and recovery goals established for the species. The goals are also intended to provide to the applicant an understanding of why these actions are necessary.

These goals were developed based upon the species’ biology, threats to the species, the potential effects of the Covered Activities, and the scope of the HCP.

Goal 1: Avoid and minimize take of the Mount Hermon June beetle, Zayante band-winged grasshopper, and Ben Lomond spineflower within the project site.

Objective 1.1: Collect seed of Ben Lomond spineflower plants within the project disturbance enveloped the summer preceding the project, and use the seed to restore the affected area post-project.

Objective 1.2: Monitor construction activities to: 1) capture and relocate any Mount Hermon June beetles observed during construction to intact habitat away from the construction activities, and 2) to herd out of harm’s way any Zayante band-winged grasshoppers observed in the project disturbance envelope.

Objective 1.3: Minimize removal of native Sandhills plant species.

Objective 1.4: Avoid landscaping with turf grass, weed matting, aggregate, and mulch.

Objective 1.5: Minimize night lighting during the flight season of the Mount Hermon June beetle.

Goal 2: Restore habitat within the 0.196-acre area of temporary disturbance around the tank replacement area, to re-establish native plants including Ben Lomond spineflower, and restore habitat for the Mount Hermon June beetle and Zayante band-winged grasshopper.



Objective 2.1: Develop and implement a plan to restore habitat in the 0.196-acre area of temporary impact, by controlling erosion and establishing native plants from site-collected propagules, including the Ben Lomond spineflower habitat salvaged from the impact area prior to project implementation, and host plants for the Mount Hermon June beetle and Zayante band-winged grasshopper.

Goal 3: Protect and manage habitat for the Mount Hermon June beetle, Zayante band-winged grasshopper, and Ben Lomond spineflower at an off-site location of high long-term conservation value to the species.

Objective 3.1: Set-aside, manage, and monitor habitat of high conservation value within the District's Olympia Wellfield. Alternatively, fund the protection, management, and monitoring habitat for the Mount Hermon June beetle through the purchase of conservation credits at a USFWS-approved conservation bank.

## **5.2 Avoidance, Minimization, and Mitigation Measures**

Section 10 of the Act requires that all applicants submit HCPs that "minimize and mitigate" the impacts of take authorized by an incidental take permit, and that issuance of the permit will not "appreciably reduce the likelihood of the survival and recovery of the species in the wild." In general, HCPs should include mitigation programs that are based on sound biological rationale, practicable, and commensurate with the impacts of the project on species for which take is requested. Additionally, the Service encourages applicants to develop HCPs that contribute to the recovery of a listed species. If the proposed project is expected to result in permanent habitat loss, then the mitigation strategy must include compensatory mitigation consisting of the permanent preservation of suitable habitat or similar measures.

In accordance with these guidelines and the requirements of the Endangered Species Act, the Conservation Program of this HCP is intended to achieve its biological goals and objectives and to ensure and that the impacts of covered activities on the covered species are minimized and mitigated to the maximum extent practicable.

### **5.2.1 Measures to Minimize Impacts to the Covered Species**

The following measures are designed to minimize impacts resulting from covered activities on the covered species by reducing impacts on individuals and habitat adjacent to the project area and existing development.

#### **5.2.1.1: Salvage seed of the Ben Lomond spineflower and utilize it in restoration of the site.**

During the summer prior to construction, a qualified biologist will collect the seed of all the Ben Lomond spineflower within the project impact area. The seed will be stored off site in appropriate climate-controlled conditions for use in the larger effort to restore temporarily disturbed habitat surrounding the tank (Measure 5.2.2.1).

**5.2.1.2: Fence the perimeter of the project footprint to prevent inadvertent impacts to adjacent habitat.**

Prior to initiation of ground-disturbing activities, the perimeter of the project footprint will be fenced using orange construction fencing, in order to ensure that all ground-disturbance is confined to the impact area. The fenced area will include the paved access road, to prevent impacts to habitat by vehicles. The site will be monitored to ensure that the fence remains intact and that crews are limiting project activities to the project disturbance envelope.

**5.2.1.3: If ground disturbing activities are conducted during the flight season of the Mount Hermon June beetle, cover exposed soil nightly to avoid impacts to dispersing males.**

Adult male Mount Hermon June beetles actively search for mates and breed during the evenings for approximately 12-14 weeks sometime between May 1 and August 30. During this period, males and females may burrow into duff and soils at relatively shallow depths for protection during the daytime hours. Every attempt will be made to conduct soil disturbing aspects of the project outside of the adult flight season. If construction occurs during any part of the flight season, tarps or other impermeable material will be used to cover open soil each night by 7:00 p.m. This will prevent adult males from burrowing into the exposed area and then being impacted by subsequent soil disturbance (digging, grading, or covering).

**5.2.1.4: Train all construction personnel regarding the covered species.**

Prior to initiation of any ground-disturbance, a qualified biologist will conduct a pre-construction training that will be attended by all on-site construction personnel, to facilitate their implementation of species protection measures. The training will include a fact sheet that will provide information about the ecology and threats to the covered species, as well as other special-status species occurring in the project area, including the Santa Cruz kangaroo rat, Ben Lomond buckwheat, and silverleaf manzanita. The fact sheet will include pictures of each species and outline the avoidance and minimization measures that personnel must implement during the course of the project to protect them.

**5.2.1.5: Monitor all ground-disturbing activities to reduce impacts to the covered species.**

A qualified biologist will be on-site during all ground-disturbing activities when Mount Hermon June beetles or Zayante band-winged grasshoppers have the potential to be impacted by the project. Work crews will be instructed during the pre-construction training to cease activities that can impact the listed insects, until the biologist can safely remove them from the area. The biologist will herd out of harm's way any Zayante band-winged grasshoppers that are found in the project area. The biologist will capture and relocate any Mount Hermon June beetle to the intact habitat surrounding the impact area. Adults or larvae that are unearthed through soil disturbance will be re-buried at the approximate depth at which they were unearthed. If an adult Mount Hermon June beetle is found on the soil surface,

then it will be relocated to a portion of the project site outside of the impact area and left on the soil surface in a location protected by vegetation.

#### **5.2.1.6: Avoid outdoor lighting.**

Adult Mount Hermon June beetles are distracted by light during the night, which can disrupt breeding activity. The existing water tank and telecommunications facility lack night lights; instead, the nearest lights are 700 feet south at the Juvenile Detention Facility. Recognizing that installing night lights for emergency tank maintenance and to deter trespass and vandalism could disrupt breeding within the Mount Hermon June beetle population atop Mount Hermon, the District will not install any lights on the new tank facility as part of this project.

#### **5.2.1.7: Avoid ground cover that degrade habitat for the listed species.**

Mount Hermon June beetles emerge from under the soil surface to attract and locate mates. Zayante band-winged grasshoppers utilize areas of generally open, loose sandy soil lacking dense vegetation. The Ben Lomond spineflower is inhibited by competition from dense vegetation and also litter or other material that covers the soil surface. Accordingly, the District will not install any landscaping elements that impact these species, such as turf grass, dense ground cover plants (e.g. ivy), weed matting, aggregate, and mulch.

### **5.2.2 Measure to Mitigate Unavoidable Impacts**

#### **5.2.2.1: Restore temporarily disturbed habitat within the tank replacement area.**

Following completion of the project, the estimated 8,520 sf (0.196 acre) area surrounding the water tank that will not be covered by impervious surfaces, but will be disturbed as a result of construction activities including equipment access, vegetation clearing, and grading, will be restored.

The objective of the restoration will be to re-create the native plant structure and species composition of the sand parkland community within the area, which provides suitable habitat for the three covered species. The restoration methods will be described in a plan developed near the end of construction to address the post-project conditions including soils, hydrology, and existing vegetation. These will be evaluated to identify the specific restoration treatments, which are anticipated to include: 1) erosion control treatments that are compatible with the listed species, as needed, to stabilize the soil, 2) collection and dispersal of site-collected seed, to maintain the genetic integrity of the community on site, and 3) propagation and outplanting of native plants, as needed, to complement the plant that naturally recruit or establish from seed.

The restoration will incorporate the seed of the Ben Lomond spineflower that will be collected from the impact area prior to construction (Measure 5.2.2.1). Ben Lomond spineflower seed will be dispersed into portions of the restoration area that feature appropriate soil and open canopy conditions. The restoration will also include Ben Lomond buckwheat, a special-status species endemic to the sandhills, which occurs

throughout the tank replacement area.

The restoration will be designed to promote establishment of native plant species that are host plants or provide important habitat for the listed insects. These include silver bush lupine (*Lupinus albifrons* var. *albifrons*) and sessile false goldenaster (*Heterotheca sessiliflora* ssp. *echioides*), which are utilized by the Zayante band-winged grasshopper (Chu 2002), and broad range of native flowering plants and ferns (e.g. bracken fern, *Pteridium aquilinum* var. *pubescens*), which were identified as food plants for Mount Hermon June beetle larvae (Hill and O'Malley 2009).

The restoration plan will address any disturbance that occurs within intact habitat adjacent to the dirt access road that will be used for staging and materials lay down. Such impacts are anticipated to be prevented by erection of construction fencing between the edge of the road, and the adjacent habitat (Measure 5.2.1.2). The 4,000 sf of the existing dirt access road that will be used for staging area will not be restored and instead will remain open for ongoing utility and emergency access within the parcel.

**5.2.2.2: Mitigate the direct impacts to individuals and permanent impacts habitat that will occur in a total of 17,100 ft<sup>2</sup> (0.393 acre) of habitat by protecting and managing 0.995 acres in the Olympia Wellfield, or purchasing 26,260 sf conservation credits at the Zayante Sandhills Conservation Bank.**

To mitigate the unavoidable impacts to the listed species, the District will implement one of two alternative approaches to off-site mitigation (Table 4).

In Option 1, the District will set aside and manage 0.995 acres high-quality sandhills habitat which supports the three covered species. The habitat set aside will be located within the Olympia Wellfield—a 170-acre property owned by the District and managed for water supply and watershed protection. Of the 0.995 acres, 0.420 acres will be set aside to mitigate the project's permanent impacts to 0.105 acres at a 4:1 ratio—this reflects the high quality of the habitat that will be lost in the tank replacement area. The remaining 0.575 acres will mitigate the temporary impacts of the project (0.2875 acres) at a 3:1 ratio. This lower ratio is appropriate, as the 0.196 acres of habitat that will be temporarily impacted in the tank replacement area will be restored, and the 0.092 acres in the staging area consists of a dirt road that is already highly degraded habitat.

The 0.995 acres used as off-site mitigation for this project is part of a larger approximately 5.5-acre area of high quality, sand parkland habitat that the District will set aside and manage within the Olympia Wellfield (Figure 6). The set aside will be located on the southern portion of the property as illustrated in Figure 4. This area features exceptional conservation value because it: 1) features intact sand parkland habitat, 2) supports known populations of six endemic sandhills species, including all four federally listed endangered sandhills species (Table 2), and 3) is located adjacent to other protected sandhills habitat, which it will expand and buffer. The District will use the remainder of this area (4.5 acres), as needed, to mitigate the impacts of future water supply projects that impact the listed species benefited by the habitat protection and management. Such mitigation will be the subject of

future plans or permitting documents developed pursuant Section 10(a)1(b) or Section 7 of the federal Endangered Species Act.

The precise boundaries of the habitat set-aside will be delimited through a land survey. Habitat within the set-aside area will be permanently protected by the District through dedication of a conservation easement or through other deed restrictions that permanently run with the land and are approved by the US Fish and Wildlife Service. The easement or deed restriction will protect the conservation values of the habitat set aside for the covered species by precluding development including for water infrastructure and instead limit its use to activities that are compatible with protection of habitat and rare species populations.

The habitat set-aside will also be documented in the sandhills projects database, a geographic information system database that was created to facilitate US Fish and Wildlife Service tracking of sandhills conservation and mitigation projects (McGraw 2015c). Finally, the boundaries of the habitat set-aside will be illustrated in a high-resolution aerial image-based map that will be included in the first annual report submitted to the US Fish and Wildlife Service during implementation of the HCP (Section 5.5)

The map of the habitat set-aside will also be featured in the habitat management and monitoring plan (HMMP), which describe in detail the methods that the District will use to manage and monitor the area and also the measures that will be taken to minimize adverse effects to the listed species resulting from the management and monitoring activities. The HMMP will be developed by a qualified biologist within six months of permit issuance, and will be subject to approval by the US Fish and Wildlife Service. It will include the following elements:

- A description of the habitat and listed species within the site and the ecological factors that are affecting their populations;
- A description of the prior management of the site, including history of invasive plant removal and related habitat management;
- Biological goals and objectives for the habitat and species, which reflected its desired future conditions;
- Strategies for how to achieve the goals through management, which will include:
  - Habitat maintenance: installation of fences and/or surveillance cameras, conducting patrols, and implementing other measures to protect the habitat for trespass;
  - Habitat management: invasive plant removal, erosion control, and other methods to maintain or enhance habitat conditions; and
  - Restoration: steps to restore sand parkland habitat and recover populations of listed plants and insects.
- Monitoring methods that will be used to evaluate effectiveness of the treatments at creating the desired habitat conditions; and

- An adaptive management framework that will be used to adjust management, as needed, to achieve the goals and objectives.

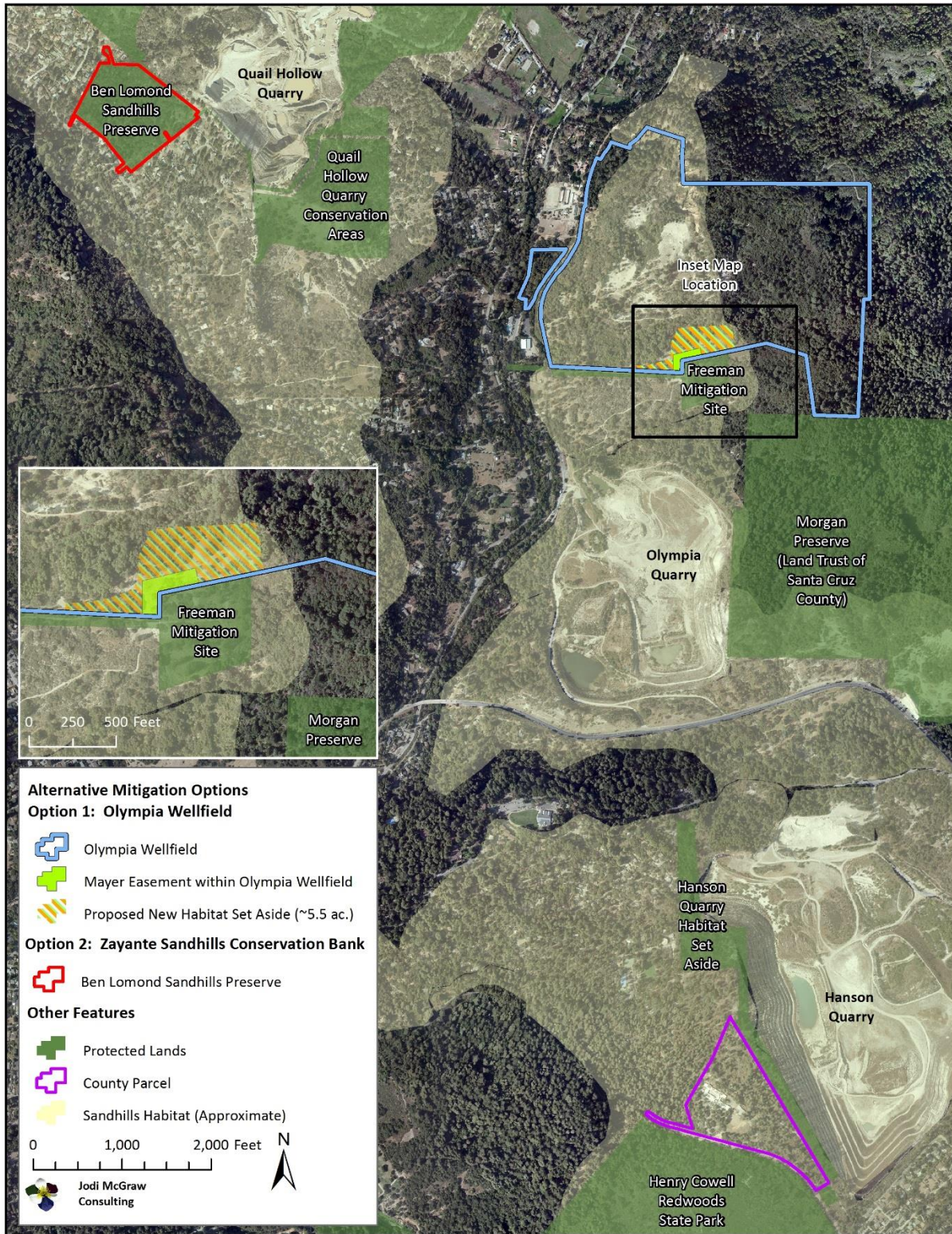
As an alternative to the off-site mitigation described above, the District may elect to purchase 26,260 sf conservation credits at the Zayante Sandhills Conservation Bank, which protects and restores habitat for all four federally-listed endangered sandhills species, including the three species covered by this plan (Table 2).

Of the 26,260 sf credits, 13,740 sf credits will be purchased to mitigate the 4,580 sf of permanent habitat impacts at a ratio of 3:1; this reflects the quality of much of the habitat surrounding the existing tank, which will be impacted by the replacement tank. An additional 12,520 sf credits will be purchased to mitigate the temporary habitat impacts at a ratio of 1:1. This lower ratio is appropriate because the 8,520 sf (0.196 acre) of habitat that will be temporarily impacted in the tank replacement area will be restored (Measure 5.2.1.1), and the 4,000 sf of habitat in the staging area consists of a dirt road that is already highly degraded.

**Table 4: Optional approaches to off-site mitigation for unavoidable impacts to the covered species, showing the habitat impacts, proposed multiplier, which indicates the ratio at which mitigation is being provided relative to the impacts, and the resulting total acres or credits for mitigation.**

<b>Option</b>	<b>Summary</b>	<b>Habitat Impact Type</b>	<b>Impacts (ac.)</b>	<b>Multiplier</b>	<b>Mitigation (ac.)</b>
1: Off-site mitigation at the District's Olympia Wellfield	Set aside and manage 5.5 acres of high-quality sand parkland, of which 0.995 acres will be used to mitigate the impacts of this project. <sup>1</sup>	Permanent	0.105	4	0.420
		Temporary	0.2875	2	0.575
		<b>Total</b>	<b>0.393</b>		<b>0.995</b>
			<b>Impacts (sf.)</b>	<b>Multiplier</b>	<b>Mitigation (sf credits)</b>
2: Off-site mitigation at the Zayante Sandhills Conservation Bank	Purchase conservation credits being sold for the Ben Lomond Sandhills Preserve	Permanent	4,580	2	13,740
		Temporary	12,520	1	12,520
		<b>Total</b>	<b>17,100</b>		<b>26,260</b>

<sup>1</sup> The remaining 4.5 acres will be available as mitigation for future District projects, subject to USFWS approval and permitting.



**Figure 6:** Location of the two alternative off-site mitigation areas, the District's Olympia Wellfield and the Zayante Sandhills Conservation Bank's Ben Lomond Preserve, with respect to the County of Santa Cruz parcel where the Probation Tank Replacement Project will occur (APN: 061-371-16).



## 5.4 MONITORING

Monitoring tracks compliance with the terms and conditions of the HCP and permit. This project will include compliance monitoring to track the permit holder's compliance with the requirements specified in the HCP and permit, as described below. It will also include biological effectiveness monitoring to evaluate effects of the habitat management at the habitat set-aside within the Olympia Wellfield, unless the District elects to instead purchase conservation credits from the Zayante Sandhills Conservation Bank, in which case effectiveness monitoring will be the responsibility of the bank operator.

### 5.4.1 Construction and Compliance Monitoring

**Pre-construction Orientation:** Prior to construction, a qualified biologist will conduct a construction crew training, in which individuals involved in construction will be provided a brief presentation about the biology of the covered species and will be shown pictures of the species during their various life stages (Figures 3-5) to aid their detection during construction. Construction personnel will be directed to cease work and immediately contact a biologist permitted to capture and relocate the Mount Hermon June beetle (larva or adults), or herd the Zayante band-winged grasshopper out of harm's way, should either species be observed within the project site.

**Construction Monitoring:** A qualified biologist will be present on-site during ground-disturbing activities to salvage and relocate any Mount Hermon June beetle or herd out of harm's way any Zayante band-winged grasshoppers. The biologist will also help the District ensure that the project impacts are confined to the designated project areas, and that open soil is covered nightly during the flight season to prevent Mount Hermon June beetles from entering the soil.

### 5.4.2 Effects Monitoring

To quantify the incidental take at the end of the project, a qualified biologist will calculate the area of soil disturbance and thus incidental take, and count the number of Mount Hermon June beetles and Zayante band-winged grasshoppers that were observed during construction. The biologist will also count the number of Ben Lomond spineflower plants in the impact area, prior to salvage of seed the summer before construction begins.

### 5.4.3 Access to Project Site

The permit holder shall allow representatives from the Service access to the project site to monitoring compliance with the terms and conditions of the HCP, and the effects of the project.

## 5.5 Reporting

By January 31 following each year of the permit, a qualified biologist will submit a report to the US Fish and Wildlife Service in order to document the status of the project. The report will include:

1. A brief summary of project activities accomplished during the reporting year (e.g. this includes development/construction activities, and other covered activities);

2. Project impacts;
3. Description of take that occurred (based on disturbance envelope);
4. Observations of any of the covered species;
5. Brief description of conservation strategy implemented;
6. Compliance monitoring results;
7. Description of any changed or unforeseen circumstances that occurred and how they were addressed;
8. Funding expenditures, balance, and accrual; and
9. Description of any minor or major amendments.

Should the District opt to mitigate impacts of the project at the Olympia Wellfield by setting aside and managing habitat, the report will also describe the habitat management conducted each year, the results of annual monitoring, and the plan for habitat management work the following year. The Habitat Management and Monitoring Plan prepared within 6-months of permit issuance will describe these and other contents of the annual report that will be prepared to document such off-site habitat mitigation. If the District instead elects to purchase conservation credits from the Zayante Sandhills Conservation Bank, monitoring will be the responsibility of the bank operator.

## Section 6

# Plan Implementation

## 6.1 Plan Implementation

The project will be implemented by the applicant, the San Lorenzo Valley Water District (District), and its contractors. Precise timing of the project will depend on when the incidental take permit is issued, with efforts made to avoid or minimize ground-disturbing activities during the flight season (Section 5.2.1).

## 6.2 Changed Circumstances

### 6.2.1 Summary of Circumstances

Section 10 regulations (69 *Federal Register* 71723, December 10, 2004 as codified in 50 Code of Federal Regulations (C.F.R.), Sections 17.22(b)(2) and 17.32(b)(2)) require that an HCP specify the procedures to be used for dealing with changed and unforeseen circumstances that may arise during the implementation of the HCP. In addition, the HCP No Surprises Rule [50 CFR 17.22 (b)(5) and 17.32 (b)(5)] describes the obligations of the permittee and the Service. The purpose of the No Surprises Rule is to provide assurance to the non-Federal landowners participating in habitat conservation planning under the ESA that no additional land restrictions or financial compensation will be required for species adequately covered by a properly implemented HCP, in light of unforeseen circumstances, without the consent of the permittee.

Changed circumstances are defined in 50 CFR 17.3 as changes in circumstances affecting a species or geographic area covered by an HCP that can reasonably be anticipated by plan developers and the Service and for which contingency plans can be prepared (e.g., the new listing of species, a fire, or other natural catastrophic event in areas prone to such event). If additional conservation and mitigation measures are deemed necessary to respond to changed circumstances and these additional measures were already provided for in the plan's operating conservation program (e.g., the conservation management activities or mitigation measures expressly agreed to in the HCP), then the permittee will implement those measures as specified in the plan. However, if additional conservation management and mitigation measures are deemed necessary to respond to changed circumstances and such measures were not provided for in the plan's operating conservation program, the Service will not require these additional measures absent the consent of the permittee, provided that the HCP is being "properly implemented" (properly implemented means the commitments and the provisions of the HCP and the IA have been or are fully implemented).

Foreseeable changed circumstances within the project area of this HCP include:

- the new listing of a species; and
- the discovery of another federally-listed species (Table 2) within the project area.

### **6.2.2 Newly Listed Species**

If a new species that is not covered by the HCP but that may be affected by activities covered by the HCP is listed under the Federal ESA during the term of the section 10 permit, the section 10 permit will be reevaluated by the Service and the HCP covered activities may be modified, as necessary, to insure that the activities covered under the HCP are not likely to jeopardize or result in the take of the newly-listed species or adverse modification of any newly designated critical habitat. The District shall implement the modifications to the HCP covered activities identified by the Service as necessary to avoid the likelihood of jeopardy to or take of the newly listed species or adverse modification of newly designated critical habitat. The District shall continue to implement such modifications until such time as the District has applied for and the Service has approved an amendment of the Section 10(a)(1)(B) permit, in accordance with applicable statutory and regulatory requirements, to cover the newly listed species or until the Service notifies the District in writing that the modifications to the HCP covered activities are no longer required to avoid the likelihood of jeopardy of the newly listed species or adverse modification of newly designated critical habitat.

The occurrence of a newly listed species at the project site during the course of the requested permit term is unlikely due to the small size of the project area, the degraded nature of the habitat, the land use history of the site.

### **6.2.3 Discovery of other currently listed species at the project site**

In the event that one or more other already-listed endangered species are found at the site, the applicant will cease project activities that would likely result in incidental take of newly-discovered listed species, and apply for a permit amendment. It is very unlikely that other listed species will be discovered at the project site, due to the short duration of the project permit.

## **6.3 Unforeseen Circumstances**

Unforeseen circumstances are defined in 50 CFR 17.3 as changes in circumstances that affect a species or geographic area covered by the HCP that could not reasonably be anticipated by plan developers and the Service at the time of the HCP's negotiation and development and that result in a substantial and adverse change in status of the covered species. The purpose of the No Surprises Rule is to provide assurances to non-Federal landowners participating in habitat conservation planning under the Act that no additional land restrictions or financial compensation will be required for species adequately covered by a properly implemented HCP, in light of unforeseen circumstances, without the consent of the permittee.

In case of an unforeseen event, the permittee shall immediately notify the Service staff who have functioned as the principal contacts for the proposed HCP. In determining whether such an event constitutes an unforeseen circumstance, the Service shall consider, but not be limited to, the following factors: size of the current range of the affected species; percentage of range adversely affected by the HCP; percentage of range conserved by the HCP; ecological significance of that portion of the range affected by the HCP; level of knowledge about the affected species and the degree of specificity of the species' conservation program under the HCP; and whether failure to adopt additional conservation measures would appreciably reduce the likelihood of survival and recovery of the affected species in the wild.

If the Service determines that additional conservation and mitigation measures are necessary to respond to the unforeseen circumstances where the HCP is being properly implemented, the additional measures required of the permittee must be as close as possible to the terms of the original HCP and must be limited to modifications within any conserved habitat area or to adjustments within lands or waters that already set-aside in the HCP's operating conservation program. Additional conservation and mitigation measures shall involve the commitment of additional land or financial compensation or restrictions on the use of land or other natural resources otherwise available for development or use under original terms of the HCP only with the consent of the permittee.

## **6.4 Amendments**

### **6.4.1 Minor Amendments**

Minor amendments are changes that do not affect the scope of the HCP's impact and conservation strategy, change amount of take, add new species, and change significantly the boundaries of the HCP. Examples of minor amendments include correction of spelling errors or minor corrections in boundary descriptions. The minor amendment process is accomplished through an exchange of letters between the permit holder and the Service's Field Office.

### **6.4.2 Major Amendments**

Major amendments to the HCP and permit are changes that do affect the scope of the HCP and conservation strategy, increase the amount of take, add new species, and change significantly the boundaries of the HCP. Major amendments often require amendments to the Service's decision documents, including the NEPA document, the biological opinion, and findings and recommendations document. Major amendments will often require additional public review and comment.

## **6.5 Suspension/Revocation**

The Service may suspend or revoke their permit if the District fails to implement the HCP in accordance with the terms and conditions of the permits or if suspension or revocation is

otherwise required by law. Suspension or revocation of the Section 10(a)(1)(B) permit, in whole or in part, by the Service shall be in accordance with 50 CFR 13.27-29, 17.32 (b)(8).

## 6.6 Permit Renewal

The applicant requests a twenty -year permit in order to cover impacts of habitat management and monitoring in the off-site habitat set aside.. The permit term will cover the timeline for the construction project, which is anticipated to require six months but could require three years if construction delays are encountered.

Upon expiration, the Section 10(a)(1)(B) permit may be renewed without the issuance of a new permit, provided that the permit is renewable, and that biological circumstances and other pertinent factors affecting covered species are not significantly different than those described in the original HCP. To renew the permit, the property owner shall submit to the Service, in writing:

- a request to renew the permit; reference to the original permit number;
- certification that all statements and information provided in the original HCP and permit application, together with any approved HCP amendments, are still true and correct, and inclusion of a list of changes;
- a description of any take that has occurred under the existing permit; and
- a description of any portions of the project still to be completed, if applicable, or what activities under the original permit the renewal is intended to cover.

If the Service concurs with the information provided in the request, it shall renew the permit consistent with permit renewal procedures required by Federal regulation (50 CFR 13.22). If the property owners file a renewal request and the request is on file with the issuing Service office at least 30 days prior to the permits expiration, the permit shall remain valid while the renewal is being processed, provided the existing permit is renewable. However, the property owner may not take listed species beyond the quantity authorized by the original permit. If the property owner fails to file a renewal request within 30 days prior to permit expiration, the permit shall become invalid upon expiration. The District must have complied with all annual reporting requirements to qualify for a permit renewal. Should the District utilize the conservation bank for off-site mitigation, then the conservation bank operators must similarly have complied with all annual reporting requirements for the District's permit to be renewed.

## 6.7 Permit Transfer

If the proposed permit holder, the San Lorenzo Valley Water District, transfers the tank to another party during the period of the permit and that party agrees to implement the project and comply with the terms of the HCP, the permit can be transferred to the new project proponent.

In the event of sale or transfer of ownership of the property during the life of the permit, a new permit application, permit fee, and an Assumption Agreement will be submitted to the Service by the new owner(s). The new owner(s) will commit to all requirements regarding the take authorization and mitigation obligations of this HCP unless otherwise specified in the Assumption Agreement and agreed to in advance with the Service.

## Section 7

# Funding

### 7.1 Costs of HCP Implementation

Costs to implement the conservation strategy described in this plan are estimated in Table 5, which reflects costs for two alternative mitigation approaches (Table 4). In Option 1, the District will manage and monitor habitat within the 5.5-acre habitat set-aside located in the Olympia Wellfield. Costs for habitat management and habitat-based monitoring of the 5.5-acre set-aside are estimated to average \$3,500 per year. To fund these costs, the District will establish a non-wasting endowment that will yield an average of \$3,500 in 2016 dollars (Section 7.2). The District will also fund the endowment or pay other fees required by the grantee of the conservation easement, which would be used to monitor and legally defend, as needed, the easement terms.

If and when the District uses additional acreage within the habitat set-aside to mitigate future projects, additional funding will be allocated to further manage, restore, and enhance the protected habitat. The funding dedicated to mitigate impacts of future projects would be identified in future permitting documents, but would be commensurate with the project impacts, and would be used to fund additional management, restoration, or enhancement projects identified in the Habitat Management and Monitoring Plan for the property (Section 5.2.2).

In Option 2, the District will purchase conservation credits at the Zayante sandhills conservation bank (Section 5). Costs reflected in Table 5 are current as of the time of plan preparation and anticipated to be similar upon completion of the permitting process.

### 7.2 Funding Source(s)

As the applicant and project proponent, the District will pay for all costs associated with implementing the HCP (Table 5). Appendix B contains a letter from the District providing funding assurances.

If the District elects to compensate for project impacts by purchasing conservation credits, the District will purchase the conservation credits prior to issuance of the take permit. If the District elects to compensate for project impacts by protecting and managing a 0.995-acre habitat set-aside at the Olympia Wellfield, the District will permanently protect the habitat therein prior to the inception of ground-disturbing activities covered by the project, by recording the conservation easement or other deed restrictions approved by the US Fish and Wildlife Service. Concurrent with recordation of the easement, the District will make necessary financial arrangements with the easement holder to fund easement monitoring and legal defense.

Additionally, the District will establish a non-wasting endowment to fund annual habitat management and monitoring. The endowment will be held by the District in a separate,



restricted account, the proceeds from which can only be used for habitat management and monitoring of the habitat set-aside.

The District may elect to fund the habitat management endowment over a five-year period. Until the endowment is fully funded, the District will fund annual habitat management and monitoring costs through its annual budget appropriations. The annual funds paid to manage and monitor habitat prior to funding the endowment are separate, and will not decrease the amount of the habitat management endowment. Instead, the size of the endowment will be increase annually by 2% to address the effects of inflation on habitat management and monitoring costs (Table 6). For example, if the District elects to establish the endowment over the maximum five-year period (i.e. 2021), the final endowment will be \$128,809, to generate an average of \$7,177 in 2021 dollars.

The District understands that failure to provide adequate funding and consequent failure to implement the terms of this HCP in full could result in temporary permit suspension or permit revocation. The District will prepare and submit to the USFWS annual reports that demonstrate implementation of the conservation strategy and contributions to fund the endowment. As noted previously, the District will submit to the USFWS for review the Habitat Management and Monitoring Plan within six months of permit issuance. The District will begin implementing habitat management during the year the permit is issued, or during the following year, depending on the precise timing of permit issuance.

**Table 5: Estimated costs to implement the conservation strategy.**

Measure	Strategy	Units		Costs (\$)	
		Type	Number	Per Unit	Total
Minimization Measure 5.2.1.1	Salvage Ben Lomond spineflower seed within the project disturbance envelope and store it for use in restoration	Biologist Labor Hours	12	105	1,260
Minimization Measure 5.2.1.2	Fence the perimeter of the project footprint using orange construction fencing (ESA fence)	100' roll of ESA Fence	50	30	1,500
Minimization Measure 5.2.1.3	Cover open soil in previously impervious portion(s) of project area with tarps to prevent burrowing during flight season	Tarps or other Impermeable Material	10	20	200
Minimization Measure 5.2.1.4	Biologist will conduct pre-construction trainings for project personnel	Biologist Labor Hours	10	105	1,050
Minimization Measure 5.2.1.5	Biologist will monitor ground-disturbing activities	Biologist Labor Hours	200	105	21,000
Effects Monitoring and Reporting	Biologist will assess project impacts and prepare three annual reports (12 hours per year for up to three years of construction)	Biologist Labor Hours	36	105	3,780
Mitigation Measure 5.2.2.1: On-site Restoration	Restore an estimated 8,520 sf of temporarily disturbed habitat around the water tank	Annual work to prepare and implement plan	3	7,000	21,000
Mitigation Measure 5.2.2.2: Off-Site Mitigation at Olympia Wellfield (Option 1)	Manage and monitor the 5.5-acre habitat set aside within the Olympia Wellfield in perpetuity	Non-wasting endowment(s) to yield ~\$3,500/yr. for habitat management and monitoring <sup>1</sup>	1	116,667	116,667

**Table 5: Estimated costs to implement the conservation strategy.**

Measure	Strategy	Units		Costs (\$)	
		Type	Number	Per Unit	Total
Mitigation Measure 5.2.2.2: Off-Site Conservation Bank (Option 2)	Purchase 26,260 square foot conservation credits at the Zayante Sandhills Conservation Bank	conservation credits	26,260	8.44	221,634
<b>Total Costs with Olympia Wellfield Mitigation (Option 1)<sup>2</sup></b>					<b>165,557</b>
<b>Total Costs with Conservation Bank Mitigation (Option 2)</b>					<b>270,524</b>

<sup>1</sup> Assumes a 3% net capitalization rate

<sup>2</sup> Does not include the costs to fund an endowment to be required by the conservation easement holder to monitor and legally defend the easement

**Table 6: Five-year cost schedule for funding the non-wasting endowment that will be used to manage and monitor the habitat set aside.**

Calendar Year	Year Relative to Permit Issuance	Annual Management and Monitoring Costs (\$) <sup>1</sup>	Size of Non-Wasting Endowment (\$) <sup>2</sup>
2016	0	3,500	116,667
2017	1	3,570	119,000
2018	2	3,641	121,380
2019	3	3,714	123,808
2020	4	3,789	126,284
2021	5	3,864	128,809

<sup>1</sup> Costs increase by 2% each year to address inflation

<sup>2</sup> Assumes a 3% net capitalization rate

## Section 8

# Alternatives

### 8.1 Summary

Section 10(a)(2)(A)(iii) of the Endangered Species Act of 1973, as amended, [and 50 CFR 17.22(b)(1)(iii) and 17.32(b)(1)(iii)] requires that alternatives to the taking of species be considered and reasons why such alternatives are not implemented be discussed.

### 8.2 Alternative 1: No Action Alternative

Under the No Action Alternative, the District would not replace the tank and make the associated improvements, including paved walkways and an incidental take permit would not be requested or issued. Existing land use would continue in the proposed project area. The 13,100 ft<sup>2</sup> of habitat adjacent to the existing water tank facilities remain undisturbed by construction activities, though still impaired by land uses including maintenance of the existing tank and adjacent telecommunications facility. The existing tank would continue to be repaired to address leaks, which would otherwise continue to alter soil hydrology in ways that degrade habitat for the listed species including by reducing oxygen availability through inundation, and promoting dense wetland vegetation that is not typically found in the sandhills.

Under the No Action Alternative, the conservation measures proposed in this HCP would not be implemented. Accordingly, habitat within the Olympia Wellfield will remain unprotected from development of other land uses that can remove or degrade habitat. The habitat would continue to receive only intermittent management. Invasive shrubs and trees including Portuguese broom (*Cytisus striatus*) and silver wattle (*Acacia dealbata*) will likely continue to increase in abundance within the property.

Likewise, 26,260 ft<sup>2</sup> of conservation credits would not be purchased at the Zayante Sandhills Conservation Bank. This would reduce funds available for preservation, management, and monitoring of the high-quality preserve established to protect the covered species.

### 8.3 Alternative 2: Redesign Project (Reduced Take)

Under this alternative, the existing tank would be replaced with a new, 30-foot-diameter welded steel tank that would fit entirely within the existing tank's footprint and no paved walkways would be installed. Replacement of the tank would still result in temporary habitat loss to an estimated 1,257 sf of habitat within a 10-foot perimeter around the existing tank and an additional approximately 4,000 sf of temporary impacts during construction which result from equipment access to install the tank; however, this is less than half of the 13,100 sf of temporary (8,520 sf) and permanent (4,580 sf) habitat impacts that are anticipated to occur in the tank replacement area under the proposed project.

Due to engineering constraints, the maximum height of the 30' diameter tank is 30 feet, thus limiting its capacity to 158,630 gallons. Such a tank would not have sufficient capacity to meet

water demands calculated for the area, which are 525,200 gallons (Joregensen 2014). Specifically, the 158,630-gallon tank would not provide enough water for existing daily demand (123,300 gal.), fire storage (240,000 gal.) or other emergency storage (123,000 gal.) to address major power outages or other natural or human-created situation in which the tank will provide the only source of water. Failing to pave the area around the tank will increase soil saturation which will promote rusting and necessitate tank replacement or maintenance that could further degrade habitat through more frequent temporary habitat disturbance.

Under this option, the District would set aside and manage a smaller area at the Olympia Wellfield, or purchase fewer conservation credits from the Zayante Sandhills Conservation Bank; as a result, a smaller area of high-quality habitat would be protected and managed. This redesign would present a significant burden to the District and the population it serves, without significantly reducing the project impacts on the listed species. For these reasons, this redesign alternative has been rejected.

### **8.4 Alternative 3: Proposed Action (Permit Issuance)**

Under the proposed action alternative, the District will replace the existing, dilapidated 100,000-gallon redwood tank with a new, 527,000 gallon welded steel tank and install paved walkways as described in Section 2. The proposed action will require the issuance of a Section 10(a)(1)(B) permit in order that the project can be implemented in compliance with the federal Endangered Species Act. The project could cause mortality to individuals potentially occurring within the 17,100 ft<sup>2</sup> area that will be disturbed, and permanently remove 4,580 ft<sup>2</sup> (0.105 acre) of habitat.

The District worked with the project engineers to minimize the impacts associated with the proposed project, by selecting a project design that has the smallest footprint and thus will disturb the least amount of habitat while still meeting the community's water supply needs. Specific aspects of the design which limited the impacts include (Cahill 2014):

1. Installing a single tank, rather than two adjacent tanks, although the latter affords better opportunities for maintenance;
2. Limiting the width of the access around the tank required for maintenance to just eight feet, which only accommodates pedestrian access, rather than the typical 15-foot-wide road, which enables vehicle access; and
3. Designing retaining walls that minimize the amount of disturbance to adjacent habitat while stabilizing the hillslope surrounding the tank. The soldier beam wall will have vertical piers that are drilled into place, rather than a foundation that would need to be excavated and poured and thus have a larger footprint.

Additionally, the District will implement avoidance and minimization measures designed to further limit impacts during tank installation (Section 5).

Moreover, the conservation measures proposed in the HCP will provide for greater benefits to the covered species than would result from the No Action alternative. Specifically, under the Proposed Action, the District will protect and manage habitat for the Mount Hermon June beetle, Zayante band-winged grasshopper, and Ben Lomond spineflower, as well as the Ben Lomond wallflower, within a 5.5-acre habitat set aside at the Olympia Wellfield. Alternatively, the District will secure 26,260 ft<sup>2</sup> conservation credits in the Zayante Sandhills Conservation Bank, thus ensuring the preservation, management, and monitoring of the covered species in the Ben Lomond Sandhills Preserve—a relatively large, contiguous, and high-quality habitat. The

Proposed Action thus provides greater conservation benefits than the No Action and Redesigned Project Alternative, while best meeting the needs of the applicant. Therefore, the Proposed Action is the preferred alternative.

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# Appendix A Project Plans

These 95% plans were developed by Mesiti-Miller Engineering for the San Lorenzo Water District's Probation Tank Replacement Project.

# PROBATION TANK REPLACEMENT

## SAN LORENZO VALLEY WATER DISTRICT

### FELTON, CA

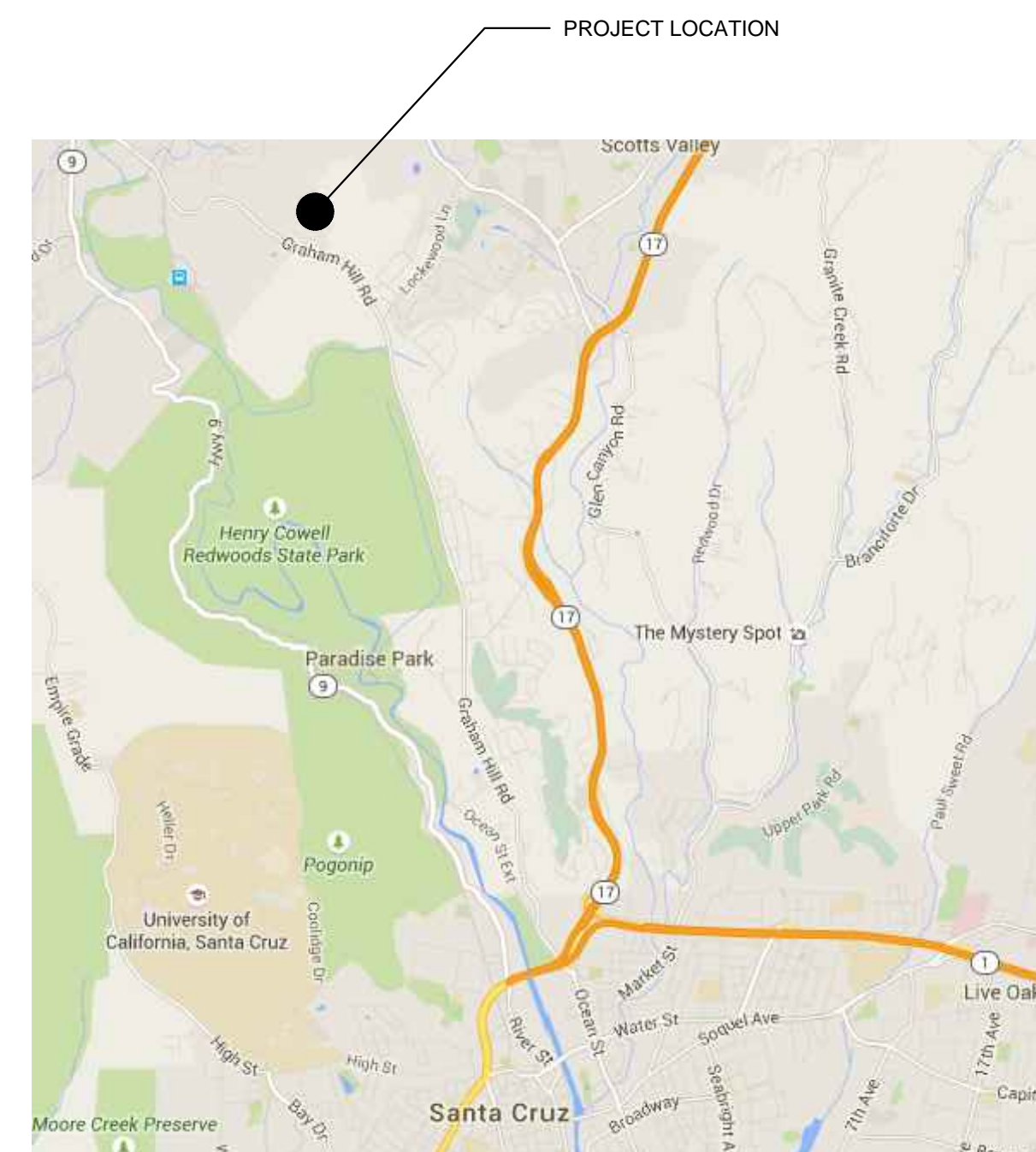
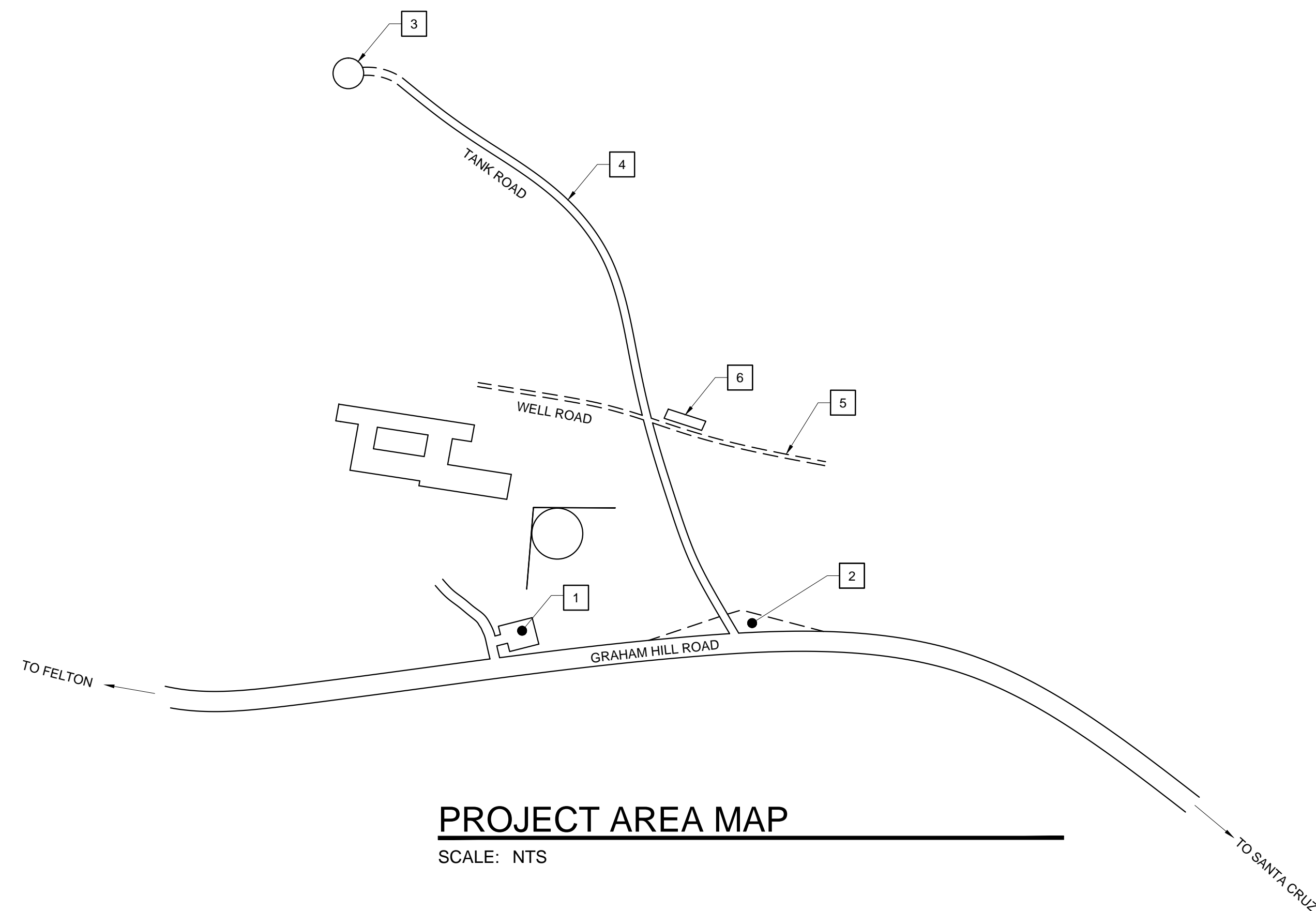
### 95% SUBMITTAL

#### ABBREVIATIONS

CY	Cubic Yard
DET	Detail
DI	Ductile Iron
E	Electrical
ELEV	Elevation
ESA	Environmentally Sensitive Area
FL/FLG	Flange
GV	Gate Valve
H	Height
HDPE	High Density Polyethylene
INFO	Information
MAX	Maximum
MIN	Minimum
MJ	Mechanical Joint
NTS	Not To Scale
O/C	On Center
O/H	Overhead
PL	Property Line
TEMP	Temporary
TYP	Typical, UNO
UNO	Unless Noted Otherwise
W	Water
Ø	Diameter

#### LEGEND

	NEW STORM DRAIN
	NEW WATER
	NEW ELECTRICAL OVERHEAD
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	PROPOSED MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
	PROPERTY LINE
	GRADE BREAK
	FLOW LINE
	FENCE
	WATER VALVE
	GRADE POINT
	AREA DRAIN
	SOLDIER PILE



#### SHEET INDEX

NO.	NAME	SHEET DESCRIPTION
<b>CIVIL</b>		
1	C1.0	COVER SHEET
2	C1.1	GENERAL NOTES & SPECIFICATIONS
3	C2.0	CONSTRUCTION PHASING CONCEPT
4	C3.0	DEMOLITION PLAN
5	C4.0	SITE PLAN
6	C4.1	RETAINING WALL PLAN
7	C5.0	GRADING PLAN
8	C6.0	DRAINAGE PLAN
9	C7.0	SITE SECTIONS
10	C7.1	SITE SECTIONS
11	C7.2	DRAINAGE PROFILES
12	C7.3	RETAINING WALL SECTIONS AND DETAILS
13	C7.4	RETAINING WALL PROFILES
14	C7.5	ACCESS ROAD CENTERLINE PROFILE
15	C8.0	SITE AND FOUNDATION DETAILS
16	C8.1	STORM DRAIN AND UTILITY DETAILS
17	C9.0	EROSION CONTROL PLAN
<b>TANK</b>		
18	T1.0	WATER PIPING PLAN
19	T2.0	TANK PLAN AND ELEVATION
20	T3.0	TANK SPECIFICATIONS
21	T4.0	TANK DETAILS
22	T5.0	PIPING DETAILS
<b>ELECTRICAL</b>		
23	E1.0	SYMBOLS & ABBREVIATIONS
24	E1.1	ELECTRICAL SPECIFICATION
25	E2.0	DEMOLITION SITE PLAN
26	E2.1	SITE PLAN
27	E2.2	PARTIAL SITE PLAN
28	E3.0	SINGLE LINE DIAGRAM
29	E4.0	ELECTRICAL DETAILS
<b>SURVEY</b>		
30	1	TOPOGRAPHIC SURVEY

#### SHEET NOTES

- 1 POSSIBLE STAGING OR PARKING AREA AVAILABLE IN SANTA CRUZ COUNTY YARD WITH COUNTY APPROVAL
- 2 EXISTING PULL-OUT AREA
- 3 EXISTING TANK SITE
- 4 EXISTING PAVED ROAD. REPAIR PER DETAILS 2 & 3 / C8.0.
- 5 EXISTING GRAVEL ROAD
- 6 CONSTRUCTION STAGING AREA 20' X 200' ON SIDE OF EXISTING ROAD. UTILIZE EXISTING DISTURBED AREA AND MAINTAIN ACCESS TO WELLS

#### BASIS OF ELEVATIONS

SITE BENCHMARK ELEVATION IS A POINT ON THE NORTHERN TOP OF THE EXISTING WATER TANK FOUNDATION AS SHOWN ON THE GRADING PLAN, PER TOPOGRAPHIC SURVEY BY PAUL JENSEN, MARCH 2014. ELEVATION = 871.24'

#### BASIS OF BEARINGS

BASIS OF BEARINGS IS N 31°24'30" W BETWEEN POINT 1 AND POINT 3 AS SHOWN ON THE SITE PLAN, PER TOPOGRAPHIC SURVEY BY PAUL JENSEN, MARCH 2014. COORDINATES SHOWN ARE BASED ON A LOCAL COORDINATE SYSTEM

REV.	DESCRIPTION	DATE
1	95% DESIGN PHASE SUBMITTAL	10/6/2015



PRELIMINARY  
NOT FOR  
CONSTRUCTION

SAN LORENZO VALLEY WATER DISTRICT  
PROBATION TANK REPLACEMENT

PREPARED AT THE REQUEST OF  
SAN LORENZO VALLEY WATER DISTRICT  
13960 HIGHWAY 9  
BOULDER CREEK, CA 95006

COVER SHEET
DRAWN BY: BR, DM
CHECKED BY: RC
JOB NUMBER: 14176
SHEET

C1.0

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GENERAL NOTES

- 1. QUALIFICATIONS
The Contractor shall possess a Class "A" General Engineering Contractor license under the provisions of the Business and Professions Code of the State of California to do the type of work contemplated and shall be skilled and regularly engaged in the general class or type of work called for under this contract.
2. CODES
Construction and materials shall be in accordance with Title 24 California Code of Regulations California Building Code (CBC), the California Plumbing Code (CPC), the Caltrans Standard Plans and Specifications, State Fire Marshal Regulations, National Electrical Code, all other State and Federal laws, all locally enforced codes and authorities, and the County of Santa Cruz Design Criteria.
3. STANDARD SPECIFICATIONS
Construction and materials shall be as specified and as required by the latest editions of the Caltrans Standard Plans and Caltrans Standard Specifications.
4. PERMITS
Contractor shall inform themselves of, and fully adhere to the rules regulations and requirements of all governmental agencies having jurisdiction over the work, and all federal, state and local laws, codes or regulations regarding construction activity.
5. SITE SAFETY
The Contractor agrees that in accordance with generally accepted construction practices, Contractor will be required to assume sole and complete responsibility for job site conditions, construction means, methods or techniques, or for safety measures, precautions or programs at the project site during the course of the project.
6. PUBLIC SAFETY
The Contractor shall provide for the safety of traffic and the public in accordance with the provisions of Section 7-1.09 of the Standard Specifications whenever the Contractor's operations create a hazardous condition including, but not limited to, fencing, railing, barricades, lights, signs and other devices to prevent accidents or damage or injury to the public.
7. SCOPE
The Contractor shall examine carefully the site of work contemplated and thoroughly review the Plans and Specifications.
8. INTENT
It is the intent of these Plans and General Notes/Specifications that the work shall result in a complete, finished, operating, satisfactory and functional systems and no extra compensation will be allowed for anything omitted but fairly implied for systems function.
9. PRECEDENCE
All figured dimensions shall take precedence over scaled measurements.
10. ADDENDA
If discrepancies or apparent errors or omissions are found in the Plans or Specifications or any differences between the Plans and conditions in the field the Contractor shall submit a written Request For Information (RFI).
11. VERIFICATION
The Contractor shall be responsible for field-verifying all existing conditions, dimensions, levels, and materials for all layout and construction work and shall submit a Request for Information (RFI) to the District's Representative to resolve any discrepancies before proceeding with the work.
12. NOTICE TO PROCEED
No work shall commence without an official notice to proceed from the District.
13. EXISTING FACILITIES
Contractor shall protect all existing facilities and shall repair all damaged areas to original or better condition.
14. HOUSEKEEPING
The job site shall be maintained daily in a neat, clean, orderly condition free of debris and litter, shall not be unreasonably encumbered with any materials or equipment.
15. WORKING HOURS
Normal working hours shall be between 7:00 am and 5:00 pm and no work shall be done on Sundays or legal holidays unless written permission is given.

DEMOLITION

- 1. Existing tank shall be removed. Wood shall be transported to District property and stacked as directed by the District. Dispose of roof.
2. Temporary tanks shall be removed and disposed of at final completion.
3. Propane tank, shed, antenna pole, and overhead utilities are to be relocated as indicated on the plans. Carefully detach, in a manner to prevent damage, and reinstall where indicated using equal or better attachment/footing/anchoring/pole system.
4. Verify that utilities have been disconnected and capped before starting demolition operations.
5. Vegetation and soil disturbance should be minimized as shown on C3.0.
6. Use temporary covers, pads or platforms to collect debris and prevent contamination of undisturbed areas. Platforms and covers are to be approved by the Engineer.
7. Stabilize construction roads adjacent to the construction against erosion. Divert runoff from adjacent surfaces away from the construction site.
8. Control use of materials containing oil, grease, silt, paint, plastic, solvents or toxic substances.
9. Unless otherwise indicated, demolition waste becomes property of Contractor.
10. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to District that may be uncovered during demolition remain the property of District. Carefully salvage these items in a manner to prevent damage and promptly return to District.

