

Appendix A : District Water Right Licenses and California Water Code for Division 21 Water Conservation Districts

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STATE OF CALIFORNIA—DEPARTMENT OF PUBLIC WORKS
DIVISION OF WATER RESOURCES
STATE ENGINEER

License for Diversion and Use of Water

LICENSE 2831

PERMIT 2488

APPLICATION 2217

THIS IS TO CERTIFY, That San Bernardino Valley Water Conservation District,
Redlands, California

has made proof as of May 22, 1945
(the date of inspection) to the satisfaction of the State Engineer of California of a right to the use of the waters of
Santa Ana River in San Bernardino County
tributary to Pacific Ocean

for the purpose of irrigation and domestic uses
under Permit 2488 of the Department of Public Works and that said right to the use of said waters has
been perfected in accordance with the laws of California, the rules and regulations of the Department of Public Works
and the terms of the said permit; that the priority of the right herein confirmed dates from February 18, 1921;

that the amount of water to which such right is entitled and hereby confirmed, for the purposes aforesaid, is limited
to the amount actually beneficially used for said purposes and shall not exceed eighty-three hundred (8300)
acre-feet per annum by underground storage to be diverted and spread from about
January 1 to about May 31 of each season SUBJECT TO VESTED RIGHTS. The spreading
grounds are located within Township 1 South, Ranges 2 and 3 West, S.B.B. & M.,
as shown on a map, No. 4522, filed with the State Engineer June 23, 1945.

This license is based on storage collected during the 1943 season and use
thereof.

and recovery

The points of diversion of such water are located as follows:

POINT OF DIVERSION TO SPREADING GROUNDS

N. 50° E. 1212' from the Southwest corner of Section 4, T 1 S., R 2 W.,
S.B.B. & M., being within the SW $\frac{1}{4}$ of SW $\frac{1}{4}$ of said Section 4.

POINTS OF REDIVERSION OF STORED WATER

- By Gravity: (1) N. 1600' and E. 1600' from Southwest corner of Section 13,
T 1 S., R 4 W., S.B.B. & M., being within the NE $\frac{1}{4}$ of SW $\frac{1}{4}$
of said Section 13.
- (2) N. 350' and E. 1482' from the Southwest corner of Projected
Section 21, T 1 S., R 4 W., S.B.B. & M., being within the
SE $\frac{1}{4}$ of SW $\frac{1}{4}$ of said Section 21.
- (3) N. 3283' and W. 7024' from the E $\frac{1}{2}$ corner of Section 36,
T 3 S., R 8 W., S.B.B. & M., being within the SW $\frac{1}{4}$ of SE $\frac{1}{4}$
of Section 26, T 3 S., R 8 W., S.B.B. & M.
- (4) S. 78° 00' E. 2070' from the W $\frac{1}{2}$ corner of Section 32,
T 3 S., R 8 W., S.B.B. & M., being within the NE $\frac{1}{4}$ of NE $\frac{1}{4}$
of said Section 32.

By Pumping: Sundry wells in storage basin of Santa Ana River within
T 1 S., Rs. 3 and 4 W. and T 2 S., Rs. 5 and 6 W., S.B.B. & M.

A description of the lands or the place where such water is put to bene-
ficial use is as follows:

52,640 acres located in Township 1 South, Ranges 3 and 4 West; Township 2
South, Ranges 4, 5 and 6 West; Township 3 South, Ranges 5, 6, 9 and 10 West;
Township 4 South, Ranges 9 and 10 West; Township 5 South, Ranges 9 and 10 West;
S.B.B. & M., as shown on said map No. 4522 filed with the State Engineer on
June 23, 1945.

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DIVISION OF WATER RESOURCES
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Santa Ana River in San Bernardino County
tributary to **Pacific Ocean**

for the purpose of **irrigation and domestic uses**
under Permit **2488** *of the Department of Public Works and that said right to the use of said waters has*
been perfected in accordance with the laws of California, the rules and regulations of the Department of Public Works
and the terms of the said permit; that the priority of the right herein confirmed dates from **February 18, 1921;**

that the amount of water to which such right is entitled and hereby confirmed, for the purposes aforesaid, is limited
to the amount actually beneficially used for said purposes and shall not exceed **eighty-three hundred (8300)**
acre-feet per annum by underground storage to be diverted and spread from about
January 1 to about May 31 of each season SUBJECT TO VESTED RIGHTS. The spreading
grounds are located within Township 1 South, Ranges 2 and 3 West, S.B.B. & M.,
as shown on a map, No. 4522, filed with the State Engineer June 23, 1945.

This license is based on storage collected during the 1943 season and use thereof.

and recovery
The points of diversion/of such water are located as follows:

All rights and privileges under this license including method of diversion, method of use and quantity of water diverted are subject to the continuing authority of the Department acting through the State Engineer in accordance with law and in the interest of the public welfare to prevent waste, unreasonable use, unreasonable method of use or unreasonable method of diversion of said water.

Reports shall be filed promptly by licensee on appropriate forms which will be provided for the purpose from time to time by the State Engineer.

The right to the diversion and use of the water aforesaid hereby confirmed is restricted to the point of diversion herein specified and to the lands or place of use herein described.

This license is granted and licensee accepts all rights herein conferred subject to the following provisions of the Water Code:

Section 1625. Each license shall be in such form and contain such terms as may be prescribed by the Department.

Section 1626. All licenses shall be under the terms and conditions of this division (of the Water Code).

Section 1627. A license shall be effective for such time as the water actually appropriated under it is used for a useful and beneficial purpose in conformity with this division (of the Water Code) but no longer.

Section 1628. Every license shall include the enumeration of conditions therein which in substance shall include all of the provisions of this article and the statement that any appropriator of water to whom a license is issued takes the license subject to the conditions therein expressed.

Section 1629. Every licensee, if he accepts a license, does so under the conditions precedent that no value whatsoever in excess of the actual amount paid to the State therefor shall at any time be assigned to or claimed for any license granted or issued under the provisions of this division (of the Water Code), or for any rights granted or acquired under the provisions of this division (of the Water Code), in respect to the regulation by any competent public authority of the service or the price of the services to be rendered by any licensee or by the holder of any rights granted or acquired under the provisions of this division (of the Water Code) or in respect to any valuation for purposes of sale to or purchase, whether through condemnation proceedings or otherwise, by the State or any city, city and county, municipal water district, irrigation district, lighting district, or any political subdivision of the State, of the rights and property of any licensee, or the possessor of any rights granted, issued, or acquired under the provisions of this division (of the Water Code).

Section 1630. At any time after the expiration of twenty years after the granting of a license, the State or any city, city and county, municipal water district, irrigation district, lighting district, or any political subdivision of the State shall have the right to purchase the works and property occupied and used under the license and the works built or constructed for the enjoyment of the rights granted under the license.

Section 1631. In the event that the State, or any city, city and county, municipal water district, irrigation district, lighting district, or political subdivision of the State so desiring to purchase and the owner of the works and property can not agree upon the purchase price, the price shall be determined in such manner as is now or may hereafter be provided by law for determining the value of property taken in eminent domain proceedings.



Witness my hand and the seal of the Department of Public
Works of the State of California, this 17th
day of June, 1946

EDWARD HYATT, State Engineer

[Signature]
By _____
State Engineer

LICENSE 2831

STATE OF CALIFORNIA—DEPARTMENT OF PUBLIC WORKS
DIVISION OF WATER RESOURCES
STATE ENGINEER

LICENSE
TO APPROPRIATE WATER

ISSUED TO San Bernardino Valley Water
Conservation District
DATED June 17, 1946

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STATE OF CALIFORNIA—DEPARTMENT OF PUBLIC WORKS
DIVISION OF WATER RESOURCES
STATE ENGINEER

License for Diversion and Use of Water

LICENSE 2832

PERMIT 3593

APPLICATION 4807

THIS IS TO CERTIFY, That San Bernardino Valley Water Conservation District
Redlands, California

has made proof as of May 22, 1945
(the date of inspection) to the satisfaction of the State Engineer of California of a right to the use of the waters of
Santa Ana River in San Bernardino County
tributary to Pacific Ocean

for the purpose of irrigation and domestic uses
under Permit 3593 of the Department of Public Works and that said right to the use of said waters has
been perfected in accordance with the laws of California, the rules and regulations of the Department of Public Works
and the terms of the said permit; that the priority of the right herein confirmed dates from October 21, 1925;

that the amount of water to which such right is entitled and hereby confirmed, for the purposes aforesaid, is limited
to the amount actually beneficially used for said purposes and shall not exceed twenty-one hundred (2100)
acre-feet per annum by underground storage to be diverted and spread from about
October 1 to about December 31 of each season SUBJECT TO VESTED RIGHTS. The
spreading grounds are located within Township 1 South, Ranges 2 and 3 West,
S.B.B. & M., as shown on a map No. 4522, filed with the State Engineer June 23, 1945.

This license is based on storage collected during the 1941 season and use
thereof.

and of recovery
The points of diversion of such water are located as follows:

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N. 50° E. 1212' from the Southwest corner of Section 4, T 1 S, R 2 W,
S.B.B. & M., being within the SW $\frac{1}{4}$ of SW $\frac{1}{4}$ of said Section 4.

POINTS OF REDIVERSION OF STORED WATER

- By Gravity:
- (1) N. 1600' and E. 1600' from Southwest corner of Section 13, T 1 S, R 4 W, S.B.B. & M., being within the NE $\frac{1}{4}$ of SW $\frac{1}{4}$ of said Section 13.
 - (2) N. 350' and E. 1482' from the Southwest corner of Projected Section 21, T 1 S, R 4 W, S.B.B. & M., being within the SE $\frac{1}{4}$ of SW $\frac{1}{4}$ of said Section 21.
 - (3) N. 3283' and W. 7024' from the E $\frac{1}{4}$ corner of Section 36, T 3 S, R 8 W, S.B.B. & M., being within the SW $\frac{1}{4}$ of SE $\frac{1}{4}$ of Section 26, T 3 S, R 8 W, S.B.B. & M.
 - (4) S. 78° 00' E. 2070' from the NW $\frac{1}{4}$ corner of Section 32, T 3 S, R 8 W, S.B.B. & M., being within the NE $\frac{1}{4}$ of NE $\frac{1}{4}$ of said Section 32.

By Pumping: Sundry wells in storage basin of Santa Ana River within
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A description of the lands or the place where such water is put to
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52,640 acres located in Township 1 South, Ranges 3 and 4 West; Township 2 South, Ranges 4, 5 and 6 West; Township 3 South, Ranges 5, 6, 9 and 10 West; Township 4 South, Ranges 9 and 10 West; Township 5 South, Ranges 9 and 10 West, S.B.B. & M., as shown on said map No. 4522 filed with the State Engineer on June 23, 1945.



STATE OF CALIFORNIA—DEPARTMENT OF PUBLIC WORKS
DIVISION OF WATER RESOURCES
STATE ENGINEER

License for Diversion and Use of Water

LICENSE 2832

PERMIT 3593

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The points of diversion of such water are located as follows:

All rights and privileges under this license including method of diversion, method of use and quantity of water
diverted are subject to the continuing authority of the Department acting through the State Engineer in accordance
with law and in the interest of the public welfare to prevent waste, unreasonable use, unreasonable method of use or
unreasonable method of diversion of said water.

Reports shall be filed promptly by licensee on appropriate forms which will be provided for the purpose from
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Section 1628. Every license shall include the enumeration of conditions therein which in substance shall include all of the provisions of this article and the statement that any appropriator of water to whom a license is issued takes the license subject to the conditions therein expressed.

Section 1629. Every licensee, if he accepts a license, does so under the conditions precedent that no value whatsoever in excess of the actual amount paid to the State therefor shall at any time be assigned to or claimed for any license granted or issued under the provisions of this division (of the Water Code), or for any rights granted or acquired under the provisions of this division (of the Water Code), in respect to the regulation by any competent public authority of the services or the price of the services to be rendered by any licensee or by the holder of any rights granted or acquired under the provisions of this division (of the Water Code) or in respect to any valuation for purposes of sale to or purchase, whether through condemnation proceedings or otherwise, by the State or any city, city and county, municipal water district, irrigation district, lighting district, or any political subdivision of the State, of the rights and property of any licensee, or the possessor of any rights granted, issued, or acquired under the provisions of this division (of the Water Code).



Section 1630. At any time after the expiration of twenty years after the granting of a license, the State or any city, city and county, municipal water district, irrigation district, lighting district, or any political subdivision of the State shall have the right to purchase the works and property occupied and used under the license and the works built or constructed for the enjoyment of the rights granted under the license.

Section 1631. In the event that the State, or any city, city and county, municipal water district, irrigation district, lighting district, or political subdivision of the State so desiring to purchase and the owner of the works and property can not agree upon the purchase price, the price shall be determined in such manner as is now or may hereafter be provided by law for determining the value of property taken in eminent domain proceedings.



Witness my hand and the seal of the Department of Public
Works of the State of California, this 17th,
day of June, 1946

EDWARD HYATT, State Engineer


By 
Deputy State Engineer

LICENSE 2832

STATE OF CALIFORNIA—DEPARTMENT OF PUBLIC WORKS
DIVISION OF WATER RESOURCES
STATE ENGINEER

LICENSE
TO APPROPRIATE WATER

ISSUED TO San Bernardino Valley Water
Conservation District.

DATED June 17, 1946

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WATER CODE - WAT

DIVISION 21: WATER CONSERVATION DISTRICTS [74000 - 76501]

PART 1. INTRODUCTORY PROVISIONS [74000 - 74019]

CHAPTER 1. Short Title and General Provisions [74000 - 74001]

74000. This division shall be known and may be cited as the Water Conservation District Law of 1931.

74001. This division shall be liberally construed to carry out the purposes and intent hereof.

CHAPTER 2. Definitions [74010 - 74019]

74010. Unless the context otherwise requires, the provisions of this chapter govern the construction of this division.

74011. The definition of a word applies to any of its variants.

74012. "District" means a water conservation district formed pursuant to the Conservation Act of California (Chapter 332, Statutes of 1919), the Water Conservation Act of 1929 (Chapter 166, Statutes of 1929), the Water Conservation Act of 1931 (Chapter 1020, Statutes of 1931), or this division.

74013. "Board" means the board of directors of a district.

74014. "Principal county" means the county in which the lands within a district or a proposed district, or the greater portion thereof, are situated, and is the county in which the petition for the formation of a district is filed.

74015. "Affected county" means any county in which the land of a district is situated.

74016. "Board of supervisors" means the board of supervisors of the principal county.

74017. "President" means the president of the board of directors of a district and "secretary" means the secretary of the board of directors.

74018. "Treasurer" means the treasurer of the principal county.

74019. "General district election" means the election held on the first Tuesday after the first Monday in November of each odd-numbered year, after the organization of the district, at which directors for the district shall be elected to fill the offices of the directors whose terms of office shall then expire, in accordance with the provisions of this division and the Uniform District Election Law. The election shall be called and conducted and the results canvassed, returned, and declared pursuant to the provisions of the Uniform District Election Law.

PART 2. FORMATION [74030 - 74136]

CHAPTER 1. General Provisions [74030 - 74033]

74030. A district may be organized and established by the board of supervisors of any county in this state, as expressly provided in this part, when the conditions stated in this part are found to exist, and may exercise the powers expressly granted in this division, or necessarily implied.

74031. A district may be organized upon petition by the qualified electors in an area comprising the whole or a part or parts of one or more watersheds of any stream or streams of water or unnavigable river or rivers, or territory adjacent to such watershed or watersheds, or deriving such area's water supply, in whole or in part, from such stream or streams, or river or rivers, or the subterranean supply of waters therefrom, for the conservation of the waters of such stream or streams or unnavigable river or rivers.

74032. A district may be entirely within unincorporated territory or partly within unincorporated and partly within incorporated territory, and may be within one or more counties.

74033. The territory to be included within a district need not be contiguous.

CHAPTER 2. Formation Petition [74050 - 74056]

74050. A petition for the formation of a district, signed by at least 20 percent or 500 of the qualified electors within the proposed district, shall be presented to the board of supervisors of the principal county. The petition shall be presented at a regular meeting of the board of supervisors.

74051. Any elector residing within the proposed district, whose name appears on the register of voters of the last general election, or on the register of voters at any time within 30 days preceding the presentation of a petition for the formation of a district, shall be deemed to be a qualified elector of the proposed district eligible to sign the petition.

74052. The petition shall set forth and particularly describe the proposed boundaries of the district, shall pray that the district be organized under the provisions of this division, and shall propose a name by which the district shall be known. The petition shall also request the board of supervisors, upon its definition and establishment of the proposed boundaries of the district, to divide the district into either three, five, or seven divisions.

74053. The petition shall be published once a week for at least three weeks before the presentation to the board of supervisors in some newspaper printed and published in the principal county, together with a notice stating the date of the meeting of the board at which the petition will be presented.

If any portion of the proposed district lies within another county, or counties, the petition and notice shall be likewise published in a newspaper printed and published in each of such counties.

74054. The petition may consist of any number of separate instruments, and, when contained upon more than one instrument, one copy only of the petition need be published, but the names of all the petitioners shall be published the same as if appended to the original petition.

74055. All copies of the petition filed prior to the hearing of the petition shall be considered by the board of supervisors the same as though filed with the petition first placed on file.

74056. The petition may include a statement that all bonds of the district and all bonds of any improvement district created therein shall be payable from assessments to be levied upon all real property in the proposed district or in the improvement district created therein. If such a statement is included in the petition, the notice of hearing of the petition and the notice of election for the formation of the district shall so state, and, if the district is formed, all bonds thereafter issued by the district and all bonds of any improvement district organized therein shall be payable from assessments levied upon all real property in district or improvement district, as the case may be, and such real property shall be liable to be taxed for the payment of principal and interest of such bonded indebtedness until the bonds are fully paid. Any such assessment shall be levied in the manner provided in this division.

CHAPTER 3. Hearing [74070 - 74076]

74070. When a formation petition is presented, the board of supervisors shall hear it, and may adjourn the hearing from time to time. If any hearing or continued hearing is continued to a time more than 60 days from the date of the order making the continuance, a notice of the continued hearing shall be published in some newspaper or newspapers printed and published in each of the counties in which any portion of the proposed district lies once a week for at least two weeks immediately prior to the time appointed for the continued hearing.

74071. On the final hearing the board of supervisors shall make such changes in the proposed boundaries as may be deemed advisable, and shall define and establish such boundaries. The board of supervisors shall not modify such boundaries so as to exclude from the proposed district any territory which would be benefited by the formation of the district; nor shall any land be included within the proposed district which will not, in the judgment of the board, be benefited by the formation of the district.

74072. Any person whose lands would be benefited by the district may, upon his application and in the discretion of the board of supervisors, have such lands included within the proposed district.

74073. Upon the hearing of the formation petition the board of supervisors shall determine whether or not the petition complies with the requirements of this division, and for that purpose shall hear all competent and relevant testimony offered in support thereof or in opposition thereto.

74074. No defect in the contents of the formation petition, or in the title to or form of the notice, or signature, shall vitiate any proceedings thereon; provided, such petition or petitions have a sufficient number of qualified signatures attached thereto.

74075. The determination of the board of supervisors shall be entered upon the minutes of the board.

74076. If the board of supervisors finds that protest has been made prior to its final determination for formation of the district, by the owners of land, or by the owners of real property in the event of the applicability of the provisions of Section 74056, within the proposed district the assessed value of which, as shown by the last equalized assessment roll, constitutes more than one-half of the total assessed value of the land or real property, as the case may be, within the proposed district, the proceeding shall terminate. The board of supervisors shall order the proceeding terminated when such protests are received.

CHAPTER 4. Formation Election [74090 - 74106]

74090. When the boundaries of the proposed district are defined and established by the board of supervisors, it shall make an order dividing the district into three, five, or seven divisions, as requested in the formation petition. Such divisions shall be as nearly equal in area as practicable and shall be numbered consecutively.

74091. One director, who shall be an elector of the division, shall be elected from each division by vote of the electors of the division in which such director resides. In order to qualify to be elected a director, a person shall be a qualified elector of the district and shall be a resident of the county, or of one of the counties, in which the district is situated.

74092. When the order dividing the proposed district into divisions has been made, the board of supervisors shall call an election within the proposed district to determine whether the district shall be formed and also to elect the first board of directors if the district is formed.

74093. The formation election shall be held on the next established election date not less than 74 days after the date of filing the formation petition.

74094. The board of supervisors shall divide the district, and the divisions thereof, into convenient precincts and fix a polling place in each precinct. There shall be at least one precinct in each division of the district.

74095. The board of supervisors shall appoint an inspector, a judge, and two clerks for each of the precincts established to conduct the election. The inspector, judge, and clerks of election in each precinct shall constitute the board of election for such precinct.

If the board of election or any member thereof, fails to appear at the opening of the polls on the morning of the election, the electors of the precinct present at that hour may appoint a board or supply the place of an absent member thereof.

74096. The inspector shall be chairman of the election board, and may appoint judges and clerks, if, during the progress of the election, any judge or clerk cease to act. The chairman or any member of the board of election may administer and certify oaths required to be administered during the progress of the election.

74097. The formation election shall be called by publication of notice thereof in a daily or weekly paper in each of the counties in which the district is situated, if there is one, at least once a week for three weeks previous to the election, and by posting notice thereof in three public places.

74098. The notice of the formation election shall designate a name for the proposed district and describe the boundaries thereof. The notice shall also designate the respective election precincts and the polling place in each, the election officers, the time of the election, and the hours during which the polls will be kept open; provided, that the polls shall be opened not later than 8 o'clock a.m. and kept open until 7 o'clock p.m.

74099. The board of supervisors shall require the clerk of the board to provide and furnish ballots for the formation election. No particular form of ballot shall be required except that the ballot shall contain the words "Water conservation district—Yes" or "Water conservation district—No," or words equivalent thereto, and shall also contain the names of candidates for the position of director of the district who shall have been endorsed by petitions to the board of supervisors in the manner prescribed in Section 74100.

74100. A nominating petition for a director in any division shall be signed by 10 or more electors entitled to vote in such division and shall be filed with the board of supervisors calling the formation election within 15 days from the first publication of the notice calling the election.

74101. The ballots shall contain instructions that the voters shall write, print, or stamp a cross after the words that indicate his choice.

74102. The ballots shall contain as many blank spaces for the names of directors as there are directors to be elected, and the writing of the name of any qualified person in any of the spaces shall be deemed to

be a vote for such person.

74103. Except as otherwise provided in this chapter, the formation election shall be conducted in accordance with the general election laws of this state so far as applicable.

74104. The election officers shall publicly count the votes immediately after the close of the formation election, and shall make a report of the result of the election to the board of supervisors within five days subsequent to the holding thereof.

74105. The board of supervisors shall, on the first Monday succeeding the formation election, if then in session, or at its next meeting, general or special, proceed to canvass the votes cast at the election.

74106. Where a vote to form a district is lost, no petition for the formation of a district comprising any portion of the same territory shall be presented or considered for a period of 12 months thereafter.

CHAPTER 5. Establishment of District [74120 - 74122]

74120. If a majority of all the votes cast at the formation election are "Water conservation district—Yes," the board of supervisors shall by an order entered in its minutes declare the territory duly formed as a water conservation district, under the designated name, and shall declare the persons receiving, respectively, the highest number of votes for director to be duly elected to such offices.

74121. The board of supervisors shall immediately cause a copy of the order declaring the district formed, duly certified by the clerk of the board, to be filed for record in the office of the county recorder of any county in which any portion of the lands embraced in the district is situated, and shall also immediately forward a copy thereof to the clerk of the board of supervisors of each of such counties. From and after such filing, the formation of the district is complete.

74122. The clerk of the board of supervisors shall immediately file with the Secretary of State a certificate listing:

(a) The name of the district.

(b) The date of formation.

(c) The county or counties in which the district is located, and a description of the boundaries of the district, or reference to a map showing such boundaries, which map shall be attached to the certificate, or reference to the county recorder's office where a description of such boundaries has been recorded.

If the order declaring the district formed contains all of the information required to be in the certificate, the clerk of the board may file a copy of the order in lieu of the certificate.

CHAPTER 6. Contest of Election [74130 - 74136]

74130. The formation election may be contested by any person holding property within the proposed district liable to be assessed for the raising of funds to carry out the purposes of the district.

74131. The directors elected at the formation election shall be made parties defendant in the election contest.

74132. The election contest shall be brought in the superior court of the principal county. If more than one contest is pending, they shall be consolidated and tried together.

74133. The court shall immediately try the election contest, and determine, upon the hearing, whether the election was fairly conducted and in substantial compliance with the requirements of this division. The court shall enter its judgment accordingly.

74134. The election contest shall be brought within 20 days after the canvass of the votes and declaration of the result by the board of supervisors.

74135. Either party to the record may appeal to the Supreme Court of this state within 30 days from entry of judgment.

74136. The appeal shall be heard and determined by the Supreme Court within 60 days from the time of filing the notice of appeal.

PART 3. INTERNAL ORGANIZATION [74200 - 74253]

CHAPTER 1. Directors [74200 - 74209]

74200. The board of directors shall consist of three, five, or seven members, depending on the number of divisions in the district. Each director shall be an elector of the division for which he is elected, a qualified elector of the district, and a resident of the county, or of one of the counties, in which the district is situated.

74200.5. (a) Notwithstanding any other provision of this part, the local agency formation commission, in approving either a consolidation of districts or the reorganization of two or more districts into a single water conservation district may, pursuant to subdivisions (k) and (n) of Section 56886 of the Government Code, increase the number of directors to serve on the board of directors of the consolidated or reorganized district to 7, 9, or 11, who shall be members of the board of directors of the districts to be consolidated or reorganized as of the effective date of the consolidation or reorganization.

(b) Unless the local agency formation commission provides for an alternative schedule for reducing the size of the board of directors of the consolidated or reorganized district, upon the expiration of the terms of the members of the board of directors of the consolidated or reorganized district whose terms first expire following the effective date of the consolidation or reorganization, the total number of members on the board of directors shall be reduced until the number equals 5, 7, or 9, as may be determined by the local agency formation commission in approving the consolidation or reorganization.

(c) In addition to the powers granted under Section 1780 of the Government Code, in the event of a vacancy on the board of directors of the consolidated or reorganized district at which time the total number of directors is greater than five, the board of directors may, by majority vote of the remaining members of the board, choose not to fill the vacancy. In that event, the total membership of the board of directors shall be reduced by one board member. Upon making the determination not to fill a vacancy, the board of directors shall notify the board of supervisors of its decision.

74201. The directors elected at the formation election shall immediately enter upon their duties as such upon qualifying in the manner provided in this chapter. Such directors shall hold office respectively until their successors are elected and qualified.

74202. The directors of any district who are elected shall hold office pursuant to Section 10505 of the Elections Code.

74203. Each director elected subsequent to the formation election shall hold office for a term of four years and until his successor is elected and qualified.

74204. Vacancies occurring in the board, by reason of death, resignation, or otherwise, shall be filled pursuant to Section 1780 of the Government Code.

74205. Upon his election or appointment, each person who shall be elected or appointed to the office of director shall qualify as such by taking and subscribing to an official oath and executing and filing a bond as provided in Section 74206.

74206. Each director shall execute an official bond in the sum of one thousand dollars (\$1,000). The director shall file that official bond, together with his or her official oath, with the secretary.

74207. All official bonds shall be in the form prescribed by law for the official bonds of county officers.

74208. Each director shall receive compensation in an amount not to exceed one hundred dollars (\$100) per day for each day's attendance at meetings of the board or for each day's service rendered as a director by request of the board, not exceeding a total of six days in any calendar month, together with any expenses incurred in the performance of his or her duties required or authorized by the board. For purposes of this section, the determination of whether a director's activities on any specific day are compensable shall be made pursuant to Article 2.3 (commencing with Section 53232) of Chapter 2 of Part 1 of Division 2 of Title 5 of the Government Code. Reimbursement for these expenses is subject to Sections 53232.2 and 53232.3 of the Government Code.

74209. (a) A district with a board consisting of seven directors may reduce the number of directors to five pursuant to this section. A reduction in the number of directors shall not be made within 180 days preceding the election of a director.

(b) In order to reduce the number of directors pursuant to this section, the board shall adopt, by a recorded vote of two-thirds of the total membership of the board, a resolution proposing to reduce the number of directors from seven to five. The resolution shall contain a map and description of the boundaries for the five divisions proposed to be established.

(c) The secretary of the district shall set a date for a public hearing on the proposal to reduce the number of directors, which shall be not less than 30 days and not more than 60 days after the date on which the board adopted the resolution described in subdivision (b). The secretary shall give notice of the hearing, which shall include a description of the proposal and shall contain a map and general description of the proposed boundaries of the five divisions. The secretary shall give notice of the hearing by publishing a notice pursuant to Section 6063 of the Government Code in at least one newspaper of general circulation within the jurisdiction of the district at least 10 days before the hearing. In addition, the secretary shall mail the notice to a person who has filed a written request for notice with the secretary at least 10 days before the hearing.

(d) At the hearing, the board shall receive and consider any written or oral comments regarding the proposed reduction in the number of directors. After receiving and considering those comments, the board, by a recorded vote of two-thirds of the total membership of the board, shall do either of the following:

(1) Disapprove the proposal.

(2) Adopt a resolution that orders the reduction in the number of members of the board.

(e) The adoption of a resolution that orders a reduction in the number of members of the board pursuant to this section is a legislative act that is subject to referendum pursuant to Article 2 (commencing with Section 9340) of Chapter 4 of Division 9 of the Elections Code.

(f) A reduction in the number of directors and a change in division boundaries pursuant to this section shall not affect the term of office of any director. A director of a division for which boundaries have been changed shall continue to be the director of the division bearing the number of his or her division until the office becomes vacant by means of term expiration or otherwise, whether or not the director is a resident within the boundaries of the division as changed. The successor to the office of a director of a division for which boundaries have been changed shall be a resident and voter of that division.

(g) This section does not apply to districts within the County of Ventura, which are subject to the provisions of Chapter 4 (commencing with Section 74450) of Part 4.

CHAPTER 2. The Board [74220 - 74229]

74220. On the first Tuesday next following the formation election, as to the first board, and at the first meeting of the board following the time of taking office of the directors elected in each subsequent general district election, but in no event later than the last day of December, the directors shall meet and organize as a board.

74221. The board shall manage and conduct the business and affairs of the district.

74222. The office of the board may be established by it at some proper and convenient place within or near the district, but after the office is once established, it shall not be changed without giving notice thereof by posting in three public places in the district and by publishing a similar notice at least once a week for 30 days in some newspaper of general circulation published in the principal county.

74223. The board shall hold regular meetings in its office on the first Tuesday in March, June, September, and December, and such special meetings as may be required for the proper transaction of business. Upon a finding by the board for good cause, the board may, by resolution, increase the frequency and number of regular meetings.

74224. Notwithstanding Section 74223, the board may, by resolution, change the day and location for holding regular meetings. Notice of any change shall be published once a week for at least two consecutive weeks before the date for a regular meeting in a newspaper of general circulation circulated in the district.

74225. Special meetings may be ordered by the president or by a majority of the members of the board, specifying in writing the business to be transacted. The order calling for a special meeting shall be entered in the minutes of the board. Three days' notice shall be given by the secretary to any member not joining in the order, by mailing the notice to him at his last address. Only the business specified in the order shall be transacted at the special meeting.

74226. All meetings of the board shall be open to the public.

74227. A majority of the members of the board shall constitute a quorum for the transaction of business.

74228. A minute of all proceedings of the board shall be kept by the secretary.

74228.5. A district may destroy a record pursuant to Chapter 7 (commencing with Section 60200) of Division 1 of Title 6 of the Government Code.

74229. The board shall, annually, make and render a verified statement of the financial condition of the district, showing particularly the receipts and disbursements of the last preceding year, together with the source of such receipts and purpose of such disbursements. This statement shall be placed on file in the office of the district.

CHAPTER 3. Officers [74250 - 74253]

74250. At each of its organization meetings the board shall elect a president from their number, and shall appoint a secretary, who shall each hold office at the pleasure of the board.

74251. The secretary need not be one of the directors.

74252. The salary of the secretary and the amount of the bond to be given for the faithful performance of his duties shall be fixed by the board.

74253. The bond of the secretary shall be recorded in the office of the recorder of the principal county and then filed with the district.

PART 4. ELECTIONS [74430 - 74470]

CHAPTER 3. Relocation of Division Boundaries [74430 - 74435]

74430. The board of directors shall, by resolution, adjust the boundaries of any divisions pursuant to Chapter 8 (commencing with Section 22000) of Division 21 of the Elections Code.

74431. Before any change of the boundaries of the divisions is made pursuant to Section 74430, the board shall give notice of its intention to do so. Such notice shall specify, in a general way, the changes which the board proposes to make and a time and place for a hearing at which any owner of land in the district may appear before the board and object to the making of the proposed change or changes or petition that a change be made otherwise than as proposed.

74432. The notice of intention to change the boundaries of the divisions shall be published at least once a week for two weeks before the time appointed for the hearing in some newspaper or newspapers published in each of the counties in which any part of the district is situated.

At the time and place appointed for the hearing, or at the time and place to which the hearing may be adjourned, the board shall hear all the objections and petitions which are presented to the board, and, thereupon, the board may make such change or changes in the boundaries of the divisions as it determines to be for the best interests of the district.

74433. If land is excluded from a district pursuant to Chapter 1 (commencing with Section 75750) of Part 10 of this division, the board not less than 30 days before any election in the district, may reestablish the boundaries of the divisions and election precincts within the district.

74434. If land is included within a district pursuant to Chapter 2 (commencing with Section 75850) of Part 10 of this division, the board shall, not less than 30 days before any election in the district, reestablish the boundaries of the divisions and election precincts within the district so as to include such lands therein and so as to make such divisions as nearly equal in area as may be practicable. In case of the inclusion of any land less than 30 days before an election within the district, the inhabitants of the land so included shall not be entitled to vote at such election.

74435. If another district is annexed to a district pursuant to Chapter 3 (commencing with Section 75940) of Part 10 of this division the board of the annexing district shall reestablish the boundaries of the divisions and election precincts within the district in the same manner as provided in Section 74434.

CHAPTER 4. Redivision of a District Within Ventura County [74450 - 74470]

ARTICLE 1. Introduction [74450 - 74451]

74450. The provisions of this chapter apply only to districts within Ventura County.

74451. Except as provided in this chapter every district within Ventura County shall be governed by the provisions of this division.

ARTICLE 2. Redivision Procedure [74460 - 74470]

74460. The number of members of the board and the basis for dividing a district into divisions for the election of directors may be changed in the manner prescribed in this chapter.

74461. The change may be initiated by the board by resolution or may be initiated by a petition signed by not less than 5 percent of the electors of the district. The resolution or petition shall state the new number of members of the board or the new basis for dividing the district into divisions based either on area or population or changes to the boundaries of the divisions of a district based on population.

74462. If the divisions are based on population, the population of each as determined by the last published decennial federal census shall be substantially equal in population. In no event shall the total population of any combination of divisions comprising a majority of the number of divisions of the district equal less than one-half of the population of the district. In no event shall the largest division exceed the population of the smallest division by a ratio exceeding 2 to 1.

In establishing the boundaries of the divisions consideration may be given to the following factors: topography, geography, cohesiveness, contiguity, compactness of territory, and community of interests of the divisions.

74463. When such change has been initiated the board within 60 days thereafter shall submit to the board of supervisors its report thereon containing a map or description of recommended division boundaries in accordance with this Division 21.

74464. Within 40 days after receipt of the report of the board, the board of supervisors may change the division boundaries recommended by the board provided such change is in accordance with such resolution or petition and this chapter and shall fix the time and place of a hearing by the board not less than 30 nor more than 60 days thereafter.

74465. The clerk of the board of supervisors shall cause a notice of the time and place of the hearing to be given by publication within the district in accordance with Section 6066 of the Government Code. Such notice shall state the number of existing divisions of the district, the proposed new number of divisions or the proposed new basis for dividing the district, or both, and shall contain a general description of, or map showing, the division boundaries proposed by the board of supervisors and the population of each division.

74466. (a) The board of supervisors shall hear all interested persons and may adjourn the hearing from time to time. Following the hearing, the board of supervisors may further change the proposed division boundaries provided that the change is in accordance with this chapter and the resolution and petition. The board of supervisors shall make an order describing the proposed divisions of the district, numbering such divisions consecutively, and directing that such proposed redivision be submitted to the electors of the district at a special election to be consolidated with the next district general election to be held not earlier than 120 days thereafter.

(b) Notwithstanding subdivision (a), a redivision involving only changes to the boundaries of the divisions of a district based upon population, independent of a change in the basis of dividing the district into divisions, shall not be submitted to the electors of the district.

74467. The election on the proposed redivision of the district shall be held in the same manner as elections for the formation of a district so far as applicable. No particular form of ballot shall be required except that the ballot shall contain the words "_____Water Conservation District representation to be based on (population) [area] rather than on (area) [population] (and _____Water Conservation District directors to be (increased (decreased) from _____ to _____. Yes _____No," or words equivalent thereto. Any proposed redivision or change in number of directors shall become effective if a majority of the electors voting in the election vote "yes" thereon.

74468. Directors to fill vacancies in new divisions in the event the redivision is approved by the voters shall be nominated and elected at the same election in the same manner as for election of directors of a district so far as applicable. If one incumbent director resides within a proposed new division his term of office shall not be affected by the approval of the redivision by the voters of the district. If two or more incumbent directors reside within a proposed new division, the term of office of each of them will terminate on the approval of such redivision unless only one is duly nominated, in which case his term of office shall not be affected by the approval of such redivision. A candidate who is a director of the district shall be permitted to have the word "Incumbent" or words equivalent thereto placed after his name on the ballot.

74469. Following approval by the voters of a redivision of the district, the directors shall, to the extent necessary, classify themselves in the manner provided by Section 74202.

74470. If the board of supervisors, at any time after making an order as provided by Section 74466 and prior to the election on the proposed redivision of the district, finds that it is in the public interest to do so, it may appoint not more than two electors of the district as temporary additional directors of the district. The number of temporary additional directors thus appointed shall be irrespective of the number of existing divisions of the district and of the number of proposed new divisions of the district. Such temporary additional directors shall have all of the powers, rights and privileges of elected directors and shall hold office until the election on the proposed redivision of the district.

PART 5. POWERS AND PURPOSES [74500 - 74652]

CHAPTER 1. Powers and Duties Generally [74500 - 74511]

74500. A district may:

- (a) Have perpetual succession.
- (b) Adopt a seal and alter it at pleasure.

74501. A district may make contracts and do all acts necessary for the full exercise of its powers.

74502. A district may appoint and employ such engineer or engineers and such attorney or attorneys as the board deems necessary or advisable to accomplish the purposes of the district.

74503. A district may employ and hire such men, teams, tools, implements, machinery, and equipment as the board deems expedient or advisable to perform the work which it deems necessary or advisable to accomplish the purposes of the district.

74504. A district shall cause such work to be done and shall acquire such property as the board deems necessary or advisable to accomplish the purposes of the district, and the board shall estimate the cost thereof, together with rights-of-way for the purpose of ingress to and egress from the works of the district.

74505. A district shall provide for the payment, from the proper fund, of all the debts and just claims against the district.

74506. A district may disseminate information concerning the rights, properties, activities, plans, and proposals of the district; provided, however, that expenditures during any fiscal year for such purposes shall not exceed three cents (\$0.03) for each one hundred dollars (\$100) of assessed valuation of the district.

74507. A district may vote bonds, cause assessments to be levied, cause elections to be held for the voting of bonds, or on the question of special assessments.

If special assessments are voted, the district may cause them to be levied, as provided by Chapter 3 (commencing with Section 75390) of Part 8 of this division, for the purpose of paying any obligation of the district, and for the purpose of raising money to further accomplish the purposes of this division in the manner provided in this division.

74508. A district may levy and collect a ground water charge for the production of water from the ground water supplies within the district or within a zone or zones thereof in the manner prescribed in Part 9 (commencing with Section 75500) of this division.

74509. Notwithstanding any other provision of law, a district may, by resolution of the board of the district, change the name of the district. Such changed name shall include the words "Water Conservation District."

74510. A district may construct, operate, and maintain one or more plants, which plants are constructed after the effective date of this section, for the generation of hydroelectric power and transmission lines for the conveyance thereof. Construction of the plants or plants and transmission lines may be financed by the issuance of revenue bonds pursuant to the Revenue Bond Law of 1941 (commencing with Section 54300 of the Government Code) or any other method of financing district works as provided in this division.

74511. The hydroelectric plant or plants and transmission lines constructed pursuant to Section 74510 may be leased for operation to, or the power generated may be sold to, a public utility or public agency engaged in the distribution, use, or sale of electricity. The power generated may be used by the district for its own purposes, or for the production or transmission of water, but shall not be offered for sale directly by the district to customers other than a public utility or public agency.

CHAPTER 2. Water [74520 - 74527]

74520. A district may make surveys and investigations of the water supply and resources of the district.

74521. A district may appropriate, acquire, and conserve water and water rights for any useful purpose.

74522. A district may conserve, store, spread, and sink water and for such purposes may acquire or construct dams, damsites, reservoirs and reservoir sites, canals, ditches and conduits, spreading basins, sinking wells, and sinking basins.

74523. A district may maintain, operate, and repair any of the works described in Section 74522.

74524. A district may provide for the construction, operation, and maintenance of such works, facilities, or operations within or without the district boundaries as the board deems necessary to protect the land or property in the district from damage by flood or overflow.

74525. A district may drill, construct, install, and operate wells, pumps, pipelines, conduits, valves, gates, meters, and other appurtenances to such wells, pipelines and conduits, and may pump water therefrom and thereby for sale, delivery, distribution, or other disposition.

74526. A district may sell, deliver, distribute, or otherwise dispose of any water that may be stored or appropriated, owned, or controlled by the district.

74527. A district may fix the rates at which water may be sold by the district. The rates shall be uniform for like classes of service throughout the district.

CHAPTER 3. Recreational Facilities [74540 - 74541]

74540. A district may acquire, construct, maintain, and operate recreational facilities in connection with any dams, reservoirs, or other works owned or controlled by the district.

74541. A district may fix and assess reasonable charges for the use of the recreational facilities by members of the public, and may deposit any funds collected thereby with the treasurer to the credit of the district as provided in Section 74750.

CHAPTER 4. Property [74550 - 74554]

74550. A district, for the full exercise of its powers and the accomplishment of the purposes of this division, may within or without the district:

(a) Take real and personal property of every kind by grant, appropriation, purchase, gift, devise, condemnation, or lease.

(b) Hold, use, enjoy, manage, occupy, possess, lease, or dispose of real and personal property of every kind.

74551. The legal title to all property acquired by a district shall immediately and by operation of law vest in such district, and shall be held in trust for and set apart for the uses and purposes set forth in this division.

74552. A district may take conveyances or other assurances for all property acquired by it.

74553. A district may exercise the right of eminent domain to take any property necessary to be used for dams, damsites, reservoirs, reservoir sites, canals, ditches and conduits, spreading basins, sinking wells or sinking basins, or otherwise necessary to accomplish the purposes of this division, or to operate or to make use of such works.

74554. The right of eminent domain shall not extend to any property used for, or dedicated to, cemetery purposes.

CHAPTER 5. Contracts With Other Agencies [74570 - 74630]

ARTICLE 1. In General [74570 - 74572]

74570. A district may cooperate and contract with one or more other districts or public corporations or agencies, whenever, in the opinion of the board, such cooperation or contract is desirable or advantageous to the district.

74570.5. A district may contract with any state agency to finance any district improvement authorized by this division that is related to the provision of water for human consumption. The terms of the contract shall be consistent with this division. Notwithstanding any other provision in this division, the term of the contract may extend up to 30 years.

74571. In furtherance of such cooperation a district may:

(a) Join with another district or districts organized under the laws of this state in the acquisition, purchase or construction of works or other property, real or personal, for the joint use or benefit of the cooperating districts, and may raise any necessary funds by assessments, bonds, or any other means authorized by law.

(b) Empower a cooperating district to conduct the actual construction and operation of the works, or the actual acquisition of the property, and may pay its agreed share of the cost or expense thereof by delivering and turning over to the cooperating district its bonds authorized therefor, such bonds to be received in payment at not less than par value.

74572. If the district is annexed to a cooperating district, all bonds of the annexed district authorized for payment of its agreed share of the cost and expense of the construction and operation of works or the acquisition of property by the annexing cooperating district, shall be issued and shall be delivered to and received by the annexing district at not less than par value. Such bonds shall become the property of the annexing district and they may be collected at maturity or sold by the annexing district at not less than par value and the proceeds of sale applied to the purpose for which the bonds were issued.

ARTICLE 2. Contracts for Supply of Water and Construction of Works [74590 - 74593]

74590. A district may contract with any city, city and county, county, or district organized under the laws of this state for a water supply.

74591. A district may enter into contracts with municipalities, water districts of any type or kind, counties, cities and counties, the State of California, or the United States, under such terms as may be mutually advantageous, for the acquisition or construction of the works authorized by this division, and each of the parties to such contract may contribute to the cost of such acquisition or construction such sums of money as may be agreed upon. Such contracts shall provide for the operation and maintenance of the works thus acquired and for the distribution and sale of any water that may be stored or controlled by the parties thereto. Any surplus revenue derived from such sale, after paying the cost of the operation and maintenance of the works, may be distributed to the parties to the contract in such proportions as may be agreed upon, or may be used for extensions and improvements.

74592. A district may enter into contracts with municipalities, water districts of any type or kind, counties, cities and counties, the State of California, or the United States, under such terms as may be mutually advantageous, for the acquisition or disposal of water or water rights or water storage facilities and rights, or any interest in such water, water rights, or water storage facilities and rights for any useful purpose.

74593. A district, whenever the board deems it to be to the advantage of the district so to do, may:

(a) Enter into contracts with municipalities, sanitary districts or other incorporated bodies, either within or without the district, providing for the delivery to the district of sewage or storm water produced by or coming from such municipalities, sanitary districts, or other incorporated bodies.

(b) Treat, purify, and recycle such water for beneficial use.

(c) Store, distribute, sell, or otherwise dispose of the water and byproducts resulting from such treatment, purification, or recycling.

The district may construct and operate the works necessary for such purposes, and may acquire or construct and may maintain pipelines, flumes, ditches, and reservoirs suitable or adaptable for the prevention of the wastage of water.

Whenever the district receives a revenue from the sale of water and byproducts in excess of the cost of operating and maintaining the works authorized in this section, it may, for the purpose of enlarging, extending, or improving such works, issue its certificates of indebtedness payable out of such excess revenues, and pledge the same for the payment of the indebtedness so created.

ARTICLE 3. Cooperation With the United States [74610 - 74618]

74610. A district may cooperate and contract with the United States either under the Federal Reclamation Act of June 17, 1902, and all acts amendatory thereof or supplementary thereto, or under any other act of Congress heretofore or hereafter enacted authorizing or permitting such cooperation or contract.

74611. The cooperation or contract may be for any or all of the following purposes:

(a) Acquisition or construction of works authorized by this division.

(b) A water supply.

(c) Acquisition or disposal of water or water rights or water storage or conservation facilities and rights, and any interest in such water, water rights, or water storage or conservation facilities.

(d) Acquisition or construction of works for any useful purpose.

(e) Investigation, study, or preparation of proposals or plans for any or all of the above purposes.

(f) Obligation of the district to repay to the United States advances of funds made by the United States to the district for any or all of the above purposes.

(g) Assumption as principal or guarantor of indebtedness to the United States.

74612. A district may carry out and perform the terms of any contract so made.

74613. As used in this article, "United States" includes the United States, and any board, bureau, agency, office or officers, department, or corporation of the United States.

74614. The board shall generally perform all acts necessary to exercise the authority conferred by this article, except that if the issuance of bonds of the district is necessary for such purposes, the bonds shall be voted upon and issued in the manner provided in this division for the incurring of bonded indebtedness of the district.

74615. When, in furtherance of a contract made with the United States, bonds of a district are authorized, such bonds may be transferred to or deposited with the United States, at not less than their par value. In such case, the interest or principal, or both, of such bonds may be legally paid to the United States and applied to the amount, or any part thereof, to be paid by the district to the United States, as provided in the contract.

74616. The board may accept, on behalf of the district, appointment of the district as fiscal agent of the United States, or authorization of the district by the United States to make collection of money for, and on behalf of, the United States, and to assume the duties and liabilities incidental thereto. The board may do any and all things required by the federal statutes now or hereafter enacted in connection therewith, and all things required by any rules or regulations now or hereafter established under any such federal statutes.

74617. A contract entered into between a district and the United States may provide that the district shall not be dissolved, nor shall the boundaries be changed except upon the written consent of an official of the United States filed with the official records of the district. If such consent is given and the lands excluded, the area excluded shall be free from all liens and charges for payments to become due to the United States under any such contract.

74618. As whole or partial consideration for any privileges obtained by a district under any contract with the United States, any rights-of-way or rights to water or to the property owned or acquired by the district may be conveyed by the board to the United States insofar as they may be needed for the construction, operation, and maintenance of works by the United States for the benefit of the district pursuant to such contract.

ARTICLE 4. Approval of Contracts by Voters [74630- 74630.]

74630. If a district undertakes to execute a contract pursuant to this chapter, no part of the annual payments for the obligations assumed therein, as principal or guarantor, or the interest thereon, or the costs of maintenance and operation of the works so acquired or constructed, over and above the amounts available therefor from revenues, that is in excess of the limitations on assessment taxes provided in Sections 75357 and 75358, shall be levied until such contract has been approved by the voters of the district, or of the improvement district, for which such contract was made, by a majority of the voters thereof voting on the proposition, in the manner provided for the incurring of a bonded indebtedness. In the event of the approval of such contract by the voters, the limitations provided in Sections 75357 and 75358 shall not apply.

CHAPTER 6. Controversies [74640 - 74645]

74640. A district may sue and be sued, except as otherwise provided in this division or by law, in all actions and proceedings in all courts and tribunals of competent jurisdiction.

74641. A district may commence, maintain, intervene in, and compromise, in the name of the district, and assume the costs of, any action or proceeding involving or affecting the ownership or use of water or water rights within the district, used or useful for any purposes of the district, or of common benefit to the lands situated therein.

74642. A district may commence, maintain, intervene in, defend, and compromise actions and proceedings to prevent interference with or diminution of the natural flow of any stream or streams or unnavigable river, or rivers, including the natural subterranean supply of water therefrom, which may be used or useful for any purpose of the district, or a common benefit to the lands within the district or its inhabitants; and may commence, maintain, and defend actions and proceedings to prevent any such interference with such waters as may endanger the inhabitants or lands of the district.

74643. A district may institute and maintain any and all actions, proceedings, and suits at law or in equity necessary or proper to fully carry out the provisions of this division, or to enforce, maintain, protect, or preserve any and all rights, privileges, and immunities created by this division or acquired in pursuance thereof.

74644. In all courts, actions, suits, or proceedings, the board may sue, appear, and defend in the name of the district in person or by attorneys.

74645. All claims for money or damages against the district are governed by Part 3 (commencing with Section 900) and Part 4 (commencing with Section 940) of Division 3.6 of Title 1 of the Government Code except as provided therein, or by other statutes or regulations expressly applicable thereto.

CHAPTER 7. Adoption of Ordinances [74650 - 74652]

74650. (a) A district may act by ordinance in exercising its powers under this division over lands, structures, and facilities in which the district has a real property interest. All ordinances shall be enacted only by rollcall vote entered into the proceedings of the board.

(b) It is the policy of the Legislature to avoid duplication of authority of local districts to regulate upon the same subjects in the same area. Accordingly, this chapter shall not apply to a district lying within another district having and exercising, in accordance with the governing statute of the overlying district, the authority to adopt and enforce, upon civil or penal sanction, ordinances for the same purposes.

74651. An ordinance shall be in full force and effect upon adoption, but shall be published once in full in a newspaper of general circulation, printed, published, and circulated in the district within 10 days after adoption, or if there be no such newspaper, then posted within that time in three public places within the district.

74652. It is a misdemeanor for any person to violate any district ordinance adopted pursuant to Section 74650 from and after the publication or posting of the ordinance pursuant to Section 74651. The violation shall be punishable by a fine not to exceed five hundred dollars (\$500), or imprisonment in the county jail not to exceed 30 days, or by both that fine and imprisonment. Any violation or threatened violation may also be enjoined by civil action.

PART 6. FINANCIAL PROVISIONS [74750 - 74977]

CHAPTER 1. Funds and Warrants [74750 - 74756]

74750. The treasury of the principal county is the repository of all the funds of a district. For this purpose, the treasurers of any other counties wherein is situated a portion of the district, shall, at any time, not more often than twice a year, upon the order of the board, settle with the board and pay over to the treasurer of the principal county all moneys in their possession belonging to the district. The treasurer of the principal county shall receive and receipt for such moneys, and place such moneys to the credit of the district. He shall be responsible upon his official bond for the safekeeping and disbursement, in the manner provided in this division, of these and all moneys of the district held by him.

74751. No claim shall be paid by the treasurer until allowed by the board.

74752. The treasurer shall pay out the moneys of the district only upon warrants of the county auditor, drawn upon order of the board signed by the president and attested by the secretary.

74753. Upon presentation of any matured bond, or any matured interest coupon on any bond of the district, the treasurer shall pay it from the bond fund. If funds are not available for the payment of any such matured bond or interest coupon, it shall draw interest at the rate of 7 percent per annum from the date of its presentation for payment until notice is given that funds are available for its payment, and it shall be stamped and provision made for its payment, as in the case of a warrant for the payment of which funds are not available on its presentation.

74754. The treasurer shall report in writing at each regular meeting of the board, and as often thereafter as requested by the board, the amount of money on hand, the amount of receipts since his last report, and the amounts paid out. Such reports shall be verified and filed with the secretary.

74755. As an alternative to the functions of the county treasurer and the county auditor provided in this chapter, the board may elect to disburse funds of the district. Such election shall be made by resolution of the board and the filing of a certified copy thereof with the county treasurer. The county treasurer shall thereupon deliver to the district all funds of the district. Such funds shall be deposited by the board in a bank or banks approved for deposit of public funds and shall be withdrawn only by written order of the board, signed by the president and secretary. The order shall specify the name of the payee, the fund from which it is to be paid and state generally the purpose for which payment is to be made. Such order shall be entered in the minutes of the board. The board shall appoint a treasurer who shall be responsible for the deposit and withdrawal of funds of the district. The treasurer shall deposit with the district, prior to October 1 of each year, a surety bond in an amount annually fixed by the board. The deposit and withdrawal of funds of the district shall thereafter be subject to the provisions of Article 2 (commencing with Section 53630), Chapter 4, Part 1, Division 2, Title 5, of the Government Code. Any district electing to disburse funds pursuant to this section shall file with the board of supervisors an annual audit of such disbursements which meets the approval of the board of supervisors.

74756. The election made pursuant to Section 74755 may be rescinded by resolution of the board. No later than 30 days following any such rescission, the treasurer appointed pursuant to Section 74755 shall deliver all district funds to the county treasurer together with a certified copy of the resolution of rescission, whereupon the county treasurer and county auditor shall commence to act as provided in this chapter.

CHAPTER 2. Limitation on Indebtedness [74770 - 74772]

74770. The board has no power, except as provided in this division as to certificates of indebtedness, notes, special assessments, and the issuance of bonds by the district, to incur any debt or liability whatever in excess of the express provisions of this division. Any debt or liability incurred in excess of such express provisions, except as to certificates of indebtedness, notes, special assessments, and the issuance of bonds, is absolutely void.

74771. For the purposes of organization, or for any of any purpose for which the board is authorized to expend the collection of the first assessment, an indebtedness not exceeding in the aggregate an amount equivalent of twenty-five cents (\$.25) for each acre of land in the district, and it may cause warrants of the district to issue therefor bearing interest at 7 percent per year from date of issue until the treasurer has funds available for the payment thereof.

74772. The expenses of organization, including the fees of attorneys and others employed to conduct the organization proceedings, are a charge upon the district, and are payable by the district.

CHAPTER 3. Bonds [74790 - 74872]

ARTICLE 1. In General [74790 - 74792]

74790. A district may incur a bonded indebtedness for any purpose for which the board is authorized to expend the funds of the district, including any works, property, or rights, contract or otherwise, acquired under or pursuant to the provisions of Chapter 5 (commencing with Section 74570) of Part 5 of this division, or the refunding of any obligations incurred pursuant to that chapter.

74791. Bonds issued by a district, and bonds issued for any improvement district therein, shall be payable, both principal and interest, from assessments upon the lands in the district or improvement district, as the case may be, unless proceedings have been taken substantially as provided in this division for such bonds to be payable from assessments levied upon all real property in the district or in the improvement district, as the case may be.

74792. Bonds of the district may be issued in the manner provided in this chapter payable, both principal and interest, from assessments levied upon all real property in the district in the manner provided in this division for the levy of assessments upon land only.

If the board determines that the bonds shall be payable from assessments upon all such real property, or if the proceedings for the formation of the district require that the bonds be so payable, the board shall so state in the resolution calling the bond election, and the notice of the election shall contain a statement to that effect. If the bonds receive the necessary two-thirds vote at the bond election, then they shall be payable from assessments upon all real property in the district, and such real property shall be subject to taxation for the payment of principal and interest of such bonds.

ARTICLE 2. Initiation of Proceedings [74800 - 74804]

74800. The board, whenever the interest of the district shall require it, may cause a report to be made to the effect that the acquisition of certain property or works or the construction of such works is convenient or necessary to serve or fulfill the purposes of the district and that the cost thereof cannot be paid for out of the annual revenue of the district. The report shall be in such detail and shall be accompanied by such exhibits as will disclose the purpose sought to be accomplished and the means to be employed therefor. The report shall be printed in convenient form for distribution to the electors of the district.

74801. After the printing of the report the board, by resolution adopted by a majority of its members, may call an election to be held in the district for the purpose of authorizing the incurring of a bonded indebtedness by the district.

74802. The resolution shall specify all of the following:

- (a) The purpose for which the indebtedness is to be incurred.
- (b) The amount of bonds proposed to be issued.
- (c) The maximum rate of interest the bonds shall bear.
- (d) The number of years, not exceeding 40, the whole or any part of the bonds are to run until maturity.

74803. The resolution shall further provide for submitting the question of the incurring of the indebtedness to the qualified electors of the district at an election called for that purpose.

74804. In determining the amount of bonded indebtedness to be incurred, the board may include all costs and estimated costs incidental to or connected with the acquisition, construction or financing of the works or property set forth in the report required by Section 74800, and all engineering, inspection, legal and fiscal agent's fees, costs of the bond election and of the issuance of the bonds, and bond interest estimated to accrue during the construction period and for a period of not to exceed 12 months after completion of construction.

ARTICLE 3. Notice of Bond Election [74820 - 74822]

74820. Notice shall be given of the bond election by publication pursuant to Section 6062 of the Government Code in a newspaper of general circulation published in the district and the first publication shall be at least 30 days prior to the date fixed for the election.

74821. The notice of the bond election shall state all of the following:

- (a) The time and place for holding the election.
- (b) The names or numbers of election precincts, which may be the general election precincts established by the boards of supervisors for general state or county elections, or a consolidation of such precincts, or such other special precincts for the purpose of the bond election as the board may designate and establish.
- (c) The location of the polling places and the names of the election officers appointed to conduct the election.

74822. The notice of the bond election shall also state all of the following:

- (a) The amount of the debt proposed to be incurred.
- (b) The purpose thereof, in brief form, with a reference to the report required by Section 74800 for further particulars.
- (c) The number of years the bonds or any part thereof are to run until maturity.
- (d) The maximum rate of interest the bonds shall bear.

ARTICLE 4. Bond Election [74830 - 74834]

74830. The manner of holding and conducting the bond election, the selection of officers to conduct the election, the designation of precincts and polling places, the preparation, receipt, counting, and return of ballots, and the canvassing and determining of the results of the election shall be as provided for the election of directors as nearly as practicable, and in particulars not so provided shall be in accordance with the general laws of the state relative to elections whereat propositions are submitted and voted upon.

74831. Several propositions may be submitted at the same bond election.

74832. Only qualified electors of the district may vote at the bond election.

74833. The ballots at the bond election shall contain the words "Bonds—Yes," and "Bonds—No," or words of similar import, together with a general statement of the amount and purpose of the bonds to be issued.

74834. If a bond election has been fairly held and conducted, no informality or omission to perform a prescribed duty shall be held to invalidate or affect the legality of any bonded debt authorized to be incurred.

ARTICLE 5. Issuance and Terms [74850 - 74857]

74850. If two-thirds of the votes cast upon the proposition at the bond election are marked and counted "Bonds—Yes" or appear to favor the proposition submitted, the proposition shall be deemed to have

been accepted by the voters and to authorize the incurring of a bonded debt and the issuance of bonds in the amount of and for the purpose stated in the proposition.

74851. The board may issue the bonds of the district for the whole or any part of the amount of the indebtedness authorized, and may, from time to time, provide for the issuance of such amounts as are necessary, until the full amount of the bonds authorized have been issued. Each separate issue shall be given a serial number or letter.

74852. The board shall, by a resolution adopted by a majority of its members, prescribe the form of the bonds and of the coupons attached thereto and fix the time when the whole or any part of the principal shall become due and payable. The payment of the first installment may be deferred for a period not longer than five years from the date of the bond.

74853. The bonds shall bear interest at a rate not exceeding 8 percent per year, payable annually or semiannually as may be prescribed by the board at the time of the issuance of the bonds.

74854. The board may provide for redemption of bonds before maturity at prices determined by it. A bond shall not be subject to call or redemption prior to maturity unless it contains a recital to that effect.

74855. The bonds shall be in such denominations as the board may prescribe.

74856. The principal and interest shall be payable in lawful money of the United States at the office of the treasurer or such other place as may be designated or at either place at the option of the holder of the bond.

74857. The bonds shall be dated, numbered consecutively, signed by the president, and attested by the secretary with the official seal of the district. The interest coupons shall bear the actual or facsimile signature of the president.

ARTICLE 6. Sale of Bonds and Use of Proceeds [74870 - 74872]

74870. The bonds as issued may be sold at such times and in such amounts as the board deems expedient, after a notice inviting bids therefor has been published in the district pursuant to Section 6062 of the Government Code. A certified check payable to the district for at least 2 percent of the amount of the bonds offered shall accompany each bid, conditioned that the bidder will accept and pay for the bonds bid for if awarded to him, otherwise such check shall be forfeited to the district and the amount thereof paid into the treasury. If no bids are received the bonds offered may be sold at private sale.

74871. The proceeds from the sale of bonds shall be paid into the treasury of the district, placed to the credit of a special fund, and expended only for the purpose for which the indebtedness was created.

74872. If the board determines by resolution that (1) the expenditure of money raised by the sale of bonds for the purpose for which the bonds were voted is impracticable or unwise, or (2) that all of the purposes for which money raised by the sale of bonds have been fulfilled but that there is a surplus of such money remaining, the board may call a special election to obtain the consent of the voters to use the money for some other purpose for which the district may issue bonds.

The procedure shall be the same as when the bond proposition was originally submitted and the election may be consolidated with any other election, in which case one ballot may be used in the discretion of the board.

CHAPTER 4. Adoption of Improvement Acts [74900 - 74904]

74900. A district, in the construction of any work to be done or improvement made by it or within an improvement district formed pursuant to Part 7 (commencing with Section 75000) of this division and in the levying of assessments and reassessments and the issuing of bonds to pay for costs and expenses of the work and improvements done or to be done, may use the Improvement Act of 1911, the Municipal Improvement Act of 1913, or the Improvement Bond Act of 1915. These acts are hereafter referred to in this chapter as the "improvement acts."

74901. Notwithstanding the provisions or limitations of any of the improvement acts relating to the work authorized to be done or the improvements authorized to be made thereunder, a district may acquire or construct, by the procedures permitted by this article, any improvements authorized by this division, and the improvements authorized to be constructed or acquired by the procedure permitted by this article, are restricted to those permitted by this division.

74902. In the application of the improvement acts to proceedings under this division, the terms used in those acts shall have the following meanings:

(a) "City council" or "council" means the board.

(b) "City" or "municipality" means the district.

(c) "Clerk" or "city clerk" means the secretary.

(d) "Superintendent of streets," "street superintendent," or "city engineer" means the chief engineer of the district or any other person appointed to perform such duties.

(e) "Tax collector" means the county tax collector.

(f) "Treasurer" or "city treasurer" means the treasurer.

(g) "Right-of-way" means any right-of-way owned or held by the district for the purpose of constructing or maintaining any work or improvements which the district is authorized to do.

74903. The powers and duties conferred by the improvement acts upon boards, officers, and agents of cities shall be exercised by the board, officers, and agents of the district, respectively.

74904. No assessment or bond levied or issued pursuant to proceedings under any of the improvement acts, as authorized by this chapter, shall become a lien, and no person shall be deemed to have notice thereof, until a certified copy of the assessment in the proceedings under the improvement act being utilized, and the diagram attached to the assessment, are recorded in the office of the county recorder of each county in which any part of the lands assessed are located.

CHAPTER 5. Negotiable Promissory Notes [74950 - 74952]

74950. The district may issue negotiable promissory notes bearing interest at a rate not exceeding the rate set by Article 7 (commencing with Section 53530) of Chapter 3 of Part 1 of Division 2 of Title 5 of the Government Code. The notes shall be general obligations of the district payable from revenues and assessment taxes, unless paid from other available funds of the district, in the same manner as bonds of the district. The maturity of the notes shall not be later than five years from the date thereof and the total aggregate amount of the notes outstanding at any one time shall not exceed the lesser of 2 percent of the assessed valuation of the taxable property in the district, according to the last assessment roll or five million dollars (\$5,000,000), except that a district which has been formed for less than 18 months may not borrow an amount exceeding twenty-five thousand dollars (\$25,000).

74951. "Taxable property," as used in Section 74950, means:

(a) All lands and improvements within a district or improvement district, as the case may be, if the provisions of Section 74056 were complied with in the formation of the district or district within which the improvement district is created.

(b) All lands and improvements within an improvement district if the basis of taxation in the improvement district has been changed pursuant to Section 75151 from land to land and improvements.

(c) Land only within any district or improvement district not mentioned in subdivision (a) or (b) of this section.

74952. If a district undertakes to issue promissory notes pursuant to the limitations set forth in Section 74950, the limitations provided in Sections 75357 and 75358 shall not apply.

CHAPTER 6. Issuance of Revenue Bonds Pursuant to the Revenue Bond Law of 1941 [74975 - 74977]

74975. Subject to the limitations of this chapter, revenue bonds, including refunding revenue bonds, may be issued by a district under the Revenue Bond Law of 1941, Chapter 6 (commencing with Section 54300), Part 1, Division 2, Title 5 of the Government Code.

74976. This chapter provides an alternative authority and procedure for the subject to which it relates, but does not affect any other law relating to such subject or a similar subject. When proceeding under the provisions of this chapter, such provisions alone need be followed.

74977. For the purposes of this chapter, the term "enterprise," as used in the Revenue Bond Law of 1941, shall be limited to and shall include only those works or property authorized to be acquired, constructed, improved or financed by a water conservation district pursuant to this division or any other applicable provision of law.

PART 7. IMPROVEMENT DISTRICTS [75000 - 75231]

CHAPTER 1. Improvement Districts for Issuance of Bonds [75000 - 75090]

ARTICLE 1. Initiation of Proceedings [75000 - 75002]

75000. Whenever 1,000 or more of the holders of title or evidence of title of land within a district, as shown by the records of the county assessor, desire to form an improvement district within a district, they may propose the formation of such an improvement district by filing a petition with the board. The petition shall contain a statement of the plan of the proposed improvement district and a description of the boundaries thereof.

75001. Upon receipt of the formation petition the board shall cause a survey to be made of the proposed improvement, and if it is found that the plan of improvement is feasible, the board shall cause to be prepared a report containing the plans and specifications of the improvement and an estimate of the cost thereof. The report shall be in such detail and be accompanied by such exhibits as will disclose the purpose sought to be accomplished and the means to be employed therefor.

75002. The report shall be filed in the office of the district and shall be subject to the inspection of all parties interested.

ARTICLE 2. Hearing and Formation [75010 - 75016]

75010. After the filing of the report required by Section 75001, the board shall give notice of a hearing upon the formation petition by posting a notice thereof in three public places within the proposed improvement district and publishing such notice once a week for two weeks in some newspaper published in the county in which the office of the district is situated. The notice shall be posted not later than 20 days prior to the date set for the hearing.

75011. At the hearing the board shall hear such objections to the formation petition, the formation of the improvement district and its boundaries, and the plans, specifications, and estimates as may come before it, and shall make such changes in reference thereto as it considers proper.

75012. At the hearing the board may make such changes in the boundaries of the proposed improvement district as it deems advisable and shall define and establish the boundaries, but the board shall not modify the boundaries so as to exclude from the proposed improvement district any territory which may be benefited by the improvement district, or include within the proposed improvement district any land which will not in its judgment be benefited by the formation thereof.

If any additional lands are included in the proposed improvement district, the hearing of the petition shall be continued and the owners of the added lands shall be given not less than 20 days' personal notice of the addition of such lands to the improvement district.

75013. At the hearing the board shall determine whether the petition complies with the requirements of Section 75000 and for that purpose shall hear all competent and relevant testimony in support or in opposition thereto. No defect in the form or contents of the petition or any proceeding therein shall invalidate any proceeding, but the petition shall have a sufficient number of qualified signatures attached thereto.

75014. If more than one-third of the holders of title or evidence of title of lands within the proposed improvement district object in writing at the hearing to the formation of the proposed improvement district, the board shall deny the formation petition and no further proceedings shall be had thereon.

75015. At the conclusion of the hearing, if the board determines that the improvement district should be formed, it shall make a final order approving the formation petition.

75016. The order shall be entered in the minutes of the board and a copy thereof shall be recorded in the office of the county recorder of each county in which any of the lands of the improvement district are located.

ARTICLE 3. Calling of Bond Election [75030 - 75032]

75030. If the board makes the final order approving the formation petition, it may, by resolution adopted by a majority of its members, call an election for the purpose of authorizing the incurring of a bonded indebtedness by the improvement district.

75031. The resolution shall specify all of the following:

(a) The purpose for which bonds are proposed to be issued.

(b) The maximum rate of interest the bonds shall bear.

(c) The number of years, not exceeding 25, the whole or any part of the bonds are to run until maturity.

75032. The resolution shall further provide for submitting the question of the indebtedness to the qualified electors of the improvement district at an election called for that purpose.

ARTICLE 4. Notice of Bond Election [75050 - 75051]

75050. Notice shall be given of the bond election by publication in a newspaper published in each of the counties in which the improvement district is situated, if there is one, at least once a week for three weeks previous to the election, by posting notice thereof in three public places in the improvement district, and by posting a copy in the office of the district.

75051. The notice of the bond election shall designate a name for the improvement district and describe the boundaries thereof. The notice shall also designate the respective election precincts and the polling place in each, the election officers, the time of the election, and the hours during which the polls will be kept open; provided, that the polls shall be opened not later than 8 o'clock a.m. and kept open until 7 o'clock p.m.

ARTICLE 5. Bond Election [75060 - 75066]

75060. The bond election shall be conducted in accordance with the general election laws of the state as far as applicable and except as otherwise provided in this chapter.

75061. Several propositions may be submitted at the same bond election.

75062. Only qualified electors of the improvement district may vote at the bond election.

All electors residing within the improvement district whose names appear on the register of voters of the last general election and at any time within 40 days preceding the bond election are qualified electors of the improvement district eligible to vote at the bond election.

75063. The ballots at the bond election shall contain the words "Improvement District Bonds—Yes," and "Improvement District Bonds—No," or words of similar import, together with a general statement of the amount and purpose of the bonds to be issued.

75064. Immediately after the bond election, the election officers shall publicly count the votes and make and transmit a report of the result of the election to the board.

75065. If two-thirds of the votes cast upon the proposition are marked and counted "Improvement District Bonds—Yes" or appear to favor the proposition submitted, the proposition shall be deemed to have been accepted by the voters and to authorize the incurring of a bonded indebtedness and the issuance of bonds in the amount and for the purpose stated in the proposition.

75066. If the bond election has been fairly held and conducted, no informality or omission to perform a prescribed duty shall be held to invalidate or affect the legality of any bonded debt authorized to be incurred.

ARTICLE 6. Powers of the Board [75080 - 75082]

75080. Any improvement district formed pursuant to this chapter shall be under the supervision, direction, and control of the board.

75081. The board shall have the same power, authority, and jurisdiction over and with reference to an improvement district formed pursuant to this chapter that it possesses over and with reference to the district and improvements made within and chargeable to the entire district; provided, that any obligation created in behalf of such an improvement district shall be a charge against only the property situated within the improvement district.

75082. All provisions of this division, insofar as they are applicable, including provisions for bonds and assessments, shall apply to and govern improvement districts formed pursuant to this chapter.

ARTICLE 7. Payment of Bonds from Assessments Upon Real Property [75090- 75090.]

75090. The bonded indebtedness of an improvement district formed pursuant to this chapter may be made payable from assessments to be levied upon all real property in the improvement district by proceedings taken in the manner provided in this article and shall be so payable if the proceedings for the formation of the district so require.

In either case, the petition for the formation of the improvement district, the notice of hearing, the resolution calling the bond election, and the notice of the bond election shall contain a statement that any bonds authorized to be issued by the improvement district shall be payable, both principal and interest, from assessments to be levied upon all real property in the improvement district as finally formed.

If the bonds then receive the vote required under Section 75065, all the bonds shall be payable solely from assessments levied upon all real property in the improvement district, and all such real property therein shall be liable to be taxed for the purpose of paying principal and interest of such bonds.

CHAPTER 2. Special Improvement Districts [75110 - 75168.6]

ARTICLE 1. In General [75110- 75110.]

75110. A special improvement district may be formed of an area benefited thereby, a bonded indebtedness of such special improvement district may be incurred under Chapter 3 (commencing with Section 74790) of Part 6 of this division, negotiable promissory notes may be issued therefor under Chapter 5 (commencing with Section 74950) of Part 6 of this division, contracts therefor under Chapter 5 (commencing with Section 74570) of Part 5 of this division may be entered into by the board and approved by the voters of such special improvement district, the tax base therein may be changed from land to land and improvements, special assessments may be authorized to be levied therein under Chapter 3 (commencing with Section 75390) of Part 8 of this division, and annual assessment taxes may be levied therein under Chapters 1 (commencing with Section 75350) and 2 (commencing with Section 75370) of Part 8 of this division, all as provided in this chapter.

ARTICLE 2. Initiation of Proceedings [75120 - 75122]

75120. Whenever the board deems it necessary for the district to form a special improvement district and to perform the other acts provided in this chapter as to an area less than the entire district, it shall adopt a resolution of intention to form such a special improvement district.

75121. The resolution of intention shall set forth all of the following:

- (a) A declaration of the necessity for the special improvement district.
- (b) The purpose of forming the special improvement district and of performing the other acts authorized in this chapter.
- (c) The amount of the proposed bonded indebtedness or contract or special assessment.
- (d) If it is proposed that the basis of taxation shall be changed from land to land and improvements, a statement to that effect.
- (e) The boundaries of the proposed district that will be benefited.
- (f) The title of the proposed special improvement district, which shall be "____ Water Conservation District Special Improvement District No. ____."
- (g) The date on which a hearing will be held in the office of the board upon the proposal to form the special improvement district.

75122. A copy of the resolution of intention shall be published pursuant to Section 6062 of the Government Code in a newspaper of general circulation published in the proposed special improvement district, if there is one, and if none, then in a newspaper published in the district. If no newspaper is published in the district, the resolution of intention shall be published in a newspaper published in the county and circulated in the district, and copies shall be posted in three public places in the proposed special improvement district at least 10 days before the day fixed for the hearing.

ARTICLE 3. Hearing and Formation [75130 - 75135]

75130. At the hearing, any person interested, including persons owning property within the proposed special improvement district, may appear and present any matters material to the matters set forth in the resolution of intention.

75131. The board may exclude from the proposed special improvement district any territory that, in its opinion, would not be benefited by being in the proposed special improvement district.

75132. Lands not included in the original resolution of intention shall not be included within the proposed special improvement district except at a hearing held by the board on the inclusion thereof, after notice of such hearing has been duly given in the manner provided for the principal hearing.

75133. The board shall not modify the boundaries of the proposed special improvement district so as to exclude therefrom any land which would be benefited by the formation thereof, nor shall it include therein land which will not, in the judgment of the board, be benefited.

75134. If protest has been made, prior to its final determination for formation of the district, by the owners of land (or by the owners of real property, in the event of the applicability of the provision of Section 74056) within the proposed special improvement district the assessed value of which, as shown by the last equalized assessment roll, constitutes more than one-half of the total assessed value of the land or real property, as the case may be, within the proposed special improvement district, the board shall so find and the proceeding shall terminate. The board shall order the proceeding terminated when such protests are received.

75135. At the conclusion of the hearing, after making all necessary and proper changes in the boundaries, the board shall, by resolution, form the special improvement district and fix and determine its boundaries.

The determination of the board as to the area benefited by the bond or other proceedings shall be final and conclusive.

ARTICLE 4. Election [75150 - 75153]

75150. After the formation of the special improvement district, the board shall call an election for the purpose of submitting to the voters therein the question of incurring the bonded indebtedness, approving the contract, or levying the special assessment for which it was formed, which election shall be conducted in the manner provided for incurring of a bonded indebtedness.

75151. When a district has not been formed pursuant to Section 74056, and it is proposed that the basis of taxation in the special improvement district shall be changed from land to land and improvements, a statement to that effect shall be contained in the proposition submitted to the electors of the special improvement district.

75152. If a proposition of incurring the bonded indebtedness is approved by two-thirds of the voters voting on such proposition, or if a proposition of approving a contract, of levying a special assessment, or of changing the basis of taxation is approved by a majority of the voters voting on such proposition, such proposition has carried.

75153. No informality in any proceeding under this chapter, including the conduct of any election, not substantially affecting adversely the legal rights of any person, shall invalidate any such proceedings.

Any action wherein the validity of any such proceeding is denied shall be commenced within three months of the date of such proceeding.

ARTICLE 5. Inclusion of Territory [75160- 75160.]

75160. Territory may be added to a special improvement district in the manner provided in this chapter for its formation.

ARTICLE 6. Alternative Provisions for Government of Special Improvement Districts [75165 - 75166.3]

75165. Any special improvement district formed pursuant to this chapter shall be under the supervision, direction and control of the board of directors of the water conservation district, unless proceedings are taken under this article for the election of a board of trustees for such special improvement district, in which event such special improvement district shall be under the supervision, direction and control of such board of trustees. Such directors or trustees, as the case may be, shall have the same power, authority and jurisdiction over and with reference to the special improvement district that the board of directors possesses over and with reference to the water conservation district and improvements made within and chargeable to the entire conservation district provided that any obligation created in behalf of a special improvement district shall be a charge against only the properties situated within such special improvement district. All provisions of this division, insofar as they are applicable, including all provisions relating to bonds and assessments, shall apply to and govern special improvement districts formed under this chapter.

75165.1. A petition signed by holders of title or evidence of title of land representing at least fifteen percent (15%) of the assessed valuation of taxable land in the special improvement district may be presented to the board of directors requesting that the special improvement district be governed by a board of trustees to be elected by qualified electors in the special improvement district in lieu of the board of directors. The last equalized county assessment roll of the county in which the greater portion of the lands within the special improvement district are situated shall be prima facie evidence of ownership for purposes of this section, and a finding by the board of directors as to the sufficiency of the signatures based on certification by the secretary of the district shall be conclusive.

75165.2. Upon receiving the petition and determining its adequacy, the board of directors shall set it for hearing and give notice of the time and place of the hearing by causing notices to be posted in 3 public places in the special improvement district at least 10 days before the date of hearing. The board shall also cause a copy of the notice to be published in a newspaper of general circulation printed and published in the county in which the greater portion of the district is situated, and circulated in the special improvement district, once a week for at least 2 weeks prior to the date set for hearing, with the first publication

at least 10 days prior to such date.

75165.3. At the time fixed for the hearing, the board of directors shall hear all persons appearing for and against the matter, and at the conclusion of the hearing the board shall determine whether or not it is for the best interests of the district and of the special improvement district that the latter be governed by a board of trustees.

75165.4. In the event the board determines in favor of the petition, it shall forthwith call a special election within the boundaries of the special improvement district for the purpose of electing a board of trustees to act as the governing body of the special improvement district.

75165.5. The resolution calling such election shall include an order dividing the special improvement district into four consecutively numbered divisions. One trustee shall be elected from each division by vote of the electors of the division, and one trustee shall be elected at large by vote of the electors of the entire special improvement district.

75165.6. The special election shall be held and conducted, candidates nominated, the results declared and the returns canvassed in the same manner as the regular biennial election of officers of the water conservation district, insofar as applicable.

75165.7. The four persons receiving, respectively, the highest number of votes for trustee in each division, plus the one person receiving the highest number of votes for trustee at large, shall be declared to be duly elected to such offices.

75165.8. The trustees so elected shall immediately enter upon their duties as such upon qualifying, and shall hold office, respectively, until their successors are elected and qualified. They shall meet, classify themselves, and organize as a board, elect a president and secretary, fix the amounts of bonds, in the same manner as the first directors of a district under Part 3 (commencing with Section 74200).

75165.9. Each trustee shall receive an amount to be fixed by the board of trustees for each day's actual attendance at the meetings of the trustees and actual and necessary expenses incurred while engaged in official business under an order of the board of trustees. No trustee shall, however, receive more than twenty-five dollars (\$25) for each meeting attended, nor more than twenty-five dollars (\$25) in any calendar month for attendance of meetings. The secretary may but need not be one of the trustees or may be the secretary of the district or any other person.

75166. The salary of the secretary and the amount of the bond to be given for the faithful performance of his duties shall be fixed by the board of trustees.

75166.1. The board of trustees shall meet regularly at least once each month at a time and place to be fixed by resolution of the trustees.

75166.2. Except as otherwise provided in this article, all provisions of this division relating to biennial elections, vacancies, oaths, bonds, terms of office, appointments of sole nominees without elections, meetings and changes in boundaries of divisions which are applicable to the board of directors of the district are applicable to the board of trustees of the special improvement district, except that any vacancies on the board of trustees shall be filled by appointment of the board of directors of the district. Each trustee must be a registered voter and a holder of title, or evidence of title, of land in the special improvement district, and of the division which he represents.

75166.3. The board of trustees of any special improvement district, the lands within which are obligated to repay a loan or loans from the United States under any loan repayment contract made between the district and the United States pursuant to Article 3 (commencing with Section 74610) of Chapter 5 of Part 5, shall be charged with the responsibility of performing or causing the performance of all obligations of the district and of the special improvement district under such contract. If, in the opinion of the board of directors, the board of trustees fails to adequately maintain and operate the waterworks facilities of the special improvement district constructed pursuant to such contract, or otherwise fails to perform or cause the performance of the obligations under such contract, the board of directors shall give the board of trustees written notice specifying the respect in which the board of trustees has failed, and in the event the board of trustees fails to cure such default within a reasonable time fixed in the notice following the giving of such notice, the board of directors may, upon giving at least thirty (30) days' written notice to the board of trustees, take over the care, operation and maintenance of such waterworks and thereafter care for and operate and maintain the same and perform or cause the performance of such obligations.

ARTICLE 7. Transfer of District Funds [75168 - 75168.6]

75168. The board may from time to time order the transfer of funds to a special improvement district for the benefit of such special improvement district, from any available funds of the district. Any funds so transferred may be used for the payment of any expenses of such special improvement district as set forth in the notice of election.

75168.1. Prior to the transfer of any funds authorized by Section 75168, the board shall call an election pursuant to Chapter 3 (commencing with Section 75390) of Part 8 of this division for the purpose of submitting to the voters of the special improvement district the question of incurring an indebtedness and levying a special assessment in the amount of the funds to be transferred for the purpose of repaying such funds.

75168.2. The notice of election shall specify the amount of money proposed to be transferred by the district and the purpose or purposes for which it is intended to be used, and it may state that the assessment shall be levied in two, three, four, or not to exceed five successive annual installments and specify the amount of the installment to be levied in each year and the maximum rate of interest to be charged, if any, not to exceed 6 percent.

75168.3. At the election the ballot shall contain the words, "Transfer—Yes," or "Transfer—No," or words equivalent thereto.

75168.4. If a majority of the votes cast are "Transfer—Yes," the board shall at the time of the annual estimate under Chapter 1 (commencing with Section 75350) of Part 8 of this division, include in the estimate the amount voted, or if the notice of election has provided for levying the special assessment in annual installments, the board shall, at the time of the annual estimate in each of the years specified in the notice include in the estimate the amount of the installment required to be raised in that year.

75168.5. The special assessment shall be levied as generally provided in Chapters 1 (commencing with Section 75350) and 2 (commencing with Section 75370) of Part 8 of this division and when collected shall be paid to the treasurer for repayment to the district.

75168.6. If the provisions of Section 74056 are complied with in the formation of a district or if the provisions of Section 75151 have been complied with as to such special improvement district, special assessments may be levied upon all real property within the special improvement district in the manner provided in this chapter for the levy of special assessments upon land only. In such case, the resolution of the board and the notice of election shall each contain a statement that the special assessment will be levied upon all real property within the special improvement district.

CHAPTER 3. Benefit Assessment Improvement Districts [75170 - 75213]

ARTICLE 1. Initiation of Proceedings [75170 - 75175]

75170. As an additional and alternative method of creating improvement districts of parts of the area within districts two-thirds of the holders of title or evidence of title of any tract or contiguous tracts of land, situated within any district, susceptible of conservation of water, or capable of development separate and apart from the main project or the development of the water resources of the entire district, may petition the board to form an improvement district within the district for the purpose of conserving and developing the water resources of such improvement district and for the levying of assessments to pay the costs thereof.

75171. Said formation petition shall contain a statement of the plan of the proposed improvement, a description of the boundaries of the proposed improvement district, and the names of the owners of all lands within the improvement district, with their last known addresses, and a description of the lands owned thereby. The petition shall be signed and acknowledged by the requisite number of landowners.

75172. The formation petition, and all proceedings in reference thereto, and the lands affected thereby, shall be designated by number, and the description of the parcels of land shall be according to the last duly equalized assessment book of the county assessor.

75173. Upon receipt of the formation petition the board shall cause a survey to be made of the proposed improvement and if it is found that the plan of improvement is feasible, the board shall cause to be prepared plans and specifications of the improvement and an estimate of the cost thereof, together with a statement and assessment of the amount of such costs apportioned to each tract of land in the improvement district, as such tracts of land are shown upon the last equalized assessment book of the county assessor, according to the benefits that will accrue to each of such tracts of land, respectively, by reason of the expenditures of such sums of money for the improvements.

75174. The board constitutes a board of assessment commissioners to levy and apportion such assessment.

75175. The formation petition, plans, specifications, estimate, and statement and assessment shall be filed in the office of the district and shall be subject to the inspection of all parties interested.

ARTICLE 2. Hearing and Formation [75190 - 75196]

75190. After the filing of the plans, specifications, estimate, and statement and assessment, the board shall give notice of a hearing upon the formation petition and whether a special assessment shall be levied upon the lands within the improvement district for the purpose of raising money to pay for the improvements, as set forth in the petition, plans, specifications, and statement and assessment.

75191. Notice of the hearing shall be given by posting a notice thereof in three public places within the proposed improvement district, by publishing the notice once a week for two weeks in some newspaper published in the county in which the office of the district is situated, and by mailing a copy thereof to the last known address of all the owners of lands in the improvement district, as such addresses appear in the formation petition.

The notice shall be posted and mailed not less than 20 days prior to the date set for the hearing.

75192. At the hearing the board shall hear such objections to the formation petition, to the formation of the improvement district and its boundaries, to the plans, specifications, and estimates, and to the proposed assessment and the apportionment thereof as may come before it, and shall make such changes in reference thereto as it may consider proper.

75193. The board may exclude any part or portion of the lands described in the formation petition from the improvement district, and may include additional lands.

If any additional lands are included in the proposed improvement district, the hearing of the petition shall be continued and the owners of the added lands shall be given not less than 20 days' personal notice of the addition of such lands to the improvement district.

75194. If more than one-third of the holders of title or evidence of title of lands within the proposed improvement district object, at the hearing, to the formation of the improvement district and the levy of the proposed assessment, the board shall deny the petition and no further proceeding shall be had thereon.

75195. At the conclusion of the hearing, if the board determines that the improvement district should be formed and assessments levied to pay the costs of the proposed improvement, it shall make a final order approving the formation petition, the improvement district assessment, and the apportionment thereof.

75196. The order shall be entered in the minutes of the board and a copy thereof shall be recorded in the office of the county recorder of each county in which any of the lands of the improvement district are located.

ARTICLE 3. Assessment and Warrants [75210 - 75214]

75210. The improvement district assessment shall include a sum that equals interest on any deferred payments at a rate not to exceed 8 percent per year, and 10 percent additional for anticipated delinquencies.

75211. The improvement district assessment may be made payable in not to exceed 10 annual installments and the board shall, at the time of the levy of the annual assessments of the district, if any, add to the amount of the annual assessment levied upon the lands within the improvement district, such amount for which they may be liable by reason of the levying of the improvement district assessment, and if the annual district assessment is made payable in two installments, the improvement district assessment or installment thereof shall likewise be made payable in two installments.

75212. The improvement district assessment, or any installment thereof, shall be and remain a lien on the lands in the same manner as, and shall be a part of, the annual district assessment.

75213. The district shall issue warrants for the amount of the improvement district assessment, which warrants shall be made payable in amounts and at the times corresponding substantially to the payment of the installments of the improvement district assessment and shall bear interest at such rate of interest as may have been fixed on the levy of the improvement district assessment. Such warrants shall be payable only out of funds derived from the levy and collection of the improvement district assessment.

75214. If the improvement district assessment is insufficient to pay in full the cost of the improvements or pay the warrants issued for such improvements, an additional and supplemental assessment shall be made and levied upon all of the lands in the improvement district sufficient to pay such cost or warrants in full, and the procedure followed in making such additional and supplemental levy of assessment shall be substantially the same as the levy of the original assessment, but without the necessity of a petition.

If the proceeds from such additional and supplemental assessment exceeds the final amount necessary to pay such cost or warrants in full, the land paying such assessment shall be entitled to a credit of such excess amount upon the next succeeding district annual assessment levied upon such land.

ARTICLE 4. Powers and Duties of the Board [75230 - 75231]

75230. The board and all other officers of the district shall have all the rights, powers, and privileges concerning an improvement district formed pursuant to this chapter, the lands thereof, and the proceedings provided for in this chapter, as the board has concerning the district, including the right of the district to condemn lands and to acquire, own, and hold property within the improvement district.

75231. The work of improvement for which the improvement district is formed, and the purchase of all necessary supplies, material, and equipment therefor, shall be performed and done by the district or, in the discretion of the board, bids may be received for such work and material; provided, however, that the cost thereof shall be paid only out of the improvement district assessment levied.

PART 8. ASSESSMENTS [75350 - 75481.5]

CHAPTER 1. Annual Estimate [75350 - 75359]

75350. As used in this part:

(a) "Ensuing fiscal year" means the fiscal year in which the board is required to furnish the annual estimate, as provided in this chapter.

(b) "Following fiscal year" means the fiscal year which next follows the ensuing fiscal year.

75351. The board shall, on or before the 10th day of July of each fiscal year, furnish the board of supervisors and the auditor of each affected county, an estimate in writing of the amount of money needed for the purposes of the district for the ensuing fiscal year, for any reserve funds necessary for the first six months of the following fiscal year, and to provide for the prompt payment, when due, of principal and interest on bonds.

75352. The amount in the annual estimate shall be sufficient to raise a sum of money which shall be sufficient to pay all of the following:

(a) The incidental expenses of the district.

(b) The costs of the work of spreading and sinking waters which the board deems advisable to be done during the ensuing fiscal year.

(c) The estimated costs of repairs to and maintenance of any property or works of the district.

(d) The amount of any indebtedness (other than bonded debt) of the district currently due or to become due in the ensuing fiscal year.

(e) The amount deemed necessary by the board for reserve funds to meet the costs and expenses of the district during the first six months of the following fiscal year.

(f) The estimated amount necessary for the payment of the costs of any action or proceeding which may be taken by the district, including the cost of employment of attorneys and engineers.

75353. If bonds have been voted and sold by the district, the board shall include in the annual estimate an amount which, together with any moneys available therefor in the bond fund, shall be at least sufficient to pay all bond principal and interest coming due during the ensuing fiscal year and also during that part of the following fiscal year before the proceeds of an assessment tax levied at the time for making the general tax levy in such following fiscal year can be made available for the payment thereof, and such estimate each year shall include an amount clearly sufficient to provide for the payment of principal and interest on bonds of the district as the same become due.

75354. If bonds have been voted but not sold, and the board expects to sell such bonds prior to the end of the ensuing fiscal year, there shall be included in the annual estimate an amount estimated to be sufficient to provide for the payment of all principal and interest of such unsold bonds which the board believes will come due during the ensuing fiscal year and also during that part of the following fiscal year before the proceeds of an assessment tax levied at the time for making the general tax levy in such following fiscal year can be made available for the payment thereof.

75355. If the district has voted a special assessment as provided in Chapter 3 (commencing with Section 75390) of this part, the board shall include in the annual estimate the amount of the installment of the special assessment to be levied each year.

75356. The annual estimate may also include such an amount as the board deems advisable to expend in the acquisition or construction of settling basins, wells, dams, reservoirs, and other works for the storing, spreading, and sinking of waters, together with canals, ditches, conduits, and necessary rights-of-way for use of all such works.

75357. Except as provided in Section 75358, the assessment levied during any year pursuant to this chapter shall not exceed two and one-half mills (\$0.0025) on each one hundred cents (\$1) of the assessed value of the lands within the district, according to the last assessment rolls; provided, that the assessment levied during any year pursuant to this chapter shall not exceed five mills (\$0.005) on each one hundred cents (\$1) of the assessed value of the lands within the district, according to the last assessment rolls, in any district in which such limitation is approved by the voters of the district at an election held within the district at which a majority of the voters voting on the proposition approve such limitation. Such election may be called by the board and consolidated with any other election held within the district, and the manner of holding and conducting the election shall be in accordance with the general laws of the state relative to elections at which propositions are submitted and voted upon. This limitation shall not apply to a special assessment levied pursuant to Chapter 3 (commencing with Section 75390) of this part or assessments for the payment of the principal and interest on bonds.

75358. If the proceeds of bonds voted for the acquisition of properties for, or the construction of, any works or projects of the district are insufficient to pay the cost of such properties, works, or projects, then, in addition to the assessments mentioned in Section 75357, an assessment may be levied not to exceed one mill (\$0.001) on each one hundred cents (\$1) of the assessed value of lands within the district for not to exceed five fiscal years, for the payment of the remaining cost of such properties, works, or projects; provided, however, that no district shall levy more than one such special one mill (\$0.001) assessment at any one time.

75359. When a district is in more than one county, the total annual estimate shall be divided by the board in proportion to the value of the land of the district in each county. This value shall be determined from the equalized values of the last assessment rolls of such counties, as revised by the boards of supervisors. When such division of the estimate has been made, the board shall furnish the board of supervisors and auditor of each affected county a written statement of the part of the estimate apportioned to that county.

CHAPTER 2. Levy of Assessments [75370 - 75375]

75370. The board of supervisors of each affected county shall, annually, at the time of levying county taxes, levy an assessment tax to be known as the "_____ (name of district) water conservation district assessment," sufficient to raise the amount (except the amount required to pay principal and interest of bonds) reported to it by the board, and shall also levy an assessment tax to be known as the "_____ (name of district) water conservation district bond fund assessment," sufficient to raise the amount for bond service reported to it by the board.

75371. The board of supervisors of each affected county shall determine the rate of each of the assessments referred to in Section 75370 by deducting 15 percent for anticipated delinquencies from the total assessed value of the land in the district within the county, as it appears on the assessment roll of the county, and then dividing the sum reported by the board, as required to be raised in the county, by the remainder of such total assessed value. If a fraction of a cent occurs on a valuation of one hundred dollars (\$100), it shall be taken as a full cent.

75372. The assessment tax levied to pay bond principal and interest, when collected, shall be paid into the bond fund of the district and shall be used only for the payment of principal and interest of the bonds of the district and for no other purpose until such principal and interest have been fully paid.

75373. If the provisions of Section 74056 are complied with in the formation of a district so that all bonds of the district and of any improvement district created therein are payable from assessments levied upon all real property within the district or improvement district, as the case may be, annual assessments for the purposes provided in Chapter 1 (commencing with Section 75350) of this part shall be upon all real property within the district and shall be levied in the manner generally provided in Chapter 1 and this chapter for the levy of assessments upon land only; except that all references to "land" therein, including such references in Sections 75357 and 75358, shall be deemed to refer to "real property."

75374. The assessments levied pursuant to this chapter shall be computed and entered on the assessment roll by the county auditor, and if the board of supervisors fails to levy the assessments the county auditor shall do so. Such assessments shall be collected at the same time and in the same manner as state and county taxes and when collected shall be paid into the county treasury for the use of the district.

75375. The provisions of the Revenue and Taxation Code, prescribing the manner of levying and collecting assessments and the duties of the several county officers with respect thereto, are, so far as they are applicable and not in conflict with the specific provisions of this division, hereby adopted and made a part hereof. Such officers shall be liable upon their several official bonds for the faithful discharge of the duties imposed upon them by this division.

CHAPTER 3. Special Assessments [75390 - 75396]

75390. The board may at any time call an election and submit to the qualified electors of the district the question whether a special assessment shall be levied for the purpose of raising money to be applied to any of the purposes of this division.

75391. The election shall be called upon the notice prescribed in, and shall be held and the result thereof determined and declared in all respects in conformity with, the provisions of Chapter 4 (commencing with Section 74090) of Part 2 of this division.

75392. The notice of election shall specify the amount of money proposed to be raised and the purpose or purposes for which it is intended to be used, and it may state that the assessment shall be levied in two, three, four, or not to exceed 40 annual installments and specify the amount of the installment to be levied in each year.

75393. At the election the ballots shall contain the words "Assessment—Yes" or "Assessment—No," or words equivalent thereto.

75394. If a majority of the votes cast are "Assessment—Yes," the board shall at the time of the annual estimate under Chapter 1 (commencing with Section 75350) of this part, include in the estimate the amount voted, or if the notice of election has provided for levying the special assessment in annual installments, the board shall, at the time of the annual estimate in each of the years specified in the notice include in the estimate the amount of the installment provided in the notice to be raised in that year.

75395. The special assessment shall be levied as generally provided in Chapters 1 (commencing with Section 75350) and 2 (commencing with Section 75370) of this part and when collected shall be paid to the treasurer for the purpose or purposes specified in the notice of election.

75396. If the provisions of Section 74056 are complied with in the formation of a district so that all bonds of the district and of any improvement district created therein are payable from assessments levied upon all real property within the district or improvement district, as the case may be, special assessments may be levied upon all real property within the district in the manner provided in this chapter for the levy of special assessments upon land only. In such case, the resolution of the board and the notice of election shall each contain a statement that the special assessment will be levied upon all real property within the district.

CHAPTER 4. Project Assessments [75410 - 75463]

ARTICLE 1. Initiation of Proceedings [75410 - 75415]

75410. If the board determines, by resolution, that it would be inequitable to secure all or any portion of the money necessary for any project of the district (including obligations of the district arising from contracts with local, state, or federal agencies, bureaus, or authorities for the furnishing of a water supply to the district, or the construction of works for the district, where the actual construction is undertaken and financed in the first instance by such agency, bureau, or authority, subject to later repayment in whole or in part by the district), through the levy of assessments on land or real property in accordance with the assessed value thereof, the board may levy a project assessment in the manner prescribed in this chapter.

75411. The resolution of the board shall also designate that portion of the cost of the project, if any, that the board determines can be secured equitably by means of an assessment on all lands in the district, or if so determined by the board, on all real property within the district, in accordance with the assessed value of the land (or real property) as it appears on the county assessment roll, payable in not to exceed 40 annual installments at an annual rate not to exceed 7 percent. In lieu of securing such portion of the cost through a separate assessment levied on the land (or real property), the board may elect to pay such portion of the cost from funds secured for general purposes by assessments levied on all of the land within the district pursuant to the provisions of Chapters 1 (commencing with Section 75350) and 2 (commencing with Section 75370) of this part and subject to the limitations contained therein. If the board so elects, it shall so state in the resolution and the amount of money so paid shall not be considered by the electors in the election provided in this chapter.

75412. After the adoption of the resolution, the board shall cause to be prepared any necessary plans and specifications of the project, and estimates of the repayment obligations of the district, together with an assessment of the amount of the cost, or portion thereof as determined by the board, apportioned to the various tracts of land in the district according to the benefits that will accrue to each such tract by reason of the expenditures of the money for the project, or for the repayment obligations of a contract.

75413. The assessment shall be payable in not to exceed 40 annual installments, with interest at an annual rate not to exceed 7 percent.

75414. The board constitutes a board of commissioners to levy and apportion the assessment.

75415. The resolution, plans, specifications, estimate, and proposed assessment shall be filed in the district office and shall be subject to public inspection.

ARTICLE 2. Hearing [75430 - 75432]

75430. After the filing of the resolution, plans, specifications, estimate, and proposed assessment, the board shall hold a hearing upon the matter, notice of which shall, not later than three weeks prior to the date of the hearing, be posted in three public places within the district and published in the district pursuant to Section 6062 of the Government Code. The first publication shall be at least 30 days prior to the date fixed for the hearing.

75431. At the hearing the board shall hear such objections to the resolution, plans, specifications, estimates, and the proposed assessment and apportionment thereof as may come before it and shall make such changes in reference thereto as it considers proper.

75432. If (a) more than 40 percent of the holders of title or evidence of title to land within the boundaries of all cities within the district, or (b) more than 40 percent of the holders of title or evidence of title to land within the unincorporated areas of the district, object, at the hearing, to the levy of the proposed assessment, the board shall take no further action on the matter.

ARTICLE 3. Election [75440 - 75445]

75440. If sufficient objections are not presented to the board at the hearing, it shall call an election to be held in the district for the purpose of authorizing the assessment.

75441. Notice of the election shall be posted and published and the election shall be conducted, insofar as practicable, in accordance with the provisions of Chapter 3 (commencing with Section 74790) of Part 6 of this division.

75442. Several purposes may be submitted at the same election.

75443. Only qualified electors of the district may vote at the election.

75444. The ballots at the election shall contain the words: "Project assessment—Yes," and "Project assessment—No," or words of similar import, together with a general statement of the amount and purpose of the assessment to be levied.

75445. If a majority of the votes cast by the qualified electors in cities and a majority of the votes cast by the qualified electors residing in unincorporated areas for the proposition are marked and counted "Project assessment—Yes" or appear to favor the proposition submitted, the proposition shall be deemed to have been accepted by the voters and to authorize the levy of the project assessment in the amount of and for the purpose stated in the proposition.

ARTICLE 4. Assessment and Warrants [75460 - 75463]

75460. The project assessment, or any installment thereof, shall be and remain a lien on the lands in the same manner as, and shall be part of, the annual district assessment.

75461. The district shall issue warrants for the amount of the project assessment, which warrants shall be made payable in the amount and at times corresponding substantially to the payments of the installments of the project assessment, plus any money to be paid from funds secured by assessments for general district purposes as provided in Section 75411, and which warrants shall bear interest at such rate of interest as may have been fixed in the levy of the project assessment.

75462. Such warrants shall be payable only out of funds derived from the levy and collection of the project assessment and, if so stated in the resolution proposing the project, from the assessments made for general district purposes.

75463. The proceeds arising from the sale of the warrants shall be paid into the treasury of the district and placed to the credit of a special project fund and expended only for the purpose for which the project assessment was authorized to be levied.

CHAPTER 5. (Multiple Versions) [75470 – 75478.5]

CHAPTER 6. North San Joaquin Water Conservation District [75480 - 75481.5]

75480. (a) The North San Joaquin Water Conservation District, in addition to its other powers, may levy assessments as provided in this chapter.

(b) "District," for the purposes of this chapter, means the North San Joaquin Water Conservation District.

(c) "Collected water" and "water that is collected," for the purposes of this chapter, means the net acre-feet of water caused to be deposited onto land by the district. In determining the amount of collected water, both the amount of water entering the water system and the amount of water leaving the water system, having not been applied, shall be measured. The amount of water that leaves the system, having not been applied, shall be subtracted from the amount of water that enters the system. The difference shall be reduced by the amount of water lost due to evaporation and further reduced for water subject to export from the district. The sum difference is the amount of collected water.

(d) "Applied," for the purposes of this chapter, means that the water has been used for irrigation, recharge, in lieu of flooding, deposited into an area for storage, or held in an area for percolation purposes.

(e) "System," for the purposes of this chapter, means all of the physical apparatus owned, operated, or maintained by the district for the purpose of moving or holding water.

75480.5. (a) The North San Joaquin Water Conservation District may fix and collect assessments upon taxable land within the district on which surface water or groundwater is applied or delivered. Assessments may not be imposed on dry pastureland or other agricultural land on which neither groundwater nor surface water is applied or delivered.

(b) The maximum amount of the assessments levied by the district shall be determined on a year-by-year basis, dependent on the amount of water that is collected by the district during the previous year, consistent with this section. The district shall determine the amount of collected water.

(c) The revenue obtained from the assessments shall be used for the purposes of groundwater recharge, the delivery of surface water, and any related expenses incurred by the district. The district may, by resolution of the board, fix and collect assessments sufficient to meet and pay the estimated expenses and obligations authorized by this subdivision, including a reasonable reserve for contingencies. No assessment may be imposed on any parcel that exceeds the reasonable cost of the proportional special benefit conferred on that parcel.

(d) The assessments shall be fixed by the district on or before the 31st day of July in accordance with subdivisions (e) and (f).

(e) (1) During the years 2003, 2004, 2005, and 2006, the district may assess no more than one dollar (\$1) per acre or portion of an acre, unless the district has collected 5,000 acre-feet or more of water, during the previous year.

(2) If the district has collected at least 5,000 acre-feet, but less than 8,000 acre-feet, of water during the previous year, then the district may assess up to two dollars (\$2) per acre or portion of an acre.

(3) If the district has collected at least 8,000 acre-feet, but less than 10,000 acre-feet, of water during the previous year, then the district may assess up to three dollars (\$3) per acre or portion of an acre.

(4) If the district has collected at least 10,000 acre-feet, but less than 12,000 acre-feet, of water during the previous year, the district may assess up to four dollars (\$4) per acre or portion of an acre.

(5) If the district has collected 12,000 acre-feet or more of water during the previous year, the district may assess up to five dollars (\$5) per acre or portion of an acre. The district may not assess more than five dollars (\$5) per acre, or portion of an acre, of taxable land within the district on which surface water or groundwater is applied or delivered.

(f) (1) For the year 2007, and each subsequent year, if the district has collected at least 3,000 acre-feet, but less than 5,000 acre-feet, of water during the previous year, then the district may assess up to one dollar (\$1) per acre or portion of an acre.

(2) If the district has collected at least 5,000 acre-feet, but less than 8,000 acre-feet, of water during the previous year, then the district may assess up to two dollars (\$2) per acre or portion of an acre.

(3) If the district has collected at least 8,000 acre-feet, but less than 10,000 acre-feet, of water during the previous year, then the district may assess up to three dollars (\$3) per acre or portion of an acre.

(4) If the district has collected at least 10,000 acre-feet, but less than 12,000 acre-feet, of water during the previous year, the district may assess up to four dollars (\$4) per acre or portion of an acre.

(5) If the district has collected 12,000 acre-feet or more of water during the previous year, the district may assess up to five dollars (\$5) per acre or portion of an acre. The district may not assess more than five dollars (\$5) per acre, or portion of an acre, of taxable land within the district on which surface water or groundwater is applied or delivered.

(g) The board, in levying the charges, may establish the dates of delinquency and may impose penalties for delinquency not exceeding 10 percent of the amount of the assessment and may, in addition, collect interest at the rate of 8 percent per annum from the date of delinquency on all delinquent assessments. The district may sue for the recovery of unpaid assessments.

(h) Any assessment levied pursuant to this chapter shall be imposed consistent with Article XIII C and Article XIII D of the California Constitution and the Proposition 218 Omnibus Implementation Act (Chapter 38 of the Statutes of 1997), and any amendments thereto.

75481. (a) The district may, by resolution of the board, provide a procedure for and collect the assessments by way of the tax bills of the county in which the district is located. The assessments shall appear as a separate item on the tax bill, shall be collected at the same time and in the same manner as county ad valorem property taxes are collected, and shall be subject to the same procedures, including sale in case of default, as are provided for those taxes.

(b) The district shall, on or before August 1 of each year, certify to the county auditor the assessments to be collected. The county may deduct from the revenue so collected for the district, an appropriate amount for the billing and collection services provided to the district.

75481.5. Any assessments erroneously made by reason of inadvertence or clerical mistake may be refunded upon order of the board at any time after payment.

PART 9. GROUND WATER CHARGE [75500 - 75642]

CHAPTER 1. In General [75500 - 75524]

ARTICLE 1. Definitions [75500 - 75508]

75500. Unless the context otherwise requires, the provisions of this article shall govern the construction of this part.

75501. "Person" or "operator" means public agencies, federal, state, and local, private corporations, firms, partnerships, limited liability companies, individuals, or groups of individuals, whether legally organized or not. "Owner" or "operator" also means the person to whom a water-producing facility is assessed by the county assessor of an affected county, or, if not separately assessed, the person who owns the land upon which a water-producing facility is located.

75502. "Ground water" means all water beneath the earth's surface, but does not include water which is produced with oil in the production of oil and gas, or in a bona fide mining operation, or during construction operations, or from gravity or artesian springs.

75502.5. Notwithstanding Sections 75500 and 75502, for purposes of the United Water Conservation District, "groundwater" means all water beneath the earth's surface, but does not include water that is produced with oil in the production of oil and gas, in a bona fide mining operation, during construction operations, or from gravity or natural springs. For the purpose of this section, "groundwater" includes water produced from artesian wells.

75503. "Production" or "producing" means the act of extracting ground water by pumping or otherwise.

75504. "Water-producing facility" means any device or method, mechanical or otherwise, for the production of water from the ground water supplies within the district.

75505. "Accumulated overdraft" means the amount of water necessary to be replaced in the intake areas of the ground water basins within the district or any zone or zones thereof to prevent the landward movement of salt water into the fresh ground water body, or to prevent subsidence of the land within the district or any zone or zones thereof, as determined by the board from time to time.

75506. "Annual overdraft" means the amount, determined by the board, by which the production of water from ground water supplies within the district or any zone or zones thereof during the water year exceeds the natural replenishment of such ground water supplies in such water year.

75507. (a) "Water year" means July 1st of one calendar year to June 30th of the following calendar year.

(b) "Current water year" means the water year in which the investigation and report on the ground water conditions of the district is made, the hearing thereon held, and the determination is made by the board as to whether a zone or zones should be established and a ground water charge levied therein.

(c) "Preceding water year" means the water year immediately preceding the current water year.

(d) "Ensuing water year" means the water year immediately following the current water year.

75508. "Agricultural water" means water first used on lands in the production of plant crops or livestock for market.

ARTICLE 2. General Provisions [75520 - 75524]

75520. The provisions of Articles 1 (commencing with Section 75560), 2 (commencing with Section 75570), and 3 (commencing with Section 75590) of Chapter 3 of this part apply only to districts in which a ground water charge is levied or proposed to be levied.

75521. Ground water charges levied pursuant to this part are declared to be in furtherance of district activities in the protection and augmentation of the water supplies for users within the district or a zone or zones thereof which are necessary for the public health, welfare, and safety of the people of this state.

75522. The ground water charges are authorized to be levied upon the production of ground water from all water-producing facilities, whether public or private, within the district or a zone or zones thereof for the benefit of all who rely directly or indirectly upon the ground water supplies of the district or a zone or zones thereof and water imported into the district or a zone or zones thereof.

75523. The proceeds of ground water charges levied and collected upon the production of water from ground water supplies within the district or a zone or zones thereof shall be used exclusively by the board for the district purposes authorized by this division.

75524. Any person or operator who augments the water supplies for use within the United Water Conservation District or a zone or zones thereof, by importing water from sources outside the district, and who stores that water in a basin within the district, may apply to the Board of Directors of the United Water Conservation District for a determination exempting that operator from the payment of any groundwater charge based upon the extraction of that water. The exemption shall be based upon the filing of an application for exemption and submission to the board of reasonable evidence of the following:

- (a) The amount of water of acceptable quality imported into the district and spread or injected into a basin within the district.
- (b) The portion of that imported water that effectively recharges the basin underlying the zone or zones into which it is injected or percolates.
- (c) The amount of water produced by the applicant from the zone or zones overlying the areas effectively recharged by the importation and spreading or injection of that water.
- (d) Even if the applicant had not imported and stored the water, it had a separate legal right and the ability to produce the quantity of water for which it seeks exemption, in addition to all other water produced by the applicant from the zone or zones involved.

CHAPTER 2. Establishment of Zones and Registration of Water-Measuring Devices [75540 - 75544]

75540. Prior to the establishment of any ground water charge, the board shall establish a zone or zones within the district within which the ground water charge will be effective. Such zone or zones shall be established and may be amended to the extent and in the manner prescribed in Chapter 3 (commencing with Section 75560) of this part. A zone may include the entire district.

75541. Within six months after the date of establishing a zone or zones, all water-producing facilities located within the boundaries of such zone or zones shall be registered with the district and, if required by the board, shall be measured with a water-measuring device satisfactory to the district, which shall be installed by the district or, at the district's option, by the operator thereof.

75542. Any new water-producing facility constructed or reestablished after the period prescribed in Section 75541 shall be registered with the district and, if required by the board, measured with a water-measuring device satisfactory to the district within 30 days after the completion or reestablishment thereof.

75543. Any water-measuring device required by and satisfactory to any other public agency, county, or district, or zone thereof, the boundaries of which substantially contain the area of the district, may be declared by the board to be sufficient compliance with this chapter.

75544. *The registration form for water-measuring devices shall contain all of the following:*

- (a) Information as to the owner or owners of the land upon which each water-producing facility is located.
- (b) A general description and location of each water-producing facility.
- (c) The name and address of the person charged with the operation of each water-producing facility.
- (d) The name or names and addresses of all persons owning or claiming to own an interest in the water-producing facility.
- (e) Such other information as the district determines is necessary and requires.

CHAPTER 3. Procedure for Levy and Collection [75560 - 75633]

ARTICLE 1. Investigation and Report [75560 - 75561]

75560. The district shall annually cause to be made an engineering investigation and report upon ground water conditions of the district.

75561. The engineering investigation and report shall include all of the following:

- (a) Information for the consideration of the board in its determination of the annual overdraft.
- (b) Information for the consideration of the board in its determination of the accumulated overdraft as of the last day of the preceding water year.
- (c) A report as to the total production of water from the ground water supplies of the district for the preceding water year.
- (d) An estimate of the annual overdraft for the current water year and for the ensuing water year.
- (e) The amount of water the district is obligated to purchase during the ensuing water year, and a recommendation as to the quantity of water needed for surface delivery and for replenishment of the ground water supplies of the district for the ensuing year.
- (f) Such other information as the district desires.

ARTICLE 2. Hearing [75570 - 75575]

75570. On or before the day of the regular meeting of the board in March of each year, the engineering investigation and report shall be delivered to the secretary in writing.

75571. The secretary shall publish a notice of the receipt of the engineering investigation and report and of a public hearing thereon to be held in April. The notice shall be published, pursuant to Section 6061 of the Government Code, in a newspaper of general circulation printed and published within the district, at least 10 days prior to the date at which the public hearing is held.

75572. The notice, among other information which the district may provide therein, shall contain an invitation to all operators of water-producing facilities within the district to call at the office of the district to examine the engineering investigation and report.

75573. The board shall hold a public hearing in April of each year, in the regular meeting place of the board, not sooner than 30 days after receipt of the engineering investigation and report. Any operator of a water-producing facility within the district, or any person interested in the condition of the groundwater or surface water supplies of the district, may in person, or by representative, appear and submit evidence at the public hearing concerning the groundwater conditions and the surface water supplies of the district. Appearances also may be made supporting or protesting the engineering investigation and report.

75574. The board shall, before the levy of the ground water charge, find and determine all of the following:

- (a) The average annual overdraft for the immediate past 10 water years.
- (b) The estimated annual overdraft for the current water year.
- (c) The estimated annual overdraft for the ensuing water year.
- (d) The accumulated overdraft as of the last day of the preceding water year.
- (e) The estimated accumulated overdraft as of the last day of the current water year.
- (f) The estimated amount of agricultural water to be withdrawn from the ground water supplies of the district for the ensuing water year.
- (g) The amount of water other than agricultural water to be drawn from the ground water supplies of the district for the ensuing water year.
- (h) The estimated amount of water necessary for surface distribution for the ensuing water year.
- (i) The amount of water which is necessary for the replenishment of the ground water supplies of the district.
- (j) The amount of water the district is obligated by contract to purchase.

75575. The findings and determinations by the board are conclusive and binding upon all persons and parties.

ARTICLE 3. Levy [75590 - 75601]

75590. Prior to the end of the water year in which the hearing is held, and based upon the findings and determinations from the hearing, the board shall determine whether or not a zone or zones should be established and a ground water charge levied therein.

75591. If the board determines that a zone or zones should be established and a ground water charge levied therein, it shall establish the zone or zones and levy, assess, and affix the charge against all persons operating ground water-producing facilities within the zone or zones during the current or ensuing water year. However, the board may waive any minimal charge, the collection of which is determined by the board not to result in net economic benefit to the district.

75592. The charge shall be computed at a fixed and uniform rate per acre-foot for agricultural water, and at a fixed and uniform rate per acre-foot for all water other than agricultural water. However, a different fixed and uniform rate per acre-foot may be used to compute the charge for all water other than agricultural water used for irrigation purposes on parks, golf courses, schools, cemeteries, and publicly owned historical sites.

75593. Different rates may be established in different zones; provided, however, that in each zone the rate for agricultural water shall be fixed and uniform and the rate for water other than agricultural water shall be fixed and uniform.

75594. Except as provided in Section 75595, any ground water charge in any year shall be established at a fixed and uniform rate for each acre-foot for water other than agricultural water which is not less than three times nor more than five times the fixed and uniform rate established for agricultural water. However, any groundwater charge in any year for water other than agricultural water used for irrigation purposes on parks, golf courses, schools, cemeteries, and publicly owned historical sites may be established at a fixed and uniform rate for each acre-foot which shall not be less than the rate established for agricultural water, nor more than the rate established for all water other than agricultural water.

75595. In any county which has a population of 503,000 or more and less than 600,000, any ground water charge in any year shall be established at a fixed and uniform rate for each acre-foot for water other than agricultural water in such proportion to the fixed and uniform rate established for agricultural water as the board shall determine.

75596. Any ground water charge levied pursuant to this part shall be in addition to any general tax or assessment levied within the district or a zone or zones thereof; provided, that in any fiscal year, the sums raised by any ground water charge levied by the district in any zone or zones, shall not produce funds for district purposes that would exceed such amount as is deemed necessary by the district board to be used in furtherance of district purposes in the replenishment, augmentation, and the protection of water supplies for users within the district or a zone or zones thereof.

75598. In addition to the information required to be given to the board of supervisors and the auditor of each affected county pursuant to Chapter 1 (commencing with Section 75350) of Part 8 of this division, the board shall at the same time annually furnish the board of supervisors and the auditor of each affected county the estimated sum of a ground water charge which the board intends to levy in any zone or zones.

75600. Clerical errors occurring or appearing in the name of any person or in the description of the water-producing facility where the production of water therefrom is otherwise properly charged, or in the making or extension of any charge upon the records which do not affect the substantial rights of the assessee or assesses, shall not invalidate the ground water charge.

75601. (a) Notwithstanding any other provision of law, the board may amend the report prepared pursuant to Section 75561 at any time during the water year. Upon completion of any amended report, the board shall deliver the report to the secretary.

(b) The secretary shall publish a notice of the receipt of the amended report and of a public hearing. The notice shall be published pursuant to Section 75571.

(c) The board shall hold a public hearing within 30 days after the receipt of the amended report. Persons may appear and submit evidence at the public hearing concerning the groundwater conditions and the surface water supplies of the district. Any person may protest or support the amended report.

(d) The board may modify a groundwater charge levied pursuant to Section 75591 if, in the judgment of the board, based on the findings and determinations from the hearing held pursuant to subdivision (c), the modification is necessary.

(e) Any groundwater charge modified pursuant to subdivision (d) is subject to Sections 75592, 75593, 75594, 75595, and 75596.

(f) Upon the modification of the groundwater charge pursuant to subdivision (d), the board shall notify, in writing, the board of supervisors and the auditor of each county of the modification.

ARTICLE 4. Collection [75610 - 75624]

75610. The district, after the levying of the ground water charge, shall give notice thereof to each operator of each water-producing facility in the zone or zones as disclosed by the records of the district, which notice shall state the rate for each class of water of the ground water charge for each acre-foot of water to be produced during the ensuing water year. The notice may be sent by postal card or by other first-class mail and with postage prepaid by the district.

75611. After the establishment of a ground water charge, each operator of a water-producing facility within the affected zone or zones of the district, until such time as such water-producing facility has been permanently abandoned, shall file with the district, on or before the 31st day of January and on or before the 31st day of July in each year, a statement setting forth the total production in acre-feet of water for the preceding six-month period (excluding the month in which the statement is due), a general description or number locating each water-producing facility, and the method or basis of the computation, of such water production.

75612. If no water has been produced from a water-producing facility during the preceding six-month period, a statement shall be filed with the district, setting forth that no water has been produced during such period. Such statement shall be verified by a written declaration that it is made under the penalties of perjury.

75613. The ground water charge is payable to the district on or before the last date upon which the water production statement is required to be filed and is computed by multiplying the production in acre-feet of water for each classification as disclosed in the statement by the ground water charge for each classification of water.

75614. Whenever any water-producing facility in an affected zone is permanently abandoned, the operator thereof shall give written notice of such abandonment to the district.

75615. If any operator of a water-producing facility fails to pay the ground water charge when due, the district shall charge interest at the rate of one percent (1%) each month on the delinquent amount of the ground water charge.

75616. If any operator of a water-producing facility fails to register the water-producing facility, or fails to file the water production statements as required by this article, the district shall, in addition to charging interest as provided in Section 75615, assess a penalty charge against such operator in an amount of 10 percent of the amount found by the district to be due.

75617. The board may, at the time of fixing the ground water charge, establish a method or methods to be used in computing the amount of water produced from a water-producing facility which is not measured by a measuring device.

Such methods may be based upon any or all or a combination of the following criteria:

(a) The size of water-producing facility discharge opening.

(b) The area served by the water-producing facility.

(c) The number of persons served by the water-producing facility.

(d) The use of land served by the water-producing facility.

(e) The crops grown on land served by the water-producing facility.

(f) Any other criteria which may be used to determine with reasonable accuracy the amount of water produced from a water-producing facility.

75618. Upon good cause shown, an amended statement of water production may be filed or a correction of the records may be made at any time prior to the final date for filing the next semiannual water production statement.

75619. If the district has probable cause to believe that the production of water from any water-producing facility is in excess of that disclosed by the sworn statements covering such water-producing facility, or if no statements are filed covering any water-producing facility, the district may cause an investigation and report to be made concerning the production of water from such water-producing facility.

The district may fix the amount of water production from such water-producing facility at an amount not to exceed the maximum production capacity of such water-producing facility; provided, however, that where a water-measuring device is permanently attached thereto, the record of production, as disclosed by such water-measuring device, shall be presumed to be accurate and the burden is upon the district to establish to the contrary.

75620. After the determination has been made by the district pursuant to Section 75619, a written notice thereof shall be mailed to the person operating the water-producing facility at his address as shown by the district's records.

75621. A determination made by the district pursuant to Section 75619 shall be conclusive on all persons having an interest in the water-producing facility involved, and the ground water charge, and the interest and penalties thereon, shall be paid forthwith, unless any such person files with the board, within 10 days after the mailing of the notice of the determination, a written protest setting forth the ground or grounds for protesting the amount of production so fixed.

75622. Upon the filing of a protest, the board shall hold a hearing, at which time the total amount of the water production and the ground water charge thereon shall be determined. Such determination shall be conclusive if based upon substantial evidence.

75623. A notice of the hearing shall be mailed to the protestant at least 10 days before the date fixed for the hearing.

Notice of the determination by the board at the hearing shall be mailed to each protestant, who shall have 10 days from the date of mailing to pay the ground water charge, and the interest and penalties thereon.

75624. Notice as required in Sections 75620 and 75623 shall be given by deposit thereof in any postal facility regularly maintained by the government of the United States in a sealed envelope with postage paid, addressed to the person on whom it is served at his name and address as disclosed by the records of the district. The service is complete at the time of deposit.

ARTICLE 5. Court Actions [75630 - 75633]

75630. The superior court of the county in which a water-producing facility within the district lies may issue a temporary restraining order upon the filing by the district of a petition or complaint setting forth that the person named therein as defendant is the operator of a water-producing facility which has not been registered with the district, or that such defendant is delinquent in the payment of a ground water charge.

Such temporary restraining order shall be returnable to the court on or before 10 days after its issuance.

Service of process is completed by posting a copy of the summons and complaint upon the water-producing facility or the parcel of land upon which it is located and by personal service upon the named defendant.

75631. The court in such action may issue and grant an injunction restraining and prohibiting the named defendant from the operation of any water-producing facility when it is established at the hearing that the defendant has failed to register such water-producing facility with the district or that the defendant is delinquent in payment of ground water charges thereon.

The court may provide that the injunction so made and issued shall be stayed for a period not to exceed 10 days to permit the defendant to register the water-producing facility or to pay the delinquent ground water charge.

75632. The right to proceed for injunctive relief granted by this article is an additional right to those which may be provided elsewhere in this division or otherwise allowed by law. The procedure provided in Chapter 3 (commencing with Section 525) of Title 7 of Part 2 of the Code of Civil Procedure, regarding injunctions, shall be followed except insofar as it is otherwise provided in this article.

75633. The district may bring a suit in any court having jurisdiction against any operator of a water-producing facility within the district for the collection of any delinquent groundwater charge. The court may, in addition to allowing recovery of costs to the district as allowed by law, fix and allow as part of the judgment interest and penalties as provided in Sections 75615 and 75616.

CHAPTER 4. Crimes [75640 - 75642]

75640. Any person who fails to register a water-producing facility, as required by Chapter 2 (commencing with Section 75540) of this part, is guilty of a misdemeanor.

75641. Any person who produces water from any water-producing facility required to be registered pursuant to Chapter 2 (commencing with Section 75540) of this part is guilty of a misdemeanor unless such facility has been registered with the district within the time required by Chapter 2 and, if required by the board, has a water-measuring device affixed thereto capable of registering the accumulated amount of water produced therefrom.

Each day of operation in violation of this section shall constitute a separate offense.

75642. Any person who injures, alters, removes, resets, adjusts, manipulates, obstructs, or in any manner interferes or tampers with, or procures or causes or directs any person to injure, alter, remove, reset, adjust, manipulate, obstruct, or in any manner interfere or tamper with, any water-measuring device affixed to any water-producing facility as required by Chapter 2 (commencing with Section 75540) of this part, so as to cause such device to improperly or inaccurately measure and record the water production, or any person who, with intent to evade any provision or requirement of this part, files with the district any false or fraudulent water production statement, is guilty of a misdemeanor.

PART 10. CHANGES IN ORGANIZATION [75750 - 76061]

CHAPTER 1. Exclusion [75750 - 75835]

ARTICLE 1. In General [75750 - 75751]

75750. The boundaries of a district may be changed and tracts of land may be excluded therefrom, in the manner prescribed in this chapter.

Neither such change of the boundaries of the district nor such exclusion of lands from the district shall impair or affect its organization, or its right in or to property, or any of its rights or privileges of whatever kind or nature; nor shall it affect, impair, or discharge any contract, obligation, lien, or charge for or upon which the district was or may become liable or chargeable, had such change of its boundaries not been made, or had not such land been excluded from the district.

75751. A guardian, executor, or an administrator of an estate, who is appointed as such under the laws of this state, and who, as such guardian, executor, or administrator, is entitled to the possession of the lands belonging to the estate which he represents, may, on behalf of his ward or the estate which he represents, upon being authorized by the proper court, sign and acknowledge a petition for exclusion of lands, and may show cause, as provided in this chapter, why the boundaries of the district should not be changed.

ARTICLE 2. Petition and Notice [75760 - 75764]

75760. The owner or owners in fee of one or more tracts of land which constitute a portion of a district and which severally or in their entirety are contiguous to the exterior boundaries of the district may jointly or severally file with the board a petition, praying that such tract or tracts, and any other tracts contiguous thereto, be excluded from the district.

75761. The petition for exclusion of lands shall state the grounds and reasons upon which it is claimed that the lands should be excluded. The petition shall describe the boundaries of the lands, and shall describe the lands of the petitioner or petitioners which are included within such boundaries. The description of such lands need not be more particular or certain than is required when the lands are entered in the assessment book by the county assessor.

75762. The petition for exclusion of lands shall be acknowledged in the manner and form as is required in the case of conveyance of land, and the acknowledgment shall have the same force and effect as evidence as the acknowledgment of such a conveyance.

75763. The secretary shall cause a notice of the filing of the petition for exclusion of lands to be published for at least once a week for two weeks in some newspaper published in the county where the office of the board is situated. If any portion of the territory asked to be excluded lies within another county or counties, the notice shall be so published in a newspaper published within each of such counties; or if no newspaper is published therein, the notice shall be posted for the same time in at least three public places in the district. In case of the posting of such notices, one of such notices shall be so posted on the lands proposed to be excluded.

75764. The notice of the filing of the petition for exclusion of lands shall state the filing of the petition, the names of the petitioners, a description of the lands mentioned in the petition, and the prayer of the petition. It shall notify all persons interested in, or who may be affected by, the change of the boundaries of the district, to appear at the office of the board at a time named in the notice and show cause, in writing, if any they have, why the change of the boundaries of the district, as proposed in the petition, should not be made. The time to be specified in the notice at which they shall be required to show cause

shall be the regular meeting of the board next after the expiration of the time for the publication of the notice.

ARTICLE 3. Hearing and Order [75780 - 75784]

75780. The board, at the time and place mentioned in the notice of the filing of the petition for exclusion of lands, or at the time or times to which the hearing of the petition may be adjourned, shall proceed to hear the petition, all evidence or proofs that are introduced by or on behalf of the petitioner or petitioners, and all objections to the petition that are presented in writing by any person showing cause why the change of boundaries should not be made, and all evidence and proofs that are introduced in support of such objections. Such evidence shall be taken down in shorthand, and a record made thereof and filed with the board.

75781. The failure of any person interested in the district, other than the holders of bonds thereof outstanding at the time of the filing of the petition for exclusion of lands, to show cause, in writing, why the tract or tracts of land mentioned in the petition should not be excluded from the district shall be deemed and taken as an assent by him to the exclusion of such tract or tracts of land, or any part thereof, from the district; and the filing of such petition shall be deemed and taken as an assent by each petitioner to the exclusion from the district of the lands mentioned in the petition, or any part thereof.

75782. *The expenses of giving the notice of the filing of the petition for exclusion of lands and of the proceedings on the petition shall be paid by the person or persons filing the petition.*

75783. If, upon the hearing of the petition for exclusion of lands, no evidence or proofs in support thereof are introduced, or if the evidence fails to sustain the petition, or if the board deems it not for the best interest of the district that the lands, or some portion thereof, mentioned in the petition, should be excluded from the district, the board shall order that the petition be denied as to such lands.

75784. If the board deems it for the best interest of the district that the lands mentioned in the petition for exclusion of lands, or some portion thereof, be excluded from the district, and if no person interested in the district shows cause in writing why such lands or some portion thereof, should not be excluded from the district, or if, having shown cause, withdraws his objections, or upon the hearing fails to establish such objections as he may have made, the board may, by unanimous vote of all of its members, make an order that the lands mentioned and described in the petition, or some defined portion thereof, be excluded from said district.

The board shall order the exclusion of all lands petitioned to be excluded from the district which, in the judgment of all of its members, will not be benefited by the operations of the district.

ARTICLE 4. Recordation of Change of Boundaries and Filing of Certificate [75800 - 75802]

75800. If the board excludes any lands from the district, it shall make an entry in the minutes of the board describing the boundaries of the district, if the exclusion of the lands from the district changes the boundaries of the district, and for that purpose the board may cause a survey to be made of such portions of the district as the board deems necessary.

75801. A certified copy of the entry in the minutes of the board excluding any land, certified by the president and secretary, shall be filed for record in the recorder's office of each affected county.

75802. Upon exclusion of land from the district, the board shall file a certificate with the Secretary of State stating:

(a) The name of the district.

(b) The effective date of the exclusion.

(c) The county or counties in which the district is located, and a description of the land excluded, or reference to a map showing the boundaries of such excluded land, which map shall be attached to the certificate, or reference to the county recorder's office where a description of such boundaries has been recorded.

If the exclusion order contains all of the information required to be in the certificate, the board may file a copy of the order in lieu of the certificate.

ARTICLE 5. Bondholders' Assent to Exclusion [75810 - 75813]

75810. If there are outstanding bonds of the district at the time of the filing of the petition for exclusion of lands, the holders of such outstanding bonds may give their assent, in writing, to the effect that they severally consent that the lands mentioned in the petition, or such portion thereof as may be excluded from the district by order of the board, may be excluded from the district; and if such lands, or any portion thereof, are thereafter excluded from the district, the lands so excluded shall be released from the lien of such outstanding bonds.

75811. The assent shall be acknowledged by the several holders of the outstanding bonds in the same manner and form as is required in case of a conveyance of land, and the acknowledgment shall have the same force and effect as evidence as the acknowledgment of such conveyance.

75812. The assent shall be filed with the board, and shall be recorded in the minutes of the board; and such minutes, or a copy thereof, certified by the secretary, shall be admissible in evidence, with the same effect as the assent, and such certified copy thereof may be recorded in the office of the county recorder of the county wherein the excluded lands are situated.

75813. If the holders of outstanding bonds of the district which are payable from assessments upon real property give their assent, as provided in Section 75810, to the exclusion of lands from the district, the assent shall release all real property which is excluded from the district by virtue of the exclusion of such lands from the lien of such outstanding bonds.

ARTICLE 6. Effect of Exclusion [75830 - 75835]

75830. A district, notwithstanding the exclusion of lands therefrom, shall be and remain a district as fully, to every intent and purpose, as it would be had no change been made in the boundaries of the district, or had the lands excluded therefrom never constituted a portion of the district.

75831. Nothing in this division shall, in any manner, operate to release any of the lands excluded from a district from any obligation to pay, or from any lien thereon of, any valid outstanding bonds or other indebtedness of the district at the time of the filing of the petition for exclusion of such lands, but upon the contrary, such lands shall be held subject to such lien and answerable and chargeable for and with the payment and discharge of all of such outstanding obligations at the time of the filing of the petition for exclusion, as fully as though such petition were never filed and the order of exclusion never made.

75832. For the purpose of discharging the outstanding indebtedness at the time of the filing of the petition for exclusion of lands, the lands excluded shall be deemed and considered as part of the district the same as though the petition for its exclusion had never been filed or the order of exclusion never made.

All provisions which may have been resorted to to compel the payment by such lands of their quota or portion of such outstanding obligations had such exclusion never been accomplished, may, notwithstanding such exclusion, be resorted to to compel and enforce the payment on the part of such lands of their quota or portion of such outstanding obligations for which they are liable.

Such lands shall not be held answerable or chargeable for any obligation of any nature or kind whatever incurred after the filing with the board of the petition for the exclusion of such lands from the district.

75833. The provisions of Sections 75831 and 75832 shall not apply to any outstanding bonds, the holders of which have assented to the exclusion of the lands from the district, as provided in Article 5 (commencing with Section 75810) of this chapter.

75834. If any of the outstanding bonds are payable from assessments upon all real property in the district, any real property excluded from the district by virtue of the exclusion of lands from said district shall, notwithstanding such exclusion, be considered a part of such district for the purpose of discharging such outstanding bonded indebtedness and shall be and remain liable to be taxed to pay the principal of and interest on such outstanding bonded indebtedness until such outstanding bonded indebtedness and the interest thereon is fully paid; except that the provisions of this section shall not apply to any outstanding bonds, the holders of which have assented to the exclusion of such lands from the district.

75835. If the land excluded from any district embraces the greater portion of any division or divisions of such district, the office of director for such division or divisions shall become and be vacant at the expiration of 10 days from the final order of the board excluding such lands. Such vacancy or vacancies shall be filled pursuant to Section 1780 of the Government Code.

CHAPTER 2. Inclusion [75850 - 75939]

ARTICLE 1. In General [75850 - 75852]

75850. The boundaries of a district may be changed to include additional land within the district as provided in this chapter, and the inclusion within a district of any land not contiguous thereto shall be deemed to effect a change of the boundaries of the district. No such change in the boundaries of a district shall impair or affect its organization, or its right in or to property, or any of its rights or privileges of whatsoever kind or nature; nor shall it affect, impair, or discharge any contract, obligation, lien, or charge for or upon which the district was or might become liable or chargeable had such change of its boundaries not been made.

75851. When a district is the sole owner of any tract of land not within the boundaries of the district, the board, upon determining that the inclusion of that land will be for the best interests of the district, may by resolution declare that such land shall be included in the district. The inclusion of such land within the district is effective immediately upon the adoption of the resolution.

75852. A guardian, executor, or administrator of an estate, who is appointed as such under the laws of this state, and who, as such guardian, executor, or administrator, is entitled to the possession of the lands belonging to the estate which he represents, may, on behalf of his ward or the estate which he represents, upon being authorized by the proper court, sign and acknowledge petition for the inclusion of lands, and may show cause, as provided in this chapter, why the boundaries of the district should not be changed.

ARTICLE 2. Petition and Notice [75860 - 75864]

75860. The holder of title or evidence of title, to any tract of land, or if there is more than one holder of title or evidence of title to such tract, the majority of such holders who are also the holders of title or evidence of title to at least one-half of the area of such land, may file in the office of the board a petition praying that such tract of land be included within the district.

A petitioner who is the owner of an undivided interest in such land, or any of it, shall be deemed the owner of such proportion of the area of the land in which he has an interest as his interest bears to the whole of such land.

75861. Each signature to the petition for inclusion of lands shall be acknowledged or proved as provided by law for signatures to an instrument to entitle it to be recorded.

75862. The secretary shall cause a notice of the filing of the petition for inclusion of lands to be given and published in the same manner and for the same time as notices of elections for the issuance of bonds are required to be given and published.

75863. The notice of the filing of the petition for inclusion of lands shall state the purpose of the petition, describe the boundaries of the tract of land proposed to be included, and give the names of the petitioners. It shall also notify all persons interested in, or who may be affected by, the proposed inclusion of the land within the district to appear at the office of the board at a time named in the notice for the hearing of the petition and objections thereto and show cause, in writing, if any they have, why the land or any of it should not be included as proposed in the petition. The time to be specified in the notice for the hearing shall be the regular meeting of the board next after the expiration of the time for the publication of the notice.

75864. The petitioners shall advance to the secretary sufficient money to pay for the publication of the notice of the filing of the petition for the inclusion of lands, which shall be refunded to the petitioners if the petition is granted in whole or in part.

ARTICLE 3. Hearing and Order [75880 - 75887]

75880. The board, at the time and place mentioned in the notice of the filing of the petition for inclusion of lands, or at the time or times to which the hearing of the petition may be postponed, shall proceed to hear the petition and all the objections thereto presented in writing by any person showing cause why the proposed change of boundaries of the district should not be made.

75881. The failure of any person interested in the district, or in the matter of the proposed change of its boundaries, to show cause in writing why the proposed change of boundaries of the district should not be made shall be deemed and taken as an assent by him to the change of the boundaries of the district as prayed for in the petition for the inclusion of lands, or to such a change of such boundaries as will include a part of the lands; and the filing of such petition shall be deemed and taken as an assent on the part of each petitioner to such a change of the boundaries as may include the whole or any portion of the lands described in the petition.

75882. If the board, after the hearing, determines that the petition for inclusion of lands complies with the requirements of Article 2 (commencing with Section 75860) of this chapter and that the inclusion within the district of the tract of land described in the petition, or some portion or portions thereof, will be for the best interests of the district, and if no protest against the inclusion of such land is made, or if such protest is made and enough signatures are withdrawn therefrom so that the protest is no longer sufficient, the board shall order the boundaries of the district to be changed so that the tract of land, or such portion or portions thereof as the board deems it for the best interests of the district to include, shall be included in the district.

75883. If the board determines that only a portion or certain portions of the tract of land described in the petition for inclusion of lands should be included, the petition shall be dismissed unless:

(a) The petitioners include a majority of the holders of title or evidence of title of such portion, or of each of such portions, of the tract, representing also at least one-half the area of such portion, or of each of such portions; or

(b) Within 60 days from the time such determination is made, there is filed with the board the consent in writing, acknowledged or proved as required in Section 75861, of a majority of the holders of title or

evidence of title of such portion, or of each of such portions, of the tract of land, representing also at least one-half of the area of such portion or each of such portions.

75884. The order changing the boundaries shall describe the boundaries of the land included within the district, and if such land adjoins any portion of the district, the order shall also describe that portion of the boundary of the district which coincides with the boundary of the land included. For the purposes of the order, the board may cause a survey to be made of such portions of such boundaries as it deems necessary.

75885. If more than one petition for the inclusion of land has been presented, the board may in one order include within the district any number of separate tracts of land.

75886. Any public land of the United States may be included within a district, except as may be provided otherwise by federal law.

75887. The board may require, as a condition precedent to the granting of the petition for inclusion of lands, that the petitioners severally pay to the district such respective sums, as nearly as they can be estimated (the several amounts to be determined by the board), as the petitioners or their predecessors in interest would have been required to pay to the district as assessments had the lands been included in the district at the time the district was originally formed.

ARTICLE 4. Election [75900 - 75907]

75900. If a protest against the inclusion of lands, signed by not less than 3 percent of the holders of title or evidence of title to lands within the district who hold the title or evidence of title to not less than 3 percent in value of the lands within the district according to the last equalized assessment roll of the county within which such lands are situated, is presented to the board and upon the hearing of the matter such protest is not withdrawn, or after the withdrawal therefrom of any signatures it is still signed by not less than 3 percent of the holders of title or evidence of title to lands within the district who hold the title or evidence of title to not less than 3 percent in value of the lands within the district according to the last equalized assessment roll of the county within which such lands are situated, or if the board deems it not for the best interests of the district to include therein the lands described in the petition for inclusion, or any of them, the board shall adopt a resolution stating the facts and describing the boundaries of the tract of land proposed to be included in the district.

75901. Upon the adoption of the resolution pursuant to Section 75900, the board shall order that an election be held within the district to determine whether the boundaries shall be changed as mentioned in such resolution; and shall fix the time at which such election shall be held, and cause notice thereof to be given and published.

75902. Before calling the election, the board may require an undertaking from the petitioners for the inclusion of the land, conditioned that the petitioners or the sureties will pay all the costs of holding the election in case the inclusion is denied.

75903. Notice of the election shall be given and published, the election shall be held and conducted, the returns thereof shall be made and canvassed, and the result of the election ascertained and declared, and all things pertaining thereto conducted, in the manner prescribed by Chapter 3 (commencing with Section 74790) of Part 6 of this division.

75904. The notice of election shall describe the proposed change of the boundaries in such manner and terms that it can readily be traced.

75905. The ballots cast at the election shall contain the words "For change of boundaries," or "Against change of boundaries," or words equivalent thereto.

75906. If a majority of all the votes cast at the election are against change of the boundaries of the district, the board shall order that the petition for inclusion of lands be denied and shall proceed no further in the matter.

75907. If a majority of the votes cast at the election are in favor of the change of the boundaries of the district, the board shall order that the boundaries be changed in accordance with the resolution adopted by the board pursuant to Section 75900. The order shall describe the entire boundaries of the district, and for that purpose the board shall cause a survey of such portions thereof to be made as it deems necessary.

ARTICLE 5. Recordation of Order and Petition and Filing of Certificate [75920 - 75922]

75920. A copy of the order of the board ordering the change of the boundaries of the district, certified by the president and secretary, shall be filed for record in the recorder's office of each affected county. The district shall be and remain a district as fully and to every intent and purpose as if the lands which are included in the district by the change of the boundaries had been included therein at the formation of the district.

75921. Upon the filing of the copies of the order pursuant to Section 75920, the secretary shall record the petition for inclusion of lands in the minutes of the board; and such minutes, or a certified copy thereof, shall be admissible in evidence with the same effect as the petition.

75922. Upon a change of the boundaries of a district being made pursuant to this chapter, the board shall file a certificate with the Secretary of State listing:

(a) The name of the district.

(b) The effective date of the change of the boundaries.

(c) The county or counties in which the district is located, and a description of the included land, or reference to a map showing the boundaries of such included land, which map shall be attached to the certificate, or reference to the county recorder's office where a description of such boundaries has been recorded.

If the order changing the boundaries contains all of the information required to be in the certificate, the board may file a copy of the order in lieu of the certificate.

ARTICLE 6. Alternate Procedure [75925 - 75939]

75925. The following annexation procedures may be used for annexation of land to any water conservation district as an alternative to the procedures set forth in Articles 2 (commencing with Section 75860) to 5 (commencing with Section 75920), inclusive, of Chapter 2 of Part 10 of Division 21.

75926. A petition which may consist of any number of separate instruments, shall be filed with the secretary of the district, signed by 20 percent or 500 electors residing within the area so proposed to be annexed.

Such petition shall set forth and describe the boundaries of the area proposed to be annexed and shall contain a prayer that such area be annexed to such district.

75927. The text of such petition and a notice stating the time of the meeting at which the same will be presented shall be published in the affected county pursuant to Section 6066 of the Government Code. When contained upon one or more instruments, one copy only of such petition need be published. No more than five of the names attached to the petition need appear in the publication of the petition and notice, but the number of signers shall be stated. Publication shall be complete at least 7, but not more than 28, days before the time at which the petition is to be presented to the board.

75928. Within 10 days of the date of filing of such petition the secretary of the district shall examine the same and ascertain whether or not such petition is signed by the requisite number of voters.

75929. When the secretary of the district has completed his examination of the petition, he shall attach to the same his certificate, properly dated, showing the result of such examination, and if from such examination he shall find that said petition is signed by the requisite number of voters or is not so signed, he shall certify that the same is sufficient or insufficient, as the case may be.

If, by the certificate of the secretary of the district, the petition is found to be insufficient, he shall also certify to the number of voters required to make such petition sufficient, and it may be amended by filing a supplemental petition or petitions within 10 days of the date of such certificate.

75930. The secretary of the district shall, within 10 days after the filing of such supplemental petition or petitions, make like examination of the same and certify to the result of such examination as herein before provided.

If his certificate shall show any such petition, or such petition as amended, to be insufficient, it shall be filed by him with the board of the district and kept as a public record, without prejudice, however, to the filing of a new petition to the same effect, but if, by the certificate of the secretary, such petition, or petition as amended, is shown to be sufficient, the secretary shall present the same to the board without delay.

75931. If any supplemental petition be filed, all the signatures appended to the petition or to the supplemental petition or petitions shall be considered in determining the number of voters signing the petition.

75932. After an election for the annexation of such area to the district the sufficiency of such petition in any respect shall not be subject to judicial review or be otherwise questioned.

75933. Such petition may be granted by ordinance of the board of such district after hearing thereon held at the time the petition is presented to the board as provided in Section 75927. No petition for inclusion may be granted unless and until the board finds that the inclusion in the district of the lands described in said petition, or of some portion or portions thereof, will be for the best interests of the district and that the lands proposed to be included shall be benefited by such inclusion. The petition may be granted in its entirety or only as to the part of the territory proposed to be included for which such a finding of benefit is made. If the petition be denied either as to the whole or part of the territory to be included, no new petition for the inclusion of such territory shall be filed within six months after such denial. In granting such petition, such board of directors may fix in said ordinance the terms and conditions upon which such annexation may occur, and such terms and conditions may provide, among other things, for the levy by such district of special taxes upon the real property and improvements thereon, but not on personal property within such annexed area or areas in addition to the taxes elsewhere in this act authorized to be levied by such district, and in case such terms and conditions shall provide for the levy of such special taxes, the board, in fixing such terms and conditions, shall specify the aggregate amount to be so raised and the number of years prescribed for raising such aggregate sum and that substantially equal annual levies will be made for the purpose of raising such sum over the period so prescribed.

