

**SECTION 00100 – CONTRACT DOCUMENTS
 BID FORM**

BID FORM

NAME OF BIDDER: _____

The undersigned, hereby declare that we have carefully examined the location of the proposed Work, and have read and examined the Contract Documents, including all plans, specifications, and all addenda, if any, for the following Project:

RATTLESNAKE TANK SITE IMPROVEMENTS PROJECT

BID SCHEDULE

NO.	ITEM DESCRIPTION	UNIT OF MEASURE	EST. QTY.	UNIT PRICE	ITEM COST
1.	Initial Mobilization / Demobilization	LS	1		
2.	Shoring per Excavation Safety Measures in State Labor Code Sections 6705 and 6707	LS	1		
3.	Shotcrete	SF	1,900		
4.	General Construction - All other work not included above	LS	1		
5.	Rock Removal/Rock Cutting/Rock Dowelling for Ring Footing Allowance	LS	1	\$30,000	\$30,000

The costs for any Work shown or required in the Contract Documents, but not specifically identified as a line item are to be included in the related line items and no additional compensation shall be due to Contractor for the performance of the Work.

In case of discrepancy between the unit price and the item cost set forth for a unit basis item, the unit price shall prevail and, shall be utilized as the basis for determining the lowest responsive, responsible bidder. However, if the amount set forth as a unit price is ambiguous, unintelligible or uncertain for any cause, or is omitted, or is the same amount as the entry in the "Item Cost" column, then the amount set forth in the "Item Cost" column for the item shall prevail and shall be

**SECTION 00100 – CONTRACT DOCUMENTS
BID FORM**

divided by the estimated quantity for the item and the price thus obtained shall be the unit price. If any such discrepancies exist, the District may recalculate the bid price as provided above and the bidder agrees to be bound by such recalculation.

The estimated quantities for unit price items are for purposes of comparing Bids only and the District makes no representation that the actual quantities of work performed will not vary from the estimates. Final payment shall be determined by the Engineer from measured quantities of work performed based upon the unit price.

TOTAL BID PRICE (BASED ON BID SCHEDULE TOTAL OF UNIT PRICES):

\$ _____
Total Bid Price in Numbers

Total Bid Price in Written Form

In case of discrepancy between the written price and the numerical price, the written price shall prevail.

The undersigned agrees that this Bid Form constitutes a firm offer to District which cannot be withdrawn for the number of calendar days indicated in the Notice Inviting Bids from and after the bid opening, or until a Contract for the Work is fully executed by District and a third party, whichever is earlier.

The Contract duration shall commence on the date stated in District's Notice to Proceed, and shall be completed by the Contractor in the time specified in the Contract Documents. In no case shall the Contractor commence construction prior to the date stated in District's Notice to Proceed.

Bidder certifies that it is licensed in accordance with the law providing for the registration of Contractors, License No. _____, Expiration Date _____, class of license _____. If the bidder is a joint venture, each member of the joint venture must include the above information.

The undersigned acknowledges receipt, understanding and full consideration of the following addenda to the Contract Documents.

Addenda No. _____

Addenda No. _____

Addenda No. _____

1. Attached is the required bid security in the amount of not less than 10% of the Total Bid Price.

**SECTION 00100 – CONTRACT DOCUMENTS
BID FORM**

2. Attached is the fully executed Non-Collusion Declaration form.
3. Attached is the completed Designation of Subcontractors form.
4. Attached is the completed Bidder Information Form.
5. Attached is the completed Contractor's Certificate Regarding Workers' Compensation form.
6. Attached is the completed Iran Contracting Act Certification form.
7. Attached is the completed Public Works Contractor Registration Certification form.

I hereby certify under penalty of perjury under the laws of the State of California, that all of the information submitted in connection with this Bid and all of the representations made herein are true and correct.

Name of Bidder _____
Signature _____
Name and Title _____
Dated _____

END OF BID FORM

**SECTION 00100 – CONTRACT DOCUMENTS
CONTRACT**

CONTRACT

THIS CONTRACT is made this ____ day of _____, 20__, in the County of San Diego, State of California, by and between the Fallbrook Public Utility District hereinafter called District, and _____, hereinafter called Contractor. District and the Contractor for the considerations stated herein agree as follows:

ARTICLE 1. SCOPE OF WORK. The Contractor shall perform all Work within the time stipulated the Contract and shall provide all labor, materials, equipment, tools, utility services, and transportation to complete all of the Work required in strict compliance with the Contract Documents as specified in Article 5 below for the following Project:

RATTLESNAKE TANK SITE IMPROVEMENTS PROJECT

The Contractor and its surety shall be liable to District for any damages arising as a result of the Contractor's failure to comply with this obligation.

ARTICLE 2. TIME FOR COMPLETION. The Work shall be commenced on the date stated in District's Notice to Proceed. The Contractor shall complete all Work required by the Contract Documents within 270 calendar days from the commencement date stated in the Notice to Proceed ("Contract Time"). By its signature hereunder, Contractor agrees the time for completion set forth above is adequate and reasonable to complete the Work.

ARTICLE 3. CONTRACT PRICE. District shall pay to the Contractor as full compensation for the performance of the Contract, subject to any additions or deductions as provided in the Contract Documents, and including all applicable taxes and costs, the sum of _____ Dollars (\$ _____) ("Contract Price"). Payment shall be made as set forth in the General Conditions.

ARTICLE 4. LIQUIDATED DAMAGES. In accordance with Government Code section 53069.85, it is agreed that the Contractor will pay District the sum of \$5,000 for each and every calendar day of delay beyond the time prescribed in the Contract Documents for finishing the Work, as Liquidated Damages and not as a penalty or forfeiture. In the event this is not paid, the Contractor agrees District may deduct that amount from any money due or that may become due the Contractor under the Contract. This Article does not exclude recovery of other damages specified in the Contract Documents.

ARTICLE 5. COMPONENT PARTS OF THE CONTRACT. The "Contract Documents" include the following:

- Notice Inviting Bids
- Instructions to Bidders
- Bid Form
- Contractor's Certificate Regarding Workers' Compensation
- Bid Bond
- Designation of Subcontractors
- Information Required of Bidders

JOB NUMBER 3212

CONTRACT DOCUMENTS

00100-39

SECTION 00100 – CONTRACT DOCUMENTS
CONTRACT

Non-Collusion Declaration form
Iran Contracting Act Certification
Public Works Contractor Registration Certification
Contract
Performance Bond
Payment Bond (if required)
General Conditions
Special Conditions
Technical Specifications
Addenda
Plans and Drawings
Approved and fully executed change orders
Any other documents contained in or incorporated into the Contract

The Contactor shall complete the Work in strict accordance with all of the Contract Documents.

All of the Contract Documents are intended to be complementary. Work required by one of the Contract Documents and not by others shall be done as if required by all. This Contract shall supersede any prior agreement of the parties.

ARTICLE 6. PROVISIONS REQUIRED BY LAW. Each and every provision of law required to be included in these Contract Documents shall be deemed to be included in these Contract Documents. The Contractor shall comply with all requirements of the California Labor Code applicable to this Project.

ARTICLE 7. INDEMNIFICATION. Contractor shall provide indemnification as set forth in the General Conditions.

ARTICLE 8. PREVAILING WAGES. Contractor shall be required to pay the prevailing rate of wages in accordance with the Labor Code which such rates shall be made available at District's Corporate Office or may be obtained online at <http://www.dir.ca.gov/dlsr>. and which must be posted at the job site.

**SECTION 00100 – CONTRACT DOCUMENTS
CONTRACT**

IN WITNESS WHEREOF, this Contract has been duly executed by the above-named parties, on the day and year above written.

_____ Name of Contractor	FALLBROOK PUBLIC UTILITY DISTRICT
By _____	By _____
Name: _____	Name: _____
Title: _____	Title: _____
License No. _____	Date: _____
Date: _____	_____

**(ALL SIGNATURES MUST BE
NOTARIZED AND CORPORATE
SEALS AFFIXED, IF APPLICABLE)**

END OF CONTRACT



Converse Consultants

Geotechnical Engineering, Environmental and Groundwater Science, Inspection and Testing Services

November 9, 2012

Mr. Sridhar Sadasivan, P.E.
Project Engineer
Kennedy/Jenks Consultants
Three Better World Circle, Suite 200
Temecula, CA 92590

**Subject: GEOTECHNICAL/SEISMIC EVALUATION OF RATTLESNAKE RESERVOIR SITE
FALLBROOK PUBLIC UTILITY DISTRICT
City of Fallbrook, San Diego County, California
Converse Project No. 12-81-226-01**

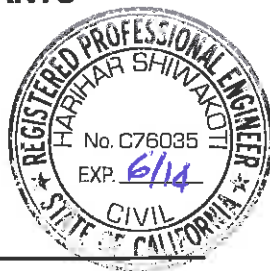
Dear Mr. Sadasivan:

Converse Consultants (Converse) has prepared the Geotechnical/Seismic Evaluation Report of the Rattlesnake Reservoir site located in the City of Fallbrook, San Diego County, California. This report was prepared in accordance with our proposal dated August 2, 2012 and your Subcontract dated October 24, 2012.

This report has been prepared based on our field reconnaissance and review of available documents. No subsurface exploration or laboratory testing was performed.

We appreciate the opportunity to be of service to the Kennedy/Jenks Consultants and the Fallbrook Public Utility District. If you have any questions, please do not hesitate to contact us at (909) 796-0544.

CONVERSE CONSULTANTS



Harihar Shiwakoti, P.E.
Project Engineer



Scot Mathis, P.G., C.E.G.
Senior Geologist

Dist.: 4/Addressee and email pdf file
HS/SM/HSQ/kvg

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1.0 INTRODUCTION

This report presents our geotechnical and seismic evaluation of the Rattlesnake Reservoir site located in the City of Fallbrook, San Diego County, California. The approximate location of the site is shown on Figure No. 1, *Site Location Map*.

Our scope of work included a site reconnaissance to check for any settlement, slope movement and erosion; review of available existing geologic and geotechnical data for the Reservoir site; review of any city, county and state hazard maps pertaining to groundwater, faulting, landslides and liquefaction; and preparation of this report.

Converse did not have access to any as-built drawings or soil boring logs available for review. This report is based on our site reconnaissance and review of available documents as presented in Section 8. *Reference*.

This report is intended for use solely by Kennedy/Jenks Consultants and its authorized agents for design purposes. It should not be used as a bidding document but may be made available to the potential contractors for information on factual data only. For bidding purposes, the contractors should be responsible for making their own interpretation of the data contained in this report.

2.0 RATTLESNAKE RESERVOIR

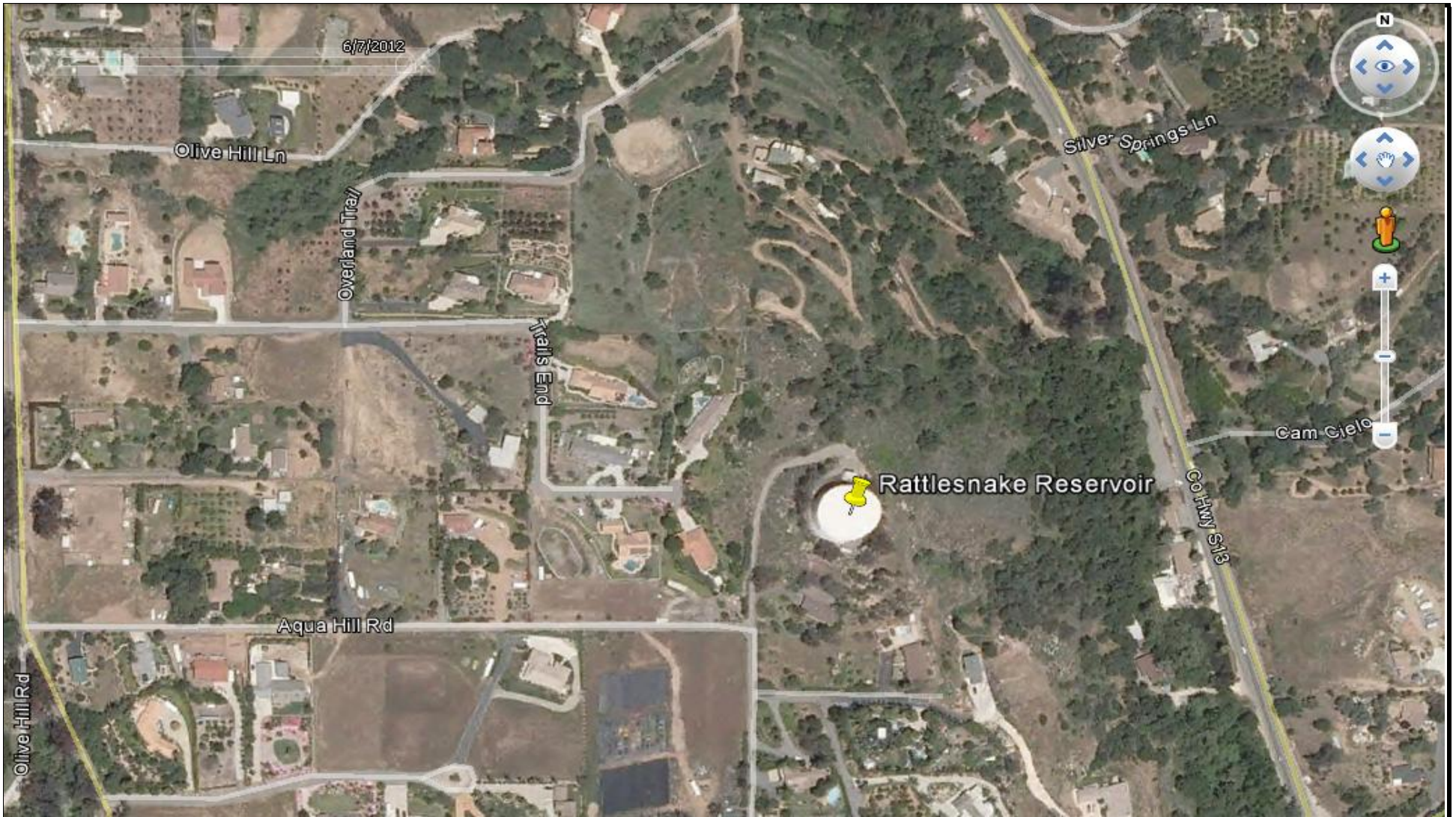
The Rattlesnake Reservoir is located at the end of the Agua Hill Road, about 900 feet east of County Highway S13 in the City of Fallbrook, San Diego County, California. A Converse Engineer visited the Reservoir site on October 26th 2012 with Bob Maghan, representative of Fallbrook Public Utility District.