- 11. Stockpile accumulated waste away from critical areas. Do not allow demolished materials to accumulate on-site. Transport demolished materials off District's property and legally dispose of them. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
12. The Owner's Representative shall indicate items to be salvaged. Items to be salvaged shall be protected from damage and transported to the District Maintenance Yard, including but not limited to valve assemblies, electrical and instrumentation panels.

EXISTING TANK ROAD

- 1. Prior to final completion, tank road shall be repaired.
2. Contractor shall be responsible for maintaining existing access roads and protecting all existing utilities during construction.

ASPHALT CONCRETE PAVEMENT

- 1. Aggregate Base, Class 2, shall be in accordance with Sections 26-1.02B, 26-1.03, 26-1.04 and 26-1.05 of the Caltrans Standard Specifications.
2. Asphalt concrete shall be "Type A", binder grade shall be "PG 64-16" and shall conform to the provisions in Section 39, "Asphalt Concrete," of the Standard Specifications and these special provisions.
3. Asphalt concrete shall be produced from commercial quality asphalt and aggregates. The spreading and compacting requirements of the Standard Specifications shall apply. Asphalt concrete shall be produced at a central mixing plant.
4. Asphalt concrete thickness and course shall be "2".
5. Aggregate shall conform to the "Course" grading specified in Section 39-2.02, "Aggregate," of the Standard Specifications. Aggregate size shall be "3/4".
6. Asphalt concrete shall be placed in layers less or equal to 2-1/2" thick.
7. The amount of asphalt binder to be mixed with the aggregate shall be between 4 percent and 7 percent, by weight, of the dry aggregate.
8. Spreading and compacting shall be performed by methods that will produce an asphalt concrete surfacing of uniform smoothness, texture and density.
9. A prime coat of liquid asphalt, SC-70, and a tack coat and fog seal coat of asphaltic emulsion shall be applied in accordance with the appropriate section of the Caltrans Standard Specifications.
10. Existing pavement shall be coated with asphaltic emulsion at all locations where new pavement joins existing pavement. Existing AC or PCC pavement to be removed shall be saw cut and removed to clean straight lines.
11. An approved soil sterilizer shall be used on all natural-ground subgrades when placing AC pavement directly on subgrade.
12. All temporary patches shall be of the "hot mix" variety. "Cold mix" shall not be allowed under any circumstances.

CONCRETE

- Work done under this section shall conform with the applicable portions of ACI 318, latest edition.
Poured in place concrete work shall be constructed of normal weight, Portland Cement Concrete, having a minimum 28-day compressive strength as follows:
• Site Work f'c = 3,000 psi
• Cast-in-place Concrete Piers f'c = 3,000 psi
• Tank Foundation f'c = 4,000 psi
Portland cement concrete shall conform to the requirements of ACI 318, "Building Code Requirements for Reinforced Concrete," latest edition. Maximum water cement ratio shall not exceed 0.50 by weight. The use of any admixture in the concrete must be approved by the Engineer.
Aggregates: Coarse aggregates shall conform to ASTM C33 size 57, 67 or 7. pea gravel aggregates shall not be used.
Newly placed concrete shall be cured in accordance with the provisions in ACI 308, "Standard Practice for Curing Concrete," latest edition. Method of curing shall be at the option of the Contractor with approval of the District and Engineer.
Metal anchorage devices, anchor bolts, etc. shall be secured in place and inspected prior to placing concrete. Wet setting embedded devices is not acceptable.
Concrete finishing: Provide unformed concrete surfaces to be left exposed with a smooth trowel finish. Provide 3/4" chamfer on all exposed edges, unless noted otherwise.

REINFORCEMENT

- Use Grade 40 deformed reinforcing for #3 and smaller bars and Grade 60 for #4 and larger bars conforming to the requirements of ASTM A615. Stagger all reinforcing bar contact splices. Support horizontal steel at bottom on mortar blocks. Minimum 3-inch clearance for surfaces poured against earth; minimum 1-1/2 inch elsewhere unless noted otherwise.
All reinforcing bars to be welded shall be ASTM Designation A706 and welded in accordance with A.W.S.D.1.4 "Welding Reinforcing Steel, Metal Inserts and Connections in Reinforced Concrete Construction."
All reinforcing, and other embeddings shall be secured in place and inspected prior to placing any concrete or grout.
Work done under this section shall conform with the applicable portions of ACI 318, latest edition, particularly Chapter 7, "Details of Reinforcement."

STORM DRAIN SYSTEM

- 1. SOLID PVC
4" - 10" PVC solid pipe materials for storm drainage and sanitary sewer applications shall conform to the requirements of ASTM D 3034 Standard Specification for Type PSM Poly(vinyl chloride) (PVC) sewer pipe and fittings; SDR 35, as designated on the plans, bell and spigot style elastomeric rubber ring sealed gasket joint or solvent cement joint. Installation shall be in accordance with ASTM D 2321 Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity Flow Applications.
2. PERFORATED PVC
4" - 6" PVC perforated pipe materials for subsurface drainage applications shall be rigid, smooth-wall and conform to the requirements of ASTM D 3034 Standard Specification for Type PSM Poly(vinyl chloride) (PVC) sewer pipe and fittings; SDR 35, as designated on the plans, bell and spigot style elastomeric rubber ring sealed gasket joint or solvent cement joint. Perforations shall be two to four rows of holes 3/8" in diameter on 3 inch centers and the rows shall be parallel to the axis of the pipe and 90° - 160° apart or equal per AASHTO M278. Installation shall be in accordance with ASTM D 2321 Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity Flow Applications, holes facing down, surrounded by a minimum of four inches of 3/4 inch crushed drain rock and filter media or fabric.
3. SOLID HDPE
12" -48" High Density Polyethylene Pipe (HDPE) pipe materials for storm drainage shall be Type "S", double wall, smooth interior wall, corrugated exterior wall, conforming to Section 64 "Plastic Pipe" of the Caltrans Standard Specifications. Joint connections shall be double rubber ring gasketed, "Positive" and "Watertight" conforming with Caltrans Section 61-1.02 "Performance Requirements for Culverts and Drainage Pipe Joints". Downdrains shall meet "Downdrain" joint restraint requirements. Installation shall be in accordance with Section 64 "Plastic Pipe" of the Caltrans Standard Specifications.
4. INLETS
Catch basins shall be precast reinforced concrete w/ galvanized frames and grates rated for H20 loading and bike proof in vehicular traffic areas and ADA accessible in pedestrian areas. Structures shall be reinforced precast concrete in conformance with ASTM C857 and C858 with rubber gaskets in accordance with ASTM C923. Metals shall be galvanized per ASTM A-123
5. TESTING
Except for perforated drain pipes, watertightness shall be tested with a head of 10 feet of water for 15 minutes per Caltrans Standard Specification Section 61 "Culvert and Drainage Pipe Joints" and the California Plumbing Code Section 1109 "Testing".
6. MARKERS
Magnetic marker tape shall be placed 12 inches below finished grade and above pipe centerline. Marker tape shall be 5 mil thick brightly colored plastic and aluminum magnetic warning tape continuously marked "Storm Drain" in large letters. Tape width shall be equal to pipe size.
7. MAINTENANCE
Contractor shall install proper positive drainage at all times. If operation of any existing drainage structure or other utility is interrupted by the contractor's work, contractor shall have acceptable alternate means in place prior to interruption. Drainage facilities shall be checked by the contractor weekly during construction and at closeout and cleaned of sediment as required.

EARTHWORK

- 1. The Geotechnical Investigation is hereby incorporated in its entirety into the project Construction Documents and shall be kept at the job site at all times. Earthwork shall be in strict accordance with the recommendations of the Geotechnical Investigation for:
SLVWD Probation Tank Replacement (DRAFT REPORT)
Prepared by: Haro, Kazunich and Associates, Inc.
Project No. SC10850
Dated: July 2015
2. Footings shall be embedded into firm native soil or compacted engineered fill as shown in the plans and as specified in Chapter 18, "Soils and Foundations" of the current California Building Code (CBC). All earthwork shall conform to the requirements of the current CBC Chapter 33, "Safety during Construction". Temporary excavations shall be properly shored and braced to prevent caving per OSHA requirements.

EROSION CONTROL BEST MANAGEMENT PRACTICES

- Appropriate best management practices shall be implemented during construction to prevent erosion, sedimentation, and the discharge of pollutants during construction. In accordance with the California Storm Water Best Management Practices Handbook, these measures shall include:
1. Limiting the extent of land disturbance to the minimum amount necessary to construct the project.
2. Designating areas for the staging of construction equipment and materials, including receptacles and temporary stockpiles of graded materials, which shall be covered on a daily basis.
3. Providing for the installation of silt fences, temporary detention basins, and/or other controls to intercept, filter, and remove sediments contained to any runoff from construction, staging, and storage/stockpile areas.
4. Incorporating good construction housekeeping measures, including the use of dry cleanup measures whenever possible.
5. Collecting and filtering cleanup water when dry cleanup methods are not feasible.
6. Cleaning and refueling construction equipment at designated offsite maintenance areas.
7. The immediate clean-up of any leaks or spills.
8. The construction areas shall be delineated with fencing and markers to prevent land-disturbing activities from taking place outside those areas.
9. Erosion and sediment control measures shall be regularly inspected, maintained and repaired. Erosion shall be controlled at all times. No turbid runoff shall be allowed to leave the immediate construction site.
10. The desired end result of these measures is to control site erosion and prevent sediment transport off the site. It shall be the contractor's responsibility to see that any additional measures necessary to meet this goal are implemented. If this goal is not being met, additional measures will be required. Straw rolls, sandbags, gravel bags or other means shall be employed to prevent sediment from leaving the site or entering any water course.

- 11. All excavated material shall be removed to an approved disposal site.
12. Any material stockpiled during construction shall be covered with plastic during rain events.
13. All trees adjacent to construction must be protected.

CHAIN LINK FENCES

Temporary construction fences should be 6' high chain link fencing. Permanent perimeter fences should be 6' high galvanized steel chain link fencing with extension arms and 3 barbed wires. Chain link fences should conform to Caltrans Standard Specifications Section 80-3 "Chain Link Fences" and Caltrans Standard Plans A85 "Chain Link Fence" and A86 "Barbed Wire and Wire Mesh Fences".

WOOD PRESERVATIVES

- All new wood shall be pressure-treated with a water-borne preservative of the Contractor's choice subject to the District's approval and conforming to the requirements of AWPA Standard U1 Use Category UC4B "Ground Contact Heavy Duty". All treatment shall be in accordance with the latest edition of the American Wood Preservers Association standards for ground and human contact.
Field cuts or notches on new treated wood shall be field treated with copper naphthenate in accordance with AWPA Standard M4.
Precautions for wood preservatives and treatment:
a. Post "Consumer Information Sheet" and "Material Safety Data Sheet" as required by California Proposition 65.
b. Store treated lumber and plywood only within a fenced area.
c. Take all possible steps to prevent dispersion of sawdust and remove any accumulation from site.
d. Remove all treated wood scraps to proper disposal area. Take all possible steps to insure that treated wood scraps are not burned.
e. Build an approved "Dip Tank" for flood coating and treating cut ends of wood members.
f. Keep wood preservative and dip tank in a cool and ventilated locked enclosure when not in use.
WOOD
Wood construction shall conform to Section 2304, "General Construction Requirements" of Chapter 23 of the CBC unless noted otherwise in the plans or these specifications.
No structural member shall be cut or notched unless specifically shown, noted, or approved by the Engineer.
Wood species for all framing members shall be Douglas Fir unless noted otherwise and shall be of the grade specified in these specifications unless noted otherwise in the plans, manufactured and graded per WPPVA Grading Rules, latest edition. Solid sawn lumber shall have a maximum of 19% moisture content at time of installation.
Lagging: DF No. 1 Pressure Treated
Blocking: DF No. 2 Pressure Treated
Metal framing devices shall be as manufactured by Simpson Strong-Tie Company or approved equal, installed in conformance with the manufacturer's specifications. Metal framing devices in contact with preservative treated wood shall be stainless steel. Only Simpson "N" type fasteners shall be used. All such fasteners shall be of the largest size and quantity specified in the manufacturer's published schedules, UNO.
Bolt holes shall be 1/16 inch larger than the nominal size of the bolt. Cut flat washers shall be provided at all heads and nuts which would otherwise bear directly on wood. Bolts shall be tightened to a snug condition and retightened upon job completion or immediately before constructing work which will make them inaccessible.
Use common type nails where nails are indicated on our details or plans. Nails shall be stainless steel where exposed to weather or in contact with preservative treated wood.

STRUCTURAL STEEL MISCELLANEOUS IRON

- Work done under this section shall conform to the requirements of the AISC Specifications and Code of Standard Practice, latest edition. Steel shall conform to the following requirements:
Wide Flange Sections ASTM A992, Grade 50
Other Shapes and Plates ASTM A36
Fasteners ASTM A307
Weld Metal FEXX=70 ksi
All steel material, assemblies and fasteners exposed to earth or weather in the completed structure shall be cleaned and painted with a zinc-rich urethane paint in accordance with Section 59-9 "Painting Steel Solder Pipes" and Section 91 "Paint" of the Caltrans Standard Specifications. Steel shall be dry blast to SP11.0 and steam cleaned then shop primed with zinc-rich urethane primer such as Themec Brand "Themec-Zinc" 2.5 to 3.5 mils thick. Intermediate coat shall be such as Themec Brand "Hi-Build" Epoxiline II Series 69.4.0 to 6.0 mils thick. Finish coat shall be such as Themec Brand Series 1075 Endura Shield.2.0 to 3.5 mils thick, color 84BR (weathered bark brown) or alternative color with written approval of Owner. Allow minimum 12 hours drying time between coats.
Welding shall be done by welders certified for the welds to be made using E70XX electrodes in conformance with the requirements of AISC Specifications and Code of Standard Practice or AWS "Structural Welding Code."
To assure the proper amperage and voltage of the welding process, the use of a hand held calibrated amp and voltmeter shall be used. The fabricator, erector and the inspectors shall use this equipment. Amperage and voltage shall be measured at the arc with this equipment. Travel speed and electrode stick out shall be verified to be in compliance with the electrode manufacturer's recommendations.
When fabricating beams, place natural camber up.
All bolted connections shall have a minimum of two bolts, unless shown otherwise.
Minimum size of bolts for structural steel connections shall be 5/8" Ø except when otherwise shown or noted.
Provide beveled washers on all connection to sloping flanges of I sections and channels.
Where minimum AISC field weld thickness requirement exceeds welds shown on details, provide minimum AISC weld.
After fabrication, all steel shall be cleaned free of rust, loose mill, scale and oil.
The Contractor shall be responsible for the control of all erection procedures and sequences with relation to temperature differentials and weld shrinkage.

- CAST IN PLACE CONCRETE PIERS
Concrete for cast-in-place concrete piers shall be as specified in section titled "CONCRETE". The concrete shall be dense and homogeneous. Concrete placed in drilled holes shall be placed against undisturbed material. Concrete shall be placed through a tremie and the end of the tube shall be embedded 4 feet below the concrete surface during placement. Concrete shall be vibrated in the upper 15 feet of the pier.
The contractor is to notify the project geotechnical engineer four working days prior to commencement of drilling operations.
Drilled holes for cast-in-place concrete piers shall be drilled to the diameters and depths shown on the plans or to depths as determined by the project geotechnical engineer.
Drilled holes shall be examined for straightness and any hole showing an out of plumb tolerance in excess of 2% of the total hole depth shall be rejected. If the tolerances noted herein are exceeded, the contractor shall furnish and pay for any corrective design and construction that may be required. Suitable casings shall be furnished and placed when necessary to control water or to prevent caving of the hole.
Loose material existing at the bottom of the hole after drilling operations have been completed shall be removed before placing reinforcing steel or concrete in the hole. Surface water shall not be permitted to enter the hole and all water which may have infiltrated into the hole shall be removed prior to placing concrete there.
Casing, if used in drilling operations, shall be removed from the hole as concrete is placed there. The bottom of the casing shall be maintained a minimum of four feet below top of the concrete during withdrawal and placing operations. Separation of the concrete by hammering or otherwise vibrating the casing during withdrawal operations shall be avoided.

TANK SURCHARGE - LOWER RETAINING WALL (WALL 'A') FOR ALL WALL HEIGHTS

- ACTIVE PRESSURE = 55 PSF/FT EFF
SEISMIC SURCHARGE = 10H PSF (ULTIMATE LOAD)
PASSIVE PRESSURE = 400 PSF/FT EFF WITH 1/3RD INCREASE FOR SEISMIC LOAD COMBOS
PASSIVE RESISTANCE IS NEGLECTED IN THE UPPER 2'-0" OF PIER
PASSIVE RESISTANCE ACTS AGAINST 2X PIER DIAMETER
LOWER RETAINING WALL (WALL 'B') FOR ALL WALL HEIGHTS
ACTIVE PRESSURE = 40 PSF/FT EFF
SEISMIC SURCHARGE = 10H PSF (ULTIMATE LOAD)
PASSIVE PRESSURE = 500 PSF/FT EFF WITH 1/3RD INCREASE FOR SEISMIC LOAD COMBOS
PASSIVE RESISTANCE IS NEGLECTED IN THE UPPER 2'-0" OF PIER
PASSIVE RESISTANCE ACTS AGAINST 2.5X PIER DIAMETER
TANK SURCHARGE - LOWER RETAINING WALL (WALL 'B') FOR RETAINED HEIGHTS UP TO 4FT
TANK SURCHARGE PRESSURE ON WALL = 558 PSF (TOP 4 FEET)
TANK SURCHARGE PRESSURE ON PIERS = 958 PSF (BELOW 4 FEET TO A DEPTH OF 7 FEET)
SURCHARGE PRESSURE ON PIER IS APPLIED AGAINST 2X PIER DIAMETER

TANK SURCHARGE - LOWER RETAINING WALL (WALL 'B') FOR RETAINED HEIGHTS UP TO 6FT

- TANK SURCHARGE PRESSURE ON WALL = 755 PSF (TOP 6 FEET)
TANK SURCHARGE PRESSURE ON PIERS = 1,073 PSF (BELOW 6 FEET TO A DEPTH OF 9 FEET)
SURCHARGE PRESSURE ON PIER IS APPLIED AGAINST 2X PIER DIAMETER

SPECIAL INSPECTION

- Special inspection per Section 1704 of the California Building Code will be performed by an independent testing laboratory approved by the local jurisdiction and paid by the District for the following areas of work:
1. See Special Inspection and Testing Agreement for a complete list of all tests and inspections
2. Concrete construction per CBC Table 1704.4
3. Concrete placement
4. Reinforcement steel placement

Approval by the inspector does not mean approval of failure to comply with the plans or specifications. Any detail that fails to be clear or is ambiguous must be referred to the Engineer for interpretation or clarification prior to performing the work.

OBSERVATION BY THE ENGINEER

- Contractor shall notify the District's Representative 48 hours in advance for the following observations:
1. Reinforcing steel placement prior to placing concrete
2. Utility pipes prior to backfill
3. Utility pipe pressure and leakage testing

OBSERVATION BY THE GEOTECHNICAL ENGINEER

- Geotechnical observation is required at the following construction milestones:
1. For select grading activities
2. For all foundation excavations
3. For proper depth of piers and back drains
4. Compaction testing for engineered fill materials
5. Where required by the Geotechnical Investigation Report
The geotechnical engineer shall be notified 48 hours in advance of above milestones.

SUBMITTALS TO THE ENGINEER

- Shop drawings shall be submitted for review in the following areas of work:
1. Concrete ringwall foundation design calculations and shop drawings, stamped by an engineer licensed in the State of California
2. Concrete mix designs, stamped by an engineer licensed in the State of California
3. Concrete pumping/tremie system
4. Concrete curing method
5. For all substitutions
6. Structural steel and miscellaneous iron shop drawings for approval prior to the fabrication of any parts or assemblies
7. All material and equipment items
The Contractor shall supply submittals sufficiently detailed to demonstrate compliance with the Plans and Specifications. Each submittal shall be sequentially numbered, dated, and titled and checked by the Contractor. The District's Representative will require 10 days for review. The Contractor's responsibility for errors, omissions and deviations is not relieved by the submittal review.
Shop drawings for fabrication of components shall not utilize copies of the Engineer's drawings.
All submittals shall be reviewed and checked by the Contractor prior to submittal to Engineer for review. Contractor shall stamp and sign each submittal indicating they have reviewed, checked and approved the submittal for compliance with all the requirements of the plans and specifications.

SUBMITTALS TO THE GEOTECHNICAL ENGINEER

- Shop drawings shall be submitted for review in the following areas of work:
1. Aggregate base material
2. Permeable drain rock
All submittals shall be reviewed and checked by the Contractor prior to submittal to the Geotechnical Engineer for review. Contractor shall stamp and sign each submittal indicating they have reviewed, checked and approved the submittal for compliance with all the requirements of the plans and specifications.

RETAINING WALL DESIGN CRITERIA

- UPPER RETAINING WALL (WALL 'A') FOR ALL WALL HEIGHTS
ACTIVE PRESSURE = 55 PSF/FT EFF
SEISMIC SURCHARGE = 10H PSF (ULTIMATE LOAD)
PASSIVE PRESSURE = 400 PSF/FT EFF WITH 1/3RD INCREASE FOR SEISMIC LOAD COMBOS
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LOWER RETAINING WALL (WALL 'B') FOR ALL WALL HEIGHTS
ACTIVE PRESSURE = 40 PSF/FT EFF
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SURCHARGE PRESSURE ON PIER IS APPLIED AGAINST 2X PIER DIAMETER

UTILITIES

LOCATIONS OF EXISTING UTILITIES SHOWN ON THE PLANS ARE ONLY APPROXIMATE. THE EXISTING UTILITIES SHOWN WERE PLOTTED USING INCOMPLETE AND IMPRECISE RECORDS. IT SHOULD BE EXPRESSLY UNDERSTOOD THIS INFORMATION DOES NOT NECESSARILY REPRESENT ACTUAL OR COMPLETE SITE CONDITIONS OR SHOW DETAILS OF EXACT LOCATION, DEPTH OR OTHER CONSTRUCTION FEATURES OF THESE UTILITIES. NO WARRANTY, EITHER EXPRESSED OR IMPLIED, AS TO THE COMPLETENESS OR ACCURACY OF THIS INFORMATION IS SET FORTH HEREIN. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THIS INFORMATION WITH THE AFFECTED UTILITIES PRIOR TO EXCAVATION. THE CONTRACTOR SHALL CALL "UNDERGROUND SERVICE ALERT" AT 1-800-642-2444 OR 81-1 FOR THE MARKING OF UNDERGROUND FACILITIES AT LEAST 2 DAYS PRIOR TO CONSTRUCTION. CONTRACTOR SHALL HAND DIG AND LOCATE ALL UTILITIES THAT MAY BE AFFECTED BY THE NEW FACILITIES IN THIS CONTRACT TO VERIFY ACTUAL DEPTH AND LOCATION OF UTILITIES AND REPORT POTENTIAL CONFLICTS TO THE OWNERS REPRESENTATIVE. CONTRACTOR SHALL PROTECT ALL EXISTING UTILITIES WHETHER SHOWN OR NOT AND IS RESPONSIBLE FOR ALL DAMAGES TO EXISTING UTILITIES.

Revision table with columns for DATE, BY, RTC, DESCRIPTION, REV, and a vertical title 'GENERAL NOTES & SPECIFICATIONS'. Includes a logo for Mesiti-Miller Engineering, Inc. and project information for SAN LORENZO VALLEY WATER DISTRICT PROBATION TANK REPLACEMENT.



C1.1

REV.	DESCRIPTION	DATE
1	95% DESIGN SUBMITTAL	10/6/2015

**Mesiti-Miller Engineering, Inc.**  
 224 Walnut Street, Suite 100, San Francisco, CA 94102  
 Phone 415-426-3186

PRELIMINARY  
NOT FOR  
CONSTRUCTION

**SAN LORENZO VALLEY WATER DISTRICT  
PROBATION TANK REPLACEMENT**

PREPARED AT THE REQUEST OF  
 SAN LORENZO VALLEY WATER DISTRICT  
 13960 HIGHWAY 9  
 BOULDER CREEK, CA 95006

CONSTRUCTION SEQUENCING PLAN

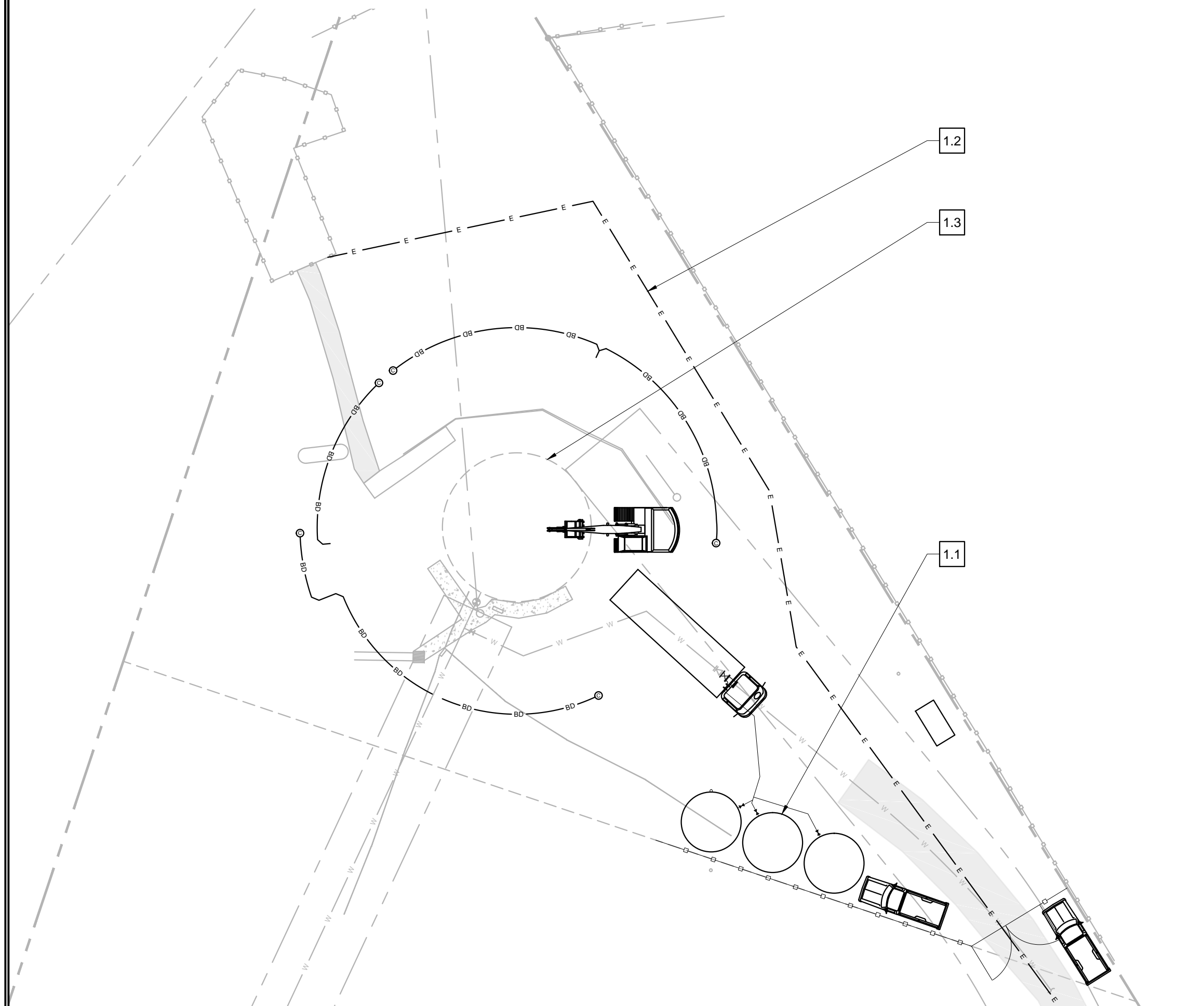
DRAWN BY: BR  
 CHECKED BY: RC  
 JOB NUMBER: 14176

SHEET  
**C2.0**

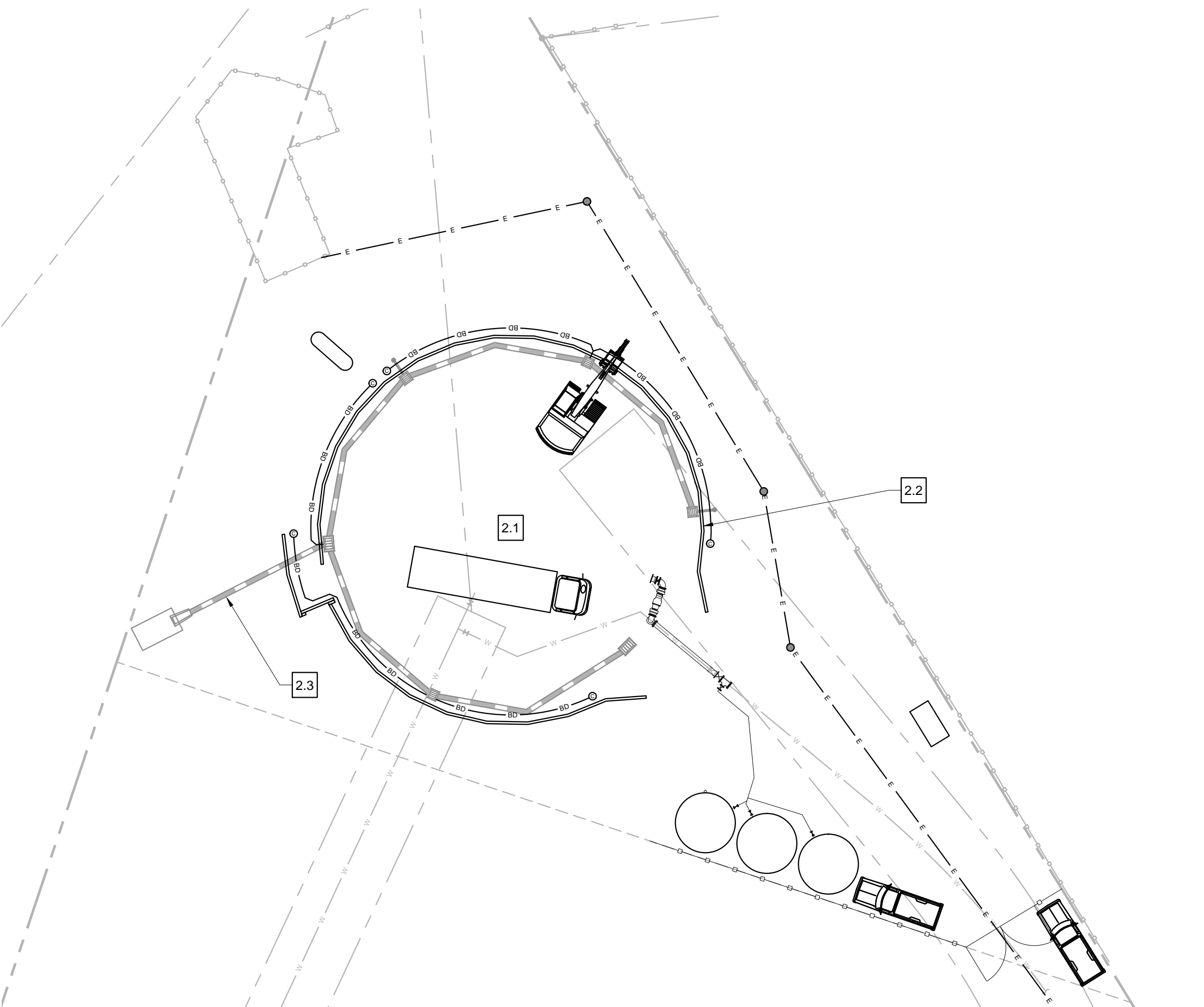
**SHEET NOTES**

- 1.1 INSTALL TEMPORARY EROSION CONTROL, TEMPORARY TANK PAD, TEMPORARY TANKS, TEMPORARY TANK PIPING AND TEMPORARY FENCING
- 1.2 INSTALL OVERHEAD ELECTRICAL AND DEMOLISH EXISTING OVERHEAD ELECTRICAL
- 1.3 DEMOLISH EXISTING TANK
- 2.1 SITE GRADING AND TANK PAD
- 2.2 CONSTRUCT RETAINING WALLS
- 2.3 CONSTRUCT DRAINAGE AND WATER PIPING, DISINFECT AND TEST
- 3.1 CONSTRUCT TANK FOUNDATION AND ERECT TANK
- 4.1 ROAD PAVING
- 4.2 TANK COATING
- 4.3 TESTING AND DISINFECTION OF NEW TANK AND NEW PIPING
- 4.4 THE DISTRICT WILL FILL THE NEW TANK AND EMPTY THE TEMPORARY TANKS
- 4.5 REMOVE TEMPORARY TANKS AND CAP TEMPORARY PIPING, REMOVE TEMPORARY EROSION CONTROL.

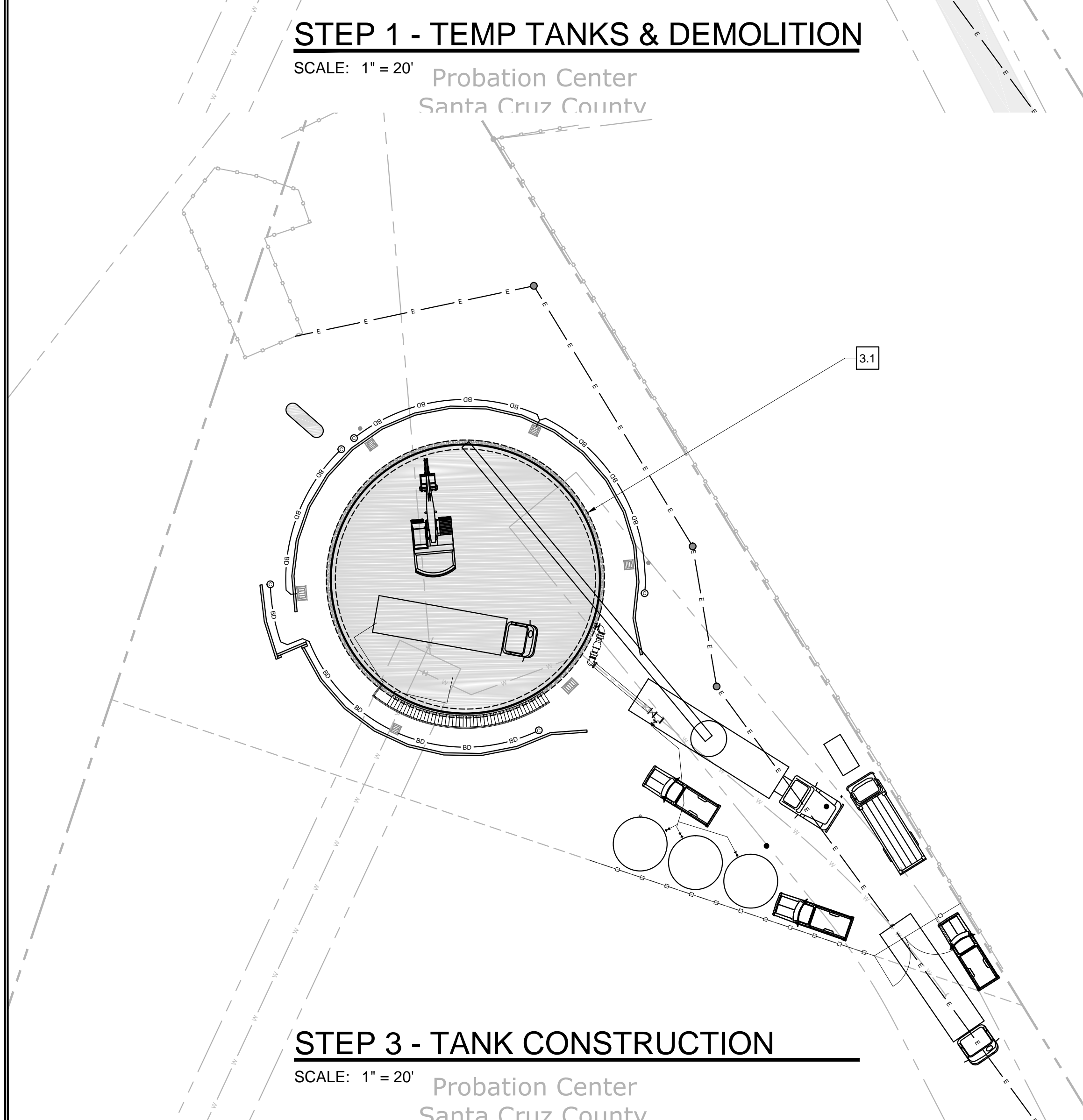
SUGGESTED CONSTRUCTION SEQUENCING:  
 THE CONTRACTOR SHALL SUBMIT A DETAILED CONSTRUCTION SEQUENCING PLAN AND SCHEDULE TO THE DISTRICT FOR REVIEW AND APPROVAL. THIS PLAN DOES NOT DIRECT CONTRACTOR'S MEANS AND METHODS OF CONSTRUCTION.



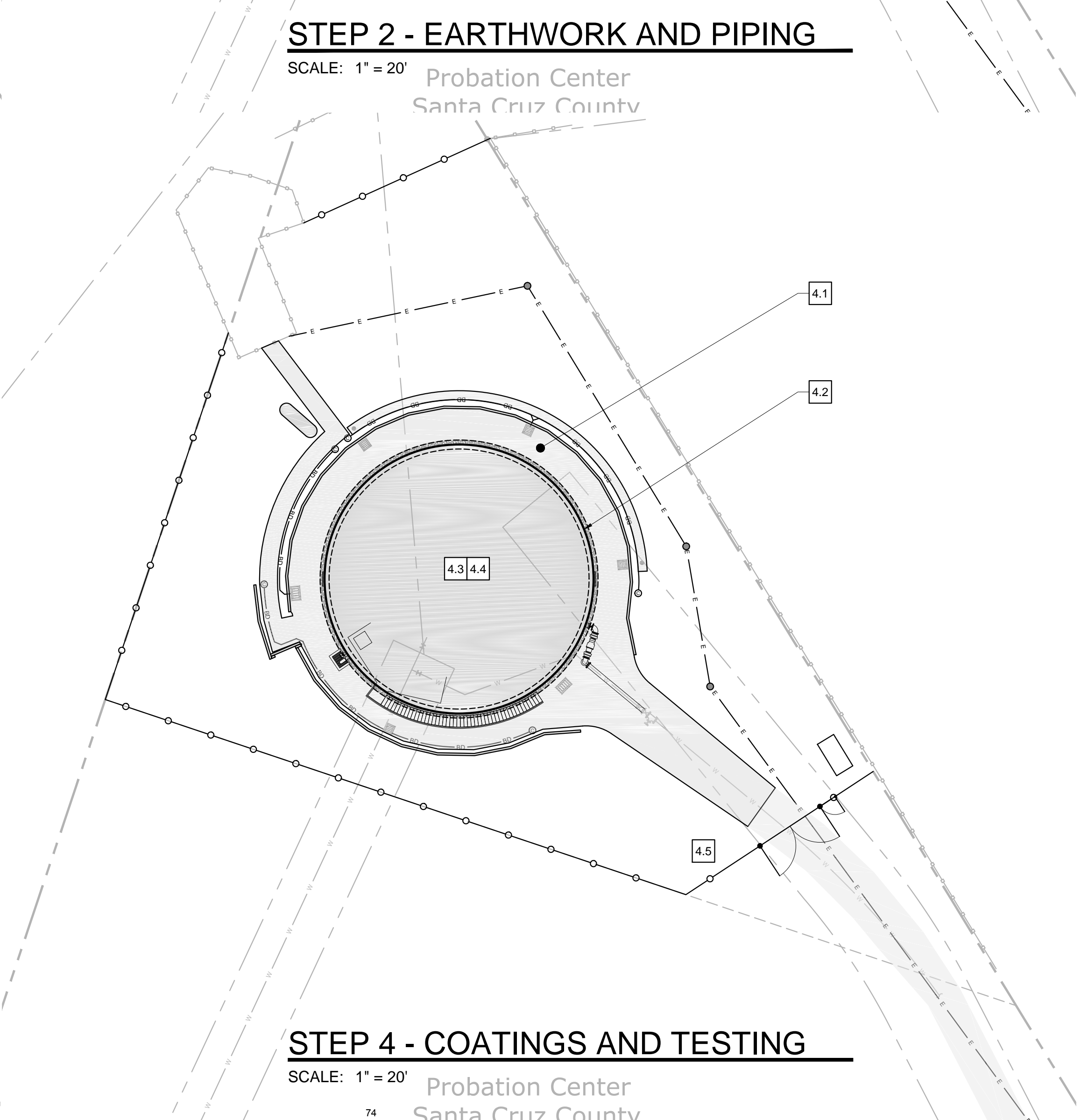
**STEP 1 - TEMP TANKS & DEMOLITION**  
 SCALE: 1" = 20'  
 Probation Center  
 Santa Cruz County



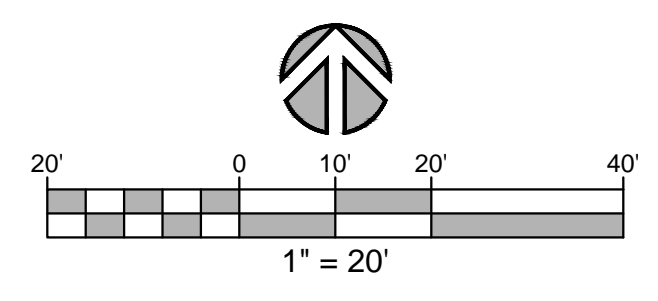
**STEP 2 - EARTHWORK AND PIPING**  
 SCALE: 1" = 20'  
 Probation Center  
 Santa Cruz County



**STEP 3 - TANK CONSTRUCTION**  
 SCALE: 1" = 20'  
 Probation Center  
 Santa Cruz County



**STEP 4 - COATINGS AND TESTING**  
 SCALE: 1" = 20'  
 Probation Center  
 Santa Cruz County



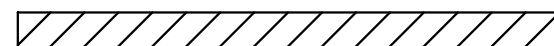



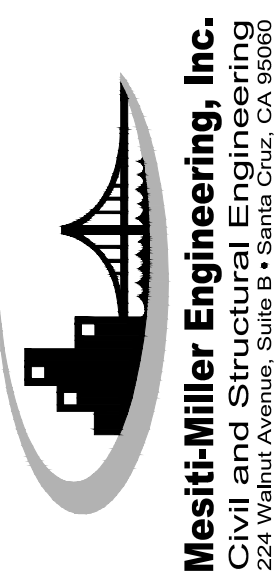
REV.	DESCRIPTION	DATE
1	10% DESIGN PHASE SUBMITTAL	10/6/2015
2		
3		
4		
5		
6		
7		
8		
9		
10		

### SHEET NOTES

- 1 REMOVE AND DISPOSE OF EXISTING TANK. SALVAGE TIMBER AND DELIVER TO DISTRICT MAINTENANCE YARD
- 2 REMOVE AND DISPOSE EXISTING ASPHALT AND WOOD RAMP
- 3 RELOCATE EXISTING ELECTRICAL AND CONTROL SYSTEMS PER ELECTRICAL PLANS. ALL EXISTING AND TEMPORARY ELECTRICAL AND CONTROL SYSTEMS TO REMAIN OPERATIONAL THROUGHOUT CONSTRUCTION UNTIL THE NEW SYSTEMS ARE OPERATIONAL
- 4 REMOVE AND DISPOSE OF EXISTING WOOD RETAINING WALL
- 5 REMOVE AND DISPOSE OF TREES, 6 TOTAL
- 6 REMOVE AND REPLACE EXISTING OVERHEAD ELECTRIC LINES AND POLES AND COMMUNICATIONS SYSTEMS PER ELECTRICAL PLANS
- 7 RELOCATE EXISTING SHED. RELOCATE ANTENNA TO NEW TANK ROOF
- 8 RELOCATE PROPANE TANK
- 9 REMOVE AND REPLACE EXISTING WATER LINES AND APPURTENANCES. SALVAGE VALVES AND DELIVER TO DISTRICT. EXISTING OR TEMPORARY WATER SYSTEMS TO REMAIN OPERATIONAL THROUGHOUT CONSTRUCTION UNTIL THE NEW SYSTEMS ARE OPERATIONAL.
- 10 REMOVE AND DISPOSE OF EXISTING DRAINAGE PIPES, CONCRETE, AND STRUCTURES

### LEGEND

-  DEMOLISH EXISTING UTILITY
-  RELOCATE EXISTING UTILITY
-  DEMOLISH EXISTING IMPROVEMENT
-  RELOCATE EXISTING IMPROVEMENT

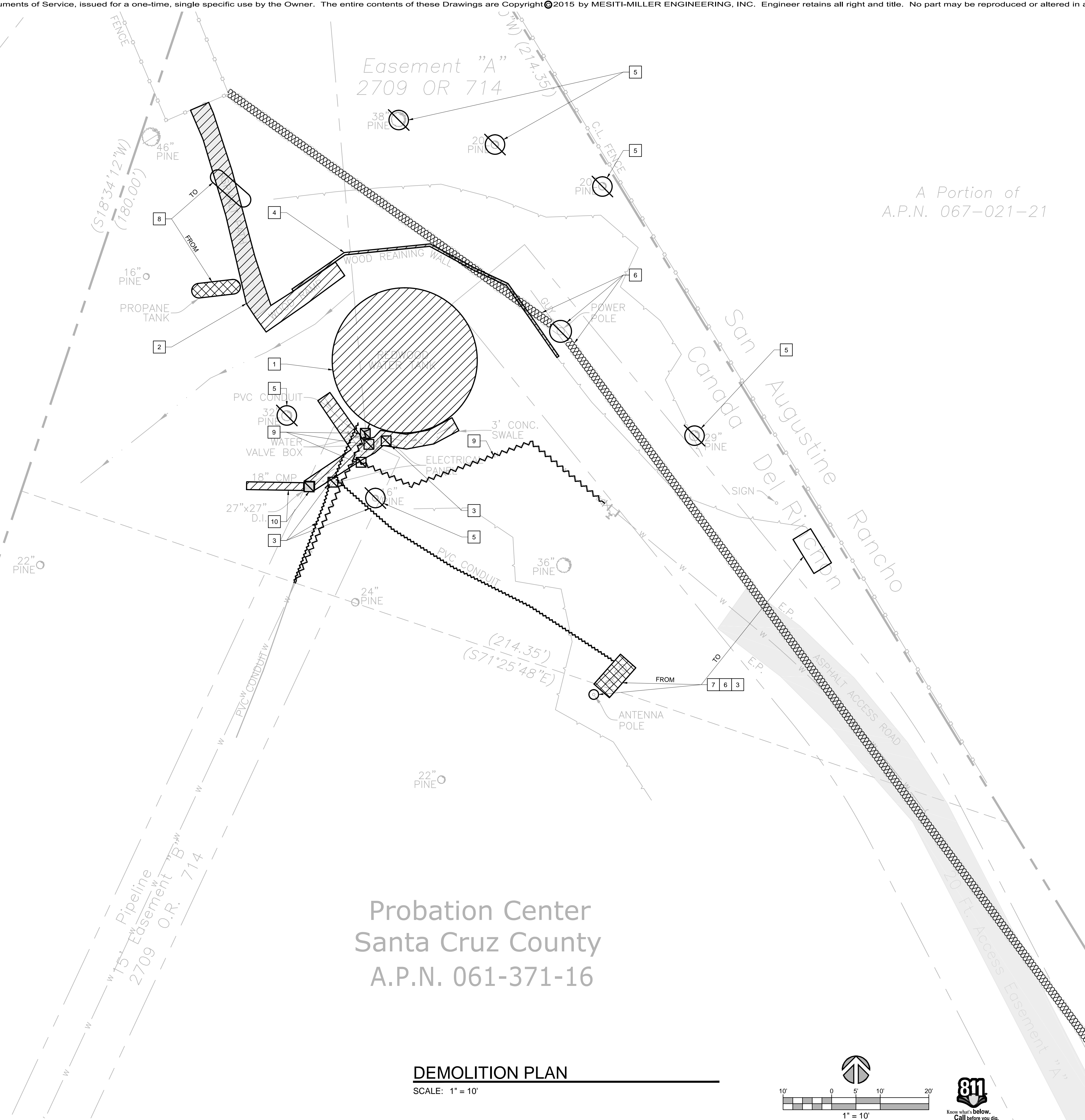


PRELIMINARY  
NOT FOR  
CONSTRUCTION

SAN LORENZO VALLEY WATER DISTRICT  
 PROBATION TANK REPLACEMENT

DEMOLITION PLAN  
 DRAWN BY: DM  
 CHECKED BY: RC  
 JOB NUMBER: 14176  
 SHEET

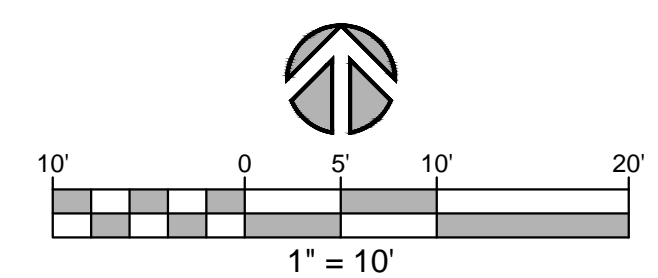
C3.0



Probation Center  
 Santa Cruz County  
 A.P.N. 061-371-16

### DEMOLITION PLAN

SCALE: 1" = 10'

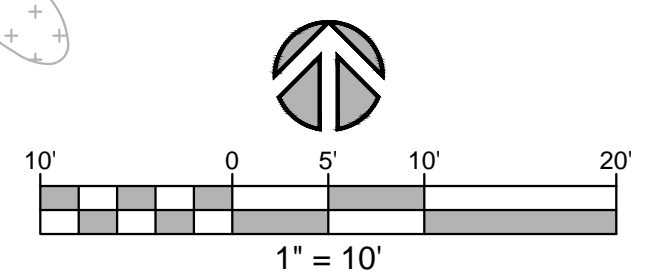
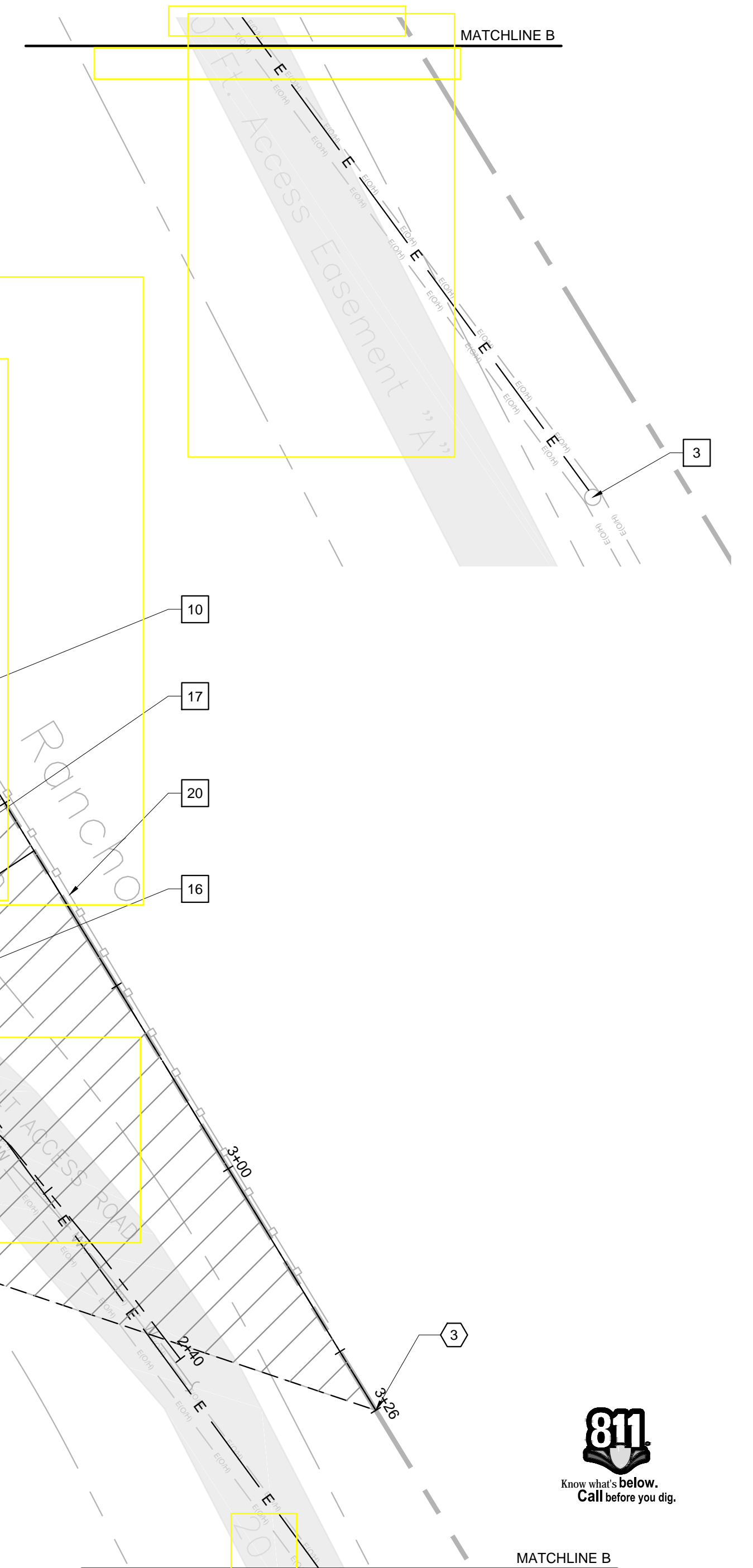
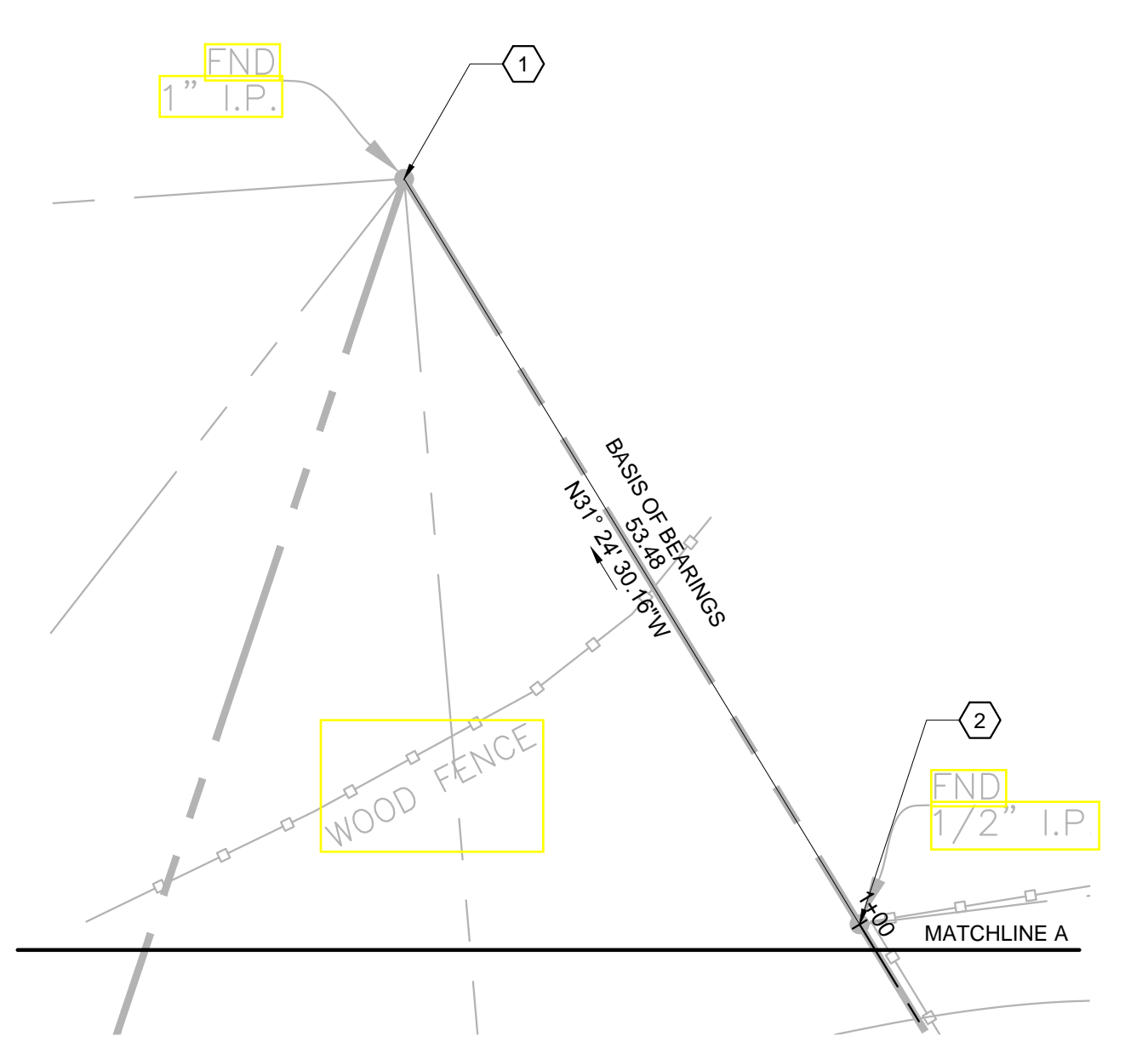
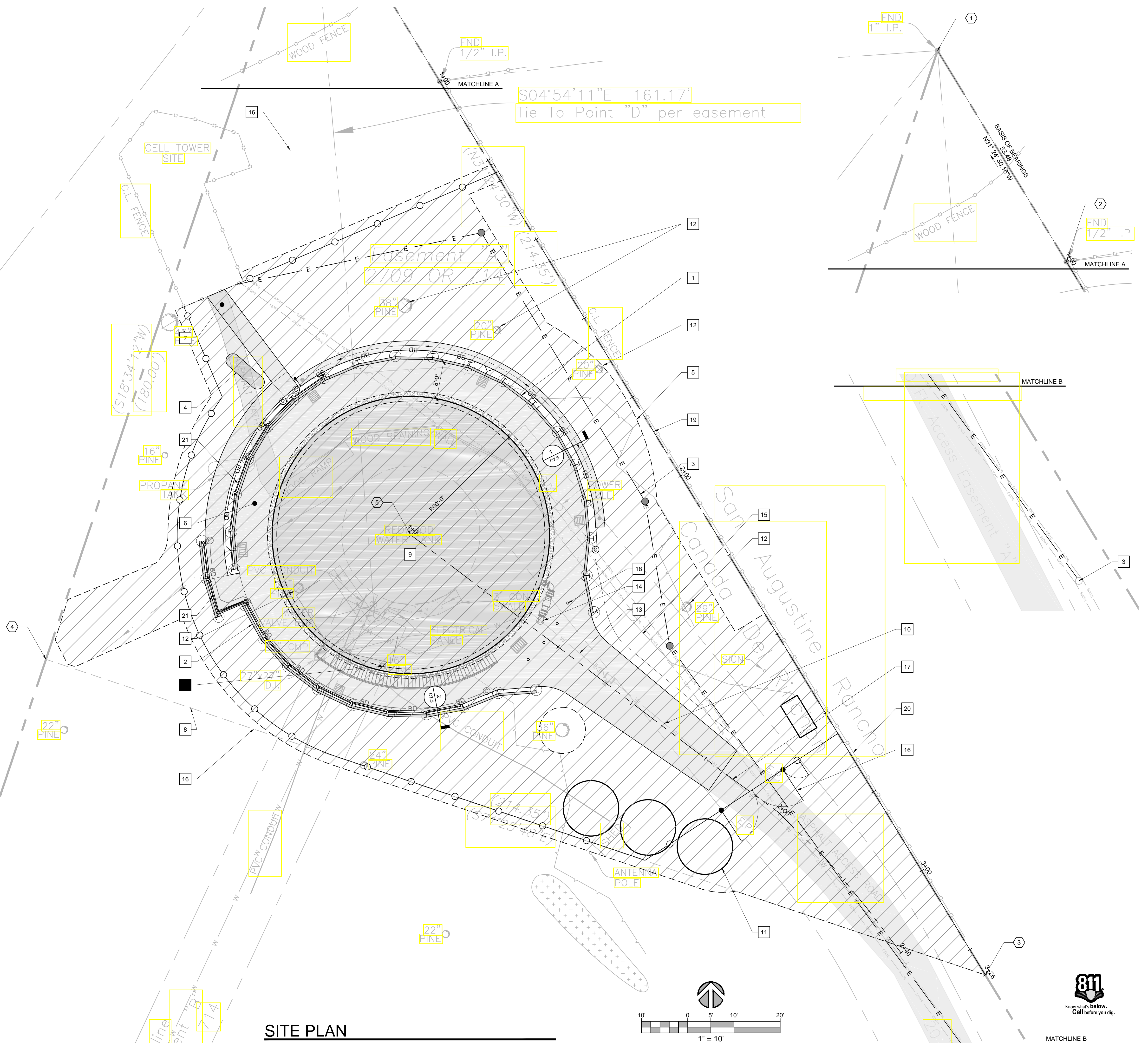