75934. If such petition is granted, the proposition of such annexation subject to the terms and conditions so fixed, shall be submitted to the vote of the voters in the proposed addition, at an election called by the board and held, as herein provided, within 70 days after the effective date of such ordinance.

75935. Notice of such election shall be published in the affected county pursuant to Section 6063 of the Government Code. Publication shall be complete at least 7, but not more than 28, days prior to the date fixed for such election. Such notice shall describe the boundaries of the area or areas so proposed to be annexed and shall designate such territory by some appropriate name, or other words of identification, by which such territory may be referred to and indicated upon the ballot to be used at any election at which the question of such annexation is submitted, as in this act provided. Such notice also shall contain the substance of the terms and conditions fixed by the board of directors, as herein provided.

75936. The measure so submitted at such election shall be stated on the ballot substantially as follows: "Shall ____ (giving the name or other designation of the territory proposed to be annexed, as stated in the notice of election) be annexed to ____ (name of water conservation district) subject to the terms and conditions fixed by the board of directors of said district?" At the right of such proposition there shall be printed the words "yes" and "no" with voting squares.

75937. The board shall canvass the votes cast at such election and, if such proposition is approved by a majority of the voters voting thereon at such election, the president and secretary of the board of directors shall certify that fact to the Secretary of State and shall record a certificate stating that such proposition was adopted with the county recorder of each affected county in which such district is located.

75938. Upon receipt of such certificate, the Secretary of State shall, within 10 days, issue his certificate reciting the passage of said ordinance and the addition of said area or areas to said district. A copy of said certificate shall be transmitted to, and filed with, the county clerk of each affected county in which such district is situated.

75939. From and after the date of such certificate, the area or areas named therein shall be deemed added to, and shall form a part of, said district, and the taxable property therein shall be subject to taxation thereafter for the purposes of said district, including the payment of bonds and other obligations of such district at the time authorized or outstanding, and the board of the district shall be empowered to do all things necessary to enforce and make effective the terms and conditions of annexation fixed as hereinabove authorized.

CHAPTER 3. Annexation of Districts [75940 - 76010]

ARTICLE 1. Definitions [75940 - 75940.]

75940. As used in this chapter:

(a) "Petitioning district" means a water conservation district which proposes to petition or which has petitioned another water conservation district to annex its territory to that other water conservation district.

(b) "Annexing district" means a water conservation district which has been petitioned by a petitioning district to be annexed thereto.

ARTICLE 2. Procedure in Petitioning District [75950 - 75954]

75950. Proceedings by the petitioning district are initiated:

(a) When the board of the district determines that it would be for the best interests of the district to be annexed to another water conservation district and adopts, by resolution, a proposed annexation petition; or

(b) When 500, or 5 percent, or more, of the qualified voters of the district sign a proposed annexation petition and submit it to the board.

75951. A proposed annexation petition shall contain:

(a) A request addressed to the annexing district, petitioning the annexing district to annex the petitioning district.

(b) A statement setting forth the desirability or necessity of the annexation.

(c) Any terms subject to which the annexation shall be conditioned.

75952. Within 30 days after annexation proceedings have been initiated, the board of the petitioning district shall call and provide for the holding of a special election, at which election the proposition of adopting the proposed annexation petition shall be submitted to the electors of the petitioning district.

75953. The manner of holding and conducting the election, the selection of officers to conduct it, the designation of precincts and polling places, the preparation, receipt, counting, and returning of ballots, and the canvassing and determining results of the election shall be as provided in Chapter 3 (commencing with Section 74790) of Part 6 of this division, and, in particulars not so provided, shall be in accordance with the general laws of the state relative to elections at which propositions are submitted and voted upon.

75954. Upon the canvassing of the votes cast in the election, if it appears that a majority of all votes cast are in favor of the annexation petition, the board of the petitioning district shall, within 10 days after the canvass of the vote, forward to the board of the annexing district a certified copy of the annexation petition, together with a certificate that the petition has been submitted to the electors of the petitioning district and adopted by a majority of those voting at the election.

ARTICLE 3. Procedure in Annexing District [75970 - 75975]

75970. Within 30 days after the receipt of an annexation petition from a petitioning district, the board of the annexing district shall, if it favors the annexation, adopt a resolution setting forth its intention to annex the petitioning district, and shall cause the resolution of intention to annex to be published once a week for at least three weeks in a newspaper of general circulation in the county in which the office of the annexing district is situated. The board shall state in such publication the date when the board proposes to finally act upon the petition for annexation, which date shall be at least 40 days after the first publication of the resolution of intention to annex.

75971. If, on the date set by the board for the final action on the annexation petition, there is presented to the board of the annexing district written protests signed by 3 percent, or 1,000, or more, of the electors of the annexing district, the board shall call and provide for an election at which there shall be submitted to the electors of the annexing district the question as to whether or not the petitioning district shall be annexed upon the terms set forth in the annexation petition.

If sufficient protests are not presented the board may adopt an order annexing the petitioning district, or may, in its discretion, submit the question to the electors of the district as though sufficient protests had been presented.

75972. If the question of annexation is submitted to the electors of the annexing district, the election shall be held in the same manner as provided in this chapter for the election in the petitioning district.

75973. If a majority of all votes cast at the election are against the proposed annexation, the annexation petition shall be denied. If a majority of all votes cast are in favor of the proposed annexation, the board of the annexing district shall thereupon adopt an order annexing the petitioning district.

75974. The order annexing the petitioning district shall describe the boundaries of the land to be annexed to the annexing district, and if such land adjoins any portion of the annexing district, the order shall also describe that portion of the boundary of the annexing district which coincides with the boundaries of the land annexed. For the purposes of the order the board may cause a survey to be made of such portions of the boundaries as it deems necessary.

75975. Upon the annexation of a district as provided in this chapter, the annexation order and the annexation petition shall be recorded.

ARTICLE 4. Conditions to Annexation [75990 - 75991]

75990. As a condition to annexation, the petitioning district and the annexing district may agree to any financial adjustments and may provide for the payment by the petitioning district of such sums as may be mutually determined to be just and equitable as compensation for any benefits that it may receive by virtue of the annexation.

75991. Bonds of the petitioning district may be voted upon and issued in the manner provided for the incurring of bonded indebtedness of the district and may thereafter be delivered at not less than par value to constitute payment under Section 75990.

ARTICLE 5. Effect of Annexation Upon Petitioning District [76000 - 76001]

76000. Upon the adoption of an order of annexation, the petitioning district shall be deemed dissolved, except that if there is any outstanding indebtedness of the petitioning district at the time of the dissolution thereof, the board of the annexing district shall furnish annually to the board of supervisors of the county in which the petitioning district is situated, or, if such district is situated in more than one county, then to the board of supervisors of each county in which any portion of the district is situated, an estimate in writing of the amount needed (computed as provided in Chapter 1 (commencing with Section 75350) of Part 8 of this division) for the payment of such outstanding indebtedness of the petitioning district in like manner as though the district had not been dissolved.

76001. Upon receipt of the estimates furnished pursuant to Section 76000, the board or boards of supervisors shall levy an assessment on the lands comprising the petitioning district, in the manner provided in Chapter 2 (commencing with Section 75370) of Part 8 of this division, and the board of the annexing district shall cause the obligations evidencing such indebtedness to be paid according to their tenor out of the money raised from such assessments.

ARTICLE 6. Filing of Certificate [76010- 76010.]

76010. Upon the annexation of the petitioning district to the annexing district, the board of the annexing district shall file with the Secretary of State a certificate listing:

(a) The names of the annexing district and the petitioning district.

(b) The effective date of the annexation and of the dissolution of the petitioning district.

(c) The county or counties in which the two districts are located, and a description of the annexed land, or reference to a map showing the boundaries of such annexed land, which map shall be attached to the certificate, or reference to the county recorder's office where a description of such boundaries has been recorded.

If the order annexing the petitioning district contains all of the information required to be in the certificate, the board may file a copy of the order in lieu of the certificate.

CHAPTER 4. Consolidation [76020- 76020.]

76020. A district may be consolidated in the same manner as is provided for the consolidation of county water districts in Chapter 3 (commencing with Section 32650) of Part 8 of Division 12 of this code.

CHAPTER 5. Dissolution [76030 - 76061]

ARTICLE 1. Petition and Hearing [76030 - 76032]

76030. A district may be dissolved by the board of supervisors of the principal county in the manner provided in this chapter.

76031. Upon receiving a petition signed by 10 percent of the electors of the district, or by the owners of one-half of the lands comprising the district, requesting the dissolution of the district, the board of supervisors shall publish a notice once a week for two weeks in some newspaper in the principal county, and also in each affected county, giving notice that such petition has been filed with the board of supervisors, and that the board will hear such petition, and all objections thereto, at the next regular meeting of said board after the expiration of the time of publishing the notice (specifying the date), and directing all persons interested therein to show cause at such time, if any they have, why the district should not be dissolved.

76032. At the time appointed for the hearing, or at any time to which the hearing may be adjourned, the board of supervisors shall hear and pass upon the petition, and may grant or deny the same. If its decision is against the dissolution of the district, such decision shall be final and conclusive.

ARTICLE 2. Election [76040 - 76042]

76040. If the petition for dissolution is granted, the board of supervisors shall, by resolution, provide for and order the holding of a special election in the district, and shall submit to the qualified electors of the district the proposition of whether or not the district shall be dissolved.

76041. The resolution calling the election shall recite the filing of the petition for dissolution and the approval thereof by the board of supervisors, and shall fix a time for the holding of the election.

76042. The election shall be noticed, conducted, and the returns thereof made and canvassed, in the same manner as is provided for the formation election except that the ballots to be used at the election shall contain the words, "Dissolution of district—Yes," or "Dissolution of district—No," or words equivalent thereto.

ARTICLE 3. Order of Dissolution and Filing of Certificate [76050 - 76052]

76050. If votes representing 60 percent of the total number of votes cast are cast in favor of the dissolution of the district, the board of supervisors shall enter an order to that effect upon its minutes, declaring the district dissolved, and upon the entry of such order the district shall be dissolved.

76051. If there is any outstanding indebtedness of the district, at the time of the dissolution thereof, the board of supervisors shall levy assessments for the payment of such indebtedness in like manner as though such district had not been dissolved, until all such indebtedness is fully paid, and shall cause such obligations to be paid according to their tenor out of the moneys raised from such assessments.

76052. Upon dissolution of a district, the clerk of the board of supervisors shall file a certificate with the Secretary of State listing:

(a) The name of the district.

(b) The effective date of dissolution.

(c) The county or counties in which the district was located.

If the order declaring the district dissolved contains all of the information required to be in the certificate, the clerk of the board may file a copy of the order in lieu of the certificate.

ARTICLE 4. Vesting of Property Upon Dissolution [76060 - 76061]

76060. Upon the dissolution of a district, any and all real property belonging to the district shall become and be the property of the county in which the real property is situated.

76061. The personal property belonging to a district upon its dissolution shall be sold by the board of supervisors of the principal county, and the proceeds from such sale, together with all moneys of the district, remaining after the payment of all of the obligations of the district, shall be paid into the general funds of the affected counties in the same proportions that the assessed values of the lands (according to the last assessment rolls) within the district in each of such counties bear one to the other.

PART 11. REPEALS [76500 - 76501]

76500. Chapter 166 of the Statutes of 1929 and Chapter 1020 of the Statutes of 1931 are repealed.

76501. The repeals effected by this part shall not be construed to deprive any person or entity of any substantial right which would have existed or hereafter exist had such repeal not been effected.

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Appendix B : Annual Reports

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Big Bear Watermaster

Forty-Second Annual Report

For Calendar Year 2018



Big Bear Municipal Water District vs. North Fork Water Company, et al.,
Case No. SCV 165493 – County of San Bernardino



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BIG BEAR WATERMASTER
FOR
BIG BEAR MUNICIPAL WATER DISTRICT VS NORTH FORK WATER CO. ET. AL
CASE NO. 165493---COUNTY OF SAN BERNARDINO

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March 29, 2019

To: Clerk of the Superior Court of San Bernardino County and All Parties

Subject: Watermaster Report for Calendar Year 2018

Gentlemen:

We have the honor of submitting the Forty-Second Annual Report of the Big Bear Watermaster for Calendar Year 2018.


Paragraph Twenty (20) of the Judgement requires that the Watermaster Report be submitted to the Court and the Parties before April 1 of each year on all significant Watermaster activities and provide an accounting of water deliveries for the proceeding calendar year as set forth in Section VI, Physical Solutions, of the Judgement.

We and each of us here by certify that this is a true and correct report of the Watermaster work performed by us and under our supervision during 2018 pursuant to the requirement of the Judgement.

Respectfully Submitted,

By: 
Donald E. Evenson

By: 
Daniel B. Cozad

By: 
Samuel H. Fuller

Big Bear
Municipal Water District

San Bernardino Valley
Water Conservation District

Bear Valley Mutual
Water Company

FORTY-SECOND ANNUAL REPORT BIG BEAR WATERMASTER CALENDAR YEAR 2018

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FORTY-SECOND ANNUAL REPORT

BIG BEAR WATERMASTER

CALENDAR YEAR 2018

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I. INTRODUCTION

The Big Bear Watermaster presents the Forty-Second Annual Report of its activities for calendar year 2018. The Watermaster's activities ensure that the rights of all parties subject to the Judgment rendered in Case No. 165493 are protected. The Watermaster generally oversees watershed conditions that may affect the Judgment and attempts to improve the conditions to the benefit of all parties.

This report describes the 2018 activities of the Watermaster including the status of accounts and various tabulations as required by the Judgment.

In 2018, the Big Bear Watermaster Committee was composed of Donald E. Evenson, President, representing Big Bear Municipal Water District; Samuel H. Fuller, representing Bear Valley Mutual Water Company; and Daniel B. Cozad, Secretary, representing San Bernardino Valley Water Conservation District.

The Watermaster Committee met four times during 2018. These meetings were held on the following dates:

January 22, 2018

March 9, 2018

July 10, 2018

October 23, 2018

Appendix A contains the minutes of these meetings. Minutes of the meetings are also on file at the office of each of the agencies.

II. SUMMARY

2018 WATERMASTER ACCOUNTS

2018 was a below average precipitation year. Annual precipitation at the two gages in the Big Bear Lake watershed averaged 20.29 inches, which is 83 percent of the 24.33 inches of average annual rainfall since 1977. Precipitation at Bear Valley Dam was 27.84 inches, which is 80 percent of the 109-year (1910-2018) average of 34.95 inches.

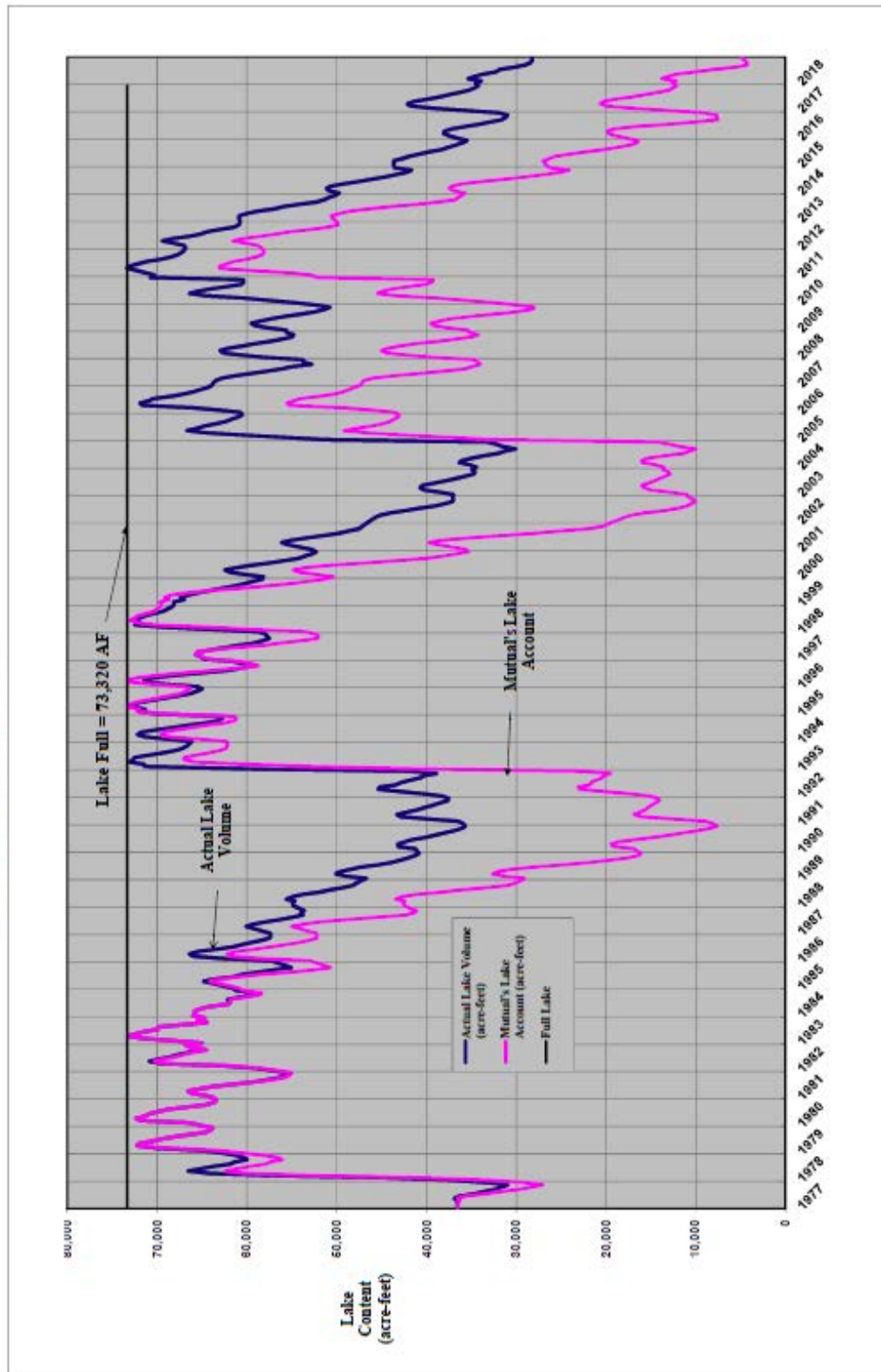
Inflow to Big Bear Lake in 2018 was also below average. The 2018 calculated lake inflow was 4,818 acre-feet, which is 32 percent of the average inflow since 1977. The average inflow for the 42 years since the Judgment was rendered is 15,010 acre-feet per year.

Actual lake levels dropped 3.00 feet in 2018 and ended the year 18.20 feet below the top of the dam. Accordingly, lake contents decreased by 5,964 acre-feet during the year. On December 31, 2018, the lake contained 28,242 acre-feet of water. When full, the lake level is 72.33 feet and it holds 73,320 acre-feet. **Figure 1** shows the history of the actual lake contents since the Judgment was rendered in 1977.

Mutual's lake account held 4,935 acre-feet at the end of 2018. Their lake account decreased by 7,187 acre-feet during the year. **Figure 1** also shows the history of Mutual's lake account since 1977. Under a "Mutual Operation", lake releases would be made to meet Mutual's water demands and their lake account is credited with the net wastewater exported from the Big Bear Lake watershed. Under these conditions, the lake level would have ended the year at 37.25 feet or 35.08 feet below the top of the dam and 16.88 feet lower than the actual year-end lake level of 54.13 feet. If Mutual had not been credited with the net wastewater exports, their lake account balance would have been 799 acre-feet and the lake level would have been 26.00 feet or 46.33 feet below the top of dam, and 28.13 feet lower than it actually was.

In 2018, Mutual received 7,890.9 acre-feet of water from Big Bear MWD. Big Bear MWD has the option to provide in-lieu supplies or to release water from the lake. In 2018, Mutual received 6,618 acre-feet of in-lieu State Water Project (SWP) water and 448 acre-feet of In Lieu well water from the San Bernardino Basin. Also, Mutual was able to use 825 acre-feet of water from Big Bear Lake that was required for fish protection purposes as required under SWRCB Order No. 95-4.

FIGURE 1
ACTUAL LAKE CONTENTS AND MUTUAL'S LAKE ACCOUNT 1977 - 2018
 Calendar Year 2018 - Big Bear Watermaster



3/25/2019

2018 Figure 1 Final Lake Graph

Engineering Investigation of the Bunker Hill Basin 2017–2018



Prepared By:



**San Bernardino Valley
Water Conservation District**

Helping Nature Store Our Water

March 7, 2019

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All figures, tables, and appendices are available separately on San Bernardino Valley Water Conservation District's Website: <http://www.sbvwd.org> and incorporated by reference.

1.0 Executive Summary

Article 1, Section 75560 of the California Water Code requires that a Water Conservation District that proposes to levy a groundwater charge "... shall annually cause to be made an engineering investigation and report upon groundwater conditions of the District". In accordance with these requirements, the San Bernardino Valley Water Conservation District (District) must make the following findings and determinations as they relate to the ground and surface water conditions of the Bunker Hill Basin and those areas within the District boundary. Refer to **Figure 1 and 3** for locations.

- Task 1.** Annual change in storage for the Bunker Hill Basin for the preceding water year (Fall 2017 to Fall 2018);
- Task 2.** Accumulated change in storage of the Bunker Hill Basin as of the last day of the preceding water year (June 30, 2018);
- Task 3.** Total groundwater production from the Bunker Hill Basin for the preceding water year (July 1, 2017 - June 30, 2018);
- Task 4.** Estimate of the annual change in the Bunker Hill Basin storage for the current water year (July 1, 2018 - June 30, 2019);
- Task 5.** Estimate of the annual change in the Bunker Hill Basin storage for the ensuing water year (July 1, 2019 - June 30, 2020);
- Task 6.** Average annual change in Bunker Hill Basin storage for the immediate past ten water years (2008 - 2018);
- Task 7.** Estimated amount of historically agricultural water and other than agricultural water to be withdrawn from the groundwater supplies of the District for the ensuing water year (July 1, 2019 - June 30, 2020)
- Task 8.** Estimated amount of water necessary for surface distribution for the ensuing water year for the Bunker Hill Basin and the District (July 1, 2019 - June 30, 2020); and
- Task 9.** The amount of water that is necessary for the replenishment of the groundwater supplies of the Bunker Hill Basin and the District for the ensuing water year (July 1, 2019 - June 30, 2020).

To make the findings and determinations listed above, District staff researched available hydro-geologic and engineering data for the Bunker Hill Basin. These data were compiled and analyzed and a predictive relationship between precipitation, production, and change in basin storage. This relationship was based on empirical data since 1993 and enables the prediction of change in storage given certain annual production and precipitation levels. In addition, annual and accumulated change in storage values were calculated based on current and historic water level changes throughout the Bunker Hill Basin.

Based on 20 measuring stations, precipitation throughout the contributing watershed was 56% of normal for the period October 1, 2017 to September 31, 2018. The report uses production and water level data from more than 180 wells in the basin.

The required findings for the 2019 Engineering Investigation are provided below. Each of the tasks is further explained in the main body of the report. Throughout this document a positive sign (+) denotes an increase in groundwater storage or groundwater level elevation while a negative sign (-) denotes a decrease in groundwater storage or groundwater level elevation.

Section 75574 of the California Water Code requires that the District Board indicate the amount of water the District is obligated by contract to purchase. The San Bernardino Valley Water Conservation District is not required by contract to purchase any water.

1.1 Summary of Finding for the 2019 Engineering Investigation

Task 1. Annual change in storage for the Bunker Hill Basin for the preceding water year (Fall 2017 to Fall 2018)

Change in storage between Fall 2017 and Fall 2018

-47,788 acre-ft (decrease)

The amount of water stored in the Basin decreased by 47,788 acre-ft between 2017 and 2018.

Task 2. Accumulated change in storage of the Bunker Hill Basin as of the last day of the preceding water year (June 30, 2018)

Accumulated change in storage between July 1993 and June 2018¹.

-570,718 acre-ft (decrease)

The amount in storage in the Summer of 2018 is 570,718 acre-ft less than the summer of 1993.

Task 3. Total groundwater production from the Bunker Hill Basin for the preceding water year (July 1, 2017 - June 30, 2018)

161,708 acre-ft

161,708 acre-ft of groundwater was produced from the basin during the previous water year.

¹ In the District's Engineering Investigation (EI) prior to 1993-94, the accumulated change in storage was based on the basin storage in 1984 as considered full. A concern arose regarding high groundwater levels in the Pressure Zone of the Bunker Hill Basin. Therefore, in response to the City of San Bernardino's comments on accumulated change in storage, all EI's since that time are based on 1993 basin storage levels considered as full. The BTAC makes annual recharge recommendations to optimize recharge.

Task 4. Estimate of the annual change in the Bunker Hill Basin storage for the current water year (July 1, 2018 - June 30, 2019)

-77,559 acre-ft (decrease)

The amount of water in the Basin is estimated to decrease by 77,559 acre-ft during the current water year.

Task 5. Estimate of the annual change in the Bunker Hill Basin storage for the ensuing water year (July 1, 2019 - June 30, 2020)

-5,973 acre-ft (decrease)

The amount of water in the Basin is estimated to decrease by 5,973 acre-ft during the ensuing water year presuming average precipitation.

Task 6. Average annual change in Bunker Hill Basin storage for the immediate past ten water years (2008 - 2018)

-14,011 acre-ft (decrease)

Task 7. Estimated amount of historically² agricultural water and other than agricultural water to be withdrawn from the groundwater supplies of the District for the ensuing water year (July 1, 2019 - June 30, 2020)

Estimated amount of historically agricultural water withdrawn from the groundwater supplies within the District boundary for the ensuing water year (July 1, 2019 - June 30, 2020)

11,065 acre-ft

Estimated amount of other than agricultural water withdrawn from the groundwater supplies of the District for the ensuing water year (July 1, 2019 - June 30, 2020)

95,056 acre-ft

² Prior to the December 2017 California Supreme Court Decision the Board Provided an Agricultural rate in accordance with CWC 755. See Appendix E.

Task 8. Estimated amount of water necessary for surface distribution for the ensuing water year for the Bunker Hill Basin and the District (July 1, 2019 - June 30, 2020)

Estimated amount of water necessary for surface distribution for the ensuing water year (July 1, 2019 - June 30, 2020) for the Bunker Hill Basin

76,743 acre-ft

Estimated amount of water necessary for surface distribution for the ensuing water year (July 1, 2019 - June 30, 2020) within the District Boundary

53,963 acre-ft

Task 9. The amount of water that is necessary for the replenishment of the groundwater supplies of the Bunker Hill Basin and the District for the ensuing water year (July 1, 2019 - June 30, 2020).

The amount of water which is necessary for the replenishment of the groundwater supplies of the Bunker Hill Basin for the ensuing water year (July 1, 2019 - June 30, 2020)

136,545 acre-ft

The amount of water which is necessary for the replenishment of the groundwater supplies within the District boundary for the ensuing water year (July 1, 2019 - June 30, 2020)

112,094 acre-ft

In addition to the above findings, Section 75505 of the California Water Code requires that a finding be made as to the amount of water necessary to be replaced in the intake areas of the groundwater basins within the District to prevent the landward movement of salt water into the fresh groundwater body, or to prevent subsidence of the land within the District. Because of its location and the elevations of its water table, the Bunker Hill Basin is not subject to salt-water intrusion and the current groundwater levels do not indicate any significant land subsidence.

Section 75540 of the California Water Code requires that the District Board establish a zone or zones where a groundwater charge is to be implemented. The Code specifically states that a

single zone may include the entire District and in May 1993 the Board established the entire District as one zone. This determination may be amended in the future, but lacking any evidence to the contrary, in the 2018-2019 year the entire District will remain as a single zone in regard to any groundwater charge.

Section 75561 of the California Water Code further requires the Engineering Investigation to include a finding related to the amount of water the District is obligated by contract to purchase. At this time the District has no contractual obligation to purchase water for the replenishment of the groundwater supplies. However, instead we recharge local surface water and cooperate with local and regional agencies to recharge the aquifer. The District works with San Bernardino Valley Municipal Water District (SBVMWD) to spread excess allocation State Project Water in the District's spreading basins. During 2018 the District spread approximately 4,000 acre-ft of State Project Water with 16,000 acre-ft of State Project Water spread across the Bunker Hill Basin.

Based on the results of the 2019 Engineering Investigation, the San Bernardino Valley Water Conservation District finds that:

- Due to the imbalance between groundwater recharge and production since 1993, the Bunker Hill Basin's storage is 570,718 acre-feet below the level which is considered full for purposes of this investigation. This value is more than the 2018 report due to the decreased availability of State Water Project water for recharge.
- During the ensuing water year (July 1, 2019 - June 30, 2020), the Bunker Hill Basin could be recharged, with up to 784,822 acre-feet of water. This recharge quantity would be needed to attain the 1993 storage level that is considered full. The Basin Technical Advisory Committee (BTAC) recommends a maximum of 282,000 acre-ft in Mill Creek and Santa Ana River Basins.
- The District must continue to take all necessary steps to maintain and enhance its capability to conduct recharge operations. These steps may include maintenance and repair of existing, diversion facilities, canals, dikes, basins, roads, and other water recharge facilities. Additionally in December 2011 the District entered into a cooperative agreement with SBVMWD to enhance the recharge of the basin. This project will add significant new recharge facilities in the District's Santa Ana River Recharge Facilities. These facilities will be operated and maintained by the District. These improvements are

required to ensure that the groundwater demands on the Basin, especially during drought periods, can be met. Construction for Phase 1A of the Enhanced Recharge Project is complete and the design process for Phase 1B started at the end of 2018.

- The District should continue to work cooperatively in the collaborative planning for the Enhanced Recharge Program to plan, design, build and maintain facilities to expand the capabilities for recharge of native and imported waters.
- The District has begun collaborative construction efforts with SBVMWD to improve the capacities and delivery capabilities of the District's Upper Santa Ana River diverted water conveyance canals and spreading basins. The District should review the single zone of influence/benefit in the future and revise, if needed.
- In 2015 the District Board of Directors approved an Engineering design to improve the sediment handling capabilities of the Mill Creek Diversion Structure. Operating and capital funds will be used to improve the structure.
- The District approved a Groundwater Council Framework Agreement in February of 2018. The agencies within the Bunker Hill basin have agreed on a cost allocation model for the importation of additional State Project water when it is available through the council. The Groundwater Charge will be paid alternatively through this agreement

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Appendix D : Measurment Tables and Operational Procedures

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Parshall Flume Table

Tape Reading	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
15.90	-	-	-	-	-	-	-	-	-	-
16.00	-	-	-	-	1	1	1	2	2	2
16.10	3	3	3	4	4	5	5	6	6	7
16.20	7	8	8	9	9	10	10	11	11	12
16.30	13	13	14	14	15	16	16	17	18	18
16.40	19	20	21	21	22	23	24	24	25	26
16.50	27	28	29	29	30	31	32	33	33	34
16.60	35	36	37	38	39	40	41	42	43	44
16.70	45	46	47	48	49	50	51	52	53	54
16.80	55	56	57	59	60	61	62	63	65	66
16.90	67	68	69	71	72	73	74	75	77	78
17.00	79	80	81	83	84	85	86	87	89	90
17.10	91	92	93	95	96	97	98	99	101	102
17.20	103	104	106	107	108	110	111	112	113	115
17.30	116	118	119	121	122	124	125	127	128	130
17.40	131	133	134	136	137	139	141	142	144	145
17.50	147	149	150	152	154	156	157	159	161	162
17.60	164	166	168	169	171	173	175	177	178	180
17.70	182	184	186	187	189	191	193	195	196	198
17.80	200	202	204	206	208	210	212	214	216	218
17.90	220	222	224	227	229	231	233	235	238	240
18.00	242	244	246	249	251	253	255	257	260	262
18.10	264	266	268	271	273	275	277	279	282	284
18.20	286	288	290	293	295	297	299	301	304	306
18.30	308	310	312	315	317	319	321	323	326	328
18.40	330	332	334	337	339	341	343	345	348	350
18.50	352	354	356	359	361	363	365	367	370	372
18.60	374	376	378	381	383	385	387	389	392	394
18.70	396	398	400	403	405	407	409	411	414	416
18.80	418	420	422	425	427	429	431	433	436	438
18.90	440	442	444	447	449	451	453	455	458	460
19.00	462	464	466	469	471	473	475	477	480	482

Mill Creek Weir Table

Gage Height	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.00	-	-	.05	.13	.24	.36	.51	.67	.84	1.03
0.10	1.23	1.44	1.66	1.89	2.14	2.38	2.65	2.91	3.19	3.48
0.20	4.	4.	4.	5.	5.	5.	6.	6.	6.	7.0
0.30	7.	7.	8.	8.	9.	9.	9.	10.	10.	11.
0.40	11.	12.	12.	12.	13.	13.	14.	14.	15.	15.
0.50	16.	16.	17.	17.	17.	18.	18.	19.	19.	20.
0.60	21.	21.	22.	22.	23.	23.	24.	24.	25.	25.
0.70	26.	26.	27.	28.	28.	29.	29.	30.	31.	31.
0.80	32.	32.	33.	34.	34.	35.	35.	36.	37.	37.
0.90	38.	38.	39.	40.	40.	41.	42.	42.	43.	44.
1.00	44.	45.	46.	46.	47.	48.	48.	49.	50.	50.
1.10	51.	52.	53.	53.	54.	55.	55.	56.	57.	58.
1.20	58.	59.	60.	60.	61.	62.	63.	63.	64.	65.
1.30	66.	66.	67.	68.	69.	70.	70.	71.	72.	73.
1.40	73.	74.	75.	76.	77.	77.	78.	79.	80.	81.
1.50	81.	82.	83.	84.	85.	85.	86.	87.	88.	89.
1.60	90.	-	-	-	-	-	-	-	-	-

Daily Flow Report Weir Table

Table for Cippoletti Weirs based on a zero velocity approach. To the left are corrections for considerable flows.				½ ft. per second		1/16 inch		Computed and prepared by Edward M. Boggs. C.E. Los Angeles for use in Bear Valley Irrigation system			
				1 ft. per second		1/4 inch					
				1 ½ ft. per second		5/8 inch					
				2 ft per second		1 1/8 inch					
Depth (in inches) of water flowing over weir, measured in still water	Miner's inches flowing over each inch of weir	Depth (in inches) of water flowing over weir, measured in still water	Miner's inches flowing over each inch of weir	Depth (in inches) of water flowing over weir, measured in still water	Miner's inches flowing over each inch of weir	Depth (in inches) of water flowing over weir, measured in still water	Miner's inches flowing over each inch of weir	Depth (in inches) of water flowing over weir, measured in still water	Miner's inches flowing over each inch of weir	Depth (in inches) of water flowing over weir, measured in still water	Miner's inches flowing over each inch of weir
1/8	0.01	3 1/8	1.86	6 1/8	5.12	9 1/8	9.30	12 1/8	14.25	15 1/8	19.85
1/4	0.04	3 1/4	1.98	6 1/4	5.27	9 1/4	9.49	12 1/4	14.47	15 1/4	20.10
3/8	0.08	3 3/8	2.09	6 3/8	5.43	9 3/8	9.69	12 3/8	14.69	15 3/8	20.35
1/2	0.12	3 1/2	2.21	6 1/2	5.59	9 1/2	9.88	12 1/2	14.91	15 1/2	20.59
5/8	0.17	3 5/8	2.33	6 5/8	5.75	9 5/8	10.08	12 5/8	15.14	15 5/8	20.84
3/4	0.22	3 3/4	2.45	6 3/4	5.92	9 3/4	10.27	12 3/4	15.36	15 3/4	21.09
7/8	0.28	3 7/8	2.57	6 7/8	6.08	9 7/8	10.47	12 7/8	15.59	15 7/8	21.34
1	0.34	4	2.70	7	6.25	10	10.67	13	15.82	16	21.60
1 1/8	0.40	4 1/8	2.83	7 1/8	6.42	10 1/8	10.87	13 1/8	16.05	16 1/8	21.85
1 1/4	0.47	4 1/4	2.96	7 1/4	6.59	10 1/4	11.08	13 1/4	16.25	16 1/4	22.11
1 3/8	0.54	4 3/8	3.09	7 3/8	6.76	10 3/8	11.28	13 3/8	16.51	16 3/8	22.35
1 1/2	0.62	4 1/2	3.22	7 1/2	6.93	10 1/2	11.48	13 1/2	16.74	16 1/2	22.62
1 5/8	0.70	4 5/8	3.36	7 5/8	7.11	10 5/8	11.69	13 5/8	16.97	16 5/8	22.87
1 3/4	0.78	4 3/4	3.49	7 3/4	7.28	10 3/4	11.89	13 3/4	17.21	16 3/4	23.13
21 7/8	0.87	4 7/8	3.63	7 7/8	7.46	10 7/8	12.10	13 7/8	17.44	16 7/8	23.39
2	0.96	5	3.77	8	7.64	11	12.31	14	17.68	17	23.65
2 1/8	1.05	5 1/8	3.92	8 1/8	7.82	11 1/8	12.52	14 1/8	17.92	17 1/8	23.92
2 1/4	1.14	5 1/4	4.06	8 1/4	8.00	11 1/4	12.73	14 1/4	18.15	17 1/4	24.18
2 3/8	1.24	5 3/8	4.21	8 3/8	8.18	11 3/8	12.95	14 3/8	18.39	17 3/8	24.44
2 1/2	1.33	5 1/2	4.35	8 1/2	8.36	11 1/2	13.16	14 1/2	18.63	17 1/2	24.70
2 5/8	1.44	5 5/8	4.50	8 5/8	8.55	11 5/8	13.38	14 5/8	18.88	17 5/8	24.97
2 3/4	1.54	5 3/4	4.65	8 3/4	8.74	11 3/4	13.59	14 3/4	19.12	17 3/4	25.24
2 7/8	1.65	5 7/8	4.81	8 7/8	8.92	11 7/8	13.81	14 7/8	19.36	17 7/8	25.50
3	1.75	6	4.96	9	9.11	12	14.03	15	19.60	18	25.77

18" Parshall Flume

Ght	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	1 st diff	2 nd diff
0.0	-	.005	.019	.033	.046	.060	.080	.102	.125	.149	-	-
0.1	.174	.202	.231	.261	.292	.324	.358	.393	.430	.467	.331	-
0.2	.505	.545	.585	.626	.669	.712	.756	.801	.848	.894	.437	.106
0.3	.942	.991	1.04	1.09	1.14	1.20	1.25	1.30	1.36	1.41	.528	.091
0.4	1.47	1.53	1.58	1.64	1.70	1.76	1.82	1.88	1.94	2.01	.600	.072
0.5	2.07	2.13	2.20	2.26	2.33	2.40	2.46	2.53	2.60	2.67	.670	.070
0.6	2.74	2.81	2.88	2.95	3.03	3.10	3.17	3.24	3.32	3.39	.730	.060
0.7	3.47	3.55	3.62	3.70	3.78	3.86	3.94	4.02	4.10	4.18	.790	.060
0.8	4.26	4.34	4.42	4.51	4.59	4.67	4.76	4.84	4.93	5.01	.840	.050
0.9	5.10	5.19	5.28	5.36	5.45	5.54	5.63	5.72	5.82	5.91	.900	.060
1.0	6.00	6.09	6.19	6.28	6.37	6.47	6.56	6.66	6.76	6.85	.950	.050
1.1	6.95	7.05	7.14	7.24	7.34	7.44	7.54	7.64	7.74	7.84	.990	.040
1.2	7.94	8.04	8.14	8.25	8.35	8.45	8.56	8.66	8.77	8.87	1.04	.050
1.3	8.98	9.09	9.20	9.31	9.42	9.53	9.65	9.76	9.87	9.99	1.12	.080
1.4	10.1	10.2	10.3	10.4	10.5	10.6	10.8	10.9	11.0	11.1	1.10	-.020
1.5	11.2	11.3	11.4	11.6	11.7	11.8	11.9	12.0	12.2	12.3	1.20	.100
1.6	12.4	12.5	12.6	12.8	12.9	13.0	13.1	13.2	13.4	13.5	1.20	-0
1.7	13.6	13.7	13.8	14.0	14.1	14.2	14.3	14.4	14.6	14.7	1.20	0
1.8	14.8	14.9	15.1	15.2	15.3	15.4	15.6	15.7	15.8	16.0	1.30	.100
1.9	16.1	16.2	16.4	16.5	16.6	16.7	16.9	17.0	17.1	17.3	1.30	-0
2.0	17.4	-	-	-	-	-	-	-	-	-	-	-

24" Parshall Flume

Head (ft)	Flow (cfs)	Head (ft)	Flow (cfs)	Head (ft)	Flow (cfs)
0.20	0.66	0.64	4.01	1.08	9.01
0.21	0.71	0.65	4.10	1.09	9.14
0.22	0.77	0.66	4.20	1.10	9.27
0.23	0.82	0.67	4.30	1.11	9.40
0.24	0.88	0.68	4.40	1.12	9.54
0.25	0.93	0.69	4.50	1.13	9.67
0.26	0.99	0.70	4.60	1.14	9.80
0.27	1.05	0.71	4.71	1.15	9.93
0.28	1.11	0.72	4.81	1.16	10.1
0.29	1.17	0.73	4.91	1.17	10.2
0.30	1.24	0.74	5.02	1.18	10.3
0.31	1.30	0.75	5.12	1.19	10.5
0.32	1.37	0.76	5.23	1.20	10.6
0.33	1.44	0.77	5.34	1.21	10.8
0.34	1.50	0.78	5.44	1.22	10.9
0.35	1.57	0.79	5.55	1.23	11.0
0.36	1.64	0.80	5.66	1.24	11.2
0.37	1.71	0.81	5.77	1.25	11.3
0.38	1.79	0.82	5.88	1.26	11.5
0.39	1.86	0.83	5.99	1.27	11.6
0.40	1.93	0.84	6.11	1.28	11.7
0.41	2.01	0.85	6.22	1.29	11.9
0.42	2.09	0.86	6.33	1.30	12.0
0.43	2.16	0.87	6.45	1.31	12.2
0.44	2.24	0.88	6.56	1.32	12.3
0.45	2.32	0.89	6.68	1.33	12.5
0.46	2.40	0.90	6.79	1.34	12.6
0.47	2.48	0.91	6.91	1.35	12.7
0.48	2.57	0.92	7.03	1.36	12.9
0.49	2.65	0.93	7.15	1.37	13.0
0.50	2.73	0.94	7.27	1.38	13.2
0.51	2.82	0.95	7.39	1.39	13.3
0.52	2.90	0.96	7.51	1.40	13.5
0.53	2.99	0.97	7.63	1.41	13.6
0.54	3.08	0.98	7.75	1.42	13.8
0.55	3.17	0.99	7.88	1.43	13.9
0.56	3.26	1.00	8.00	1.44	14.1
0.57	3.35	1.01	8.12	1.45	14.2
0.58	3.44	1.02	8.25	1.46	14.4
0.59	3.53	1.03	8.37	1.47	14.5
0.60	3.62	1.04	8.50	1.48	14.7
0.61	3.72	1.05	8.63	1.49	14.8
0.62	3.81	1.60	8.76	1.50	15.0
0.63	3.91	1.07	8.88		

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Well Measuring Procedures

Using Well Sounder

**** Warning there could be a wasp or bee's nest, or spiders (Black Widows) under the lid so use caution when approaching the well and removing the lid****

1. Unlock pad lock on the top of the well casing, and remove the well's lid.
2. Open the lid of Well Sounder and flip the power switch to the on position.
3. Press the test button on the Well Sounder. You must hear a beep to ensure the device is working properly. If there is no beep you must change the batteries.
4. Lower the metal probe on the end of the Well Sounder down the well until you hear the beep from the well sounder.
5. Adjust the probe's height up or down to the point where the Well Sounder just begins to make a beep.
6. Record the measurement on the tape attached to the Well Sounder at the height of the very top of the inside casing.
7. To obtain the water surface elevation. Take the well's reference point elevation and subtract the number you just measured from it.
8. Remove the Well Sounder from the well and toggle the power switch to the off position.
9. Replace the well's lid and re-lock the pad lock.

Using Rugged Reader

(Only to measure wells with electronic well measuring devices installed)

**** Warning there could be a wasp or bee's nest, or spiders (Black Widows) under the lid so use caution when approaching the well and removing the lid****

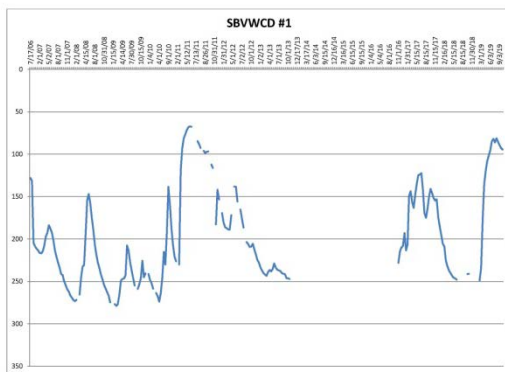
1. Unlock pad lock on the top of the well casing, and remove the well's lid.
2. Remove the plug that is inserted into the casing, and pull up the attached chord.
3. Remove the electronic well measuring device from the cap attached to the chord by twisting the cap counter clockwise. You may need to use a wrench. Be careful not to damage the device.
4. Power on the rugged reader (you may need to plug the DC power cord into your truck's cigarette lighter), plug in the serial rugged reader attachment and load the program called Win-Situ Mobile by clicking on the upper left start menu then the program icon.
5. Dry the well measuring device then plug it into the serial reader that is plugged into the Rugged Reader.
6. Push the connect button on the bottom left corner of the screen. Then press the download button (it looks like a curved down arrow). Once the log is downloaded press the disconnect button.
7. Turn off, unplug, and secure all the cables for the Rugged Reader.
8. Install the well measuring device back into the lid that is attached to the cable. Tighten by twisting the lid clockwise and secure it is tight as you can with your hands.
9. Lower the cable with the well monitoring device on it, back down the well.
10. Replace the Plug attached to the chord, and replace and re-lock the well's casing lid
11. Repeat this process for all necessary wells and return the Rugged Reader to the Office.

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SBVWCD #1 (7B1)



Map



Well Hydrograph

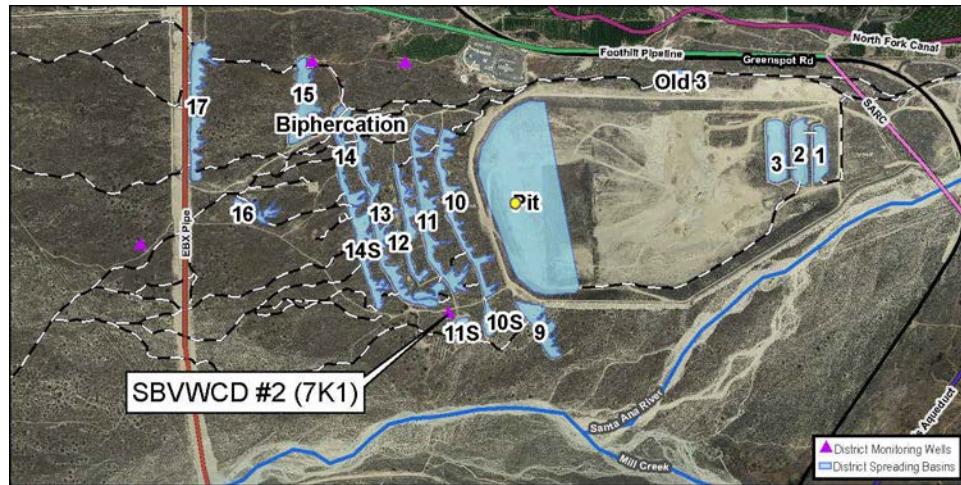


Well Location

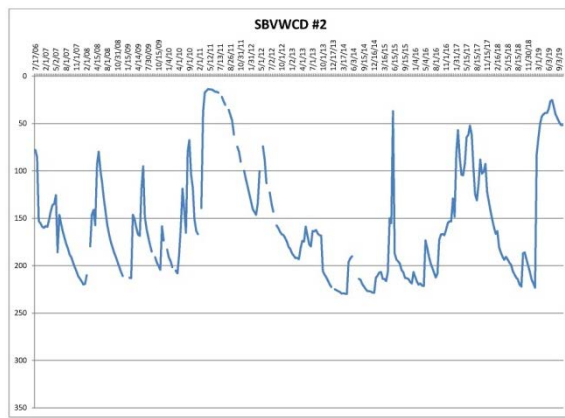
Site Information

Property	Value
Well Name	SBVWCD #1
Latitude	34°6'19.989"N
Longitude	117°7'37.654"W
Depth To Water	AVG. 201.21'
Measurement Method	Well Sounder
Frequency of Measurement	Bi-monthly
Notes	Photo taken facing southwest

SBVWCD #2 (7K1)



Map



Well Hydrograph

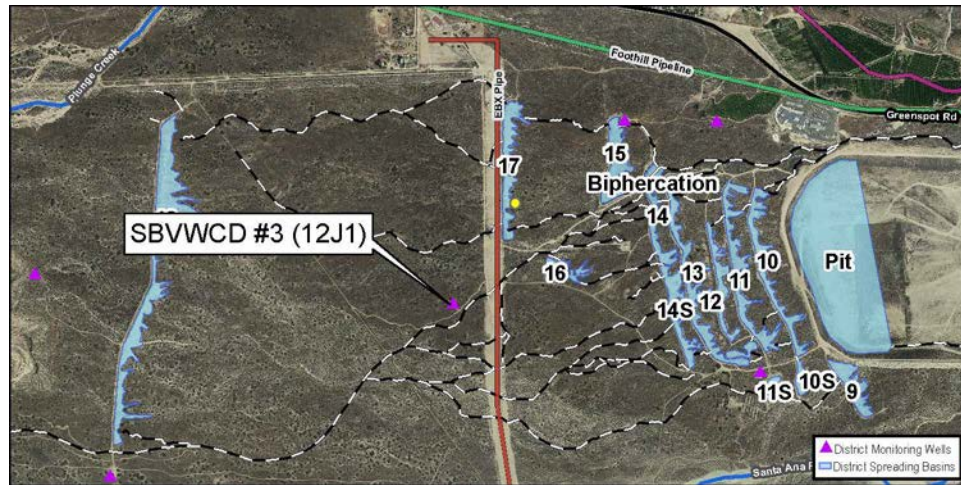


Well Location

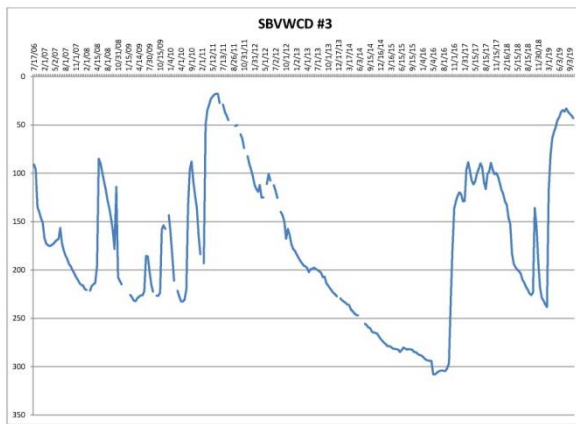
Site Information

Property	Value
Well Name	SBVWCD #2
Latitude	34°5'45.164"N
Longitude	117°7'40.225"W
Depth To Water	AVG. 138.93'
Measurement Method	Well Sounder
Frequency of Measurement	Bi-monthly
Notes	Photo taken facing southwest

SBVWCD #3 (12J1)



Map



Well Hydrograph

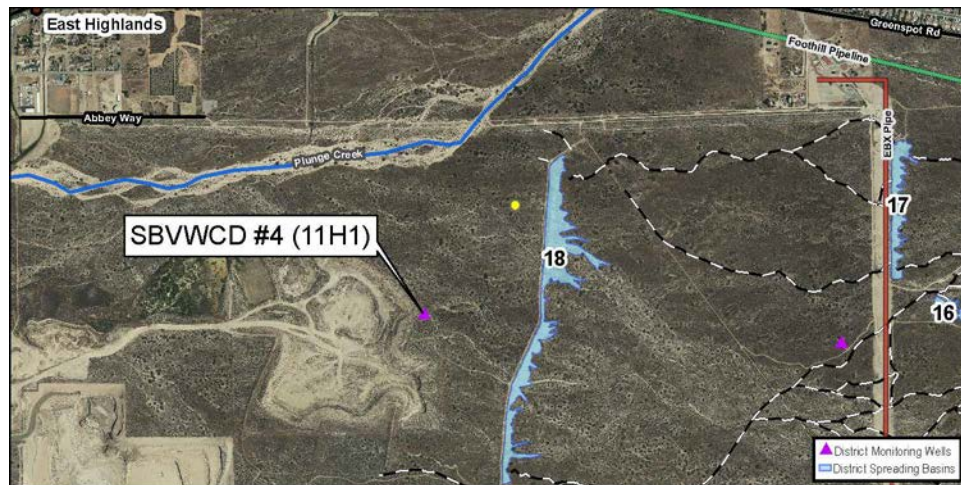


Well Location

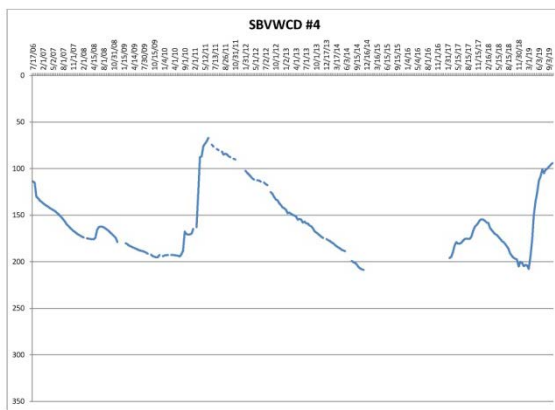
Site Information

Property	Value
Well Name	SBVWCD #3
Latitude	34°5'53.831"N
Longitude	117°8'25.105"W
Depth To Water	AVG. 149.95'
Measurement Method	Well Sounder
Frequency of Measurement	Bi-monthly
Notes	Photo taken facing northwest

SBVWCD #4 (11H1)



Map



Well Hydrograph



Well Location

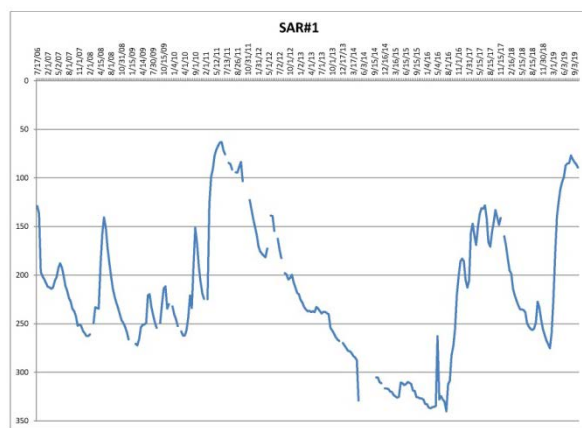
Site Information

Property	Value
Well Name	SBVWCD #4
Latitude	34°5'57.826"N
Longitude	117°9'26.14"W
Depth To Water	AVG. 149.70'
Measurement Method	Well Sounder
Frequency of Measurement	Bi-monthly
Notes	Photo taken facing west

Santa Ana River #1



Map



Well Hydrograph

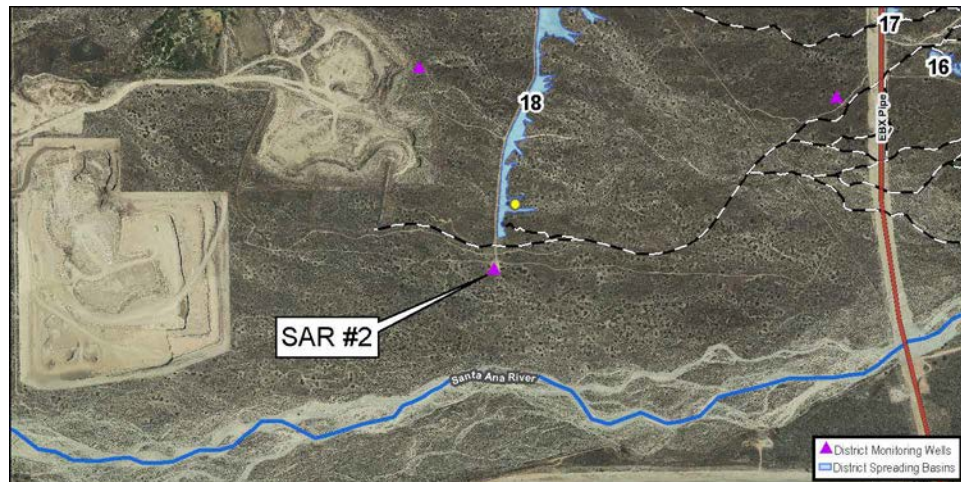


Well Location

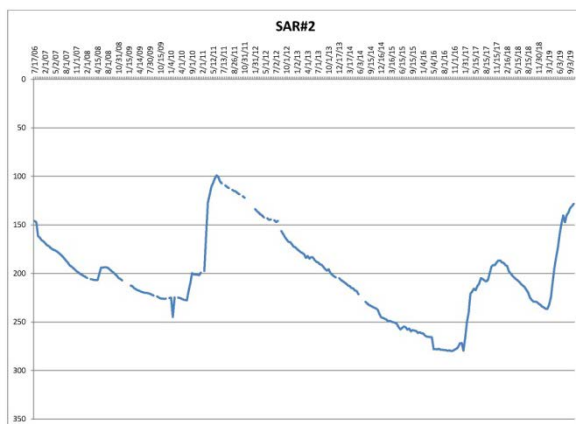
Site Information

Property	Value
Well Name	Santa Ana River #1
Latitude	34°6'15.631"N
Longitude	117°7'57.173"W
Depth To Water	AVG. 195.60'
Measurement Method	Well Sounder
Frequency of Measurement	Bi-monthly
Notes	Photo taken facing west

Santa Ana River #2



Map



Well Hydrograph

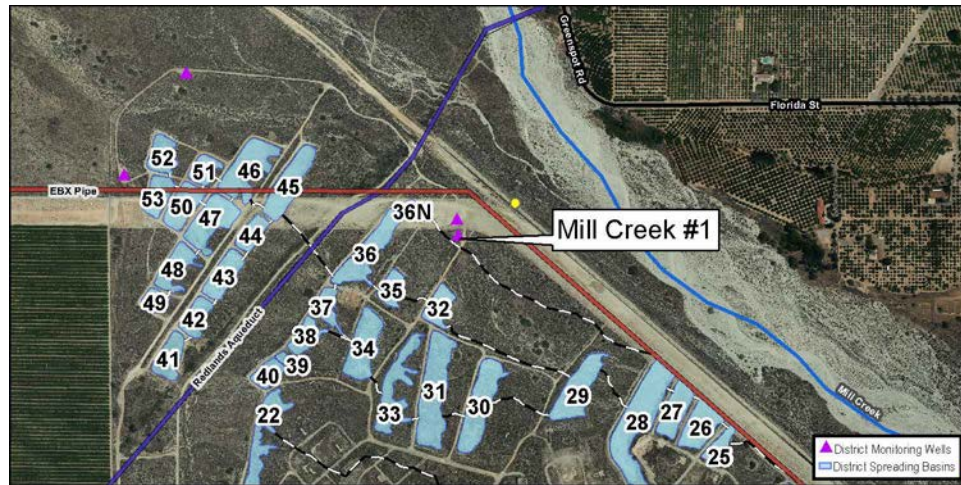


Well Location

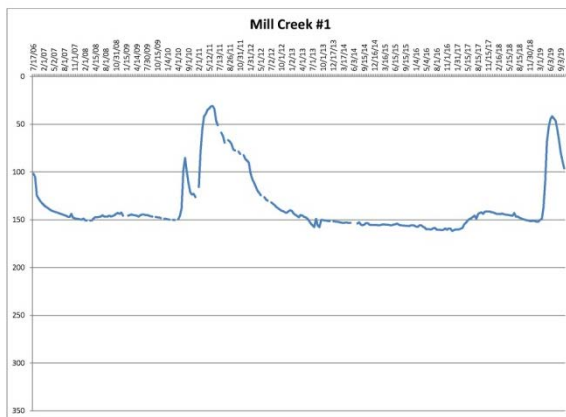
Site Information

Property	Value
Well Name	Santa Ana River #2
Latitude	34°5'33.951"N
Longitude	117°9'14.768"W
Depth To Water	AVG. 180.69'
Measurement Method	Well Sounder
Frequency of Measurement	Bi-monthly
Notes	Photo taken facing southwest

Mill Creek #1



Map



Well Hydrograph

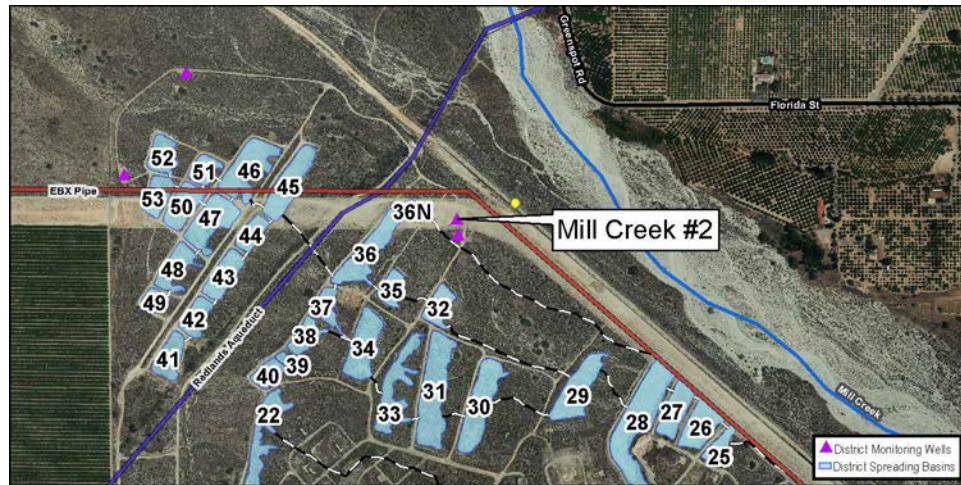


Well Location

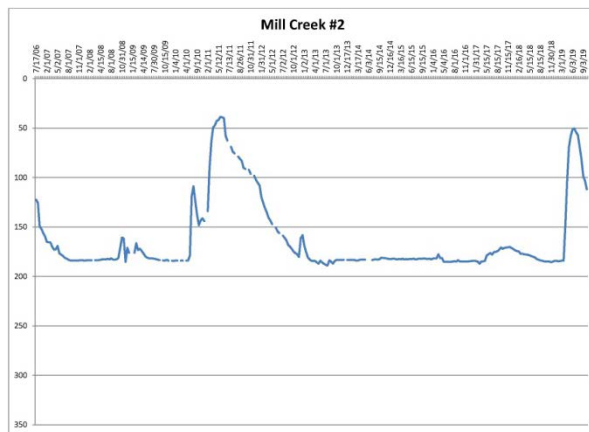
Site Information

Property	Value
Well Name	Mill Creek #1
Latitude	34°5'1.649"N
Longitude	117°6'53.634"W
Depth To Water	AVG. 123.40'
Measurement Method	Well Sounder
Frequency of Measurement	Bi-monthly
Notes	Photo taken facing west

Mill Creek #2



Map



Well Hydrograph



Well Location

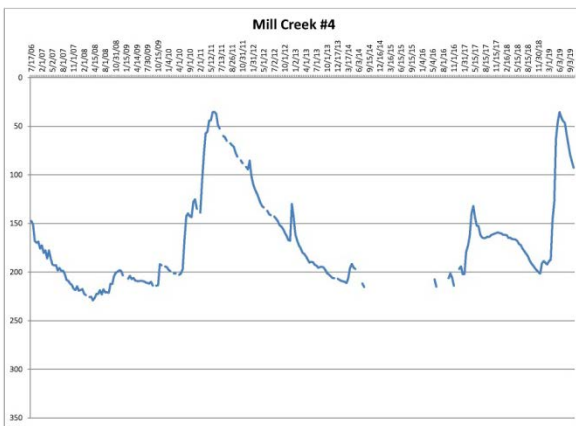
Site Information

Property	Value
Well Name	MC #2
Latitude	34°5'2.555"N
Longitude	117°6'53.745"W
Depth To Water	AVG. 150.61'
Measurement Method	Well Sounder
Frequency of Measurement	Bi-monthly
Notes	#2 painted on footing

Mill Creek #4



Map



Well Hydrograph



Well Location

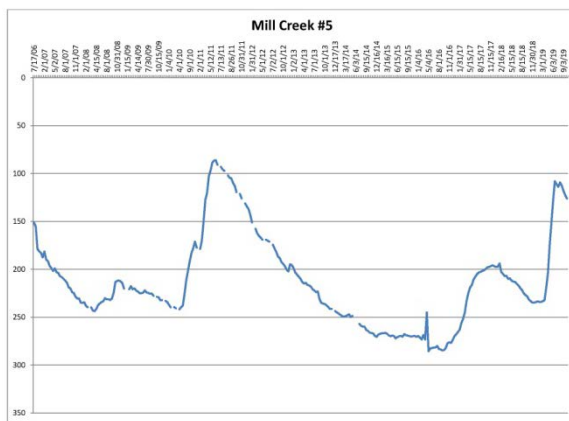
Site Information

Property	Value
Well Name	MC #4
Latitude	34°5'5.148"N
Longitude	117°7'15.672"W
Depth To Water	AVG. 164.62'
Measurement Method	Well Sounder
Frequency of Measurement	Bi-monthly
Notes	#4 painted on footing

Mill Creek #5



Map



Well Hydrograph



Well Location

Site Information

Property	Value
Well Name	MC #5
Latitude	34°5'10.703"N
Longitude	117°7'11.525"W
Depth To Water	AVG. 191.87'
Measurement Method	Well Sounder
Frequency of Measurement	Bi-monthly
Notes	Photo taken facing south

Gate Operations

Due to excessive time and effort required to open and close the old gates in the district facilities, new gates have been installed. The following procedures are instructions on how to properly raise and lower the new gates utilizing the tripod mounted drill. Gates can still be manually opened utilizing a hand crank.

****Warning never open the diversion gates at the Cuttle Weir past a flow of 300cfs, this is the flow limit for the culvert at Greenspot Rd. further down the river.**

1. Back up the generator close enough to provide power for the tripod mounted drill
2. Unload the tripod mounted drill from the truck and place in front of the actuators. Make sure to remove and secure the two cotter pins; don't let them fall into the water.
3. Unlock and secure the lock on the actuator, don't drop it into the water.
4. Lower the tripod until the top of the drill head is lower than the spindle on the actuator.
5. Lift the drill and tripod assembly together and slide the drill head over the spindle, until the holes line up.
6. Insert the cotter pins into both of the holes
7. Spin the wheel at the top of the tripod to lower the tripod securely onto the ground
8. **Do not let the flow at the diversion point at the Cuttle Weir exceed 300 cfs.**
9. Use the switch on the drill to select foreword or reverse depending on whether you want the gate to open or close. Press the trigger on the switch to ensure the gate is moving in the direction you desire.
10. Hold the switch down until the gate is open to the height you want or until it closes
11. If you are closing the gate you need to make sure that the rod is not bent, if it starts to bend you need to reverse the drill a rotation to take the pressure off the rod.
12. Spin the wheel to at the top of the tripod to raise it off the ground, then remove cotter pins and slide the drill off of the actuator.
13. Replace the cotter pins in the drill and re-lock the actuator.
14. Take the tripod mounted drill, and the generator back to the shop.

High Flow Plan

Mill Creek

In Mill Creek, with the start of any rain, the creek should be turned out or will already have been turned out in anticipation of a storm. First flows usually bring excess debris from the hills as well as clay from Yucaipa which will slow the percolation process in the ponds. When the rain has subsided or let up, check to see if the red tinge color of clay is gone from the water flowing through Mill Creek. What to look for is water that does not look too dirty from silt or clay, but dirty from just sand. Once the silt and clay appear to be absent or decreased in the water, and mainly the sandy color remains, the water can be turned in for percolation. There are two things to keep in mind:

1. All this can happen if flows have not damaged the channel, and/or the soft plug has not been lost. A soft plug is a low berm (about 18 inches) of dirt, sand, and rock that diverts water from a creek away from its natural intended course (0 - 100 cfs). During a high water event (excess of 400 cfs) the soft plug is washed away. With the destruction of the soft plug, the area it was diverting water to is now unaffected by damage and debris, but also can not divert water for recharge.
2. High flows in the canal bring rock and sand that needs to be sluiced out occasionally by opening the gates back to the Creek at the intake and also the flush gate downstream, while the main canal gate stays open.

Due to drought, water has been taken earlier while the silt and clay are still present, however this does increase the risk for damage to the facilities and increased the rate at which the basins will need to be cleaned. If water is to be taken earlier, potentially as early as a few hours after the storm, staff must heavily monitor the facility and intake for additional debris and clogs in the system.

Santa Ana River

In the Santa Ana River (SAR), high flows are contingent on the Seven Oaks Dam (SOD). Before any unusually high flows are released from SOD, the SOD operators will contact SBVWCD with more than enough time to prepare for these high flows. In the case of a high flow, start with the intake gates closed. At flows higher than 800cfs the gates at the Cuttle Weir should be removed so that rocks, and debris from behind the dam and in the channels, can flow freely downstream. When the water has pretty much settled out and is no longer climbing the gates of the intake, they can be cracked to let the desired amount in, but no more than 300 cfs, which is right at the upper limits of what the culvert at old Greenspot Road can handle. At flows lower than 800 cfs the gates at the Cuttle Weir should be in place to help direct the capture the 300 cfs into the intake. Note that the removal and replacement of Cuttle Weir gates can only happen when the water is not present. Water is first diverted to the Enhanced Recharge phase 1A sedimentation basin and then to the SBVWCD main canal.

When phase 1 of Enhanced Recharge is completed, flows will still be limited to 300cfs through the main canal under old Greenspot Rd. When the plunge pool pipeline is fully connected to the recharge system, an additional 200cfs can be sent for recharge through the pipeline and will enter the facility at or near the Santa Ana Low.

Basin Cleanout Frequency

Basin	Reccomended Clearing Frequency	Last Cleaned	Basin	Reccomended Clearing Frequency	Last Cleaned
Santa Ana Spreading Facility			Mill Creek Facility		
1	1	2017	19	3	Pre 2005
2	1	2005	20	3	Pre 2005
3	1	2005	21	3	Pre 2005
Pit	3	2011	22	3	Pre 2005
10	2	2010	23	3	Pre 2005
11	3	2010	24	3	Pre 2005
12	3	2017	25	3	2019
13	3	2017	26	3	2019
14	3	2017	27	3	2019
15	3	2017	28	3	2019
16	3	2011	29	3	2019
17	3	2017	30	3	Pre 2005
D	3	2014	31	3	Pre 2005
Mill Creek Facility			32	3	Pre 2005
1	1	2019	33	3	Pre 2005
2	1	2019	34	3	Pre 2005
3	1	2019	35	3	Pre 2005
4	2	2019	36	3	Pre 2005
5	2	2019	36N	3	Pre 2005
6N	2	2019	37	3	Pre 2005
6S	3	2019	38	3	Pre 2005
7	3	2017	39	3	Pre 2005
8	3	Pre 2005	40	3	Pre 2005
9	3	Pre 2005	41	3	Pre 2005
10	3	Pre 2005	42	3	Pre 2005
10W	3	Pre 2005	43	3	Pre 2005
11	3	Pre 2005	44	3	2017
11W	3	Pre 2005	45	3	2019
12	3	2019	46	3	2019
13	3	2019	47	3	Pre 2005
14	3	2007	48	3	Pre 2005
15	3	Pre 2005	49	3	Pre 2005
15W	3	Pre 2005	50	3	Pre 2005
16N	3	Pre 2005	51	3	Pre 2005
16S	3	Pre 2005	52	3	Pre 2005
17	3	Pre 2005	53	3	Pre 2005
18	3	Pre 2005			

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Pesticide Application Information

SIDEBAR 7-1

CHECKLIST FOR PLANNING A PESTICIDE APPLICATION

PERSONAL

- ☐ Medical checkup and necessary blood tests?
- ☐ Properly trained for this type of application?

PESTICIDE

- ☐ Read and thoroughly understood label?
- ☐ Checked to be sure use is consistent with target pest and application area?
- ☐ Read Safety Data Sheet for information on hazards?
- ☐ Obtained necessary permits?
- ☐ Know proper rate of pesticide to be applied?

EQUIPMENT

- ☐ Proper personal protective equipment (boots, gloves, respiratory equipment, protective clothing, eye protection, head wear)?
- ☐ Necessary measuring and mixing equipment?
- ☐ Suitable application equipment for this job (tank capacity, pressure range, volume of output, nozzle size, pump compatible with formulation type)?
- ☐ Application equipment properly calibrated?
- ☐ Emergency water and first aid supplies?
- ☐ Necessary supplies to contain spills or leaks (absorbent materials, cleaning supplies, holding containers)?

TRANSPORTING

- ☐ Safe transport of pesticides to application site?
- ☐ Pesticides and containers secured from theft or unauthorized access?
- ☐ Vehicles properly marked and permits obtained, if necessary, for transporting hazardous materials and hazardous wastes?

MIXING AND LOADING

- ☐ Safe mixing and loading site located?
- ☐ Clean water available for mixing?
- ☐ Water pH tested?
- ☐ Proper adjuvants obtained for correcting pH, preventing foaming, and improving deposition?
- ☐ Compatibility of pesticide tank mixes or fertilizer-pesticide combinations checked?
- ☐ Liquid containers triple-rinsed and rinsate put into spray tank?

TREATMENT SITE

- ☐ Boundaries of treatment site inspected?
- ☐ Environmentally sensitive areas within and around treatment area identified?
- ☐ In agricultural applications, people working or living in or near treatment area, including fieldworkers and their supervisors, notified?
- ☐ Treatment site properly posted with required signs?
- ☐ Soil types determined and noted, if these are factor in pesticide efficacy?

- ☐ Livestock, pets, honey bees, other animals properly protected?
- ☐ Aspects of groundwater determined, if applicable?
- ☐ Hazards within treatment site identified, including electrical wires and outlets, ignition sources, obstacles, steep slopes, and other dangerous conditions?
- ☐ Plants in treatment area in proper condition for pesticide application (correct growth stage, not under moisture stress, other requirements as specified on pesticide label)?

WEATHER CONDITIONS

- ☐ Weather suitable for application (low wind, proper temperature, lack of fog or rainfall)?

APPLICATION

- ☐ Application pattern established suitable for treatment area, hazards, and prevailing weather conditions?
- ☐ Application rate selected that will give most uniform coverage?
- ☐ Equipment frequently checked during application to ensure that everything is working properly and is providing a uniform application?

CLEANUP

- ☐ Application equipment properly cleaned and decontaminated after application?
- ☐ Personal protective equipment safely stored and cleaned or laundered according to approved methods?
- ☐ Disposable materials burned or disposed of in approved way?

DISPOSAL

- ☐ Paper pesticide containers burned or disposed of according to local regulation?
- ☐ Plastic and metal containers triple-rinsed?
- ☐ Plastic and metal containers properly stored until disposed of in suitable disposal area?

STORAGE

- ☐ Unused pesticides returned to supplier or stored in locked facility for later use?
- ☐ Storage facility suitable for pesticides?

REPORTS

- ☐ Necessary reports filed with requesting agency?

FOLLOW-UP

- ☐ Treatment areas inspected after application to ensure that pesticide controlled the target pests without causing undue damage to nontarget organisms or surfaces of items in treatment area?

DAMAGE

- ☐ Damage, if it occurred, promptly reported?



Department of Environmental Health & Safety

Pesticide Worker Safety Checklist

This checklist is designed to allow you to evaluate your pesticide program for compliance with California Department of Pesticide Regulation requirements on worker safety training, record keeping, and hazardous communications. By completing this checklist you will be able to verify each category of the regulations. If that requirement is not met, answer "no." This information should be used to correct the problem and keep your unit/department in compliance. If you are not sure what needs to be done to meet a particular requirement, contact EHS for assistance. This checklist is designed to assist any unit/department of the University in becoming and remaining in compliance with all California State pesticide regulations.

WORKER SAFETY: PESTICIDE HANDLERS			
YES	NO	1.0	General
<input type="checkbox"/>	<input type="checkbox"/>	1.1	Is there a person with a Qualified Applicator's Certificate (Silver Card) in charge of pesticide operations?
<input type="checkbox"/>	<input type="checkbox"/>	1.2	Is the certificate (Silver Card) for categories D (Farm and Biological Sciences) or B (Plant Operations)?
<input type="checkbox"/>	<input type="checkbox"/>	1.3	Are the categories appropriate for the type of work being done?
<input type="checkbox"/>	<input type="checkbox"/>	1.4	Are the Pesticide Safety Information Series posted and available to employees?
<input type="checkbox"/>	<input type="checkbox"/>	1.5	Are MSDSs posted and available?
<input type="checkbox"/>	<input type="checkbox"/>	1.6	Is continuing education being kept current? Date of last: _____
YES	NO	2.0	Recordkeeping
<input type="checkbox"/>	<input type="checkbox"/>	2.1	Is there a worker safety training record for each employee who might use pesticides during the course of work duties?
<input type="checkbox"/>	<input type="checkbox"/>	2.2	Is the employee's name and job duties listed on the record?
<input type="checkbox"/>	<input type="checkbox"/>	2.3	Has the employee signed the record?
<input type="checkbox"/>	<input type="checkbox"/>	2.4	Is the name of the trainer listed on the record?
<input type="checkbox"/>	<input type="checkbox"/>	2.5	Has the trainer signed the record?
<input type="checkbox"/>	<input type="checkbox"/>	2.6	Are the pesticides which may be used by the employee listed on the record?
<input type="checkbox"/>	<input type="checkbox"/>	2.7	Is the date of training shown on the record?
<input type="checkbox"/>	<input type="checkbox"/>	2.8	Is the date of annual retraining shown on the record?
<input type="checkbox"/>	<input type="checkbox"/>	2.9	Are training records kept for two years?
YES	NO	3.0	Training
<input type="checkbox"/>	<input type="checkbox"/>	3.1	Are all employees trained prior to using pesticides?
<input type="checkbox"/>	<input type="checkbox"/>	3.2	Is there a written program for worker safety training?
<input type="checkbox"/>	<input type="checkbox"/>	3.3	Are the following topics covered in training?
<input type="checkbox"/>	<input type="checkbox"/>		a) Potential and long term health hazards
<input type="checkbox"/>	<input type="checkbox"/>		b) Safety procedures
<input type="checkbox"/>	<input type="checkbox"/>		c) Use of clothing and personal protective equipment

Pesticide Worker Safety Checklist

7/2/2014

YES	NO	3.0	Training
<input type="checkbox"/>	<input type="checkbox"/>		d) Use, care, maintenance, and limitations of respiratory equipment
<input type="checkbox"/>	<input type="checkbox"/>		e) Laws, regulations, and label requirements
<input type="checkbox"/>	<input type="checkbox"/>		f) Need for immediate decontamination of skin and eyes
<input type="checkbox"/>	<input type="checkbox"/>		g) Common pesticide poisoning symptoms
<input type="checkbox"/>	<input type="checkbox"/>	3.4	Is the Hazard Communication Written Training Program filled out?
<input type="checkbox"/>	<input type="checkbox"/>	3.5	Is the hazardous communication program accessible to employees?
<input type="checkbox"/>	<input type="checkbox"/>	3.6	Does the hazardous communication program list training materials (such as video tapes, audio tapes, or slides)?
<input type="checkbox"/>	<input type="checkbox"/>	3.7	Are the materials appropriate to the pesticide program in the unit/department?
<input type="checkbox"/>	<input type="checkbox"/>	3.8	Is the training program specific to pesticides used in the unit/department?
YES	NO	4.0	Medical Monitoring
<input type="checkbox"/>	<input type="checkbox"/>	4.1	Is the name, address, and phone number of the emergency care facility posted at the headquarters?
<input type="checkbox"/>	<input type="checkbox"/>	4.2	Is there a written operation program for the selection, fitting, cleaning, sanitizing, inspecting and maintaining of respiratory equipment?
<input type="checkbox"/>	<input type="checkbox"/>	4.3	Is there a signed statement of medical condition for each employee who used a respirator?
<input type="checkbox"/>	<input type="checkbox"/>		If the answer to 4.3 is yes, is there a copy of the doctor's report attached?
<input type="checkbox"/>	<input type="checkbox"/>	4.4	Is there a cholinesterase level monitoring program in place for those employees who might handle category 1 or 2 carbonate or organophosphate type pesticides for more than 6 days out of 30?
YES	NO	5.0	Hazard Communication
<input type="checkbox"/>	<input type="checkbox"/>	5.1	Is the Hazard Communication Information for Employees Working in Fields (A-9 series) available?
<input type="checkbox"/>	<input type="checkbox"/>	5.2	Is there a procedure to ensure that students, field workers, and others who may enter any field have read the A-9 series?
<input type="checkbox"/>	<input type="checkbox"/>	5.3	Is there a record (Pesticide Use Reports) of all pesticide applications for each field which may have been treated with pesticide?
<input type="checkbox"/>	<input type="checkbox"/>	5.4	Are copies of Pesticide Use Reports kept for two years?
<input type="checkbox"/>	<input type="checkbox"/>	5.5	Is there a written notification procedure for notification of CSU, Chico personnel by the contract pest control applicator?
<input type="checkbox"/>	<input type="checkbox"/>	5.6	Do all field workers have access to the crop sheets (when available from the Department of Pesticide Regulation)?

Attachment D

Hazard Communication Employee Training Program Sample

COMPANY: _____ DATE: _____

DEPARTMENT: _____

We have developed a training program to increase employee awareness of hazardous substances in our workplace and to motivate employees to protect themselves. The training program is based on the types of hazardous substances used at the work site and the associated hazards.

Overview of Hazard Communication Regulation

The hazard communication regulation is intended to ensure that both employers and employees understand the dangers associated with hazardous substances in the workplace. The following information is a review of the specific requirements of a hazard communication program, including container labeling, MSDSs, and training.

Written Hazard Communication Program

We have a written program that outlines how we provide information on and control your exposure to hazardous substances. This plan is available to you during our training or during your work shift from *(person)* at *(location)*.

Hazardous Substances Used in Our Workplace

In our shop we use a variety of chemical products. Most of these products contain one or more hazardous substances. Let's review the hazardous substance inventory list in your work area. For specific hazard information on each brand of material, review the MATERIAL SAFETY DATA SHEETS (MSDSs) and, if applicable, the Proposition 65 list of chemicals.

Reading Labels, Warnings, and MSDSs

Labels. A product label on both the original and secondary containers should be read before working with the material. Each label has two important pieces of information:

1. Identity of the hazardous substance
2. Hazard warnings

The label on the original container also gives the name and address of the manufacturer.

The label should act as a visual reminder of the information we have presented in this training session and of the detailed information on the MSDS.

Proposition 65 warnings. These are provided to you prior to exposure in the form of labels, placards, employee training, and the like so that you know that certain chemicals in your workplace are known to the state to cause cancer, birth defects, or other reproductive harm.

It is essential to your safety that you read the hazard warning and use the hazardous substances only within the prescribed guidelines. Questions concerning any of the warning message(s) should be directed to your supervisor or foreman.

Material Safety Data Sheets (MSDSs). Manufacturers and importers are responsible for providing us with adequate information for using the hazardous substances safely. We use MSDSs as the primary source for informing you about the hazards of the substances in our plant. MSDSs are kept at *(location)* and are readily available to you in every shift.

You will be trained on the specific hazards of the substances in **your** work area. You will also be trained on how to read the information in the MSDSs. The information includes:

1. Chemical and physical properties of hazardous substances, such as vapor pressure or specific gravity
2. Physical hazards of the chemicals, such as flammability or reactivity
3. Health hazards of the hazardous substances, such as signs and symptoms of exposure
4. Routes of entry
5. Protective measures, such as work practices, engineering controls, and use of personal protective equipment
6. Methods to detect the release of a hazardous substance in the work area
7. Emergency and first-aid procedures

You can read the California Hazard Communication Regulation for additional information on any specific program element.

STATE OF CALIFORNIA
MONTHLY SUMMARY PESTICIDE USE REPORT
DPR-PML-060 (REV. 8/15) PAGE 1 OF 2

DEPARTMENT OF PESTICIDE REGULATION
PEST MANAGEMENT AND LICENSING BRANCH

INSTRUCTIONS FOR COMPLETING THIS FORM ARE INDICATED BELOW AND ON THE REVERSE SIDE

OPERATOR (FIRM NAME)		ADDRESS		CITY	ZIP CODE	PHONE NUMBER
OPERATOR ID/PERMIT NUMBER	LICENSE NUMBER	COUNTY WHERE APPLIED	COUNTY NUMBER	MONTH/YEAR OF USE	TOTAL NUMBER OF APPLICATIONS	

1. Complete Columns A, B, C, and D for All Users:

2. Complete Column E by using one of the following codes:

- Code 10 - Structural Pest Control.....includes any pest control work performed within or on buildings and other structures.
Code 30 - Landscape Maintenance Pest Control.....includes any pest control work performed on landscape plantings around residences or other buildings, golf courses, parks, cemeteries, etc.
Code 40 - Right-of-Way Pest Control.....includes any pest control work performed along roadsides, power lines, median strips, ditch banks, and similar sites.
Code 50 - Public Health Pest Control.....includes any pest control work performed by or under contract with State or local public health or vector control agencies.
Code 70 - Marijuana.....includes any pest control for work performed on or around marijuana.
Code 80 - Vertebrate Pest Control.....includes any vertebrate pest control work performed by public agencies or work under the supervision of the State or county agricultural commissioner.
Code 91 - Commodity Fumigation (Nonfood/Nonfeed).....includes fumigation of nonfood/nonfeed commodities such as pallets, dunnage, furniture, burlap bags, etc.
Code 100 - Regulatory Pest Control.....includes any pest control work performed by public employees or contractors in the control of regulated pests.

3. Complete Columns F and G, if use does not fit one of the above codes

A	B	C	D	E	F	G
MANUFACTURER AND NAME OF PRODUCT APPLIED	EPA/CALIFORNIA REGISTRATION NUMBER FROM LABEL INCLUDE ALPHA CODE	TOTAL PRODUCT USED (Check One Unit of Measure)	NUMBER OF APPLICATIONS	CODE	COMMODITY OR SITE TREATED	ACRES/UNITS TREATED
		<input type="checkbox"/> LB <input type="checkbox"/> OZ <input type="checkbox"/> PT <input type="checkbox"/> QT <input type="checkbox"/> GA				
		<input type="checkbox"/> LB <input type="checkbox"/> OZ <input type="checkbox"/> PT <input type="checkbox"/> QT <input type="checkbox"/> GA				
		<input type="checkbox"/> LB <input type="checkbox"/> OZ <input type="checkbox"/> PT <input type="checkbox"/> QT <input type="checkbox"/> GA				
		<input type="checkbox"/> LB <input type="checkbox"/> OZ <input type="checkbox"/> PT <input type="checkbox"/> QT <input type="checkbox"/> GA				
		<input type="checkbox"/> LB <input type="checkbox"/> OZ <input type="checkbox"/> PT <input type="checkbox"/> QT <input type="checkbox"/> GA				
		<input type="checkbox"/> LB <input type="checkbox"/> OZ <input type="checkbox"/> PT <input type="checkbox"/> QT <input type="checkbox"/> GA				

REPORT PREPARED BY _____
Distribution: CAC - Two copies; Report preparer - One copy

DATE _____

Print Form

GENERAL INFORMATION FOR COMPLETING THE MONTHLY SUMMARY PESTICIDE USE REPORT

(Page 2 of 2)

Reporting Requirements

Reporting of all pesticide applications including spray adjuvants and plant growth regulators, is required by:

1. Landscape maintenance gardener pest control businesses, agricultural pest control businesses performing residential work, and structural pest control businesses.
2. Public agencies, pest control businesses and property operators who apply pesticides for agricultural use other than for the production of an agricultural commodity. These uses include applications for the production of poultry, fish, and apiary. Pest control businesses must report uses for the production of livestock. Also, uses on golf courses, parks, rights-of-way, cemeteries, forests, ditches, fence lines, etc. must be reported.
3. Persons who use restricted materials for uses other than the production of an agricultural commodity.
4. Persons who use a pesticide for industrial post-harvest commodity treatments.
5. Persons who use a Ground Water Protection pesticide, listed in Title 3, California Code of Regulations, section 6800(b) for any outdoor, institutional or industrial use.

Report Filing Deadlines

Submit two (2) copies of this report to the county agricultural commissioner by the 10th of the month, following the month in which the work was performed. Reports may be hand-delivered or mailed, the postmark serving as the date of delivery. Retain a copy for your records.

For each month when no pest control work has been performed, licensed pest control businesses must submit a use report by the 10th day of the following month to the county agricultural commissioner in counties where they are registered. The use report must indicate that no pest control work was performed.

SPECIFIC INSTRUCTIONS FOR COMPLETING THE FACE PAGE

The operator/firm information should be filled out completely, including the address, ZIP code, and telephone number.

Identify the Operator Identification/Restricted Material Permit Number, if applicable.

Enter the name of the county where the pesticide(s) was applied.

Indicate the county number where the product(s) was applied. The county number is available from the county agricultural commissioner's office. A separate report must be filed for each county where pesticides were applied.

Enter the month and year in which the applications were made.

Enter the total number of applications (i.e., the total of column D below) made during the month.

In Column A, enter both the manufacturer and brand name of the product.

In Column B, enter the "EPA Registration Number" or "California Registration Number" that appears on the pesticide label, including alpha codes, if any (AA, ZA, ZB, etc.). Do not use the "EPA Establishment Number" (Est. No.).

In Column C, indicate the total amount of product used as formulated and packaged by the manufacturer. Do not report the total mixture after dilution. Check only one unit of measure. If necessary, decimals and fractions may be used.

In Column D, indicate the total number of applications for each pesticide used during the reporting month. Each separate site (home, apartment complex, building, right-of-way, grain silo, etc.) should be counted as one application. For tank mixes, each represented pesticide should be credited with one application.

In Column E, if the use of the product is structural, landscape, right-of-way, marijuana, vertebrate, public health, commodity fumigation (nonfood/nonfeed) or regulatory, enter the appropriate code number. Leave Columns F and G blank.

In Column F, if use of the product is not included in one of the number coded categories that are identified in column E, such as food/feed commodity fumigations, seed treatment, noncrop fencelines or ditch banks, etc., enter the commodity or site treated. Leave Column E blank.

Do not enter vertebrate pest control work in production areas such as orchards or other crop areas. This work should be reported on the Production Agriculture Monthly Pesticide Use Report.

In Column G, if use of the product is not included in one of the number-coded categories that are identified in Column E, enter the amount treated and the appropriate unit of measure (acres, pounds, square feet, tons, etc.). If you have a different measure, describe it fully and enter the amount treated. Leave Column E blank.

Enter the name of the person responsible for completing the information, and date the report. This could be a licensee, a manager, the person who applied the pesticide, a bookkeeper, etc.

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Appendix E: Seven Oaks Dam Fact Sheet and Storage Capacity Table

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Seven Oaks Dam and Reservoir

The dam site is on the Santa Ana River at a narrowing of upper Santa Ana Canyon, about 1 mile upstream of the canyon mouth just north of Greenspot Road.

The Dam's Purposes

Seven Oaks Dam is a vital part of the vastly improved Santa Ana River Mainstream Flood Control System. The dam:

- Provides 350-year flood protection at the dam site
- Keeps a 100-year flood in the river channel between Seven Oaks and Prado dams

The Dam's Features

The dam rises 550 feet above the canyon floor and spans 3,000 feet between the canyon walls. It is 40 feet wide at the top and extends 2,200 feet from its downstream toe to its upstream toe. The detached spillway is about 1,700 feet east of the dam and drains into Deep Creek. The reservoir behind the dam has a water storage capacity of 145,600 acre-feet.

The dam's location 1 mile upstream from the canyon mouth limits its public visibility. From outside the canyon, people see the upper one-third of the dam. Dam-face aesthetic treatments blend the dam in with the surrounding area.

In cooperation with the U.S. Forest Service and the U.S. Fish and Wildlife Service, the Corps incorporated several environmental features in the area to mitigate for environmental losses due to dam construction.

The Corps preserved:

- 617 acres next to the dam site (Section 5) to prevent its development due to improved access to the dam site
- 138 acres at Filaree Flats for riparian, aquatic, and upland habitat
- 60 acres in the streambed just below the dam site for riparian and aquatic habitat
- 760 acres in the Santa Ana River wash downstream of Greenspot Road to preserve the *Eriastrum* (Wooly Star) – a federally listed endangered plant.

Dam Construction

Since starting construction in 1990, the Corps built the access roads to the site, a pilot tunnel to obtain geotechnical data, testfills, and a test excavation through Government Canyon Ridge; and stripped the canyon wall for left dam abutment.

There were three construction phases: excavation for the inlet structure, construction of the outlet works, and construction of the embankment and spillway

Purpose of the Inlet Structure

The structure's purpose is to screen sediment so it will not enter the outlet tunnel. Excavation of the inlet area for the outlet works tunnel began in August 1991.

The work included building a 1,600 foot long tunnel running through the east abutment of the dam; construction of the 200-foot high withdrawal intake tower; and building the air shaft, gate chamber, exit channel and plunge pool.

Construction of the Embankment and Spillway

This is the largest and longest construction activity. Construction occurred over 4 1/2 years from April 1993 to September 1997. The work included:

- ✓ Building a cofferdam,
- ✓ Excavating the dam foundation to bedrock up to 100 feet down
- ✓ Grouting the foundation
- ✓ Filling the foundation excavation back to streambed level
- ✓ Excavating for and constructing the spillway
- ✓ Completing the intake tower
- ✓ Building *project* roads to haul embankment materials -avoiding *local* roads
- ✓ Excavating and transporting materials for the embankment (beginning in late 1993), and
- ✓ Constructing the earth and rock fill embankment

The embankment required about 40 million cubic yards of fill. Thirty-five million cubic yards of *pervious* material from two sites: 17 million cubic yards (about 600,000 truckloads) from the dam site itself and 18 million cubic yards (about 700,000 truckloads) from the Santa Ana River streambed immediately below Greenspot Road. Five million cubic yards (about 150,000 truckloads) of *impervious* material from a site located 3 miles southeast of the dam site.

The Santa Ana River Mainstream Flood Control Project

Living in Southern California today, makes it difficult for most of us even to conceive of a flood. The fact is, however, that the Santa Ana River poses the greatest flood threat west of the Mississippi River. In this century there have been 14 medium to large winter floods on the Santa Ana River - the last one in 1980. Flood damages reached millions of dollars in 1938, 1969, and 1978.

Today, without the dam, the most severe flood likely to occur along the river would flood over 110,000 acres to an average depth of 3 feet in Orange, San Bernardino, and Riverside counties - threatening over 3 million people and more than 250,000 structures. Property loss and economic damages could total \$18 billion.

At the request of the governments of the three counties, Congress (in 1964) directed the Corps of Engineers to study the flooding problem and potential solutions, in all, the Corps identified and examined over 60 plans for reducing flood damages.

In 1975 (and later confirmed in 1980), the Corps and the flood control districts of the three counties recommended Congressional approval of a new flood control plan. There was widespread local

government and public support for the project throughout the three counties. In 1986, Congress authorized this project for construction. The total project features, highlighted in the map below, consist of:

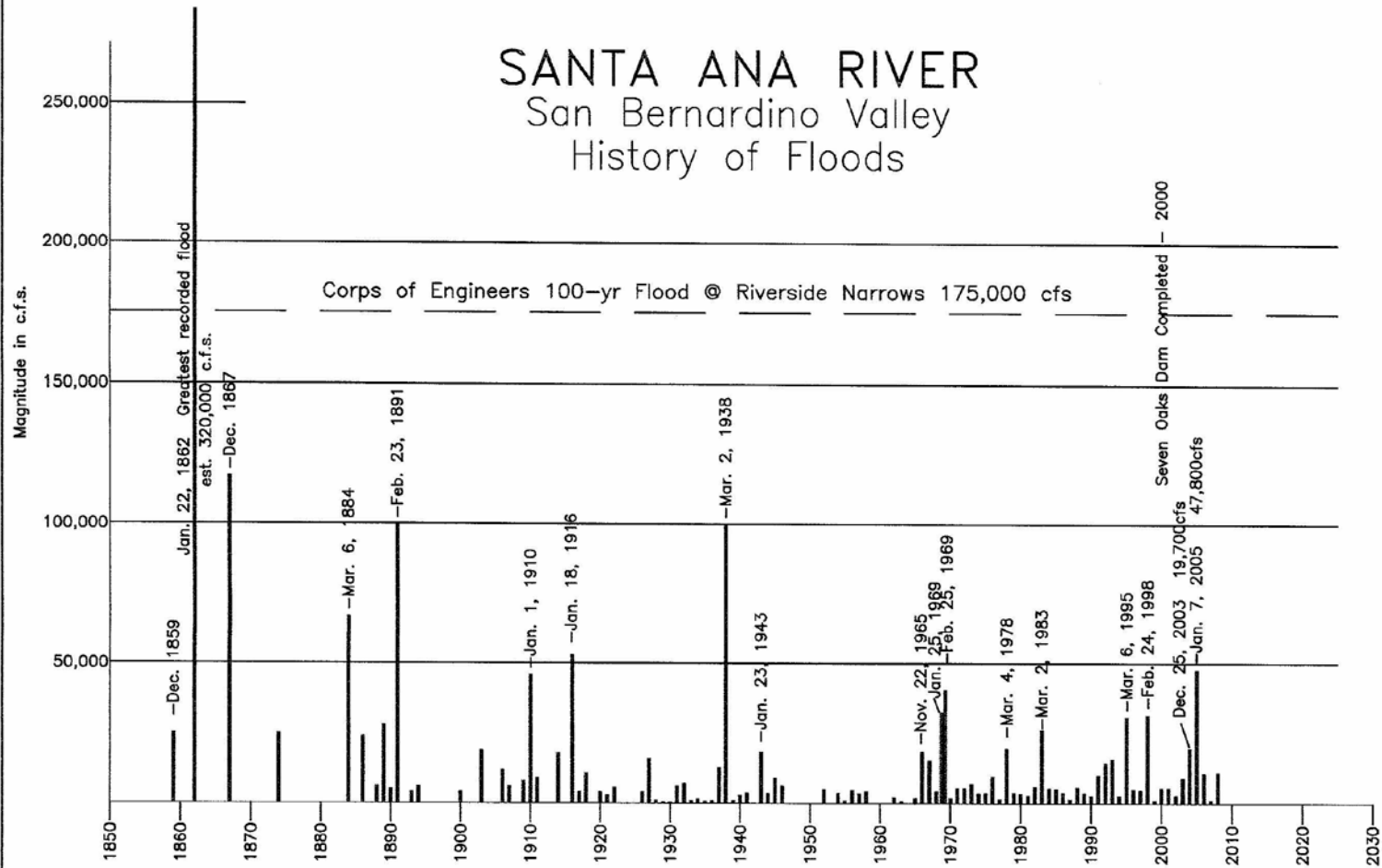
- Building a dam upstream in San Bernardino County (Seven Oaks Dam)
- Managing the flood plain between Seven Oaks Dam and Prado Basin
- Raising Prado Dam and enlarging Prado Reservoir
- Reserving land in Santa Ana Canyon below Prado as open space to provide a natural floodway and a wildlife habitat corridor
- Improving the river channel from Santa Ana Canyon southwest to the Pacific Ocean
- Improving 4 river tributaries in the three counties
- Restoring a salt water marsh at the mouth of the Santa Ana River.

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SANTA ANA RIVER

San Bernardino Valley

History of Floods



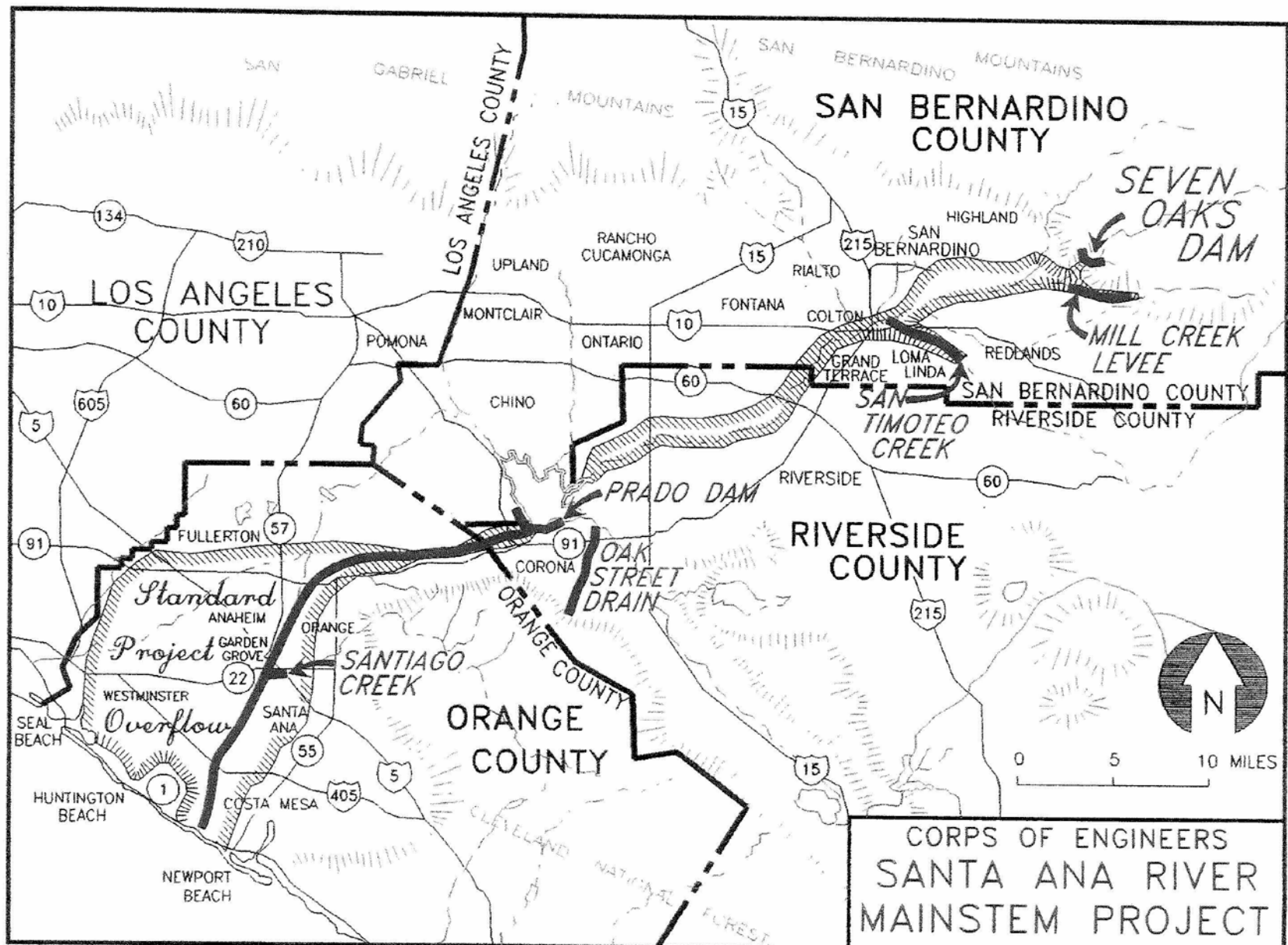
U.S.G.S. Gauge #11066460
 Santa Ana River at MWD Crossing
 near Arlington, California

SAN BERNARDINO COUNTY
 FLOOD CONTROL DISTRICT

SANTA ANA RIVER FLOODS

Discharge near Riverside Narrows

DATE:	SYS. NO:	ACAD FILE:	S.B.C.F.C.D. FILE:
DEC. 2009	3-103	SARFLOOD	BM-D1-11/a



**Seven Oaks Dam
Santa Ana River Basin, California
September 2003**

Pertinent Data

Construction Completed.....	September 1999
Stream System.....	Santa Ana River
Drainage Area	sq. mi. 177
Dam	
Type.....	Earth and Rock Fill
Height above Original Streambed.....	feet..... 550
Crest Length	feet..... 2,760
Design Freeboard	feet..... 5.3
Reservoir	
Elevation	
Streambed	feet, NGVD..... 2,060
Debris Pool	feet, NGVD..... 2,200*
Top of Flood Control.....	feet, NGVD..... 2,580
Top of Spillway	feet, NGVD..... 2,580
Top of Dam.....	feet, NGVD..... 2,610
Area - (Based on year 1999 survey)	
Debris Pool	acres..... 79.2
Top of Flood Control.....	acres..... 801.6
Top of Spillway	acres..... 801.6
Top of Dam.....	acres..... 1,066.8
Capacity - (Based on year 1999 survey)	
Debris Pool	acre-feet..... 3,127.66
Top of Flood Control.....	acre-feet..... 147,969.67
Top of Spillway	acre-feet..... 147,969.67
Top of Dam.....	acre-feet..... 174,609.23
Spillway	
Type.....	Trapezoidal Rockcut w/ Concrete Sill
Total Width	feet..... 500
Outlet Works - Multi-level Intake Structure (MLS)	
Controlled Outlet Gates	
Regulating Outlet (RO) Gate type.....	Vertical Lift
Number and size	2 - 5'W x 8.5'H
Emergency RO Gate type.....	Vertical Lift
Number and size	2 - 5'W x 8.5'H
Low Flow (LF) Gate type.....	Vertical Lift
Number and size	1 - 2'W x 3.5'H
Emergency LF Gate type.....	Vertical Lift
Number and size	1 - 2'W x 3.5'H
Conduits	
Pressure Conduit.....	1 - 7'W x 13.5'H / 18' Diameter
Conduit Length	feet..... 60 / 875
Horseshoe Section	1 - 23'W x 18'H
Conduit Length	feet..... 45
Downstream of RO Gates.....	1 - 24'W x 10'H / 18'W x 9'H
Conduit Length	feet..... 120 / 540
Exit Channel	
Channel Length.....	feet..... 220
High Level Intake Elevation	feet, NGVD..... 2,265
Diversion Intake Elevation.....	feet, NGVD..... 2,100
Outlet Works - Minimum Discharge Line (MDL)	
Controlled Outlet Valves	
Minimum Discharge Line (MDL) Gate type	Cone / Ball Valves
Number and size	1 - 24" Ball Valve
Number and size	1 - 14" Cone Valve
Number and size	1 - 8" Cone Valve
Minimum Discharge Line Extension (MDLE) Gate type.....	Ball Valve
Number and size	1 - 24" Ball Valve
Reservoir Design Flood (General Storm)	
Total Volume (4-day).....	acre-feet..... 115,000
Peak Inflow	ft ³ /s..... 85,000
Peak Outflow	ft ³ /s..... 7,000
Peak Water Surface Elevation.....	feet, NGVD..... 2,580
Probable Maximum Flood (General Storm)	
Total Volume.....	acre-feet..... 326,000
Peak Inflow	ft ³ /s..... 185,000
Peak Outflow	ft ³ /s..... 180,000
Peak Water Surface Elevation.....	feet, NGVD..... 2,604.7

* Debris pool elevation at start of project life. It will be adjusted gradually to elevation 2,300 feet, NGVD as sediment deposition occurs throughout the life of the project.

Seven Oaks Dam, when completed
will stand 550 feet high,
and will span 2700 feet

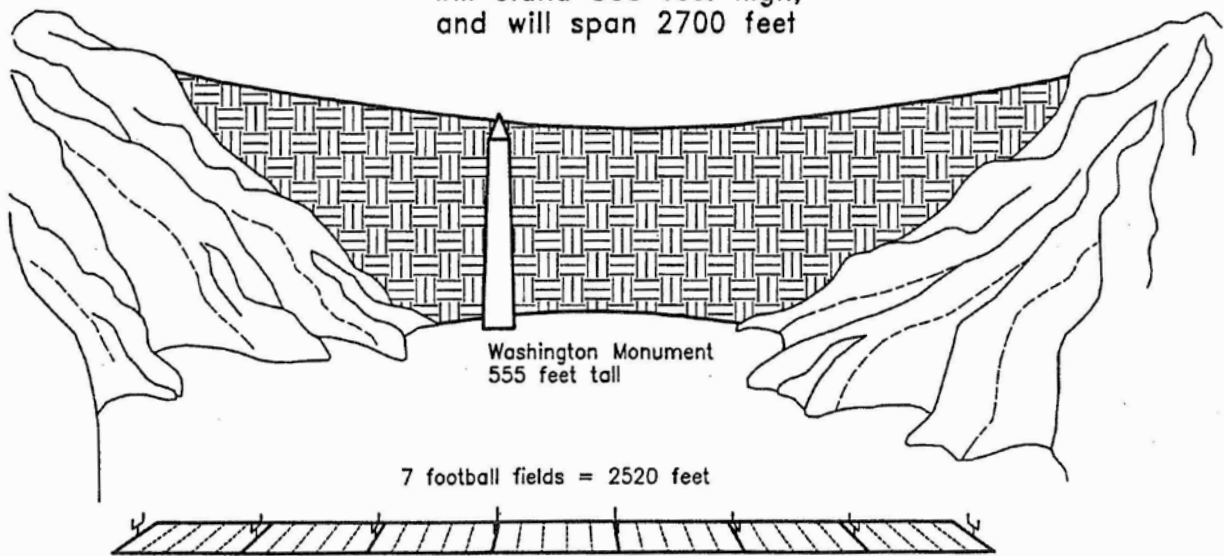


EXHIBIT B. SEVEN OAKS DAM STORAGE CAPACITY TABLE (acre-feet)

Survey Year 1999										
ELEV.	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
2100	0.000	0.000	0.000	0.000	0.001	0.001	0.002	0.003	0.004	0.006
2101	0.008	0.011	0.013	0.017	0.020	0.024	0.028	0.033	0.038	0.044
2102	0.050	0.056	0.062	0.069	0.076	0.083	0.091	0.099	0.107	0.115
2103	0.123	0.132	0.141	0.151	0.161	0.172	0.183	0.194	0.207	0.219
2104	0.232	0.246	0.260	0.274	0.289	0.304	0.320	0.336	0.352	0.369
2105	0.386	0.404	0.422	0.441	0.460	0.481	0.502	0.523	0.545	0.568
2106	0.592	0.616	0.641	0.666	0.691	0.716	0.742	0.769	0.795	0.822
2107	0.850	0.878	0.906	0.935	0.964	0.994	1.025	1.056	1.087	1.119
2108	1.152	1.185	1.220	1.256	1.294	1.332	1.372	1.414	1.457	1.501
2109	1.546	1.594	1.644	1.695	1.749	1.806	1.865	1.926	1.989	2.055
2110	2.124	2.195	2.268	2.343	2.419	2.498	2.579	2.662	2.748	2.835
2111	2.925	3.017	3.112	3.209	3.310	3.413	3.519	3.629	3.741	3.856
2112	3.975	4.096	4.219	4.343	4.470	4.598	4.728	4.861	4.995	5.131
2113	5.269	5.409	5.551	5.695	5.842	5.990	6.140	6.292	6.446	6.603
2114	6.761	6.923	7.086	7.253	7.423	7.596	7.772	7.951	8.133	8.318
2115	8.507	8.699	8.895	9.095	9.299	9.507	9.720	9.937	10.158	10.384
2116	10.616	10.819	10.622	10.628	10.638	10.660	10.693	10.736	10.789	10.852
2117	10.927	11.020	11.124	11.311	11.510	11.717	11.929	12.146	12.368	12.593
2118	12.821	13.054	13.290	13.530	13.773	14.021	14.272	14.527	14.786	15.049
2119	15.316	15.587	15.863	16.142	16.426	16.714	17.006	17.303	17.604	17.909
2120	18.219	18.532	18.851	19.173	19.500	19.832	20.168	20.508	20.853	21.203
2121	21.557	21.917	22.282	22.652	23.027	23.407	23.792	24.182	24.578	24.980
2122	25.389	25.803	26.224	26.650	27.083	27.522	27.968	28.423	28.887	29.360
2123	29.842	30.332	30.832	31.340	31.857	32.383	32.915	33.456	34.005	34.561
2124	35.125	35.698	36.283	36.879	37.485	38.100	38.725	39.360	40.003	40.654
2125	41.313	41.980	42.653	43.332	44.015	44.703	45.396	46.094	46.797	47.505
2126	48.218	48.938	49.663	50.393	51.129	51.870	52.615	53.365	54.119	54.876
2127	55.637	56.402	57.170	57.942	58.717	59.496	60.278	61.063	61.852	62.643
2128	63.439	64.237	65.039	65.844	66.653	67.465	68.280	69.100	69.922	70.749
2129	71.579	72.414	73.253	74.096	74.943	75.794	76.649	77.508	78.371	79.238
2130	80.108	80.981	81.859	82.740	83.625	84.513	85.406	86.303	87.204	88.111
2131	89.024	89.943	90.867	91.797	92.732	93.671	94.616	95.565	96.519	97.478
2132	98.442	99.410	100.382	101.357	102.338	103.322	104.310	105.301	106.297	107.297
2133	108.300	109.308	110.319	111.335	112.356	113.380	114.409	115.442	116.480	117.523
2134	118.570	119.622	120.679	121.740	122.806	123.877	124.954	126.035	127.122	128.213
2135	129.310	130.411	131.518	132.629	133.747	134.869	135.997	137.131	138.269	139.413
2136	140.562	141.716	142.875	144.039	145.209	146.383	147.563	148.748	149.939	151.135
2137	152.337	153.545	154.759	155.979	157.205	158.438	159.678	160.925	162.180	163.442
2138	164.711	165.985	167.266	168.553	169.845	171.144	172.448	173.758	175.075	176.398
2139	177.728	179.065	180.409	181.759	183.116	184.478	185.847	187.222	188.604	189.991
2140	191.385	192.786	194.193	195.607	197.027	198.454	199.888	201.328	202.775	204.229
2141	205.690	207.159	208.635	210.119	211.609	213.106	214.610	216.120	217.636	219.158
2142	220.686	222.220	223.759	225.305	226.858	228.418	229.986	231.560	233.140	234.726
2143	236.319	237.918	239.524	241.135	242.753	244.378	246.009	247.647	249.291	250.941
2144	252.599	254.263	255.934	257.612	259.297	260.989	262.688	264.394	266.108	267.828
2145	269.554	271.287	273.027	274.773	276.526	278.285	280.052	281.825	283.605	285.393
2146	287.188	288.991	290.801	292.618	294.443	296.275	298.116	299.964	301.819	303.682
2147	305.553	307.431	309.316	311.210	313.111	315.021	316.941	318.873	320.817	322.771
2148	324.736	326.713	328.702	330.704	332.719	334.749	336.794	338.854	340.929	343.021
2149	345.129	347.254	349.393	351.544	353.707	355.883	358.071	360.271	362.484	364.708
2150	366.944	369.191	371.452	373.726	376.012	378.310	380.622	382.946	385.284	387.638
2151	390.006	392.391	394.791	397.206	399.639	402.089	404.558	407.047	409.554	412.078

EXHIBIT B. SEVEN OAKS DAM STORAGE CAPACITY TABLE (acre-feet)

Survey Year 1999

ELEV.	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
2152	414.616	417.170	419.736	422.316	424.908	427.515	430.137	432.776	435.432	438.107
2153	440.799	443.509	446.236	448.979	451.738	454.512	457.302	460.107	462.926	465.761
2154	468.610	471.474	474.351	477.241	480.145	483.062	485.993	488.941	491.904	494.885
2155	497.881	500.893	503.921	506.964	510.023	513.099	516.193	519.302	522.426	525.566
2156	528.720	531.888	535.070	538.267	541.477	544.702	547.941	551.195	554.464	557.749
2157	561.049	564.365	567.698	571.050	574.420	577.810	581.217	584.641	588.080	591.536
2158	595.008	598.496	602.002	605.526	609.068	612.631	616.215	619.820	623.447	627.098
2159	630.773	634.471	638.191	641.934	645.694	649.470	653.260	657.067	660.889	664.726
2160	668.577	672.443	676.324	680.221	684.138	688.074	692.029	696.002	699.995	704.009
2161	708.044	712.099	716.177	720.275	724.394	728.536	732.698	736.878	741.076	745.292
2162	748.526	753.779	758.050	762.339	766.645	770.967	775.306	779.662	784.035	788.428
2163	792.838	797.266	801.711	806.171	810.646	815.136	819.639	824.156	828.685	833.228
2164	837.783	842.349	846.925	851.512	856.109	860.717	865.334	869.962	874.599	879.246
2165	883.903	888.569	893.245	897.931	902.627	907.333	912.050	916.777	921.514	926.262
2166	931.020	935.788	940.567	945.357	950.156	954.966	959.785	964.614	969.452	974.300
2167	979.158	984.026	988.905	993.794	998.693	1003.603	1008.524	1013.454	1018.395	1023.347
2168	1028.308	1033.279	1038.260	1043.250	1048.251	1053.263	1058.287	1063.321	1068.367	1073.424
2169	1078.493	1083.572	1088.663	1093.764	1098.875	1103.997	1109.129	1114.272	1119.425	1124.586
2170	1129.757	1134.935	1140.122	1145.317	1150.521	1155.732	1160.952	1166.180	1171.416	1176.660
2171	1181.912	1187.173	1192.443	1197.720	1203.007	1208.302	1213.606	1218.919	1224.242	1229.575
2172	1234.917	1240.270	1245.631	1251.003	1256.384	1261.774	1267.173	1272.581	1277.997	1283.422
2173	1288.855	1294.296	1299.745	1305.202	1310.667	1316.140	1321.621	1327.111	1332.609	1338.115
2174	1343.630	1349.153	1354.686	1360.228	1365.779	1371.340	1376.910	1382.489	1388.078	1393.677
2175	1399.286	1404.908	1410.541	1416.185	1421.847	1427.521	1433.207	1438.907	1444.621	1450.346
2176	1456.082	1461.829	1467.586	1473.354	1479.131	1484.917	1490.713	1496.519	1502.334	1508.159
2177	1513.995	1519.843	1525.705	1531.581	1537.470	1543.370	1549.283	1555.208	1561.143	1567.091
2178	1573.050	1579.022	1585.007	1591.006	1597.019	1603.045	1609.085	1615.139	1621.206	1627.287
2179	1633.382	1639.491	1645.612	1651.746	1657.892	1664.050	1670.220	1676.401	1682.594	1688.800
2180	1695.017	1701.247	1707.490	1713.746	1720.015	1726.298	1732.595	1738.907	1745.233	1751.575
2181	1757.934	1764.308	1770.694	1777.094	1783.504	1789.927	1796.361	1802.806	1809.262	1815.727
2182	1822.200	1828.683	1835.174	1841.674	1848.182	1854.699	1861.224	1867.758	1874.300	1880.850
2183	1887.409	1893.976	1900.551	1907.134	1913.726	1920.327	1926.936	1933.554	1940.180	1946.814
2184	1953.458	1960.107	1966.766	1973.434	1980.110	1986.796	1993.492	2000.196	2006.910	2013.634
2185	2020.368	2027.113	2033.869	2040.634	2047.409	2054.192	2060.984	2067.786	2074.596	2081.415
2186	2088.243	2095.080	2101.927	2108.783	2115.648	2122.523	2129.408	2136.301	2143.204	2150.115
2187	2157.035	2163.963	2170.900	2177.845	2184.800	2191.763	2198.735	2205.715	2212.704	2219.702
2188	2226.709	2233.724	2240.746	2247.781	2254.822	2261.873	2268.932	2275.000	2283.076	2290.162
2189	2297.256	2304.358	2311.469	2318.588	2325.716	2332.853	2339.998	2347.153	2354.317	2361.491
2190	2368.674	2375.866	2383.068	2390.279	2397.499	2404.729	2411.968	2419.218	2426.478	2433.749
2191	2441.031	2448.324	2455.626	2462.943	2470.268	2477.601	2484.943	2492.293	2499.651	2507.018
2192	2514.393	2521.776	2529.167	2536.569	2543.979	2551.397	2558.824	2566.260	2573.703	2581.155
2193	2588.617	2596.087	2603.565	2611.051	2618.546	2626.049	2633.559	2641.076	2648.600	2656.132
2194	2663.671	2671.216	2678.769	2686.328	2693.894	2701.468	2709.048	2716.635	2724.228	2731.829
2195	2739.438	2747.049	2754.669	2762.295	2769.927	2777.564	2785.208	2792.858	2800.514	2808.175
2196	2815.843	2823.517	2831.197	2838.884	2846.578	2854.278	2861.986	2869.699	2877.419	2885.145
2197	2892.877	2900.614	2908.358	2916.107	2923.863	2931.624	2939.391	2947.165	2954.944	2962.730
2198	2970.521	2978.319	2986.122	2993.932	3001.749	3009.571	3017.400	3025.235	3033.077	3040.924
2199	3048.778	3056.638	3064.505	3072.377	3080.256	3088.142	3096.033	3103.931	3111.835	3119.745
2200	3127.662	3135.585	3143.514	3151.450	3159.394	3167.344	3175.301	3183.265	3191.234	3199.210
2201	3207.191	3215.179	3223.173	3231.173	3239.179	3247.192	3255.211	3263.236	3271.268	3279.306
2202	3287.350	3295.401	3303.459	3311.524	3319.596	3327.677	3335.765	3343.862	3351.968	3360.083
2203	3368.208	3376.342	3384.484	3392.635	3400.793	3408.960	3417.133	3425.315	3433.504	3441.701

EXHIBIT B. SEVEN OAKS DAM STORAGE CAPACITY TABLE (acre-feet)

Survey Year 1999

ELEV.	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
2204	3449.906	3458.119	3466.341	3474.571	3482.810	3491.057	3499.313	3507.578	3515.852	3524.134
2205	3532.426	3540.727	3549.038	3557.359	3565.688	3574.026	3582.374	3590.732	3599.100	3607.479
2206	3615.867	3624.285	3632.672	3641.090	3649.519	3657.959	3666.412	3674.876	3683.350	3691.836
2207	3700.332	3708.840	3717.359	3725.890	3734.431	3742.982	3751.543	3760.114	3768.694	3777.285
2208	3785.886	3794.497	3803.117	3811.747	3820.387	3829.037	3837.698	3846.368	3855.048	3863.737
2209	3872.436	3881.146	3889.865	3898.593	3907.332	3916.081	3924.840	3933.609	3942.388	3951.176
2210	3959.977	3968.788	3977.608	3986.439	3995.281	4004.132	4012.994	4021.868	4030.753	4039.650
2211	4048.559	4057.480	4066.414	4075.359	4084.316	4093.289	4102.274	4111.273	4120.286	4129.312
2212	4138.352	4147.405	4156.471	4165.550	4174.643	4183.749	4192.866	4201.997	4211.141	4220.297
2213	4229.465	4238.646	4247.839	4257.044	4266.261	4275.489	4284.729	4293.981	4303.244	4312.519
2214	4321.806	4331.104	4340.413	4349.734	4359.067	4368.413	4377.771	4387.142	4396.526	4405.924
2215	4415.339	4424.769	4434.215	4443.676	4453.151	4462.640	4472.144	4481.662	4491.194	4500.740
2216	4510.301	4519.876	4529.466	4539.071	4548.691	4558.327	4567.977	4577.641	4587.320	4597.011
2217	4606.715	4616.433	4626.162	4635.904	4645.659	4655.426	4665.205	4674.997	4684.802	4694.620
2218	4704.452	4714.298	4724.157	4734.031	4743.918	4753.819	4763.734	4773.662	4783.604	4793.560
2219	4803.528	4813.508	4823.501	4833.508	4843.529	4853.563	4863.611	4873.673	4883.748	4893.836
2220	4903.938	4914.052	4924.178	4934.317	4944.471	4954.640	4964.825	4975.026	4985.243	4995.476
2221	5005.725	5015.991	5026.272	5036.567	5046.875	5057.197	5067.533	5077.882	5088.245	5098.621
2222	5109.010	5119.412	5129.827	5140.254	5150.694	5161.149	5171.609	5182.085	5192.573	5203.073
2223	5213.585	5224.109	5234.644	5245.191	5255.749	5266.319	5276.901	5287.494	5298.097	5308.712
2224	5319.337	5329.974	5340.621	5351.279	5361.948	5372.628	5383.320	5394.024	5404.739	5415.467
2225	5426.207	5436.959	5447.722	5458.497	5469.284	5480.083	5490.893	5501.716	5512.551	5523.399
2226	5534.259	5545.132	5556.016	5566.913	5577.823	5588.746	5599.682	5610.631	5621.594	5632.571
2227	5643.562	5654.568	5665.588	5676.623	5687.673	5698.738	5709.819	5720.916	5732.028	5743.151
2228	5754.290	5765.442	5776.608	5787.788	5798.981	5810.189	5821.413	5832.652	5843.906	5855.181
2229	5866.469	5877.772	5889.091	5900.427	5911.780	5923.150	5934.536	5945.939	5957.358	5968.793
2230	5980.243	5991.708	6003.188	6014.682	6026.191	6037.715	6049.254	6060.808	6072.377	6083.961
2231	6095.560	6107.173	6118.801	6130.442	6142.098	6153.768	6165.453	6177.151	6188.865	6200.594
2232	6212.337	6224.094	6235.867	6247.657	6259.464	6271.292	6283.142	6295.011	6306.900	6318.808
2233	6330.732	6342.679	6354.643	6366.622	6378.617	6390.627	6402.652	6414.692	6426.748	6438.819
2234	6450.906	6463.007	6475.125	6487.258	6499.407	6511.573	6523.757	6535.959	6548.179	6560.417
2235	6572.673	6584.947	6597.239	6609.551	6621.881	6634.230	6646.599	6658.989	6671.399	6683.828
2236	6696.278	6708.750	6721.244	6733.762	6746.303	6758.865	6771.450	6784.057	6796.687	6809.340
2237	6822.016	6834.714	6847.434	6860.174	6872.933	6885.712	6898.510	6911.326	6924.160	6937.013
2238	6949.884	6962.773	6975.681	6988.609	7001.555	7014.521	7027.505	7040.507	7053.528	7066.567
2239	7079.626	7092.704	7105.800	7118.915	7132.049	7145.201	7158.371	7171.559	7184.764	7197.988
2240	7211.229	7224.488	7237.764	7251.057	7264.366	7277.692	7291.034	7304.391	7317.764	7331.152
2241	7344.557	7357.977	7371.413	7384.866	7398.336	7411.823	7425.327	7438.848	7452.386	7465.939
2242	7479.509	7493.095	7506.697	7520.315	7533.949	7547.598	7561.263	7574.945	7588.644	7602.360
2243	7616.092	7629.840	7643.604	7657.383	7671.178	7684.988	7698.812	7712.650	7726.503	7740.368
2244	7754.246	7768.137	7782.041	7795.957	7809.887	7823.830	7837.785	7851.753	7865.734	7879.727
2245	7893.734	7907.754	7921.788	7935.835	7949.895	7963.969	7978.056	7992.155	8006.268	8020.393
2246	8034.531	8048.682	8062.846	8077.022	8091.210	8105.411	8119.624	8133.850	8148.088	8162.338
2247	8176.601	8190.879	8205.170	8219.474	8233.792	8248.123	8262.466	8276.822	8291.190	8305.570
2248	8319.963	8334.369	8348.788	8363.215	8377.657	8392.112	8406.579	8421.059	8435.553	8450.060
2249	8464.581	8479.115	8493.662	8508.222	8522.795	8537.382	8551.982	8566.595	8581.221	8595.860
2250	8610.512	8625.177	8639.855	8654.546	8669.250	8683.968	8698.698	8713.440	8728.197	8742.967
2251	8757.750	8772.546	8787.355	8802.178	8817.013	8831.861	8846.720	8861.591	8876.474	8891.368
2252	8906.274	8921.191	8936.119	8951.059	8966.011	8980.973	8995.947	9010.933	9025.931	9040.940
2253	9055.960	9070.992	9086.036	9101.092	9116.160	9131.239	9146.331	9161.434	9176.549	9191.675
2254	9206.814	9221.964	9237.127	9252.302	9267.489	9282.689	9297.901	9313.125	9328.361	9343.609
2255	9358.869	9374.140	9389.424	9404.719	9420.027	9435.346	9450.677	9466.020	9481.374	9496.740

EXHIBIT B. SEVEN OAKS DAM STORAGE CAPACITY TABLE (acre-feet)

Survey Year 1999

ELEV.	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
2256	9512.117	9527.506	9542.906	9558.318	9573.742	9589.177	9604.625	9620.084	9635.554	9651.036
2257	9666.530	9682.035	9697.550	9713.077	9728.615	9744.164	9759.724	9775.295	9790.878	9806.471
2258	9822.076	9837.693	9853.322	9868.963	9884.616	9900.280	9915.955	9931.642	9947.341	9963.051
2259	9978.774	9994.508	10010.255	10026.015	10041.787	10057.571	10073.368	10089.178	10105.000	10120.835
2260	10136.680	10152.538	10168.408	10184.289	10200.182	10216.088	10232.006	10247.936	10263.879	10279.835
2261	10295.802	10311.782	10327.774	10343.777	10359.792	10375.819	10391.857	10407.908	10423.970	10440.044
2262	10456.129	10472.226	10488.334	10504.454	10520.585	10536.728	10552.882	10569.047	10585.223	10601.410
2263	10617.609	10633.818	10650.039	10666.271	10682.514	10698.769	10715.034	10731.311	10747.599	10763.899
2264	10780.209	10796.531	10812.864	10829.207	10845.561	10861.925	10878.300	10894.686	10911.082	10927.489
2265	10943.908	10960.337	10976.777	10993.228	11009.690	11026.162	11042.646	11059.141	11075.647	11092.163
2266	11108.691	11125.230	11141.780	11158.342	11174.914	11191.498	11208.093	11224.699	11241.317	11257.947
2267	11274.588	11291.240	11307.903	11324.577	11341.262	11357.959	11374.667	11391.385	11408.116	11424.857
2268	11441.609	11458.373	11475.147	11491.932	11508.729	11525.536	11542.355	11559.185	11576.026	11592.879
2269	11609.744	11626.620	11643.507	11660.406	11677.316	11694.239	11711.174	11728.121	11745.080	11762.052
2270	11779.035	11796.030	11813.036	11830.055	11847.086	11864.129	11881.186	11898.254	11915.336	11932.430
2271	11949.537	11966.658	11983.792	12000.938	12018.098	12035.270	12052.455	12069.651	12086.860	12104.080
2272	12121.313	12138.558	12155.814	12173.082	12190.362	12207.654	12224.958	12242.275	12259.603	12276.943
2273	12294.295	12311.659	12329.039	12346.424	12363.825	12381.241	12398.669	12416.110	12433.563	12451.029
2274	12468.507	12485.997	12503.499	12521.012	12538.538	12556.075	12573.623	12591.183	12608.755	12626.339
2275	12643.934	12661.540	12679.159	12696.789	12714.430	12732.083	12749.748	12767.424	12785.113	12802.814
2276	12820.528	12838.255	12855.995	12873.747	12891.512	12909.289	12927.079	12944.882	12962.696	12980.523
2277	12998.363	13016.215	13034.080	13051.957	13069.847	13087.750	13105.666	13123.596	13141.538	13159.494
2278	13177.462	13195.443	13213.436	13231.442	13249.460	13267.491	13285.534	13303.590	13321.657	13339.736
2279	13357.828	13375.931	13394.047	13412.174	13430.315	13448.467	13466.632	13484.810	13503.001	13521.205
2280	13539.423	13557.655	13575.903	13594.165	13612.441	13630.732	13649.037	13667.357	13685.691	13704.039
2281	13722.401	13740.778	13759.169	13777.575	13795.995	13814.430	13832.879	13851.343	13869.822	13888.317
2282	13908.825	13927.348	13945.886	13964.438	13983.004	13999.585	14018.180	14036.788	14055.411	14074.047
2283	14092.698	14111.362	14130.039	14148.729	14167.432	14186.148	14204.876	14223.618	14242.373	14261.140
2284	14279.921	14298.714	14317.520	14336.338	14355.170	14374.013	14392.870	14411.739	14430.621	14449.516
2285	14468.423	14487.342	14506.274	14525.219	14544.177	14563.147	14582.131	14601.126	14620.134	14639.155
2286	14658.188	14677.233	14696.292	14715.363	14734.447	14753.543	14772.652	14791.773	14810.907	14830.053
2287	14849.211	14868.382	14887.566	14906.763	14925.972	14945.195	14964.430	14983.679	15002.940	15022.215
2288	15041.502	15060.803	15080.116	15099.443	15118.782	15138.135	15157.500	15176.878	15196.269	15215.673
2289	15235.090	15254.519	15273.962	15293.417	15312.885	15332.366	15351.860	15371.367	15390.887	15410.420
2290	15429.967	15449.527	15469.100	15488.687	15508.287	15527.900	15547.527	15567.168	15586.822	15606.490
2291	15626.171	15645.866	15665.575	15685.297	15705.032	15724.781	15744.543	15764.320	15784.110	15803.912
2292	15823.729	15843.558	15863.400	15883.255	15903.124	15923.007	15942.904	15962.815	15982.740	16002.679
2293	16022.631	16042.598	16062.578	16082.571	16102.578	16122.598	16142.631	16162.676	16182.734	16202.806
2294	16222.891	16242.990	16263.103	16283.230	16303.370	16323.524	16343.690	16363.869	16384.061	16404.266
2295	16424.484	16444.714	16464.957	16485.213	16505.482	16525.765	16546.061	16566.370	16586.692	16607.028
2296	16627.378	16647.738	16668.113	16688.501	16708.903	16729.318	16749.746	16770.188	16790.643	16811.112
2297	16831.594	16852.091	16872.602	16893.127	16913.667	16934.221	16954.789	16975.370	16995.965	17016.573
2298	17037.194	17057.828	17078.474	17099.134	17119.806	17140.491	17161.188	17181.899	17202.622	17223.358
2299	17244.107	17264.870	17285.645	17306.434	17327.236	17348.050	17368.878	17389.719	17410.573	17431.441
2300	17452.321	17473.215	17494.123	17515.046	17535.982	17556.931	17577.893	17598.868	17619.857	17640.858
2301	17661.873	17682.901	17703.943	17724.997	17746.066	17767.147	17788.242	17809.350	17830.471	17851.605
2302	17872.752	17893.912	17915.085	17936.271	17957.470	17978.683	17999.909	18021.149	18042.404	18063.675
2303	18084.961	18106.264	18127.582	18148.915	18170.264	18191.629	18213.010	18234.406	18255.817	18277.243
2304	18296.683	18320.138	18341.608	18363.092	18384.590	18406.105	18427.634	18449.179	18470.738	18492.313
2305	18513.902	18535.507	18557.126	18578.760	18600.409	18622.072	18643.750	18665.443	18687.150	18708.871
2306	18730.607	18752.356	18774.119	18795.896	18817.686	18839.490	18861.306	18883.137	18904.981	18926.839
2307	18948.710	18970.596	18992.496	19014.410	19036.339	19058.283	19080.243	19102.217	19124.207	19146.213

EXHIBIT B. SEVEN OAKS DAM STORAGE CAPACITY TABLE (acre-feet)

Survey Year 1999

ELEV.	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
2308	19168.233	19190.267	19212.316	19234.379	19256.456	19278.548	19300.654	19322.774	19344.908	19367.056
2309	19389.218	19411.395	19433.585	19455.789	19478.007	19500.241	19522.490	19544.755	19567.035	19589.330
2310	19611.639	19633.963	19656.301	19678.654	19701.020	19723.401	19745.796	19768.206	19790.631	19813.070
2311	19835.524	19857.993	19880.477	19902.974	19925.487	19948.013	19970.554	19993.110	20015.680	20038.264
2312	20060.863	20083.477	20106.105	20128.748	20151.406	20174.079	20196.767	20219.470	20242.188	20264.922
2313	20287.671	20310.435	20333.215	20356.011	20378.822	20401.649	20424.492	20447.351	20470.226	20493.116
2314	20516.020	20538.939	20561.872	20584.820	20607.781	20630.757	20653.748	20676.753	20699.772	20722.807
2315	20745.857	20768.924	20792.006	20815.105	20838.220	20861.350	20884.497	20907.660	20930.838	20954.033
2316	20977.243	21000.469	21023.710	21046.967	21070.240	21093.528	21116.831	21140.150	21163.483	21186.830
2317	21210.192	21233.568	21256.959	21280.366	21303.787	21327.224	21350.674	21374.139	21397.617	21421.109
2318	21444.615	21468.134	21491.668	21515.216	21538.778	21562.354	21585.945	21609.550	21633.169	21656.803
2319	21680.453	21704.117	21727.796	21751.490	21775.198	21798.920	21822.657	21846.408	21870.173	21893.953
2320	21917.748	21941.558	21965.383	21989.223	22013.077	22036.946	22060.829	22084.728	22108.638	22132.565
2321	22156.506	22180.461	22204.432	22228.416	22252.414	22276.427	22300.454	22324.495	22348.551	22372.621
2322	22396.706	22420.805	22444.918	22469.045	22493.186	22517.342	22541.511	22565.695	22589.893	22614.106
2323	22638.333	22662.574	22686.830	22711.099	22735.382	22759.679	22783.990	22808.315	22832.654	22857.008
2324	22881.377	22905.760	22930.157	22954.569	22978.994	23003.434	23027.889	23052.358	23076.841	23101.338
2325	23125.851	23150.378	23174.919	23199.474	23224.044	23248.627	23273.223	23297.834	23322.459	23347.099
2326	23371.751	23396.419	23421.101	23445.797	23470.508	23495.233	23519.973	23544.726	23569.494	23594.277
2327	23619.074	23643.885	23668.710	23693.549	23718.402	23743.270	23768.152	23793.048	23817.958	23842.882
2328	23867.819	23892.771	23917.736	23942.714	23967.706	23992.712	24017.732	24042.764	24067.810	24092.869
2329	24117.942	24143.028	24168.127	24193.240	24218.366	24243.507	24268.662	24293.832	24319.015	24344.213
2330	24369.424	24394.649	24419.887	24445.138	24470.403	24495.682	24520.973	24546.278	24571.597	24596.928
2331	24622.274	24647.634	24673.008	24698.397	24723.800	24749.219	24774.652	24800.102	24825.566	24851.044
2332	24876.536	24902.042	24927.561	24953.093	24978.639	25004.199	25029.772	25055.358	25080.958	25106.571
2333	25132.196	25157.835	25183.486	25209.150	25234.827	25260.516	25286.217	25311.931	25337.658	25363.398
2334	25389.150	25414.915	25440.694	25466.485	25492.289	25518.106	25543.937	25569.780	25595.637	25621.507
2335	25647.390	25673.287	25699.196	25725.118	25751.054	25777.003	25802.965	25828.940	25854.928	25880.929
2336	25906.942	25932.969	25959.007	25985.056	26011.122	26037.199	26063.288	26089.389	26115.504	26141.631
2337	26167.771	26193.924	26220.089	26246.268	26272.460	26298.665	26324.884	26351.117	26377.362	26403.621
2338	26429.893	26456.179	26482.478	26508.790	26535.115	26561.453	26587.804	26614.169	26640.546	26666.937
2339	26693.340	26719.757	26746.187	26772.630	26799.086	26825.555	26852.037	26878.532	26905.040	26931.563
2340	26958.099	26984.850	27011.614	27038.393	27065.186	27091.993	27118.814	27145.649	27172.499	27199.362
2341	27224.238	27250.927	27277.630	27304.346	27331.076	27357.819	27384.574	27411.343	27438.125	27464.921
2342	27491.730	27518.552	27545.387	27572.235	27599.096	27625.969	27652.855	27679.754	27706.666	27733.590
2343	27760.528	27787.479	27814.443	27841.420	27868.410	27895.412	27922.428	27949.456	27976.497	28003.552
2344	28030.620	28057.701	28084.795	28111.904	28139.025	28166.161	28193.310	28220.473	28247.649	28274.839
2345	28302.043	28329.260	28356.491	28383.735	28410.994	28438.266	28465.552	28492.853	28520.167	28547.494
2346	28574.835	28602.190	28629.558	28656.939	28684.335	28711.744	28739.167	28766.605	28794.057	28821.523
2347	28849.003	28876.496	28904.004	28931.526	28959.061	28986.610	29014.173	29041.750	29069.340	29096.943
2348	29124.560	29152.189	29179.832	29207.488	29235.158	29262.840	29290.535	29318.244	29345.965	29373.700
2349	29401.449	29429.211	29456.987	29484.776	29512.579	29540.395	29568.226	29596.071	29623.930	29651.803
2350	29679.690	29707.592	29735.508	29763.439	29791.384	29819.344	29847.319	29875.308	29903.311	29931.329
2351	29959.360	29987.406	30015.465	30043.539	30071.626	30099.728	30127.843	30155.973	30184.117	30212.275
2352	30240.447	30268.633	30296.832	30325.046	30353.275	30381.517	30409.774	30438.046	30466.332	30494.632
2353	30522.946	30551.274	30579.617	30607.974	30636.346	30664.731	30693.131	30721.545	30749.972	30778.414
2354	30806.869	30835.339	30863.822	30892.319	30920.831	30949.356	30977.896	31006.451	31035.021	31063.607
2355	31092.207	31120.822	31149.453	31178.098	31206.759	31235.435	31264.125	31292.831	31321.552	31350.289
2356	31379.042	31407.810	31436.593	31465.392	31494.205	31523.034	31551.877	31580.736	31609.609	31638.496
2357	31667.398	31696.315	31725.248	31754.194	31783.155	31812.131	31841.120	31870.123	31899.141	31928.173
2358	31957.218	31986.279	32015.353	32044.441	32073.544	32102.662	32131.794	32160.940	32190.102	32219.279
2359	32248.472	32277.680	32306.905	32336.147	32365.404	32394.679	32423.969	32453.276	32482.598	32511.937

EXHIBIT B. SEVEN OAKS DAM STORAGE CAPACITY TABLE (acre-feet)

Survey Year 1999

ELEV.	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
2360	32541.291	32570.660	32600.046	32629.447	32658.864	32688.296	32717.744	32747.209	32776.691	32806.189
2361	32835.702	32865.231	32894.776	32924.335	32953.910	32983.501	33013.108	33042.730	33072.369	33102.023
2362	33131.694	33161.381	33191.083	33220.802	33250.537	33280.288	33310.054	33339.837	33369.636	33399.451
2363	33429.282	33459.128	33488.990	33518.868	33548.762	33578.673	33608.599	33638.542	33668.501	33698.477
2364	33728.470	33758.480	33788.507	33818.550	33848.610	33878.687	33908.781	33938.891	33969.018	33999.161
2365	34029.321	34059.497	34089.689	34119.897	34150.121	34180.360	34210.615	34240.886	34271.171	34301.471
2366	34331.787	34362.117	34392.462	34422.822	34453.198	34483.589	34513.996	34544.418	34574.856	34605.309
2367	34635.778	34666.262	34696.763	34727.281	34757.815	34788.366	34818.935	34849.521	34880.123	34910.743
2368	34941.379	34972.032	35002.701	35033.388	35064.092	35094.812	35125.550	35156.306	35187.082	35217.877
2369	35248.691	35279.525	35310.380	35341.256	35372.153	35403.070	35434.006	35464.963	35495.940	35526.937
2370	35557.955	35588.992	35620.048	35651.123	35682.217	35713.329	35744.459	35775.608	35806.776	35837.963
2371	35869.169	35900.395	35931.640	35962.905	35994.188	36025.490	36056.810	36088.149	36119.507	36150.883
2372	36182.278	36213.690	36245.122	36276.572	36308.040	36339.526	36371.032	36402.555	36434.096	36465.653
2373	36497.231	36528.824	36560.434	36592.061	36623.705	36655.366	36687.043	36718.737	36750.447	36782.175
2374	36813.916	36845.675	36877.451	36909.244	36941.054	36972.880	37004.723	37036.583	37068.459	37100.351
2375	37132.260	37164.185	37196.128	37228.087	37260.063	37292.056	37324.066	37356.091	37388.133	37420.191
2376	37452.265	37484.355	37516.461	37548.584	37580.723	37612.879	37645.051	37677.240	37709.444	37741.665
2377	37773.901	37806.153	37838.421	37870.705	37903.005	37935.321	37967.653	38000.002	38032.366	38064.746
2378	38097.143	38129.555	38161.983	38194.427	38226.888	38259.364	38291.857	38324.367	38356.893	38389.436
2379	38421.995	38454.571	38487.164	38519.773	38552.399	38585.040	38617.698	38650.372	38683.062	38715.767
2380	38748.488	38781.226	38813.979	38846.750	38879.536	38912.340	38945.161	38977.999	39010.854	39043.725
2381	39076.613	39109.518	39142.440	39175.378	39208.333	39241.303	39274.290	39307.293	39340.312	39373.347
2382	39406.399	39439.468	39472.553	39505.654	39538.773	39571.909	39605.064	39638.238	39671.426	39704.634
2383	39737.859	39771.101	39804.361	39837.638	39870.934	39904.246	39937.576	39970.922	40004.284	40037.662
2384	40071.057	40104.467	40137.894	40171.336	40204.795	40238.271	40271.763	40305.272	40338.797	40372.339
2385	40405.897	40439.470	40473.059	40506.664	40540.284	40573.921	40607.574	40641.244	40674.930	40708.632
2386	40742.352	40776.087	40809.839	40843.608	40877.393	40911.194	40945.011	40978.844	41012.694	41046.559
2387	41080.441	41114.338	41148.252	41182.183	41216.129	41250.093	41284.072	41318.066	41352.081	41386.111
2388	41420.157	41454.219	41488.298	41522.395	41556.508	41590.638	41624.786	41658.952	41693.136	41727.336
2389	41761.554	41795.790	41830.042	41864.312	41898.598	41932.903	41967.225	42001.564	42035.922	42070.297
2390	42104.690	42139.101	42173.530	42207.978	42242.444	42276.929	42311.432	42345.954	42380.494	42415.052
2391	42449.629	42484.225	42518.840	42553.474	42588.127	42622.798	42657.489	42692.199	42726.928	42761.676
2392	42796.442	42831.226	42866.030	42900.853	42935.696	42970.558	43005.439	43040.340	43075.261	43110.201
2393	43145.161	43180.141	43215.141	43250.162	43285.202	43320.262	43355.341	43390.441	43425.560	43460.698
2394	43495.855	43531.031	43566.226	43601.441	43636.674	43671.927	43707.200	43742.491	43777.802	43813.132
2395	43848.481	43883.848	43919.235	43954.641	43990.067	44025.512	44060.978	44096.464	44131.971	44167.499
2396	44203.049	44238.620	44274.213	44309.828	44345.467	44381.128	44416.812	44452.518	44488.248	44524.000
2397	44559.776	44595.574	44631.394	44667.236	44703.100	44738.987	44774.896	44810.828	44846.784	44882.762
2398	44918.763	44954.785	44990.829	45026.894	45062.980	45099.088	45135.217	45171.368	45207.541	45243.736
2399	45279.952	45316.191	45352.452	45388.734	45425.040	45461.369	45497.722	45534.098	45570.497	45606.919
2400	45643.361	45679.824	45716.307	45752.810	45789.334	45825.879	45862.444	45899.029	45935.635	45972.261
2401	46008.907	46045.574	46082.261	46118.969	46155.697	46192.446	46229.215	46266.006	46302.817	46339.650
2402	46376.503	46413.376	46450.271	46487.187	46524.124	46561.082	46598.062	46635.064	46672.088	46709.134
2403	46746.203	46783.293	46820.404	46857.538	46894.694	46931.871	46969.070	47006.291	47043.534	47080.797
2404	47118.082	47155.387	47192.714	47230.063	47267.433	47304.824	47342.237	47379.671	47417.128	47454.606
2405	47492.107	47529.832	47567.181	47604.753	47642.348	47679.966	47717.606	47755.269	47792.952	47830.658
2406	47868.384	47906.131	47943.900	47981.690	48019.501	48057.334	48095.188	48133.065	48170.963	48208.881
2407	48246.821	48284.781	48322.763	48360.765	48398.789	48436.833	48474.899	48512.987	48551.096	48589.226
2408	48627.377	48665.549	48703.741	48741.954	48780.189	48818.446	48856.723	48895.022	48933.342	48971.683
2409	49010.047	49048.432	49086.838	49125.267	49163.717	49202.189	49240.682	49279.197	49317.734	49356.293
2410	49394.873	49433.475	49472.099	49510.747	49549.419	49588.114	49626.833	49665.573	49704.335	49743.118
2411	49781.923	49820.748	49859.595	49898.462	49937.351	49976.261	50015.192	50054.146	50093.121	50132.119