The 3.6 MG Reservoir has a diameter of 114 feet and a height of 48 feet. According to the information printed on the Reservoir wall, the steel Reservoir was installed in 1955 by Chicago Bridge and Iron Company. The Reservoir has asphalt paved pathway along the perimeter of the Reservoir, and is within a fenced area.

The Rattlesnake Reservoir is on a hill top consisting of granitic rock. The hill slope consists of rock outcrops, brushes and trees. Photos No. 1 through 5 are presented to show the existing condition of the Reservoir site and the hill slope.

Based on the visual observation the Reservoir site and surrounding hill slope did not indicate any settlement, slope movement or erosion.





APPROXIMATE SITE LOCATION MAP

RATTLESNAKE RESERVOIR (33.335125 N, 117.2393667 W)

CITY OF FALLBROOK, SAN DIEGO COUNTY, CALIFORNIA

For: Kennedy/Jenks Consultants

Converse Consultants



Project Number	12-81-226-01
Scale	NTS
Date	November 2012
Figure No.	1



Photo No. 1: Rattlesnake Reservoir site



Photo No. 2: Asphalt paved pathway surrounding the Reservoir and fenced perimeter





Photo No. 3: Trees and rock outcrops on the hill slope, Rattlesnake Reservoir on top





Photo No. 4: Granitic rock outcrops on the hill slope, Rattlesnake Reservoir on top





Photo No. 5: Granitic rock outcrops and trees on the hill slope,
Rattlesnake Reservoir on top



3.0 GEOLOGIC SETTINGS

This section provides the geologic settings of the Reservoir site based on our review of available documents as presented in Section 8, *Reference*.

3.1 Regional Geology

The project site is located within the Peninsular Ranges Geomorphic Province of Southern California, approximately 12 miles from the Pacific Ocean.

The Peninsular Ranges Geomorphic Province consists of a series of northwest-trending mountain ranges and valleys bounded on the north by the San Bernardino and San Gabriel Mountains, on the west by the Los Angeles Basin, and on the southwest by the Pacific Ocean.

The province is a seismically active region characterized by a series of northwest-trending strike-slip faults. The most prominent of the nearby fault zones include the San Jacinto, Cucamonga, and San Andreas Fault Zones, all of which have been known to be active during Quaternary time.

Topography within the province is generally characterized by broad alluvial valleys separated by linear mountain ranges. This northwest-trending linear fabric is created by the regional faulting within the granitic basement rock of the Southern California Batholith. Broad, linear, alluvial valleys have been formed by erosion of these principally granitic mountain ranges.

3.2 Local Geology

The project site is situated between the Santa Margarita River to the northwest and the San Luis Rey River to the southeast in an area of low hills composed of granitic bedrock. The site is on the top of a small hill immediately west of a canyon containing a small, south-flowing tributary of the San Luis Rey River.

Regional geologic mapping (Tan, 2001; Kennedy and Tan, 2007) indicates that the site is underlain by Cretaceous granodiorite bedrock. Surficial soils and local deposits of alluvium and colluvium were observed in the site vicinity. The stream channel to the east of the site contains Quaternary alluvial flood plain deposits consisting of unconsolidated sand and gravel.



4.0 GROUNDWATER

Regional groundwater data (SWRCB, 2012; USGS, 2012) were reviewed to evaluate the probable depth to groundwater in the vicinity of the site. Measurements in 1966 and 1985 indicated that the groundwater in the canyon east of the site ranged from approximately 8 to 34 feet below ground surface (bgs). Measurements in 1966 in the area west of the site indicated that groundwater ranged from approximately 3 to 20 feet bgs.

Based on the regional geology, it is likely that the shallow groundwater measurements represented perched groundwater at the contact between the surficial soils and the granitic bedrock.

The ground surface elevation at the site is approximately 690 feet above mean sea level (amsl), approximately 100 feet higher than the nearest well to the west and nearly 200 feet higher than the wells in the canyon to the east. Due to the locally elevated location of the site, it is considered unlikely that standing groundwater is present within 50 feet of the ground surface at the site. Small amounts of perched groundwater may be present near the ground surface within surficial soils or bedrock fractures.

5.0 EXCAVATABILITY

Bedrock of the type mapped at the site, if sufficiently weathered, is sometimes excavatable to depths of 5 to 10 feet with heavy-duty bulldozers. Weathering typically decreases quickly with increasing depth, resulting in unrippable bedrock. These conditions often require blasting or other rock breaking techniques.

Based on the site geology and our observations at the site, difficult excavation and potential blasting should be anticipated if excavations are planned at the site. A subsurface investigation to evaluate excavatability should be conducted if grading or trenching is planned.

6.0 FAULTING AND SEISMICITY

The site is not located within a currently designated State of California Earthquake Fault Zone (CGS, 2007). Based on a review of regional geologic mapping (Kennedy and Tan, 2007) no active surface faults cross or project toward the site.

The proposed site is situated in a seismically active region. As is the case for most areas of Southern California, ground-shaking resulting from earthquakes associated with nearby and more distant faults may occur at the project site. During the life of the project, seismic activity associated with active faults can be expected to generate moderate to strong ground shaking at the site.



6.1 CBC Seismic Design Parameters

Seismic design parameters were determined in accordance with the California Building Code (2010 CBC). Site coordinates of 33.3351° west longitude and 117.2394° north latitude were used. The parameters are provided in Table No. 1, *CBC Seismic Parameters*.

Table No. 1, CBC Seismic Parameters

Seismic Parameters	
Site Class	"C"
Mapped Short period (0.2-sec) Spectral Response Acceleration, S_s	1.200g
Mapped 1-second Spectral Response Acceleration, S_1	0.466g
Site Coefficient (from Table 1613.5.3(1)), F_a	1.0
Site Coefficient (from Table 1613.5.3(2)), F_v	1.334
MCE 0.2-sec period Spectral Response Acceleration, SM_s	1.200g
MCE 1-second period Spectral Response Acceleration, SM_1	0.621g
Design Spectral Response Acceleration for short period S_{ds}	0.800g
Design Spectral Response Acceleration for 1-second period, S_{d1}	0.414g

6.2 Secondary Effects of Seismic Activity

In general, secondary effects of seismic activity include surface fault rupture, soil liquefaction, lateral spreading, landslides, earthquake-induced flooding, tsunamis, and seiches. Site-specific potential for each of these seismic hazards is discussed below.

Surface Fault Rupture: The site is not located within a currently designated State of California Earthquake Fault Zone (CGS, 2007). Based on a review of regional geologic mapping (Kennedy and Tan, 2007), no active surface faults are known to cross or project toward the site. The potential for surface rupture resulting from the movement of the nearby major faults is not known with certainty but is considered very low.

Liquefaction: Liquefaction is defined as the phenomenon in a soil mass, due to the development of excess pore pressures, suffers a substantial reduction in its shear strength to a constant value and deforms continuously until the imposed shear stresses become equal to steady-state shear strength. During earthquakes, excess pore pressures in saturated soil deposits may develop as a result of induced cyclic shear stresses resulting in liquefaction.



Groundwater is not anticipated in the upper 50 feet bgs at the site. The earth materials underlying the site consist of crystalline bedrock, which is not generally susceptible to liquefaction. The potential for liquefaction at the site is anticipated to be low based on the available surface mapping. A subsurface investigation may be performed to confirm the site conditions.

Lateral Spreading: Seismically induced lateral spreading involves primarily lateral movement of earth materials above deeper layers that have liquefied due to ground shaking. It differs from the slope failure in that complete ground failure involving large movement does not occur due to the relatively smaller gradient of the initial ground surface. Lateral spreading is demonstrated by near-vertical cracks with predominantly horizontal movement of the soil mass involved. Because of the low potential for liquefaction at the site, the potential for lateral spreading is also considered to be low.

Landslides: Seismically induced landslides and other slope failures are common occurrences during or soon after earthquakes. The site perimeter consists of steep natural slopes. These slopes could potentially be subject to seismically induced failures and landsliding; however, the type of bedrock underlying the site is often resistant to slope failures if relatively unweathered and unfractured. A subsurface investigation may be conducted to further evaluate the potential for seismically induced slope failures at the site.

Earthquake-Induced Flooding: This is flooding caused by failure of dams or other water-retaining structures as a result of earthquakes. Failure of the onsite Reservoir during a large earthquake could result in flooding of portions of the site.

Tsunamis: Tsunamis are large waves generated by fault displacement or major ground movement. Based on the inland location of the site, tsunamis do not pose a hazard.

Seiches: Seiches are large waves generated in enclosed bodies of water in response to ground shaking. Seiching could occur within the onsite Reservoir in response to a large earthquake.

7.0 SOIL BEARING CAPACITY

At this time, Converse did not review as built plans or foundation plans of the existing Rattlesnake Reservoir. Based on our site reconnaissance and review of available documents, the Rattlesnake Reservoir can be founded on continuous spread footing and its roof can be supported on isolated footings. Actual footing width and reinforcement depends on structural design. If the continuous and isolated shallow spread footings have at least 24 inches width and embedded to 12 inches below the lowest adjacent grade, such footings may be designed based on an allowable net bearing capacity of 3,000 pounds per square foot (psf). Allowable net bearing capacity can be increased by 500 psf for each one foot increase in footing depth or width, to a maximum of 4,500 psf



The allowable net bearing capacity is defined as the maximum allowable net bearing pressure on the ground. It is obtained by dividing the net ultimate bearing capacity by a safety factor. The ultimate bearing capacity is the bearing stress at which ground fails by shear or experiences a limiting amount of settlement at the foundation. The net ultimate bearing capacity is obtained by subtracting the total overburden pressure on a horizontal plane at the foundation level from the ultimate bearing capacity.

The net allowable bearing values indicated above are for the dead loads and frequently applied live loads and are obtained by applying a factor of safety of 3.0 to the net ultimate bearing capacity. If normal code requirements are applied for design, the above vertical bearing value may be increased by 33 percent for short duration loadings, which will include loadings induced by wind or seismic forces.



8.0 REFERENCES

ASCE/SEI 7-05, Minimum Design Loads for Buildings and other Structures.

CALIFORNIA BUILDING STANDARDS COMMISSION (CBC), 2010, California Building Code (CBC).

CALIFORNIA GEOLOGICAL SURVEY (CGS), 2007, Fault-Rupture Hazard Zones in California, Alquist-Priolo Earthquake Faulting Zoning Act with Index to Earthquake Fault Zone Maps, Special Publication 42, revised 2007.

CALIFORNIA GEOLOGICAL SURVEY (CGS), 2008, Guidelines for Evaluating and Mitigating Seismic Hazards in California, Special Publication 117A, dated September 11, 2008.

CALIFORNIA STATE WATER RESOURCES CONTROL BOARD (SWRCB), 2012, GeoTracker database ([http:// http://geotracker.waterboards.ca.gov/](http://http://geotracker.waterboards.ca.gov/)), accessed on October 31, 2012.

KENNEDY, M.P. and TAN, S.S., 2007, Geologic Map of the Oceanside 30x60-minute Quadrangle, California: California Geological Survey, Regional Geologic Map No. 2, scale 1:100,000.

TAN, S.S., 2000, Geologic Map of the Bonsall 7.5-minute Quadrangle, San Diego County, California: A Digital Database.: California Geological Survey, Preliminary Geologic Maps, scale 1:24,000.

U.S. GEOLOGICAL SURVEY (USGS), 2012, National Water Information System: Web Interface (<http://nwis.waterdata.usgs.gov/nwis/gwlevels>), accessed on October 31, 2012.



FALLBROOK PUBLIC UTILITY DISTRICT

SITE ADDRESS:
990 E. MISSION ROAD
FALLBROOK, CA 92801

PROJECT DIRECTORY

PROPERTY CONTACT:

COMPANY : FALLBROOK PUBLIC UTILITY DISTRICT
ADDRESS : 990 E MISSION ROAD
FALLBROOK, CA 92088-2290
CONTACT : -
PHONE : 760-728-1125

APPLICANT REPRESENTATIVE:

COMPANY : ATS COMMUNICATIONS
ADDRESS : 990 E. MISSION ROAD
FALLBROOK, CA 92028
CONTACT : PAUL HOKENESS
PHONE : 858-231-8889
EMAIL : PAUL@ATSCOMM.COM

ENGINEER:

AARON COOK, P.E.
ENGINEERING MANAGER
FALLBROOK PUBLIC UTILITY DISTRICT
760-999-2713

SHEET INDEX

G-1	TITLE SHEET
G-2	CONSTRUCTION NOTES
C-1	SITE PLAN
C-2	ENLARGED SITE PLAN
C-3	SECTIONS
C-4	DETAILS
S-1	STRUCTURAL PLAN
S-2	STRUCTURAL DETAILS

TOTAL SHEET COUNT: 8

CODE COMPLIANCE

ALL WORK AND MATERIALS SHALL BE PERFORMED AND INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES.

- 2022 CALIFORNIA ADMINISTRATIVE CODE (CAC)
- 2022 CALIFORNIA BUILDING CODE (CBC)
- 2022 CALIFORNIA ELECTRICAL CODE (CEC)
- 2022 CALIFORNIA MECHANICAL CODE (CMC)
- 2022 CALIFORNIA ENERGY CODE
- 2022 CALIFORNIA FIRE CODE (CFC)
- 2022 CALIFORNIA GREEN BUILDING CODE
- 2022 CALIFORNIA REFERENCES STANDARDS CODE
- APPLICABLE LOCAL CODES AND ORDINANCES
- ASCE / SEI - 7-10

SCOPE OF WORK

- REMOVE EXISTING PERIMETER FENCE.
- DEMO EXISTING DAMAGED ASPHALT DRIVEWAY AROUND THE TANK.
- FINE GRADE AROUND THE TANK AND INSTALL ASPHALT STORMWATER SWALE WITH CONCRETE CURB 6" FROM THE EDGE OF TANK.
- INSTALL (2) 22x36" CONCRETE CATCH BASINS.
- EROSION CONTROL VIA SHOTCRETE AROUND TOP OF EXISTING SLOPE.
- FILL GAPS AND RUTS WITH SHOTCRETE.