### SHEET NOTES

- 1 144LF SOLDIER BEAM RETAINING WALL A, SEE SHT C4.1 & C7.4
- 2 95LF SOLDIER BEAM RETAINING WALL B, SEE SHT C4.1 & C7.4
- 3 OVERHEAD ELECTRIC AND COMMUNICATIONS, APPROXIMATE, SEE ELECTRICAL PLANS
- 4 PROPANE TANK
- 5 LIMIT OF TEMPORARY CONSTRUCTION DISTURBANCE, SEE EROSION CONTROL PLAN C9.0, AREA = 14,800 SF
- 6 8' WIDE ASPHALT PAVEMENT
- 7 4'-WIDE ASPHALT PAVEMENT TO CELL TOWER SITE, COORDINATE ACCESS WITH TOWER USERS
- 8 EASEMENT BOUNDARY PER TOPOGRAPHIC SURVEY
- 9 PROPOSED WATER TANK, 527,000 GALLON, 60'Øx32'H
- 10 EXISTING 12" HDPE WATER PIPING PER TANK PIPING PLAN
- 11 THREE 10,000± GAL TEMPORARY TANKS, APPROXIMATE LOCATIONS, SEE TANK PIPING PLAN
- 12 REMOVE TREE, 6 TOTAL
- 13 EXISTING 6" DI PER TANK PIPING PLAN
- 14 TANK APPURTENANCES, PIPING, STAIRCASE, ETC, SEE TANK PIPING PLAN
- 15 SHED AND ANTENNA POLE
- 16 315 LF, 6' HIGH CHAIN LINK FENCE WITH EXTENSION ARM AND BARBED WIRES, 16' DOUBLE SWING VEHICLE GATE, 4' PEDESTRIAN GATE
- 17 CENTERLINE ROAD ALIGNMENT
- 18 VEHICULAR BOLLARDS, 4"Ø SCH 40 STEEL PIPE FILLED WITH CONCRETE, 4' TALL, 2' EMBEDDED IN 12"Ø CONCRETE FOOTING, PAINTED YELLOW
- 19 LAYOUT STATION LINE, FROM POINT 2 TO POINT 3
- 20 EXISTING PROPERTY FENCE TO REMAIN
- 21 3.5' HIGH GUARDRAIL

EXISTING IMPERVIOUS AREA = 1,700 SF ±  
 PROPOSED IMPERVIOUS AREA = 6,200 SF ±  
 TEMPORARY DISTURBANCE AREA = 8,600 SF ±  
 TEMPORARY DISTURBANCE AREA AT STAGING AREA = 4,000 SF ±

Point #	Raw Description	Northing	Easting
1	FD IP	1,000.00	1,000.00
3	FD IP	1,045.65	972.13
4	CNR	806.76	1,117.99
5	CNR	875.02	914.80
6	CENTER	901.90	993.73



### SITE PLAN

SCALE: 1" = 10'

REV.	DESCRIPTION	DATE
1	FOR REVIEW ONLY	01/13/2016

**Mesiti-Miller Engineering, Inc.**  
 224 W. Main St., Suite 100, San Diego, CA 92101  
 Phone 619-456-5186  
 www.m-me.com

PRELIMINARY  
 NOT FOR  
 CONSTRUCTION

**SAN LORENZO VALLEY WATER DISTRICT  
 PROBATION TANK REPLACEMENT**

PREPARED AT THE REQUEST OF  
 SAN LORENZO VALLEY WATER DISTRICT  
 13960 HIGHWAY 9  
 BOULDER CREEK, CA 95006

SITE PLAN

DRAWN BY: BR, DM  
 CHECKED BY: RC  
 JOB NUMBER: 14176  
 SHEET

**C4.0**



REV.	DESCRIPTION	DATE
1	95% DESIGN PHASE SUBMITTAL	10/6/2015

**Mesiti-Miller Engineering, Inc.**  
 224 W. Main Street, Suite 100  
 Boulder, CO 80502  
 Phone 303-442-3186  
 www.m-me.com

PRELIMINARY  
NOT FOR  
CONSTRUCTION

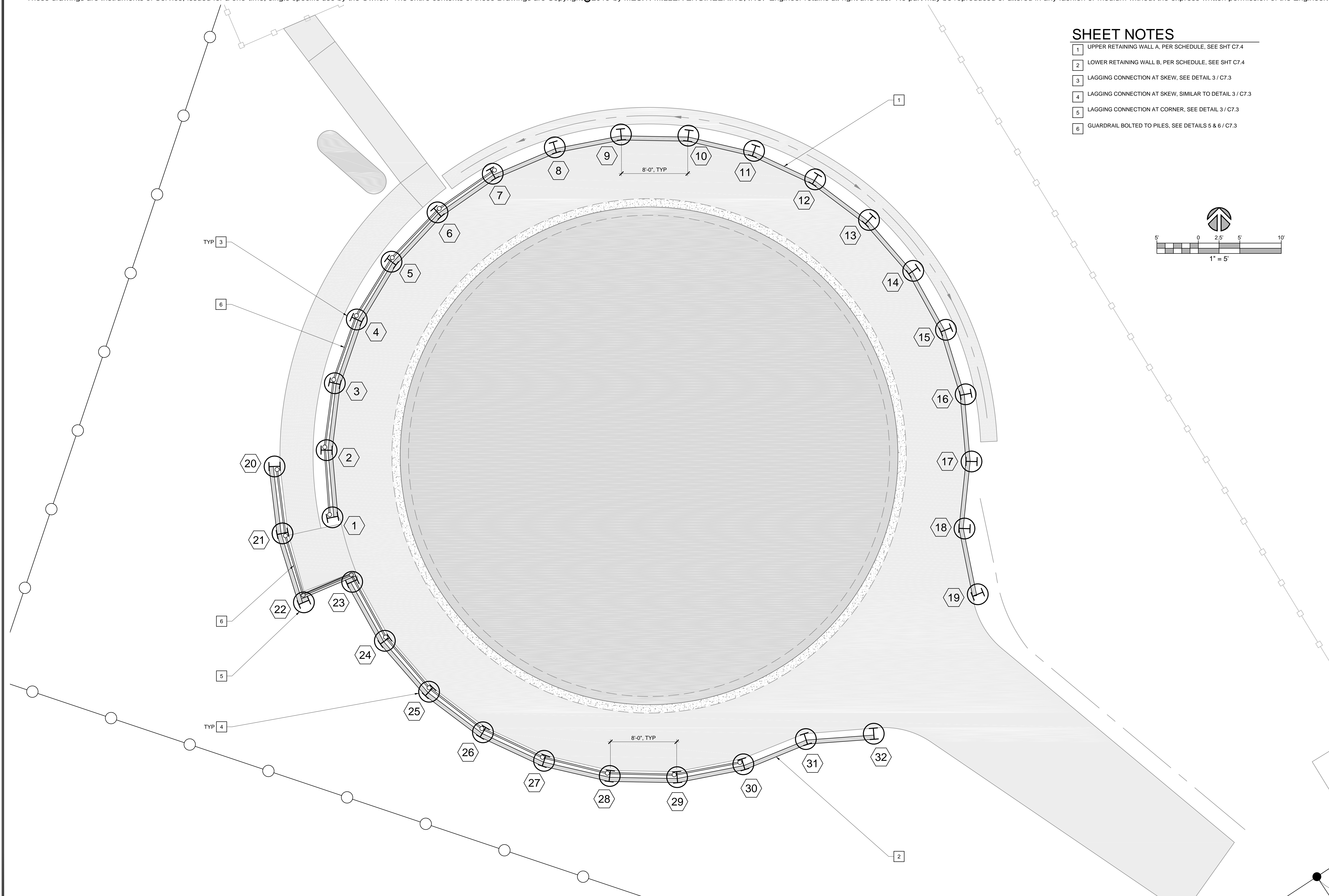
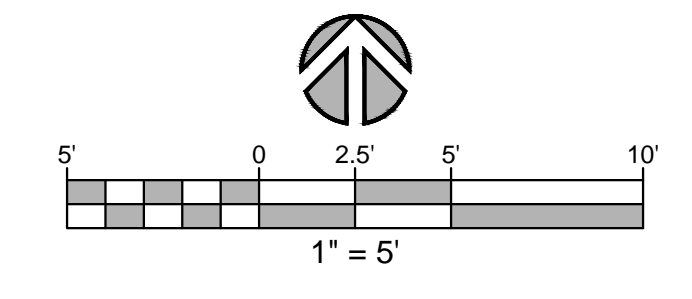
**SAN LORENZO VALLEY WATER DISTRICT  
 PROBATION TANK REPLACEMENT**  
 PREPARED AT THE REQUEST OF  
 SAN LORENZO VALLEY WATER DISTRICT  
 13960 HIGHWAY 9  
 BOULDER CREEK, CA 95006

RETAINING WALL PLAN	DRAWN BY: DM
	CHECKED BY: RC
	JOB NUMBER: 14176
	SHEET

**C4.1**

**SHEET NOTES**

- 1 UPPER RETAINING WALL A, PER SCHEDULE, SEE SHT C7.4
- 2 LOWER RETAINING WALL B, PER SCHEDULE, SEE SHT C7.4
- 3 LAGGING CONNECTION AT SKEW, SEE DETAIL 3 / C7.3
- 4 LAGGING CONNECTION AT SKEW, SIMILAR TO DETAIL 3 / C7.3
- 5 LAGGING CONNECTION AT CORNER, SEE DETAIL 3 / C7.3
- 6 GUARDRAIL BOLTED TO PILES, SEE DETAILS 5 & 6 / C7.3



**RETAINING WALL PLAN**  
 SCALE: 1" = 5'

REV.	DESCRIPTION	DATE
1	15% DESIGN PHASE SUBMITTAL	10/6/2015



PRELIMINARY  
NOT FOR  
CONSTRUCTION

SAN LORENZO VALLEY WATER DISTRICT  
 PROBATION TANK REPLACEMENT

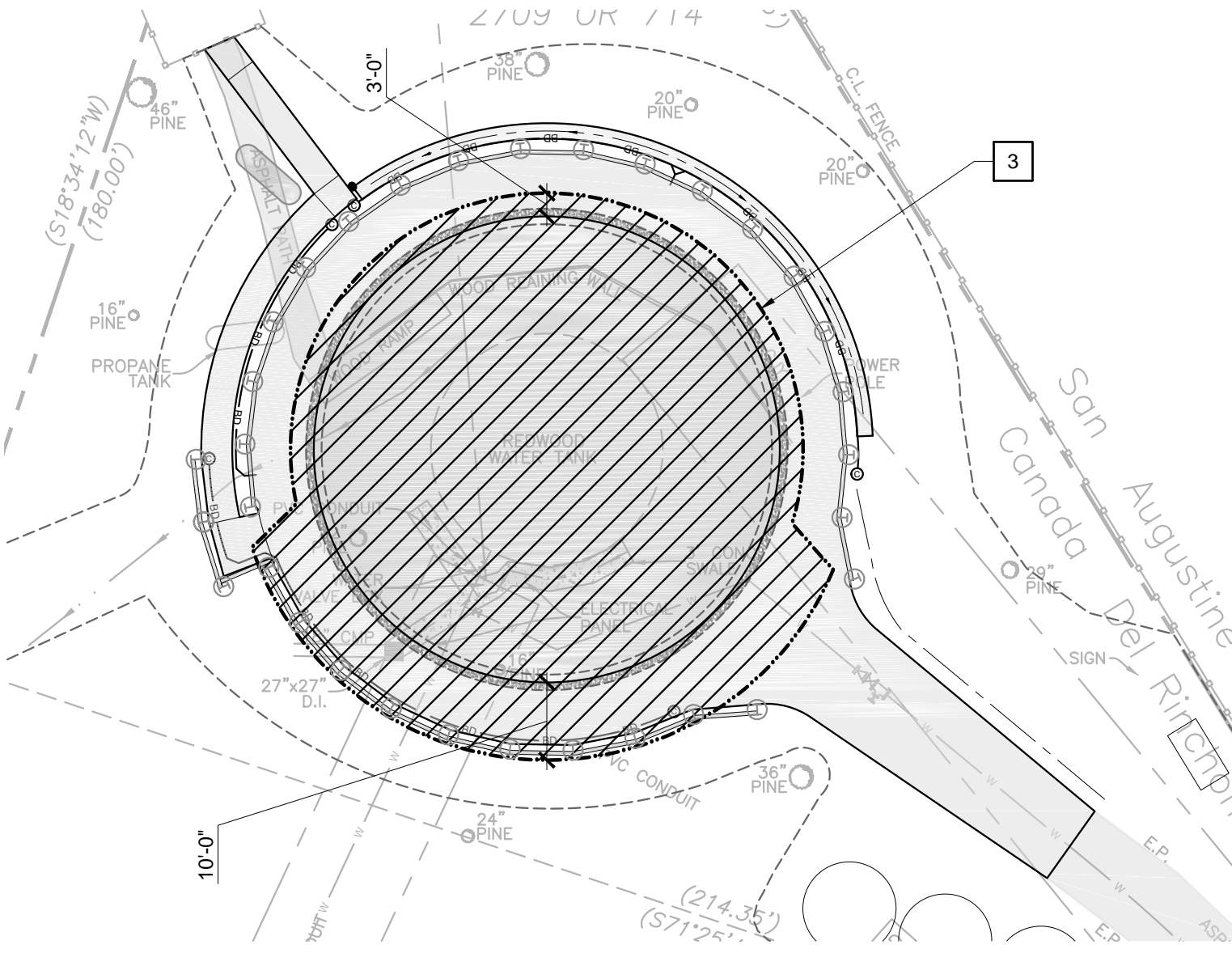
GRADING PLAN

DRAWN BY: BR, DM  
 CHECKED BY: RC  
 JOB NUMBER: 14176

SHEET  
**C5.0**

**SHEET NOTES**

- 1 SITE BENCHMARK ELEVATION IS A POINT ON THE NORTHERN TOP OF THE EXISTING WATER TANK FOUNDATION, PER TOPOGRAPHIC SURVEY BY PAUL JENSEN, MARCH 2014, ELEVATION = 871.24'
- 2 OBSERVED BENCHMARK ELEVATION = 897.42' PER TOPOGRAPHIC SURVEY BY PAUL JENSEN, MARCH 2014, PROVIDED FOR INFORMATION ONLY. CONTRACTOR TO CONFIRM ELEVATION BASED ON SITE BENCHMARK
- 3 LIMITS OF OVEREXCAVATION PER GEOTECHNICAL ENGINEER, PER SHT C7.0 & C7.1
- 4 LIMITS OF GRADING
- 5 MATCH EXISTING GRADES



**LIMITS OF OVEREXCAVATION**

SCALE: 1" = 20'



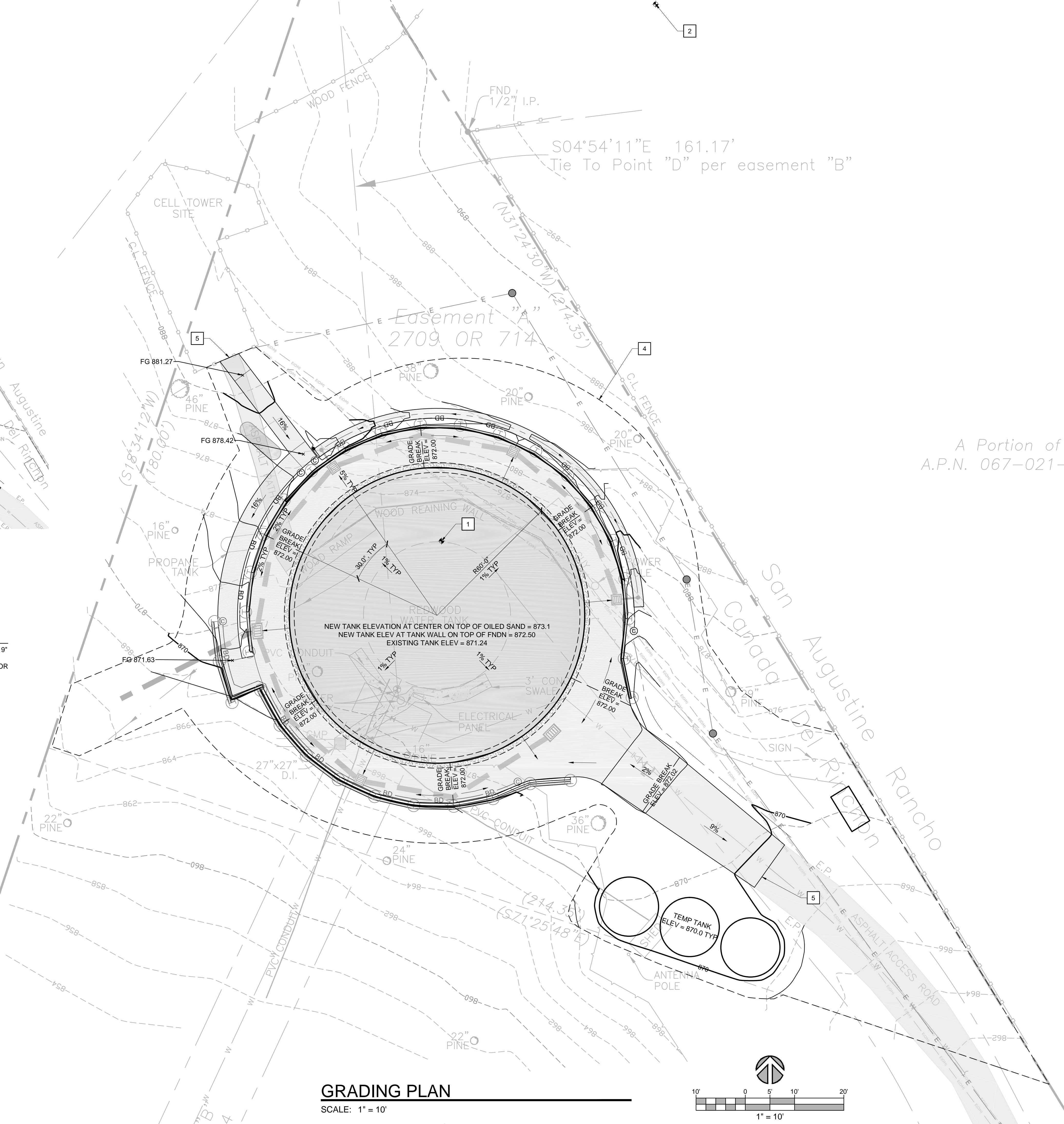
**PRELIMINARY GRADING QUANTITIES**

BASED ON THE DIFFERENCE BETWEEN EXISTING AND PROPOSED SUBGRADE. SUBGRADE IS 9" BELOW FINISHED GRADE TO ALLOW FOR AGGREGATE BASE / ASPHALT / CONCRETE. NO ALLOWANCE WAS MADE FOR OVEREXCAVATION, PIER SPOILS, FOUNDATIONS, TRENCHING, OR COMPACTION.

GENERAL EXCAVATION  
 CUT = 250 CY  
 FILL = 70 CY x 1.20 (20% SHRINKAGE) = 84 CY  
 NET = 250 CY - 84 CY = 166 CY

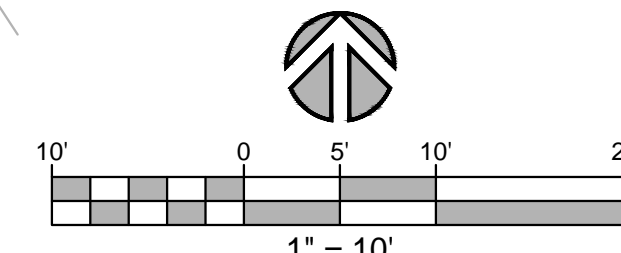
TANK OVEREXCAVATION  
 CUT = 1000 CY  
 FILL = 1000 CY x 1.20 (20% SHRINKAGE) = 1200 CY  
 NET = 1000 CY - 1200 CY = -200 CY

NET IMPORT = 34 CY



**GRADING PLAN**

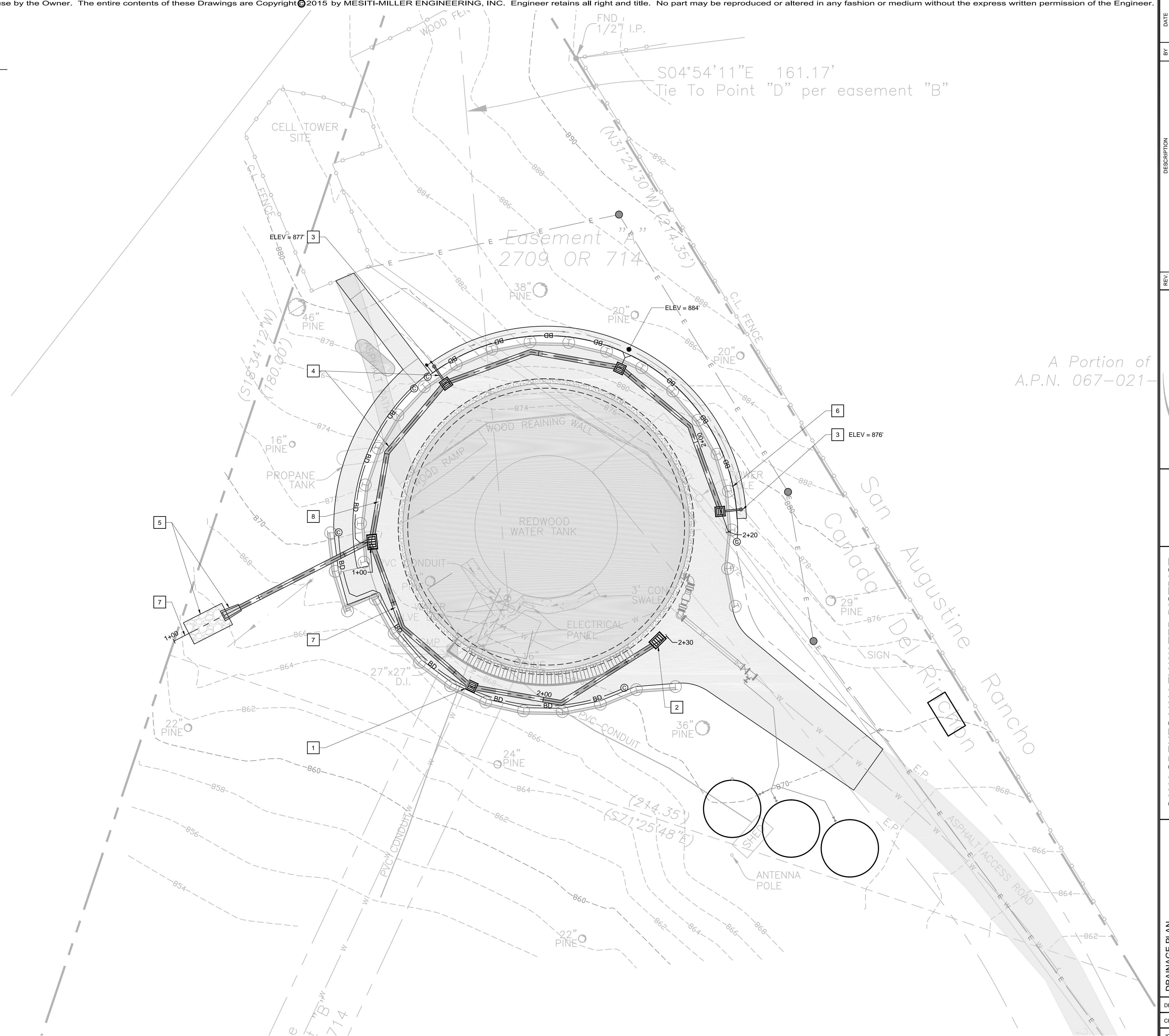
SCALE: 1" = 10'



REV	DESCRIPTION	DATE
1	95% DESIGN PHASE SUBMITTAL	10/6/2015

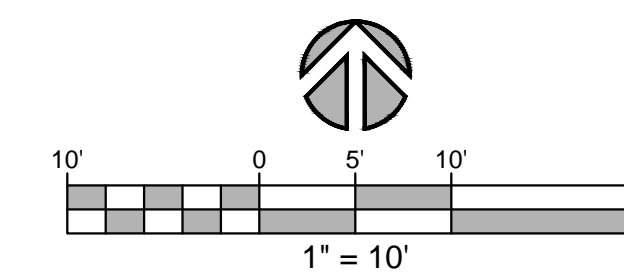
### SHEET NOTES

- 1 DRAIN INLET, TYP
- 2 TANK DRAIN
- 3 WALL DRAIN WITH PIPE DOME
- 4 STORM DRAIN, TYP
- 5 STORM DRAIN OUTLET PROTECTION, SEE DETAILS 1, 2, & 3 / C8.1
- 6 WALL BACK DRAIN
- 7 ALIGNMENT CENTERLINE, DRAINAGE PROFILE 1
- 8 ALIGNMENT CENTERLINE, DRAINAGE PROFILE 2



### DRAINAGE PLAN

SCALE: 1" = 10'



A Portion of  
A.P.N. 067-021



PRELIMINARY  
NOT FOR  
CONSTRUCTION

SAN LORENZO VALLEY WATER DISTRICT  
PROBATION TANK REPLACEMENT

DRAINAGE PLAN

DRAWN BY: BR, DM

CHECKED BY: RC

JOB NUMBER: 14176

SHEET

C6.0



REV.	DESCRIPTION	BY	DATE
1	95% DESIGN PHASE SUBMITTAL	RTC	10/6/2015
2			
3			
4			

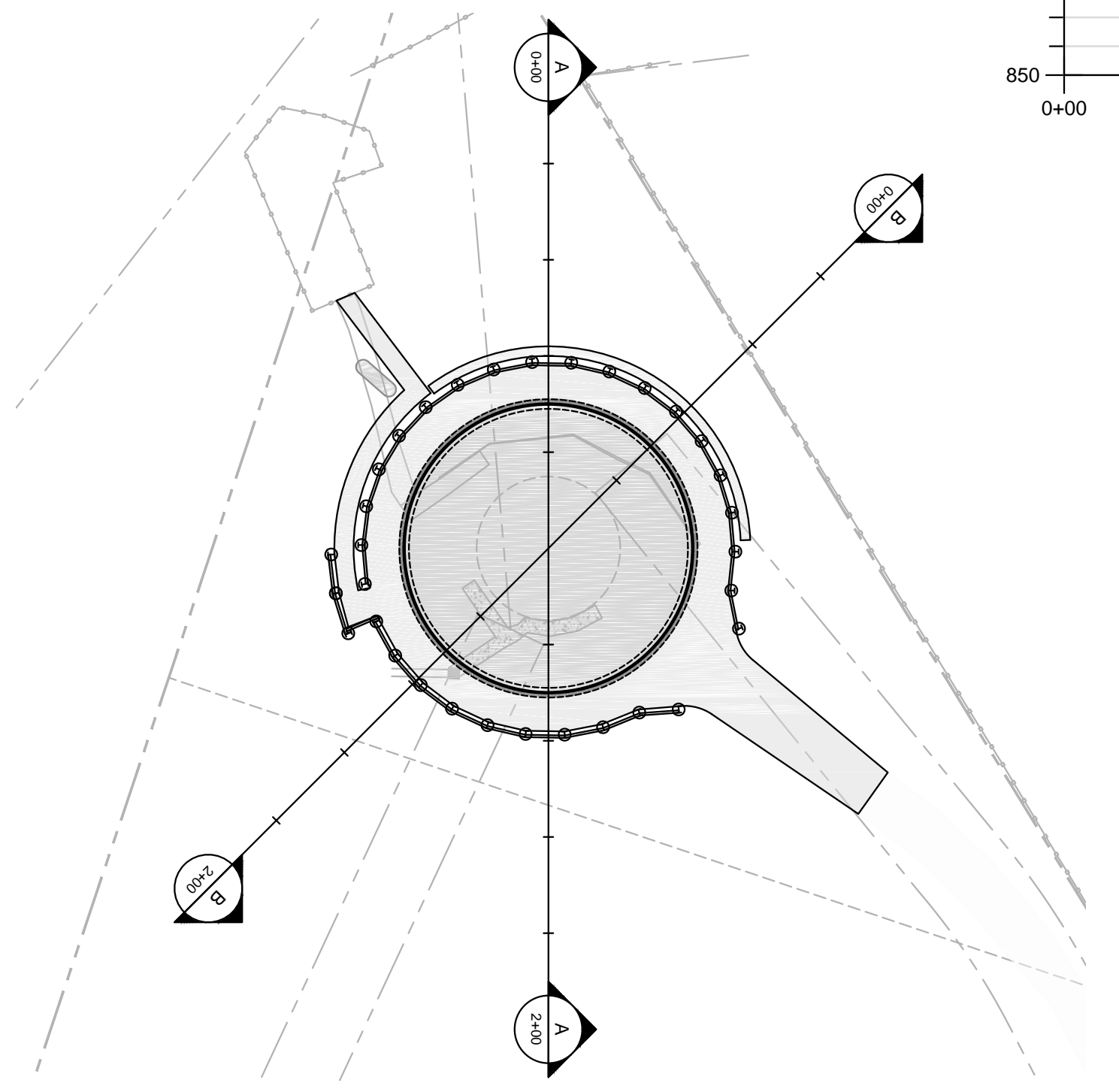
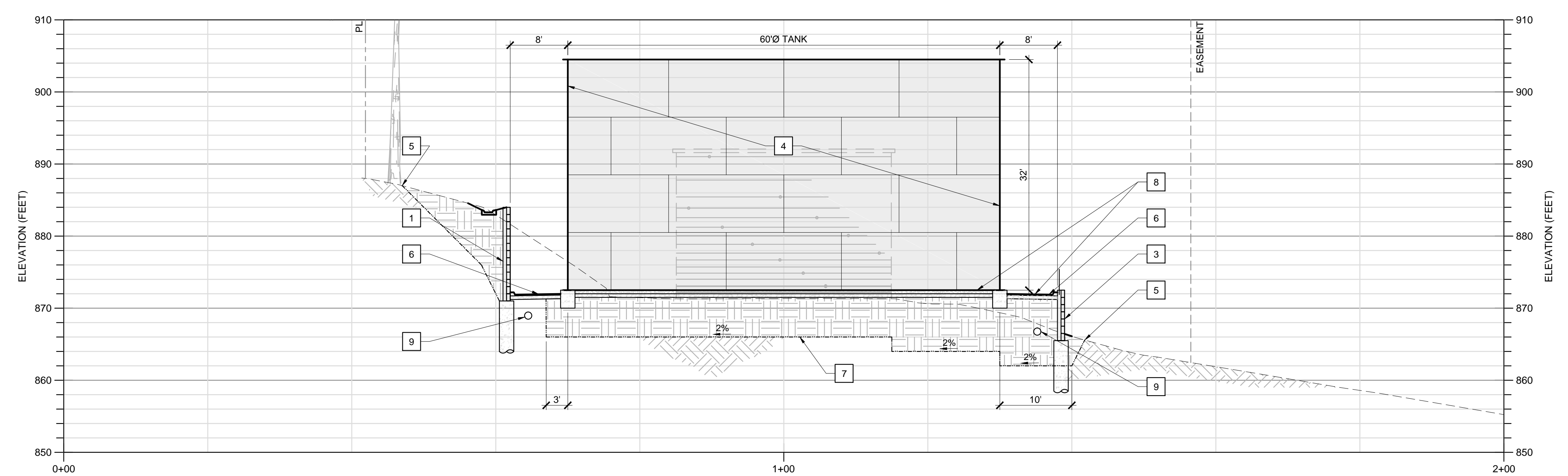
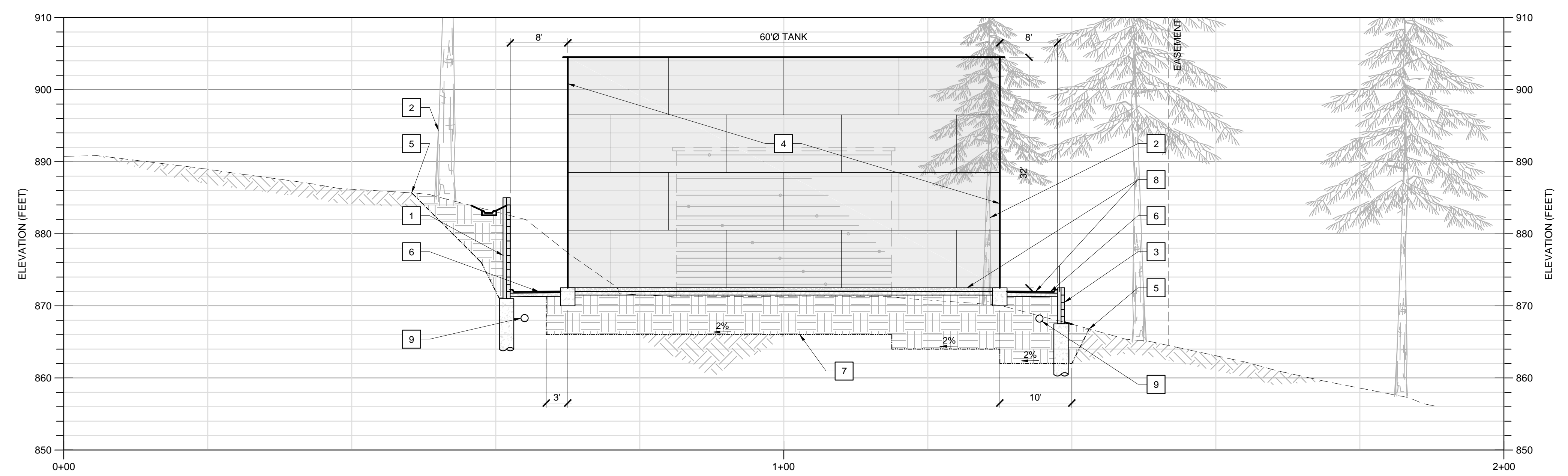


PRELIMINARY  
NOT FOR  
CONSTRUCTION

**SAN LORENZO VALLEY WATER DISTRICT  
PROBATION TANK REPLACEMENT**

PREPARED AT THE REQUEST OF  
 SAN LORENZO VALLEY WATER DISTRICT  
 13960 HIGHWAY 9  
 BOULDER CREEK, CA 95006

SITE SECTIONS	
DRAWN BY:	BR, DM
CHECKED BY:	RC
JOB NUMBER:	14176
SHEET	



**SECTION KEY**  
SCALE: 1" = 30'

**SHEET NOTES**

- 1 SOLDIER BEAM RETAINING WALL
- 2 REMOVE TREE
- 3 SOLDIER BEAM RETAINING WALL WITH GUARDRAIL
- 4 PROPOSED WATER TANK
- 5 LIMIT OF TEMPORARY CONSTRUCTION DISTURBANCE, APPROXIMATE
- 6 8' WIDE ASPHALT PAVEMENT
- 7 LIMITS OF EXCAVATION PER GEOTECHNICAL ENGINEER
- 8 NEW TANK ELEVATION = 872.5
- 9 DRAIN PIPE

REV.	DESCRIPTION	BY	DATE
1	95% DESIGN PHASE SUBMITTAL	RTC	10/6/2015
2			
3			
4			

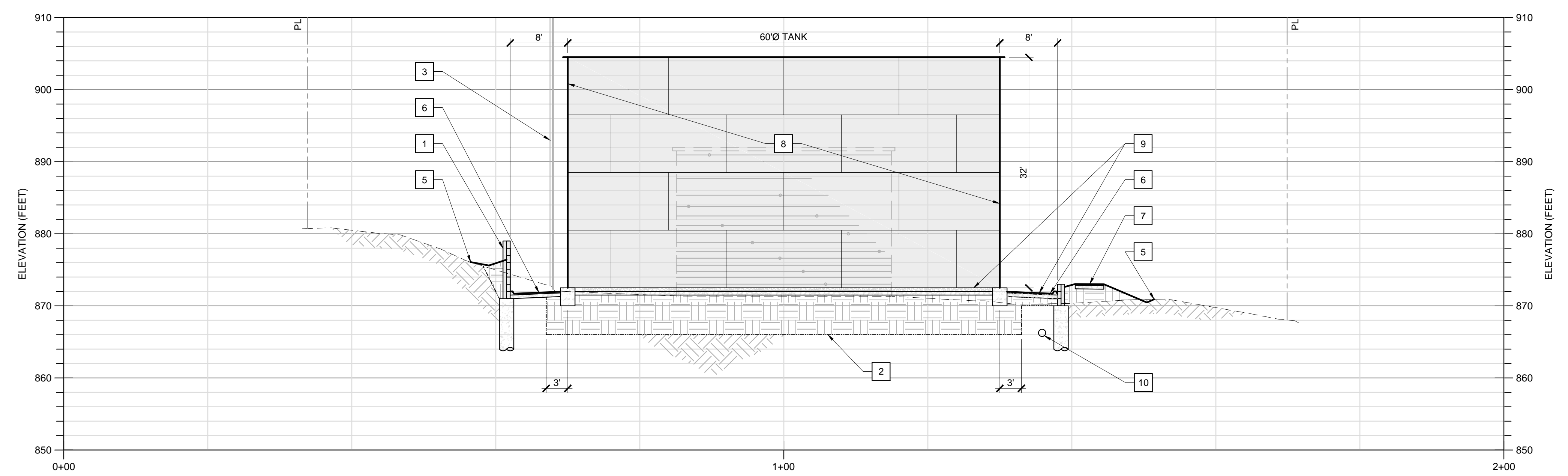


PRELIMINARY  
NOT FOR  
CONSTRUCTION

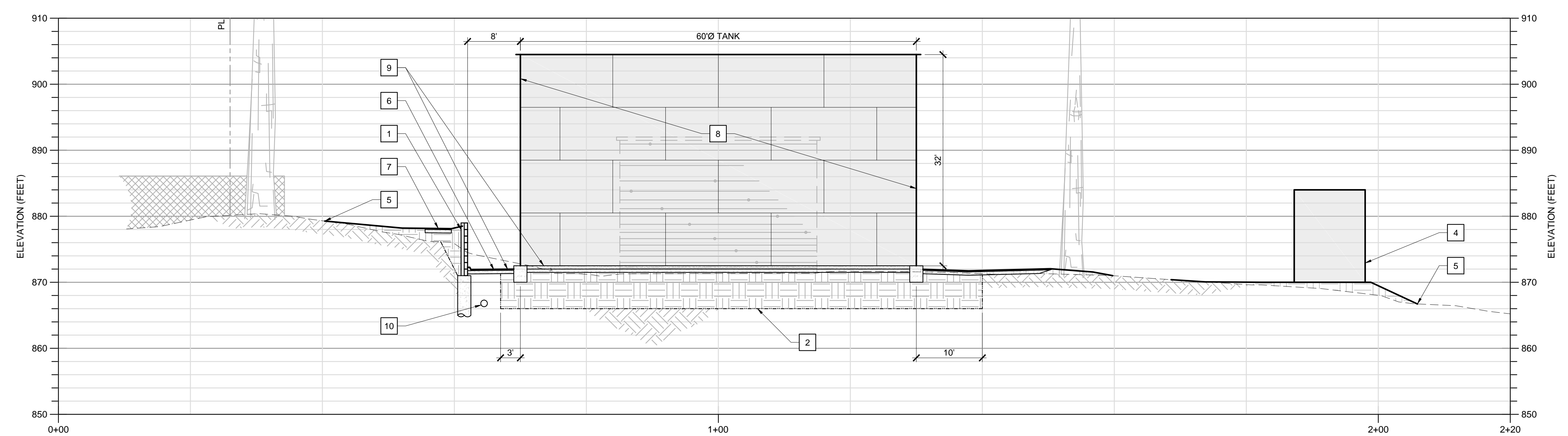
SAN LORENZO VALLEY WATER DISTRICT  
 PROBATION TANK REPLACEMENT  
 PREPARED AT THE REQUEST OF  
 SAN LORENZO VALLEY WATER DISTRICT  
 13960 HIGHWAY 9  
 BOULDER CREEK, CA 95006

SITE SECTIONS	
DRAWN BY:	BR, DM
CHECKED BY:	RC
JOB NUMBER:	14176
SHEET	

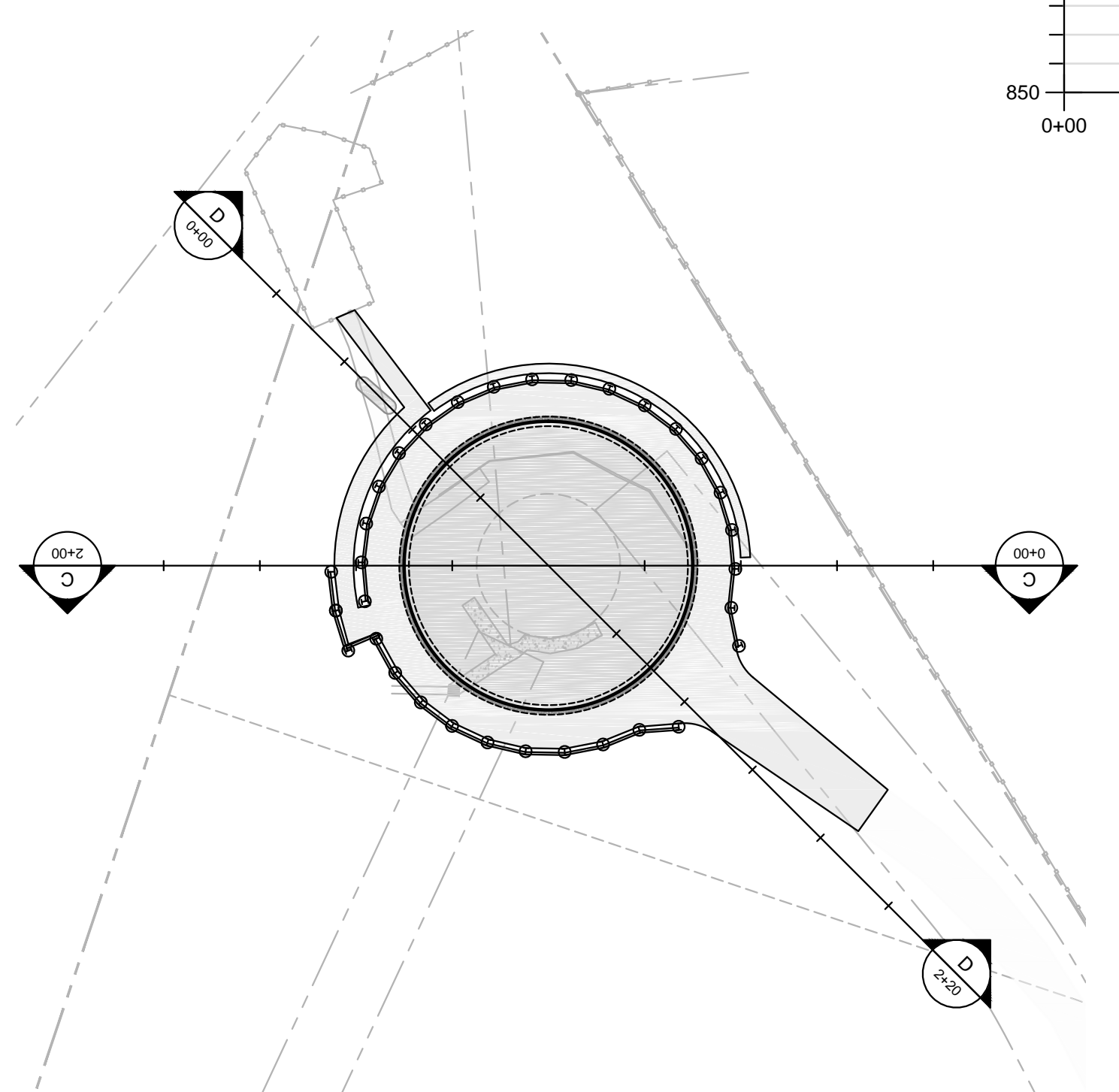
C7.1



**SECTION C-C**  
 SCALE: 1" = 10'



**SECTION D-D**  
 SCALE: 1" = 10'



**SECTION KEY**  
 SCALE: 1" = 30'

- SHEET NOTES**
- 1 SOLDIER BEAM RETAINING WALL
  - 2 LIMITS OF EXCAVATION PER GEOTECHNICAL INVESTIGATION
  - 3 RELOCATE EXISTING OVERHEAD ELECTRIC AND COMMUNICATIONS OR RELOCATE UNDERGROUND, APPROXIMATE LOCATION
  - 4 TEMPORARY TANK
  - 5 LIMIT OF TEMPORARY CONSTRUCTION DISTURBANCE, APPROXIMATE
  - 6 8' WIDE ASPHALT PAVEMENT
  - 7 4'-WIDE ASPHALT PAVEMENT TO CELL TOWER SITE
  - 8 PROPOSED WATER TANK
  - 9 NEW TANK ELEVATION = 872.5
  - 10 DRAIN PIPE

REV.	DESCRIPTION	BY	DATE
1	95% DESIGN PHASE SUBMITTAL	RTC	10/6/2015
2			
3			
4			



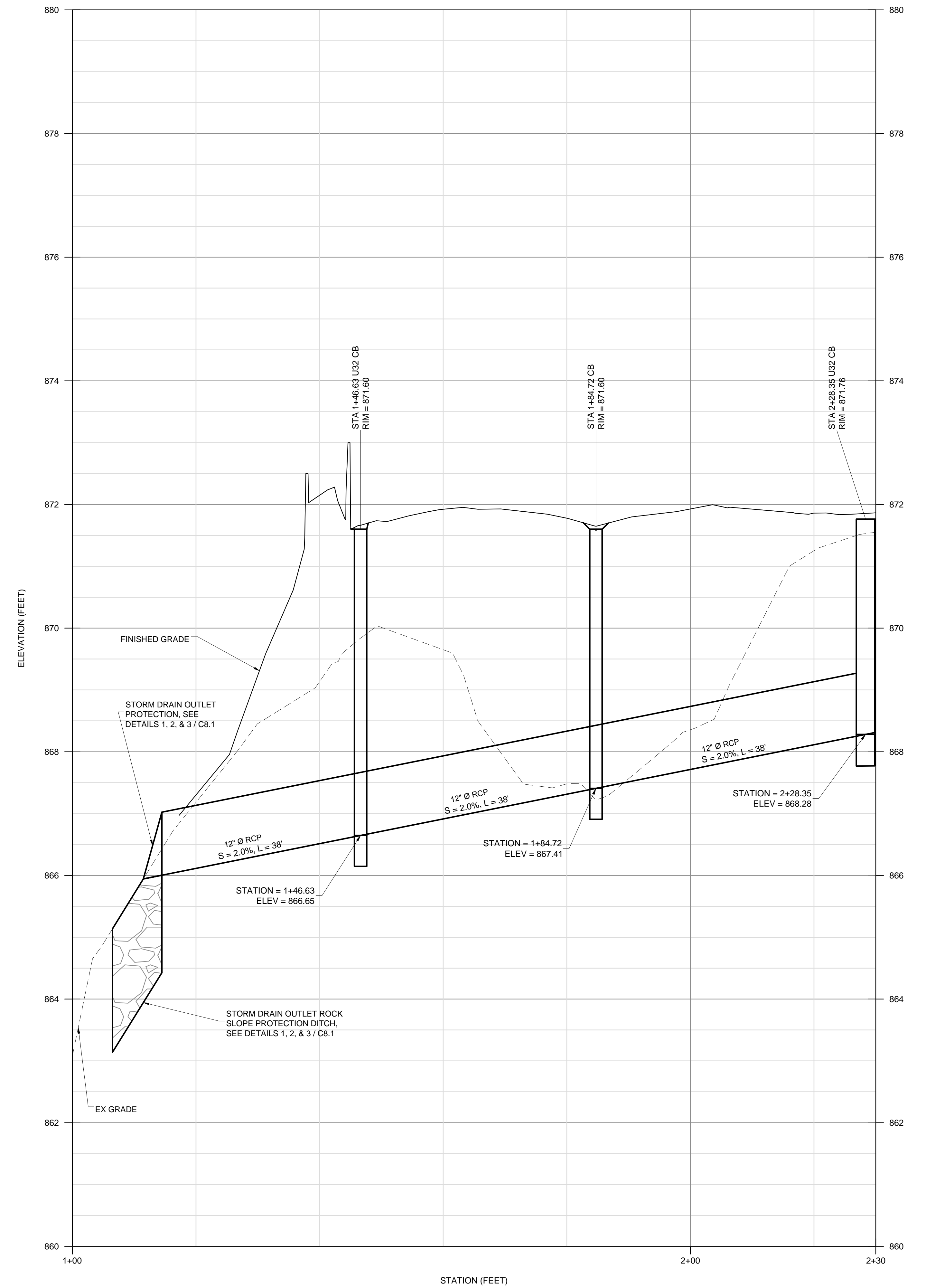
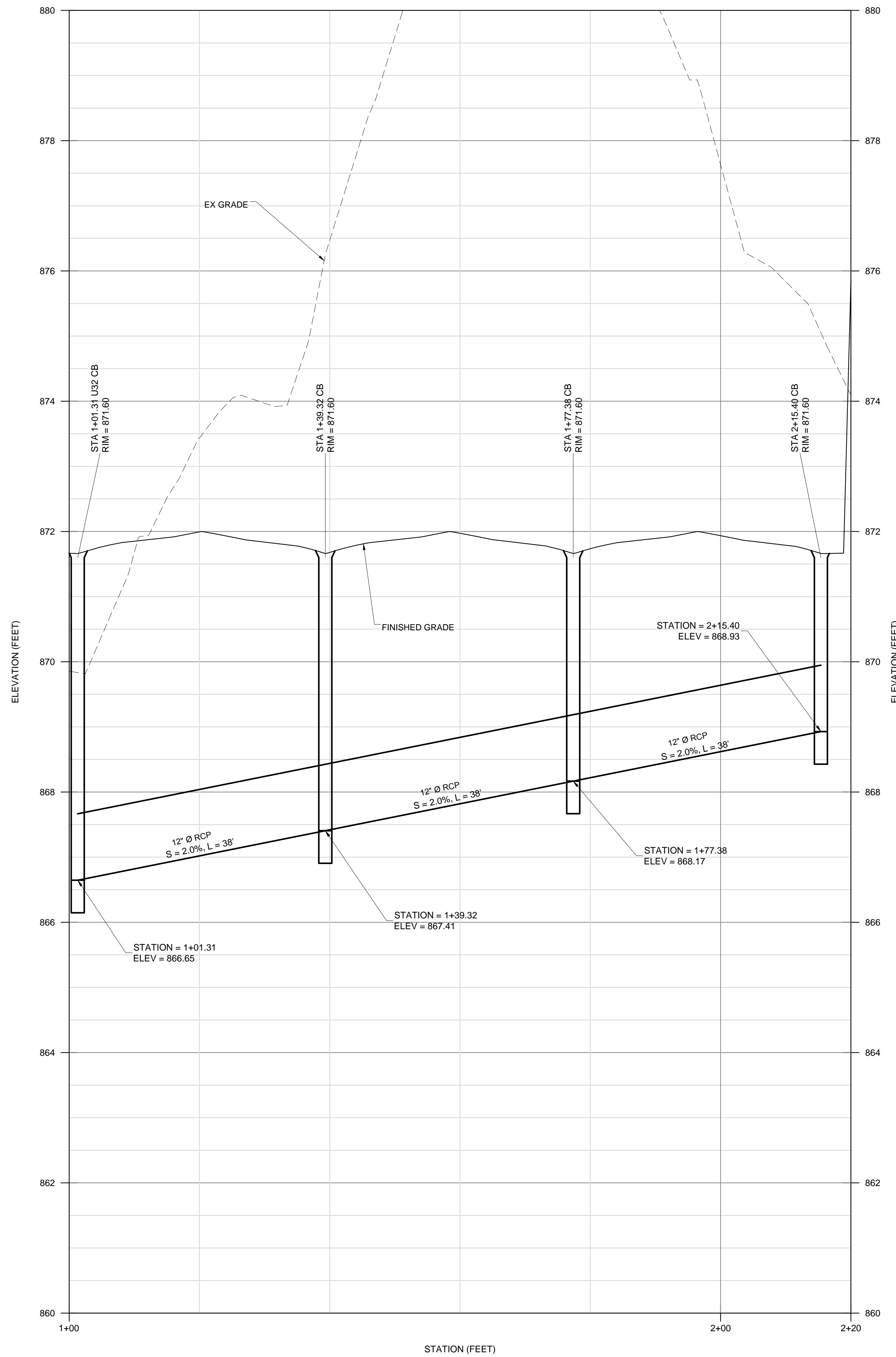
PRELIMINARY  
NOT FOR  
CONSTRUCTION

SAN LORENZO VALLEY WATER DISTRICT  
 PROBATION TANK REPLACEMENT  
 PREPARED AT THE REQUEST OF  
 SAN LORENZO VALLEY WATER DISTRICT  
 13960 HIGHWAY 9  
 BOULDER CREEK, CA 95006

DRAINAGE PROFILES

DRAWN BY: DM  
 CHECKED BY: RC  
 JOB NUMBER: 14176  
 SHEET

C7.2



DATE	10/6/2015
BY	RTC
DESCRIPTION	95% DESIGN PHASE SUBMITTAL
REV.	1
REV.	2
REV.	3
REV.	4

**Mesiti-Miller Engineering, Inc.**  
 224 W. Valley Blvd., Suite 100, Bldg. 100  
 Boulder, CO 80502  
 Phone 831-426-3186  
 www.m-me.com