EXHIBIT B. SEVEN OAKS DAM STORAGE CAPACITY TABLE (acre-feet)

Survey Year 1999

ELEV.	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
2412	50171.137	50210.177	50249.239	50288.323	50327.429	50366.558	50405.710	50444.884	50484.081	50523.300
2413	50562.541	50601.804	50641.089	50680.397	50719.728	50759.081	50798.457	50837.856	50877.278	50916.722
2414	50956.189	50995.679	51035.191	51074.727	51114.285	51153.866	51193.471	51233.098	51272.748	51312.420
2415	51352.114	51391.831	51431.569	51471.330	51511.114	51550.920	51590.750	51630.602	51670.478	51710.376
2416	51750.297	51790.241	51830.207	51870.195	51910.207	51950.241	51990.298	52030.378	52070.481	52110.605
2417	52150.752	52190.920	52231.111	52271.324	52311.560	52351.819	52392.101	52432.407	52472.735	52513.087
2418	52553.462	52593.860	52634.280	52674.723	52715.189	52755.678	52796.191	52836.726	52877.283	52917.862
2419	52958.462	52999.084	53039.726	53080.389	53121.073	53161.778	53202.503	53243.249	53284.015	53324.802
2420	53365.610	53406.438	53447.287	53488.156	53529.045	53569.955	53610.886	53651.837	53692.809	53733.801
2421	53774.819	53815.850	53856.907	53897.987	53939.090	53980.216	54021.365	54062.538	54103.735	54144.956
2422	54186.199	54227.464	54268.751	54310.061	54351.392	54392.746	54434.122	54475.521	54516.942	54558.386
2423	54599.852	54641.342	54682.855	54724.392	54765.953	54807.538	54849.148	54890.783	54932.443	54974.128
2424	55015.837	55057.571	55099.329	55141.113	55182.922	55224.756	55266.614	55308.497	55350.405	55392.338
2425	55434.297	55476.282	55518.294	55560.331	55602.394	55644.483	55686.598	55728.739	55770.906	55813.101
2426	55855.321	55897.566	55939.836	55982.132	56024.452	56066.799	56109.168	56151.562	56193.982	56236.427
2427	56278.898	56321.395	56363.917	56406.463	56449.034	56491.628	56534.245	56576.885	56619.547	56662.232
2428	56704.840	56747.672	56790.428	56833.204	56876.005	56918.829	56961.676	57004.548	57047.443	57090.361
2429	57133.302	57176.265	57219.251	57262.259	57305.290	57348.342	57391.417	57434.513	57477.632	57520.773
2430	57563.938	57607.121	57650.328	57693.556	57736.807	57780.080	57823.374	57866.691	57910.030	57953.391
2431	57996.775	58040.182	58083.610	58127.061	58170.533	58214.028	58257.545	58301.085	58344.647	58388.233
2432	58431.841	58475.471	58519.125	58562.801	58606.500	58650.221	58693.963	58737.728	58781.514	58825.321
2433	58869.151	58913.002	58956.877	59000.774	59044.693	59088.635	59132.598	59176.585	59220.593	59264.622
2434	59308.672	59352.743	59396.836	59440.949	59485.083	59529.237	59573.413	59617.609	59661.827	59706.067
2435	59750.328	59794.610	59838.914	59883.239	59927.585	59971.953	60016.342	60060.753	60105.185	60149.639
2436	60194.114	60238.510	60283.127	60327.655	60372.225	60416.807	60461.411	60506.037	60550.685	60595.354
2437	60640.044	60684.756	60729.489	60774.243	60819.022	60863.824	60908.648	60953.494	60998.363	61043.254
2438	61088.165	61133.098	61178.052	61223.026	61268.022	61313.038	61358.074	61403.132	61448.210	61493.310
2439	61538.429	61583.570	61628.731	61673.914	61719.117	61764.340	61809.583	61854.847	61900.131	61945.435
2440	61990.760	62036.105	62081.470	62126.855	62172.261	62217.688	62263.136	62308.605	62354.094	62399.604
2441	62445.138	62490.689	62536.263	62581.858	62627.475	62673.113	62718.772	62764.452	62810.153	62855.876
2442	62901.620	62947.386	62993.174	63038.983	63084.814	63130.666	63176.541	63222.437	63268.355	63314.293
2443	63360.252	63406.232	63452.232	63498.252	63544.293	63590.353	63636.434	63682.535	63728.657	63774.799
2444	63820.963	63867.148	63913.354	63959.581	64005.829	64052.099	64098.390	64144.702	64191.036	64237.393
2445	64283.772	64330.173	64376.597	64423.044	64469.513	64516.004	64562.519	64609.056	64655.617	64702.201
2446	64748.809	64795.441	64842.096	64888.775	64935.476	64982.199	65028.944	65075.712	65122.501	65169.311
2447	65216.144	65263.000	65309.879	65356.781	65403.708	65450.659	65497.633	65544.631	65591.650	65638.693
2448	65685.758	65732.846	65779.957	65827.090	65874.246	65921.425	65968.627	66015.851	66063.098	66110.367
2449	66157.859	66204.974	66252.312	66299.673	66347.057	66394.464	66441.893	66489.346	66536.821	66584.318
2450	66631.838	66679.380	66726.945	66774.532	66822.143	66869.779	66917.439	66965.123	67012.830	67060.561
2451	67108.317	67156.096	67203.899	67251.727	67299.579	67347.455	67395.356	67443.283	67491.236	67539.219
2452	67587.221	67635.253	67683.310	67731.394	67779.503	67827.637	67875.797	67923.982	67972.191	68020.425
2453	68068.684	68116.967	68165.275	68213.609	68261.968	68310.353	68358.766	68407.205	68455.670	68504.161
2454	68552.677	68601.218	68649.783	68698.373	68746.986	68795.624	68844.287	68892.975	68941.690	68990.430
2455	69039.195	69087.987	69136.806	69185.651	69234.521	69283.416	69332.337	69381.283	69430.255	69479.255
2456	69528.281	69577.333	69626.409	69675.511	69724.638	69773.791	69822.967	69872.166	69921.388	69970.633
2457	70019.902	70069.195	70118.512	70167.853	70217.217	70266.604	70316.015	70365.449	70414.906	70464.385
2458	70513.888	70563.413	70612.960	70662.532	70712.127	70761.745	70811.386	70861.049	70910.734	70960.442
2459	71010.171	71059.923	71109.696	71159.491	71209.307	71259.146	71309.006	71358.889	71408.794	71458.721
2460	71508.671	71558.642	71608.633	71658.646	71708.679	71758.734	71808.810	71858.908	71909.027	71959.167
2461	72009.329	72059.512	72109.718	72159.945	72210.193	72260.464	72310.757	72361.072	72411.409	72461.769
2462	72512.150	72562.553	72612.978	72663.425	72713.893	72764.382	72814.893	72865.425	72915.979	72966.553
2463	73017.148	73067.763	73118.399	73169.056	73219.734	73270.432	73321.151	73371.891	73422.652	73473.434

EXHIBIT B. SEVEN OAKS DAM STORAGE CAPACITY TABLE (acre-feet)

Survey Year 1999

ELEV.	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
2464	73524.237	73575.061	73625.907	73676.773	73727.662	73778.573	73829.506	73880.460	73931.437	73982.436
2465	74033.457	74084.501	74135.566	74186.653	74237.762	74288.892	74340.044	74391.217	74442.411	74493.626
2466	74544.861	74596.117	74647.394	74698.691	74750.009	74801.348	74852.708	74904.088	74955.489	75006.910
2467	75058.353	75109.816	75161.301	75212.807	75264.334	75315.883	75367.452	75419.043	75470.655	75522.288
2468	75573.942	75625.518	75677.314	75729.032	75780.770	75832.530	75884.311	75936.113	75987.937	76039.783
2469	76091.651	76143.542	76195.454	76247.389	76299.344	76351.321	76403.319	76455.338	76507.379	76559.441
2470	76611.524	76663.529	76715.566	76767.904	76820.075	76872.268	76924.482	76976.717	77028.974	77081.253
2471	77133.553	77185.874	77238.217	77290.580	77342.964	77395.369	77447.795	77500.242	77552.710	77605.198
2472	77657.708	77710.238	77762.788	77815.360	77867.951	77920.564	77973.197	78025.850	78078.525	78131.220
2473	78183.937	78236.674	78289.432	78342.212	78395.012	78447.833	78500.674	78553.536	78606.418	78659.320
2474	78712.244	78765.188	78818.153	78871.138	78924.144	78977.170	79030.217	79083.285	79136.373	79189.482
2475	79242.612	79295.763	79348.934	79402.127	79455.341	79508.575	79561.830	79615.105	79668.401	79721.717
2476	79775.054	79828.411	79881.789	79935.187	79988.606	80042.046	80095.507	80148.989	80202.491	80256.015
2477	80309.559	80363.124	80416.709	80470.315	80523.943	80577.592	80631.261	80684.952	80738.664	80792.398
2478	80846.153	80899.929	80953.726	81007.544	81061.383	81115.243	81169.124	81223.027	81276.952	81330.898
2479	81384.866	81438.857	81492.869	81546.904	81600.961	81655.042	81709.144	81763.269	81817.416	81871.586
2480	81925.777	81979.991	82034.228	82088.486	82142.768	82197.071	82251.397	82305.744	82360.114	82414.505
2481	82468.918	82523.353	82577.810	82632.289	82686.791	82741.315	82795.862	82850.431	82905.023	82959.637
2482	83014.275	83068.937	83123.622	83178.329	83233.060	83287.814	83342.591	83397.390	83452.212	83507.057
2483	83561.925	83616.816	83671.730	83726.667	83781.628	83836.612	83891.619	83946.651	84001.705	84056.782
2484	84111.883	84167.006	84222.152	84277.320	84332.512	84387.725	84442.961	84498.220	84553.500	84608.803
2485	84664.129	84719.477	84774.848	84830.241	84885.657	84941.096	84996.558	85052.042	85107.549	85163.081
2486	85218.638	85274.215	85329.818	85385.444	85441.094	85496.769	85552.467	85608.190	85663.937	85719.708
2487	85775.504	85831.324	85887.169	85943.039	85998.936	86054.859	86110.809	86166.784	86222.785	86278.810
2488	86334.858	86390.929	86447.024	86503.141	86559.281	86615.444	86671.629	86727.838	86784.069	86840.323
2489	86896.600	86952.893	87009.220	87065.563	87121.929	87178.318	87234.732	87291.170	87347.632	87404.116
2490	87460.623	87517.151	87573.702	87630.275	87686.870	87743.487	87800.126	87856.788	87913.472	87970.178
2491	88026.907	88083.658	88140.431	88197.227	88254.045	88310.885	88367.748	88424.633	88481.541	88538.472
2492	88595.428	88652.404	88709.406	88766.430	88823.477	88880.548	88937.642	88994.760	89051.900	89109.065
2493	89166.252	89223.463	89280.697	89337.955	89395.236	89452.540	89509.867	89567.217	89624.590	89681.986
2494	89738.405	89796.847	89854.311	89911.799	89969.309	90026.842	90084.398	90141.977	90199.578	90257.202
2495	90314.848	90372.517	90430.209	90487.923	90545.660	90603.419	90661.201	90719.006	90776.834	90834.684
2496	90892.557	90950.452	91008.371	91066.313	91124.278	91182.265	91240.275	91298.308	91356.363	91414.441
2497	91472.542	91530.666	91588.813	91646.984	91705.178	91763.394	91821.634	91879.897	91938.183	91996.492
2498	92054.824	92113.180	92171.558	92229.960	92288.385	92346.833	92405.304	92463.799	92522.316	92580.856
2499	92639.419	92698.005	92756.614	92815.245	92873.899	92932.576	92991.276	93049.998	93108.743	93167.510
2500	93226.299	93285.111	93343.945	93402.801	93461.680	93520.582	93579.506	93638.453	93697.423	93756.416
2501	93815.432	93874.473	93933.536	93992.623	94051.734	94110.867	94170.025	94229.205	94288.410	94347.638
2502	94406.891	94466.189	94525.471	94584.797	94644.148	94703.526	94762.930	94822.359	94881.813	94941.291
2503	95000.792	95060.317	95119.866	95179.439	95239.036	95298.657	95358.302	95417.972	95477.666	95537.383
2504	95597.125	95656.890	95716.678	95776.491	95836.326	95896.185	95956.067	96015.973	96075.903	96135.856
2505	96195.834	96255.835	96315.860	96375.908	96435.981	96496.077	96556.198	96616.343	96676.514	96736.709
2506	96796.929	96857.174	96917.444	96977.739	97038.057	97098.399	97158.765	97219.155	97279.569	97340.007
2507	97400.470	97460.957	97521.468	97582.002	97642.559	97703.140	97763.744	97824.371	97885.022	97945.696
2508	98006.393	98067.114	98127.857	98188.624	98249.414	98310.226	98371.062	98431.920	98492.801	98553.705
2509	98614.631	98675.580	98736.552	98797.546	98858.563	98919.602	98980.665	99041.750	99102.859	99163.992
2510	99225.149	99286.331	99347.536	99408.764	99470.015	99531.289	99592.587	99653.907	99715.250	99776.616
2511	99838.004	99899.415	99960.848	100022.304	100083.783	100145.285	100206.809	100268.356	100329.926	100391.519
2512	100453.134	100514.772	100576.433	100638.116	100699.822	100761.551	100823.303	100885.077	100946.875	101008.695
2513	101070.538	101132.403	101194.291	101256.203	101318.136	101380.093	101442.073	101504.075	101566.101	101628.150
2514	101690.223	101752.318	101814.437	101876.578	101938.743	102000.930	102063.140	102125.373	102187.630	102249.909
2515	102312.213	102374.540	102436.891	102499.266	102561.663	102624.084	102686.528	102748.995	102811.486	102874.000

EXHIBIT B. SEVEN OAKS DAM STORAGE CAPACITY TABLE (acre-feet)

Survey Year 1999

ELEV.	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
2516	102936.538	102999.098	103061.681	103124.287	103186.915	103249.567	103312.241	103374.937	103437.657	103500.398
2517	103563.163	103625.949	103688.759	103751.591	103814.446	103877.323	103940.223	104003.145	104066.090	104129.058
2518	104192.048	104255.060	104318.096	104381.154	104444.235	104507.339	104570.465	104633.614	104696.787	104759.982
2519	104823.199	104886.440	104949.704	105012.991	105076.302	105139.636	105202.995	105266.378	105329.784	105393.215
2520	105456.669	105520.147	105583.648	105647.173	105710.721	105774.292	105837.886	105901.504	105965.145	106028.809
2521	106092.496	106156.206	106219.940	106283.696	106347.476	106411.279	106475.106	106538.956	106602.829	106666.728
2522	106730.645	106794.588	106858.553	106922.541	106986.553	107050.587	107114.643	107178.722	107242.824	107306.948
2523	107371.095	107435.264	107499.456	107563.670	107627.907	107692.166	107756.448	107820.751	107885.078	107949.426
2524	108013.797	108078.191	108142.607	108207.046	108271.507	108335.991	108400.498	108465.027	108529.579	108594.154
2525	108658.751	108723.371	108788.013	108852.678	108917.365	108982.075	109046.808	109111.563	109176.341	109241.142
2526	109305.965	109370.811	109435.679	109500.570	109565.484	109630.420	109695.379	109760.361	109825.366	109890.393
2527	109955.443	110020.516	110085.612	110150.731	110215.873	110281.037	110346.225	110411.435	110476.667	110541.923
2528	110607.201	110672.501	110737.825	110803.171	110868.540	110933.932	110999.347	111064.784	111130.245	111195.728
2529	111261.235	111326.765	111392.318	111457.894	111523.493	111589.115	111654.760	111720.429	111786.121	111851.836
2530	111917.574	111983.335	112049.119	112114.927	112180.760	112246.616	112312.497	112378.401	112444.329	112510.280
2531	112576.256	112642.255	112708.278	112774.324	112840.394	112906.488	112972.605	113038.746	113104.910	113171.097
2532	113237.307	113303.541	113369.797	113436.076	113502.379	113568.705	113635.053	113701.425	113767.821	113834.240
2533	113900.682	113967.148	114033.637	114100.150	114166.687	114233.246	114299.829	114366.435	114433.065	114499.717
2534	114566.393	114633.092	114699.815	114766.560	114833.328	114900.120	114966.935	115033.774	115100.635	115167.519
2535	115234.427	115301.358	115368.313	115435.292	115502.294	115569.320	115636.370	115703.444	115770.541	115837.662
2536	115904.807	115971.976	116039.168	116106.384	116173.625	116240.889	116308.178	116375.491	116442.828	116510.190
2537	116577.575	116644.985	116712.419	116779.877	116847.359	116914.864	116982.393	117049.945	117117.522	117185.121
2538	117252.744	117320.391	117388.060	117455.753	117523.470	117591.210	117658.973	117726.759	117794.569	117862.402
2539	117930.259	117998.139	118066.042	118133.969	118201.920	118269.894	118337.892	118405.913	118473.958	118542.025
2540	118610.117	118678.231	118746.368	118814.529	118882.714	118950.921	119019.152	119087.407	119155.684	119223.986
2541	119292.310	119360.658	119429.029	119497.424	119565.843	119634.285	119702.751	119771.241	119839.754	119908.292
2542	119976.853	120045.438	120114.047	120182.680	120251.336	120320.015	120388.718	120457.445	120526.194	120594.968
2543	120663.764	120732.585	120801.428	120870.295	120939.186	121008.100	121077.038	121145.999	121214.983	121283.991
2544	121353.022	121422.075	121491.152	121560.251	121629.373	121698.517	121767.685	121836.875	121906.088	121975.324
2545	122044.583	122113.865	122183.169	122252.497	122321.847	122391.221	122460.617	122530.037	122599.480	122668.946
2546	122738.436	122807.949	122877.485	122947.044	123016.626	123086.231	123155.859	123225.511	123295.186	123364.884
2547	123434.606	123504.351	123574.120	123643.913	123713.729	123783.569	123853.433	123923.321	123993.233	124063.170
2548	124133.131	124203.116	124273.126	124343.161	124413.219	124483.302	124553.410	124623.542	124693.697	124763.877
2549	124834.080	124904.307	124974.558	125044.833	125115.131	125185.453	125255.799	125326.169	125396.563	125466.980
2550	125537.422	125607.887	125678.377	125748.891	125819.429	125889.991	125960.576	126031.187	126101.820	126172.478
2551	126243.160	126313.866	126384.595	126455.349	126526.126	126596.927	126667.752	126738.600	126809.471	126880.366
2552	126951.284	127022.226	127093.191	127164.180	127235.192	127306.229	127377.288	127448.372	127519.479	127590.610
2553	127661.765	127732.944	127804.148	127875.375	127946.626	128017.902	128089.202	128160.526	128231.874	128303.247
2554	128374.644	128446.065	128517.511	128588.981	128660.476	128731.995	128803.538	128875.106	128946.699	129018.316
2555	129089.957	129161.623	129233.314	129305.029	129376.770	129448.536	129520.326	129592.142	129663.983	129735.849
2556	129807.738	129879.654	129951.594	130023.558	130095.546	130167.559	130239.596	130311.658	130383.744	130455.855
2557	130527.990	130600.150	130672.335	130744.544	130816.778	130889.036	130961.320	131033.627	131105.959	131178.316
2558	131250.697	131323.103	131395.533	131467.988	131540.467	131612.972	131685.501	131758.055	131830.634	131903.238
2559	131975.867	132048.522	132121.203	132193.910	132266.643	132339.403	132412.189	132485.002	132557.842	132630.709
2560	132703.604	132776.530	132849.483	132922.464	132995.473	133068.509	133141.573	133214.665	133287.785	133360.932
2561	133434.108	133507.311	133580.542	133653.801	133727.088	133800.402	133873.745	133947.116	134020.514	134093.942
2562	134167.397	134240.881	134314.393	134387.934	134461.505	134535.107	134608.743	134682.412	134756.113	134829.845
2563	134903.608	134977.401	135051.225	135125.077	135198.960	135272.871	135346.811	135420.781	135494.781	135568.811
2564	135642.871	135716.961	135791.083	135865.236	135939.422	136013.643	136087.899	136162.188	136236.510	136310.865
2565	136385.252	136459.671	136534.123	136608.608	136683.127	136757.680	136832.266	136906.886	136981.540	137056.229
2566	137130.954	137205.715	137280.513	137355.347	137430.217	137505.122	137580.062	137655.039	137730.052	137805.101
2567	137880.187	137955.310	138030.471	138105.668	138180.903	138256.175	138331.484	138406.831	138482.215	138557.638

EXHIBIT B. SEVEN OAKS DAM STORAGE CAPACITY TABLE (acre-feet)

Survey Year 1999

ELEV.	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
2568	138633.098	138708.596	138784.132	138859.707	138935.321	139010.973	139086.662	139162.388	139238.150	139313.949
2569	139389.786	139465.659	139541.569	139617.517	139693.503	139769.527	139845.588	139921.689	139997.828	140074.007
2570	140150.225	140226.484	140302.784	140379.124	140455.506	140531.928	140608.392	140684.898	140761.445	140838.033
2571	140914.662	140991.331	141068.041	141144.791	141221.581	141298.410	141375.278	141452.185	141529.131	141606.116
2572	141683.138	141760.198	141837.295	141914.430	141991.602	142068.812	142146.059	142223.345	142300.668	142378.028
2573	142455.426	142532.860	142610.331	142687.838	142765.382	142842.963	142920.581	142998.235	143075.927	143153.656
2574	143231.422	143309.227	143387.070	143464.950	143542.867	143620.821	143698.813	143776.843	143854.911	143933.017
2575	144011.162	144089.346	144167.570	144245.834	144324.139	144402.487	144480.875	144559.306	144637.776	144716.287
2576	144794.837	144873.426	144952.055	145030.723	145109.432	145188.182	145266.972	145345.803	145424.674	145503.586
2577	145582.537	145661.528	145740.560	145819.633	145898.746	145977.898	146057.091	146136.324	146215.597	146294.910
2578	146374.262	146453.654	146533.083	146612.552	146692.060	146771.607	146851.193	146930.819	147010.486	147090.194
2579	147169.941	147249.729	147329.557	147409.426	147489.336	147569.288	147649.282	147729.317	147809.394	147889.511
2580	147969.670	148049.869	148130.109	148210.391	148290.714	148371.080	148451.492	148531.954	148612.467	148693.027
2581	148773.634	148854.285	148934.978	149015.710	149096.482	149177.290	149258.135	149339.016	149419.931	149500.879
2582	149581.860	149662.873	149743.918	149824.995	149906.104	149987.247	150068.423	150149.632	150230.875	150312.151
2583	150393.460	150474.804	150556.183	150637.597	150719.045	150800.529	150882.046	150963.598	151045.184	151126.803
2584	151208.457	151290.145	151371.867	151453.623	151535.414	151617.239	151699.099	151780.993	151862.921	151944.884
2585	152026.881	152108.912	152190.977	152273.078	152355.213	152437.384	152519.590	152601.831	152684.106	152766.415
2586	152848.760	152931.139	153013.553	153096.002	153178.486	153261.006	153343.560	153426.150	153508.775	153591.435
2587	153674.131	153756.863	153839.632	153922.436	154005.276	154088.153	154171.066	154254.015	154337.001	154420.023
2588	154503.083	154586.178	154669.311	154752.481	154835.688	154918.931	155002.213	155085.532	155168.890	155252.286
2589	155335.721	155419.195	155502.710	155586.265	155669.860	155753.496	155837.170	155920.884	156004.637	156088.428
2590	156172.259	156256.128	156340.037	156423.985	156507.973	156592.001	156676.070	156760.180	156844.330	156928.521
2591	157012.752	157097.024	157181.336	157265.688	157350.080	157434.514	157518.988	157603.504	157688.061	157772.659
2592	157857.300	157941.982	158026.708	158111.477	158196.291	158281.149	158366.051	158450.996	158535.984	158621.014
2593	158706.086	158791.202	158876.361	158961.564	159046.811	159132.102	159217.438	159302.819	159388.246	159473.719
2594	159559.239	159644.806	159730.422	159816.085	159901.797	159987.558	160073.370	160159.231	160245.144	160331.111
2595	160417.131	160503.206	160589.337	160675.524	160761.768	160848.070	160934.433	161020.857	161107.344	161193.893
2596	161280.505	161367.181	161453.921	161540.727	161627.600	161714.539	161801.546	161888.622	161975.768	162062.986
2597	162150.277	162237.642	162325.084	162412.606	162500.209	162587.895	162675.667	162763.524	162851.466	162939.493
2598	163027.604	163115.798	163204.076	163292.439	163380.888	163469.423	163558.047	163646.759	163735.560	163824.448
2599	163913.425	164002.491	164091.646	164180.890	164270.223	164359.644	164449.155	164538.756	164628.450	164718.235
2600	164808.115	164898.090	164988.161	165078.331	165168.599	165258.969	165349.442	165440.020	165530.705	165621.498
2601	165712.400	165803.410	165894.534	165985.773	166077.128	166168.605	166260.206	166351.935	166443.792	166535.779
2602	166627.902	166720.164	166812.569	166905.120	166997.820	167090.671	167183.674	167276.833	167370.150	167463.629
2603	167557.275	167651.090	167745.080	167839.250	167933.601	168028.138	168122.860	168217.770	168312.868	168408.154
2604	168503.632	168599.303	168695.169	168791.230	168887.488	168983.946	169080.607	169177.477	169274.554	169371.830
2605	169469.305	169566.980	169664.855	169762.929	169861.205	169959.682	170058.361	170157.242	170256.328	170355.621
2606	170455.128	170554.854	170654.805	170754.987	170855.402	170956.053	171056.940	171158.064	171259.431	171361.047
2607	171462.917	171565.038	171667.404	171770.013	171872.866	171975.952	172079.265	172182.801	172286.555	172390.522
2608	172494.694	172599.063	172703.615	172808.341	172913.232	173018.282	173123.488	173228.849	173334.363	173440.023
2609	173545.822	173651.747	173757.789	173863.935	173970.169	174076.482	174182.873	174289.359	174395.927	174502.546
2610	174609.226									

Appendix F: Species of Concern Present in the Facilities

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Plants

Plummer's Mariposa-lily

Calochortus plummerae



Light variant, Upper Colby Tr., off Glendora Mtn. Rd., San Gab. Mts., 6-1-14. © Ron Vanderhoff.



Dark variant, Upper Colby Tr., off Glendora Mtn. Rd., San Gab. Mts., 6-1-14. © Ron Vanderhoff.

Species	Plummer's mariposa-lily
Scientific Name	<i>Calochortus plummerae</i>
Status	Present in SAR Facility
Family	LILIACEAE
Genus	Calochortus
Communities	Chapparral, Foothill Woodland, Yellow Pine Forest, Coastal Sage Scrub, Valley Grassland
Counties	Los Angeles, San Bernardino, Riverside, Orange, Ventura
Bloom Period	May-July
Notes	Bulbiferous herb. Occurs in chaparral, cismontane woodland, coastal scrub, lower montane coniferous forests, and valley and foothill grasslands. From 100 to 1,700 m in elevation.

Parry's Spineflower

Chorizanthe parryi var. *parryi*



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Species	Parry's spineflower
Scientific Name	<i>Chorizanthe parryi</i> var. <i>parryi</i>
Status	Present in SAR Facility
Family	POLYGONACEAE
Genus	Chorizanthe
Communities	Chapparral, Coastal Sage Scrub
Counties	Los Angeles, San Bernardino, Riverside, Ventura
Bloom Period	April-June
Notes	Annual herb. Occurs within coastal scrub and chaparral on dry slopes and flats; sometimes at interface of 2 vegetation types, such as chaparral and oak woodland. Found on dry sandy soils. From 40-1705 m in elevation.

slender-horned spineflower

Dodecahema leptoceras



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Species	slender-horned spineflower
Scientific Name	<i>Dodecahema leptoceras</i>
Status	Present in SAR Facility
Family	POLYGONACEAE
Genus	Dodecahema
Communities	Chapparral, Coastal Sage Scrub
Counties	Los Angeles, San Bernardino, Riverside, Inyo
Bloom Period	April-June
Notes	Annual herb. Occurs within chaparral and coastal scrub (alluvial fan sage scrub). Found on flood-deposited terraces and washes; associates include Encelia, Dalea, Lepidospartum, etc. From 200-760 m in elevation.

Santa Ana River woollystar

Eriastrum densifolium ssp. *Sanctorum*



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Species	Santa Ana River woollystar
Scientific Name	<i>Eriastrum densifolium</i> ssp. <i>sanctorum</i>
Status	Present in SAR Facility
Family	POLEMONIACEAE
Genus	<i>Eriastrum densifolium</i>
Communities	Chapparral, Coastal Sage Scrub
Counties	Orange, San Bernardino, Riverside
Bloom Period	May-September
Notes	Perennial herb. Occurs in chaparral and sandy or gravelly coastal scrub. From 299 to 2,001 feet in elevation.

California satintail

Imperata brevifolia



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Species	California satintail
Scientific Name	<i>Imperata brevifolia</i>
Status	Present in SAR Facility
Family	POACEAE
Genus	Imperata
Communities	Chapparral, Coastal Sage Scrub, Creosote Bush Scrub, wetland-riparian
Counties	Butte, Lake, Fresno, San Bernardino, Riverside, Los Angeles, Tehama, Inyo, Tulare, Kern, Santa Barbara, Ventura
Bloom Period	September-May
Notes	Wet springs, meadows, streambanks and floodplains to about 1500', South Coast, Transverse Range, deserts

Robinson's pepper grass

Lepidium virginicum var. *robinsonii*



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Species	Robinson's pepper grass
Scientific Name	<i>Lepidium virginicum</i> var. <i>robinsonii</i>
Status	Present in Santa Ana Facility
Family	BRASSICACEAE
Genus	Lepidium
Communities	Chapparral, Coastal Sage Scrub
Counties	Most of California
Bloom Period	January-July
Notes	Annual herb. Occurs in chaparral and coastal scrub. From 1 to 885 m in elevation.

San Bernardino Aster

Symphyotrichum defoliatum (*Aster defoliatus*)



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Species	San Bernardino aster
Scientific Name	<i>Symphyotrichum defoliatum</i> (<i>Aster defoliatus</i>)
Status	Potential to occur in the facilities
Family	ASTERACEAE
Genus	Symphyotrichum
Communities	-
Counties	San Bernardino
Bloom Period	July-November
Notes	Near ditches, streams, and springs.

Amphibians and Reptiles

silvery legless lizard

Anniella pulchra pulchra



©Robert Maurer, Jr.



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Species	silvery legless lizard
Scientific Name	<i>Anniella pulchra pulchra</i>
Status	Present in Santa Ana facility
Size	4 3/8 – 7" from snout to vent
Family	Anniellidae
Genus	Anniella
Species	pulchra
Location	Northern Contra Costa County to Ventura County
Notes	Most common in coastal dune, valley-foothill, chaparral, and coastal sage scrub. Associated with friable soils with some moisture content and some vegetative cover. Has a broad thermal tolerance.

coastal western whiptail

Aspidoscelis tigris stejnegeri



©Karyn Sieglitz



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Species	Coastal western whiptail
Scientific Name	<i>Aspidoscelis tigris stejnegeri</i>
Status	Potentially present in facilities
Size	Up to 13" total length
Family	Teiidae
Genus	Aspidoscelis
Species	tigris
Location	Costal southern California into Ventura County
Notes	Wide variety of habitats including coastal sage scrub, sparse grassland, and riparian woodland; coastal and inland valleys and foothills; Ventura County to Baja California

northern red-diamond rattlesnake

Crotalus ruber ruber



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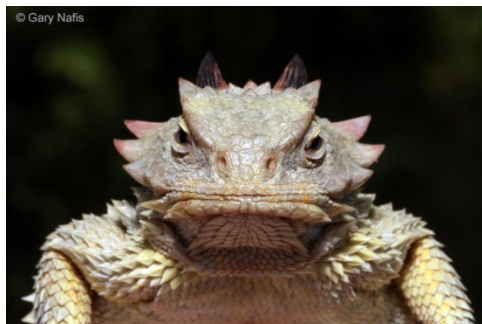
Species	northern red-diamond rattlesnake
Scientific Name	<i>Crotalus ruber ruber</i>
Status	Potentially present in facilities
Size	Up to 30-60" total length
Family	Viperidae
Genus	Crotalus
Species	ruber
Location	Morongo Valley to Baja
Notes	Inhabits arid scrub, coastal chaparral, oak and pine woodlands, rocky grassland, cultivated areas. On the desert slopes of the mountains, it ranges into rocky desert flats.

coast (San Diego) horned lizard

Phrynosoma coronatum (blainvillii population)



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Species	northern red-diamond rattlesnake
Scientific Name	<i>Phrynosoma coronatum (blainvillii population)</i>
Status	Potentially present in facilities
Size	2.5-4.5" snout to vent
Family	Phrynosomatidae
Genus	Phrynosoma
Species	blainvilli
Location	Siskiyou County to Baja
Notes	San Diego Horned Lizards are found in a wide variety of habitats including coastal sage scrub, chaparral, grassland, coniferous forest, oak woodland, riparian, and the margins of the higher elevation desert where it is restricted to the juniper-desert chaparral. Prefers loose, fine soils and an abundance of open areas.

western spadefoot

Spea (Scaphiopus) hammondi



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Species	northern red-diamond rattlesnake
Scientific Name	<i>Spea (Scaphiopus) hammondi</i>
Status	Present in Santa Ana Facility
Size	1.5-2.5" snout to vent
Family	Pelobatidae
Genus	Spea
Species	hammondi
Location	Redding to Baja
Notes	Prefers open areas with sandy or gravelly soils, in a variety of habitats including mixed woodlands, grasslands, coastal sage scrub, chaparral, sandy washes, lowlands, river floodplains, alluvial fans, playas, alkali flats, foothills, and mountains.

two-striped garter snake

Thamnophis hammondi



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Species	two-striped garter snake
Scientific Name	<i>Thamnophis hammondi</i>
Status	Potential to be present in the facilities
Size	24-40" long
Family	Colubridae
Genus	Thamnophis
Species	hammondi
Location	Monterey to Baja
Notes	Prefers open areas with sandy or gravelly soils, in a variety of habitats including mixed woodlands, grasslands, coastal sage scrub, chaparral, sandy washes, lowlands, river floodplains, alluvial fans, playas, alkali flats, foothills, and mountains.

Birds

Cooper's hawk

Accipiter cooperii



©Gaerry Dewaghe



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Species	Cooper's hawk
Scientific Name	<i>Accipiter cooperii</i>
Status	Present in Santa Ana Facility
Size	A medium-sized hawk with the classic accipiter shape: broad, rounded wings and a very long tail
Family	Accipitridae
Genus	Accipiter
Habitat	Wooded habitats from deep forests to leafy subdivisions and backyards.
Location	United States, Mexico and parts of Canada
Notes	Primarily forests and woodlands throughout North America. Increasingly common in urban habitats. Nests in tall trees, especially pines. Occasionally nests in isolated trees in more open areas.

Bell's sage sparrow

Amphispiza belli belli



©Laura Erickson



©Ninadst

Species	Bell's sage sparrow
Scientific Name	<i>Amphispiza belli belli</i>
Status	Present in Santa Ana Facility
Size	Small songbirds, medium-sized for sparrows, with relatively long tails
Family	Emberizidae
Genus	Artemisiospiza
Habitat	Coastal sage scrub and chaparral
Location	California
Notes	Occupies chaparral and coastal sage scrub from west central California to northwestern Baja California. Prefers semi-open habitats with evenly spaced shrubs 1-2 m high.

golden Eagle

Aquila chrysaetos



©Ganesh Jayaraman



©Ron Kube

Species	golden eagle
Scientific Name	<i>Aquila chrysaetos</i>
Status	Present in Santa Ana Facility
Size	One of the largest birds in North America
Family	Accipitridae
Genus	Aquila
Habitat	Partially or completely open spaces
Location	Canada and United States
Notes	Nesting habitat is not present. This species has been seen flying over the site and probably uses it for foraging.

burrowing owl

Athene cunicularia



©Gerrit Vyn



©MistyDaze

Species	burrowing owl
Scientific Name	<i>Athene cunicularia</i>
Status	Present in Santa Ana Facility
Size	Small owls with long legs and short tails
Family	Strigidae
Genus	Athene
Habitat	Open spaces with sparse vegetation
Location	Parts of North and South America
Notes	Open annual grasslands or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Dependent upon burrowing mammals (especially California ground squirrel) for burrows.

cactus wren

Campylorhynchus brunneicapillus



©Gerrit Vyn



©Carlos Escamilla

Species	cactus wren
Scientific Name	<i>Campylorhynchus brunneicapillus</i>
Status	Present in Santa Ana Facility
Size	Large chunky wren with long beak
Family	Troglodytidae
Genus	Campylorhynchus
Habitat	Deserts
Location	South Western North America
Notes	The cactus wren is a non-migratory resident and occurs along the alluvial plains of the Santa Ana River, Plunge Creek, and Mill Creek.

white-tailed kite

Elanus leucurus



©Conrad Tan



©Larry and Dena

Species	white-tailed kite
Scientific Name	<i>Elanus leucurus</i>
Status	Potential to occur in the facilities
Size	Medium sized hawk, long narrow pointed wings
Family	Accipitridae
Genus	Elanus
Habitat	Deserts
Location	California, Mexico, and South America
Notes	Typically nests in riparian trees such as oaks, willows, and cottonwoods at low elevations. Forages in open country. Found in South America and in southern areas and along the western coast of North America.

California horned lark

Eremophila alpestris actia



©Gerrit Vyn



©Ken Schneider

Species	California horned lark
Scientific Name	<i>Eremophila alpestris actia</i>
Status	Potential to occur in the facilities
Size	Small, long-bodied songbirds that usually adopt a horizontal posture
Family	Alaudidae
Genus	Eremophila
Habitat	Bare Ground
Location	North America
Notes	Desert scrub, short grass plains, grasslands interrupted by bare ground, grassy hillsides, mesas and ridges, plowed agricultural land, sagebrush flats, alpine meadows, and fell-fields, alkali flats.

loggerhead shrike

Lanius ludovicianus



©Gerrit Vyn



©Cameron Rognan

Species	loggerhead shrike
Scientific Name	<i>Lanius ludovicianus</i>
Status	Present in the Santa Ana Facility
Size	Thick bodied songbirds with large blocky heads
Family	Laniidae
Genus	Lanius
Habitat	Open country with scattered shrubs
Location	United States and Mexico
Notes	Occurs in broken woodlands, savannah, pinyon-juniper, Joshua tree and riparian woodlands, desert oasis scrub and washes. Prefers open country for hunting, with perches for scanning and fairly dense shrubs and brush for nesting.

coastal California gnatcatcher

Polioptila californica californica



©Gerrit Vyn



©Ken Schneider

Species	coastal California gnatcatcher
Scientific Name	<i>Polioptila californica californica</i>
Status	Present in the Santa Ana Facility
Size	Small bird with a kitten like call
Family	Poliopitidae
Genus	Poliopitila
Habitat	Coastal sage scrub
Location	California coast
Notes	Occurs in coastal sage scrub vegetation on mesas, arid hillsides, and in washes and nests almost exclusively in California sagebrush.

Least Bell's vireo

Vireo bellii pusillus



©Tom Johnson



©Joan Gallatly

Species	Least Bell's vireo
Scientific Name	<i>Vireo bellii pusillus</i>
Status	Potential to occur in the facilities
Size	Small songbird
Family	Vireonidae
Genus	Vireo
Habitat	Riparian woodlands
Location	California central valley
Notes	-.

Mammals

northwestern San Diego pocket mouse

Chaetodipus fallax fallax



©Densie Clark, USGS



wildsd.org

Species	northwestern San Diego pocket mouse
Scientific Name	<i>Chaetodipus fallax fallax</i>
Status	Present in the Santa Ana facility
Size	Moderate size with dark brown fur
Family	Heteromyidae
Genus	Chaetodipus
Habitat	Desert shrublands
Location	San Diego to Mexico
Notes	Inhabits coastal scrub, chaparral, grasslands, sagebrush, etc. Found in western San Diego County in sandy, herbaceous areas, usually in association with rocks or coarse gravel.

San Bernardino Kangaroo Rat

Dipodomys merriami parvus



San Bernardino County

Animal Legal Defense Fund

Species	San Bernardino kangaroo rat
Scientific Name	<i>Dipodomys merriami parvus</i>
Status	Present in the facilities
Size	9" in length
Family	Heteromyidae
Genus	Dipodomys
Habitat	Alluvial fan sage scrub
Location	San Bernardino County
Notes	Typically is found in RAFSS and sandy loam soils, alluvial fans and flood plains, and along washes with nearby sage scrub. Soil texture is a primary factor in this subspecies occurrence. Sandy loam substrates allow for the necessary digging of simple, shallow burrows.

western mastiff bat

Eumops pertis californicus



©Dick Wilkins



©Merlin D. Tuttle

Species	western mastiff bat
Scientific Name	<i>Eumops pertis californicus</i>
Status	Potential to occur in the facilities
Size	Largest bat native to North America
Family	Molossinae
Genus	Eumops
Habitat	Open areas with roost sites with vertical open faces
Location	Western United States, Mexico and South America
Notes	Habitat consists of extensive open areas with potential roost sites having vertical faces to drop off from and take flight, such as crevices in rock outcroppings and cliff faces, tunnels and tall buildings. This species inhabits various types of open, semi-arid to arid habitats. It is limited by availability of drinking water.

San Diego black-tailed jackrabbit

Lepus californicus bennettii



©Jim Harper



©Tonya Staab

Species	San Diego black-tailed jackrabbit
Scientific Name	<i>Lepus californicus bennettii</i>
Status	2ft long 3-6 lbs
Size	Small songbird
Family	Leporidae
Genus	Lepus
Habitat	Mixed shrub grasslands
Location	Western United States and Mexico
Notes	Variety of habitats including herbaceous and desert scrub areas, early stages of relatively open habitats. Restricted to the cismontane areas of southern California, extending from the coast to the Santa Monica, San Gabriel, San Bernardino, and Santa Rosa Mountain ranges

San Diego desert woodrat

Vireo bellii pusillus



©Jules Jardinier



© Jules Jardinier

Species	San Diego desert woodrat
Scientific Name	<i>Vireo bellii pusillus</i>
Status	Present in the Santa Ana facility
Size	11-15" in length
Family	Cricetidae
Genus	Neotoma
Habitat	Sage bush scrub, chaparral, and desert rocky slopes
Location	Western United States and Mexico
Notes	Desert woodrats are found in a variety of shrub and desert habitats, primarily associated with rock outcroppings, boulders, cacti, or areas of dense undergrowth.

southern grasshopper mouse

Onychomys torridus Ramona



Nation Park Service



©National Geographic

Species	southern grasshopper mouse
Scientific Name	<i>Onychomys torridus Ramona</i>
Status	Potential to occur in the facilities
Size	4.5-6.5" in ;length and resistant to venom
Family	Cricetidae
Genus	Onychomys
Habitat	Scrub deserts
Location	Western United States and Mexico
Notes	This species is found in desert scrub, rocky soils, creosote, semi-desert.

Los Angeles pocket mouse

Perognathus longimembris brevinasus



©Karen J Carter



Cheryl S Brehme, USGS

Species	Los Angeles pocket mouse
Scientific Name	<i>Perognathus longimembris brevinasus</i>
Status	Present in the Santa Ana Facility
Size	Small rodent
Family	Heteromyidae
Genus	Perognathus
Habitat	Arid habitats with grasses, sagebrush, and scrubby vegetation
Location	Western United States and Mexico
Notes	Lower elevation grasslands & coastal sage communities in the Los Angeles basin. Open ground with fine sandy soils. May not dig extensive burrows, hiding under weeds & dead leaves instead.

American badger

Taxidea taxus



National Parks Service



National Parks Service

Species	American badger
Scientific Name	<i>Taxidea taxus</i>
Status	Potential to occur in the facilities
Size	Flat body with short legs and a triangular face.
Family	Mustelidae
Genus	Taxidea
Habitat	Open grasslands
Location	Southern Canada and Central and Western United States
Notes	Most abundant in drier open stages of most shrub, forest and herbaceous habitats, with friable soils. Needs sufficient food, friable soils, and open uncultivated ground. Preys on burrowing rodents.

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Appendix G : Invasive Plants

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THE NOXIOUS NINE

A list of the nine most invasive plants (and two grasses) on San Bernardino Valley Water Conservation District lands. This list is regularly updated.

Invasive List:

These plants are under management on all District lands:

- Black Mustard
- Saharan Mustard
- Fountain grass
- Tree tobacco
- Castor bean
- Stinkwort/Stinknet
- Spanish broom
- Tamarisk
- Perennial pepperweed

Some grasses are managed on Wash Plan HCP Preserved lands:

- Red brome
- Cheatgrass

Invasive plant impacts and invasiveness are categorized using the California Invasive Plant Inventory.

Impact refers to the effect of the invasive plant on the surrounding environment and other organisms.

Invasiveness refers to disturbance, spread, and infestation potential of the invasive plant.



**San Bernardino Valley
Water Conservation District**
Helping Nature Store Our Water



black mustard

Brassica nigra

Impact

Moderate

Invasiveness

Moderate

Description

Winter annual that grows 2 - 8ft tall. Grows with many branches. Flowers have 4 yellow petals. Flowering occurs in May to July. Fruits are conical.

Ecological types invaded

Primarily a weed of disturbed sites, but can be locally a more significant problem in wildlands.

Problems it can cause

Dense stands outcompete native vegetation and produces allelopathic chemicals to prevent germination of native plants. Seeds are toxic.

Reproductive method

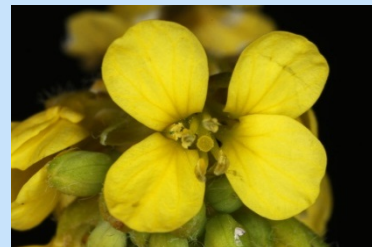
Reproduce only by seed and seeds fall near parent plant. Seedbanks are persistent and seeds remain viable for up to 50 years.

Source: Weed Research and Information Center, USFS
Photo Credits: Michael O'Brien, Gary McDonald, Walther Mueller, Zoya Akulova, Keir Morse

Drawing



Flower



Fruit





Saharan mustard

Brassica tournefortii

Impact
Severe

Invasiveness
Severe

Description

Also known as African mustard. Winter annual herb that grows 4 – 40in tall. Nearly leafless flowering stems can grow up to 2ft. Has hairy leaves. Flowers are dull yellow. Flowering occurs in December or January.

Ecological types invaded

Desert dunes, desert and coastal scrub.

Problems it can cause

Dense stands grow fast and is allelopathic. It increases fuel loads and establishes from seedbank after fire.

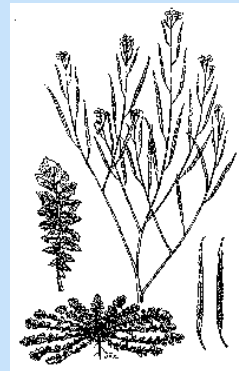
Reproductive method

Reproduce by seed. Dead plants can break off and and tumble, spreading seed. Long distance dispersal is possible when a sticky gel forms around the case when wet and adheres to animals or vehicles.

Source: Desert Musuem, Cal-IPC

Photo Credits: Cal-IPC, Keir Morse

Drawing



Flower



Fruit





fountain grass

Pennisetum setaceum

Impact
Moderate

Invasiveness
Moderate

Description

Perennial grass grows up to 4ft tall. The inflorescences are showy, purplish, spike-like branched clusters (panicles). Can be droopy.

Ecological types invaded

Coastal dunes and scrub, chaparral, grasslands. Limited to areas with median annual rainfall of >50 inches.

Problems it can cause

Thick infestations can displace native grasses and interfere with regeneration of native plant after fires. Dense stands can also block the flow of water in washes and canals

Reproductive method

Reproduce by seed. Spikelets with bristles disperse in late spring through wind or by clinging to furs, feathers, or feet.

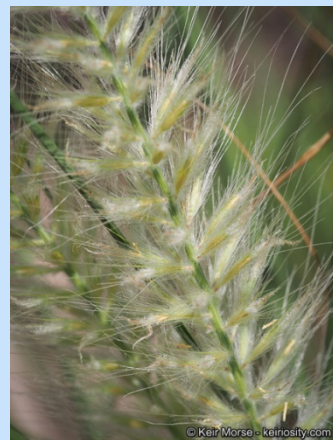
Source: NPS, Cal-IPC, Weed Research and Information Center

Photo Credits: Adrienne Kovasi, Cal-IPC, Keir Morse

Drawing



Inflorescence





tree tobacco

Nicotiana glauca

Impact
Moderate

Invasiveness
Moderate

Description

Evergreen perennial shrub or tree grows to be 10 - 20ft tall. Flowers are greenish-yellow, 30-40mm-long and are in panicles.

Ecological types invaded

Coastal scrub, grasslands, riparian woodland. Abiotic impacts unknown. Impacts vary locally.

Problems it can cause

Grows rapidly and forms dense stands. Displaces native vegetation and contributes to bank erosion and flooding. Toxic to human and animals.

Reproductive method

Plants reproduce by seed. Prolific seed producer. Seeds are chiefly spread by water movement; however animals also help disperse.

Flower



Seeds



Source: Weed Research and Information Center

Photo Credits: Orange County Agriculture, Jean Pawek, University of California (UC) Irvine



castor bean

Ricinus communis

Impact
Limited

Invasiveness
Moderate

Description

Semi-woody large shrub or small tree that grows to 10ft tall or more. Leaves are large, shield-like and stems are often tinged red. The fruit are capsules and are usually mottled silver and brown. Seeds have odor when crushed. Plant is capable of flowering year round in a frost-free environment.

Ecological types invaded

Coastal scrub and prairie, riparian areas. Widespread in southern CA. Impacts locally variable.

Problems it can cause

Displaces native plant species in riparian areas and drainages. Seeds and foliage contain ricin and are highly toxic to humans and animals when ingested.

Reproductive method

Plants reproduce by seed that disperse short distances when capsules snap open at maturity or moved by ants. They disperse greater distances in water or by human activities.

Source: Weed Research and Information Center

Photo Credits: Cal-IPC, Keir Morse

Drawing



Flower



Fruit





stinkwort/stinknet

Dittrichia graveolens/Oncosiphon piluliferum

Impact
Moderate

Invasiveness
Severe

Description

Stinkwort: Annual that grows up to 3ft tall. Sticky and smelly. Develops into shrubby pyramid- or sphere-shaped plant in late spring and summer. Flowers from September to December and produces small yellow flowerheads (0.25in dia)

/

Stinknet: Strongly scented annual bushy herb that grows up to 2ft and with round yellow flowers. Flowers in March to June.

Ecological types invaded

Disturbed grasslands, riparian scrub.

Problems it can cause

Non-native species that have appeared recently, are not yet widely distributed here, and are known or presumed to spread rapidly

Reproductive method

Seeds are tiny and distributed by wind, water, human-related activity, or sticking to fur/clothing.

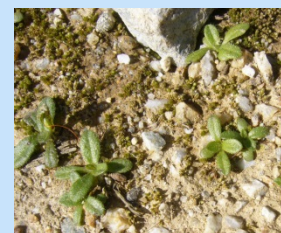
Source: Weed Research and Information Center, Cal-IPC, CalFlora, Southwest Desert Flora

Photo Credits: Keir Morse, Joseph DiTomaso, UC



Stinkwort:
Flower

Stinkwort:
Young
shrub



Stinknet:
Flowers



spanish broom

Spartium junceum

Impact
Severe

Invasiveness
Moderate

Description

Deciduous shrub that grows 10 - 15ft tall. Stems are long, slender, and erect with few branches. Flowers are yellow and pea-like at 1in long.

Ecological types invaded

Coastal scrub, grasslands, wetlands, oak woodland, forests

Problems it can cause

Grows rapidly and forms dense stands that most wildlife find impenetrable and unpalatable. Accumulation of biomass creates more fuel for fire. Brooms also fix nitrogen in soil and gives advantage to other weeds that thrive on high nitrogen levels.

Reproductive method

Plants reproduce by seed and seed dispersal occurs when pods eject the seeds several feet from the plant. Seeds remain viable in soil up to 30 years.

Source: Weed Research and Information Center

Photo Credits: Steve Matson

Flower



Stem





Tamarisk

Tamarix ramosissima

Impact
Severe

Invasiveness
Severe

Description

Also known as salt cedar. Shrub/tree that grows up to 20ft tall. Leaves are blue-ish green and juniper-like. Flowers are white, pale, or dark pink. May hybridize with other tamarisk species.

Ecological types invaded

Desert washes, riparian areas, seeps and springs

Problems it can cause

Increased deposition of salts on soil surface can inhibit other species germination. It has very high water use and the presence of numerous plants can seriously reduce underground water tables and surface water availability, drying up wetlands, and reducing flows. Large stands increase flooding by narrowing channel widths. It is also flammable.

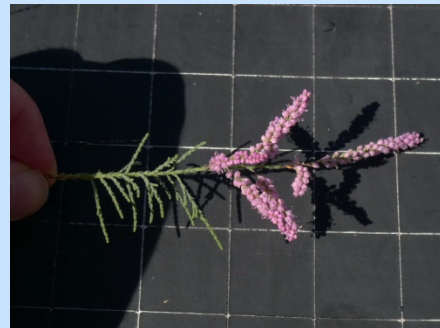
Reproductive method

Plants reproduce by seed (spread via wind and water) and sometimes from root sprouts and stem fragments (take root when buried in moist substrate).

Source: Weed Research and Information Center

Photo Credits: J. Riend, Richard Zmasek, Willy De Nolf

Flower



Sapling





perennial pepperweed

Lepidium latifolium

Impact
Severe

Invasiveness
Severe

Description

Perennial herb that grows 3 - 8ft tall. Flowers are tiny white and borne in dense clusters. Flowering occurs in May to July.

Ecological types invaded

Coastal and inland marshes, riparian areas, wetlands, grasslands. Has potential to invade montane wetlands

Problems it can cause

Aggressively invades and forms dense monospecific stands that exclude other plants

Reproductive method

Distributed by seeds (transported by wind, water, and possibly waterfowl) or by pieces of the underground stem.

Drawing



Flower



Source: Cal-IPC

Photo Credits: Cal-IPC, Joseph DiTomaso, Leslie Mehrhoff



red brome

Bromus madritensis ssp. rubens (= *B. rubens*)

Impact
Severe

Invasiveness
Moderate

Description

Winter annual that grows to 8-20in tall. Young plants are green, become purplish color at maturity and eventually light tan. At maturity, panicles of florets on shorter stalks are arranged equally around the main stalk.

Ecological types invaded

Scrub, grassland, desert washes, woodlands. Impacts most significant in desert areas.

Problems it can cause

Alters patterns of wildfire, microhabitat characteristics, and nutrient cycling.

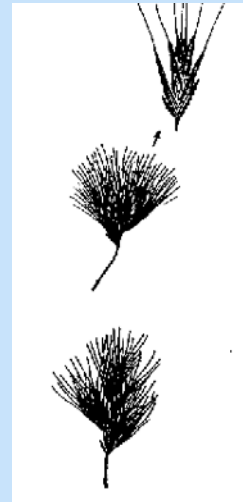
Reproductive method

Plants reproduce by seed only. Seeds disperse short distances with the aid of wind and longer distances by clinging to animal fur and clothing of people. Populations increase in years of average or high rainfall.

Source: Cal-IPC, USFS

Photo Credits: Cal-IPC, Keir Morse

Drawing



Young plant





cheatgrass

Bromus tectorum

Impact
Severe

Invasiveness
Moderate

Description

Winter annual short grass that grows 4-30in tall. Seedlings are bright green. Becomes reddish and a light tan at maturity. At maturity, panicles of florets on long thin stalks hanging loosely to one side nodding towards the ground.

Ecological types invaded

Interior scrub, woodlands, grasslands. Most widely distributed invasive plant in the US.

Problems it can cause

Displaces native vegetation. Changes frequency, extent, and timing of wildfires.

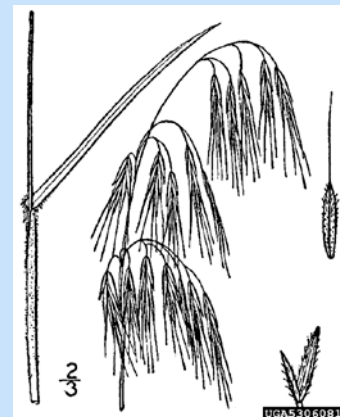
Reproductive method

Plants establishes by seeds only. Seed production is very abundant (300 seeds per plant). Seeds can withstand extremely high soil temperatures. Florets disperse short distances with wind and rodent activity or to greater distances by clinging to fur, feathers, and feet of animal and to shoes and clothing of people.

Source: Weed Research and Information Center, North Dakota Department of Agriculture

Photo Credits: Cal-IPC, Keir Morse

Drawing



Young plant



Appendix H: Field Equipment

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Vehicles

Ford F-150 4x4



Item	Truck
Make	Ford
Model	F-150 4x4
Year	2014
Mileage	55,400 miles (October 2019)
VIN	1FTFW1EF0EKG07939
Fuel Type	Regular Unleaded
License	1452472
Condition	Good
Location	Shop
Notes	Vehicle currently driven by Field Supervisor

Ford F-150



Item	Truck
Make	Ford
Model	F-150
Year	2018
Mileage	26,474 miles (October 2019)
VIN	1FTEX1EP75KC84017
Fuel Type	Regular Unleaded
License	1536808
Condition	Good
Location	Shop
Notes	Vehicle currently driven by Field Technician II

Ford F-350



Item	Truck
Make	Ford
Model	F-350
Year	2007
Mileage	63,329 miles (October 2019)
VIN	1FDWF37Y5TE332010
Fuel Type	Regular Unleaded
License	1267595
Condition	Fair
Location	Shop
Notes	Dual rear wheel, utilized for larger capacity.

Dump Truck



Item	Dump Truck
Make	GMC
Model	C6500
Year	2002
Mileage	44,663 miles (October 2019)
VIN	1GDJ7H1E92J507934
Fuel Type	Regular Unleaded
License	8K11201
Condition	Fair
Location	Canyon Shop
Notes	Manual transmission, capable of towing heavy equipment.

SUV



Item	SUV
Make	Chevrolet
Model	Suburban
Year	2003
Mileage	47,688 miles (October 2019)
VIN	1GNFK16T93J253741
Fuel Type	Regular Unleaded
License	1172328
Condition	Good
Location	Shop
Notes	Utilized for larger tour groups.

Heavy Equipment

Chipper



Item	Chipper
Make	Echo Bear Cat
Model	CH611DH
Year	2016
Hours	74.5 hours
VIN	5VJAA001XFW004858
Fuel Type	Diesel
Condition	Excellent
Location	Canyon Shop
Notes	Purchased 2016 to deal with invasive species.

Excavator



Item	Excavator
Make	John Deere
Model	60D
Year	2009
Hours	295.6 Hours
ID	FF0600X280124
Fuel Type	Diesel
Condition	Good
Location	Canyon Shop
Notes	-

Loader/Grader



Item	Loader/Grader
Make	Case
Model	570NXT
Year	2014
Hours	1181.2 hours
ID	MBC1156
Fuel Type	Diesel
Condition	Excellent
Location	Canyon Shop
Notes	Purchased 2014

Water Buffalo



Item	Water Buffalo
Make	Marksman
Model	Trailer with Water Tank
Year	2007
VIN	1M9B708287L516859
Fuel Type	Unleaded
License	1245538
Condition	Good
Location	Canyon Shop
Notes	Hose connection needs replacement or repair

Equipment Trailers

2015 Equipment Trailer



Item	Equipment Trailer
Make	Zieman
Model	2650
Year	2015
VIN	1ZCE33E29FZ345000
License	1442730
Condition	Good
Location	Canyon Shop
Notes	Good condition.

Air Compressor Trailer



Item	Air Compressor Trailer
Make	Sulliar
Model	49HPDPQ-JQ
Year	2008
Hours	69.4 hours
VIN	200810210068
Fuel Type	Red Dye Diesel
License	567496
Condition	Excellent
Location	Canyon Shop
Notes	Needs a new battery.

Welder/Compressor Trailer



Item	Welder/Compressor Trailer
Make	-
Model	-
Year	-
VIN	-
License	1245538
Condition	Fair
Location	Canyon Shop
Notes	-

Trailer



Item	Trailer
Make	-
Model	-
Year	-
VIN	59152936
License	-
Condition	Poor
Location	Shop
Notes	Not used.

Large Equipment

Air Compressor



Item	Air Compressor
Make	Campbell Hausfeld
Model	VT617204AJ
Year	1997
ID	L4/15/1997/20702
Fuel Type	Unleaded
Condition	Poor
Location	Canyon Shop
Notes	Motor needs attention.

Air Compressor



Item	Air Compressor
Make	Husky
Model	Pro
ID	VT631503AJ
Condition	Good
Location	Shop
Notes	-

Air Tank (5gal)



Item	Air Tank
Make	-Campbell Hausfeld
Model	5gal Air Tank
ID	DK333800AV
Condition	Fair
Location	Shop
Notes	-

Air Tank (11gal)



Item	Air Tank
Make	Husky
Model	11gal Air Tank
ID	-
Condition	Good
Location	Shop
Notes	-

Cement Mixer



Item	Cement Mixer
Make	Stone
Model	-
License	173440
Fuel Type	Unleaded
Condition	Poor
Location	Canyon Shop
Notes	-

Fuel Dispenser



Item	Fuel Dispenser
Make	-
Model	-
License	-
Condition	Poor
Location	Shop
Notes	Replaced filter 2017.

Piston Painter



Item	Piston Painter
Make	Wagner
Model	Model 770
Condition	Good
Location	Shop
Notes	Valves are not operating correctly.

Generator



Item	Generator
Make	Honda
Model	EU 200 i
ID	EAAJ-2311838
Fuel Type	Unleaded
Condition	Good
Location	Shop
Notes	-

Generator/Welder



Item	Generator/Welder
Make	Weldan Power
Model	G3000-LX
ID	161436
Hours	321 hours
Fuel Type	Unleaded
Condition	Fair
Location	Canyon Shop
Notes	SBVWCD #00280

Welder



Item	ARC Welder
Make	Lincoln Electrical
Model	AC-225
ID	10420001
Condition	Good
Location	Shop
Notes	220V

Well Sounder



Item	Well Sounder
Make	Powers Electrical
Model	-Well Sounder
ID	-
Condition	Good
Location	Shop
Notes	400ft Cable

Shop Vacuum



Item	Shop Vacuum
Make	Ridgid
Model	WD12450
ID	03269C0649
Condition	Good
Location	Shop
Notes	-

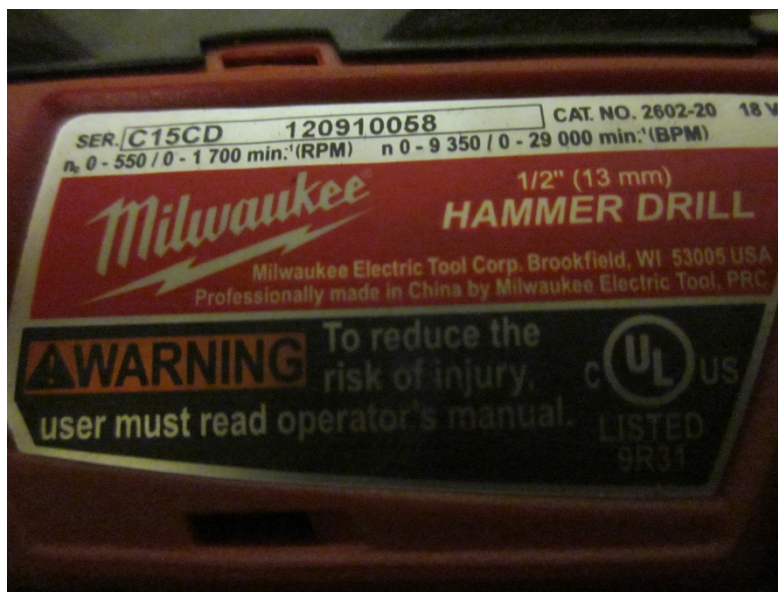
Drills

Cordless Drill



Item	Cordless Drill
Make	Ridgid
Model	R86006
ID	BD082160090
Power Source	Battery
Condition	Fair
Location	Shop
Notes	May also be with Field Supervisor

Cordless Drill



Item	Cordless Drill
Make	Milwaukee
Model	13mm Hammer Drill
ID	C15CD-120910058
Power Source	Battery
Condition	Poor
Location	Shop
Notes	-

Gate Drill



Item	Gate Drill
Make	Milwaukee
Model	Super Hole Shooter
ID	568D611120022
Condition	Excellent
Location	Shop
Notes	Must be level to operate properly

Hammer Drill



Item	Hammer Drill
Make	Milwaukee
Model	Magnum
ID	67235388
Condition	Fair
Location	Shop
Notes	Some minor housing cracks, missing pieces for the handle.

HD Drill



Item	HD Drill
Make	Ridgid
Model	R5010
ID	AE034342990
Condition	Good
Location	Shop
Notes	-

Impact Drill



Item	Impact Drill
Make	Milwaukee
Model	Impact Driver
ID	B55BD120921113
Power Source	Battery
Condition	Good
Location	Shop
Notes	-

Sawzall



Item	Sawzall
Make	Milwaukee
Model	Sawzall
ID	C25D3174403074
Power Source	Battery
Condition	Good
Location	Shop
Notes	-

Grinders and Saws

Bench Grinder



Item	Bench Grinder
Make	Jet
Model	JBG-6A
ID	417572
Condition	Fair
Location	Shop
Notes	Wheel needs replacing.

Grinder



Item	Grinder
Make	Makita
Model	9557PB
ID	0442618Y
Condition	Good
Location	Shop
Notes	-

Chain Saw



Item	Chain Saw
Make	Echo
Model	CS370
ID	C08011022524
Fuel Type	Mix
Condition	Good
Location	Shop
Notes	Purchased when CalFire was removing vegetation.

Chain Saw



Item	Chain Saw
Make	Echo
Model	CS303T
ID	C26111002296
Fuel Type	Mix
Condition	Good
Location	Shop
Notes	-

Circular Saw



Item	7 1/4" Circular Saw
Make	Milwaukee
Model	2731-20
ID	F95AD161700431
Power Source	
Condition	Excellent
Location	Shop
Notes	Purchased 2017

Chop Saw



Item	14" Chop Saw
Make	Dewalt
Model	D28715
ID	47431
Condition	Excellent
Location	Shop
Notes	Purchased 2016

Concrete (Masonry) Saw



Item	Concrete (Masonry) Saw
Make	Roto Zip
Model	RFS1000
ID	F012RF0100
Condition	Good
Location	Shop
Notes	-

Miter Saw



Item	Miter Saw
Make	Dewalt
Model	DW705
ID	98299
Condition	Good
Location	Shop
Notes	-

Garden Equipment

Blower



Item	Blower
Make	Stihl
Model	BR350
ID	42449673500ASAL
Condition	Good
Location	Shop
Notes	-

Hedge Trimmer



Item	Hedge Trimmer
Make	Echo
Model	HC1500
ID	-
Condition	Good
Location	Shop
Notes	-

Sprayer 3/8 Gallon



Item	3/8 Gallon Sprayer
Make	STIHL
Model	SG10
ID	-
Condition	Good
Location	Shop
Notes	-

Sprayer 1 Gallon



Item	1 Gallon Sprayer
Make	Roundup
Model	1 Gallon
ID	-
Condition	Good
Location	Shop
Notes	2 total

Sprayer 5 Gallon Backpack



Item	5 Gallon Backpack Sprayer
Make	STIHL
Model	SG20
ID	-
Condition	Good
Location	Shop
Notes	2 total

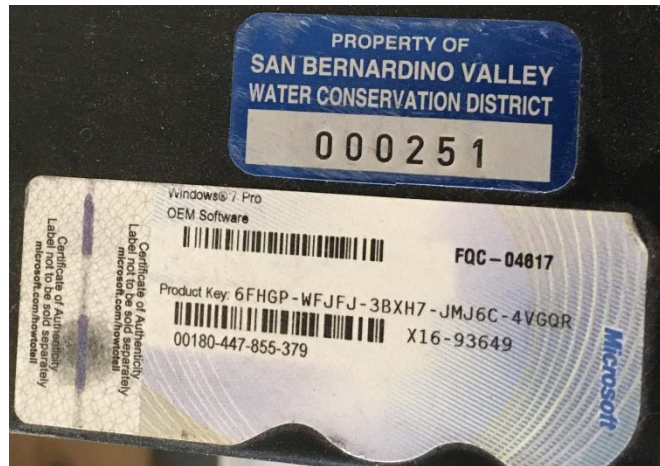
Weed Eater



Item	Weed Eater
Make	Echo
Model	SRM-230
ID	-
Condition	Good
Location	Shop
Notes	4 Total

Electronics

Computer



Item	Computer
Make	Asus
Model	
ID	-
Condition	Fair
Location	Shop
Notes	SBVWCD 000251

Game Camera



Item	Game Camera
Make	Browning
Model	Strikeforce Extreme
ID	BTC-SHD-850
Condition	Excellent
Location	Shop
Notes	4 total.

Modem



Item	Modem
Make	Verizon
Model	MI424WR Rev 1
ID	SSX13443602009
Condition	Good
Location	Shop
Notes	-

Monitor



Item	Monitor
Make	ACER
Model	XX23W
ID	ETLDX0D06015008D718514
Condition	Good
Location	Shop
Notes	-

Printer/Fax



Item	Printer and Fax
Make	Brother
Model	MFC-L2750DW
ID	-
Condition	Good
Location	Shop
Notes	Replaced in 2019

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Appendix I : Wash Plan

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Covered Activity ID Codes and Project Names

Unique ID	Owner	Project Name	Project Class	Project Type
CD.01	Conservation District	Existing Recharge Basins and Access Roads	Water Conservation	Maintenance
CD.02	Conservation District	Conservation District Canal	Wells and Water Infrastructure	Maintenance
CD.03	Conservation District	Existing Wells	Wells and Water Infrastructure	Maintenance
CD.04	Conservation District	Greenspot Levee Removal	Habitat Enhancement and Monitoring	Habitat Enhancement
CD.05	Conservation District	D-Dike Habitat Enhancement	Habitat Enhancement and Monitoring	Habitat Enhancement
CD.06	Conservation District	Plunge Creek Habitat Enhancement	Habitat Enhancement and Monitoring	Habitat Enhancement
CD.07	Conservation District	New Access Roads for Spreading Basins	Water Conservation	New Construction
CD.09	Conservation District	Cone Camp Property Dedication	Habitat Enhancement and Monitoring	Habitat Enhancement
CD.10	Conservation District	Flood Control Land Dedication	Habitat Enhancement and Monitoring	Habitat Enhancement
CD.11	Conservation District	Spineflower Preservation Area	Habitat Enhancement and Monitoring	Habitat Enhancement
CD.12	Conservation District	District Preserved	Habitat Enhancement and Monitoring	Habitat Enhancement
CD.13	Conservation District	Species Surveys, Monitoring, and Research	Habitat Enhancement and Monitoring	Monitoring
CRM.01	Cemex and Robertson's	Aggregate Mining	Aggregate Mining	New Construction
CRM.02	Cemex and Robertson's	Haul Road Expansion	Aggregate Mining	New Construction
CRM.03	Cemex and Robertson's	Ongoing Mining Operations	Aggregate Mining	Operations
EVWD.03	East Valley Water District	Grove Maintenance	Agriculture	Maintenance
EVWD.04	East Valley Water District	Spreading Basins	Water Conservation	Maintenance
EVWD.07	East Valley Water District	Pipe 125	Wells and Water Infrastructure	Maintenance
EVWD.08	East Valley Water District	Well 125	Wells and Water Infrastructure	Maintenance
FC.01	San Bernardino County Dept. of Public Works	In-stream Maintenance	Flood Control	Maintenance
FC.02	San Bernardino County Dept. of Public Works	Access Road Maintenance	Flood Control	Maintenance
FC.03	San Bernardino County Dept. of Public Works	Levee Maintenance	Flood Control	Maintenance
FC.04	San Bernardino County Dept. of Public Works	Stockpiling	Flood Control	Maintenance
FC.09	San Bernardino County Dept. of Public Works	Elder/Plunger Creek Restoration-Reasonably Foreseeable Project	Flood Control	New Construction
High.01	City of Highland	Alabama Street Improvements	Transportation	New Construction

Unique ID	Owner	Project Name	Project Class	Project Type
High.02	City of Highland	Orange Street/Boulder Avenue Improvements	Transportation	New Construction
High.03	City of Highland	Greenspot Road Improvements	Transportation	New Construction
High.10	City of Highland	Weaver Street Channel	Flood Control	Maintenance
High.11	City of Highland	Greenspot Road Drain Outlets	Flood Control	Maintenance
High.12	City of Highland	Church Street Channel	Flood Control	Maintenance
High.13	City of Highland	Alabama Street Trail	Trails	New Designation
High.15	City of Highland	Cone Camp Road Trail	Trails	New Designation
High.16	City of Highland	Greenspot Road Trail	Trails	New Designation
High.19	City of Highland	Old Rail Line Trail	Trails	New Designation
High.20	City of Highland	Plunge Creek Trail	Trails	New Designation
High.21	City of Highland	Pole Line Trail	Trails	New Designation
High.22	City of Highland	Weaver Street Trail	Trails	New Designation
High.23	City of Highland	Highland/Redlands Regional Connector	Trails	New Construction
Redl.02	City of Redlands	Church Street Drainage Pipe	Flood Control	New Drainage Facility
Redl.03	City of Redlands	Judson Street Drainage Pipe	Flood Control	New Drainage Facility
Redl.04	City of Redlands	Orange Street Drainage Dissipater	Flood Control	New Drainage Facility
Redl.05	City of Redlands	Wabash Street Drainage Pipe	Flood Control	New Drainage Facility
Redl.06	City of Redlands	Borrow Pit South Rim Trail	Trails	New Designation
Redl.07	City of Redlands	Redlands Aqueduct Tunnel	Wells and Water Infrastructure	Maintenance
Redl.08	City of Redlands	Redlands Well Connector Pipeline	Wells and Water Infrastructure	New Construction
Redl.09	City of Redlands	Santa Ana River Trail	Trails	New Construction
Redl.10	City of Redlands	Orange Street Well Access Road	Wells and Water Infrastructure	Maintenance
Redl.11	City of Redlands	N Orange Street 1 & 2 Well	Wells and Water Infrastructure	Maintenance
Redl.13	City of Redlands	North Orange 3 Well and Connector Pipeline	Wells and Water Infrastructure	New Construction
Redl.14	City of Redlands	Alabama Street Improvements	Transportation	New Construction
Redl.15	City of Redlands	Orange Street Improvements	Transportation	New Construction
Redl.16	City of Redlands	Alabama Street Trail	Trails	New Designation
Redl.17	City of Redlands	Orange Street Trail	Trails	New Designation
Redl.19	City of Redlands	Greenspot Road Trail	Trails	New Designation
VD.01	SBVMWD	Enhanced Recharge Project	Water Conservation	New Construction
VD.02	SBVMWD	East Branch Extension Phase 2	Wells and Water Infrastructure	Maintenance

Unique ID	Owner	Project Name	Project Class	Project Type
VD.03	SBVMWD	Foothill Pipeline	Wells and Water Infrastructure	Maintenance
VD.04	SBVMWD	Orange Street Connector Pipeline	Wells and Water Infrastructure	New Construction
VD.05	SBVMWD	Plunge Pool Pipeline	Wells and Water Infrastructure	New Construction
VD.06	SBVMWD	SARC Pipeline and Turnout	Wells and Water Infrastructure	Maintenance
VD.07	SBVMWD	Santa Ana Low Turnout Rebuild	Wells and Water Infrastructure	New Construction
VD.09	SBVMWD	Wells and Connector Pipeline	Wells and Water Infrastructure	New Construction
VD.10	SBVMWD	Alabama Street Connector Pipeline	Wells and Water Infrastructure	New Construction

Avoidance and Minimization Measures

Slender-horned Spineflower

- Covered Activities that will result in permanent impacts where the location has not yet been determined (e.g., new wells) will avoid occupied spineflower habitat. An exception can be made upon approval of the Wildlife Agencies if the Permittee or Participating Entity can demonstrate that (1) no alternative sites were feasible, (2) the impact will not result in the loss or compromise of the entire spineflower patch, and (3) the loss of plants will be fully mitigated.
- Prior to ground disturbance from Covered Activities in suitable spineflower habitat,¹ surveys will be conducted if the area has not been surveyed within the last 5 years to determine if the plant is present. Surveys will be conducted in accordance with the CDFW protocols for surveying Special Status plant populations.
- If spineflower are detected during pre-project surveys, seeds will be collected for 4 years prior to ground disturbance. Seed collection and storage will be by an entity which has a Memorandum of Understanding with the USFWS to process and handle the seeds of endangered plant taxa.
- Surface soils will be removed and sequestered at the beginning of any ground disturbing construction or O&M activity where spineflower is present. If cryptogamic soil crust is also present, it will be harvested in blocks, preserved, and placed back on the site after construction. If the impacts are permanent, an alternate site in suitable habitat will be selected in consultation with a qualified botanist or restoration biologist. After the sequestered soil is returned to the site, it will be replanted with the previously collected spineflower seed over consecutive years following the ground disturbance. The timing and methods of planting will be determined by the Permittee in consultation with a restoration biologist and will incorporate adaptive management.
- The replanting site will be monitored and maintained (e.g., weed control) for 5 years or until the spineflower is considered to be re-established to target values established by the Preserve Management Committee. Maintenance weeding will continue after the restoration weeding as part of the annual maintenance program.
- No aggregate mining or other Covered Activities will be permitted in the spineflower contingency parcel (Section 11 between the existing quarries) until it has been determined the biological objective for establishing new, persistent spineflower patches (SHSF Objective 3) has been met. Upon meeting the performance standards in the objective, the Permittee will provide a report documenting success to the Wildlife Agencies for their review and approval. Upon approval of the report in writing, aggregate mining of the contingency parcel can commence.
- When Covered Activities will take place within 50 meters of known occurrences of spineflower, a temporary fence will be erected to protect them. A qualified botanist and/or biological monitor will monitor construction activities, maintain the markers limiting construction, and maintain the fence protecting the spineflower to prevent accidental disturbance.

Santa Ana River Woolly-star

- New construction projects in occupied woolly-star habitat will be avoided if feasible. For projects where the exact location of the facility has not been determined the Permittee or Participating Entity must consider alternatives outside of occupied habitat. If an alternative in occupied habitat is selected, the Participating Entity must demonstrate to the Permittee and or Wildlife Agencies why it was not possible to locate the project in unoccupied habitat. Participating Entities will provide information in their COI application substantiating a determination that locating their proposed project in unoccupied habitat was not possible.
- Prior to ground disturbance from new construction and O&M activities in potentially suitable woolly-star habitat, surveys will be conducted if the area has not been surveyed within the last 5 years to determine if the plant is present. Surveys will be conducted in accordance with the CDFW protocols for surveying Special Status plant populations.
- If woolly-star is detected during pre-project surveys, seeds will be collected at the appropriate time (usually fall) prior to ground disturbance. Seed collection and storage will be by an entity that has a Memorandum of Understanding with the USFWS to process and handle the seeds of endangered plant taxa. In areas of temporary impacts, the seed will be replanted in the temporarily disturbed area. The seed planting time and location for seeds collected from permanent impact areas will be at the

¹ Suitable habitat (areas which need to be surveyed) will be determined by the Permittee through habitat modeling and in consultation with spineflower experts and the Wildlife Agencies.

discretion of the land manager. The cost of seed collection, up to 2 years of storage, and planting will be borne by the relevant Permittee or Participating Entity.

- Sites where temporary impacts occur will be replanted with the previously collected woolly-star seed over consecutive years following the ground disturbance. The timing and methods of planting will be determined by the Permittee in consultation with a qualified botanist or restoration biologist with woolly-star experience, and will incorporate adaptive management. If the impacts are permanent, an alternate site in suitable habitat will be selected by a qualified restoration biologist or botanist.
- The replanting site will be monitored and maintained (e.g., weed control) for 2 years or until the woolly-star is considered to be re-established to target values established by the HCP Preserve Management Committee. Maintenance weeding will continue after the restoration weeding as part of the annual maintenance program.
- When Covered Activities will take place within 50 meters of known occurrences of woolly-star, a temporary fence will be erected to protect them. A qualified botanist and/or biological monitor will monitor construction activities, maintain the markers limiting construction, and maintain the fence protecting the woolly-star, to prevent accidental disturbance.

San Bernardino Kangaroo Rat

- New construction in areas assessed as medium or high quality habitat for SBKR will be avoided if feasible. For projects where the exact location of the facility has not been determined the relevant Permittee or Participating Entity must consider alternatives outside of medium or high quality areas. If the selected alternative is in a medium or high quality area, the project proponent must demonstrate to the Permittee and the Wildlife Agencies why it could not be located in a lower quality habitat. Participating Entities will provide information in their COI application substantiating a determination that locating their proposed project in a lower quality habitat was not possible.
- If a ground-disturbing activity from new construction or O&M occurs in an area assessed as medium or high quality for SBKR, and is equal to or less than 3 acres, a temporary exclusionary fence meeting USFWS standards will be placed and maintained around the perimeter of the site. The area inside the fence will be trapped for SBKR by a qualified biologist during the 5 nights preceding the ground disturbance. Any trapped animals will be relocated to the nearest undisturbed habitat outside the construction area.
- When new construction or O&M activities with temporary ground disturbance occurs, including trenching, in SBKR habitat, the top 20 inches of soil/substrate will be segregated, preserved, and placed back in the same location and approximate configuration when the trench is backfilled. It will be compacted to within 5% of the average compaction of the natural substrate. If significant (over 30%) invasive weed cover is found, the topsoil will not be replaced in the top uncompacted fill but will be used for lower compacted backfill. In all cases the top 20 inches will be uncompacted and as suitable for SBKR burrowing as possible.
- For planned ground disturbance in areas assessed as medium or high quality habitat for SBKR that are greater than 3 acres in size, the nearest suitable relocation site will be identified by a qualified biologist in consultation with the Permittee and the USFWS. The translocation site will typically be an area of trace or low quality habitat with suitable substrate, which has recently been restored. Once the relocation site has been identified, exclusionary fencing will be erected, and the area inside the fence will be trapped by a qualified biologist during the 5 nights preceding construction. Temporary burrows will be constructed at the relocation site for relocated animals.
- Prior to grading dirt access roads, other than roads within mining operations areas, a qualified biologist will trap the road and 15 meters on either side during the 5 nights preceding the grading. Trapped animals will be held until the completion of grading and then returned to the location where they were trapped.
- A qualified biologist or biological monitor with SBKR expertise will be present when construction or ground-disturbing O&M activities that could result in take of SBKR occurs in, or within 100 meters of SBKR habitat which is classified as low, medium, or high habitat potential for SBKR.

Coastal California Gnatcatcher and Cactus Wren

- Covered Activities resulting in permanent impacts to gnatcatcher and cactus wren will be avoided if feasible. Where the exact location of the facility has not yet been determined (e.g., new wells) the relevant Permittee or Participating Entity must consider alternatives outside of occupied gnatcatcher habitat and or cactus patches. If an alternative that affects gnatcatcher or cactus wren nesting habitat is selected, the Permittee or Participating Entity must demonstrate to the Permittee and or the Wildlife

Agencies why it was not possible to locate the project in non-nesting habitat. Participating Entities will provide information in their COI application substantiating a determination that locating their proposed project in non-nesting habitat was not possible.

- New construction and O&M activities will be avoided to the extent feasible during the breeding season. If a Covered Activity resulting in significant vegetation disturbance or removal of cactus patches takes place during the nesting season, February 15 to August 30, a qualified biologist will conduct pre-activity nest surveys. The area to be disturbed and a 500-foot buffer will be surveyed for 5 consecutive days to determine if gnatcatchers or cactus wrens are nesting in or near the construction or operations and maintenance area. If gnatcatchers or cactus wrens are nesting, a 300-foot buffer will be established and maintained between the Covered Activity and the nest area until nesting is completed. Noise within the buffer area will not exceed 60 dB(A) Leq. Daily noise monitoring reports will be provided to the Conservation District prior to the beginning of the next construction work day.

Migratory Birds

- If construction-related activities are to occur during the nesting season (February 1 through September 15), a qualified biologist will conduct a preconstruction survey of the proposed construction area and an appropriate buffer. This preconstruction survey will commence no more than 72 hours prior to the onset of construction. If an active nest is observed, an appropriate buffer will be established until nesting is completed.

Streams and Drainages and Runoff

- Construction activity and access roads will be minimized to the extent practicable in all drainages, streams, pools, or other features that could be under the jurisdiction of the USACE, State Water Board, and/or CDFW. If impacts on these features are identified, a formal jurisdictional delineation and permit applications to the regulatory agencies may be required.
- When stream flows must be diverted, the diversions will be conducted using sandbags or other methods requiring minimal instream impacts. Silt fencing or other sediment trapping materials will be installed at the downstream end of construction activity to minimize the transport of sediments off site. Settling ponds where sediment is collected will be cleaned out in a manner that prevents the sediment from reentering the stream. Care will be exercised when removing silt fences, as feasible, to prevent debris or sediment from returning to the stream.
- Erodible fill material will not be deposited into water courses. Brush, loose soils, or other similar debris material will not be stockpiled within the stream channel or on its banks.
- Covered Activities near to or within the HCP Preserve or other natural areas will incorporate plans to ensure that runoff discharged is not altered in an adverse way when compared with existing conditions, which includes landscape irrigation. Stormwater systems will be designed to prevent the release of sediments, toxins, chemicals, petroleum products, exotic plant materials, or other elements that might degrade or harm biological resources or ecosystem processes within the HCP Preserve.

Chemicals and Hazardous Materials

- Covered Activities within or adjacent to the HCP Preserve or other natural areas that use chemicals (herbicides, rodenticides, insecticides) or generate byproducts that are potentially toxic or may adversely affect wildlife and plant species, habitat, or water quality will incorporate measures to ensure that application of such chemicals does not result in any discharge to the HCP Preserve or other natural areas.
- Equipment storage, fueling, and staging areas will be located on upland sites with minimal risks of direct drainage into the HCP Preserve or other natural areas. These designated areas will be located in such a manner as to prevent any runoff from entering sensitive habitat including riparian areas. Precautions will be taken to prevent the release of toxic substance into surface waters. Project-related spills of hazardous materials will be reported to appropriate entities—including but not limited to the applicable jurisdictional city or county, USFWS, CDFW, and RWQCB—and will be cleaned up immediately and contaminated soils removed to approved disposal areas.
- Grove management practices will include the use methods such as traps and fumigants to control rodents as an alternative to bait containing anticoagulants to prevent reduced fitness and mortality of native predators such as raptors, bobcats, and coyotes.

Traditional Gathering by Native American Tribes

- Through a collaborative effort between the tribe and the Permittee, an orientation to the HCP Preserve and its Covered Species will be provided to all tribal members who collect plants on the HCP Preserve.
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- The Preserve Manager will meet with the tribe each year to determine gathering areas, which will avoid and minimize impacts on Covered Species, and specifically nesting cactus wren or gnatcatcher. The Permittee will provide updated maps of avoidance areas.
- The type and amount of plant material collected will not exceed that described in the Memorandum of Understanding with the Permittee.
- When accessing gathering sites, tribal members will drive on established, maintained roads.

General Measures/Best Management Practices

- Barriers such as boulders, fences, and gates will be placed and maintained on the perimeter of the Plan Area to help prevent unauthorized activities including dumping and off-road vehicle use.
 - The Permittee or its authorized agents will make regular patrols of the HCP Preserve to prevent unauthorized use and access.
 - Illegal dumping, including hazardous waste, which occurs on HCP Preserve will be cleaned up within 7 days of its discovery. Illegal structures or settlements (e.g., homeless camps) will be removed following appropriate municipal and county protocols.
 - The limits of construction for all new Covered Activities (e.g., aggregate mining, wells, water spreading basins, and O&M activities) will be marked, fenced, and maintained until work is completed.
 - Personnel will strictly limit their activities, vehicles, equipment, and construction materials to the designated work area.
 - Ingress and egress of construction equipment and personnel will be confined to designated access points. Cross-country travel by vehicles and equipment will be prohibited.
 - Qualified biologists, botanists, and/or biological monitors approved by the Permittee will be retained to ensure compliance with protective measures for Covered Species and migratory birds. They will be required for monitoring of any construction or O&M activities that may result in impacts on Covered Species or migratory birds.
 - All persons involved in conducting Covered Activities will receive environmental awareness training. The training will be developed in consultation with a qualified biologist and consist of an onsite or training center presentation for which supporting materials will be provided. Training will provide information about each Covered Species and its habitat and an explanation of the purpose and function of the avoidance and minimization measures and the possible penalties for not adhering to them.
 - The area of Covered Activity disturbances will be confined to the smallest practical area, considering topography, placement of facilities, location of Covered Species habitat, public health and safety, and other limiting factors, and will be located in previously disturbed areas to the extent possible.
 - Areas impacted during construction and O&M activities that contain native vegetation will be restored after the project is completed.² This will include replanting with a plant palette composed of the species found on site prior to the disturbance. Seed will be collected on site and in adjacent areas to the extent feasible under the direction of the Preserve Manager. If additional seed is needed, it will be obtained from the closest location to the site that is available from a commercial vendor. Restoration will also include weed control. Restoration performance standards, and remediation measures, if necessary, will be developed by the Conservation District and reviewed and approved by the Wildlife Agencies. For sites with 50% or greater native shrub cover with temporary impacts on 0.5 acre or less, in lieu of replanting, grubbed native vegetation can be stockpiled and spread back over the site after the project is complete. This minimization measure does not apply to the normal maintenance of roads and groundwater recharge basins.
 - Equipment (e.g., passenger vehicles, trucks, and heavy equipment) will be cleaned prior to entering the worksite and between worksites to prevent the importation and spread of exotic plant species.
 - No open trenches or holes (aggregate mining activities excepted) will be left overnight without covering, fencing, or providing escape ramps with a minimum 3:1 slope. If trenches are not covered, they will be inspected for trapped wildlife by a qualified biologist or biological monitor. Animals found will be captured and moved to the nearest safe location outside the construction area.
 - Soil temporarily stockpiled during new construction and O&M activities in or adjacent to low, medium, or high quality SBKR habitat will be fenced to exclude SBKR, and stockpiles will be removed 45 days after construction. This measure will not apply to stockpiles in permanently impacted areas and areas adjacent to trace habitat (e.g., active mining areas, the Conservation District's borrow pit [Seven Oaks Dam excavation area], and groundwater recharge basins adjacent to SBKR trace habitat).
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² The amount of native seed per acre and the planting method is described in detail in Appendix C.

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- An integrated weed management plan (IWMP) will be developed by the Conservation District and will be implemented by the Permittees and the Participating Entities to minimize the potential introduction of new weeds as a result of Covered Activities and to control the spread of weeds resulting from ground disturbance. The IWMP will be developed within the first year following issuance of the ITP and will be reviewed and approved by the Wildlife Agencies.
 - Adequate fire suppression capability will be maintained in active construction areas including having a water tender on site in active construction areas during periods of high fire danger.
 - No firearms or pets will be allowed at the work areas. Firearms carried by authorized security and law enforcement personnel are exempt.
 - Litter control measures will be implemented. Trash and food items will be contained in closed containers and removed daily to reduce the attractiveness of the area to opportunistic predators.
 - Dust will be controlled. If water trucks are to be used, pooling of water will be avoided to minimize the potential of attracting opportunistic predators.
 - Except on paved roads with posted speed limits and in aggregate mining operations areas with established speed limits per their mining plan, vehicle speeds will not exceed 15 miles per hour during travel associated with the Covered Activities. If work must take place at night, the speed limit will be 10 miles per hour.
 - Covered Activities, including new project construction and ongoing construction (e.g., aggregate mining), will take place during the daylight hours to the extent feasible. If nighttime work is unavoidable, lighting will be shielded away from the HCP Preserve. Fixtures will be shielded to downcast below the horizontal plane of the fixture height and mounted as low as possible. Permanent nighttime lighting of facilities within the HCP Preserve should be avoided. If permanent lighting is determined to be unavoidable for a Covered Activity (e.g., required by existing law or regulation), a nighttime lighting plan will be prepared by the affected Participating Entity and presented to the Conservation District for its review and approval. To minimize their effects on the HCP Preserve, the plan will include fixtures that shield the light away from the HCP Preserve, are mounted as low as possible, and use the least intrusive type of lighting available (e.g., LED or low sodium lighting).
 - Covered Activities adjacent to or surrounded by the HCP Preserve or other natural areas that generate noise in excess of 60 dBA Leq hourly will incorporate setbacks, berms, or walls, as appropriate, to minimize the effects of noise on the adjacent HCP Preserve or other natural areas. Noise must be reduced to 60 dBA Leq at the edge of the HCP Preserve. Berms and other noise abatement measures will only be employed at permanent facilities when noise impacts are ongoing. The berm or other noise abatement measure will be placed within the footprint of the Covered Activity.
 - If landscaping is included as part of any Covered Activity, the Preserve Manager will review and approve the proposed plant palette prior to planting. No non-native species will be used.
-

Compliance Monitoring and Reporting

The Conservation District will be responsible for the annual accounting of the acreage, type, and location of vegetation communities and species habitat conserved and impacted by permitted land uses and other Covered Activities within their respective portions of the Plan Area. At the end of each annual reporting period, the Conservation will tabulate and summarize all impacts that have occurred by vegetation community and species habitat type. The acreages will be accompanied by GIS figures documenting the location of Covered Activity impacts and will be included in the annual report to the Wildlife Agencies.

Annual Reporting

Use Esri applications (Arc Collector/Survey 123) to record your activities. Activities to record may include:

- Any O&M in facilities (inspection, repair, debris cleaning, clean out, weeding, sampling, minor grading, and other well maintenance)
- Any management actions regarding protected species (grazing, burning, seedling transplant, weed control)
- Monitoring plots
- Signage
- Patrols
- Cleanup
- Plant cover control (invasive/shrub cover removal)
- Invasive pathogen/animal control
- Fluvial restoration projects (berm removal, boulder replacement)

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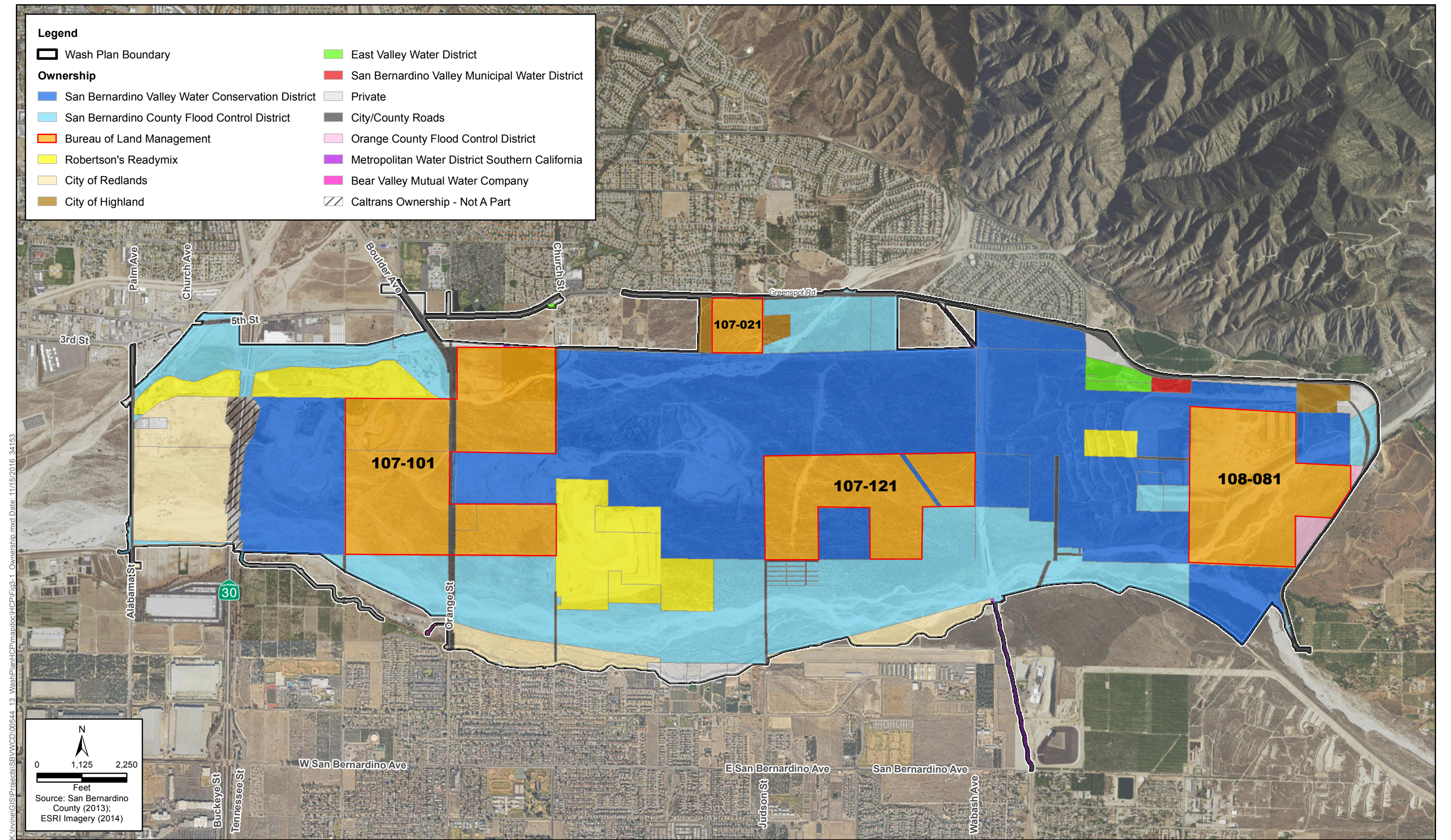


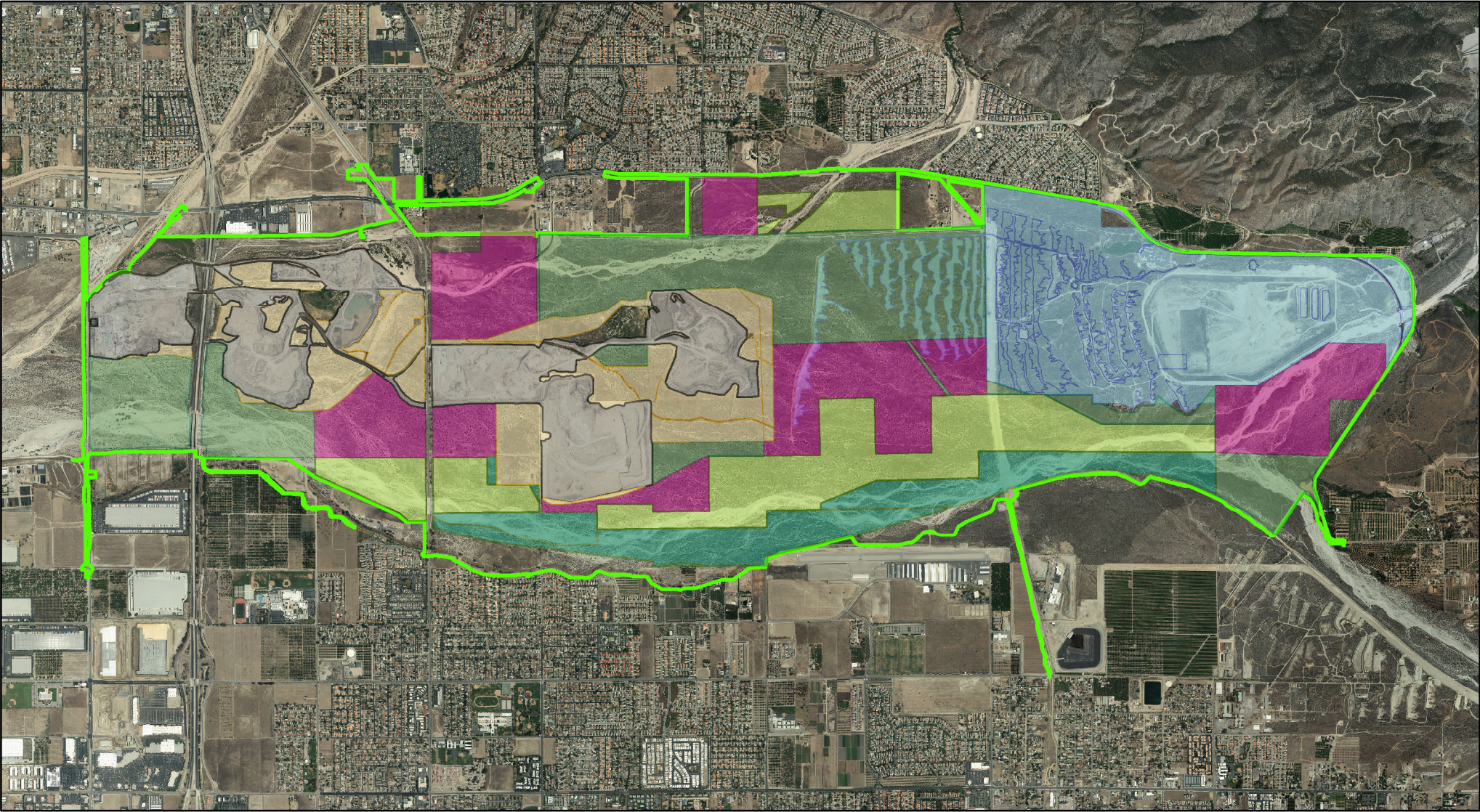
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Ownership within the
Wash Plan HCP Area

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Figure 1.0-5 Overview of Wash Plan HCP

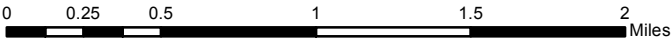


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Projection: Lambert Conformal Conic
Datum: North American 1983
Scale: 1:24,000
Source: SBVWCD GIS
GIS Contact: Erin Berger & Katelyn Scholte
January 23, 2017



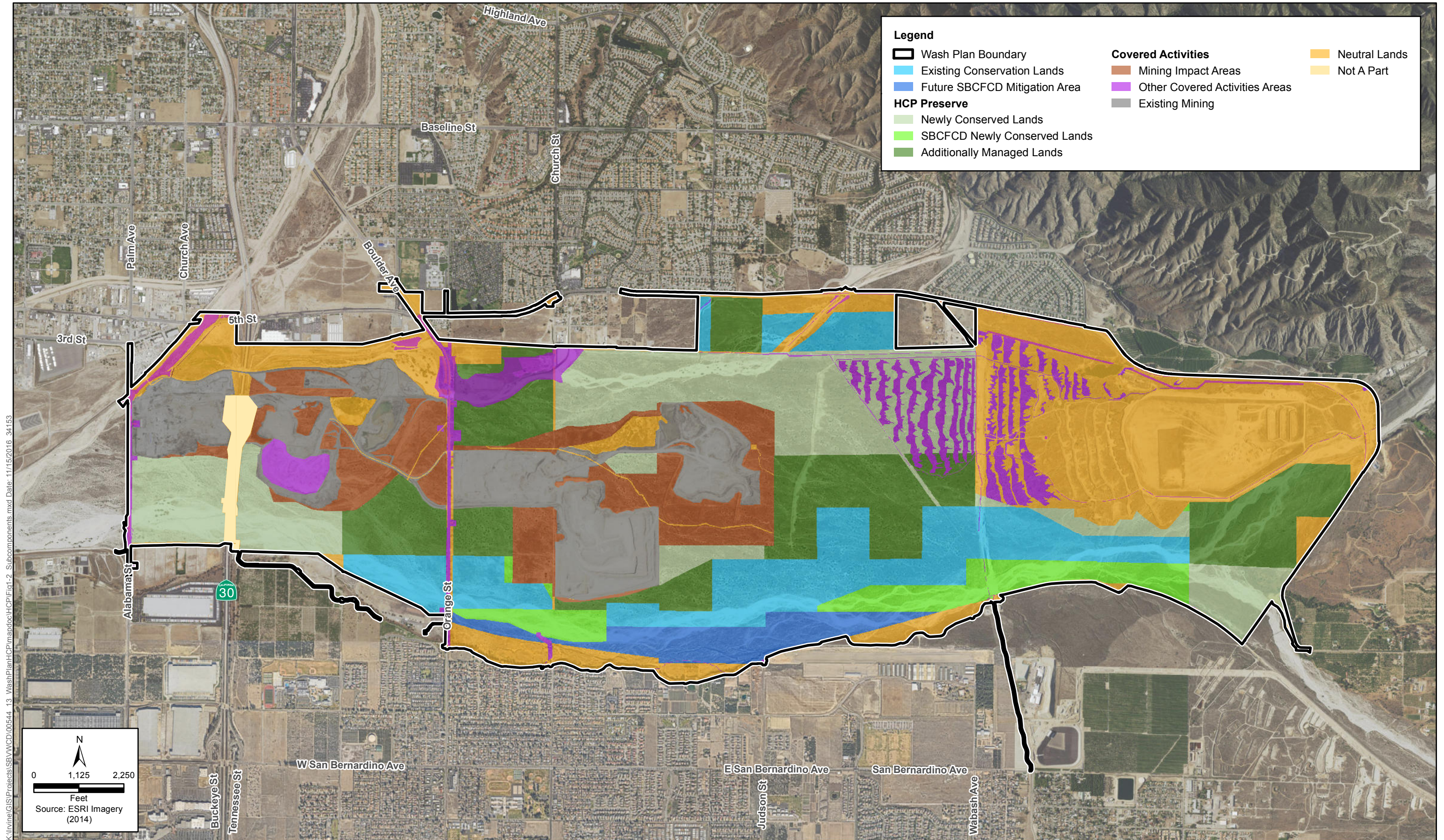
LEGEND

- | | |
|--|--|
|  WATER CONSERVATION (869 ACRES) |  NEWLY CONSERVED (856 ACRES) |
|  WOOLLY STAR PRESERVATION AREA (545 ACRES) |  ADDITIONALLY MANAGED (711 ACRES) |
|  EXISTING MINING (770 ACRES) |  FLOOD CONTROL CONSERVATION (338 ACRES) |
|  NEW MINING (224 ACRES) |  WASH PLAN BOUNDARY |



TOTAL WASH PLAN ACREAGE: 4,837
All acreages are approximate

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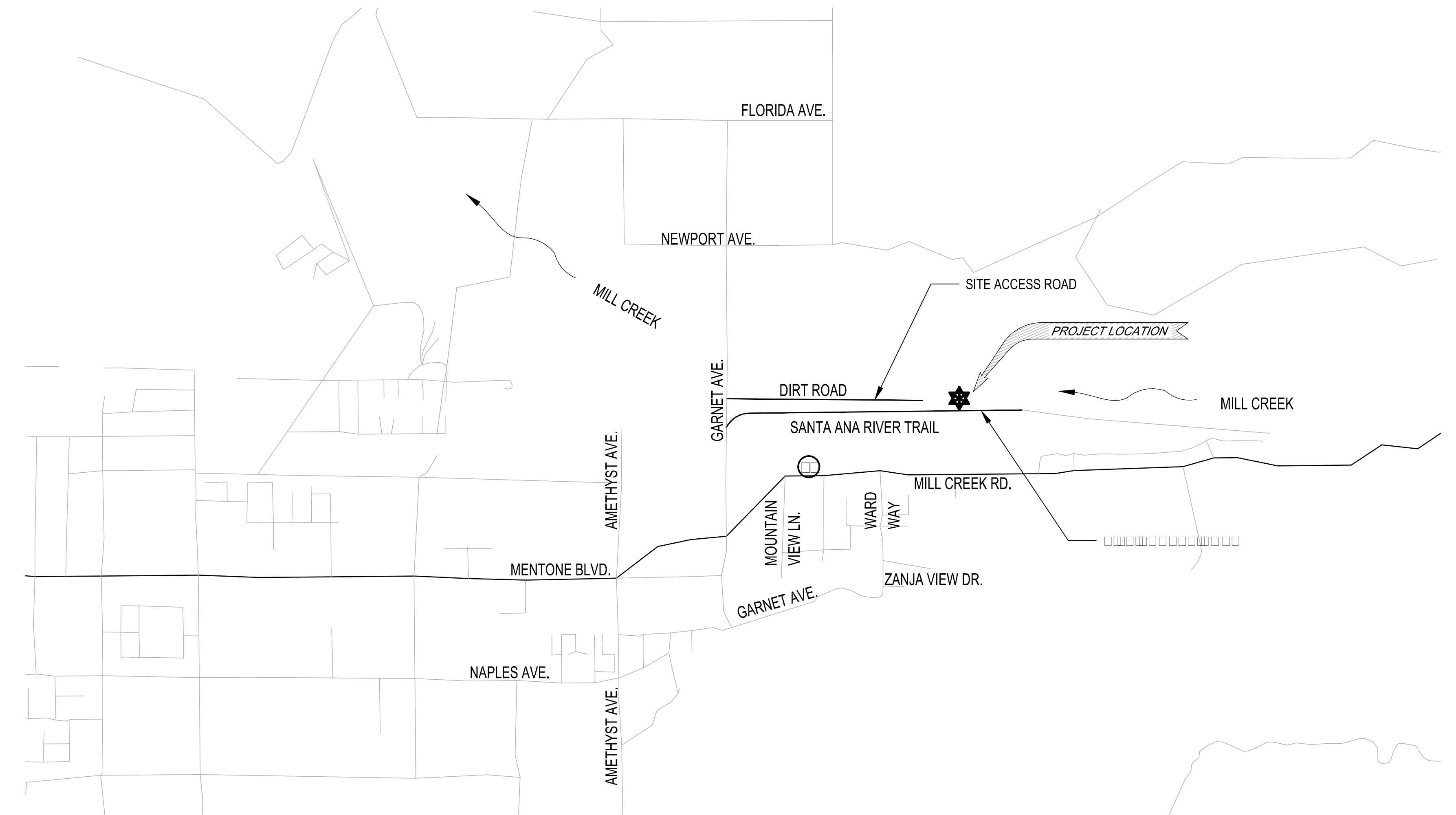
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Appendix J : Current Projects

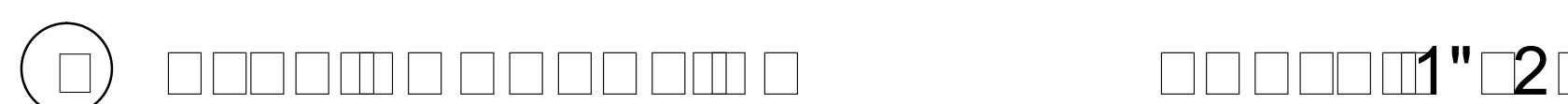
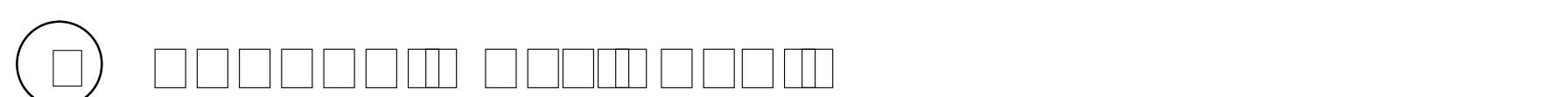
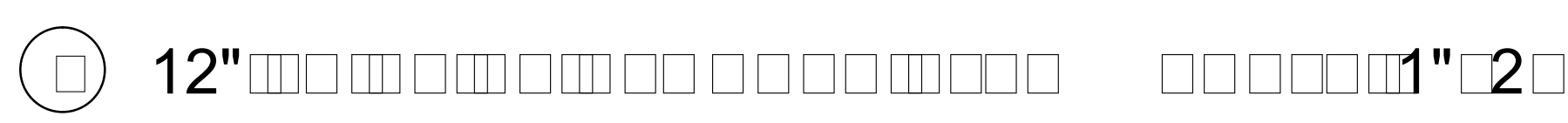
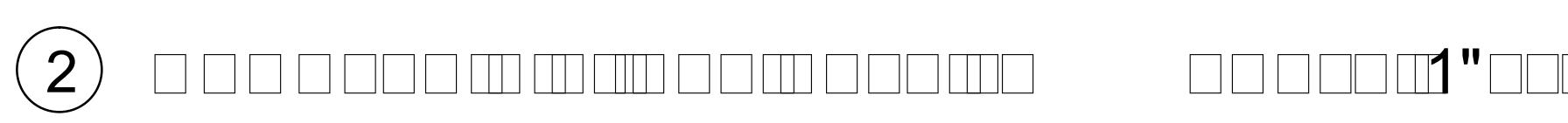
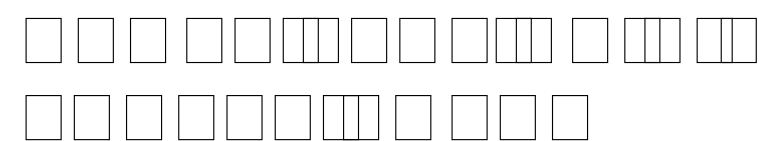
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DEBRIS MANAGEMENT IMPROVEMENT

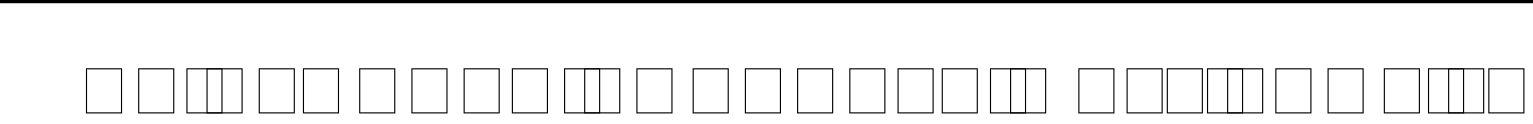
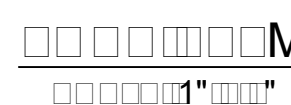
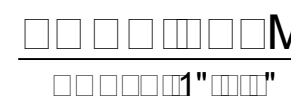
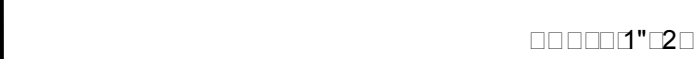
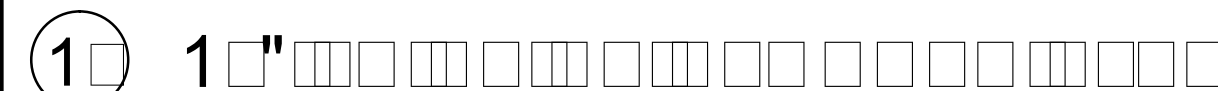
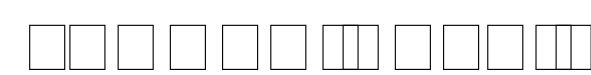


- | | |
|--|--|
| | |
| | 2' THICK LAYER LIGHT CLASS RIP-RAP |
| | 2' THICK LAYER GROUTED LIGHT CLASS RIP-RAP |
| | PCC SLAB |
| | EXISTING PCC SLAB TO BE REMOVED |
| | CATWALK GRATING |
| | TRASH RACK |
| | LIMITS OF WORK |
| | LIMITS OF GRADING |
| | PCC CUT-OFF WALL |
| | RIP-RAP TOE DOWN AND LIMITS OF GROUTED RIP-RAP |
| | LIMITS OF UNGROUTED RIP-RAP |
| | EXISTING PCC DIVERSION CHANNEL WALL |

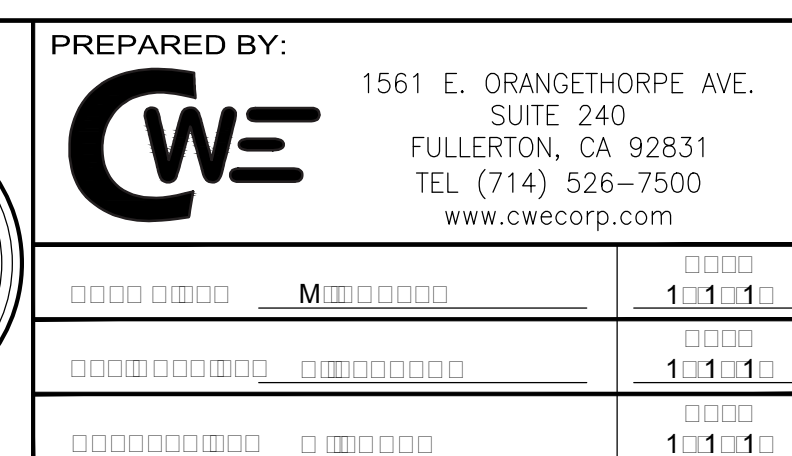
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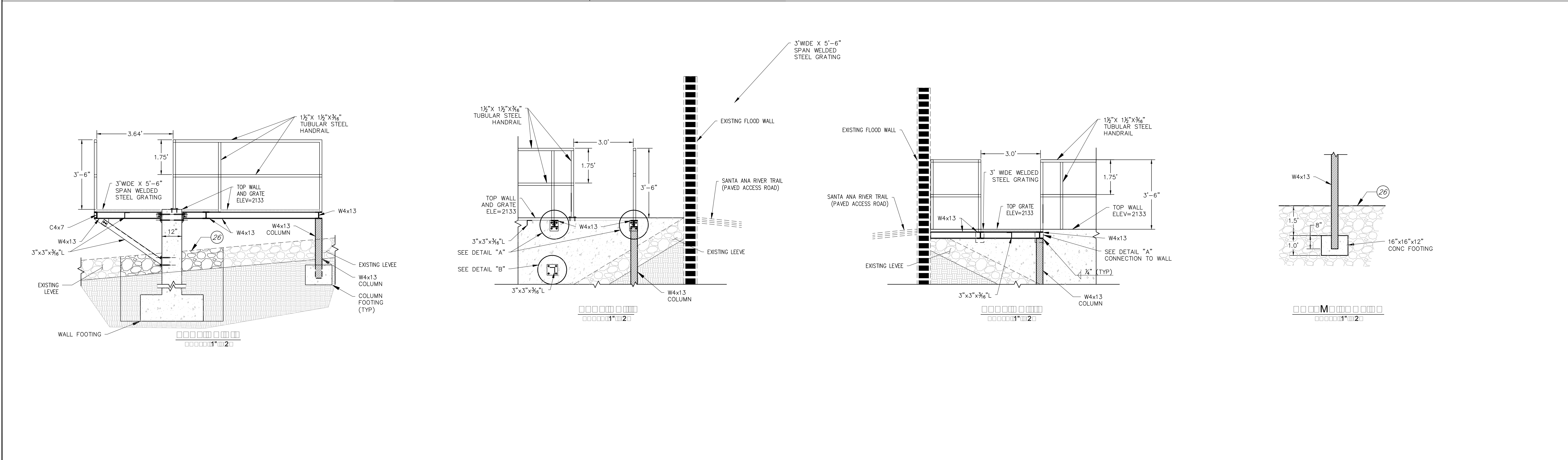
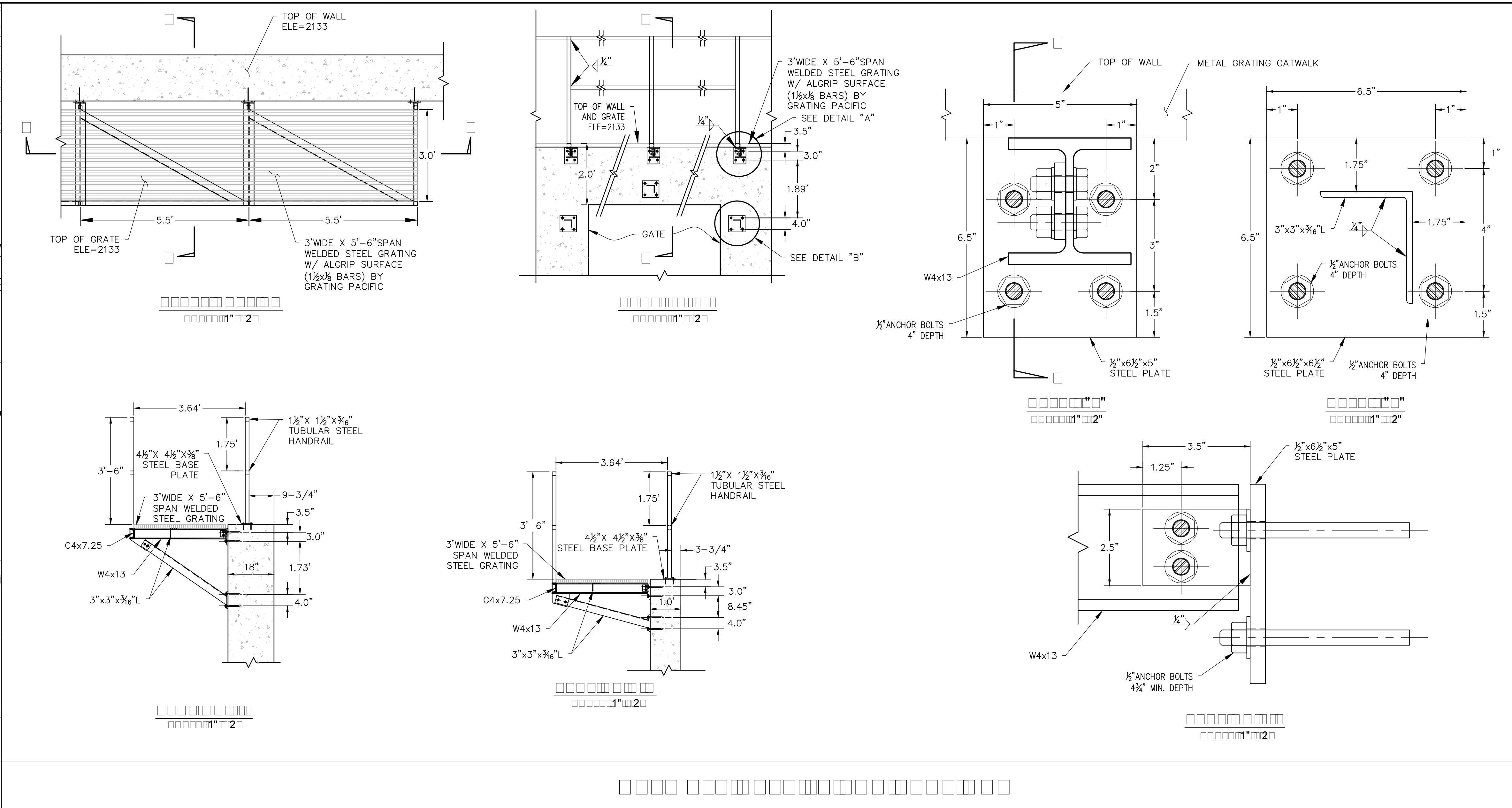
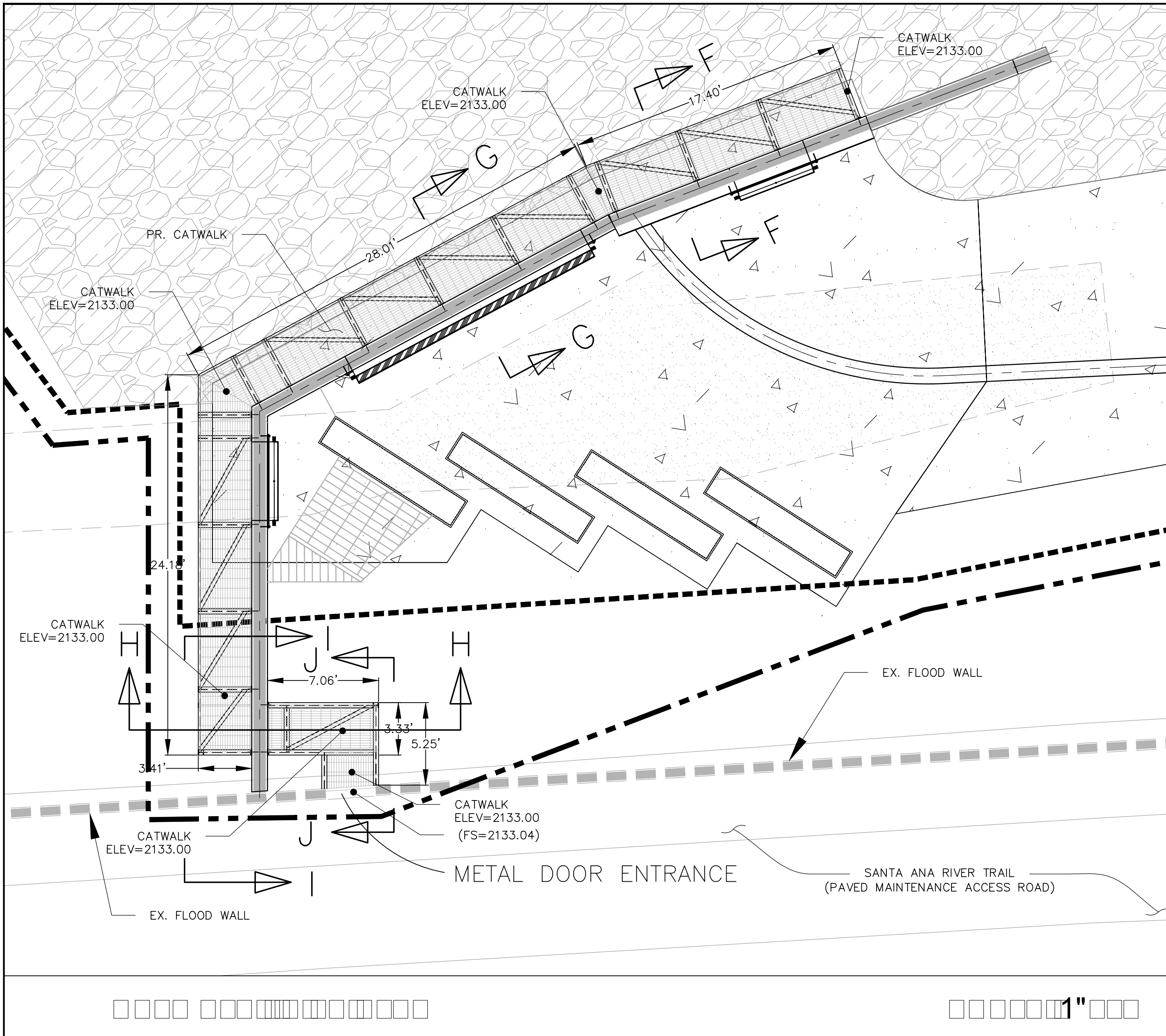
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UNDERGROUND SERVICE ALERT
CALL TOLL FREE
1-800-227-2600
TWO WORKING DAYS BEFORE YOU DIG

BM NO. NGS 449 (EV1475) ELEVATION = 2021.83 FEET
(NAVD 83) YUCAIPA (1996)
BENCH MARK DISK STAMPED S 449 1949 SET IN BUILDING WALL, 2 MILES E. FROM MENTONE, 1.95 MILES E. ALONG
STATE HWY 38 FROM THE POST OFFICE AT MENTONE, 4.1 MILES E/O THE CURRIER GYMNASIUM OF THE UNIVERSITY
OF REDLANDS AT REDLANDS. AT THE INT. OF GARNET ST. AT THE GREEN SPOT TRADING POST FLYING SERVICE
STATION. SET VERTICALLY IN THE N.W. FACE OF THE SERVICE STATION BUILDING, 1.3' S.W. OF THE N.W. CORNER OF
THE BUILDING, AND 2.6' ABOVE THE GROUND.

COORDINATES ARE BASED UPON NAD 83, STATE PLAN COORDINATE SYSTEM, CALIFORNIA ZONE 5, EPOCH 2007.

NO.	DATE	REVISIONS	APPROVED	DATE
1				
2				

WILLIAM F. YOUNG, PE, RCE No. 35715
No. C 35715
Exp. 09/30/17
CIVIL
STATE OF CALIFORNIA

PREPARED BY:
CWE
1561 E. ORANGETHORPE AVE.
SUITE 240
FULLERTON, CA 92831
TEL (714) 526-7500
www.cwecorp.com

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San Bernardino Valley Water Conservation District

CONSTRUCTION PLANS FOR
Plunge Creek
Conservation Project

JULY 2016

SHEET INDEX

COVER SHEET	T1
ACCESS & STAGING SHEET	G1
UPPER PILOT CHANNEL PLAN SHEET	C1
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UPPER PILOT CHANNEL PROFILE SHEETS	C3-C4
LOWER PILOT CHANNEL PROFILE SHEET	C5
NORTH LOWER PILOT CHANNEL PROFILE SHEET	C6
UPPER PILOT CHANNEL SECTIONS SHEETS	C7-C8
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SPLITTER MOUND DETAILS	C10-C12
DETAIL SHEETS	D1-D2

GENERAL NOTES

1. TOPOGRAPHY BASED ON 2013 LIDAR SURVEY, SAN BERNARDINO COUNTY
2. AERIAL IMAGERY SOURCE: USGS, 2015.
3. CONTRACTOR SHALL VERIFY UTILITY LOCATIONS PRIOR TO CONSTRUCTION.
4. THE ENGINEER MAY MAKE MINOR CHANGES TO THE CONFIGURATION AND DESIGN GRADES OF ACCESS ROUTES AND PROJECT FEATURES IN THE FIELD.
5. NO TREES ARE DESIGNATED FOR REMOVAL. IF FIELD CONDITIONS INDICATE THE NEED FOR TREE REMOVAL, PRIOR APPROVAL IS REQUIRED FROM THE DISTRICT.
6. NO GRADING OR MATERIAL DELIVERY SHALL OCCUR PRIOR TO INSTALLATION OF APPROVED SOIL AND EROSION CONTROL BMPs.
7. CONSTRUCTION OPERATIONS SHALL CONFORM TO THE APPROVED SWPPP AND PROJECT PERMITS.
8. WORK WILL BE PERFORMED BETWEEN THE HOURS OF 8 AM TO 6 PM, MONDAY THROUGH FRIDAY, UNLESS OTHERWISE APPROVED.
9. EXCAVATED MATERIAL WILL BE DISPOSED OF ENTIRELY ON SITE.
10. LWM AND BOULDER MATERIALS WILL BE SUPPLIED BY THE OWNER AND STOCKPILED ON SITE NEAR STAGING AREA.

PROJECT MANAGER

Jeffrey Beehler
San Bernardino Valley Water Conservation District

APPROVED BY:

Jeffrey Beehler (date)

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(916) 737-3030
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Edward E. Wallace
CALIFORNIA REGISTERED
PROFESSIONAL ENGINEER NO. #32301
northwest hydraulic consultants

(date)



LEGEND

EXISTING TREES	
EXISTING PAVED ROAD	
EXISTING GRAVEL ROAD	
EXISTING CONTOURS (MAJOR)	
EXISTING CONTOURS (MINOR)	
EXISTING FENCE	
EXISTING EDGE OF WATER (00/00/00)	
EXISTING BUILDINGS & STRUCTURES	
PROPOSED EARTHWORK	
CONSTRUCTION BASELINE	
PRESERVATION FENCE	
PRESERVATION FENCE WITH SILT BARRIER	
HORIZONTAL AND VERTICAL CONTROL POINT	
HORIZONTAL CONTROL POINT	
VERTICAL CONTROL POINT	



Vicinity Map

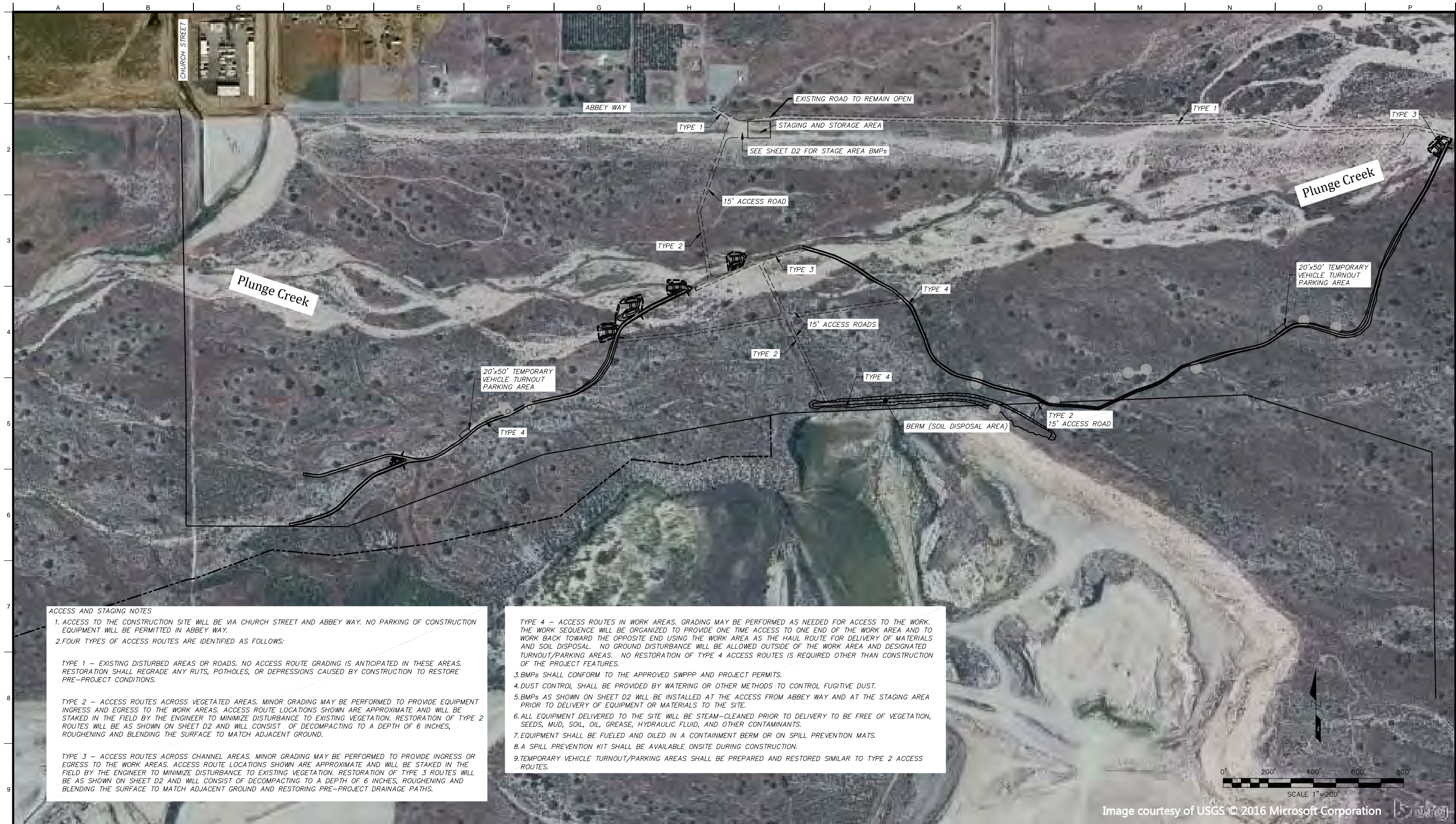


Project Location Map

Drawing Name PLUNGE CREEK COVER			Date 21 July 2016 14:52		
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Sheet 1 of 16

T1



ACCESS AND STAGING NOTES

1. ACCESS TO THE CONSTRUCTION SITE WILL BE VIA CHURCH STREET AND ABBEY WAY. NO PARKING OF CONSTRUCTION EQUIPMENT WILL BE PERMITTED IN ABBEY WAY.

2. FOUR TYPES OF ACCESS ROUTES ARE IDENTIFIED AS FOLLOWS:

TYPE 1 – EXISTING DISTURBED AREAS OR ROADS. NO ACCESS ROUTE GRADING IS ANTICIPATED IN THESE AREAS. RESTORATION SHALL REGRADE ANY RUTS, POTHOLES, OR DEPRESSIONS CAUSED BY CONSTRUCTION TO RESTORE PRE-PROJECT CONDITIONS.

TYPE 2 – ACCESS ROUTES ACROSS VEGETATED AREAS. MINOR GRADING MAY BE PERFORMED TO PROVIDE EQUIPMENT INGRESS AND EGRESS TO THE WORK AREAS. ACCESS ROUTE LOCATIONS SHOWN ARE APPROXIMATE AND WILL BE STAKED IN THE FIELD BY THE ENGINEER TO MINIMIZE DISTURBANCE TO EXISTING VEGETATION. RESTORATION OF TYPE 2 ROUTES WILL BE AS SHOWN ON SHEET D2 AND WILL CONSIST OF DECOMPACTING TO A DEPTH OF 6 INCHES, ROUGHENING AND BLENDING THE SURFACE TO MATCH ADJACENT GROUND.

TYPE 3 – ACCESS ROUTES ACROSS CHANNEL AREAS. MINOR GRADING MAY BE PERFORMED TO PROVIDE INGRESS OR EGRESS TO THE WORK AREAS. ACCESS ROUTE LOCATIONS SHOWN ARE APPROXIMATE AND WILL BE STAKED IN THE FIELD BY THE ENGINEER TO MINIMIZE DISTURBANCE TO EXISTING VEGETATION. RESTORATION OF TYPE 3 ROUTES WILL BE AS SHOWN ON SHEET D2 AND WILL CONSIST OF DECOMPACTING TO A DEPTH OF 6 INCHES, ROUGHENING AND BLENDING THE SURFACE TO MATCH ADJACENT GROUND AND RESTORING PRE-PROJECT DRAINAGE PATHS.

TYPE 4 – ACCESS ROUTES IN WORK AREAS. GRADING MAY BE PERFORMED AS NEEDED FOR ACCESS TO THE WORK. THE WORK SEQUENCE WILL BE ORGANIZED TO PROVIDE ONE TIME ACCESS TO ONE END OF THE WORK AREA AND TO WORK BACK TOWARD THE OPPOSITE END USING THE WORK AREA AS THE HAUL ROUTE FOR DELIVERY OF MATERIALS AND SOIL DISPOSAL. NO GROUND DISTURBANCE WILL BE ALLOWED OUTSIDE OF THE WORK AREA AND DESIGNATED TURNOUT/PARKING AREAS. NO RESTORATION OF TYPE 4 ACCESS ROUTES IS REQUIRED OTHER THAN CONSTRUCTION OF THE PROJECT FEATURES.

3. BMPs SHALL CONFORM TO THE APPROVED SWPPP AND PROJECT PERMITS.

4. DUST CONTROL SHALL BE PROVIDED BY WATERING OR OTHER METHODS TO CONTROL FUGITIVE DUST.





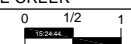
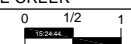
5. BMPs AS SHOWN ON SHEET D2 WILL BE INSTALLED AT THE ACCESS FROM ABBEY WAY AND AT THE STAGING AREA PRIOR TO DELIVERY OF EQUIPMENT OR MATERIALS TO THE SITE.

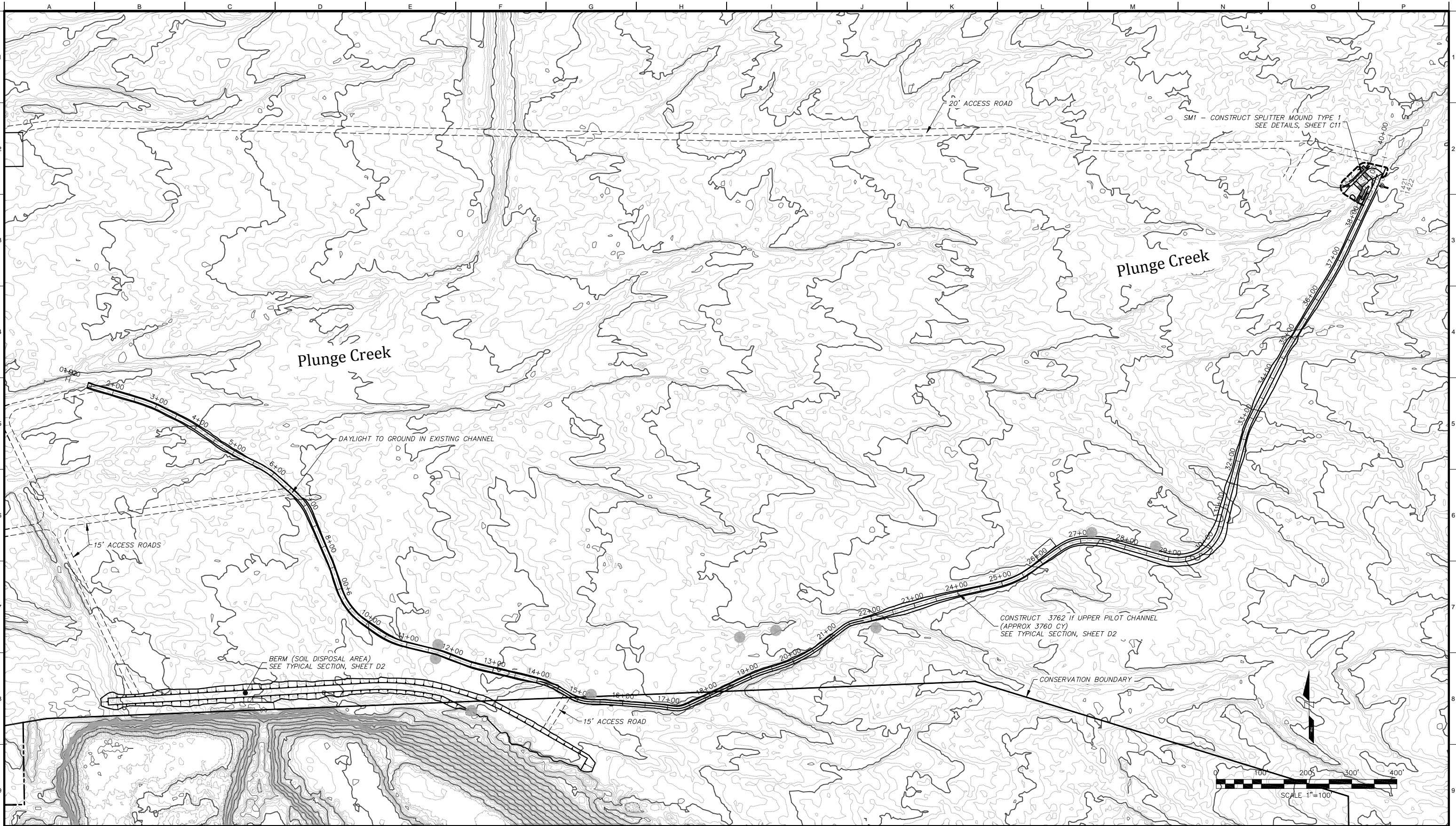
6. ALL EQUIPMENT DELIVERED TO THE SITE WILL BE STEAM-CLEANED PRIOR TO DELIVERY TO BE FREE OF VEGETATION, SEEDS, MUD, SOIL, OIL, GREASE, HYDRAULIC FLUID, AND OTHER CONTAMINANTS.

7. EQUIPMENT SHALL BE FUELED AND OILED IN A CONTAINMENT BERM OR ON SPILL PREVENTION MATS.

8. A SPILL PREVENTION KIT SHALL BE AVAILABLE ONSITE DURING CONSTRUCTION.

9. TEMPORARY VEHICLE TURNOUT/PARKING AREAS SHALL BE PREPARED AND RESTORED SIMILAR TO TYPE 2 ACCESS ROUTES.

 SBV Water Conservation District 1630 West Redlands Blvd, Ste A Redlands, California 92373 Phone: (909) 793-2503 FAX: (909) 793-0188 www.sbvwcdd.org	 northwest hydraulic consultants 80 south lake avenue, suite 800 pasadena, california 91101 phone: (626) 440-0080 fax: (626) 440-1881 www.nhcweb.com	 ICF INTERNATIONAL 630 K Street, Suite 400 Sacramento, CA 95814 (916) 737-3000 (916) 737-3030 www.icf.com	 PRELIMINARY NOT FOR CONSTRUCTION	Revisions	Drawing Information	Plunge Creek Conservation Project	Job Number 6000208																																		
				<table border="1"><thead><tr><th>No.</th><th>Date</th><th>Description</th></tr></thead><tbody><tr><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td></tr></tbody></table>	No.		Date	Description																						<table border="1"><tbody><tr><td>Date</td><td>21 July 2016 (03:24)</td></tr><tr><td>Status</td><td>90% Submittal</td></tr><tr><td>Designer</td><td>tvS</td></tr><tr><td>Drafter</td><td>tvS</td></tr><tr><td>Checked</td><td>eeW</td></tr><tr><td>File Name</td><td>PLUNGE CREEK</td></tr><tr><td>Plotted Scale</td><td></td></tr></tbody></table>	Date	21 July 2016 (03:24)	Status	90% Submittal	Designer	tvS	Drafter	tvS	Checked	eeW	File Name
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Revisions		
No.	Date	Description

Drawing Information

Date	21 July 2016 (03:24)
Status	90% Submittal
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Plunge Creek Conservation Project

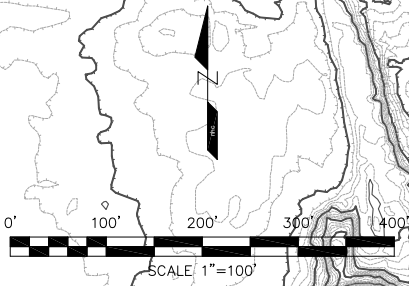
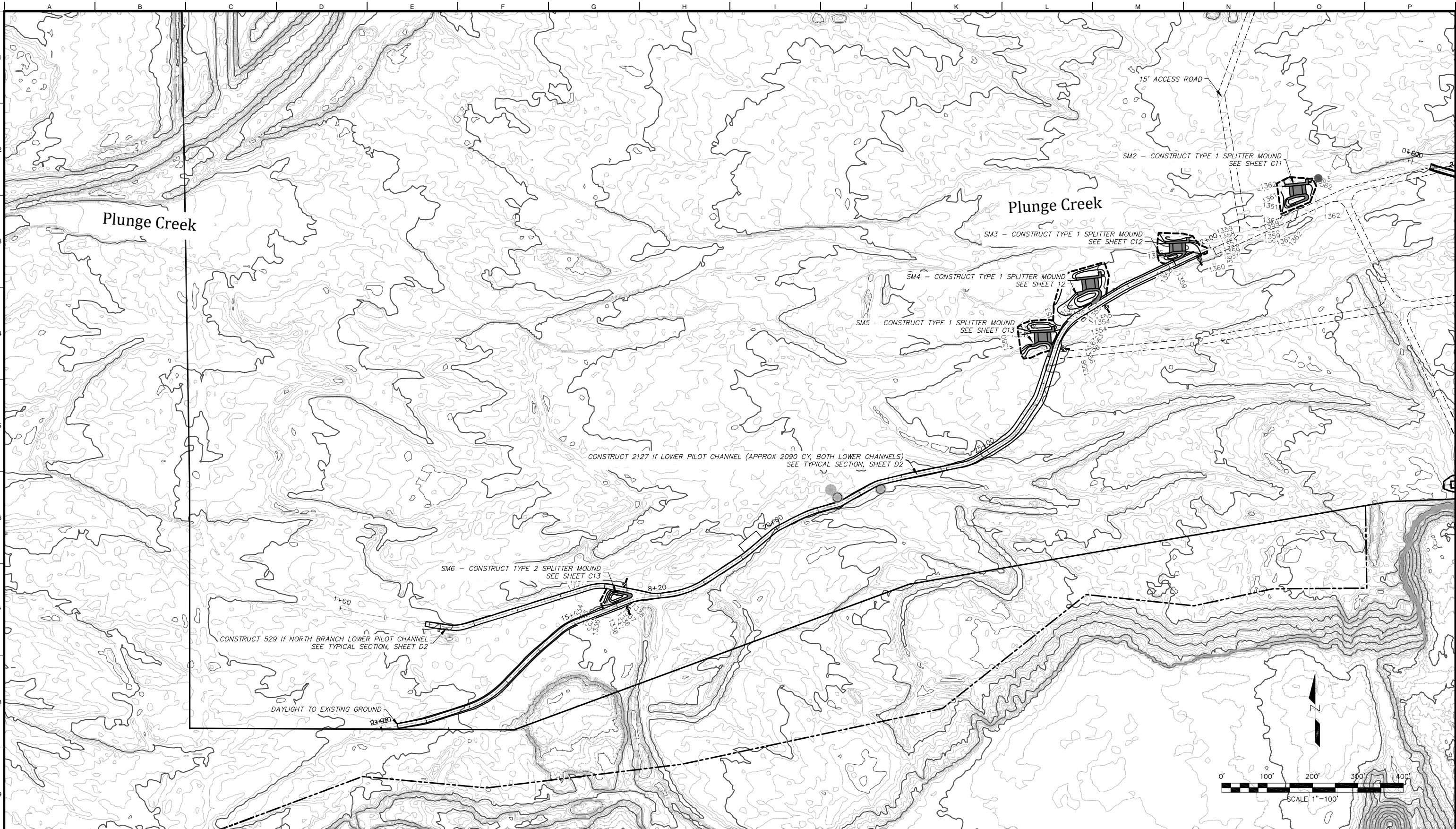
Upper Pilot Channel Plan Sheet

Job Number
6000208

Sheet Number

C1

Sheet 3 of 16



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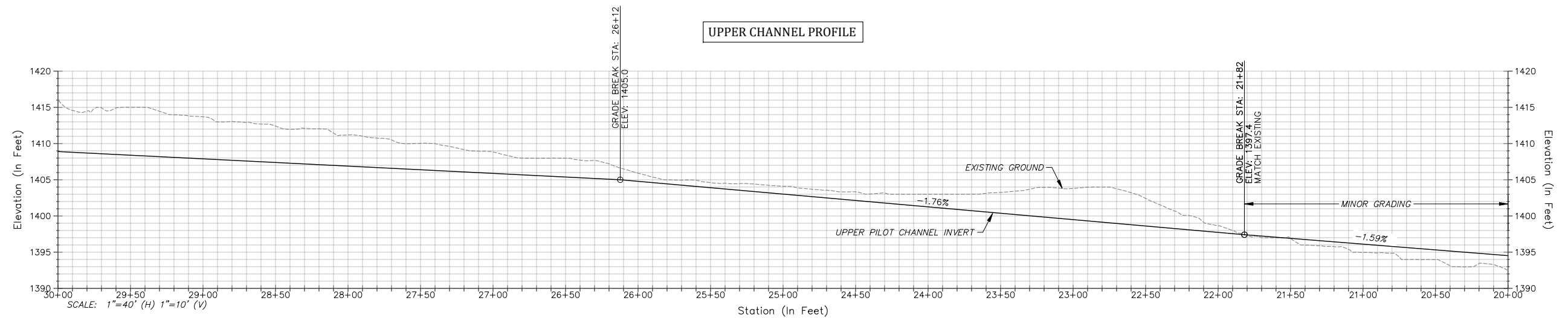
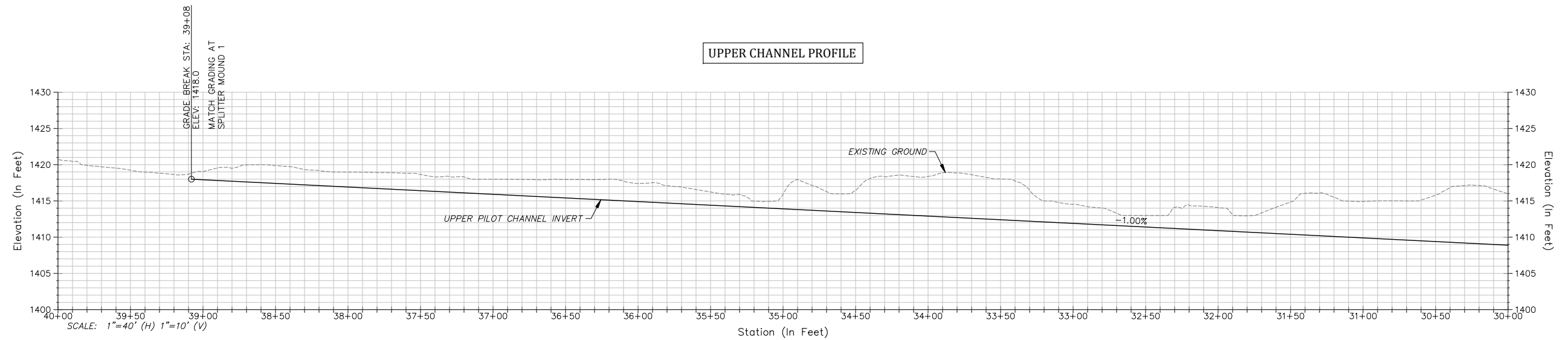


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			File Name	PLUNGE CREEK
			Plotted Scale	0 1/2 1

Plunge Creek Conservation Project

Lower Pilot Channel Plan Sheet

Job Number
6000208
Sheet Number
C2
Sheet 4 of 16



NOTE:
WHERE MINOR GRADING IS INDICATED, CUTS TO DESIGN
GRADE ARE EXPECTED TO BE ONE FOOT OR LESS AND A
UNIFORM SIDE SLOPE IS NOT REQUIRED. NO FILL IS
REQUIRED WHERE EXISTING GROUND IS LOWER THAN
DESIGN GRADE. ENGINEER MAY MAKE MINOR
ADJUSTMENTS IN LOCATION OF GRADING IN FIELD TO
PROVIDE POSITIVE DRAINAGE. COMPLETED SURFACE,
AFTER HAULING OF MATERIALS IS COMPLETED, SHOULD
BE DECOMPACTED TO A DEPTH OF 6 INCHES AND
ROUGHENED.