SITE PHOTO



SITE INFORMATION

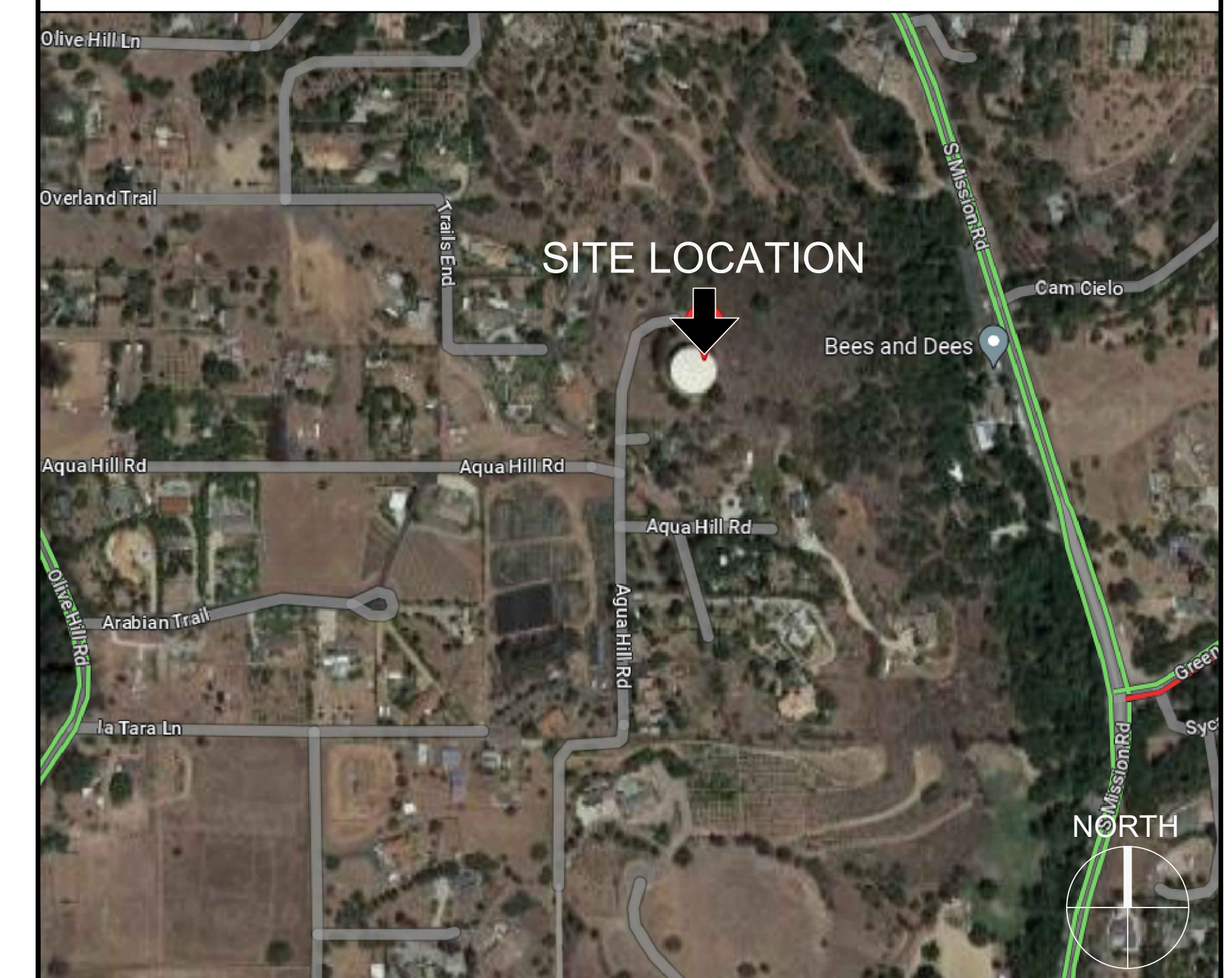
LATITUDE : 33° 20' 7.28"
LONGITUDE : -117° 14' 21.4"
LAT/LONG TYPE: NAD-83
GROUND ELEV : 694.0'
COUNTY : COUNTY OF SAN DIEGO
JURISDICTION : CITY OF FALLBROOK
PARCEL NO. : 123-110-12

DIRECTIONS

FROM: SAN DIEGO INTERNATIONAL AIRPORT

- HEAD EAST ON N HARBOR DR TOWARD MCCAIN RD
- USE THE LEFT 3 LANES TO TURN LEFT ONTO W GRAPE ST
- USE THE RIGHT 2 LANES TO TAKE THE RAMP ONTO I-5 S
- MERGE ONTO I-5 S
- TAKE EXIT 16 TO MERGE ONTO CA-163 N TOWARD ESCONDIDO
- MERGE ONTO I-15 N
- TAKE EXIT 51 TOWARD MISSION RD/FALLBROOK
- DRIVE TO E MISSION RD IN FALLBROOK
- TURN LEFT ONTO OLD HWY 395
- SLIGHT RIGHT TOWARD E MISSION RD
- SLIGHT RIGHT ONTO E MISSION RD
- DESTINATION WILL BE ON THE RIGHT

VICINITY MAP



UNDERGROUND SERVICE ALERT
(800) 642-2444
WWW.CALIFORNIA811.ORG



CALL 2 TO 14 WORKING DAYS UTILITY NOTIFICATION
PRIOR TO CONSTRUCTION

11"X17" WILL BE HALF SCALE UNLESS OTHERWISE NOTED

CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, AND FIELD CONDITION, AND SHALL IMMEDIATELY NOTIFY THE A/E OF RECORD IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK

RATTLESNAKE TANK SITE IMPROVEMENT FALLBROOK PUBLIC UTILITY DISTRICT

990 E. MISSION ROAD, FALLBROOK, CA

TITLE SHEET

DWG No: G-1

JOB No: 3212

SHEET: 1 of 8



REVISIONS				
NO.	BY	DATE		REMARKS
A	FC	12/17/2023	50% CD	
B	FC	1/30/2024	70% CD	
C	FC	2/12/2024	90% CD	
0	FC	5/04/2024	100% CD	
1	FC	7/31/2024	100% CD	UPDATED AS PER COMMENTS

GENERAL NOTES

- ALL WORK SHALL BE DONE IN CONFORMANCE WITH THESE PLANS, THE CONTRACT SPECIFICATIONS, THE STANDARD SPECIFICATIONS AND STANDARD DRAWINGS OF THE FALLBROOK PUBLIC UTILITY DISTRICT, AND THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (GREEN BOOK—LATEST EDITION).
- WHENEVER "GREEN BOOK" IS REFERENCED, IT STANDS FOR THE "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION", LATEST EDITION. THE GREEN BOOK, INCLUDING REGIONAL SUPPLEMENTS, AND THE FALLBROOK PUBLIC UTILITY DISTRICT STANDARD SPECIFICATIONS AND STANDARD DRAWINGS, LATEST EDITION, SHALL BE INCLUDED AS PART OF THESE PLANS AND SPECIFICATIONS.
- THE CONTRACTOR SHALL OBTAIN AND HAVE AVAILABLE ON THE JOB SITE COPIES OF APPLICABLE STANDARDS SHOWN ON THESE PLANS AT ALL TIMES AND SPECIFICATIONS AND BE FAMILIAR WITH THEIR REQUIREMENTS. CONTRACTOR SHALL REMOVE ALL DEBRIS AND TRASH DURING AND AFTER CONSTRUCTION.
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE MOST RECENT EDITION OF THE UNIFORM BUILDING CODE AT THE TIME OF CONSTRUCTION.
- CAL-OSHA PERMITS SHALL BE REQUIRED FOR ANY TRENCH WORK OVER FIVE (5) FEET IN DEPTH. EVIDENCE MUST BE PRESENTED TO FALLBROOK PUBLIC UTILITY DISTRICT PRIOR TO CONSTRUCTION.
- THE CONTRACTOR SHALL OBTAIN A COPY OF AB 3020 AND OTHER STATE LAW RELATING TO UNDERGROUND EXCAVATING AND BE FAMILIAR WITH ALL REQUIREMENTS. COPIES MAY BE OBTAINED FROM (USA) BY CALLING 1-800-422-4133.
- THE CONTRACTOR SHALL SUBMIT THE PROPOSED CONSTRUCTION SCHEDULE FOR ALL WORK TO BE PERFORMED UNDER THIS CONTRACT TO THE ENGINEER FOR APPROVAL NO LESS THAN TEN (10) DAYS BEFORE SCHEDULED START OF WORK. PROPOSED SCHEDULE SHALL BE IN WRITING AND SHALL IDENTIFY DAYS AND HOURS OF CONSTRUCTION, ANTICIPATED STREET CLOSURE PERIODS AND COORDINATION REQUIREMENTS FOR ALL AFFECTED PUBLIC AGENCIES AND PRIVATE COMPANIES THAT HAVE FACILITIES WITHIN THE WORK AREA. ANY MODIFICATIONS TO THE APPROVED SCHEDULE SHALL BE SUBMITTED TO THE ENGINEER NO LESS THAN THREE (3) DAYS BEFORE SUCH MODIFICATIONS ARE REQUIRED.
- CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE GOVERNMENTAL AND LOCAL LAWS, REGULATIONS, AND ORDINANCES WITH REGARD TO TRAFFIC SAFETY, WORK HOURS, OPERATING HOURS, NOISE AND AIR POLLUTION, AND SANITARY CONDITIONS.
- CONTRACTOR SHALL OBTAIN ALL PERMITS REQUIRED FOR COMPLETION OF THE WORK.
- CONTRACTOR SHALL PROVIDE FPUD 14 DAYS ADVANCE NOTICE OF SYSTEM SHUTDOWN FOR CONNECTIONS IN ACCORDANCE WITH THE SPECIFICATIONS.
- CONTRACTOR SHALL PROVIDE ALL MATERIALS NECESSARY FOR THE COMPLETION OF THE WORK SPECIFIED IN THE CONTRACT DOCUMENTS.
- CONTRACTOR SHALL PROVIDE CONSTRUCTION STAKING IN ACCORDANCE WITH THE SPECIFICATIONS.
- CONTRACTOR SHALL MEET WITH THE DISTRICT INSPECTOR PRIOR TO STARTING CONSTRUCTION AND SHALL NOTIFY THE DISTRICT 5 DAYS PRIOR TO BEGINNING CONSTRUCTION SO THAT INSPECTION CAN BE PROVIDED.
- THE CONTRACTOR SHALL AND HEREBY DOES GUARANTEE ALL WORK FOR A PERIOD OF ONE YEAR AFTER THE DATE OF ACCEPTANCE OF THE WORK BY THE DISTRICT AND SHALL REPAIR OR REPLACE ANY OR ALL SUCH WORK, TOGETHER WITH ANY OTHER WORK WHICH MAY BE DISPLACED IN SO DOING, THAT MAY PROVE DEFECTIVE IN WORKMANSHIP AND/OR MATERIALS WITHIN THE ONE YEAR PERIOD FROM DATE OF ACCEPTANCE WITHOUT EXPENSE WHATSOEVER TO THE DISTRICT.

GENERAL NOTES (CONTINUED)

- AS-BUILT DRAWINGS: THE CONTRACTOR SHALL MAINTAIN CURRENT BLACKLINE OR BLUELINE DRAWINGS DURING CONSTRUCTION NEATLY MARKED IN RED INK TO REFLECT THE AS-BUILT CONDITIONS. CONTRACTOR SHALL MAKE UPDATES TO THE AS-BUILT DRAWINGS ON A DAILY BASIS.
- CONTRACTOR AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY, AND THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE OWNER AND ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR THE ENGINEER.
- LOCATION AND ELEVATION OF IMPROVEMENTS TO BE MET BY WORK OF THIS CONTRACT SHALL BE CONFIRMED BY FIELD MEASUREMENTS PRIOR TO CONSTRUCTION OF NEW WORK. CONTRACTOR SHALL MAKE EXPLORATORY EXCAVATIONS AND LOCATE EXISTING UNDERGROUND FACILITIES SUFFICIENTLY IN ADVANCE OF CONSTRUCTION TO PERMIT REVISIONS TO THESE PLANS, IF NECESSARY, DUE TO THE ACTUAL LOCATIONS OF EXISTING FACILITIES.
- THE EXISTENCE AND LOCATION OF EXISTING UNDERGROUND FACILITIES SHOWN ON THESE PLANS ARE APPROXIMATE AND WERE OBTAINED BY A SEARCH OF THE AVAILABLE RECORDS. THE CONTRACTOR SHALL TAKE PRECAUTIONARY MEASURES TO PROTECT ANY EXISTING FACILITY SHOWN HEREON AND ANY OTHER WHICH IS NOT OF RECORD OR NOT SHOWN ON THESE PLANS.
- THE CONTRACTOR SHALL VERIFY THE EXISTENCE AND LOCATION OF ALL UTILITIES BEFORE COMMENCING WORK TO PERMIT REVISIONS TO PLANS IF REVISIONS ARE NECESSARY BECAUSE OF ACTUAL LOCATION OF EXISTING FACILITIES. NOTICE OF THE PROPOSED WORK SHALL BE GIVEN TO THE FOLLOWING AGENCIES AT LEAST TWO (2) WORKING DAYS PRIOR TO EXCAVATION. CONTRACTOR SHALL REQUEST MARKOUT OF UNDERGROUND UTILITIES BY CALLING THE BELOW LISTED REGIONAL NOTIFICATION CENTER FOR AN INQUIRY IDENTIFICATION NUMBER:

UNDERGROUND SERVICE ALERT: 1-800-422-4133 OR 811
- THE CONTRACTOR SHALL DESIGN, CONSTRUCT, AND MAINTAIN ALL SAFETY DEVICES, INCLUDING SHORING AND BRACING, AND SHALL BE SOLELY RESPONSIBLE FOR CONFORMING TO ALL APPLICABLE LOCAL, STATE, AND FEDERAL SAFETY AND HEALTH STANDARDS, LAWS, AND REGULATIONS. STRUCTURES HAVE BEEN DESIGNED FOR OPERATIONAL LOADS ON COMPLETED STRUCTURES; DURING CONSTRUCTION STRUCTURES SHALL BE PROTECTED BY BRACING AND BALANCING WHEREVER EXCESSIVE LOADS MAY OCCUR. PROVIDE SHEETING, SHORING, BRACING, OR EQUIVALENT METHOD FOR:
 - PROTECTION OF LIFE AND LIMB WHICH SHALL CONFORM TO APPLICABLE SAFETY ORDERS;
 - PROTECTION OF EXISTING UNDERGROUND AND ABOVE-GROUND PRIVATE AND PUBLIC IMPROVEMENTS; AND
 - THE REMEDY OF ANY AND ALL CONDITIONS ENCOUNTERED, REGARDLESS OF DEPTH, (INCLUDING, BUT NOT LIMITED TO TRENCH SLOUGHING, PAVEMENT SEPARATION, ETC.) DURING THE CONSTRUCTION OF THE PROJECT.
- ALL CONCRETE TESTING REQUIRED BY THE DISTRICT WILL BE AT THE EXPENSE OF THE CONTRACTOR.
- DISTRICT INSPECTOR SHALL BE FURNISHED THREE (3) CUT SHEETS.
- APPROVAL OF THIS PLAN BY FPUD DOES NOT CONSTITUTE A REPRESENTATION AS TO THE ACCURACY OF THE LOCATION OF, OR THE EXISTENCE OR NONEXISTENCE OF ANY UNDERGROUND UTILITY PIPE OR STRUCTURE WITHIN THE LIMITS OF THIS PROJECT.