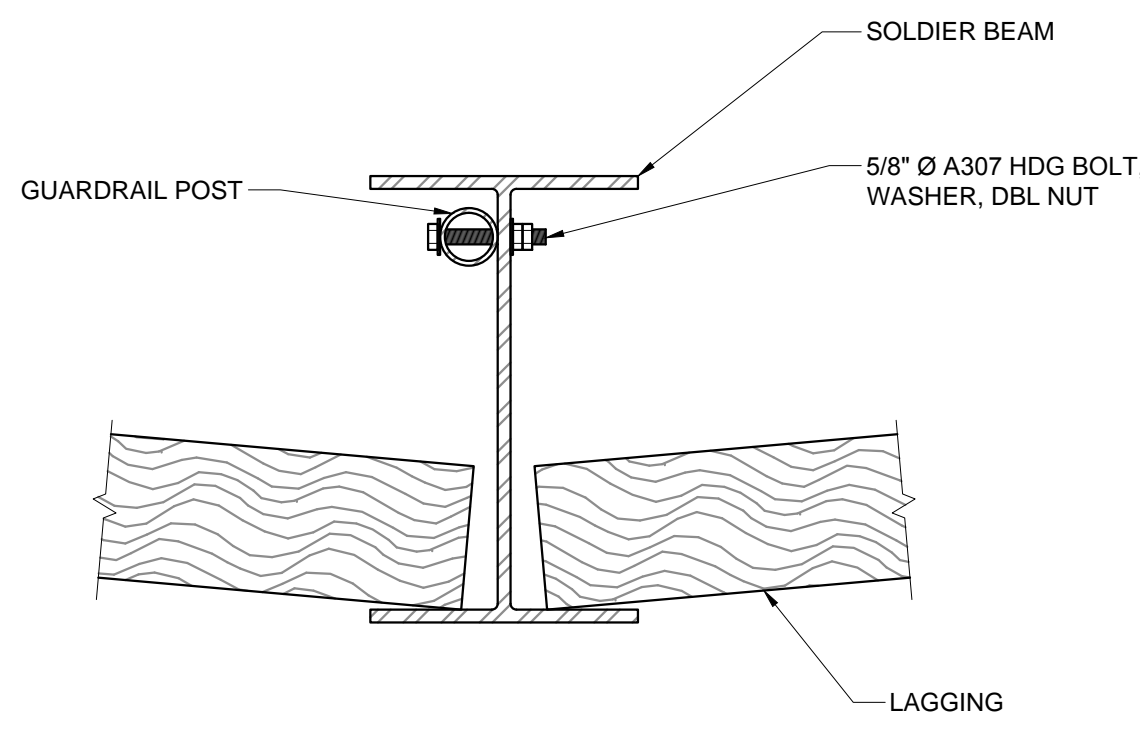
PRELIMINARY  
NOT FOR  
CONSTRUCTION

**SAN LORENZO VALLEY WATER DISTRICT  
 PROBATION TANK REPLACEMENT**

RETAINING WALL SECTIONS  
AND DETAILS

DRAWN BY: BR, DM  
 CHECKED BY: RC  
 JOB NUMBER: 14176  
 SHEET

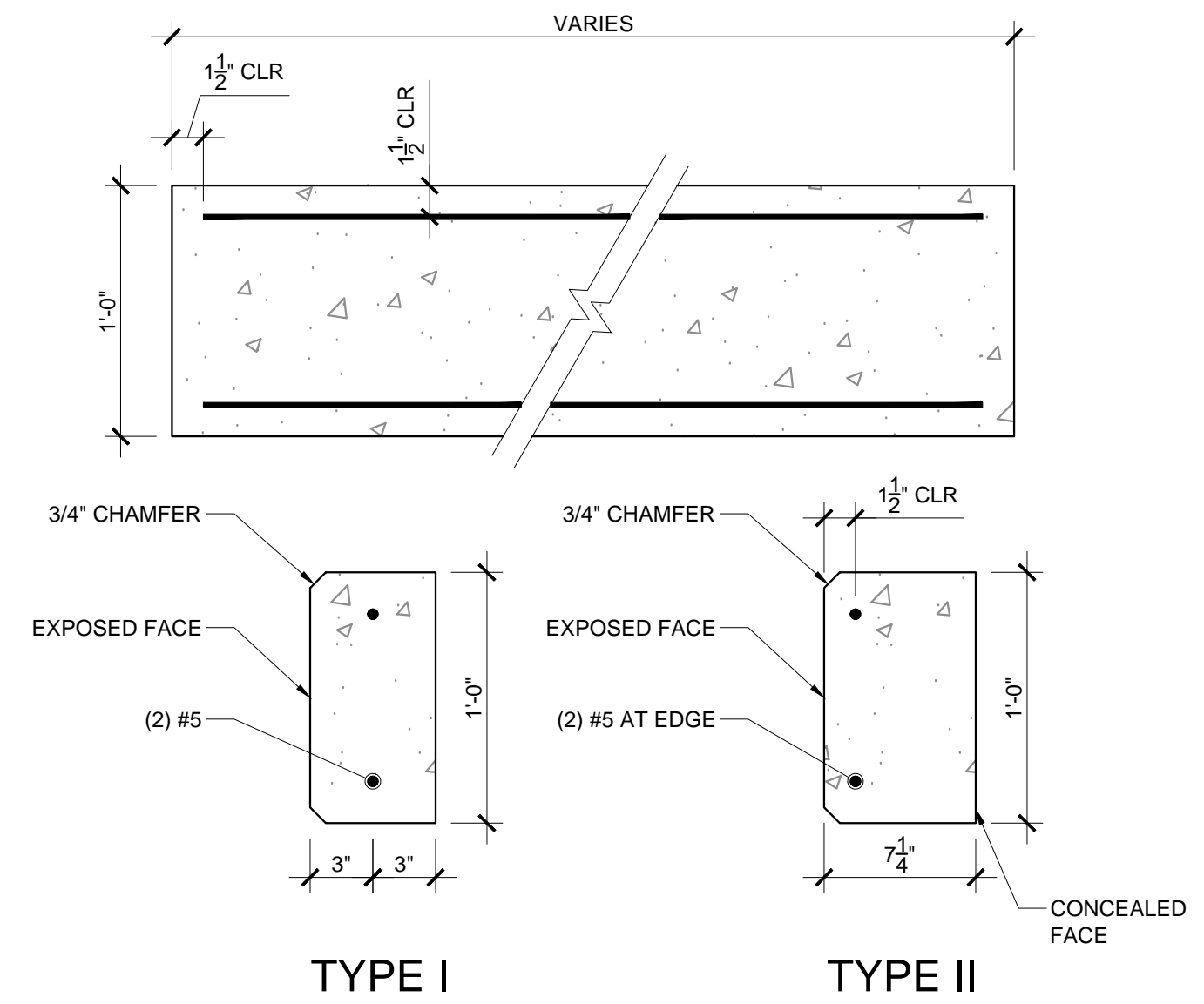
**C7.3**



**GUARDRAIL CONNECTION**

SCALE: 1 1/2" = 1'-0"

6



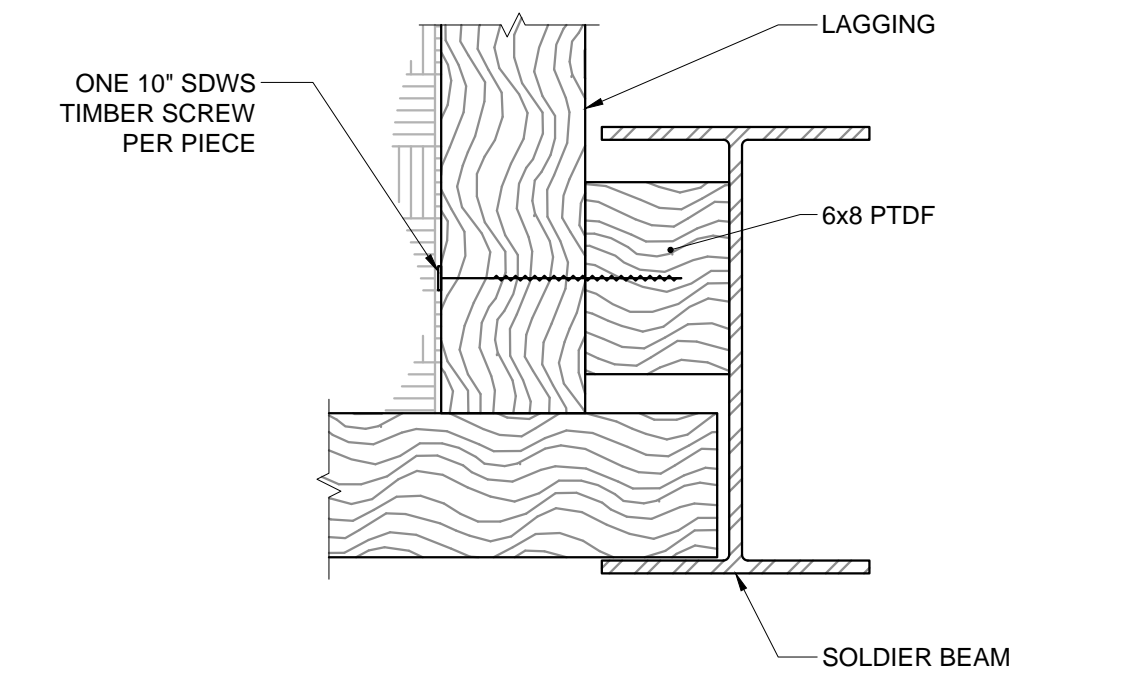
**TYPE I**      **TYPE II**

NOTES:  
 UPPER WALL A: USE TYPE I CONCRETE LAGGING TO A DEPTH OF 9' MAX  
 USE TYPE II CONCRETE LAGGING BELOW 9'  
 LOWER WALL B: USE TYPE II CONCRETE LAGGING FOR ALL WALL HEIGHTS  
 CONCRETE LAGGING SHALL BE CONSTRUCTED OF NORMAL WEIGHT PORTLAND CEMENT WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4,000 psi

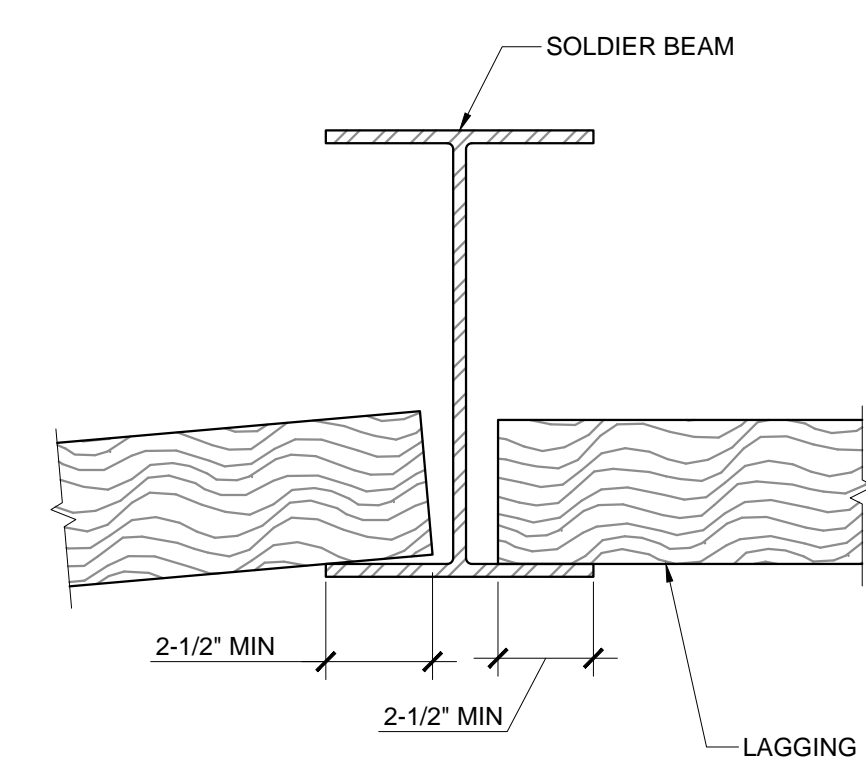
**BID ALTERNATIVE #1  
 CONCRETE LAGGING**

SCALE: 1 1/2" = 1'-0"

4



LAGGING CONNECTION AT CORNERS

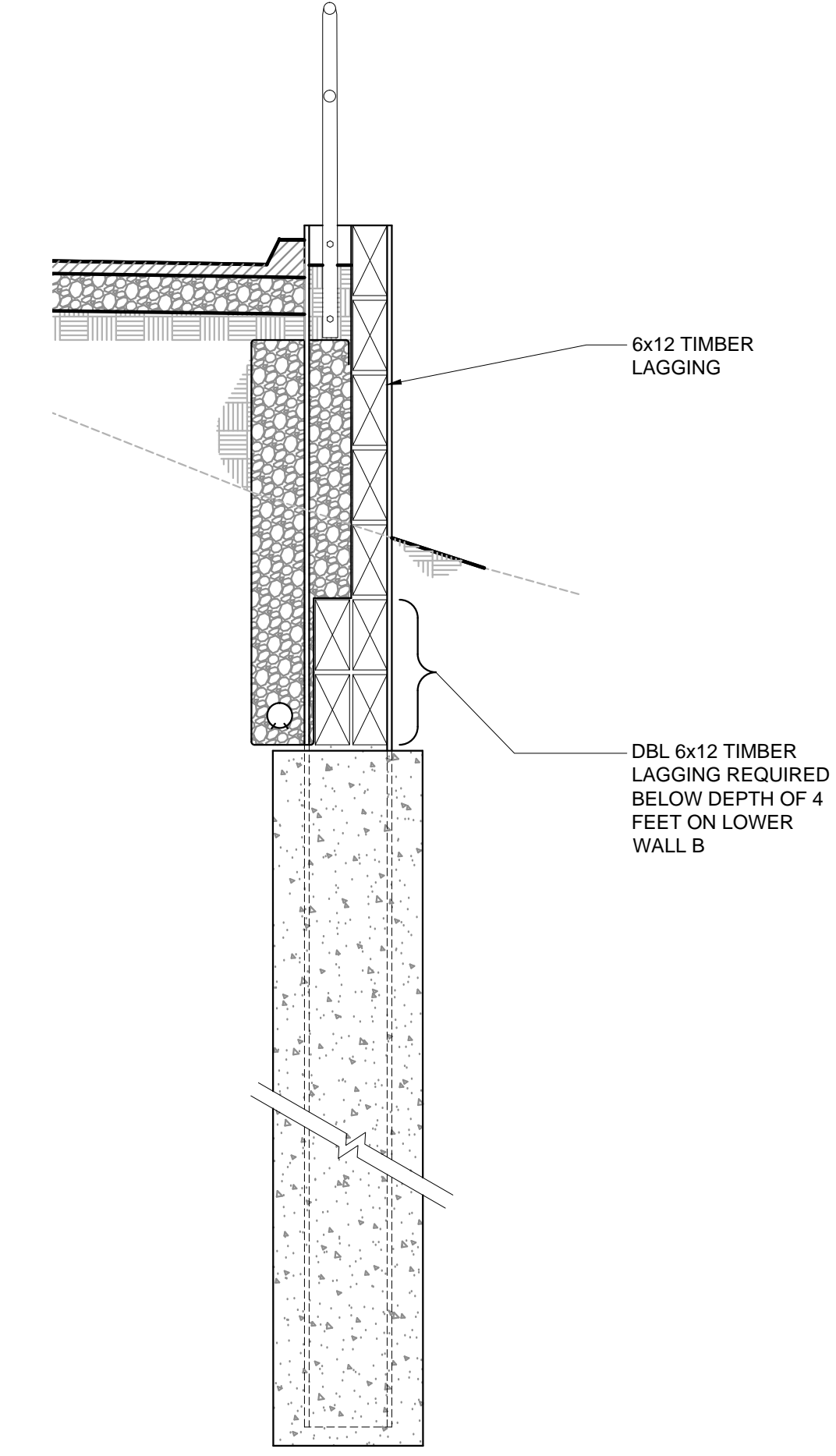


TYPICAL LAGGING CONNECTION AT SKEW

**TIMBER LAGGING DETAIL**

SCALE: 1 1/2" = 1'-0"

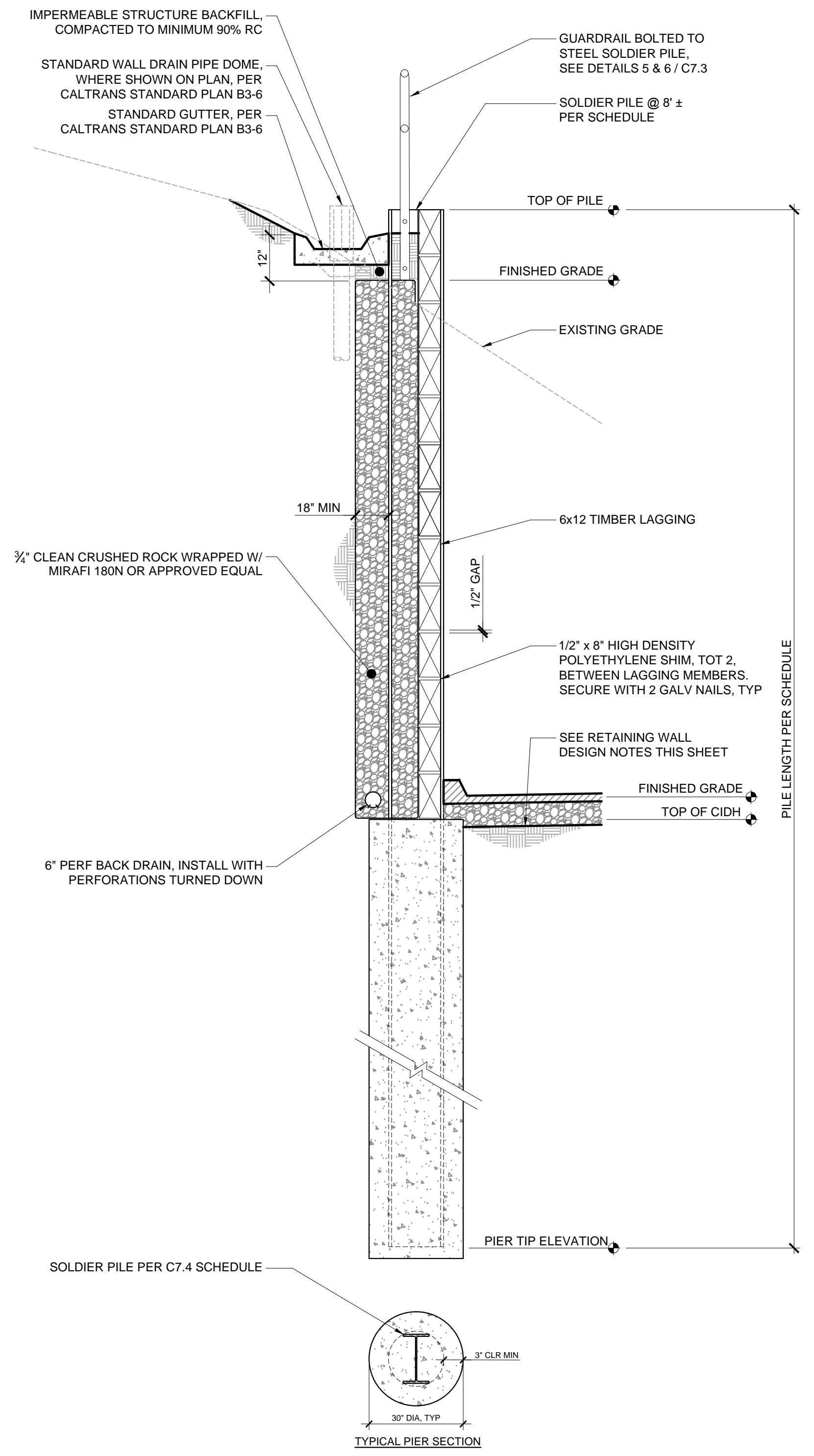
3



**LOWER RETAINING WALL B**

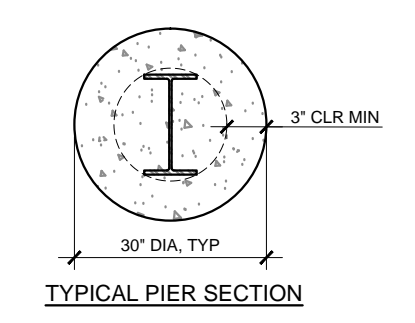
SCALE: 1/2" = 1'-0"

2

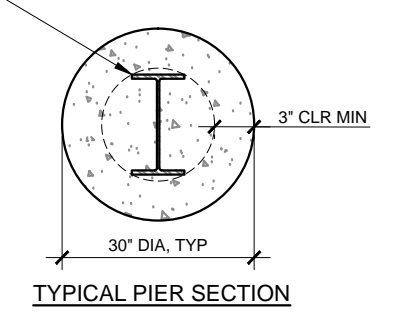


**RETAINING WALL DESIGN NOTES**

- RETAINING WALL DESIGN IS BASED ON THE FINISHED GRADES DEPICTED IN THE DRAWINGS.
- PIER DEPTHS AND SOLDIER BEAM SIZES DO NOT ACCOUNT FOR TEMPORARY SITE CONDITIONS WHICH MAY OCCUR DURING CONSTRUCTION, SUCH AS OVER EXCAVATION OF PAD GRADE IN FRONT OF WALLS.

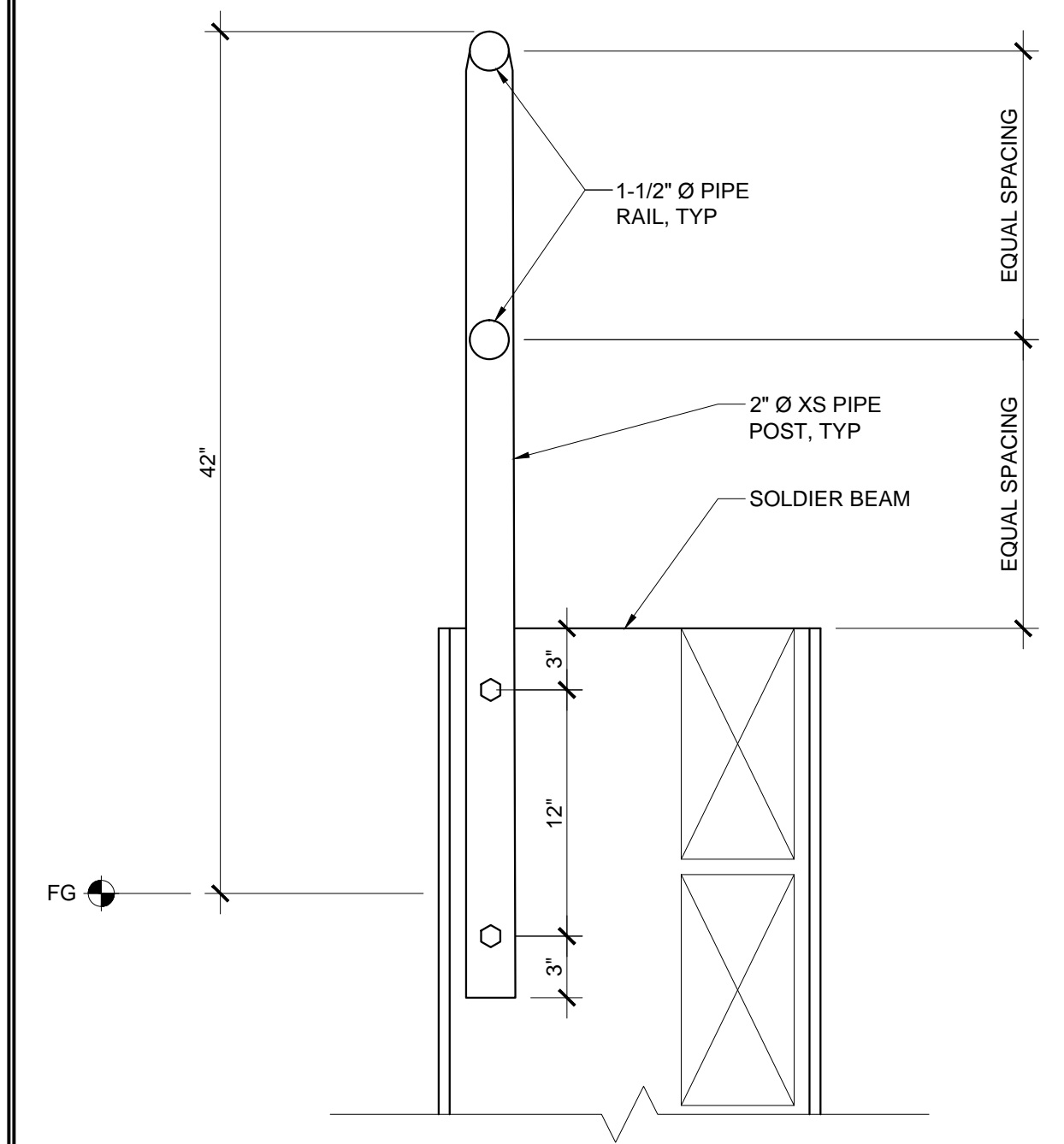


TYPICAL PIER SECTION



TYPICAL PIER SECTION

NOTE:  
 SEE DETAIL 1 THIS SHEET FOR INFORMATION NOT SHOWN



**GUARDRAIL SECTION**

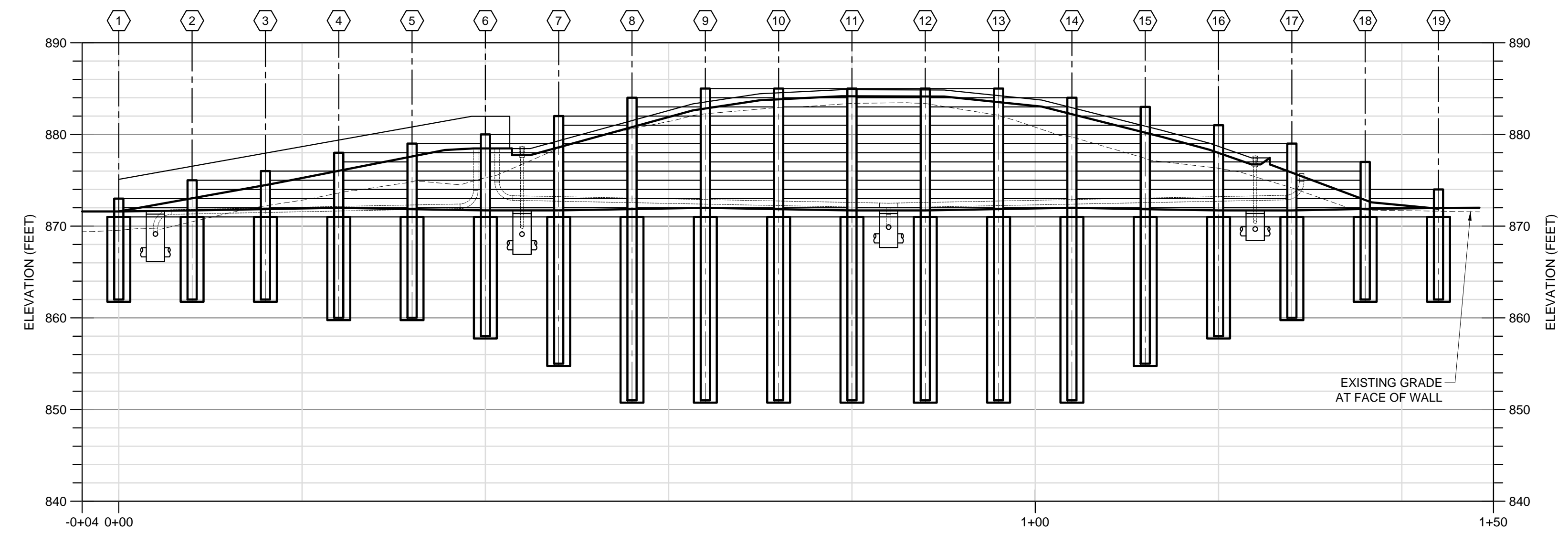
SCALE: 1 1/2" = 1'-0"

5

**UPPER RETAINING WALL A**

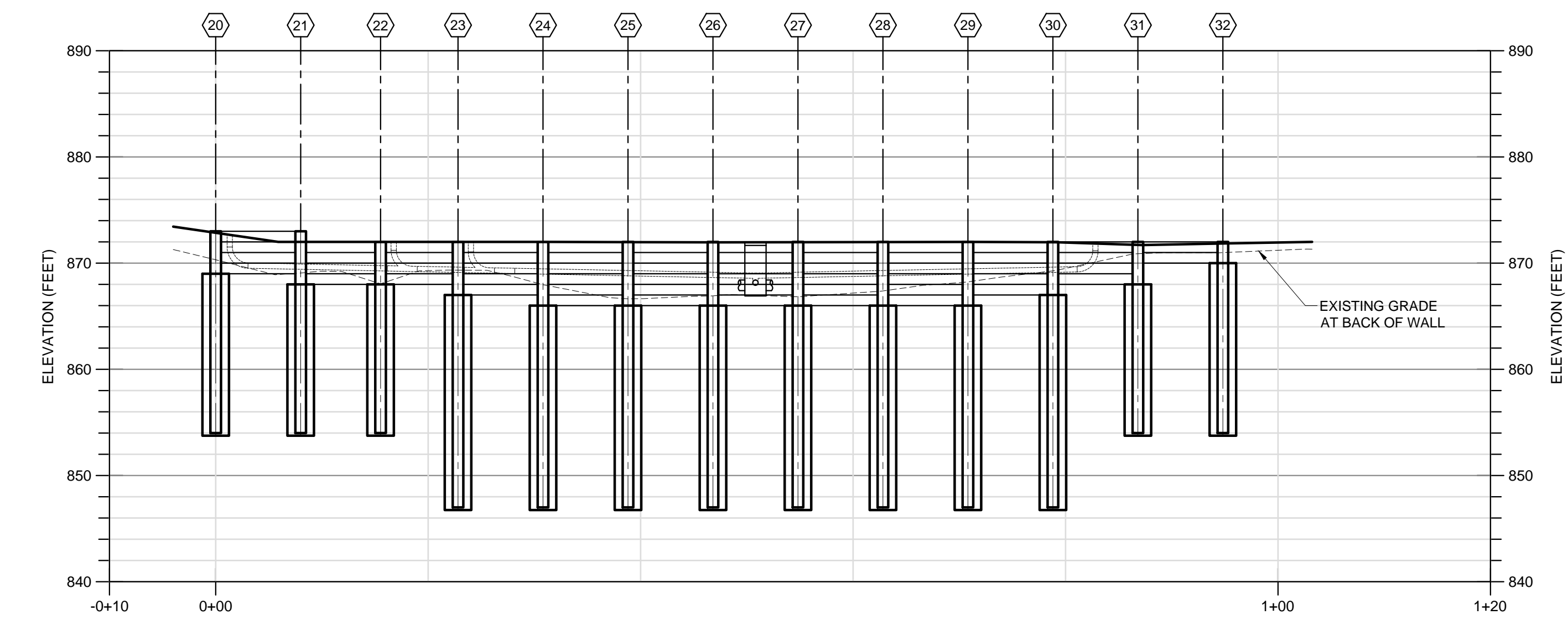
SCALE: 1/2" = 1'-0"

1



**UPPER WALL A PROFILE**  
SCALE: 1" = 10'

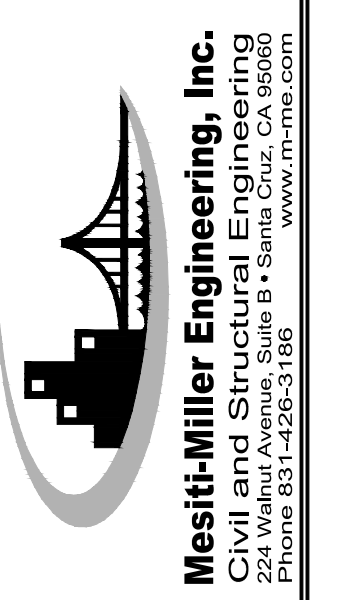
		WALL A SCHEDULE																		
		①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮	⑯	⑰	⑱	⑲
PILE	PILE NUMBER	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮	⑯	⑰	⑱	⑲
	TOP OF PILE ELEV (FT)	873	875	876	878	879	880	882	884	885	885	885	885	885	884	883	881	879	877	874
	PILE LENGTH (FT)	11	13	14	18	19	22	27	33	34	34	34	34	34	33	28	23	19	15	12
PIER	PILE SHAPE	W12x26	W12x26	W12x26	W16x40	W16x40	W18x60	W18x97	W18x143	W18x143	W18x143	W18x143	W18x143	W18x143	W18x143	W18x97	W18x60	W16x40	W12x26	W12x26
	PIER DIAMETER (IN)	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
	TOP OF CIDH ELEVATION (FT)	871	871	871	871	871	871	871	871	871	871	871	871	871	871	871	871	871	871	871
	PIER TIP ELEVATION (FT)	862	862	862	860	860	858	855	851	851	851	851	851	851	851	855	858	860	862	862



**LOWER WALL B PROFILE**  
SCALE: 1" = 10'

		WALL B SCHEDULE												
		⑳	㉑	㉒	㉓	㉔	㉕	㉖	㉗	㉘	㉙	㉚	㉛	㉜
PILE	PILE NUMBER	⑳	㉑	㉒	㉓	㉔	㉕	㉖	㉗	㉘	㉙	㉚	㉛	㉜
	TOP OF PILE ELEV (FT)	873	873	872	872	872	872	872	872	872	872	872	872	872
	PILE LENGTH (FT)	19	19	18	25	25	25	25	25	25	25	25	25	18
PIER	PILE SHAPE	W18x50	W18x50	W18x50	W18x106	W18x106	W18x106	W18x106	W18x106	W18x106	W18x106	W18x97	W18x97	W18x50
	PIER DIAMETER (IN)	30	30	30	30	30	30	30	30	30	30	30	30	30
	TOP OF CIDH ELEVATION (FT)	869	868	868	867	866	866	866	866	866	866	866	867	868
	PIER TIP ELEVATION (FT)	855	854	854	848	847	847	847	847	847	847	847	848	854

REV.	DESCRIPTION	BY	DATE
1	95% DESIGN PHASE SUBMITTAL	RTC	10/6/2015



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CONSTRUCTION

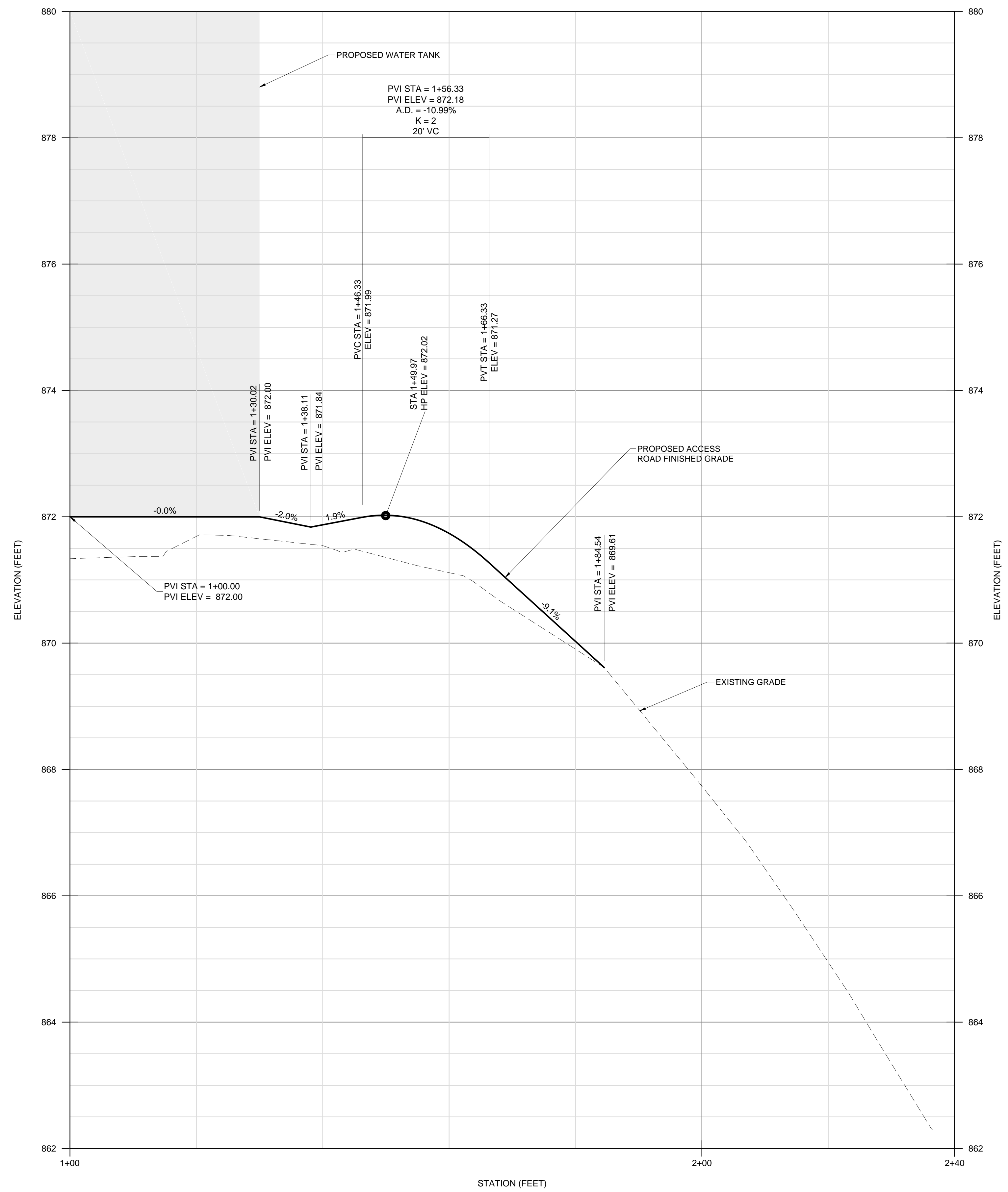
SAN LORENZO VALLEY WATER DISTRICT  
PROBATION TANK REPLACEMENT  
PREPARED AT THE REQUEST OF  
SAN LORENZO VALLEY WATER DISTRICT  
13960 HIGHWAY 9  
BOULDER CREEK, CA 95006

RETAINING WALL PROFILES

DRAWN BY: BR, DM  
CHECKED BY: RC  
JOB NUMBER: 14176

SHEET  
**C7.4**





**ACCESS ROAD PROFILE**

SCALE: H: 1" = 10' V: 1" = 1'

REV.	DESCRIPTION	BY	DATE
1	95% DESIGN PHASE SUBMITTAL	RTC	10/6/2015
2			
3			
4			



PRELIMINARY  
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CONSTRUCTION

**SAN LORENZO VALLEY WATER DISTRICT  
PROBATION TANK REPLACEMENT**  
PREPARED AT THE REQUEST OF  
SAN LORENZO VALLEY WATER DISTRICT  
13960 HIGHWAY 9  
BOULDER CREEK, CA 95006

ACCESS ROAD CENTERLINE PROFILE

DRAWN BY: DM  
CHECKED BY: RC  
JOB NUMBER: 14176

SHEET  
**C7.5**

REV.	DESCRIPTION	DATE
1	10% DESIGN PHASE SUBMITTAL	10/6/2015
2		
3		
4		



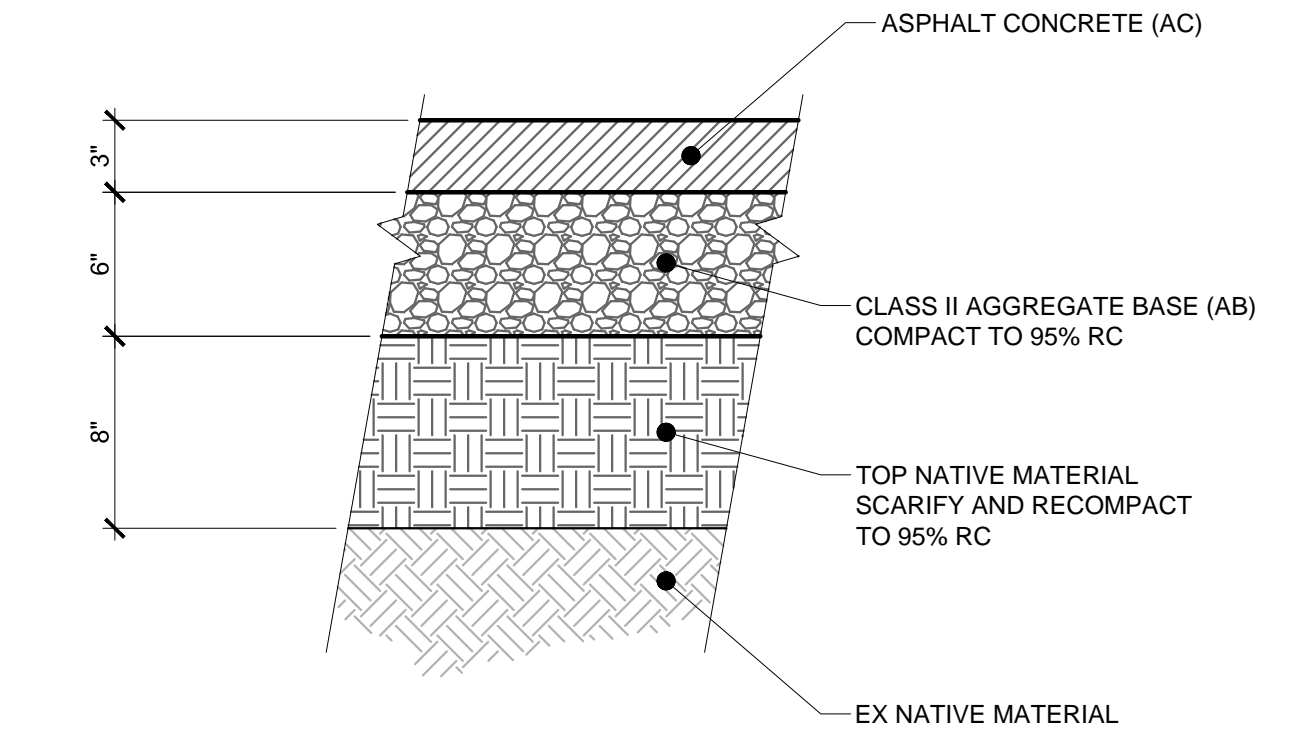
PRELIMINARY  
NOT FOR  
CONSTRUCTION

SAN LORENZO VALLEY WATER DISTRICT  
 PROBATION TANK REPLACEMENT

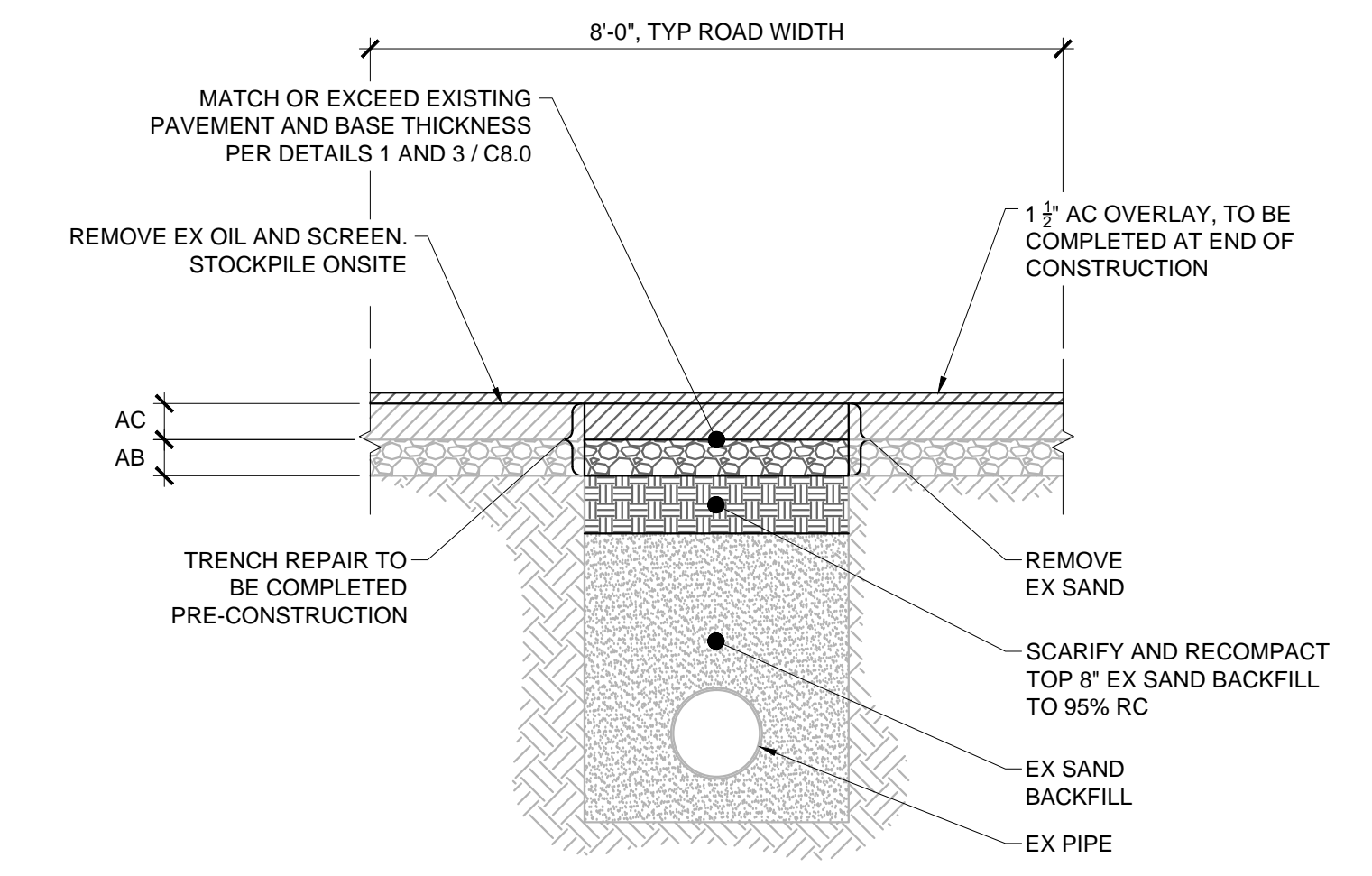
SITE AND FOUNDATION DETAILS

DRAWN BY: DM  
 CHECKED BY: RC  
 JOB NUMBER: 14176

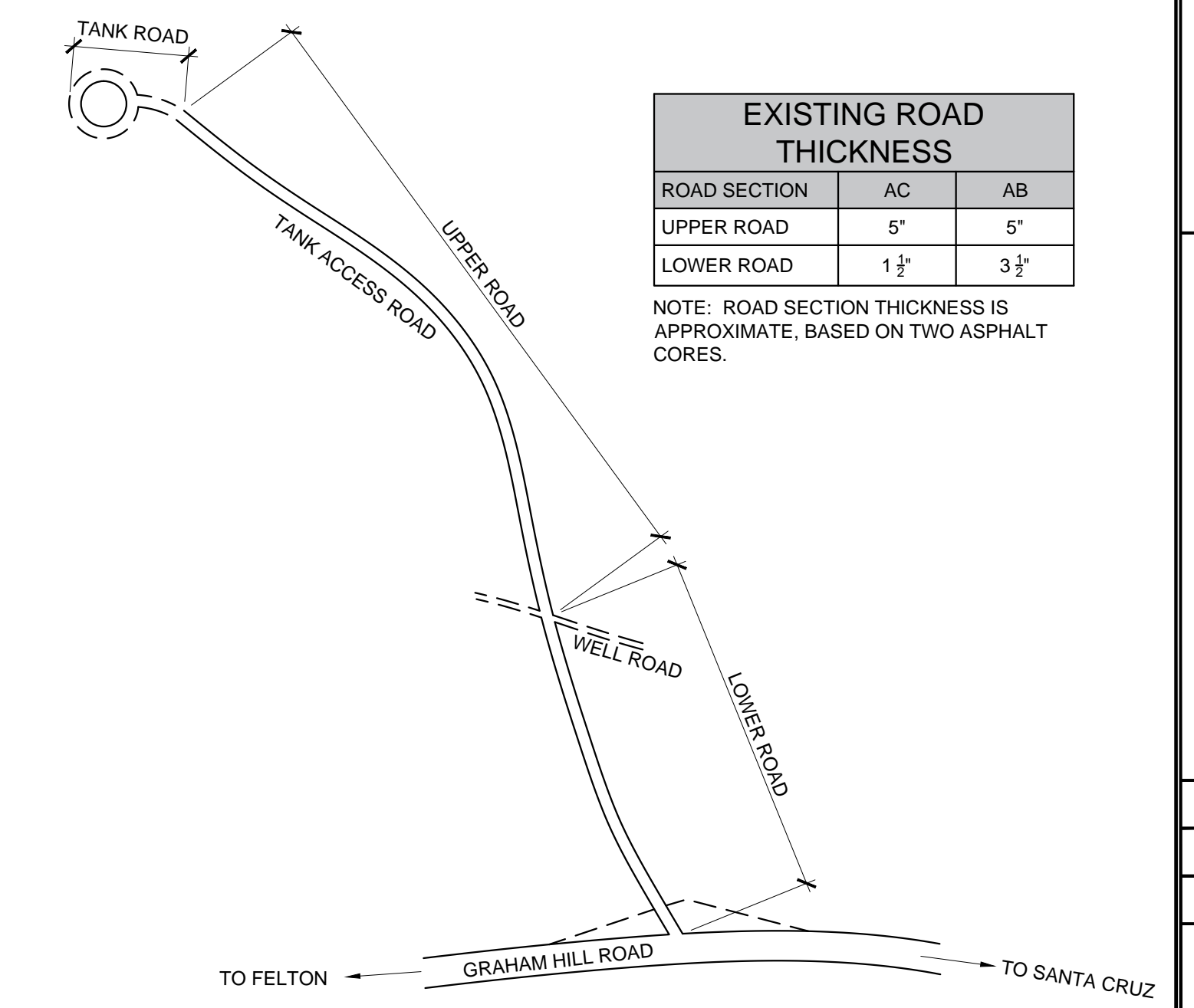
SHEET  
**C8.0**



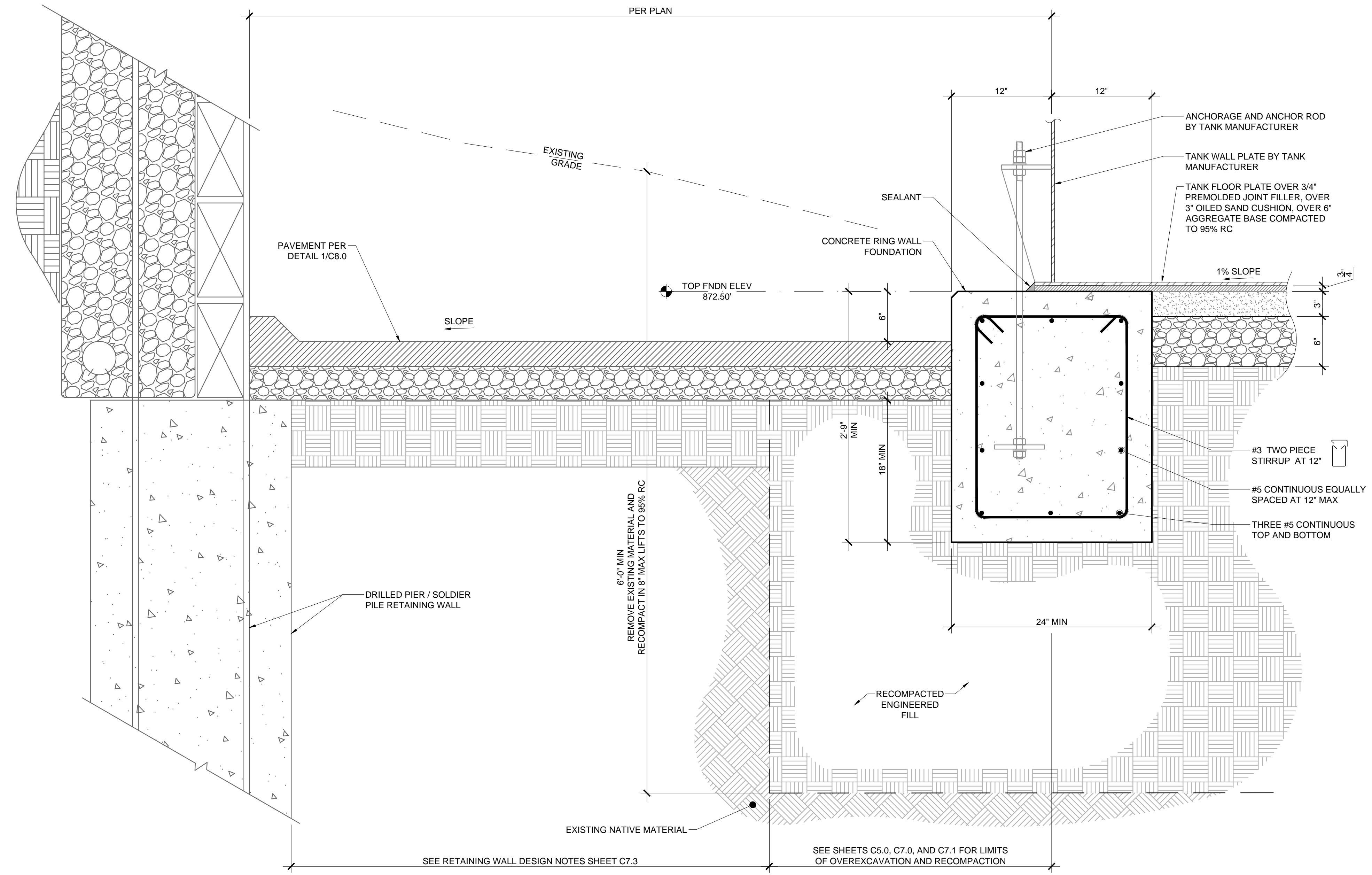
**TANK ROAD PAVEMENT**  
 SCALE: 1 1/2" = 1'-0"



**ACCESS ROAD PAVEMENT**  
 SCALE: 1/2" = 1'



**ROAD THICKNESS BY SECTION**  
 SCALE: NTS

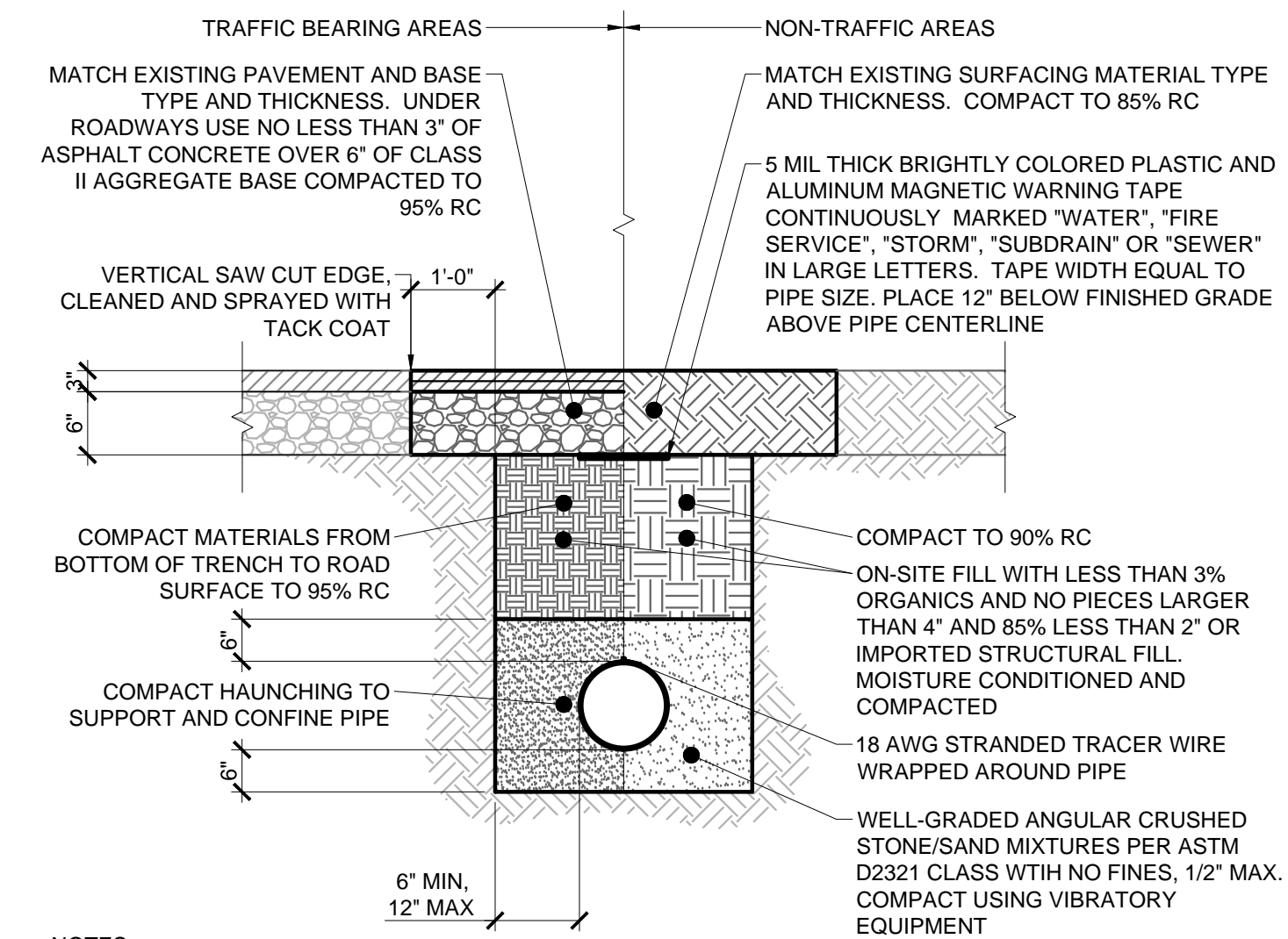


NOTE: FINAL TANK RINGWALL FOUNDATION DESIGN TO BE PROVIDED BY CONTRACTOR. CONTRACTOR TO SUBMIT RINGWALL FOUNDATION DESIGN CALCULATIONS AND SHOP DRAWINGS FOR APPROVAL.