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Plunge Creek Conservation Project

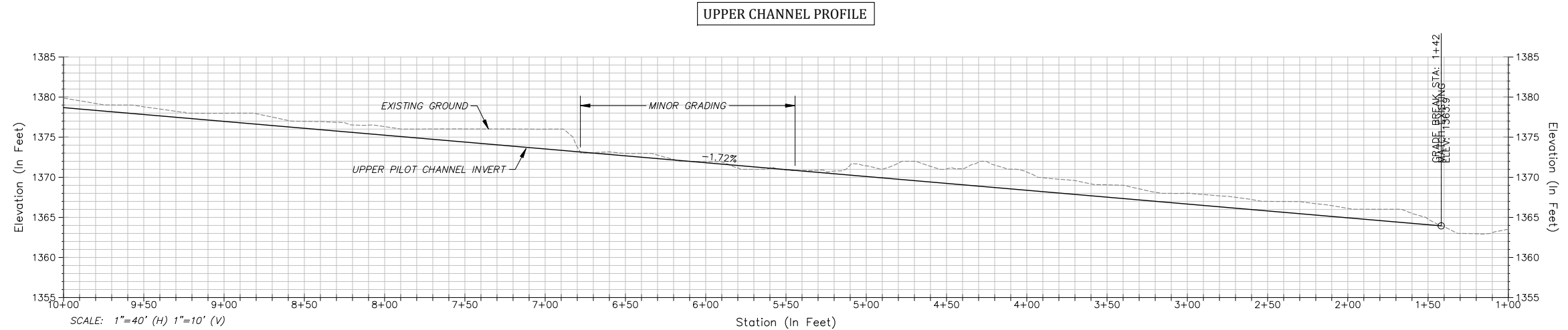
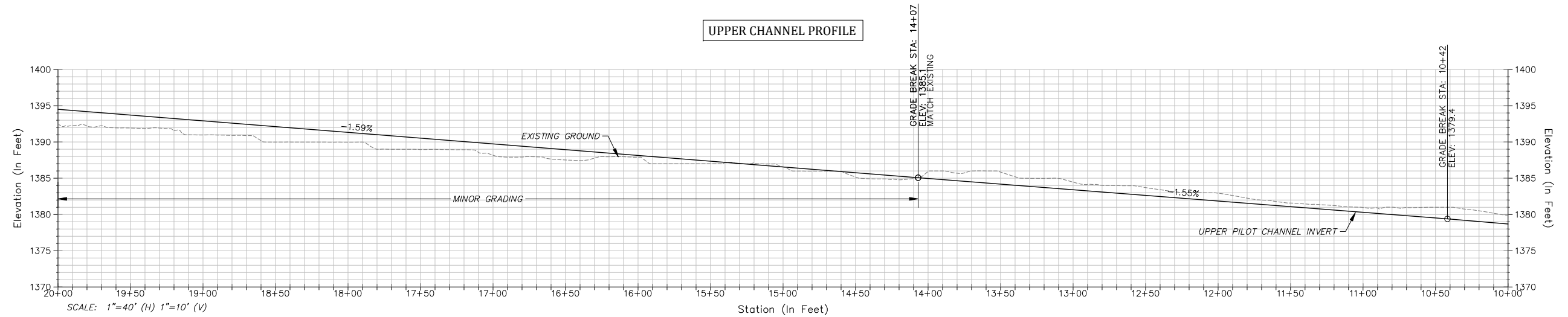
Upper Pilot Channel Profile Sheet

Job Number
6000208

Sheet Number

C3

Sheet 5 of 16



NOTE:
WHERE MINOR GRADING IS INDICATED, CUTS TO DESIGN
GRADE ARE EXPECTED TO BE ONE FOOT OR LESS AND A
UNIFORM SIDE SLOPE IS NOT REQUIRED. NO FILL IS
REQUIRED WHERE EXISTING GROUND IS LOWER THAN
DESIGN GRADE. ENGINEER MAY MAKE MINOR
ADJUSTMENTS IN LOCATION OF GRADING IN FIELD TO
PROVIDE POSITIVE DRAINAGE. COMPLETED SURFACE,
AFTER HAULING OF MATERIALS IS COMPLETED, SHOULD
BE DECOMPACTED TO A DEPTH OF 6 INCHES AND
ROUGHENED.



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Revisions			Drawing Information	
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			21 July 2016 (03:24)	
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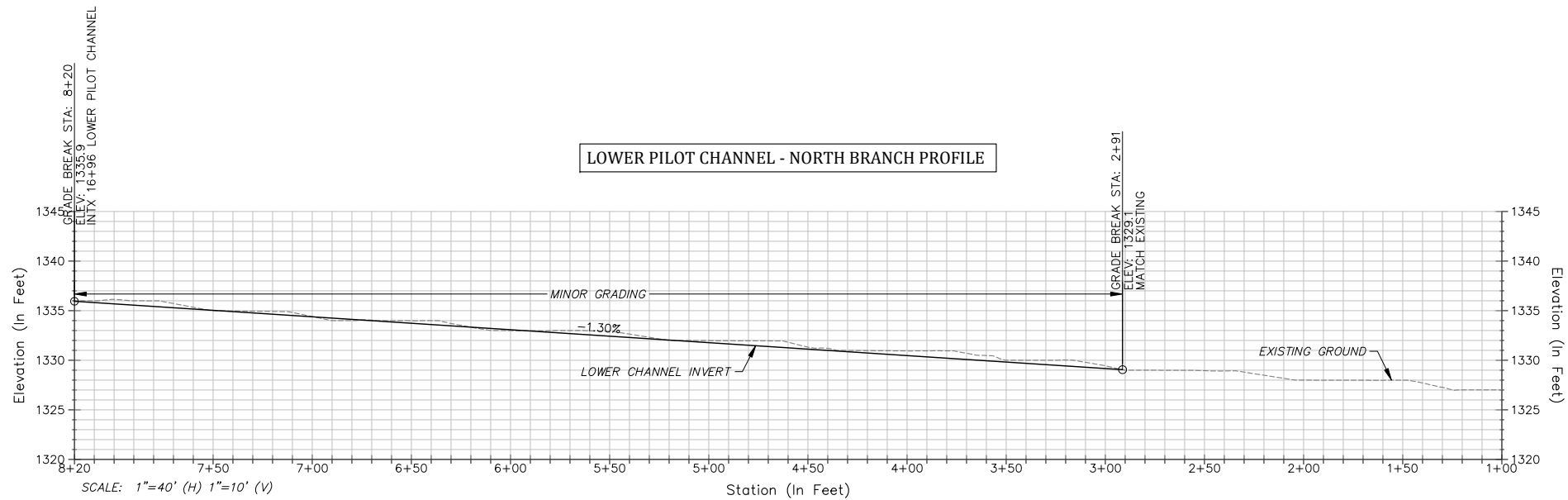
Plunge Creek Conservation Project

Upper Pilot Channel Profile Sheet

Job Number
6000208
Sheet Number

C4

Sheet 6 of 16



NOTE:
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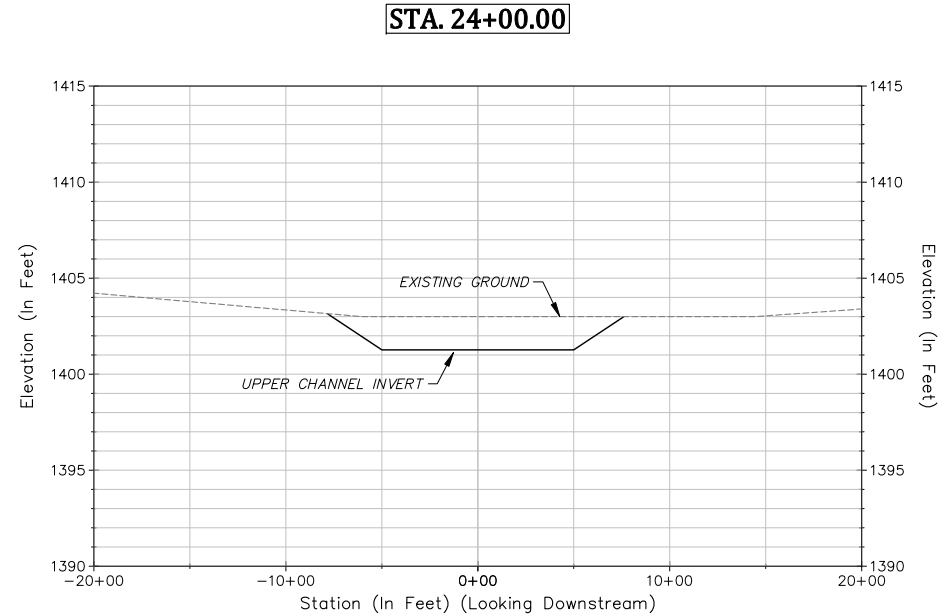
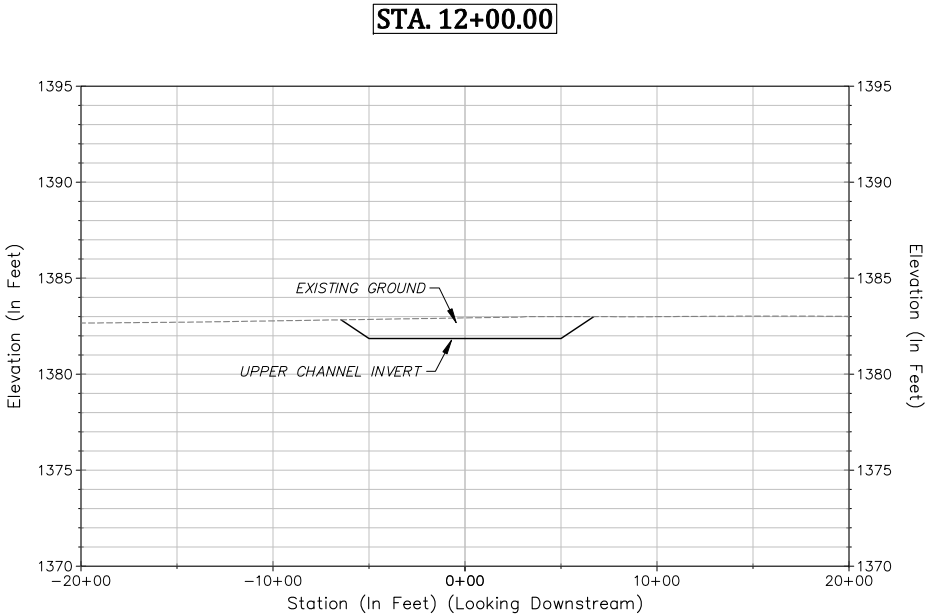
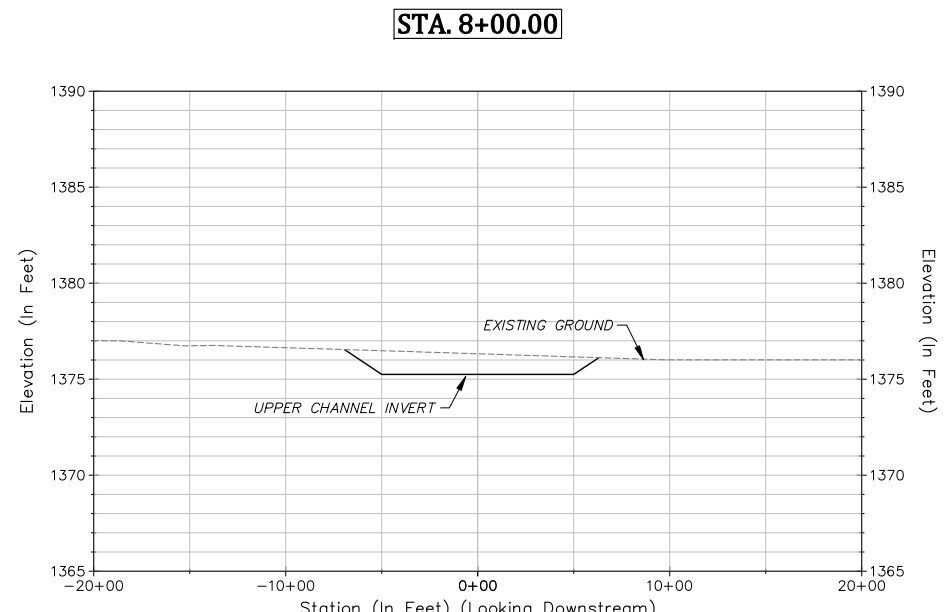
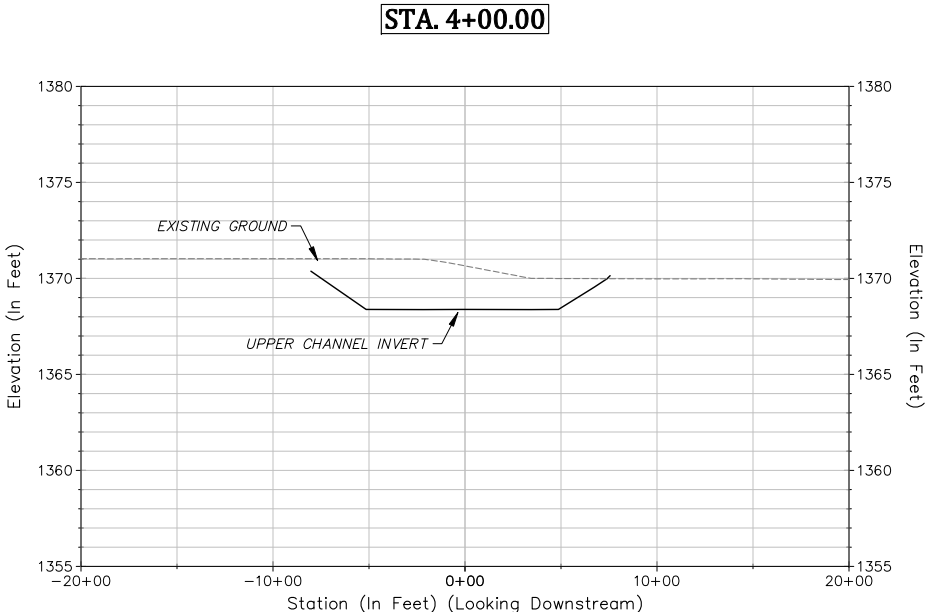
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Status	90% Submittal
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Drafter	tvb
Checked	eev
File Name	PLUNGE CREEK
Plotted Scale	0 1/2 1 1524.44





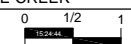
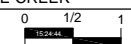
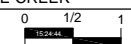
Plunge Creek Conservation Project

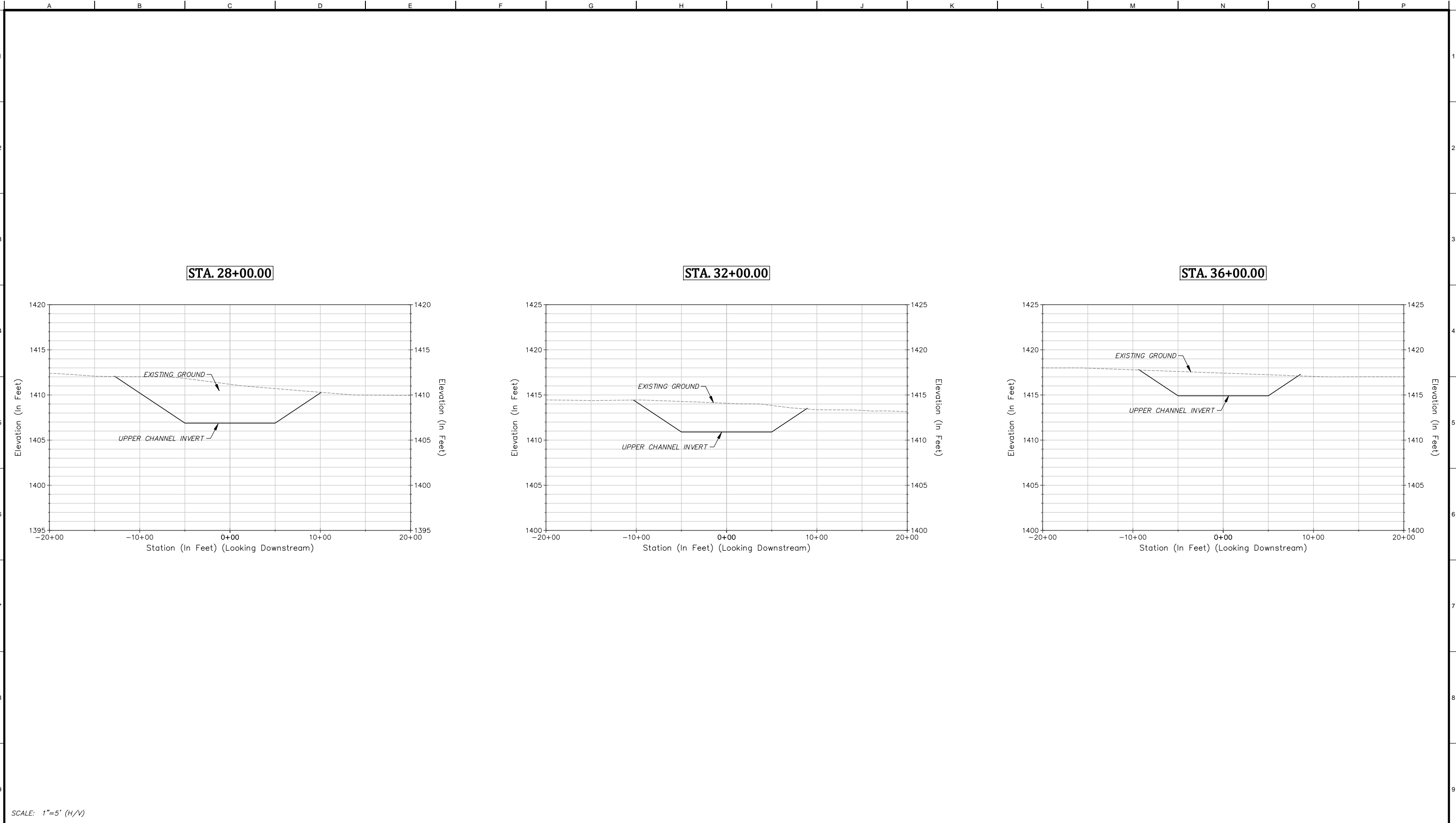
Lower Pilot Channel - North Branch
Profile Sheet

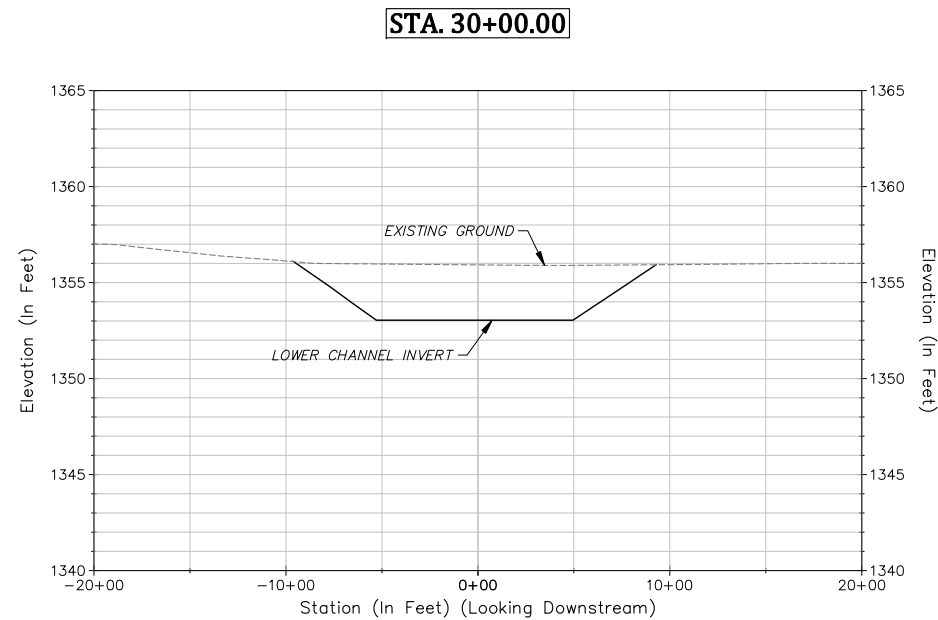
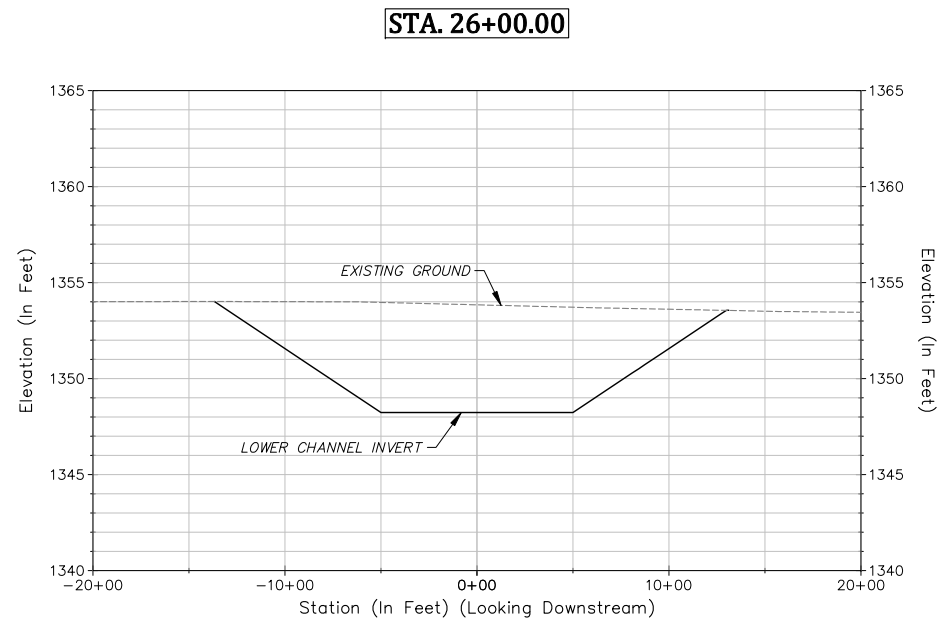
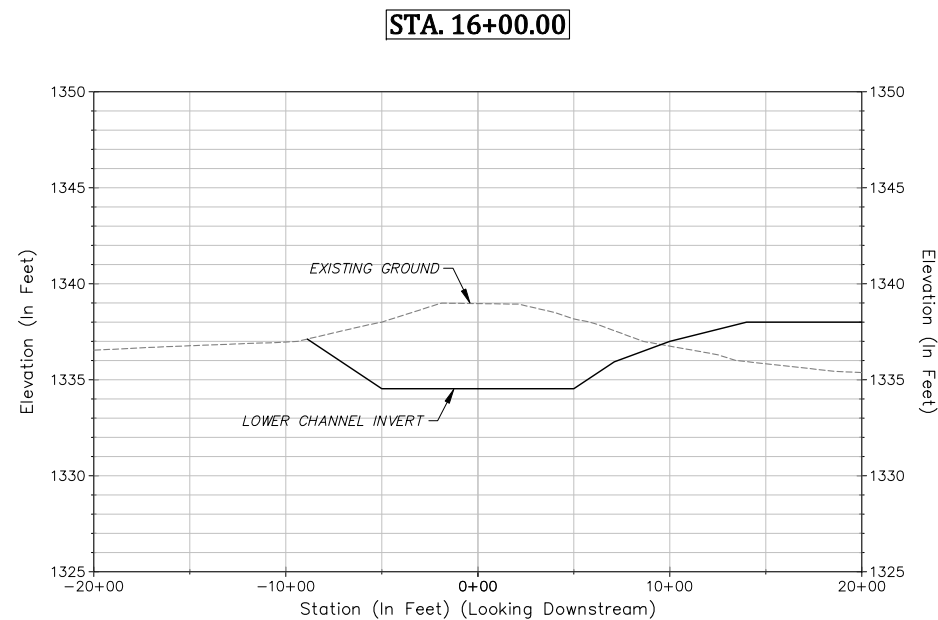
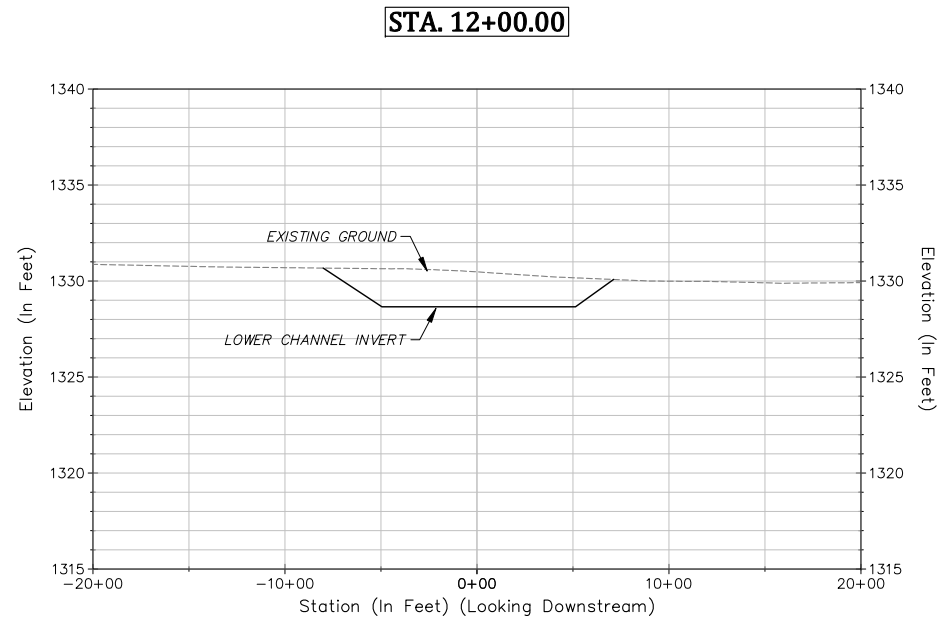
Job Number
6000208
Sheet Number
C6
Sheet 7 of 16



SCALE: 1"=5' (H/V)

 SBV Water Conservation District 1630 West Redlands Blvd, Ste A Redlands, California 92373 Phone: (909) 793-2503 FAX: (909) 793-0188 www.sbvacd.org	 northwest hydraulic consultants 80 south lake avenue, suite 800 pasadena, california 91101 phone: (626) 440-0080 fax: (626) 440-1881 www.nhcweb.com	 ICF INTERNATIONAL 630 K Street, Suite 400 Sacramento, CA 95814 (916) 737-3000 (916) 737-3030 www.icf.com	 PRELIMINARY NOT FOR CONSTRUCTION	<table><tr><th colspan="3">Revisions</th></tr><tr><th>No.</th><th>Date</th><th>Description</th></tr><tr><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td></tr></table>	Revisions			No.	Date	Description																			<table><tr><th colspan="2">Drawing Information</th></tr><tr><td>Date</td><td>21 July 2016 (03:24)</td></tr><tr><td>Status</td><td>90% Submittal</td></tr><tr><td>Designer</td><td>tvb</td></tr><tr><td>Drafter</td><td>tvb</td></tr><tr><td>Checked</td><td>eew</td></tr><tr><td>File Name</td><td>PLUNGE CREEK</td></tr><tr><td>Plotted Scale</td><td></td></tr></table>	Drawing Information		Date	21 July 2016 (03:24)	Status	90% Submittal	Designer	tvb	Drafter	tvb	Checked	eew	File Name	PLUNGE CREEK	Plotted Scale		Plunge Creek Conservation Project Upper Pilot Channel Cross Sections Sheet	Job Number 6000208
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Sheet Number C7																																															
							Sheet 9 of 16																																								





SCALE: 1"=5' (H/V)



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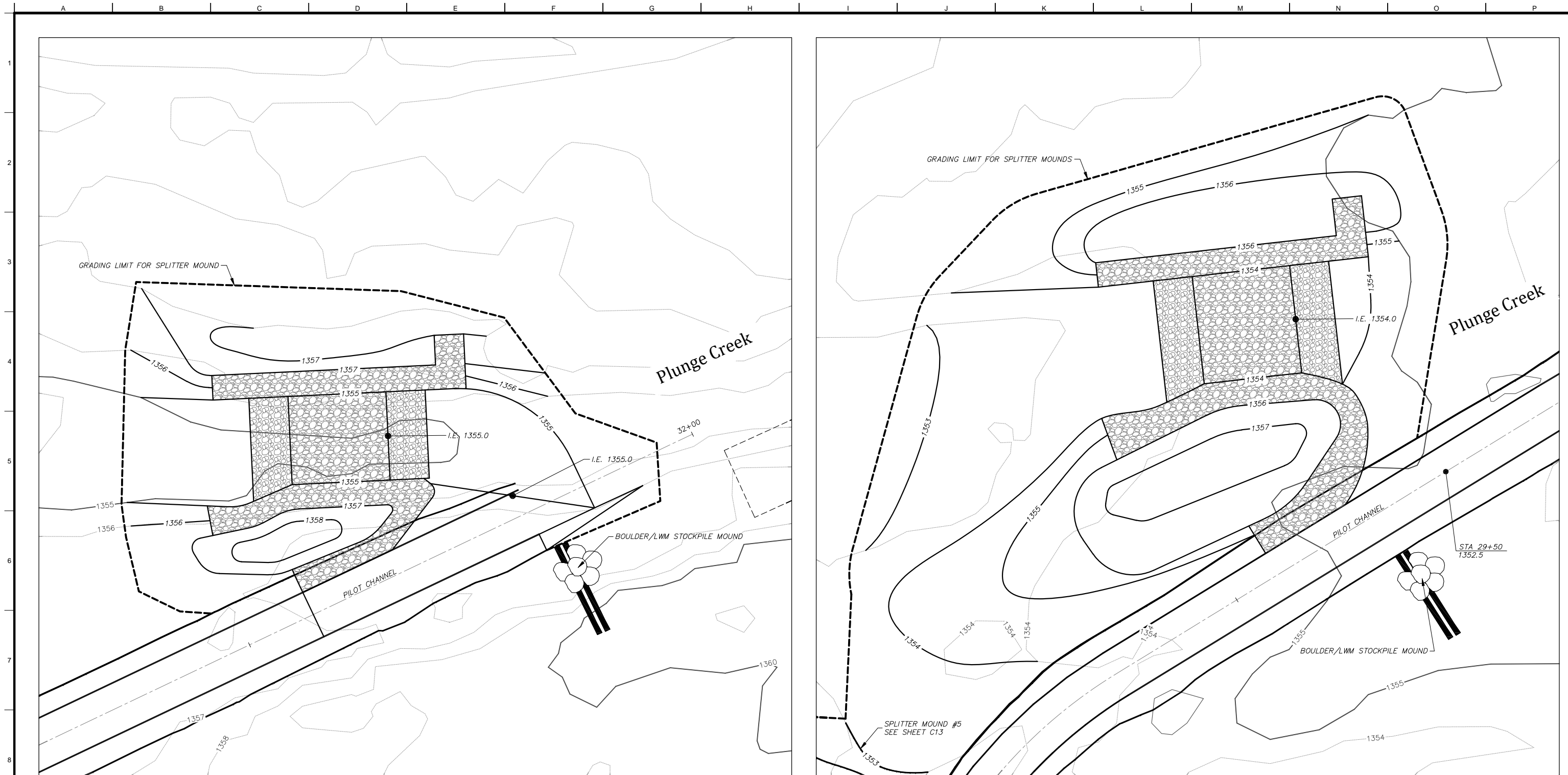
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Date	21 July 2016 (03:24)
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Checked	eew
File Name	PLUNGE CREEK
Plotted Scale	0 1/2 1

Plunge Creek Conservation Project

Lower Pilot Channel Cross Sections Sheet

Job Number
6000208
Sheet Number
C9
Sheet 11 of 16




SPLITTER MOUND - #3
Scale: 1"=10'


SPLITTER MOUND - #4
Scale: 1"=10'

NOTE:
FOR CONSTRUCTION DETAILS OF SPLITTER MOUNDS,
SEE SPLITTER MOUND GEOMETRY, LWM/BOULDER
LAYOUT, AND PLAN AND SECTION DETAILS,
SHEETS D1 AND D2


NOTE:
LWM NOT SHOWN FOR CLARITY, SHEET SHEET D1 FOR CONSTRUCTION DETAILS.




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Revisions			Drawing Information	
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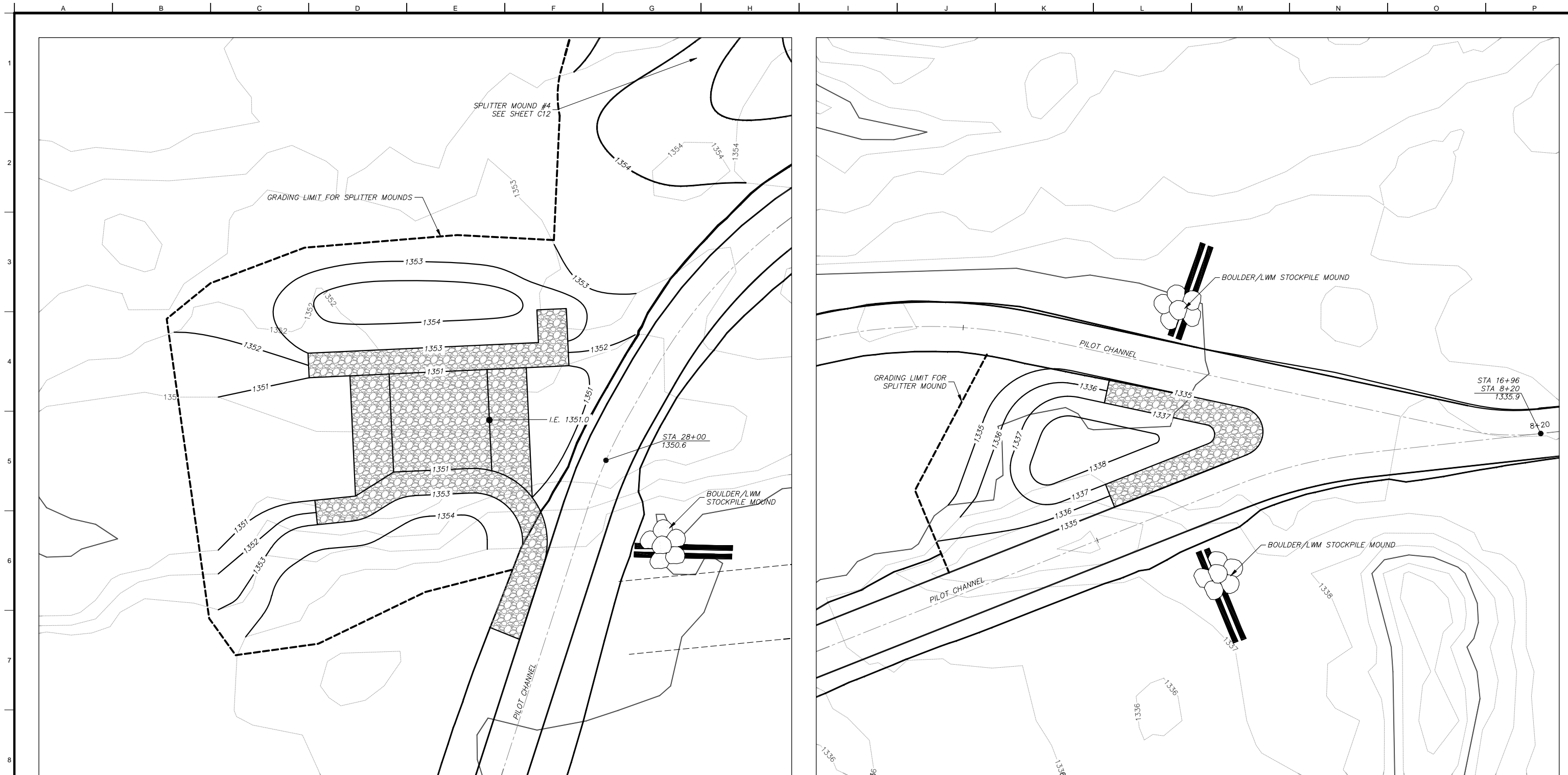
Plunge Creek Conservation Project

Splitter Mounds #3 & #4
Details

Job Number
6000208

Sheet Number
C11

Sheet 13 of 16




SPLITTER MOUND - #5
Scale: 1"=10'


SPLITTER MOUND - #6
Scale: 1"=10'

NOTE:
FOR CONSTRUCTION DETAILS OF SPLITTER MOUNDS,
SEE SPLITTER MOUND GEOMETRY, LWM/BOULDER
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SHEETS D1 AND D2


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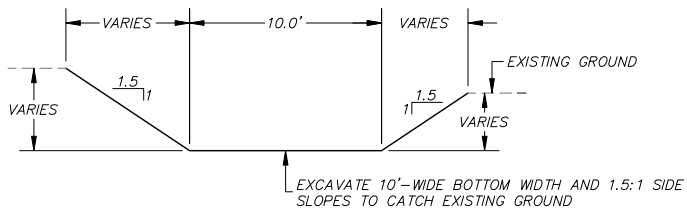
Plunge Creek Conservation Project

Splitter Mounds #5 & #6
Details

Job Number
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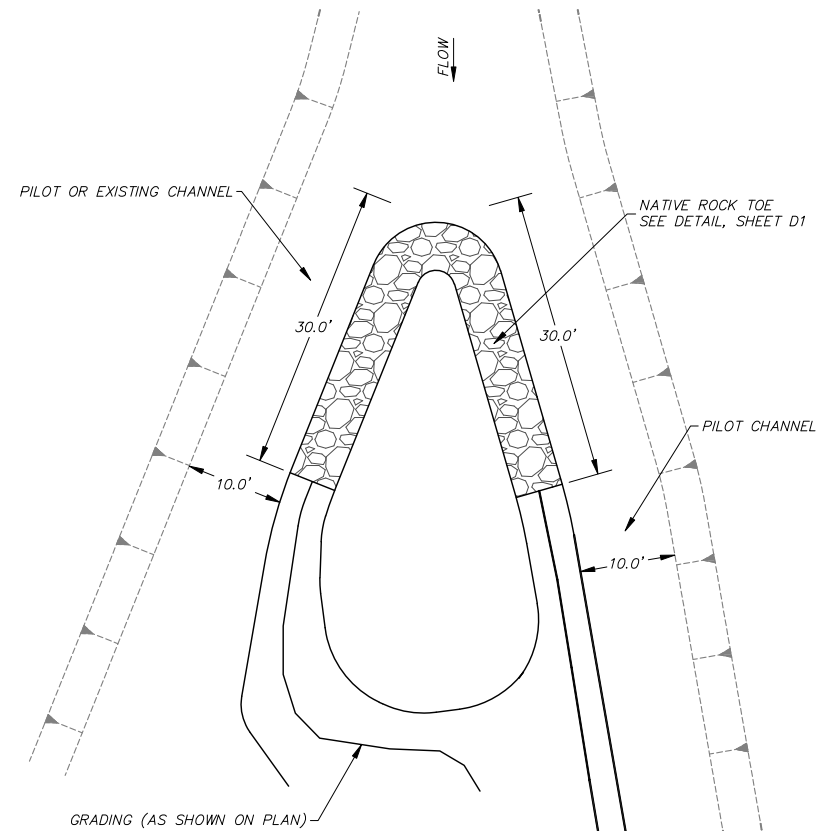
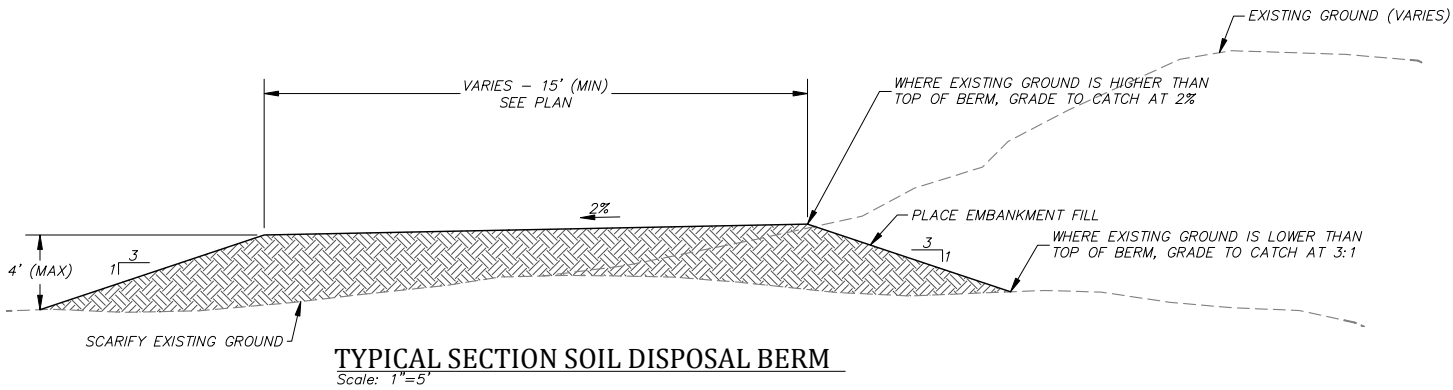
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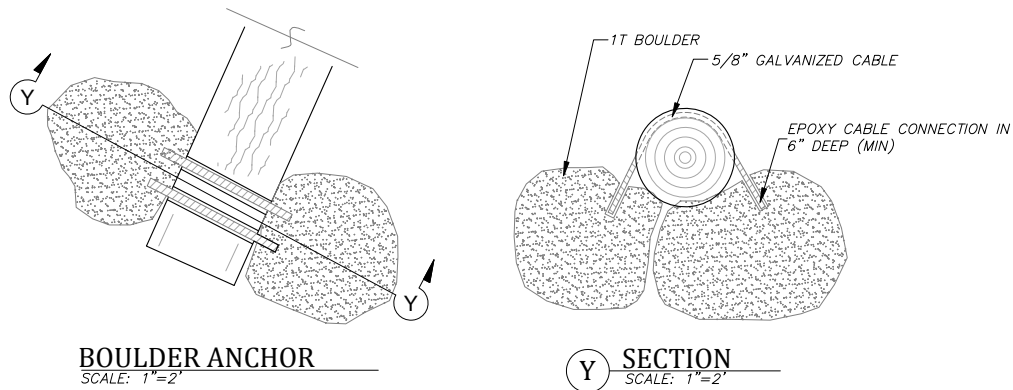
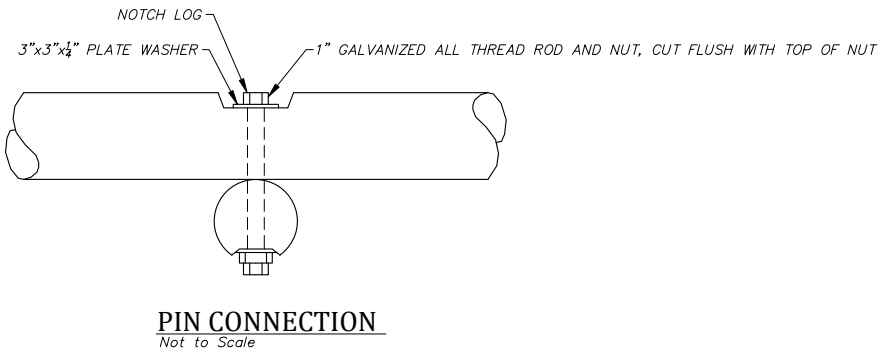


TYPICAL PILOT CHANNEL CROSS SECTION
Scale: 1"=5'

- PILOT CHANNEL CONSTRUCTION NOTES
1. EXISTING VEGETATION TO BE REMOVED PRIOR TO EXCAVATION.
 2. SIDE SLOPES TO BE APPROXIMATELY 1.5:1. SLOPES STEEPER THAN 1.5:1 BUT NO STEEPER THAN 1:1 MAY BE USED WHERE CUT DEPTH IS LESS THAN 3 FEET AND CUT SLOPE IS STABLE.
 3. WHERE MINOR EXCAVATION IS SHOWN IN PROFILE, CUT DEPTHS ARE GENERALLY LESS THAN ONE FOOT AND SIDES DO NOT REQUIRE TRIMMING TO A PARTICULAR SLOPE. NO FILL IS REQUIRED WHERE DESIGN PROFILE IS ABOVE EXISTING GRADE. THE ENGINEER MAY MAKE MINOR CHANGES IN ALIGNMENT TO AVOID VEGETATION OR MINIMIZE CUT.
- BERM CONSTRUCTION NOTES
1. EXISTING VEGETATION TO BE CLEARED PRIOR TO PLACEMENT OF FILL CHIPPED, AND APPLIED AS MULCH AFTER COMPLETION OF GRADING.
 2. EMBANKMENT FILL TO BE EXCAVATED NATIVE MATERIAL, PLACED IN LIFTS NOT TO EXCEED 12 INCHES LOOSE THICKNESS, AND COMPACTED TO A RELATIVE COMPACTION NOT LESS THAN 85% PER ASTM D1557.



TYPE 2 - TYPICAL SPLITTER MOUND GEOMETRY
Scale: 1"=10'



- NOTES FOR BOULDER ANCHOR:
1. EACH BOULDER ANCHOR CONSISTS OF TWO BOULDERS AND TWO CABLES.
 2. PRE-ASSEMBLED ANCHOR SHALL BE INSTALLED BY EXCAVATING SUFFICIENT SPACE BELOW THE LOG STRUCTURE TO ALLOW THE BOULDER ANCHOR TO BE DRAPED OVER THE LOG AND HANG ON IT TO TENSION CABLES.
 3. ANCHORS ASSEMBLED IN PLACE SHALL BE ALLOWED TO CURE AND THEN REPOSITIONED TO PLACE TENSION ON CABLES AND WEIGHT ON LOG.

BOULDERS		PERCENTAGE LARGER THAN SIZE, FT* (WT)					
TYPE		1.8 (0.25T)	2.3 (0.5T)	2.9 (1T)	3.3 (1.5T)	3.6 (2T)	4.6 (4T)
ANCHOR				100	0-50	0-10	

*SIZES IN FEET ARE COMPUTED EQUIVALENT SPHERE DIAMETER FOR A SPECIFIC GRAVITY OF 2.6. BOULDERS MUST MEET WT REQUIREMENTS.



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Plotted Scale	0 1/2 1

Plunge Creek Conservation Project

Details Sheet

Job Number
6000208

Sheet Number

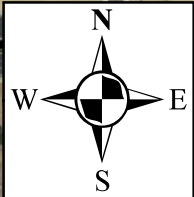
D2

Sheet 16 of 16

Plunge Creek Basin 1

Active Recharge Project

Coordinate System:
NAD 1983 StatePlane California V FIPS 0405 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983
Source: SBVWCD, CASIL, SBVMWD
GIS Contact: Katelyn Scholte
M:\Active Recharge
July 3, 2018



Plunge Creek Basin 1	
Project Footprint	10 Acres
Diversion Capacity	250 cfs
Average Annual Flow Captured	2,481 AF
Pre-construction Cost Estimate	\$ 225,000
Construction Cost Estiamte	\$ 10,675,345
Annual O&M Cost	\$ 180,537

Legend

Control Structure

Rubber Dam

Diversion Headgates

Basin Drain

Overflow Spillway

Maintenance Road

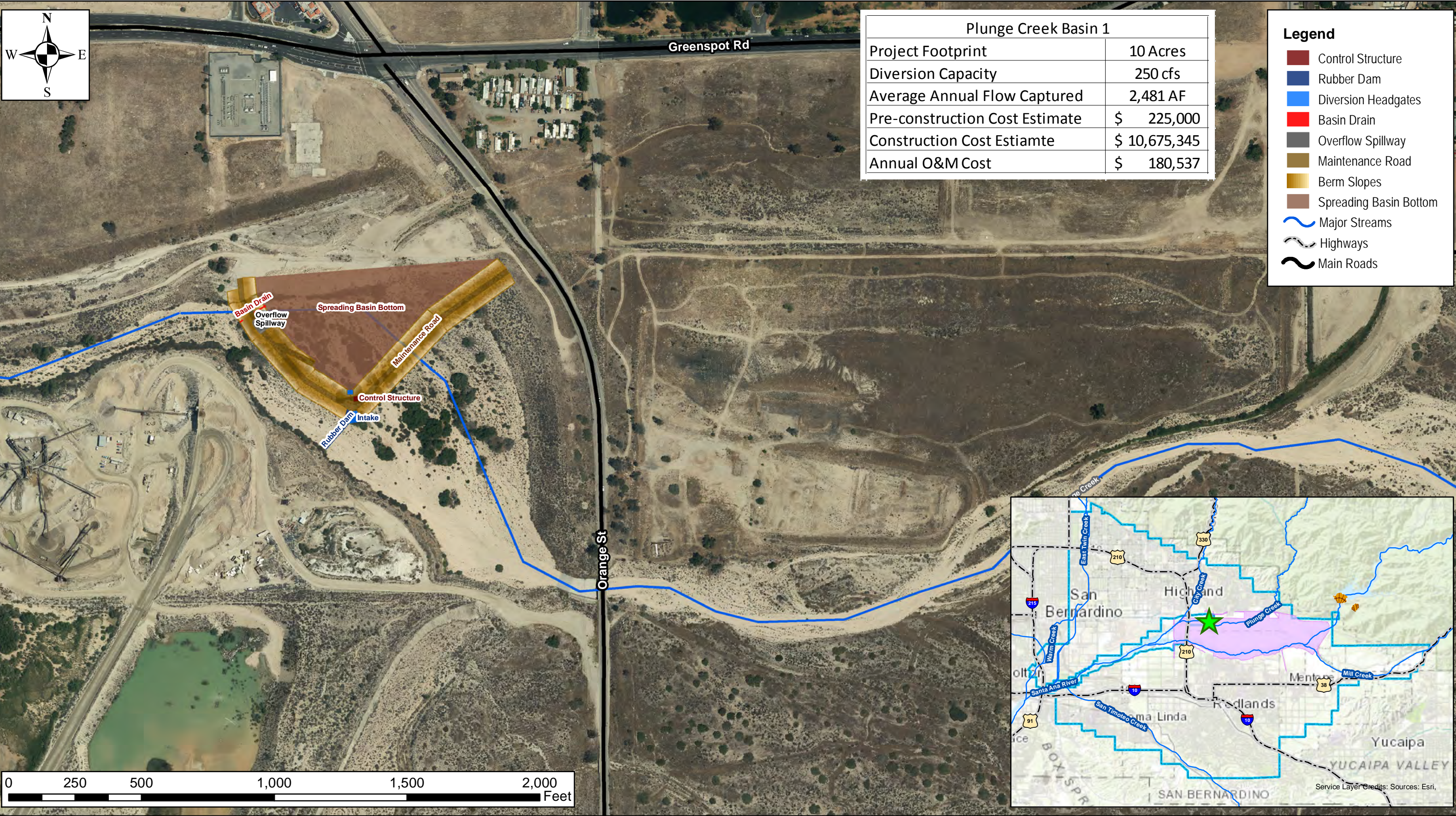
Berm Slopes

Spreading Basin Bottom

Major Streams

Highways

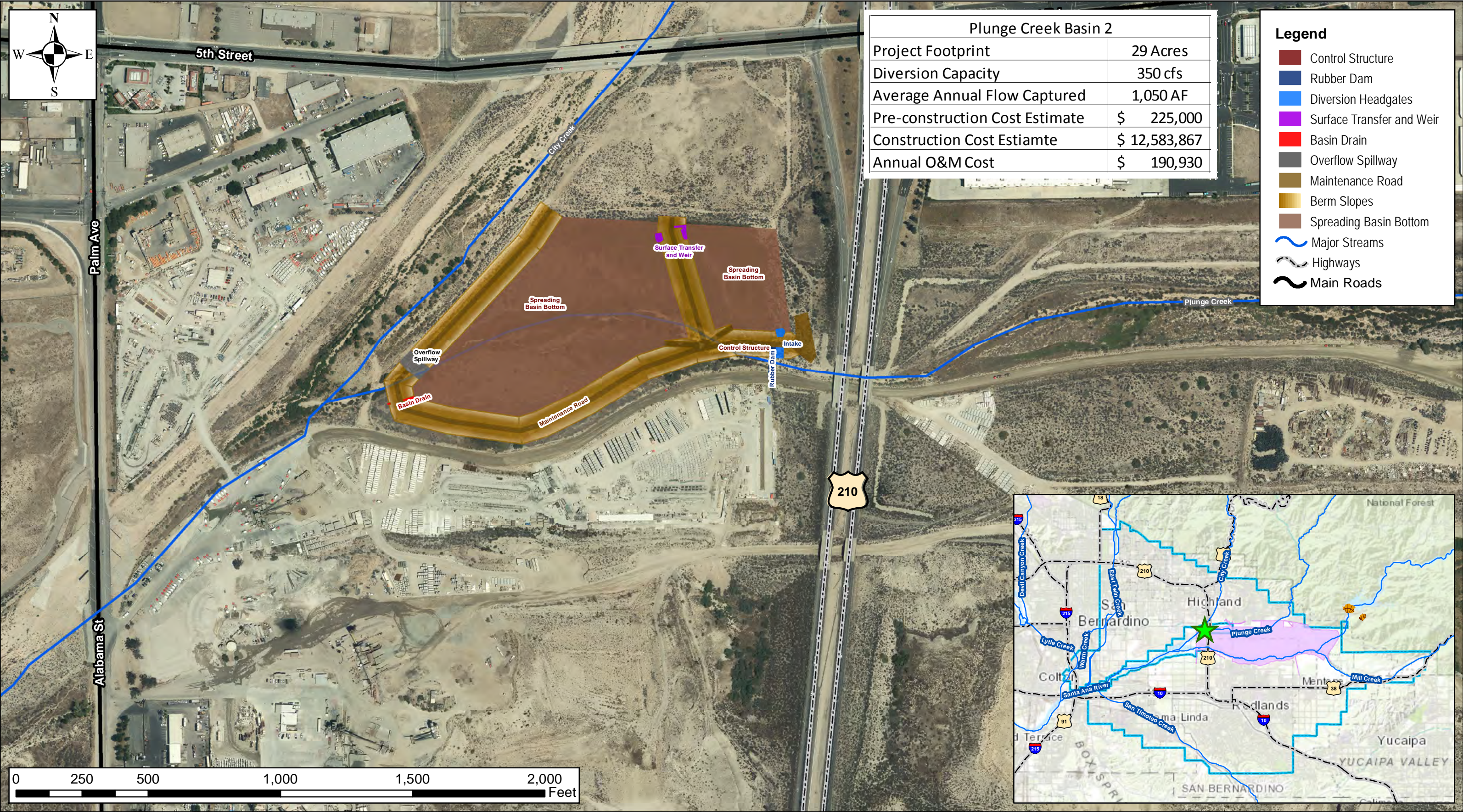
Main Roads



Plunge Creek Basin 2

Active Recharge Project

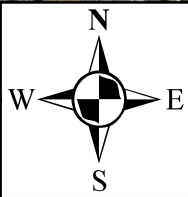
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Projection: Lambert Conformal Conic
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Source: SBVWCD. CASIL, SBVMWD
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July 3, 2018



City Creek Basin

Active Recharge Project

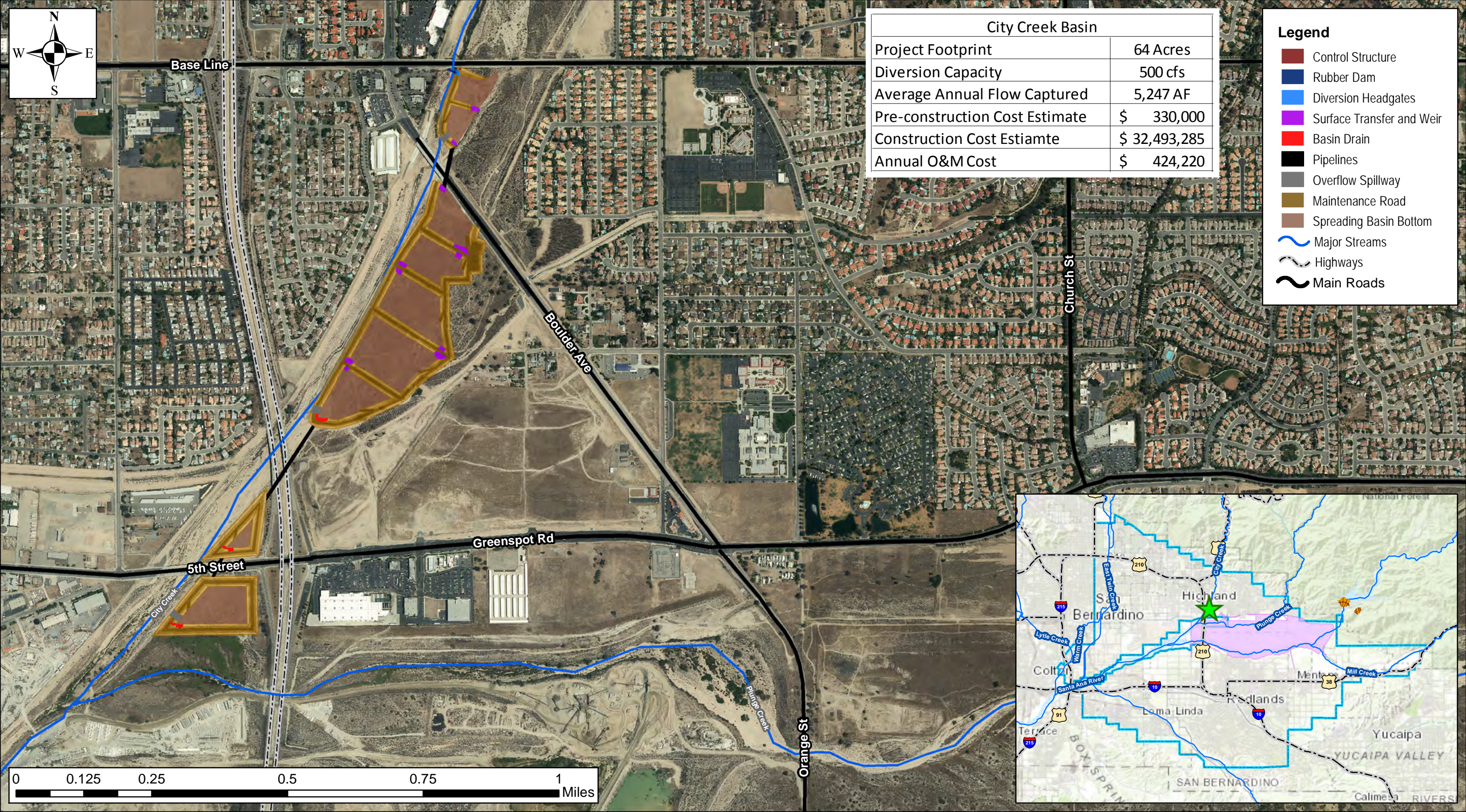
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Projection: Lambert Conformal Conic
Datum: North American 1983
Source: SBVWCD, CASIL, SBVMWD
GIS Contact: Katelyn Scholte
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July 3, 2018



City Creek Basin	
Project Footprint	64 Acres
Diversion Capacity	500 cfs
Average Annual Flow Captured	5,247 AF
Pre-construction Cost Estimate	\$ 330,000
Construction Cost Estiamte	\$ 32,493,285
Annual O&M Cost	\$ 424,220

Legend

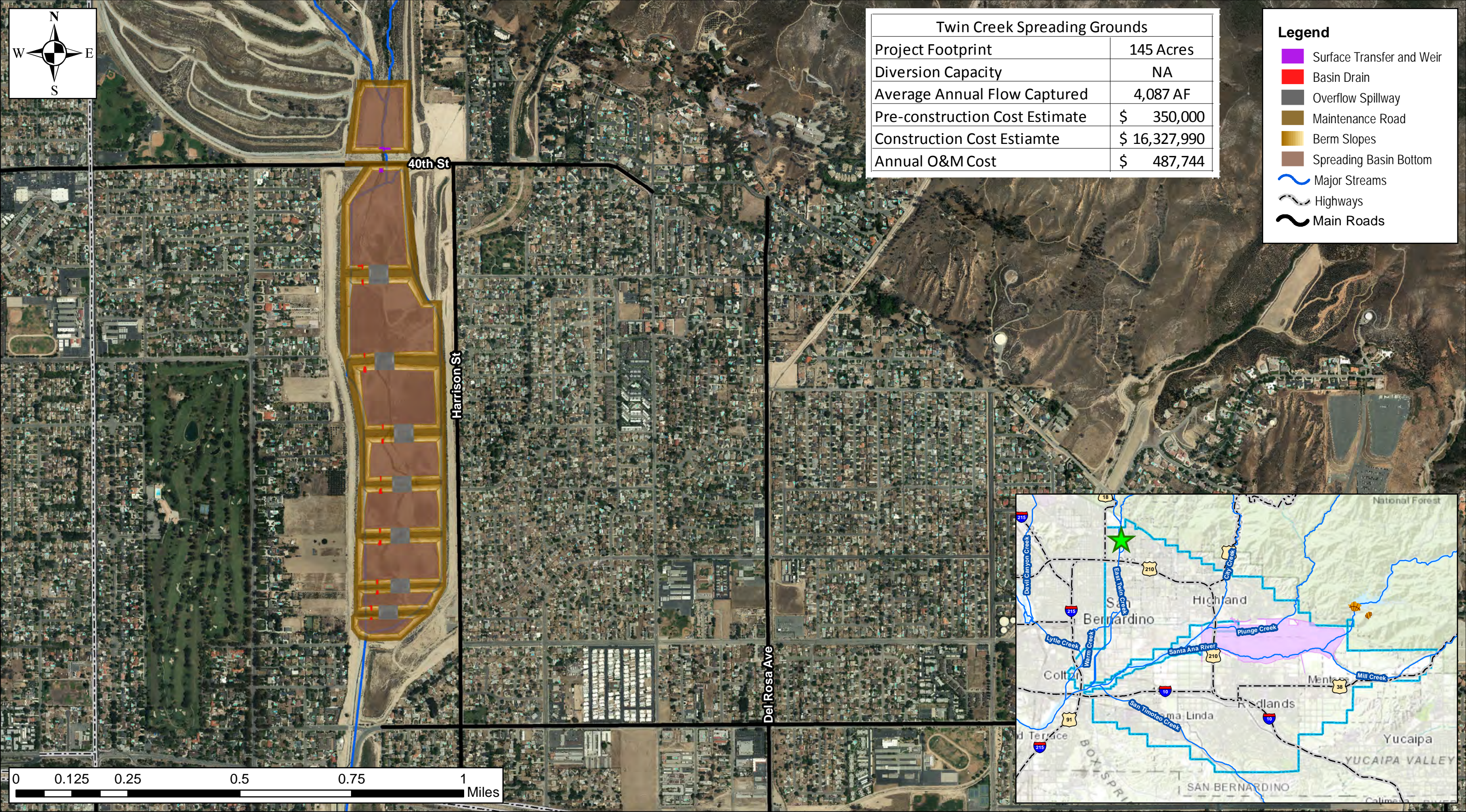
- Control Structure
- Rubber Dam
- Diversion Headgates
- Surface Transfer and Weir
- Basin Drain
- Pipelines
- Overflow Spillway
- Maintenance Road
- Spreading Basin Bottom
- Major Streams
- Highways
- Main Roads



Twin Creek Spreading Grounds

Active Recharge Project

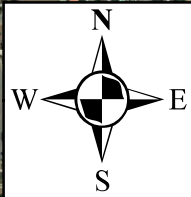
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GIS Contact: Katelyn Scholte
M:\Active Recharge
July 3, 2018



Waterman Basins

Active Recharge Project

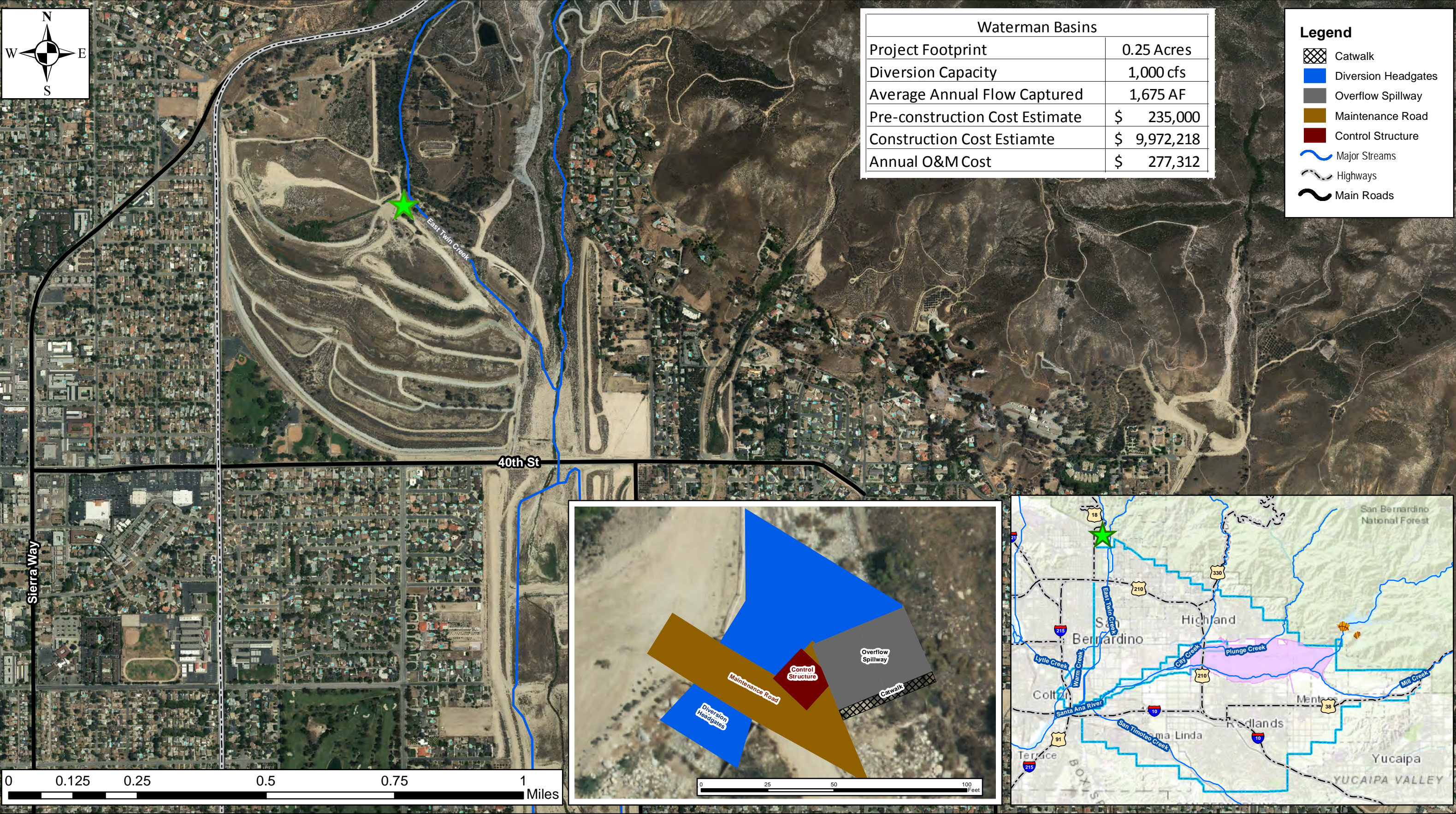
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Projection: Lambert Conformal Conic
Datum: North American 1983
Source: SBVWCD. CASIL, SBVMWD
GIS Contact: Katelyn Scholte
M:\Active Recharge
July 3, 2018



Waterman Basins	
Project Footprint	0.25 Acres
Diversion Capacity	1,000 cfs
Average Annual Flow Captured	1,675 AF
Pre-construction Cost Estimate	\$ 235,000
Construction Cost Estiamte	\$ 9,972,218
Annual O&M Cost	\$ 277,312

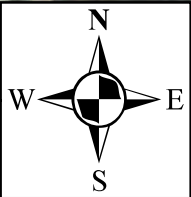
Legend

- Catwalk
- Diversion Headgates
- Overflow Spillway
- Maintenance Road
- Control Structure
- Major Streams
- Highways
- Main Roads



Mill Creek North Canal to 210cfs Active Recharge Project

Coordinate System:
NAD 1983 StatePlane California V FIPS 0405 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983
Source: SBVWCD, CASIL, SBVMWD
GIS Contact: Katelyn Scholte
M:\Active Recharge
July 3, 2018



Mill Creek North Canal Project (210 cfs)	
Project Footprint	0.1 Acres
Diversion Capacity	385 cfs
Average Annual Flow Captured	6,096 AF
Pre-construction Cost Estimate	\$ 65,000
Construction Cost Estiamte	\$ 2,530,025
Annual O&M Cost at Inlet	\$ 69,000

Legend

North Canal Gate

Sediment Bypass Gate

Slope for Sediment Removal

Sediment Bypass Return Channel

Wing Wall

Catwalk

South Canal Opening

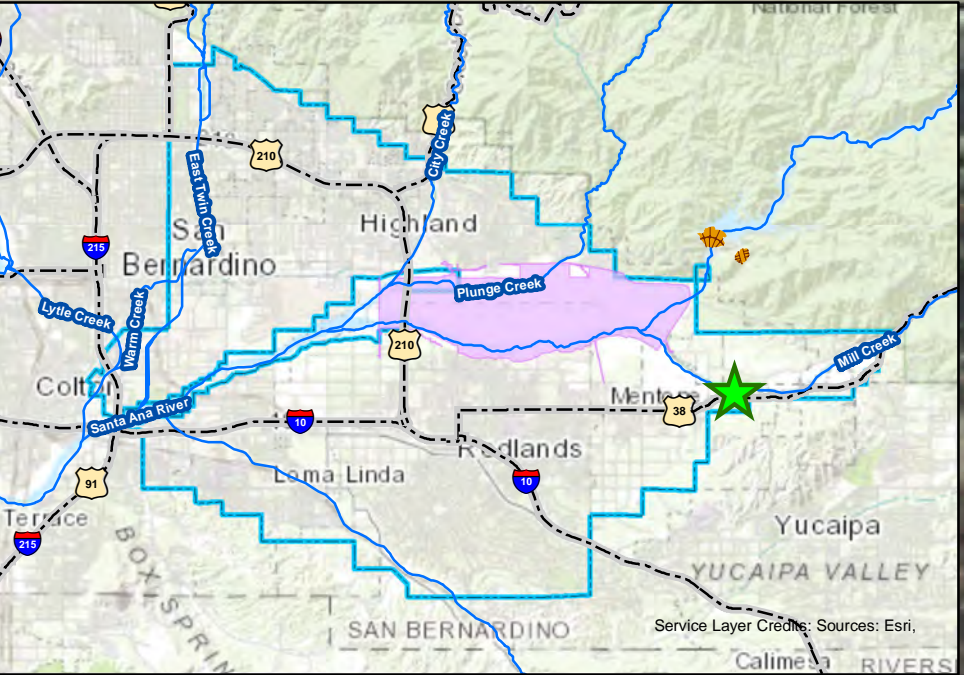
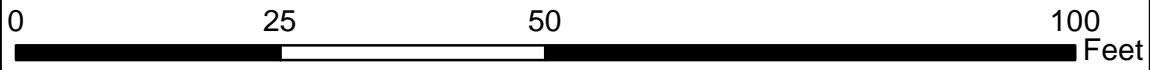
Concrete Surface

Canal Wall

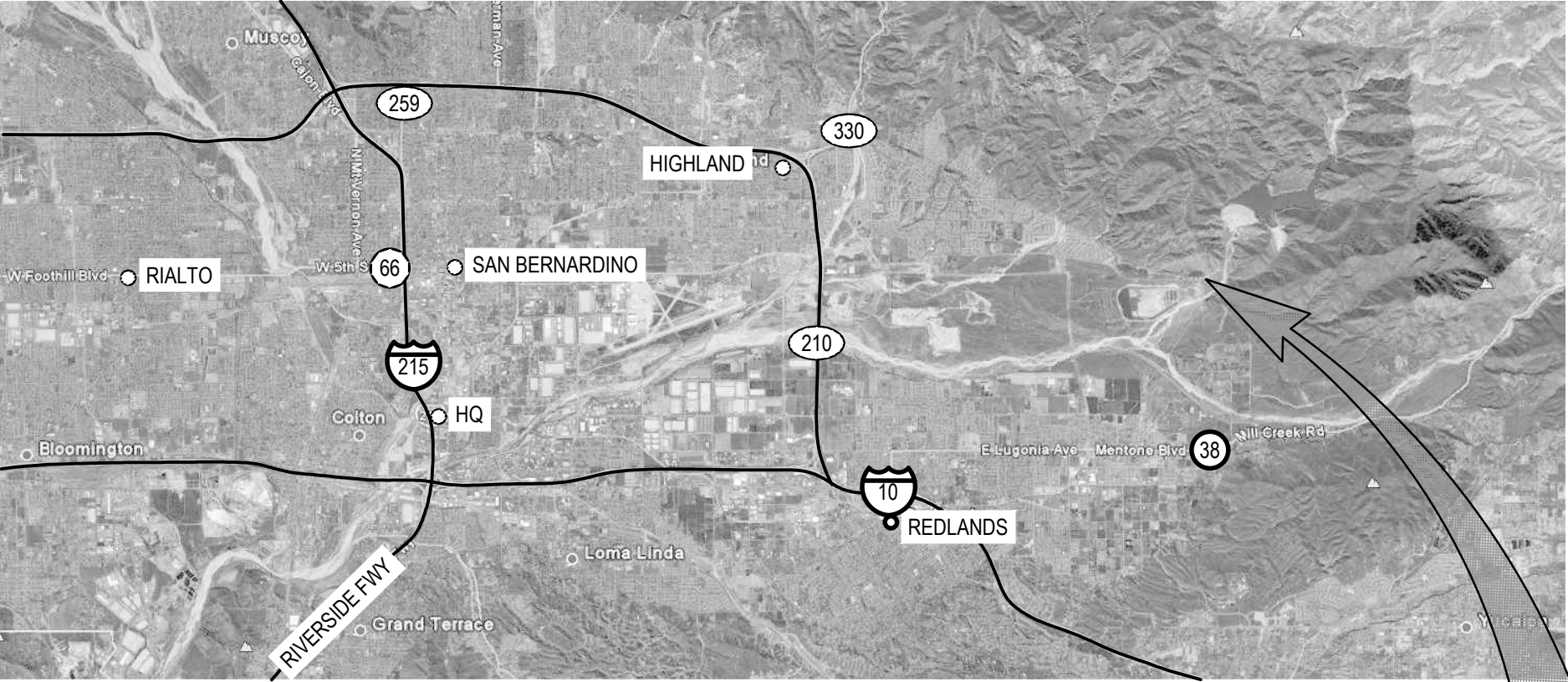
Major Streams

Highways

Main Roads







VICINITY MAP

SCALE: NOT TO SCALE



LOCATION MAP

SCALE: NOT TO SCALE

DRAWING INDEX

SHT# DWG# TITLE

GENERAL

1	G-001	TITLE SHEET
2	G-002	VICINITY MAP AND DRAWING LIST
3	G-003	GENERAL NOTES, ABBREVIATIONS AND LEGEND
4	G-004	PROCESS SCHEMATIC - PHASE 1A
5	G-005	PROJECT INDEX MAP
6	G-006	HYDRAULIC PROFILE

CIVIL

7	C-001	OVERALL PROJECT SITE PLAN
8	C-101	SEDIMENTATION BASIN - OVERALL GRADING PLAN
9	C-102	SEDIMENTATION BASIN - SLOPE PROTECTION PLAN
10	C-103	SEDIMENTATION BASIN - GRADING SECTIONS
11	C-104	SEDIMENTATION BASIN - ACCESS ROAD PLAN AND PROFILE
12	C-105	SEDIMENTATION BASIN - CONCRETE APRON AND SITE DETAILS
13	C-106	SEDIMENTATION BASIN - SANDBOX DIVERSION STRUCTURE PLAN & SECTIONS
14	C-107	SEDIMENTATION BASIN - EFFLUENT STRUCTURE PLAN & SECTION
15	C-108	SEDIMENTATION BASIN - EFFLUENT STRUCTURE SECTIONS AND DETAILS
16	C-109	SEDIMENTATION BASIN - FLOW DISTRIBUTION WALL & FLOATING DEBRIS BOOM STRUCTURE
17	C-201	PLUNGE POOL PIPELINE - SITE PLAN
18	C-202	PLUNGE POOL PIPELINE - VALVE VAULT GRADING PLAN
19	C-203	PLUNGE POOL PIPELINE - PLAN AND PROFILE STA 835+22.83 TO 846+00
20	C-204	PLUNGE POOL PIPELINE - PLAN AND PROFILE STA 846+00 TO 208+00
21	C-205	PLUNGE POOL PIPELINE - PLAN AND PROFILE STA 208+00 TO 219+23.28
22	C-206	PLUNGE POOL PIPELINE - VALVE VAULT PLANS
23	C-207	PLUNGE POOL PIPELINE - VALVE VAULT SECTIONS AND DETAILS
24	C-208	PLUNGE POOL PIPELINE - STEEL PIPE DETAILS
25	C-209	PLUNGE POOL PIPELINE - MISCELLANEOUS DETAILS (10F3)
26	C-210	PLUNGE POOL PIPELINE - MISCELLANEOUS DETAILS (20F3)
27	C-211	PLUNGE POOL PIPELINE - MISCELLANEOUS DETAILS (30F3)
28	C-212	PLUNGE POOL PIPELINE - CATHODIC PROTECTION DETAILS (10F2)
29	C-213	PLUNGE POOL PIPELINE - CATHODIC PROTECTION DETAILS (20F2)

STRUCTURAL

30	S-001	GENERAL STRUCTURAL NOTES
31	S-002	LEGENDS AND ABBREVIATIONS
32	S-101	SANDBOX DIVERSION STRUCTURE - PLAN
33	S-102	SANDBOX DIVERSION STRUCTURE - TOP PLAN
34	S-103	SANDBOX DIVERSION STRUCTURE - SECTIONS AND DETAILS
35	S-104	SANDBOX DIVERSION STRUCTURE - SLIDE GATE DETAILS
36	S-105	SEDIMENTATION BASIN - CONCRETE APRON SECTION AND DETAILS
37	S-106	FLOW DISTRIBUTION WALL - DETAILS
38	S-107	EFFLUENT STRUCTURE - SECTION AND DETAILS (10F2)
39	S-108	EFFLUENT STRUCTURE - SECTIONS AND DETAILS (20F2)
40	S-109	EFFLUENT STRUCTURE - MISCELLANEOUS DETAILS
41	S-110	BOX CULVERT - DETAILS
42	S-111	STILLING BASIN - PLAN, SECTION AND DETAILS
43	S-112	PLUNGE POOL PIPELINE - VALVE VAULT PLANS AND SECTIONS
44	S-201	STANDARD CONCRETE DETAILS
45	S-202	STANDARD CONCRETE JOINT DETAILS
46	S-203	STANDARD STAIR HANDRAIL/GUARDRAIL DETAILS
47	S-204	STANDARD ALUMINUM GRATING STAIR DETAILS
48	S-205	STANDARD MISCELLANEOUS DETAILS
49	S-206	STANDARD MISCELLANEOUS DETAILS

SHT# DWG# TITLE

ELECTRICAL

50	E-001	LEGEND AND ABBREVIATIONS
51	E-002	OVERALL SITE PLAN
52	E-003	VALVE VAULT SITE PLAN
53	E-004	PLUNGE POOL PIPELINE SITE PLAN
54	E-005	SEDIMENTATION BASIN SITE PLAN
55	E-006	SANDBOX DIVERSION STRUCTURE POWER AND CONTROL PLAN
56	E-007	EFFLUENT STRUCTURE POWER, CONTROL AND LIGHTING PLAN
57	E-008	PIPELINE VALVE VAULT POWER, CONTROL PLAN AND LIGHTING PLAN
58	E-009	SANDBOX DIVERSION STRUCTURE SINGLE-LINE DIAGRAM, SCHEDULES AND DETAILS
59	E-010	EFFLUENT STRUCTURE SINGLE-LINE DIAGRAMS, SCHEDULES, AND DETAILS
60	E-011	VALVE VAULT SINGLE-LINE DIAGRAMS, SCHEDULES AND DETAILS
61	E-012	SCHEMATICS AND MISCELLANEOUS DETAILS
62	E-013	MISCELLANEOUS DETAILS

INSTRUMENTATION & CONTROL

63	I-001	SYMBOLS AND ABBREVIATIONS
64	I-002	INTAKE AND SANDBOX DIVERSION STRUCTURE
65	I-003	SEDIMENTATION BASIN AND EFFLUENT STRUCTURE
66	I-004	PLUNGE POOL PIPELINE AND VALVE VAULT STRUCTURE
67	I-005	INSTRUMENTATION DETAILS - (10F2)
68	I-006	INSTRUMENTATION DETAILS - (20F2)

100% PLANS

ISSUED FOR:
APPROVAL

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COVER SHEET HAS BEEN SIGNED AND DATED
XX/XX/XXXX
PROJECT ENGINEER DATE

APPROVED BY:

COVER SHEET HAS BEEN SIGNED AND DATED
XX/XX/XXXX
SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT DATE

MARK

BY

DATE

REVISION



SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

DATE: XX/XX/XXXX

DESIGNED: CR

DRAWN: AK

REVIEWED: GW

JOB NO:

ENHANCED RECHARGE IN THE SANTA ANA RIVER BASIN PROJECT

SPECIFICATION NO. 14-01

VICINITY MAP AND DRAWING LIST

SCALE:

NO SCALE

DWG: G-002

SHT. 2 OF 68 SHTS.

DRAWING NO.

A ALARM, COMPRESSED AIR OUTLET
AB ANCHOR BOLT
AC AIR COMPRESSOR, ASPHALT CONCRETE
AD ACCESS DOOR, AIR DRYER
AF AIR FLOW, AIRFOIL
AFF ABOVE FINISHED FLOOR
ALUM ALUMINUM
AP ACCESS PANEL
APPROX APPROXIMATE
ARV AIR RELEASE VALVE
ASCE AMERICAN SOCIETY OF CIVIL ENGINEERS
ASPH ASPHALT
ASTM AMERICAN SOCIETY OF TESTING MATERIALS
ATS ANODE TEST STATION
AUTO AUTOMATIC
AVE AVENUE
AVG AVERAGE
AWWA AMERICAN WATER WORKS ASSOCIATION

CPVC CHLORINATED POLYVINYL CHLORIDE
CV CHECK VALVE, CONTROL VALVE

DEMO DEMOLISH
DPH CALIFORNIA DEPARTMENT OF PUBLIC HEALTH
DIA DIAMETER
DIP DUCTILE IRON PIPE
DN DOWN
DSN DOWNSPOUT NOZZLE
DWG DRAWING
DWL(S) DOWEL, DOWELS
DWR CALIFORNIA DEPARTMENT OF WATER RESOURCES

FT FEET, FIN TUBE HEATER, FLOW TUBE FOOTING
FTG

G GAS OUTLET
GA GAUGE
GALV GALVANIZED
GPM GALLONS PER MINUTE
GTE GENERAL TELEPHONE AND ELECTRIC
GV GATE VALVE, GAS VALVE

H HAND OPERATOR, HEATING, HEATING (MAKE ON FALL), HEIGHT, HORIZONTAL, HUMIDISTAT
HMC HARNESSSED MECHANICAL COUPLING
HO HAND-OFF
HOA HAND-OFF-AUTO
HORIZ HORIZONTAL
HP HIGH POINT, HORSEPOWER
HR HOUR
HVAC HEATING, VENTILATION, AIR CONDITIONING
H.V.# HORIZONTAL VERTICAL CONTROL POINTS

NPSHR NET POSITIVE SUCTION HEAD
NS NEAR SIDE

OC ON CENTER
OD OUTSIDE DIAMETER
OPNG OPENING
OPP OPPOSITE
OS&Y OUTSIDE SCREW & YOKE

P POWER
PA PLANTED AREA WITH IRRIGATION
PD PRESSURE DROP (INCHES OF WATER FOR AIR, FEET OF WATER FOR FLUIDS)
PDS PRESSURE DIFFERENTIAL SWITCH
PED PEDESTAL
P&ID PROCESS & INSTRUMENTATION DIAGRAM
PI PRESSURE INSTRUMENT
P/L POPEY LINE
PL PLACE, PLATE
POS POSITION
PPM PARTS PER MILLION
PPP PLUNGE POOL PIPELINE
PRV PRESSURE REDUCING VALVE, POWER ROOF VENTILATOR
PS PRESSURE SWITCH
PSI POUNDS PER SQUARE INCH
PSIA POUNDS PER SQUARE INCH ABSOLUTE
PSIG POUNDS PER SQUARE INCH GAUGE
PVC POLYVINYL CHLORIDE

SF SQUARE FEET
SH SHEET
SIM SIMILAR
SOD SEVEN OAKS DAM
SPEC SPECIFICATION
SQ SQUARE
SS STAINLESS STEEL
STA STATION
STD STANDARD
STL STEEL
SV SHUTOFF VALVE, SOLENOID VALVE
SWP STATE WATER PROJECT

T TREE
TC TOP OF CURB
TL TOP LEVEL
THK THICK, THICKNESS
TOC TOP OF CONCRETE
TW TOP OF WALL
TSPB TRAFFIC SIGNAL PULLBOX
TYP TYPICAL

UGPS UNDERGROUND PULL SECTION
USBR UNITED STATES BUREAU OF RECLAMATION

BF BLIND FLANGE
BFP BACK FLOW PREVENTION ASSEMBLY
BFV BUTTERFLY VALVE
BH# BORING HOLE - #
BLDG BUILDING
BLVD BOULEVARD
BM BEAM, BENCHMARK
BOT BOTTOM
BPP BACKFLOW PREVENTOR
BU BELL-UP

E EAST, ELECTRIC , ELECTRIC OPERATOR, EXHAUST, EXISTING
EA EACH
EBXII EAST BRANCH EXTENSION PHASE II PIPELINE
ECC ECCENTRIC
EF EACH FACE, EXHAUST FAN
EL ELEVATION
ELEC ELECTRICAL
ELEV ELEVATION
EPDM ETHYLENE PROPYLENE DIENE MONMER
EQ EQUAL
EQUIP EQUIPMENT
ES EMERGENCY SHOWER, EMERGENCY SWITCH
ES/EWV EMERGENCY SHOWER AND EYEWASH
EV EXHAUST VALVE
EWDV EAST VALLEY WATER DISTRICT
EW EACH WAY
EXP EXPOSE
EXIST EXISTING

I INTAKE
ICV IRRIGATION CONTROL VALVE
ID INSIDE DIAMETER, INTERNAL DIAMETER
IFJ INSULATING FLANGE JOINT
IN INCHES
INFO INFORMATION
INSUL INSULATION
INV INVERT

JBA JOESPH BONADIMAN & ASSOCIATES

R.S. ROUGH SAWN
RCP REINFORCED CONCRETE PIPE
RED REDUCER
REQD REQUIRED
RVSS REDUCED VOLTAGE SOLID STATE
R.W. RESILIENT WEDGE
R/W RIGHT OF WAY

V.VERT VERTICAL
VAR VARIES
VB VACUUM BREAKER
VCP VITRIFIED CLAY PIPE
VPI VERTICAL POINT OF INFLECTION
VTR VENT TO ROOF

W WEST, WIDE FLANGE, WIDTH, WATER
WA WATER APPURTENANCE
WI WROUGHT IRON
WM WALL MOUNTED, WATER METER
WP WORK POINT
WS WATER STOP
WSE WATER SURFACE ELEVATION
WT WEIGHT
WWF WELDED WIRE FABRIC

C CHANNEL
CF CURB FACE
CFM CUBIC FEET PER MINUTE
CFS CUBIC FEET PER SECOND
CI CONSTRUCTION INSTITUTE
CJ CONSTRUCTION JOINT
CL2 CHLORINE
CL CENTERLINE
CLR CLEARANCE
CMLWS CEMENT MORTAR LINED WELDED STEEL
CML&C CEMENT MORTAR LINED & COATED
CMU CONCRETE MASONRY UNIT
CO CLEANOUT, COMPANY
COMB COMBINATION
CONC CONCRETE
CONN CONNECTION
CONT CONTINUATION
CONSERVATION SAN BERNARDINO VALLEY WATER DISTRICT
DISTRICT DISTRICT
CORP CORPORATION

F DEGREES FAHRENHEIT
FCA FLANGED COUPLING ADAPTER
FD FLOOR DRAIN
FFL FINISHED FLOOR
FH FIRE HYDRANT
FIN FINISHED
FL FLOWLINE
FLG FLANGE
FG FINISHED GRADE
FLEX FLEXIBLE
FLR FLOOR
FM FLOW METER
FPM FEET PER MINUTE
FRP FIBERGLASS REINFORCED PLASTIC
FS FAR SIDE, FLOW SWITCH

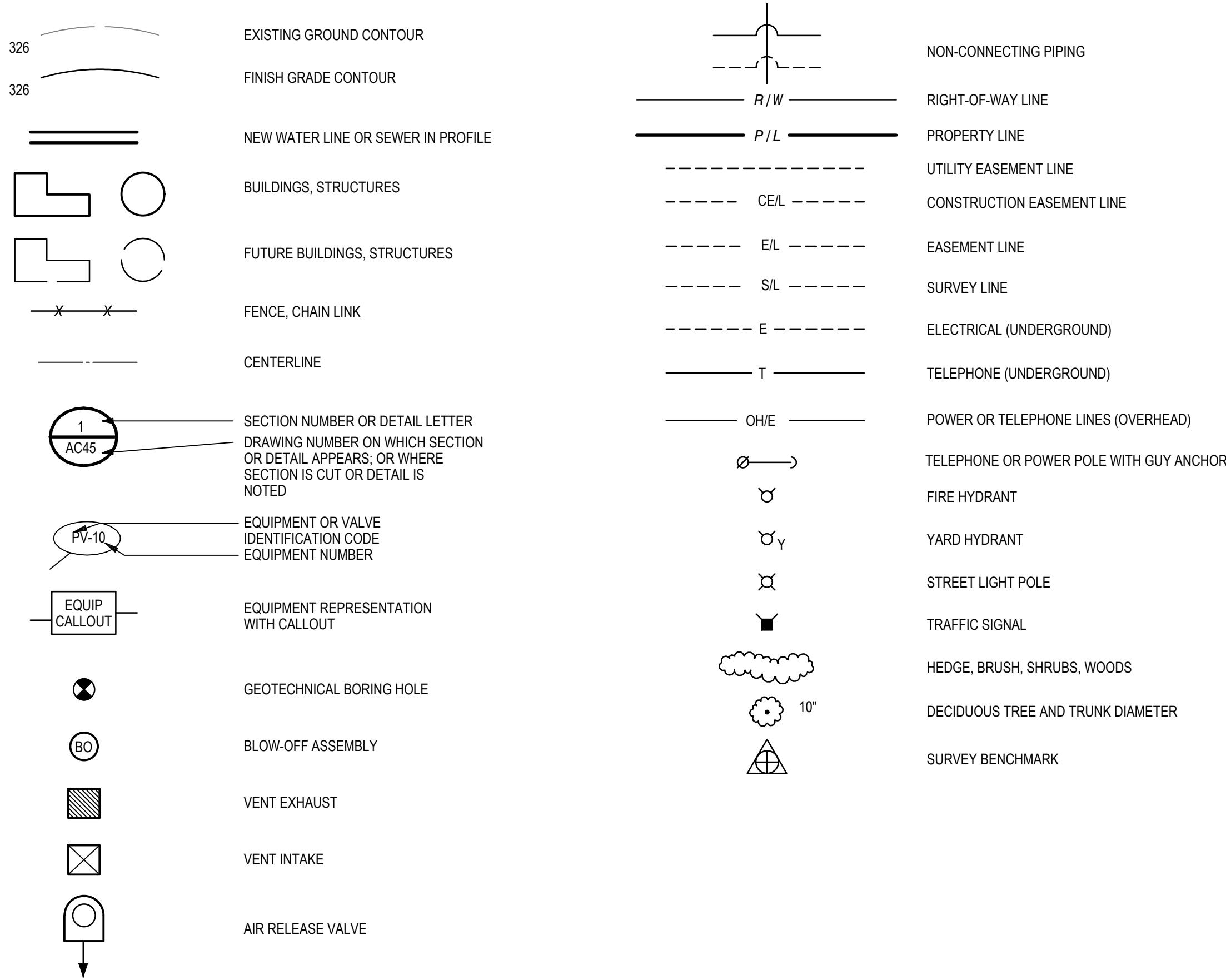
KW KILOWATT
LP LOW POINT

MAX MAXIMUM
M.E. MATCH EXISTING
METROPOLITAN METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA
MFR,MFGR MANUFACTURER
MIN MINIMUM
MWD METROPOLITAN WATER DISTRICT

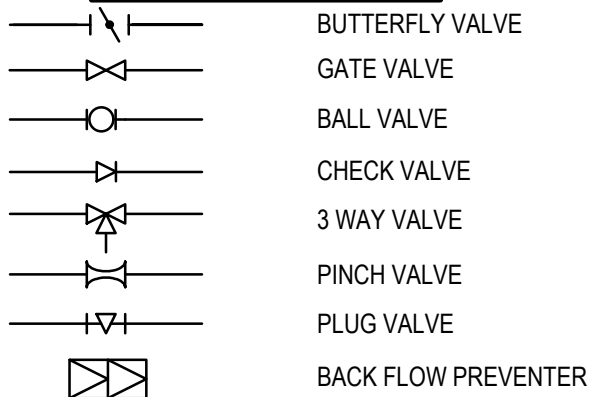
N NORTH
NAD NORTH AMERICAN DATUM
NC NORMALLY CLOSED
NO NORMALLY OPEN, NUMBER

S SOUTH
SALT SANTA ANA LOW TURNOUT
SARC SANTA ANA RIVER CROSSING PIPELINE
SBDFC SAN BERNARDINO COUNTY FLOOD CONTROL
SBVMWD SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT
SCADA SUPERVISORY CONTROL AND DATA ACQUISITION
SCE SOUTHERN CALIFORNIA EDISON
SCH SCHEDULE
SD STORM DRAIN
SECT SECTION

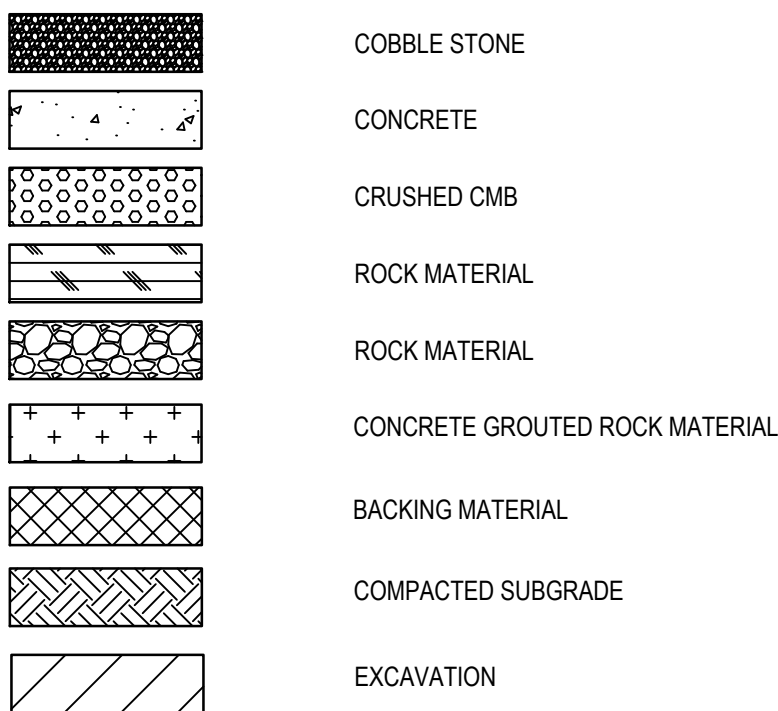
GENERAL LEGEND



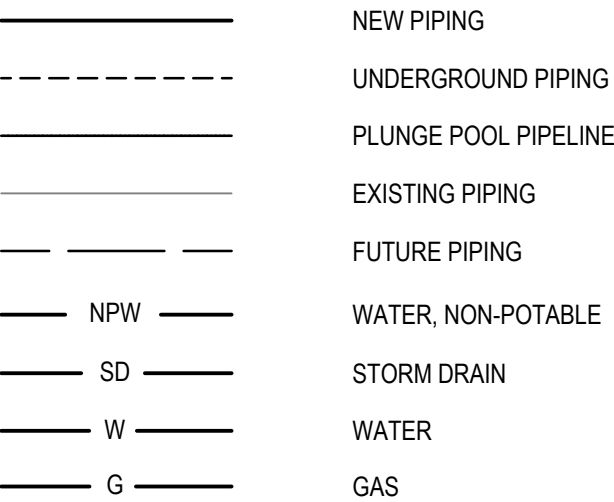
VALVE LEGEND



MATERIALS LEGEND



PIPING SYSTEMS



GENERAL NOTES:

- THE BASIS OF BEARINGS FOR THE SURVEY WAS THE CALIFORNIA STATE PLANE COORDINATE SYSTEM, CCS83, ZONE 5, BASED ON LOCAL CONTROL STATIONS "DG9740", "DK6393", AND "DH4099" NAD83 (NSRS2007) AS SHOWN ON DRAWING C-001. ALL BEARINGS SHOWN ON MAPS ARE GRID FORMAT. QUOTED BEARINGS AND DISTANCES FROM REFERENCE MAPS OR DEEDS ARE SHOWN PER THAT RECORD REFERENCE. ALL DISTANCES SHOWN ARE GROUND DISTANCES UNLESS SPECIFIED OTHERWISE. GRID DISTANCES MAY BE OBTAINED BY MULTIPLYING THE GROUND DISTANCE BY A COMBINATION FACTOR OR 0.99990467. CALCULATIONS ARE MADE BY JOSEPH BONADIMAN & ASSOCIATES (JBA) BASE POINT 99 WITH COORDINATES OF: N87° 24' 36"W BETWEEN DG9740 AND DK6393.
- EXISTING UTILITIES AND STRUCTURES (UNDERGROUND, SURFACE, OR OVERHEAD) ARE INDICATED ONLY TO THE EXTENT THAT SUCH INFORMATION WAS KNOWN, OR MADE AVAILABLE TO, OR DISCOVERED BY THE ENGINEER IN PREPARING THE DRAWINGS. THE LOCATIONS, CONFIGURATIONS, AND ELEVATIONS OF SUBSURFACE FACILITIES AND UTILITIES ARE APPROXIMATE, AND NOT ALL UTILITIES AND FACILITIES MAY BE INDICATED. OVERHEAD UTILITIES ARE NOT INDICATED IN ARCHITECTURAL ELEVATIONS, PROFILE OR SECTION DRAWINGS. THE ENGINEERING INVESTIGATIONS, LOCATION, AND DESIGNATION OF SUBSURFACE UTILITIES INDICATED IN THESE CONTRACT DOCUMENTS HAS BEEN PERFORMED TO QUALITY LEVEL C IN ACCORDANCE WITH GENERALLY ACCEPTED ENGINEERING PRINCIPLES AND PRACTICES AS OUTLINED IN ASCE STANDARD AND GUIDELINE BULLETIN C/ASCE 38-02 UNLESS OTHERWISE DESIGNATED. WHERE SUCH ACTIVITIES HAVE BEEN TO A HIGHER LEVEL OF QUALITY, THE HIGHER QUALITY LEVEL FOR THE AFFECTED AREAS IS INDICATED IN THE CONTRACT DOCUMENTS.
- "SCREENED" (LIGHT) DELINEATION INDICATED ON THE DRAWINGS DENOTES EXISTING FACILITIES. "SCREENED" INFORMATION WAS TAKEN FROM EXISTING CONSTRUCTION DRAWINGS AND DATA, IS FOR REFERENCE ONLY, AND SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO THE ORDERING OF MATERIALS AND BEGINNING OF CONSTRUCTION. "BOLD" DELINEATION IS NEW WORK TO BE CONSTRUCTED UNDER THIS CONTRACT.
- CONTRACTOR'S STAGING, PARKING AND MATERIAL STORAGE SHALL BE LIMITED TO THE OWNER'S PROPERTY AREAS ONLY. PROVIDING ADDITIONAL STORAGE OR PARKING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT (USA) (1-800-422-4133), ALL PUBLIC UTILITY COMPANIES AND OWNERS OF PRIVATE FACILITIES WITHIN THE AREA OF CONSTRUCTION AT LEAST TWO WORKING DAYS (48 HOURS) PRIOR TO START OF WORK. CONTRACTOR SHALL VERIFY PRECISE LOCATIONS AND ELEVATIONS OF ALL UTILITIES AND STRUCTURES, WHETHER INDICATED ON THE DRAWINGS OR NOT, IN THE FIELD IN ADVANCE OF EXCAVATING, BY CONTACTING ALL UTILITIES AND OTHER AGENCIES, AND BY PROSPECTING. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL, DEMOLITION, RECONSTRUCTION, AND RECONNECTION OF EXISTING FACILITIES AS REQUIRED TO COMPLETE THE WORK. IF REQUIRED AFTER FIELD VERIFICATION, CONTRACTOR SHALL COORDINATE WITH THE ENGINEER TO DETERMINE ANY NECESSARY MODIFICATIONS TO PROPOSED NEW WORK.
- BEFORE CONSTRUCTION IS STARTED, CONTRACTOR SHALL COORDINATE WITH THE OWNER OF EACH UTILITY AND DEFINE THE REQUIREMENTS AND METHODS TO ACCOMMODATE THE PROTECTION, TEMPORARY SUPPORT, ADJUSTMENT, OR RELOCATION OF ANY UTILITIES AFFECTED BY THE PROPOSED NEW WORK.
- CONTRACTOR SHALL COMPLY WITH THE GOVERNING AGENCY NPDES CONSTRUCTION REQUIREMENTS. CONTRACTOR SHALL DEVELOP, IMPLEMENT AND MAINTAIN AN EROSION CONTROL PLAN. THE PLAN SHALL IDENTIFY THE LOCATIONS AND TYPES OF BMP'S THAT WILL BE IMPLEMENTED ON AND OFF-SITE, BASED UPON THE ANTICIPATED CONSTRUCTION ACTIVITIES, EQUIPMENT AND MATERIALS THAT WILL BE USED.

GENERAL NOTES CONT:

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL PROPERTY CORNER MARKERS AND BENCHMARKS. ANY DAMAGED BY CONSTRUCTION ACTIVITIES SHALL BE REESTABLISHED BY A PROFESSIONAL SURVEYOR LICENSED IN THE STATE OF CALIFORNIA.
- CONTRACTOR SHALL REFER TO THE GEOTECHNICAL REPORT FOR ACTUAL TEST HOLE LOCATIONS AND THE FINDINGS OF THE GEOTECHNICAL INVESTIGATIONS. CAN BE FOUND IN SECTION 02202 OF THE TECHNICAL SPECIFICATIONS AND THE GEOTECHNICAL REPORT.
- CONTRACTOR SHALL PROTECT AND MAINTAIN ALL EXISTING TREES, SHRUBS, AND PLANTS UNLESS OTHERWISE NOTED.
- CONTRACTOR SHALL INSTALL ALL PIPELINES, PAVING, WALKWAYS, AND CURB AND GUTTER AT A UNIFORM GRADE BETWEEN ELEVATIONS DEPICTED ON THE DRAWINGS.
- FOR ALL SITE GRADING, SMOOTH PARABOLIC TRANSITIONS SHALL BE MADE BETWEEN CHANGES IN SLOPE. PARABOLIC ROUNDING SHALL APPLY TO ALL CUT AND FILL SECTIONS.
- THE CONTRACTOR SHALL OBTAIN A PERMIT TO PERFORM EXCAVATION OR TRENCH WORK FROM CAL-OSHA. EXCAVATION PERMIT BECOMES VALID ONCE ALL REQUIREMENTS PURSUANT TO ASSEMBLY BILL 3019 ARE PERFORMED PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF THE PROPOSED SHORING PLAN INCLUDING DRAWINGS AND CALCULATIONS SIGNED AND SEALED BY A CIVIL ENGINEER REGISTERED IN THE STATE OF CALIFORNIA A MINIMUM OF 3 WEEKS PRIOR TO START OF CONSTRUCTION.
- RESTRAINED JOINTS SHALL BE PROVIDED FOR ALL BURIED PIPING.
- THE EXISTING FACILITIES SHALL REMAIN IN OPERATION CONTINUOUSLY THROUGHOUT THE CONSTRUCTION ACTIVITIES. INDIVIDUAL PROCESS FACILITIES CAN BE TAKEN OUT OF SERVICE FOR LIMITED PERIODS OF TIME TO FACILITATE CONSTRUCTION AS SPECIFIED IN THE CONTRACT DOCUMENTS.
- CONTRACTOR SHALL RESTORE ANY EXISTING STRUCTURES THAT ARE DISTURBED, DAMAGED OR REMOVED BY CONSTRUCTION IN KIND.

100% PLANS

ISSUED FOR:
APPROVAL

CONSULTANT:
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ENGINEER'S SEAL

PLANS PREPARED BY:

COVER SHEET HAS BEEN SIGNED AND DATED
XX/XX/XXXX
PROJECT ENGINEER DATE

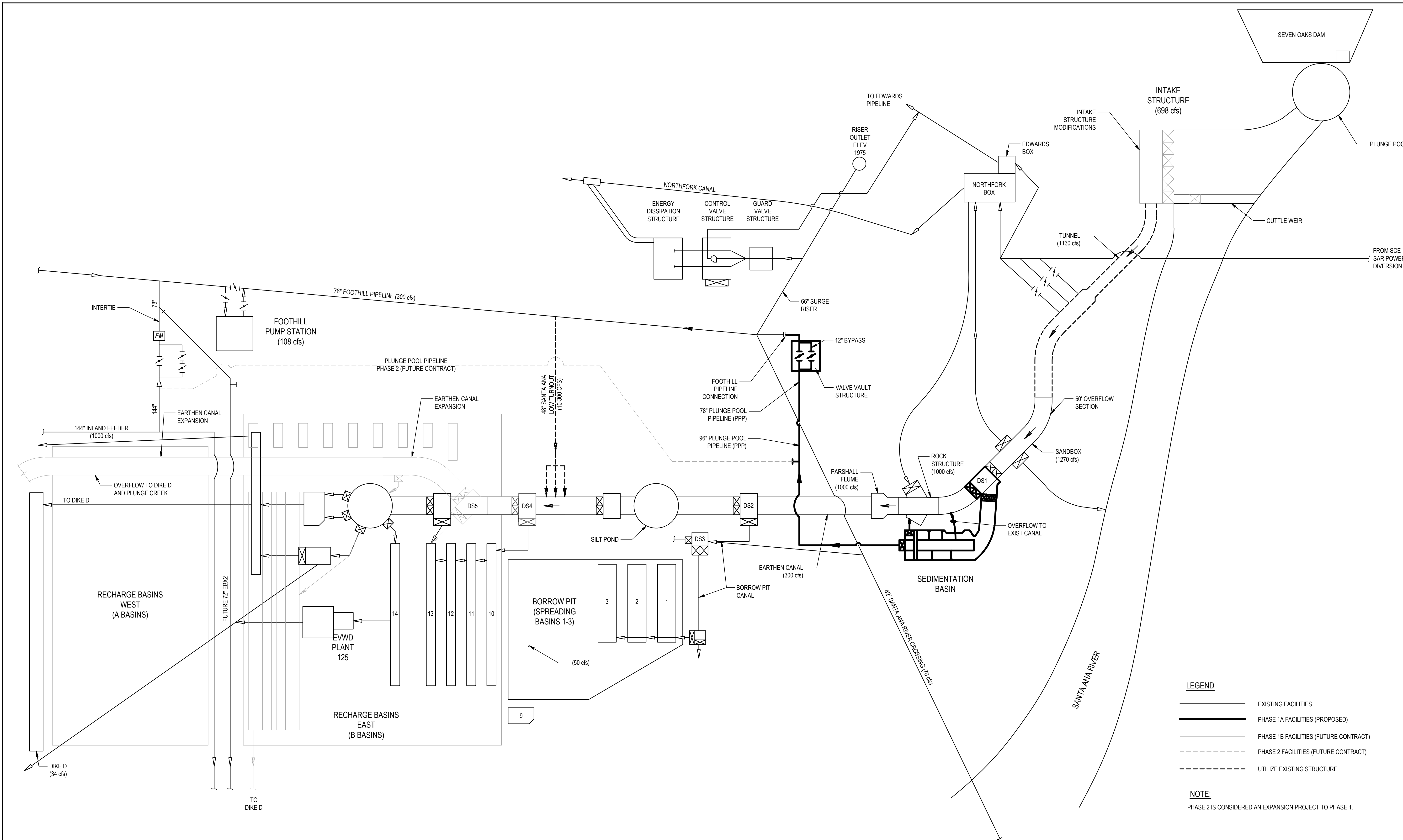
APPROVED BY:

COVER SHEET HAS BEEN SIGNED AND DATED
XX/XX/XXXX
SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT DATE

MARK BY DATE REVISION



SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT
DATE: XX/XX/XXXX
DESIGNED: CR DRAWN: AK
REVIEWED: GW
JOB NO:
ENHANCED RECHARGE IN THE SANTA ANA RIVER BASIN PROJECT
SPECIFICATION NO. 14-01
GENERAL NOTES, ABBREVIATIONS AND LEGEND
SCALE: NO SCALE
DWG: G-003
SHT. 3 OF 68 SHTS.
DRAWING NO.



LEGEND

— EXISTING FACILITIES

— PHASE 1A FACILITIES (PROPOSED)

— PHASE 1B FACILITIES (FUTURE CONTRACT)

— PHASE 2 FACILITIES (FUTURE CONTRACT)

- - - UTILIZE EXISTING STRUCTURE

NOTE:

PHASE 2 IS CONSIDERED AN EXPANSION PROJECT TO PHASE 1.

100% PLANS

ISSUED FOR: **APPROVAL**

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XX/XX/XXXX
SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT DATE

MARK	BY	DATE	REVISION

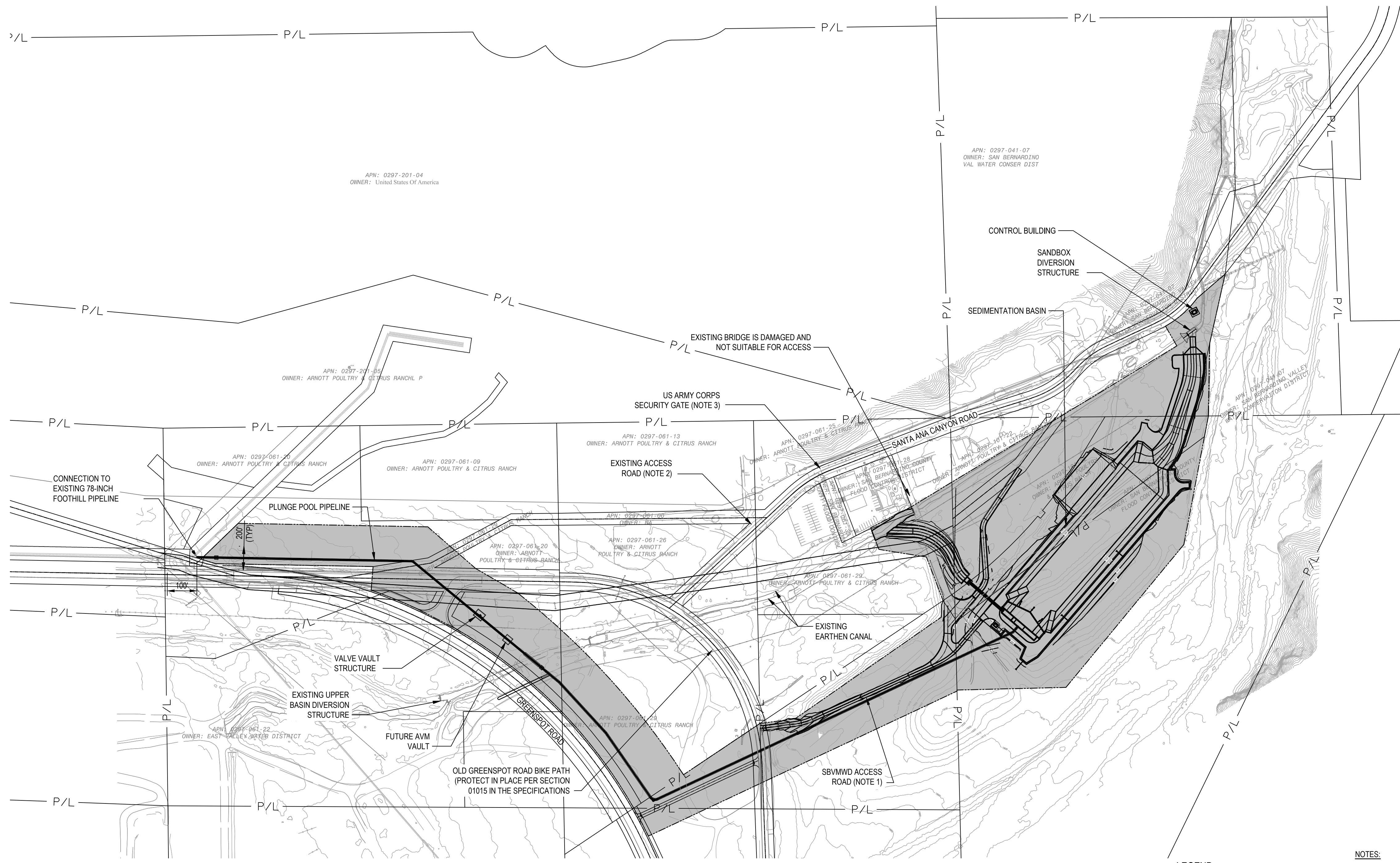


SAN BERNARDINO
Valley
MUNICIPAL
WATER DISTRICT


380 EAST VANDERBILT WAY, SAN BERNARDINO, CA 92408
PHONE: (909) 387-9253 FAX: (909) 387-9247


SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT		SCALE: NO SCALE
DATE: XX/XX/XXXX		DWG: G-004
DESIGNED: CR	DRAWN: AK	SHT. 4 OF 68 SHTS.
REVIEWED: GW		DRAWING NO.
JOB NO:		

ENHANCED RECHARGE IN THE SANTA ANA RIVER BASIN PROJECT
SPECIFICATION NO. 14-01
PROCESS SCHEMATIC - PHASE 1A



LEGEND

 LIMITS OF WORK AND ENVIRONMENTAL BOUNDARY

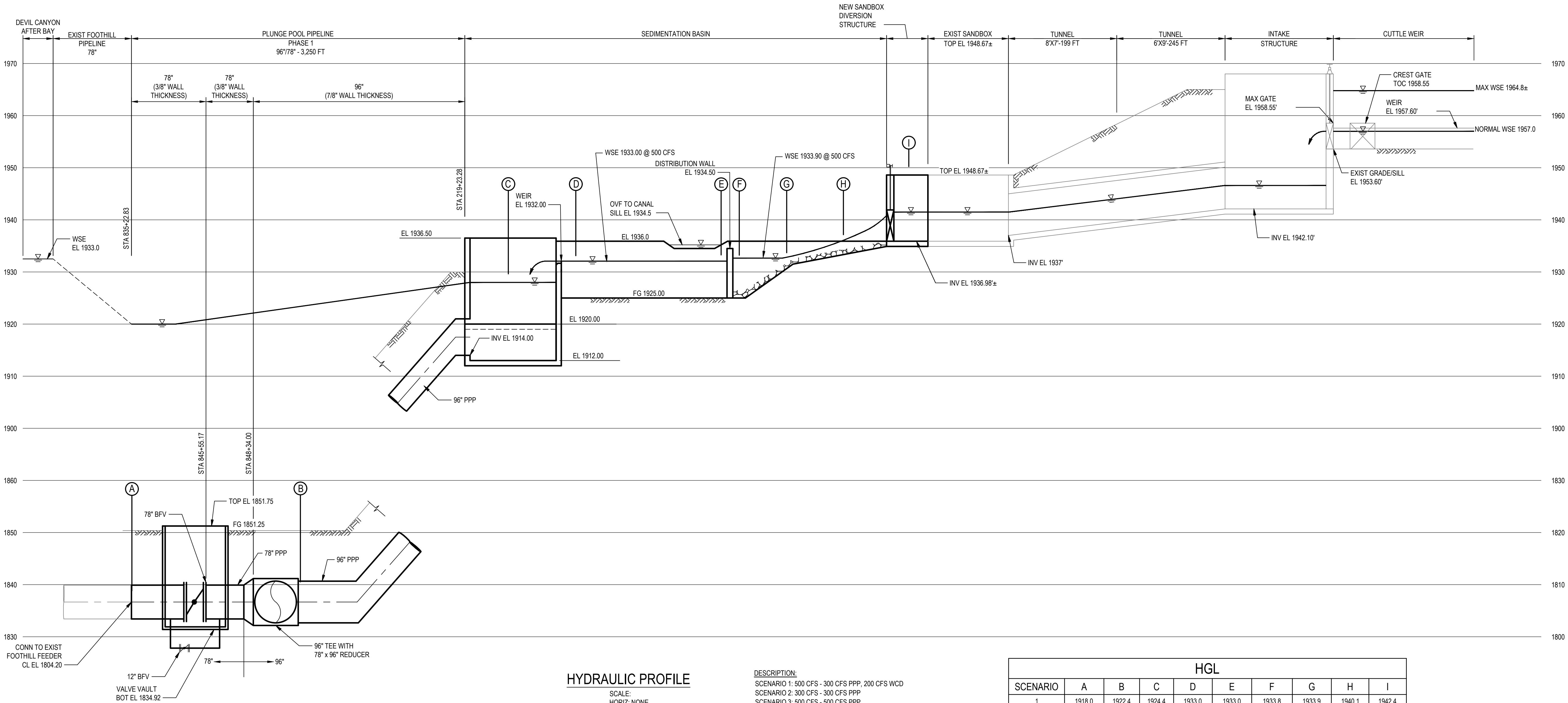
 — P/I — PROPERTY LINE

1. CONTRACTORS ACCESS ROAD. THIS ROAD SHALL BE THE CONTRACTOR ACCESS TO THE FIELD OFFICE. STAGING AREAS AND ALL SEDIMENTATION BASIN WORK. CONTRACTOR SHALL PREPARE ROAD BY CLEARING, GRUBBING AND GRADING.
2. SANTA ANA CANYON ROAD IS OPERATED BY THE ARMY CORP OF ENGINEERS THIS ROAD WILL BE SHARED WITH OTHER PERSONNEL (US ARMY CORP. SCE, SBOFCD, SBVMWD). CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTION OF PROPERTY AS OUTLINED IN THE GENERAL CONDITIONS 2.11.
3. SECURITY GATE WILL BE OPERATED BY ARMY CORPS.
4. CONTRACTOR SHALL DESIGN TRUCK WASHOUT AREA TO ENSURE NO MATERIAL CAN RUNOFF TO STREAMS OR PERCOLATE INTO THE GROUNDWATER.
5. CONTRACTOR SHALL PROTECT IN PLACE ALL CITRUS TREES WITHIN ARNOTT PROPERTY, EXCEPT WHERE NOTED ON DRAWINGS.

ISSUED FOR:

APPROVAL

Plot Date: 3 February 2017 - 5:10 PM Plotted by: Alex Kotrotsios Cad File No: N:\In\Irvine\Projects\111\11109160\CAD\Sheets\General\11109160-G-005.dwg ORIGINAL SIZE: 22"x34"



HYDRAULIC PROFILE

SCALE:
HORIZ: NONE
VERT: 1" = 10'

DESCRIPTION:
SCENARIO 1: 500 CFS - 300 CFS PPP, 200 CFS WCD
SCENARIO 2: 300 CFS - 300 CFS PPP
SCENARIO 3: 500 CFS - 500 CFS PPP
SCENARIO 4: 300 CFS WCD, 0 CFS PPP

- NOTE:
1. PHASE 2 IS CONSIDERED AN EXPANSION TO PHASE 1 FACILITIES.
 2. LOCATION OF POINT "A" IS ASSUMED ~1400 FT FROM POINT "B" AT SURFACE ELEVATION ~1822 AND INVERT ~1801.
 3. LOCATION OF POINT "G" IS ~60 FT FROM BASIN/CHANNEL TRANSITION.
 4. HGL AT POINT G VARIES DEPENDING ON FLOW TRANSITIONING FROM SUBCRITICAL TO SUPERCRITICAL.

HGL								
SCENARIO	A	B	C	D	E	F	G	I
1	1918.0	1922.4	1924.4	1933.0	1933.0	1933.8	1933.9	1940.1
2	1918.0	1922.2	1924.2	1932.7	1932.7	1933.0	1933.4	1938.9
3	1915.0	1926.5	1931.9	1933.0	1933.0	1933.8	1933.9	1940.1
4	-	-	1925.8	1932.7	1932.7	1933.0	1932.9	1938.9

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SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT
DATE

MARK

BY

DATE

REVISION



SAN BERNARDINO
Valley
MUNICIPAL
WATER DISTRICT

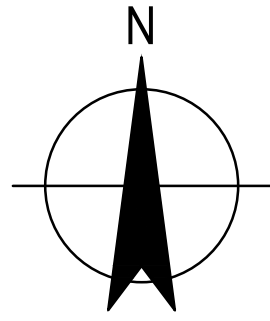
380 EAST VANDERBILT WAY, SAN BERNARDINO, CA 92408
PHONE: (909) 387-9253 FAX: (909) 387-9247

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

DATE: XX/XX/XXXX
DESIGNED: CR
DRAWN: AK
REVIEWED: GW
JOB NO:

ENHANCED RECHARGE IN THE SANTA ANA RIVER BASIN PROJECT
SPECIFICATION NO. 14-01
HYDRAULIC PROFILE

SCALE:
NO SCALE
DWG: G-006
SHT. 6 OF 68 SHTS.
DRAWING NO.



0 100 200 300 400'
SCALE 1"=200' AT ORIGINAL SIZE

H.V.2
N 1863553.13
E 6832170.07
EL 2747.39

H.V.4
N 1863691.70
E 6834431.93
EL 1989.03

H.V.8
N 1862223.78
E 6830952.67
EL 1933.16

CONNECTION TO
EXISTING 78-INCH
FOOTHILL PIPELINE
SEE DWG C-211

EXIST SURGE RISER

PLUNGE POOL PIPELINE
SEE DWG C-203 TO C-205

EXISTING
GREENSPOT ROAD

VALVE VAULT
STRUCTURE,
SEE DWG C-202

FUTURE AVM VAULT

EXISTING WCD
CHANNEL FLUME

EXISTING UPPER BASIN DIVERSION
STRUCTURE (500 cfs)

EXISTING
42" SANTA ANA
RIVER CROSSING

H.V.9
N 1860735.02
E 6829933.50
EL 1765.65

DISCHARGE TO
EXISTING EARTHEN
CANAL SEE DWG C-101

H.V.1
N 1861873.60
E 6832281.96
EL 1896.68

EXISTING EARTHEN
CANAL (300 cfs)

SEDIMENTATION BASIN
SEE DWG C-101

H.V.6
N 1862100.49
E 6833217.37
EL 1923.29

SEDIMENTATION BASIN OVERFLOW
SEE DWG C-101

EXISTING
REDLANDS
TUNNEL

SANDBOX DIVERSION
STRUCTURE SEE DWG C-106

EXIST MONUMENT
N 6833916.44
E 1862869.42
EL 1968.52

H.V.3
N 1862007.60
E 6834261.76
EL 1933.92

H.V.5
N 1860519.07
E 6833202.54
EL 1886.74

H.V.7
N 1860509.00
E 6832041.02
EL 1865.04

GREENSPOT ROAD

SBVMWD ACCESS
ROAD SEE DWG C-104

OVERALL SITE MAP

SCALE: 1"=200'

NOTE:

- THE BASIS OF BEARINGS FOR THE SURVEY WAS THE CALIFORNIA STATE PLANE COORDINATE SYSTEM, CCS83, ZONE 5, BASED ON LOCAL CONTROL STATIONS "DG9740", "DK6393", AND "DH4099" NAD83 (NSRS2007) AS SHOWN ON DRAWING C-001. ALL BEARINGS SHOWN ON MAPS ARE GRID FORMAT. QUOTED BEARINGS AND DISTANCES FROM REFERENCE MAPS OR DEEDS ARE SHOWN PER THAT RECORD REFERENCE. ALL DISTANCES SHOWN ARE GROUND DISTANCES UNLESS SPECIFIED OTHERWISE. GRID DISTANCES MAY BE OBTAINED BY MULTIPLYING THE GROUND DISTANCE BY A COMBINATION FACTOR OR 0.99990467. CALCULATIONS ARE MADE BY JOSEPH BONADIMAN & ASSOCIATES (JBA) BASE POINT 99 WITH COORDINATES OF: N87° 24' 36"W BETWEEN DG9740 AND DK6393.

100% PLANS

ISSUED FOR:

APPROVAL

CONSULTANT:



GHD Inc.
175 Technology Drive Suite 200
Irvine California 92618 USA
T 1 949 585 5200 F 1 949 648 5299 W www.ghd.com

ENGINEER'S SEAL

PLANS PREPARED BY:

COVER SHEET HAS BEEN SIGNED AND DATED
XX/XX/XXXX
PROJECT ENGINEER DATE

APPROVED BY:

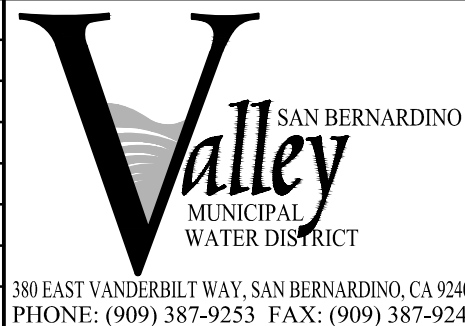
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XX/XX/XXXX
SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT DATE

MARK

BY

DATE

REVISION



SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

DATE: XX/XX/XXXX

DESIGNED: CR DRAWN: AK

REVIEWED: GW

JOB NO:

ENHANCED RECHARGE IN THE SANTA ANA RIVER BASIN PROJECT

SPECIFICATION NO. 14-01

OVERALL PROJECT SITE PLAN

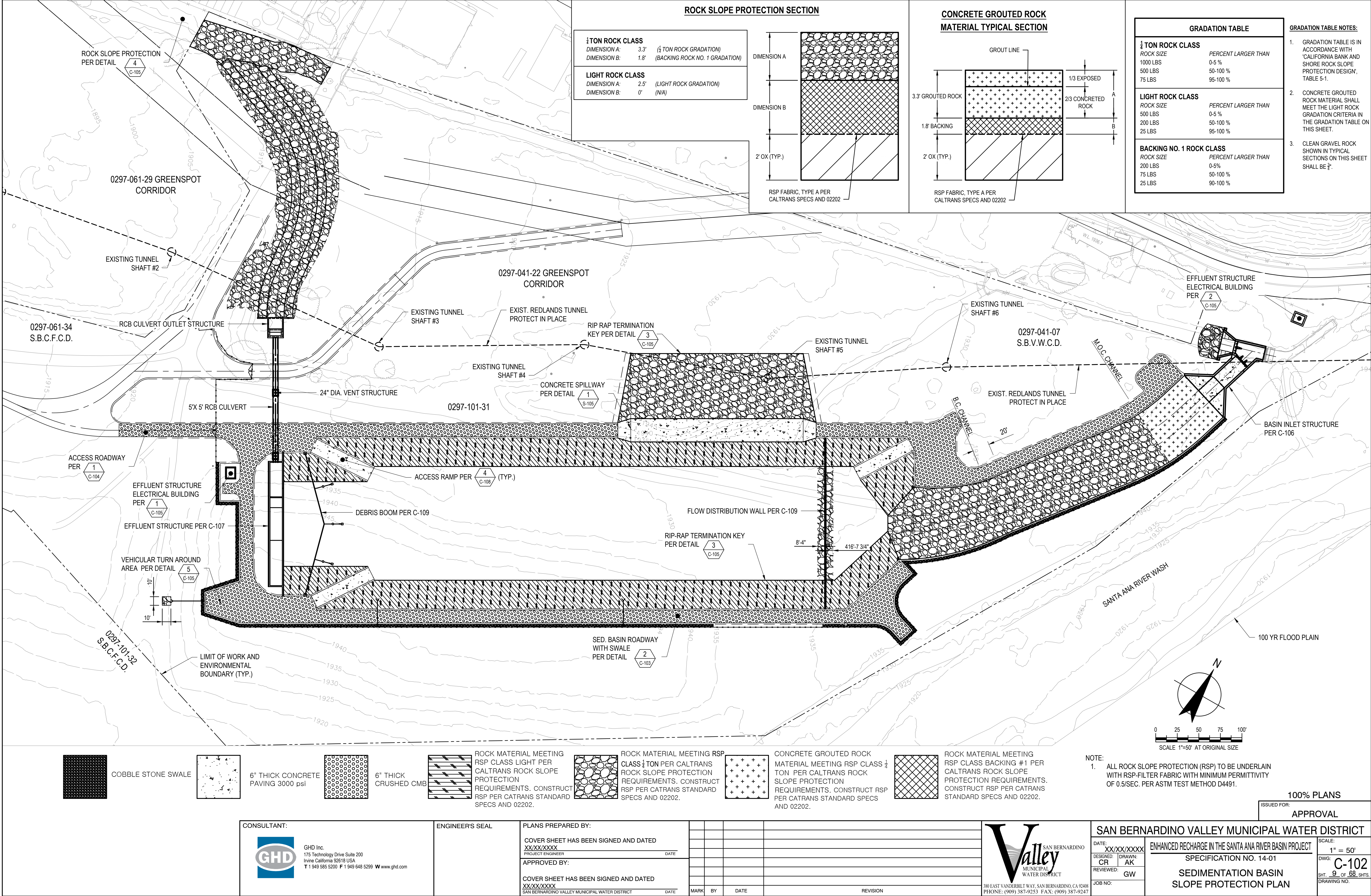
SCALE:

1" = 200'

DWG: C-001

SHT. 7 OF 68 SHTS.

DRAWING NO.





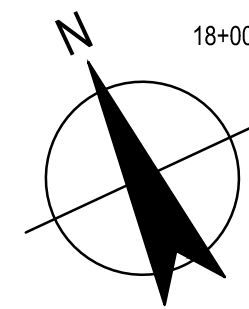
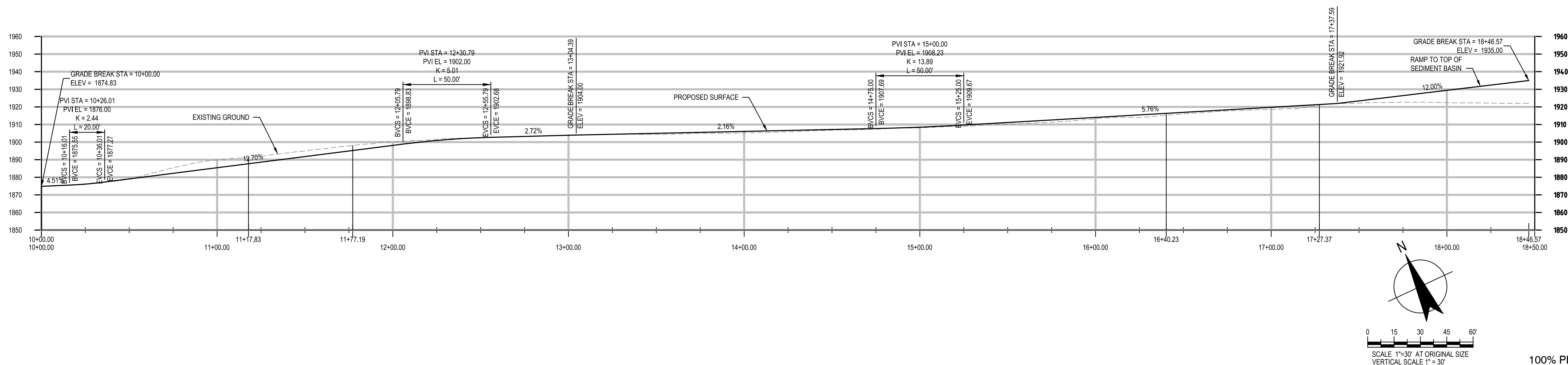
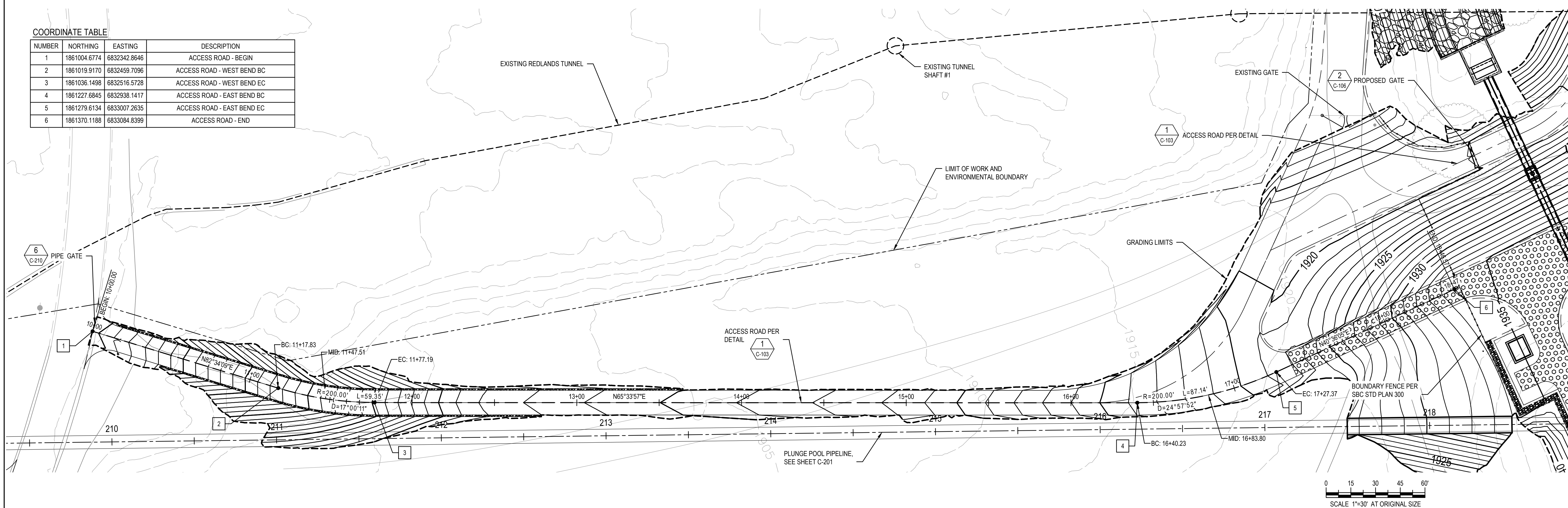
- ## 2 SED. BASIN ROAD SECTION



10 OF 68 SHTS.

COORDINATE TABLE

NUMBER	NORTHING	EASTING	DESCRIPTION
1	1861004.6174	6832342.8646	ACCESS ROAD - BEGIN
2	1861019.9770	6832459.7096	ACCESS ROAD - WEST BEND BC
3	1861036.1498	6832516.5728	ACCESS ROAD - WEST BEND EC
4	1861227.6845	6832938.1417	ACCESS ROAD - EAST BEND BC
5	1861279.6134	6833007.2635	ACCESS ROAD - EAST BEND EC
6	1861370.1186	6833084.8399	ACCESS ROAD - END



0 15 30 45 60
SCALE 1"=30' AT ORIGINAL SIZE
VERTICAL SCALE 1" = 30'

100% PLANS

ISSUED FOR:

APPROVAL

CONSULTANT:



GHD Inc.
175 Technology Drive Suite 200
Irvine California 92618 USA
T 1 949 585 5200 **F** 1 949 648 5299 **W** www.ghd.com

ENGINEER'S SEAL

PLANS PREPARED BY:

COVER SHEET HAS BEEN SIGNED AND DATED
XX/XX/XXXX

APPROVED BY:

COVER SHEET HAS BEEN SIGNED AND DATED
XX/XX/XXXX
SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT DATE

[illegible]

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

DATE: XX/XX/XXXX	
DESIGNED: CR	DRAWN: AK
REVIEWED: GW	
JOB NO:	

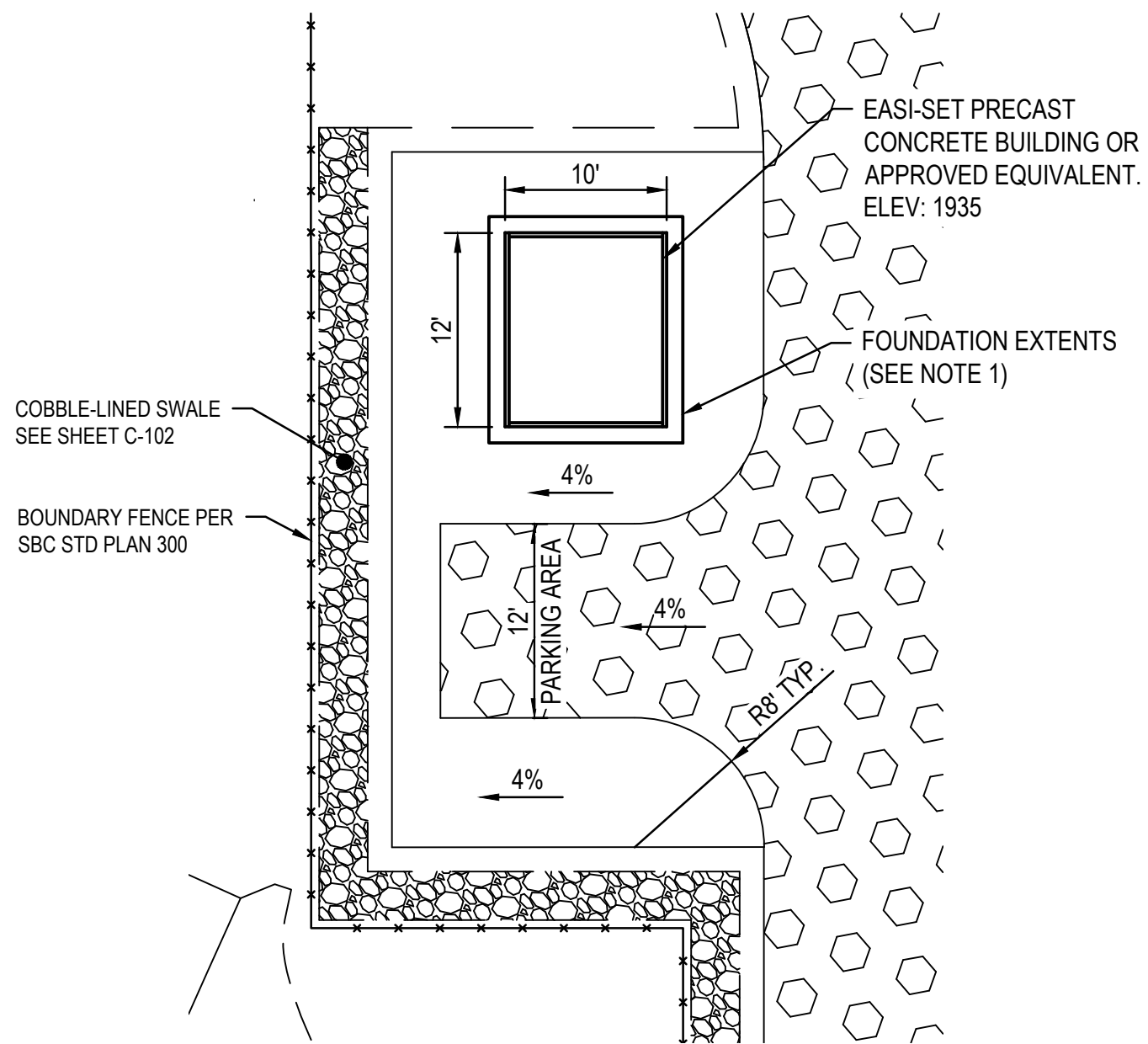
ENHANCED RECHARGE IN THE SANTA ANA RIVER BASIN PROJECT
SPECIFICATION NO. 14-01
SEDIMENTATION BASIN
ACCESS ROAD PLAN AND PROFILE

SCALE:
1" = 30'

DWG: **C-104**

SHT. 11 OF 68 SHTS

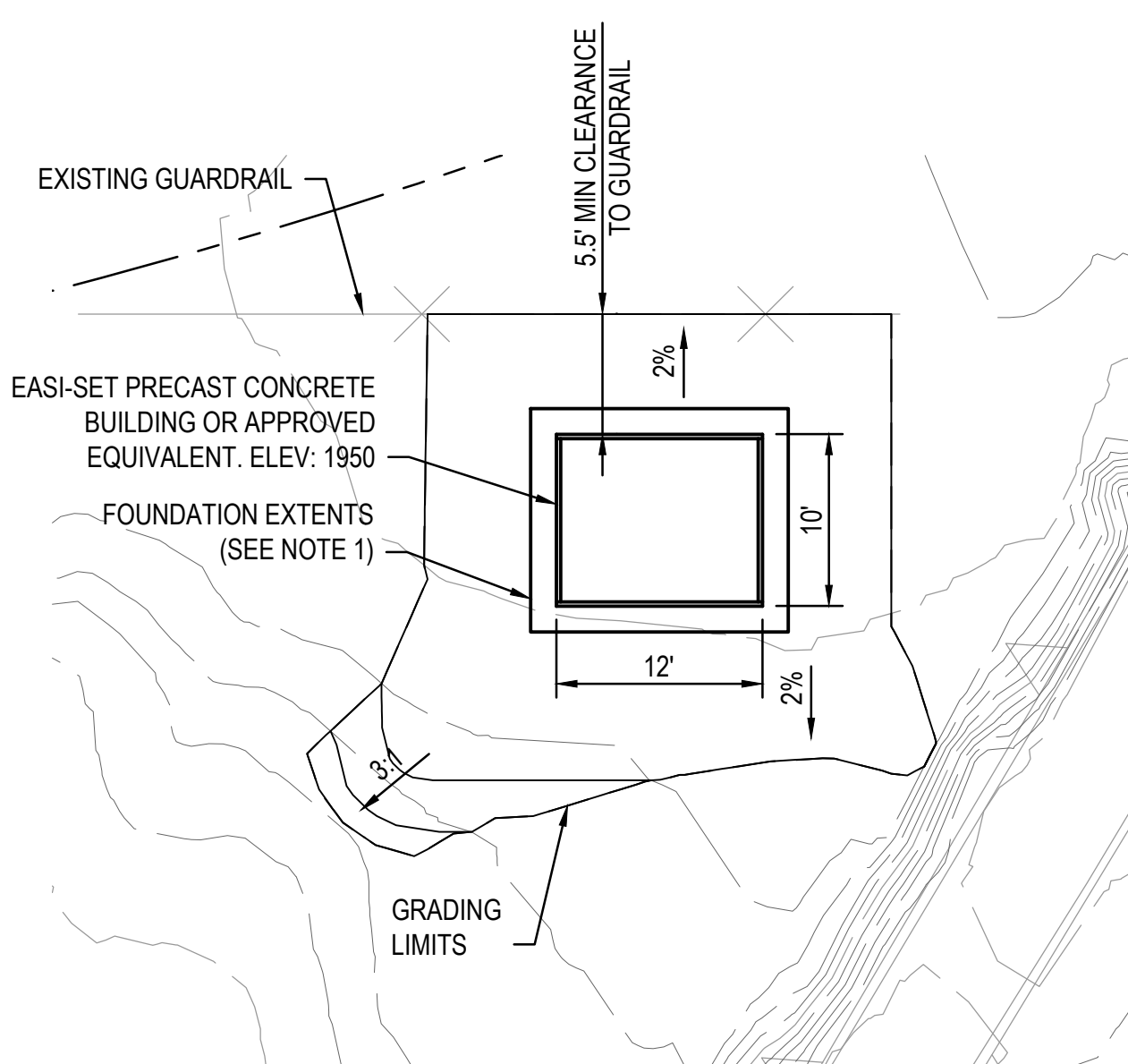
DRAWING NO.