GENERAL NOTES (CONTINUED)

- NO REVISIONS SHALL BE MADE TO THESE PLANS WITHOUT THE APPROVAL OF THE FPUD DISTRICT ENGINEER OR ON-SITE DISTRICT INSPECTOR.
- CONTRACTOR TO USE ALL NEW MATERIAL UNLESS INDICATED OTHERWISE IN THE CONTRACT DOCUMENTS.
- CONTRACTOR SHALL SUBMIT THE REDLINE AS-BUILTS TO THE ENGINEER OF WORK ONCE THE PROJECT HAS BEEN COMPLETED.
- SPECIFIC NOTES AND DETAILS ON THE DRAWINGS SHALL TAKE PRECEDENCE OVER THESE GENERAL NOTES IN CASE OF CONFLICT.
- UPON COMPLETION OF EACH DAY'S WORK, THE CONTRACTOR SHALL BE RESPONSIBLE FOR LEAVING THE WORK AREA FREE OF HAZARDS, AND SHALL PROVIDE ALL NECESSARY TEMPORARY SIGNS, WARNING DEVICES, BARRICADES AND TEMPORARY TRAFFIC PLATES. TEMPORARY ACCESS IS TO BE PROVIDED TO ALL ADJACENT RESIDENCES AND BUSINESSES DURING NON-CONSTRUCTION HOURS.
- THE CONTRACTOR SHALL PROTECT ALL EXPOSED AREAS OF THE SITE DURING THE CONSTRUCTION PERIOD AGAINST EROSION OR OTHER DAMAGE. ANY AND ALL SITE DAMAGE FROM THE CONTRACTOR'S ACTIVITIES SHALL BE REPAIRED BY THE CONTRACTOR AS DIRECTED BY THE ENGINEER AT NO ADDITIONAL COST TO FALLBROOK PUBLIC UTILITY DISTRICT.
- THE CONTRACTOR SHALL EXERCISE DUE CARE TO AVOID INJURY TO EXISTING IMPROVEMENTS OR FACILITIES, UTILITY FACILITIES, ADJACENT PROPERTY, AND TREES AND SHRUBBERY THAT ARE NOT TO BE REMOVED. CONTRACTOR SHALL BE RESPONSIBLE TO REPAIR ALL HARDSCAPE, LANDSCAPE, LANDSCAPE IRRIGATION, PAVEMENT, ASPHALT BERMS, CHAINLINK FENCE, ETC TO ORIGINAL CONDITION.
- CONTRACTOR SHALL NOTIFY THE OWNER OF ANY ACTIONS PRESENTED HEREIN THAT HE CONSIDERS UNSAFE.
- THE CONTRACTOR SHALL PROTECT ALL SURVEY MONUMENTATION. IF ANY SURVEYING MONUMENTS ARE DISTURBED OR DESTROYED, THE CONTRACTOR SHALL RETAIN A LICENSED SURVEYOR TO RE-ESTABLISH AND RECORD THE MONUMENT CHANGE PER STATE LAW.
- ALL LANDSCAPING WHICH IS DISTURBED DURING CONSTRUCTION SHALL BE REPLACED IN-KIND, AND SHOULD BE INCLUDED IN THE BID PROCESS FOR WHICH THESE ITEMS ARE A PART OF. TREES WHICH ARE TEMPORARILY REMOVED SHALL BE REPLACED AT LOCATIONS DIRECTED BY FALLBROOK PUBLIC UTILITY DISTRICT FIELD REPRESENTATIVE.

CONTRACTOR'S RESPONSIBILITIES:

- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE AND PROTECT ALL EXISTING UTILITIES. LOCATIONS SHOWN ON THE DRAWINGS ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE THE IMPROVEMENTS THAT WILL BE AFFECTED BY WORK UNDER THIS CONTRACT. ALL IMPROVEMENTS DISTURBED BY CONTRACTOR SHALL BE REPLACED IN KIND TO ORIGINAL CONDITION OR BETTER.
- WHERE CONTRACTOR DISTURBS AREAS OUTSIDE EDGE OF PAVING AREA SHALL BE SEEDED PER SECTION 02202.
- CONTRACTOR TO DOCUMENT ALL EXISTING PAINTED MARKINGS, STRIPING AND PAVEMENT MARKERS PRIOR TO CONSTRUCTION TO BE REPLACED IN KIND.
- "PROTECT IN PLACE", EXCAVATION AT EXISTING CULVERT STRUCTURES TO BE COMPLETED BY HAND METHODS TO AVOID DAMAGE TO EXISTING STRUCTURES AND ANY DAMAGE BY THE CONTRACTOR OR THE CONTRACTOR'S ACTIVITIES, SHALL BE REPAIRED OR REPLACED IN KIND AT NO ADDITIONAL COST AND TO THE SATISFACTION OF FPUD.
- MAINTAIN A MINIMUM OF 12" CLEARANCE BETWEEN THE BOTTOM OF THE EXISTING CMP CULVERTS AND TOP OF THE NEW WATER MAIN.

CONTRACTOR'S RESPONSIBILITIES (CONTINUED)

- WHERE PAVEMENT CUTS ARE ALLOWED, A TACK COAT OF ASPHALTIC EMULSION OR PAVING ASPHALT SHALL BE APPLIED TO ALL VERTICAL CONTACT SURFACES. THE JOINT SHALL BE PRE-HEATED USING HAND TORCHES AND THE PRE-HEATING OPERATION SHALL CONTINUE DURING THE RAKING PROCESS TO ENSURE A WELL-BONDED JOINT. ALL JOINTS SHALL BE SEALED WITH AN ASPHALT BINDER GRADE DETERMINED BY THE GEOGRAPHICAL LOCATION AS NOTED ON THE CALTRANS "PAVEMENT CLIMATE REGIONS" MAP.



REVISIONS				
NO.	BY	DATE	REMARKS	
A	FC	12/17/2023	50% CD	
B	FC	1/30/2024	70% CD	
C	FC	2/12/2024	90% CD	
0	FC	5/04/2024	100% CD	
1	FC	7/31/2024	100% CD—UPDATED AS PER COMMENTS	

**RATTLESNAKE TANK SITE IMPROVEMENT
FALLBROOK PUBLIC UTILITY DISTRICT**

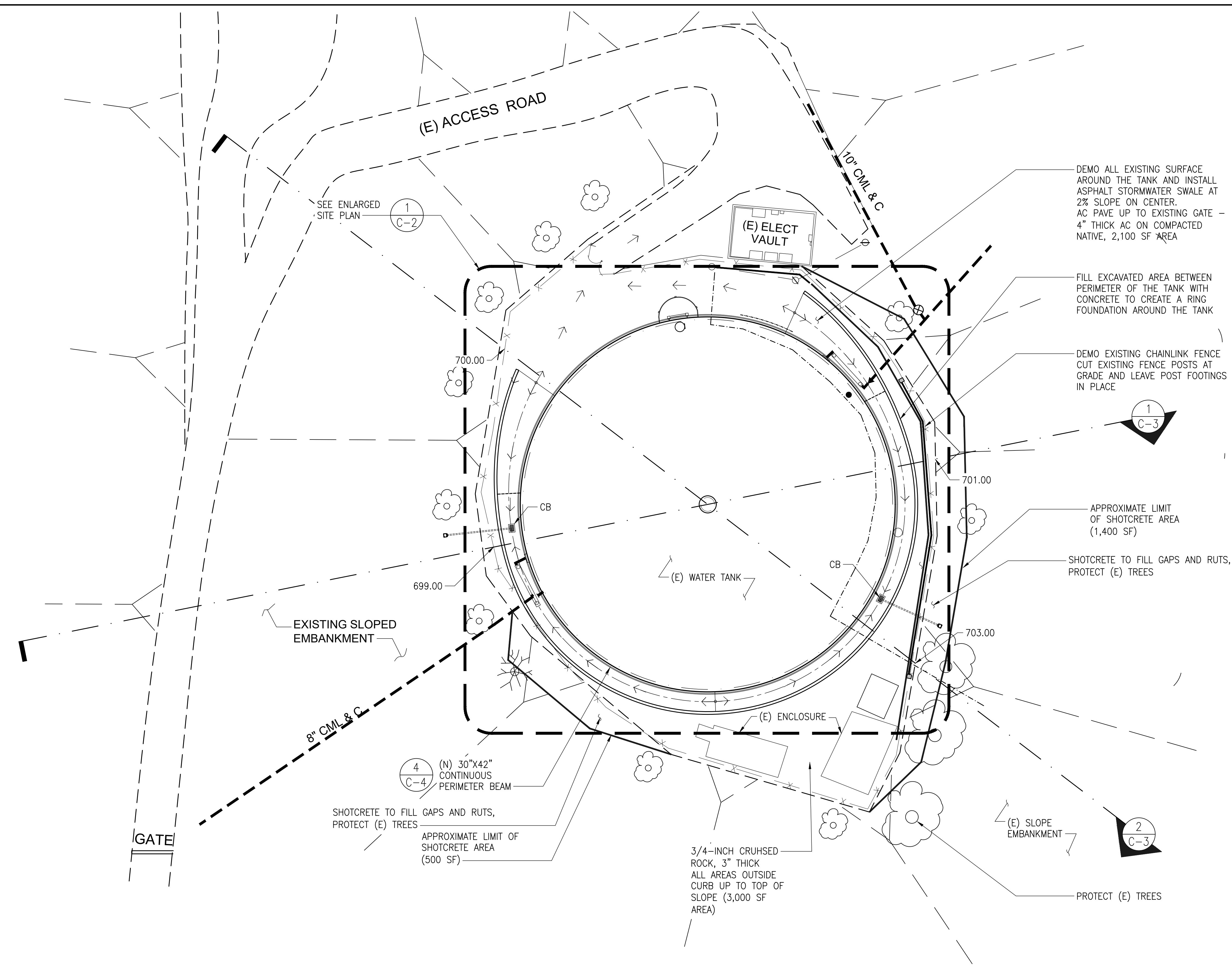
990 E. MISSION ROAD, FALLBROOK, CA

CONSTRUCTION NOTES

DWG No:	G-2
JOB No:	3212
SHEET:	2 of 8

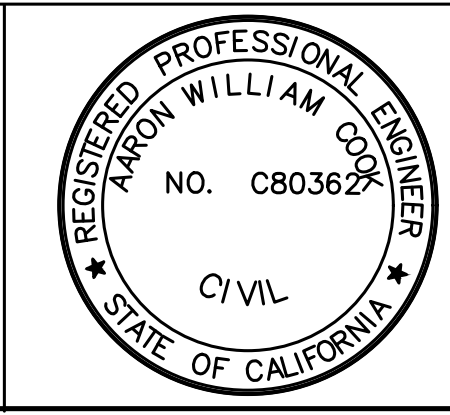
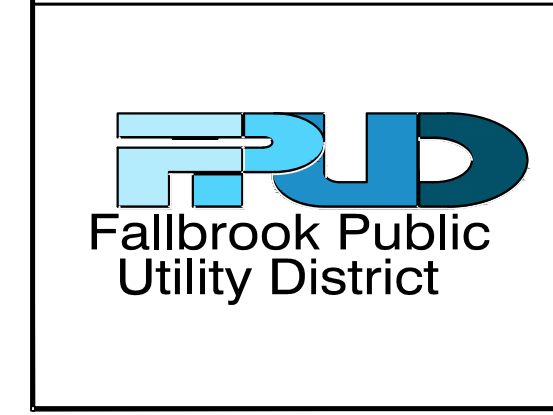
LEGEND