**RINGWALL FOUNDATION**  
 SCALE: 1 1/2" = 1'-0"

I:\14176 SLVWD - CE for Probation Tank Replacement.dwg, 10/6/2015 10:33:57 AM, Daniel

DATE	10/6/2015										
BY	RTC										
DESCRIPTION	95% DESIGN PHASE SUBMITTAL										
REV.	<table border="1"> <tr><td>1</td><td></td></tr> <tr><td>2</td><td></td></tr> <tr><td>3</td><td></td></tr> <tr><td>4</td><td></td></tr> <tr><td>5</td><td></td></tr> </table>	1		2		3		4		5	
1											
2											
3											
4											
5											

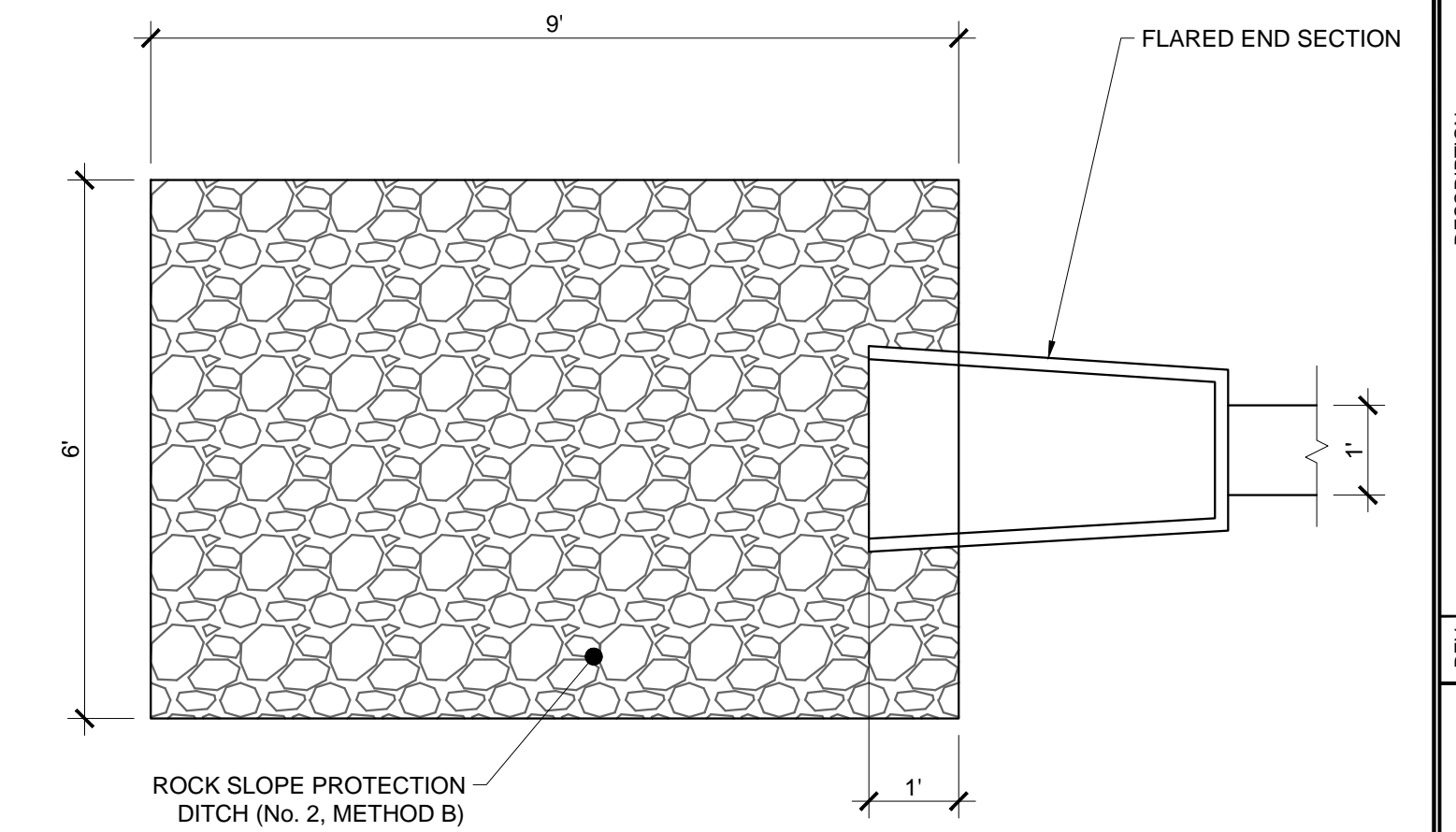


- NOTES:**
1. UTILITIES WITHIN THE PUBLIC RIGHT OF WAY SHALL BE CONSTRUCTED TO LOCAL JURISDICTIONAL REQUIREMENTS.
  2. UTILITIES WITHIN THE FOOTING/FOUNDATION 1:1 SHADOW OR WITH LESS THAN 12" COVER SHALL BE BACKFILLED WITH SAND/CEMENT SLURRY, 75 PSI, 2 SACK PER CUBIC YARD.
  3. REFER TO GEOTECHNICAL INVESTIGATION FOR SPECIFIC RECOMMENDATIONS.

**STORM DRAIN TRENCH**

SCALE: 1/2" = 1'-0"

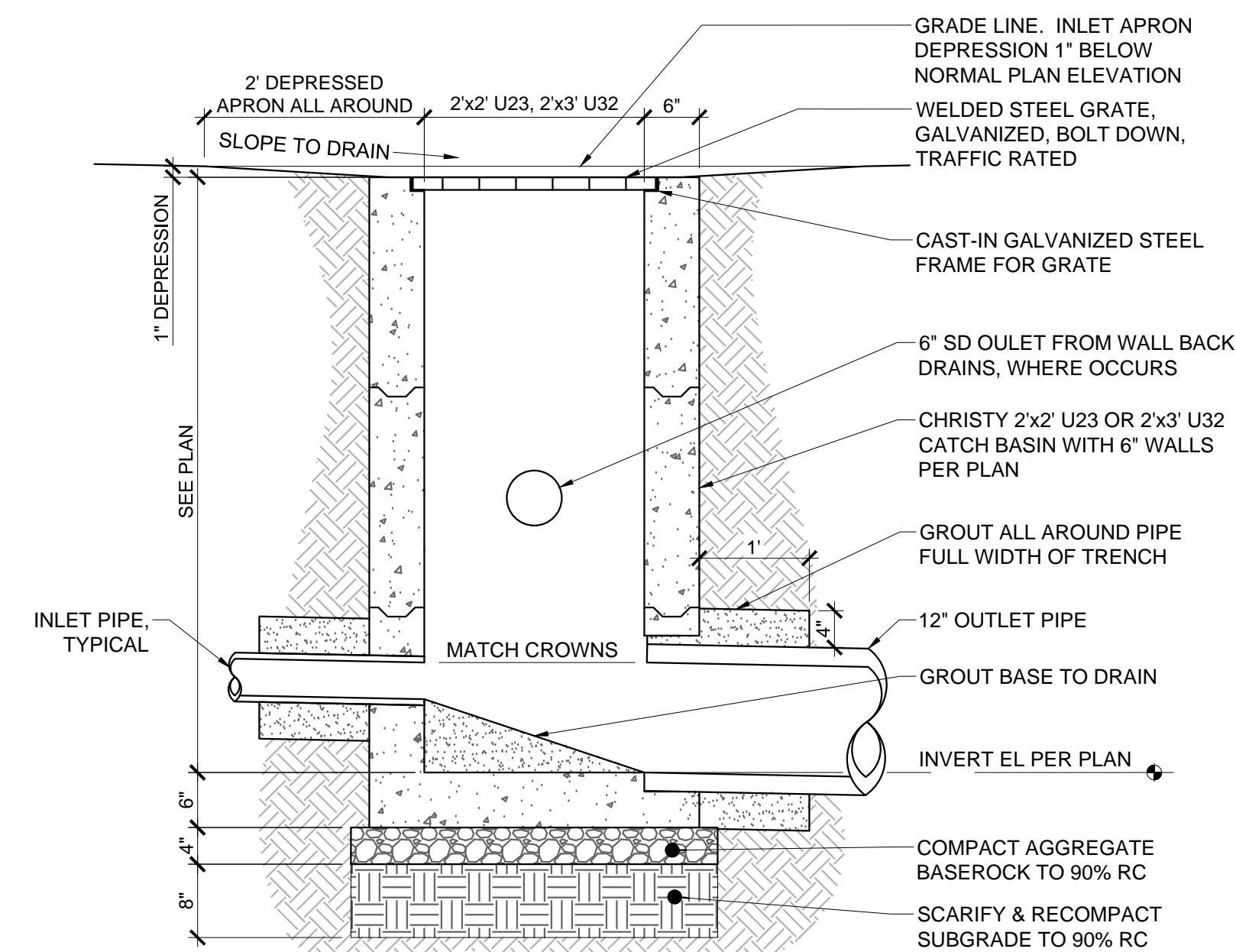
4



**OUTLET PROTECTION PLAN**

SCALE: 1/2" = 1'-0"

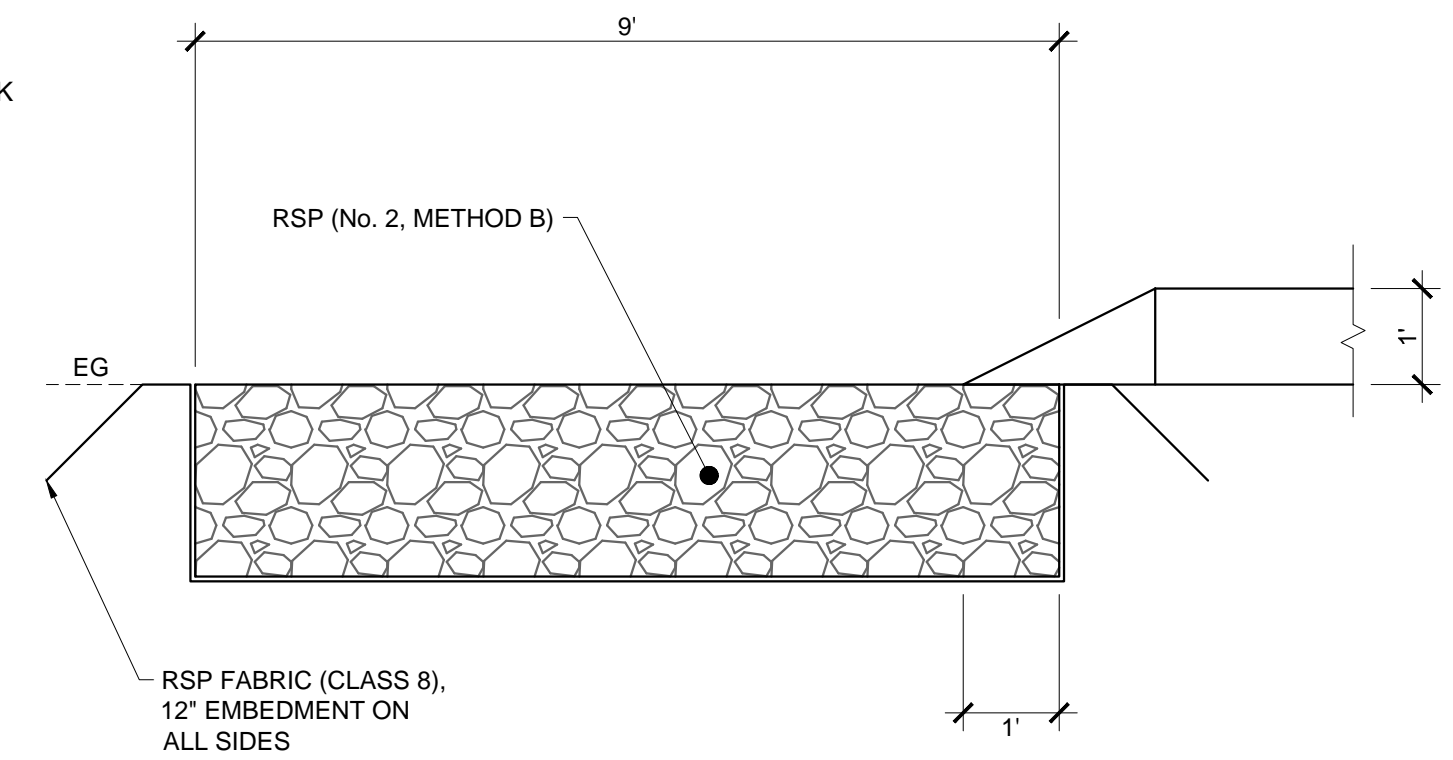
1



**U23/U32 DRAINAGE INLET**

SCALE: 3/4" = 1'-0"

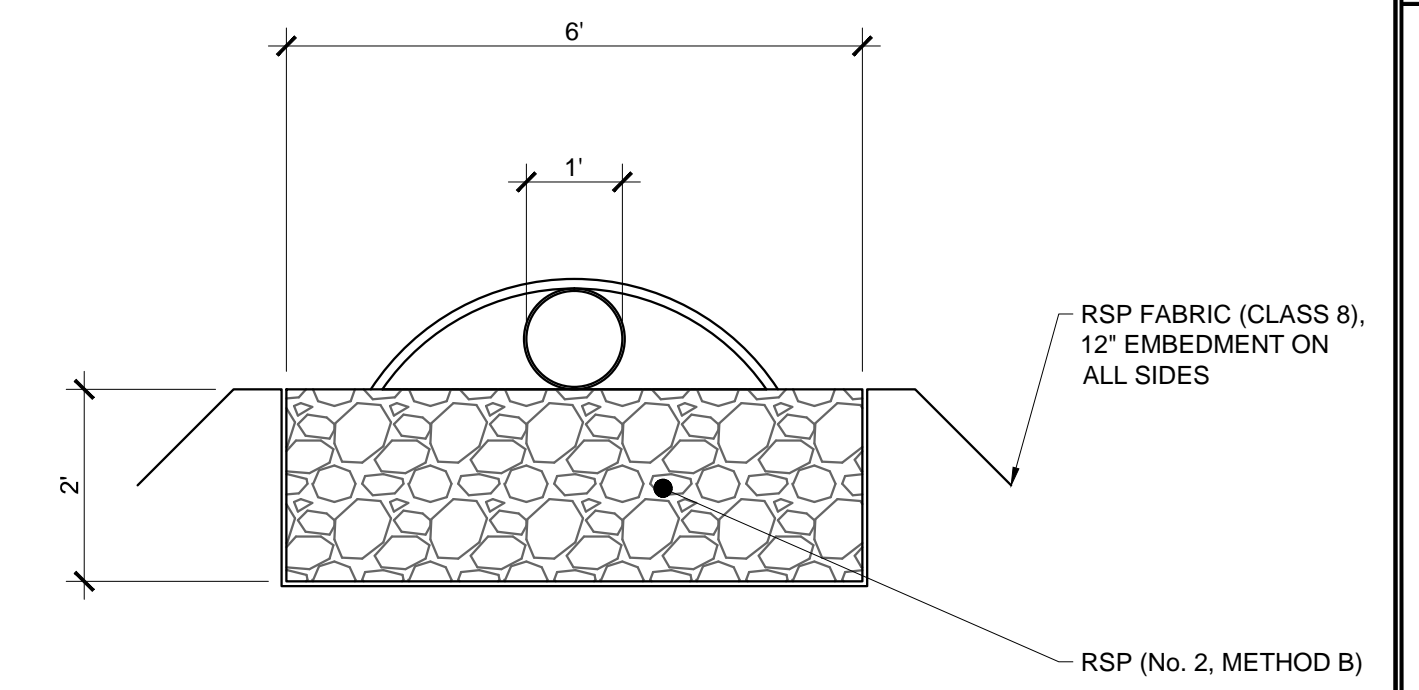
5



**OUTLET PROTECTION PROFILE**

SCALE: 1/2" = 1'-0"

2



**OUTLET PROTECTION SECTION**

SCALE: 1/2" = 1'-0"

3

**Mesiti-Miller Engineering, Inc.**  
 2240 Valley Way, Suite 100, Boulder Creek, CA 95006  
 Phone 831-426-3186  
 www.m-me.com

PRELIMINARY  
 NOT FOR  
 CONSTRUCTION

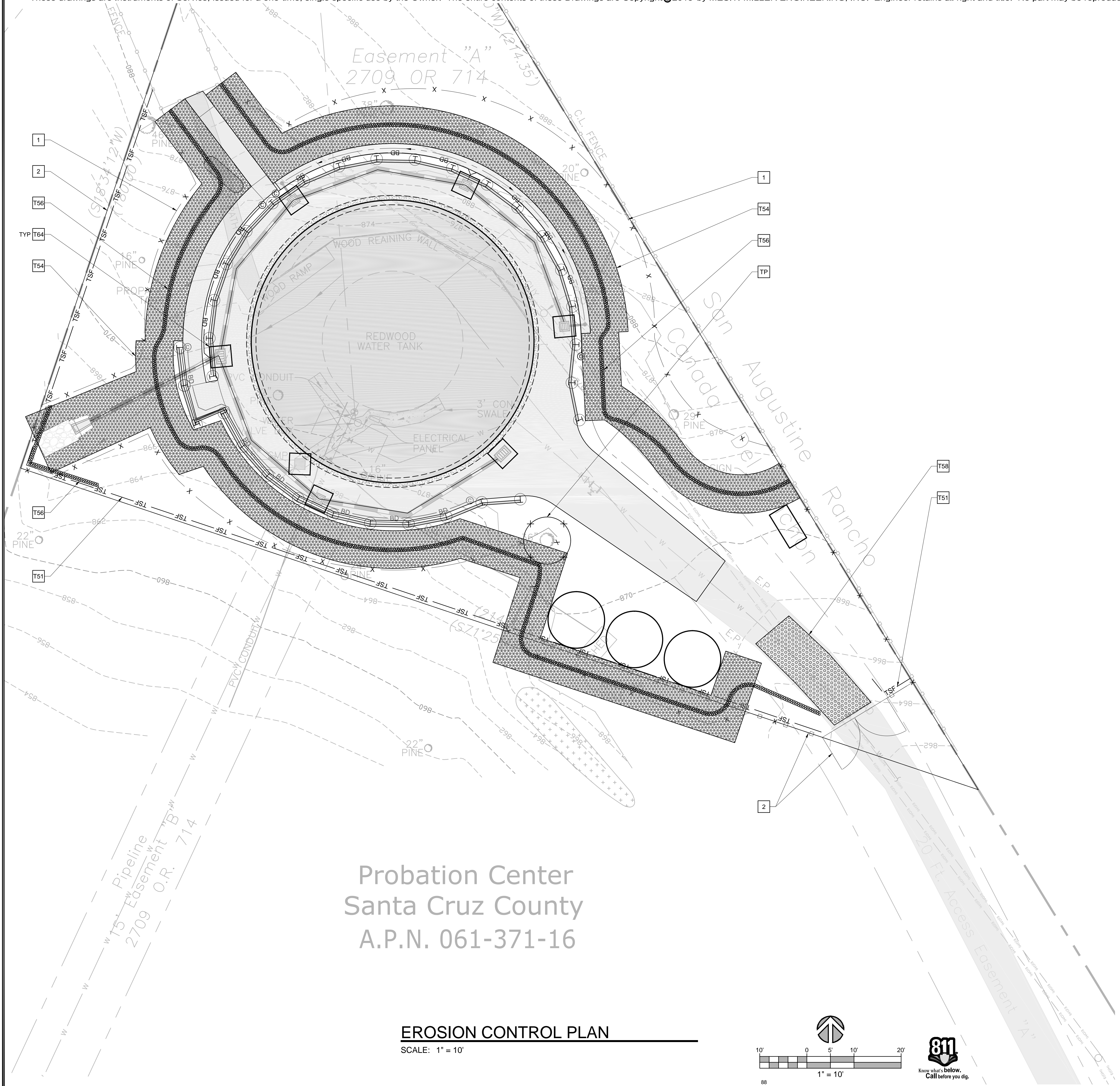
**SAN LORENZO VALLEY WATER DISTRICT  
 PROBATION TANK REPLACEMENT**

PREPARED AT THE REQUEST OF  
 SAN LORENZO VALLEY WATER DISTRICT  
 13960 HIGHWAY 9  
 BOULDER CREEK, CA 95006

STORM DRAIN AND UTILITY DETAILS

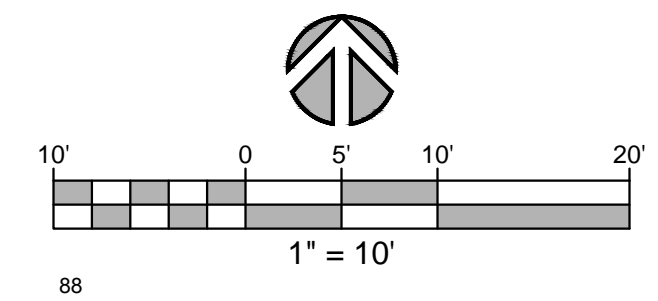
DRAWN BY: DM  
 CHECKED BY: RC  
 JOB NUMBER: 14176

SHEET  
**C8.1**



Probation Center  
Santa Cruz County  
A.P.N. 061-371-16

**EROSION CONTROL PLAN**  
SCALE: 1" = 10'



**SHEET NOTES**

- 1 LIMIT OF TEMPORARY CONSTRUCTION DISTURBANCE AND TEMPORARY ESA FENCE, APPROXIMATE
- 2 TEMPORARY CONSTRUCTION FENCE, 6" CHAIN LINK FENCE, 16' W GATE
- T51 TEMPORARY SILT FENCE, PER CALTRANS STANDARD PLAN T51/C7.2
- T53 TEMPORARY COVER OVER ALL STOCKPILES PER CALTRANS STANDARD PLAN T53/C7.2, APPROXIMATE LOCATION
- T54 TEMPORARY EROSION CONTROL BLANKET ON SLOPES PER CALTRANS STANDARD PLAN T54/C7.2
- T56 TEMPORARY FIBER ROLL, TYPE 2, PER CALTRANS STANDARD PLAN T56/C7.2
- T58 TEMPORARY CONSTRUCTION ENTRANCE, TYPE 1, PER CALTRANS STANDARD PLAN T58/C7.2
- T64 TEMPORARY DRAINAGE INLET PROTECTION, TYPE 5, PER CALTRANS STANDARD PLAN T64/C7.2
- TP TEMPORARY TREE PROTECTION FENCING AROUND TRUNK, CALTRANS TYPE ESA

REV.	DESCRIPTION	DATE
1	95% DESIGN PHASE SUBMITTAL	10/6/2015

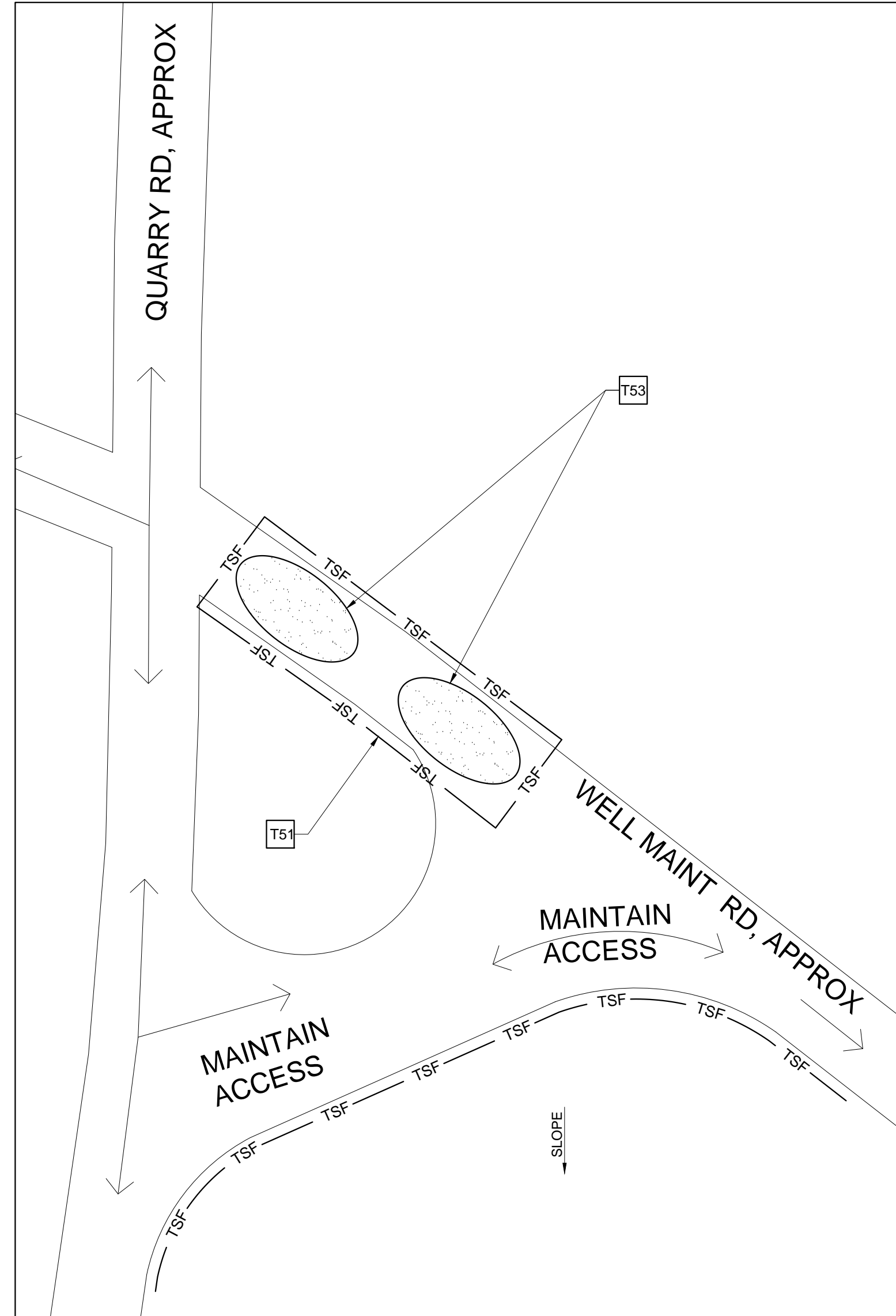


PRELIMINARY  
NOT FOR  
CONSTRUCTION

SAN LORENZO VALLEY WATER DISTRICT  
PROBATION TANK REPLACEMENT  
PREPARED AT THE REQUEST OF  
SAN LORENZO VALLEY WATER DISTRICT  
13360 HIGHWAY 9  
BOULDER CREEK, CA 95006

EROSION CONTROL PLAN	
DRAWN BY:	DM
CHECKED BY:	RC
JOB NUMBER:	14176
SHEET	

**C9.0**

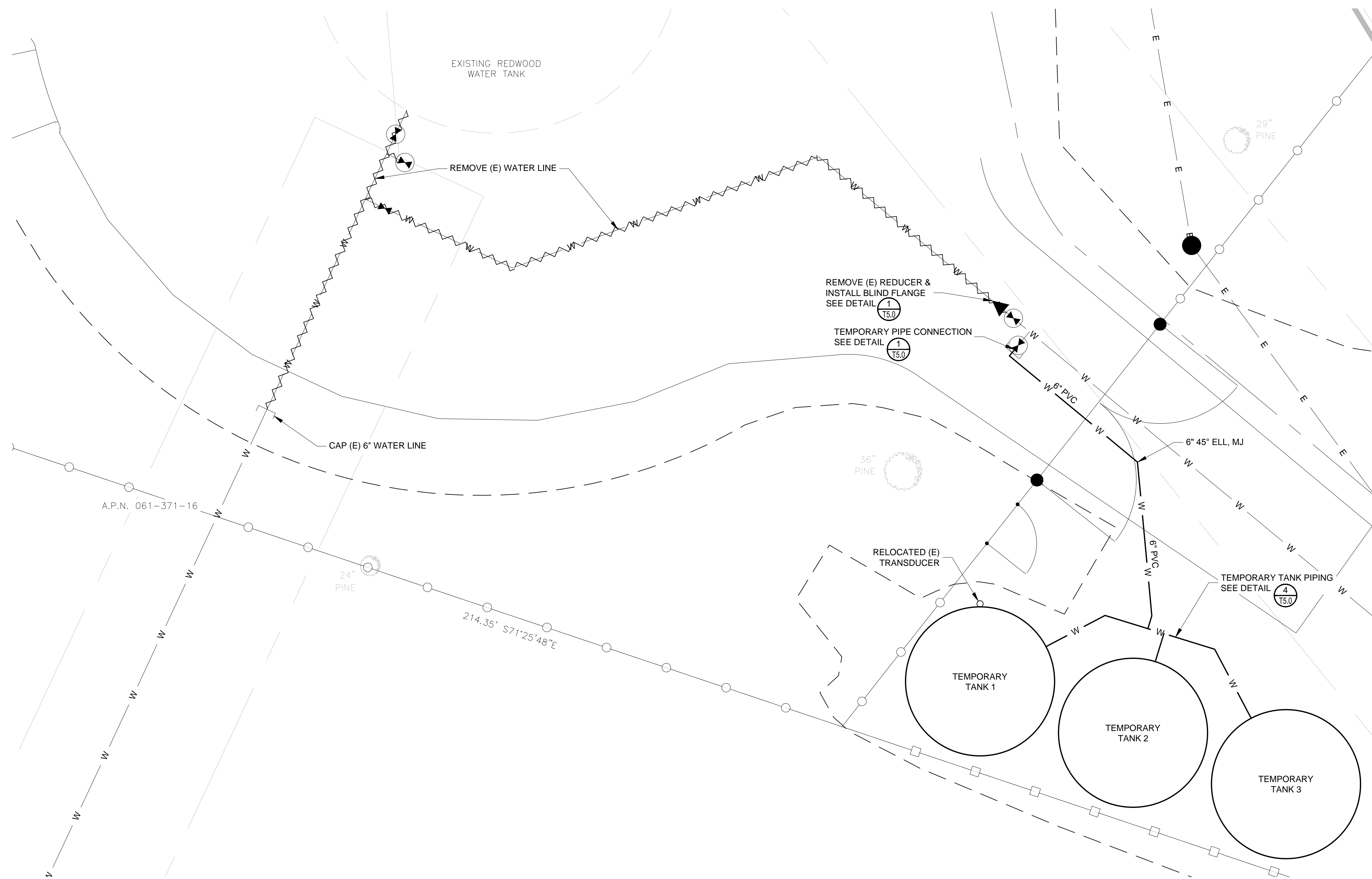


**POTABLE WATER PIPELINE**

- The connection of the potable water storage tank to the existing distribution main pipe shall be made with ductile iron pipe and fittings unless otherwise indicated.
- All below grade valves, fittings, and joints at the water storage tank site shall have mechanical joint connections unless otherwise indicated. Mechanical joint fittings shall conform to AWWA C153. Contractor shall install thrust restrained EBAA "Megalug" glands on all mechanical joints.
- Above grade pipe shall be flanged ductile iron pipe unless otherwise indicated. Flanged fittings shall conform to AWWA C110.
- Ductile iron pipe shall be Pressure Class 350 conforming to AWWA C150 and C151 and be cement-lined conforming to AWWA C104. All ductile iron fittings shall be cement-lined conforming to C104.
- Below grade ductile iron pipe and fittings shall receive an asphaltic coating as specified in AWWA C151 and be wrapped with an approved polyethylene encasement per AWWA Standard C105. Contractor shall install all below grade water pipe in accordance with AWWA C600 and SLVWD standards. A minimum of 36" cover shall be provided between the top of water pipe and the finished grade except where otherwise indicated.
- Double ball flexible expansion joint shall be an EBAA Force Balanced Flex-Tend Series 4412F20B with flange connections.
- Butterfly valves shall conform to AWWA Standard C504. Valve shall be suitable for installation in any position and for flow in either direction. The valve disc shall seal against pressure from either side when the valve is closed.
- Gate valves shall conform to AWWA C509.
- All above grade valves shall have hand wheels with locking mechanisms.
- Pipe joints between dissimilar metals shall have isolation flange gasket kit.
- The exterior of above grade piping shall be painted in accordance w/ the exterior coating system requirements of the water tank.

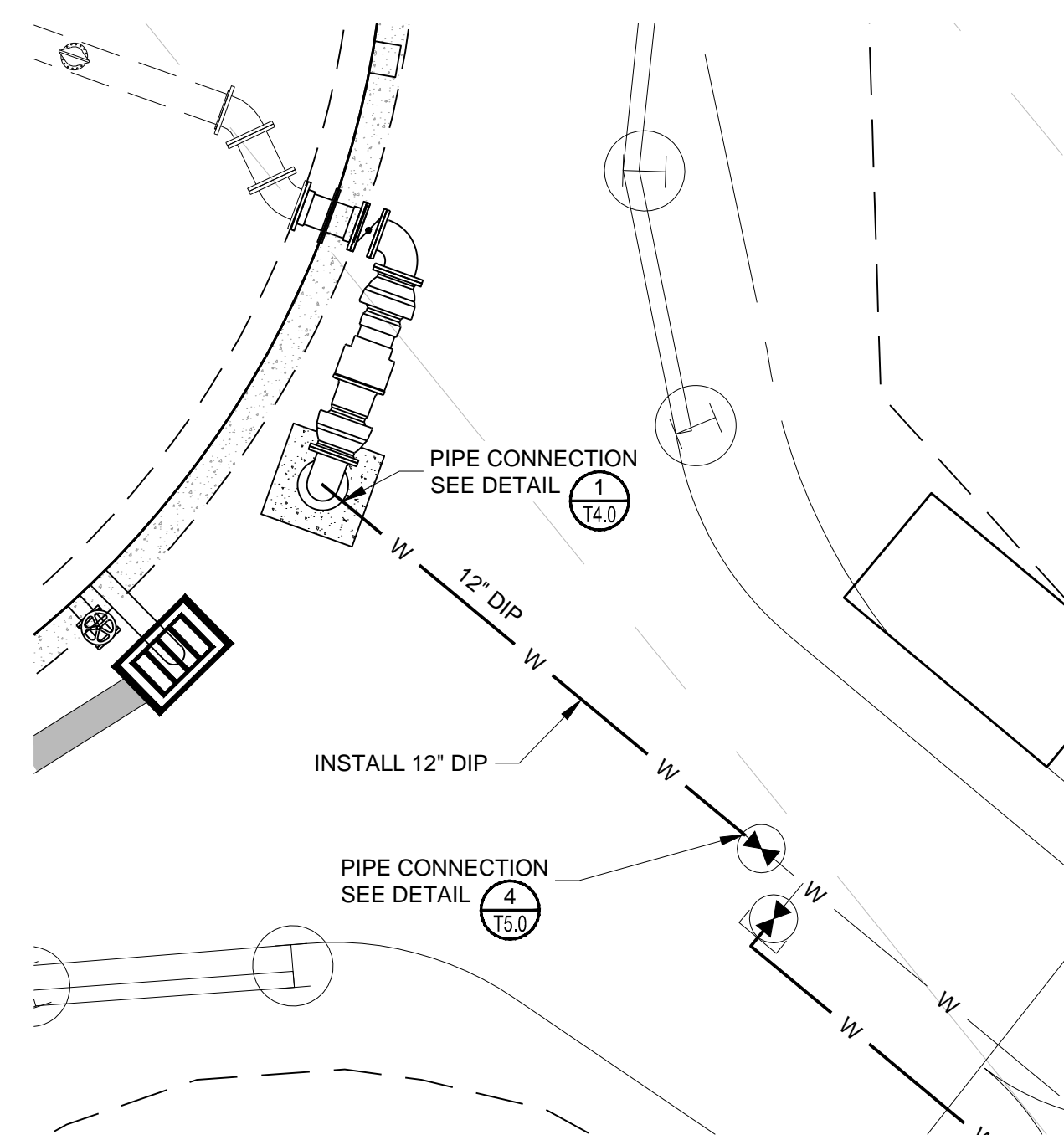
**TEMPORARY TANKS AND PIPELINE**

- Temporary water storage tanks and connection components, including pipe, fittings, valves, and all appurtenances shall be NSF 61 certified.
- Three (3) 10,000 HDPE gallon tanks shall be supplied for storage of the drinking water. Tanks shall be Norwesco model N-43132 or approved equal. Tanks shall be green in color. The tanks shall be furnished with NSF 61 certified locking lids.
- Below grade temporary pipe shall be AWWA C900 PVC pipe unless otherwise indicated.
- Each tank shall be furnished with a 4" diameter inlet/outlet at the tank bottom. The piping from each tank shall have an isolation valve with a locking mechanism. The piping from the three tanks shall be connected and routed to the designated connection point. Where the piping from two or more tanks comes together, the connection and downstream piping shall be 6" diameter.
- Each tank shall be equipped with a sample tap with a locking mechanism.
- The temporary system shall be disinfected and tested according to the disinfection requirements of these Contract Documents. The temporary facilities shall remain isolated and out of service until satisfactory test results have been obtained which meet the requirements of The California Department of Public Health and the Engineer. Temporary system shall not be put into operation prior to obtaining approval from the Owner.
- Temporary tanks and plumbing system shall be fully operable prior to decommissioning the operation of the existing redwood tank. The temporary system shall remain operable until the new steel tank is put online for distribution. Contractor shall obtain approval from SLVWD prior to decommissioning any portion of the temporary supply system.
- The existing pressure transducer shall be relocated to the temporary storage tanks. Electrical panels, conduits, wires, tubing, and other control system components shall be relocated as required for operation of the temporary storage system.
- Contractor-supplied temporary tanks and piping shall be the property of the Contractor at the project conclusion.



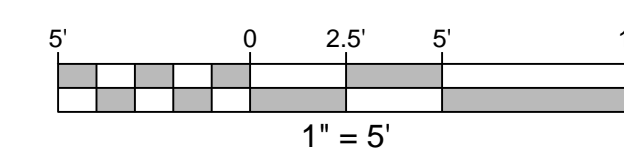
**PHASE 1 - PIPING PLAN**

SCALE: 1" = 5'



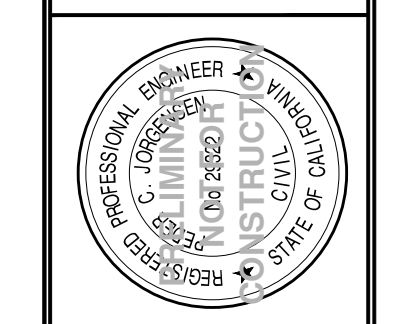
**PHASE 3 - PIPING PLAN**

SCALE: 1" = 5'



REV.	DESCRIPTION	BY	DATE
1	WATER PIPING PROPOSAL FIGURE	PCJ	8/15/2015

**Schaaf & Wheeler**  
CONSULTING CIVIL ENGINEERS  
1171 HOMESTEAD ROAD, STE 255  
SANTA CLARA, CA 95050  
(408) 246-4848



**SAN LORENZO VALLEY WATER DISTRICT**  
**PROBATION TANK REPLACEMENT**

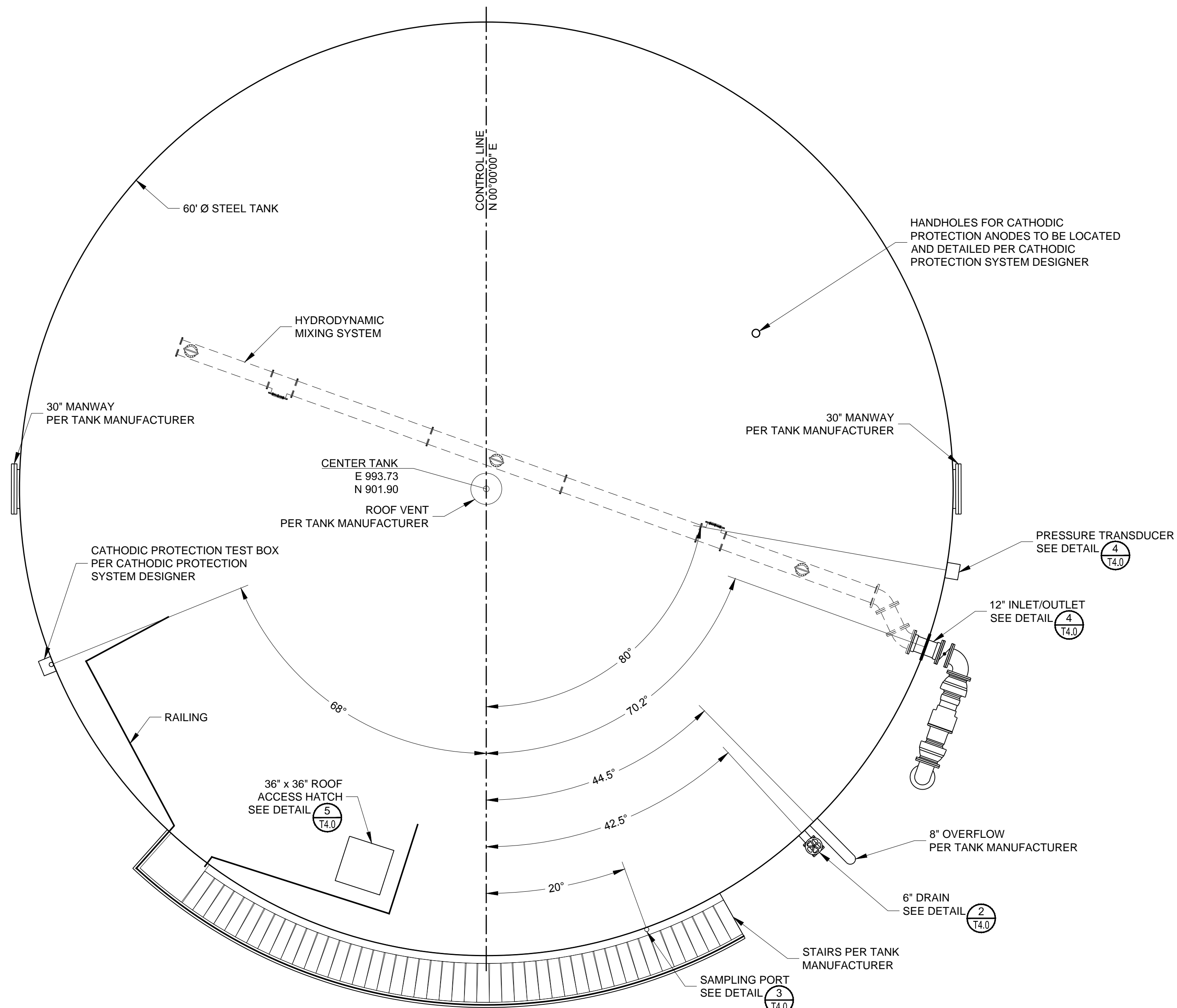
PREPARED AT THE REQUEST OF  
SAN LORENZO VALLEY WATER DISTRICT  
13060 HIGHWAY 9  
BOULDER CREEK, CA 95006

WATER PIPING PLAN

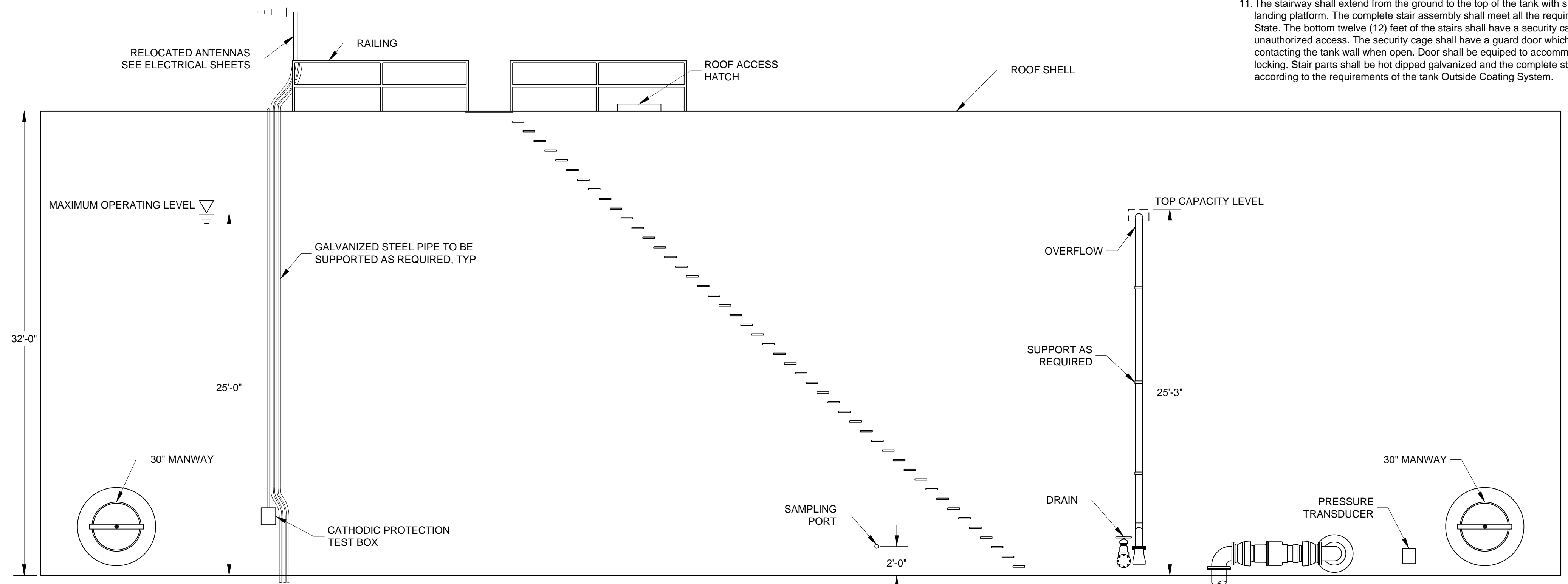
DRAWN BY: LNF  
CHECKED BY: PCJ  
JOB NUMBER: 14176  
SHEET

**T1.0**

**PRELIMINARY NOT FOR CONSTRUCTION**



**TANK PLAN**  
SCALE: 1" = 5'



**TANK STRETCH-OUT ELEVATION**  
SCALE: 1" = 5'

**TANK**

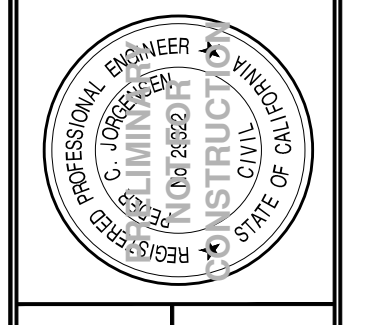
- GENERAL**
- Contractor shall construct a welded steel tank as shown on these plans in conformance with American Water Works Association (AWWA) D100 Standard for Welded Carbon Steel Tanks for Water Storage. The volume from the tank bottom to the TCL (Top Capacity Level) shall be 530,000 gallons. The volume from the invert of the tank inlet/outlet nozzle to MOL (Maximum Operating Level) shall be a minimum of 487,000 gallons. The tank internal diameter shall be 60 feet.
  - Tank designer shall submit tank design showing that the tank fulfills the requirements of ASCE 7-10 Minimum Design Loads for Buildings and Other Structures, the most current edition of the California Building Code (CBC), the most current edition of the International Building Code (IBC), and local building code requirements.
  - The steel water-storage tank design, fabrication, and erection shall conform AWWA D100. Seismic design shall utilize Section 14 of AWWA D100.
  - Tank shall adhere to the recommendations of the Geotechnical Investigation for SLVWD Probation Tank Replacement-Design Phase by Haro, Kasunich, and Associates, Inc. dated \_\_\_\_\_ 2015.
  - Tank shall conform to the Section 64585 of Title 22, Division 4, Chapter 16, Article 6 of the California Code of Regulations.
  - Tank roof shall be of a column- and rafter-supported cone roof design.
  - Tank foundation shall be a Type 1, Ringwall Foundation Footing, per AWWA D100 12.6.1. An oiled sand cushion shall be provided within the ringwall.
  - Contractor shall submit tank design calculations and shop drawings for approval.
  - Loads from antennas and related equipment shall be included in the design of the tank and foundation. Relevant recommendations from Appendix A Commentary for Welded Carbon Steel Tanks for Water Storage, Sec. A.5.6, shall be followed.
- APPURTENANCES**
- All appurtenances shall conform to AWWA D100 standards and include the following:
    - (2) Shell manholes
    - (1) 12" Inlet/outlet pipe connection w/ Hydrodynamic Mixing System
    - (1) 6" Drain
    - (1) 8" Overflow
    - (1) Pressure sensing outlet and enclosure
    - (2) Sampling ports
    - (1) Roof vent
    - (1) Roof manway hatch
    - (1) Roof railing
    - (1) Stairway with guard rail & anti-climb fence
  - All appurtenances shall be welded to the tank unless otherwise indicated.
  - Metalwork shall be completed prior to the surface preparation of the tank. Appurtenances shall be surface-prepared and coated with the interior or exterior coating system as appropriate.
  - All tank openings shall have reinforcing backing plates as required by the Contractor's structural calculations. Backing plates shall be designed to support the loads of the attached fittings and valves as shown in the plan details.
  - Two 30-inch diameter shell manholes shall be provided near grade level to allow access to the tank interior. The manhole covers shall be hinged or otherwise self-supported.
  - Drain shall be furnished with a valve and blind flange as shown in the drawing detail. A reinforcing backing shall be installed as required to support the valve and fittings.
  - Overflow shall be designed by the tank manufacturer and supported as required. The overflow shall be designed for 2,500 gpm. Overflow outlet shall have a NSF 61 certified duckbill style check valve to be Tidellex Series 35 or approved equal.
  - A circular-shaped roof vent shall be designed and sized by the tank manufacturer. Vent shall be sized so that a total flow of 12,000 gpm does not produce a differential pressure beyond which the tank is designed. Head loss through the screen shall not exceed 1/8". Vent sizing calculations must be submitted for approval. Tank vent shall be located at the tank center. Vent shall be equipped with two layers of stainless steel screens. One layer shall have an opening size of  $\pm 1/16"$  to protect against insects entering the tank with the other layer having an opening of  $\pm 1/2"$ . Vent shall be equipped with a removable cover. Hardware shall be ASTM 316 stainless steel.
  - Contractor shall install a rubber gasket sealant on roof access hatch where the hatch cover contacts the hatch opening. The seal material shall be safe to use in drinking water tanks and must be NSF 61 approved. The sealant material must be approved by the Engineer prior to the installation.
  - The roof railing shall be hot dipped galvanized and coated according to the requirements of the tank Outside Coating System.
  - The stairway shall extend from the ground to the top of the tank with slip-resistant treads and top landing platform. The complete stair assembly shall meet all the requirements of OSHA, Federal and State. The bottom twelve (12) feet of the stairs shall have a security cage to guard against unauthorized access. The security cage shall have a guard door which shall be prevented from contacting the tank wall when open. Door shall be equipped to accommodate a SLVWD padlock for locking. Stair parts shall be hot dipped galvanized and the complete stair assembly shall be coated according to the requirements of the tank Outside Coating System.

**HYDRODYNAMIC MIXING SYSTEM**

- GENERAL**
- Hydrodynamic Mixing System (HMS) shall be installed within the tank which passively utilizes the energy of the inlet water supply and generates sufficient inlet momentum to achieve Complete Homogeneous Blending (CHB) of the water volume within the reservoir with the inlet supply flow. HMS shall achieve CHB during a fill cycle of three (3) feet of the tank height with an inlet supply flow rate of 450 gpm to 1100 gpm. CHB shall be verified by supporting hydraulic analysis as conducted by the HMS Manufacturer for the specific system configuration.
  - HMS shall be designed to meet a maximum tank draw rate of 2,500 gpm.
  - HMS shall be by Tidellex Technologies or approved equal. Any tests required to verify systems by HMS Manufacturers other than Tidellex are equal shall be at the expense of the Contractor. The complete HMS shall be designed and supplied by a single HMS Manufacturer to maintain sole responsibility for the system. The complete system shall be defined as all interior piping and all system appurtenances to include fittings, pipe supports, inlet duckbill valves, and outlet check valves.
  - Contractor shall coordinate with the HMS Manufacturer. Particular attention is directed to coordinating exact location of the HMS to avoid conflict with the tank structural columns.
- QUALIFICATIONS**
- The HMS Manufacturer shall have at least five years experience in the manufacturing of duckbill-style elastomeric valves.
  - HMS Manufacturer must have HMS installed in at least ten potable water distribution system reservoirs in the state of California.
- MATERIALS**
- The HMS shall consist of a bi-directional flow manifold equipped with variable orifice duckbill inlet nozzles and outlet flow check valves that are NSF 61 certified. The HMS Manufacturer shall be responsible for designing the system in accordance with the hydrodynamic criteria defined within these specifications and submit design calculations verifying compliance in accordance with the submittal requirements.
  - Inlet nozzles shall be duckbill-style check valves that allow fluid to enter the reservoir during fill cycles and prevent flow in the reverse direction through the nozzle during draw periods. The elastomer used in construction of the duckbill valves must have been tested by an accredited independent laboratory that confirmed there is no degradation in the elastomer when exposed to chlorine and chloramine per the ASTM D471-98 "Standard Test Method for Rubber Property - Effect of Liquids."
  - The outlet flow valves shall be perforated disc type with elastomeric membrane. The elastomer used in construction of the membrane must have been tested by an accredited independent laboratory that confirmed there is no degradation in the elastomer when exposed to chlorine and chloramine per the ASTM D471-98 "Standard Test Method for Rubber Property - Effect of Liquids."
  - Interior piping shall be carbon steel. Field welding of carbon steel pipe and fittings will not be allowed unless approved by the Engineer. All pipe and valves should be covered and stored in a manner to prevent damage and contact with construction site sediment to prevent accumulation of materials within the pipe and fittings.
  - Carbon steel fittings shall conform to ASTM A234. Dimensions for carbon steel fittings shall conform to AWWA C110, unless otherwise specified. Wall thickness shall be specified by Schedule conforming to ANSI B36.10-1985.
  - All flanges shall be carbon steel ring flanges conforming to AWWA C207 Class D. Flange drilling pattern shall be in accordance with ANSI B16.1/B16.5 standards. Ring flanges shall be continuously welded on both sides.
  - System shall be provided with elbows/bends at the tank inlet so that the interior piping does not interfere with the center structural column or any other columns. Tank Contractor shall coordinate the final location of HMS components shall be coordinated with the HMS Manufacturer.
  - Piping shall have pipe support bracket assemblies of carbon steel. The assembly shall completely enclose the circumference of the pipe and include a  $1/2"$  thick NSF 61 certified EPDM strip between the pipe and the support hardware. The base plate shall be field welded to the tank floor, avoiding the welded joints in the floor plates.
  - Following installation of the manifold system, all interior pipe, fittings, bolted connections, pipe supports, and appurtenances shall be coated according to the requirements of the Inside Coating System. This shall include both the inside and outside of the system pipe and fittings. Surface preparation and coating procedures shall be in accordance with the water tank Inside Coating System requirements.
  - Inlet and outlet flow valves shall not be coated. The valves shall be mounted after coating of the tank and piping.
- SUBMITTALS**
- Drawings of the proposed system and a IOM Manual shall be submitted to the Engineer for approval. These drawings shall include plan view piping arrangement, sections and elevations as required, support bracket installation details, duckbill nozzle orientation details, and all dimensions required for locating the system within the specified dimensions of the tank. Two (2) sets of record drawings documenting the final fabrication and installation shall be provided to the Owner at project completion.
- INSTALLATION**
- Installation of the manifold system shall be in accordance with the installation plans and guidelines provided by the HMS Manufacturer and as specified in the installation section of the IOM Manual. Refer to section on Submittals for quantities and delivery schedules of the documents.
- START-UP**
- The HMS Manufacturer's authorized representative shall provide one (1) day inspection to verify that the system has been installed in accordance with the design specifications and installation drawings. Inspection shall meet the following minimum requirements:
    - A. Following installation of the complete manifold piping system, Contractor shall open the upstream isolation valve to allow flow into the tank through the manifold system. The isolation valve must be opened slowly to prevent surge or over-pressurization of the manifold system. The isolation valve must be fully opened to inspect the flow characteristics of the manifold system.
    - B. Contractor and factory representative shall visually inspect the entire piping system for leakage.
    - C. Contractor and factory representative shall visually inspect all of the inlet nozzles to ensure flow is being discharged into the tank through all nozzles.
- WARRANTY**
- The complete manifold piping system shall be warranted by the HMS Manufacturer against failure under design conditions for a period on one (1) year from the date of final installation approval by the Engineer. Inlet nozzles and outlet valves shall be warranted by the Manufacturer against failure under design operating conditions for a period of one (1) year from the date of final installation approval by the Engineer.

REV	DATE	DESCRIPTION
1	8/19/2015	WATER PIPING PROPOSAL FIGURE
2		
3		
4		
5		

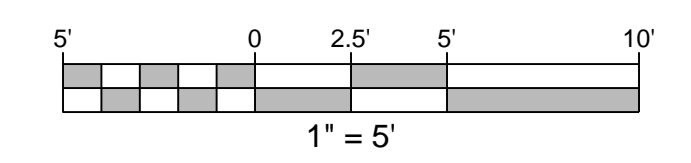
**Schaaf & Wheeler**  
CONSULTING CIVIL ENGINEERS  
1171 HOMESTEAD ROAD, STE 255  
SANTA CLARA, CA 95050  
(408) 246-4848



**SAN LORENZO VALLEY WATER DISTRICT**  
**PROBATION TANK REPLACEMENT**  
PREPARED AT THE REQUEST OF  
SAN LORENZO VALLEY WATER DISTRICT  
13060 HIGHWAY 9  
BOULDER CREEK, CA 95006

**TANK PLAN AND ELEVATION**  
DRAWN BY: LNF  
CHECKED BY: PCJ  
JOB NUMBER: 14176  
SHEET  
**T2.0**

**PRELIMINARY NOT FOR CONSTRUCTION**



**SACRIFICIAL ANODE CATHODIC PROTECTION SYSTEM**

- GENERAL**
- A Sacrificial Anode Cathodic Protection System shall be designed and installed according to the requirements of AWWA Standard D106. The system shall be designed and installed by a Cathodic Protection Contractor. The Work of the Cathodic Protection Contractor shall include all engineering services, materials, equipment, labor, and supervision for the installation of a galvanic sacrificial anode cathodic protection system to provide corrosion control for the interior submerged surface of the tank.
  - Contractor shall coordinate with the Corrosion Contractor. Locations of handholes shall be coordinated
  - All work furnished shall be in accordance with N.A.C.E. Standard RPO196 and ANSI/NSF 61.

- QUALIFICATIONS**
- Cathodic Protection Contractor shall have expertise in the design and installation of galvanic sacrificial anode cathodic protection systems in potable water carbon steel tanks and have the following qualifications:
- The system shall be designed by a Corrosion Specialist with experience in cathodic protection for water storage tanks. Corrosion Specialist shall be accredited by the National Association of Corrosion Engineers International as a Senior Corrosion Technologist, Corrosion Specialist or Cathodic Protection Specialist. An affidavit of compliance with all applicable provisions of AWWA D106 signed by Corrosion Specialist and the installer shall be provided to Owner.
  - The constructor shall have a minimum of five (5) years experience installing and servicing the types of system described in this specification. The system shall be installed by personnel specifically trained by the constructor to provide all workmanship required for corrosion control performance.

- DESIGN CRITERIA**
- The Corrosion Specialist shall design the system to provide effective corrosion control in accordance with criteria for protection. The criteria for protection shall be based on a tank-to-water potential within a range of -0.850 volts to -1.050 volts relative to a copper-copper sulfate reference electrode. The Corrosion Specialist shall also base system capacity and performance on:
- Total submerged surface area of the tank to the MOL (Maximum Operating Level).
  - Type of coating and condition of coating. Total bare surface area to be protected will be a minimum of 2% of total submerged surface area.
  - Minimum current density of 3.0 mA/ft<sup>2</sup> bare surface area.
  - Chemical analysis of water including resistivity expressed in ohm-cm.
  - Minimum anode design life of ten (10) years.
  - Selection, dimensions, and layout of system components specified herein.