NOTE:

1. CONSTRUCT 6" THICK CRUSHED CMB FOUNDATION FOR PRE-CAST BUILDING AT LEAST 18" BEYOND THE BUILDING FOOTPRINT

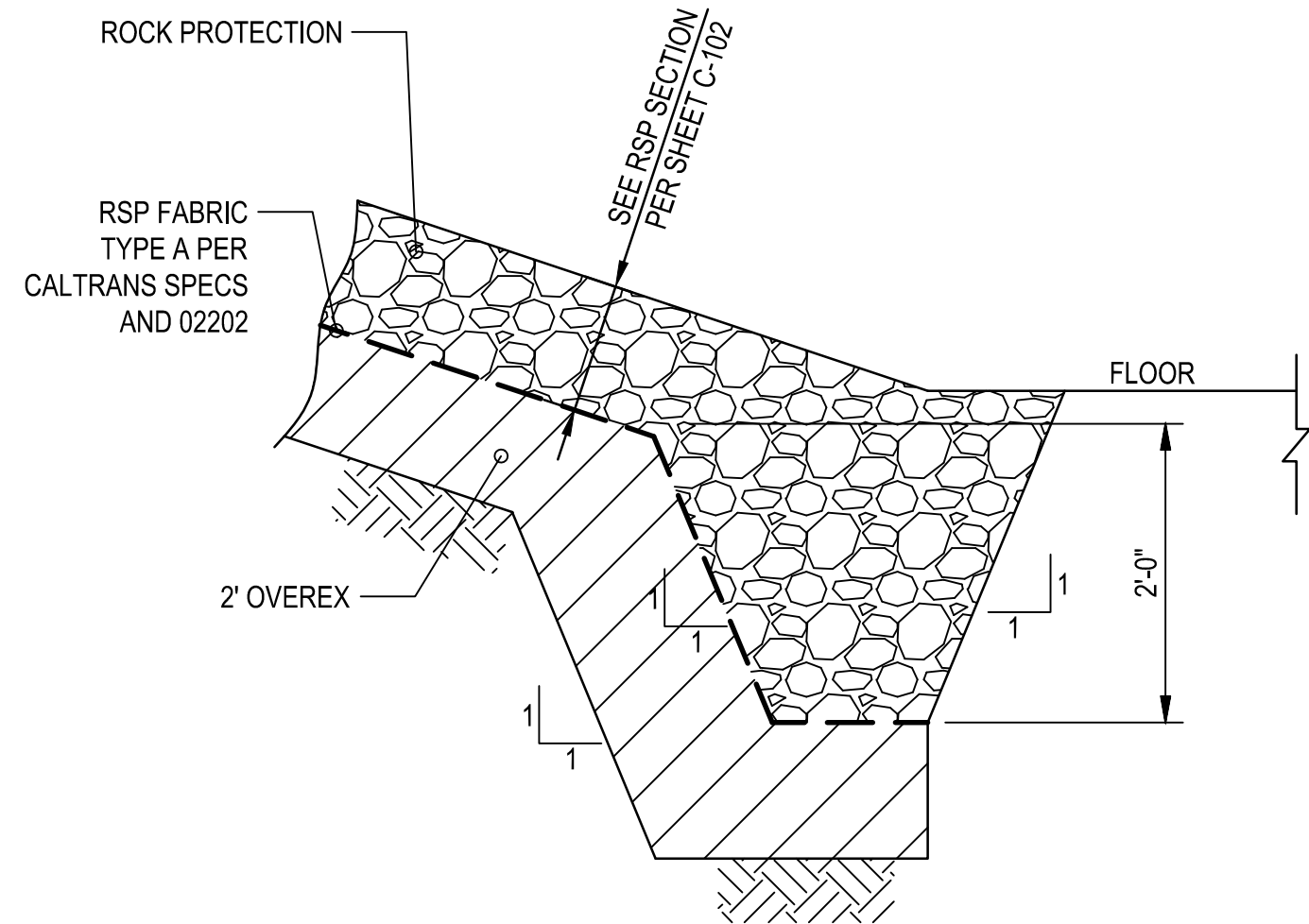
1 EFFLUENT STRUCTURE ELECTRICAL BUILDING SITE PLAN
C-102 SCALE : 1" = 10'



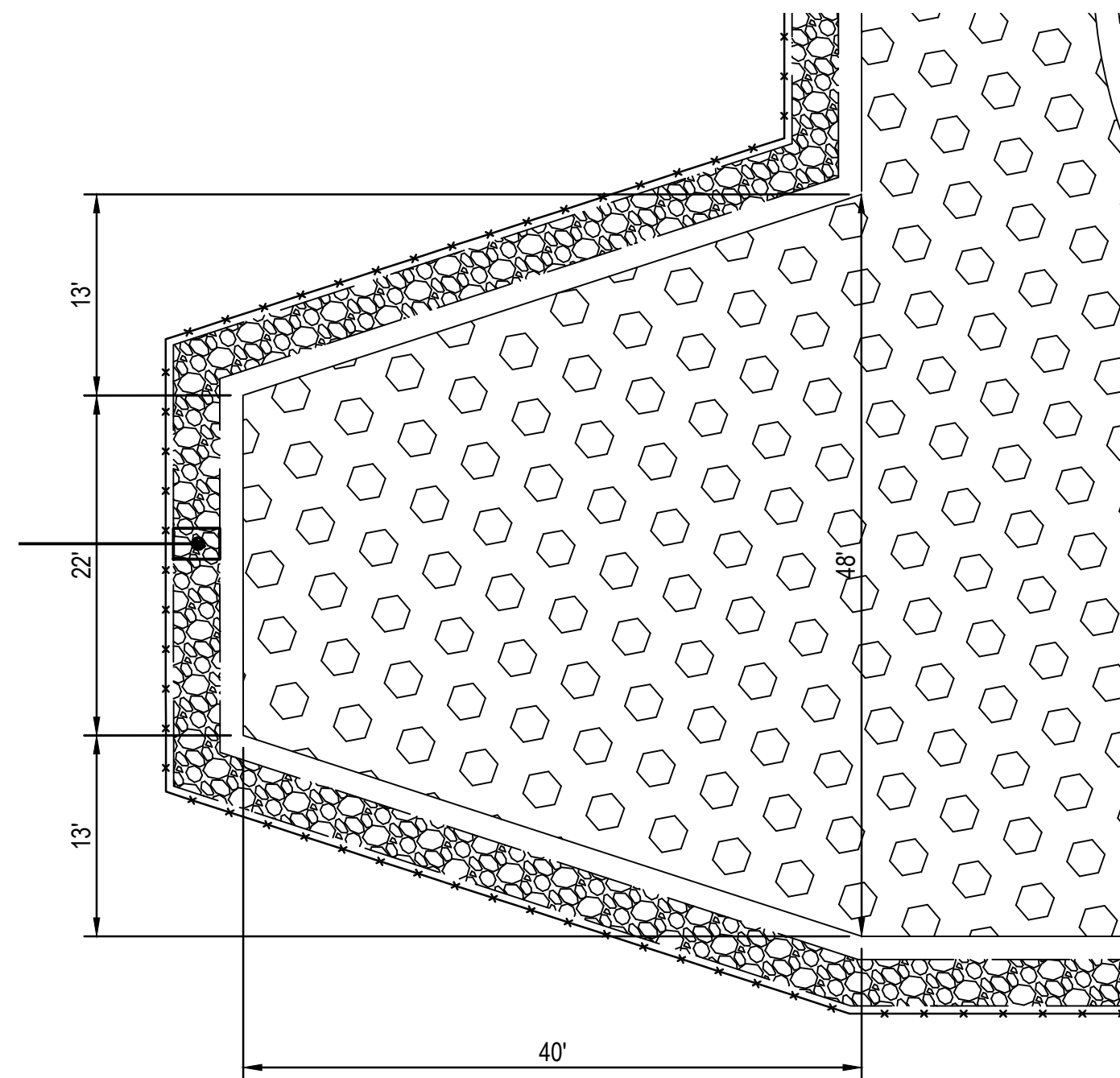
NOTE:

1. CONSTRUCT 6" THICK CRUSHED CMB FOUNDATION FOR PRE-CAST BUILDING AT LEAST 18" BEYOND THE BUILDING FOOTPRINT

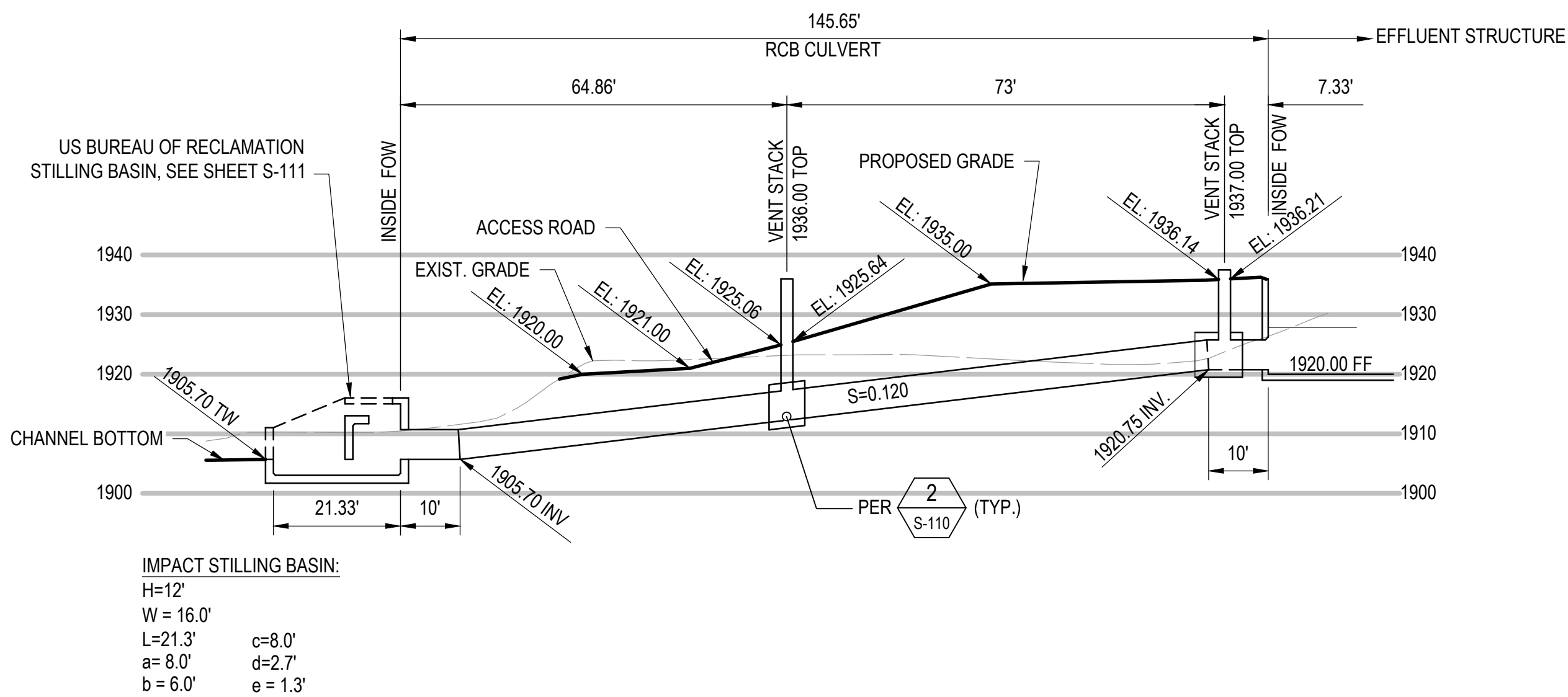
2 DIVERSION STRUCTURE ELECTRICAL BUILDING SITE PLAN
C-102 SCALE : 1" = 10'



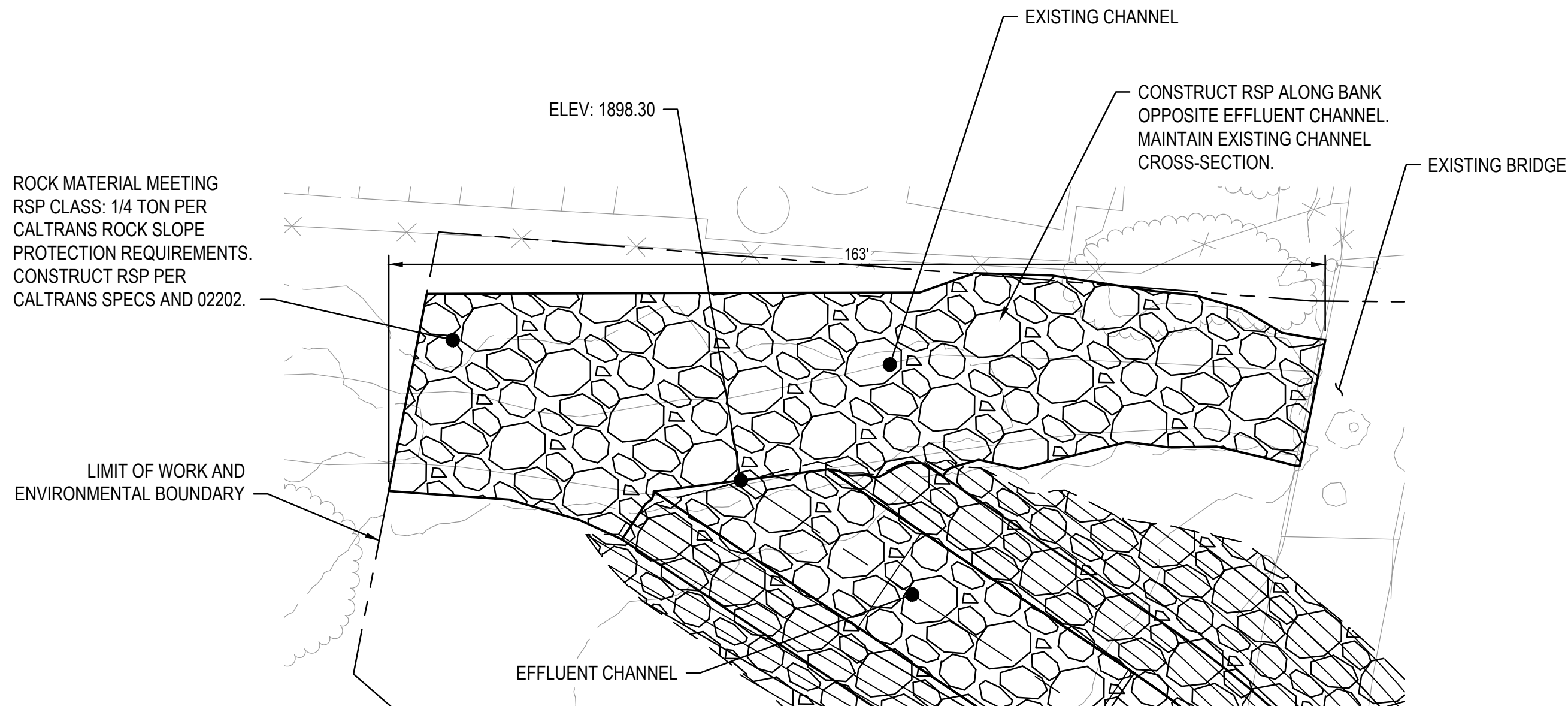
3 RIP RAP TERMINATION
C-102 SCALE : 1" = 10'



5 VEHICULAR TURN AROUND AREA
C-102 SCALE : 1" = 10'



A RCB CULVERT TO WCD CHANNEL SECTION
C-101 SCALE : 1" = 20'



4 ROCK SLOPE PROTECTION AT EXISTING CHANNEL
C-102 SCALE : 1" = 10'

CONSULTANT:

GHD

GHD Inc.
175 Technology Drive Suite 200
Irvine California 92618 USA
T 1 949 585 5200 F 1 949 648 5299 W www.ghd.com

ENGINEER'S SEAL

PLANS PREPARED BY:

COVER SHEET HAS BEEN SIGNED AND DATED
XX/XX/XXXX
PROJECT ENGINEER DATE

APPROVED BY:

COVER SHEET HAS BEEN SIGNED AND DATED
XX/XX/XXXX
SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT DATE

MARK	BY	DATE	REVISION

Valley SAN BERNARDINO
MUNICIPAL
WATER DISTRICT

380 EAST VANDERBILT WAY, SAN BERNARDINO, CA 92408
PHONE: (909) 387-9253 FAX: (909) 387-9247

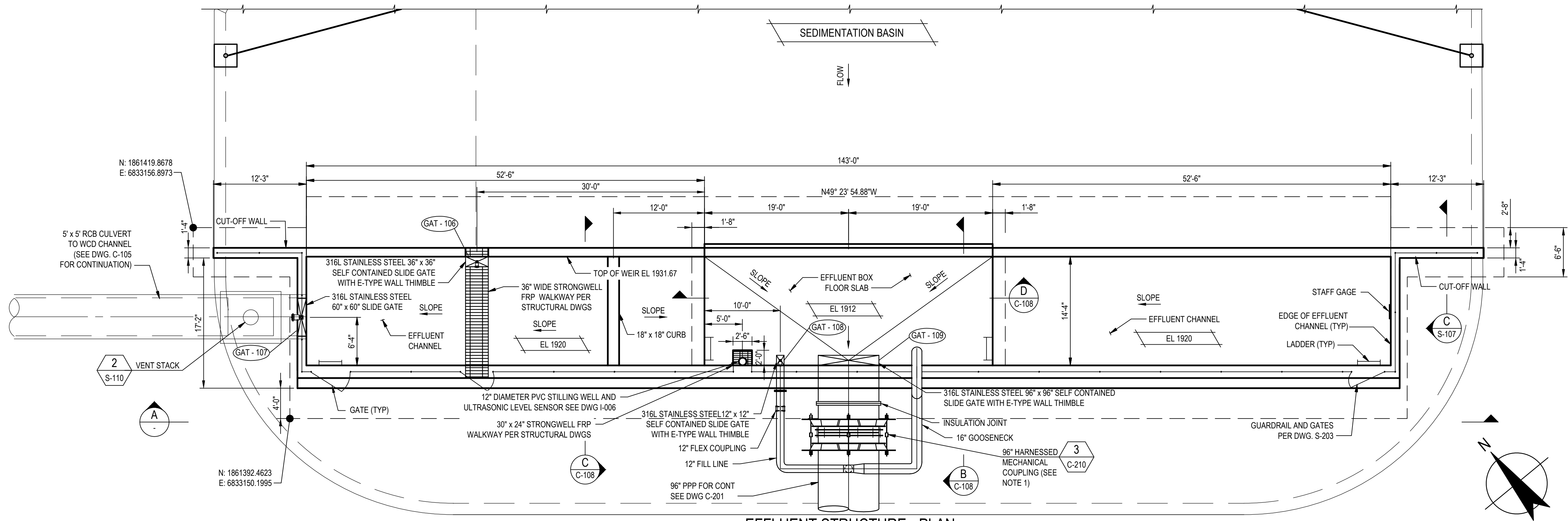
SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

DATE: XX/XX/XXXX
DESIGNED: CR DRAWN: AK
REVIEWED: GW
JOB NO:

ENHANCED RECHARGE IN THE SANTA ANA RIVER BASIN PROJECT
SPECIFICATION NO. 14-01
SEDIMENTATION BASIN
CONCRETE APRON AND SITE DETAILS

100% PLANS
ISSUED FOR: APPROVAL

SCALE: SEE SHEET
DWG: C-105
SHT. 12 OF 68 SHTS.
DRAWING NO.

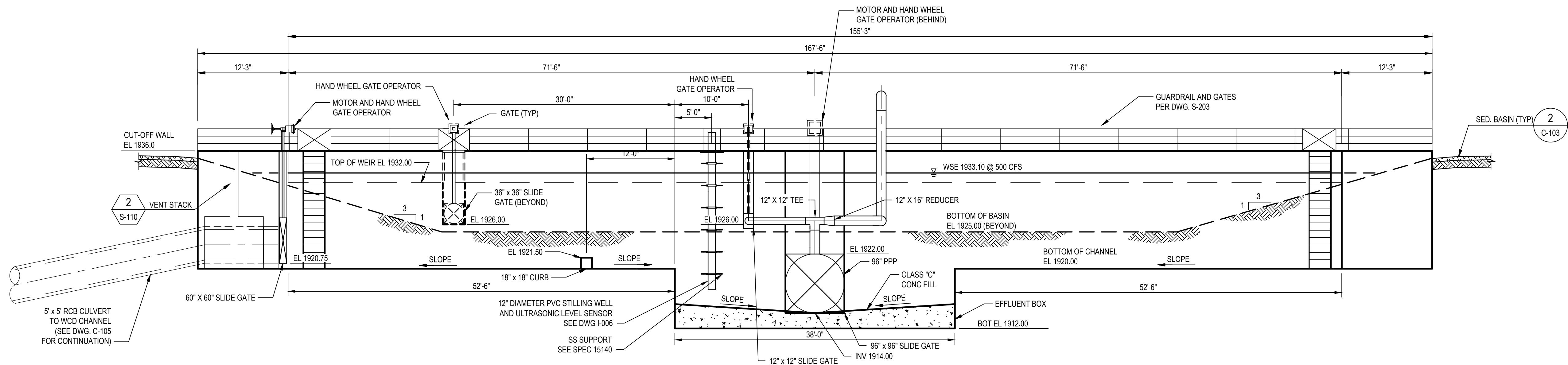


EFFLUENT STRUCTURE - PLAN

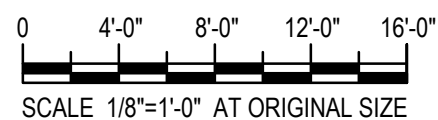
SCALE: 1/8" = 1'-0"

NOTES:

1. APPLY DENSOMASTIC TO ALL BURIED NUTS, BOLTS, WASHERS AND RESTRAINT HARNESS SYSTEMS.



A SECTION
SCALE: 1/8" = 1'-0"



100% PLANS
ISSUED FOR: APPROVAL

CONSULTANT:

GHD GHD Inc.
175 Technology Drive Suite 200
Irvine California 92618 USA
T 1 949 585 5200 F 1 949 648 5299 W www.ghd.com

ENGINEER'S SEAL

PLANS PREPARED BY:

COVER SHEET HAS BEEN SIGNED AND DATED
XX/XX/XXXX
PROJECT ENGINEER DATE

APPROVED BY:

COVER SHEET HAS BEEN SIGNED AND DATED
XX/XX/XXXX
SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT DATE

MARK	BY	DATE	REVISION

Valley SAN BERNARDINO
MUNICIPAL
WATER DISTRICT

380 EAST VANDERBILT WAY, SAN BERNARDINO, CA 92408
PHONE: (909) 387-9253 FAX: (909) 387-9247

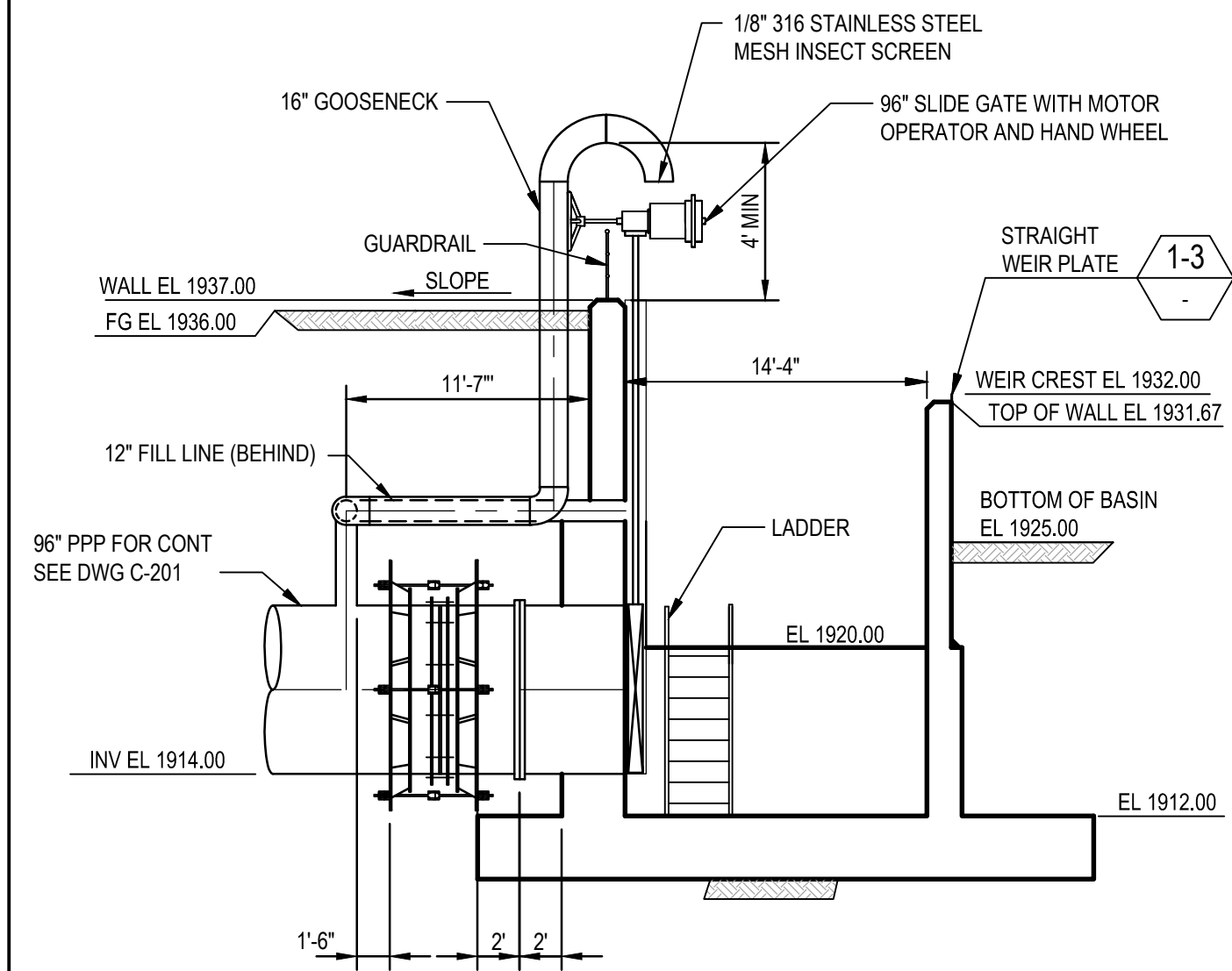
SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

DATE: XX/XX/XXXX
DESIGNED: CR
DRAWN: AK
REVIEWED: GW
JOB NO:

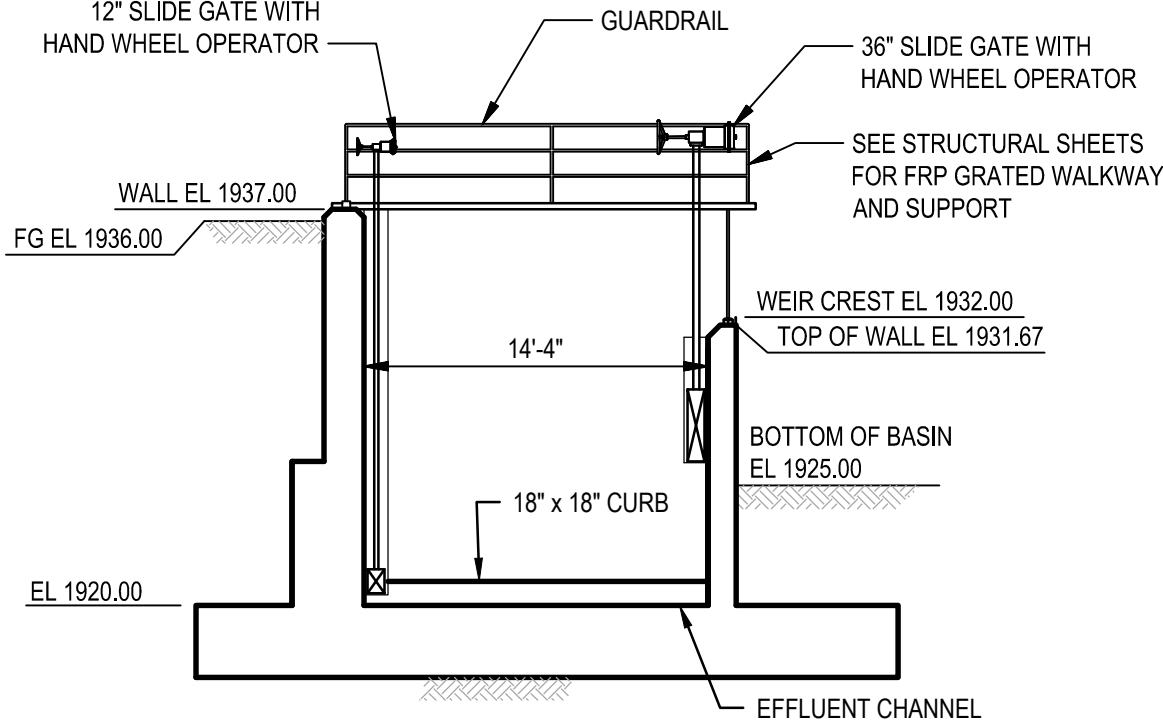
ENHANCED RECHARGE IN THE SANTA ANA RIVER BASIN PROJECT

SPECIFICATION NO. 14-01
SEDIMENTATION BASIN
EFFLUENT STRUCTURE
PLAN & SECTION

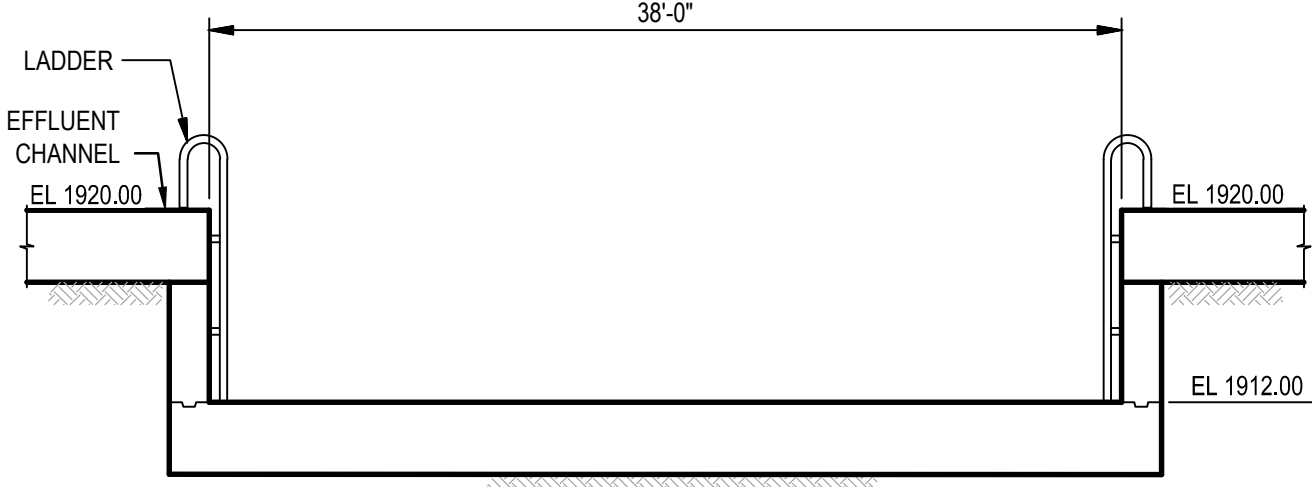
SCALE: 1/8" = 1'-0"
DWG: C-107
SHT. 14 OF 68 SHTS.
DRAWING NO.



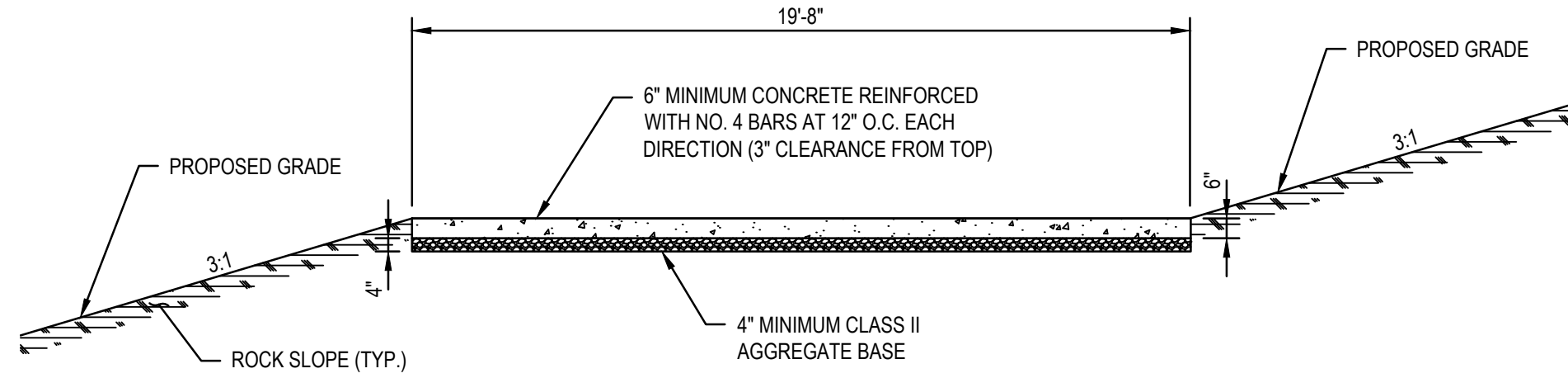
B SECTION
SCALE : 1/8" = 1' - 0"



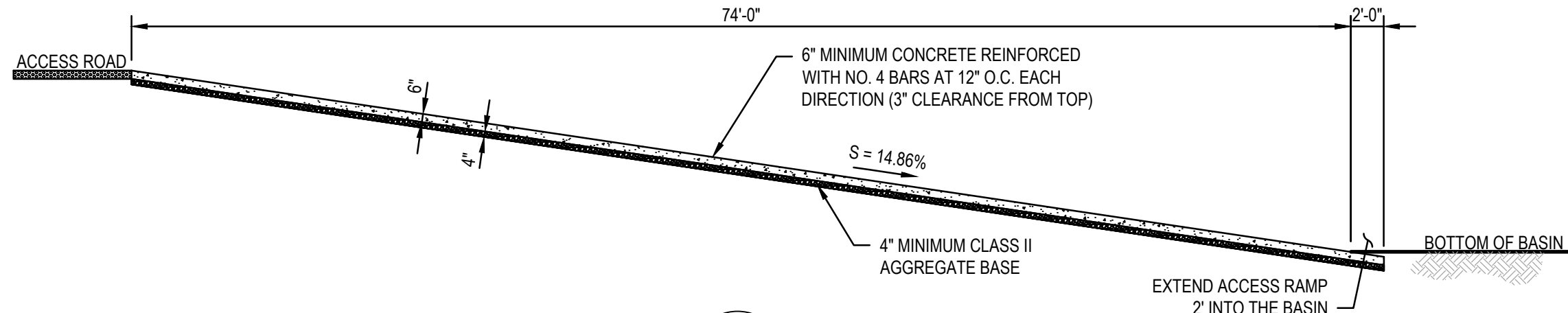
C SECTION
SCALE : 1/8" = 1' - 0"



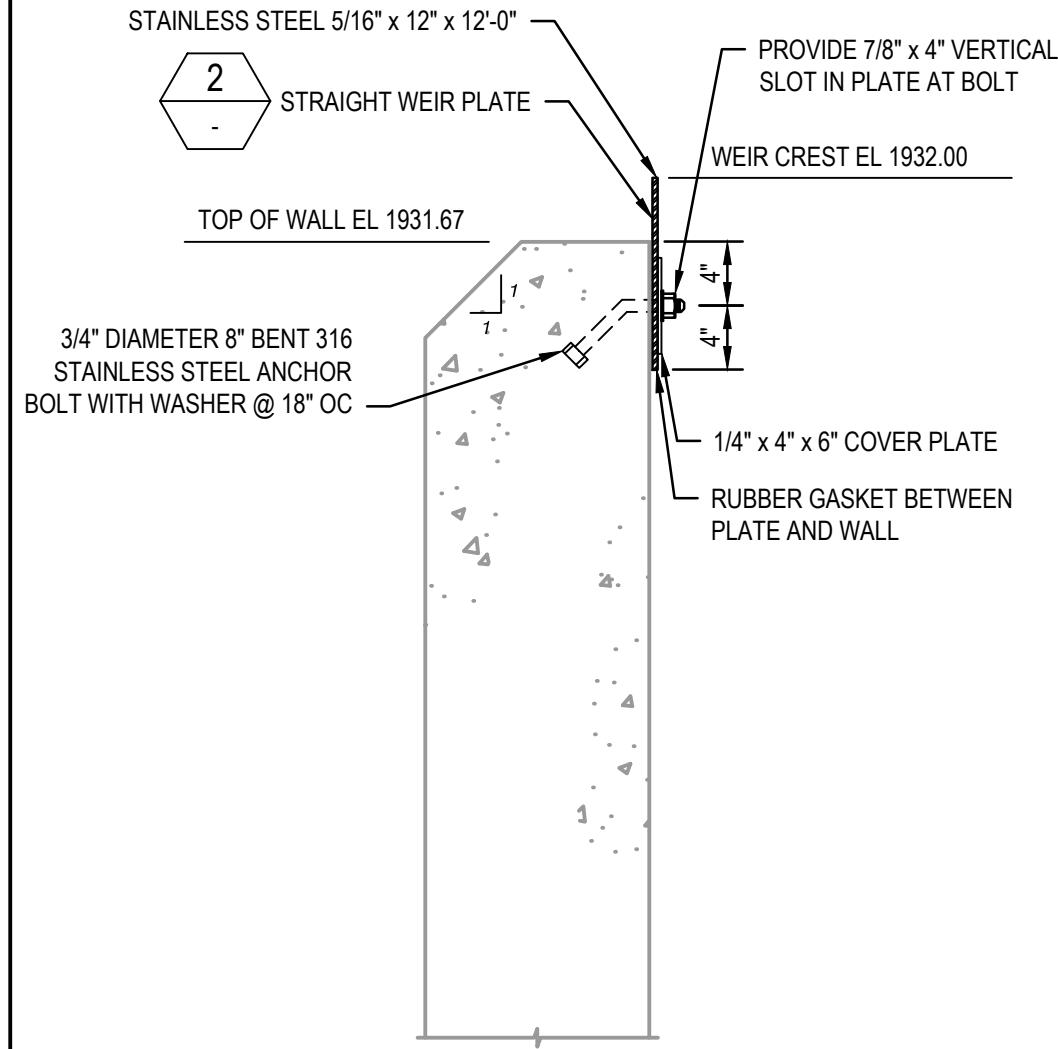
D SECTION
SCALE : 1/8" = 1' - 0"



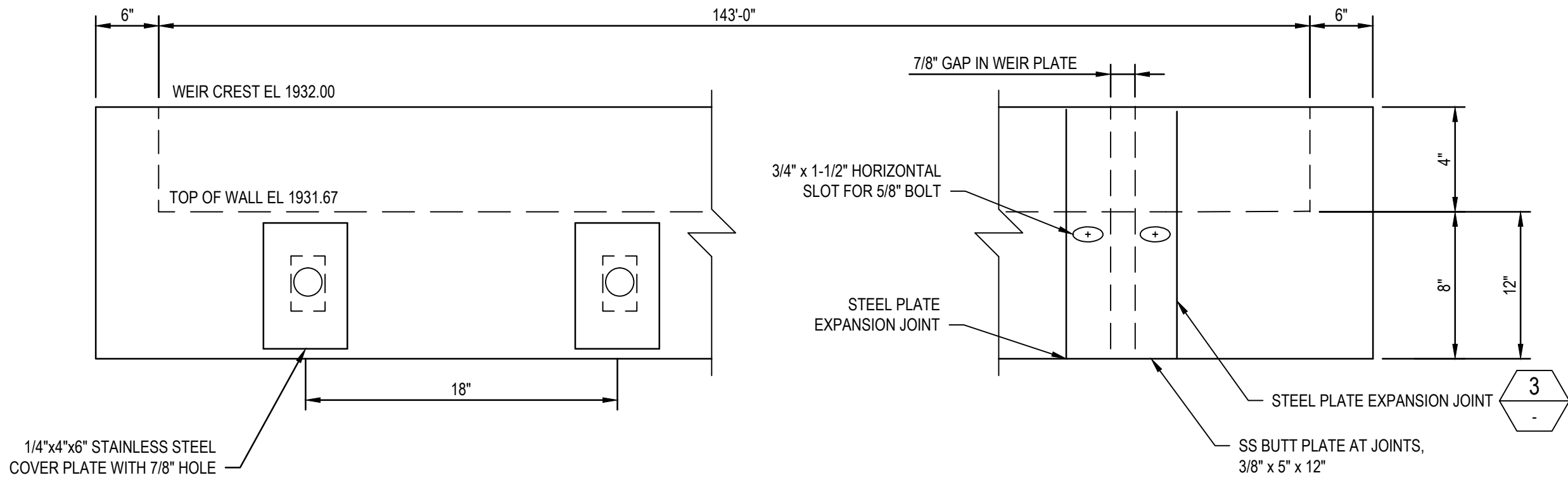
E SECTION
SCALE : 1/4" = 1' - 0"



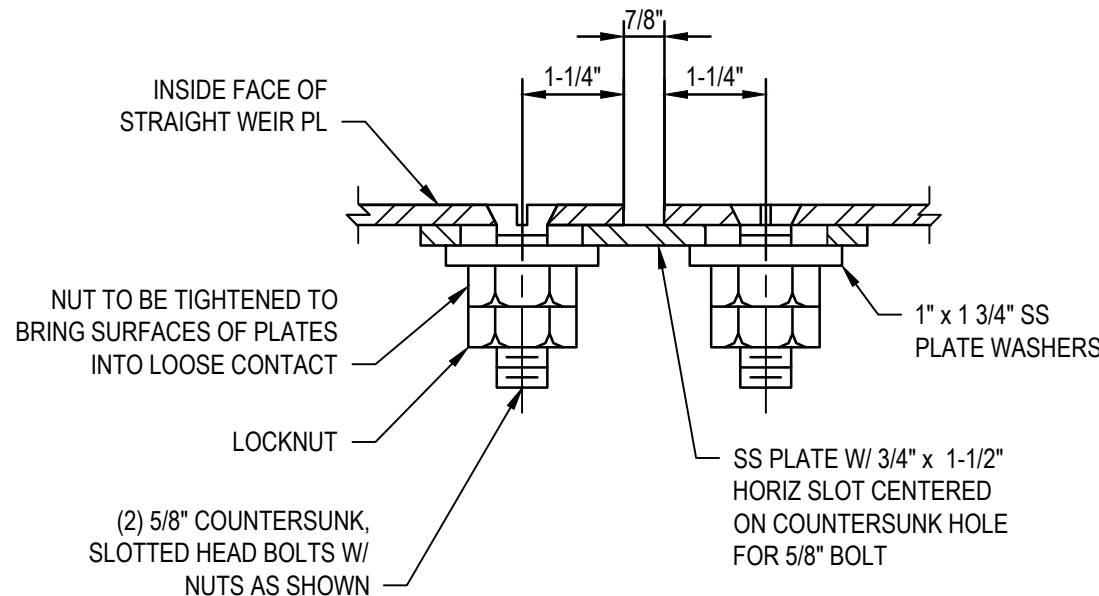
F SECTION
SCALE : 1/4" = 1' - 0"



1 STRAIGHT WEIR & STEEL PLATE SUPPORT
SCALE : NTS

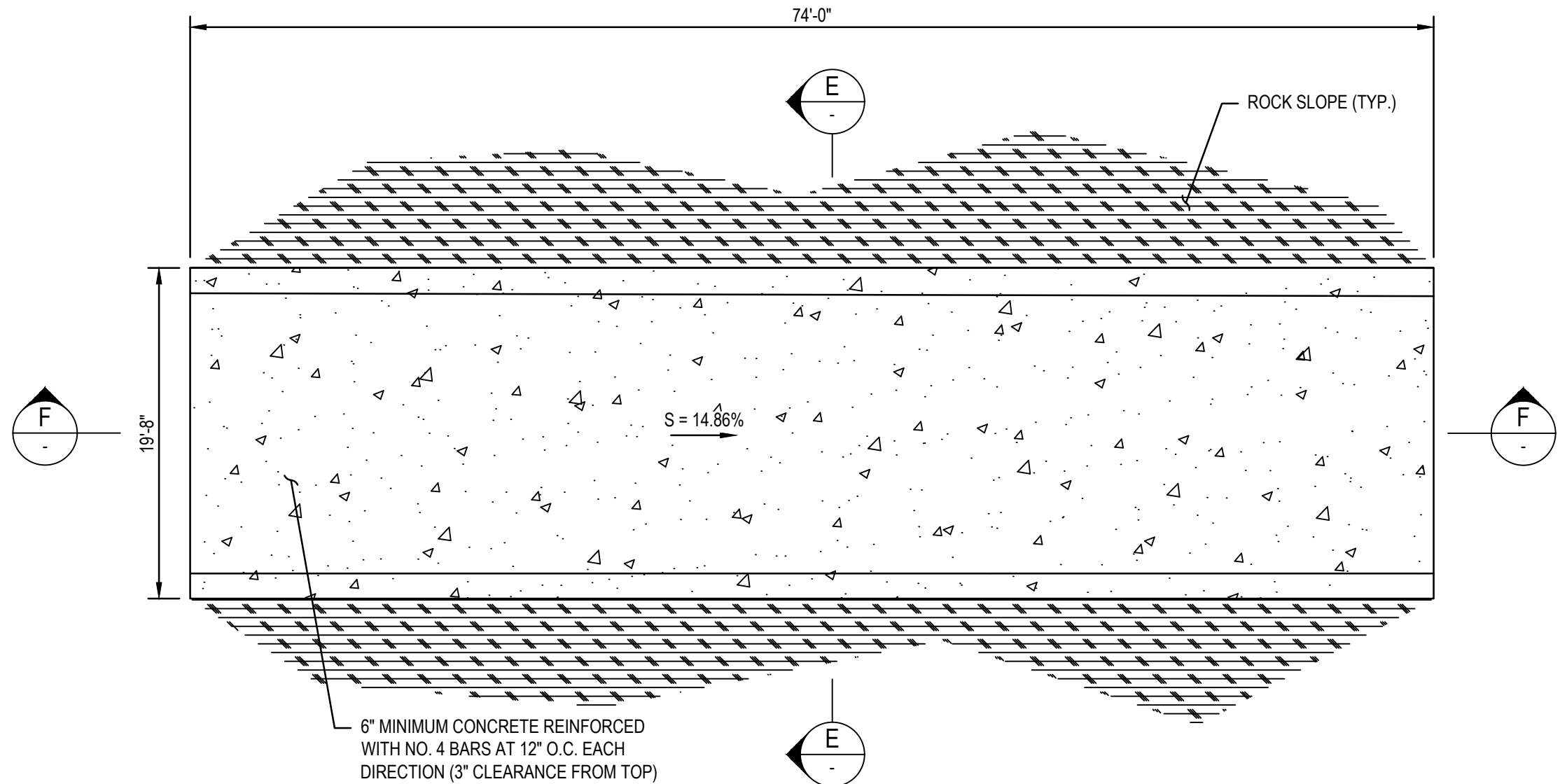


2 STRAIGHT WEIR PLATE
SCALE : NTS



NOTE:
1. EXPANSION JOINTS NOT TO EXCEED 12'-0" ON CENTER
2. ALL BOLTS, NUTS, PLATES & WASHERS TO BE 316 SS

3 STEEL PLATE EXPANSION JOINT
SCALE : NTS



4 ACCESS RAMP
SCALE : 1/8" = 1' - 0"

0 4'-0" 8'-0" 12'-0" 16'-0"
SCALE 1/8"=1'-0" AT ORIGINAL SIZE

100% PLANS
ISSUED FOR:
APPROVAL

CONSULTANT:
GHD
GHD Inc.
175 Technology Drive Suite 200
Irvine California 92618 USA
T 1 949 585 5200 F 1 949 648 5299 W www.ghd.com

ENGINEER'S SEAL

PLANS PREPARED BY:

COVER SHEET HAS BEEN SIGNED AND DATED
XX/XX/XXXX
PROJECT ENGINEER DATE

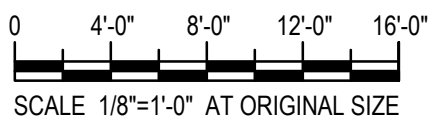
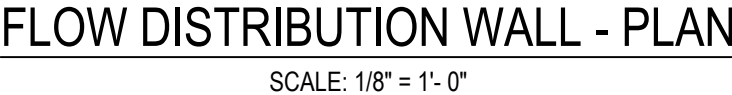
APPROVED BY:

COVER SHEET HAS BEEN SIGNED AND DATED
XX/XX/XXXX
SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT DATE

MARK BY DATE REVISION

Valley SAN BERNARDINO
MUNICIPAL
WATER DISTRICT
380 EAST VANDERBILT WAY, SAN BERNARDINO, CA 92408
PHONE: (909) 387-9253 FAX: (909) 387-9247

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT
DATE: XX/XX/XXXX
DESIGNED: CR DRAWN: AK
REVIEWED: GW
JOB NO:
SPECIFICATION NO. 14-01
**SEDIMENTATION BASIN
EFFLUENT STRUCTURE
SECTION AND DETAILS**
SCALE: 1/8" = 1'-0"
DWG: **C-108**
SHT. 15 OF 68 SHTS.
DRAWING NO.



100% PLANS

ISSUED FOR:

APPROVAL

ENGINEER'S SEAL

PLANS PREPARED BY:

COVER SHEET HAS BEEN SIGNED AND DATED
XX/XX/XXXX

APPROVED BY:

COVER SHEET HAS BEEN SIGNED AND DATED
XX/XX/XXXX
SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT DATE



Valley SAN BERNARDINO
MUNICIPAL
WATER DISTRICT

380 EAST VANDERBILT WAY, SAN BERNARDINO, CA 92401
PHONE: (909) 387-9253 FAX: (909) 387-9241

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

DATE: _____

DESIGNED:	DRAWN:
-----------	--------

REVIEWED: _____

JOB NO:

ENHANCED RECHARGE IN THE SANTA ANA RIVER BASIN PROJEC

SPECIFICATION NO. 14-01

SEDIMENTATION BASIN

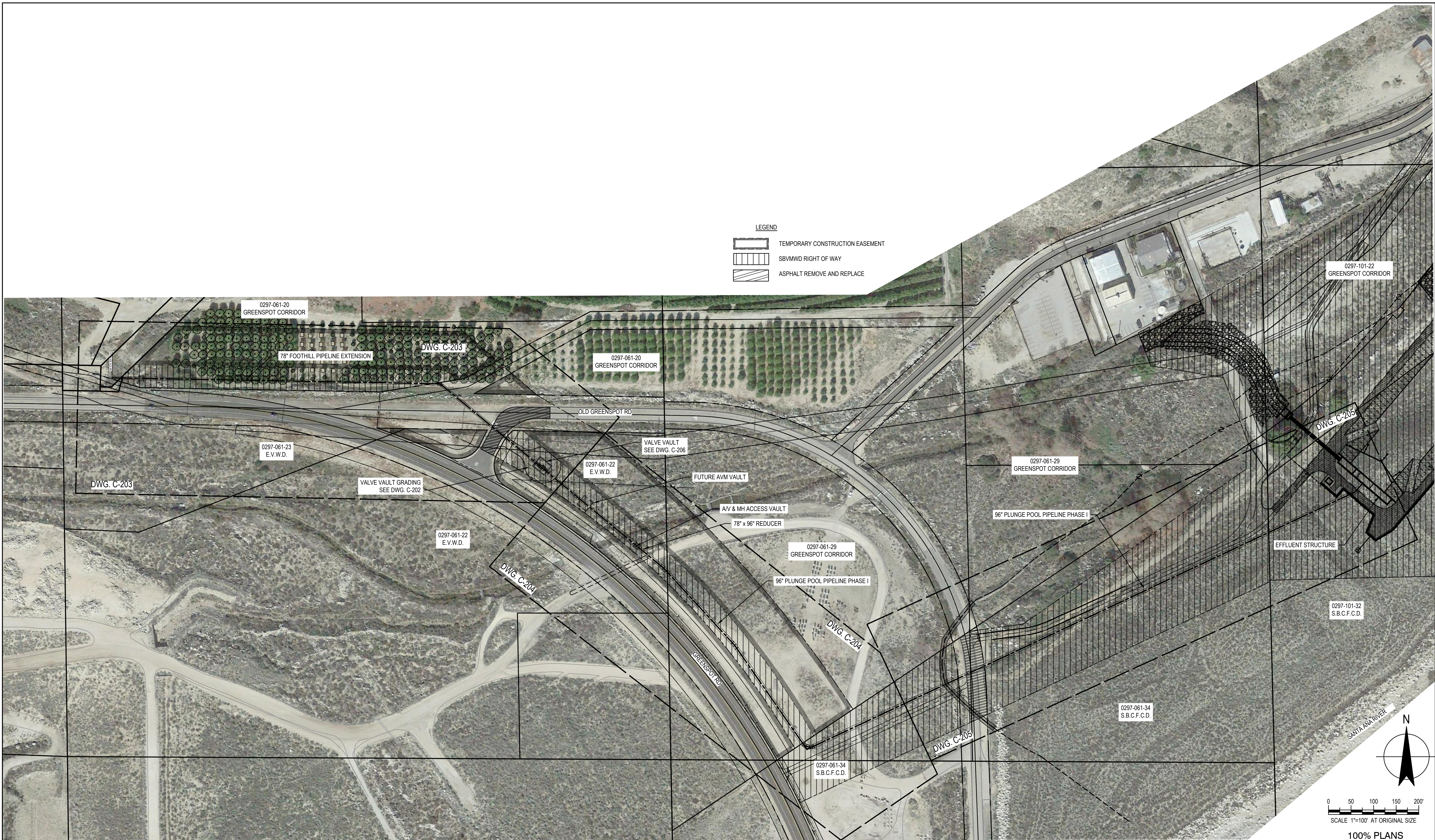
FLOW DISTRIBUTION WALL &

SCALE:

DWG: 00000000

C-109

DRAFTING NO.



LEGEND

	TEMPORARY CONSTRUCTION EASEMENT
	SBVMWD RIGHT OF WAY
	ASPHALT REMOVE AND REPLACE

0 50 100 150 200'

SCALE 1"=100' AT ORIGINAL SIZE

100% PLANS

ISSUED FOR: APPROVAL

N

CONSULTANT:

GHD Inc.
175 Technology Drive Suite 200
Irvine California 92618 USA
T 1 949 585 5200 F 1 949 648 5299 W www.ghd.com

ENGINEER'S SEAL

PLANS PREPARED BY:

COVER SHEET HAS BEEN SIGNED AND DATED
XX/XX/XXXX
PROJECT ENGINEER DATE

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MARK	BY	DATE	REVISION

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

380 EAST VANDERBILT WAY, SAN BERNARDINO, CA 92408
PHONE: (909) 387-9253 FAX: (909) 387-9247

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

DATE: XX/XX/XXXX

DESIGNED: CR DRAWN: AK

REVIEWED: GW

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ENHANCED RECHARGE IN THE SANTA ANA RIVER BASIN PROJECT

SPECIFICATION NO. 14-01

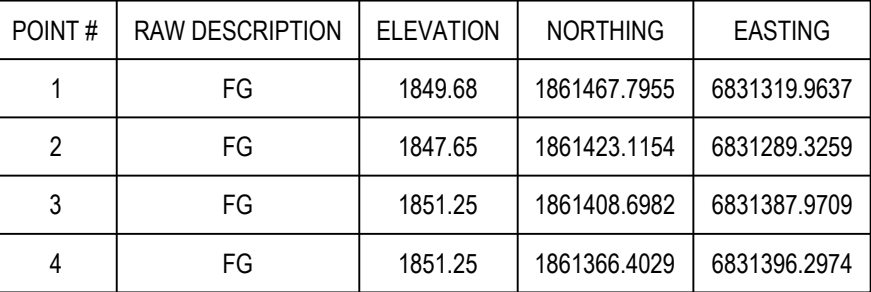
PLUNGE POOL PIPELINE SITE PLAN

SCALE: 1" = 100'

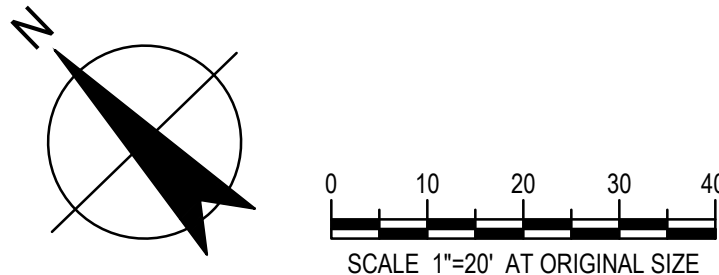
DWG: C-201

SHT. 17 OF 68 SHTS.

DRAWING NO.

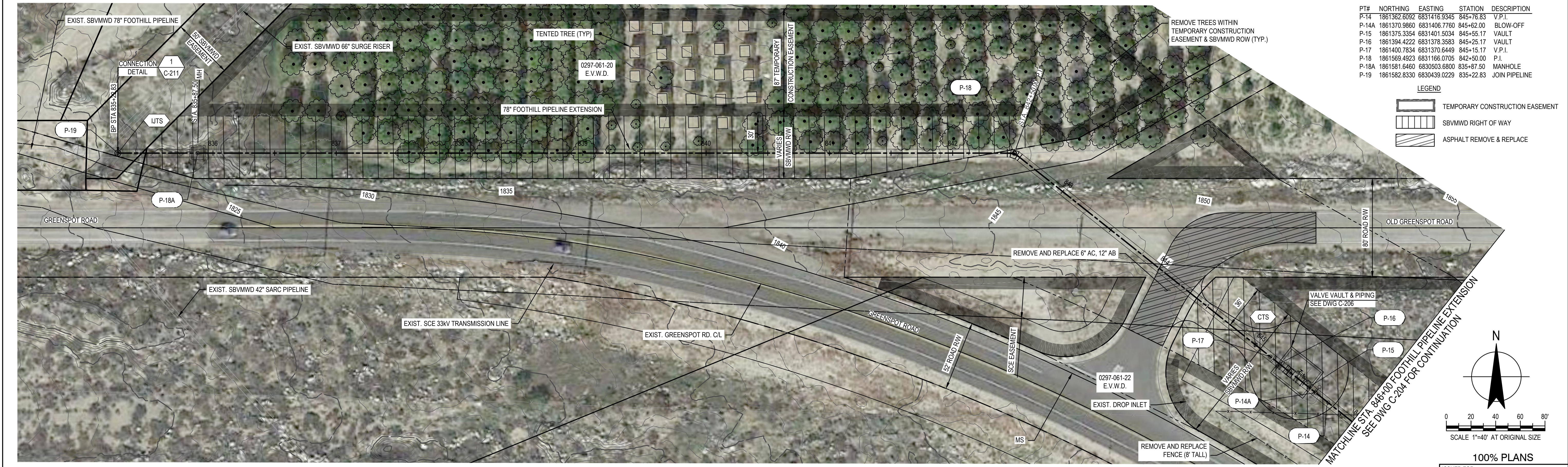
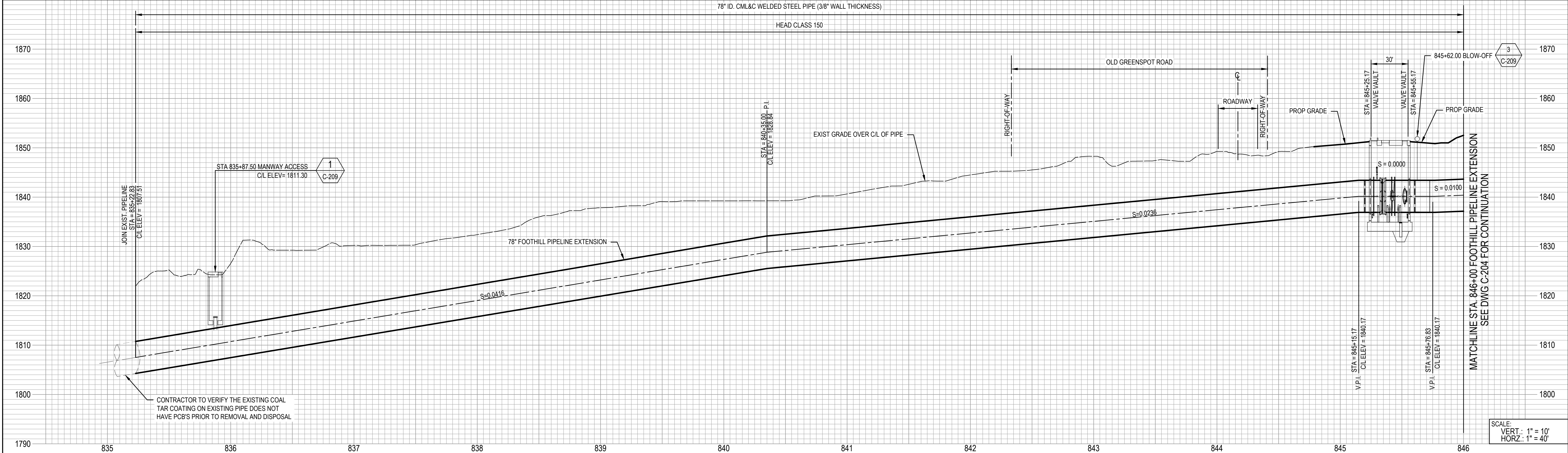


NOTE
GRADE 20" MINIMUM ACCESS AROUND VAULT.
MAINTAIN 2% SLOPE FOR A MINIMUM OF 12'
FOR POSITIVE DRAINAGE AWAY FROM VAULT.



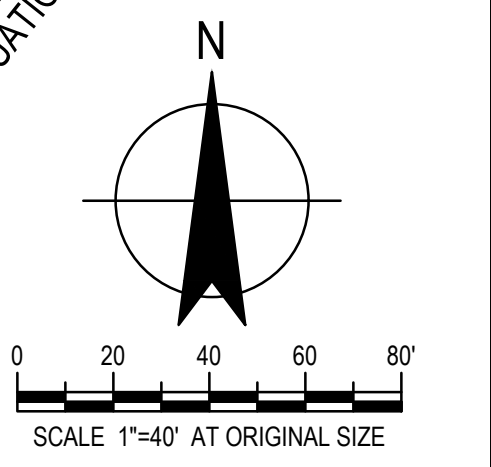
ISSUED FOR: **APPROVAL**

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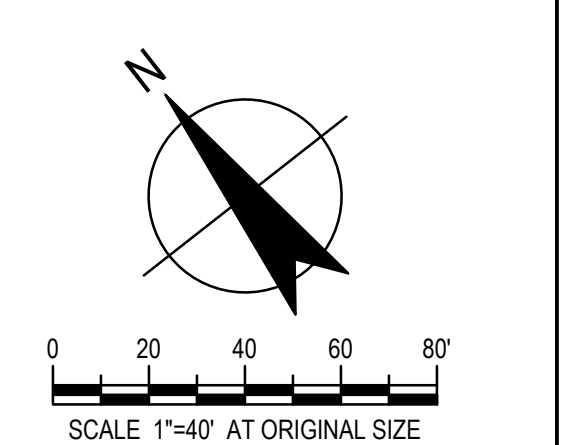
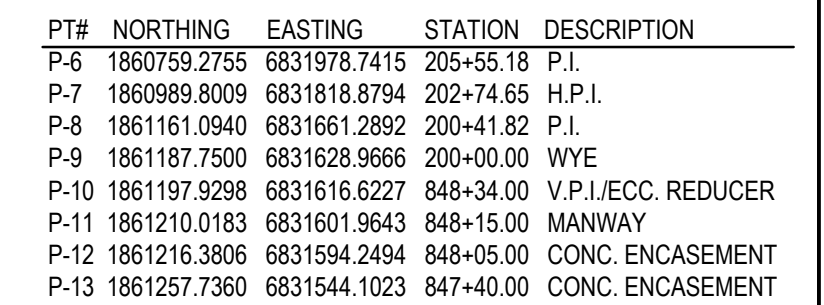


PT#	NORTHING	EASTING	STATION	DESCRIPTION
P-14	1861362.6092	6831416.9345	845+76.83	V.P.I.
P-14A	1861370.9860	6831406.7760	845+62.00	BLOW-OFF
P-15	1861375.3354	6831401.5034	845+55.17	VAULT
P-16	1861394.4222	6831378.3583	845+25.17	VAULT
P-17	1861400.7834	6831370.6449	845+15.17	V.P.I.
P-18	1861569.4923	6831166.0705	842+50.00	P.I.
P-18A	1861581.6460	6830503.6800	835+87.50	MANHOLE
P-19	1861582.8330	6830439.0229	835+22.83	JOIN PIPELINE

LEGEND	
	TEMPORARY CONSTRUCTION EASEMENT
	SBVMWD RIGHT OF WAY
	ASPHALT REMOVE & REPLACE

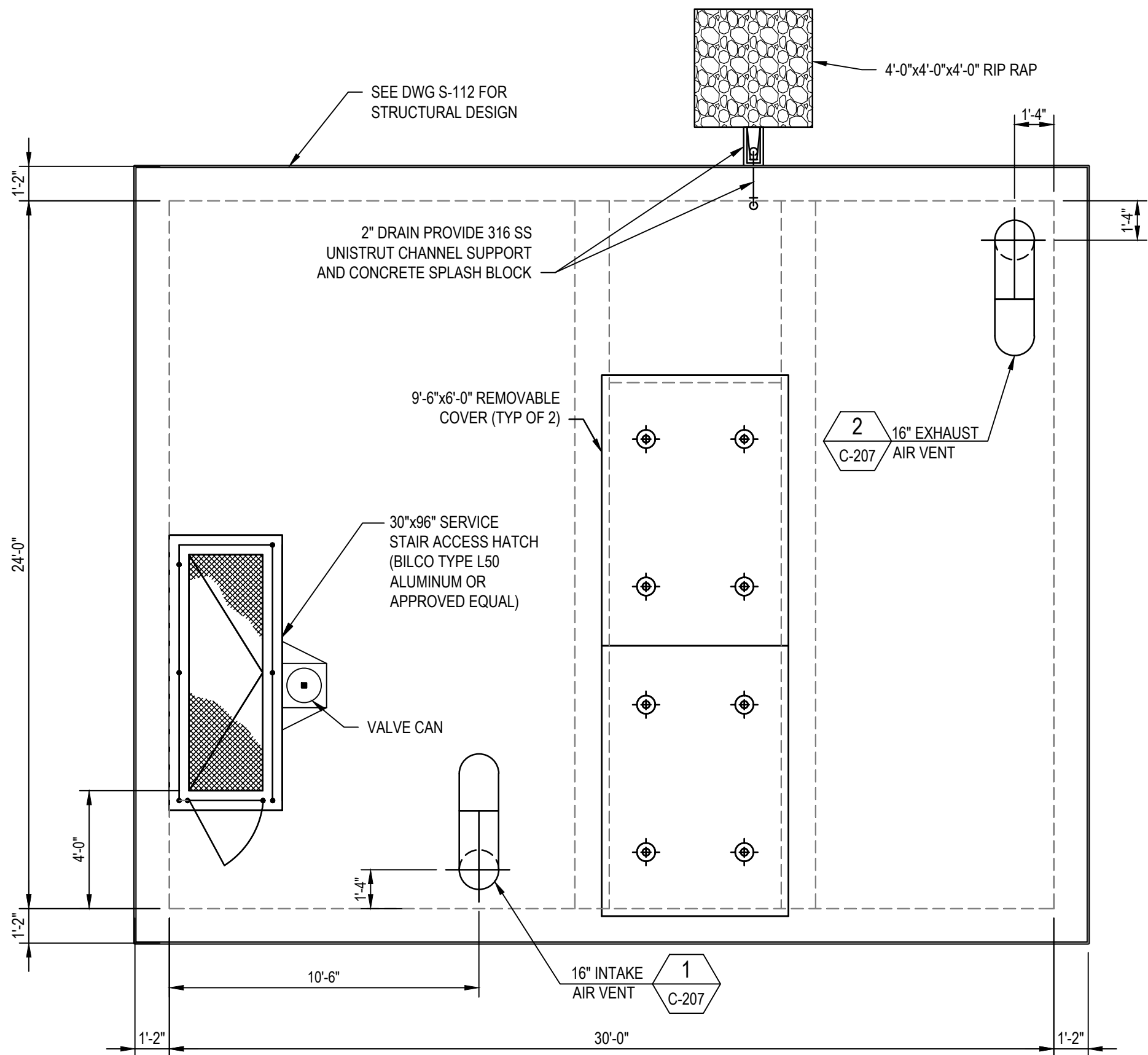


CONSULTANT: GHD Inc. 175 Technology Drive Suite 200 Irvine California 92618 USA T 1 949 585 5200 F 1 949 648 5299 W www.ghd.com		ENGINEER'S SEAL	PLANS PREPARED BY: COVER SHEET HAS BEEN SIGNED AND DATED XX/XX/XXXX PROJECT ENGINEER DATE APPROVED BY: COVER SHEET HAS BEEN SIGNED AND DATED XX/XX/XXXX SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT DATE		<table><tr><td>MARK</td><td>BY</td><td>DATE</td><td>REVISION</td></tr><tr><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td></tr></table>		MARK	BY	DATE	REVISION																					 380 EAST VANDERBILT WAY, SAN BERNARDINO, CA 92408 PHONE: (909) 387-9253 FAX: (909) 387-9247	SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT DATE: XX/XX/XXXX DESIGNED: CR DRAWN: AK REVIEWED: GW JOB NO:		ENHANCED RECHARGE IN THE SANTA ANA RIVER BASIN PROJECT SPECIFICATION NO. 14-01 PLUNGE POOL PIPELINE PLAN AND PROFILE STA 835 + 22.83 TO STA 846 + 00 SCALE: 1" = 40' DWG: C-203 SHT. 19 OF 68 SHTS. DRAWING NO.	
MARK	BY	DATE	REVISION																																

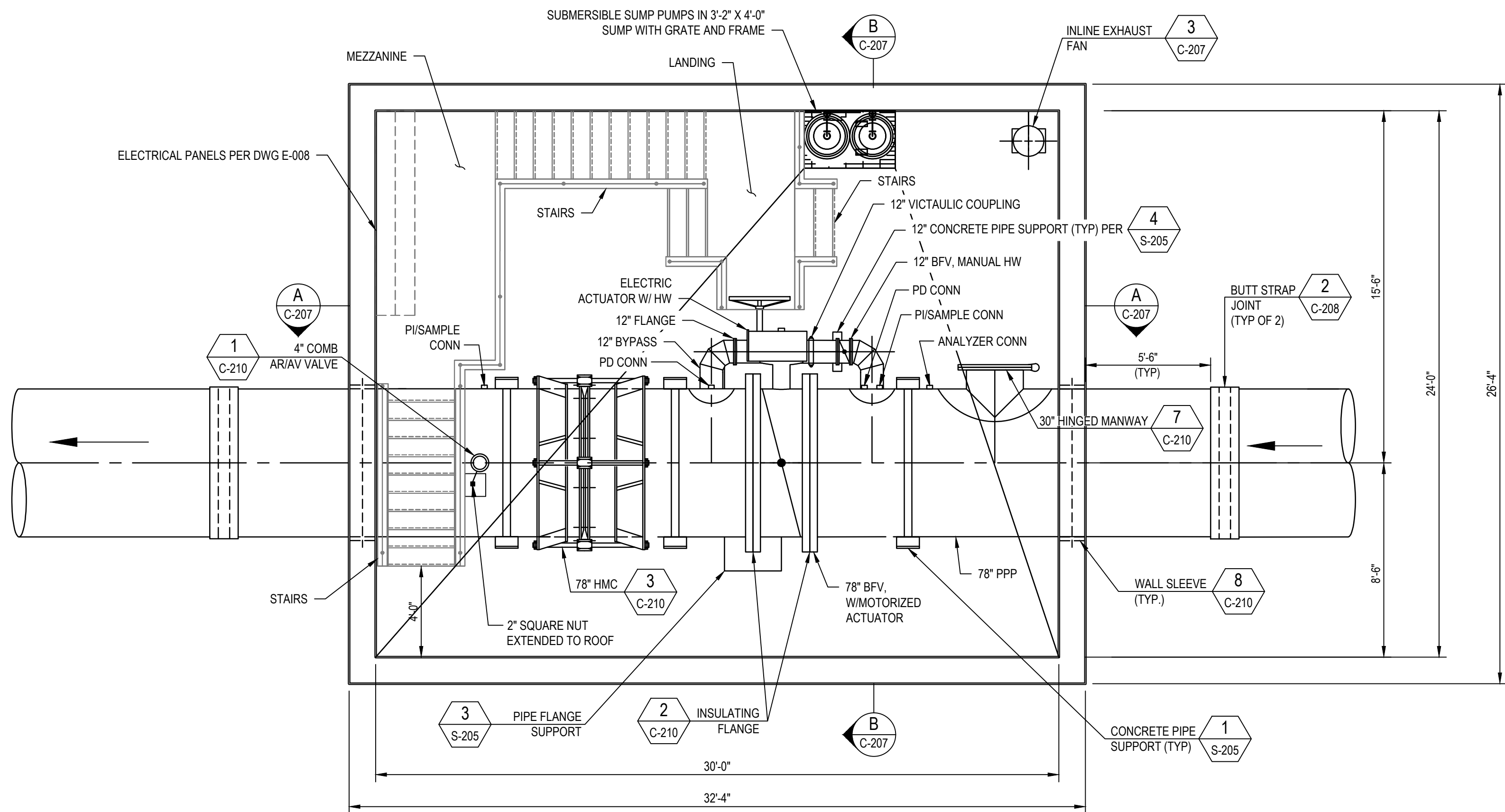


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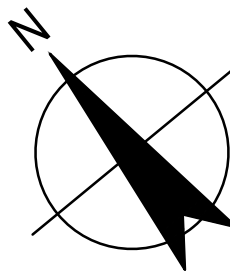
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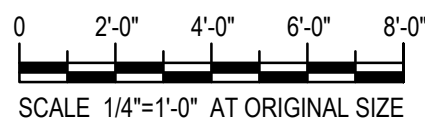
TOP PLAN
SCALE: 1/4" = 1'



SECTIONAL PLAN
SCALE: 1/4" = 1'



NOTE
GRADING AROUND VAULT AND SURROUNDING
AREA/ACCESS ROAD PER DWG C-202



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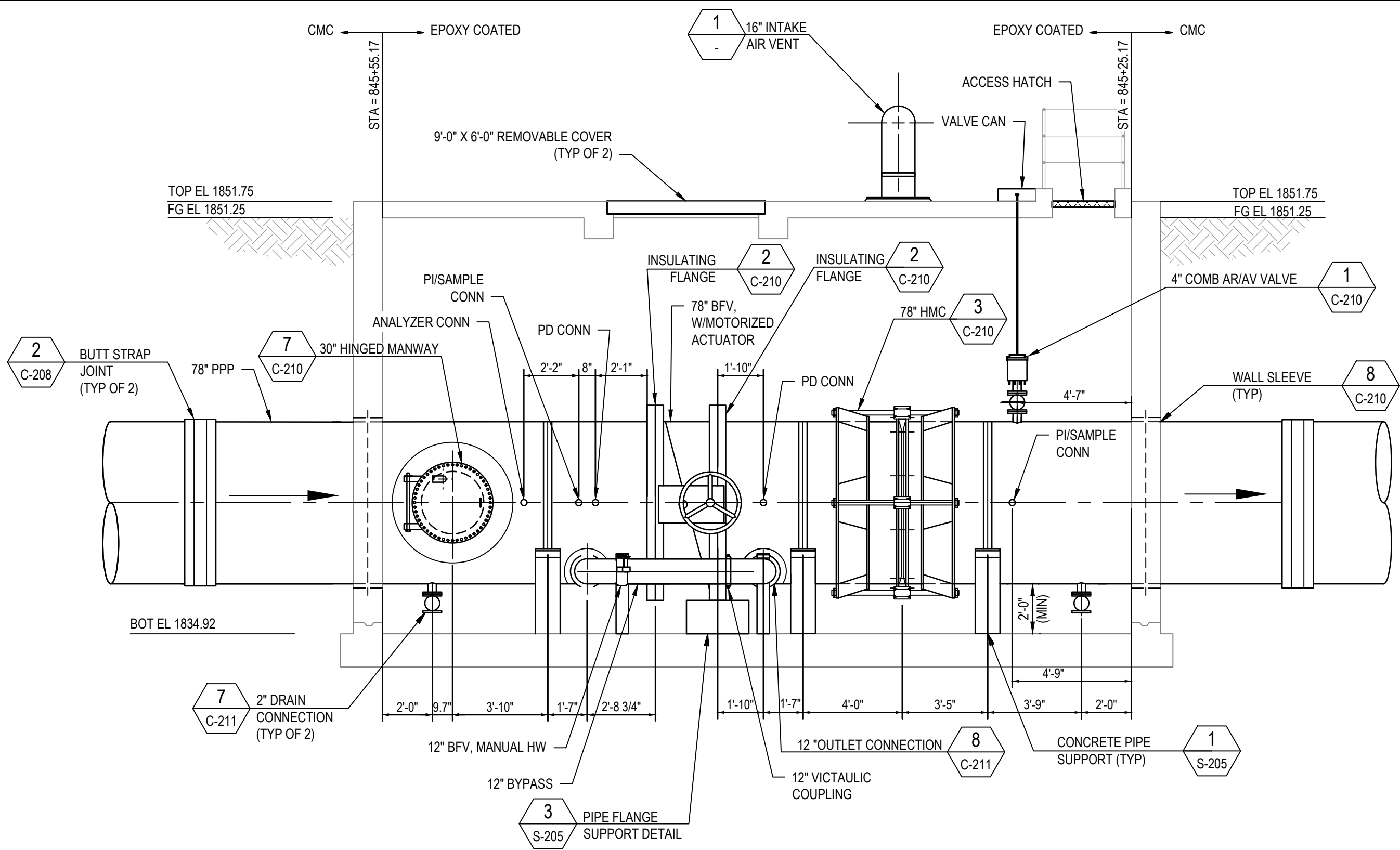
ENGINEER'S SEAL

PLANS PREPARED BY:
COVER SHEET HAS BEEN SIGNED AND DATED
XX/XX/XXXX
PROJECT ENGINEER
DATE
APPROVED BY:
COVER SHEET HAS BEEN SIGNED AND DATED
XX/XX/XXXX
SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT
DATE

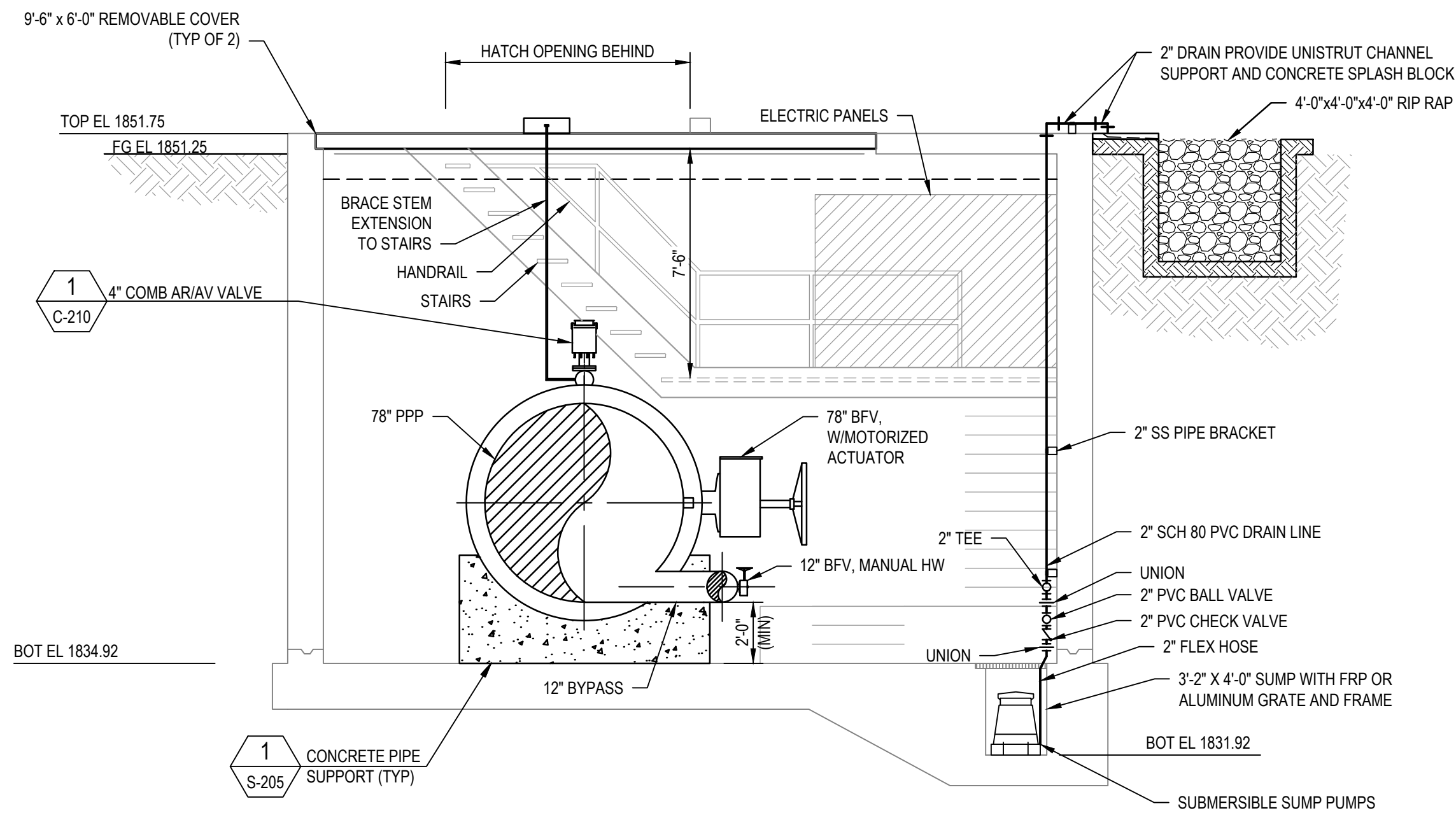
MARK	BY	DATE	REVISION



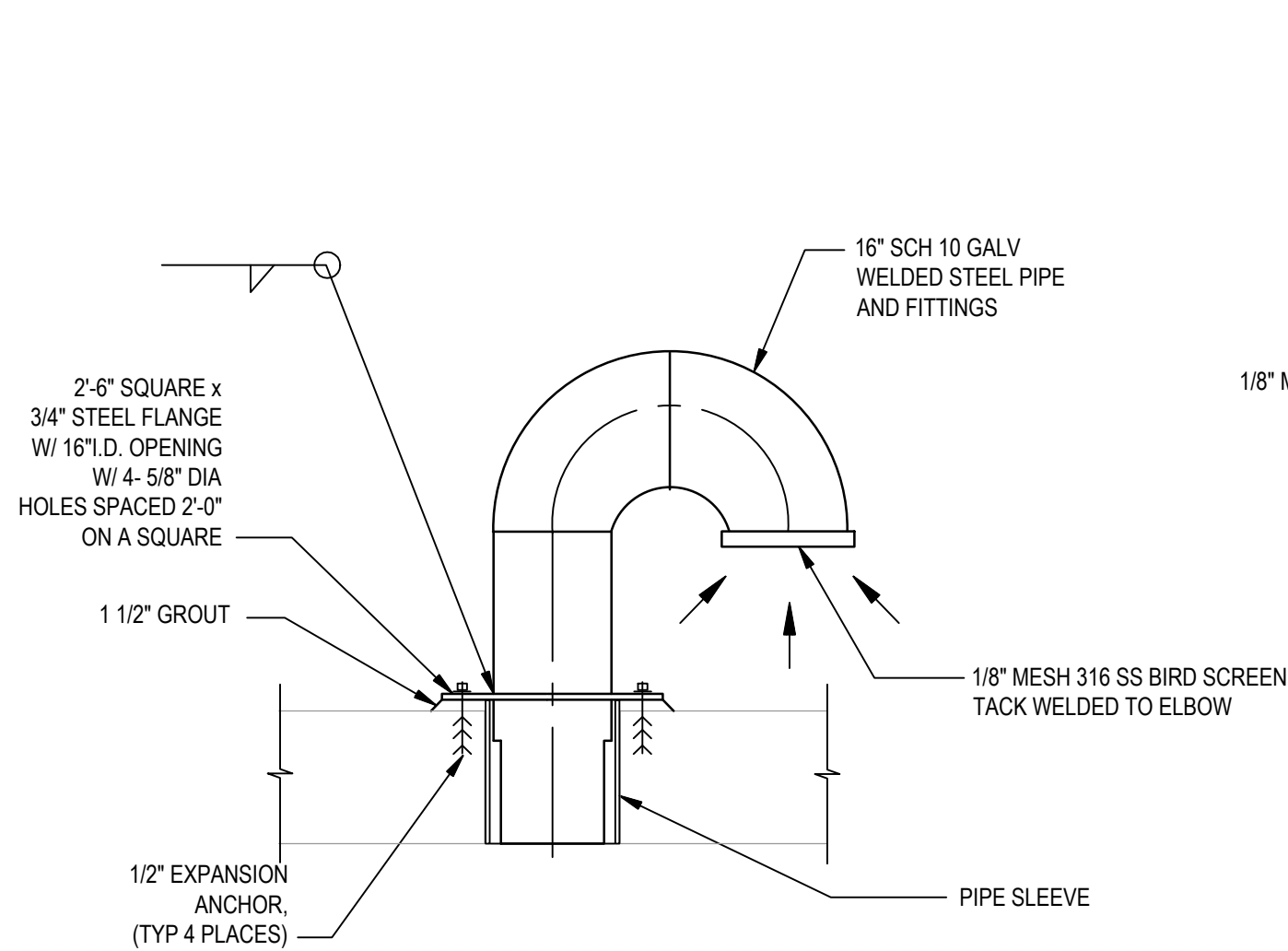
SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT
DATE: XX/XX/XXXX
DESIGNED: CR
DRAWN: AK
REVIEWED: GW
JOB NO:
ENHANCED RECHARGE IN THE SANTA ANA RIVER BASIN PROJECT
SPECIFICATION NO. 14-01
PLUNGE POOL PIPELINE
VALVE VAULT PLANS
SCALE: 1/4" = 1'
DWG: C-206
SHT. 22 OF 68 SHTS.
DRAWING NO.



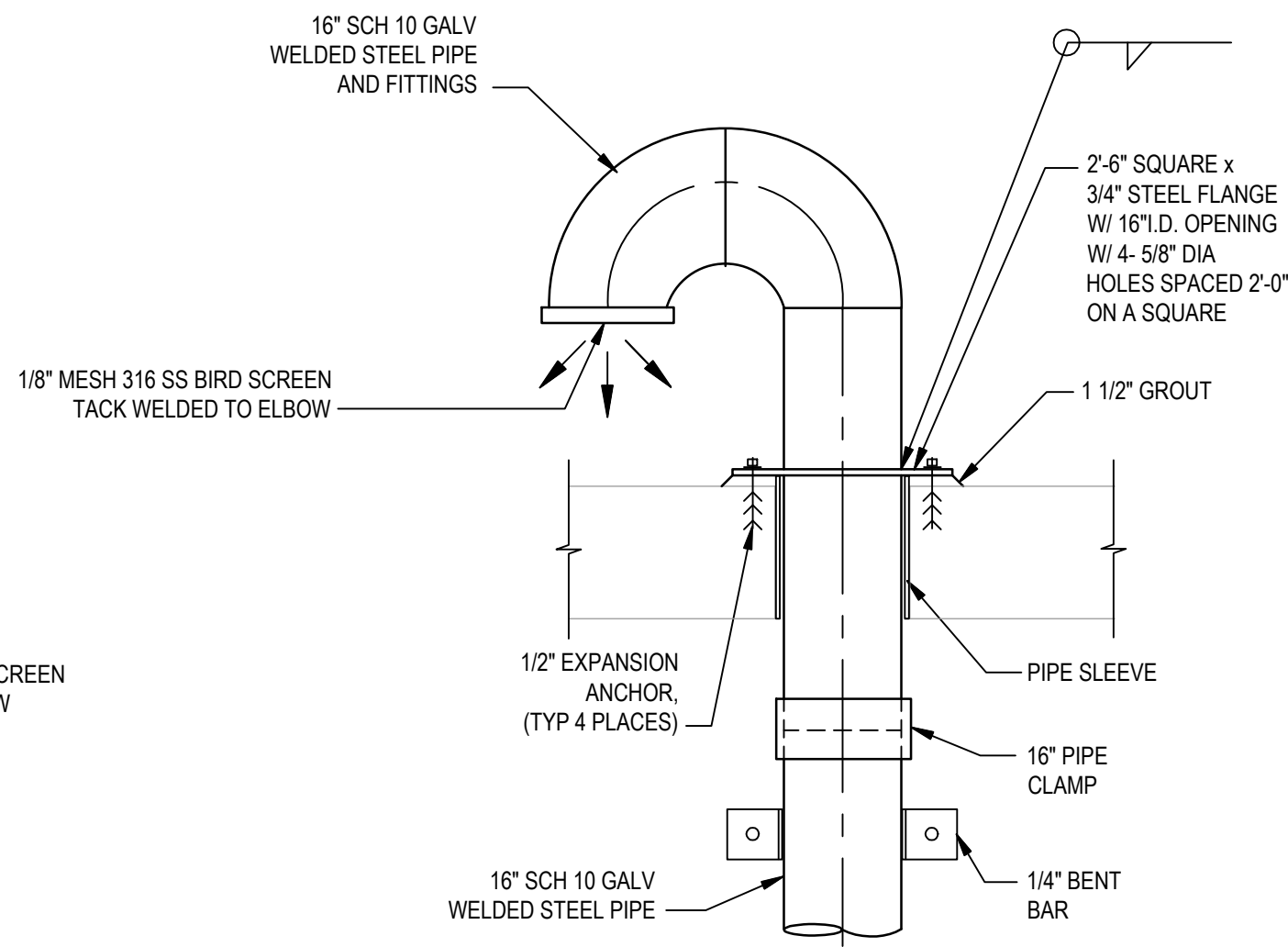
A SECTION
C-206 SCALE: 1/4" = 1'



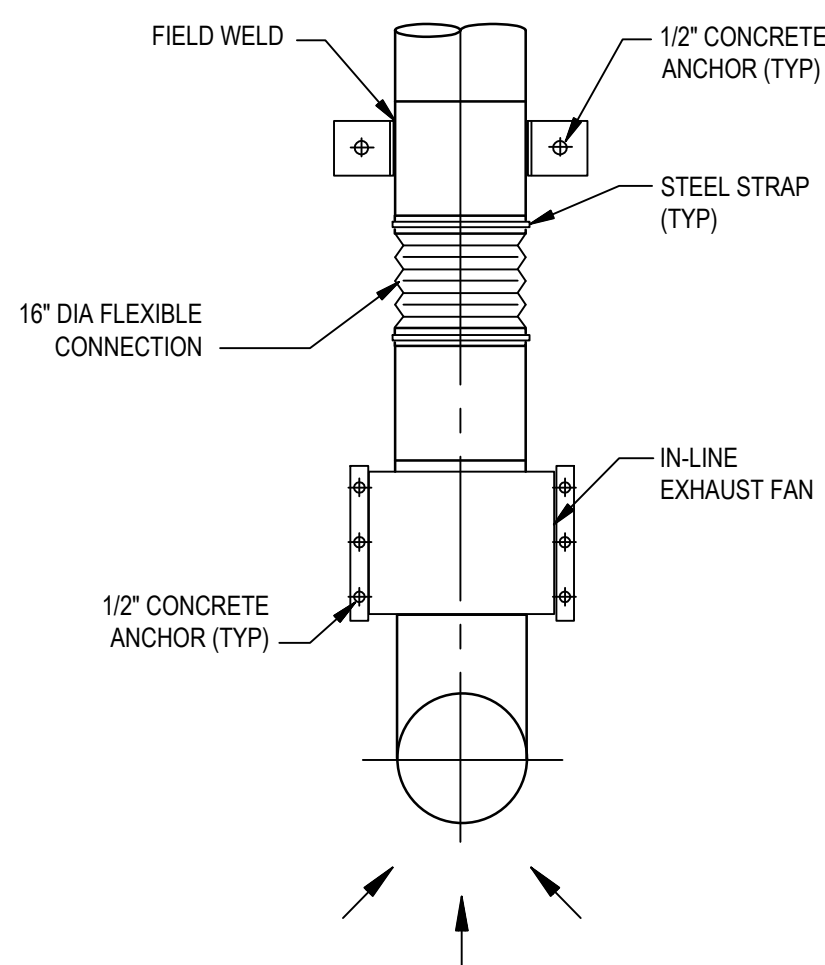
B SECTION
C-206 SCALE: 1/4" = 1'



1 16" INTAKE AIR VENT
SCALE: 1/2" = 1'



2 16" EXHAUST AIR VENT
SCALE: 1/2" = 1'



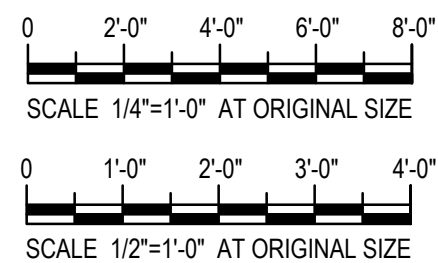
3 INLINE EXHAUST FAN
SCALE: 1/2" = 1'

HVAC SEQUENCE OF OPERATIONS

IN-LINE EXHAUST FAN SHALL BE CONTROLLED BY INDIVIDUAL "ON-OFF" SWITCHES LOCATED AT EACH ENTRANCE TO THE SPACE. WHEN THE SWITCH IS IN THE "ON" POSITION, IN-LINE EXHAUST FAN SHALL BE ENERGIZED.

NOTE:

1. IN-LINE EXHAUST FAN SHALL BE GREENHECK MODEL "BSQ-140" OR APPROVED EQUAL. EQUIPMENT SHALL BE SUPPLIED WITH A 1/3 HP, 120 V, 1 PH MOTOR.



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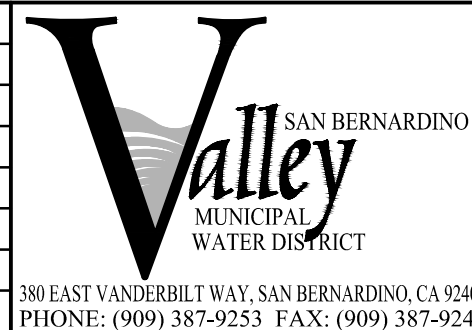
PLANS PREPARED BY:

COVER SHEET HAS BEEN SIGNED AND DATED
XX/XX/XXXX
PROJECT ENGINEER DATE

APPROVED BY:

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SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT DATE

MARK BY DATE REVISION

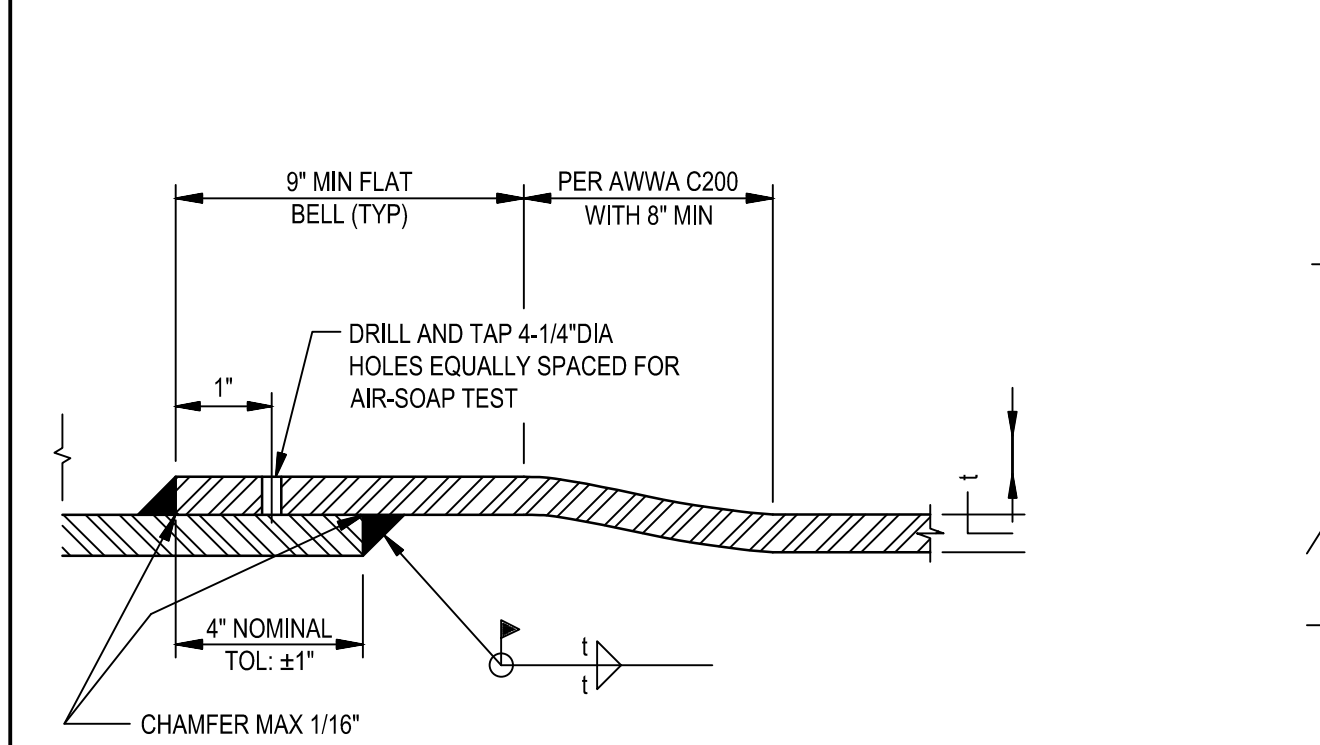


SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

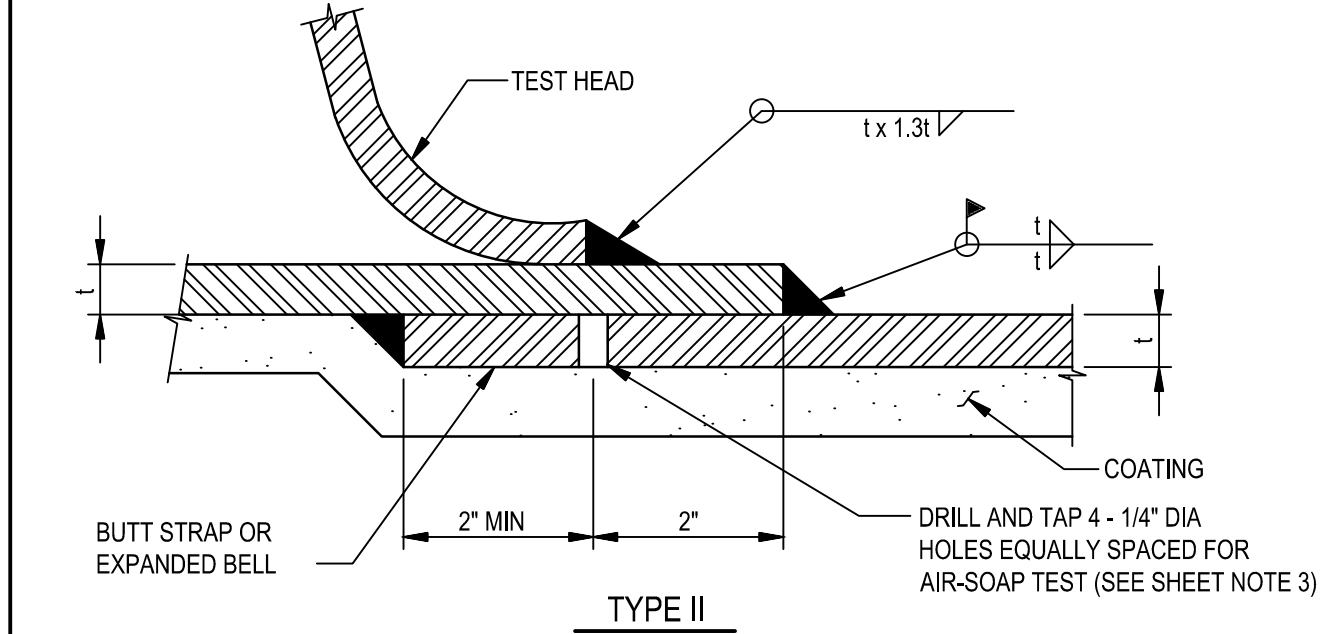
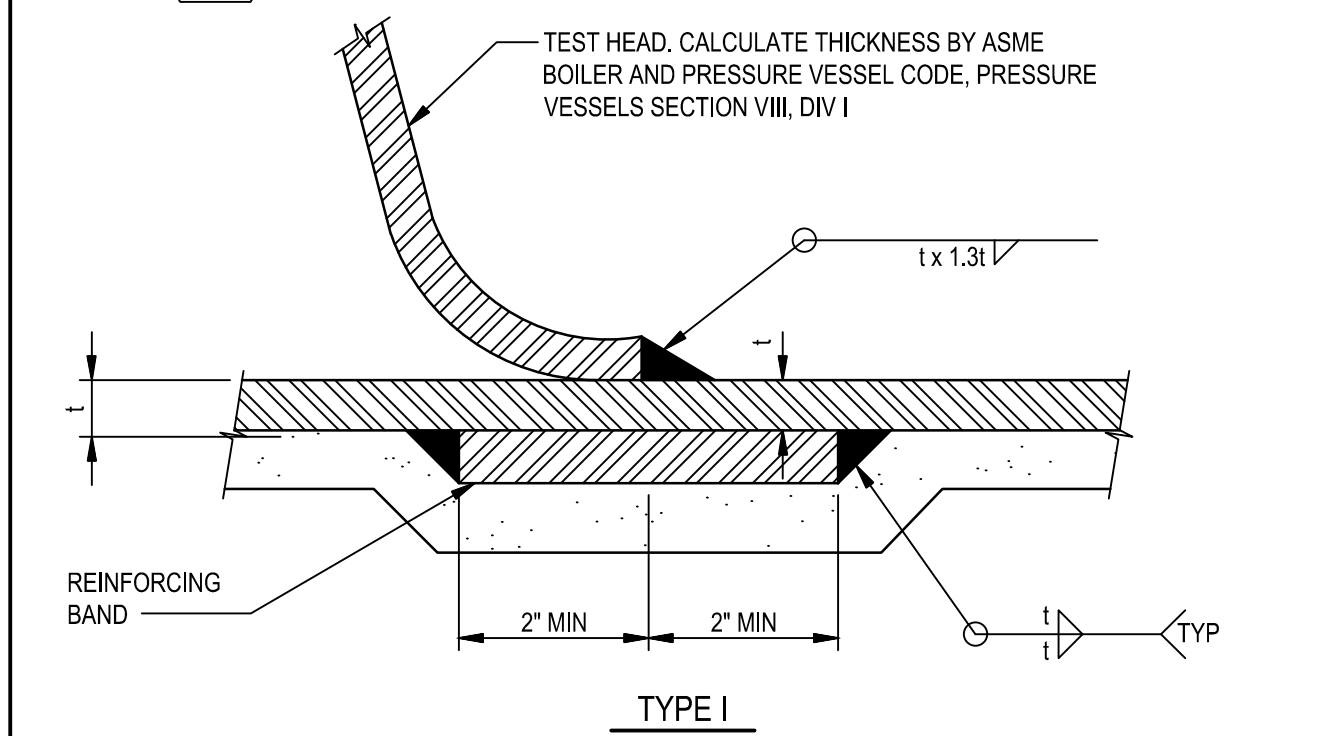
DATE: XX/XX/XXXX
DESIGNED: CR DRAWN: AK
REVIEWED: GW
JOB NO:

ENHANCED RECHARGE IN THE SANTA ANA RIVER BASIN PROJECT
SPECIFICATION NO. 14-01
**PLUNGE POOL PIPELINE
VALVE VAULT SECTIONS & DETAILS**

SCALE:
SEE SHEET
DWG: **C-207**
SHT. 23 OF 68 SHTS.
DRAWING NO.

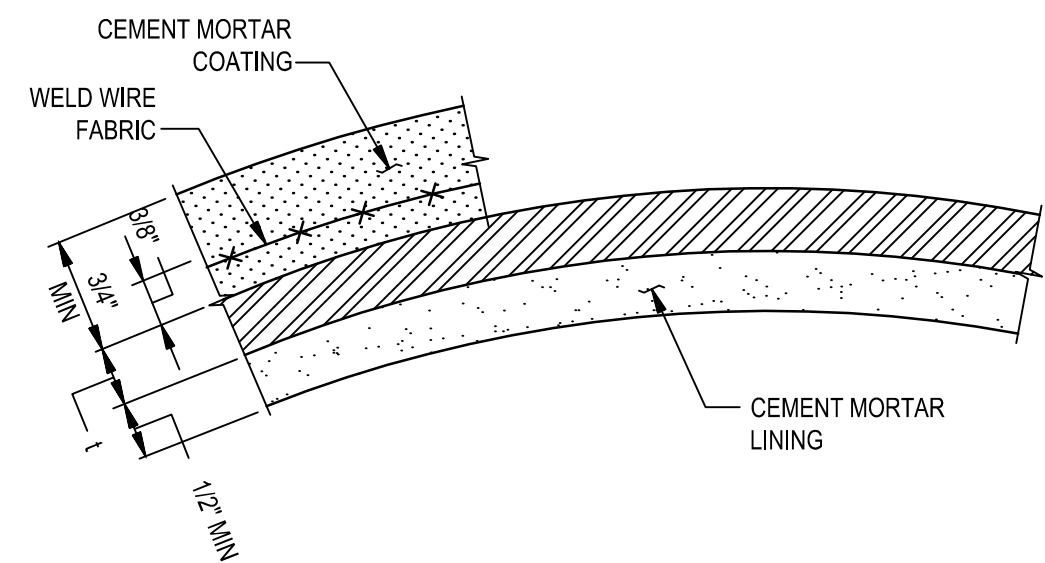


1 DOUBLE-WELDED LAP JOINT
NO SCALE

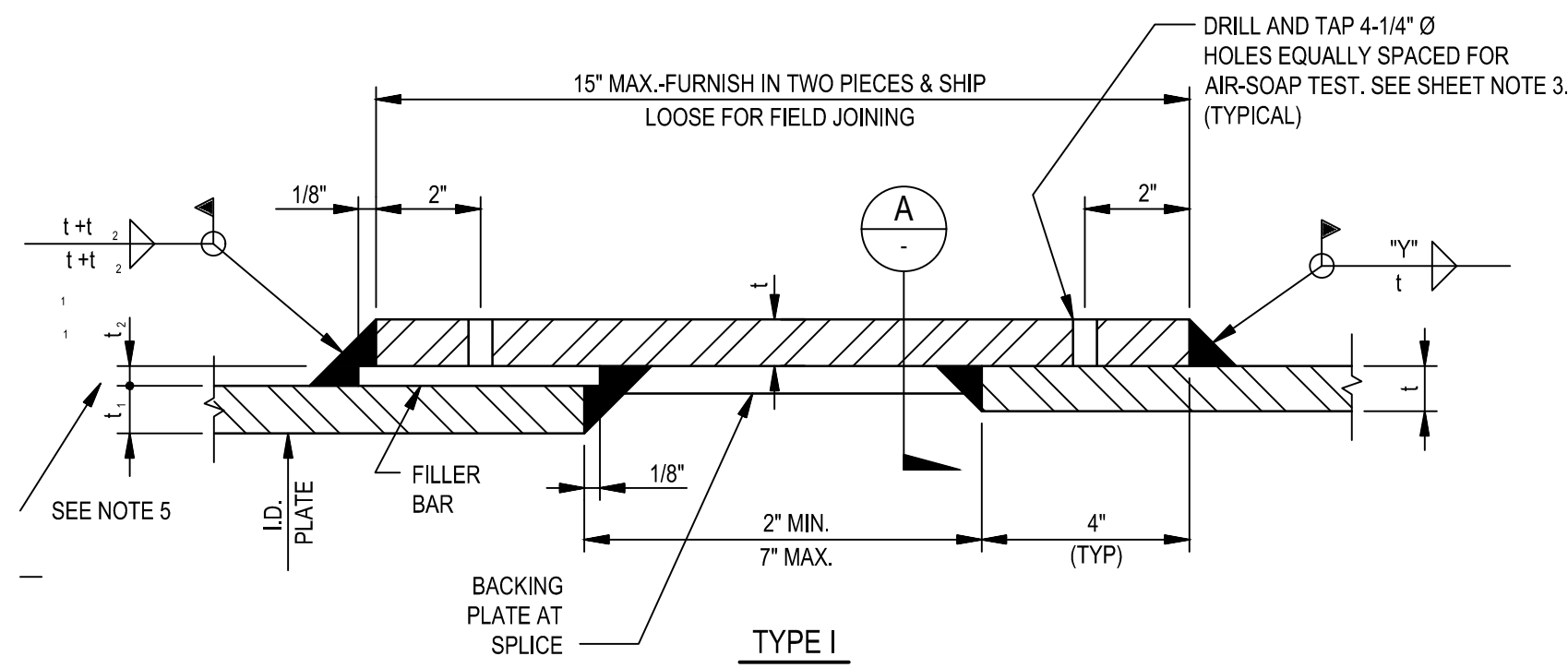


- NOTES:
- CONTRACTOR SHALL HAVE THE OPTION OF TYPE I OR TYPE II BULKHEAD INSTALLATION.
 - DRILL AND TAP HOLES PRIOR TO WELDING. CONTRACTOR TO PLUG WELD TAPPED HOLES ON COMPLETION OF TESTS.

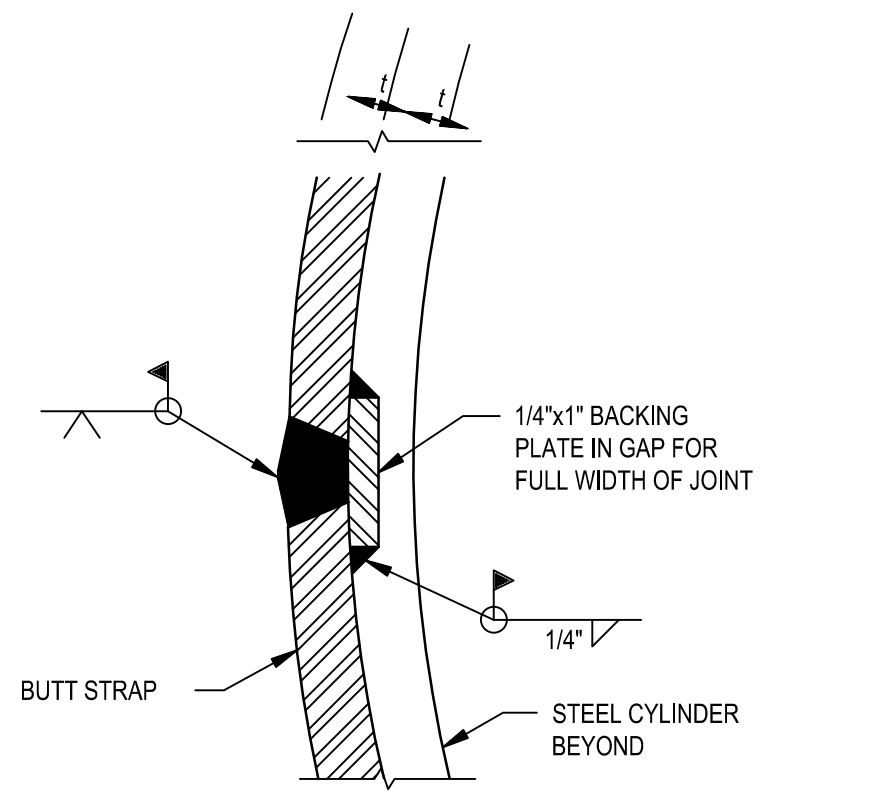
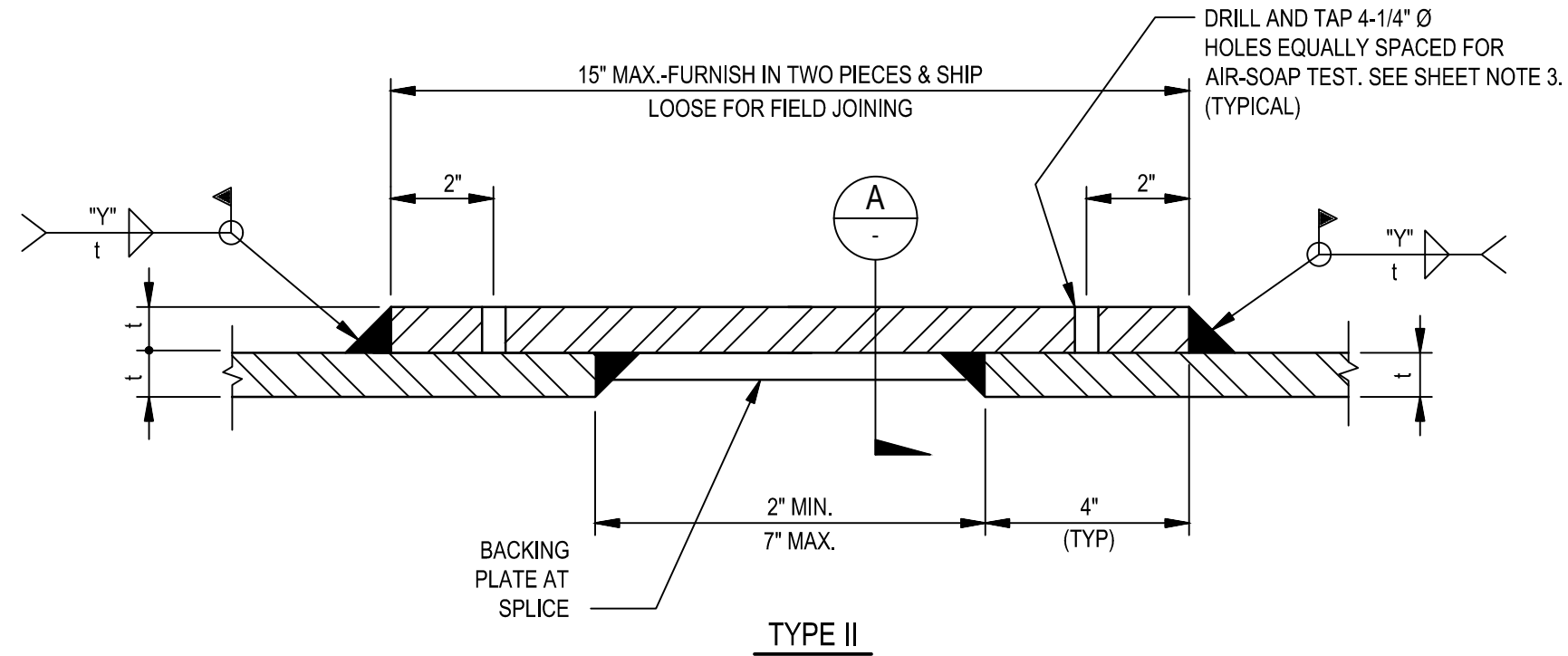
3 TEST BULKHEAD WELD DETAIL
NO SCALE



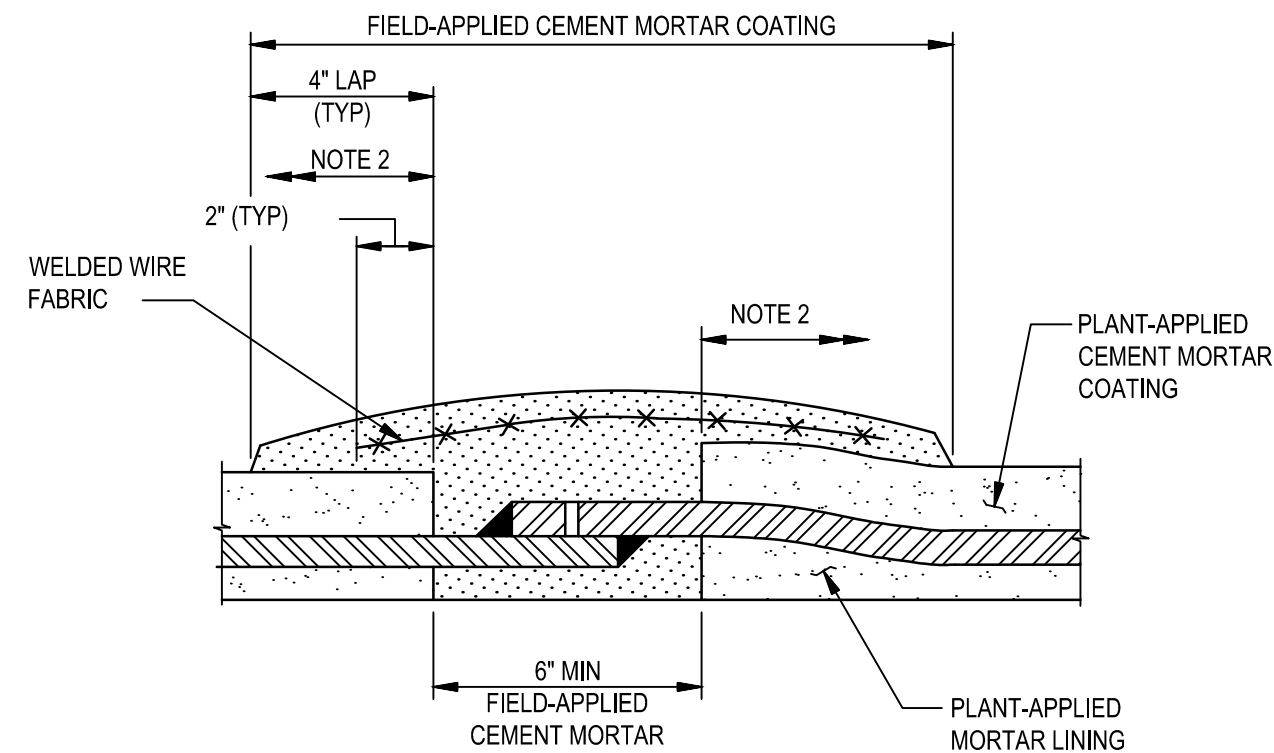
7 PIPE COATING & LINING
NO SCALE



2 BUTT STRAP JOINT DETAILS
NO SCALE

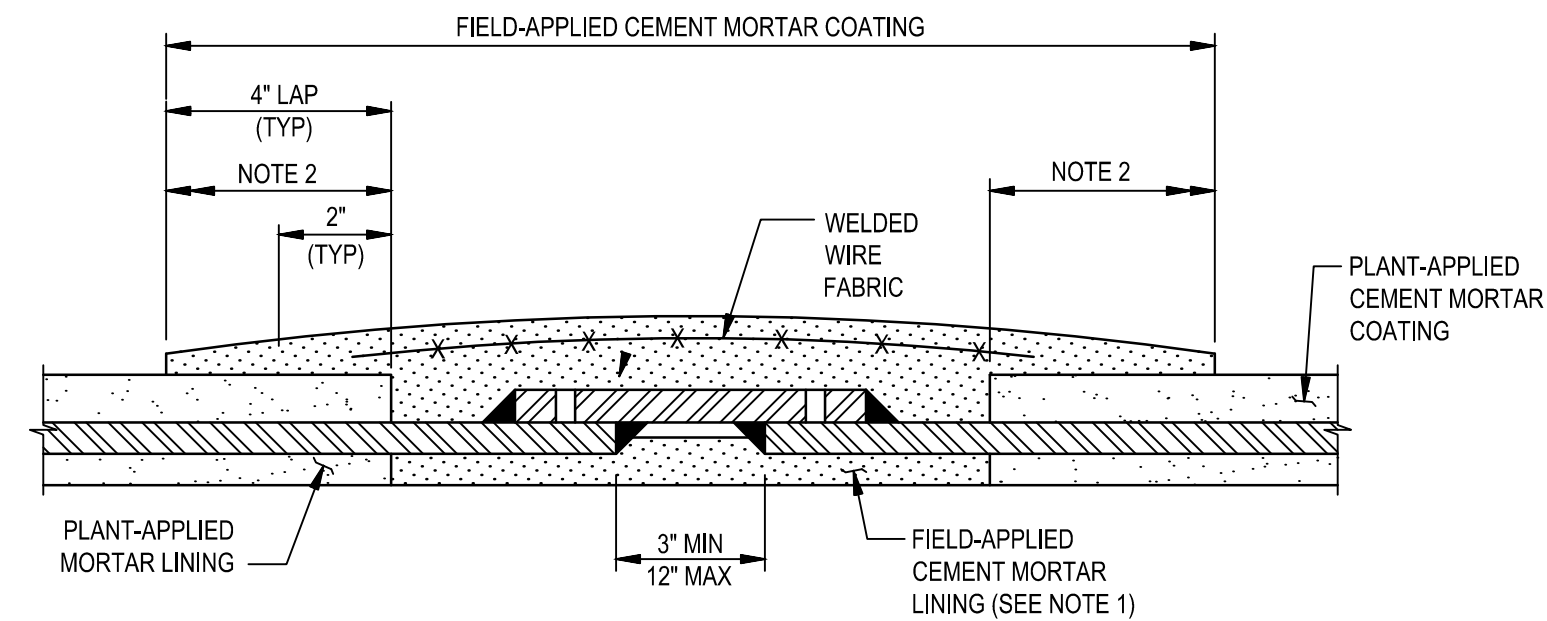


A SECTION
NO SCALE



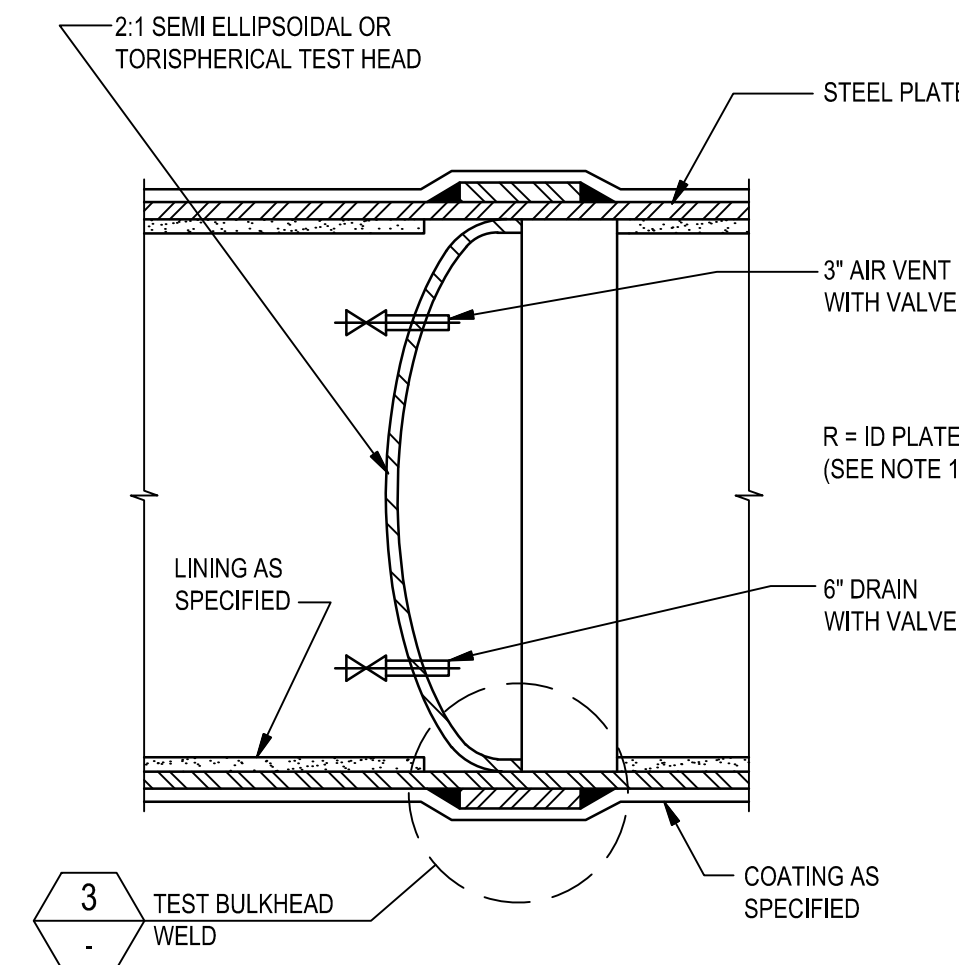
- NOTES:
- FIELD APPLIED LINING SHALL BE APPLIED ONLY AFTER EACH JOINT IS ASSEMBLED, WELDED, CLEANED, INSPECTED, AND TESTED FINISH SMOOTH AND FLUSH WITH SHOP LINING.
 - HOLD BACK SHOP LINING AND COATING, MIN 4" FROM JOINT.
 - AT THE CONTRACTOR'S OPTION, SPIRAL WOUND WIRE PER AWWA C200 MAY BE USED IN LIEU OF WELDED WIRE FABRIC.
 - DRILL AND TAP HOLES PRIOR TO WELDING. CONTRACTOR TO PLUG WELD TAPPED HOLES ON COMPLETION OF TESTS.

4 COATING & LINING AT FIELD WELDED LAP JOINTS
NO SCALE



- NOTES:
- FIELD APPLIED LINING SHALL BE APPLIED ONLY AFTER EACH JOINT IS ASSEMBLED, WELDED, CLEANED, INSPECTED, AND TESTED. FINISH SMOOTH AND FLUSH WITH SHOP LINING.
 - HOLD BACK SHOP LINING AND COATING, 4" FROM JOINT.

5 COATING & LINING AT BUTT STRAP JOINTS
NO SCALE



- NOTE:
- RADIUS SHOWN ON THE TEST BULKHEAD IS FOR TORISPHERICAL HEAD ONLY.

6 TEST BULKHEAD
NO SCALE

- SHEET NOTES:
- FOR INTERNAL DIAMETER AND PLATE THICKNESS OF WELDED STEEL PIPE, SEE PLAN AND PROFILE DRAWINGS.
 - "t" INDICATES THE THICKNESS OF THE STEEL PLATE.
 - CONTRACTOR TO DETERMINE THICKNESS REQUIRED FOR BULKHEAD.
 - "t_s" INDICATES OFFSET OF O.D. OF STEEL CYLINDER. USE BUTT STRAP JOINT TYPE I IF "t_s" IS 1/4" OR MORE.
 - AIR TESTING MAY BE PERFORMED FROM DRILLED PORTS INSIDE OF PIPE.

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COVER SHEET HAS BEEN SIGNED AND DATED
XX/XX/XXXX
PROJECT ENGINEER DATE

APPROVED BY:

COVER SHEET HAS BEEN SIGNED AND DATED
XX/XX/XXXX
SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT DATE

MARK	BY	DATE	REVISION

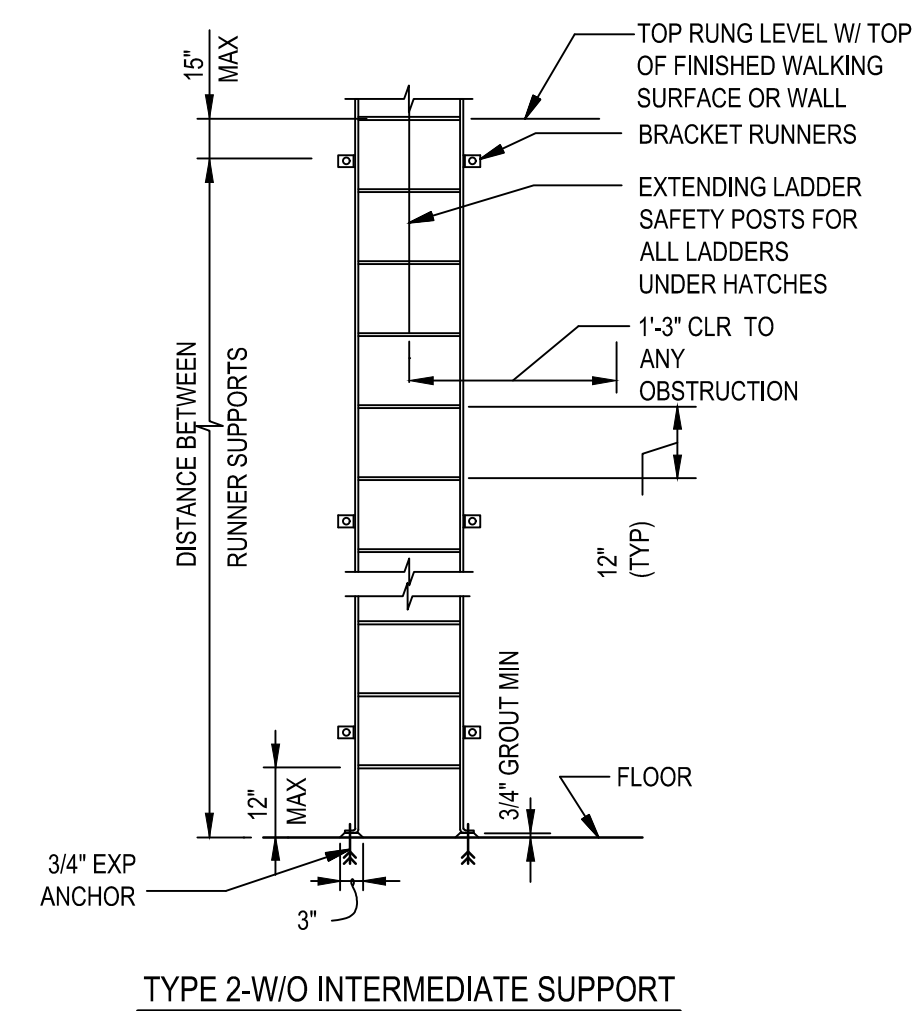
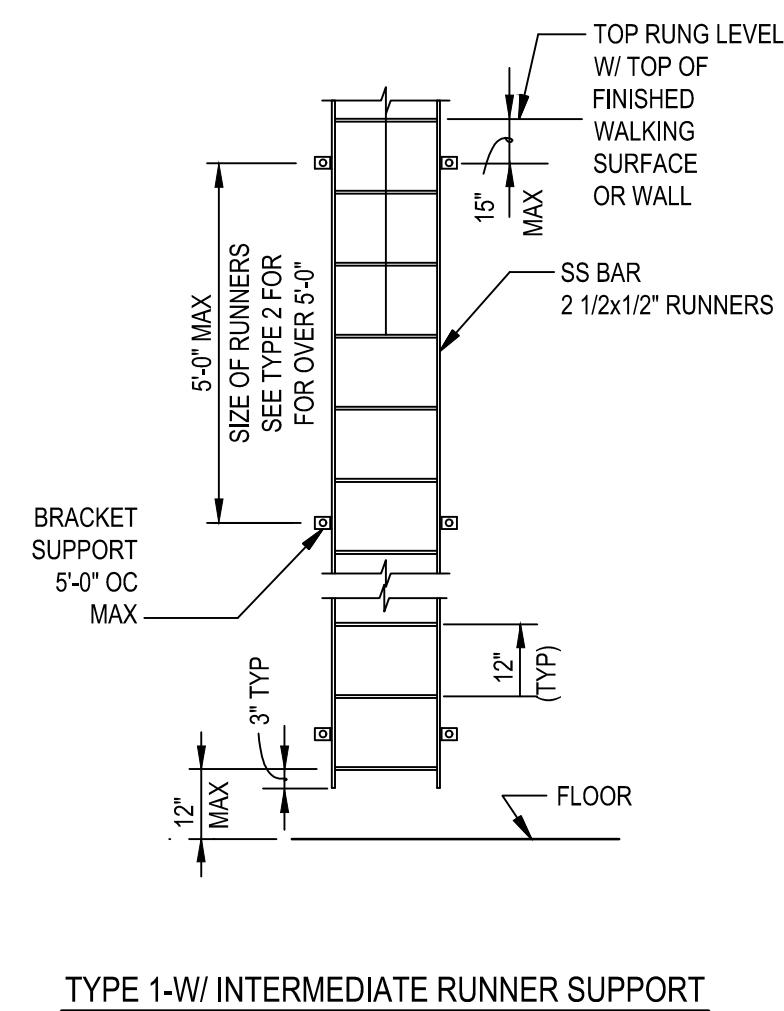
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WATER DISTRICT
380 EAST VANDERBILT WAY, SAN BERNARDINO, CA 92408
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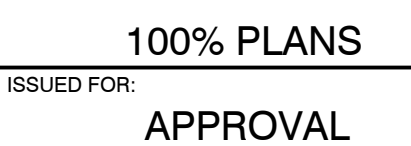
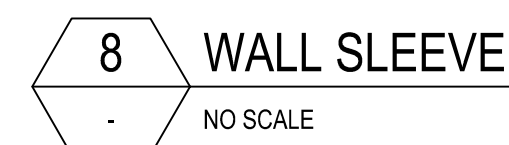
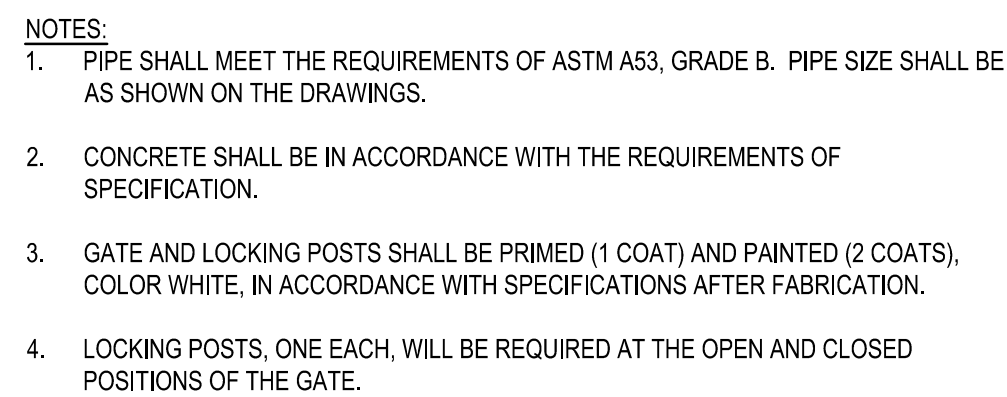
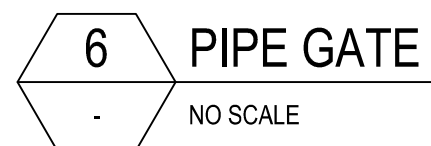
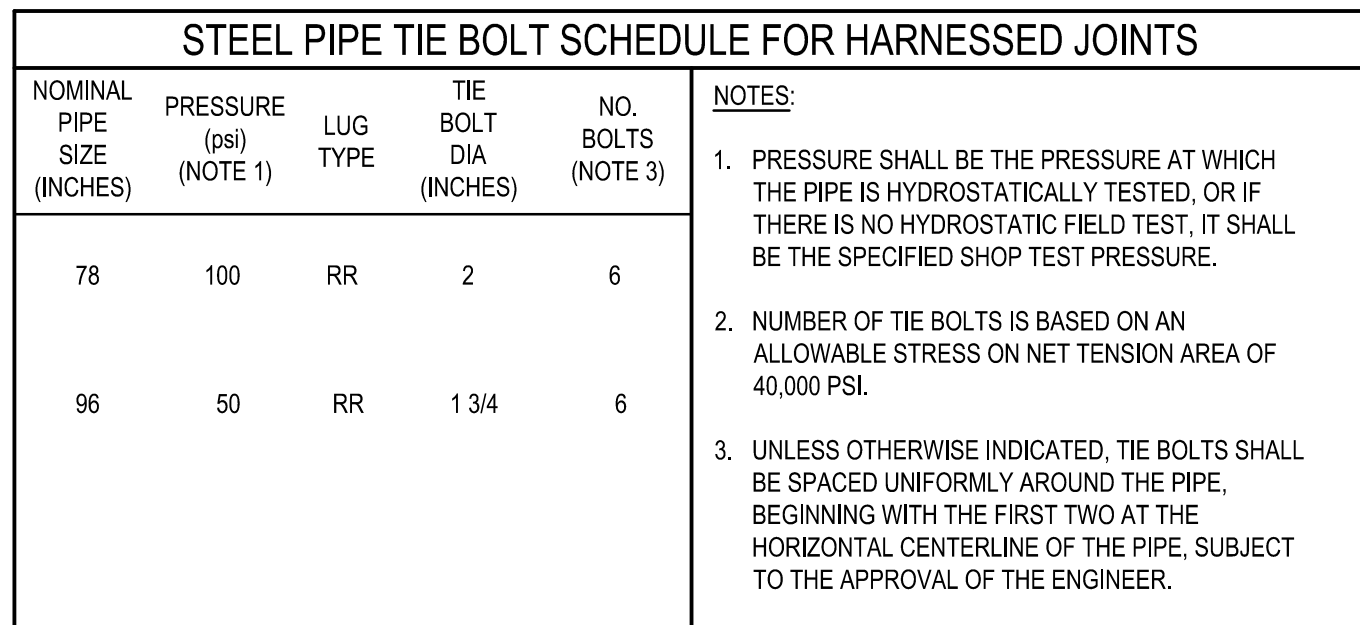
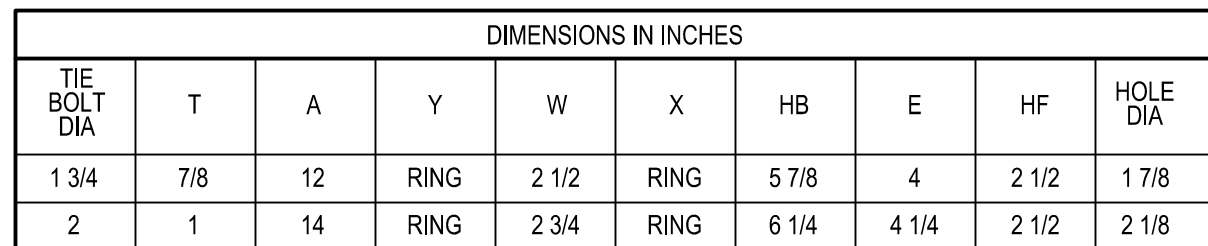
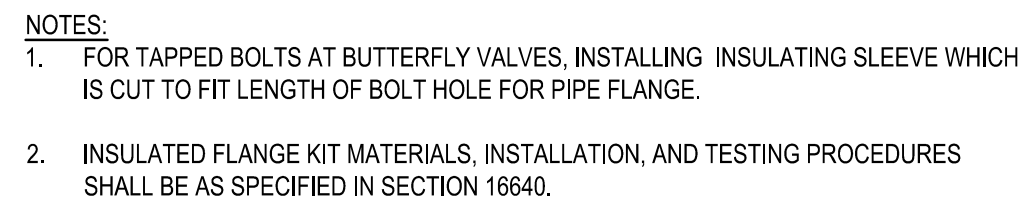
SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

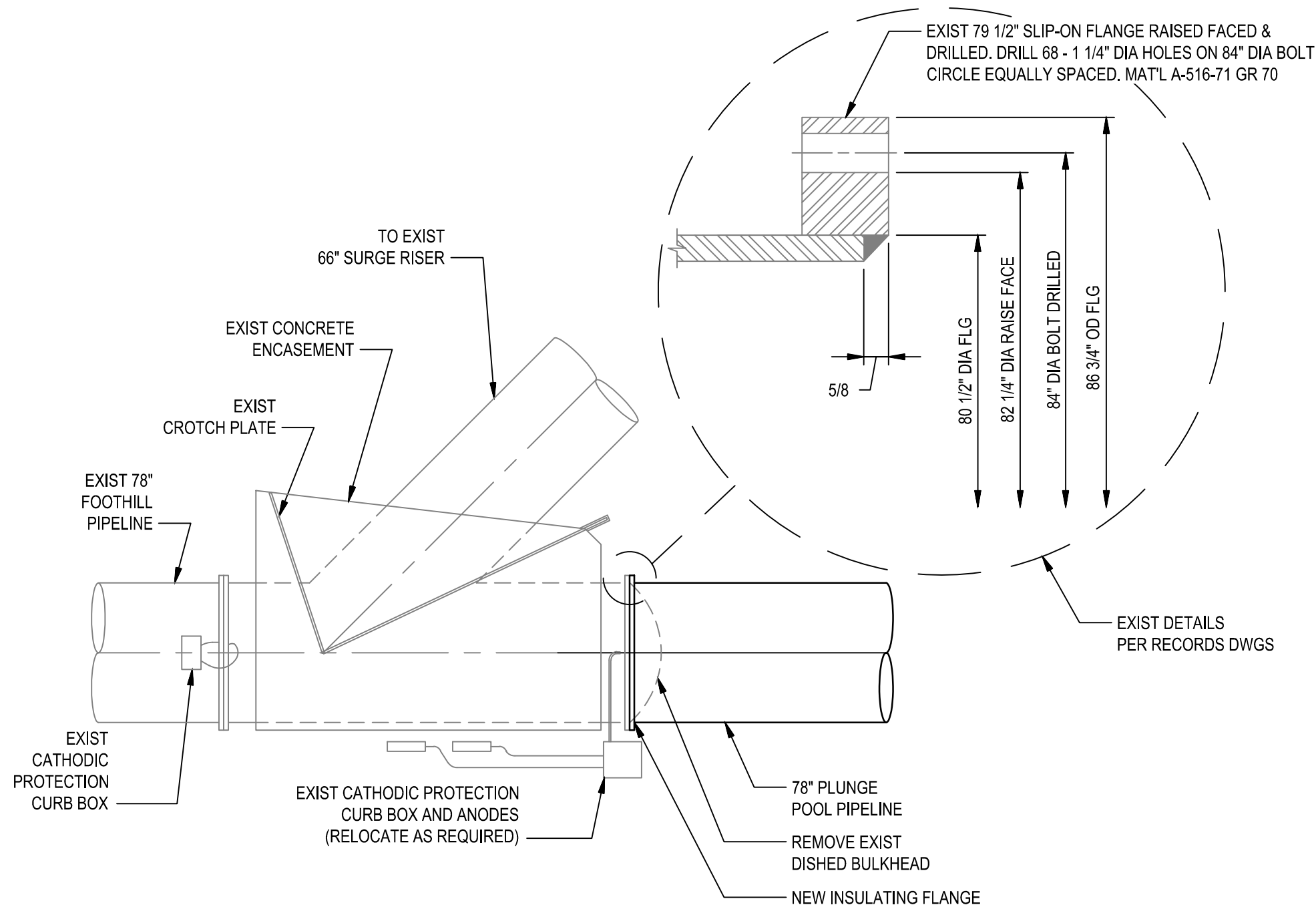
DATE: XX/XX/XXXX
DESIGNED: CR
DRAWN: AK
REVIEWED: GW
JOB NO:

ENHANCED RECHARGE IN THE SANTA ANA RIVER BASIN PROJECT
SPECIFICATION NO. 14-01
PLUNGE POOL PIPELINE
STEEL PIPE DETAILS

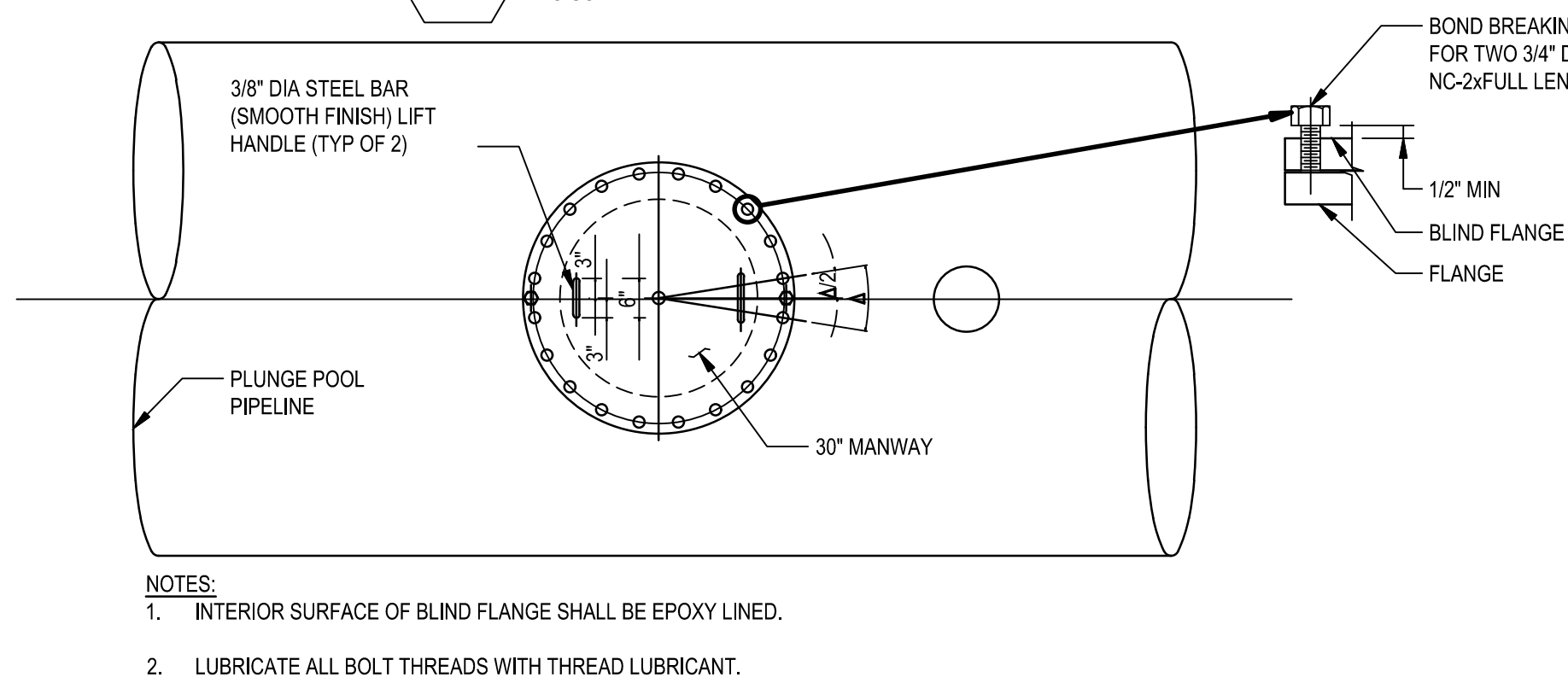
SCALE: NO SCALE
DWG: C-208
SHT. 24 OF 68 SHTS.
DRAWING NO.