- (E) TREE
- (N) CATCH BASIN
- EASEMENT LINE
- FENCE LINE



SITE PLAN

16" 8" 0' 16" 32" SCALE: 1/16"=1'-0" 1

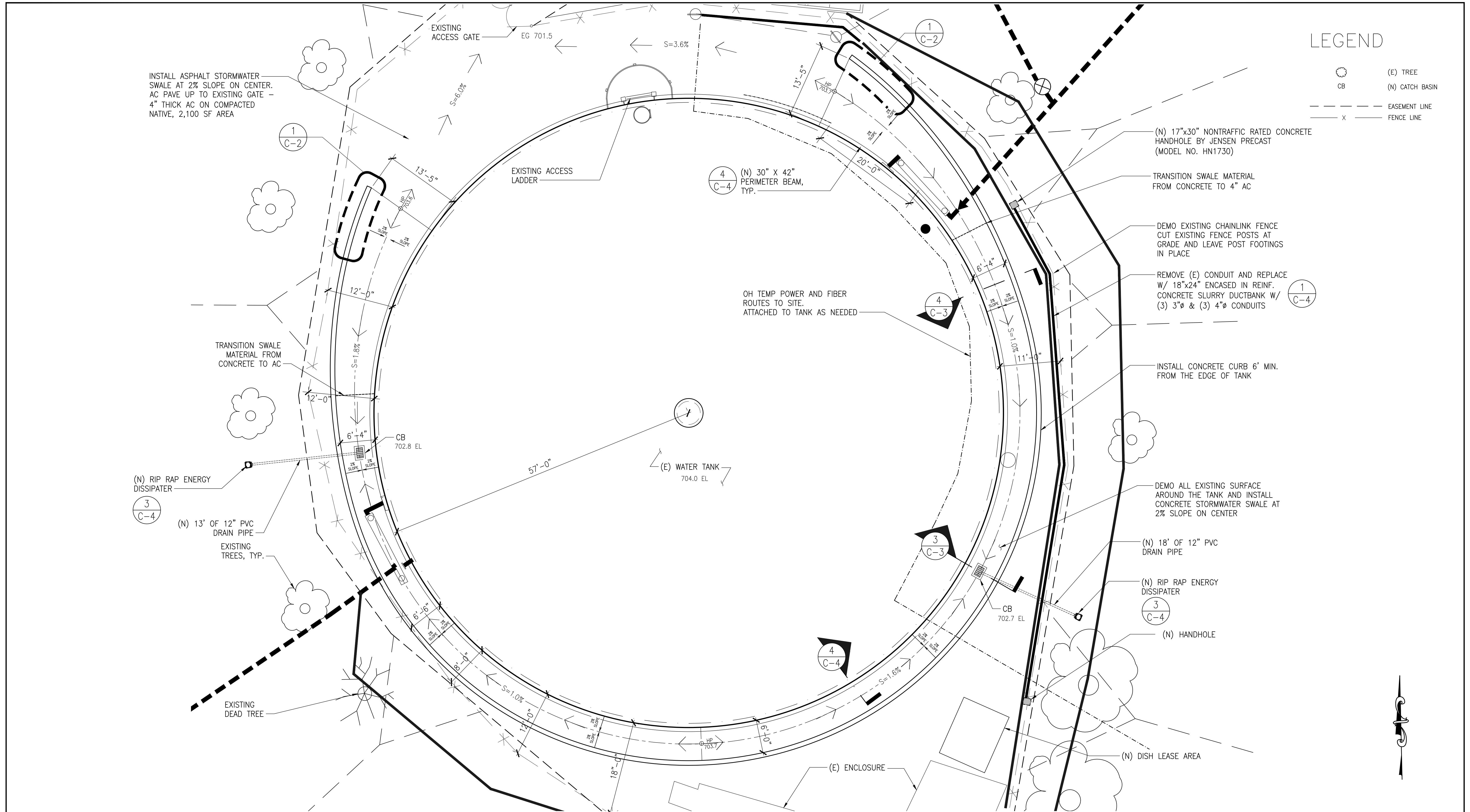


REVISIONS				
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RATTLESNAKE TANK SITE IMPROVEMENT
FALLBROOK PUBLIC UTILITY DISTRICT
 990 E. MISSION ROAD, FALLBROOK, CA

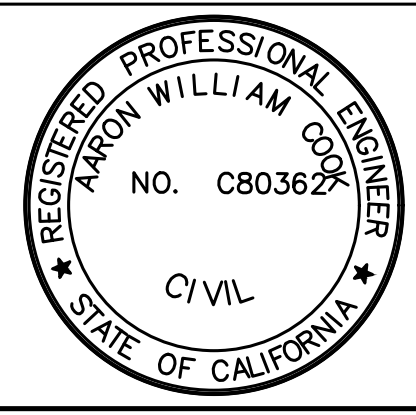
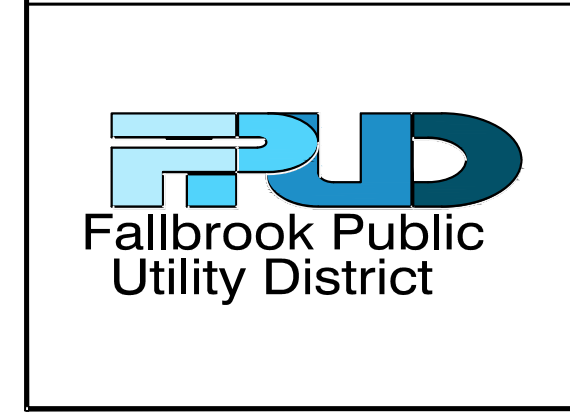
SITE PLAN

DWG No: **C-1**
 JOB No: **3212**
 SHEET: **3** of **8**



ENLARGED SITE PLAN

SCALE: 1/8"=1'-0" 1



REVISIONS				
NO.	BY	DATE		REMARKS
A	FC	12/17/2023	50% CD	
B	FC	1/30/2024	70% CD	
C	FC	2/12/2024	90% CD	
O	FC	5/04/2024	100% CD	
1	FC	7/31/2024	100% CD	UPDATED AS PER COMMENTS

RATTLESNAKE TANK SITE IMPROVEMENT
FALLBROOK PUBLIC UTILITY DISTRICT
 990 E. MISSION ROAD, FALLBROOK, CA

ENLARGED SITE PLAN

DWG No: **C-2**
 JOB No: 3212
 SHEET: **4** of **8**

NOTES

- PLANS SHALL SPECIFY:
 - ROCK CLASS AND RIP-RAP THICKNESS (T). T SHALL BE AT LEAST 1.5 TIMES THE NOMINAL EQUIVALENT DIAMETER OF STONE (d_{50}) OF THE SPECIFIED RIP-RAP.
 - FILTER BLANKET MATERIAL, NUMBER OF LAYERS AND THICKNESS.
- RIP-RAP SHALL BE EITHER QUARRY STONE OR BROKEN CONCRETE (IF SHOWN ON PLANS). COBBLES ARE NOT ACCEPTABLE.
- RIP-RAP SHALL BE PLACED OVER FILTER BLANKET MATERIAL, WHICH MAY BE EITHER GRANULAR MATERIAL OR NON-WOVEN GEOTEXTILE FILTER FABRIC; MATERIAL AT WEIGHT SPECIFIED IN PLANS OR SPECIFICATIONS.
- SEE TABLE 200-1.7 IN THE SAN DIEGO REGIONAL SUPPLEMENT TO GREENBOOK FOR SELECTION OF FILTER BLANKET.
- RIP-RAP ENERGY DISSIPATORS SHALL BE DESIGNATED AS EITHER TYPE 1 OR TYPE 2. TYPE 1 SHALL BE WITH CONCRETE SILL; TYPE 2 SHALL BE WITHOUT SILL.

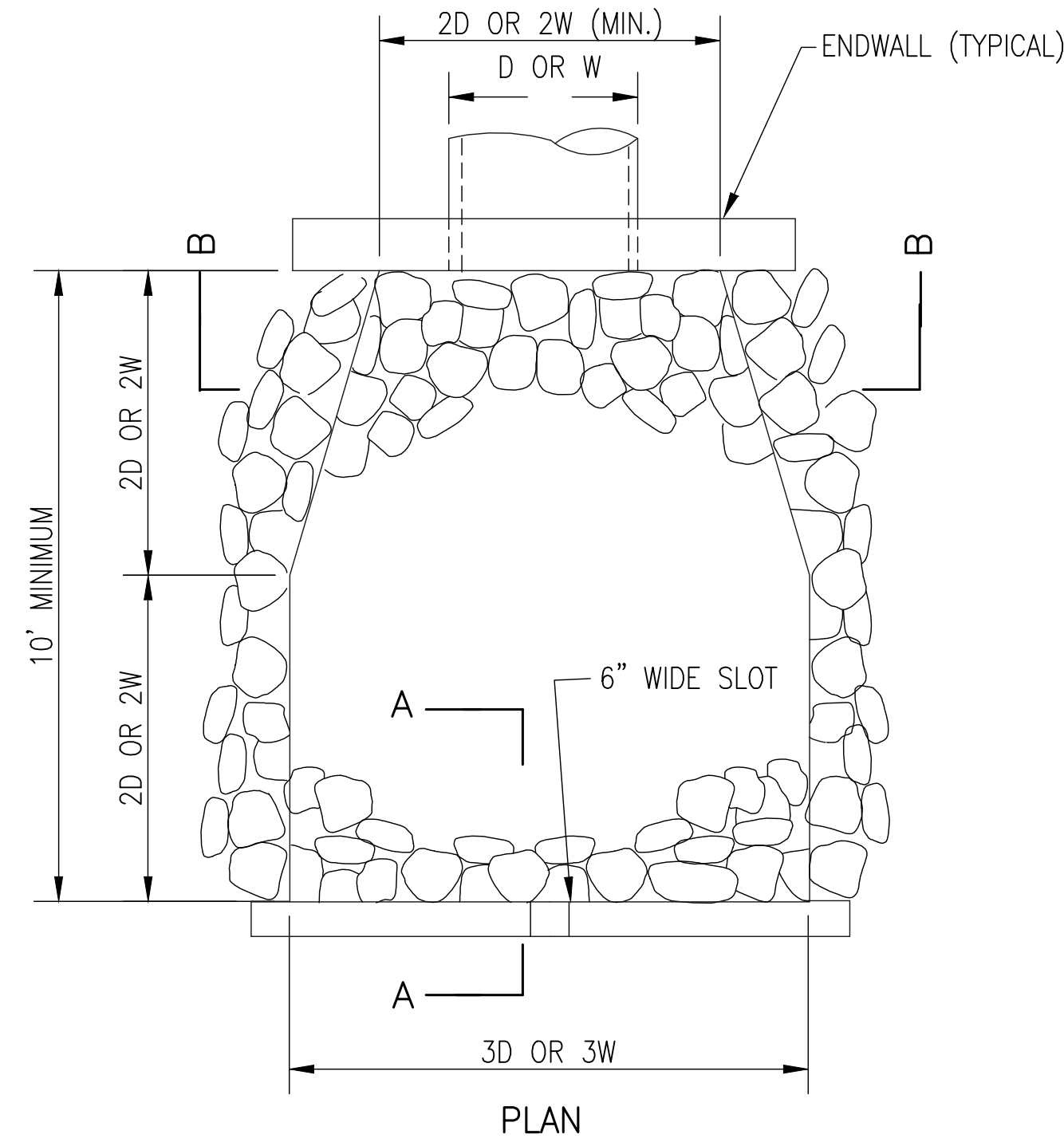
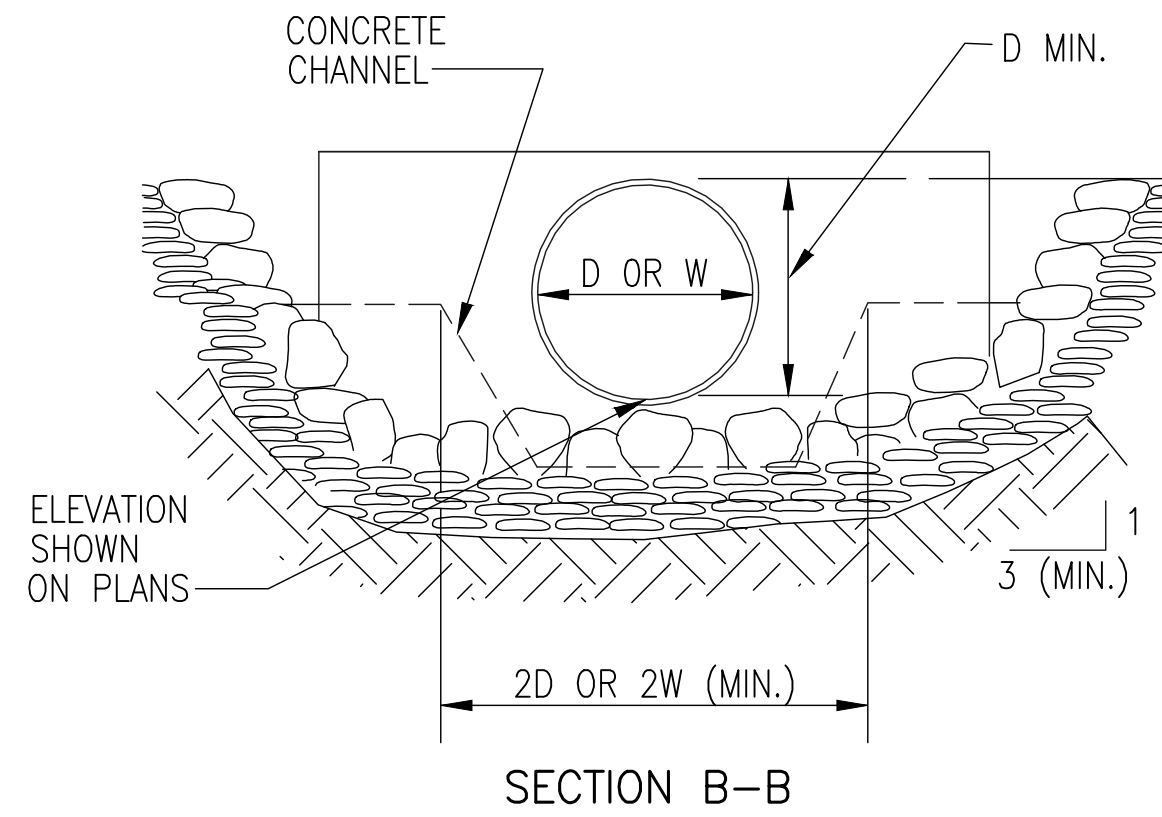
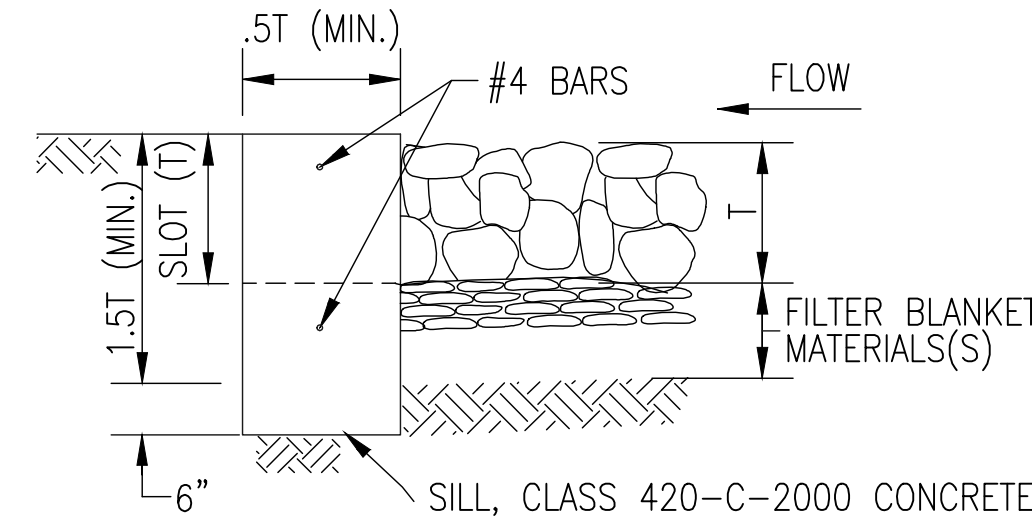