- MATERIALS**
- All materials in contact with the water or exposed to the interior of the tank shall be certified in accordance with ANSINSF 61 "Drinking Water System Components. Contractor shall submit copy of company registration and materials certificate to the project engineer verifying ANSINSF 61 system components certified.
  - The anode materials shall be selected in accordance with the design criteria specified herein and AWWA D106 and shall consist of one of the following:
    - Extruded Galvord magnesium alloys with a steel core.
    - Extruded Galvomag magnesium alloys with a steel core.
    - Cast magnesium alloys with a steel core.
  - The anode suspension system shall be vertically suspended from the roof of the tank. The anode lead wire shall be a minimum #8 AWG HMW-PE and will be used to secure the anode to a galvanized steel clevis insulator bracket bolted to the interior tank roof. Handhole cover assemblies used for the installation of vertical anode suspension systems from the roof of the tank shall consist of a cadmium plated 6" diameter cover, rubber gasket, clamping bar and stainless steel bolt assembly.
  - The permanent reference electrode shall consist of a copper-copper sulfate electrode which is manufactured to remain stable (plus or minus 10mV) for minimum of twenty (20) years. The reference electrode to lead wire connection shall be encapsulated to prevent water migration. The reference electrode shall be positioned within the tank to provide the most representative measurements for the submerged surface areas.
  - The test box shall include:
    - Calibrated type "SW" 2 amp, 200mV Holloway shunt for current verification.
    - Variable 100 ohm, 100 watt rheostat to adjust current output
    - High resistance 3.5 digital LCD display and push to read selector switch to monitor tank-to-water voltage potential and anode current.
    - 9 volt DC battery.
    - Reference electrode selector switch for primary and test cells.
    - Screw type wire terminals.
    - NEMA 4X rated fiberglass enclosure w/ SS hinge and latch suitable for padlock.
  - All wiring within the tank shall be insulated to prevent copper conductor to water contact. All wiring on the exterior of the tank shall be insulated and run in rigid conduit.
  - All hardware used in conjunction with the system shall be protected against corrosion.

- SUBMITTALS**
- The Cathodic Protection Contractor shall submit the following information to the purchaser for approval by the Owner:
- Drawings showing system design/configuration.
  - Description of system components.
  - Copy of ANSINSF 61 classification for all system components located within the tank.
  - Design calculations for required voltage, amperage & life expectancy.

- PERFORMANCE**
- All work shall be in accordance with the following requirements:
- Components of the cathodic protection system shall be installed in the manner and at the locations as shown on the design drawings prepared by the Corrosion Specialist.
  - Pressure entrance fitting shall be installed in accordance with AWWA D100.
  - Welding, cutting, and coating shall be in accordance w/AWWA Standards D100, D102 & D652.
  - The cutting of 5" diameter access openings for vertical anode suspension shall be performed by the Prime Contractor prior to coating. The cathodic protection contractor shall furnish drawings and materials to the prime contractor prior to coating.
  - Materials and equipment shall be inspected prior to installation. Any defective component shall be repaired or replaced.
  - Electrical work shall be in accordance with the National Electrical Code.
  - Lead wires shall be installed to prevent damage from abrasion.
  - Electrical connections within the tank shall be sealed to prevent water migration.
    - The test station shall be mounted at a location and height shall be approved by the Owner.
    - Work provided by the constructor shall be completed in a clean and safe manner.

- SYSTEM START-UP**
- After the system is installed and the tank is filled, the Cathodic Protection Contractor shall provide start-up service which includes energizing, testing, and adjusting the system for optimum performance of the cathodic protection system. This start-up service shall be in performed in accordance with AWWA D106 Section 5.2 Testing. Start-up service shall be coordinated with the Owner.
  - All tank-to-water potential measurements shall be conducted with a calibrated portable copper-copper sulfate reference electrode and a portable high impedance voltmeter. A minimum of five (5) locations shall be measured. All test data shall be reviewed and evaluated by the Corrosion Specialist. The final test and adjustment of the system shall be conducted approximately twelve (12) months after the start-up service.
  - System "As-Built" drawings and an Owner's Maintenance Manual shall be submitted to the Owner.

- WARRANTY AND MONITORING**
- All workmanship, equipment, and materials furnished by the Cathodic Protection Contractor shall be guaranteed for a one (1) year warranty period. The Cathodic Protection Contractor shall furnish report cards to be completed by the Owner during the warranty period. Report cards received by the Cathodic Protection Contractor shall be evaluated for system performance with the evaluation furnished to the Owner.
  - At the conclusion of the warranty period, the Cathodic Protection Contractor shall update the Owner's Maintenance Manual with any recommendations for optimizing corrosion control.

**TANK COATING**

- GENERAL**
- The work of this section involves the coating of all interior surfaces including, but not limited to the shell, roof framing, roof plates, columns, floor, piping, and manways; and involves the painting of all exterior surfaces including, but not limited to, the shell, roof, manways, stairs (including cage and door), hatches, vents, and exposed piping.
  - Prior to the start of Work, Contractor shall establish schedules and notification procedures to ensure that the Owner is notified of the completion of surface preparation for any inspection prior to the application of any coating. Under no circumstances shall any surface be coated without prior approval. Schedules and procedures shall be included in the Coating Plan.
  - Contractor shall maintain an accurate, written record of the quantity of coating material applied and the corresponding surface area covered, a description of the area coated, the batch number, surface temperature, ambient temperature, relative humidity, dew point, and applicator on a daily basis. The Contractor shall furnish to the Owner a signed copy of said record at the beginning of the next work day. The quantities may be independently verified by a Owner-hired Inspector. The template for this record shall be included in the Coating Plan.
  - Coating shall meet the requirements of AWWA Standard D102-14 Coating Steel Water-Storage Tanks.
  - All coating shall conform to applicable standards of the Steel Structures Painting Council Manual.

- QUALIFICATIONS**
- The coating manufacturer shall provide written certification that the Contractor's supervisor and each applicator on the project have been trained and approved by the manufacturer to apply the selected coating system.
  - A written statement from the coating contractor stating that they are qualified and experienced in the application of the specified coating systems shall be submitted.
  - Contractor shall provide SSPC QP1 Certification or the manufacturer's certification for application equipment.

- SURFACE PREPARATION**
- Surface preparation shall be in accordance with the relevant provisions of the Steel Structures Painting Council's Surface Preparation standards.
  - The interior surfaces shall be cleaned in accordance with SSPC-SP 10/NACE No. 2. Blast-cleaned surfaces shall have a surface profile that is appropriate for the specific primer and coating system as recommended by the manufacturer of the coating.
  - Exterior surfaces surfaces shall be cleaned in accordance with SSPC-SP 6/NACE No. 3. Blast-cleaned surfaces shall have a surface profile that is appropriate for the specific primer and coating system as recommended by the manufacturer of the coating.
  - Slag and weld metal accumulation shall be removed by chipping or grinding. All sharp edges shall be peened, ground or otherwise blunted as recommended by the coating manufacturer.
  - During blast cleaning operations, caution shall be exercised to insure that existing coatings or paint are not exposed to abrasion from blast cleaning. Any existing coatings thus damaged shall be restored to their previous state.

- COATING APPLICATION**
- Tank coating shall include proper surface preparation and application techniques per coating manufacturer's recommendations.
  - Coating and paint application shall conform to the requirements of Steel Structures Painting Council Painting Application Specification SSPC-PA-1, latest revision for "Shop, Field and Maintenance Painting".
  - Coatings shall be applied in the conditions recommended by the coating manufacturer. No coating or paint shall be applied to wet or damp surfaces, in rain, snow, fog, or mist, when the steel temperature or surrounding air temperature is less than 5 degrees above the dew point, nor in conditions not recommended by the manufacturer. If such conditions are prevalent, coating or painting shall be delayed or postponed until conditions are favorable. The day's coating shall be completed in time to permit the film sufficient drying time prior to damage by atmospheric conditions.
  - Contractor shall provide dehumidification of the tank interior during the entire time when surface preparation and coating application is performed in the tank interior. The contractor shall use a dehumidifier capable of two (2) complete air changes per hour and capable of maintaining a relative humidity of as recommended by the coating manufacturer. After completion of the interior coatings, proper curing procedures shall be followed. Adequate cure time shall be allowed prior to performing disinfection and prior to filling the tank for the leak test.
  - Thinning shall be permitted as recommended by the manufacturer for the conditions of application.
  - Care shall be exercised to prevent coating or paint from being splattered onto surfaces that are not to be coated.
  - Each application of coating shall be applied evenly, free of sags and runs, with no evidence of poor workmanship. Care shall be exercised to avoid lapping on hardware. Coating shall be sharply cut to lines. Finished surfaces shall be free from defects or blemishes.
  - At least one spray-brush coat shall be applied to irregular interior surfaces such as unusually rough welds or corners.
  - Prime coats may be shop applied per AWWA D100 4.4.1.1 for the Inside Coating System and 4.3.1.1 for the Outside Coating System. Any prime coatings that are damaged or contaminated during fabrication, transportation, or erection shall be thoroughly cleaned and touched up in the field. The Contractor shall use repair procedures that insure the complete protection of all adjacent primer.
  - All surfaces which will be made inaccessible after erection, including but not limited to, the underside of roof plates, rafters and girders, column caps, and contact surfaces of connections of the roof structure shall be coated prior to erection. Prior to coating, the surface shall be completely blasted as required by the surface preparation requirements of these Specifications.
  - A stripe coat shall be applied prior to the primer and the intermediate coat for both the interior and the exterior coating systems. Stripe coat shall be applied to all edges, angles, weld seams, and other places where insufficient film thicknesses are likely to be present. Stripe coat will be of contrasting color and shall easily identified by the Inspector.
  - It is not a requirement to perform surface preparation, priming, or coating on the underside of floor plates or on the interior surfaces of the tank overflow.
  - Care has been taken to delineate herein those surfaces to be painted and those surfaces not to be painted. However, if painting requirements have been inadvertently omitted from this section or other sections of these specifications, all exposed ferrous metal surfaces, unless specifically exempted herein, shall receive protective coating equal to that given to the same type of surface pursuant to these specifications.

- HEALTH AND SAFETY**
- In accordance with the requirements set forth by OSHA, Cal-OSHA, and other applicable regulatory agencies and in accordance with the manufacturer's printed instructions and appropriate technical bulletins and manuals, the Contractor shall provide and require use of personal lifesaving equipment for persons working on or about the site. As a minimum, personal lifesaving equipment shall properly address protection of those persons in the following categories:
    - Head and Face protection
    - Respiratory Devices
    - Ventilation
    - Sound Levels
    - Illumination
    - Temporary Ladders and Scaffolding

**TANK COATING (Continued)**

- MATERIAL**
- The coating manufacturer shall recommend their materials for the intended service. Interior immersion coatings must be on the current NSF Standard 61 list for potable water coatings and meet all requirements of the California Department of Public Health (CDPH).
  - Only high grade products of manufacturers having an established good reputation in the manufacture of quality protective coatings shall be used. Materials shall be used within the manufacturer's recommended shelf life.
  - Coating system shall be from a single manufacturer. Each coating material shall be designed to be compatible with the complete coating system. The coating system shall be designed by the manufacturer.
  - The Contractor may submit for consideration paint materials of manufacturer's other than those specified herein. The Contractor shall provide satisfactory documentation from the firm manufacturing the proposed material that the material meets the specified requirements and is equivalent to or better than the listed materials in the following properties.
    - Quality
    - Durability
    - Resistance to abrasion and physical damage
    - Life Expectancy
    - Ability to recoat in future
    - Solids content by volume
    - Dry film thickness per coat
    - Compatibility with other coatings
    - Suitability for the intended service
    - Resistance to chemical attack
    - Temperature limitations in service and during application
    - Type and quality of recommended undercoats and topcoats
    - Ease of Application
    - Ease of repairing damaged areas
    - Stability of colors
  - Where practicable, each succeeding coat of paint shall be of a contrasting color so that it is easily distinguishable by the coating applicator and the Owner's representative.
  - All materials shall be delivered to the jobsite in their original, unopened containers bearing the manufacturer's name, brand and batch number. Requests for material substitutions must be made and approved in writing.
  - All coatings shall be stored in enclosed structures when necessary to protect them from weather and excessive heat or cold. Flammable coatings must be stored to conform to Local, County, State, and Federal safety codes for flammable coating or paint materials. All coatings shall be protected from freezing.
  - All materials used for surface preparation, priming, and coating shall meet the requirements of all applicable Local, State, and Federal air regulatory agencies.

- Interior Coating**
- The interior paint shall be a three-coat system consisting of an organic zinc-rich primer, an intermediate epoxy coat, and finish epoxy coat in accordance with AWWA D102-14 System ICS-5. The interior finish coat color shall be white as specified.
  - The interior coating shall consist of the following coats.
 

Primer: Tnemec Series 91-H<sub>2</sub>O or 94-H<sub>2</sub>O Hydro-Zinc, DFT 2.5 to 3.5 mils  
 Intermediate Coat: Tnemec Series V140F Pota-Pox Plus in Beige Color 1255, DFT 4.0 to 6.0 mils  
 Finish Coat: Tnemec Series V140F Pota-Pox Plus in Tank White Color 15BL, DFT 4.0 to 6.0 mils  
 Total DFT: 10.5 to 15.5 mils
  - Accessible interior roof plate lap joints and contact surfaces of roof plates on supporting members shall be caulked with a nonsag elastomeric sealant. The sealant shall be Sikaflex 1a as manufactured by the Sika Corporation or approved equal.

- Exterior Coating**
- The exterior paint shall be a three-coat system in accordance with AWWA D102 System OCS-6. The system shall consist of an organic zinc-rich primer, an intermediate epoxy coat, and a finish polyurethane coat. The finish exterior outside color shall be white or off-white. Contractor shall submit a color sample to Owner for approval.
  - The exterior coating shall consist of the following coats.
 

Primer: Tnemec Series 91-H<sub>2</sub>O or 94-H<sub>2</sub>O Hydro-Zinc, DFT 2.5 to 3.5 mils  
 Intermediate Coat: Tnemec Series V69 Hi-Build Epoxoline II, DFT 2.0 to 3.0 mils  
 Finish Coat: Tnemec Series 1075 Endura-Shield II, DFT 2.0 to 3.0 mils  
 Total DFT: 6.5 to 9.5 mils

- COATING INSPECTION AND TESTING**
- Thickness of coatings shall be checked with a non-destructive, magnetic type thickness gauge. Coating integrity of all interior coated surfaces shall be tested with an approved holiday detection device. Non-destructive holiday detectors shall not exceed 100 volts nor shall destructive holiday detectors exceed the voltage recommended by the manufacturer of the coating system. For thicknesses between 10 and 20 mils (0.25mm and 0.50mm) a non-sudsing type wetting agent such as Kodak Photo-Flo, shall be added to the water prior to wetting the detector sponge. All pinholes shall be marked, repaired in accordance with the manufacturer's printed recommendations and re-tested. No pinholes or other irregularities will be permitted in the final coating. Holiday detection devices shall be operated in the presence of a representative of the Owner, if any.
  - Until final acceptance of tank coating, the Contractor shall furnish and make available to the Owner's representative inspection devices in good working condition for detection of holidays and measurement of dry film thickness of coating and paint. The contractor shall also furnish U.S. Department of Commerce, National Bureau of Standards certified thickness calibration plates to test accuracy of dry-film thickness gauge. All inspection devices shall be in good working order and intended to be used with the thickness of the coating system to be inspected.

- SUBMITTALS**
- Products shall be standard products produced by recognized manufacturers who are regularly engaged in production of such materials for essentially identical service conditions. If requested, the Contractor shall provide verification that the product has been used in potable water tanks in at least 5 applications.
  - For each coating system, Contractor shall submit:
    - Coating manufacturer's technical data, including documentation of the suitability of the material for potable water use (e.g. NSF 61 certificate)
    - Instructions and recommendations for surface preparation, thinning, mixing, handling, application and proper storage. This shall include minimum time requirements for coating, recoating, and surface patches.
    - Coating manufacturer's standard details for coating over joints/cracks, pipe penetrations, edge terminations, plate overlaps, and welds
    - MSDS
    - Color Sample
  - Contractor shall submit a Coating Plan. Plan shall include the following:
    - Construction sequence
    - Environmental monitoring procedures
    - Details of forced heating, dehumidification, shading, and ventilation equipment as required
    - Over-spray prevention procedures

- WARRANTY**
- Coatings shall be warranted for material and workmanship furnished by the Contractor for a period of one (1) year from the date of acceptance of the work.
  - All work found to be defective within the warranty period shall be repaired in accordance with the manufacturer's recommendation and the satisfaction of the Owner in order to bring the defective areas up to the quality level of the original work required by this specification.

**TESTING AND DISINFECTION**

- A Testing and Disinfection Schedule, including proposed plans for water conveyance, control, disinfection, and disposal shall be submitted in writing for approval a minimum of 14 days before testing is to commence. The submittal shall include Contractor's plan for the release of water from structures after testing and disinfection has been completed.
- After construction is completed and prior to testing, the interior of the reservoir shall be completely hosed out and cleaned of all dirt and loose material. All water, dirt, and foreign material accumulated in this cleaning operation shall be discharged from the reservoir or otherwise removed.
- Tank shall be tested in accordance with AWWA D100 11.10.
- After erection of the tank but prior to tank coating, all joints in the tank bottom shall be vacuum tested per the procedures outlined in AWWA D100 11.10.1.2. The shell-to-bottom joint shall be tested in accordance with AWWA D100 11.10.2.
- After tank erection and coating, Contractor shall disinfect tank in accordance with Section 64582 of Title 22, Division 4, Chapter 16, Article 6 of the California Code of Regulations. Tank shall be disinfected in accordance with AWWA D100 and AWWA C652 (Disinfection of Water Storage Facilities). Piping shall be disinfected in accordance with AWWA B300 and C651.
- Compliance with NSF/ANSI 60, Drinking Water Treatment Chemicals is required.
- Testing and disinfecting of the reservoir shall be a combined operation. Disinfection shall be accomplished by chlorination. All chlorinating and testing operations shall be done in the presence of the Engineer. Disinfection operations shall be scheduled by the Contractor as late as possible during the contract time period so as to assure the maximum degree of sterility of the facilities at the time the work is accepted by the Owner.
- Testing shall not be done sooner than 14 days after all portions of structure walls and associated roof systems have been completed. Coatings to the reservoir interior shall be applied before the combined testing and disinfecting operations.
- Disinfected water storage facilities shall be sampled and tested by the Owner in accordance with ANSII/AWWA C652. Bacteriological and volatile organic compound testing (VOC) will be performed by a certified testing laboratory appointed and paid for by the Owner. Results of the testing shall be satisfactory to the California Department of Public Health (CDPH) and the Engineer. The new facilities shall remain isolated and out of service until satisfactory test results have been obtained which meet the requirements of CDPH and the Engineer. If unsatisfactory or doubtful results are obtained from the initial sampling, the disinfection process shall be repeated until acceptable test results are reported. The follow-up sampling costs shall be borne by the Contractor.
- Sufficient water will be provided free of charge by the Owner for one filling of the reservoir to be used for disinfection and testing, and testing of all valves and piping. However, the Contractor shall make all necessary provisions for conveying the water from the Owner-designated source to the points of use.
- All water used in retesting the reservoir shall be disposed of by the Contractor at his sole expense. Water may be discharged into storm drains where written permission is given by the governmental agency having jurisdiction. Contractor shall apply a reducing agent to the solution to neutralize residual chlorine remaining in the water. The disposal of water shall, in all cases, be carried out in strict observance of the water pollution control requirements of the California State Regional Water Quality Control Board. The flow of water from the tank shall be controlled to prevent erosion of surrounding soil, damage to vegetation, and altering of ecological conditions in the area.
- Release of water from structures, after testing and disinfection have been completed, shall only be done after obtaining approval from the Owner.
- Any water used for testing or disinfecting, required to be removed from the tank at the direction of the Owner, shall be the responsibility of the Contractor who shall furnish the necessary labor, tools and equipment, including pumps, without additional compensation.

REV	DESCRIPTION	BY	DATE
1	WATER PIPING PROPOSAL FIGURE	PCJ	8/18/2015

**Schaaf & Wheeler**  
 CONSULTING CIVIL ENGINEERS  
 1171 HOMESTEAD ROAD, STE 255  
 SANTA CLARA, CA 95050  
 (408) 246-4848



**SAN LORENZO VALLEY WATER DISTRICT  
 PROBATION TANK REPLACEMENT**

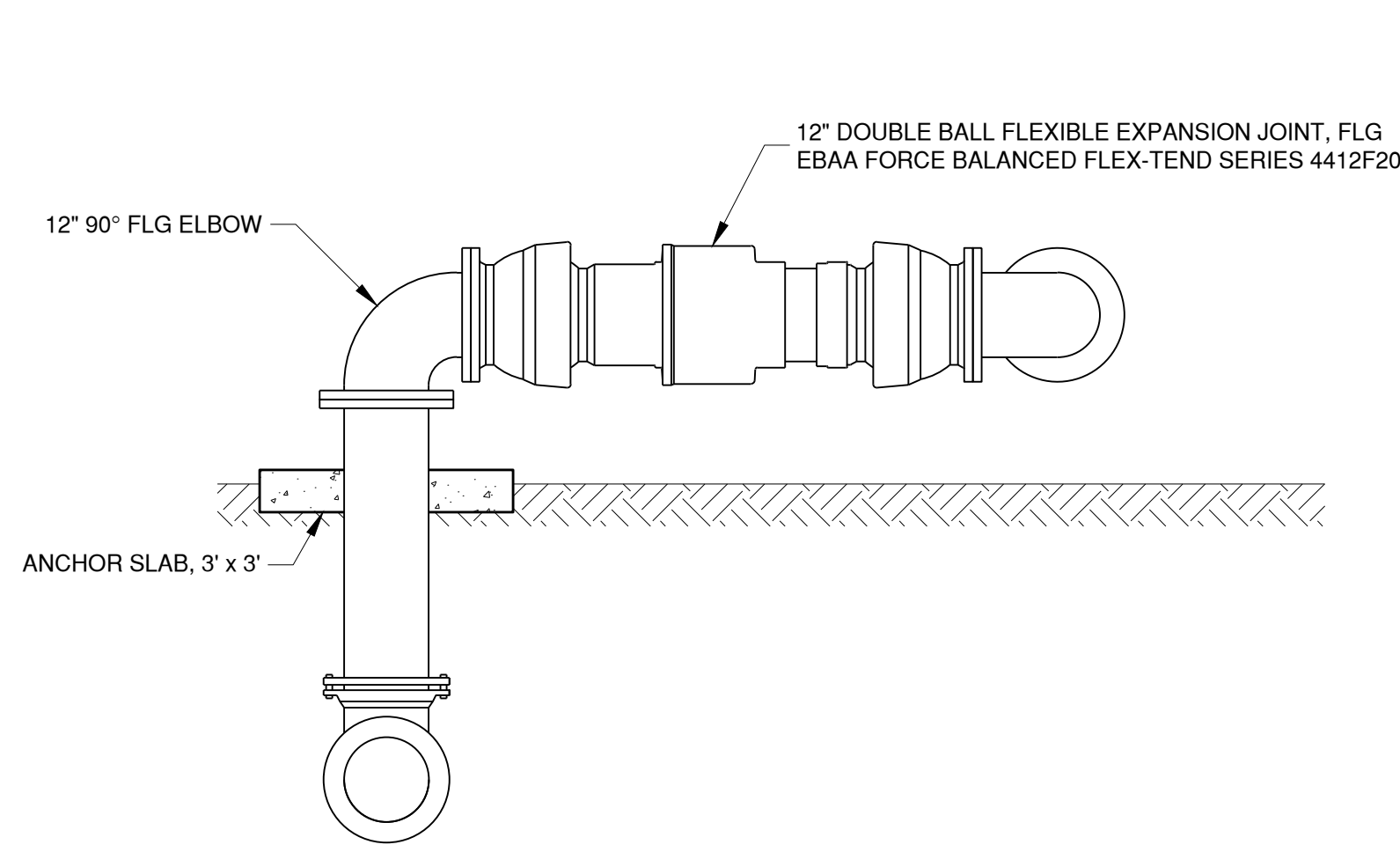
PREPARED AT THE REQUEST OF  
 SAN LORENZO VALLEY WATER DISTRICT  
 13060 HIGHWAY 9  
 BOULDER CREEK, CA 95006

**TANK SPECIFICATIONS**

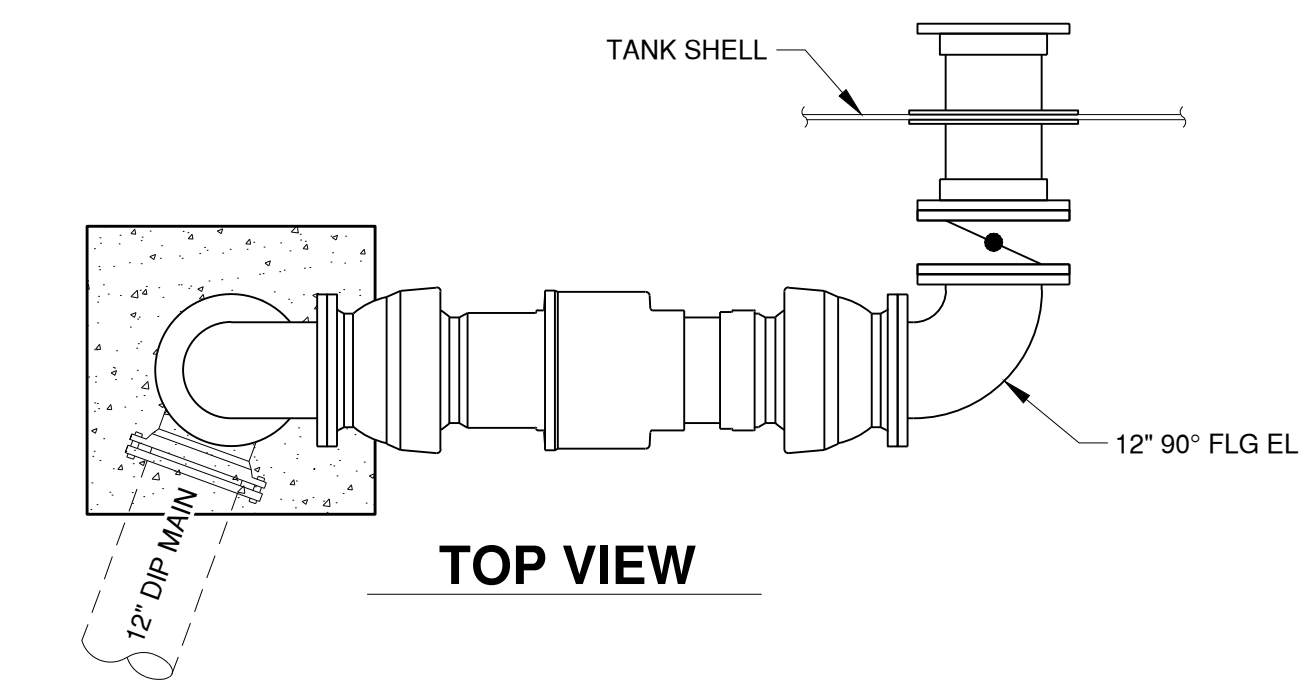
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 CHECKED BY: PCJ  
 JOB NUMBER: 14176  
 SHEET

**T3.0**

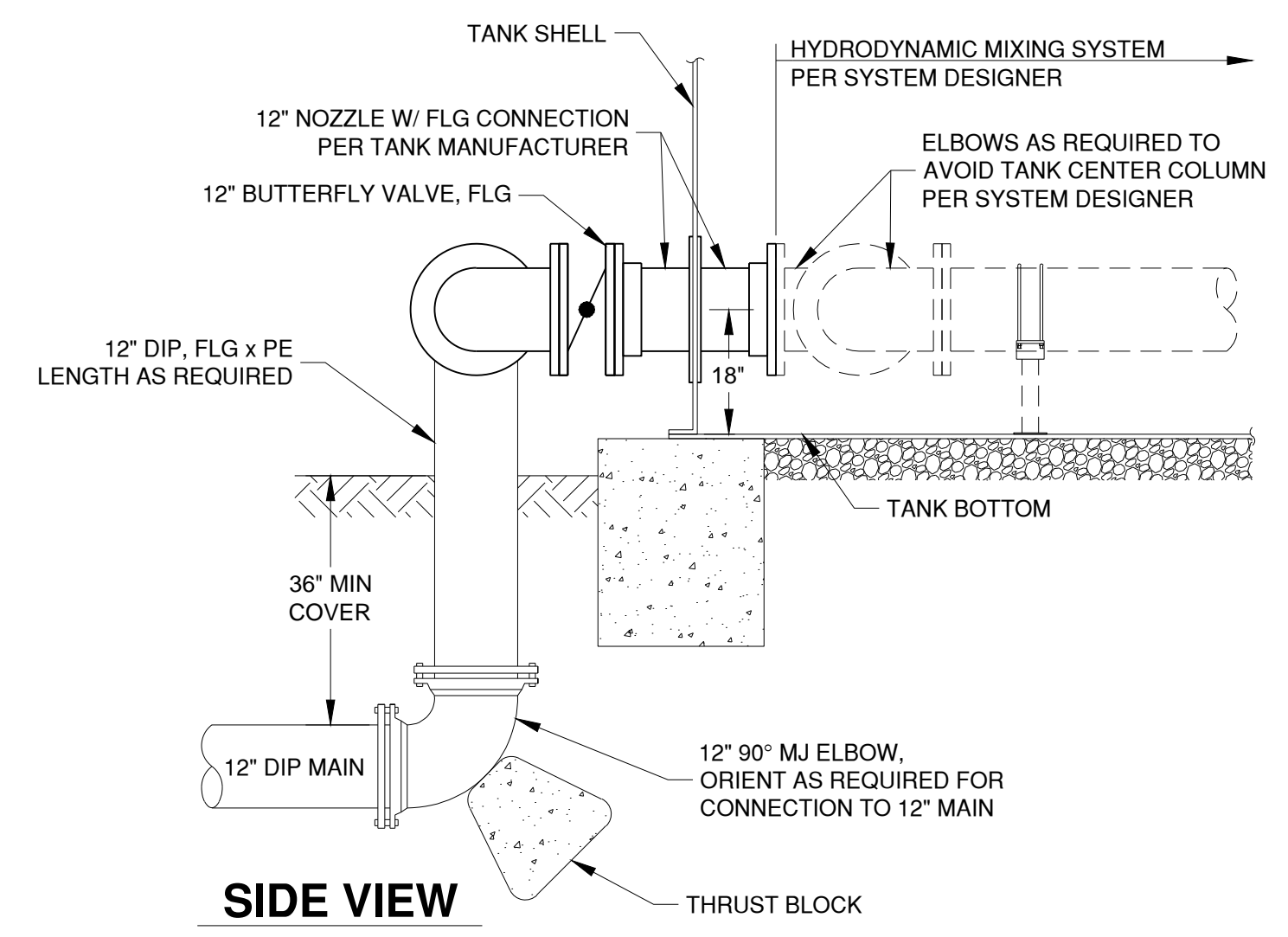
**PRELIMINARY NOT FOR CONSTRUCTION**



**FRONT VIEW**

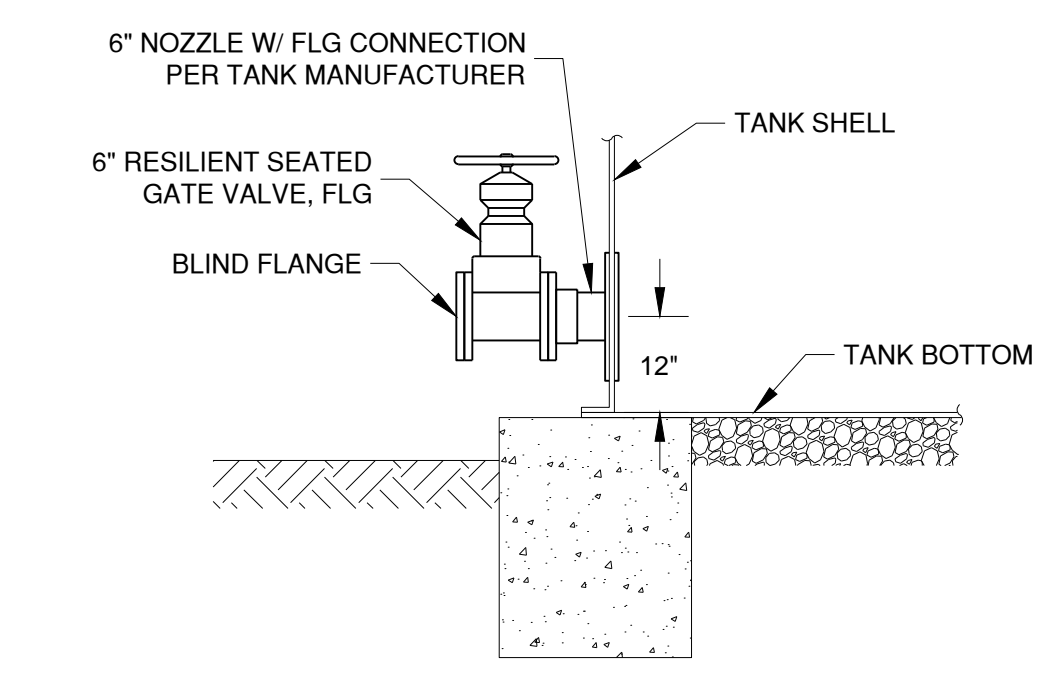


**TOP VIEW**

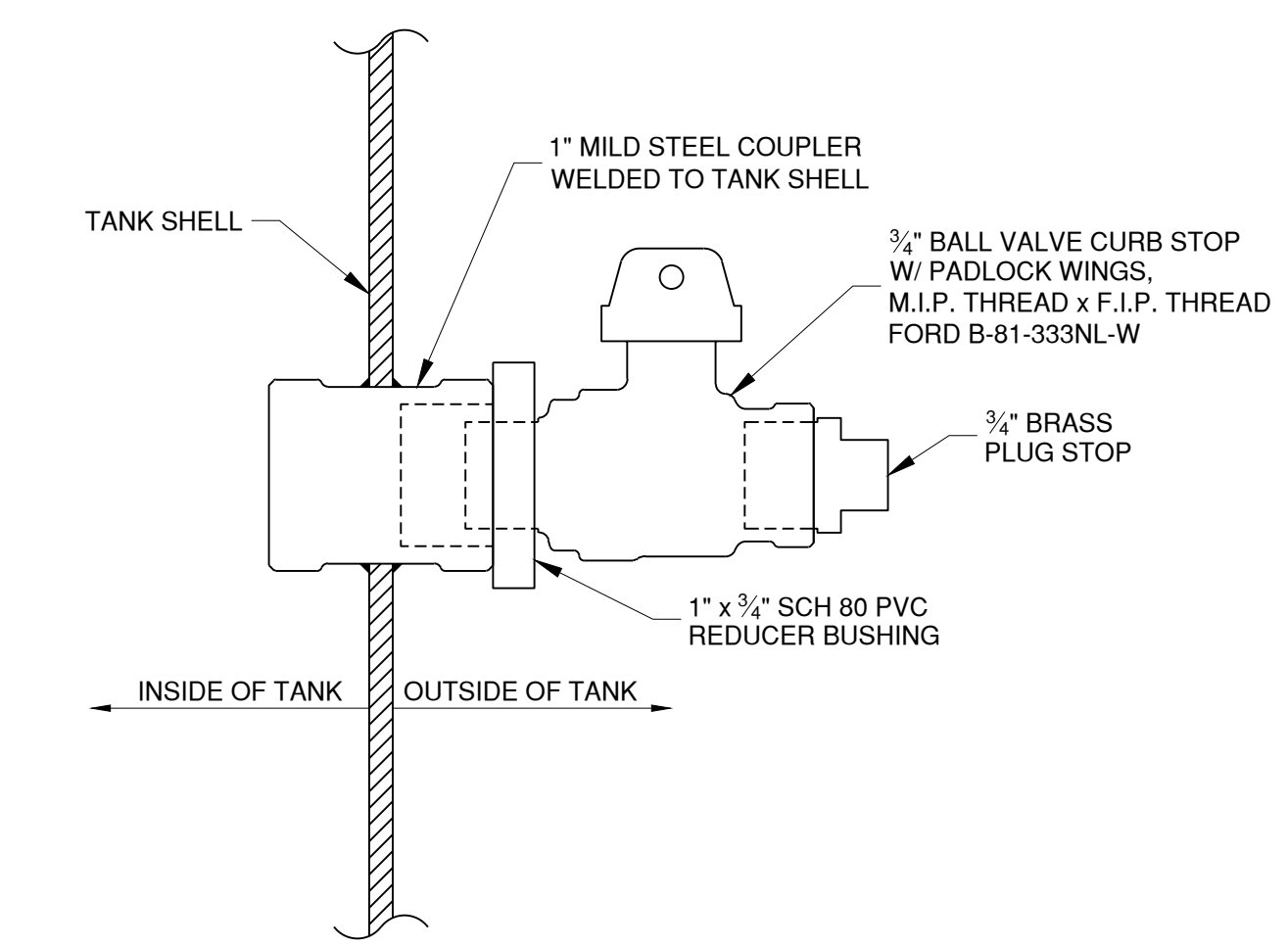


**SIDE VIEW**

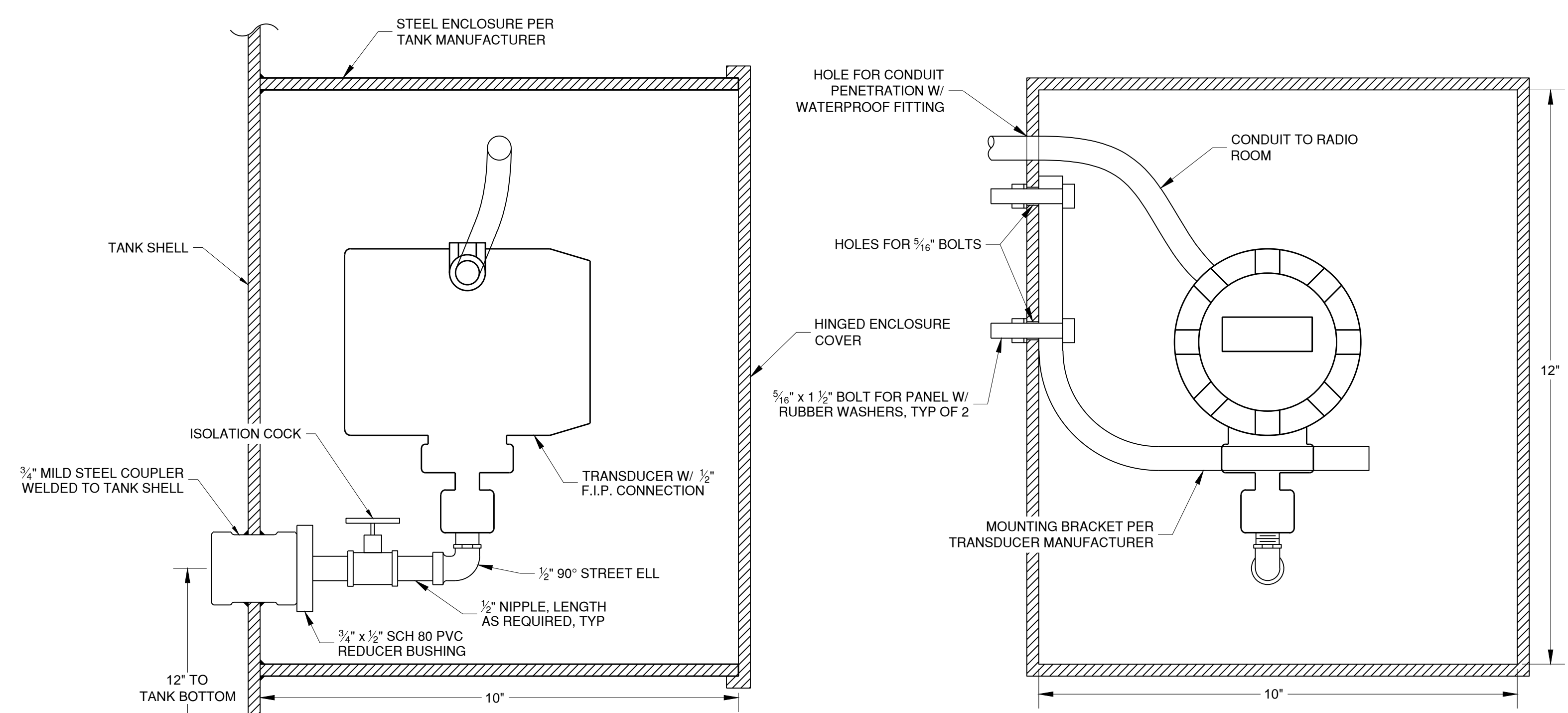
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SCALE: 1/2"=1'-0" 1



**DRAIN DETAIL**  
SCALE: 1/2"=1'-0" 2



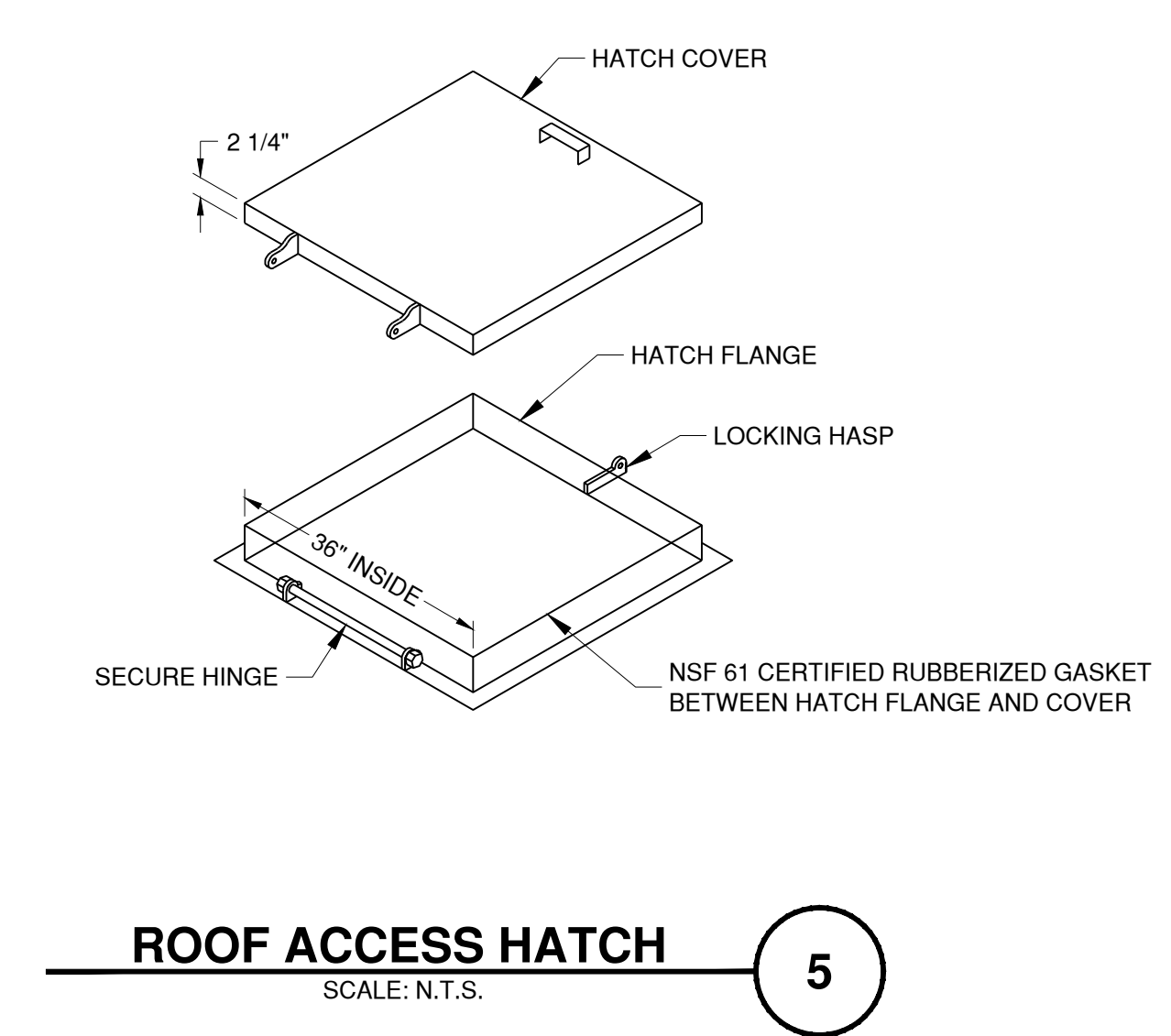
**SAMPLING PORT DETAIL**  
SCALE: N.T.S. 3



**SIDE VIEW**

**FRONT VIEW**

**TRANSUDER DETAIL**  
SCALE: N.T.S. 4



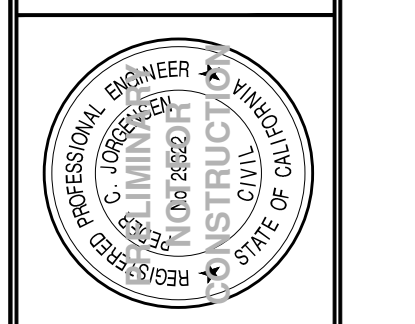
**ROOF ACCESS HATCH**  
SCALE: N.T.S. 5

**PRESSURE TRANSDUCER**

1. A new pressure transducer shall be supplied and installed to measure tank depth. Transducer shall be Rosemount Model 2088G. Transmitter shall: measure gauge pressure with -14.7 to 30psi range; include 4-20mA DC / Digital HART Protocol output to electrical panel PLC; be made of 316L SS process connection, 316L isolating diaphragm, silicone fill fluid; have 1/2-inch NPT female process connection; and have 1/2-inch NPT conduit entry; have an integral LCD display. Transmitter shall meet NEMA-4X rating, suitable for exterior weather conditions.
2. Controls shall be calibrated so that the output indicates the water depth from the tank floor.

REV	DESCRIPTION	BY	DATE
1	WATER PIPING PROPOSAL FIGURE	PCJ	6/15/2015

**Schaaf & Wheeler**  
CONSULTING CIVIL ENGINEERS  
1171 HOMESTEAD ROAD, STE 255  
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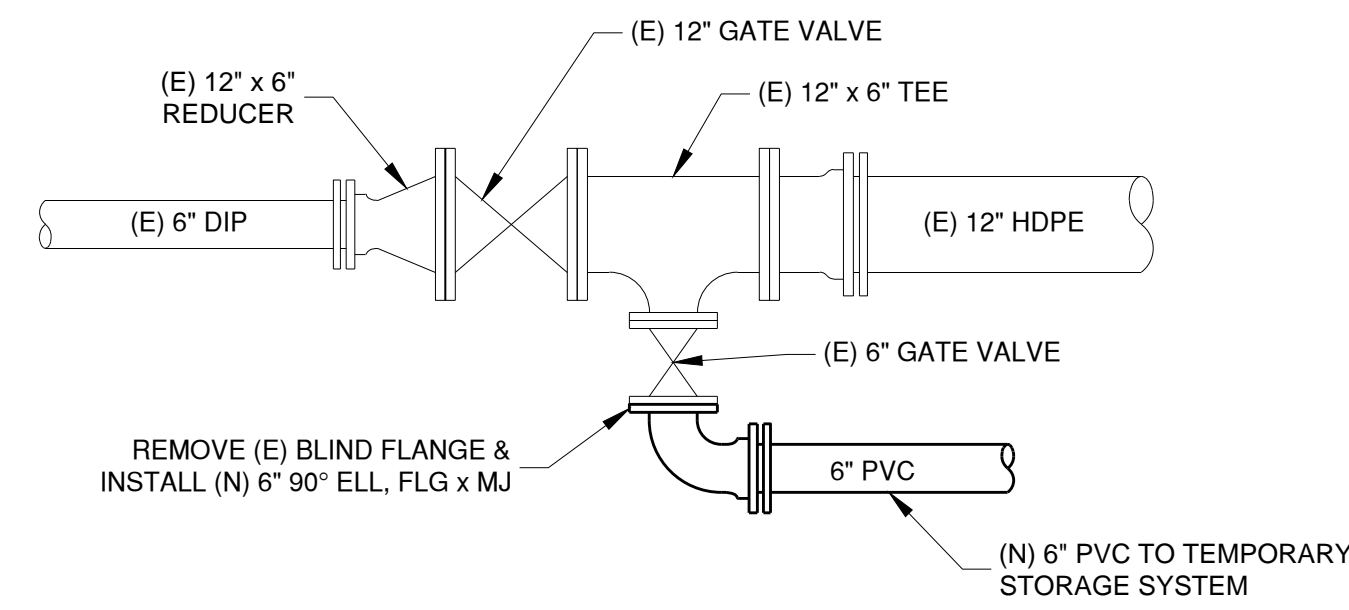


**SAN LORENZO VALLEY WATER DISTRICT**  
PROBATION TANK REPLACEMENT  
PREPARED AT THE REQUEST OF  
SAN LORENZO VALLEY WATER DISTRICT  
13060 HIGHWAY 9  
BOULDER CREEK, CA 95006

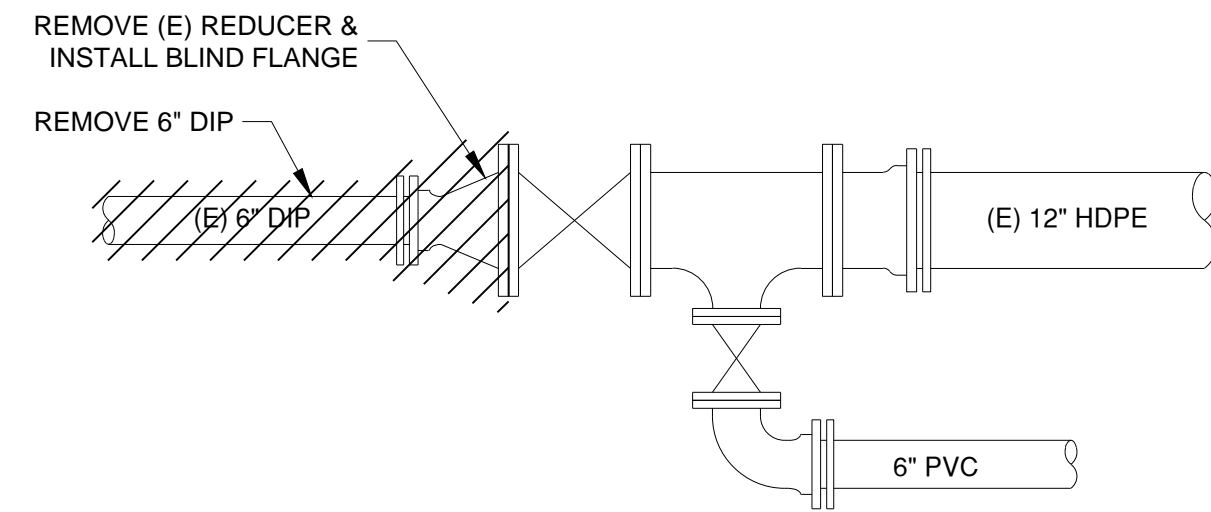
**TANK DETAILS**  
DRAWN BY: LNF  
CHECKED BY: PCJ  
JOB NUMBER: 14176  
SHEET  
**T4.0**

**PRELIMINARY NOT FOR CONSTRUCTION**





**CONNECT TEMPORARY SYSTEM**

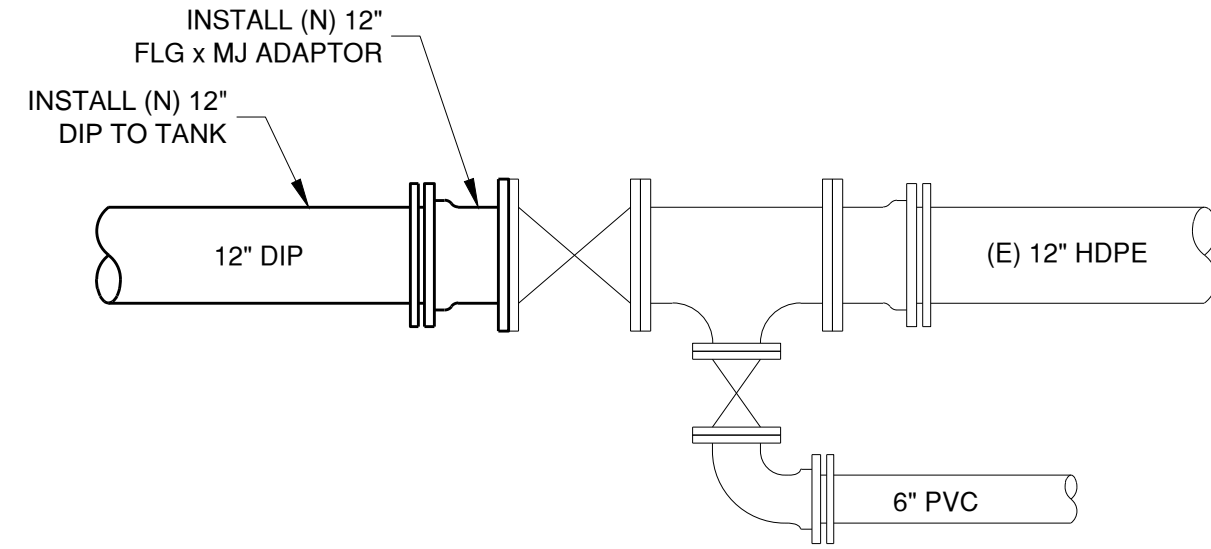


**REMOVE CONNECTION TO EXISTING TANK**

**PHASE 1 CONNECTION DETAIL**

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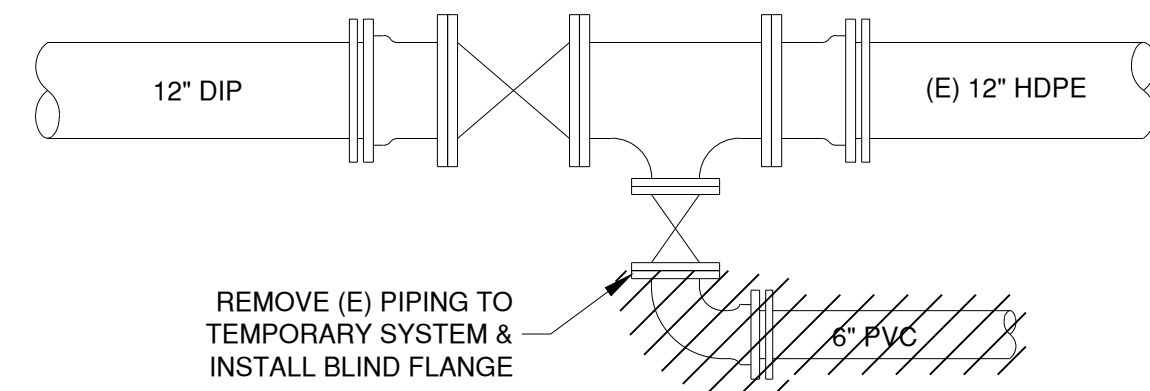
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**PHASE 2 - CONNECT TO NEW TANK**

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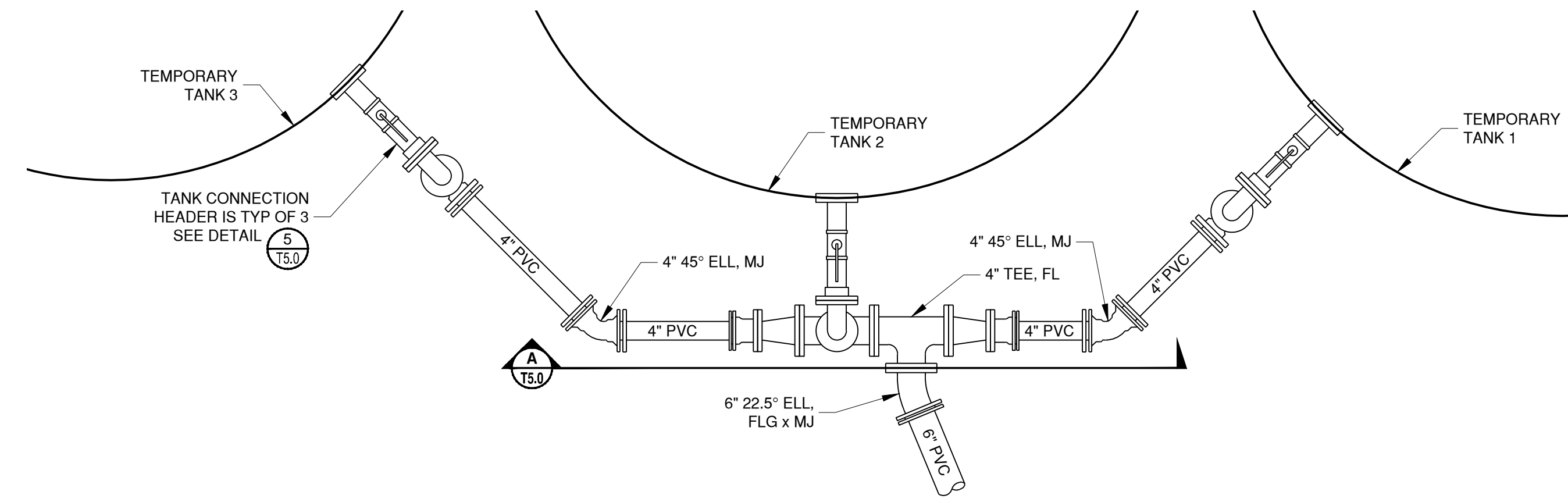
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**DISCONNECT TEMPORARY SYSTEM**

SCALE: 1/2"=1'-0"

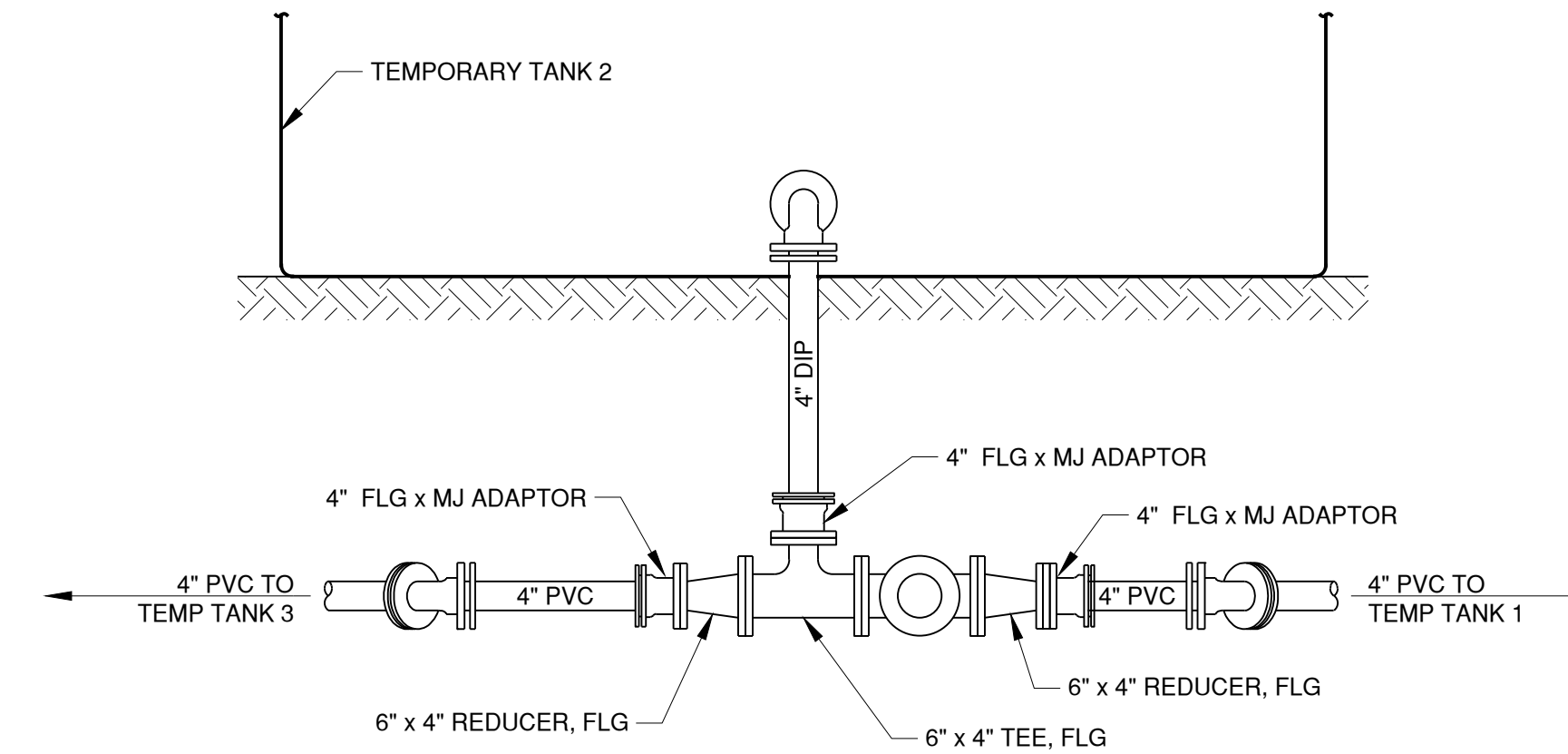
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**TEMPORARY TANK PIPING DETAIL**

SCALE: 1/2"=1'-0"

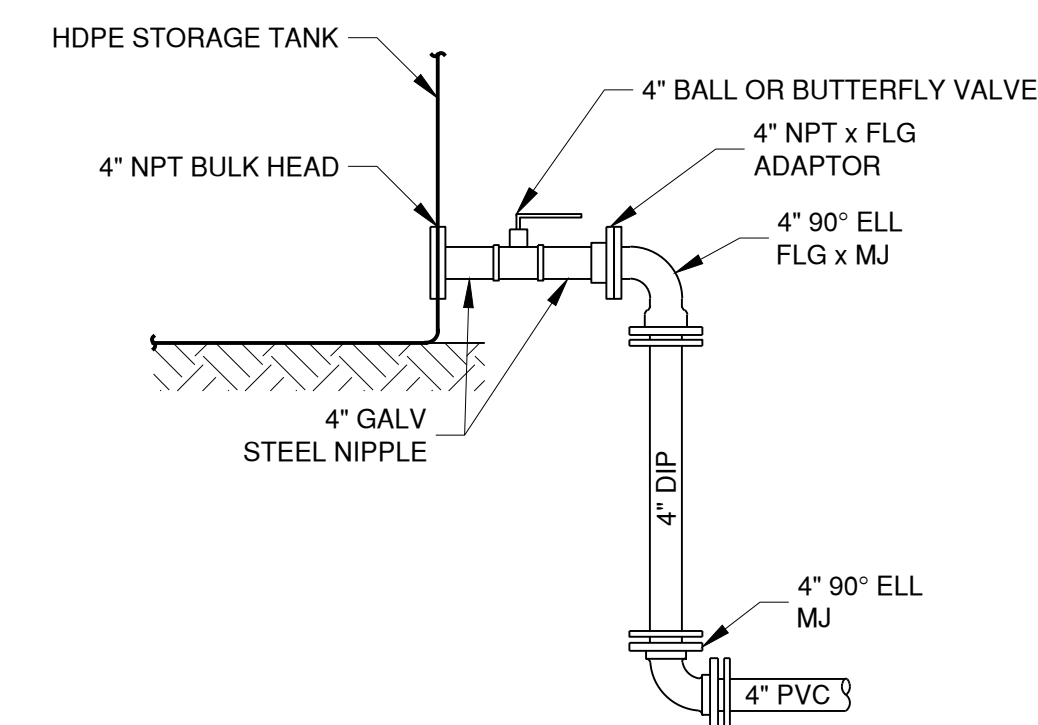
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**SECTION**

SCALE: N.T.S.