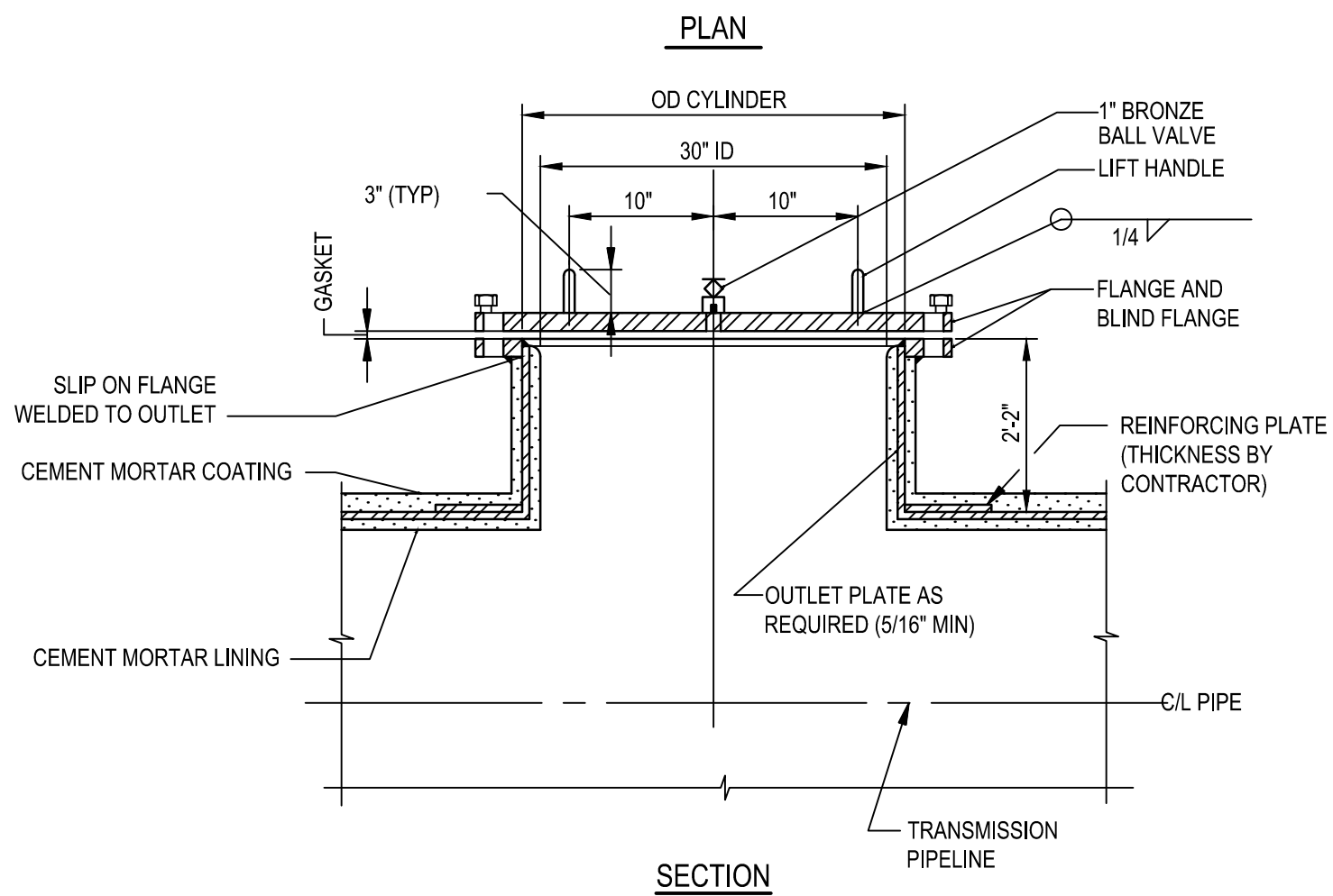




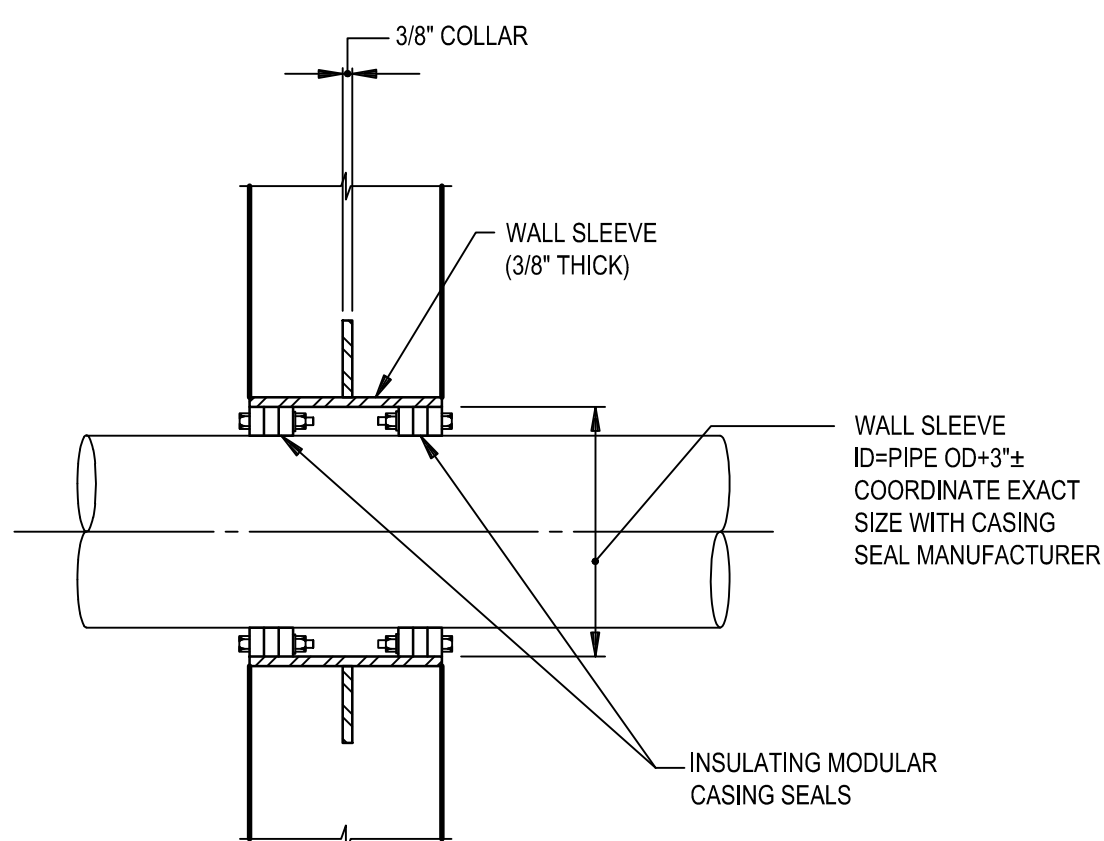
1 78" FOOTHILL CONNECTION DETAIL
NO SCALE



- NOTES:
- INTERIOR SURFACE OF BLIND FLANGE SHALL BE EPOXY LINED.
 - LUBRICATE ALL BOLT THREADS WITH THREAD LUBRICANT.

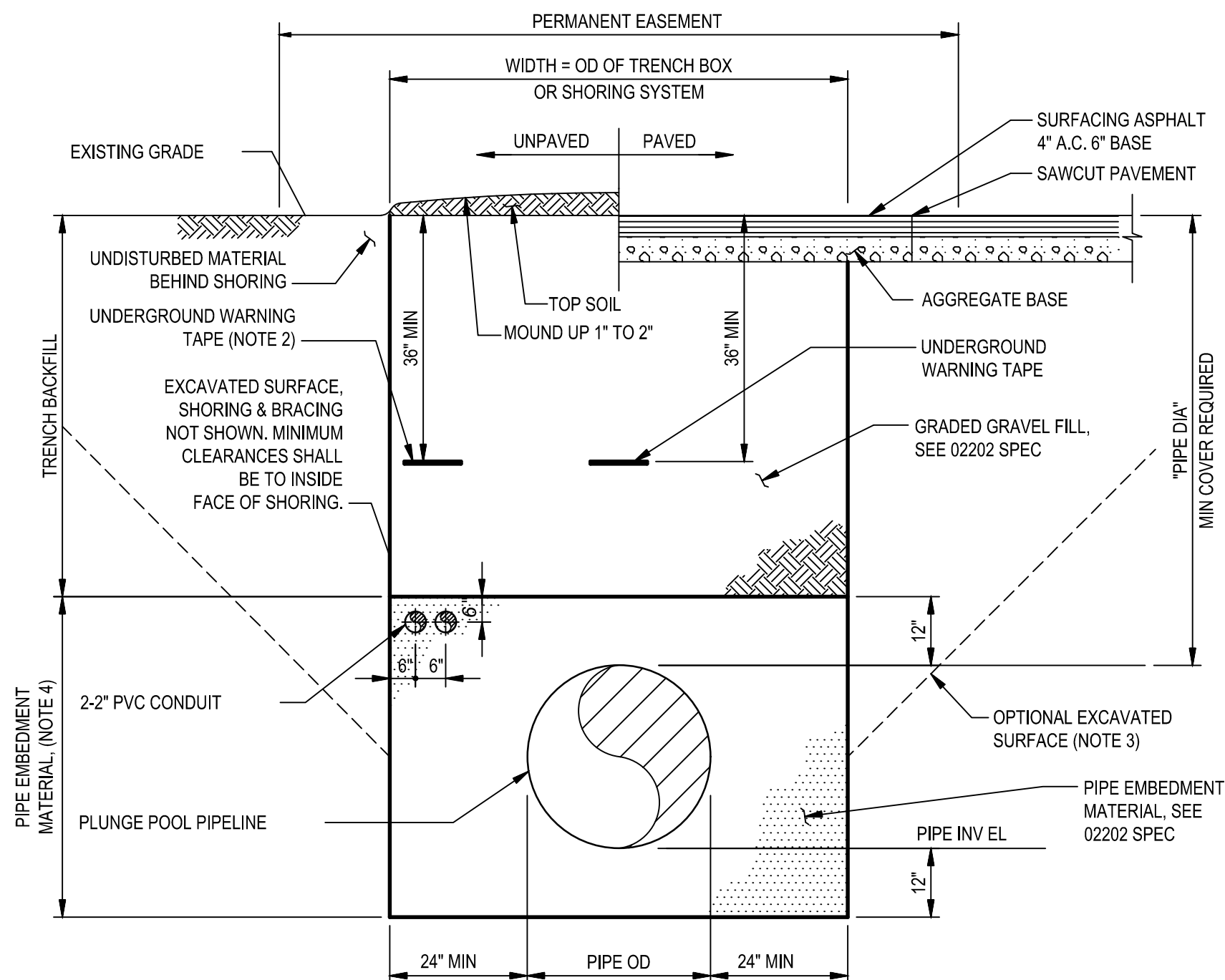


4 PIPE ACCESS MANWAY
NO SCALE



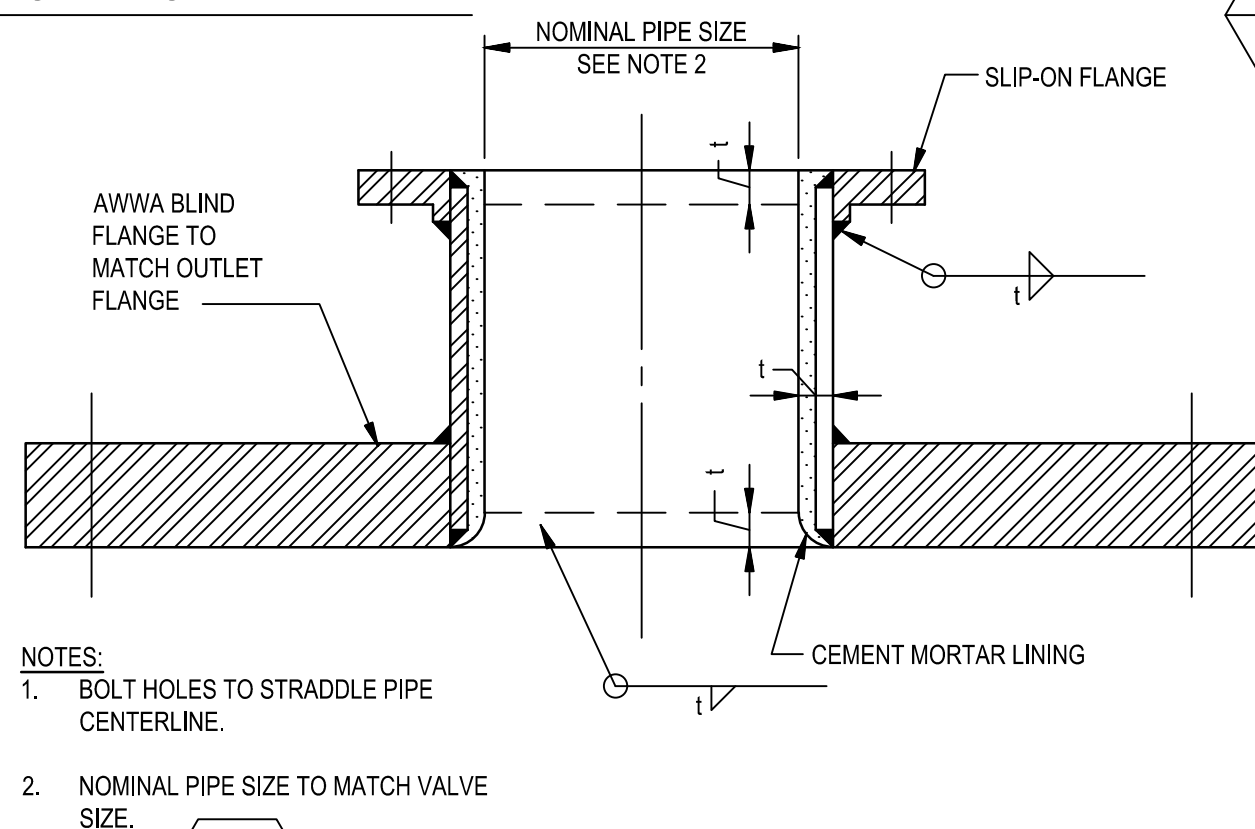
- NOTE:
- GROUNDING CABLES SHALL NOT BE ATTACHED TO PIPE BETWEEN WALL AND INSULATING FLANGE. TEST LEADS AT INSULATING FLANGES NOT SHOWN. SEE DRAWINGS FOR DETAILS.

5 WALL SLEEVE
NO SCALE



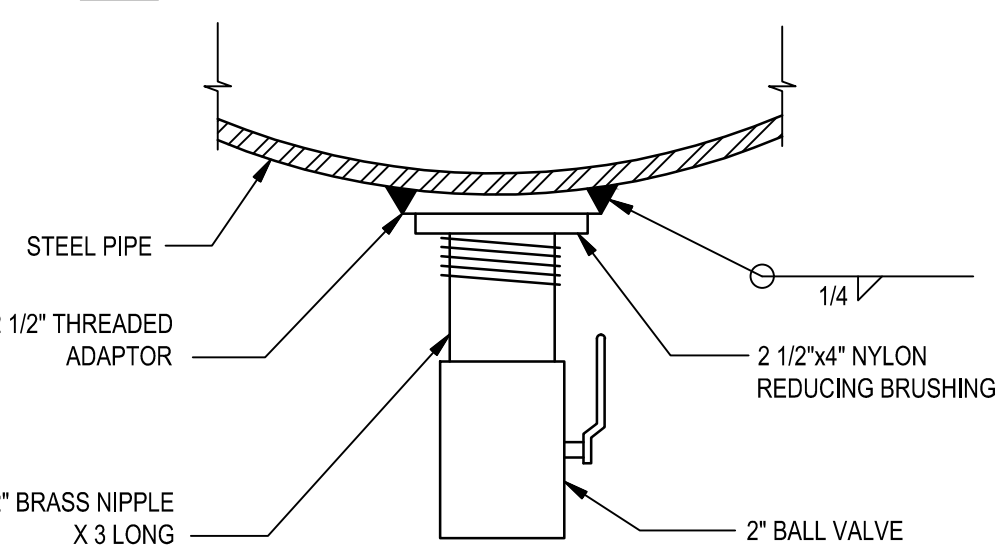
- NOTES:
- THE CONTRACTOR SHALL RESTORE ALL DISTURBED AREA.
 - LEGEND FOR UNDERGROUND WARNING TAPE SHALL BE "CAUTION - FIBER OPTIC CABLE BURIED BELOW".
 - CONTRACTOR HAS THE OPTION OF CONSTRUCTING AN EXCAVATED SLOPED SURFACE WHERE APPLICABLE.
 - USE HAND PLACED EMBEDMENT ON TOP OF PIPE.
 - REFER TO SPECIFICATIONS FOR GEOTECHNICAL FABRIC FOR TRENCHES IN FINE SOILS EXTENDING BELOW GROUNDWATER LEVEL.

2 PIPELINE TRENCH BACKFILL DETAIL
NO SCALE

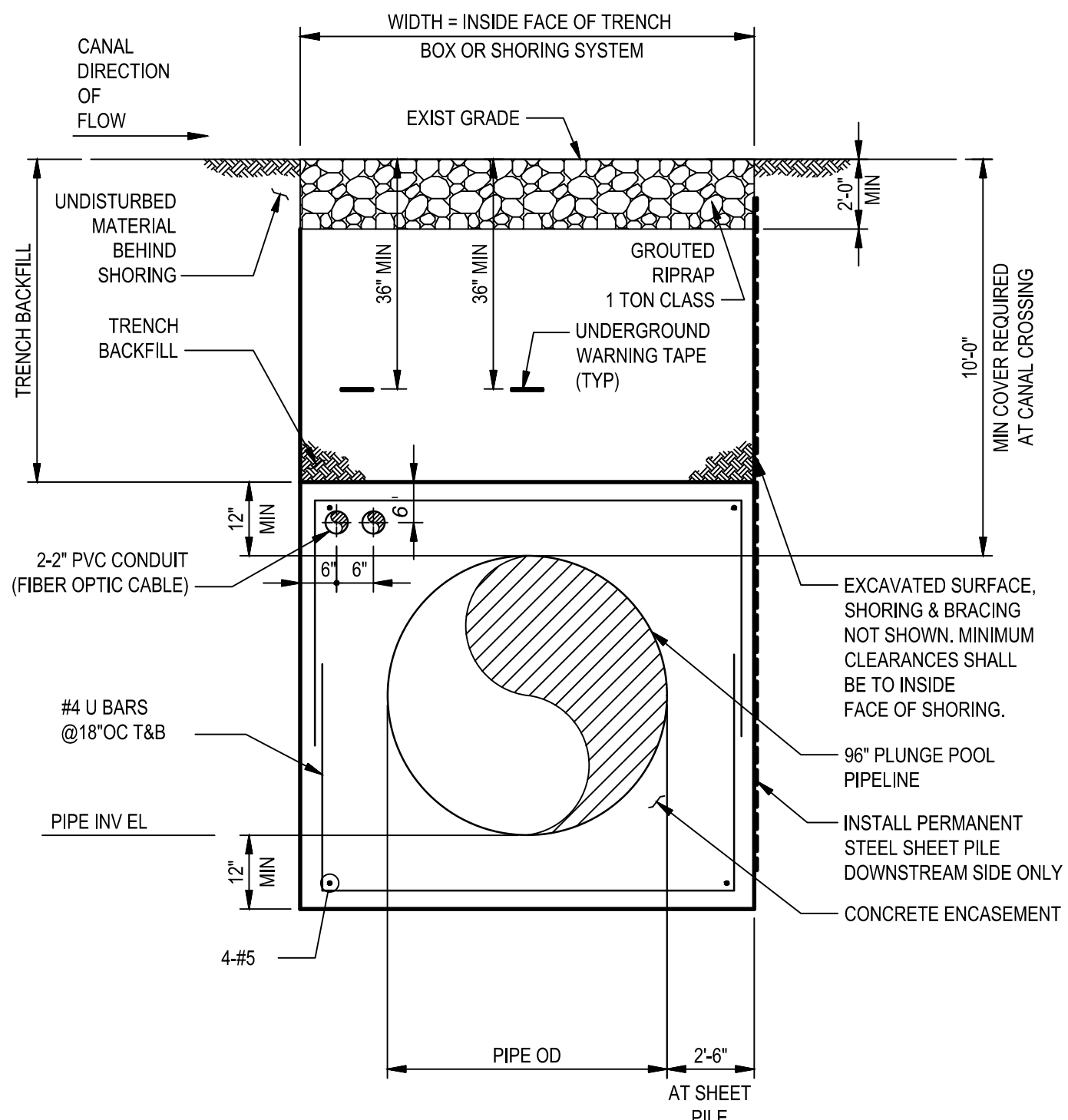


- NOTES:
- BOLT HOLES TO STRADDLE PIPE CENTERLINE.
 - NOMINAL PIPE SIZE TO MATCH VALVE SIZE.

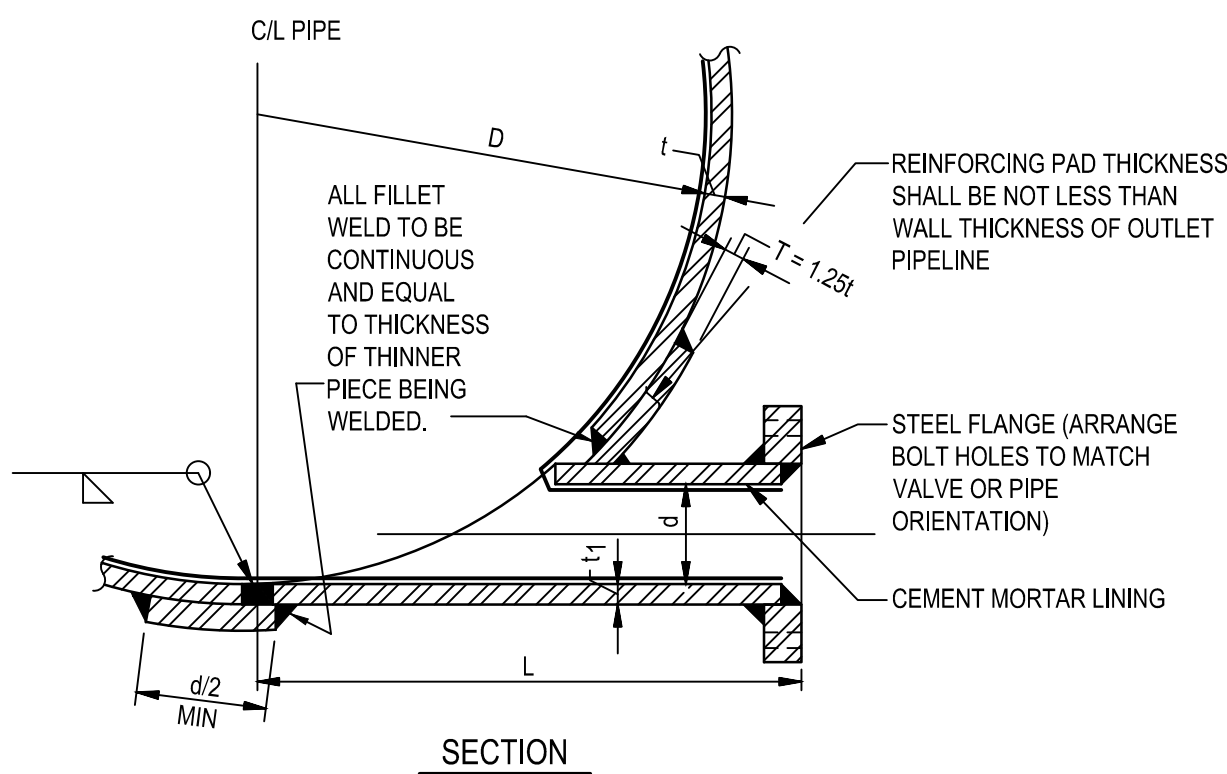
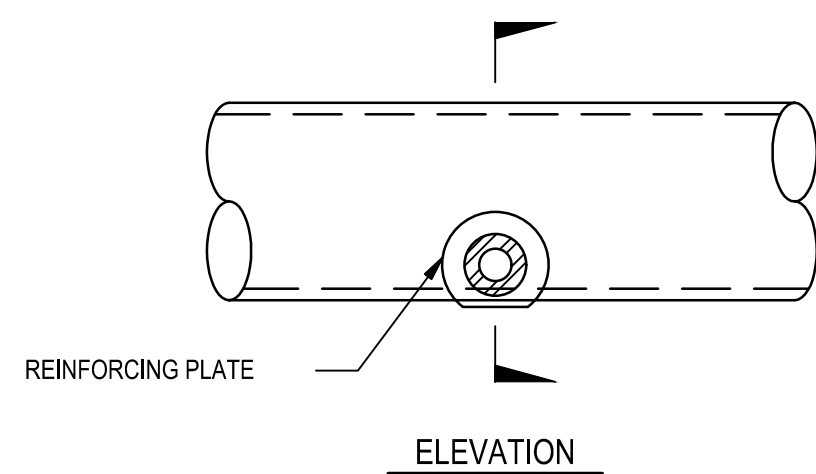
6 REDUCING FLANGE OUTLET DETAIL
NO SCALE



7 DRAIN CONNECTION DETAIL
NO SCALE



3 CONCRETE ENCASED CANAL CROSSING
NO SCALE



8 TANGENT-TYPE OUTLET CONNECTION DETAIL
NO SCALE

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PROJECT ENGINEER
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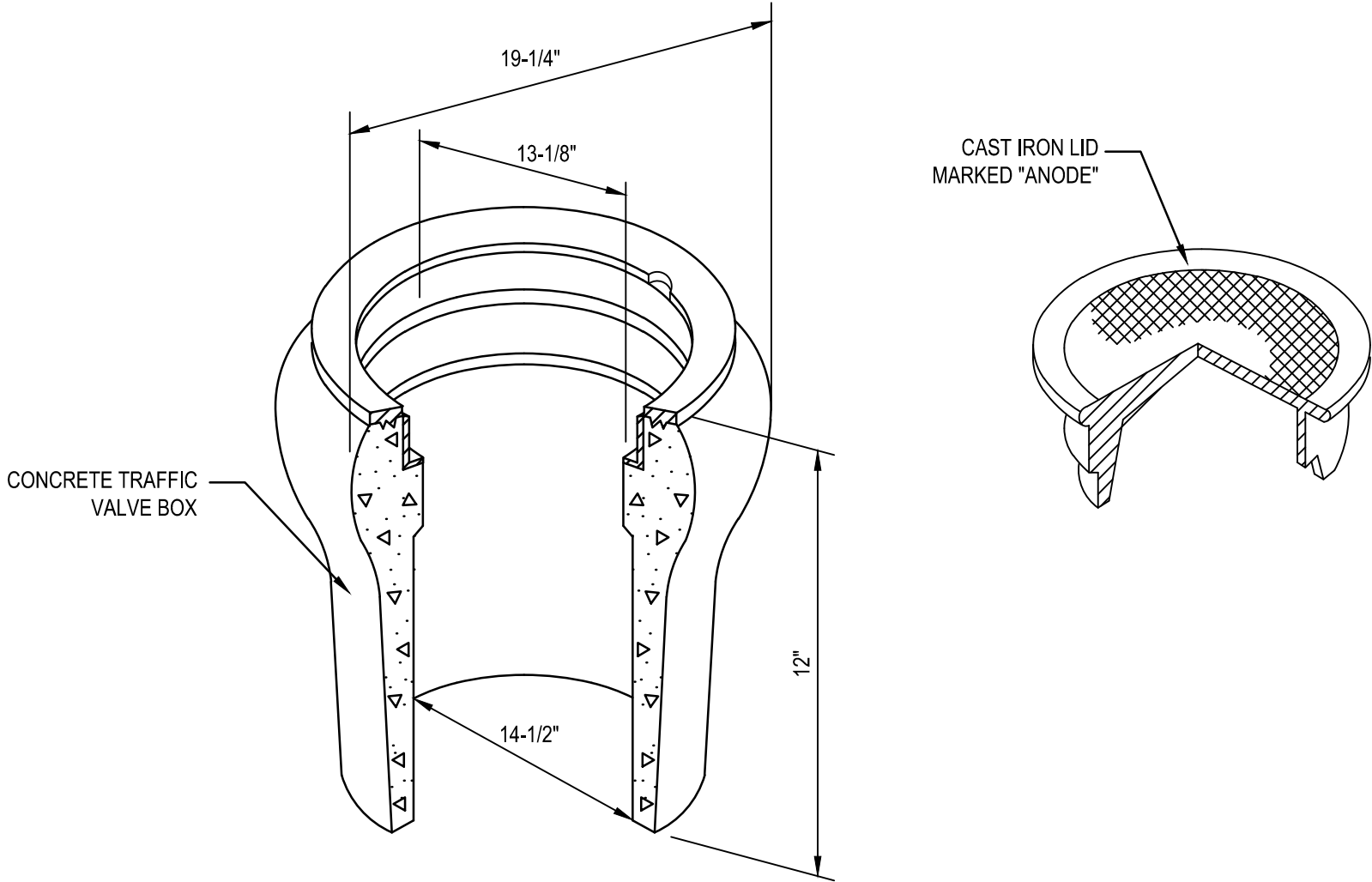
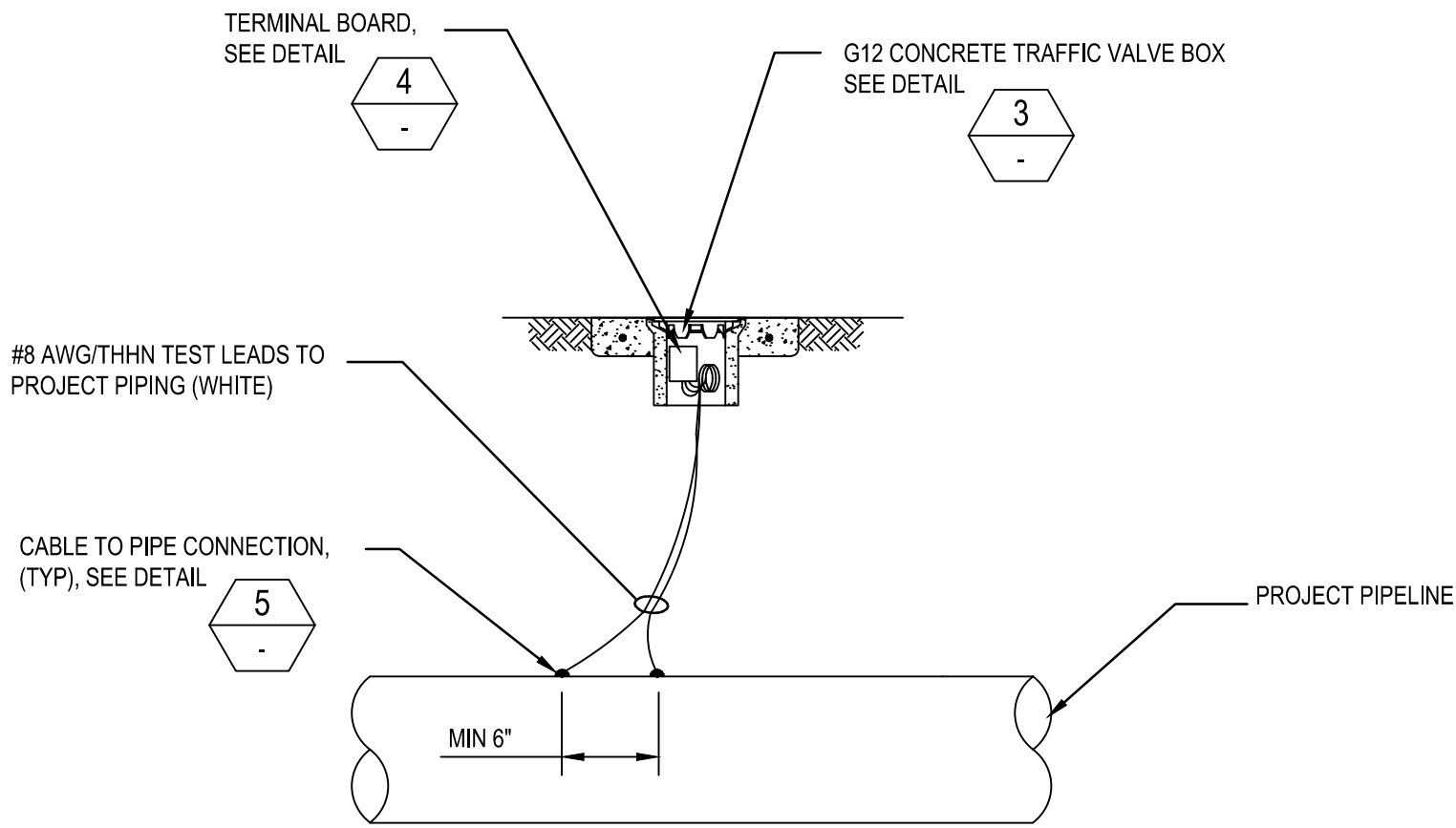
SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT
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DESIGNED: CR DRAWN: AK
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JOB NO:
ENHANCED RECHARGE IN THE SANTA ANA RIVER BASIN PROJECT
SPECIFICATION NO. 14-01
PLUNGE POOL PIPELINE
MISCELLANEOUS DETAILS (3 OF 3)
SCALE: NO SCALE
DWG: C-211
SHT. 27 OF 68 SHTS.
DRAWING NO.

TS #	STA. NO.	TYPE	DETAIL	(QTY) ANODE SIZE
1	835+22	IJTS - INSULATING JOINT TEST STATION	6/C-212	(8) 60-LB
2	845+00	CTS - CATHODIC TEST STATION	2/C-212	(8) 60-LB
3	206+00	CTS - CATHODIC TEST STATION	2/C-212	(8) 60-LB
4	216+00	CTS - CATHODIC TEST STATION	2/C-212	(8) 60-LB

1

TEST STATION SCHEDULE

SCALE : NONE



2

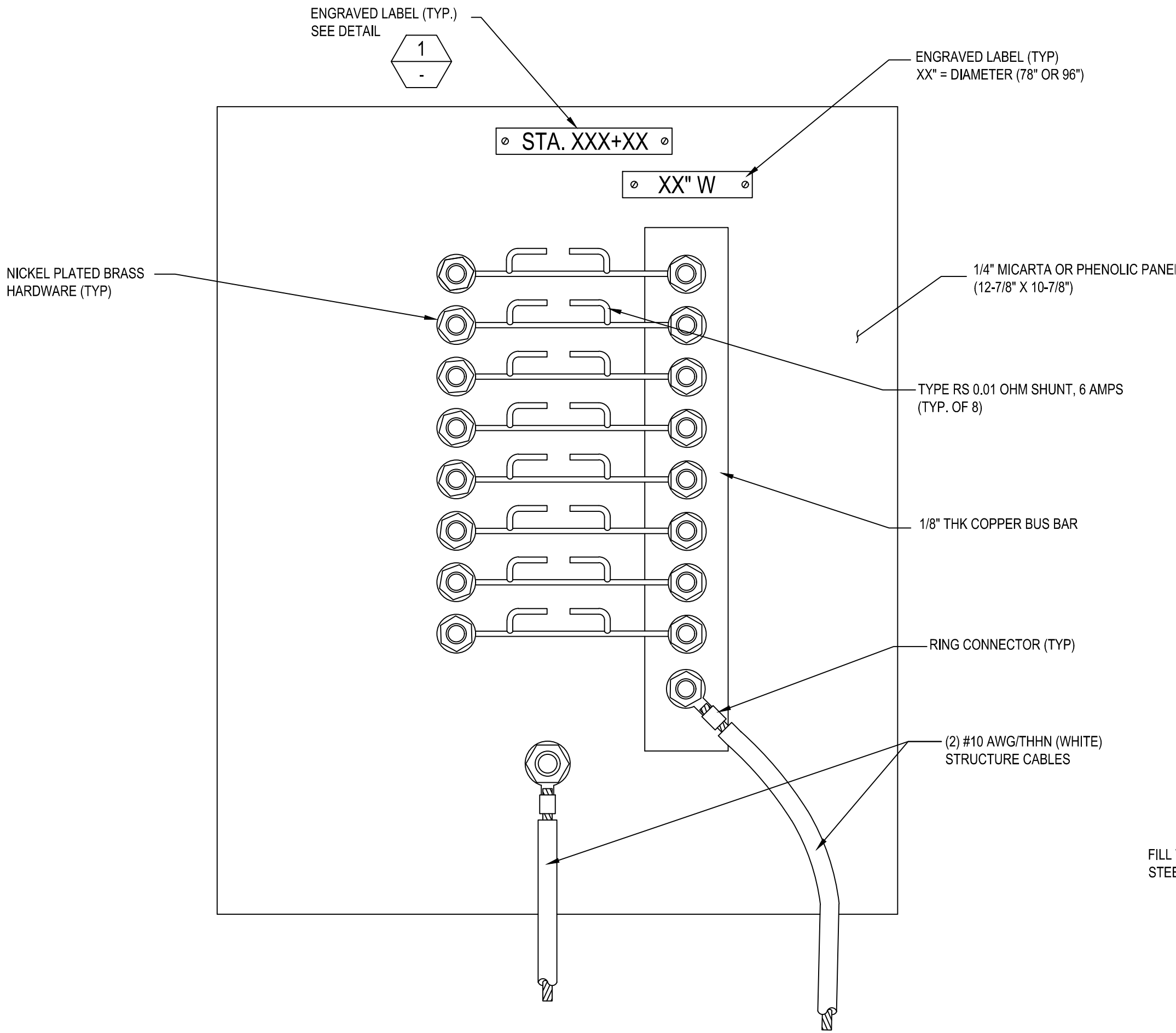
CTS - CATHODIC TEST STATION

SCALE : NONE

3

G12 CONCRETE TRAFFIC VALVE BOX

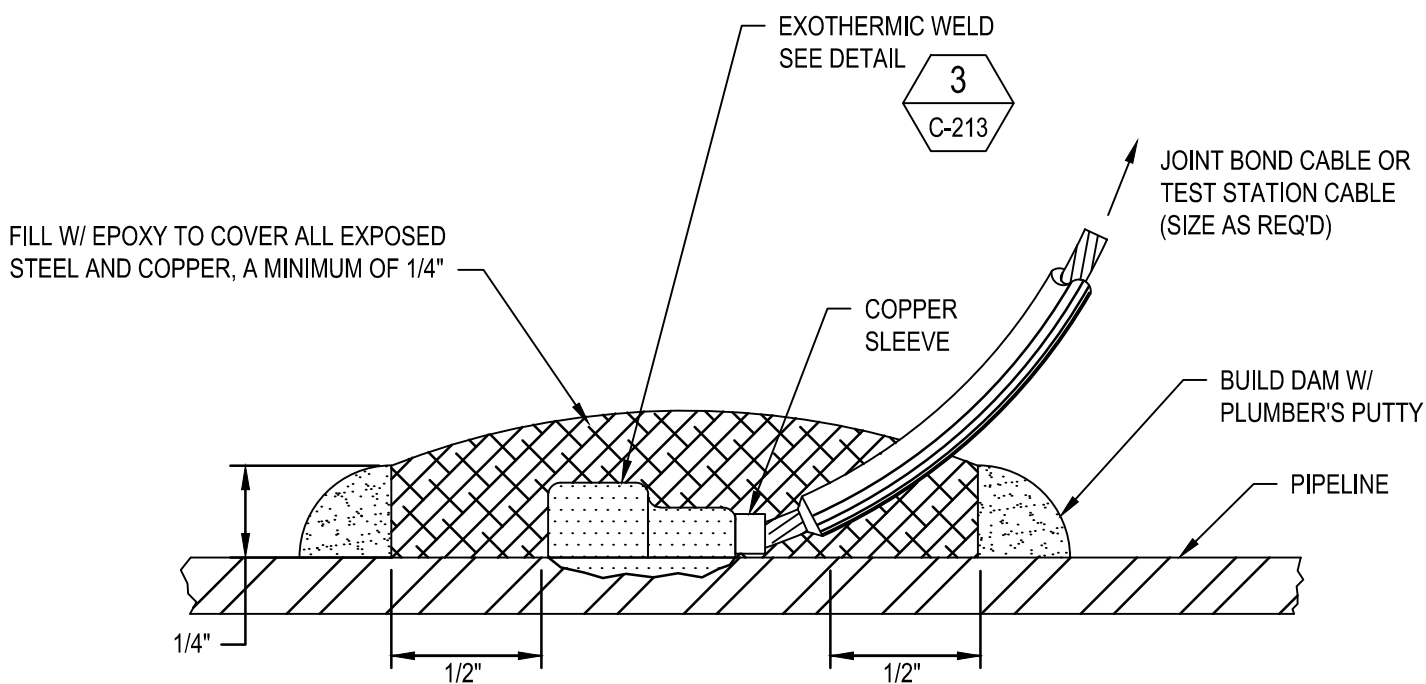
SCALE : NONE



4

TERMINAL BOARD FOR CTS/IJTS

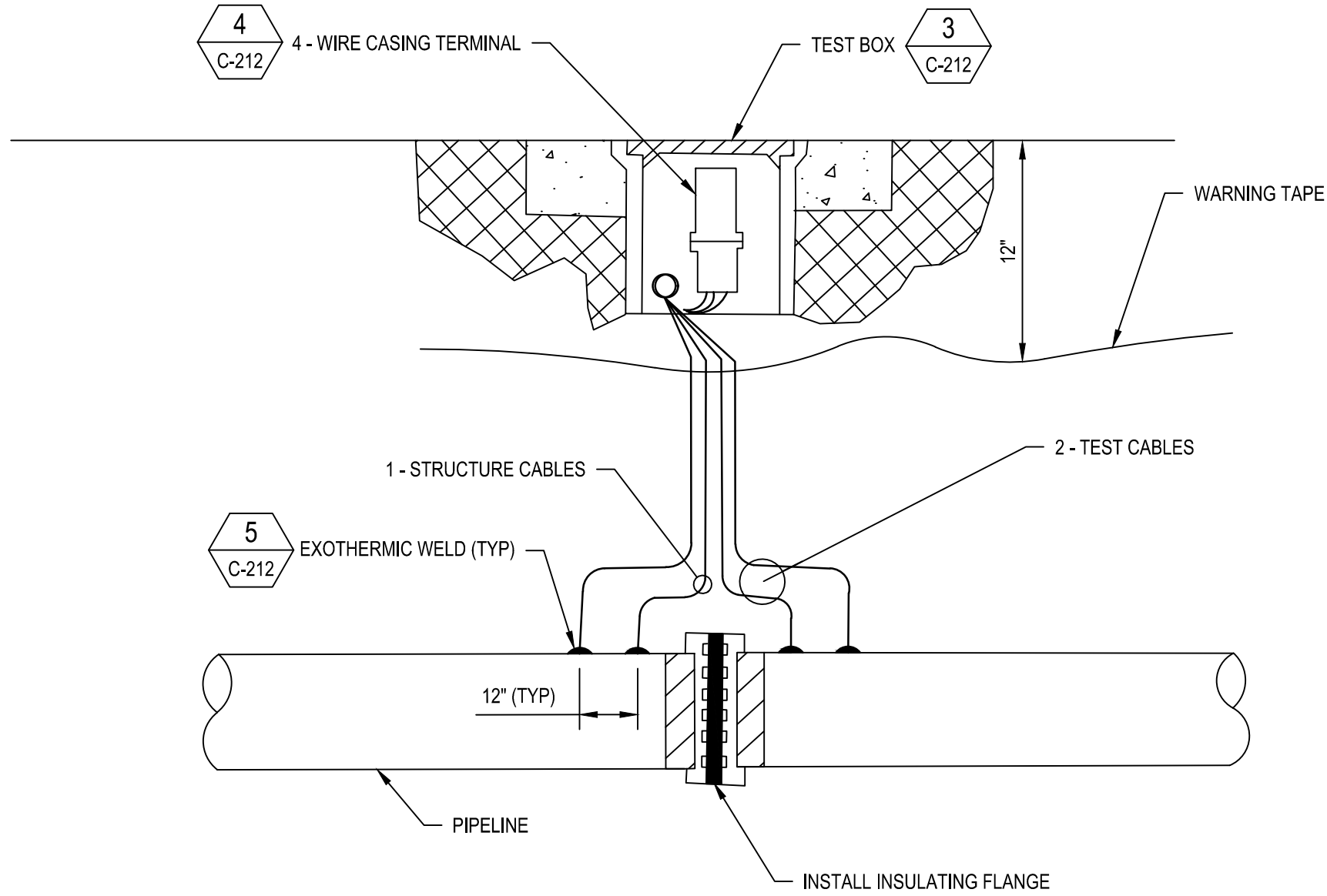
SCALE : NONE



5

CABLE TO PIPE CONNECTIONS

SCALE : NONE



6

IJTS - ISOLATION FLANGE TEST STATION

SCALE : NONE

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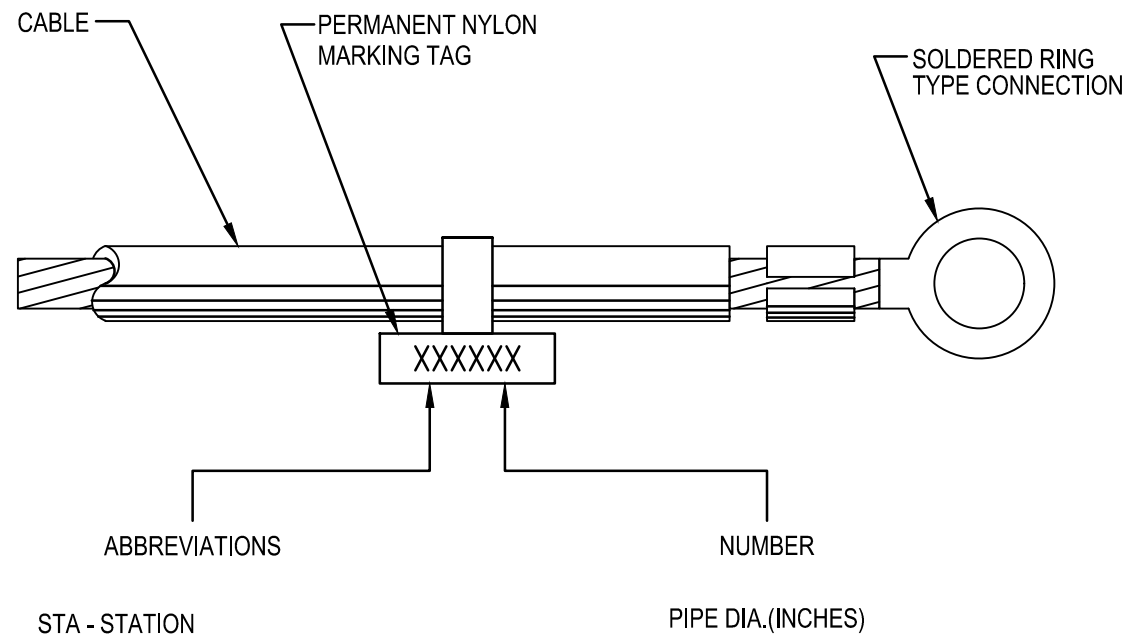
Valley SAN BERNARDINO
MUNICIPAL
WATER DISTRICT
380 EAST VANDERBILT WAY, SAN BERNARDINO, CA 92408
PHONE: (909) 387-9253 FAX: (909) 387-9247

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT
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ENHANCED RECHARGE IN THE SANTA ANA RIVER BASIN PROJECT
SPECIFICATION NO. 14-01
PLUNGE POOL PIPELINE
CATHODIC PROTECTION DETAILS
(1 OF 2)
NO SCALE
DWG: C-212
SHT. 28 OF 68 SHTS.
DRAWING NO.

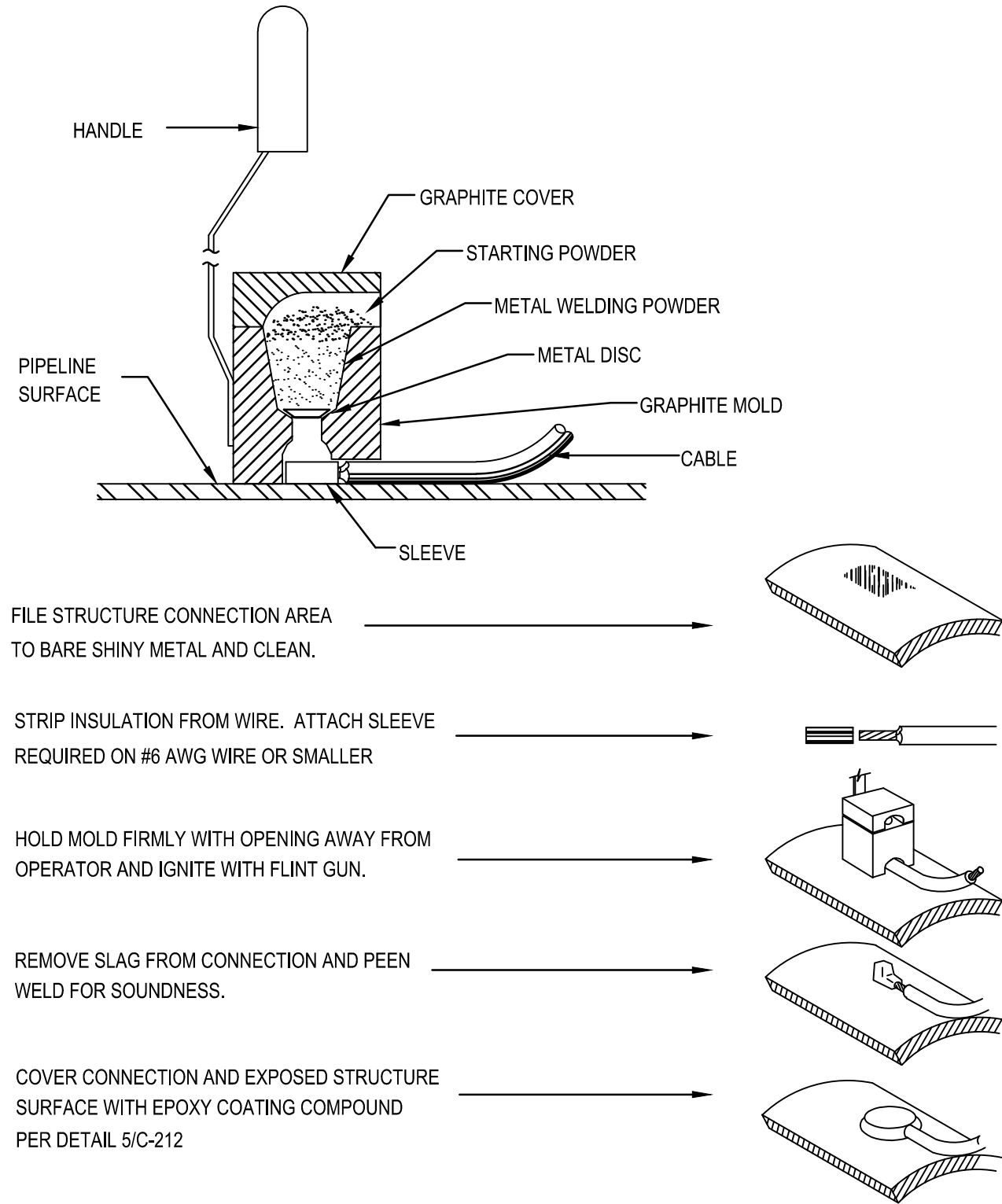
1 NOT USED
SCALE : NONE

2 NOT USED
SCALE : NONE

3 EXOTHERMIC WELD PROCEDURE
SCALE : NONE



4 CABLE IDENTIFICATION
SCALE : NONE



- STEP 1. FILE STRUCTURE CONNECTION AREA TO BARE SHINY METAL AND CLEAN.
- STEP 2. STRIP INSULATION FROM WIRE. ATTACH SLEEVE REQUIRED ON #6 AWG WIRE OR SMALLER
- STEP 3. HOLD MOLD FIRMLY WITH OPENING AWAY FROM OPERATOR AND IGNITE WITH FLINT GUN.
- STEP 4. REMOVE SLAG FROM CONNECTION AND PEEN WELD FOR SOUNDNESS.
- STEP 5. COVER CONNECTION AND EXPOSED STRUCTURE SURFACE WITH EPOXY COATING COMPOUND PER DETAIL 5/C-212

NOTE:
PROCEDURE SHOWN ABOVE IS TO BE USED AS A GENERAL GUIDE ONLY.
CONSULT MANUFACTURER'S LITERATURE FOR SPECIFIC INSTALLATION INSTRUCTIONS.

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 SAN BERNARDINO
Valley
MUNICIPAL
WATER DISTRICT

380 EAST VANDERBILT WAY, SAN BERNARDINO, CA 92408
PHONE: (909) 387-9253 FAX: (909) 387-9247

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

DATE: XX/XX/XXXX
DESIGNED: CR DRAWN: AK
REVIEWED: GW
JOB NO:

ENHANCED RECHARGE IN THE SANTA ANA RIVER BASIN PROJECT

SPECIFICATION NO. 14-01
PLUNGE POOL PIPELINE
CATHODIC PROTECTION DETAILS
(2 OF 2)

SCALE:
NO SCALE
DWG: C-213
SHT. 29 OF 68 SHTS.
DRAWING NO.

STRUCTURAL NOTES

GENERAL

1.

FOR LOCATIONS AND DIMENSIONS OF SLEEVES, CURB, OPENINGS AND DEPRESSIONS NOT SHOWN ON THE STRUCTURAL DRAWINGS, SEE ARCHITECTURAL, CIVIL/MECHANICAL, YARDWORK, PLUMBING, HVAC AND ELECTRICAL DRAWINGS. CONTRACTOR SHALL VERIFY AND COORDINATE REQUIREMENT FOR AND LOCATION OF ABOVE ITEMS WHETHER SHOWN ON THE STRUCTURAL DRAWINGS OR NOT.
2.

ALL STRUCTURAL RELATED SHOP DRAWINGS SHALL BE SUBMITTED, REVIEWED & APPROVED BY THE ENGINEER OF RECORD PRIOR TO FABRICATION/CONSTRUCTION.
3.

DESIGN AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE 2013 CALIFORNIA BUILDING CODE (CBC).
4.

STRUCTURES WERE DESIGNED FOR OPERATIONAL (OCCUPANCY) LOADS ON THE COMPLETED STRUCTURES. DURING CONSTRUCTION THE STRUCTURES SHALL BE PROTECTED BY BRACING AND SHORING WHEREVER CONSTRUCTION LOAD MAY OCCUR.
5.

WHETHER SPECIFICALLY REFERENCED OR NOT, A STANDARD DETAIL PROVIDED ON STANDARD DETAILS SHEETS SHALL BE APPLIED TO ALL SIMILAR LOCATIONS DEPICTED BY THE STANDARD DETAIL UNLESS NOTED OTHERWISE.
6.

STRUCTURES ARE DESIGNED FOR OPERATIONAL (OCCUPANCY) LOADS ON THE COMPLETED STRUCTURES. DURING CONSTRUCTION THE STRUCTURES SHALL BE PROTECTED AND STABILIZED BY BRACING AND SHORING WHENEVER CONSTRUCTION LOADS MAY OCCUR.

CAST-IN-PLACE CONCRETE

1.

A MINIMUM 28 DAY COMPRESSIVE STRENGTH (f_c) 4000 PSI WAS UTILIZED IN THE DESIGN OF STRUCTURAL REINFORCED CONCRETE.
2.

CEMENT SHALL BE ASTM C150, TYPE II, LOW ALKALI.
3.

ALL CONCRETE CONSTRUCTION SHALL CONFORM TO THE CBC AND THE ACI 318 "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" INCLUDING BAR BENDS AND HOOKS, UNLESS DETAILED OTHERWISE.
4.

THE LOCATION OF ALL CONSTRUCTION JOINTS AND OTHER TYPES OF JOINTS, OTHER THAN SPECIFIED OR SHOWN ON THE PLANS, SHALL BE APPROVED BY THE ENGINEER PRIOR TO PLACING CONCRETE.
5.

ALL OPENINGS, PIPE SLEEVES, CONDUITS, INSERTS AND OTHER EMBEDDED ITEMS SHALL BE IN PLACE BEFORE CONCRETE IS PLACED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE ARCHITECTURAL, CIVIL/STRUCTURAL, PLUMBING, HVAC, ELECTRICAL PLANS FOR ITEMS REQUIRING SLEEVES AND EMBEDMENTS IN CONCRETE WHICH ARE NOT INDICATED IN SECTIONS OR PLANS. NO PIPES, CONDUITS OR SLEEVES SHALL EMBED OR PASS THROUGH STRUCTURAL MEMBERS, UNLESS SHOWN ON STRUCTURAL DRAWINGS OR APPROVED BY THE ENGINEER.
6.

ALL EXPOSED EDGES AND CORNERS, UNLESS NOTED OTHERWISE, SHALL BE CHAMFERED 3/4" EXCEPT THE TOP EDGE OF SLABS WHICH ARE TO BE TOOLED.
7.

ROUGHEN CONCRETE SURFACES TO 1/4" AMPLITUDE MINIMUM AT CONSTRUCTION JOINT.

REINFORCING STEEL

1.

ALL REINFORCING BAR SHALL BE GRADE 60, DEFORMED, ASTM A615.
2.

WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185 OR A497.
3.

DIMENSIONS TO REINFORCING BARS ARE TO BAR CENTERLINES, UNLESS NOTED OTHERWISE. BAR COVER IS CLEAR DISTANCE BETWEEN BAR AND THE CONCRETE SURFACE. BAR COVERS AS SHOWN ON THE "STANDARD CONCRETE REINFORCING DETAILS" SHEET SHALL BE PROVIDED UNLESS NOTED OTHERWISE.
4.

SPLICING OF REINFORCEMENT FOR WALLS, FOOTINGS AND SLABS SHALL BE AS SHOWN ON THE "STANDARD CONCRETE REINFORCING DETAILS" SHEET, UNLESS NOTED OTHERWISE. WHEN BARS OF DIFFERENT SIZE LAP TO EACH OTHER, SPLICE LENGTH FOR THE LARGER BAR SHALL BE USED.
5.

UNLESS INDICATED OTHERWISE, ALL DOWELS SHALL HAVE THE SAME SIZE AND SPACING AS THAT OF THE REINFORCING STEEL TO WHICH THEY ARE SPLICED AND SHALL HAVE A MINIMUM LAP PER NOTE NO. 4 ABOVE, UNLESS NOTED OTHERWISE.
6.

NO WELDING OF REINFORCING BARS SHALL BE PERMITTED, UNLESS APPROVAL IS OBTAINED FROM THE ENGINEER PRIOR TO CONSTRUCTION.

STAINLESS STEEL

1.

STAINLESS STEEL BOLTS SHALL CONFORM TO ASTM F593, ALLOY GROUP 1 OR 2, AS NOTED IN SPECIFICATION.
2.

STAINLESS STEEL PLATES, BARS AND RODS SHALL CONFORM TO ASTM A240, TYPE 316L.
3.

STAINLESS STEEL STRUCTURAL SHAPES AND STUDS SHALL CONFORM TO ASTM A276, TYPE 316L.

ALUMINUM

1.

UNLESS NOTED OTHERWISE, ALUMINUM ALLOY IN ALL ALUMINUM STRUCTURAL MATERIALS SHALL BE 6061-T6. PIPE AND TUBING FOR GUARDRAIL AND HANDRAIL SHALL BE ALLOY 6061-T6.
2.

ALL ALUMINUM SURFACES IN CONTACT WITH CONCRETE OR DISSIMILAR METALS SHALL BE COATED OR COVERED WITH A HEAVY COAT OF EPOXY ENAMEL TO PREVENT ALUMINUM-CONCRETE REACTION OR ELECTROLYTIC ACTION.
3.

ALL ALUMINUM WELDING SHALL CONFORM TO THE PROVISIONS OF THE LATEST STRUCTURAL WELDING CODE (AWS D1.2) AND OF THE CBC.
4.

AN AWS CERTIFIED FABRICATOR IS REQUIRED FOR ALL ALUMINUM STRUCTURES.

SOIL AND FOUNDATIONS

1.

ALL EARTHWORK AND FOUNDATION CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE GEOTECHNICAL REPORT AND SPECIFICATIONS.
2.

FOUNDATION CONSTRUCTION SHALL NOT BEGIN UNTIL THE SPECIAL INSPECTION FOR SOIL COMPACTION HAS BEEN COMPLETED AND THE CONTRACTOR NOTIFIED TO PROCEED WITH CONSTRUCTION.
3.

UNLESS NOTED OTHERWISE, BACKFILL SHALL NOT BE PLACED AGAINST WALLS WHICH SUPPORT A CONCRETE SLAB OR WALKWAY UNTIL THE TOP SLAB OR WALKWAY HAS BEEN PLACED IN ITS ENTIRETY AND ALL CONCRETE HAS REACHED ITS DESIGN STRENGTH.

4.

THE FOLLOWING NET ALLOWABLE BEARING PRESSURES WERE UTILIZED IN THE DESIGN OF THE FOUNDATIONS:

FOUNDATIONS BEARING ON A PAD OF COMPACTED SELECT FILL.....2500 PSF

FOR TRANSIENT LOADS INCLUDING SEISMIC LOADS, ALLOWABLE BEARING PRESSURE MAY BE INCREASED BY ONE-THIRD.

MISCELLANEOUS STEEL

1.

UNLESS NOTED OTHERWISE, STRUCTURAL STEEL SHALL CONFORM TO ASTM A36, ROLLED WIDE FLANGE SHAPES TO ASTM A992; STRUCTURAL PIPES TO ASTM A53, TYPE E OR S, GRADE B OR ASTM A500, GRADES B OR C, OR ASTM A501; STRUCTURAL TUBING TO ASTM A500, GRADE B OR C. ALL STRUCTURAL STEEL SHALL BE FABRICATED AND ERECTED IN CONFORMANCE WITH THE NINTH EDITION OF AISC SPECIFICATIONS PARTS 1 THRU 4 AND THE "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS."
2.

ALL WELDING SHALL BE DONE BY AWS CERTIFIED WELDERS. WELDING SHALL CONFORM TO THE PROVISIONS OF THE LATEST STRUCTURAL WELDING CODE (AWS D1.1). ALL WELDING SHALL BE PERFORMED IN ACCORDANCE WITH THE SUBMITTED WRITTEN PROCEDURES AND USE ONLY THOSE JOINT DETAILS WHICH HAVE BEEN PREQUALIFIED. WELD ELECTRODES SHALL BE E70XX.
3.

UNLESS NOTED OTHERWISE, ALL STRUCTURAL STEEL COMPONENTS AND CONNECTIONS SHALL BE PAINTED OR PROTECTIVE COATED IN ACCORDANCE WITH THE SPECIFICATIONS.
4.

ALL CONNECTIONS SHALL BE WELDED OR BOLTED IN ACCORDANCE WITH THE DETAILS, SPECIFICATIONS, AND THE NINTH EDITION OF THE AISC HANDBOOK OF FRAMED BEAM CONNECTIONS. BOLTS SHALL BE ASTM A325N, 3/4 INCH MIN DIAMETER, UNLESS NOTED OTHERWISE.
5.

IN A TIMELY MANNER, BEFORE CONSTRUCTION BEGINS, FOR CAST-IN-PLACE ANCHORS AN ANCHOR BOLT SETTING PLAN AND DETAILED PROCEDURE FOR THE INSTALLATION OF BASE PLATES AND SHEAR LUGS SHALL BE PREPARED BY THE CONTRACTOR AND SUBMITTED TO THE ENGINEER FOR REVIEW. CAST-IN-PLACE ANCHOR BOLTS AND SHEAR LUGS EMBEDDED IN CONCRETE SHALL BE ACCURATELY POSITIONED WITH A TEMPLATE AND ADEQUATELY SECURED TO PREVENT MOVEMENT UNTIL CONCRETE HAS SET.
6.

LISTED THICKNESS OF BASE PLATES IS NET FINISH AFTER MILLING. BASE PLATES MAY BE PRESSED FLAT AT FABRICATORS OPTION.
7.

HOLES FOR ANCHOR BOLTS IN COLUMN BASE PLATES SHALL BE AS FOLLOWS:
BOLT 3/4" TO 1" - 5/16" OVERSIZE
BOLT 1" TO 2" - 1/2" OVERSIZE
BOLTS OVER 2" - 1" OVERSIZE

AT THE CONTRACTORS OPTION, OVERSIZE HOLES LARGER THAN THOSE LISTED ABOVE MAY BE USED, PROVIDED THAT 3/8" PLATE WASHERS ARE ALSO USED AND FIELD WELDED WITH A 5/16" FILLET TO THE BASE PLATE ALL AROUND.

8.

ANCHOR BOLTS SHALL CONFORM TO ASTM A307 OR TO ASTM A36 THREADED ROD UNLESS NOTED OTHERWISE ON THE DRAWINGS.

MASONRY

1.

CONCRETE MASONRY UNITS SHALL BE OF LIGHT WEIGHT CLASSIFICATION AND SHALL CONFORM TO ASTM C90, GRADE N-1. THE TOTAL MASONRY ASSEMBLAGE SHALL HAVE A COMPRESSIVE STRENGTH (f_m) EQUAL TO 1500 PSI AT 28 DAYS.
2.

MASONRY MORTAR SHALL CONFORM TO ASTM C270, TYPE S.
3.

ALL CELLS SHALL BE GROUTED. BOND BEAM REINF TO BE CONTINUOUS AT CORNERS AND INTERSECTIONS.
4.

ALL CONCRETE MASONRY CONSTRUCTION SHALL BE DONE IN ACCORDANCE WITH THE PROVISIONS OF THE CBC.
5.

ALL REINFORCING BARS TO BE CONTINUOUS WITH LAP SPLICES EQUAL TO 48 BAR DIAMETERS MINIMUM.
6.

QUALITY ASSURANCE AND VERIFICATION OF THE SPECIFIED COMPRESSIVE STRENGTH OF MASONRY (f_m) SHALL BE IN ACCORDANCE WITH SECTION 2105 OF THE CBC USING THE CONCRETE MASONRY UNIT STRENGTH METHOD.

LOADING CRITERIA

1.

DEAD LOAD..... CALCULATED
2.

LIVE LOADS:
STAIRS/SERVICE PLATFORMS & LANDING 100 PSF
ELEVATED CONCRETE SLAB AND WALKWAYS..... 100 PSF
GRATING AREAS..... 150 PSF
PUMP STA FLOOR..... 150 PSF
ALL FLOORS NOT INDICATED..... 100 PSF
3.

LATERAL EARTH PRESSURE:
AT-REST (DRAINED)..... 68 PCF
ACTIVE (DRAINED)..... 45 PCF
SEISMIC..... INVERTED TRIANGULAR PRESSURE OF 35 PCF
4.

LATERAL SURCHARGE..... 100 PSF LIVE LOAD APPLIED TO UPPER 10 FT OF SOIL
5.

NET ALLOWABLE SOIL BEARING PRESSURE..... 2,500 PSF MAY BE INCREASED BY 1/3 FOR LOAD CASES COMBINED WITH WIND OR SEISMIC LOADING
6.

HYDROSTATIC FLUID PRESSURE..... 62.4 PCF
7.

WIND LOAD:
BASIC WIND SPEED..... 100 MPH
EXPOSURE..... C
IMPORTANCE FACTOR..... 1.0
8.

SEISMIC LOAD:
SEISMIC DESIGN CATEGORY..... D
IMPORTANCE FACTOR (I)..... 1.00
SITE CLASS D
STRUCTURAL SYSTEM "R"
OTHER STRUCTURES..... 2; (ASCE 7-10 TABLE 15.4-2)
SHORT PERIODS SPECTRAL
ACCELERATION (S_s) 2.847 g; (S_{D5} = 1.898 g)
1 SECOND SPECTRAL
ACCELERATION (S_1) 1.320 G; (S_{D1} = 1.320 g)
COEFFICIENT OF HORIZONTAL ACCELERATION (k_h).....0.39 g

SPECIAL INSPECTION, MATERIALS TESTING AND STRUCTURAL OBSERVATION

1.0 GENERAL

THE DISTRICT OR REPRESENTATIVE WILL PERFORM SPECIAL INSPECTION AND WILL PROVIDE THE CONTRACTOR WITH AN INSPECTION PROGRAM THAT WILL IDENTIFY THE PORTION OF THE WORK REQUIRING SPECIAL INSPECTION AND/OR OBSERVATION. THE CITY RESERVES THE RIGHT TO CHANGE OR MODIFY THE INSPECTION REQUIREMENTS THROUGHOUT THE ENTIRE DURATION OF THE CONSTRUCTION CONTRACT.

2.0 DEFINITIONS

TESTING LABORATORY: MATERIALS TESTING LABORATORY EMPLOYED BY THE DISTRICT, TO MEASURE, EXAMINE, TEST, CALIBRATE OR OTHERWISE DETERMINE THE CHARACTERISTICS OR PERFORMANCE OF CONSTRUCTION MATERIALS.

CONTINUOUS INSPECTION: ON-SITE INSPECTION BY THE DISTRICT ON A CONTINUOUS BASIS OBSERVING ALL WORK REQUIRING SPECIAL INSPECTION. (REF 1701.6.1)

PERIODIC INSPECTION: INTERMITTENT INSPECTION BY THE DISTRICT ON A PERIODIC BASIS.

STRUCTURAL OBSERVATION: THE VISUAL OBSERVATION BY THE DISTRICT, INCLUDING BUT NOT LIMITED TO THE ELEMENTS AND CONNECTIONS, OF THE STRUCTURAL SYSTEM, FOR GENERAL CONFORMANCE TO THE APPROVED PLANS AND SPECIFICATIONS, AT SIGNIFICANT CONSTRUCTION STAGES AND AT COMPLETION OF THE STRUCTURAL SYSTEM. STRUCTURAL OBSERVATION DOES NOT INCLUDE OR WAIVE THE RESPONSIBILITY FOR THE SPECIAL INSPECTIONS REQUIRED BY CODES AND SPECIFICATIONS.

APPROVED FABRICATOR: A FABRICATOR QUALIFIED BY AN ACCREDITED BODY APPROVED BY THE DISTRICT, TO PERFORM WORK OFF SITE, REQUIRING SPECIAL INSPECTION WITHOUT A SPECIAL INSPECTOR AS DESCRIBED HEREIN.

3.0 STRUCTURAL OBSERVATION

THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE DISTRICT 48 HOURS IN ADVANCE OF REQUIRED OBSERVATION(S) FOR SCHEDULING PURPOSES. FAILURE TO MEET OBSERVATION SCHEDULES MAY REQUIRE REMOVAL OF ANY SUBSEQUENT WORK FOR OBSERVATION. REMOVAL AND REPLACEMENT OF ANY FINISHED WORK AND/OR FRAMING DAMAGED BY THE REMOVAL PROCESS OR AS REQUIRED FOR CORRECTIVE ACTION SHALL BE AT THE CONTRACTOR'S EXPENSE.

THE DISTRICT MAY PERFORM STRUCTURAL OBSERVATIONS PERIODICALLY AT THE FOLLOWING STAGES OF CONSTRUCTION:

- A.

CONCRETE AND REINFORCING STEEL: AFTER COMPLETION OF THE REINFORCING STEEL, PRIOR TO CONCRETE PLACEMENT.

4.0 SPECIAL INSPECTION AND MATERIAL TESTING

THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING THE CITY AND/OR TESTING LABORATORY WITH A CONSTRUCTION SCHEDULE AND SAFE ACCESS FOR PERFORMING INSPECTION/ONSITE TESTING.

THE NUMBER AND FREQUENCY OF TAKING OF TEST SPECIMENS AND TESTING, WILL BE THE MINIMUM REQUIRED BY THE GOVERNING BUILDING CODE, STANDARD, OR AS SPECIFIED IN THE CONTRACT DOCUMENTS WHICHEVER IS MORE STRINGENT.

4.1 SPECIAL INSPECTION REQUIREMENTS

WORK REQUIRING SPECIAL INSPECTION		SPECIAL INSPECTION	
		CONT	PERIODIC
GRADING & FOUNDATION	A. PLACEMENT OF COMPACTED FILL, GRADING, AND EXCAVATIONS	X	
CONCRETE	A. CONCRETE PLACEMENT 1. FOUNDATION/FOOTINGS 2. SLAB-ON-GRADE 3. ALL OTHER STRUCTURAL CONCRETE	X	
	B. PLACEMENT OF NON-SHRINK GROUT		X
	C. MOLDING OF COMPRESSION TEST SAMPLES	X	
	D. PLACEMENT OF CONCRETE AROUND BOLTS OR EMBEDS AS SPECIFIED (REF 1701.5 #2)	X	
	E. PLACEMENT OF HIGH STRENGTH GROUT AND TAKING SAMPLES	X	
	F. CONCRETE BATCHING ON-SITE	X	
DRILLED ANCHORS	A. INSTALLATION OF ADHESIVE ANCHORS, RODS, AND DOWELS		X
	B. EXPANSION ANCHORS IN CONCRETE OR MASONRY		X
REINFORCING STEEL	A. PLACEMENT OF REINFORCING BARS		X
	B. SAMPLING FOR TESTING		X
	C. MILL REPORT VERIFICATION AND MATERIAL IDENTIFICATION		X
	D. INSTALLATION OF SPLICE COUPLER	X	
WELDING	A. STRUCTURAL FIELD WELDING (REF 1701.5)	X	
	B. SINGLE PASS FILLET WELD		X
	C. REINFORCING STEEL WELDING	X	
STRUCTURAL STEEL	A. VERIFICATION OF MILL REPORTS AND IDENTIFICATION OF STEEL OR PHYSICAL TESTING		X
	B. ERECTION AND INSPECTION OF STEEL SURFACES		X
	C. STRUCTURAL STEEL ERECTION		X
BOLTING	A. HIGH STRENGTH BOLTING		X
MASONRY	A. PLACEMENT OF MASONRY UNITS	X	
	B. MASONRY PRISM CONSTRUCTION, MORTAR AND GROUT SAMPLING	X	
	C. GROUTING OPERATIONS	X	
	D. MATERIALS CERTIFICATION		X
	E. MASONRY WALLS COMPLETION		X
OFF-SITE FABRICATORS			
SPECIAL CONDITIONS			

100% PLANS

ISSUED FOR:

APPROVAL

CONSULTANT:	
	GHD Inc. 175 Technology Drive Suite 200 Irvine California 92618 USA T 1 949 585 5200 F 1 949 648 5299 W www.ghd.com

ENGINEER'S SEAL

PLANS PREPARED BY:

COVER SHEET HAS BEEN SIGNED AND DATED
XX/XX/XXXX
PROJECT ENGINEER DATE

APPROVED BY:

COVER SHEET HAS BEEN SIGNED AND DATED
XX/XX/XXXX
SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT DATE

MARK

BY



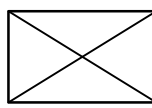

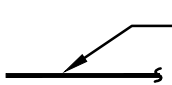
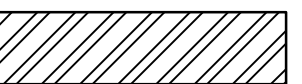

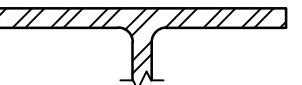



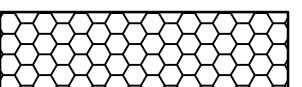
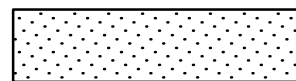
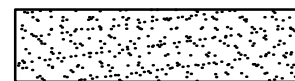
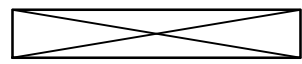


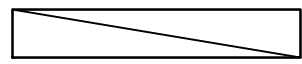
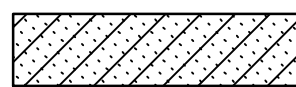
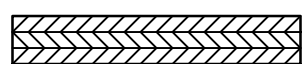
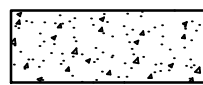

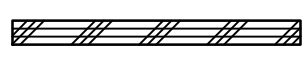
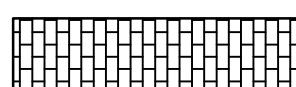

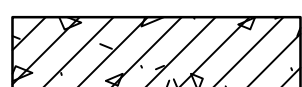

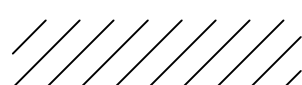
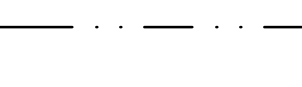
DATE

REVISION





SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT			
DATE: XX/XX/XXXX	ENHANCED RECHARGE IN THE SANTA ANA RIVER BASIN PROJECT		SCALE: NO SCALE
DESIGNED: SOG	SPECIFICATION NO. 14-01		DWG: S-001
DRAWN: MC/SJD	GENERAL STRUCTURAL NOTES		SHT 30 OF 68 SHTS
REVIEWED: NO			DRAWING NO.
JOB NO:			


STRUCTURAL LEGENDS

SLAB ON GRADE DEPRESSIONS		BOUNDARY OF DEPRESSION IN SLAB	EXISTING (E) CONCRETE PLAN OR SECTION	
FLOOR OR WALL OPENING			EXISTING (E) BRICK WALL / MASONRY WALL OR CMU VENEER PLAN OR SECTION	
DIAGONAL BRACE		DIAGONAL "KICKER" BRACE OR PARAPET BRACE ABOVE OR BELOW BEAM	STEEL: AS NOTED PLAN OR SECTION	
EARTH OR ROCK (UNDISTURBED) SHOWN IN SECTION			STEEL: ROLLED SHAPES PLAN OR SECTION	
EARTH (FILL) SHOWN IN SECTION			NEW (N) STEEL DECK PLAN OR SECTION	
ROCK FILL, GRAVEL SHOWN IN SECTION			STYROFOAM FILLERS SHOWN IN SECTION	
GROUT OR SAND SHOWN IN SECTION		OR 	WOOD FRAMING, CONTINUOUS SHOWN IN SECTION	
FLOOR GRATING SHOWN IN PLAN		(DIRECTION OF SPAN) 	WOOD BLOCKING SHOWN IN SECTION	
STRUCTURAL MASONRY WALL SHOWN IN PLAN			PLYWOOD SHOWN IN SECTION	
NEW (N) CONCRETE PLAN OR SECTION		OR 	PLYWOOD SHOWN IN SECTION	
NEW (N) BRICK VENEER PLAN OR SECTION		OR 	PRECAST CONCRETE PLAN OR SECTION	
CHECKERED PLATE OR CIRCULAR COVER SHOWN IN PLAN			DEMOLITION PLAN OR SECTION	
			REINFORCING STEEL BOUNDARIES FOR NEW CONCRETE PLACED TIGHT AGAINST ROCK FACE	

	INDICATES TWO BOLT ATTACHMENT OF HORIZONTAL BRACING TO UNDERSIDE OF BEAM. SHIM AS REQUIRED. BOLTS TO BE 3/4" DIAMETER A325.
	INDICATES ANGLE OR PLATE TO BE WELDED ON THREE SIDES
	INDICATES FOUR BOLT ATTACHMENT OF MONORAIL TO UNDERSIDE OF SUPPORT BEAM. SPACER OR STANDOFF DETAIL AS REQUIRED.
	INDICATES NONSTANDARD FRAMING CONNECTION
	INDICATES HORIZONTAL OR VERTICAL BRACING CONNECTION DETAIL.
	INDICATES MOMENT CONNECTION

 EXTENDING UP FROM THE ELEVATION INDICATED.

 EXTENDING DOWN FROM THE ELEVATION INDICATED.

 EXTENDING UP AND DOWN FROM THE ELEVATION INDICATED.

100% PLANS
ISSUED FOR:
APPROVAL

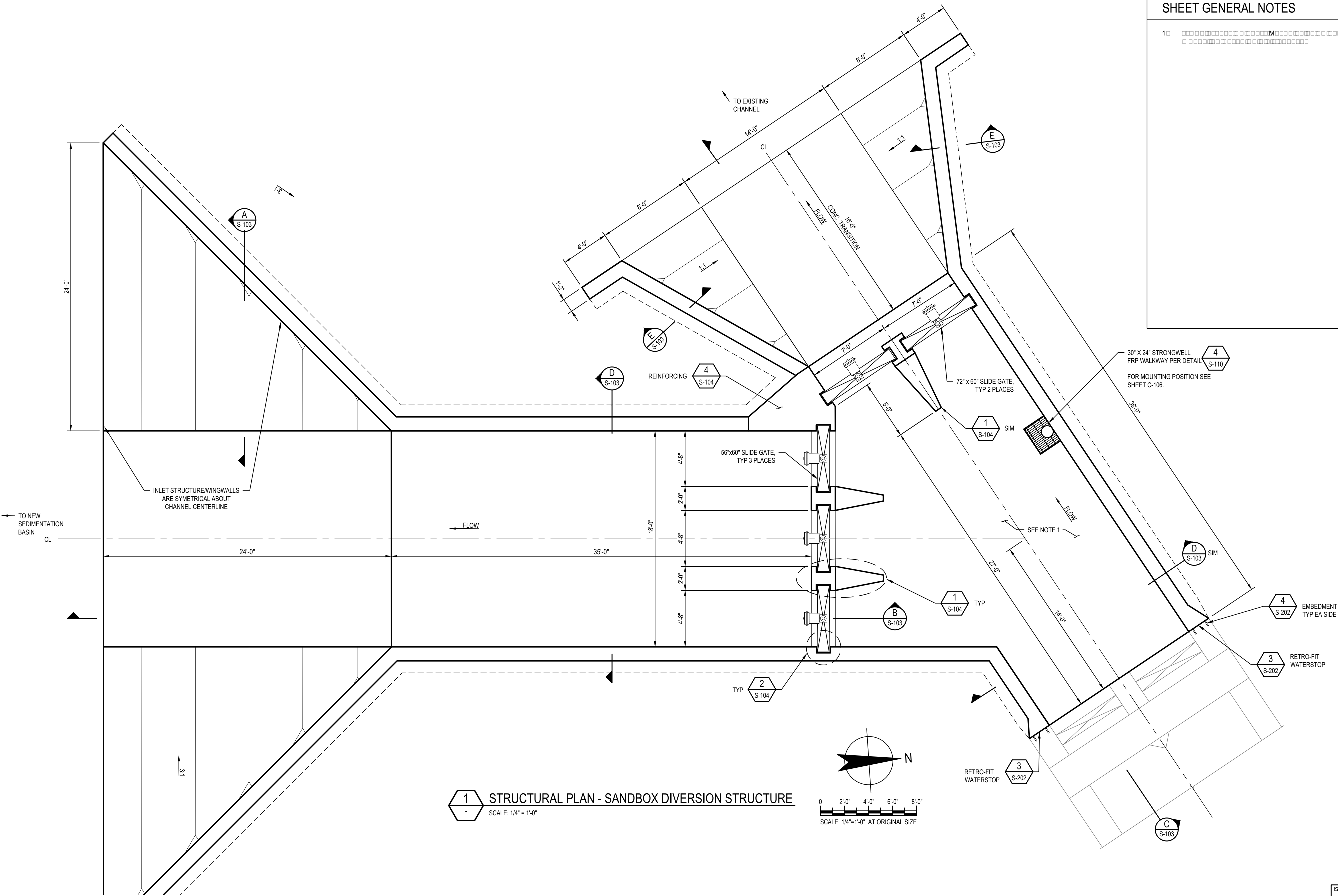


Valley SAN BERNARDINO
MUNICIPAL
WATER DISTRICT

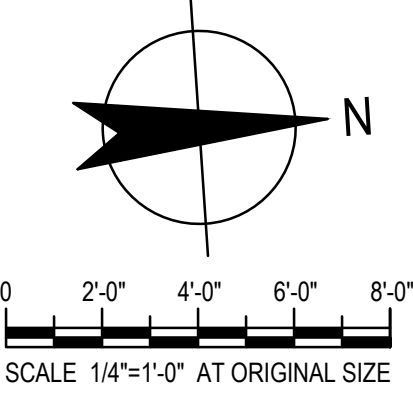
380 EAST VANDERBILT WAY, SAN BERNARDINO, CA 92404
PHONE: (909) 387-9253 FAX: (909) 387-9242

SHEET GENERAL NOTES

1.



1 STRUCTURAL PLAN - SANDBOX DIVERSION STRUCTURE
SCALE: 1/4" = 1'-0"



100% PLANS

ISSUED FOR:
APPROVAL

CONSULTANT:
 GHD Inc.
175 Technology Drive Suite 200
Irvine California 92618 USA
T 1 949 585 5200 F 1 949 648 5299 W www.ghd.com

ENGINEER'S SEAL

PLANS PREPARED BY:

COVER SHEET HAS BEEN SIGNED AND DATED
XX/XX/XXXX
PROJECT ENGINEER DATE

APPROVED BY:

COVER SHEET HAS BEEN SIGNED AND DATED
XX/XX/XXXX
SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT DATE

MARK	BY	DATE	REVISION

 SAN BERNARDINO
Valley
MUNICIPAL
WATER DISTRICT
380 EAST VANDERBILT WAY, SAN BERNARDINO, CA 92408
PHONE: (909) 387-9253 FAX: (909) 387-9247

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT			
DATE: XX/XX/XXXX	DESIGNED: SOG	DRAWN: MC/SJD	REVIEWED: NO
JOB NO:			
ENHANCED RECHARGE IN THE SANTA ANA RIVER BASIN PROJECT			
SPECIFICATION NO. 14-01			
SANDBOX DIVERSION STRUCTURE PLAN			
SCALE: NO SCALE			
DWG: S-101			
SHT. 32 OF 68 SHTS.			
DRAWING NO.			



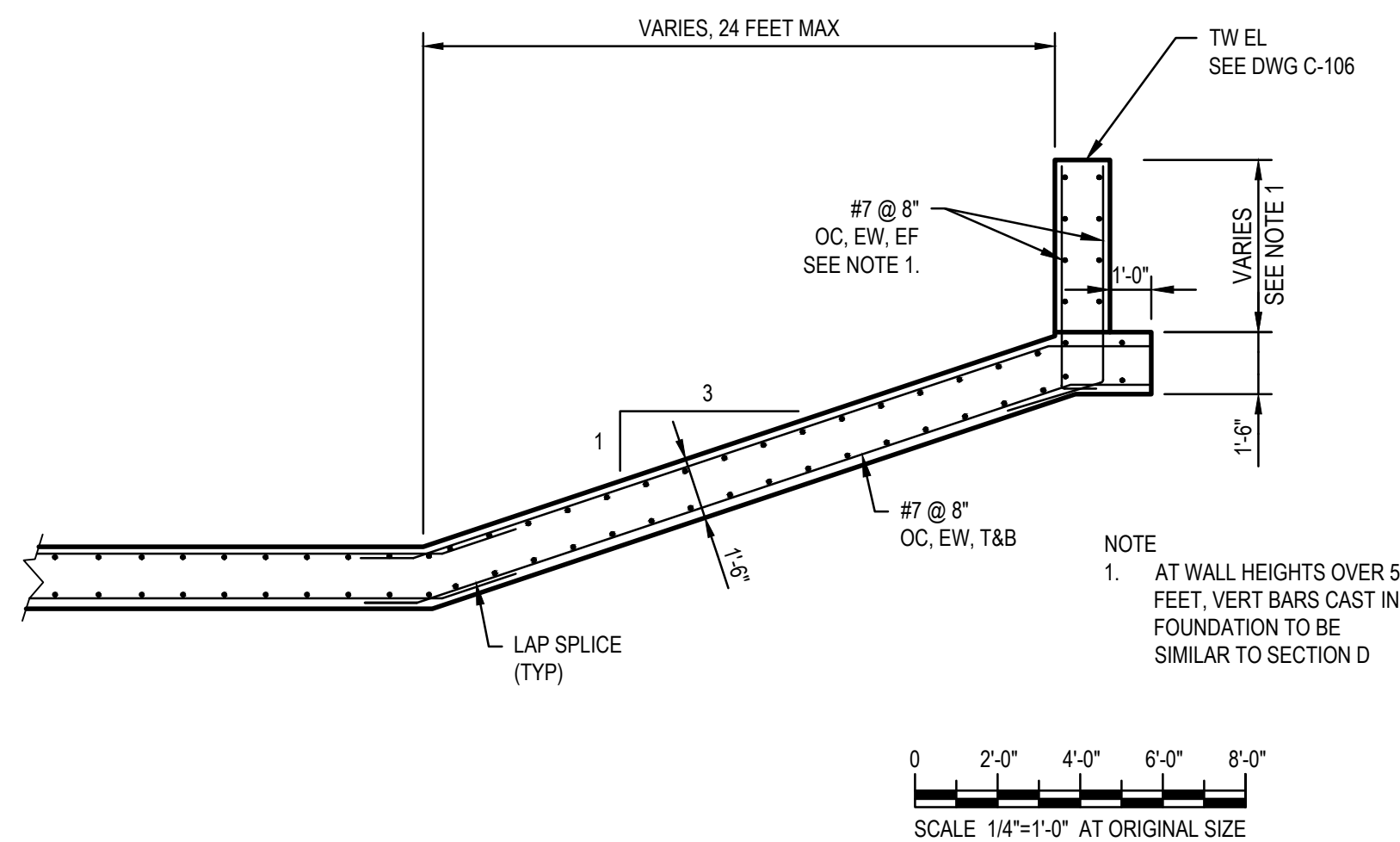
100% PLANS
ISSUED FOR:
APPROVAL

ENGINEER'S SEAL

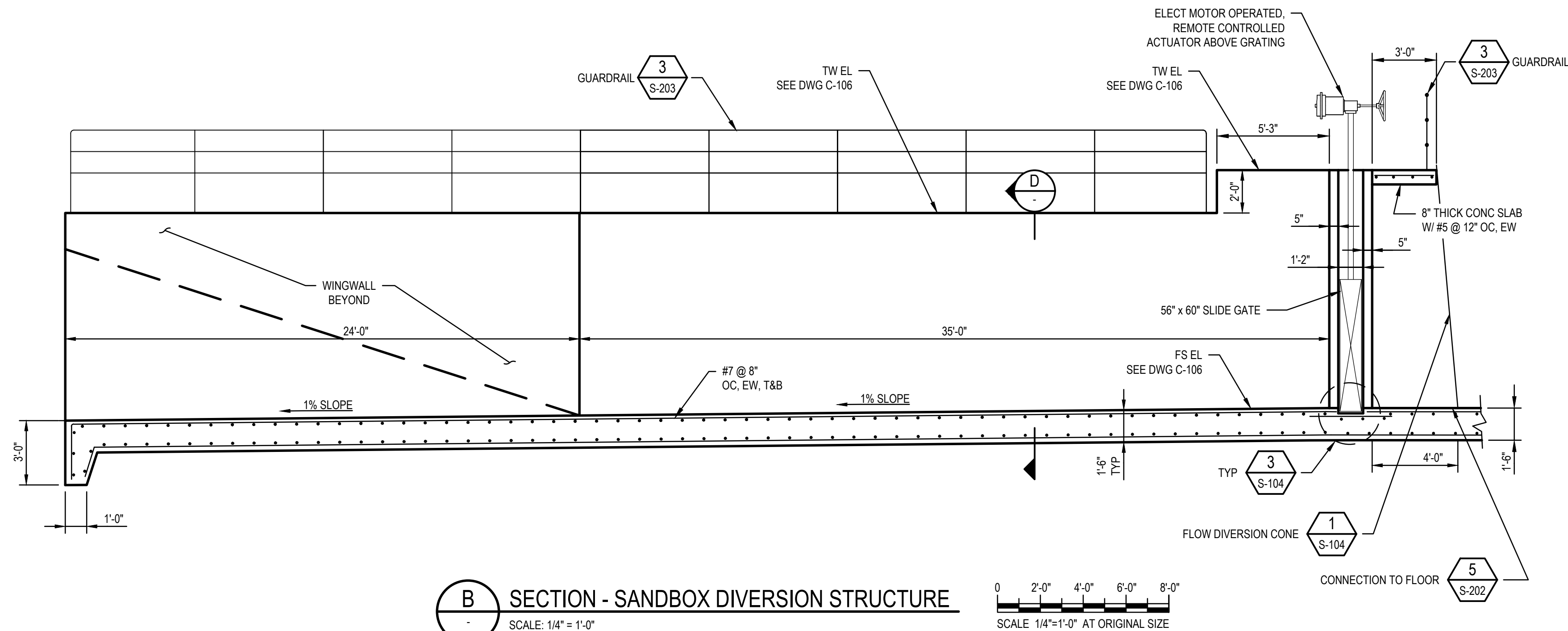
MARK	BY	DATE	REVISION



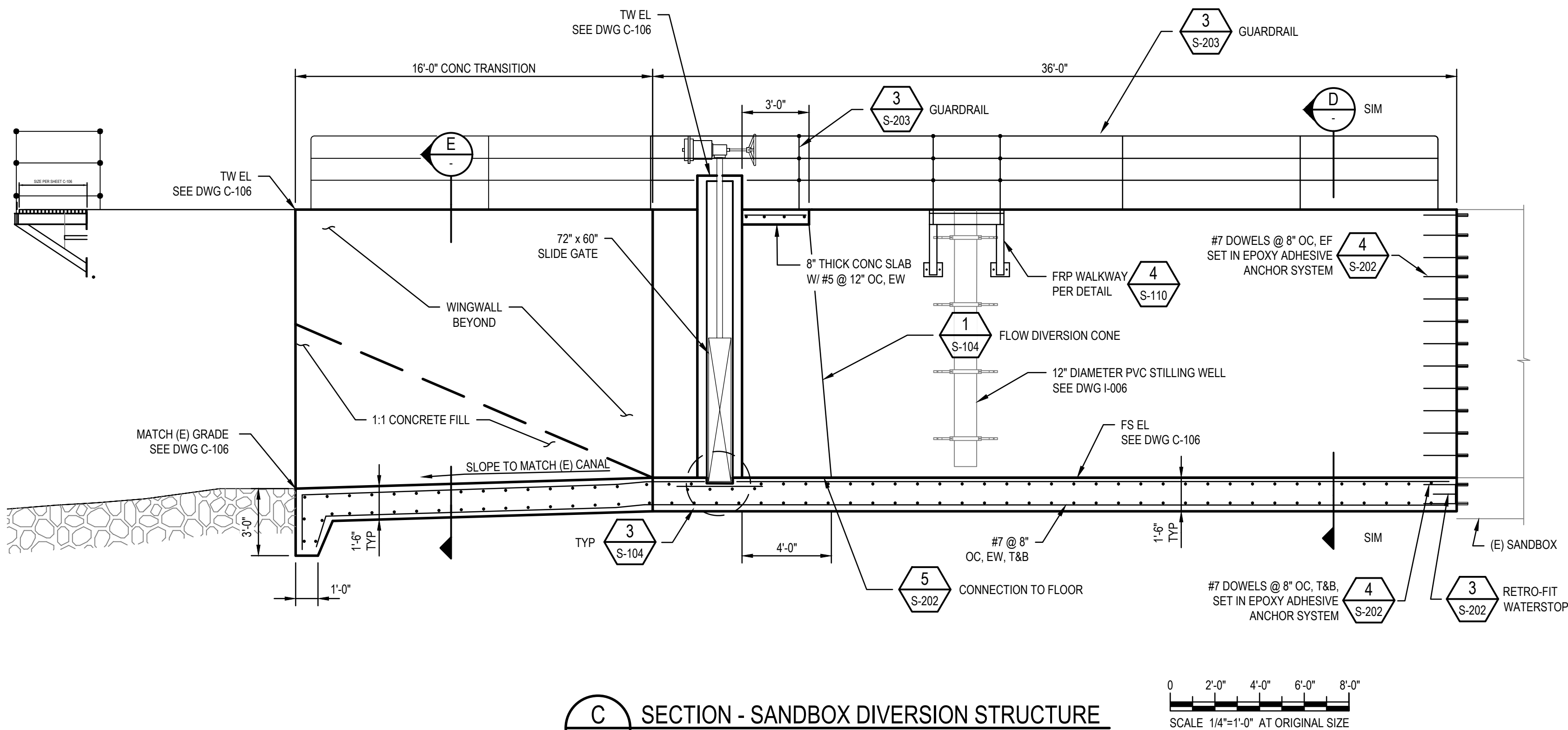
SCALE: AS SHOWN
DWG: S-102
SHT. 33 OF 68 SHTS.
DRAWING NO.



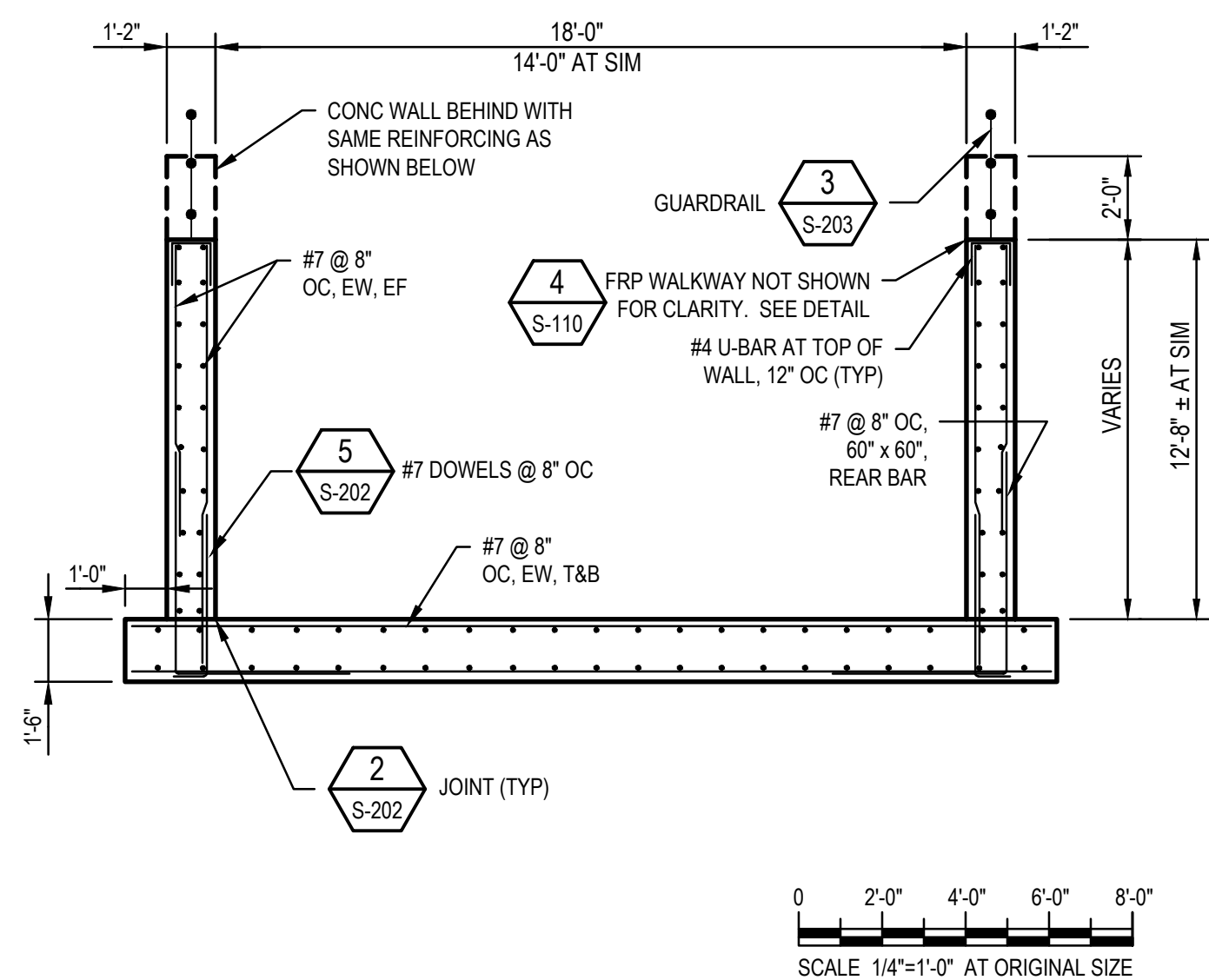
A SECTION - SANDBOX DIVERSION STRUCTURE
SCALE: 1/4" = 1'-0"



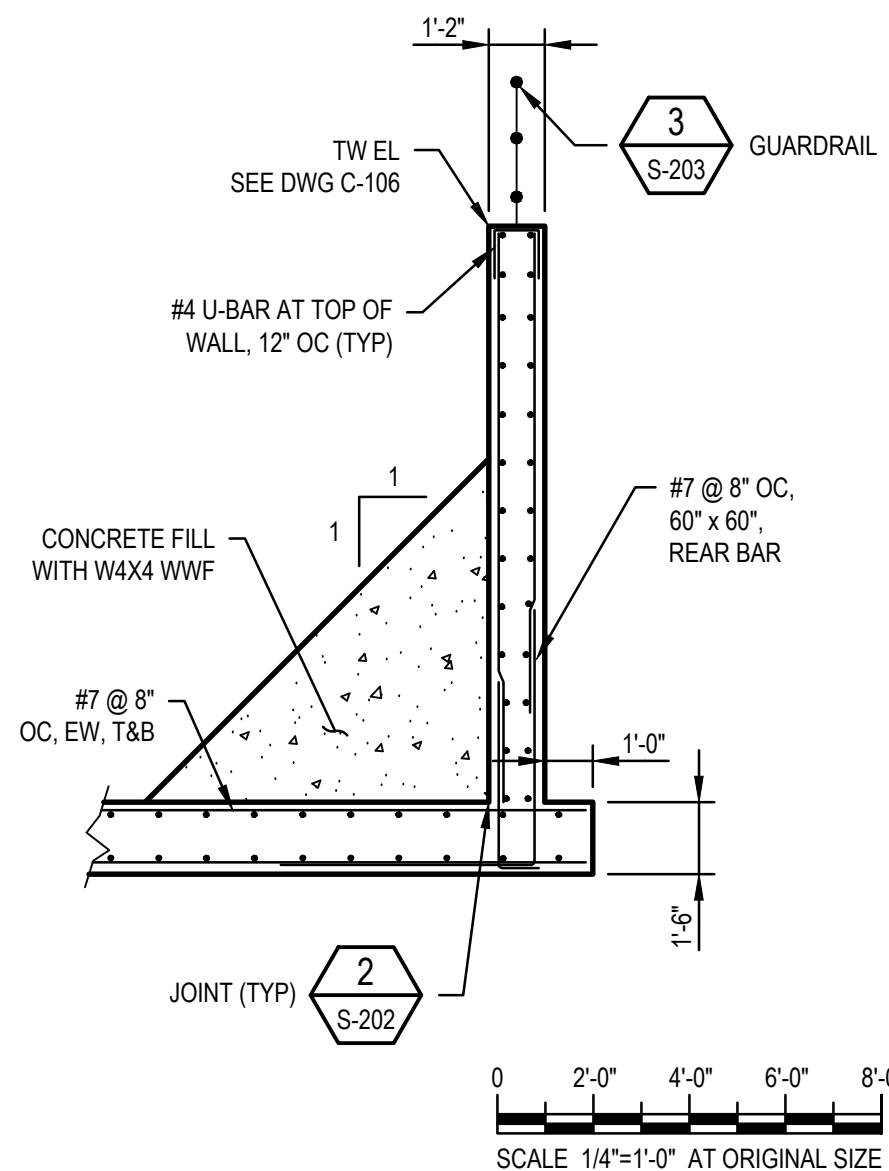
B SECTION - SANDBOX DIVERSION STRUCTURE
SCALE: 1/4" = 1'-0"



C SECTION - SANDBOX DIVERSION STRUCTURE
SCALE: 1/4" = 1'-0"



D SECTION - SANDBOX DIVERSION STRUCTURE
SCALE: 1/4" = 1'-0"



E SECTION SANDBOX DIVERSION STRUCTURE
SCALE: 1/4" = 1'-0"

100% PLANS
ISSUED FOR:
APPROVAL

CONSULTANT:
GHD
GHD Inc.
175 Technology Drive Suite 200
Irvine California 92618 USA
T 1 949 585 5200 F 1 949 648 5299 W www.ghd.com

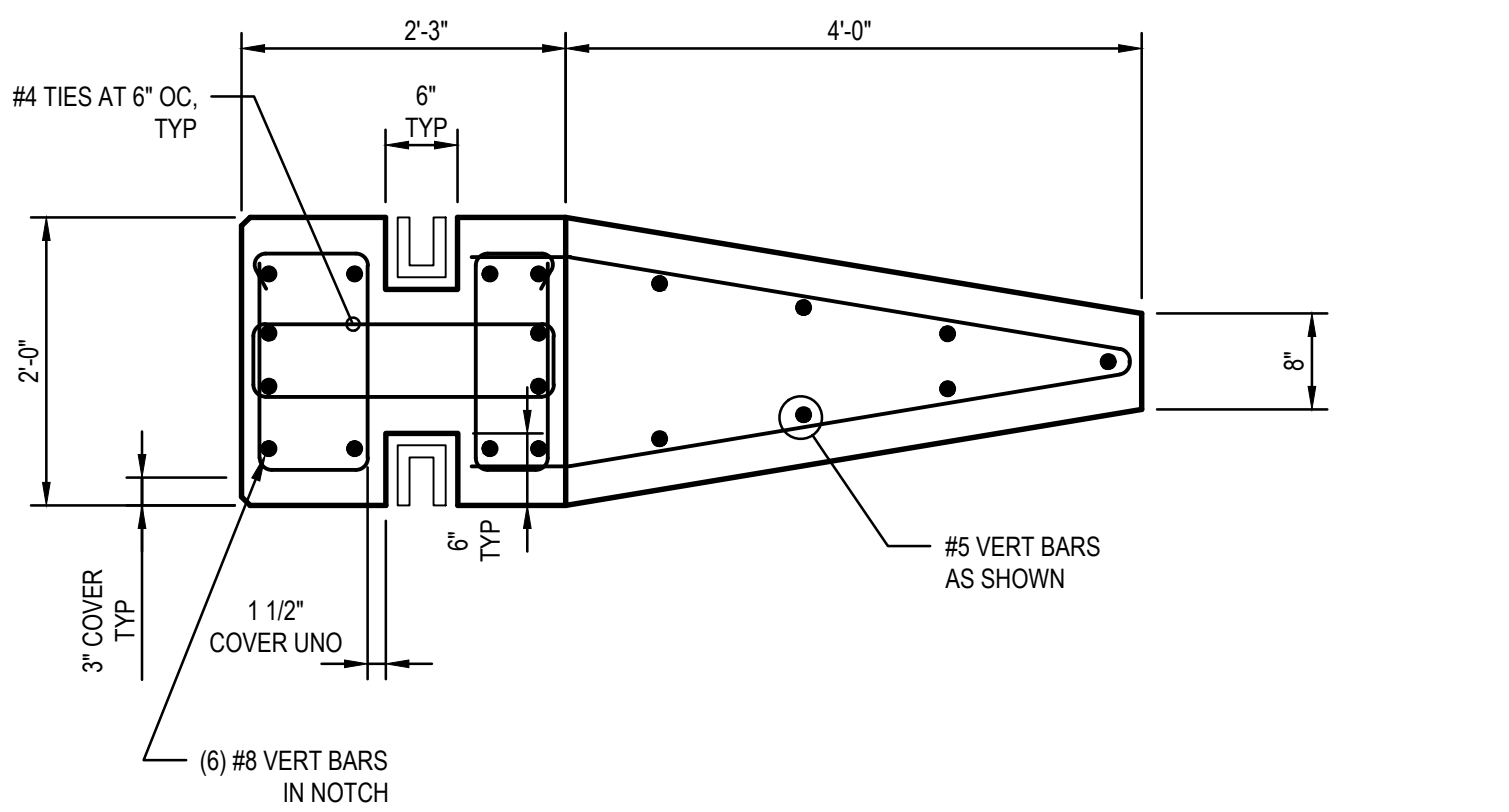
ENGINEER'S SEAL

PLANS PREPARED BY:
COVER SHEET HAS BEEN SIGNED AND DATED
XX/XX/XXXX
PROJECT ENGINEER
DATE
APPROVED BY:
COVER SHEET HAS BEEN SIGNED AND DATED
XX/XX/XXXX
SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT
DATE

MARK	BY	DATE	REVISION

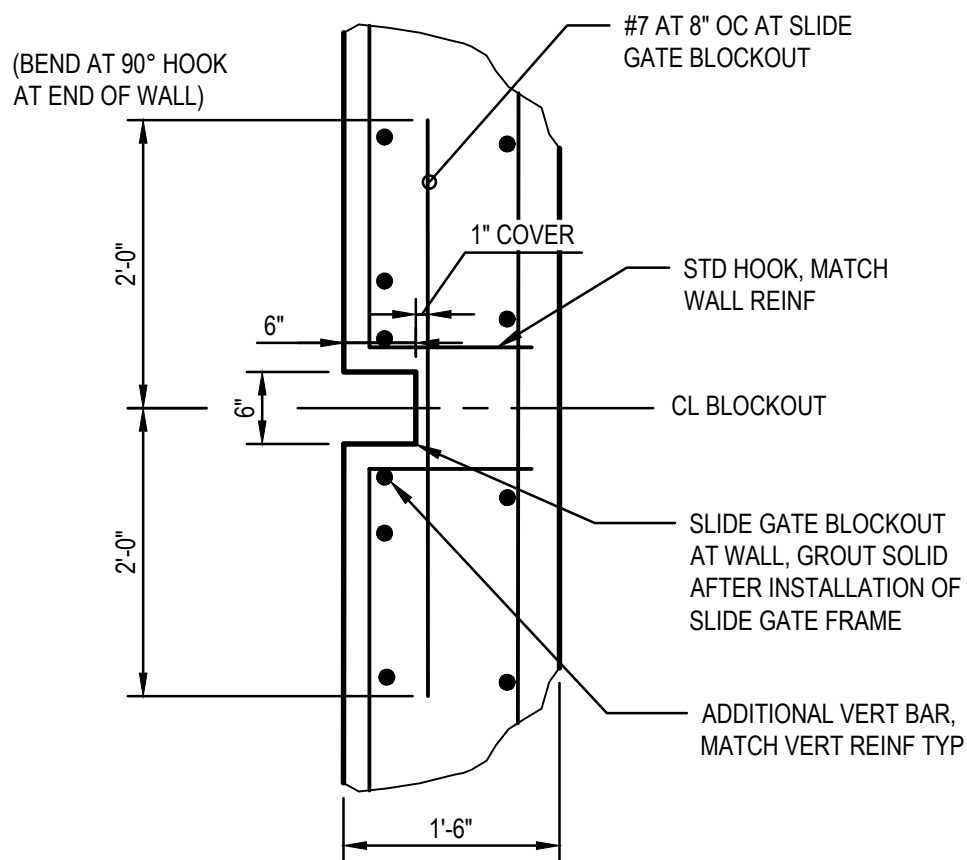
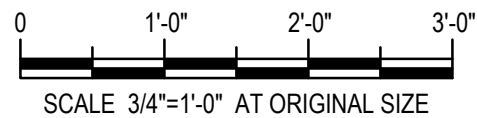
Valley
SAN BERNARDINO
MUNICIPAL
WATER DISTRICT
380 EAST VANDERBILT WAY, SAN BERNARDINO, CA 92408
PHONE: (909) 387-9253 FAX: (909) 387-9247

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT
DATE: XX/XX/XXXX
DESIGNED: SOG
DRAWN: MC/SJD
REVIEWED: NO
JOB NO:
ENHANCED RECHARGE IN THE SANTA ANA RIVER BASIN PROJECT
SPECIFICATION NO. 14-01
SANDBOX DIVERSION STRUCTURE
SECTIONS AND DETAILS
SCALE: AS SHOWN
DWG: S-103
SHT. 34 OF 68 SHTS.
DRAWING NO.



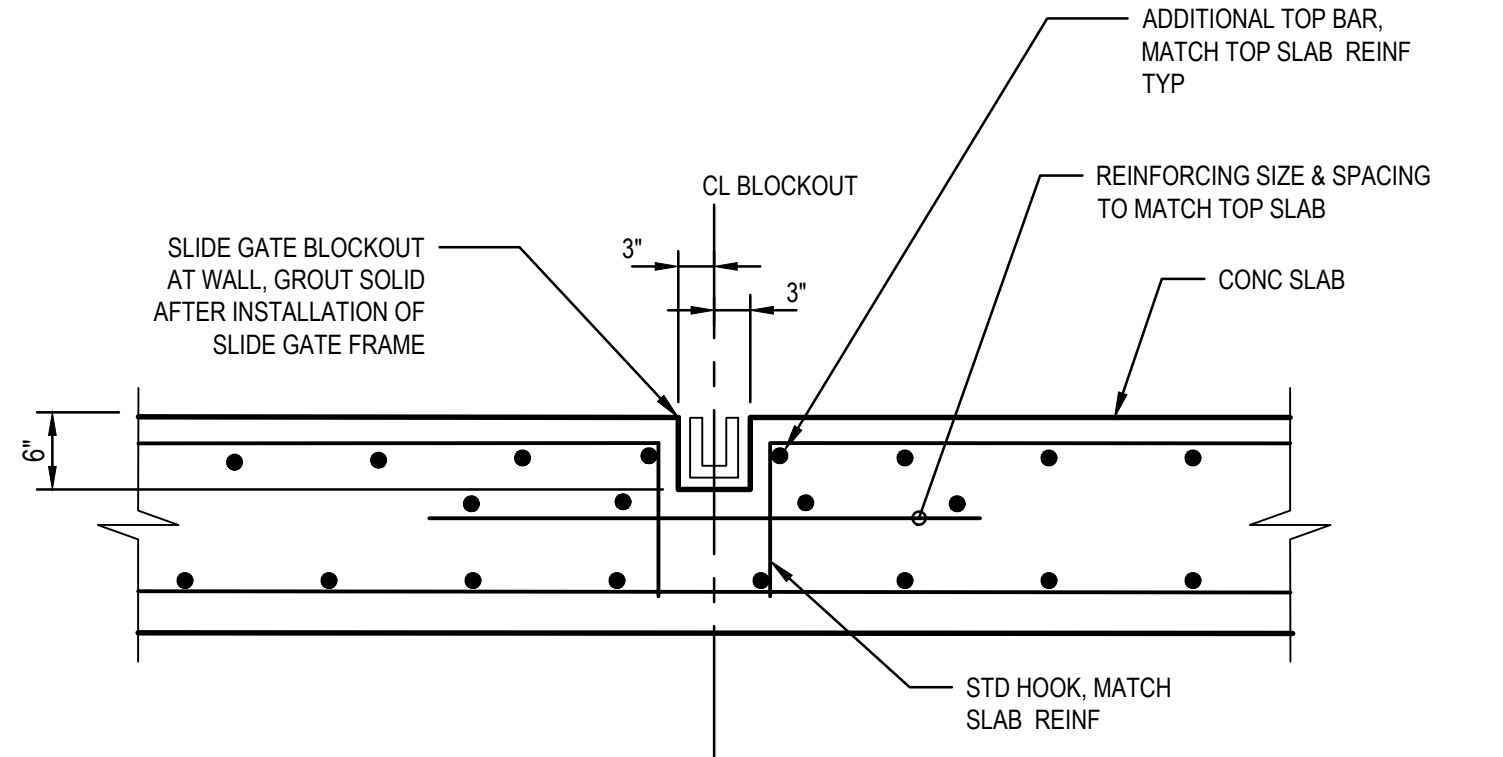
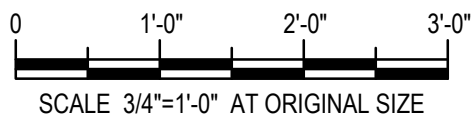
1 SLIDE GATE COLUMN BLOCKOUT AND FLOW DIVERSION CONE DETAIL

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



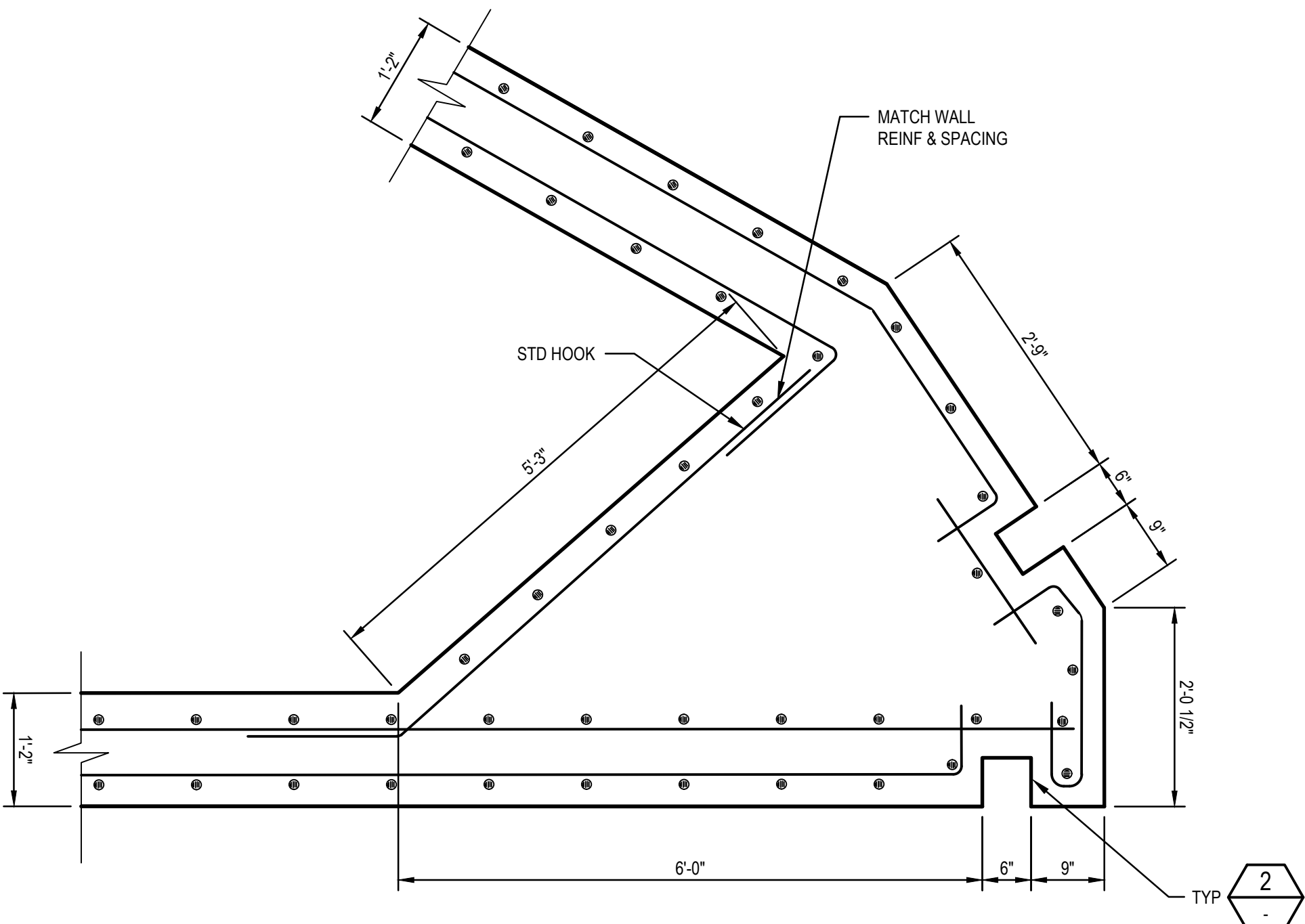
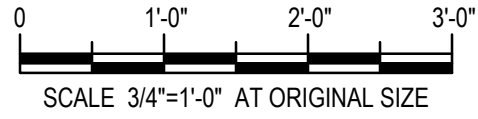
2 SLIDE GATE WALL BLOCKOUT DETAIL

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



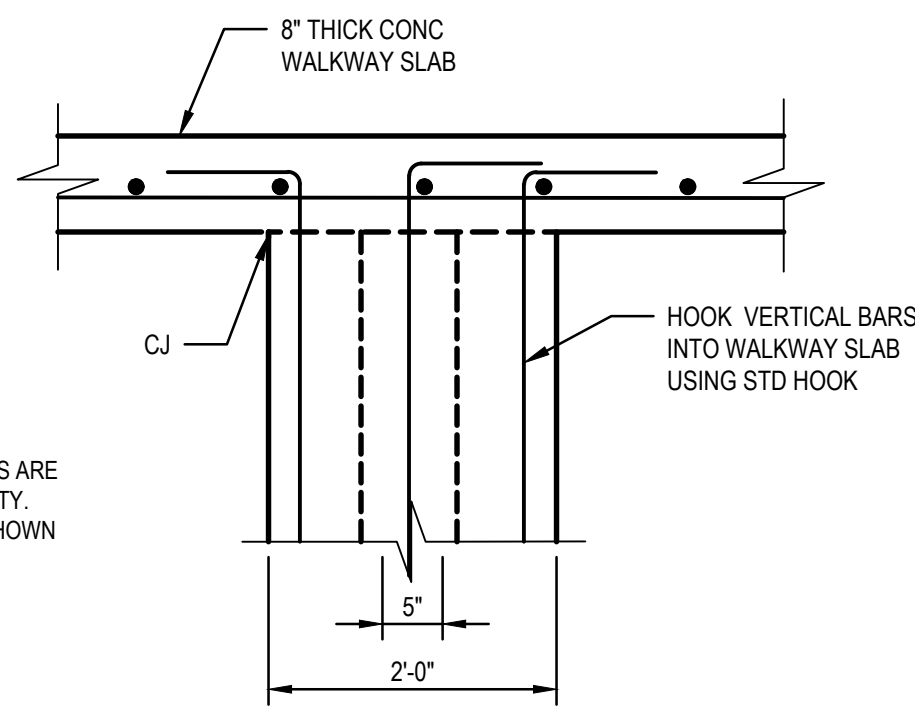
3 SLIDE GATE FLOOR BLOCKOUT DETAIL

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



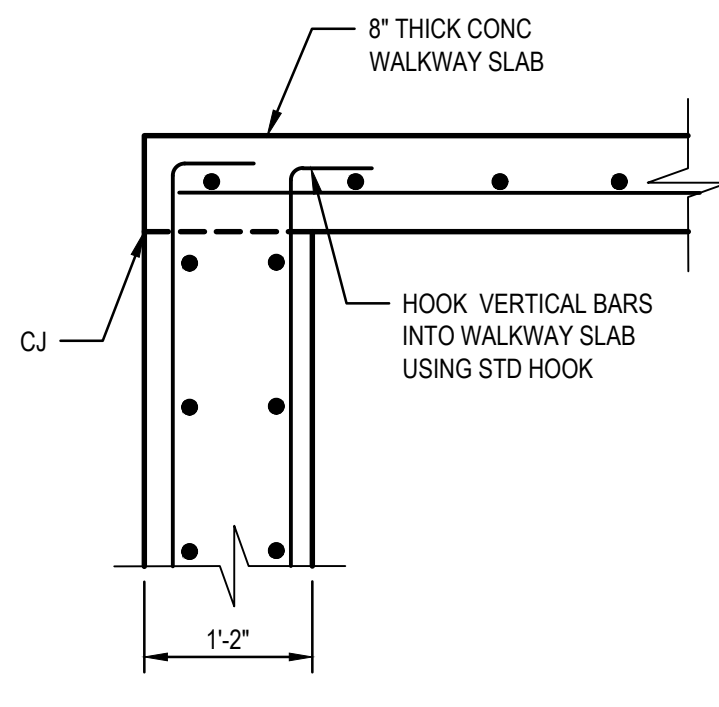
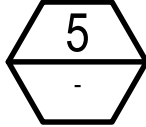
4 CONCRETE REINFORCING DETAIL

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



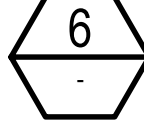
5 WALKWAY CONNECTION TO FLOW CONE

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



6 WALKWAY CONNECTION TO WALL

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



100% PLANS
ISSUED FOR:
APPROVAL

CONSULTANT:
 GHD Inc.
175 Technology Drive Suite 200
Irvine California 92618 USA
T 1 949 585 5200 F 1 949 648 5299 W www.ghd.com

ENGINEER'S SEAL

PLANS PREPARED BY:

COVER SHEET HAS BEEN SIGNED AND DATED
XX/XX/XXXX
PROJECT ENGINEER DATE

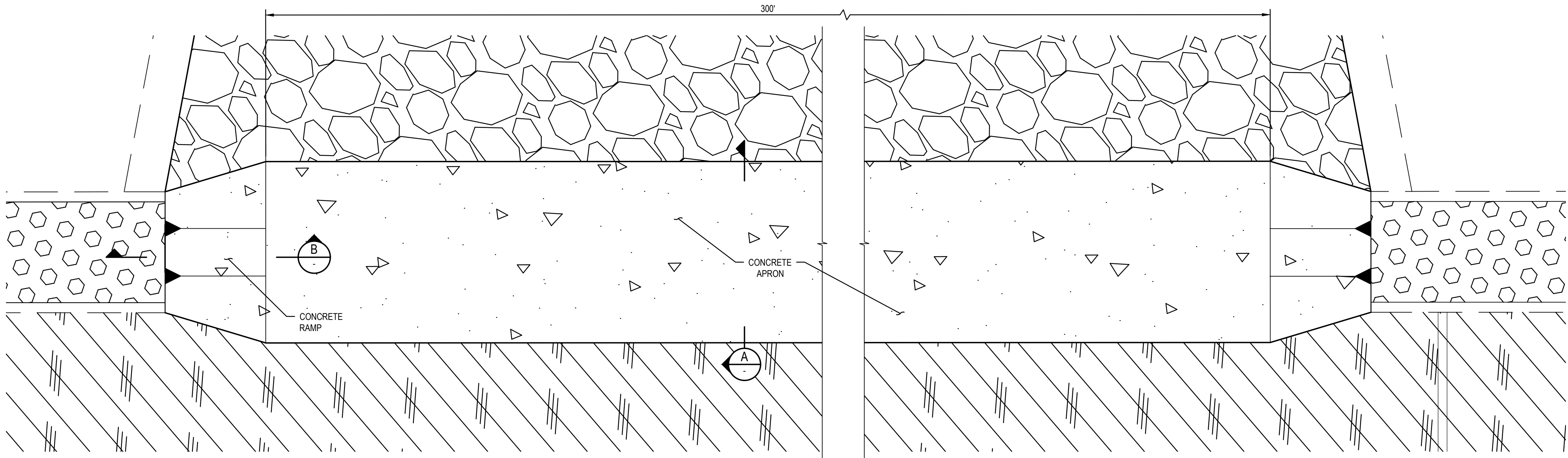
APPROVED BY:

COVER SHEET HAS BEEN SIGNED AND DATED
XX/XX/XXXX
SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT DATE

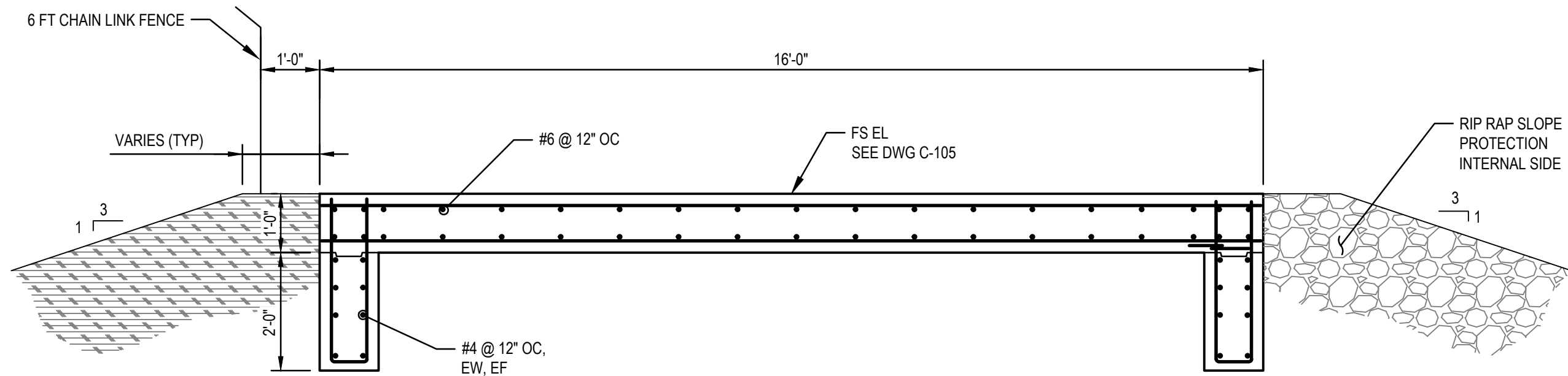
MARK	BY	DATE	REVISION

 SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT
380 EAST VANDERBILT WAY, SAN BERNARDINO, CA 92408
PHONE: (909) 387-9253 FAX: (909) 387-9247

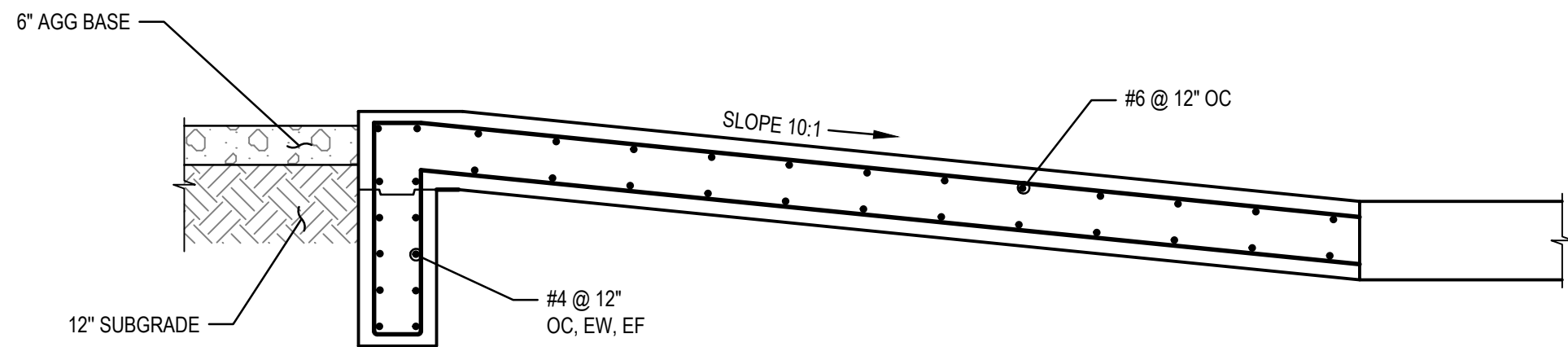
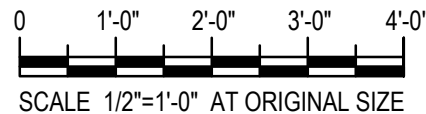
SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT			
DATE: XX/XX/XXXX	DESIGNED: SOG	DRAWN: MC/SJD	REVIEWED: NO
JOB NO:			
ENHANCED RECHARGE IN THE SANTA ANA RIVER BASIN PROJECT			
SPECIFICATION NO. 14-01			
SANDBOX DIVERSION STRUCTURE			
SLIDE GATE DETAILS			
SCALE: AS SHOWN	DWG: S-104	SHT. 35 OF 68	DRAWING NO.



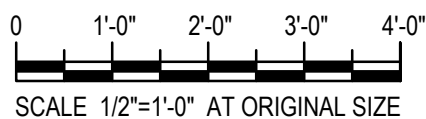
1 STRUCTURAL PLAN - NORTH ROAD CONCRETE APRON ENLARGED PLAN
SCALE: 1" = 10'-0"



A SECTION - CONCRETE APRON
SCALE: 1/2" = 1'-0"



B SECTION - TYPICAL CONCRETE RAMP
SCALE: 1/2" = 1'-0"



100% PLANS
ISSUED FOR: APPROVAL

CONSULTANT:
GHD
GHD Inc.
175 Technology Drive Suite 200
Irvine California 92618 USA
T 1 949 585 5200 F 1 949 648 5299 W www.ghd.com

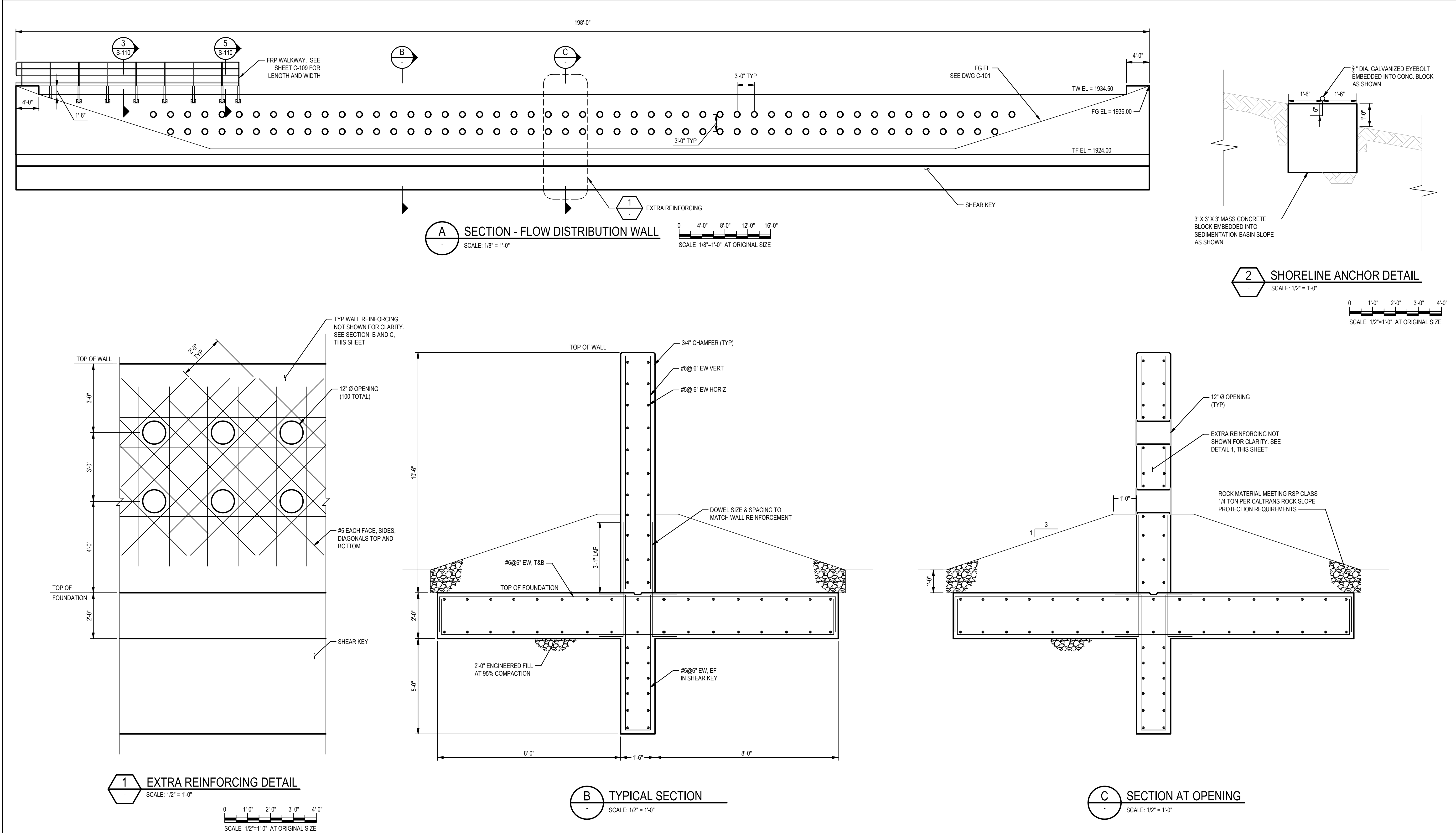
ENGINEER'S SEAL

PLANS PREPARED BY:
COVER SHEET HAS BEEN SIGNED AND DATED
XX/XX/XXXX
PROJECT ENGINEER
DATE
APPROVED BY:
COVER SHEET HAS BEEN SIGNED AND DATED
XX/XX/XXXX
SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT
DATE

MARK	BY	DATE	REVISION

Valley SAN BERNARDINO
MUNICIPAL
WATER DISTRICT
380 EAST VANDERBILT WAY, SAN BERNARDINO, CA 92408
PHONE: (909) 387-9253 FAX: (909) 387-9247

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT
DATE: XX/XX/XXXX
DESIGNED: SOG DRAWN: MC/SJD
REVIEWED: NO
JOB NO:
SPECIFICATION NO. 14-01
SEDIMENTATION BASIN
CONCRETE APRON
SECTION AND DETAILS
SCALE: AS SHOWN
DWG: S-105
SHT. 36 OF 68 SHTS.
DRAWING NO.



100% PLANS

ISSUED FOR: APPROVAL

CONSULTANT:

GHD Inc.
175 Technology Drive Suite 200
Irvine California 92618 USA
T 1 949 585 5200 F 1 949 648 5299 W www.ghd.com

ENGINEER'S SEAL

PLANS PREPARED BY:

COVER SHEET HAS BEEN SIGNED AND DATED
XX/XX/XXXX
PROJECT ENGINEER DATE

APPROVED BY:

COVER SHEET HAS BEEN SIGNED AND DATED
XX/XX/XXXX
SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT DATE

MARK	BY	DATE	REVISION

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT
380 EAST VANDERBILT WAY, SAN BERNARDINO, CA 92408
PHONE: (909) 387-9253 FAX: (909) 387-9247

DATE: XX/XX/XXXX
DESIGNED: SOG
DRAWN: MC/SJD
REVIEWED: NO
JOB NO:

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

ENHANCED RECHARGE IN THE SANTA ANA RIVER BASIN PROJECT
SPECIFICATION NO. 14-01
FLOW DISTRIBUTION WALL DETAILS

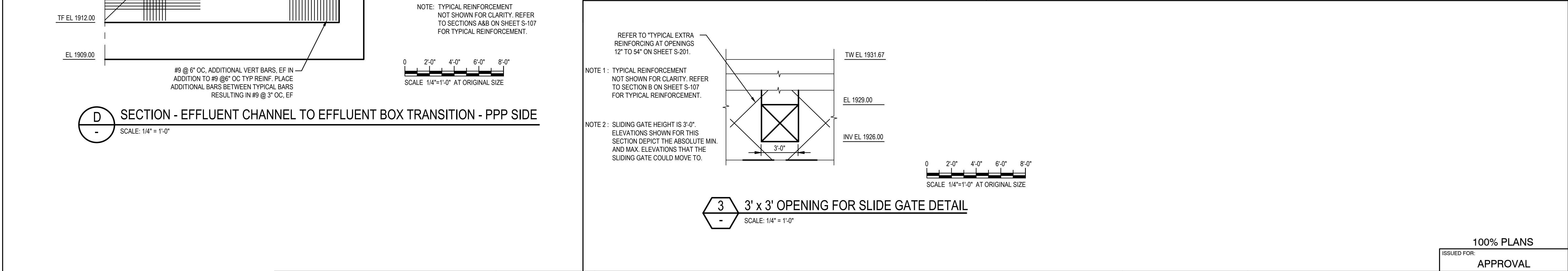
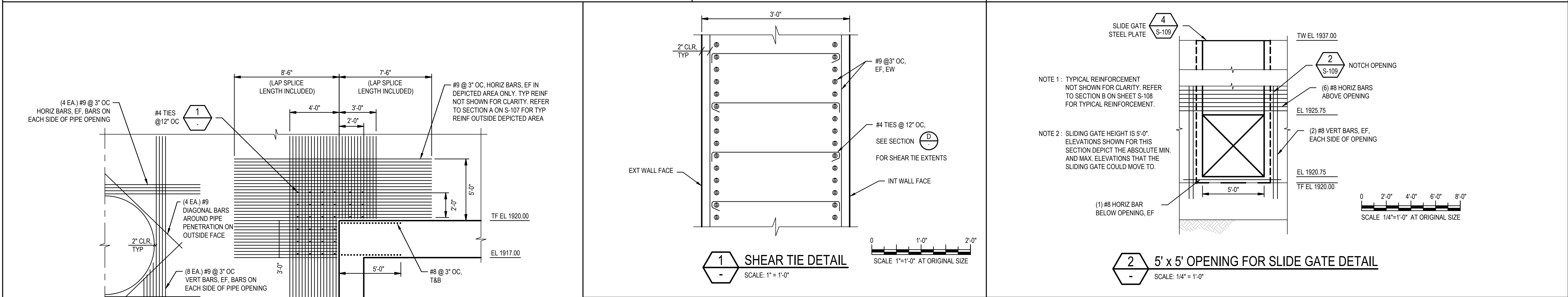
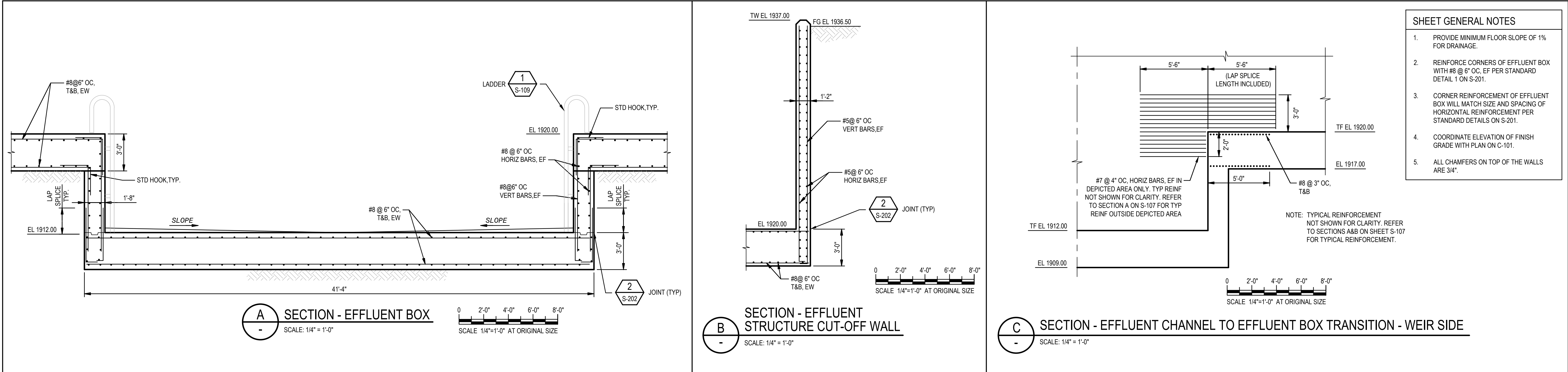
SCALE: AS SHOWN
DWG: S-106
SHT. 37 OF 68 SHTS.
DRAWING NO.