TABLE 7-1 (BELOW) PER JULY 2005 SAN DIEGO COUNTY DRAINAGE DESIGN MANUAL

DESIGN VELOCITY (FT/SEC) *	ROCK CLASS	RIP-RAP THICKNESS "T" (MIN)
6-10	NO. 2 BACKING	1.1 FT
10-12	1/4 TON	2.7 FT
12-14	1/2 TON	3.5 FT
14-16	1 TON	4.4 FT
16-18	2 TON	5.4 FT

* OVER 20 FT/SEC REQUIRES SPECIAL DESIGN

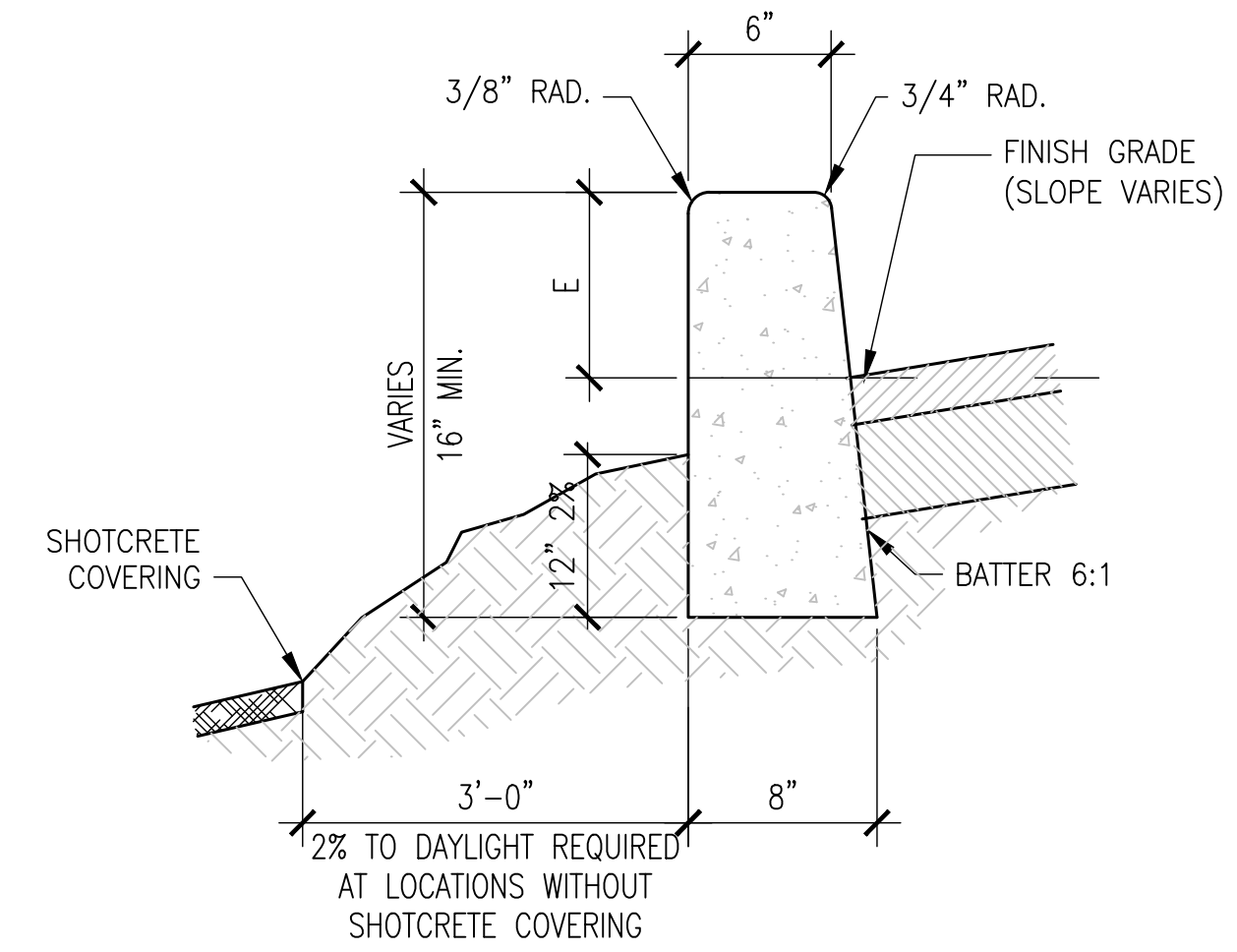
D = PIPE DIAMETER ϕ
W = BOTTOM WIDTH OF CHANNEL



SECTION A-A

GENERAL NOTES:

- CONST. CURB EXPANSION JOINTS AT 200' MAX. SPACING, AND AT POINT OF TANGENCY, AND AT END OF EACH DRIVEWAYS.
- CONST. CURB CONTRACTION JOINTS AT 15' MAX. SPACING.
- TOPS OF ALL CURB SHALL SLOPE TOWARD THE ROADWAY AT 1.5% MAX. (MAX 2.0% FINISHED SURFACE SLOPE), UNLESS SHOWN OR AS DIRECTED.

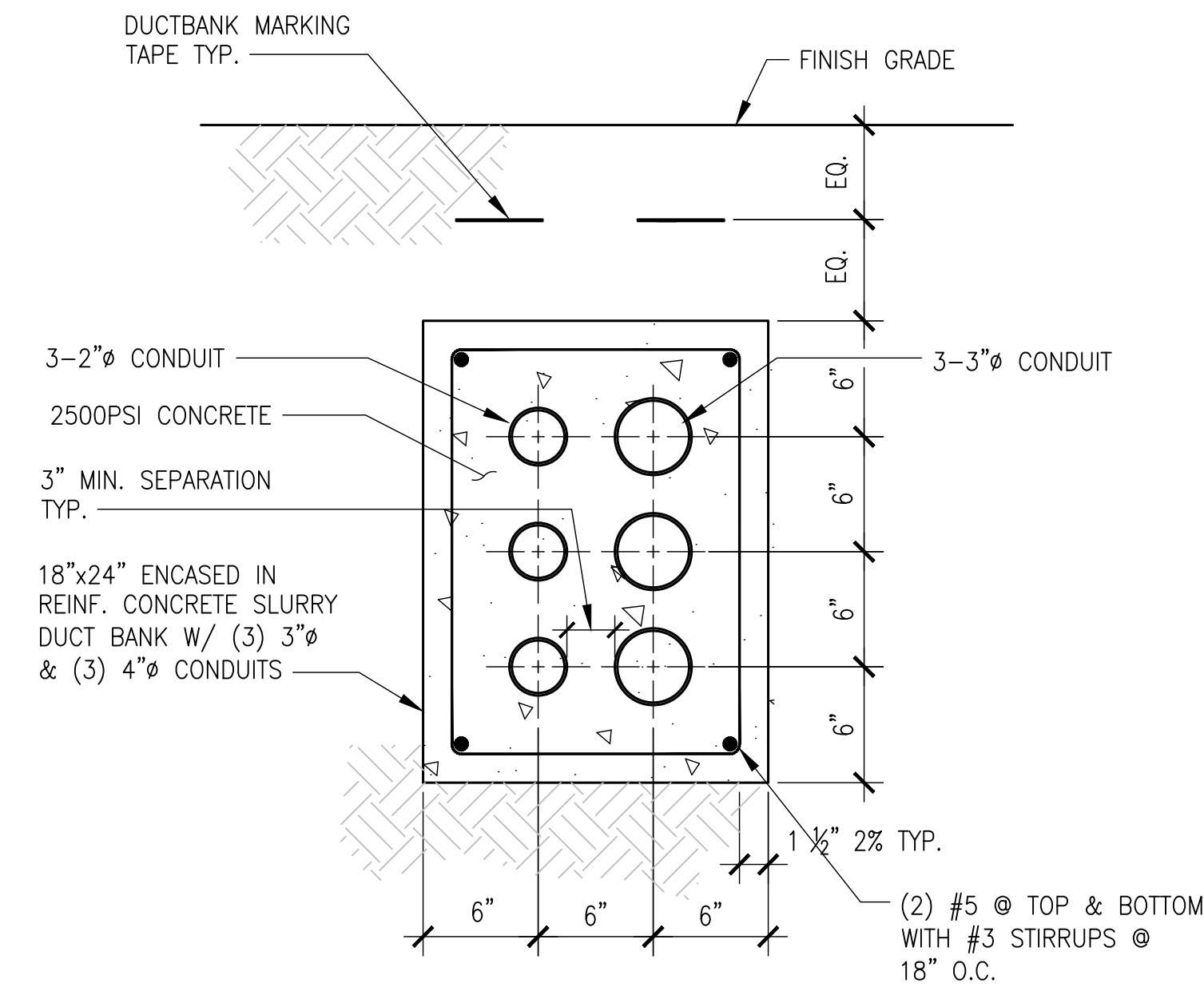


RIP RAP ENERGY DISSIPATER

SCALE: N.T.S. 3

STANDARD CONC. CURB

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



CONDUIT DUCTBANK DETAIL

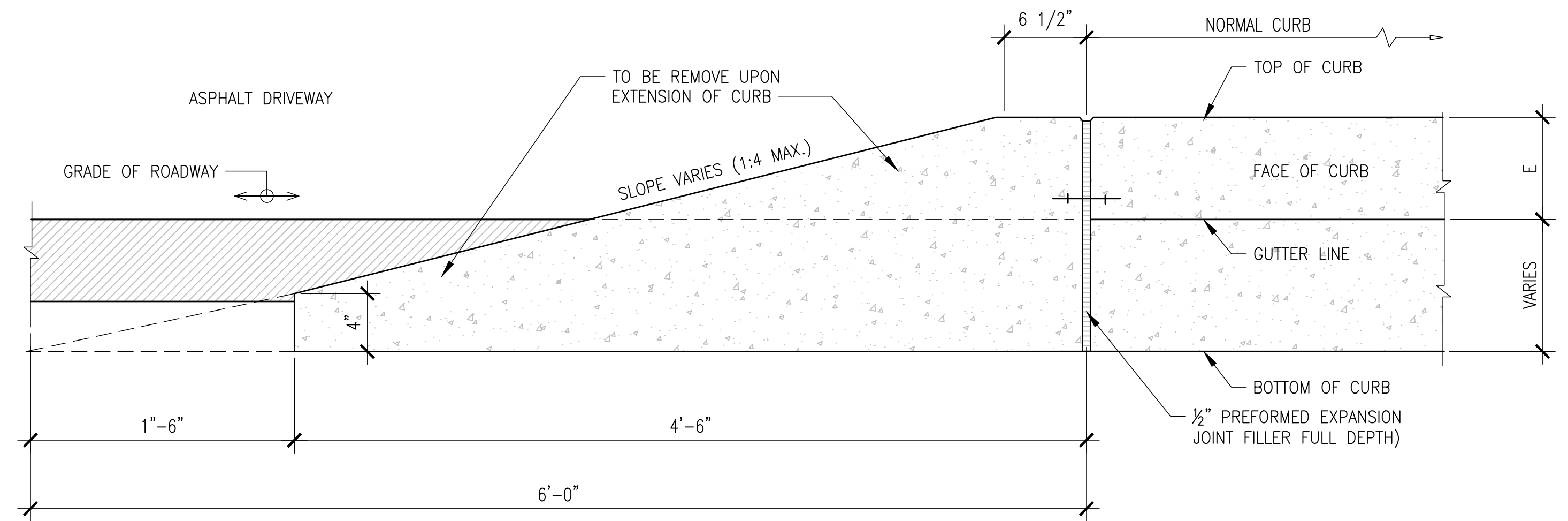
SCALE: 1-1/2"=1'-0" 5

NOT USED

SCALE: 4

CURB ENDING DETAIL

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



REVISIONS				
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RATTLESNAKE TANK SITE IMPROVEMENT
FALLBROOK PUBLIC UTILITY DISTRICT
990 E. MISSION ROAD, FALLBROOK, CA

DETAILS

DWG No: **C-4**
JOB No: 3212
SHEET: **6** of **8**

FOUNDATION

- EXCAVATE FOR FOUNDATIONS TO THE DEPTHS SHOWN ON THE DRAWINGS BELOW UNDISTURBED SOIL OR COMPACTED EARTH 12 INCH MINIMUM UNLESS OTHERWISE NOTED. SEE SOILS REPORT FOR PAD AND FOOTING COM-PACTION REQUIREMENTS. THE BOTTOM OF FOUNDATION ELEVATIONS SHOWN ON THE DRAWINGS ARE ESTIMATED FOR BID PURPOSES. THE FINAL BOTTOM OF FOUNDATION ELEVATION TO BE VERIFIED BY THE OWNER'S SOIL TESTING AGENCY.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SHORING NECESSARY TO SUPPORT CUT AND/OR FILL BANKS AND EXISTING STRUCTURES DURING EXCAVATION FOR FORMING AND PLACEMENT OF CONCRETE.
- CARE SHALL BE TAKEN NOT TO OVEREXCAVATE FOUNDATION AT LOWER ELEVATION TO PREVENT DISTURBING SOILS AROUND FOOTINGS AT HIGHER ELEVATION.
- FILLING AND BACKFILLING SHALL BE INSPECTED AND APPROVED BY THE PROJECT SOILS ENGINEER PRIOR TO FORMING.
- ALL FILL AND BACKFILL MATERIAL SHALL BE APPROVED BY THE PROJECT SOILS ENGINEER.
- FILLING AND BACKFILLING SHALL BE COMPACTED TO A MINIMUM OF 90% OF MAXIMUM DENSITY IN ACCORDANCE WITH THE SOILS REPORT AND ASTM TEST METHOD D-1557-78. FLOODING OF BACKFILL IS NOT PERMITTED.
- WATER SHALL BE REMOVED FROM FOUNDATION EXCAVATION PRIOR TO PLACING OF CONCRETE. CARE SHALL BE TAKEN SO AS NOT TO DRY OUT UNDERLYING NATURAL SOILS.
- GENERAL AND CONCRETE SUB-CONTRACTOR SHALL REVIEW AND FAMILIARIZE THEMSELVES WITH THE SOILS REPORT AND THE CONTENTS OF SOILS REPORT SHALL BE MADE A PART OF THESE DRAWINGS.