A



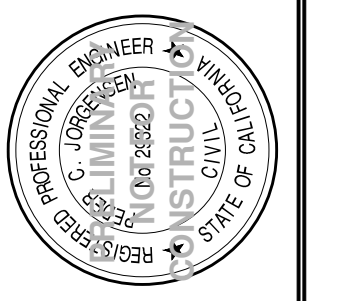
**TEMPORARY TANK CONNECTION DETAIL**

SCALE: 1/2"=1'-0"

5

REV	DESCRIPTION	BY	DATE
1	WATER PIPING PROPOSAL FIGURE	PCJ	6/19/2015

**Schaaf & Wheeler**  
CONSULTING CIVIL ENGINEERS  
1171 HOMESTEAD ROAD, STE 255  
SANTA CLARA, CA 95050  
(408) 246-4848



**SAN LORENZO VALLEY WATER DISTRICT**  
**PROBATION TANK REPLACEMENT**  
PREPARED AT THE REQUEST OF  
SAN LORENZO VALLEY WATER DISTRICT  
13060 HIGHWAY 9  
BOULDER CREEK, CA 95006

PIPING DETAILS	
DRAWN BY:	LNJ
CHECKED BY:	PCJ
JOB NUMBER:	14176
SHEET	
<b>T5.0</b>	

**PRELIMINARY NOT FOR CONSTRUCTION**

# SYMBOLS AND ABBREVIATIONS

1 OCT. 09

SYMBOLS & ABBREVIATIONS SHOWN ARE FOR GENERAL USE  
DISREGARD THOSE WHICH DO NOT APPEAR ON THE PLANS

<p><b>LIGHT FIXTURES</b></p> <ul style="list-style-type: none"> <li> FLUORESCENT - ANY MOUNT</li> <li> FLUORESCENT STRIP - ANY MOUNT</li> <li> INCAND. OR HID - CEILING RECESSED</li> <li> INCAND. OR HID - SURF. OR SUSP.</li> <li> INCAND. OR HID - WALL MOUNT</li> <li> SITE LIGHT - ARM MOUNTED ON POLE</li> <li> SITE LIGHT - GROUND, POST OR POLE MOUNTED</li> <li> EXIT LIGHT - ANY MOUNT SEE PLANS FOR MTG.</li> <li> EMERGENCY LIGHTING SET</li> </ul> <p><b>SWITCHES</b></p> <p>ALL SWITCHES 20A - 120/277V - U.O.N. SWITCH MOUNTING = +48" TO TOP OF ELECTRICAL BOX U.O.N.</p> <ul style="list-style-type: none"> <li> S.P.S.T.</li> <li> SINGLE LOAD MOTION SENSOR SWITCH</li> <li> DOUBLE LOAD MOTION SENSOR SWITCH</li> <li> 4 - WAY</li> <li> 3 - WAY</li> <li> S.P.S.T. WITH PILOT LIGHT</li> <li> S.P.S.T. KEY OPERATED</li> <li> COMBINATION SWITCH/MOTION DETECTOR WHERE "X" INDICATES THE NUMBER OF CIRCUITS CONTROLLED.</li> <li> WALL MOUNTED OCCUPANCY SWITCH</li> <li> PUSHBUTTON - SEE DWGS FOR TYPES</li> <li> OCCUPANCY SENSOR - CEILING MOUNTED</li> <li> OCCUPANCY SENSOR - WALL MOUNTED</li> <li> EMERGENCY DISCONNECT PUSHBUTTON</li> </ul> <p><b>OUTLETS</b></p> <p>ALL RECEPTACLE OUTLETS 20A - 125V. - U.O.N. OUTLET MOUNTING = +18" TO BOTTOM OF ELECTRICAL BOX U.O.N.</p> <ul style="list-style-type: none"> <li> SINGLE RECEPTACLE - WALL MOUNT</li> <li> DUPLEX RECEPTACLE - WALL MOUNT</li> <li> 4-PLEX RECEPTACLE - WALL MOUNT</li> <li> DUPLEX RECEPTACLE-MOUNTED ABOVE COUNTER (VERIFY HEIGHT)</li> <li> SINGLE ISO. GND. RECEPT. - WALL MOUNT</li> <li> DUPLEX ISO. GND. RECEPT. - WALL MOUNT</li> <li> DUPLEX RECEPTACLE - WITH GROUND FAULT INTERRUPTER</li> <li> POWER OUTLET - SEE DWGS FOR THIS TYPES</li> <li> CLOCK OUTLET - 15A-125V @ +90° U.O.N.</li> <li> COMPUTER DATA OUTLET-WALL MOUNT</li> <li> TELE/DATA COMBO. OUTLET-WALL MOUNT</li> <li> TELEPHONE OUTLET-WALL MOUNT</li> <li> TV OUTLET - WALL MOUNT</li> <li> FLOOR RECEPTACLE - 20A</li> <li> FLOOR COMPUTER DATA OUTLET</li> <li> FLOOR TELEPHONE OUTLET</li> <li> FLOOR TV OUTLET</li> <li> THERMOSTAT OUTLET BOX @ +48" U.O.N.</li> <li> JUNCTION BOX - WALL MOUNT</li> <li> JUNCTION BOX - CEILING MOUNT</li> <li> SPEAKER - WALL MOUNT</li> <li> SPEAKER - CEILING MOUNT</li> </ul> <p><b>FIRE ALARM</b></p> <ul style="list-style-type: none"> <li> HEAT DETECTOR</li> <li> TAMPER SWITCH</li> <li> SMOKE DETECTOR</li> <li> SPRINKLER RISER FLOW SWITCH</li> <li> FIRE SMOKE DAMPER</li> <li> *VOICE ANNUNCIATOR/STROBE-WALL MOUNT</li> <li> *HORN/STROBE-ANY MOUNT-ANY TYPE</li> <li> *HORN/STROBE ONLY - ANY MOUNT</li> <li> *HORN-ANY MOUNT-ANY TYPE</li> <li> MANUAL PULL STATION @ +48" U.O.N.</li> <li> ALARM BELL</li> <li> *+80" A.F.F. TO BOTTOM OF DEVICE OR 6" BELOW CEILING WHICHEVER IS LOWER</li> </ul>	<p><b>CONDUIT/WIRING</b></p> <ul style="list-style-type: none"> <li> CONCEALED IN WALLS OR CEILING; OR EXPOSED WHEN SPECIFICALLY NOTED</li> <li> UNDER FLOOR SLABS OR UNDERGROUND</li> <li> HOMERUN TO PANEL, TERMINAL OR EQUIPMENT INDICATED</li> <li> DENOTES NEUT. WIRE</li> <li> DENOTES PHASE WIRES</li> <li> BRANCH CIRCUIT WIRING ID.</li> <li> CONDUIT STUB-OUT</li> <li> CONDUIT UP OR DOWN-AS NOTED</li> </ul> <p><b>MISCELLANEOUS</b></p> <ul style="list-style-type: none"> <li> MOTOR CONNECTION</li> <li> FUSED DISCONNECT SWITCH-FUSED WITH DUAL-ELEMENT TIME DELAY FUSES, SIZED PER EQUIP. MFGR'S NAME PLATE DATA</li> <li> DISCONNECT SWITCH-NONFUSED U.O.N.</li> <li> MAGNETIC MOTOR STARTER</li> <li> COMBINATION MAG STARTER &amp; FUSED DISCONNECT SWITCH</li> <li> GROUND ROD-DIRECT BURIED</li> <li> GROUND ROD-WITH ACCESSIBLE BOX</li> <li> FEEDER TAG</li> <li> EQUIP. ID TAG-SEE SHEET NOTES ON SAME SHEET WHERE SYMBOL APPEARS U.O.N.</li> <li> SHEET NOTE TAG</li> <li> TRANSFORMER PAD MOUNT OR DRY TYPE</li> <li> SWITCHGEAR OR MCC</li> <li> PANELBOARD - FLUSH MOUNTED</li> <li> PANELBOARD - SURFACE MOUNTED</li> <li> SPECIAL PURPOSE EQUIP., DEVICE, PANEL OR TERMINAL CABINET (F.A., LIGHTING CONTROL, ETC.) EQUIPMENT PARAMETERS INDICATED ON PLANS</li> <li> CONCRETE PULLBOX SIZE INDICATED ON PLANS</li> <li> +48" INDICATES MOUNTING HEIGHT TO CENTER OF DEVICE OR EQUIP. ABOVE FINISHED FLOOR.</li> <li> O<sub>b</sub> \$<sub>b</sub> SUBSCRIPT LETTER INDICATES CONTROL NUMBER</li> <li> 3 O<sub>2</sub> FIGURE INDICATES BRANCH CIRCUIT NUMBER</li> </ul> <p><b>ABBREVIATIONS</b></p> <table border="0" style="width: 100%;"> <tr> <td>A.F.G.</td> <td>ABOVE FINISHED GRADE</td> <td>(N)</td> <td>NEW</td> </tr> <tr> <td>ARCH.</td> <td>ARCHITECT</td> <td>NL</td> <td>NOT IN CONTRACT</td> </tr> <tr> <td>B.C.</td> <td>BARE COPPER</td> <td>OFCI</td> <td>OWNER FURNISHED CONTRACTOR INSTALLED EQUIPMENT</td> </tr> <tr> <td>C.</td> <td>CONDUIT</td> <td></td> <td></td> </tr> <tr> <td>CKT</td> <td>CIRCUIT</td> <td></td> <td></td> </tr> <tr> <td>C.O.</td> <td>CONDUIT ONLY</td> <td>PH.</td> <td>PHASE</td> </tr> <tr> <td>CONC.</td> <td>CONCRETE</td> <td>P.O.C.</td> <td>POINT OF CONNECTION</td> </tr> <tr> <td>CONTR.</td> <td>CONTRACTOR</td> <td>P/O</td> <td>PART OF</td> </tr> <tr> <td>DISC.</td> <td>DISCONNECT</td> <td>(R)</td> <td>RELOCATED</td> </tr> <tr> <td>(E)</td> <td>EXISTING</td> <td>SW</td> <td>SWITCH</td> </tr> <tr> <td>ELEC.</td> <td>ELECTRICAL</td> <td>SWBD</td> <td>SWITCHBOARD</td> </tr> <tr> <td>EM</td> <td>EMERGENCY</td> <td>T., TELE.</td> <td>TELEPHONE</td> </tr> <tr> <td>(F)</td> <td>FUTURE</td> <td>TERM.</td> <td>TERMINAL</td> </tr> <tr> <td>F.A.</td> <td>FIRE ALARM</td> <td>TSP</td> <td>TWISTED PAIR</td> </tr> <tr> <td>G, GND.</td> <td>GROUND (ELEC)</td> <td>TV</td> <td>TELEVISION</td> </tr> <tr> <td>GFI</td> <td>GROUND FAULT INTERRUPT</td> <td>UG</td> <td>UNDERGROUND</td> </tr> <tr> <td>ISO GND.</td> <td>ISOLATED GND.</td> <td>U.O.N.</td> <td>UNLESS OTHERWISE NOTED</td> </tr> <tr> <td>MECH.</td> <td>MECHANICAL</td> <td>WP</td> <td>WEATHERPROOF</td> </tr> <tr> <td>MCP</td> <td>MOTOR CIRCUIT PROTECTOR</td> <td>XFMTR</td> <td>TRANSFORMER</td> </tr> </table>	A.F.G.	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 <b>Mesi Miller Engineering, Inc.</b> Civil and Structural Engineering 2500 N. 17th Street Phone 831-420-3186 www.mmes.com		
<b>SAN LORENZO VALLEY WATER DISTRICT PROBATION TANK REPLACEMENT</b>		
PREPARED AT THE REQUEST OF SAN LORENZO VALLEY WATER DISTRICT 13060 HIGHWAY 9 BOULDER CREEK, CA 95006		
SYMBOLS & ABBREVIATIONS		
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CHECKED BY: RC		
JOB NUMBER: 14176		
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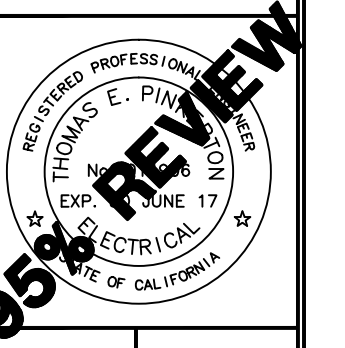
# ELECTRICAL SPECIFICATIONS

2 APRIL 04

<p>1. ALL WORK AND MATERIALS SHALL BE IN COMPLETE ACCORDANCE WITH THE 2013 CALIFORNIA ELECTRICAL CODE (C.E.C.) THE LATEST EDITION OF CAL/OSHA, AND ALL APPLICABLE LOCAL RULES AND REGULATIONS.</p> <p>1.1 FURNISH LABOR AND MATERIAL AND INSTALL ELECTRICAL WORK COMPLETE AS SHOWN ON THE DRAWINGS. WORK SHALL INCLUDE ALL MATERIALS ON THE PLANS AND THAT WHICH IS NECESSARY TO MAKE A COMPLETE WORKING INSTALLATION OF THE ELECTRICAL SYSTEMS SHOWN OR DESCRIBED HEREIN.</p> <p>1.2 DO ALL CUTTING, PATCHING, REPAIRING NECESSARY FOR THE PROPER INSTALLATION OF WORK AND REPAIR ANY DAMAGE DONE COORDINATING THIS WORK WITH THAT OF OTHER CRAFTS.</p> <p>1.3 CONTRACTOR SHALL BE HELD TO HAVE EXAMINED THE SITE AND COMPARED IT WITH THE SPECIFICATIONS AND PLANS AND TO HAVE SATISFIED HIMSELF AS TO THE CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED. HE SHALL BE HELD RESPONSIBLE FOR KNOWLEDGE OF ALL EXISTING CONDITIONS WHETHER OR NOT ACCURATELY DESCRIBED. NO SUBSEQUENT ALLOWANCE SHALL BE MADE FOR ANY EXTRA EXPENSE DUE TO FAILURE TO MAKE SUCH EXAMINATION.</p> <p>2. ALL EQUIPMENT AND MATERIALS SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. ALL MATERIALS SHALL BE NEW AND U.L. LISTED.</p> <p>3. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL NECESSARY FACILITIES FOR TEMPORARY CONSTRUCTION POWER. ENERGY COSTS SHALL BE PAID BY OWNER.</p> <p>4. PAY ALL INSPECTION AND OTHER APPLICABLE FEES; PROCURE ALL LICENSES AND PERMITS NECESSARY TO THE PROSECUTION AND COMPLETION OF ELECTRICAL WORK.</p> <p>5. ELECTRICAL CONTRACTOR SHALL GUARANTEE ALL WORK AND MATERIALS INSTALLED UNDER THIS CONTRACT FOR A PERIOD OF ONE (1) YEAR FROM DATE OF ACCEPTANCE BY OWNER. CONTRACTOR IS NOT REQUIRED TO GUARANTEE LAMPS AFTER ACCEPTANCE.</p> <p>6. VERIFY EXISTING CONDITIONS IN FIELD AND MAKE ADJUSTMENTS AS REQUIRED TO SUIT SUCH CONDITIONS.</p> <p>7. ALL WORK REQUIRING INTERRUPTION OF EXISTING CIRCUITS, USE OF OWNER'S FACILITIES, OR DISRUPTION OR INTERRUPTION OF ONGOING OWNER ACTIVITIES SHALL BE COORDINATED WITH THE OWNER.</p> <p>8. AS-BUILTS: SUBMIT TO THE OWNER ONE (1) MARKED UP PRINT OF "AS-BUILT" CONDITIONS OF ALL WORK UNDER THIS SECTION.</p> <p>9. SAFETY PRECAUTIONS: PROVIDE AND MAINTAIN THROUGHOUT THE WORK ADEQUATE SAFEGUARDS INCLUDING BARRIERS, WARNING SIGNS, ENCLOSURES AND LIGHTS, TO PREVENT ACCIDENTAL INJURY TO PERSON OR DAMAGE TO PROPERTY.</p> <p>10. PROTECTION: PROTECT ALL WORK, MATERIALS AND EQUIPMENT FROM DAMAGE FROM ANY CAUSE WHATSOEVER AND PROVIDE ADEQUATE AND PROPER STORAGE FACILITIES DURING THE PROGRESS OF THE WORK. PROVIDE FOR THE SAFETY AND GOOD CONDITION OF ALL WORK UNTIL FINAL ACCEPTANCE OF WORK BY THE OWNER, AND REPLACE ALL DAMAGED OR DEFECTIVE WORK, MATERIALS, AND EQUIPMENT BEFORE REQUESTING FINAL ACCEPTANCE.</p> <p>11. DRAWINGS: THE GENERAL ARRANGEMENT OF OUTLETS, AND EQUIPMENT, AS SHOWN ON THE PLANS, IS DIAGRAMMATIC AND APPROXIMATELY CORRECT AS TO THE LOCATIONS. WHERE MINOR CHANGES ARE REQUIRED BECAUSE OF STRUCTURAL CONDITIONS OR FOR THE CONVENIENCE OF THE OWNER. SUCH CHANGES SHALL BE MADE WITHOUT ADDITIONAL EXPENSE TO THE OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACCURATE LOCATIONS OF ALL OUTLETS, ETC., WITH RESPECT TO THE WORK OF OTHERS. NO EXTRAS WILL BE ALLOWED ON ACCOUNT OF MOVING WORK UNDER THIS SECTION TO AVOID INTERFERENCE WITH WORK OF OTHER CONTRACTORS.</p> <p>12. SUBMITTALS: CONTRACTOR SHALL SUBMIT A COMPLETE LIST OF ALL PROPOSED MATERIALS AND EQUIPMENT WITHIN 15 DAYS OF AWARD OF CONTRACT. CONTRACTOR SHALL MAKE NO SUBSTITUTIONS OF MATERIALS OR EQUIPMENT WITHOUT WRITTEN APPROVAL OF THE OWNER. ALL DIMENSIONAL OR ELECTRICAL CHANGES, OR CHANGES TO OTHER WORK WHICH ARE REQUIRED BY, OR ARE A RESULT OF, AN ACCEPTABLE ELECTRICAL SUBSTITUTION SHALL BE THE SOLE AND COMPLETE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR AND SHALL BE MADE AT NO ADDITIONAL COST TO THE OWNER.</p> <p>13. INSPECTION: ALL WORK AND MATERIALS COVERED BY THIS SPECIFICATION SHALL BE SUBJECT TO INSPECTION AT ANY AND ALL TIMES BY REPRESENTATIVES OF THE OWNER. WORK SHALL NOT BE CLOSED IN OR COVERED BEFORE INSPECTION AND APPROVAL BY THE OWNER OR HIS REPRESENTATIVE. ANY MATERIAL FOUND NOT CONFORMING WITH THESE SPECIFICATIONS SHALL, WITHIN 3 DAYS AFTER BEING NOTIFIED BY THE OWNER, BE REMOVED FROM PREMISES; IF SAID MATERIAL HAS BEEN INSTALLED, ENTIRE EXPENSE OF REMOVING AND REPLACING SAME, INCLUDING ANY CUTTING AND PATCHING THAT MAY BE NECESSARY, SHALL BE BORNE BY THIS CONTRACTOR.</p> <p>14. TESTS: UPON COMPLETION OF WORK AND ADJUSTMENT OF ALL EQUIPMENT, ALL SYSTEMS SHALL BE TESTED UNDER THE DIRECTION OF THE OWNER TO DEMONSTRATE THAT ALL EQUIPMENT FUNCTIONS ELECTRICALLY IN THE MANNER REQUIRED. ALL SYSTEMS SHALL TEST FREE FROM SHORT CIRCUITS AND GROUNDS AND SHALL BE FREE FROM MECHANICAL AND ELECTRICAL DEFECTS. ALL CIRCUITS SHALL BE TESTED FOR PROPER NEUTRAL CONNECTIONS. CONTRACTOR SHALL REMOVE AND REPLACE ALL DEFECTIVE WORKMANSHIP AND/OR MATERIALS AT NO EXPENSE TO OWNER.</p> <p>15. CLEANUP: AT COMPLETION OF WORK, THIS CONTRACTOR SHALL CLEAN UP AND REMOVE ALL DEBRIS AND MATERIALS NOT INSTALLED IN WORK, LEAVING PREMISES CLEAN.</p>	<p>16. CONDUCTORS;</p> <p>16.1 CONDUCTORS SHALL BE INSULATED COPPER, NO. 12 AWG MINIMUM SIZE, THIN/THIN, SOLID OR STRANDED (EXCEPT FOR LOW VOLTAGE WIRING AND WHERE SPECIFICALLY NOTED OTHERWISE ON THE PLAN)</p> <p>16.2 ALL CONDUCTORS NO. 8 AND LARGER SHALL BE STRANDED.</p> <p>16.3 WIRE COLOR CODE SHALL BE AS FOLLOWS:</p> <p style="text-align: center;"><u>120/240V</u></p> <p>A PHASE - BLACK B PHASE - RED C PHASE - NEUTRAL - WHITE GROUND - GREEN</p> <p>16.4 FOR CONDUCTORS NO. 6 AND LARGER, INSULATION COLOR MAY BE BLACK WITH TAPE BANDS (COLORED PER ABOVE) LOCATED AT EACH END OF THE CONDUCTOR RUN AND AT ALL OTHER LOCATIONS REQUIRED BY THE C.E.C.</p> <p>16.5 ALL CONDUCTORS SHALL BE RUN IN APPROVED RACEWAY U.O.N.</p> <p>16.6 CONDUCTOR SPLICES: JOIN THE CONDUCTORS SECURELY, BOTH MECHANICALLY AND ELECTRICALLY USING SCREW-ON TYPE CONNECTORS FOR WIRE SIZES AWG#6 AND SMALLER. THE PREFERRED PRODUCT IS WIRE-NUT TWIST ON CONNECTOR BY IDEAL.</p> <p>17. CONDUIT AND WIREWAYS:</p> <p>17.1 ALL CONDUITS SHALL BE U.L. LISTED AND BEAR THE LABEL OF THE NATIONAL BOARD OF FIRE UNDERWRITERS.</p> <p>17.2 RIGID NONMETALLIC CONDUIT: SCHEDULE 40 PVC PLASTIC FOR UNDERGROUND OR UNDER SLAB INSTALLATIONS, RATED 90 DEGREES C. WITH GLUE-ON PVC COUPLINGS AND FACTORY MADE ELBOWS AND SWEEPS; CARLON "PLUS 40".</p> <p>17.3 RIGID STEEL CONDUIT (GRS): HOT-DIPPED GALVANIZED WITH THREADED ONE-PIECE COUPLINGS AND FACTORY MADE ELBOWS. NIPPLES THROUGH 12" IN LENGTH SHALL BE FACTORY MADE. CONNECTORS THREADED TYPE WITH BONDING LOCKNUT, INSULATED THROAT AND NEOPRENE O-RING. PROVIDE GRS FOR OUTDOOR INSTALLATIONS EXPOSED TO WEATHER.</p> <p>17.4 GENERAL PURPOSE WIREWAYS AND AUXILIARY GUTTERS: GALVANIZED SHEET STEEL WITH SCREW COVERS AND ANSI-49 GRAY EPOXY PAINT FINISH OVER A CORROSION RESISTANT PHOSPHATE PRIMER. NEMA-1 FOR INDOOR USE, NEMA-3R (RAINTIGHT) FOR OUTDOOR USE.</p> <p>17.5 NO ELECTRICAL CONDUITS SHALL BE COVERED BEFORE INSPECTION AND APPROVAL BY THE OWNER. CONTRACTOR SHALL NOTIFY OWNER THAT CONDUITS ARE READY FOR INSPECTION PRIOR TO INSTALLATION OF CONDUCTORS.</p> <p>17.6 CONDUITS SHALL BE INSTALLED IN A RIGID AND SATISFACTORY MANNER WITH SUPPORT SPACED NOT MORE THAN 8 FEET APART U.O.N. CONDUITS SHALL BE INSTALLED TO OUTLET BOXES WITH LOCKNUTS AND BY BUSHING OR OTHER APPROVED DEVICES. CONDUITS SHALL BE JOINED BY APPROVED CONDUIT COUPLINGS AND SHALL HAVE ENDS BUTTED IN ALL CASES WHERE COUPLINGS ARE USED. CONDUITS SHALL BE TIGHTLY CORKED AND OTHERWISE WELL PROTECTED DURING CONSTRUCTION AND BLOWN OUT AND SWABBED BEFORE WIRES ARE PULLED. REAM ALL CONDUITS ENDS AFTER CUTTING. BENDS SHALL BE MADE WITH STANDARD CONDUIT ELBOWS OR CONDUIT BENT TO NOT LESS THAN SAME RADIUS. ALL BENDS SHALL BE FREE FROM DENTS OR FLATTENING.</p> <p>17.7 PVC CONDUITS: MAKE COUPLINGS AND CONNECTORS WATERTIGHT IN ALL RUNS. UTILIZE SOLVENT CEMENT OF TYPE APPROVED BY CONDUIT MANUFACTURER. PROVIDE ADAPTERS AND LOCKNUTS WHERE CONDUIT IS ATTACHED TO METAL BOXES AND PANELS.</p> <p>17.8 RACEWAY RUNS SHOWN ON DRAWINGS ARE DIAGRAMMATIC UNLESS SPECIFICALLY DIMENSIONED. DETERMINE EXACT LOCATIONS OF ALL UNDIMENSIONED RACEWAY RUNS IN FIELD.</p> <p>17.9 COORDINATE PLANNED ROUTES WITH WORK OF OTHER TRADES, INCLUDING MECHANICAL, PLUMBING AND FIRE SPRINKLER.</p> <p>18. WIRING DEVICES:</p> <p>SWITCHES: 20 AMP, 120/277 Vac PASS &amp; SEYMOUR #20ACI (SPST) OR EQUAL; RECEPTACLES: DUPLEX, 20A, 125V, 3-WIRE GROUNDING, PASS &amp; SEYMOUR #5352 OR EQUAL. ALL OTHER DEVICES SHALL BE AS NOTED ON DRAWINGS. ALL DEVICES SHALL BE COLORED IVORY. DEVICE PLATES: SMOOTH FINISH PLASTIC, COLORED TO MATCH DEVICE.</p>	<p>19. GROUNDING: ALL DEVICES, FIXTURES, RACEWAY, EQUIPMENT ETC. SHALL BE GROUNDED VIA A GROUNDING CONDUCTOR RUN THROUGH THE RACEWAY OR CABLE. WIRING DEVICES SHALL BE GROUNDED THROUGH A COPPER WIRE, SIZED TO COMPLY WITH CODES. A GROUNDING CONDUCTOR SIZED TO COMPLY WITH CODES SHALL BE INSTALLED IN ALL CONDUITS AND CABLES.</p> <p>19.1 GROUND RODS: COPPER OR COPPER-CLAD STEEL, MINIMUM 3/4" DIAMETER. PROVIDE MINIMUM 8 FOOT LONG RODS WHERE DIRECT BURIED (NON-ACCESSIBLE) AND MINIMUM 10 FOOT LONG RODS WHERE INSTALLED IN GROUND WELLS OR OTHER ACCESSIBLE LOCATIONS.</p> <p>20. BOXES: JUNCTION, PULL, DEVICE, AND FIXTURE OUTLET BOXES SHALL BE GALVANIZED SHEET STEEL FOR CONCEALED WORK CAST METAL FOR EXPOSED WORK, AND SHALL HAVE VOLUMES AS REQUIRED BY C.E.C. NO BOXES SMALLER THAN 4" SQUARE (OR OCTAGON FOR LIGHTING OUTLETS) SHALL BE INSTALLED, EXCEPT WHERE SPECIFICALLY CALLED FOR ON PLANS. PLASTIC BOXES ARE NOT PERMITTED.</p> <p>21. CONCRETE PULL BOXES: PRE-CAST, REINFORCED CONCRETE CONSTRUCTION WITH END AND SIDE KNOCKOUTS, NONSETTLING SHOULDERS, EXTENSIONS AS REQUIRED, AND CONCRETE BASES WITH DRAIN HOLE. UNLESS OTHERWISE INDICATED, PROVIDE REINFORCED CONCRETE LIDS WITH HOLD-DOWN BOLTS AND LIFTING PROVISIONS. LIDS SHALL BE LABELED AS NOTED ON THE DRAWINGS. BOXES LOCATED IN VEHICULAR TRAFFIC AREAS SHALL HAVE H/20 LOADING RATING AND CHECKER PLATE STEEL COVERS WITH HOLD-DOWN BOLTS. BOXES SHALL BE OF SIZES INDICATED ON THE DRAWINGS AND SHALL BE MANUFACTURED BY CHRISTY, BROOKS, UTILITY VAULT CO., OR APPROVED EQUAL.</p> <p>22. BRANCH CIRCUIT PANELBOARDS PANELS: SHALL BE COPPER BUSSED, WITH RATINGS, MAINS AND BRANCH BREAKERS AS NOTED IN THE PANELBOARD SCHEDULE ON THE DRAWINGS. PANELS SHALL BE EQUIPPED WITH COPPER GROUND BUS. BRANCH BREAKERS SHALL BE OF THE BOLT-ON TYPE UNLESS OTHERWISE NOTED, AND HAVE ON-TRIPPED-OFF POSITIONS. MULTI-POLE BREAKERS SHALL BE INTERNALLY COMMON TRIPPED. BREAKERS SHALL BE RATED MINIMUM 10,000 A.I.C. RMS (SYM) AT 120 AND 240 VAC. CIRCUITS SHALL BE NUMBERED WITH ODD NUMBERS ON LEFT SIDE AND EVEN NUMBERS ON RIGHT SIDE. EACH CIRCUIT BREAKER SHALL HAVE PERMANENTLY FIXED NUMBER EITHER ENGRAVED IN BAKE-LITE AND ATTACHED TO PANEL FRONT, STAMPED IN THE STEEL PANEL FRONT OR SNAPPED INTO THE BREAKER BODY. STICK-ON "DYMO" TYPE NUMBERS NOT ACCEPTABLE. PROVIDE A TYPEWRITTEN DIRECTORY UNDER A METAL FRAMED PLASTIC COVER ON INSIDE OF PANEL DOOR. DIRECTORY SHALL SHOW CIRCUIT NUMBER AND DESCRIPTION OF CIRCUIT CONTROLLED. CABINETS SHALL BE FLUSH OR SURFACE MOUNTED AS INDICATED AND PROVIDED WITH SINGLE DOOR TRIM. DOOR TRIM SHALL HAVE CONCEALED MOUNTING LATCHES, CONCEALED DOOR HINGES, AND FLUSH LATCH AND HOOK. PANELS SHALL HAVE NEMA 1 (FOR INDOOR) (NEMA 3R (FOR OUTDOOR)) CONSTRUCTION. CABINET FRONT DOOR AND TRIM AND PANEL CAN (ON SURFACE MOUNTED PANELS) SHALL BE FINISHED IN GRAY ENAMEL OVER RUST INHIBITING PRIMER COAT. PANELS SHALL BE MINIMUM OF 5-3/4" DEEP, 20" WIDE, AND SHALL BE MOUNTED WITH TOP OF CABINET 6'-0" ABOVE FINISHED FLOOR. PANELS SHALL MEET NEMA STANDARDS AND BEAR UNDERWRITERS' LABEL. PANELBOARDS SHALL BE THE PRODUCTS OF ONE MANUFACTURER AND SHALL BE SQUARE D COMPANY OR APPROVED SIEMENS, CUTLER HAMMER (WESTINGHOUSE GRADE) OR GENERAL ELECTRICAL EQUAL.</p> <p>23. IDENTIFICATION OF SWITCHES AND APPARATUS: ALL PANELBOARDS, CONTROL DEVICES, DISCONNECT SWITCHES, FEEDER BREAKERS AND MAIN BREAKER ON ELECTRIC SWITCHBOARDS, AND ALL OTHER APPARATUS USED FOR CONTROL OR OPERATION OF CIRCUITS, APPLIANCES AND EQUIPMENT, SHALL BE IDENTIFIED WITH ENGRAVED LAMICOID NAMEPLATES SECURELY FASTENED IN PLACE WITH CADMIUM PLATED SELF-TAPPING SCREWS. NAMEPLATE 1/4" LETTERING (BLACK LETTERS-WHITE FIELD).</p>
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**SAN LORENZO VALLEY WATER DISTRICT  
PROBATION TANK REPLACEMENT**

PREPARED AT THE REQUEST OF  
SAN LORENZO VALLEY WATER DISTRICT  
13060 HIGHWAY 9  
BOULDER CREEK, CA 95006

ELECTRICAL SPECIFICATION

DRAWN BY: BR, DM  
CHECKED BY: RC

JOB NUMBER: 14176

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CONSULTING ELECTRICAL ENGINEERS  
FE JOB No. 15045.00



SHEET NOTES	
1.	(R) UTILITY FACILITIES; COORDINATE WITH UTILITY.
2.	(R) SHED.

REV	DESCRIPTION	DATE
1	95% DESIGN PHASE SUBMITTAL	09/28/2015

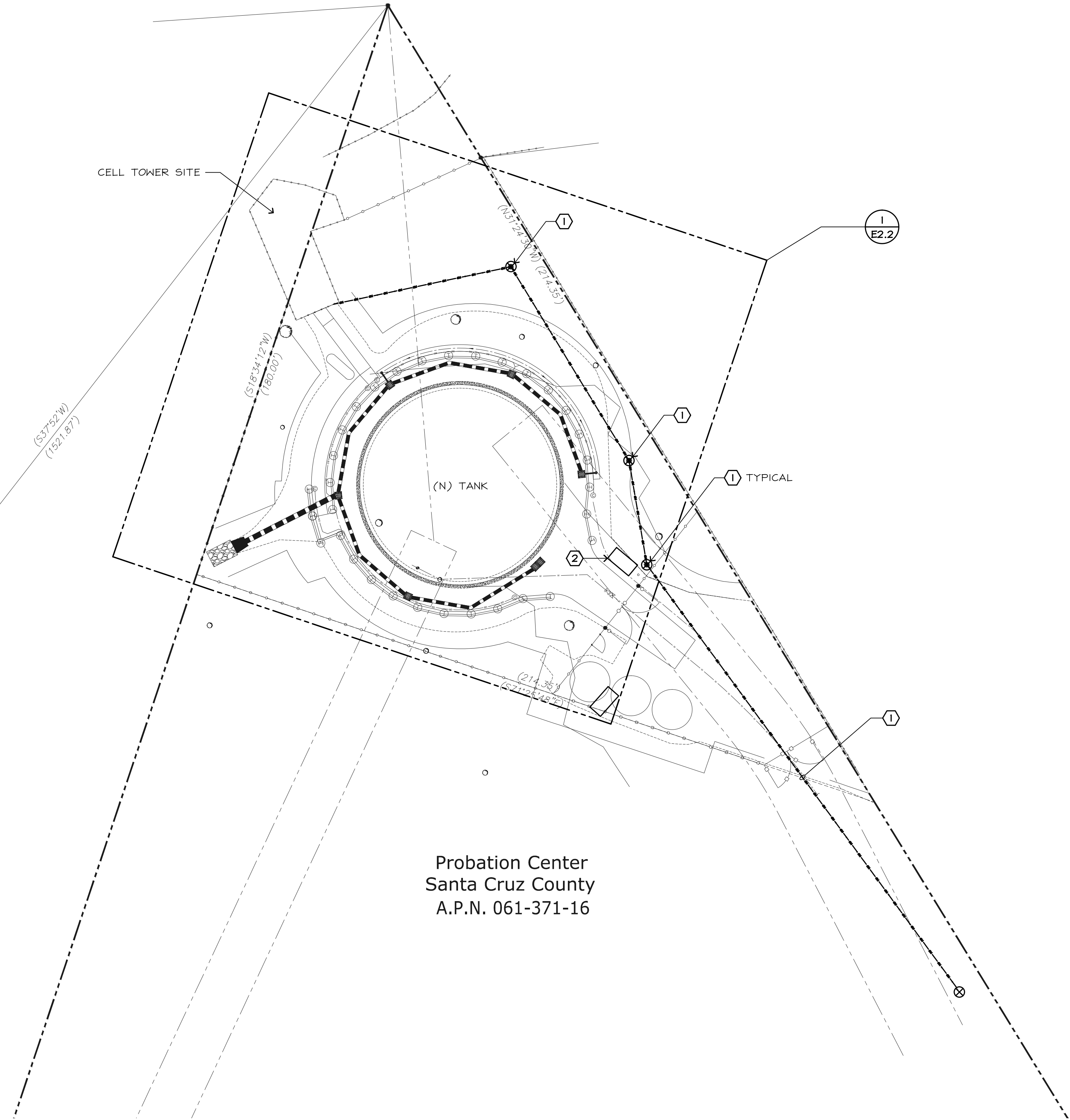
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 www.mme.com



**95% REVIEW**

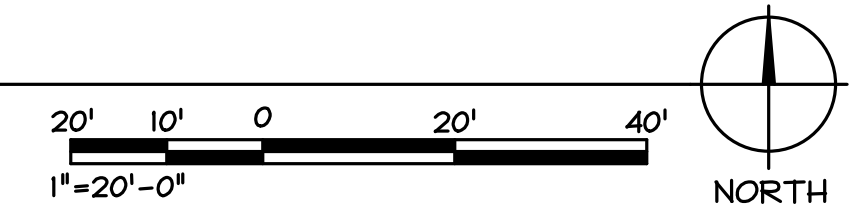
SAN LORENZO VALLEY WATER DISTRICT  
 PROBATION TANK REPLACEMENT

PREPARED AT THE REQUEST OF  
 SAN LORENZO VALLEY WATER DISTRICT  
 13060 HIGHWAY 9  
 BOULDER CREEK, CA 95006



Probation Center  
 Santa Cruz County  
 A.P.N. 061-371-16

**1 SITE PLAN**  
 1"=20'-0"

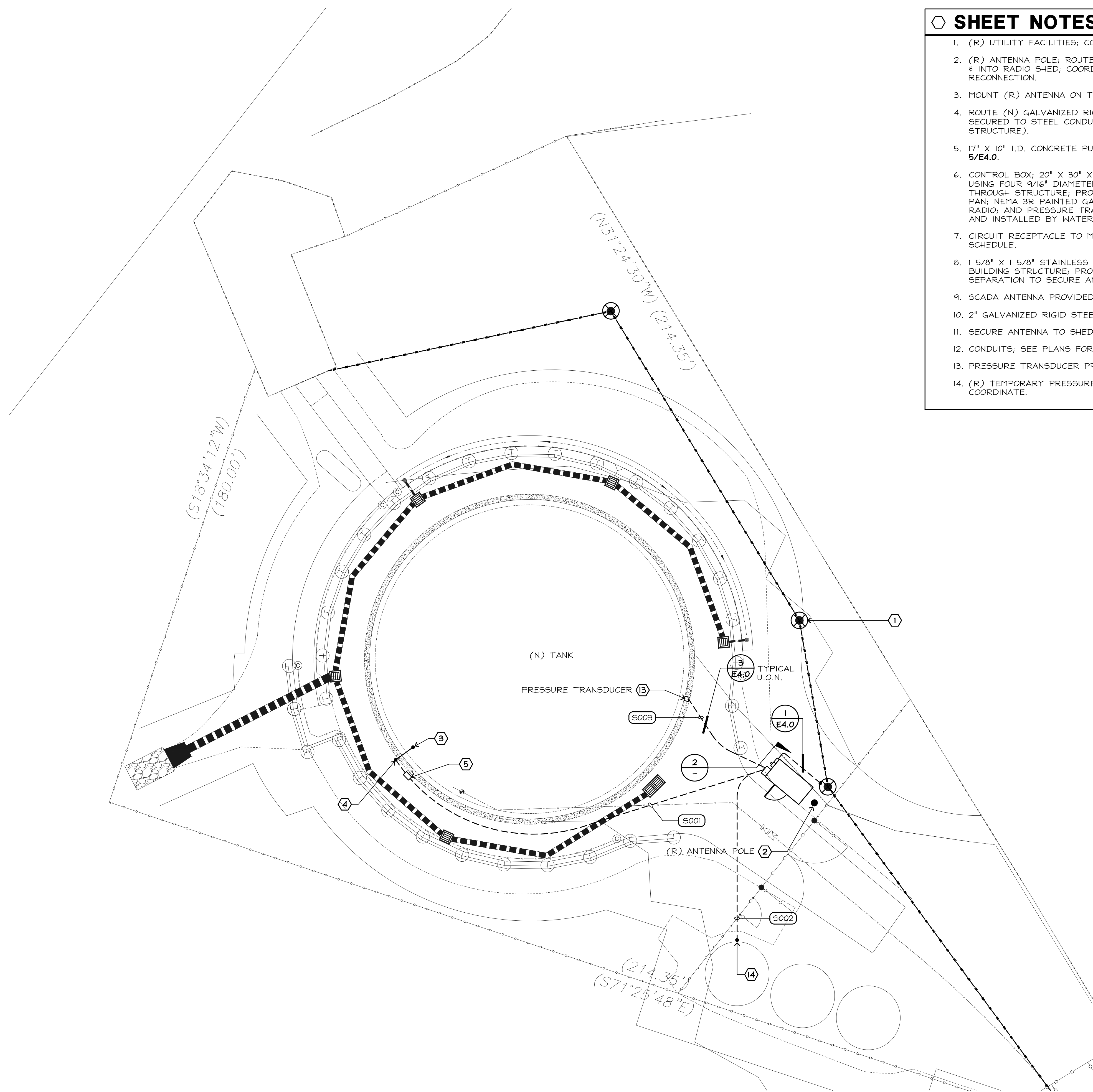


**FEHR ENGINEERING COMPANY, INC.**  
 9057 SOQUEL DRIVE,  
 BLDG. 8, SUITE G  
 Aptos, California, 95003  
 PHONE: (831) 786-0373  
 FAX: (831) 786-8523  
 EMAIL: [tpinkerton@fehrengineering.com](mailto:tpinkerton@fehrengineering.com)  
 CONSULTING ELECTRICAL ENGINEERS  
 FE JOB No. 15045.00

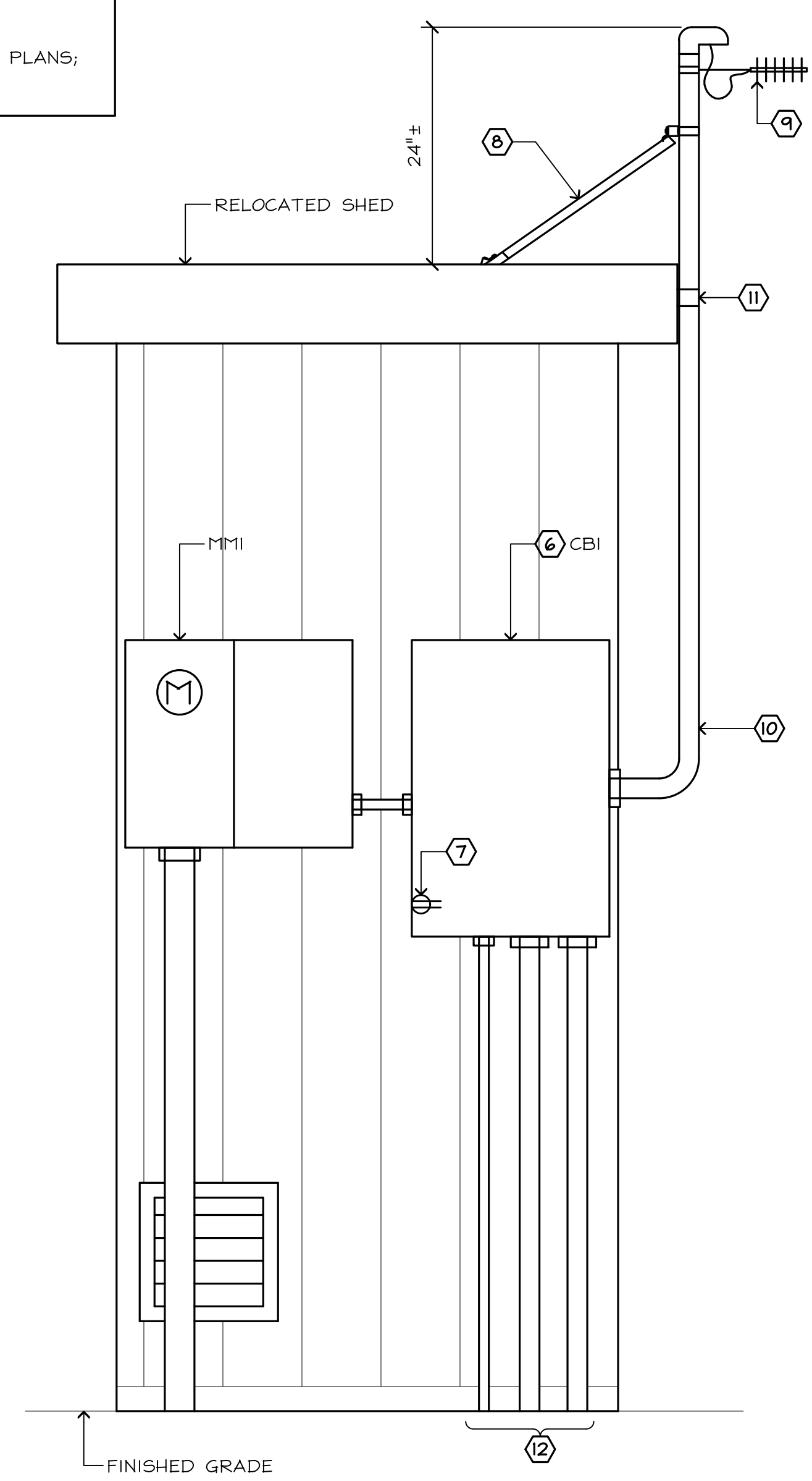
SITE PLAN	
DRAWN BY:	BR, DM
CHECKED BY:	RC
JOB NUMBER:	14176
SHEET	<b>E2.1</b>

REV	DESCRIPTION	BY	DATE
1	95% DESIGN PHASE SUBMITTAL	RTC	9/25/2015

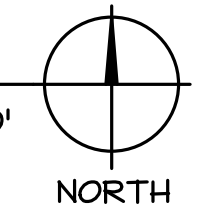
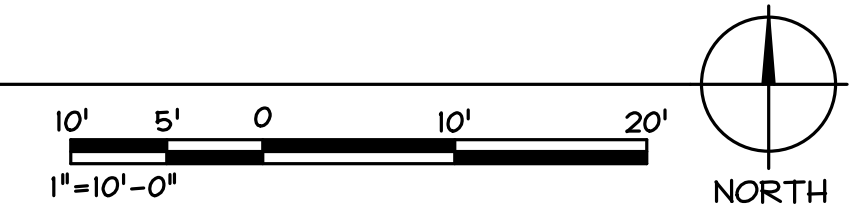
- ### SHEET NOTES
- (R) UTILITY FACILITIES; COORDINATE WITH UTILITY.
  - (R) ANTENNA POLE; ROUTE ANTENNA SIGNAL CONDUCTOR DOWN POLE & INTO RADIO SHED; COORDINATE WITH OWNER FOR ANTENNA RECONNECTION.
  - MOUNT (R) ANTENNA ON TANK RAILING ON TOP OF TANK.
  - ROUTE (N) GALVANIZED RIGID STEEL CONDUIT UP SIDE OF TANK SECURED TO STEEL CONDUIT BRACKETS (BRACKETS PART OF TANK STRUCTURE).
  - 17" X 10" I.D. CONCRETE PULLBOX; LABEL LID "SIGNAL"; SEE DETAIL 5/E4.0.
  - CONTROL BOX; 20" X 30" X 10"D.; SECURED TO SHED STRUCTURE USING FOUR 3/16" DIAMETER BOLTS LENGTH AS REQUIRED TO BOLT THROUGH STRUCTURE; PROVIDE BOX WITH METAL EQUIPMENT BACK PAN; NEMA 3R PAINTED GALVANIZED STEEL; CBI SHALL HOUSE SCADA RADIO; AND PRESSURE TRANSDUCER CONTROL PLC BOTH PROVIDED AND INSTALLED BY WATER DISTRICT; COORDINATE.
  - CIRCUIT RECEPTACLE TO MMI CIRCUIT BREAKER; SEE PANEL SCHEDULE.
  - 1 5/8" X 1 5/8" STAINLESS STEEL STRUT ASSEMBLY SECURED TO BUILDING STRUCTURE; PROVIDE TWO STRUT ASSEMBLIES WITH 45°± SEPARATION TO SECURE ANTENNA MAST.
  - SCADA ANTENNA PROVIDED & INSTALLED BY WATER DISTRICT.
  - 2" GALVANIZED RIGID STEEL ANTENNA CONDUIT.
  - SECURE ANTENNA TO SHED STRUCTURE.
  - CONDUITS; SEE PLANS FOR EXACT CONDUIT COUNTS.
  - PRESSURE TRANSDUCER PROVIDED UNDER CIVIL PLANS.
  - (R) TEMPORARY PRESSURE TRANSDUCER; (R) UNDER CIVIL PLANS; COORDINATE.



**1 PARTIAL SITE PLAN**  
1"=10'-0"

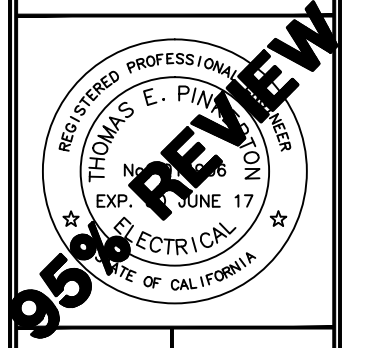


**2 SERVICE & CONTROLS ELEVATION**  
NO SCALE



**FEHR ENGINEERING COMPANY, INC.**  
9057 SOQUEL DRIVE,  
BLDG. 8, SUITE G  
APTOS, CALIFORNIA, 95003  
PHONE: (831) 786-0373  
FAX: (831) 786-8523  
EMAIL: [tipikerton@fehengineering.com](mailto:tipikerton@fehengineering.com)  
CONSULTING ELECTRICAL ENGINEERS  
FE JOB No. 15045.00

**Mesiti-Miller Engineering, Inc.**  
Civil and Structural Engineering  
3000 S. Bascom Avenue, Suite 200  
San Jose, CA 95128  
Phone 831-420-3186  
[www.mme.com](http://www.mme.com)



**SAN LORENZO VALLEY WATER DISTRICT  
PROBATION TANK REPLACEMENT**  
PREPARED AT THE REQUEST OF  
SAN LORENZO VALLEY WATER DISTRICT  
13060 HIGHWAY 9  
BOULDER CREEK, CA 95006

PARTIAL SITE PLAN  
DRAWN BY: BR, DM  
CHECKED BY: RC  
JOB NUMBER: 14176  
SHEET

**E2.2**

### GENERAL SINGLE LINE NOTES

- A. ALL ELECTRICAL SHOWN IS NEW, U.O.N.
- B. VOLTAGE DESIGNATIONS: (U.O.N.)  
 240-1 = 240/120V-1PH-3WIRE  
 480-1 = 480V-1PH-2WIRE  
 208Y = 208/120V-3PH-4 WIRE  
 480Y = 480/277V-3PH-4WIRE  
 480Δ = 480V-3PH-3 WIRE
- C. "KA" AT CIRCUIT BREAKERS DENOTES MINIMUM REQUIRED INTERRUPTING CAPACITY IN AMPS (x 1000).
- D. SPO AT BREAKER DENOTES: PROVIDE MOUNTING SPACE & HARDWARE FOR FUTURE 3-POLE BREAKER OF RATINGS INDICATED.
- E.  $I_{sc}$  = AVAILABLE SHORT CIRCUIT (RMS SYM. AMPS) BASED ON 500MVA SHORT-CIRCUIT DUTY AT SERVICE XFMR PRIMARY AND 7.5% BELOW NOMINAL XFMR IMPEDANCES; VALUES ON LOAD-SIDE OF MAIN SWITCHBOARD INCLUDE MOTOR CONTRIBUTION.