Plot Date: 3 February 2017 - 5:00 PM

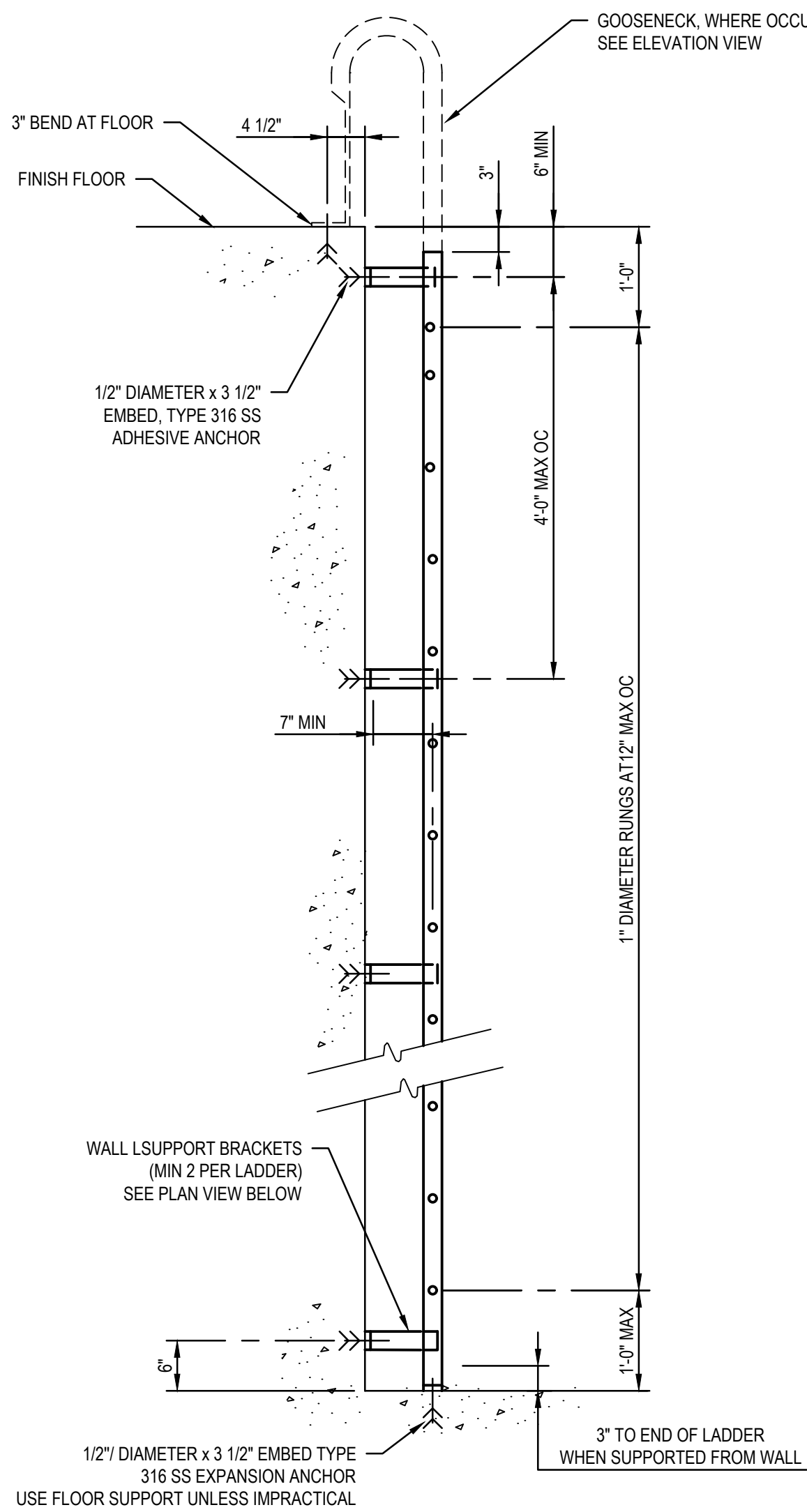
Plotted by: Andrew Cole

Cad File No: N:\US\Irvine\Projects\111\11109160\CAD\Sheets\Structural\11109160-S-106.dwg

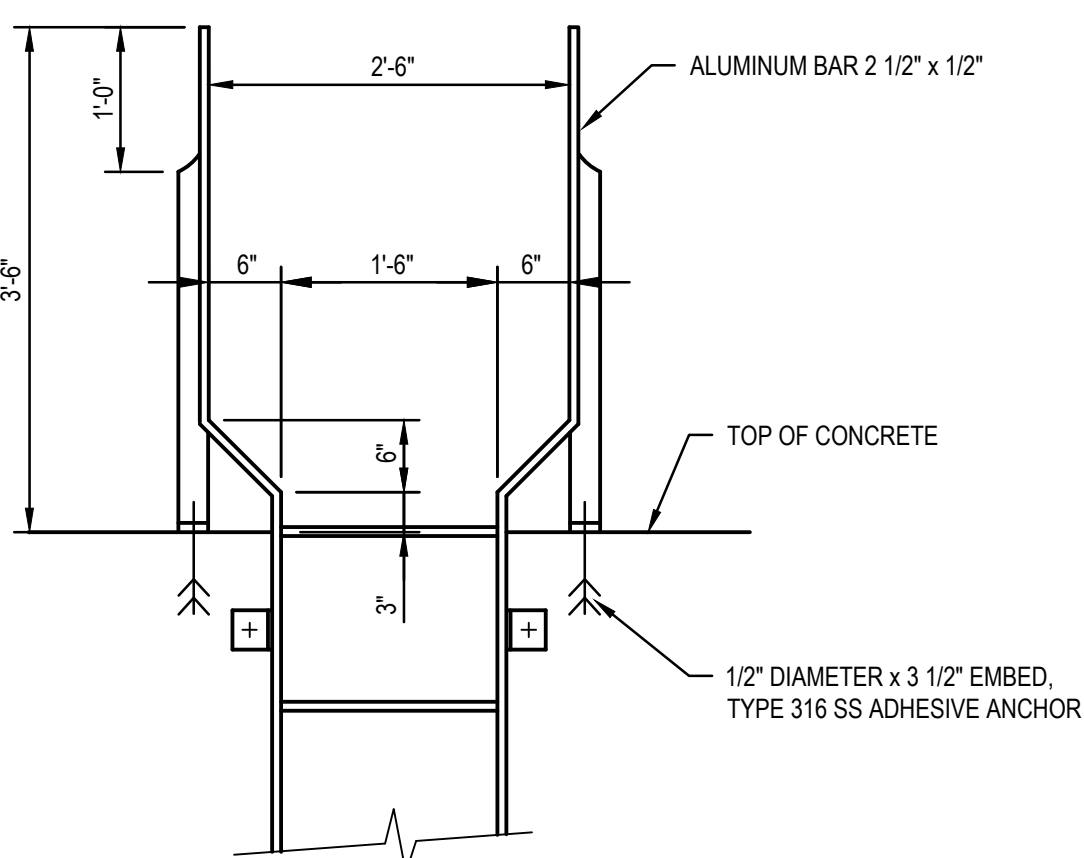
ORIGINAL SIZE : 22"x34"



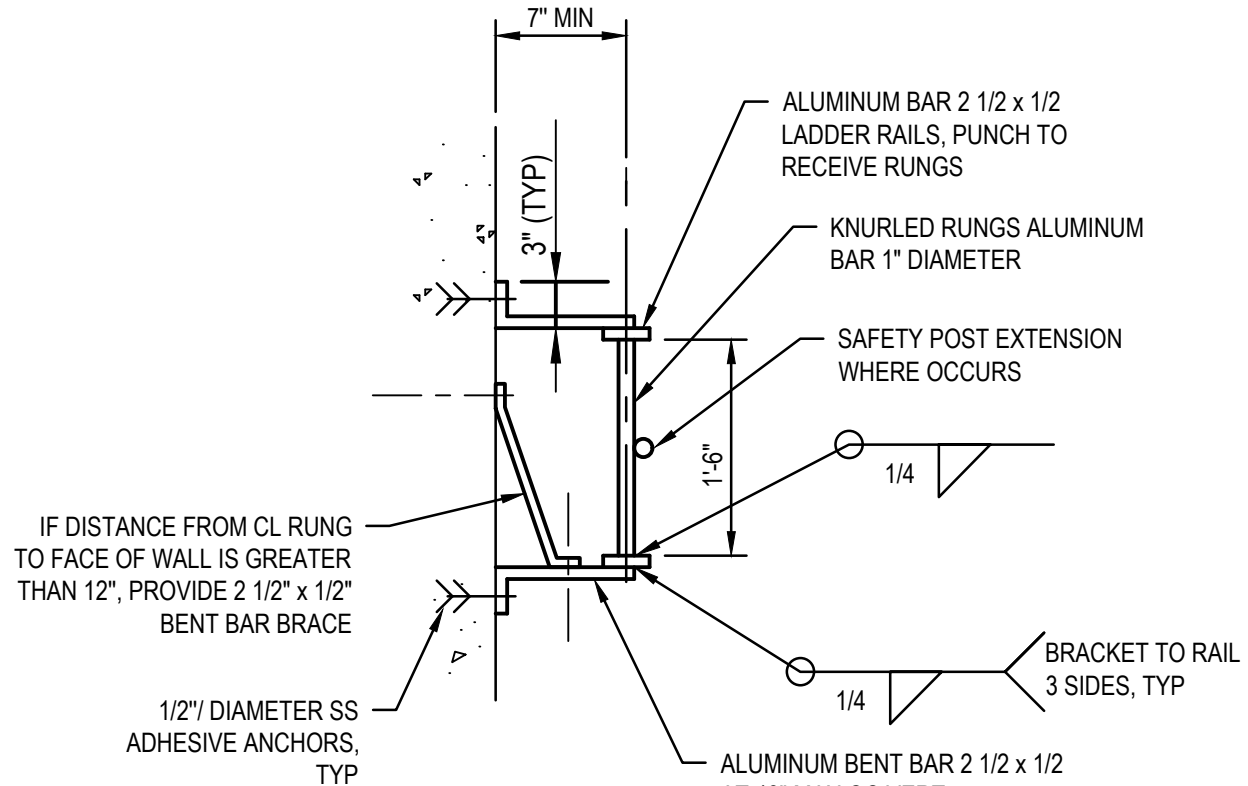
CONSULTANT:		ENGINEER'S SEAL		PLANS PREPARED BY:																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								</	
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LADDER AT WALL SECTION



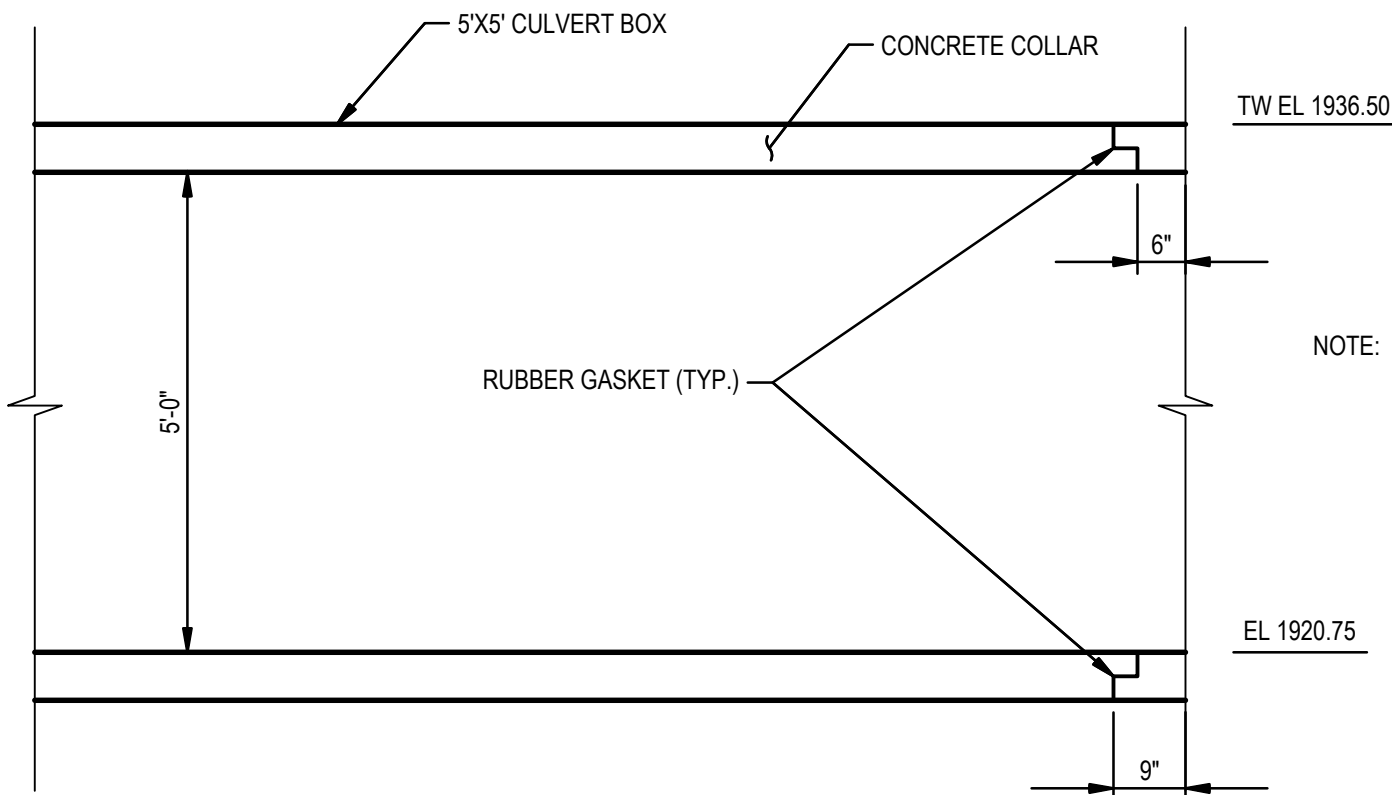
LADDER - ELEVATION VIEW



LADDER - PLAN VIEW

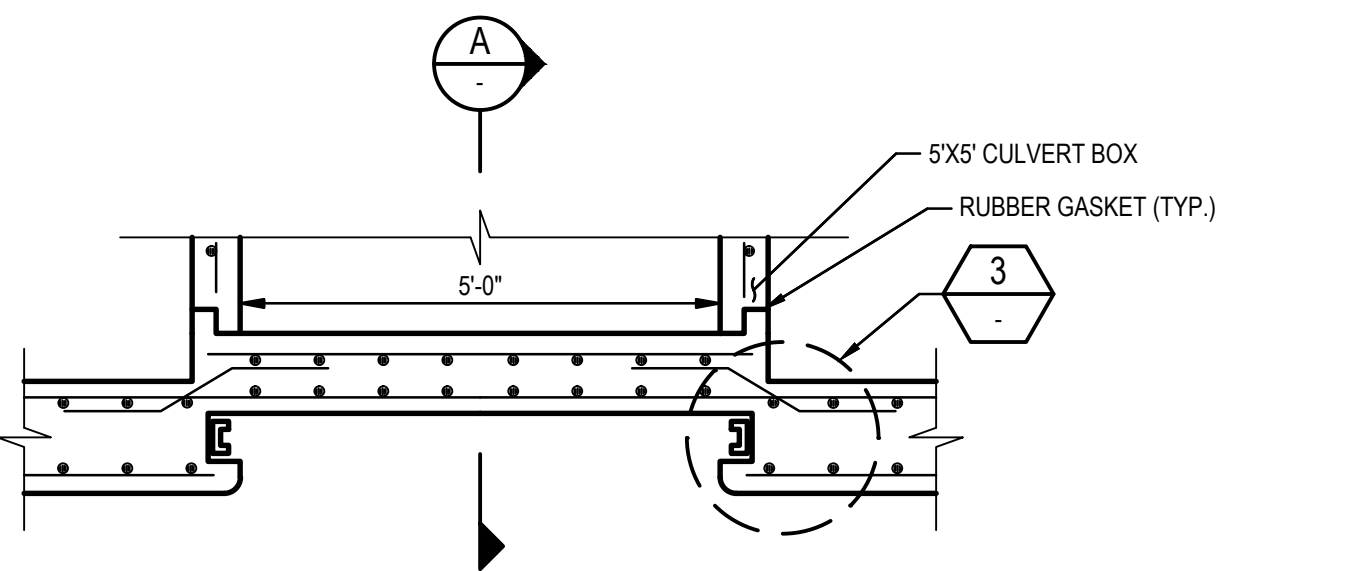
NOTE:
ALUMINUM SHOWN. FRP SIMILAR AND
SHALL BE DESIGNED BY FRP
MANUFACTURER PER SPECIFICATION 05520.

1 INTERIOR LADDER DETAIL
SCALE: 3/4" = 1'-0"



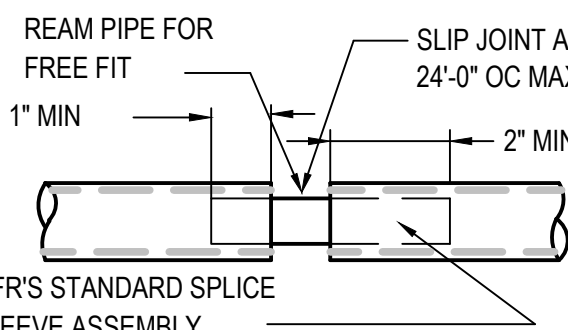
A SECTION - 5' X 5' SLIDE GATE TO RCB
SCALE: 1/2" = 1'-0"

SCALE: 1/2"=1'-0" AT ORIGINAL SIZE

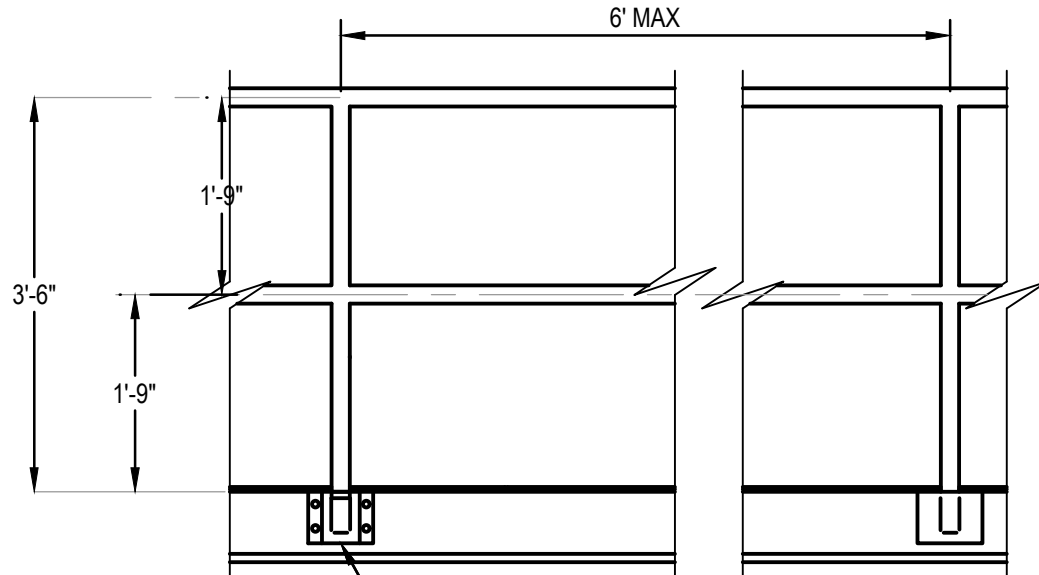


2 NOTCH OPENING DETAIL
SCALE: 1/2" = 1'-0"

SCALE: 1/2"=1'-0" AT ORIGINAL SIZE



RAIL SLIP JOINT

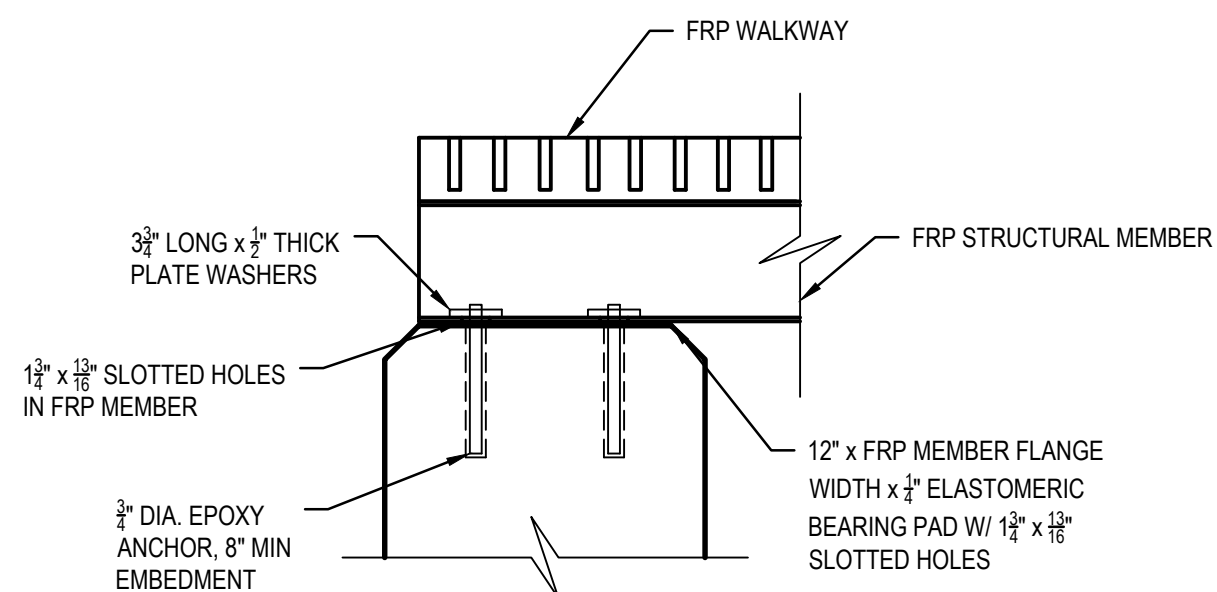


WALKWAY HANDRAIL ELEVATION

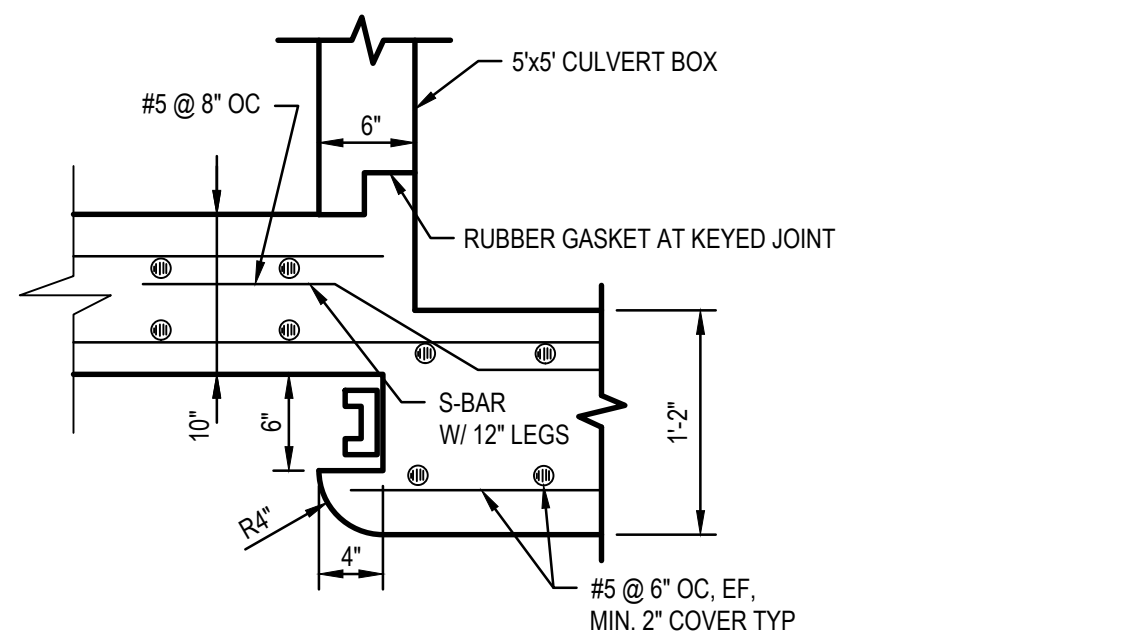
NOTE:

1. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS

5 HANDRAIL DETAIL
SCALE: NTS

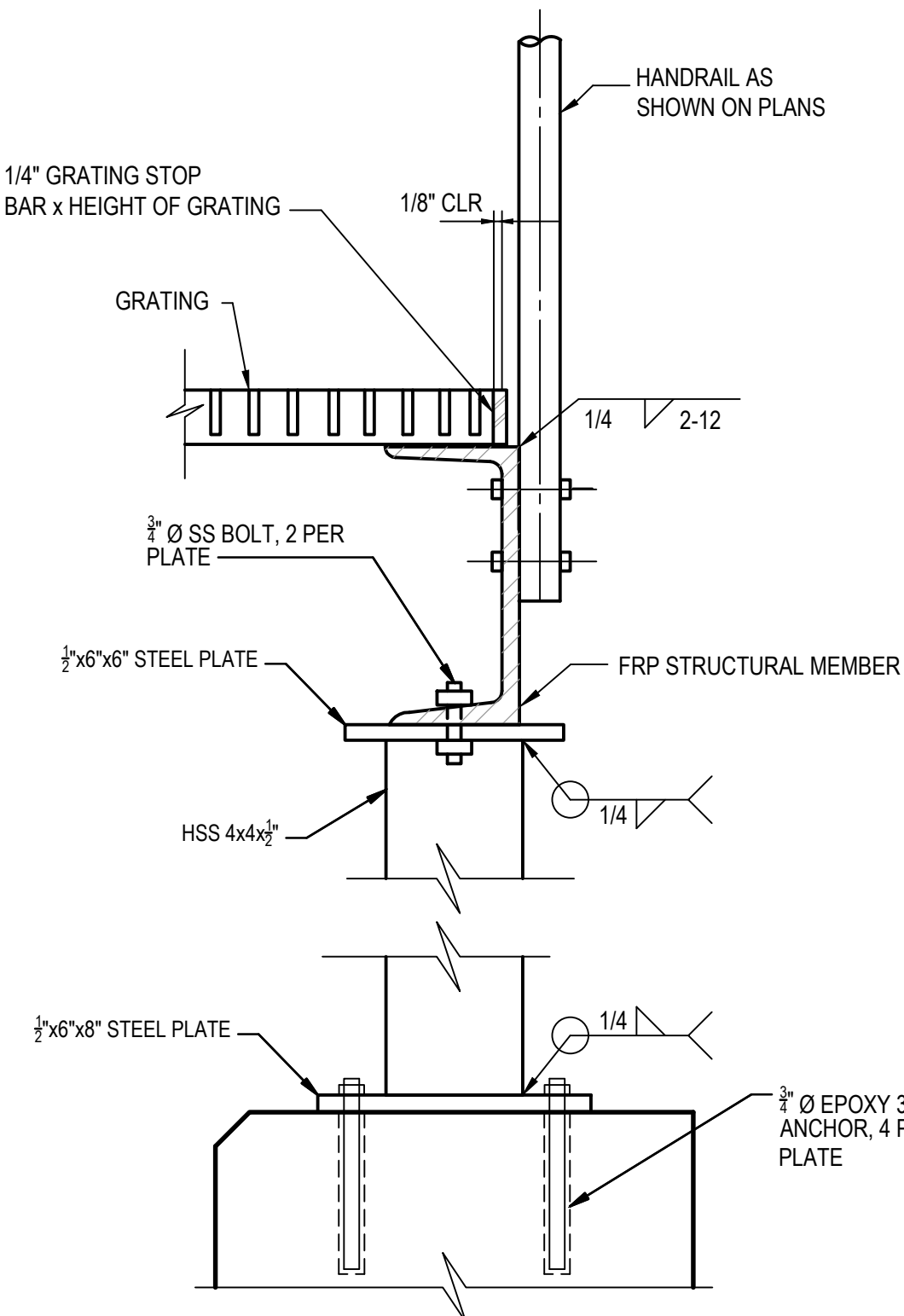


7 WALKWAY CONNECTION TO PPP WALL
SCALE: NTS



3 NOTCH DETAIL
SCALE: 1" = 1'-0"

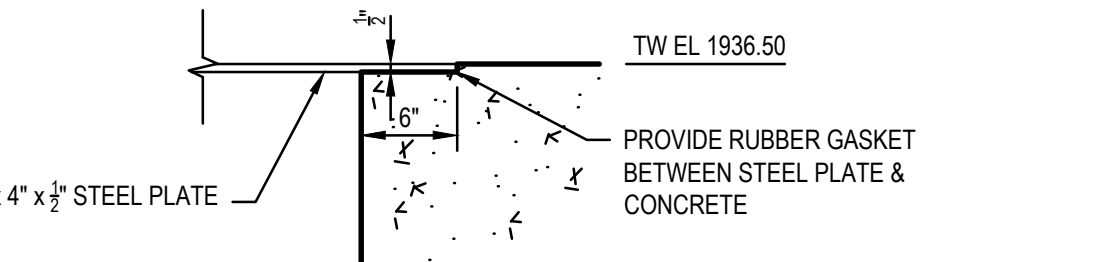
SCALE: 1"=1'-0" AT ORIGINAL SIZE



NOTES:

- GRATING STOP SHALL BE INSTALLED ON ALL GRATING PLATFORMS AND LANDINGS AND SHALL BE CONTINUOUS ON ALL SIDES OF PLATFORMS NOT OTHERWISE COVERED BY A REBATE, SEAT OR OTHER SIMILAR DETAIL.
- GRATING STOP SHALL BE FRP.

6 WALKWAY POST CONNECTION
SCALE: NTS



4 STEEL PLATE DETAIL
SCALE: 1" = 1'-0"

SCALE: 1"=1'-0" AT ORIGINAL SIZE

100% PLANS

ISSUED FOR:
APPROVAL

CONSULTANT:
GHD Inc.
175 Technology Drive Suite 200
Irvine California 92618 USA
T 1 949 585 5200 F 1 949 648 5299 W www.ghd.com

ENGINEER'S SEAL

PLANS PREPARED BY:

COVER SHEET HAS BEEN SIGNED AND DATED
XX/XX/XXXX
PROJECT ENGINEER DATE

APPROVED BY:

COVER SHEET HAS BEEN SIGNED AND DATED
XX/XX/XXXX
SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT DATE

MARK BY DATE REVISION

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT
380 EAST VANDERBILT WAY, SAN BERNARDINO, CA 92408
PHONE: (909) 387-9253 FAX: (909) 387-9247

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT
DATE: XX/XX/XXXX
DESIGNED: SOG DRAWN: MC/SJD
REVIEWED: NO
JOB NO:
ENHANCED RECHARGE IN THE SANTA ANA RIVER BASIN PROJECT
SPECIFICATION NO. 14-01
EFFLUENT STRUCTURE
MISCELLANEOUS DETAILS
SCALE: AS SHOWN
DWG: S-109
SHT. 40 OF 68 SHTS.
DRAWING NO.

CROSS SECTION - THROUGH BOX

DETAIL NOTES

1. BOX CULVERT TO BE DESIGNED AND DETAILED BY PRECAST MANUFACTURER.

1 5'x5' REINFORCED CONCRETE BOX CULVERT

Technical drawing showing a side view and a front view of a FRP walkway assembly. The side view shows a vertical structure with a top section of 3'-6" height, a middle section of 1'-6" height, and a bottom section of 2'-4" MAX height. The width is labeled as WIDTH PER SHEET C-109. The front view shows a rectangular structure with a width of 2'-4" MAX. Callouts point to various components: 1-1/2" FRP GUARDRAIL, 1/2" FRP TOE PLATE, 2" THICK FRP GRATING, FRP WALKWAY, FRP SUPPORT BRACE, and MOUNTING BRACKET.

1-1/2" FRP GUARDRAIL AROUND ENTIRE PERIMETER OF WALKWAY EXCEPT AT WALKWAY ENTRANCE AT ROAD.

1/2" FRP TOE PLATE AROUND ENTIRE PERIMETER OF WALKWAY EXCEPT AT WALKWAY ENTRANCE

2" THICK FRP GRATING. STRONGWELL DURADEK PULTRUDED T-SHAPE FRP GRATING OR APPROVED EQUAL. BOLT GRATING TO FRP WALKWAY USING MINIMUM (2) 3/8" 316 SS BOLTS AT EACH WALKWAY SUPPORT. PROVIDE OPENINGS IN GRATING FOR STILLING WELLS PER SHEET C-109.

PROVIDE AND INSTALL FRP WALKWAY. WITH SUPPORTS AT 5FT OC MAX. WALKWAY SHALL BE DESIGNED AND MANUFACTURED BY STRONGWELL, INC. WWW.STRONGWELL.COM, OR APPROVED EQUAL. SUBMIT SHOP DRAWINGS FOR OWNER APPROVAL PRIOR TO FABRICATION.

FRP SUPPORT BRACE

MOUNTING BRACKET, TYP. ATTACH WALKWAY TO WALL USING MINIMUM (2) 1/2"x4" 316 SS WEDGE ANCHORS AT EACH MOUNTING BRACKET HILTI KWIK BOLT TZ OR APPROVED EQUAL.

4

FRP WALKWAY

CONTINUE GUARDRAIL FROM CONCRETE WALL ONTO PERIMETER OF WALKWAY. SIDE MOUNT TO WALKWAY PER DETAIL 2/S-203.

2" THICK FRP GRATING. STRONGWELL DURADEK PULTRUDED T-SHAPE FRP GRATING OR APPROVED EQUAL. BOLT GRATING TO FRP WALKWAY USING MINIMUM (4) 3/8" 316 SS BOLTS. PROVIDE OPENING IN GRATING FOR STILLING WELL PER SHEET C-106.

1/2" FRP TOE PLATE AROUND ENTIRE PERIMETER OF WALKWAY EXCEPT AT WALKWAY ENTRANCE

PROVIDE AND INSTALL FRP WALKWAY. WALKWAY SHALL BE DESIGNED AND MANUFACTURED BY STRONGWELL, INC. WWW.STRONGWELL.COM, OR APPROVED EQUAL. SUBMIT SHOP DRAWINGS FOR OWNER APPROVAL PRIOR TO FABRICATION.

SIZE PER SHEET C-106

2'-0" ABOVE WALKWAY

3'-0" MAX

FRP SUPPORT BRACE

MOUNTING BRACKET, TYP OF 4. ATTACH WALKWAY TO TOP OF WALL USING MINIMUM (2) 1/2"x4" 316 SS WEDGE ANCHORS AT EACH MOUNTING BRACKET. HIKTI KWIK BOLT TZ OR APPROVED EQUAL.

STILLING WELL PER SHEET I-006.

2'-0"

EQ

3'-6"

2'-6" ABOVE WALKWAY

WIDTH PER SHEET C-109

1'-6"

2'-4" MAX

STILLING WELL PER SHEET I-006 TYP OF 2

1-1/2" FRP GUARDRAIL AROUND ENTIRE PERIMETER OF WALKWAY EXCEPT AT WALKWAY ENTRANCE AT ROAD.

1/2" FRP TOE PLATE AROUND ENTIRE PERIMETER OF WALKWAY EXCEPT AT WALKWAY ENTRANCE

2" THICK FRP GRATING - STRONGWELL DURADEK PULTRUDED T-SHAPE FRP GRATING OR APPROVED EQUAL. BOLT GRATING TO FRP WALKWAY USING MINIMUM (2) 3/8" 316 SS BOLTS AT EACH WALKWAY SUPPORT. PROVIDE OPENINGS IN GRATING FOR STILLING WELLS PER SHEET C-109.

PROVIDE AND INSTALL FRP WALKWAY. WITH SUPPORTS AT 5FT OC MAX. WALKWAY SHALL BE DESIGNED AND MANUFACTURED BY STRONGWELL, INC. WWW.STRONGWELL.COM, OR APPROVED EQUAL. SUBMIT SHOP DRAWINGS FOR OWNER APPROVAL PRIOR TO FABRICATION.

FRP SUPPORT BRACE

MOUNTING BRACKET, TYP. ATTACH WALKWAY TO WALL USING MINIMUM (2) 1/2"x4" 316 SS WEDGE ANCHORS AT EACH MOUNTING BRACKET HILTI KWIK BOLT TZ OR APPROVED EQUAL.

100% PLANS

ISSUED FOR:

APPROVAL

CONSULTANT:



GHD Inc.
175 Technology Drive Suite 200
Irvine California 92618 USA
T 1 949 585 5200 **F** 1 949 648 5299 **W** www.ghd.com

ENGINEER'S SEAL

PLANS PREPARED BY:

COVER SHEET HAS BEEN SIGNED AND DATED
XX/XX/XXXX

APPROVED BY:

COVER SHEET HAS BEEN SIGNED AND DATED
XX/XX/XXXX

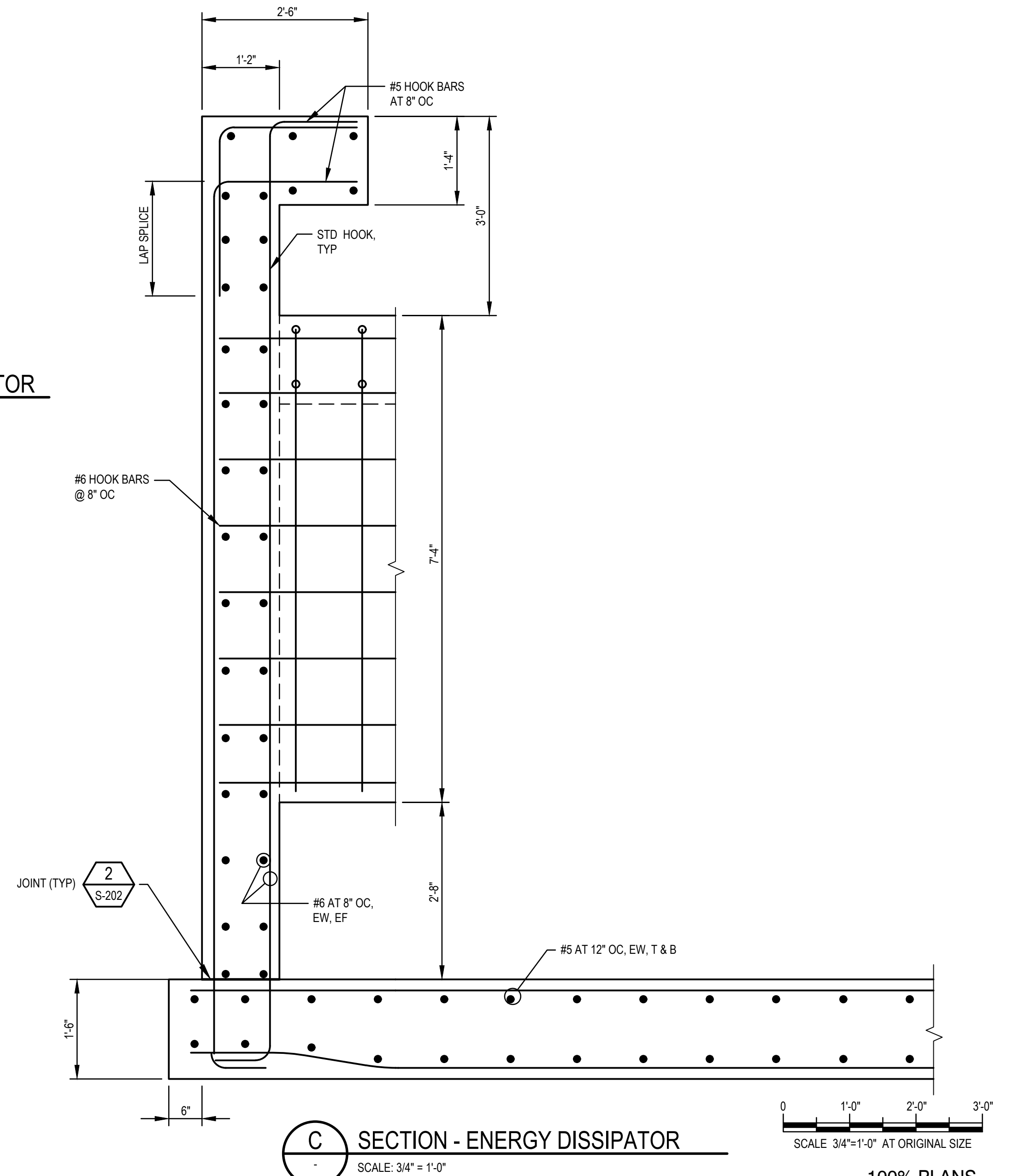
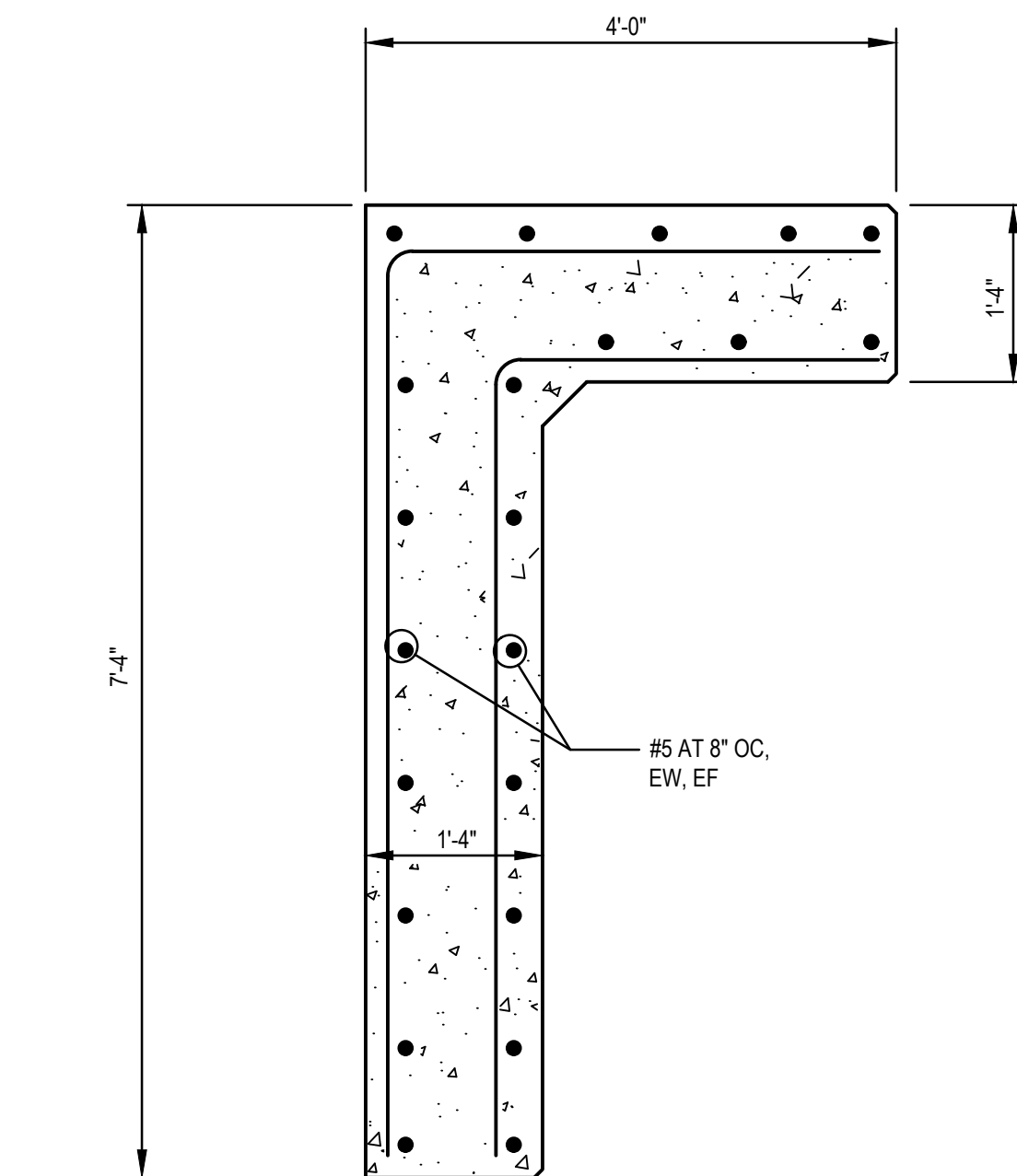
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SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

DATE: XX/XX/XXXX	
DESIGNED: SOG	DRAWN: MC/SJD
REVIEWED: NO	
JOB NO:	

ENHANCED RECHARGE IN THE SANTA ANA RIVER BASIN PROJECT
 SPECIFICATION NO. 14-01
 BOX CULVERT DETAILS

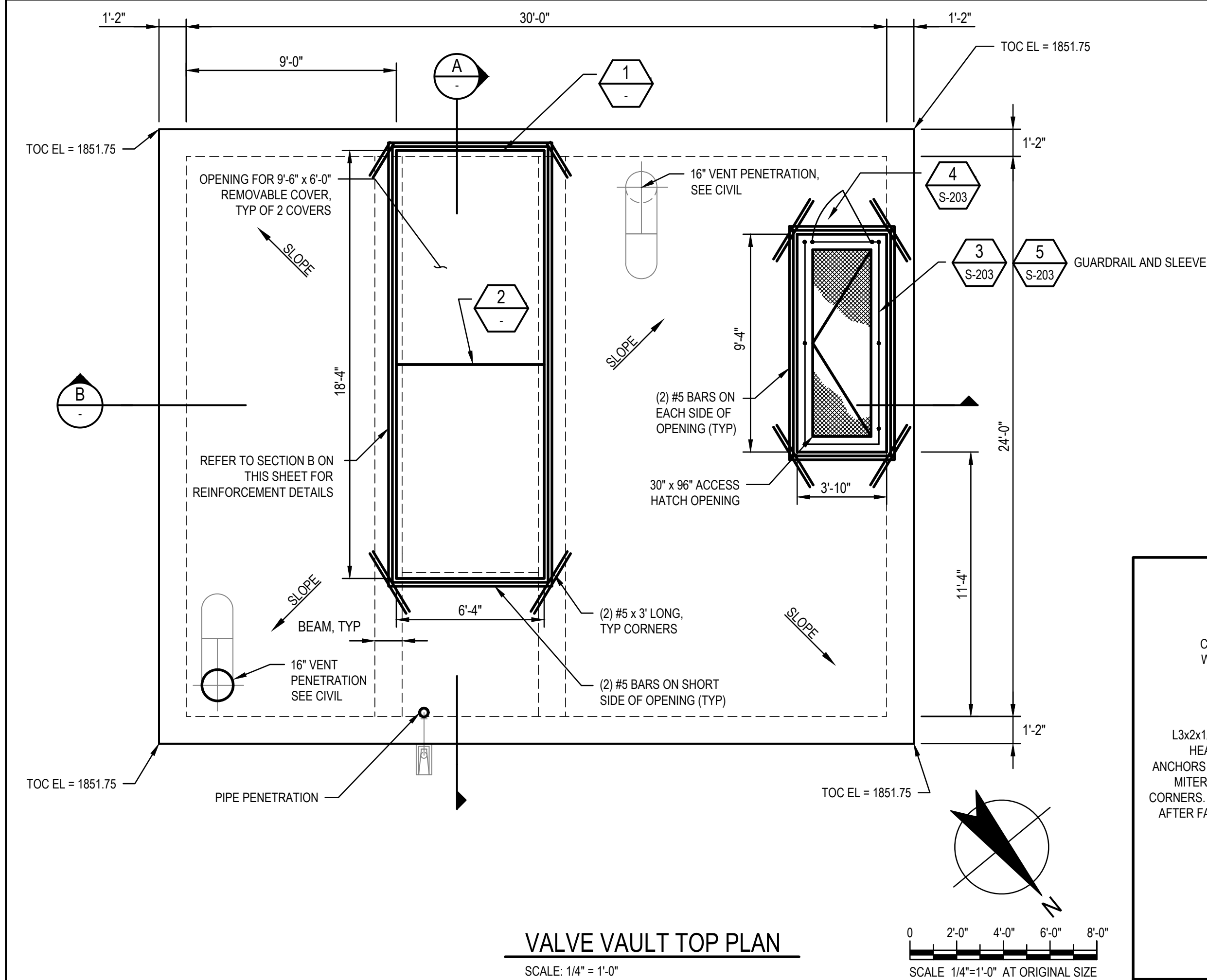
SCALE: AS SHOWN
DWG: S-110
T. 41 OF 68 SHTS.
DRAWING NO.



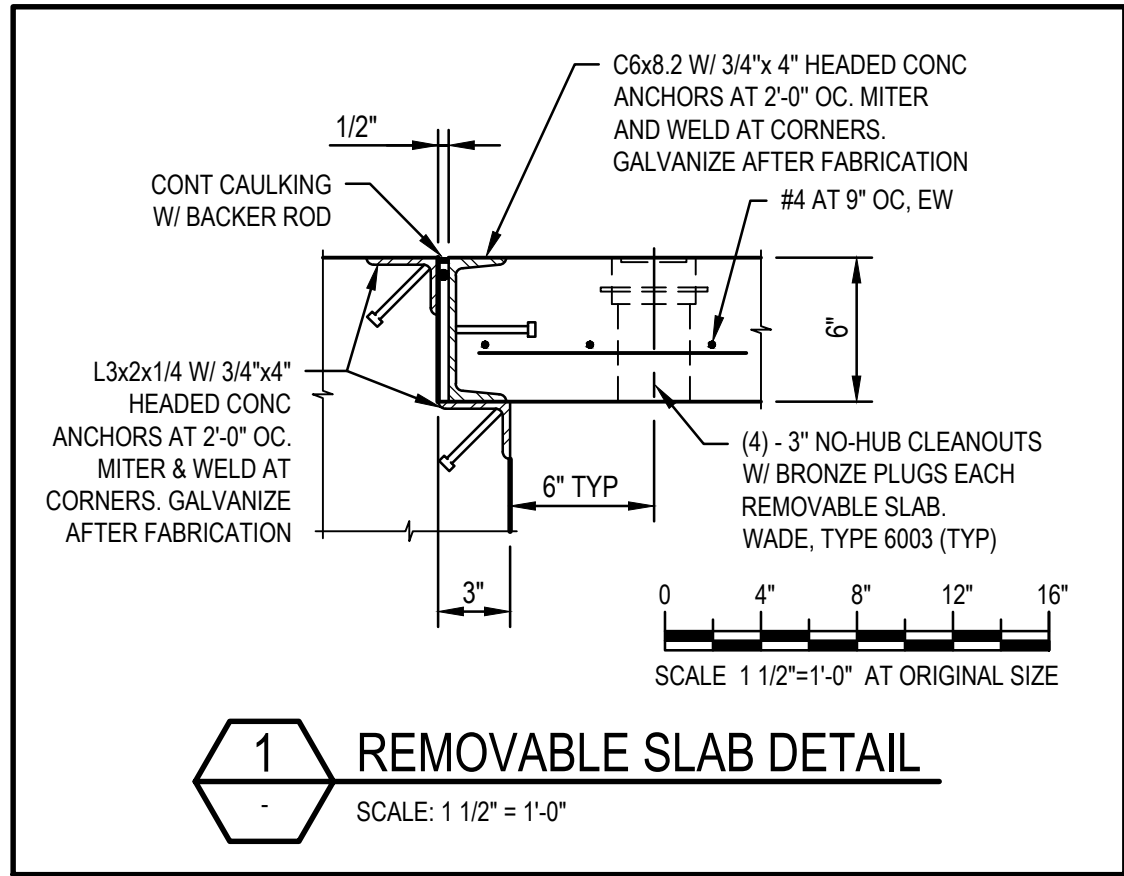
ISSUED FOR:

APPROVAL

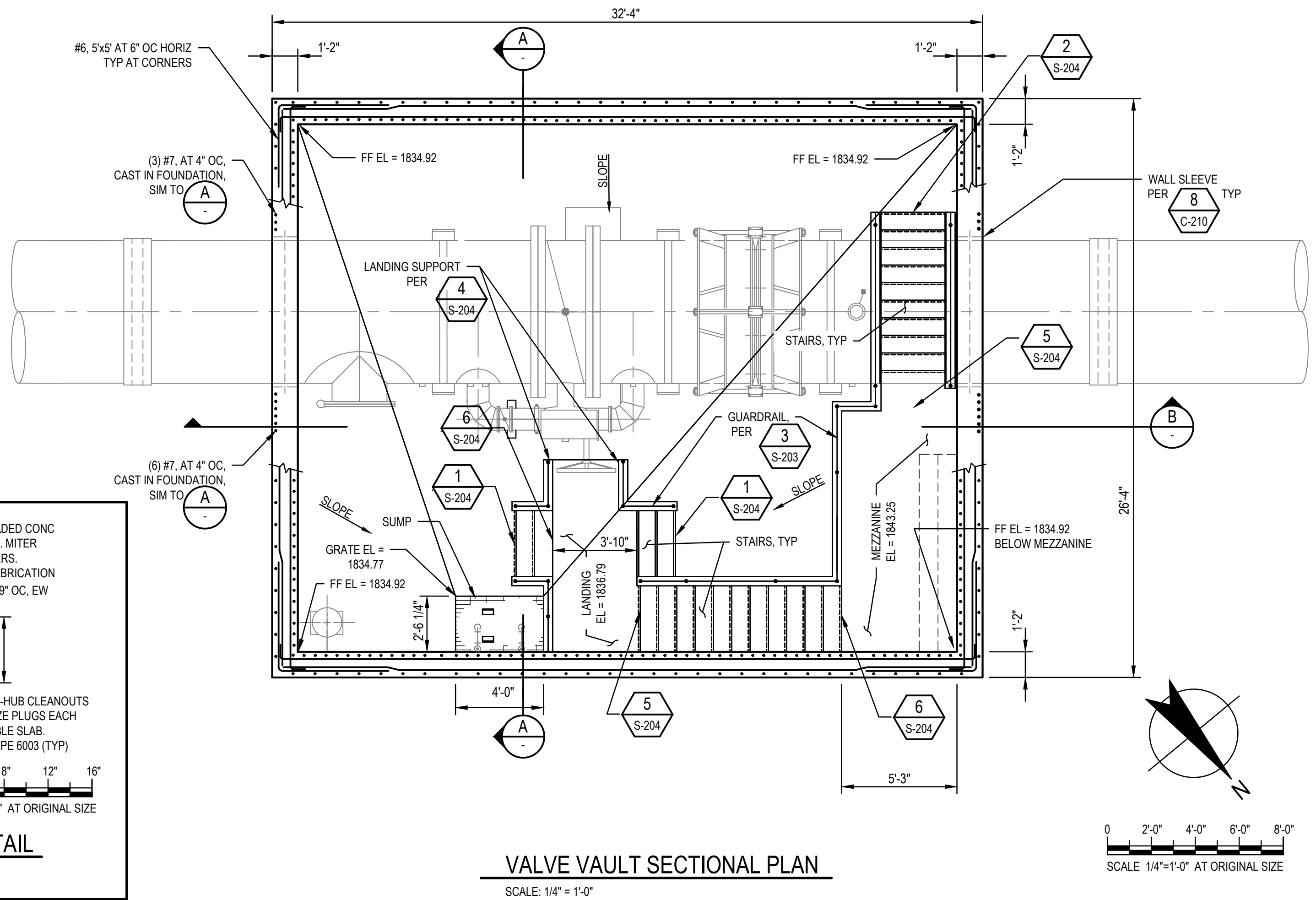
Plot Date: 3 February 2017 - 5:01 PM Plotted by: Andrew Cole Cad File No: N:\US\Irvine\Projects\111\11109160\CAD\Sheets\Structural\11109160-S-111.dwg ORIGINAL Size : 22"x34"



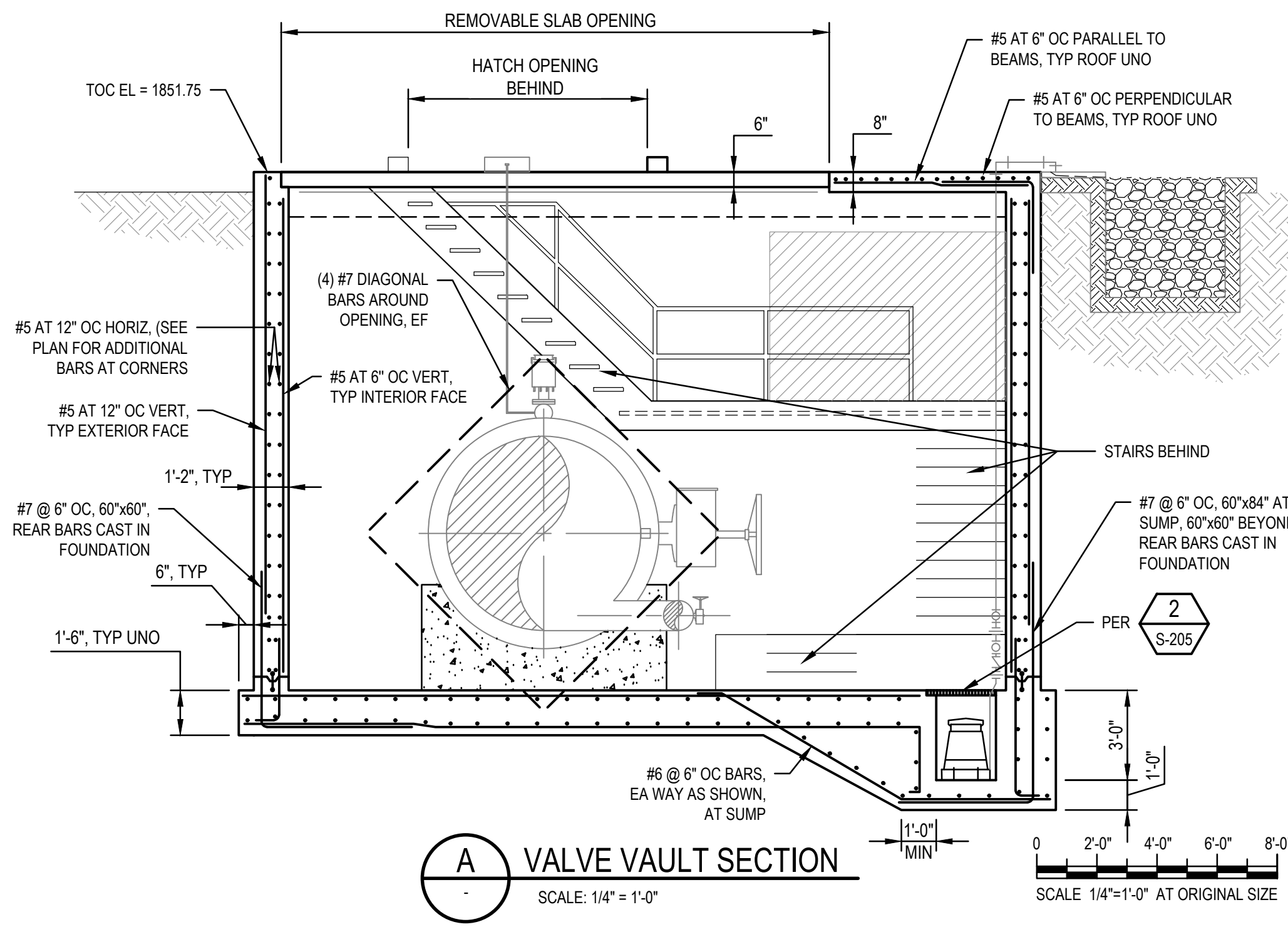
VALVE VAULT TOP PLAN
SCALE: 1/4" = 1'-0"



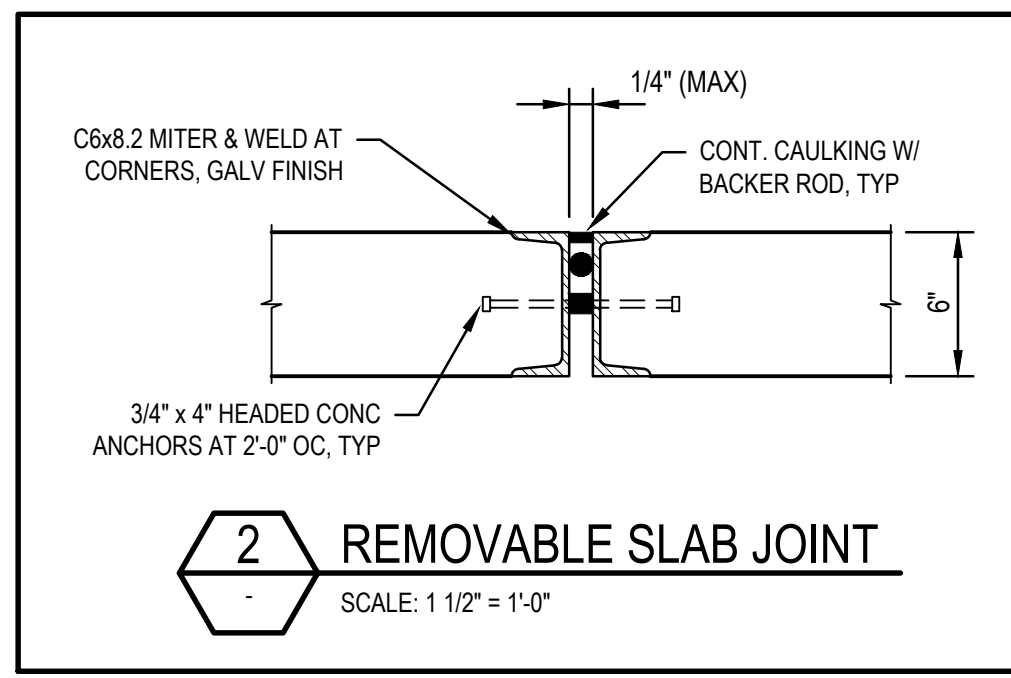
1 REMOVABLE SLAB DETAIL
SCALE: 1 1/2" = 1'-0"



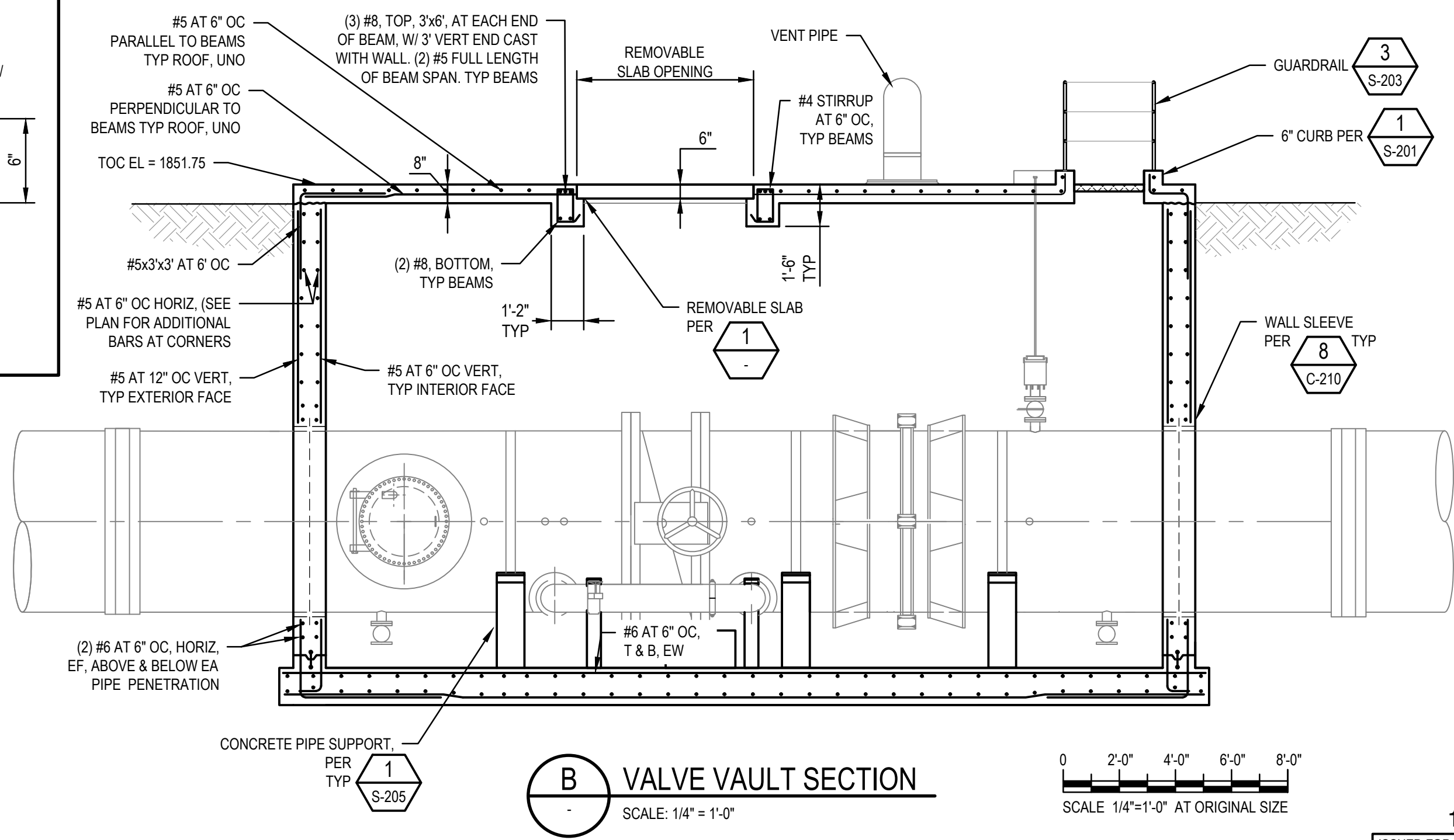
VALVE VAULT SECTIONAL PLAN
SCALE: 1/4" = 1'-0"



A VALVE VAULT SECTION
SCALE: 1/4" = 1'-0"



2 REMOVABLE SLAB JOINT
SCALE: 1 1/2" = 1'-0"



B VALVE VAULT SECTION
SCALE: 1/4" = 1'-0"

CONSULTANT:
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ENGINEER'S SEAL

PLANS PREPARED BY:

COVER SHEET HAS BEEN SIGNED AND DATED
XX/XX/XXXX
PROJECT ENGINEER DATE

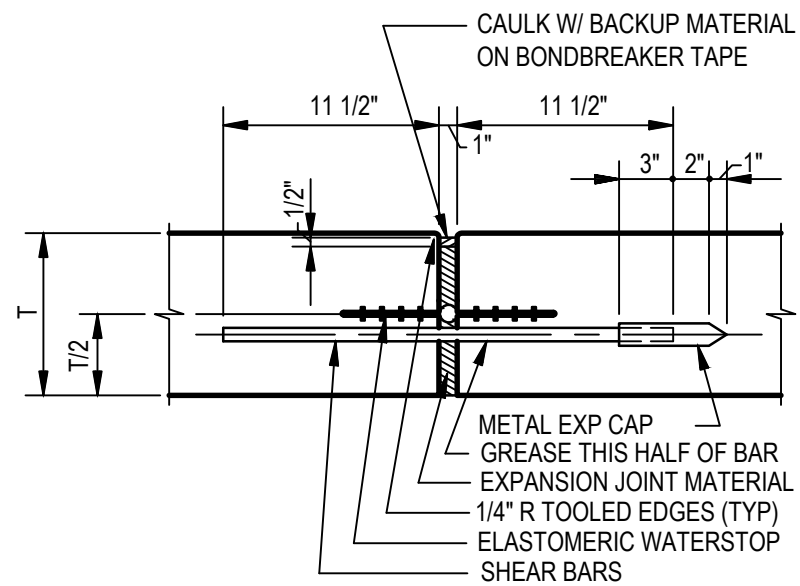
APPROVED BY:

COVER SHEET HAS BEEN SIGNED AND DATED
XX/XX/XXXX
SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT DATE

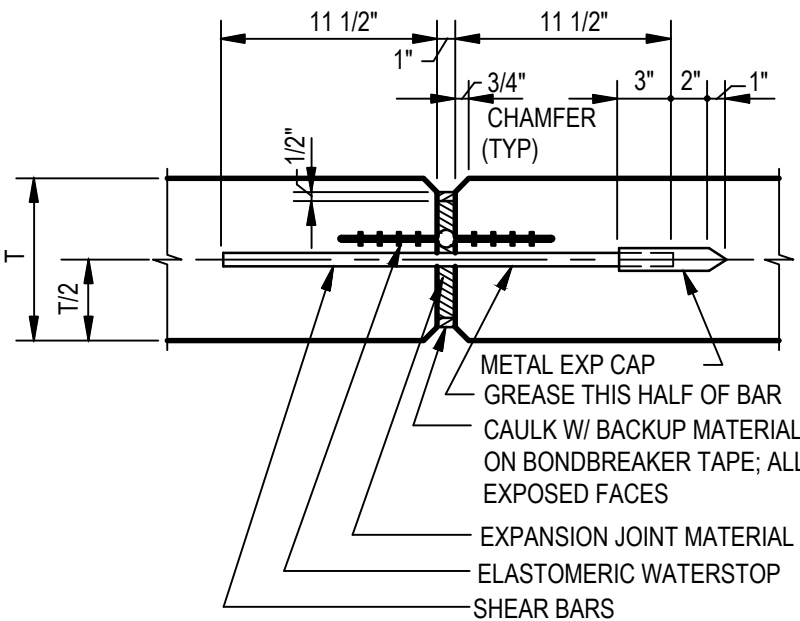
MARK BY DATE REVISION

Valley SAN BERNARDINO
MUNICIPAL
WATER DISTRICT
380 EAST VANDERBILT WAY, SAN BERNARDINO, CA 92408
PHONE: (909) 387-9253 FAX: (909) 387-9247

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT
DATE: XX/XX/XXXX
DESIGNED: SOG
DRAWN: MC/SJD
REVIEWED: NO
JOB NO:
100% PLANS
ISSUED FOR: APPROVAL
ENHANCED RECHARGE IN THE SANTA ANA RIVER BASIN PROJECT
SPECIFICATION NO. 14-01
PLUNGE POOL PIPELINE
VALVE VAULT PLANS AND SECTIONS
SCALE: AS SHOWN
DWG: S-112
SHT. 43 OF 68 SHTS.
DRAWING NO.



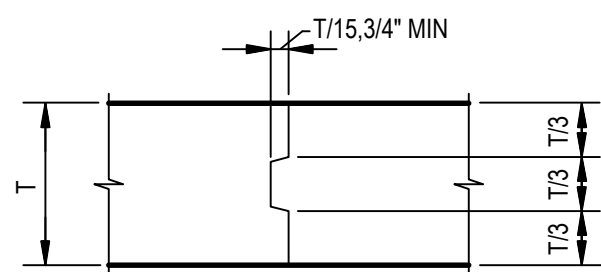
SLABS



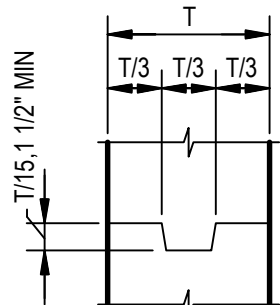
WALLS

NOTE:
"EJ" W/ WS" - WITH ELASTOMERIC WATERSTOP
"EJ" - WITHOUT ELASTOMERIC WATERSTOP

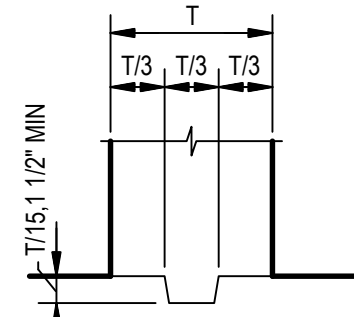
1 EXPANSION JOINTS
NO SCALE



SLABS

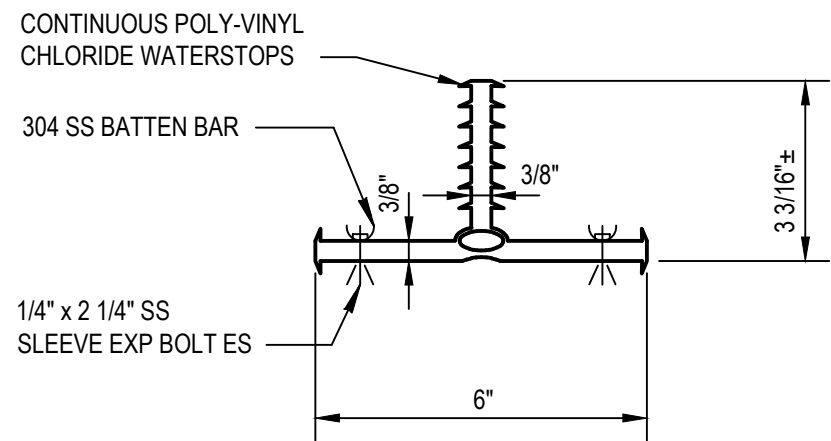


WALLS



BASE OF WALLS

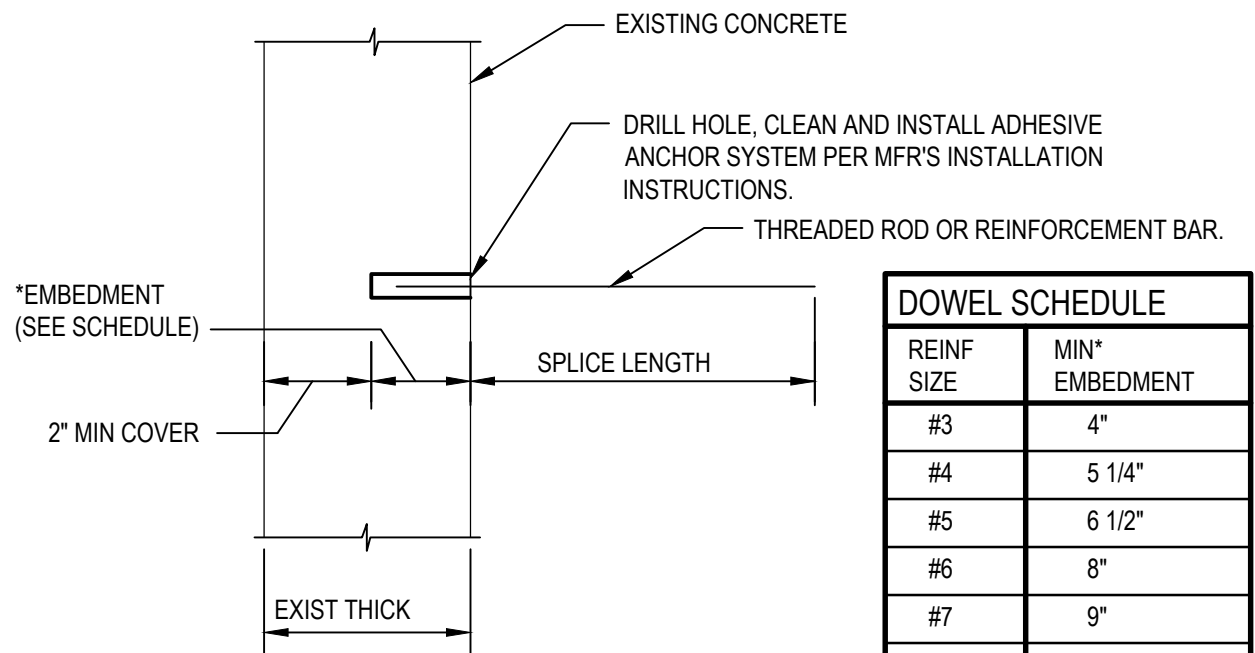
2 JOINTS WITHOUT WATERSTOPS
NO SCALE



SEE JT NOTES & DWGS FOR REQD LOCATIONS

TYPE-B

3 RETRO-FIT WATERSTOP
NO SCALE

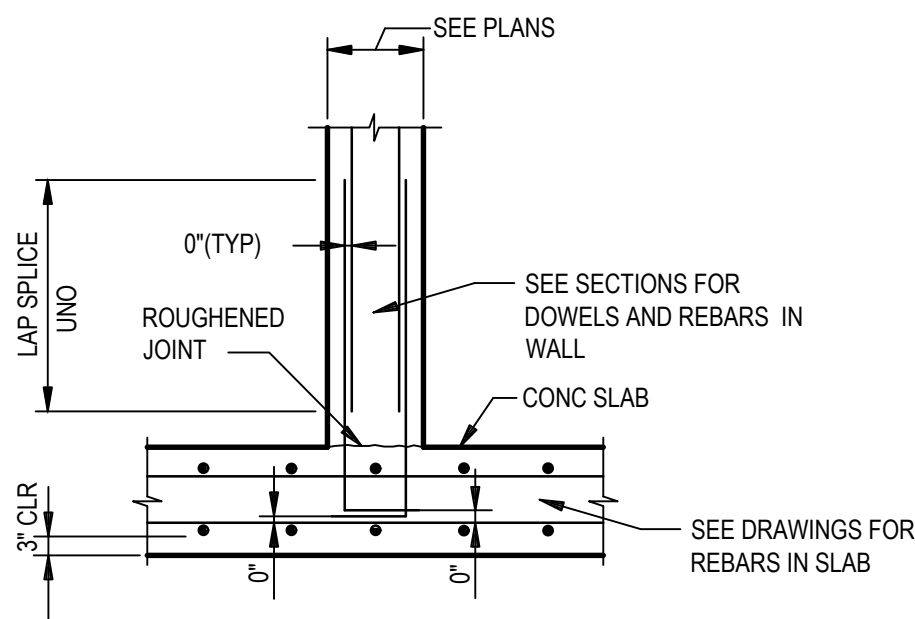


DOWEL SCHEDULE	
REINF SIZE	MIN* EMBEDMENT
#3	4"
#4	5 1/4"
#5	6 1/2"
#6	8"
#7	9"
#8	10"
#9	12"

*INSTALL DOWELS IN DRILLED HOLE WITH MIN EMBEDMENT SHOWN UNO ON DWGS

NOTE:
1. INSTALLATION AND PREPARATION PROCEDURES SHALL BE IN ACCORDANCE WITH ADHESIVE SYSTEM ICC ESR REPORT.

4 NEW DOWEL INTO EXISTING CONCRETE
NO SCALE



5 TYPICAL WALL DOWELS PLACEMENT
NO SCALE

100% PLANS

ISSUED FOR:
APPROVAL

CONSULTANT:
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Irvine California 92618 USA
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ENGINEER'S SEAL

PLANS PREPARED BY:

COVER SHEET HAS BEEN SIGNED AND DATED
XX/XX/XXXX
PROJECT ENGINEER DATE

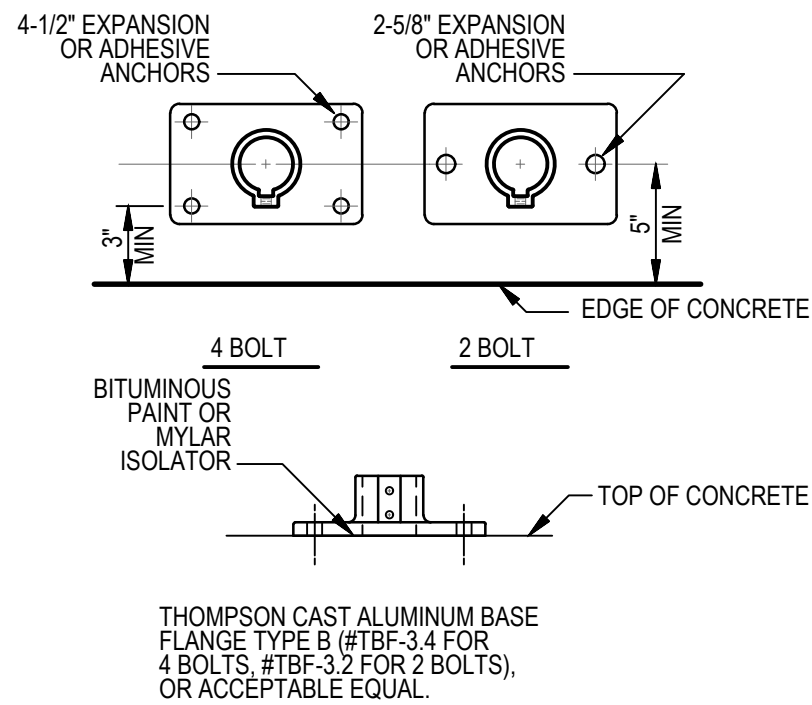
APPROVED BY:

COVER SHEET HAS BEEN SIGNED AND DATED
XX/XX/XXXX
SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT DATE

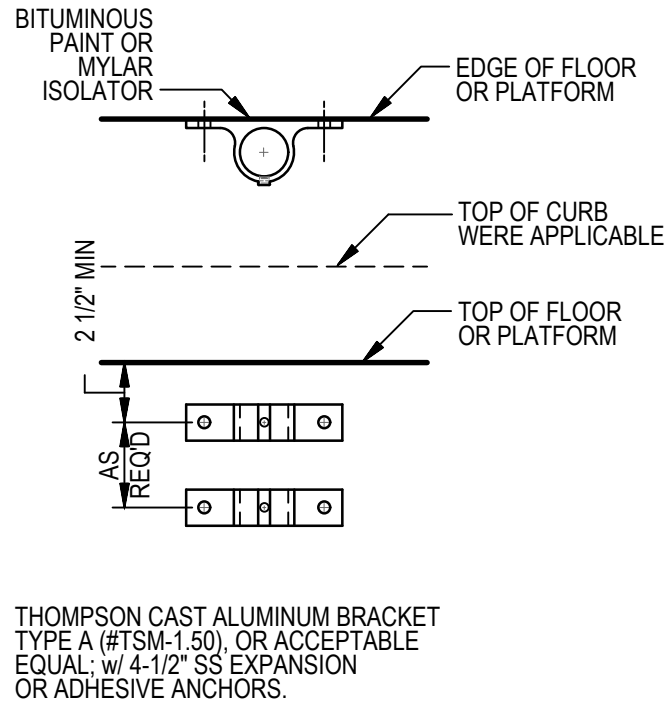
MARK	BY	DATE	REVISION



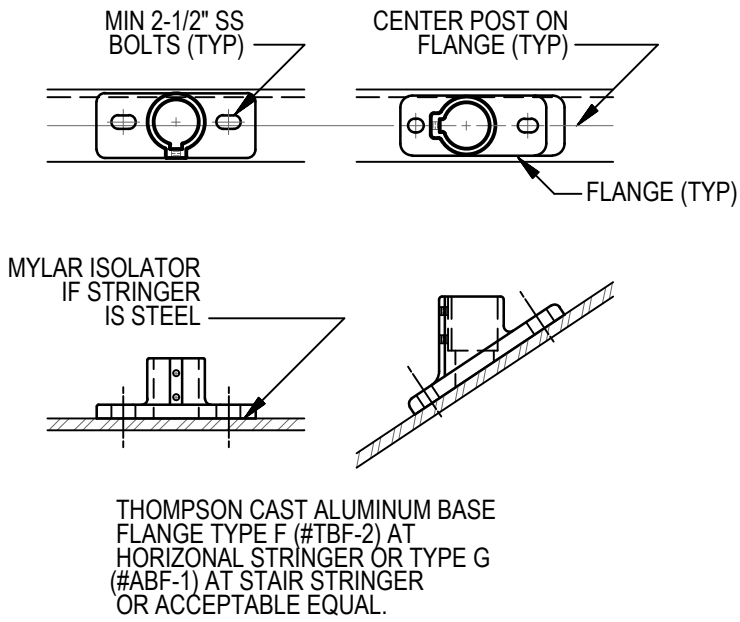
SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT			
DATE: XX/XX/XXXX	DESIGNED: SOG	DRAWN: MC/SJD	REVIEWED: NO
JOB NO:			SCALE: AS SHOWN
ENHANCED RECHARGE IN THE SANTA ANA RIVER BASIN PROJECT			DWG: S-202
SPECIFICATION NO. 14-01			SHT 45 OF 68 SHTS
STANDARD CONCRETE JOINT DETAILS			DRAWING NO.



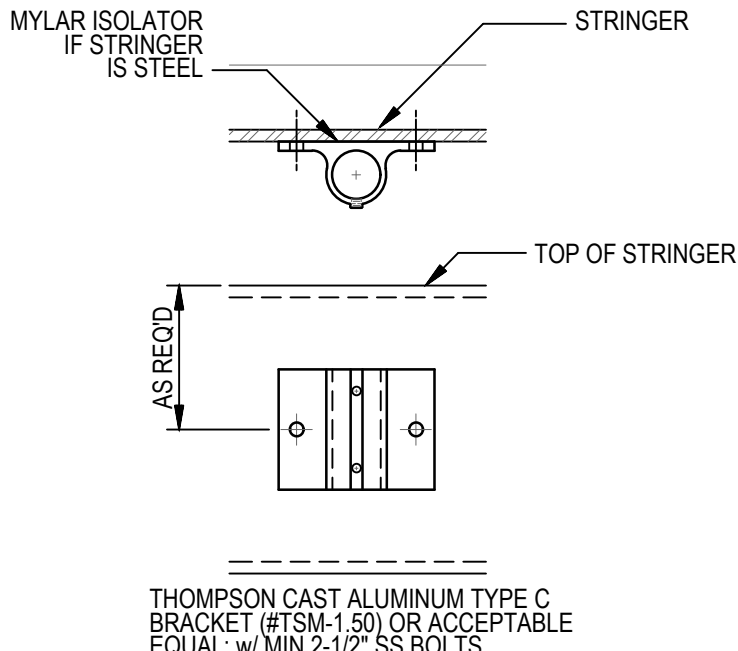
BASE FLANGE MOUNT
CONCRETE



SIDE MOUNT
CONCRETE

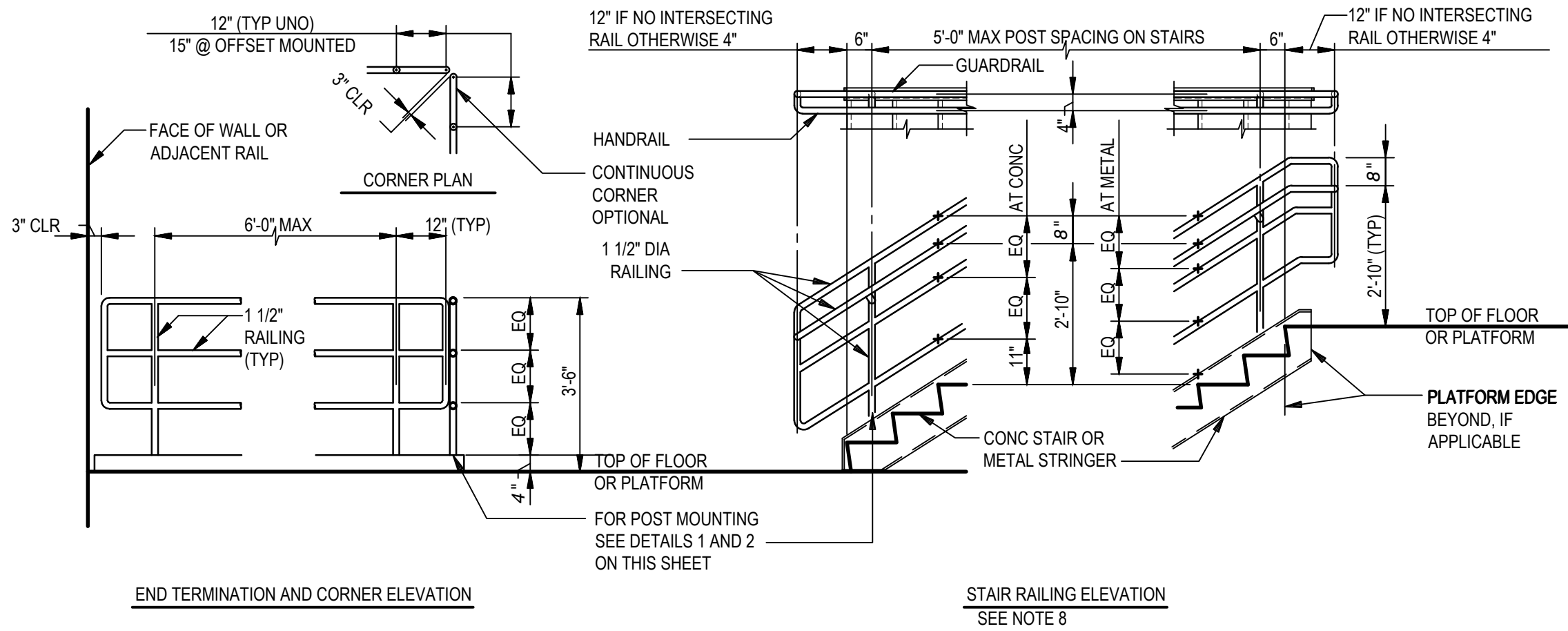


BASE FLANGE MOUNT
METAL

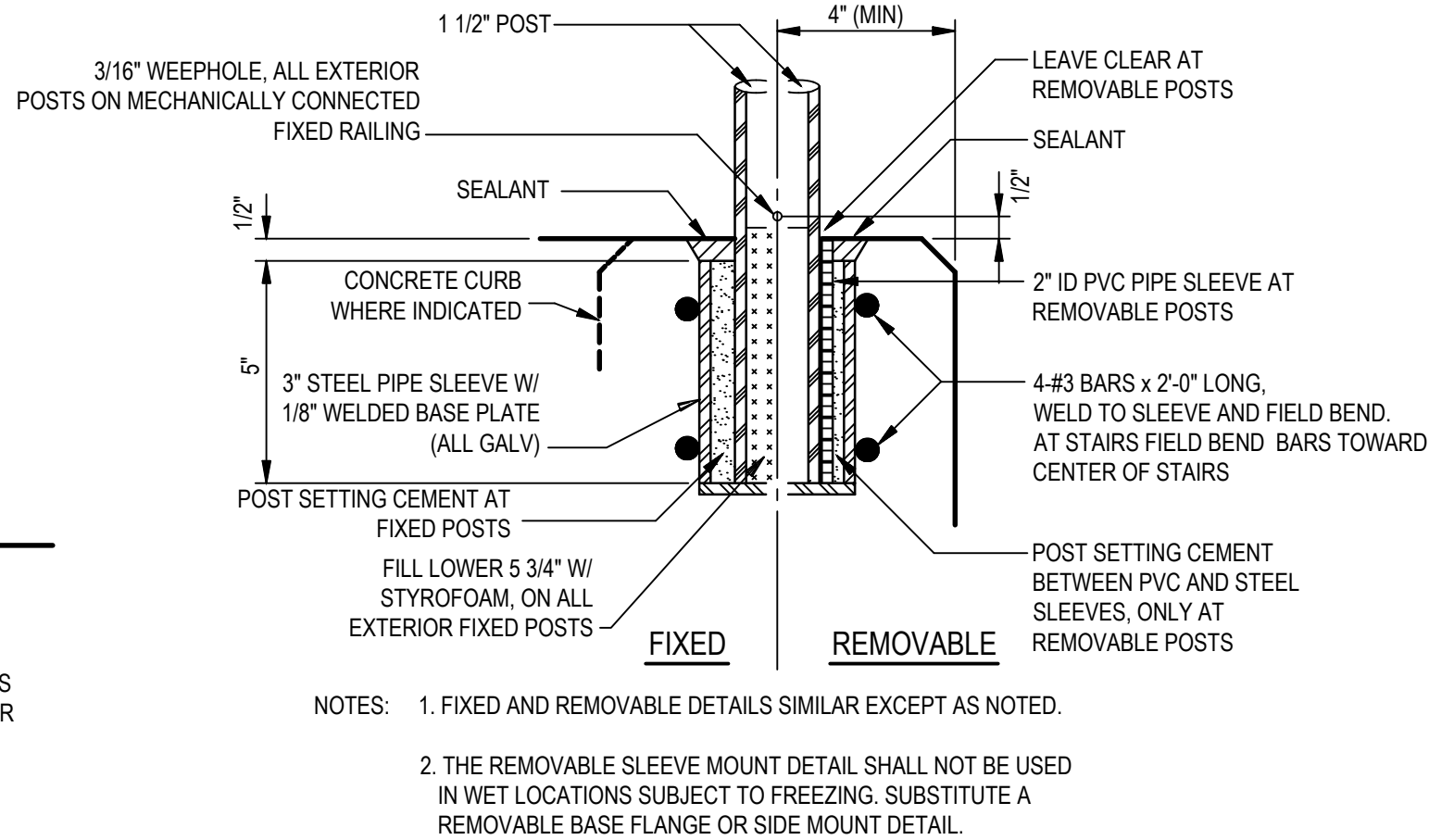
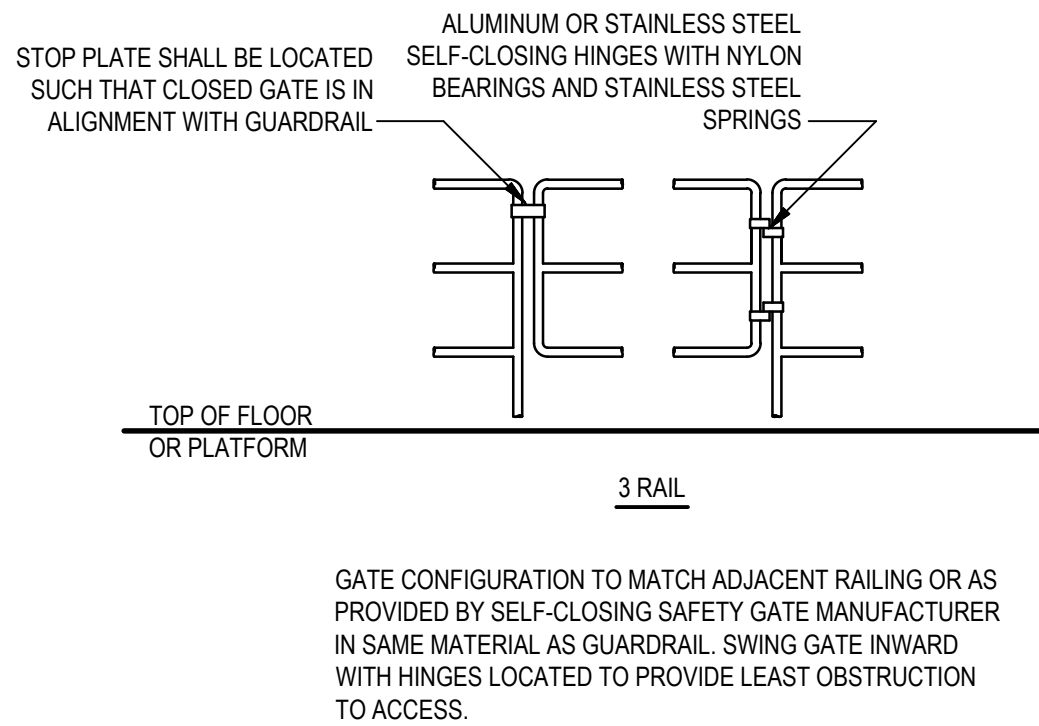


SIDE MOUNT
METAL

1 STANDARD GUARDRAIL POST MOUNTED TO CONCRETE
NO SCALE



2 STANDARD GUARDRAIL POST MOUNTED TO METAL OR FRP
NO SCALE



3 THREE RAIL GUARDRAIL
NO SCALE

4 SELF-CLOSING SWING GATE
NO SCALE

5 SLEEVE MOUNT
NO SCALE

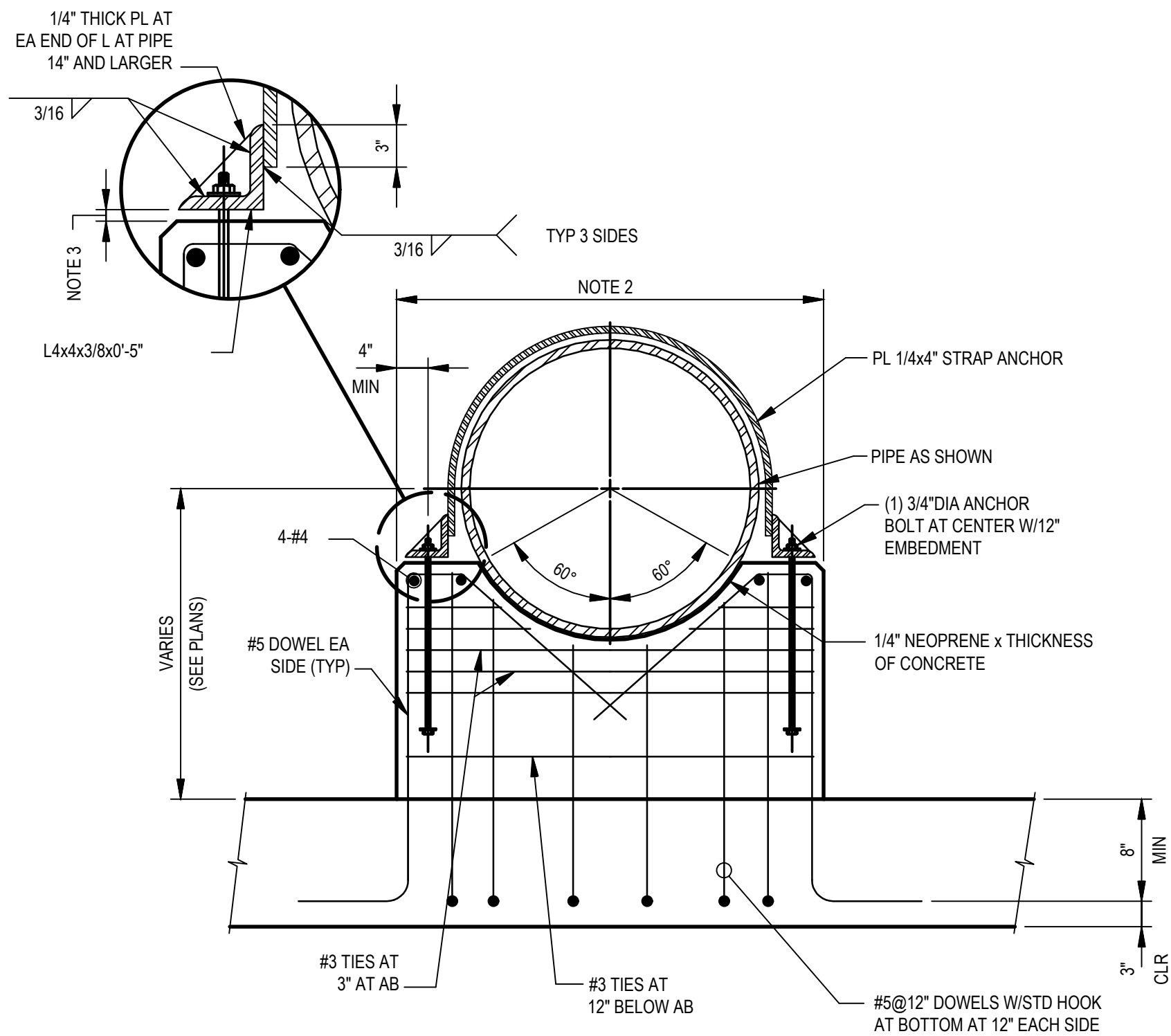
NOTES FOR RAILING:

- ALL RAILING SHALL BE THREE RAIL OR PICKET TYPE UNLESS INDICATED OTHERWISE ON THE DESIGN DRAWINGS. RAILING MATERIAL AND FABRICATION SHALL BE AS INDICATED ON THE DESIGN DRAWINGS AND IN THE PROJECT SPECIFICATIONS FOR HANDRAILING AND GUARDRAILING.
- ALL RAILING SHALL BE DESIGNED AND FABRICATED IN COMPLIANCE WITH THE MOST STRINGENT REQUIREMENTS OF NOTE 3 BELOW, THE APPLICABLE LOCAL BUILDING CODE, OSHA 29 CFR PART 1926 SUBPART R, AND ALL OTHER PERTINENT OSHA REGULATIONS AND LOCAL SAFETY REGULATIONS.
- GUARDRAILING SYSTEM, INCLUDING BASE PLATE AND ANCHORS, WHICH ARE NOT SHOWN IN THIS SHEET, SHALL BE DESIGNED TO WITHSTAND A UNIFORM HORIZONTAL LOAD OF 50 POUNDS PER FOOT WITH A SIMULTANEOUS VERTICAL LOAD OF 100 POUNDS PER FOOT APPLIED TO THE TOP RAIL. HANDRAILING SHALL BE DESIGNED TO WITHSTAND A UNIFORM HORIZONTAL LOAD OF 50 POUNDS PER FOOT APPLIED TO THE TOP RAIL. IN ADDITION, GUARDRAILING AND HANDRAILING SHALL BE DESIGNED TO WITHSTAND A CONCENTRATED LOAD OF 200 POUNDS APPLIED IN ANY DIRECTION, AT ANY POINT ON THE RAILING SYSTEM. THE 200 POUND CONCENTRATED LOAD NEED NOT BE APPLIED SIMULTANEOUSLY WITH THE 50 POUNDS PER FOOT UNIFORM HORIZONTAL LOAD.
- GUARDRAILING AND HANDRAILING SHALL BE DESIGNED AND FABRICATED IN CONFIGURATIONS REQUIRED TO FIT THE LOCATIONS INDICATED ON THE DESIGN DRAWINGS. CONTRACTOR SHALL VERIFY FINAL DIMENSIONS BEFORE FABRICATION.
- EXPANSION ANCHORS FOR GUARDRAILING AND HANDRAILING SHALL BE STAINLESS STEEL, HILTI "KWIK-BOLT II", ITW RAMSET/REDHEAD "TRUBOLT WEDGE ANCHOR", OR POWERS RAWL "RAWL-STUD ANCHOR".
- ADHESIVE ANCHORS FOR GUARDRAILING AND HANDRAILING SHALL BE STAINLESS STEEL, HILTI "HIT HY 150 SYSTEM", ITW RAMSET/REDHEAD "EPCOM CERAMIC 6 SYSTEM", POWERS RAWL "POWER-FAST EPOXY INJECTION GEL SYSTEM".
- REMOVABLE RAILING AT LOCATIONS SPECIFICALLY INDICATED AS REMOVABLE RAILING. GUARDRAIL AND MOUNTING DETAILS SHALL BE MODIFIED AS FOLLOWS:
 - RAILING SHALL BE DETAILED IN SHORT LENGTHS THAT CAN BE LIFTED BY ONE PERSON.
 - EACH PIECE SHALL INCLUDE AT LEAST 2, BUT NOT MORE THAN 3, POSTS.
 - RAIL ENDS SHALL BE TERMINATED SIMILAR TO THE END TERMINATION DETAILS THIS SHEET.
 - MOUNTING DETAILS SHALL BE MODIFIED TO PERMIT RAILING PIECES TO BE REMOVED AND REINSTALLED WITHOUT USE OF TOOLS.
- GUARDRAIL MAY BE REPLACED WITH WALL MOUNTED HANDRAIL AT STAIR EDGES AND STRINGERS LOCATED ADJACENT TO WALLS. IF THE OUTSIDE EDGE OF THE STAIR STRINGER IS MORE THAN 3" FROM THE WALL FACE, GUARDRAIL WILL BE USED.



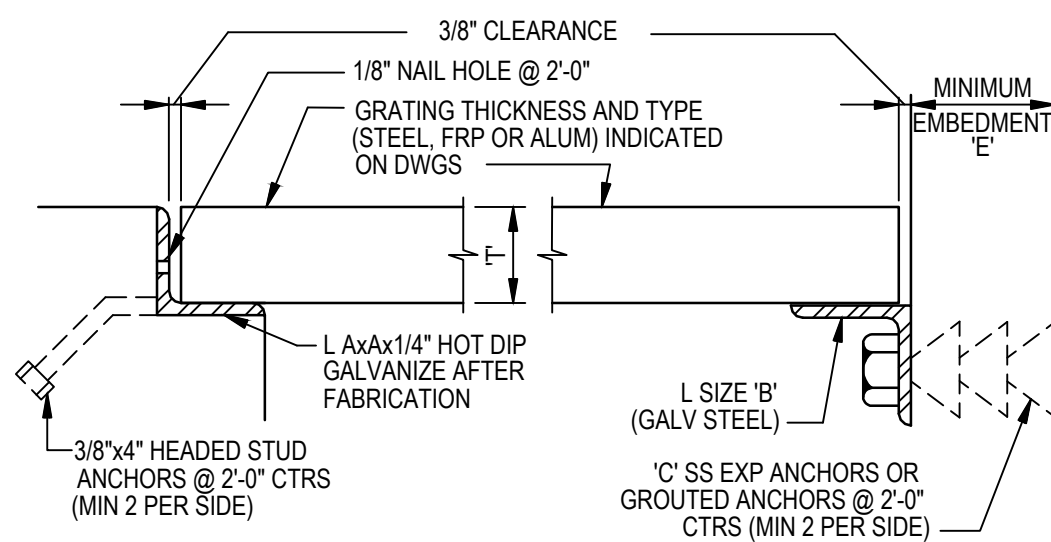
1





- NOTES:
- SUPPORT LENGTH LONGITUDINALLY ALONG PIPE: 8' FOR 12" AND SMALLER PIPE, 12' FOR 14" AND LARGER PIPE.
 - SUPPORT WIDTH = PIPE OD + 12".
 - SHIM L4x4 TO SET ON 1/2" TO 2" THICK GROUT OR SET L4x4 ON CONCRETE AND FIELD WELD TO STRAP.

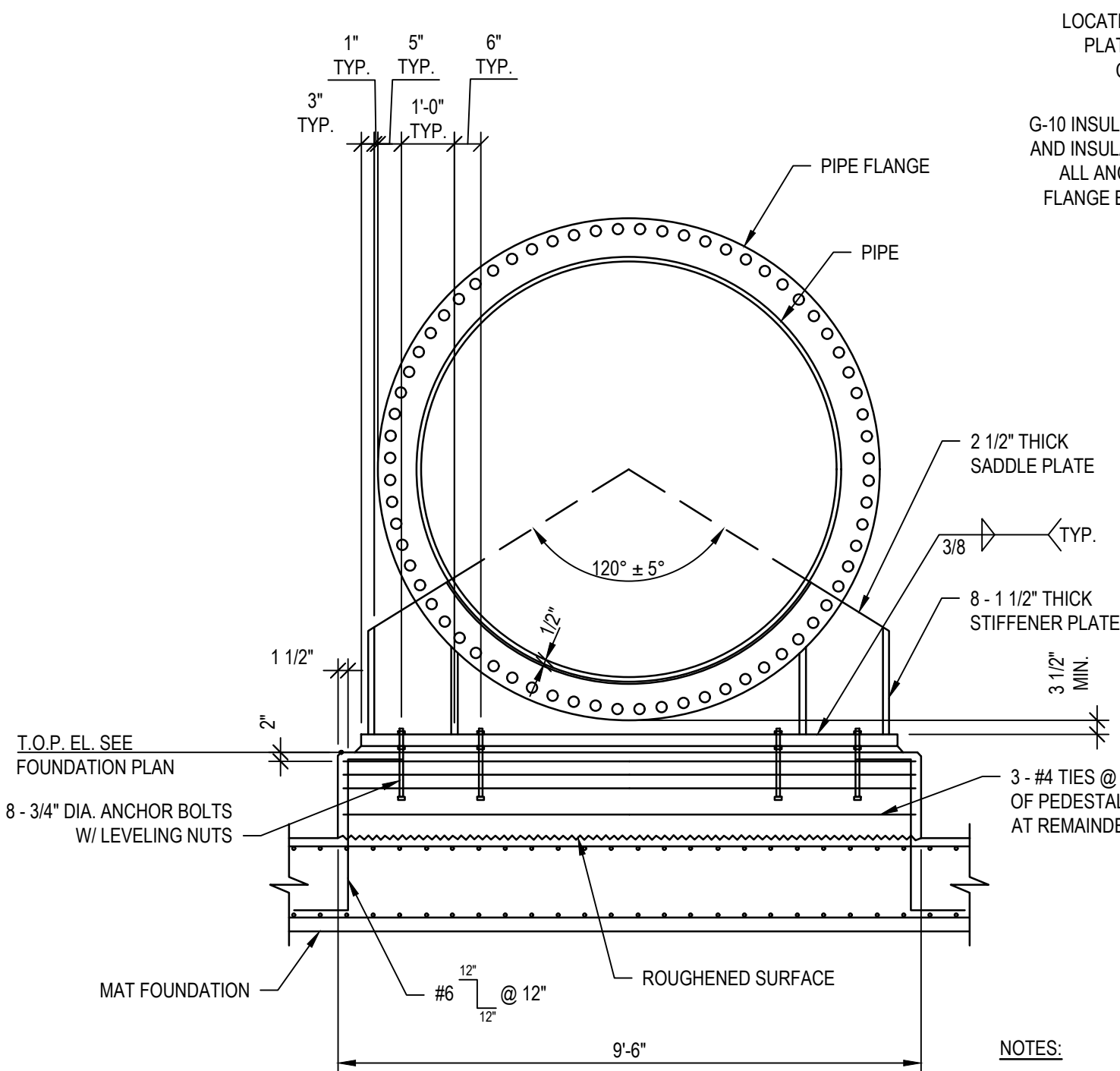
1 78" CONCRETE PIPE CRADLE SUPPORT DETAIL
NO SCALE



GRATING THICKNESS (T)	L SIZE AxAx1/4	L SIZE 'B'	'C' EXP ANCHOR	
			DIA	MIN 'E'
1	1 1/4x1 1/4	2 1/2x2 1/2x1/4	1/2"	4 1/8"
1 1/4	1 1/2x1 1/2	2 1/2x2 1/2x1/4	1/2"	4 1/8"
1 1/2	1 3/4x1 3/4	2 1/2x2 1/2x1/4	1/2"	4 1/8"
1 3/4	2x2	3x3x3/8	3/4"	6 3/8"
2	2 1/2x2 1/2"	3x3x3/8	3/4"	6 3/8"
2 1/4	2 1/2x2 1/2	3x3x3/8	3/4"	6 3/8"
2 1/2	3x3"	3x3x3/8	3/4"	6 3/8"

* TRIM AND BEVEL UPSTANDING LEG TO FIT

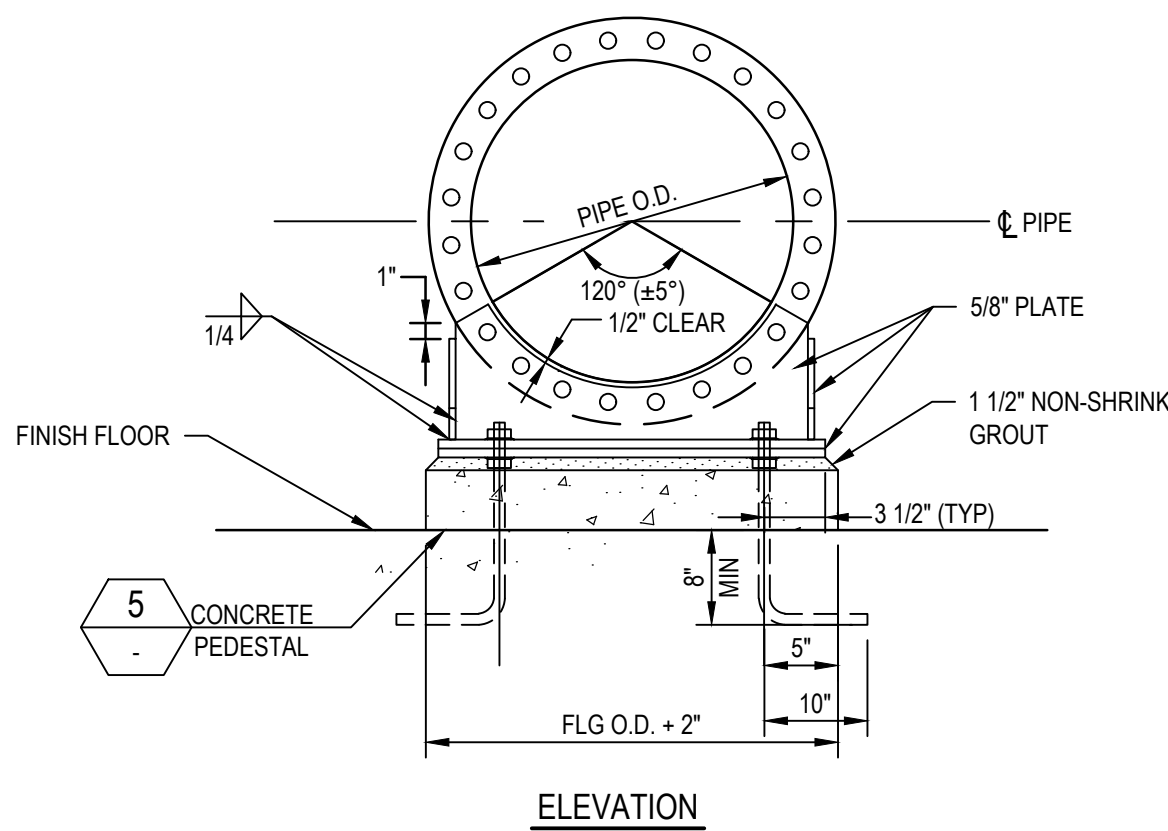
2 GRATING SUPPORT
NO SCALE



NOTES:

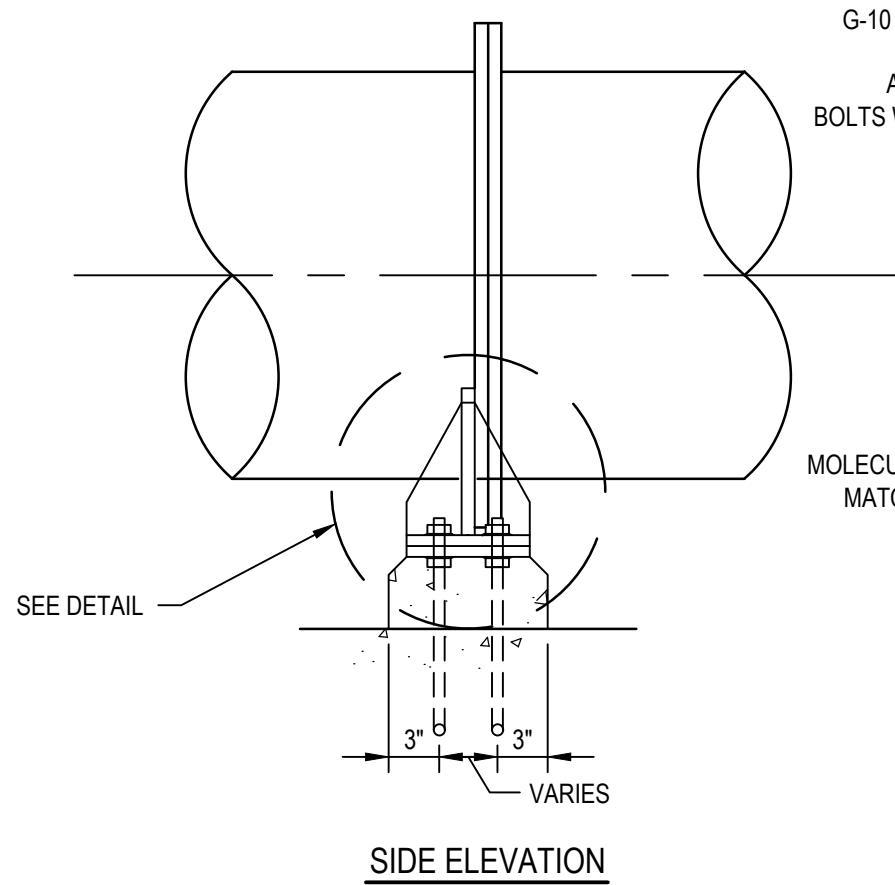
- DRILL FLANGE SUPPORT PLATE HOLES 1/4 INCH LARGER IN DIAMETER THAN THE NOMINAL BOLT SIZE TO FACILITATE PROPER ALIGNMENT OF THE DIELECTRIC SLEEVES.
- GRIND OR ROUND EDGES OF FLANGE SUPPORT PLATE TO PROVIDE MINIMUM 1/4 INCH CLEARANCE BETWEEN FLANGE AT ALL CORNERS AND EDGES.
- TEST FOR EFFECTIVE ELECTRICAL ISOLATION BETWEEN EACH PIPE FLANGE BOLT AND THE FLANGE SUPPORT. THE MINIMUM REQUIRED RESISTANCE IS 1,000 OHMS.
- TEST FOR EFFECTIVE ELECTRICAL ISOLATION BETWEEN EACH ANCHOR BOLT AND THE FLANGE SUPPORT. THE MINIMUM REQUIRED RESISTANCE IS 10 OHMS.

3 78" PIPE FLANGE SUPPORT DETAIL
NO SCALE

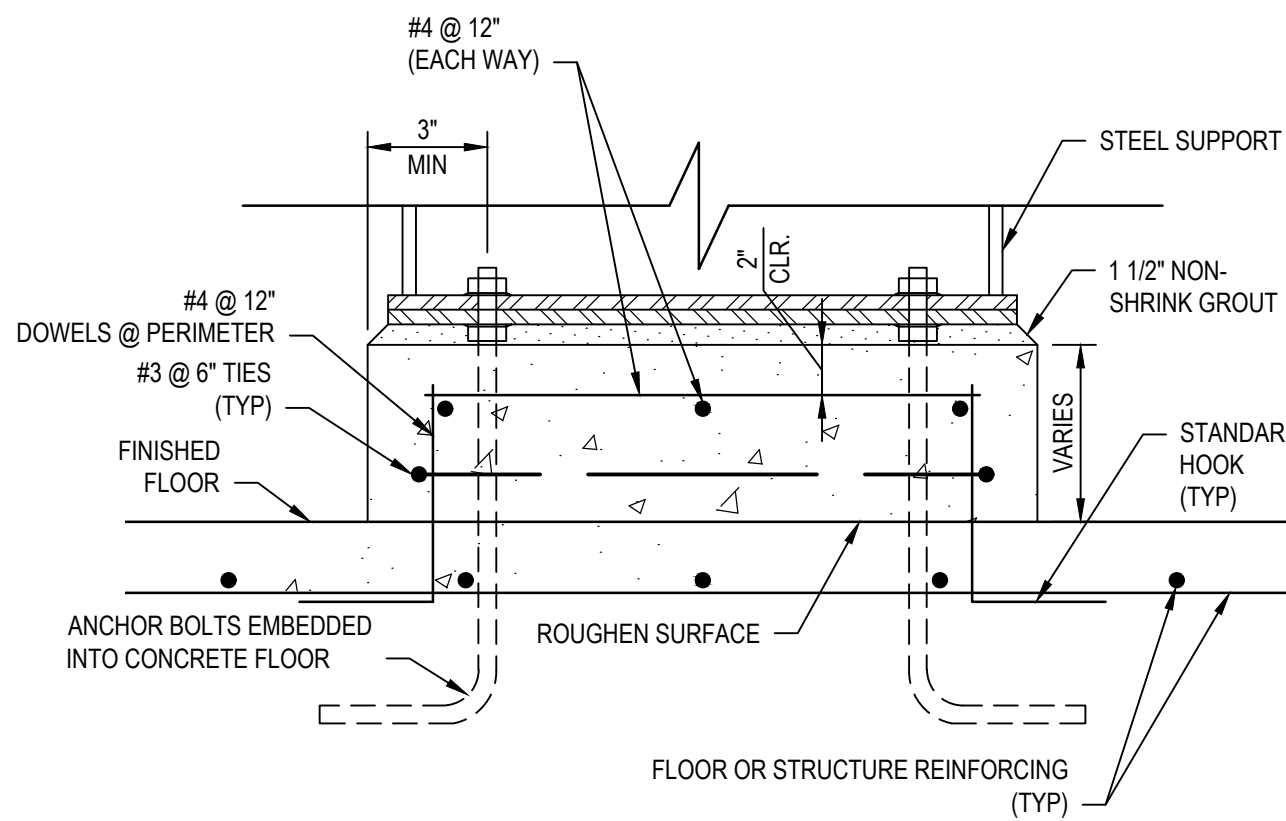
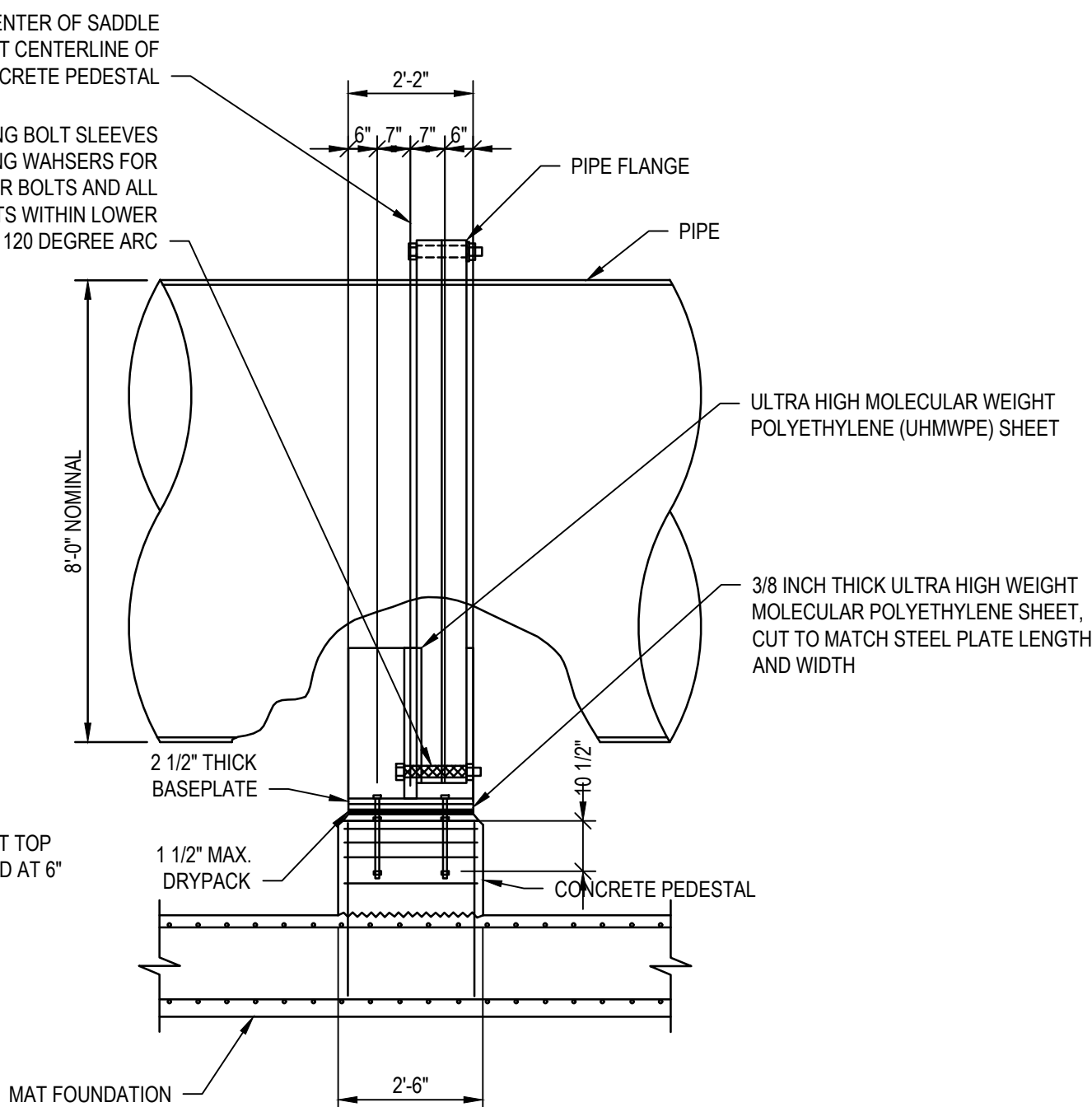


NOTES:

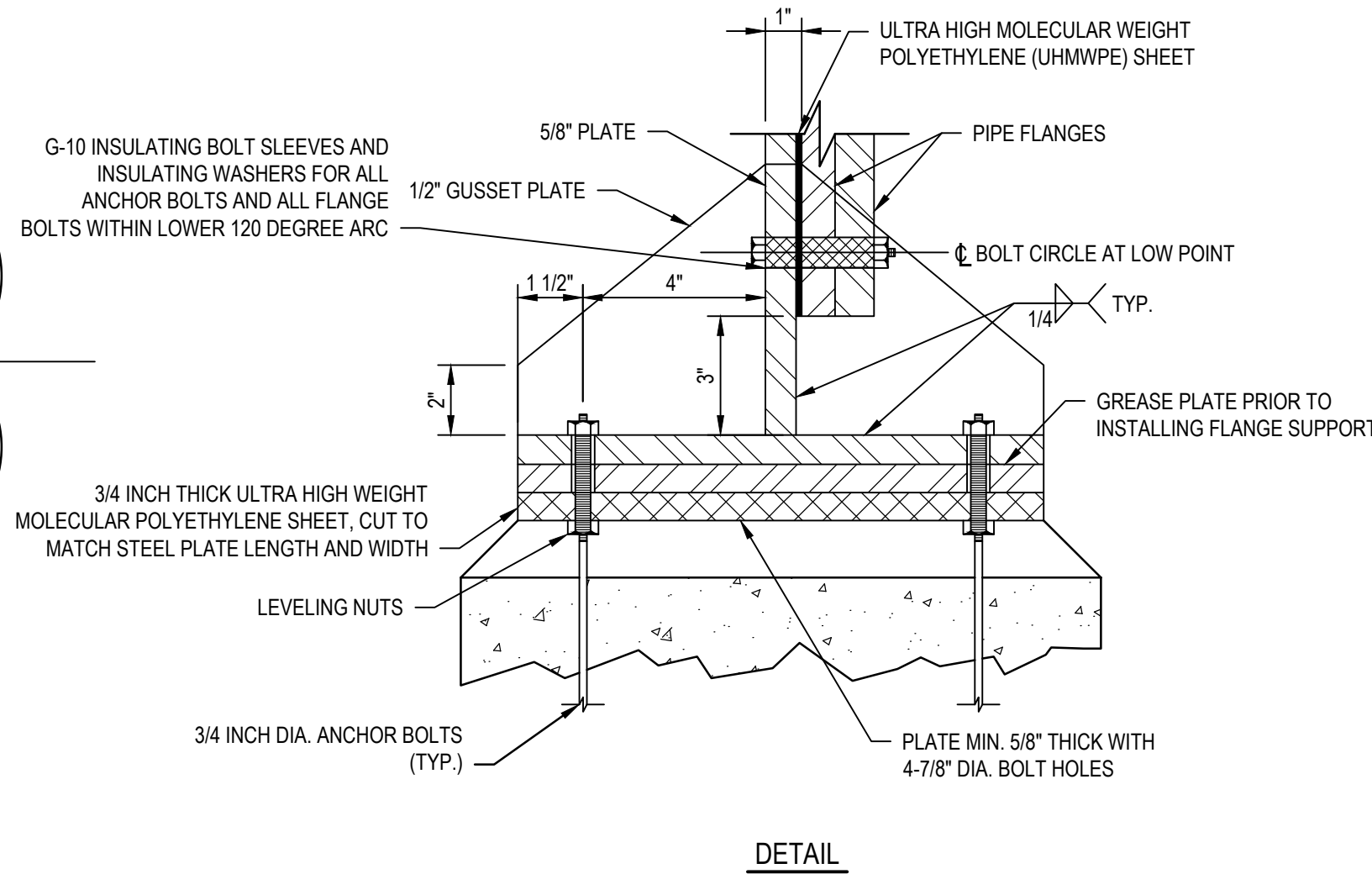
- DRILL FLANGE SUPPORT PLATE HOLES 1/4 INCH LARGER IN DIAMETER THAN THE NOMINAL BOLT SIZE TO FACILITATE PROPER ALIGNMENT OF THE DIELECTRIC SLEEVES.
- GRIND OR ROUND EDGES OF FLANGE SUPPORT PLATE TO PROVIDE MINIMUM 1/4 INCH CLEARANCE BETWEEN FLANGE AT ALL CORNERS AND EDGES.
- TEST FOR EFFECTIVE ELECTRICAL ISOLATION BETWEEN EACH PIPE FLANGE BOLT AND THE FLANGE SUPPORT. THE MINIMUM REQUIRED RESISTANCE IS 1,000 OHMS.
- TEST FOR EFFECTIVE ELECTRICAL ISOLATION BETWEEN EACH ANCHOR BOLT AND THE FLANGE SUPPORT. THE MINIMUM REQUIRED RESISTANCE IS 10 OHMS.



4 12" PIPE FLANGE SUPPORT DETAIL
NO SCALE



5 CONCRETE PEDESTAL
NO SCALE



SHEET NOTE:

CONCRETE SLABS SHALL BE THICKENED AT ALL PEDESTAL LOCATIONS

100% PLANS
ISSUED FOR:
APPROVAL

CONSULTANT:
 GHD Inc.
175 Technology Drive Suite 200
Irvine California 92618 USA
T 1 949 585 5200 F 1 949 648 5299 W www.ghd.com

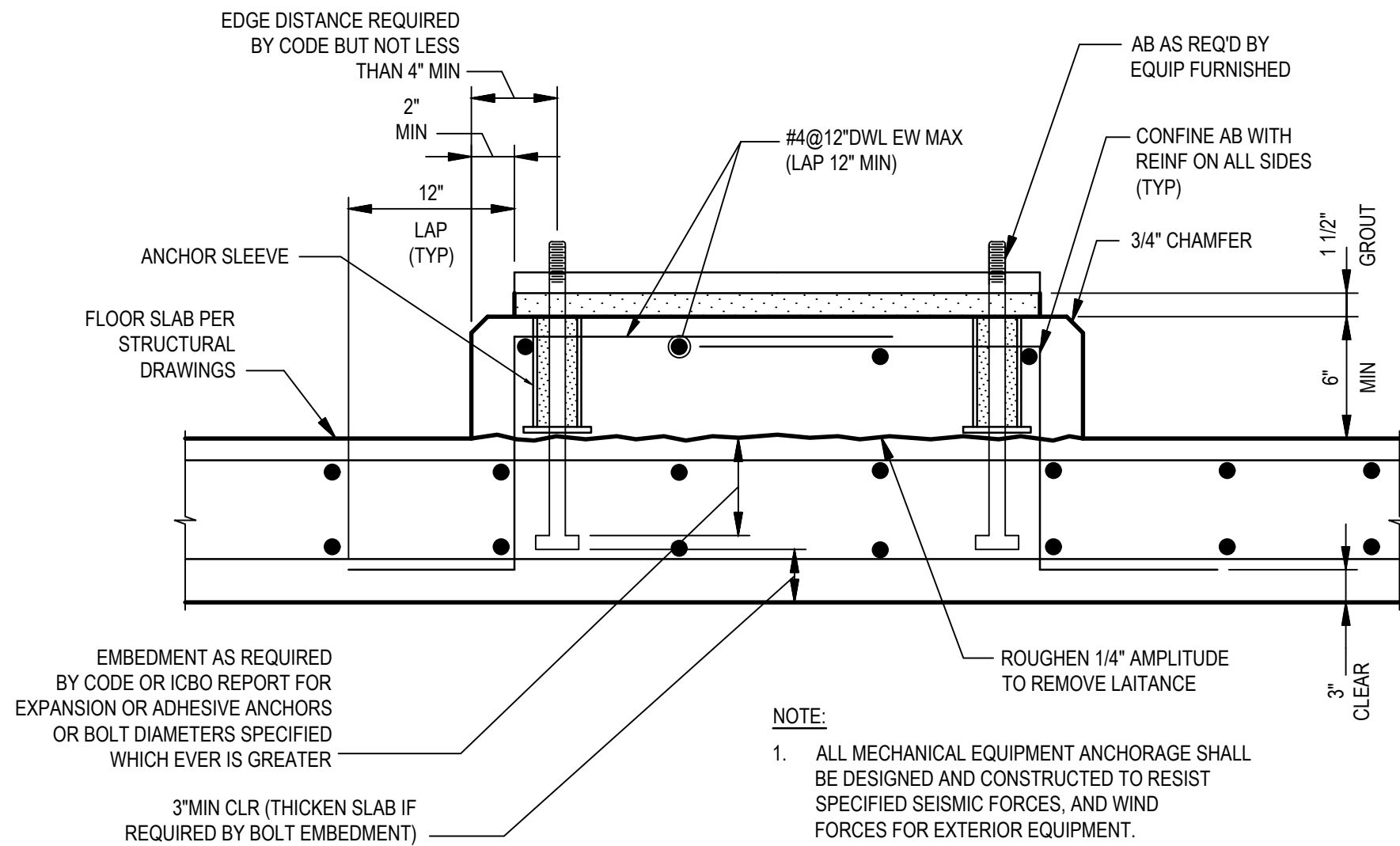
ENGINEER'S SEAL

PLANS PREPARED BY:
COVER SHEET HAS BEEN SIGNED AND DATED
XX/XX/XXXX
PROJECT ENGINEER DATE
APPROVED BY:
COVER SHEET HAS BEEN SIGNED AND DATED
XX/XX/XXXX
SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT DATE

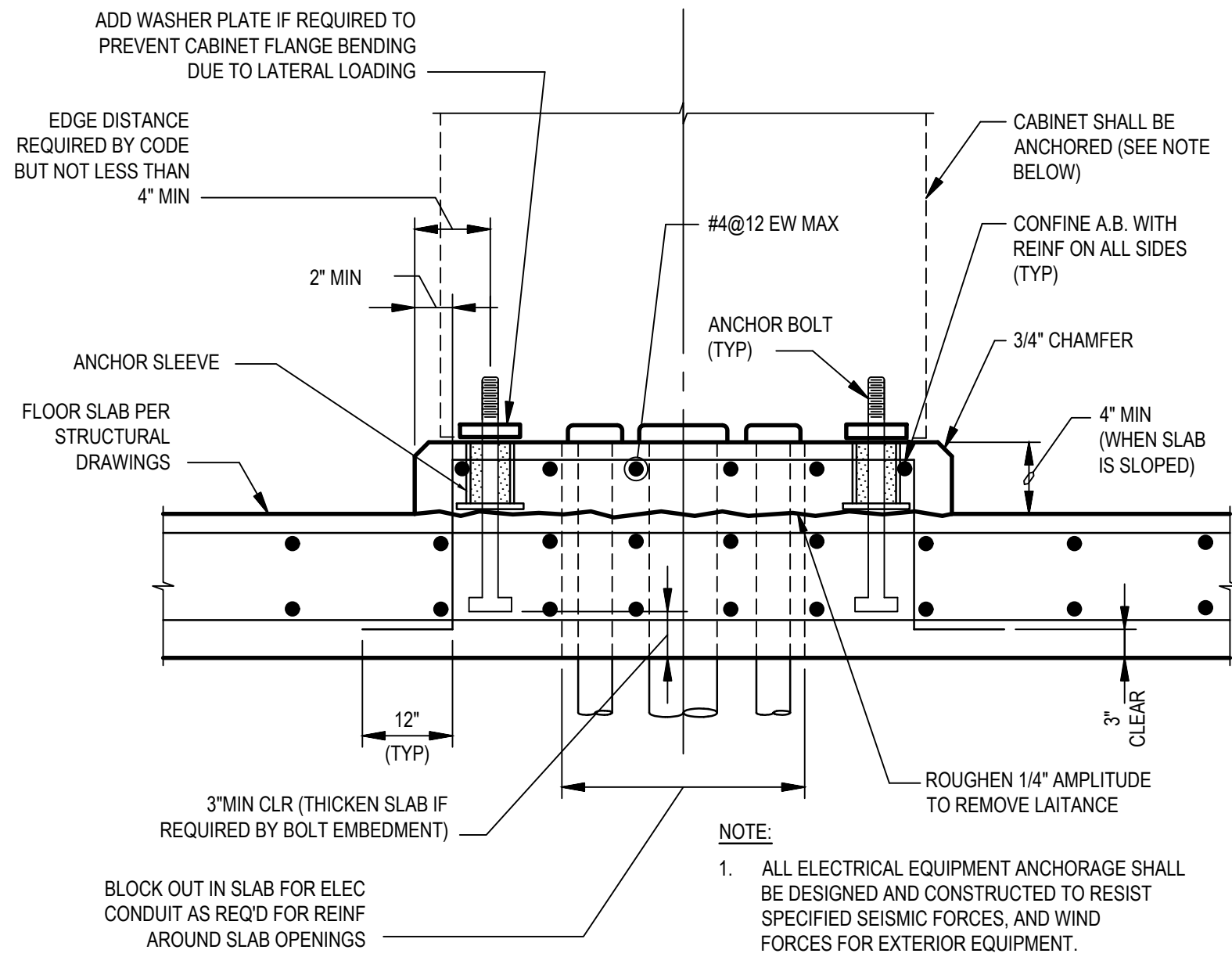
MARK	BY	DATE	REVISION

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT
380 EAST VANDERBILT WAY, SAN BERNARDINO, CA 92408
PHONE: (909) 387-9253 FAX: (909) 387-9247

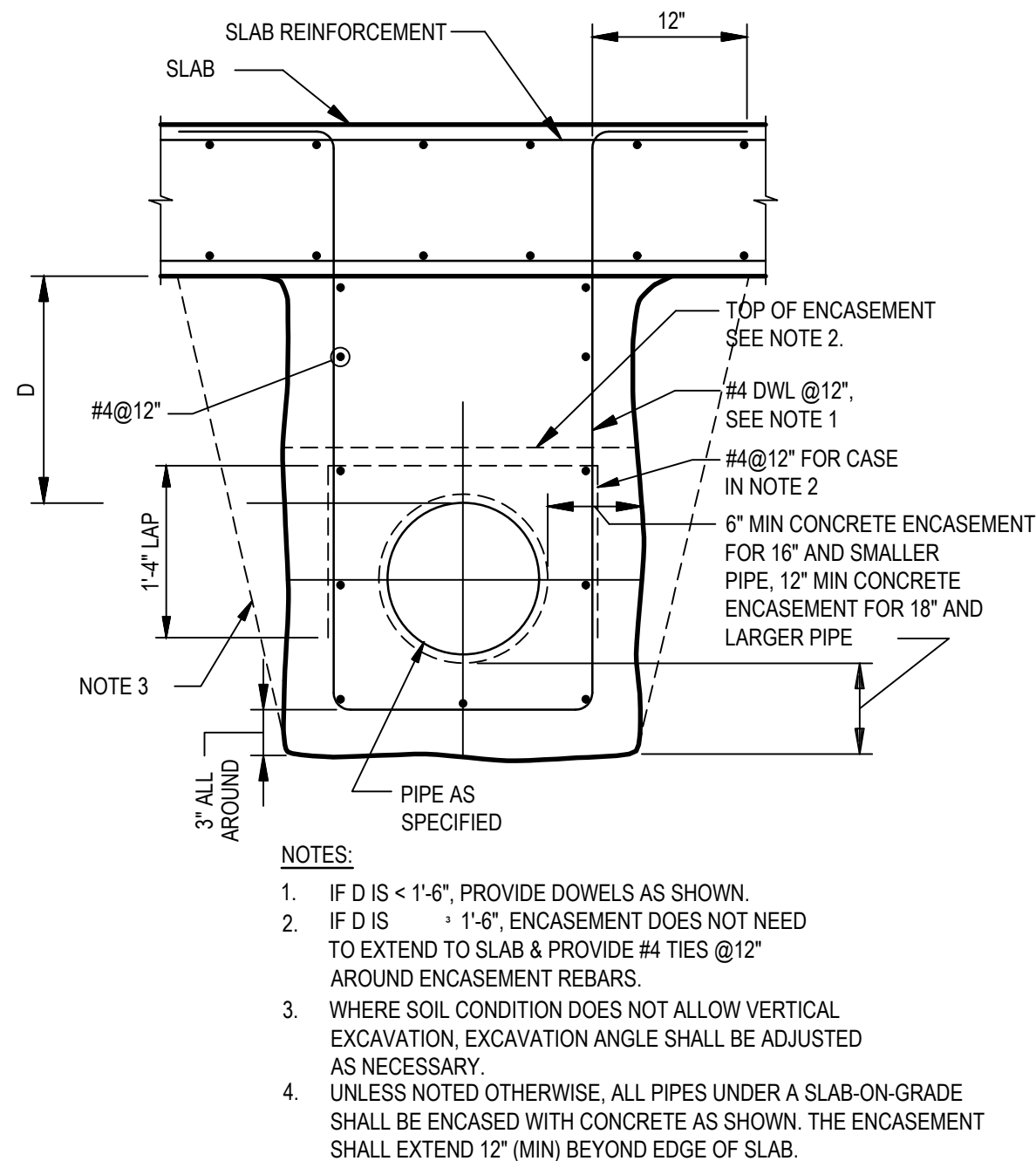
SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT
DATE: XX/XX/XXXX
DESIGNED: CR DRAWN: AK
REVIEWED: GW
JOB NO:
ENHANCED RECHARGE IN THE SANTA ANA RIVER BASIN PROJECT
SPECIFICATION NO. 14-01
STANDARD MISCELLANEOUS DETAILS
SCALE: AS SHOWN
DWG: S-205
SHT. 48 OF 68 SHTS.
DRAWING NO.



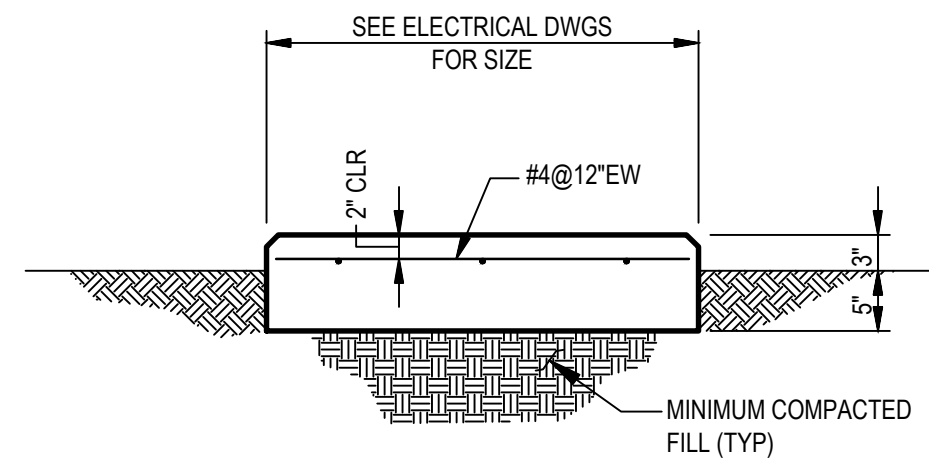
1 TYPICAL EQUIPMENT BASE DETAIL
NO SCALE



2 TYPICAL ELECTRICAL BASE DETAIL
NO SCALE



3 CONCRETE ENCASEMENT FOR PIPE UNDER SLABS
NO SCALE



4 ELECTRICAL PAD ON GRADE DETAIL
NO SCALE

100% PLANS
ISSUED FOR: APPROVAL

CONSULTANT:

GHD GHD Inc.
175 Technology Drive Suite 200
Irvine California 92618 USA
T 1 949 585 5200 F 1 949 648 5299 W www.ghd.com

ENGINEER'S SEAL

PLANS PREPARED BY:

COVER SHEET HAS BEEN SIGNED AND DATED
XX/XX/XXXX
PROJECT ENGINEER DATE

APPROVED BY:

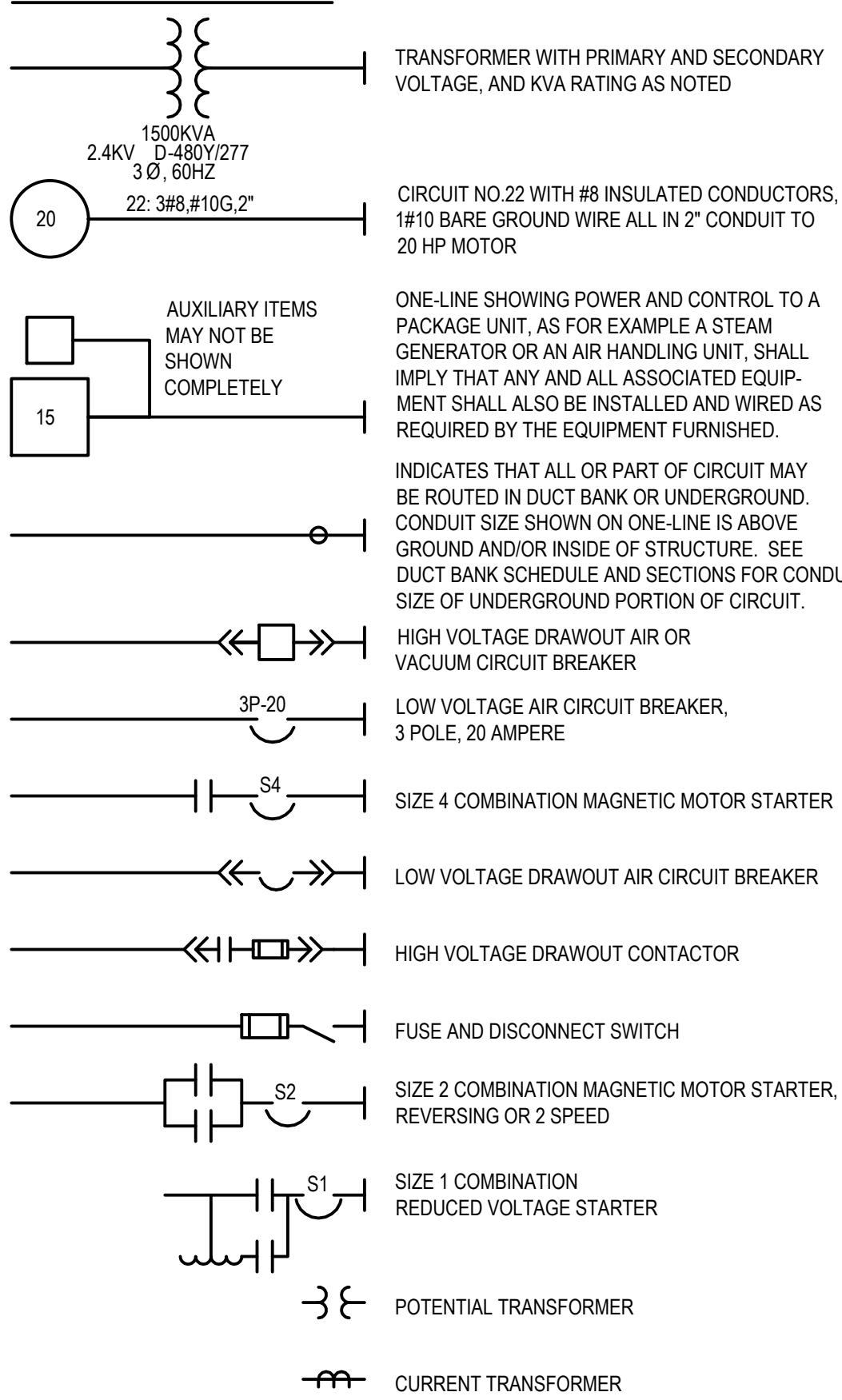
COVER SHEET HAS BEEN SIGNED AND DATED
XX/XX/XXXX
SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT DATE

MARK	BY	DATE	REVISION

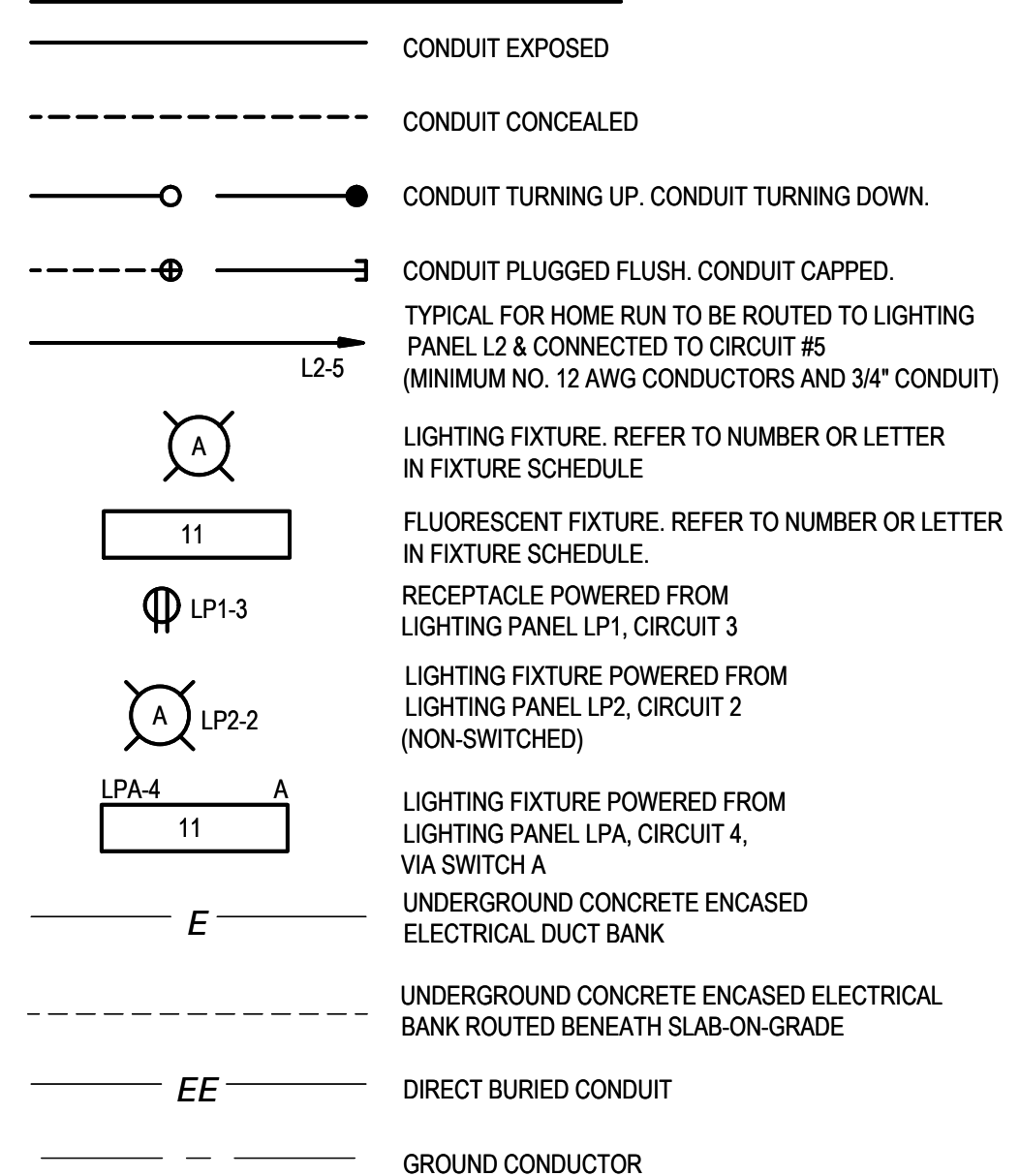
Valley SAN BERNARDINO
MUNICIPAL
WATER DISTRICT
380 EAST VANDERBILT WAY, SAN BERNARDINO, CA 92408
PHONE: (909) 387-9253 FAX: (909) 387-9247

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT		SCALE: AS SHOWN
DATE: XX/XX/XXXX		DWG: S-206
DESIGNED: CR	DRAWN: AK	SHT. 49 OF 68 SHTS.
REVIEWED: GW	JOB NO:	DRAWING NO.
ENHANCED RECHARGE IN THE SANTA ANA RIVER BASIN PROJECT		
SPECIFICATION NO. 14-01		
STANDARD MISCELLANEOUS DETAILS		

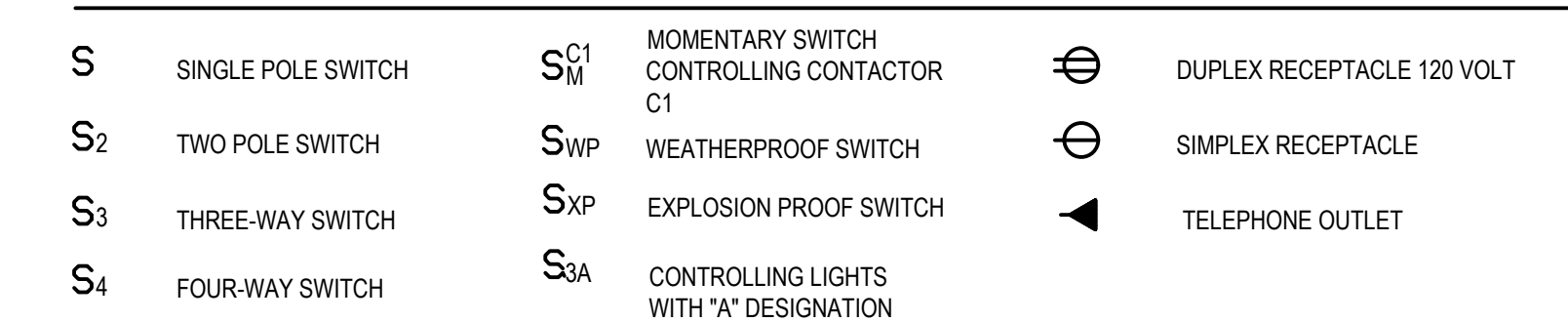
ONE-LINE DIAGRAM LEGEND



CONDUIT & WIRING INSTALLATION LEGEND



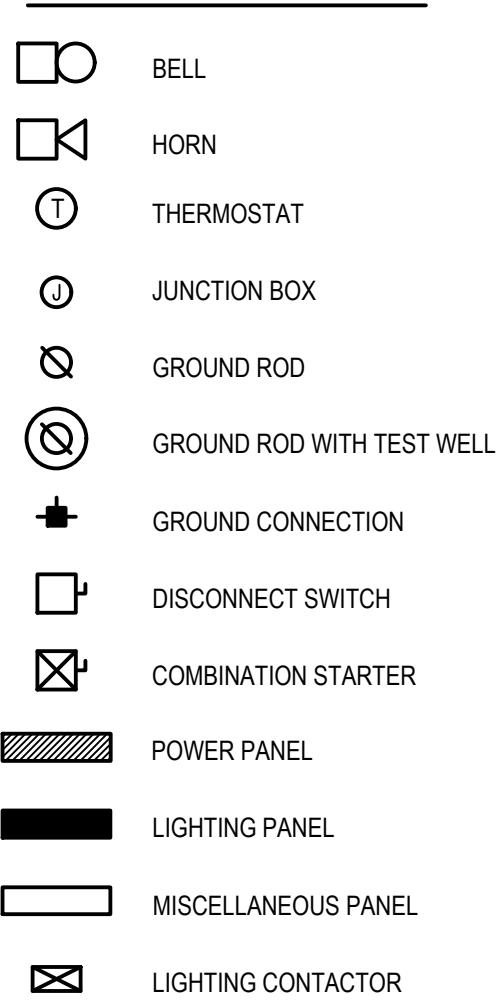
SWITCH & OUTLET SYMBOLS



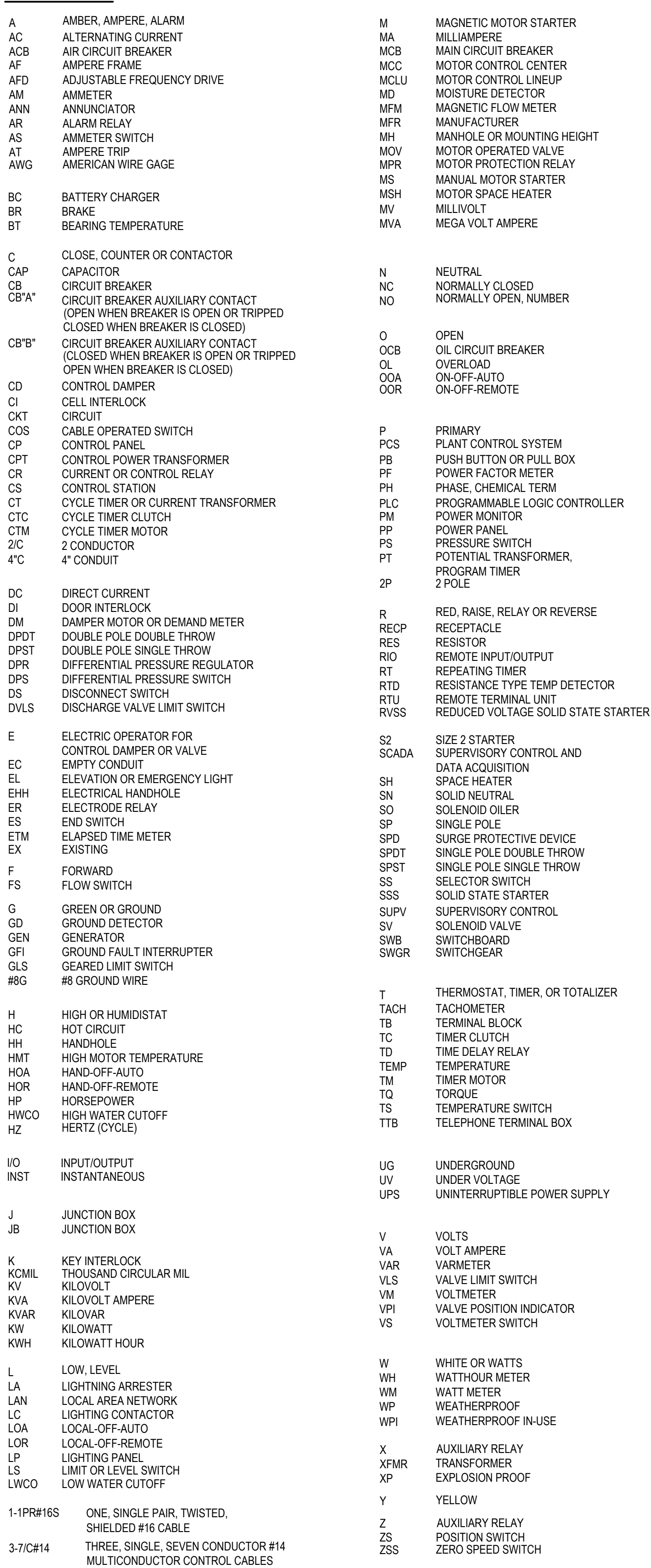
SCHEMATIC SYMBOLS



MISCELLANEOUS SYMBOLS



ABBREVIATIONS



AREA DESIGNATIONS

THE SPECIAL AREA DESIGNATION BOXES, AS DEFINED BELOW, ARE LOCATED ON THE PLAN DRAWINGS TO DEFINE ELECTRICAL INSTALLATION REQUIREMENTS. DESIGNATION BOXES ARE LOCATED WITHIN ROOM OR BELOW ROOM NUMBER. ALL INDOOR AREAS NOT INDICATED OTHERWISE ARE AREA TYPE 1 AND MINIMUM NEMA TYPE 1 ENCLOSURES.