CONCRETE

ALL CONCRETE CONSTRUCTION SHALL CONFORM WITH THE REQUIREMENTS OF THE UNIFORM BUILDING CODE (LATEST ADOPTED EDITION) OR OTHER APPLICABLE GOVERNING CODES AND THE LATEST ADOPTED EDITION OF THE ACI CODE AND SPECIFICATIONS. THE FOLLOWING NOTES ARE PROVIDED FOR USE AS A GUIDE TO ALL REQUIREMENTS.

- MATERIALS FOR CONCRETE:
 - CEMENT SHALL CONFORM TO THE APPROPRIATE SPECIFICATION LISTED BELOW:
 - PORTLAND CEMENT, "SPECIFICATION FOR PORTLAND CEMENT" (ASTM C-150).
 - UNLESS OTHERWISE PERMITTED OR REQUIRED, CEMENT SHALL BE TYPE I OR TYPE II. (ASTM C-150).
 - THE CEMENT USED IN THE WORK SHALL CORRESPOND TO THAT UPON WHICH THE SELECTION OF CONCRETE PROPORTIONS WAS BASED.
 - ADMIXTURES SHALL NOT BE USED WITHOUT WRITTEN CONSENT OF THE ENGINEER.
 - WATER:
 - MIXING WATER FOR CONCRETE SHALL CONFORM TO THE REQUIREMENTS FOR WATER SPECIFIED IN ASTM C-94. WATER CEMENT RATIOS SHALL CONFORM TO U.B.C. TABLE 26-A.
 - AGGREGATES:
 - AGGREGATES FOR NORMAL WEIGHT CONCRETE SHALL CONFORM TO "SPECIFICATION FOR CONCRETE AGGREGATES" (ASTM C 33).
 - AGGREGATES FOR LIGHTWEIGHT CONCRETE SHALL CONFORM TO "SPECIFICATION FOR LIGHTWEIGHT AGGREGATES FOR STRUCTURAL CONCRETE" (ASTM C-330).
 - FINE AND COARSE AGGREGATES SHALL BE REGARDED AS SEPARATE INGREDIENTS. EACH SIZE OF COARSE AGGREGATE AS WELL AS THE COMBINATION OF SIZES WHEN TWO OR MORE ARE USED, SHALL CONFORM TO THE APPROPRIATE GRADING REQUIREMENTS OF THE APPLICABLE ASTM SPECIFICATIONS.
- PROPORTIONING:
 - GENERAL

CONCRETE FOR ALL PARTS OF THE WORK SHALL BE OF THE SPECIFIED QUALITY CAPABLE OF BEING PLACED WITHOUT EXCESSIVE SEGREGATION AND, WHEN HARDENED, OF DEVELOPING ALL CHARACTERISTICS REQUIRED BY THESE SPECIFICATIONS AND THE CONTRACT DOCUMENTS.
 - STRENGTH:

THE SPECIFIED COMPRESSIVE STRENGTH OF THE CONCRETE (F'C) FOR EACH PORTION OF THE STRUCTURE SHALL BE AS DESIGNATED BELOW.

STRENGTH REQUIREMENTS SHALL BE BASED ON 7-DAY COMPRESSIVE STRENGTH, UNLESS A DIFFERENT TEST AGE IS SPECIFIED.

FOUNDATION & GRADE BEAMS. 4,500 PSI
 DRYPACK OR GROUT FOR BASE PLATES. 6,000 PSI

CONCRETE (CONT.)

- SLUMP:

UNLESS OTHERWISE PERMITTED OR SPECIFIED, THE CONCRETE SHALL BE PROPORTIONED AND PRODUCED TO HAVE A SLUMP OF 4 INCHES OR LESS IF CONSOLIDATION IS TO BE BY VIBRATION, 5 INCHES OR LESS IF CONSOLIDATION IS TO BE BY METHODS OTHER THAN VIBRATION.
- MAXIMUM SIZE OF COARSE AGGREGATE:

THE NOMINAL MAXIMUM SIZE OF THE AGGREGATE SHALL NOT BE MORE THAN ONE-FIFTH OF THE NARROWEST DIMENSION BETWEEN SIDES OF FORMS, ONE-THIRD OF THE DEPTH OF SLABS, NOR THREE-FOURTHS OF THE MINIMUM CLEAR SPACING BETWEEN REINFORCING BARS. THESE LIMITATIONS MAY BE WAIVED IF, IN THE JUDGMENT OF THE ENGINEER, WORKABILITY AND METHODS OF CONSOLIDATION ARE SUCH THAT THE CONCRETE CAN BE PLACED WITHOUT HONEYCOMB OR VOIDS.
- SELECTION OF PROPORTIONS:

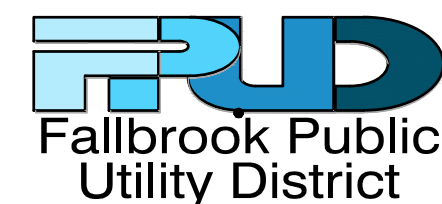
THE PROPORTIONS OF INGREDIENTS SHALL BE SUCH AS TO PRODUCE A MIXTURE WHICH WILL WORK READILY INTO THE CORNERS AND ANGLES OF THE FORMS AND AROUND REINFORCEMENT BY THE METHODS OF PLACING AND CONSOLIDATION EMPLOYED ON THE WORK, BUT WITHOUT PERMITTING THE MATERIALS TO SEGREGATE OR EXCESSIVE FREE WATER TO COLLECT ON THE SURFACE.
- ALL REINFORCING STEEL WIRE MESH, ANCHOR BOLTS, HOLD-DOWN ANCHORS AND OTHER INSERTS SHALL BE SECURED IN POSITION AND INSPECTED BY THE BUILDING OFFICAL AND ENGINEER PRIOR TO PLACING OF CONCRETE.
- THE CONTRACTOR SHALL PROVIDE THE CONCRETE MIX DESIGNS INCLUDING AGGREGATE GRADATIONS, WATER TESTS, CEMENT DATA, CEMENT CUBE STRENGTH AND CYLINDER STRENGTH TEST RESULTS FOR THE CONCRETE. ALL DATA SHALL BE SUBMITTED FOR REVIEW AT LEAST 45 DAYS PRIOR TO ITS USE.
- USE 3/4" CHAMFER AT ALL EXPOSED CORNERS OF STRUCTURAL CONCRETE WALLS, COLUMNS, BEAMS, ETC., EXCEPT WHERE DETAILED OTHERWISE FOR ARCHITECTURAL FINISH REQUIREMENTS.

REINFORCING STEEL:

- REINFORCING STEEL SHALL CONFORM TO ASTM A-615 GRADE 60 FOR #5 AND LARGER, GRADE 40 FOR #4 AND SMALLER UNLESS OTHERWISE NOTED. ALL REINFORCING SHALL BE FROM IDENTIFIED STOCK WITH MILL ANALYSIS SUPPLIED.
- STRUCTURAL REINFORCING STEEL SHOP DRAWING SHALL BE REVIEWED BY THE STRUCTURAL ENGINEER PRIOR TO FABRICATION.
- DOWELS SHALL BE PROVIDED AT POUR AND CONSTRUCTION JOINTS AND SHALL BE THE SAME SIZE AND SPACING AS THE REINFORCING SHOWN FOR THE SUBSEQUENT CONSTRUCTION.
- REINFORCING SHALL HAVE 3" MINIMUM COVER.
- WHEN REQUIRED, WELDING OF REINFORCING STEEL SHALL CONFORM TO "STRUCTURAL WELDING CODE - REINFORCING STEEL" (AWS D1 4-79). THE MILL ANALYSIS SHALL INCLUDE THE CARBON EQUIVALENCE TO ESTABLISH WELDABILITY. NO WELDING SHALL BE DONE AT THE BEND IN A BAR. WELDING OF CROSSING BARS (TACK WELDING) SHALL NOT BE PERMITTED EXCEPT AS AUTHORIZED OR DIRECTED BY THE ENGI NEER.
- ALL CONTINUOUS BARS OR DOWELS OF #3 THROUGH #5 IN SIZE SHALL BE LAP 40 BAR DIAMETERS IN CONCRETE AND 40 BAR DIAMETERS IN MASONRY, UNLESS OTHERWISE NOTED (2' - 0" MINIMUM). FOR BARS LARGER THAN #5 SEE REINFORCEMENT LAP SPLICE TYPICAL TABLE. WIRE MESH SHALL LAP MINIMUM OF 12".
- BARS SHALL BE CLEAN OF RUST, GREASE OR OTHER MATERIAL LIKELY TO IMPAIR BONDING. BENDS SHALL BE MADE COLD.
- SPECIAL INSPECTION OF CONCRETE SHALL INCLUDE INSPECTION OF REINFORCING STEEL. INSPECTION SHALL BE SCHEDULED SO THAT PLACEMENT OF REINFORCING STEEL, CONDUIT, SLEEVES AND EMBEDDED ITEMS MAY BE CORRECTED PRIOR TO PLACEMENT OF OVERLYING GRIDS OF REINFORCING STEEL.
- ALL REINFORCING STEEL LAPS OR SPLICES SHALL BE AS INDICATED ON PLANS. WHERE LAP OR SPLICE LOCATIONS ARE NOT SPECIFIED, LAPS OR SPLICES SHALL BE WELL STAGGERED.
- NO PIPE OR DUCTS SHALL BE PLACED IN CONCRETE UNLESS SPECIFI CALLY DETAILED.
- ALL CONCRETE REINFORCEMENT SHALL BE DETAILED, FABRICATED, LABELED, SUPPORTED AND SPACED IN FORMS AND SECURED IN PLACE IN ACCORDANCE WITH THE PROCEDURES AND REQUIREMENTS OUTLINED IN THE LATEST EDITION OF THE BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE, ACI-318 AND THE "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES", ACI 315.
- EPOXY COATED STEEL SHALL BE USED AS CALL OUT IN PLANS AND SHALL CONFORM TO ASTM A775, "STANDARD SPECIFICATION FOR EPOXY-COATED STEEL REINFORCING BARS" AND ASTM A934, "STANDARD SPECIFICATION FOR EPOXY-COATED PREFABRICATED STEEL REINFORCING BARS". REPAIR ANY DAMAGED COATING PER ASTM A775/A775M.

SPECIAL NOTE:

Contractor to coordinate all activities with FPUD before start of construction, tank must remain online during construction.

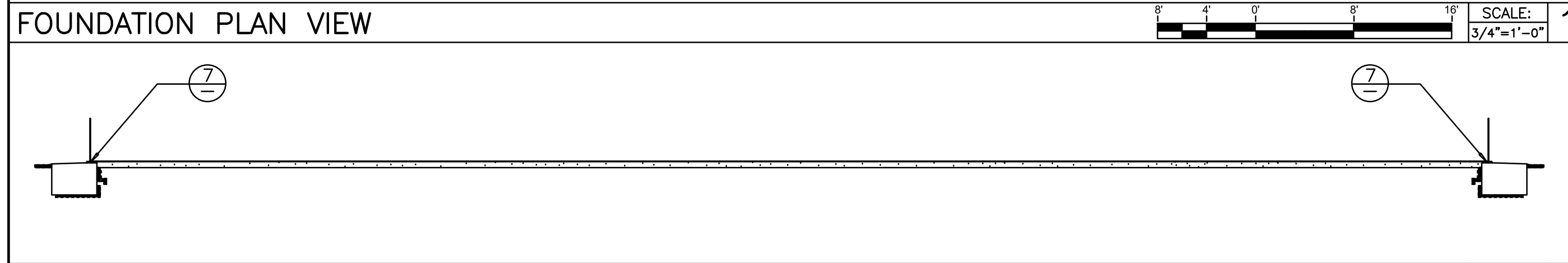
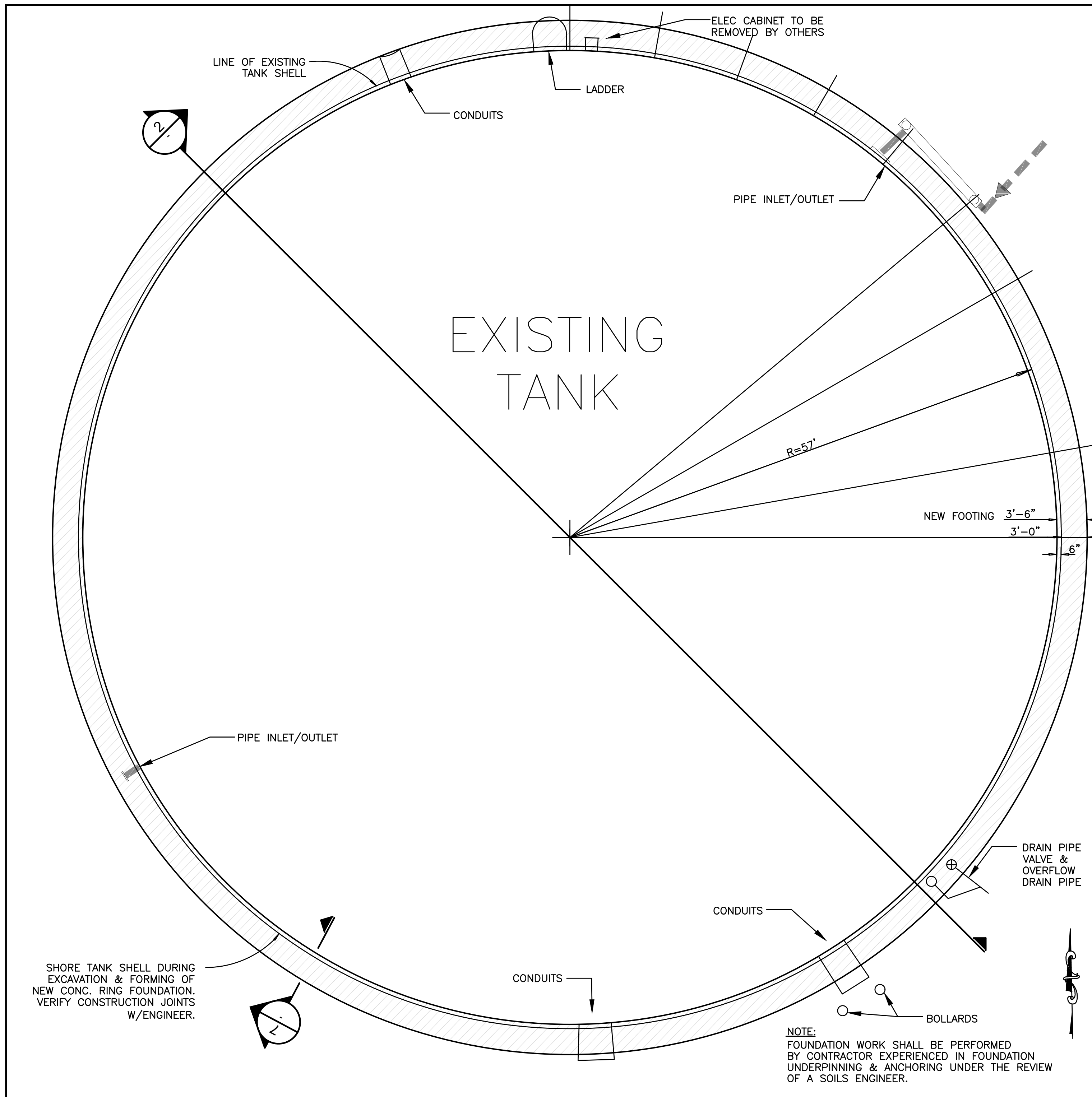