### FEEDER SCHEDULE

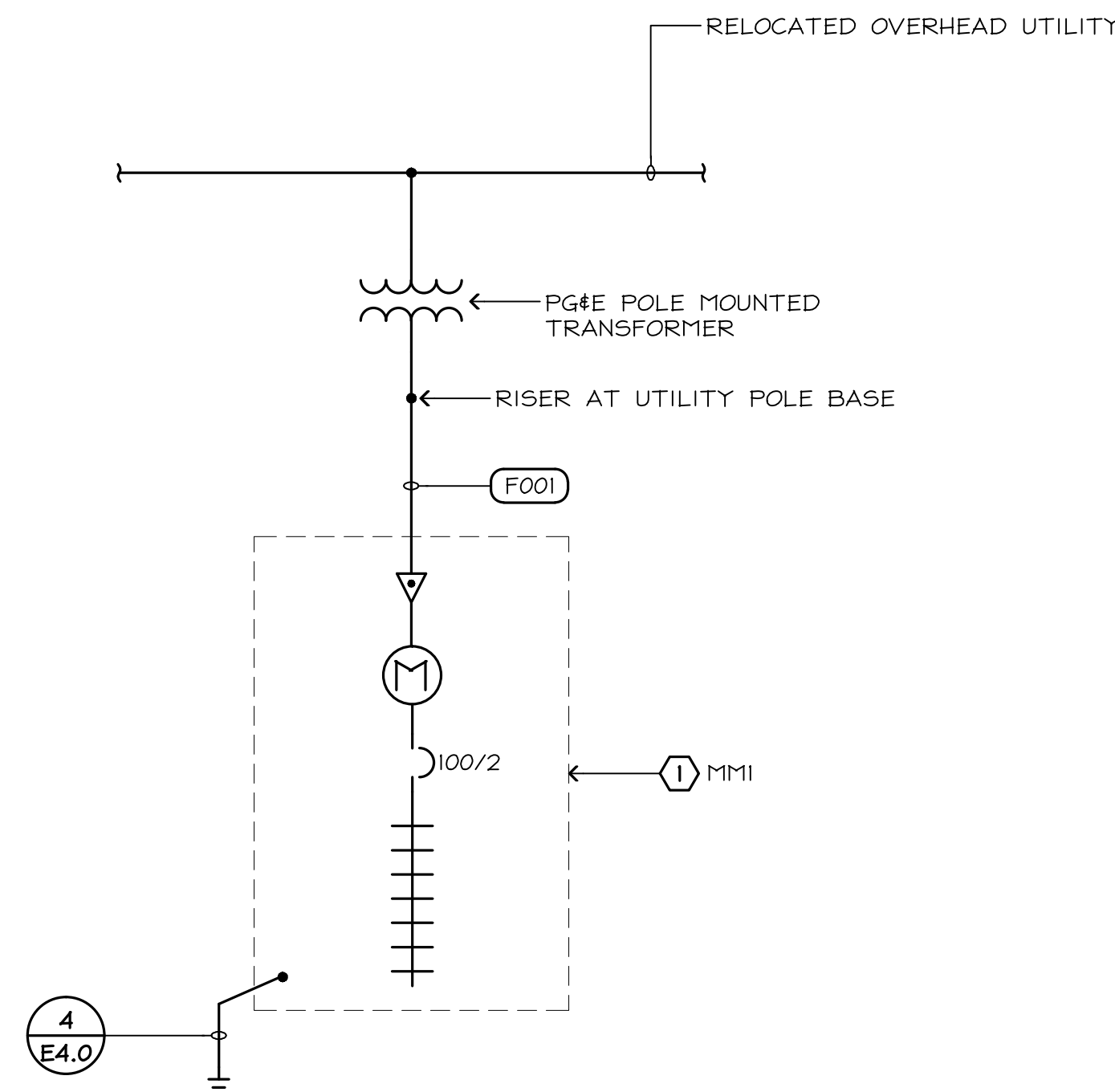
FDR No.	CONDUIT AND CONDUCTORS	REMARK
F001	3" C.O.	PG&E UNDERGROUND SERVICE
S001	2" C.O.	
S002	1" C., SIGNAL CABLE	(2)
S003	1" C., SIGNAL CABLE	(3)

### SHEET NOTES

- METER-MAIN LOAD CENTER COMBINATION; EUSERC & PG&E APPROVED UNDERGROUND INCOMING UTILITY; SIEMENS OR EQUAL; PROVIDE SUBMITTAL FOR APPROVAL; SEE PANEL SCHEDULE.
- PRESSURE TRANSDUCER SIGNAL CABLE; TWO TSP AWG #16 DIRECT BURY CABLE. CABLE REMOVED FROM (E) SIGNAL CIRCUIT MAY BE RE-USED FOR TEMPORARY SIGNAL CONNECTION.
- PRESSURE TRANSDUCER SIGNAL CABLE; TWO TSP AWG #16 DIRECT BURY CABLE.

### PANELBOARD SCHEDULE

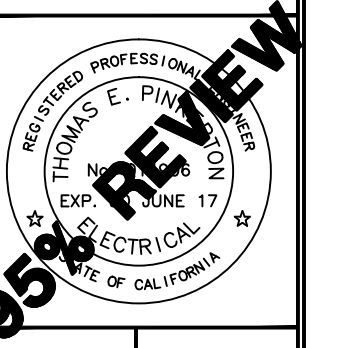
MM1	TYPE	NEMA 3R	BUS	100A, 1φ, 3W	VOLT	240-1	
	MOUNT	SURFACE	MAINS	100A C.B.	CONNECTED LOAD		
A.I.C.	22,000	FEED	BOTTOM	KVA	1.0	A	4
USE	VOLT-AMPS		TRIP	F	VOLT-AMPS		USE
CBI	500		20/1	1	2	20/1	SPARE
RADIO SHED		500		3	4		
SPARE				5	6		
				7	8		
SPACE ONLY			IPSP	9	10	IPSP	SPACE ONLY
				11	12		
				13	14		
				15	16		
	500	500					



### 1 SINGLE LINE DIAGRAM NO SCALE

REV	DATE	BY	DESCRIPTION
1	9/2/2015	RTC	95% DESIGN PHASE SUBMITTAL

**Mesiti-Miller Engineering, Inc.**  
 Civil and Structural Engineering  
 2500 S. Bascom Avenue, Suite 200  
 San Jose, CA 95128  
 Phone: 831-420-3186  
 www.mme.com



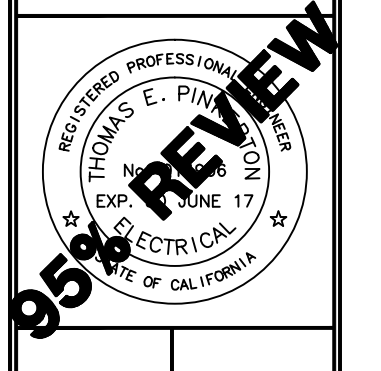
SAN LORENZO VALLEY WATER DISTRICT  
 PROBATION TANK REPLACEMENT  
 PREPARED AT THE REQUEST OF  
 SAN LORENZO VALLEY WATER DISTRICT  
 13660 HIGHWAY 9  
 BOULDER CREEK, CA 95006

DRAWN BY:	BR_DM
CHECKED BY:	RC
JOB NUMBER:	14176

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 EMAIL: Tptikerton@fehengineering.com  
 CONSULTING ELECTRICAL ENGINEERS  
 FE JOB No. 15045.00

SHEET  
**E3.0**

REV	DESCRIPTION	BY	DATE
1	95% DESIGN PHASE SUBMITTAL	RTC	9/22/2015

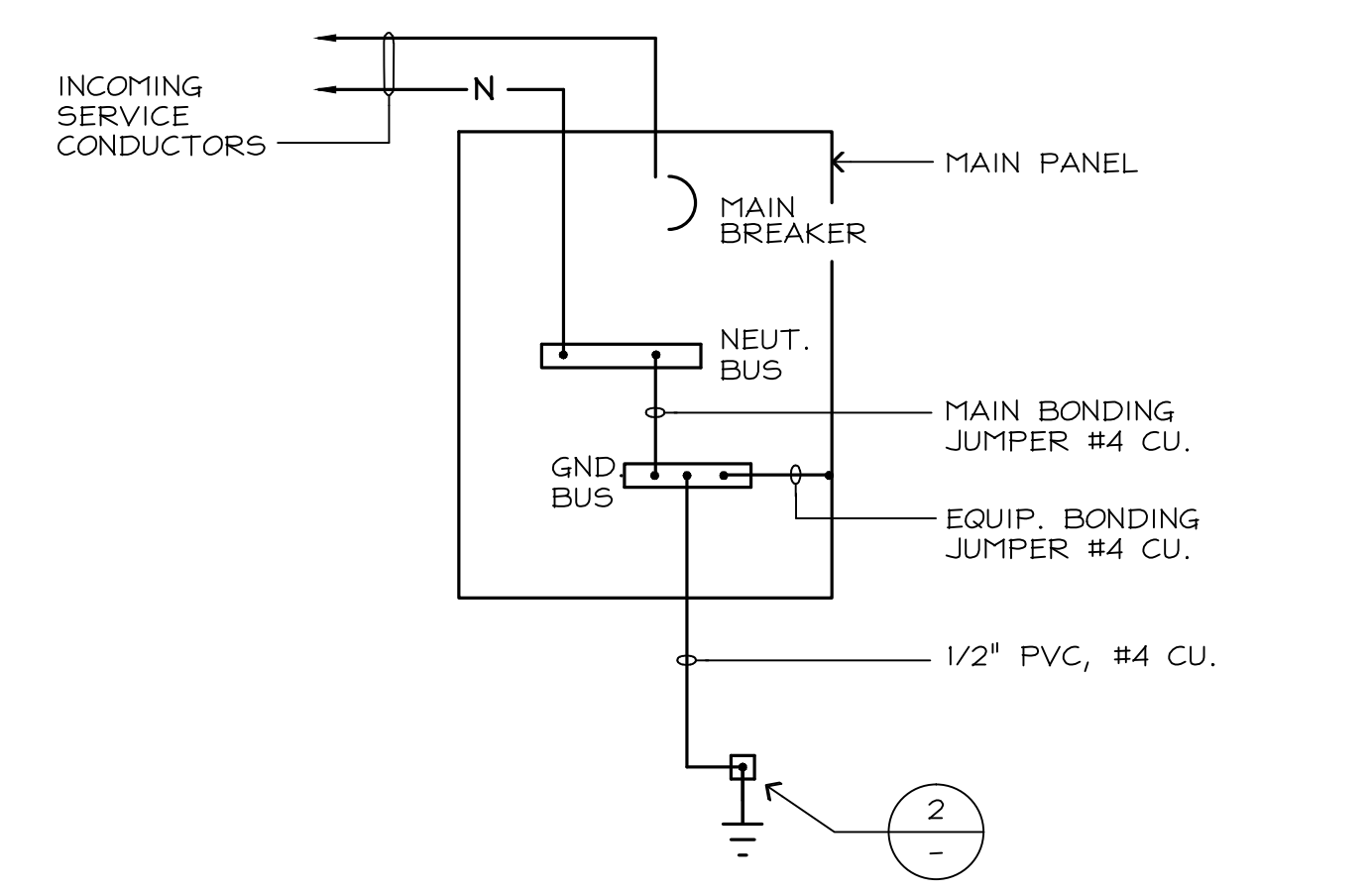


**95% REVIEW**

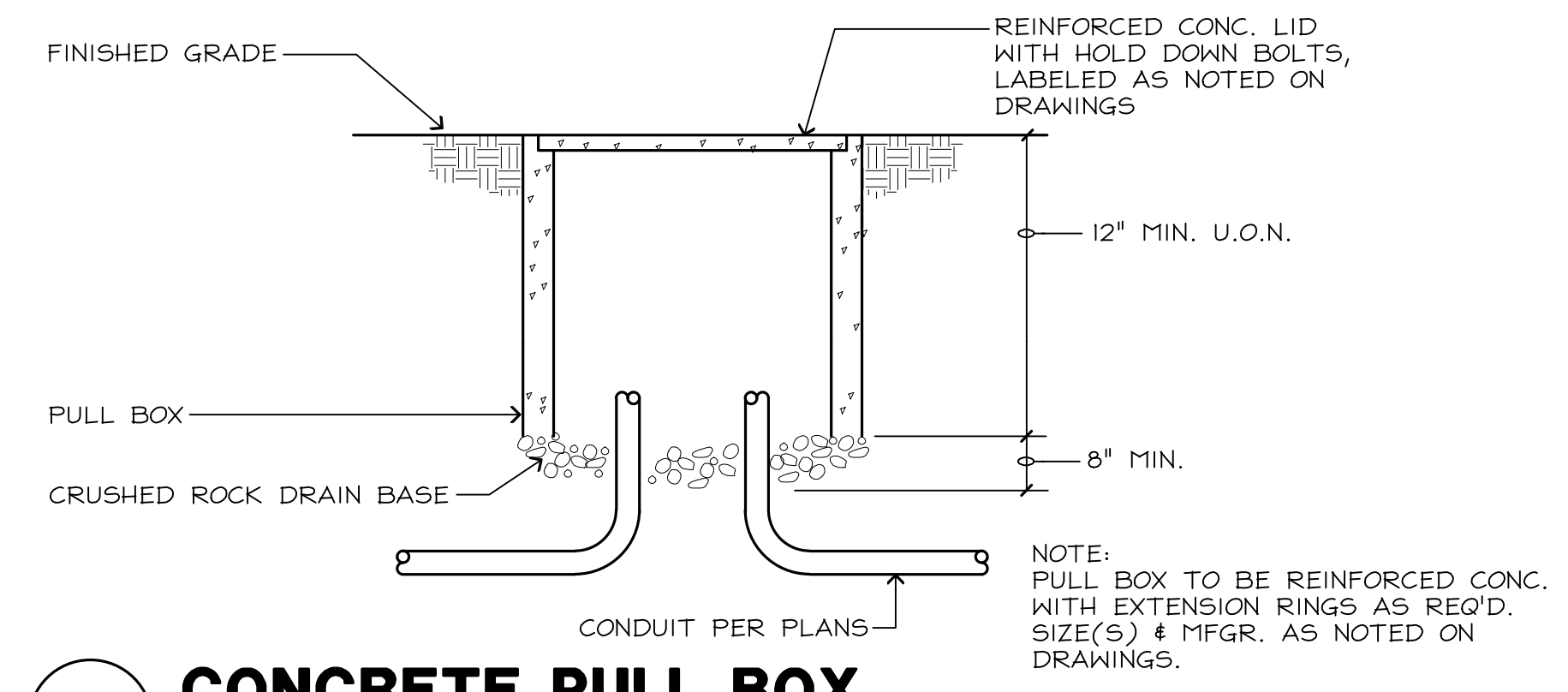
SAN LORENZO VALLEY WATER DISTRICT  
PROBATION TANK REPLACEMENT

PREPARED AT THE REQUEST OF  
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13060 HIGHWAY 9  
BOULDER CREEK, CA 95006

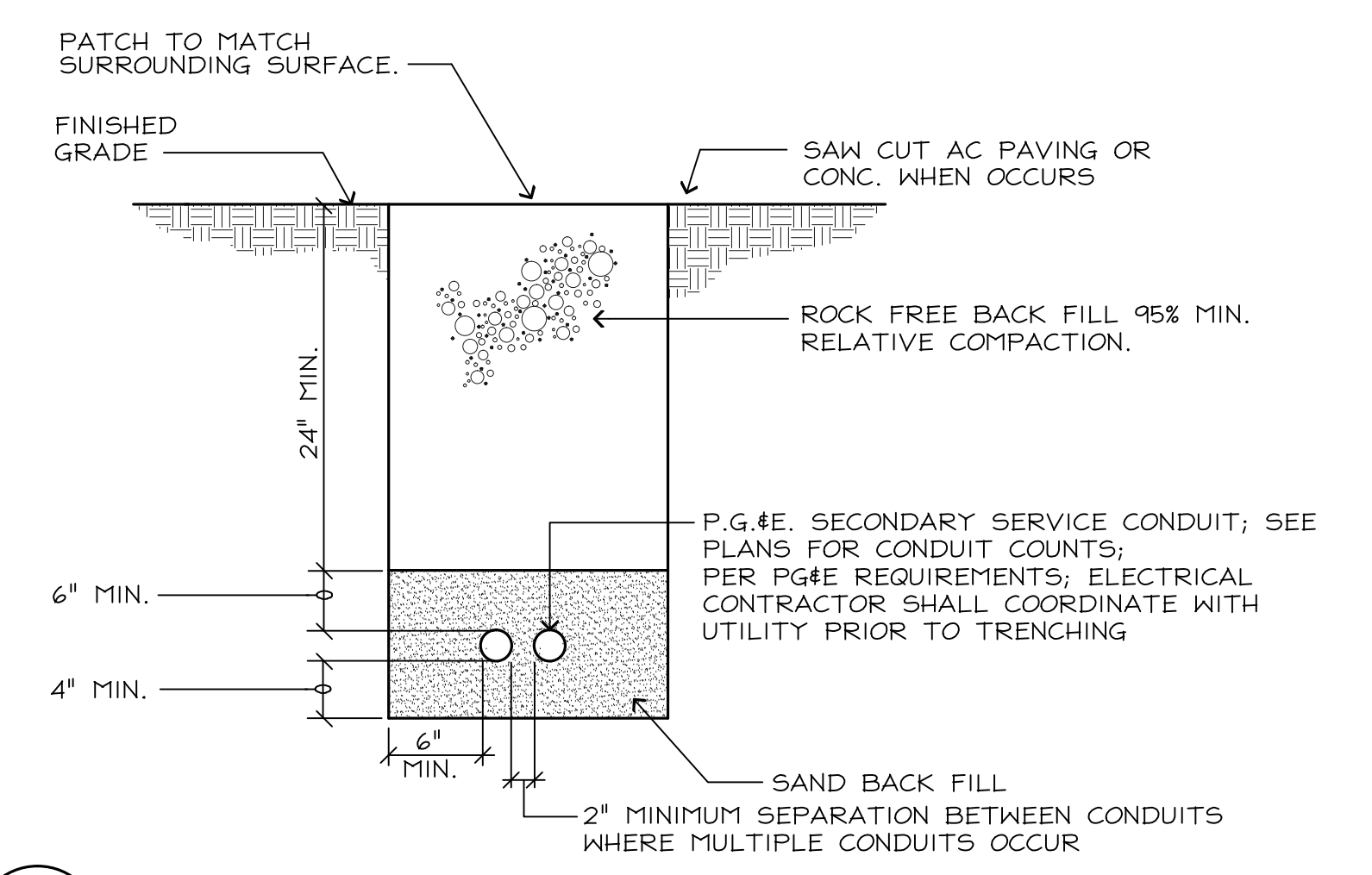
ELECTRICAL DETAILS	
DRAWN BY:	BR, DM
CHECKED BY:	RC
JOB NUMBER:	14176
SHEET	
<b>E4.0</b>	



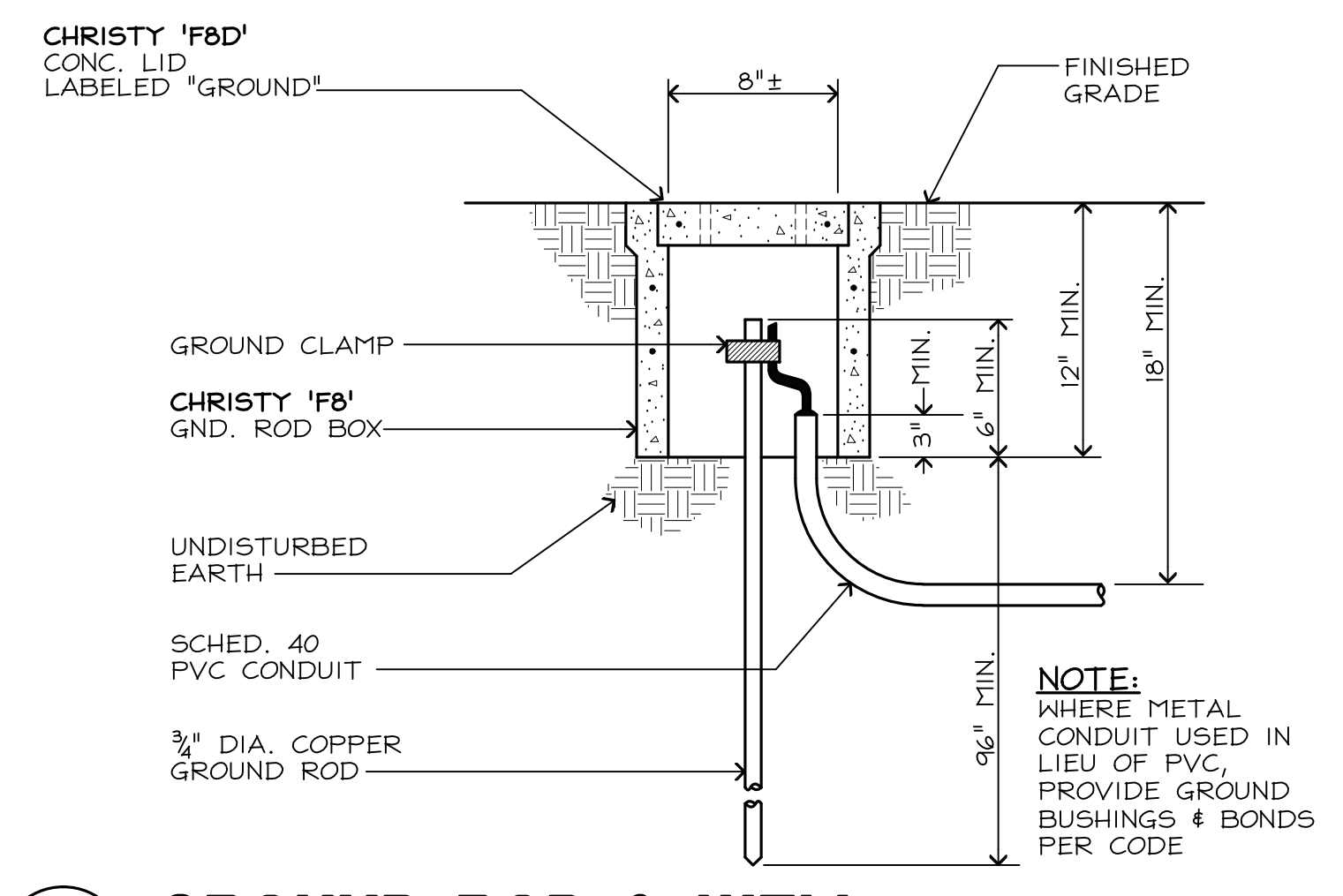
**4 MAIN PANEL GROUNDING**  
NO SCALE D222A



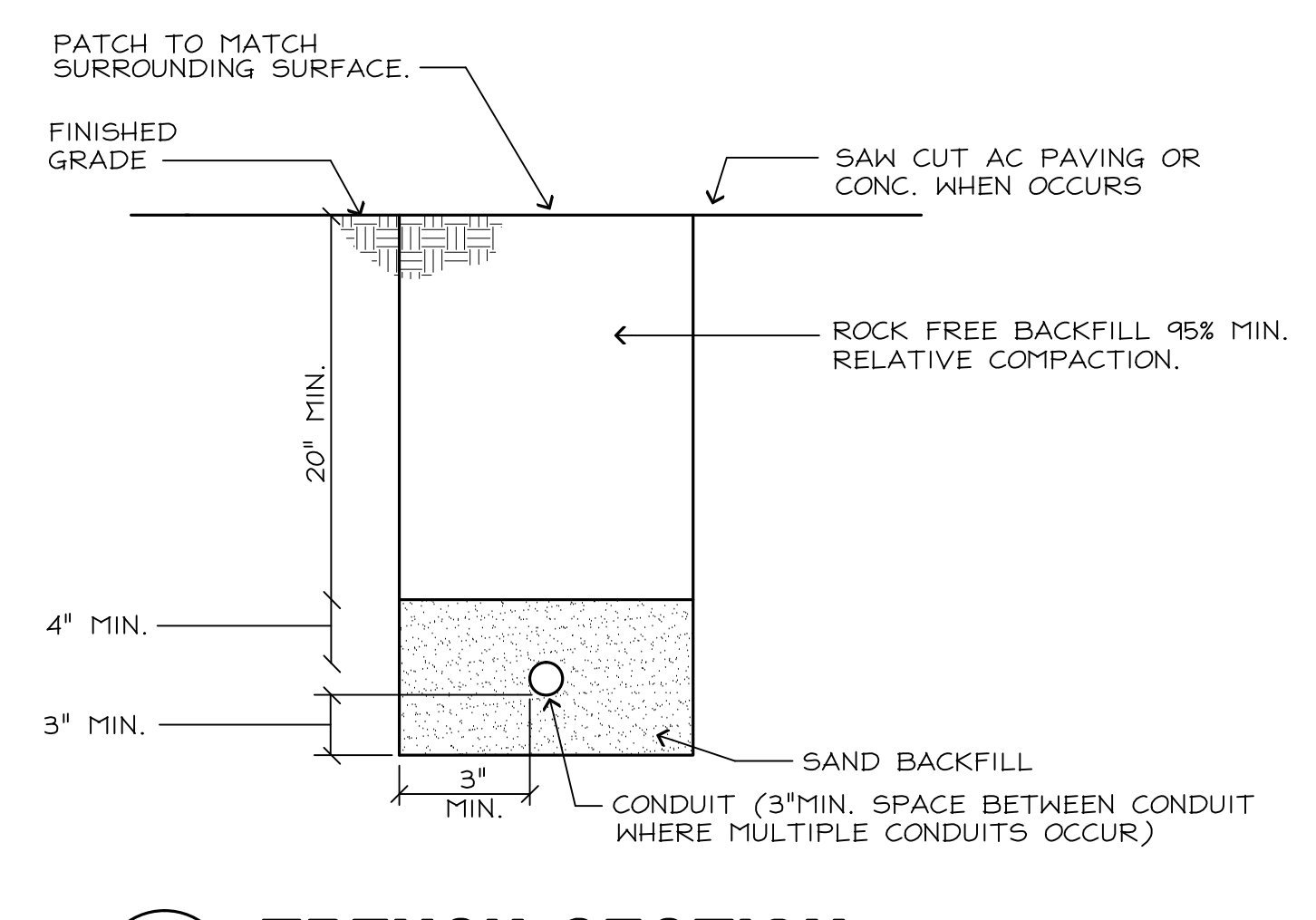
**4 CONCRETE PULL BOX**  
NO SCALE D209



**1 UTILITY SECONDARY TRENCH SECTION**  
NO SCALE



**2 GROUND ROD & WELL**  
NO SCALE D203c



**3 TRENCH SECTION**  
NO SCALE

FEHR ENGINEERING COMPANY, INC.  
9057 SOQUEL DRIVE,  
BLDG. 8, SUITE G  
APTOS, CALIFORNIA, 95003  
PHONE: (831) 786-0373  
FAX: (831) 786-8523  
EMAIL: [tpirkerton@fehengineering.com](mailto:tpirkerton@fehengineering.com)  
CONSULTING ELECTRICAL ENGINEERS  
FE JOB No. 15045.00



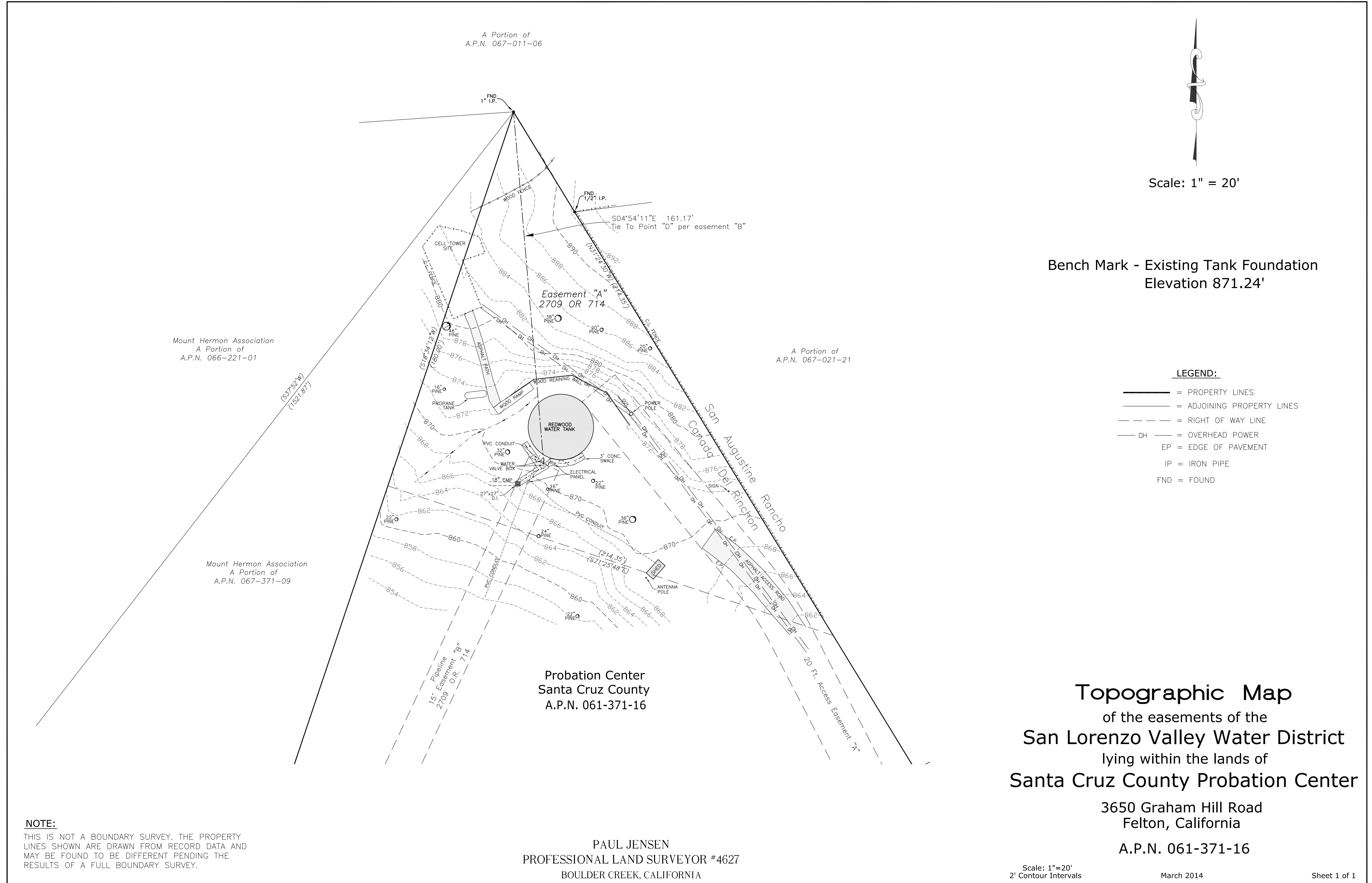


Scale: 1" = 20'

Bench Mark - Existing Tank Foundation  
Elevation 871.24'

**LEGEND:**

- = PROPERTY LINES
- = ADJOINING PROPERTY LINES
- = RIGHT OF WAY LINE
- OH — = OVERHEAD POWER
- EP = EDGE OF PAVEMENT
- IP = IRON PIPE
- FND = FOUND



**NOTE:**  
THIS IS NOT A BOUNDARY SURVEY. THE PROPERTY LINES SHOWN ARE DRAWN FROM RECORD DATA AND MAY BE FOUND TO BE DIFFERENT PENDING THE RESULTS OF A FULL BOUNDARY SURVEY.

PAUL JENSEN  
PROFESSIONAL LAND SURVEYOR #4627  
BOULDER CREEK, CALIFORNIA

**Topographic Map**  
of the easements of the  
**San Lorenzo Valley Water District**  
lying within the lands of  
**Santa Cruz County Probation Center**  
3650 Graham Hill Road  
Felton, California  
A.P.N. 061-371-16

Scale: 1"=20'  
2' Contour Intervals  
March 2014  
Sheet 1 of 1

# **Appendix B**

## **Financial Assurances Letter**



## SAN LORENZO VALLEY WATER DISTRICT

13060 Highway 9 • Boulder Creek, CA 95006-9119  
Office (831) 338-2153 • Fax (831) 338-7986  
Website: [www.slvwd.com](http://www.slvwd.com)

October 20, 2016

Mr. Steve Henry  
Field Supervisor  
US Fish and Wildlife Service  
2493 Portola Road, Suite B  
Ventura CA, 93003

Dear Mr. Henry,

This letter is being provided to assure federal U.S. Fish and Wildlife Service (Service) of the San Lorenzo Valley Water District's full intent to implement and fund the conservation strategy as identified in the *Low-Effect Habitat Conservation Plan (HCP) for the San Lorenzo Valley Water District's Probation Tank Replacement Project at 3650 Graham Hill Road in Felton, CA.*

The HCP identifies two alternative compensatory approaches to mitigate the impacts to listed species in the 17,100-square-foot (0.392 acre) impact area:

- Option 1: Protect and manage in perpetuity 0.995 acres of high-quality Sandhills habitat at the District's Olympia Wellfield; or
- Option 2: Purchasing 26,260 square-foot-conservation credits at the Zayante Sandhills Conservation Bank.

If the District elects to implement Option 2, the District will purchase the conservation credits at a cost of \$221,634 prior to issuance of the take permit.

If the District elects to implement Option 1, the District will use annual budget appropriations over a period of up to five (5) years to fully fund a non-wasting endowment, the proceeds of which will be used to fund the annual habitat management and monitoring costs of the 0.995-acre set aside in perpetuity. Until the endowment is fully funded, the District will fund annual habitat management and monitoring costs through its annual budget appropriations.

As outlined in the HCP, annual habitat management and monitoring costs are estimated to be \$3,500 in 2016 dollars. Assuming a 3% net capitalization rate, the endowment will need to be \$116,667 to generate \$3,500 per year. To address increases in habitat management and monitoring costs due to inflation, the District will increase the size of the endowment by 2% each year it requires to fund it. For

example, if the District elects to establish the endowment over 5 years (i.e. 2021), the final endowment will be \$128,809, to generate an average of \$3,864 in 2021 dollars.

In addition to establishing the habitat management and monitoring endowment, the District will also fund an endowment that will be held by the grantee of the conservation easement. This conservation easement endowment will be held by the easement holder, and will be used to fund easement monitoring, sandhills management and, as needed, legal defense.

We hope that this letter provides the Service with the funding assurances needed to issue an Incidental Take Permit (ITP) to the County under Section 10(a)(1)(B) of the Federal Endangered Species Act to cover possible impacts to the Mount Hermon June beetle, Zayante Band-Winged Grasshopper, and Ben Lomond Spineflower, that are associated with replacement of the Probation Water Tank.

Sincerely,



Brian Lee  
District Manager

cc: Mr. Chad Mitcham, USFWS; Jodi McGraw, Jodi McGraw Consulting

## MEMO

To: Board of Directors  
From: District Manager  
Prepared By: Director of Operations  
SUBJECT: NOTICE OF COMPLETION REGIONAL WATER SYSTEM  
EMERGENCY INTERTIE NO. 2, 3, & 4 PROJECT.  
DATE: November 22, 2016

### RECOMMENDATION

It is recommended that the Board of Directors accept Regional Water System Emergency Intertie No. 2, 3, and 4 improvements and direct staff to record with the County of Santa Cruz Notice of Completion for said project. A resolution is attached.

### BACKGROUND

On August 15, 2013 the Board of Directors adopted Resolution No. 6 (13-14) which approved Proposition 50 Scotts Valley Multi-Agency Regional Intertie Project. The approved project consisted of the following four (4) intertie projects.

- Intertie 2 Scotts Valley Water District - SLVWD South System.
- Intertie 3 SLVWD South System to SLVWD North System.
- Intertie 4 SLVWD South System - Mount Hermon Association, Inc.
- Intertie 6 SLVWD North System to SLVWD Felton System.

On November 06, 2014, in response to a Notice Inviting Bids, the Board entered into an agreement with Monterey Peninsula Engineering, Marina, California for the installation of the following;

#### Intertie 2 Scotts Valley Water District - SLVWD South System

- Approximately 985 linear feet of 8-inch ductile iron potable water pipeline along Skypark Drive and Lockwood Lane and crossing Mount Hermon Road.
- A 350 gpm bi-directional pump station adjacent to Skypark Drive near the intersection with Mt. Hermon Road.

#### Intertie 3 SLVWD South System - SLVWD North System.

- Approximately 14,700 linear feet of 12-inch ductile iron potable water pipeline along a storage tank access road, Graham Hill Road, Summit Avenue, Roaring Camp Road, East Zayante Road and West Zayante Road. Approximately 420 linear feet of 12-inch steel potable water pipeline attached to the Conference Road

Bridge. A 700 gpm bi-directional pump station adjacent to Summit Avenue near the intersection with Graham Hill Road.

Intertie 4 SLVWD South System - Mt. Hermon Association, Inc.

- Valves inside the pump station, SCADA controls and associated piping

The original contract amount for the project was \$5,733,682.50. Construction commenced and was substantially completed on June 13, 2016. A final inspection was performed.

The original contract amount of \$5,733,682.50 was adjusted by twenty four change orders (see attached) totaling (-72,173.90) bring the total project cost to \$5,661,508.60.

FISCAL IMPACT:

\$0

STRATEGIC PLAN:

Capital Improvement Plan 3.1

## SAN LORENZO VALLEY WATER DISTRICT

### NOTICE OF COMPLETION - REGIONAL WATER SYSTEM EMERGENCY INTERTIE NO. 2, 3, & 4 PROJECT

#### RESOLUTION NO. 15 (16-17)

WHEREAS, on August 15, 2013 the Board of Directors adopted Resolution No. 6 (13-14) which approved the Proposition 50 Scotts Valley Multi-Agency Regional Intertie Project; and

WHEREAS, the project consisted of Intertie 2 Scotts Valley Water District - SLVWD South System, Intertie 3 SLVWD South System to SLVWD North System, and Intertie 4 SLVWD South System - Mount Hermon Association, Inc.; and

WHEREAS, on November 6, 2014, in response to a Notice Inviting Bids, the Board entered into an agreement with Monterey Peninsula Engineering, Marina, California; and

WHEREAS, construction commenced and was substantially completed on June 13, 2016 followed by a final inspection; and

WHEREAS, the original contract amount of \$5,733,682.50 was adjusted by twenty four change orders totaling (-72,173.90) bring the total project cost to \$5,661,508.60; and

WHEREAS, all work elements completed under the contract comprising the subject project have been inspected and determined to be acceptable and in compliance with the agreement;

NOW, THEREFORE, BE IT RESOLVED that the Board of Directors of the San Lorenzo Valley Water District hereby accepts the subject project completed by Monterey Peninsula Engineering and directs staff to record a Notice of Completion with the County of Santa Cruz Recorder's Office on behalf of the District.

PASSED AND ADOPTED by the Board of Directors of the San Lorenzo Valley Water District, County of Santa Cruz, State of California, on the 1st day of December 2016, by the following vote of the members thereof:

ROLL CALL:

AYES:  
NOES:  
ABSTAIN:  
ABSENT:

---

Holly B. Morrison  
District Secretary

**SLVWD-Interties No. 2, 3 & 4**  
**Contract Change Order Log**  
**Contractor: Monterey Peninsula Engineering**  
**11/22/2016**

Kennedy/Jenks Consultants

K/J CCO No.	Description	Change in Contract Price			Change in Contract Duration, calendar days
		Increase	Decrease	Net Change	
01	Revisions to Contract Document Order of Precedence	\$ -	\$ -	\$ -	0
02	SCADA for Interties No. 3 and No. 4	\$ 118,286.00		\$ 118,286.00	0
03	Intertie 3/4 Pump Station Electrical Service	\$ -	\$ -	\$ -	0
04	Partial Payment Retention	\$ -	\$ -	\$ -	0
05	Utility Crossings in Vicinity of STAs 109+80, 116+75 & 118+33	\$ 10,005.00	\$ (10,005.00)	\$ -	0
06	Waterproofing at Intertie 3/4 Pump Station	\$ 2,479.40	\$ -	\$ 2,479.40	0
07	Intertie 2 SCADA	\$ -	\$ (182,995.00)	\$ (182,995.00)	0
08	Generator Receptacle at Intertie No. 3/4 Pump Station		\$ (2,426.00)	\$ (2,426.00)	0
09	LP-B Relocation and Mounting of XFMR-B - Intertie 2 Pump Station	\$ 2,788.75	\$ -	\$ 2,788.75	0
10	Intertie No. 2 Main - Misc. Items	\$ 10,126.20	\$ -	\$ 10,126.20	6
11	Disconnect at Intertie 2 Pump Station Electrical Service	\$ 3,049.80	\$ -	\$ 3,049.80	0
12	Additional Tee and Valve at Probation Tank	\$ 4,341.17	\$ -	\$ 4,341.17	1
13	Seal Perimeter of Steel Plates Welded to Conference Drive Bridge	\$ 7,192.29	\$ -	\$ 7,192.29	4
14	CMU Block Filler and Paint	\$ -	\$ (4,780.55)	\$ (4,780.55)	0
15	Time Extensions	\$ -	\$ -	\$ -	6
16	Bridge Railing, Fire Service Casing, & Bridge Pipe Bracing	\$ 6,379.68	\$ (41,650.00)	\$ (35,270.32)	3
17	Lockwood Tie-in Connection Details		\$ (812.29)	\$ (812.29)	0
18	Roadway Resurfacing	\$ 5,901.75	\$ -	\$ 5,901.75	0
19	Time Extension - Intertie 3/4 Pump Station Electrical Service	\$ -	\$ -	\$ -	27
20	Internet Equipment Shelf at Intertie 3/4 Pump Station	\$ 278.30	\$ -	\$ 278.30	1
21	Thermostat, Irrigation Controller Conduit, and Additional Concrete Testing	\$ 345.00	\$ (678.40)	\$ (333.40)	1
22	Time Extension - Intertie 3/4 Pump Station Electrical Service Delay	\$ -	\$ -	\$ -	26
23	Time Extension - Harmonics Testing	\$ -	\$ -	\$ -	8
24	Retention Reduction	\$ -	\$ -	\$ -	0
<b>Totals</b>		<b>\$ 171,173.34</b>	<b>\$ (243,347.24)</b>	<b>\$ (72,173.90)</b>	<b>83</b>

Original Contract Amounts	\$ 5,733,682.50	365
Revised Contract Amounts	\$ 5,661,508.60	448



## MEMO

To: Board of Directors  
From: District Manager  
SUBJECT: DISCUSSION REGARDING WATER/SEWER RATES AND CHARGES.  
DATE: December 1, 2016

### RECOMMENDATION

None.

### BACKGROUND

District has been working on a cost-of-service study for the better part of 2016. In early January 2017 the District Board will be presented the final draft of the cost-of-service study. From that point staff is anticipating that the District will move forward with a rate study. Chair Brown has requested an opportunity to discuss the upcoming rate study.

### FISCAL IMPACT:

None

### STRATEGIC PLAN:

5.1 - Fiscal Plan for Support of Strategy.

## M E M O

TO: Board of Directors  
FROM: District Manager  
SUBJECT: Administration/Engineering Departments Status Report  
DATE: ~~November 3rd~~December 1<sup>st</sup>, 2016

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### RECOMMENDATION:

It is recommended that the Board of Directors review and file the Administration/Engineering Departments status report.

### BACKGROUND:

#### MEETINGS OF NOTE

- ~~September 16 the DM attended a Collaborative Water Resources Strategy Development Workgroup meeting attended by local water districts and County.~~
- ~~September 26 Director Baughman and DM attended a GSA formation subcommittee meeting~~
- ~~September 30 the DM attended an Internship Program formation meeting with local districts.~~
- ~~October 4<sup>th</sup> the DM attended a media event celebrating completion of the Regional Intertie project.~~
- November 3<sup>rd</sup> the DM participated in a teleconference regarding SGMA Implementation
- November 4<sup>th</sup> the DM participated in a teleconference regarding the Collaborative Water Resources Strategy Development Workgroup for local water districts.

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#### ENTERPRISE WIDE COST-OF-SERVICE STUDY

- ~~Capital Component was reviewed by Budget and Finance Committee on September 6<sup>th</sup>.~~
- ~~Board ready cost of service study draft expected to be presented to Budget and Finance Committee on November 15~~
- Board Ready Cost-of-Service study was presented to the Budget and Finance Committee on November 22<sup>nd</sup>. Draft COS Study will be presented to the full Board at the January 19<sup>th</sup> Regular Meeting.

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The intent of this study is to determine what the true cost of providing water and sewer service includes; watershed protection, water rights management, infrastructure, staffing and administration. These issues will be studied both from a geographical and seasonal standpoint.

#### RATE STUDY REQUEST FOR PROPOSALS (RFP)

Staff and Budget & Finance Committee have begun work on preparing the Rate Study RFP. ~~The B&F Committee hosted the GM's from Scotts Valley Water District and City of Santa Cruz on October 25<sup>th</sup> to discuss their recent rate study process and procedures.~~

#### LEGAL SERVICES REQUEST FOR PROPOSALS (RFP)

Staff has been working with the Administration Committee preparing an RFP for legal services. ~~Final edits were provided at the October 25<sup>th</sup> Administration Committee and the District is hoping to release the RFP in early November. Proposal review and interviews by the Board are expected to occur in early 2017. The Legal Services RFP was released in early November. Final Proposals are due to the District by December 15<sup>th</sup>, 2016. Interviews with the full Board are expected to occur in February 2017.~~

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#### NEEDS ASSESSMENT REQUEST FOR PROPOSALS (RFP)

Staff has been working with the Administration Committee preparing an RFP for conducting an operational needs assessment for the District. The intent of a needs assessment is to determine, using current industry standards, how much space the District and individual departments need for efficient operation. The needs assessment will help the District in determining what should be done with current buildings (if anything) versus other options (leasing property, utilizing other District owned property, purchasing new property, etc.).

~~The draft Needs Assessment RFP is expected to be released in late 2016. The Administration Committee completed its review of the draft Needs Assessment RFP. Staff is completing the final RFP and will be releasing it in early December 2016..~~

#### PROBATION TANK REPLACEMENT PROJECT

The 100% Plan Review is currently in progress. The Project's Habitat Conservation Plan (HCP) was approved by the Board in late summer.

Staff and consultant continue to work on final HCP requirements. We are working to obtain a permit in Winter of 2016. Project is scheduled for bidding in early-2017 and construction is expected to be completed in early 2018. Construction is expected to take 12 months

SRF Application has been submitted to State in August. State has responded and staff is working to provide additional information.

### SWIM TANKS REPLACEMENT PROJECT

Plans and Specifications are complete and a Mitigated Negative Declaration has been adopted by Board. Project has been deferred a minimum of six months while District applies for SRF funding.

SRF Application has been submitted to State in August. State has responded and staff is working to provide additional information.

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### FALL CREEK FISH LADDER

100% plans and specifications are under staff review.

Staff was informed in 2016 by Federal Fish and Wildlife (FFW) that the Fall Creek Diversion and Fish Ladder do not qualify for streamlined permitting. This is a change of direction from past conversations over the last three years. Individual consultation will be required and the District has submitted a request to the Army Corp of Civil Engineers. This new information will delay the project at least a year, if not longer.

### INTERTIES 2, 3, 4

Primary project construction is finished. Testing is complete and the interties are fully functional and operational.

County has rejected select area of paving on Graham Hill Road. District is in discussions with contractor to schedule a fix of the identified areas. Paving has been completed. Notice of Completion is scheduled for review by the Board tonight, December 1<sup>st</sup>, 2016.

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### FELTON HEIGHTS WATER STORAGE TANK

Staff is working to obtain necessary easements on neighboring property. Design is expected for winter of 2016 with construction occurring in Spring 2017. Project has been deferred while District applies for SRF funding.

### LOMPICO

~~The merger was completed on June 1, 2016. Since that time staff has flushed the entire Lompico system. Currently the Lompico Service Area is being provided water through the booster station (former intertie) and all local water sources are off line while the District conducts assessments of the local Lompico source water, particularly for Lead and Copper Rule compliance.~~

~~Operations staff are to be commended for their aggressive schedule to complete replacement of all meters in the service area.~~

## M E M O

TO: Board of Directors  
FROM: District Manager  
PREPARED BY: Environmental Programs Manager  
SUBJECT: Environmental Status Report  
DATE: December 1, 2016

### RECOMMENDATION:

It is recommended that the Board of Directors review and file the Environmental Department status report.

### BACKGROUND:

#### WATER RESOURCE STRATEGIC PLANNING

##### CONJUNCTIVE USE PLANNING GRANT APPLICATION

In a collaborative effort with the County of Santa Cruz a Prop 1 Planning Grant application was submitted in late August 2016 to address the following items: 1. Operation of the interties for expanded conjunctive use, 2. Address inefficiencies in the Felton System. 3. Address the ongoing violation for bypass flows on Fall Creek 4. Provide a plan for sustainable groundwater management. 5. Improve stream flow and fish habitat in Fall Creek, Lompico Creek and the mainstem of the San Lorenzo River.

If awarded, grant funds will be utilized for the initial planning phase for conjunctive use projects which would likely include changing water rights, to balance District wide water needs to reduce overdraft on south system wells, while avoiding water right violations on Fall Creek, and enhancing stream flow and fish habitat on Fall Creek and the San Lorenzo River. The grant was submitted in August 2016, we expect to learn if grant funds will be awarded in late November 2016.

#### ENVIRONMENTAL COMPLIANCE

##### PROBATION TANK

Staff is working with USFWS and the Land trust of Santa Cruz County and Jodi McGraw to finalize the HCP and acquire the permit for construction of the Probation Tank Replacement Project. Details are provided in the memo on December 1, 2016 board agenda. Construction is anticipated to begin April 2017.

##### FALL CREEK FISH LADDER- BIOLOGICAL ASSESSMENT

Staff is preparing an Initial Study to be submitted to the Army Corps of Engineers. Once submitted it will begin the permit process to acquire a Biological Opinion and a permit to

construct the Fall Creek Fish Ladder Improvement Project. We anticipate construction to begin construction in Summer 2018.

#### CONSOLIDATION PERMIT

Staff is working with the State Water Resources Control Board - Division of Drinking Water to consolidate the 4 separate permits representing the four systems in the San Lorenzo Valley Water District: North System, Felton System, Lompico, Manana Woods. We received a letter with a list of 12 items, which must be submitted before the consolidation can take place.

#### 2015 URBAN WATER MANAGEMENT PLAN

Staff is compiling responses to the comments submitted for the 2015 UWMP. We anticipate the document will be submitted to Department of Water Resources in early December. Staff received a notification from DWR for non-submittal, and has contacted the appropriate person to notify them that we are very close to submitting the document.

#### SWIM TANKS MITIGATED NEGATIVE DECLARATION

Staff has completed the environmental compliance requirements for the Swim Tank Replacement Project. The project is currently awaiting funding for construction.

### WATERSHED MANAGEMENT

#### KIRBY TREATMENT PLANT RIPARIAN RESTORATION

The District supported Linda Skeff and the CCC crews to remove a hybrid blackberry from District property at the Kirby Treatment Plant. The weed removal is part of a joint effort with County Parks to improve riparian habitat along Bull Creek in preparation for an outdoor education site adjacent to the Kirby Treatment Plant Property in conjunction with the new Felton Library.

Staff communicated with County Officials, which determined there were no permit requirements. In the two days, 10 CCC crew members were able to remove about 1/3 to 1/2 of the invasive hybrid blackberry. Staff has requested that the funds from the Data Collection/Restoration Grants be reallocated to the restoration effort on Bull Creek at the Kirby Treatment Plant while the CCC is available. The Environmental Committee authorized the District Manager to reallocate the funds noting that it is within his spending authority.

#### Tentative Schedule:

August 2016 CCC crews stripped and prepared blackberry hybrid for root extraction.  
January 2017 AmeriCorps will conduct root extraction and heavily chip the area.  
January 2017 Grant application to support cost of riparian restoration work  
Spring 2017 CCC crews to strip plants, extract roots, and chip the rest of the area.  
Spring 2017 District to move fence back to open riparian area to expand the outdoor education area.

## ANNUAL ROAD REVIEW

Staff has directed a consultant to conduct annual erosion control and general tree maintenance on the following roads, trails, and access points within the Districts 2500 acres of watershed property:

Bennett Springs Road  
Olympia Watershed roads and trails  
5-mile/Menzies Pipeline  
Peavine  
Lompico watershed access roads

## NETWORKING/ COLLABORATIONS

### SAN LORENZO 2025

The San Lorenzo River is the main source of drinking water for multiple communities and tens of thousands of residents. Its watershed is home to dozens of species of fish and wildlife, including both threatened and endangered species. It is the heart of our community and we are at risk because the San Lorenzo River is under stress from the effects of drought, climate change, and habitat degradation. Acting now we can keep the San Lorenzo River watershed viable for our communities and our native fish and wildlife for generations to come.

San Lorenzo River 2025 is a collaborative effort focused on addressing the risks facing the San Lorenzo River over the next ten years. Through a partnership between local governments, water districts, the Resource Conservation District and local nonprofits, San Lorenzo River 2025 seeks to achieve **reliability** of water, **restoration** of watershed habitats, and a **resilient and safe** community resource. This effort will increase both the pace and the scale of investment into the San Lorenzo Watershed.

San Lorenzo River 2025 will:

- Implement a suite of habitat restoration and watershed protection activities to maintain and improve water supplies, water quality, and natural habitats for native fish and wildlife
- Provide wildfire planning and readiness to avoid catastrophic events in the watershed
- Improve ailing infrastructure for flood protection and projected sea level rise
- Maintain and improve public areas, trails, and places for the community to enjoy the river.

### FALL CREEK FISH LADDER GRANT APPLICATION

As part of a collaborative effort led by San Lorenzo 2025, to enhance fish habitat in the San Lorenzo River Watershed, the District has participated in a multi-project grant to acquire funding to help with the construction of the Fish Ladder. Other projects to enhance fish habitat include:

1. Lagoon Drain to prevent breaching of the river mouth, and to reduce flooding.

2. Branciforte Creek Passage Projects
3. Zayante Large Wood Project

The Grant was submitted June 2016. Staff expects to learn if grant funds will be awarded in late November 2016 and will provide updates on the grant process as they come available.

FELTON LIBRARY - <http://feltonlibraryfriends.org/>

Staff continues to participate with the Technical Advisory Committee including Friends of the Felton Library, the Valley Women's Club and County Planners and administrators to design and implement an outdoor education area adjacent to the location for the new Felton Library and adjacent to the Kirby Treatment Plant. The New Library has been awarded 10 million dollars for construction of a new library.

SANTA CRUZ MOUNTAINS STEWARDSHIP NETWORK - <http://scmsn.net/>

The Santa Cruz Mountains Stewardship Network is a region-wide and cross-sector collaboration of independent individuals and organizations who are committed to working together to help cultivate a resilient, vibrant region where human and natural systems thrive for generations to come.

SANTA CRUZ MOUNTAINS BIOREGIONAL COUNCIL - <http://www.scmhc.org/>

The Bioregional Council is dedicated to the preservation and enhancement of regional biodiversity over time through education, the dissemination of accurate scientific information and assistance in the planning, coordination and implementation of conservation efforts.

WATER CONSERVATION COALITION - <http://watersavingtips.org/>

The Water Conservation Coalition is a partnership between all the local Water Districts in Santa Cruz County as well as the County Water Resources Division, Ecology Action and other groups who share a passion for water conservation and public education. Our goal is to combine efforts and share resources to provide a common message about water conservation issues to residents throughout Santa Cruz County, which is a special place because ALL of our water supply comes from rain that falls within our County boundaries. Though each water district gets drinking water from different sources, we all share a common goal and work together to protect water resources in our aquifers and watersheds and continue to provide safe, high quality drinking water to all who live, work and play in Santa Cruz County.

## **ENVIRONMENTAL REVIEW**

### **MT. HERMON ADVENTURE PARK**

Staff has been notified by the County Planning Department that the Environmental Impact Report for the Mount Hermon Adventure Bike Park will be available for public review in January 2017.



## **STREAM HABITAT ENHANCEMENT**

### **ZAYANTE LARGE WOOD PROJECT**

Staff continues to participate on the Technical Advisory Team for the Stream Enhancement Program. A potentially grant funded Large Wood Project on SLVWD and City of Santa Cruz Water Department property in the upper Zayante Watershed. An Integrated Watershed Restoration Program Grant is funding the planning phase of the project. It is expected to receive notice if funding for construction will be approved in November 2016.

### **FALL CREEK FISH LADDER PROJECT**

Staff is collaborating with Resource Conservation District to help navigate the complex permitting requirements for the Fall Creek Fish Ladder Project.

## **WATER CONSERVATION**

### **WATER CONSERVATION**

Stage 2 water restrictions are still in effect. We have transitioned to a new water conservation message "Conserve to Preserve." Signs have been posted along Graham Hill, Hwy 9, Mt. Hermon, Bear Creek Rd. and at 10 sites through out the District. Our monthly e-newsletters include information regarding District operations, general news and notifications and events. Staff produces multiple posts on Facebook every week focused on various district business.

Toilet Rebates are Back! - The State Toilet Rebate Program has been suspended, so in order to continue to meet our water conservation goals, staff revised the Water Conservation Rebate program to reinstate the District's Toilet Rebate Program. Other credits include water efficient clothes washers, greywater systems and irrigation controllers. We continue to direct our customers to the State's rebates for lawn removal <http://www.saveourwaterrebates.com/>.

## **COMMUNICATIONS**

### **SLV HIGH SCHOOL CAREER DAY**

Operations Staff and Environmental Staff participated in the High School Career Day. We talked with students about running a water system from operations, laboratory, watershed management and environmental compliance topics. We conversed with hundreds of youth, in an effort to recruit the next generation of water system workers.

### **ENVIRONMENTAL TOWN HALL**

Staff provided a booth and public outreach to the annual Environmental Town Hall put on by the Valley Women's Club. Over 50 people were in attendance. We discussed water resource topics with the public.

## PUBLIC OUTREACH/ DROUGHT OUTREACH

- E Newsletters are sent out to over 3000 customer email addresses at least monthly.
- The District Facebook page and website are updated regularly (3-5 times per week).
- Highway signs and truck decals were replaced in August with the new Conserve to Preserve theme.
- Media Alerts have been published in local papers regarding:
  1. 2 Public notices for the Public Comment Period for the 2015 UWMP Update
  2. Road closures for paving work on Graham Hill scheduled for October 28th