CORROSIVE CHEMICAL FEED AND STORAGE ROOMS.
CONDUIT SYSTEM SHALL BE EXPOSED PVC RIGID NON-METALLIC
CONDUIT WITH PVC FITTINGS, BOXES, AND ACCESSORIES.
INDOOR WET LOCATIONS SUCH AS VAULTS, HOSEDOWN AREAS,
BASEMENTS, ETC. MINIMUM NEMA TYPE 4 ENCLOSURE FOR
EQUIPMENT AND GASKETED FITTINGS IN A CONDUIT SYSTEM.
CLASS I, DIVISION 1 AREA AS DEFINED BY NEC. ALL
EQUIPMENT AND CONDUIT SYSTEMS SHALL BE RATED FOR
USE IN THIS AREA.



GENERAL REQUIREMENTS

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ROUTING ALL CONDUITS NOT SHOWN ON THE PLANS. THIS SHALL INCLUDE ALL CONDUITS SHOWN ON THE ONE-LINES AND HOME-RUNS SHOWN ON THE PLAN DRAWINGS. CONDUITS SHALL BE ROUTED AS DEFINED IN THE SPECIFICATIONS.
2. SPARE WIRES SHALL BE TAPED AND COILED.
3. IF EQUIPMENT SUPPLIED BY MANUFACTURER HAS A LARGER LOAD THAN VALUE SHOWN, THE CABLE CONDUIT AND ELECTRICAL EQUIPMENT SHALL BE ENLARGED, AS REQUIRED, TO ACCOMMODATE THE HIGHER VALUE.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING PROPERLY SIZED STARTER OVERLOADS FOR EQUIPMENT FURNISHED.
5. LIGHTING AND RECEPTACLE CIRCUITS DESIGNATED ON THE FLOOR PLANS ARE NOT SHOWN ON THE ONE-LINES. CONDUCTORS FOR LIGHTING, RECEPTABLES, AND MISCELLANEOUS 120VAC CIRCUITS SHALL BE MINIMUM NO. 12 AWG. CONDUIT FOR LIGHTING, RECEPTABLES, AND MISCELLANEOUS 120VAC CIRCUITS SHALL BE MINIMUM 3/4".
6. IN AREAS WHERE THERE ARE OVERHEAD BRIDGE CRANES, HOISTS, ETC., NO CONDUITS SHALL BE RUN OVERHEAD THAT WILL INTERFERE WITH THE OPERATION OF THE EQUIPMENT.

GENERAL NOTES

1. SOLID LINES (————) INDICATE NEW WORK OR EQUIPMENT.
2. SCREENED LINES (———) INDICATE EXISTING WORK OR EQUIPMENT.
3. DASHED LINES (-----) INDICATE FUTURE WORK OR EQUIPMENT.
4. REFER TO THE FOLLOWING DRAWING(S) FOR INSTRUMENTATION LEGEND:
 - A. THIS IS A GENERAL LEGEND SHEET. SOME SYMBOLS AND ABBREVIATIONS MAY NOT BE UTILIZED ON THIS SPECIFIC PROJECT.
 - B. INFORMATION RELATED TO CIRCUIT IDENTIFICATION, WIRE & CONDUIT SIZES, AND ROUTING, IS ON THE FOLLOWING DRAWING TYPES:
 - A. ONE-LINE DIAGRAMS SHOW CIRCUIT IDENTIFICATION, WIRE QUANTITY AND SIZES, AND CONDUIT SIZE WITHIN STRUCTURES. ONE-LINE DIAGRAMS ALSO INDICATE ORIGIN AND DESTINATION OF CIRCUITS, AND IDENTIFY CIRCUITS ROUTED UNDERGROUND.
 - B. FOR CIRCUITS WITHOUT UNDERGROUND PORTIONS, BUILDING FLOOR PLANS SHOW LOCATION OF EQUIPMENT FOR DETERMINING CIRCUIT LENGTH WITHIN THE STRUCTURE. FOR CIRCUITS WITH UNDERGROUND PORTIONS, ANTICIPATED PENETRATION OF UNDERGROUND CONDUITS ARE SHOWN ON STRUCTURE PLANS FOR DETERMINING THE LENGTH OF THE IN-STRUCTURE PORTIONS OF CIRCUITS. BUILDING FLOOR PLANS MAY ALSO SHOW HOME RUNS FOR LIGHTING, RECEPTACLE, AND OTHER MISCELLANEOUS EQUIPMENT CIRCUITS.
 - C. SITE PLANS INDICATE THE GENERAL ROUTING OF UNDERGROUND CONDUITS AND DUCT BANKS. CIRCUITS ROUTED IN UNDERGROUND CONDUITS OR DUCT BANKS ARE INDICATED IN DUCT BANK SECTIONS REFERENCED ON THE SITE PLAN.
 - D. DUCT BANK SECTIONS AND SCHEDULES IDENTIFY CONDUIT SIZE CONDUIT MATERIAL, ARRANGEMENT OF THE UNDERGROUND CONDUITS, AND CIRCUITS ROUTED IN EACH UNDERGROUND CONDUIT.

100% PLANS

ISSUED FOR:

APPROVAL

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

DATE: 01/27/17

ENHANCED RECHARGE IN THE SANTA ANA RIVER BASIN PROJECT

SCALE:

DESIGNED:	DRAWN:
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DRAWN: SPECIFICATION NO. 14-01

NO SCALE

RM	AC
REVIEWED:	

ST. LOUIS LOCATION NO. 14-51

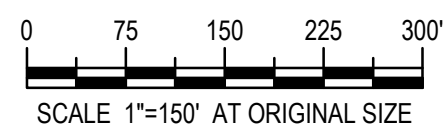
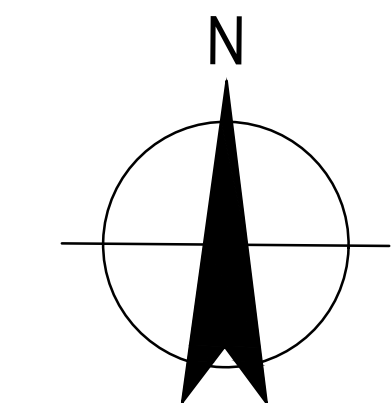
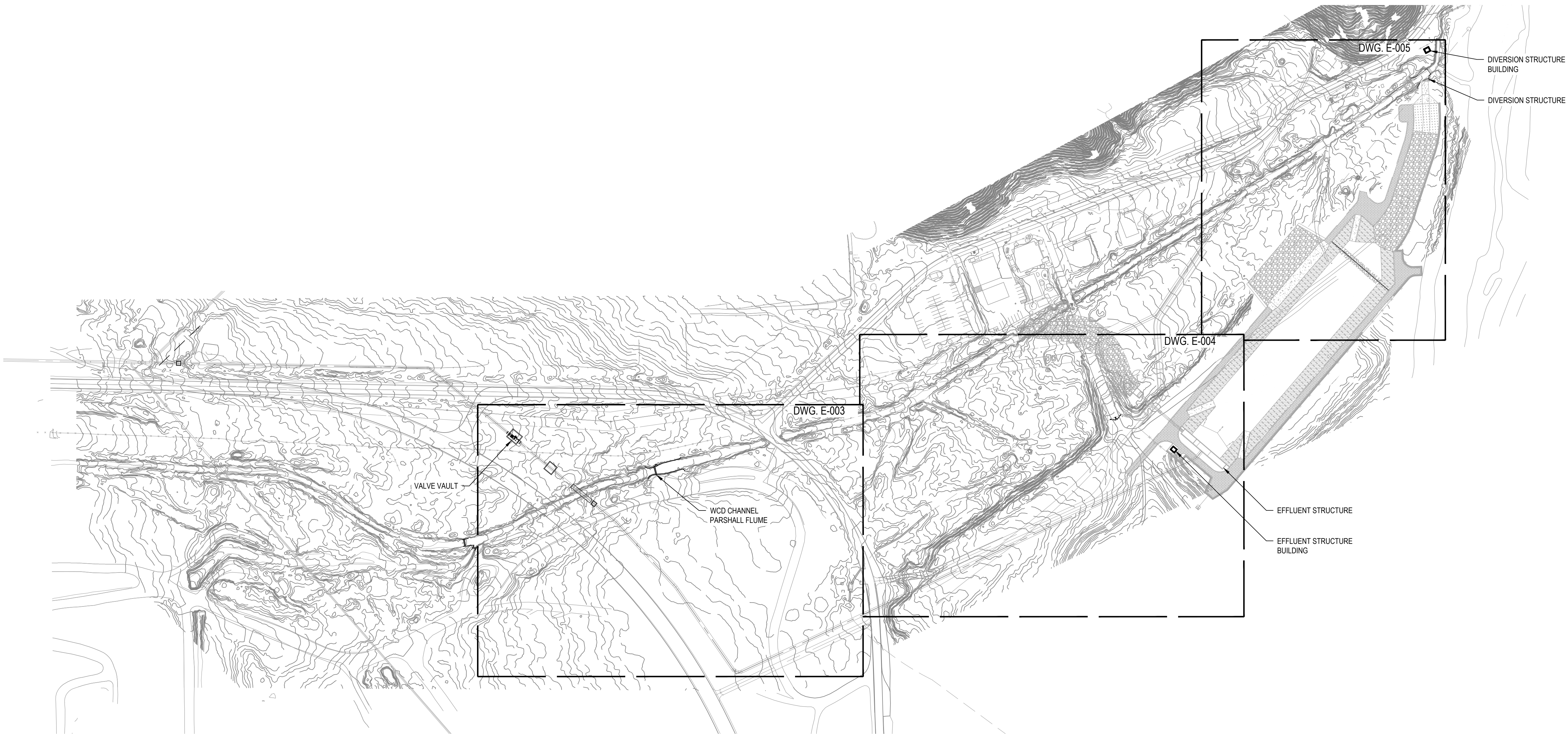
E-001

REVIEWED. RG

SHT. 50 OF 68 SHT

JOB NO:

DRAWING NO.



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CONSULTANT:



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175 Technology Drive Suite 200
Irvine California 92618 USA
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ENGINEER'S SEAL

PLANS PREPARED BY:

COVER SHEET HAS BEEN SIGNED AND DATED
XX/XX/XXXX
PROJECT ENGINEER DATE

APPROVED BY:

COVER SHEET HAS BEEN SIGNED AND DATED
XX/XX/XXXX
SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT DATE

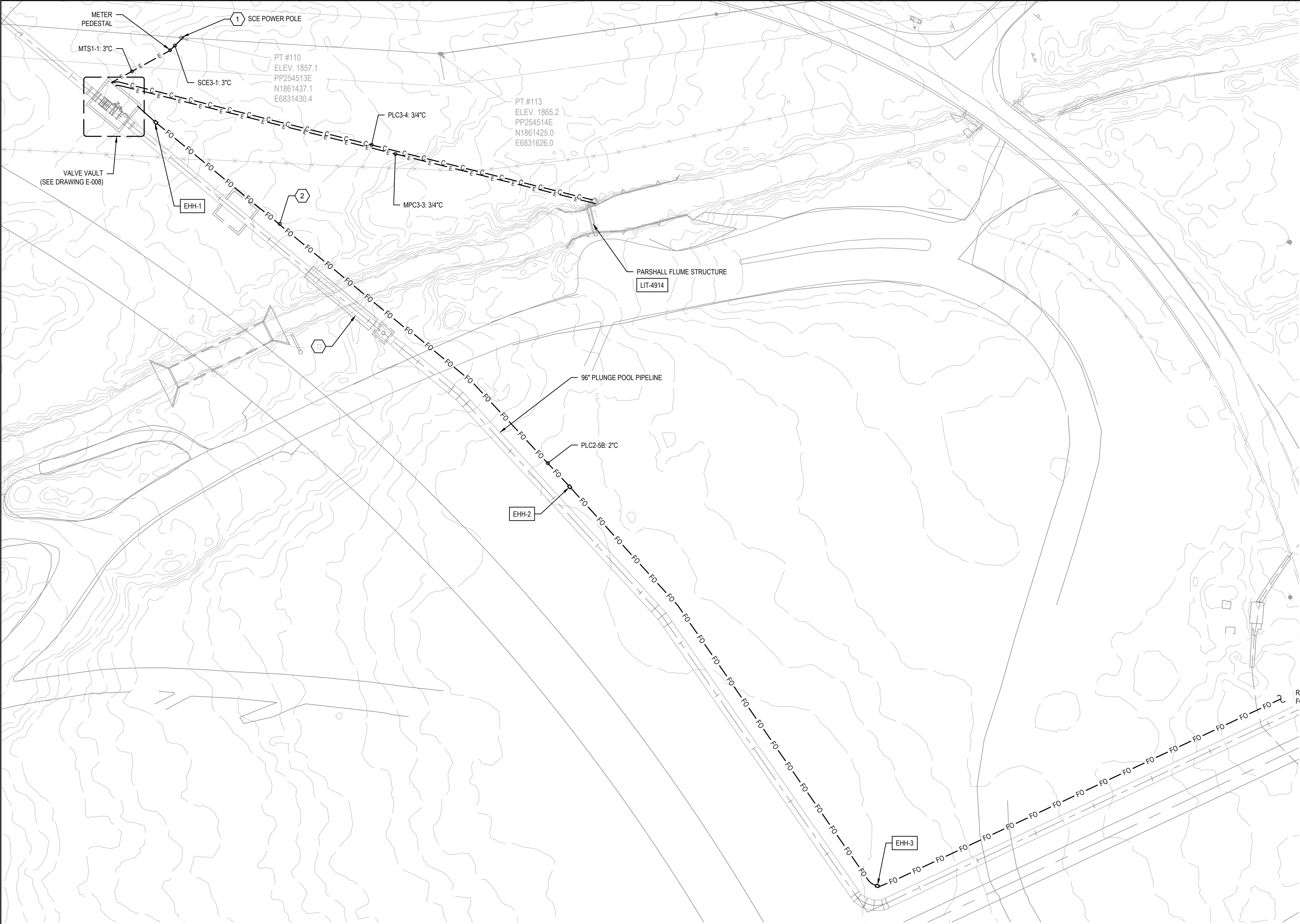
MARK	BY	DATE	REVISION



SAN BERNARDINO
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MUNICIPAL
WATER DISTRICT

380 EAST VANDERBILT WAY, SAN BERNARDINO, CA 92408
PHONE: (909) 387-9253 FAX: (909) 387-9247

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT		DATE: XX/XX/XXXX	SCALE: 1" = 150'
DESIGNED: RM	DRAWN: AC	DWG: E-002	SHT. 51 OF 68 SHTS.
REVIEWED: RG	JOB NO:	DRAWING NO.	
ENHANCED RECHARGE IN THE SANTA ANA RIVER BASIN PROJECT		SPECIFICATION NO. 14-01	
OVERALL SITE PLAN			

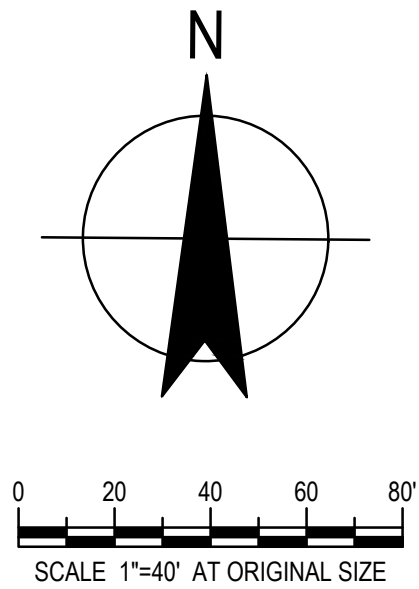


SHEET GENERAL NOTES

1. SEE DRAWING E-001 FOR ELECTRICAL LEGEND & ABBREVIATIONS AND GENERAL NOTES.

SHEET KEY NOTES

1. PROVIDE 3\"/>



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CONSULTANT:



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ENGINEER'S SEAL

PLANS PREPARED BY:

COVER SHEET HAS BEEN SIGNED AND DATED
XX/XX/XXXX
PROJECT ENGINEER DATE

APPROVED BY:

COVER SHEET HAS BEEN SIGNED AND DATED
XX/XX/XXXX
SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT DATE

MARK	BY	DATE			REVISION



SAN BERNARDINO
Valley
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WATER DISTRICT

380 EAST VANDERBILT WAY, SAN BERNARDINO, CA 92408
PHONE: (909) 387-9253 FAX: (909) 387-9247

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

DATE: XX/XX/XXXX
DESIGNED: RM
DRAWN: AC
REVIEWED: RG
JOB NO:

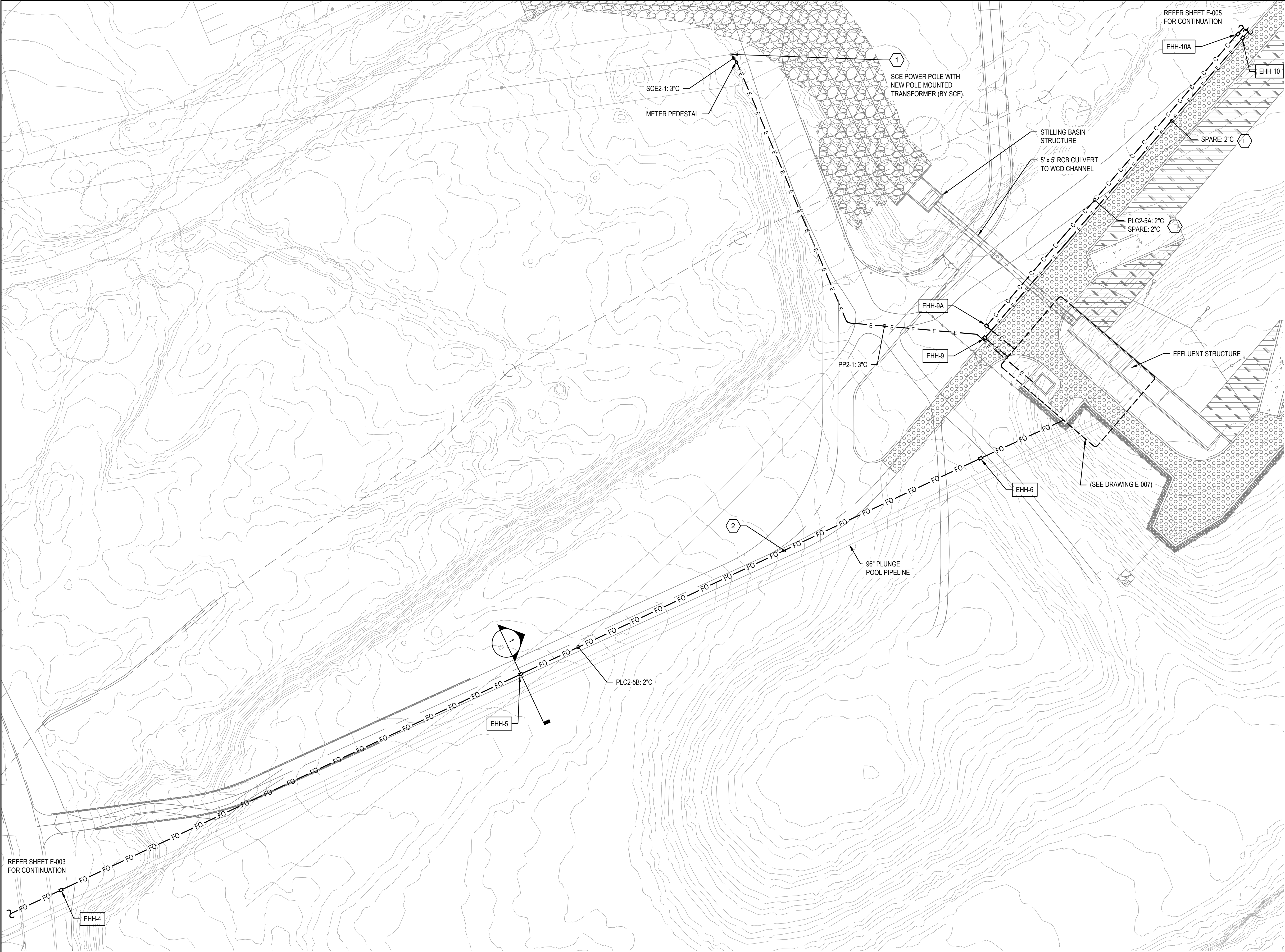
ENHANCED RECHARGE IN THE SANTA ANA RIVER BASIN PROJECT

SPECIFICATION NO. 14-01

VALVE VAULT SITE PLAN

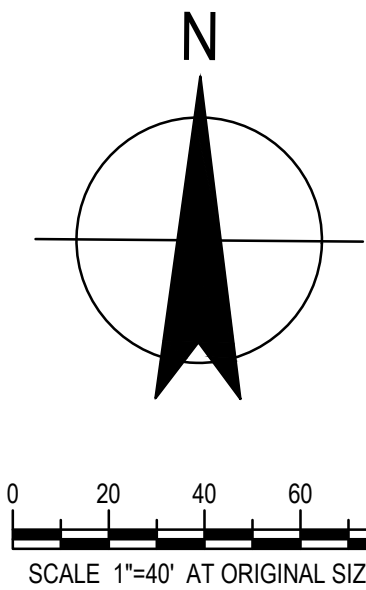
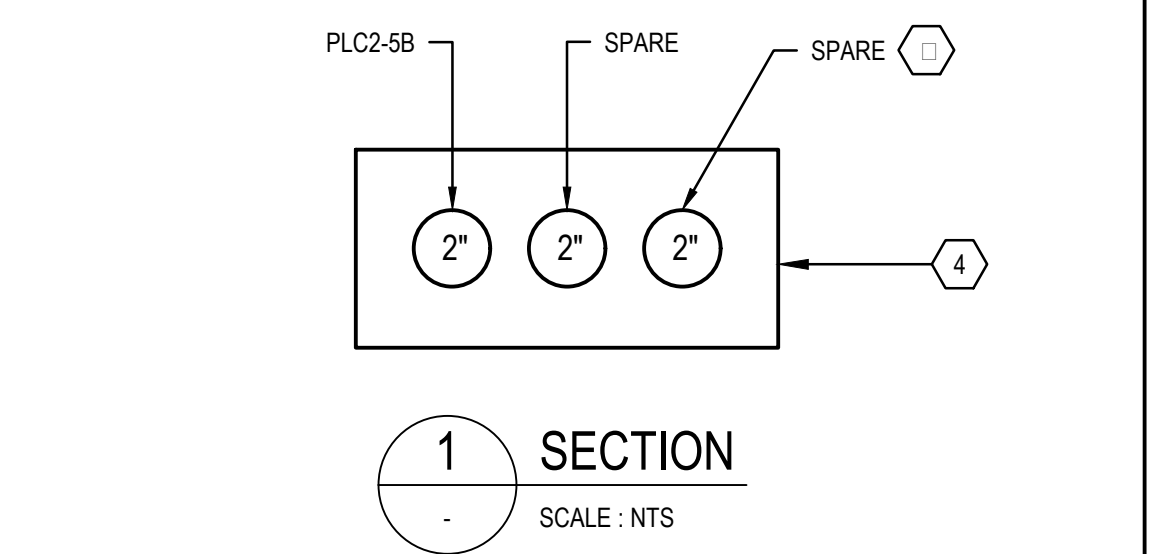
SCALE:
1" = 40'

DWG: E-003
SHT. 52 OF 68 SHTS.
DRAWING NO.



- SHEET GENERAL NOTES**
1.

SEE DRAWING E-001 FOR ELECTRICAL LEGEND & ABBREVIATIONS AND GENERAL NOTES.



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ENGINEER'S SEAL

PLANS PREPARED BY:

COVER SHEET HAS BEEN SIGNED AND DATED
XX/XX/XXXX
PROJECT ENGINEER

DATE

APPROVED BY:

COVER SHEET HAS BEEN SIGNED AND DATED
XX/XX/XXXX
SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

DATE

MARK	BY	DATE	REVISION

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT
380 EAST VANDERBILT WAY, SAN BERNARDINO, CA 92408
PHONE: (909) 387-9253 FAX: (909) 387-9247

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

DATE: XX/XX/XXXX
DESIGNED: RM
DRAWN: AC
REVIEWED: RG
JOB NO:

ENHANCED RECHARGE IN THE SANTA ANA RIVER BASIN PROJECT

SPECIFICATION NO. 14-01

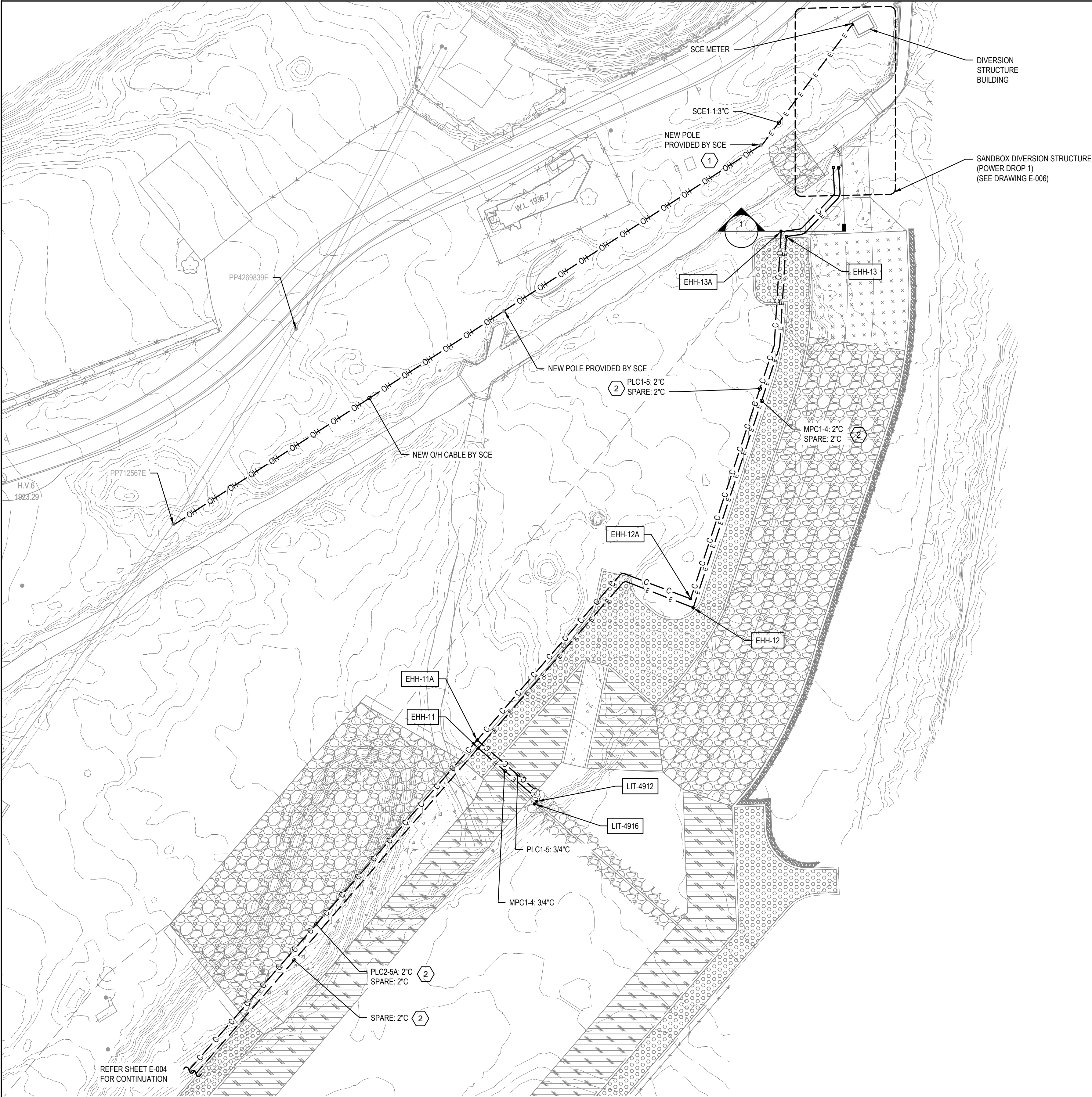
PLUNGE POOL PIPELINE
SITE PLAN

SCALE:
1" = 40'

DWG: E-004

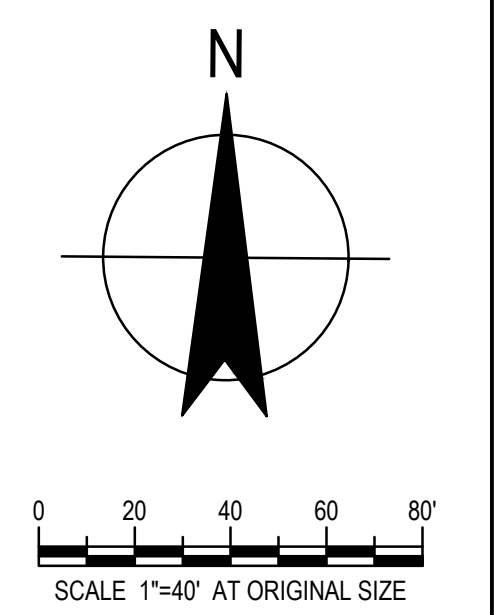
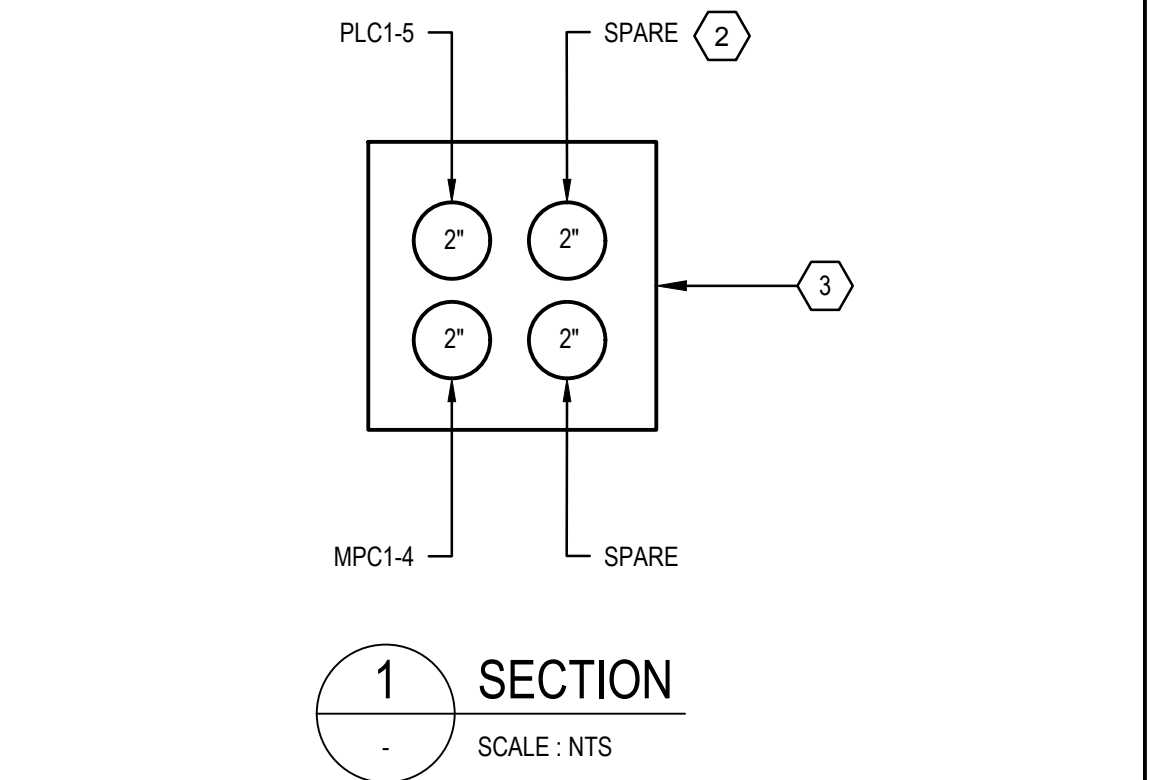
SHT. 53 OF 68 SHTS.

DRAWING NO.



- SHEET GENERAL NOTES**
1.

SEE DRAWING E-001 FOR ELECTRICAL LEGEND & ABBREVIATIONS AND GENERAL NOTES.



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ENGINEER'S SEAL

PLANS PREPARED BY:

COVER SHEET HAS BEEN SIGNED AND DATED

XX/XX/XXXX

PROJECT ENGINEER

DATE

APPROVED BY:

COVER SHEET HAS BEEN SIGNED AND DATED

XX/XX/XXXX

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

DATE

MARK	BY	DATE	REVISION

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

380 EAST VANDERBILT WAY, SAN BERNARDINO, CA 92408

PHONE: (909) 387-9253 FAX: (909) 387-9247

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

DATE: XX/XX/XXXX

DESIGNED: RM DRAWN: AC

REVIEWED: RG

JOB NO:

ENHANCED RECHARGE IN THE SANTA ANA RIVER BASIN PROJECT

SPECIFICATION NO. 14-01

SEDIMENTATION BASIN SITE PLAN

SCALE:

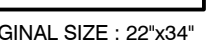
1" = 40'

DWG: E-005

SHT 54 OF 68 SHTS

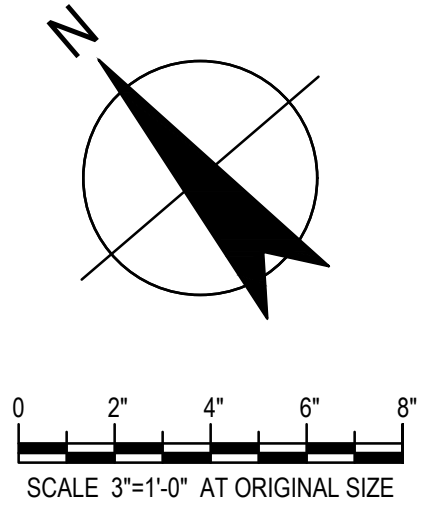
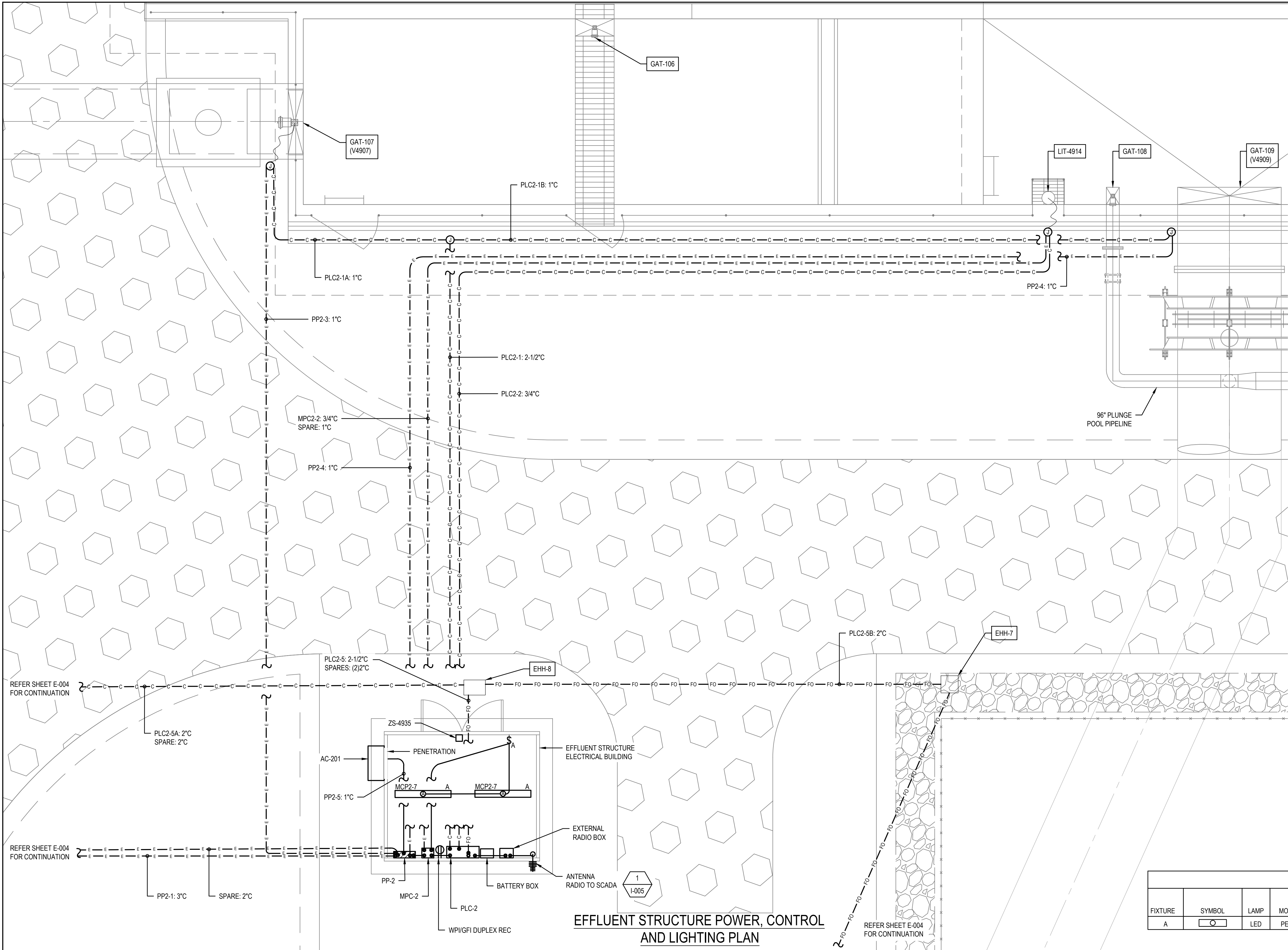
DRAWING NO.

1. SEE DRAWING E-001 FOR ELECTRICAL LEGEND & ABBREVIATIONS AND GENERAL REQUIREMENTS.



SHEET GENERAL NOTES

1. SEE DRAWING E-001 FOR ELECTRICAL LEGEND & ABBREVIATIONS AND GENERAL REQUIREMENTS.



LIGHTING FIXTURE SCHEDULE						
FIXTURE	SYMBOL	LAMP	MOUNTING	DESCRIPTION	MANUFACTURER	FIXTURE WATTS
A		LED	PENDANT	INDUSTRIAL STRIP LED SUITABLE FOR WET AREAS	CREE WS4-63L-40K-FD-SSL	64

100% PLANS

ISSUED FOR:
APPROVAL

CONSULTANT:



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Irvine California 92618 USA
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ENGINEER'S SEAL

PLANS PREPARED BY:

COVER SHEET HAS BEEN SIGNED AND DATED
XX/XX/XXXX
PROJECT ENGINEER
DATE

APPROVED BY:

COVER SHEET HAS BEEN SIGNED AND DATED
XX/XX/XXXX
SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT
DATE

MARK	BY	DATE	REVISION



SAN BERNARDINO
Valley
MUNICIPAL
WATER DISTRICT

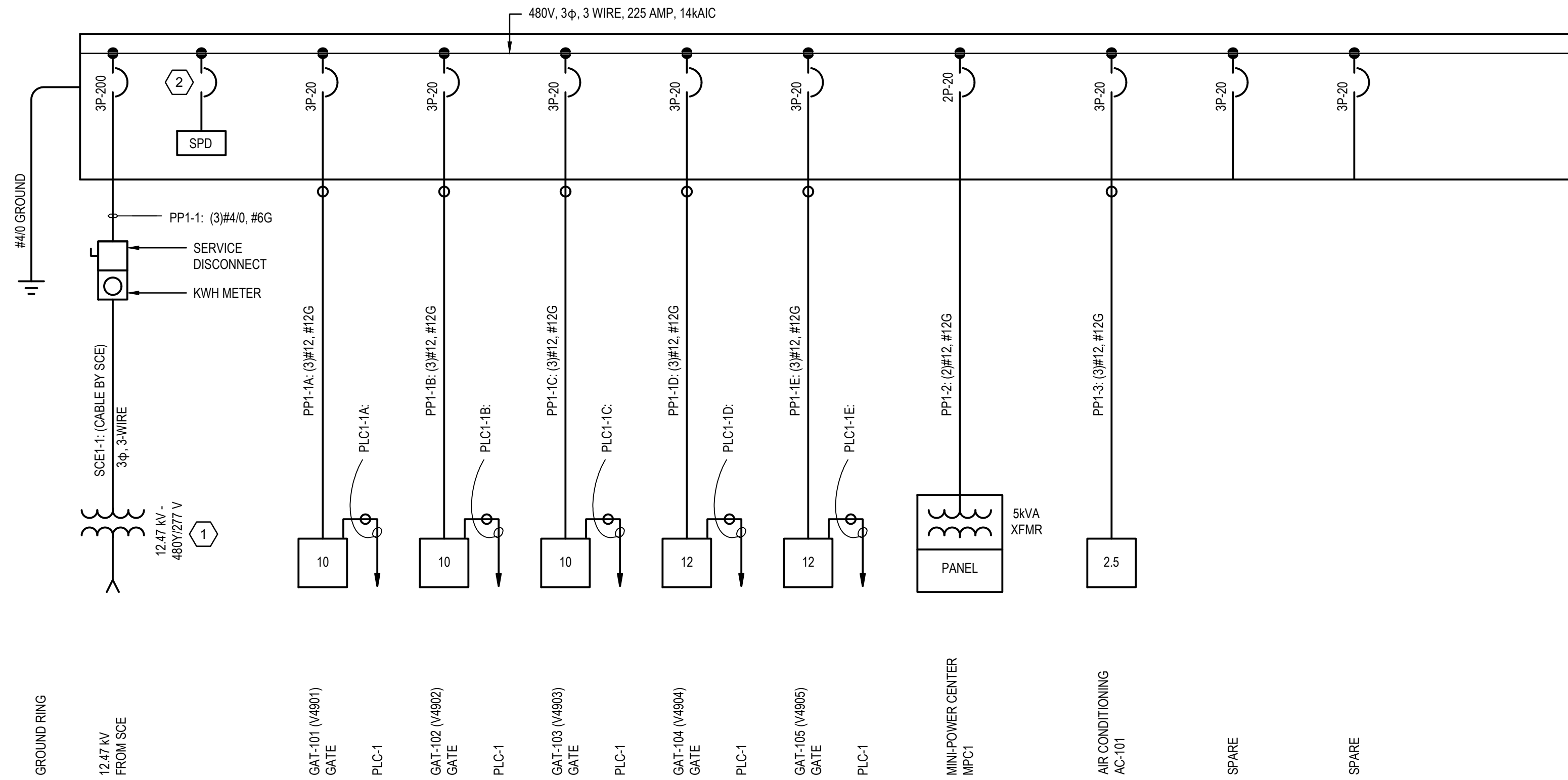
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PHONE: (909) 387-9253 FAX: (909) 387-9247

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

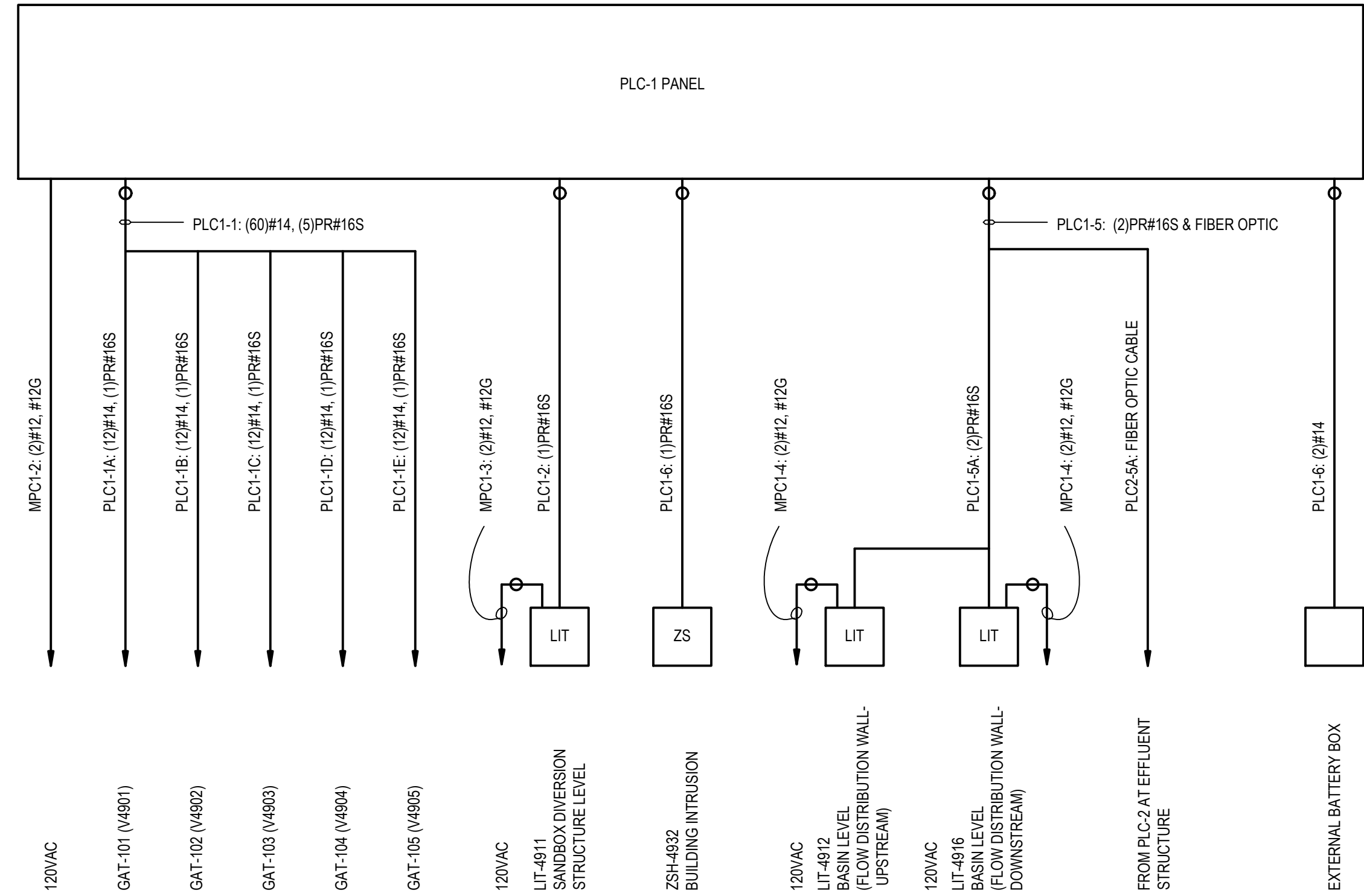
DATE: XX/XX/XXXX
DESIGNED: RM
DRAWN: AC
REVIEWED: RG
JOB NO:

ENHANCED RECHARGE IN THE SANTA ANA RIVER BASIN PROJECT
SPECIFICATION NO. 14-01
EFFLUENT STRUCTURE POWER,
CONTROL AND LIGHTING PLAN

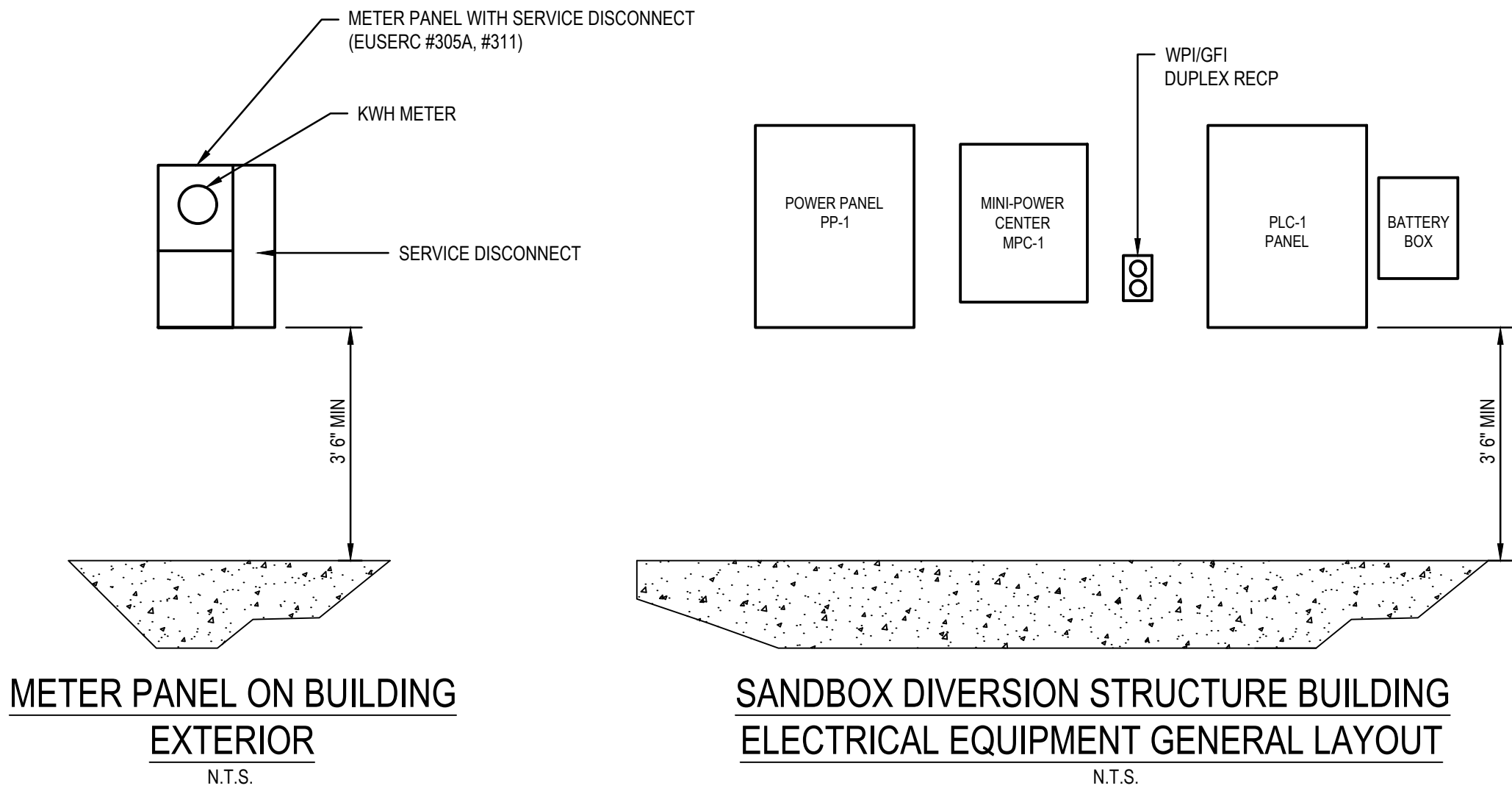
SCALE:
3" = 1'-0"
E-007
SHT. 56 OF 68 SHTS.
DRAWING NO.



PP-1 SINGLE-LINE DIAGRAM



PLC-1 SINGLE-LINE DIAGRAM



PHASE		PANEL BOARD: MPC-1	BUS: COPPER				MAINS: 2P-25A MAIN BREAKER				PHASE	
"L1"	"L2"	SERVICE: 120/240 V, 1PH, 3W, 3LN	RATING: 100A				LOCATION: SANDBOX DIVERSION BUILDING				"L1"	"L2"
VA	VA	MOUNTING: SURFACE									VA	VA
		LOAD	P	BKR	CKT #	BKR	P	LOAD				
			1	20	1	2	20	1	PLC-1 PANEL	500		
			1	20	3	4	20	1	LIT-4912		100	
			1	20	5	6	20	1				
		128 SANDBOX DIVERSION BUILDING LIGHTS	1	20	7	8	20	1	LIT-4916		100	
			1	20	9	10	20	1				
		180 GFI-RECEPT	1	20	11	12	20	1				
0		TOTAL "L1"	500				TOTAL "L1" 500					
408		TOTAL "L2"	608				TOTAL "L2" 200					
TOTAL LOAD (VA) =			1108									

MINI-POWER CENTER MPC-1 SCHEDULE

SHEET GENERAL NOTES

- SEE DRAWING E-001 FOR ELECTRICAL LEGEND & ABBREVIATIONS AND GENERAL REQUIREMENTS.

SHEET KE NOTES

- SCE TO PROVIDE POLE TOP TRANSFORMER TO SUIT LOAD.
- POWER PANEL MANUFACTURER SHALL SIZE SPD BREAKER.

100% PLANS

ISSUED FOR:

APPROVAL

CONSULTANT:



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Irvine California 92618 USA
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ENGINEER'S SEAL

PLANS PREPARED BY:

COVER SHEET HAS BEEN SIGNED AND DATED
XX/XX/XXXX
PROJECT ENGINEER DATE

APPROVED BY:

COVER SHEET HAS BEEN SIGNED AND DATED
XX/XX/XXXX
SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT DATE

MARK

BY

DATE

REVISION



SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

DATE: XX/XX/XXXX

DESIGNED: RM DRAWN: AC

REVIEWED: RG

JOB NO:

ENHANCED RECHARGE IN THE SANTA ANA RIVER BASIN PROJECT

SPECIFICATION NO. 14-01

SANDBOX DIVERSION STRUCTURE

SINGLE-LINE DIAGRAMS,

SCHEDULES AND DETAILS

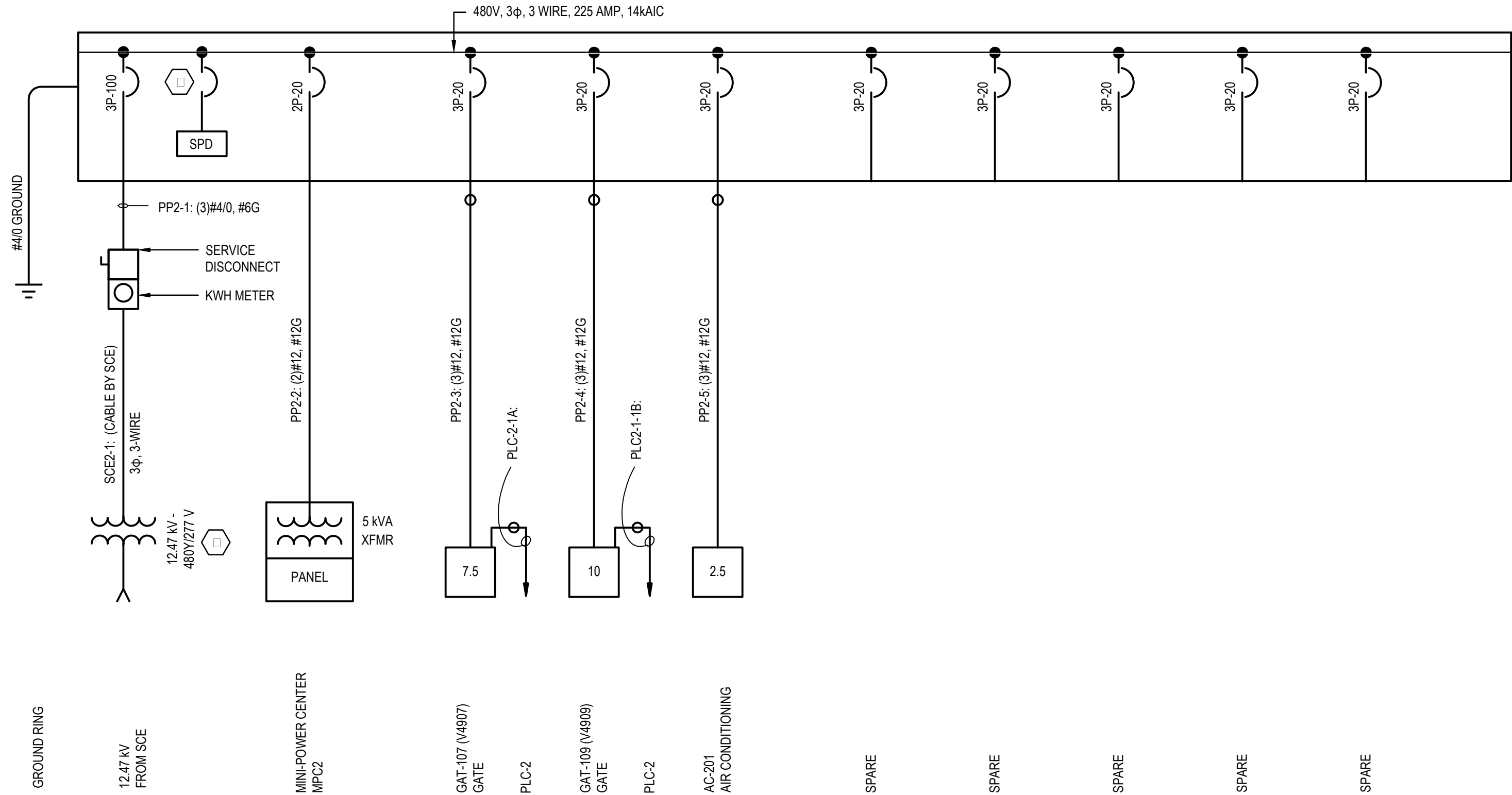
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NO SCALE

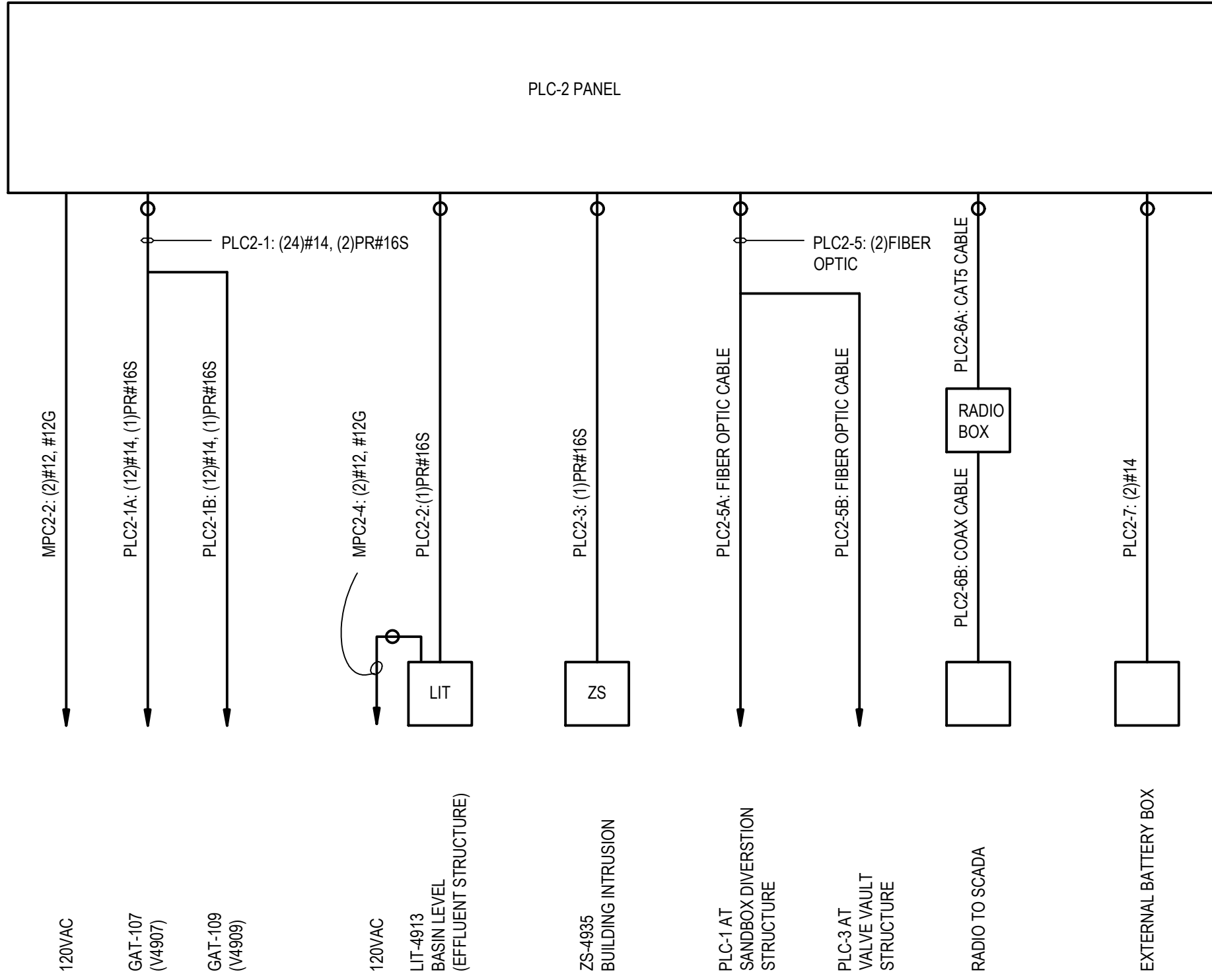
DWG: E-009

SHT. 58 OF 68 SHTS

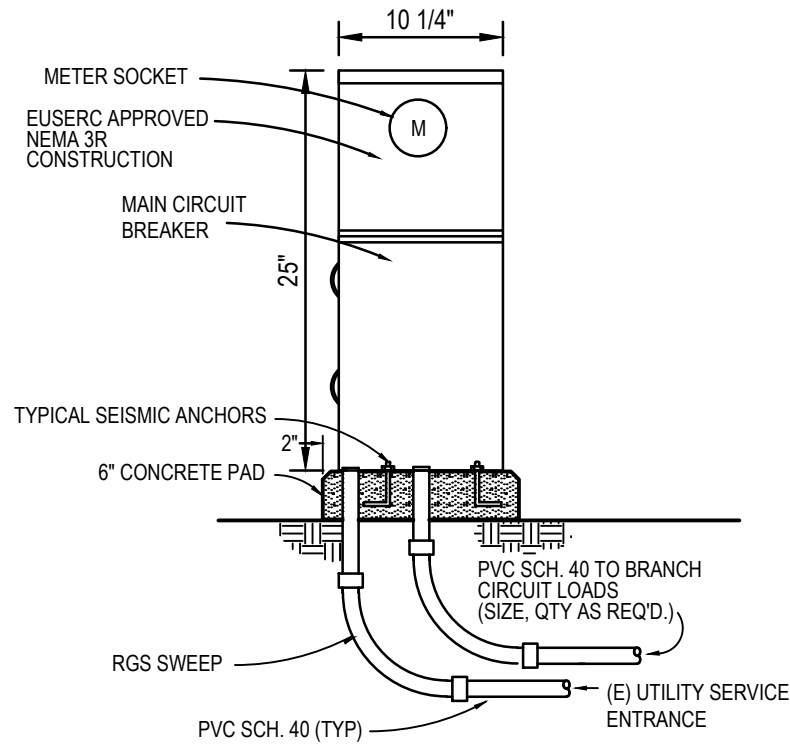
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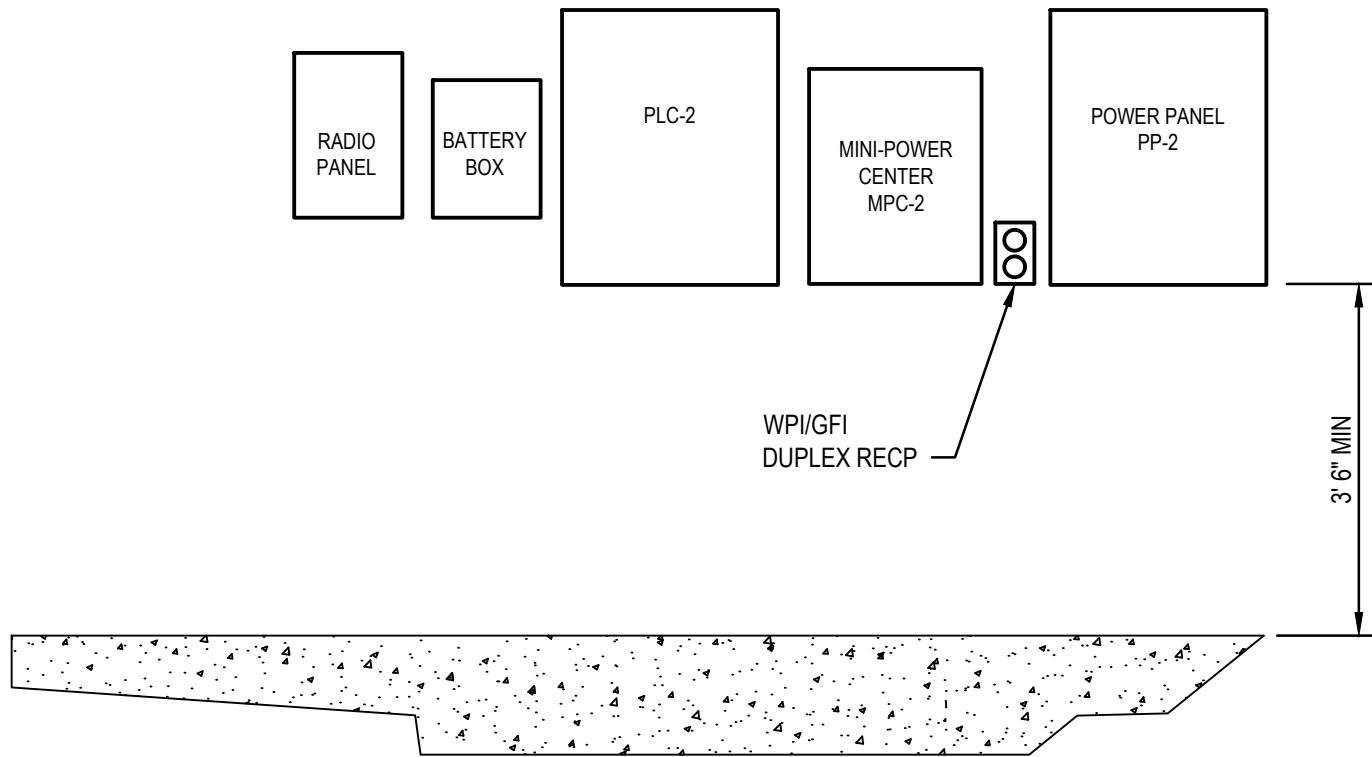
PP-2 SINGLE-LINE DIAGRAM



PLC-2 SINGLE-LINE DIAGRAM



METER PEDESTAL
GENERAL LAYOUT



EFFLUENT STRUCTURE/CONTROL BUILDING
ELECTRICAL EQUIPMENT LAYOUT

PHASE		PANEL BOARD: MPC-2	BUS: COPPER				MAINS: 2P-25A MAIN BREAKER		PHASE	
"L1"	"L2"	SERVICE: 120/240 V, 1PH, 3W, S/N	RATING: 100A				LOCATION: EFFLUENT BUILDING		"L1"	"L2"
VA	VA	MOUNTING: SURFACE							VA	VA
		LOAD	P	BKR	CKT #	BKR	P	LOAD		
			1	20	1	2	20	1	PLC-2 PANEL	500
			1	20	3	4	20	1	LIT-4913	100
			1	20	5	6	20	1		
			1	20	7	8	20	1		
			1	20	9	10	20	1		
			1	20	11	12	20	1		
		TOTAL "L1"	500				TOTAL "L1"		500	
		TOTAL "L2"	408				TOTAL "L2"		100	
TOTAL LOAD (VA) =			908							

MINI-POWER CENTER MPC-2 SCHEDULE

SHEET GENERAL NOTES

1. SEE DRAWING E-001 FOR ELECTRICAL LEGEND & ABBREVIATIONS AND GENERAL REQUIREMENTS.

SHEET KE□NOTES

1. DIMENSIONS SHOWN ARE APPROXIMATE BASED ON TESCO 27-000 PEDESTAL. DETERMINE EXACT DIMENSIONS IN FIELD. PEDESTAL SHALL COMPLY WITH EUSERC #308.
2. WRAP STEEL CONDUIT WITH INSULATING TAPE WHERE IN CONTACT WITH EARTH OR CONCRETE.
3. SCE TO PROVIDE POLE TOP TRANSFORMER TO SUIT LOAD.
4. POWER PANEL MFR SHALL SIZE SPD BREAKER.

100% PLANS

ISSUED FOR:
APPROVAL

CONSULTANT:
 GHD Inc.
175 Technology Drive Suite 200
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ENGINEER'S SEAL

PLANS PREPARED BY:

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XX/XX/XXXX
PROJECT ENGINEER DATE

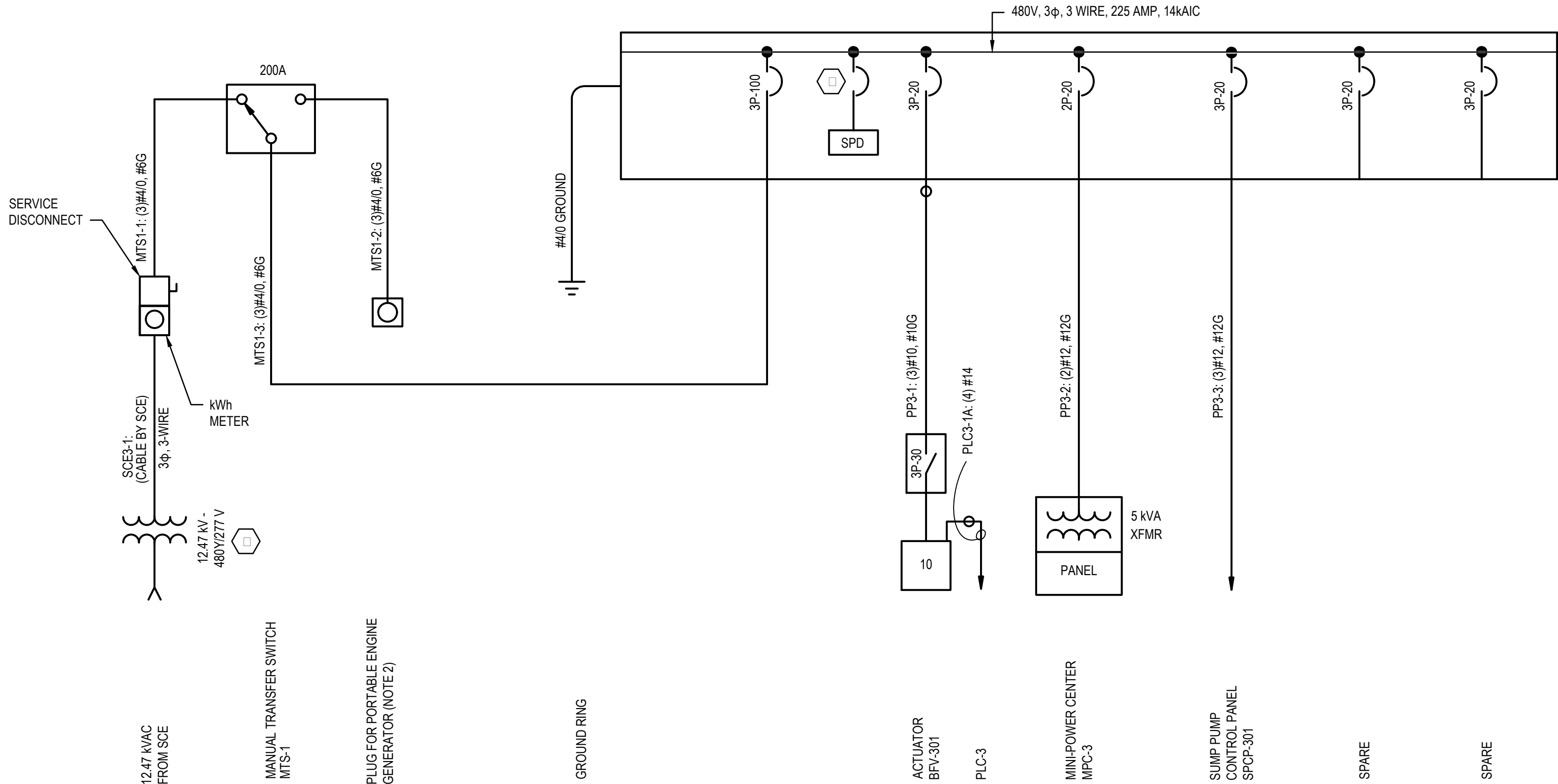
APPROVED BY:

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SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT DATE

MARK BY DATE REVISION

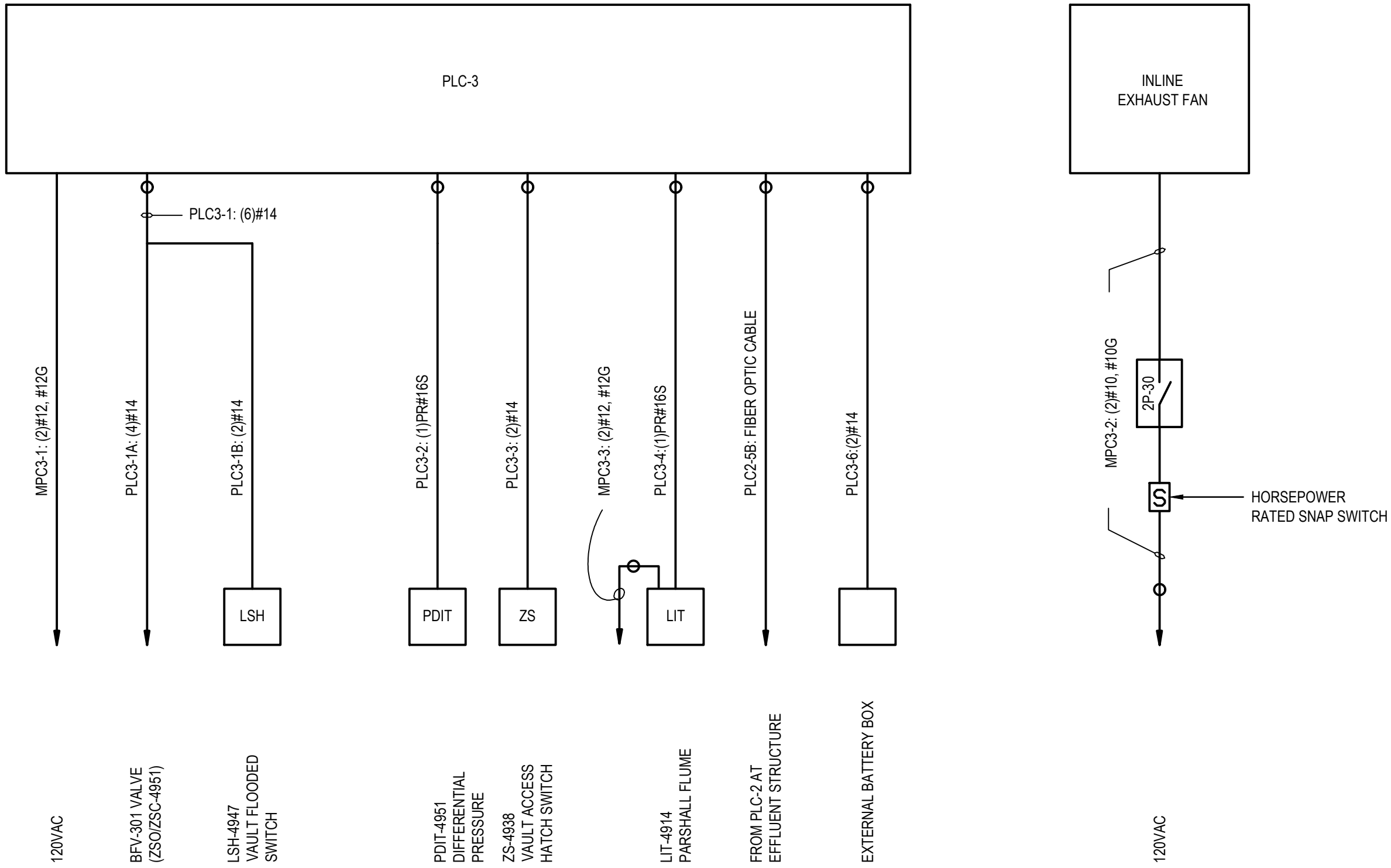
SAN BERNARDINO
VALLEY
MUNICIPAL
WATER DISTRICT
380 EAST VANDERBILT WAY, SAN BERNARDINO, CA 92408
PHONE: (909) 387-9253 FAX: (909) 387-9247

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT
DATE: XX/XX/XXXX
DESIGNED: RM DRAWN: AC
REVIEWED: RG
JOB NO:
SPECIFICATION NO. 14-01
EFFLUENT STRUCTURE
SINGLE-LINE DIAGRAMS,
SCHEDULES AND DETAILS
SCALE:
NO SCALE
DWG: E-010
SHT. 59 OF 68 SHTS.
DRAWING NO.



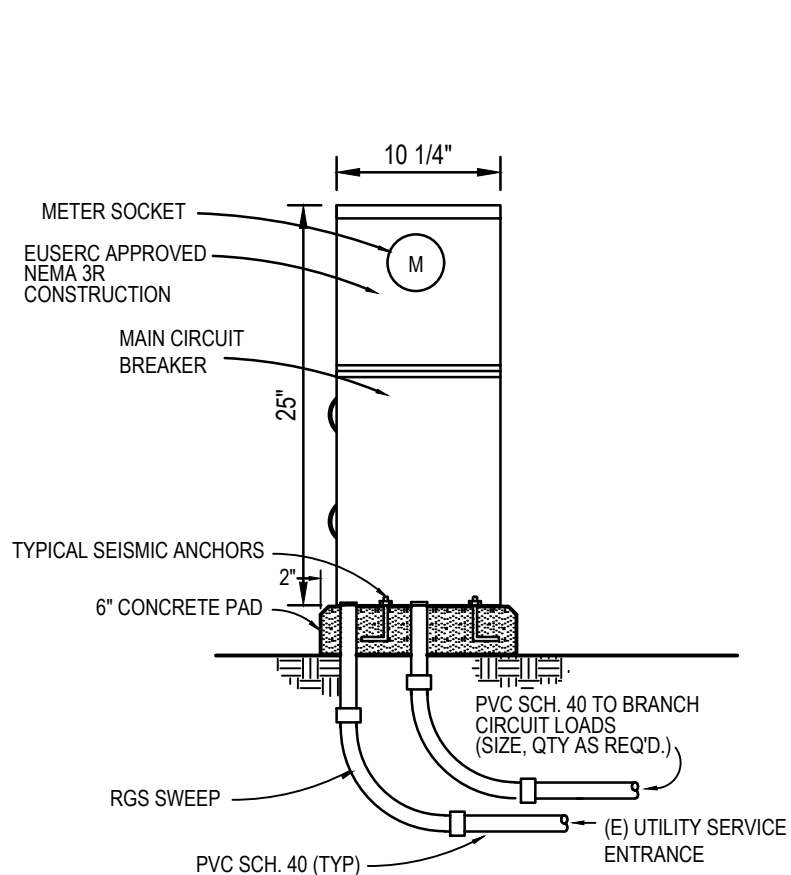
MANUAL TRANSFER SWITCH MTS-1
SINGLE-LINE DIAGRAM

PP-3 SINGLE-LINE DIAGRAM
NTS

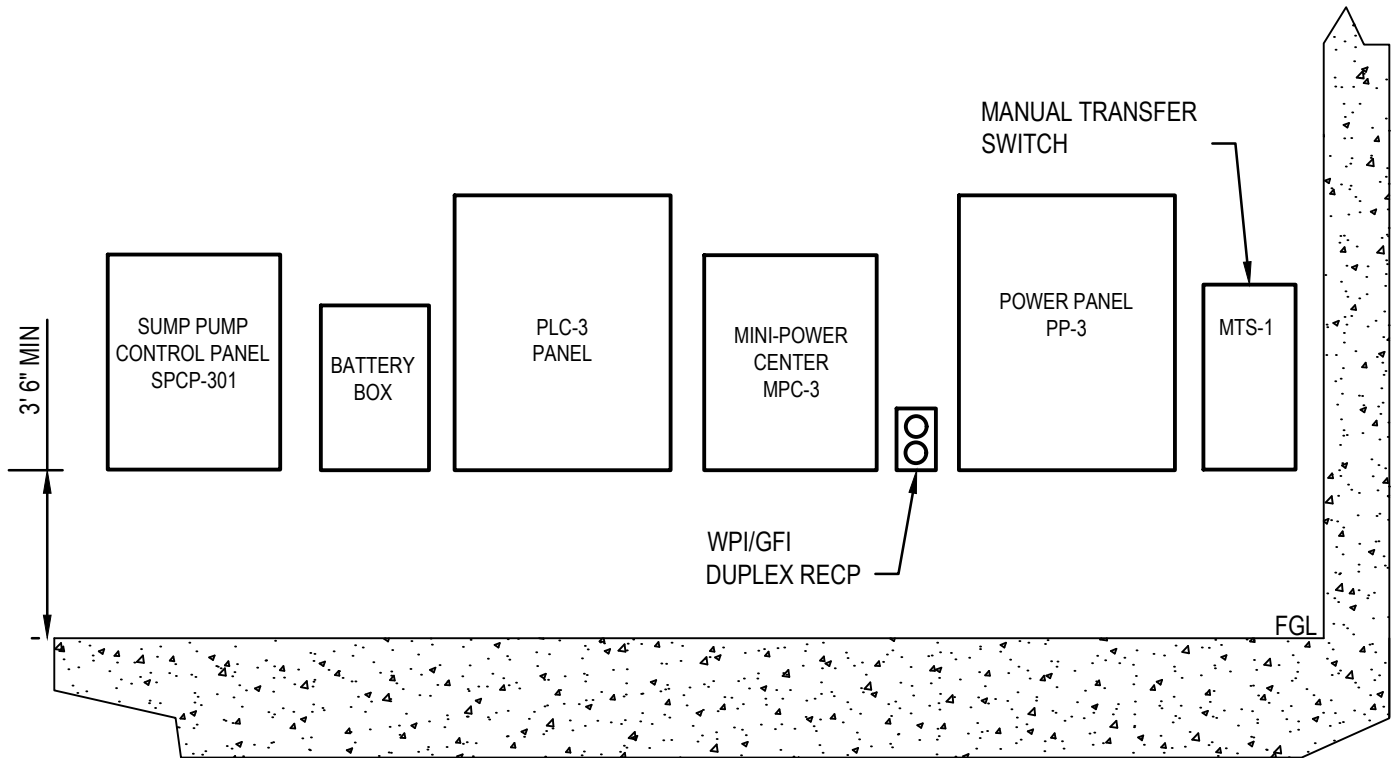


PLC-3 SINGLE-LINE DIAGRAM

INLINE EXHAUST FAN EF-301
SINGLE-LINE DIAGRAM



METER PEDESTAL
GENERAL LAYOUT
NTS



VALVE VAULT ELECTRICAL EQUIPMENT LAYOUT
NTS

PHASE		PANEL BOARD: MPC-3				BUS: COPPER				MAINS: 2P-25A MAIN BREAKER				PHASE			
"L1"	"L2"	SERVICE: 120/240 V, 1PH, 3W, S/N				RATING: 100A				LOCATION: VALVE VAULT STRUCTURE				"L1"	"L2"		
VA	VA	MOUNTING: SURFACE												VA	VA		
		LOAD				P	BKR	CKT #	BKR	P	LOAD						
						1	20	1	2	20	1	GFI RECEPT.				180	
						1	20	3	4	20	1	INLINE EXHAUST FAN EF-301					750
500		PLC-3 PANEL				1	20	5	6	20	1	VAULT LIGHTS				120	
	100	LIT-4914				1	20	7	8	20	1						
						1	20	9	10	20	1						
						1	20	11	12	20	1						
500		TOTAL "L1"				800				TOTAL "L1"				300			
	100	TOTAL "L2"				850				TOTAL "L2"					750		
TOTAL LOAD (VA) =						1650											

MINI-POWER CENTER MPC-3 SCHEDULE

SHEET GENERAL NOTES

- SEE DRAWING E-001 ELECTRICAL LEGEND & ABBREVIATIONS AND GENERAL REQUIREMENTS.
- CONTRACTOR SHALL FURNISH AND INSTALL A LUG BOX IN THE ROOF OF THE VALVE VAULT SUITABLE FOR CONNECTING THE OWNERS PORTABLE ENGINE GENERATOR.

SHEET KE NOTES

- DIMENSIONS SHOWN ARE APPROXIMATE BASED ON TESCO 27-000 PEDESTAL. DETERMINE EXACT DIMENSIONS IN FIELD. PEDESTAL SHALL COMPLY WITH EUSERC #308.
- WRAP STEEL CONDUIT WITH INSULATING TAPE WHERE IN CONTACT WITH EARTH OR CONCRETE.
- SCE TO PROVIDE POLE TOP TRANSFORMER TO SUIT LOAD.
- POWER PANEL MANUFACTURER SHALL SIZE SPD BREAKER.

100% PLANS

ISSUED FOR:
APPROVAL

CONSULTANT:



GHD Inc.
175 Technology Drive Suite 200
Irvine California 92618 USA
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SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT DATE

MARK

BY

DATE

REVISION



SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

DATE: XX/XX/XXXX

DESIGNED: RM DRAWN: AC

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ENHANCED RECHARGE IN THE SANTA ANA RIVER BASIN PROJECT

SPECIFICATION NO. 14-01

VALVE VAULT
SINGLE-LINE DIAGRAMS,
SCHEDULES AND DETAILS

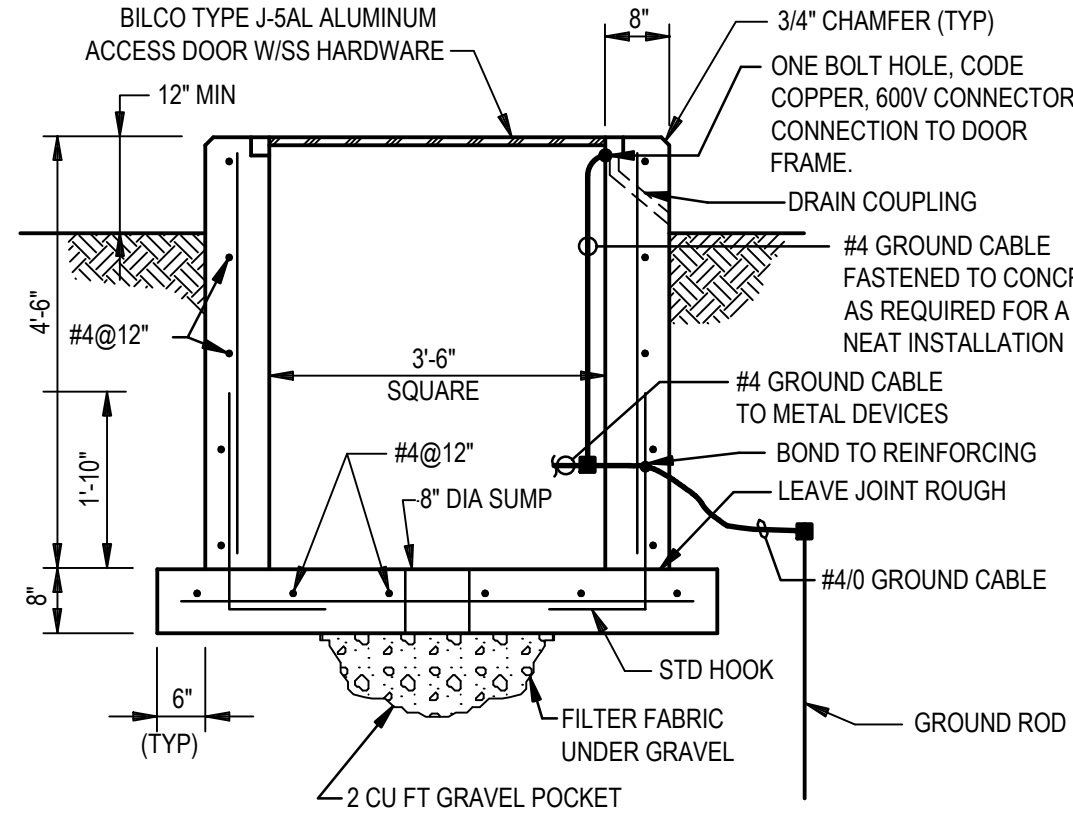
SCALE:

NO SCALE

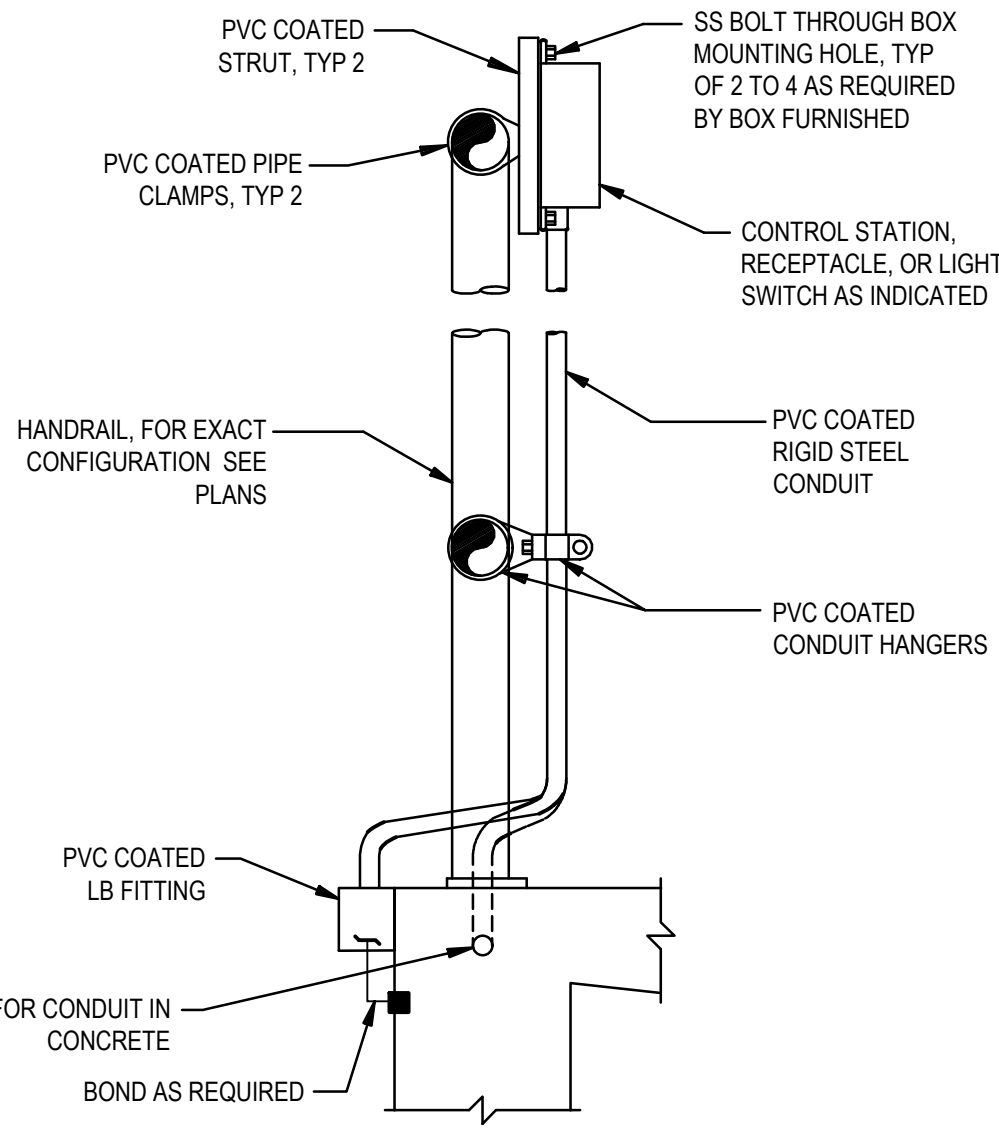
DWG: E-011

SHT 60 OF 68 SHTS

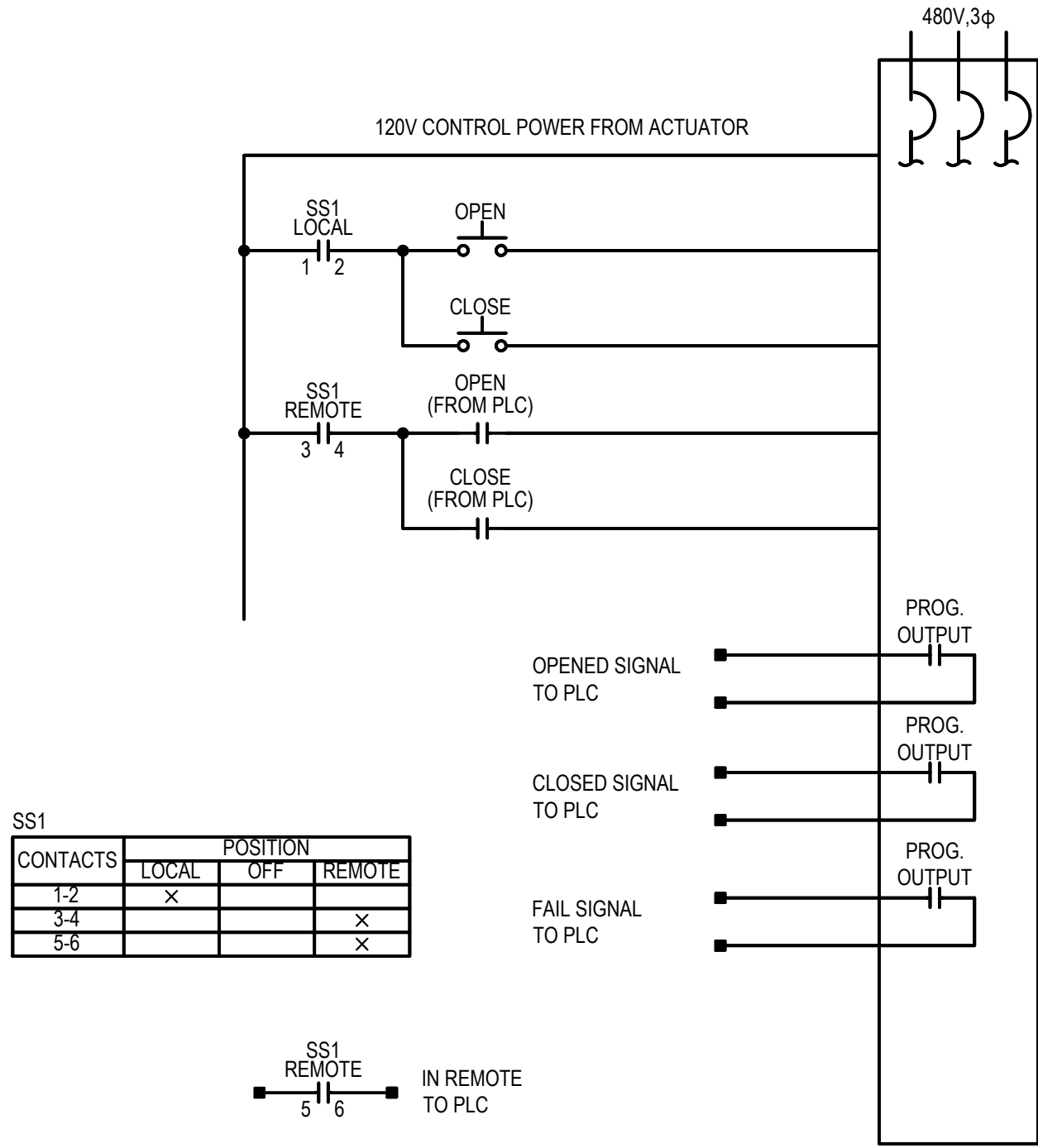
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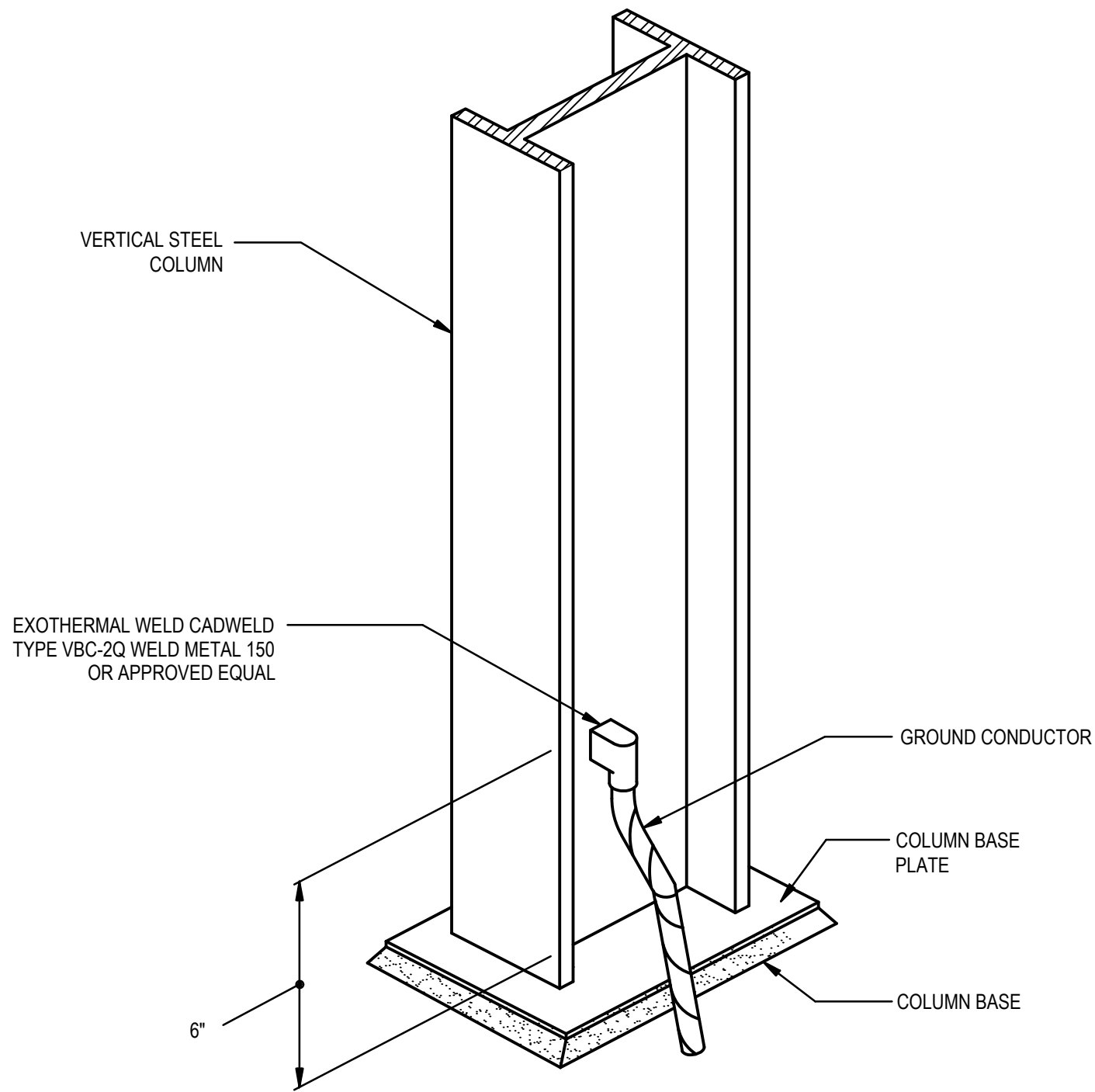
1 TYPICAL ELECTRICAL HANDHOLE DETAIL
SCALE : NTS NOT SUITABLE FOR ROADWAY LOCATIONS



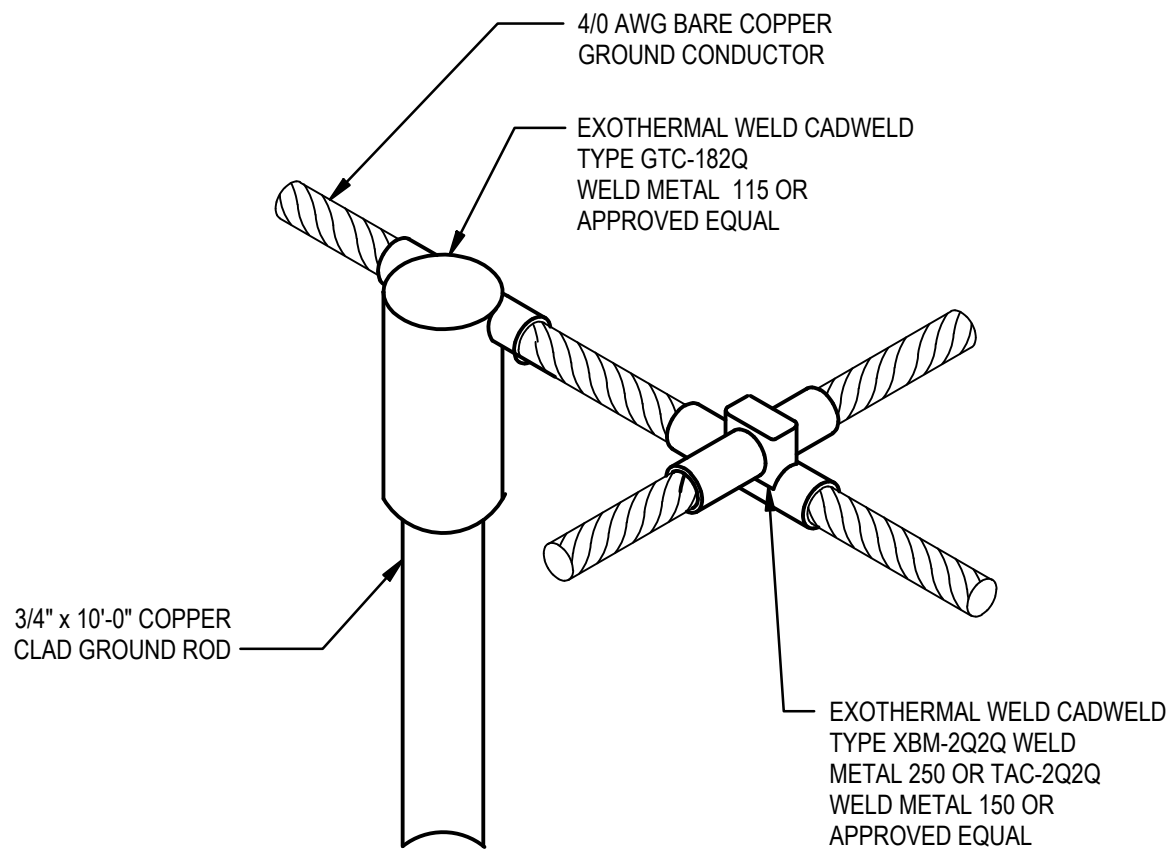
2 TYPICAL HANDRAIL MOUNTING DETAIL
SCALE : NTS NOT SUITABLE FOR ROADWAY LOCATIONS



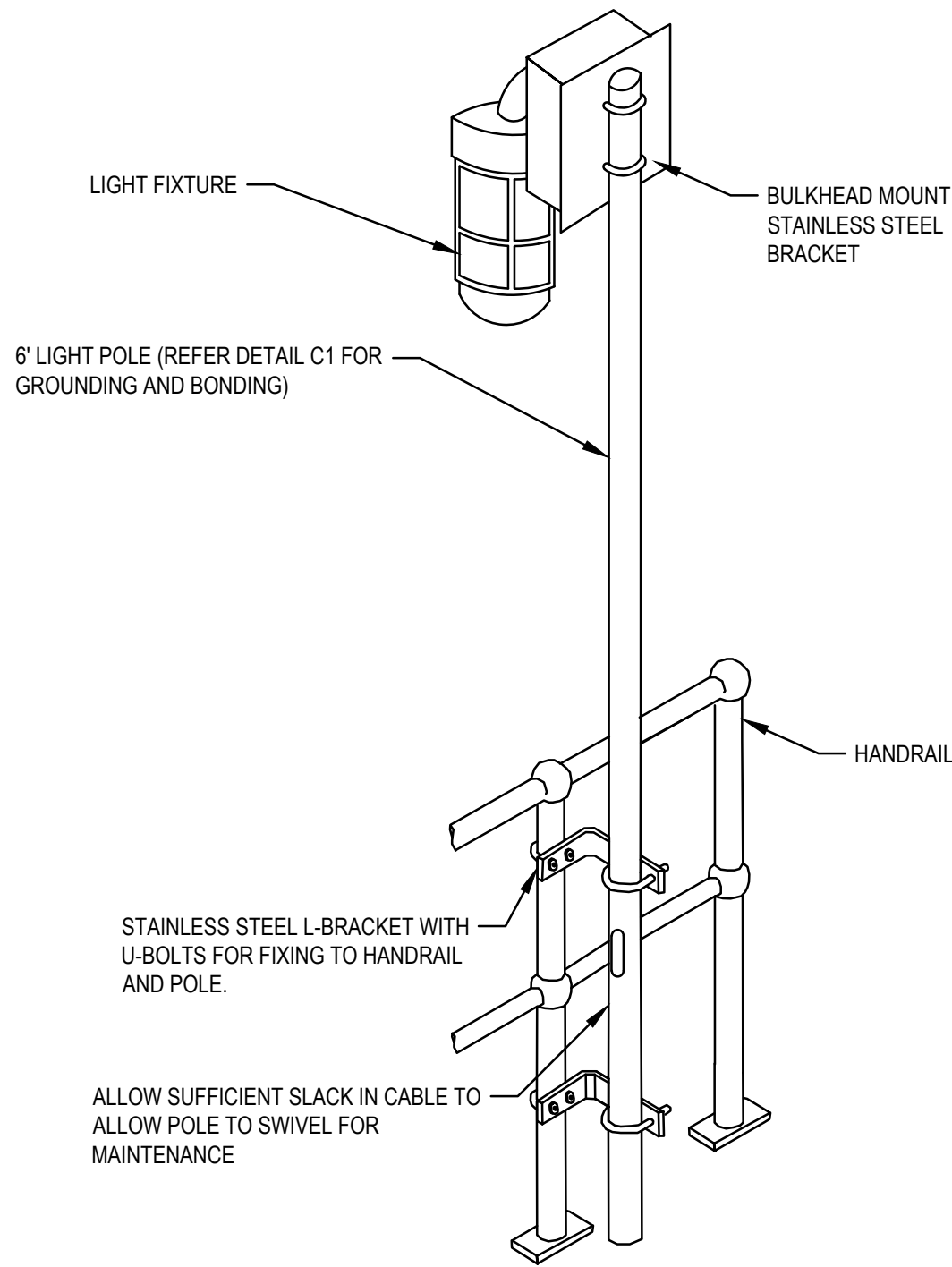
3 PROGRAMMABLE OPEN CLOSE GATE ACTUATOR
SCALE : NTS (TYP. FOR GAT-101, GAT-102, GAT-103, GAT-104, & GAT-105)



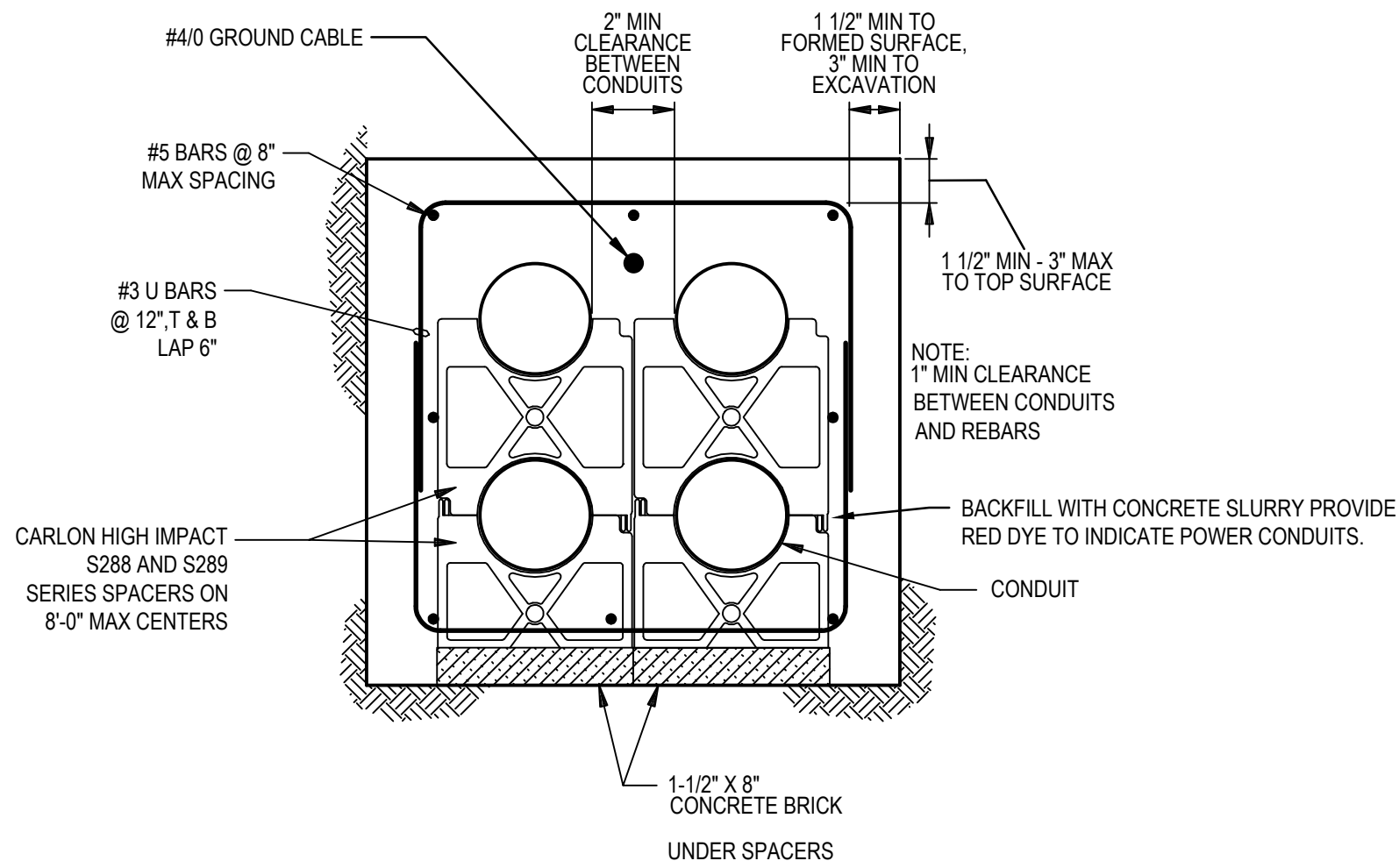
4 TYPICAL EXOTHERMAL WELD STRUCTURE COLUMN GROUNDING
SCALE: NTS



5 TYPICAL EXOTHERMAL WELD GROUND ROD AT CROSS OR TEE CONNECTION
SCALE: NTS



6 VALVE VAULT HANDRAIL-MOUNTED LIGHTING
SCALE: NTS



7 TYPICAL DUCT BANK DETAIL
SCALE: NTS

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ISSUED FOR: APPROVAL

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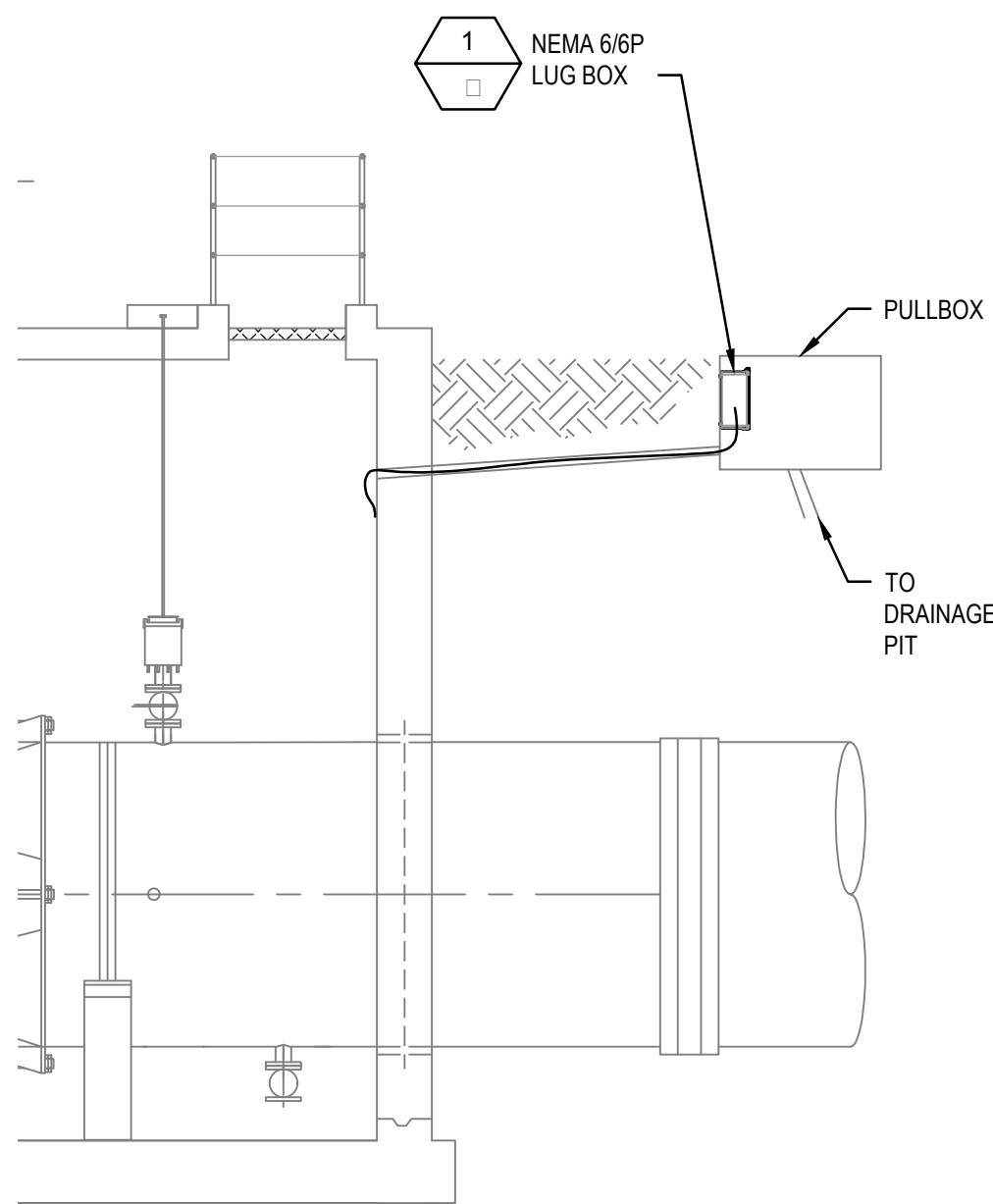
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COVER SHEET HAS BEEN SIGNED AND DATED
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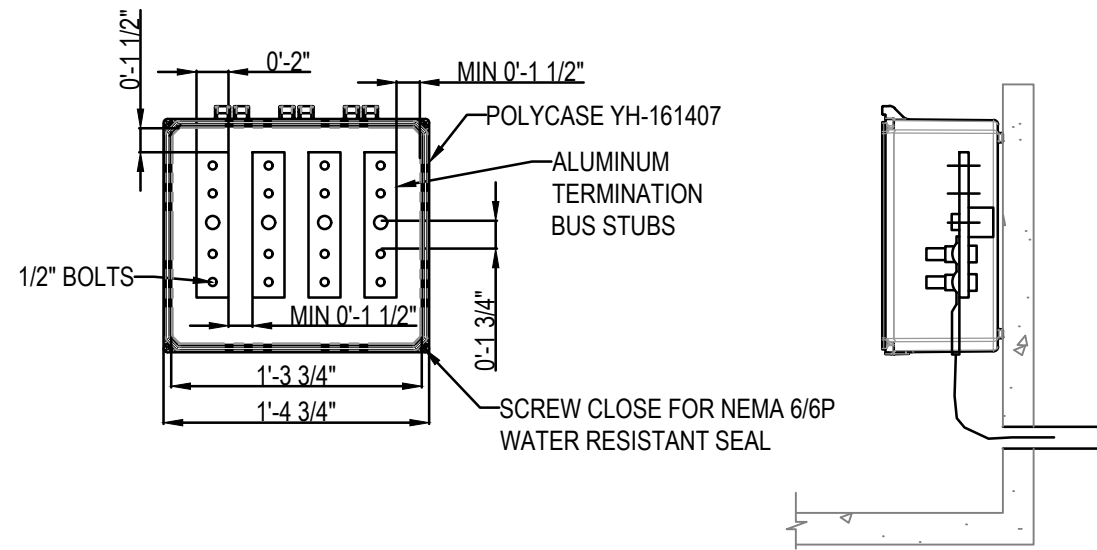
MARK	BY	DATE	REVISION

Valley SAN BERNARDINO
MUNICIPAL
WATER DISTRICT
380 EAST VANDERBILT WAY, SAN BERNARDINO, CA 92408
PHONE: (909) 387-9253 FAX: (909) 387-9247

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT
DATE: XX/XX/XXXX
DESIGNED: RM DRAWN: AC
REVIEWED: RG
JOB NO:
ENHANCED RECHARGE IN THE SANTA ANA RIVER BASIN PROJECT
SPECIFICATION NO. 14-01
SCHEMATICS AND MISCELLANEOUS DETAILS
NO SCALE
DWG: E-012
SHT. 61 OF 68 SHTS
DRAWING NO.



A VALVE VAULT SECTION
SCALE: NTS



1 LUG BOX DETAIL
SCALE: NTS

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SAN BERNARDINO
Valley
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WATER DISTRICT

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PHONE: (909) 387-9253 FAX: (909) 387-9247

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT		NO SCALE
DATE: XX/XX/XXXX		DWG: E-013
DESIGNED: RM	DRAWN: AC	SHT 62 OF 68 SHTS
REVIEWED: RG	DRAWING NO.	
JOB NO:	ENHANCED RECHARGE IN THE SANTA ANA RIVER BASIN PROJECT	
SPECIFICATION NO. 14-01		
MISCELLANEOUS DETAILS		

EXAMPLE SYMBOLS

T

UV

XXX

(2)

—

SOLID LINE

PANEL MOUNTED INSTRUMENT

- - -

DASHED LINE

PLC INDICATION/CONTROL POINT

—

NO LINE

FIELD MOUNTED INSTRUMENT

==

DOUBLE LINE

MOTOR CONTROL CENTER MOUNTED INSTRUMENT

—

LOOP/EQUIPMENT NUMBER

FE

—

FIELD MOUNTED INSTRUMENT

FY

—

REAR-OF-PANEL MOUNTED INSTRUMENT

FIC

—

PANEL MOUNTED INSTRUMENT

QL

—

MOTOR CONTROL CENTER MOUNTED INSTRUMENT

FIC

—

HUMAN-MACHINE INTERFACE (HMI) FUNCTION

PLC

—

PROGRAMMABLE LOGIC CONTROLLER (PLC) FUNCTION

FUNCTION (SEE TABLE)

INSTRUMENT SOCIETY OF AMERICA TABLE

FIRST LETTER (S)		SUCCEEDING LETTERS			
LETTER	PROCESS OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS (+)	ALKALINITY		ALARM	
B	BURNER FLAME		USERS CHOICE (+)	USERS CHOICE (+)	USERS CHOICE (+)
C	CONDUCTIVITY	CHLORINE		CONTROL	
D	DENSITY (S.G)	DIFFERENTIAL			
E	VOLTAGE		PRIMARY ELEMENT		
F	FLOW RATE	RATIO			
G	GAUGE		GLASS	GATE	
H	HAND (MANUAL)				
I	CURRENT		INDICATE		
J	POWER	SCAN			
K	TIME OR SCHEDULE			CONTROL STATION	
L	LEVEL		LIGHT (PILOT)		LOW
M	MOTION				MIDDLE
N	USERS CHOICE (+)		USERS CHOICE (+)	USERS CHOICE (+)	USERS CHOICE (+)
O	USERS CHOICE (+)		ORIFICE		
P	PRESSURE		POINT		
	(OR VACUUM)		(TEST CONNECTION)		
Q	QUANTITY OR EVENT	INTEGRATE	INTEGRATE		
R			RECORD OR POINT		
S	SPEED OR FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE	TURBIDITY			TRANSMIT
U	MULTIVARIABLE (+)	ULTRASONIC	MULTIFUNCTION	MULTIFUNCTION (+)	MULTIFUNCTION (+)
V	VISCOSITY			VALVE OR DAMPER	
W	WEIGHT OR FORCE		WELL		
X	UNCLASSIFIED (+)		UNCLASSIFIED (+)	UNCLASSIFIED (+)	UNCLASSIFIED (+)
Y	EVENT			RELAY OR COMPUTE (+)	
Z	POSITION			DRIVE, ACTUATE OR UNCLASSIFIED FINAL CONTROL ELEMENT	

(+) WHEN USED, EXPLANATION IS SHOWN ADJACENT TO INSTRUMENT SYMBOL. SEE ABBREVIATIONS.

SELF CONTAINED VALVE AND EQUIPMENT TAG NUMBERS

D: CP = CONTROL PANEL
F = FILTRATION UNIT
FM = FLOW METER
G = GATE
GR = GRIT REMOVAL MECHANICAL EQUIPMENT
P = PUMP
PCV = PRESSURE CONTROL VALVE

PRV = PRESSURE RELIEF VALVE
RB = REFUSE BIN
S = AUTOMATIC BARSCREEN TANK
TCV = TEMPERATURE CONTROL VALVE
UV = ULTRAVIOLET TREATMENT
WP = WASH PRESS

D-WW-XXXA

A = UNIT IDENTIFIER
XXX = LOOP NUMBER
WW = FACILITY OR STRUCTURE IDENTIFIER
D = EQUIPMENT IDENTIFIER

VALVE SYMBOLS

GATE

KNIFE GATE

BUTTERFLY

GLOBE

BALL

HAND WHEEL OPERATED PLUG VALVE

SEAT PORT ECCENTRIC PLUG

PINCH

NEEDLE

DIAPHRAGM

SWING CHECK

BALL CHECK

MULTI-PORT

PRESSURE RELEASE

AIR AND/OR VACUUM RELEASE

REGULATED SIDE PRESSURE CONTROL

AUTOMATIC FLOW CONTROL VALVE

PRIMARY ELEMENT SYMBOLS

ORIFICE PLATE

ELECTROMAGNETIC FLOWMETER

LEVEL (FLOAT)

STATIC MIXER

FLOAT VALVE

FLOW THROUGH TURBIDITY SENSOR

PROPELLER OR TURBINE METER

SUBMERSIBLE TURBIDITY SENSOR

SUBMERSIBLE PRESSURE TRANSDUCER

LEVEL (RADAR)

ROTAMETER

EQUIPMENT SYMBOLS

CENTRIFUGAL PUMP (DRY PIT)

CHEMICAL FEED PUMP

VENTILATION FAN

SUBMERSIBLE SUMP PUMP

ACTUATOR SYMBOLS

ELECTRIC W/ POSITIONER

MOTOR ACTUATED WITH POS FEEDBACK

ELECTRIC

PNEUMATIC W/ SOLENOID

SOLENOID

NOTE:
ON LOSS OF PRIMARY POWER (PNEUMATIC, ELECTRICAL OR HYDRAULIC)

XX: FO = FAIL OPEN
FC = FAIL CLOSED
FLP = FAIL TO LAST POSITION

INTERFACE SYMBOLS AND LINE LEGEND

PROCESS LINE (PRIMARY)

PROCESS LINE (SECONDARY)

ANALOG SIGNAL (4-20mA)

DISCRETE SIGNAL (2-WIRE)

EQUIPMENT OUTLINE

SCALED PULSE SIGNAL

DIGITAL COMMUNICATION LINK

CONNECTING LINES

PROCESS INTERFACE OR CONTINUATION

100% PLANS

ISSUED FOR: APPROVAL

CONSULTANT:

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ENGINEER'S SEAL

PLANS PREPARED BY:

COVER SHEET HAS BEEN SIGNED AND DATED
XX/XX/XXXX
PROJECT ENGINEER
DATE

APPROVED BY:

COVER SHEET HAS BEEN SIGNED AND DATED
XX/XX/XXXX
SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT
DATE

MARK

BY

DATE

REVISION

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

380 EAST VANDERBILT WAY, SAN BERNARDINO, CA 92408
PHONE: (909) 387-9253 FAX: (909) 387-9247

DATE: XX/XX/XXXX
DESIGNED: RM
REVIEWED: RG
JOB NO:

NO SCALE
I-001
SHT 63 OF 68 SHTS
DRAWING NO.

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

ENHANCED RECHARGE IN THE SANTA ANA RIVER BASIN PROJECT

SPECIFICATION NO. 14-01

SYMBOLS & ABBREVIATIONS

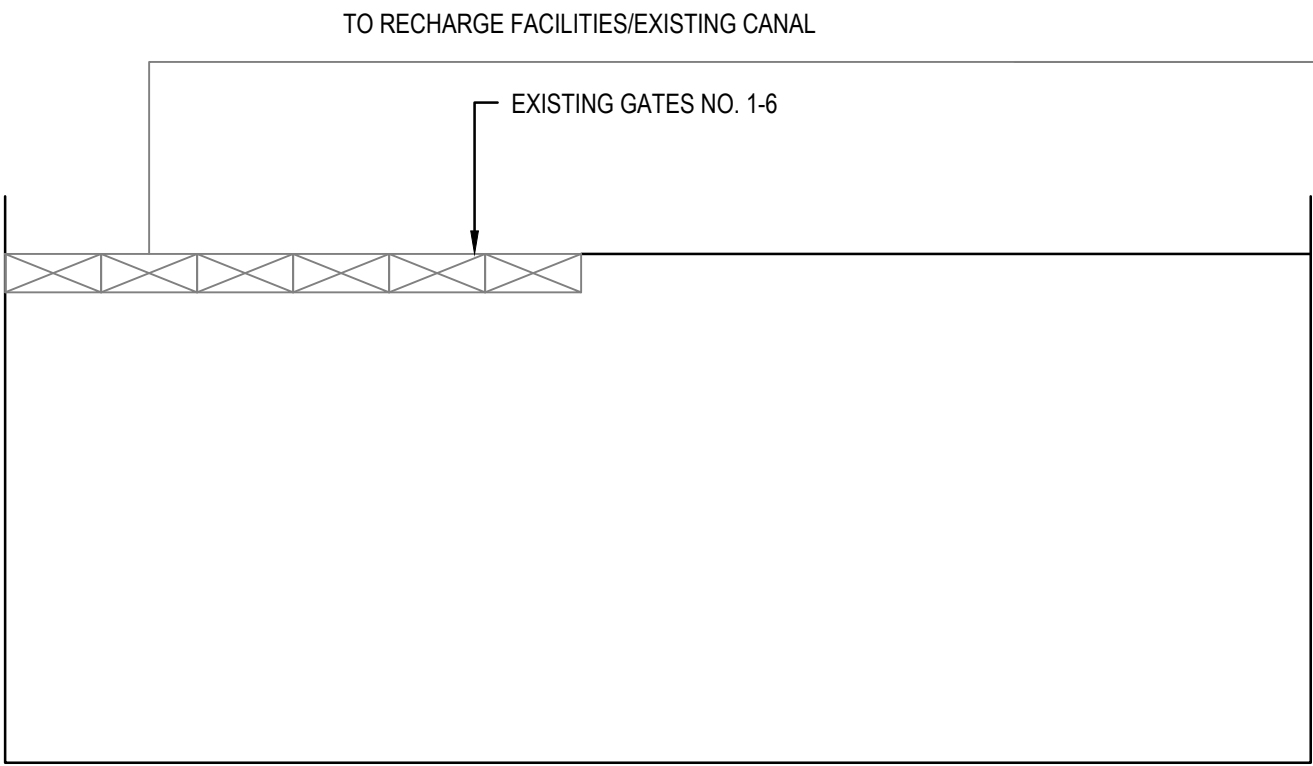
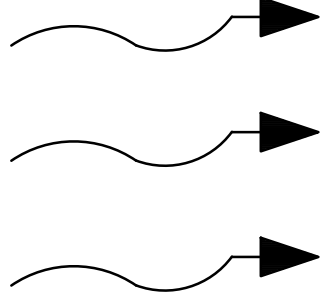
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Plotted by: Andrew Cole

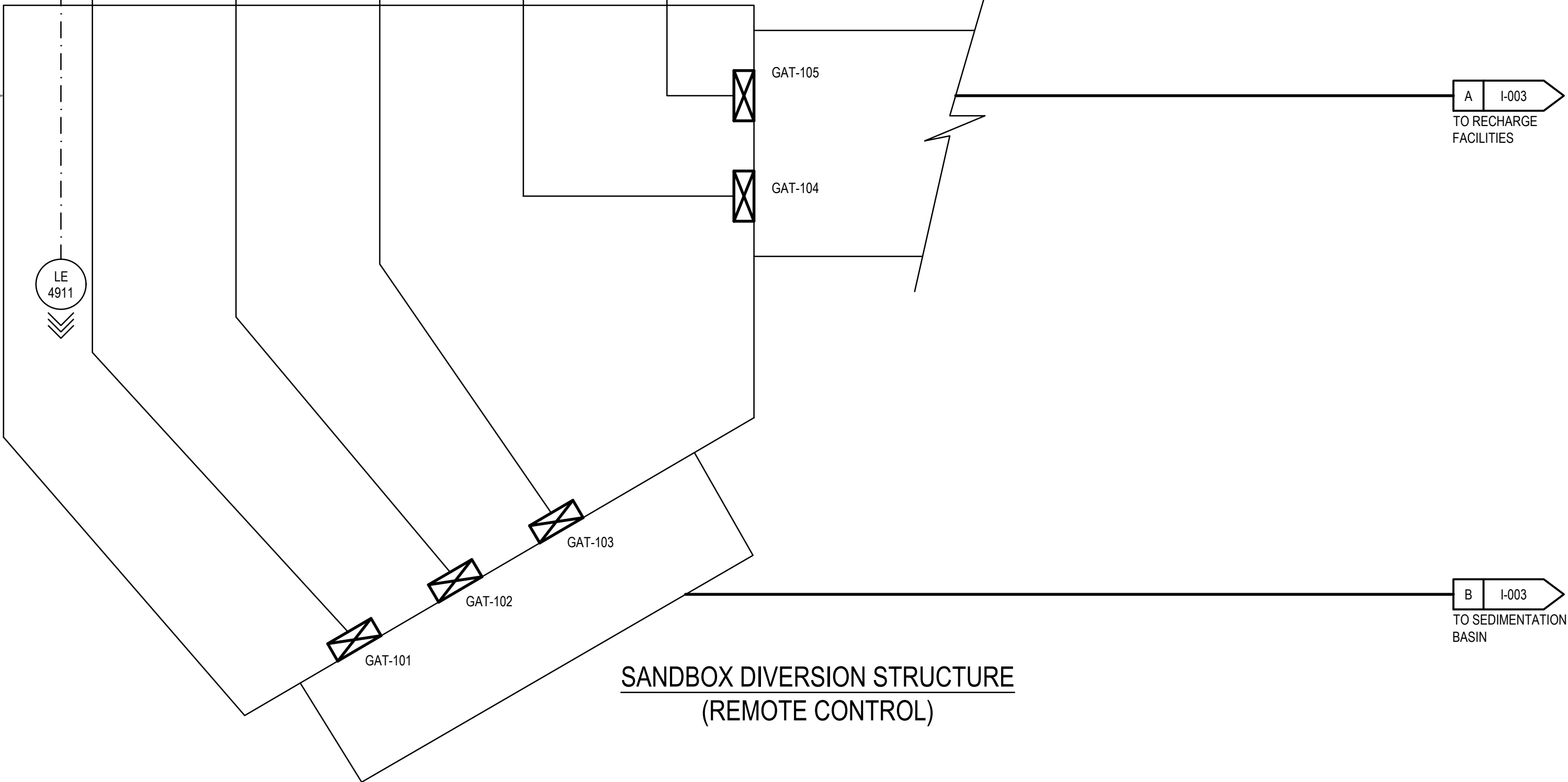
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ORIGINAL SIZE : 22"x34"

A
SEVEN OAKS
DAM/PLUNGE POOL
DISCHARGE



CUTTLE WEIR



SANDBOX DIVERSION STRUCTURE
(REMOTE CONTROL)

CONSULTANT:

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REVIEWED: RG
JOB NO:

100% PLANS

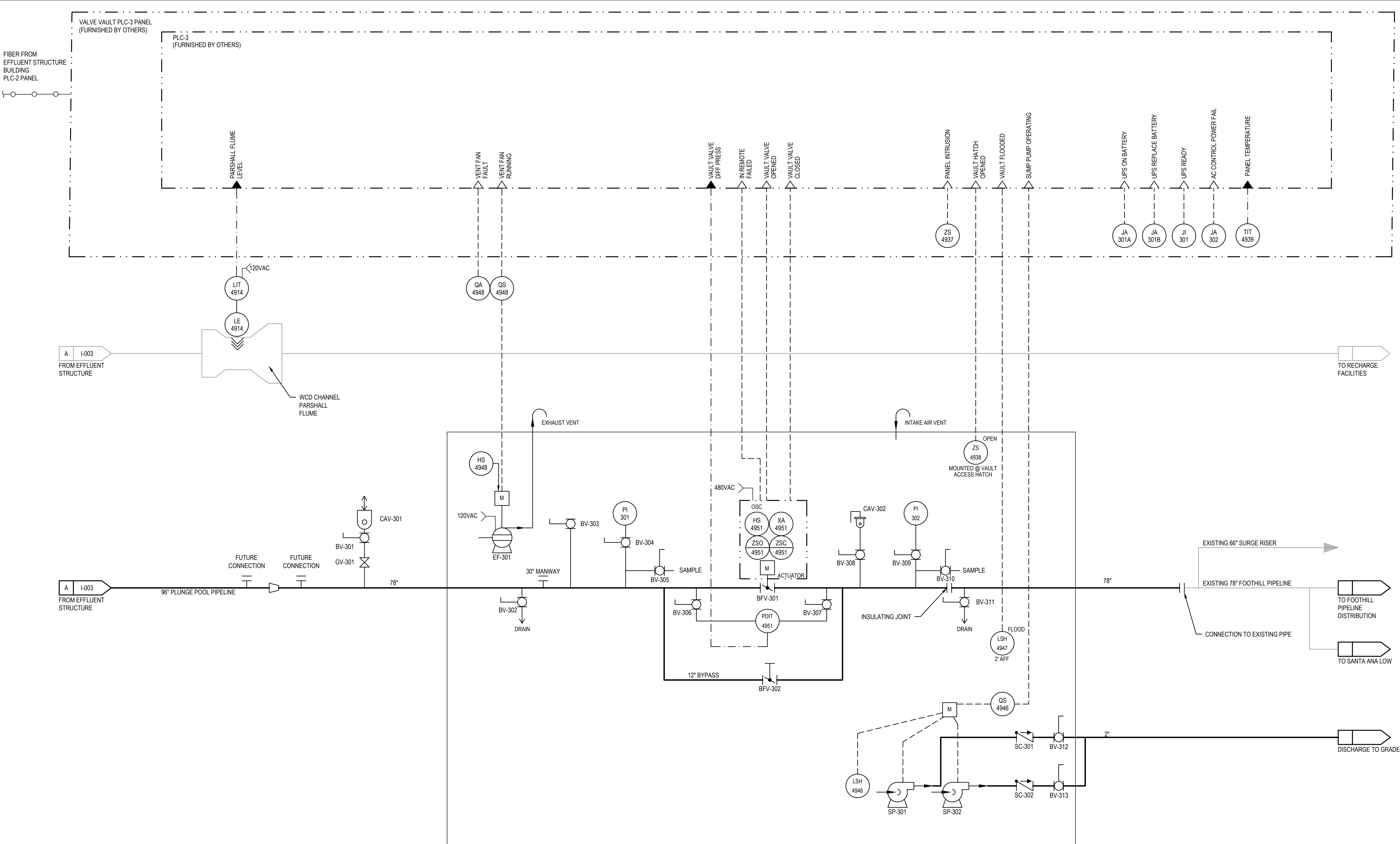
ISSUED FOR: APPROVAL

ENHANCED RECHARGE IN THE SANTA ANA RIVER BASIN PROJECT

SPECIFICATION NO. 14-01

INTAKE AND SANDBOX
DIVERSION STRUCTURE

SCALE: NO SCALE
DWG: I-002
SHT. 64 OF 68 SHTS
DRAWING NO.



VALVE VAULT STRUCTURE

100% PLANS

ISSUED FOR: APPROVAL

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SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

ENHANCED RECHARGE IN THE SANTA ANA RIVER BASIN PROJECT

SPECIFICATION NO. 14-01

PLUNGE POOL PIPELINE & VALVE VAULT STRUCTURE

SCALE:

NO SCALE

DWG: I-004

SHT. 66 OF 68 SHTS.

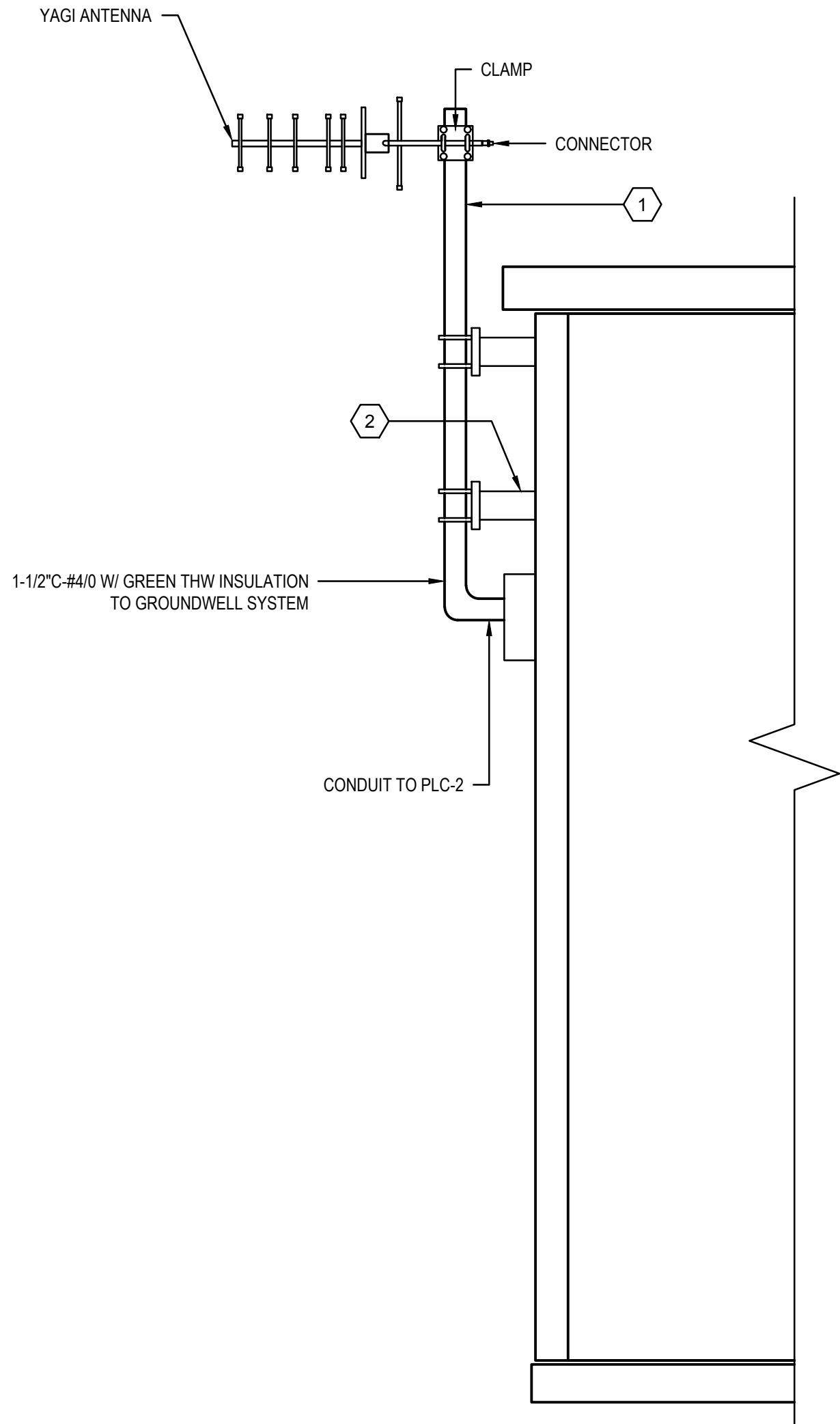
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Plot Date: 3 February 2017 - 4:36 PM

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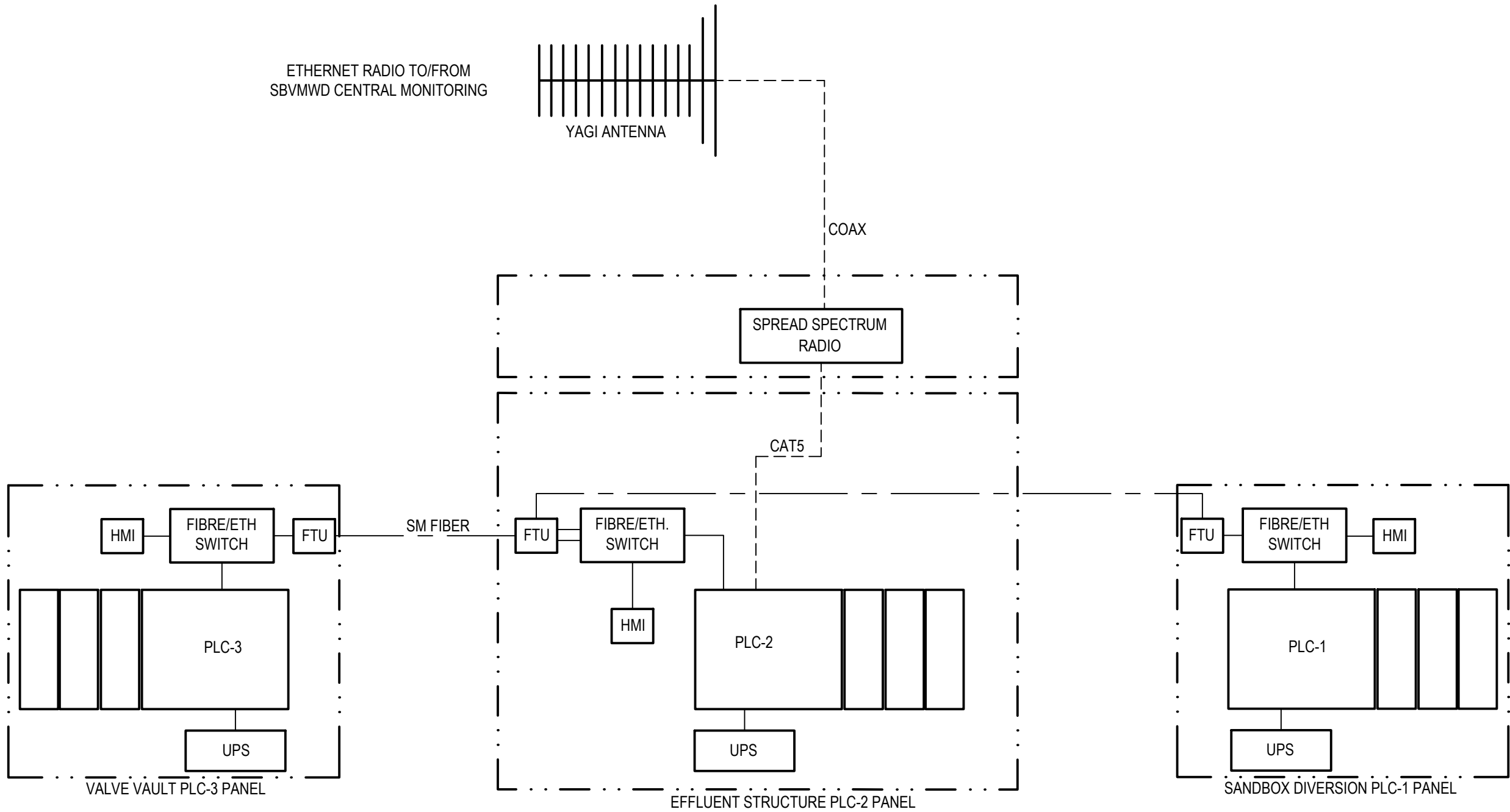
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ORIGINAL SIZE : 22"x34"



- NOTES:
1. ANTENNA SPECIFICATIONS, HEIGHT AND ORIENTATION WILL BE PROVIDED BY THE OWNER.
 2. STAINLESS STEEL ANTENNA MOUNT SLIDER WALL BRACKET WITH 8" STAND-OFF.

1 EFFLUENT STRUCTURE ELECTRICAL BUILDING LEFT ELEVATION ANTENNA DETAIL
NO SCALE



- FTU FIBER TERMINATION UNIT
PLC PROGRAMMABLE LOGIC CONTROLLER
UPS UNINTERRUPTIBLE POWER SUPPLY
SM SINGLE MODE

- NOTE:
1. PLC PANELS, RADIO PANEL, ANTENNA, COAX CABLE, AND ASSOCIATED SURGE ARRESTORS TO BE PROVIDED BY OTHERS. CONTRACTOR SHALL INSTALL ALL PANELS, AND TERMINATE ALL FIELD WIRING AND CABLES EXCEPT COAX WHICH SHALL BE INSTALLED BY OTHERS. CONTRACTOR SHALL INSTALL SUPPORT STRUCTURE FOR THE ANTENNA PER DETAIL 1.

2 CONTROL SYSTEM DIAGRAM
NO SCALE



1. SENSOR AND ANALYZER SHALL BE MOUNTED IN A NEMA 4 ENCLOSURE. ALL KNOCKOUTS FOR CONDUITS AND DRAINS SHALL BE SEALED TO MAINTAIN THE ENCLOSURE RATING. SIZE THE ENCLOSURE ACCORDING TO THE DIMENSIONS OF SENSOR AND ANALYZER.