REVISIONS			
NO.	BY	DATE	REMARKS

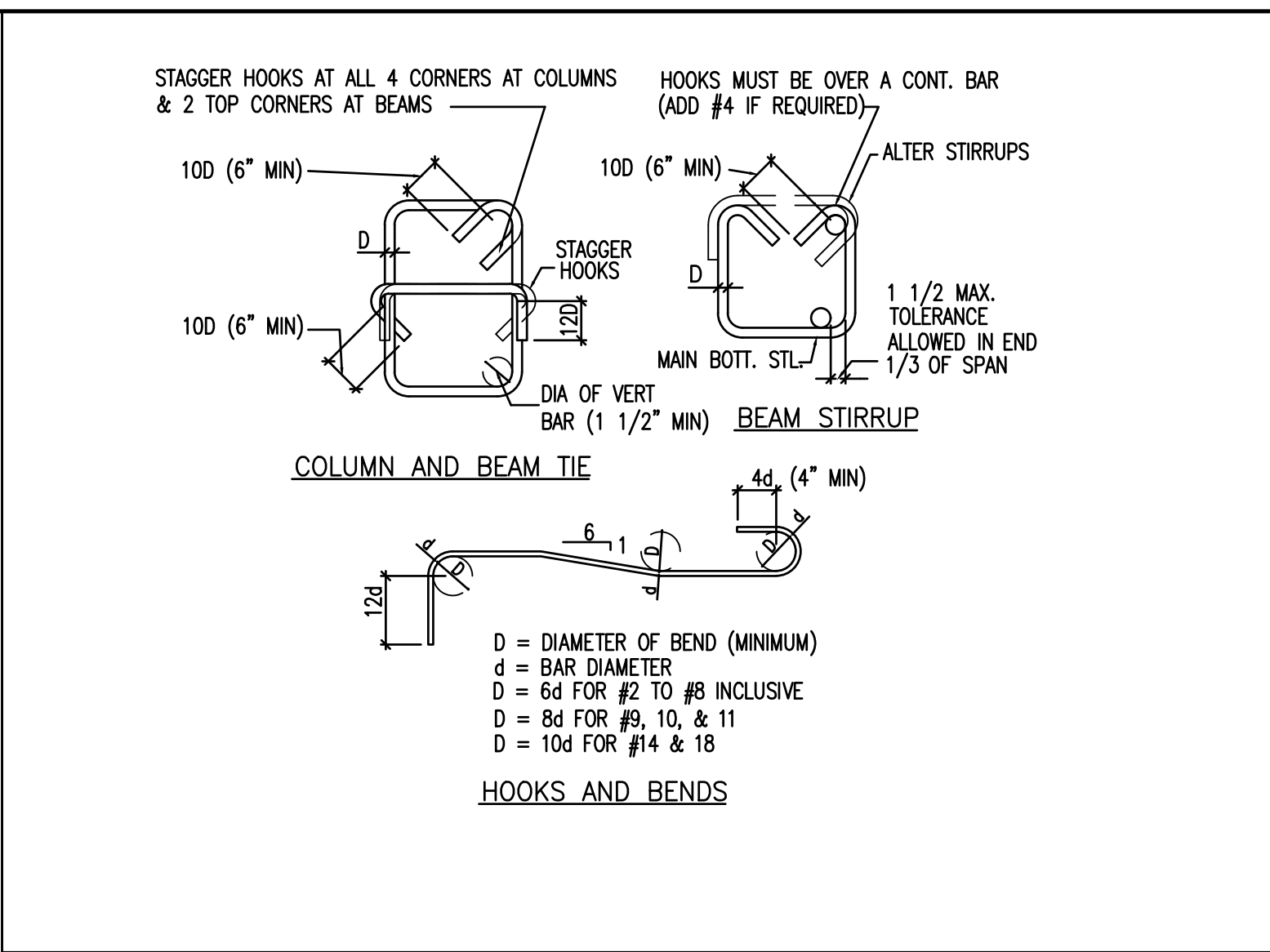
PROJECT NAME
FALLBROOK PUBLIC UTILITY DISTRICT
 990 E. MISSION ROAD, FALLBROOK, CA

STRUCTURAL NOTES

DWG No. S-1
 JOB NO: -
 SHEET: 7 of 8



FOUNDATION SECTION VIEW SCALE: 3/4"=1'-0" 2



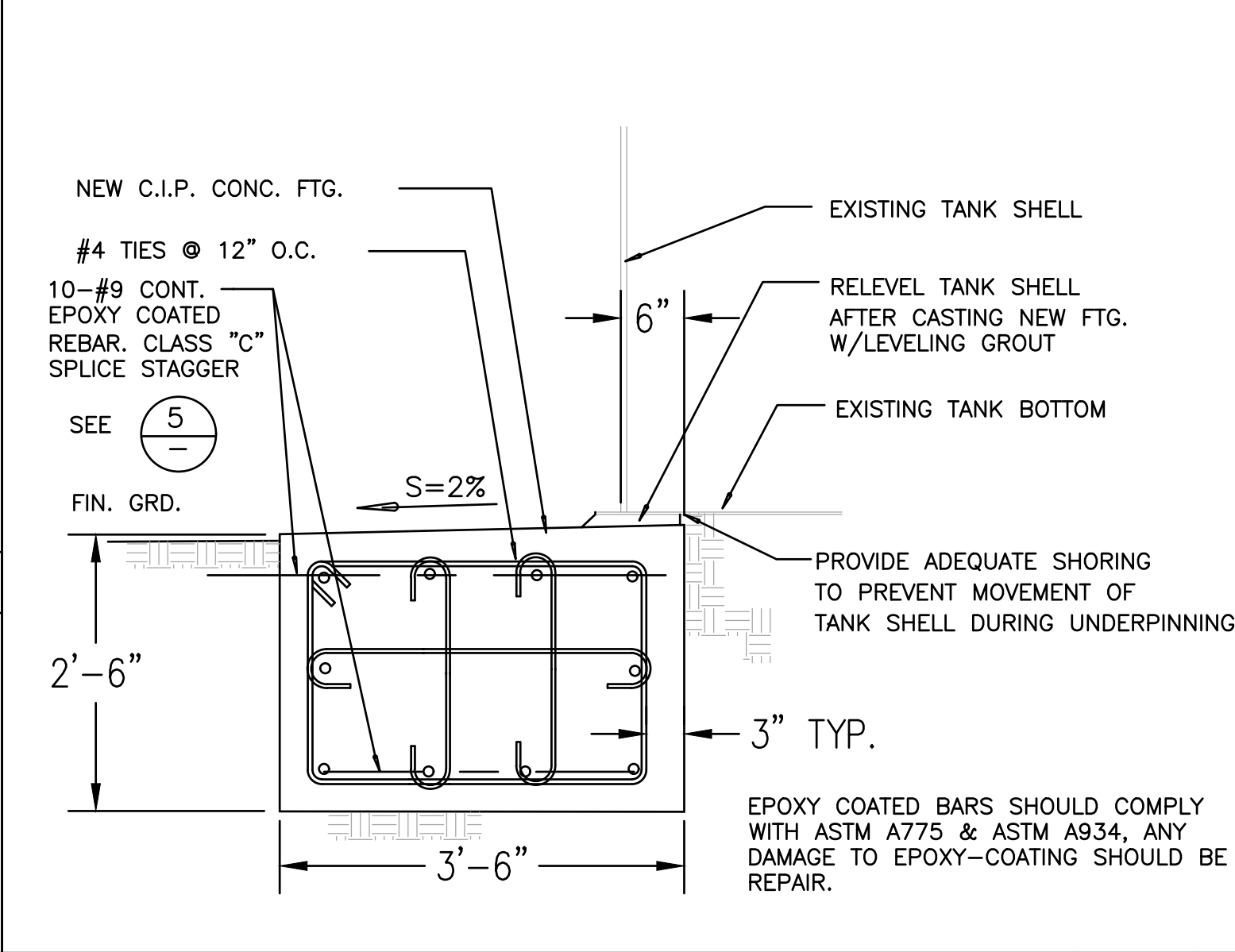
BAR BEND & HOOK DETAIL SCALE: NO SCALE 3

REINFORCEMENT LAP SPLICES IN INCHES

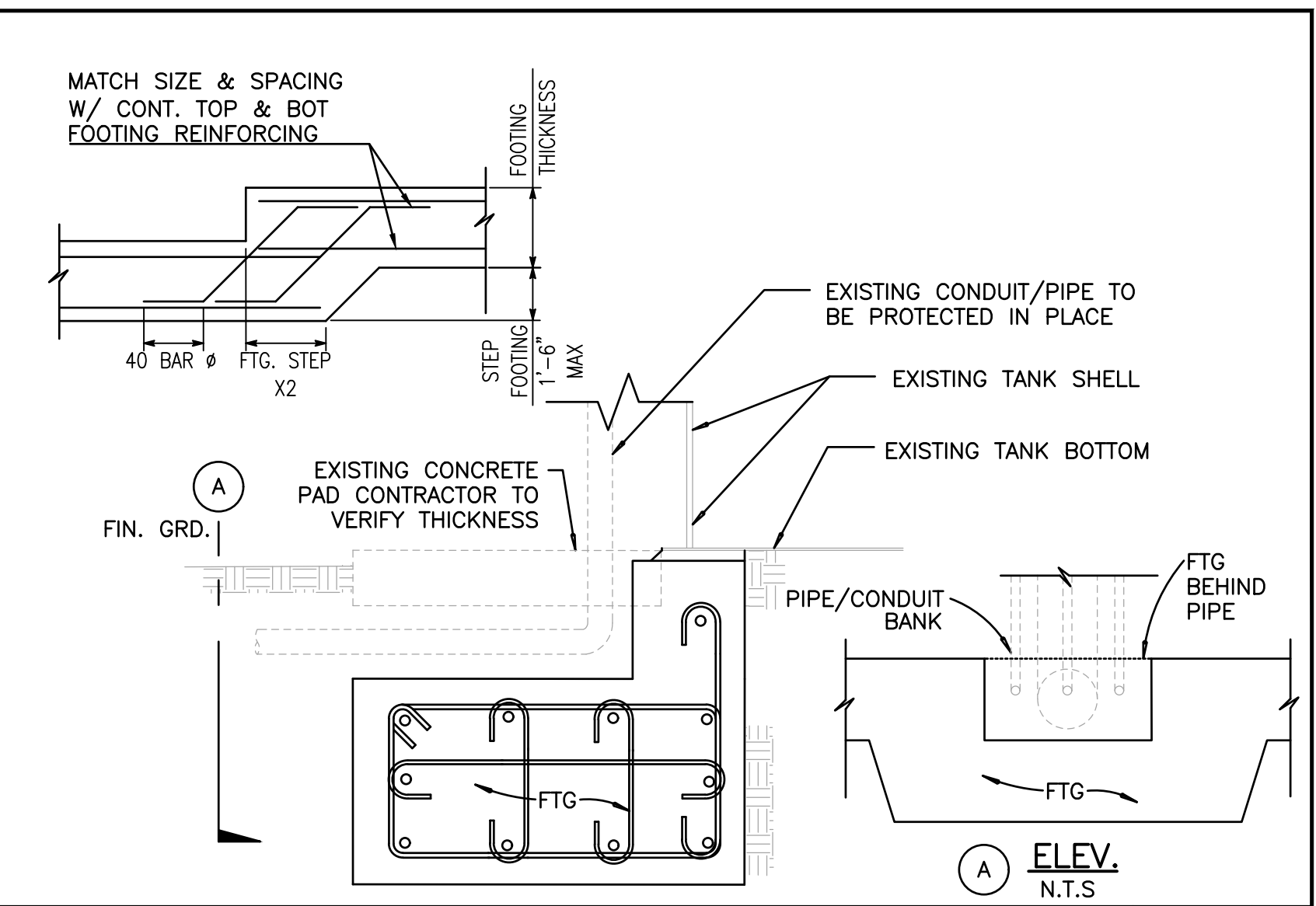
BAR SIZE	F _c PSI	LAP SPLICES										
		GRD.40	GRD.60	GRD.60	GRD.60	GRD.60	GRD.60	GRD.60	GRD.60	GRD.60	GRD.60	
CLASS A	3,000	24	24	24	24	27	37	48	61	78	96	TOP BARS BOTTOM BARS
CLASS B	3,000	24	24	24	25	35	48	63	80	101	124	TOP BARS BOTTOM BARS
CLASS C	3,000	24	29	36	46	63	82	104	132	163	196	TOP BARS BOTTOM BARS

NOTES:
 1. VERTICAL WALL REINFORCING SHALL BE CLASS "C" AS FOR TOP BARS. BUT NO LESS THAN 40 DIAMETERS.
 2. HORIZONTAL WALL REINFORCING SHALL BE CLASS "B" AS FOR BOTTOM BARS. BUT NO LESS THAN 40 DIAMETERS. STAGGER LAPS.

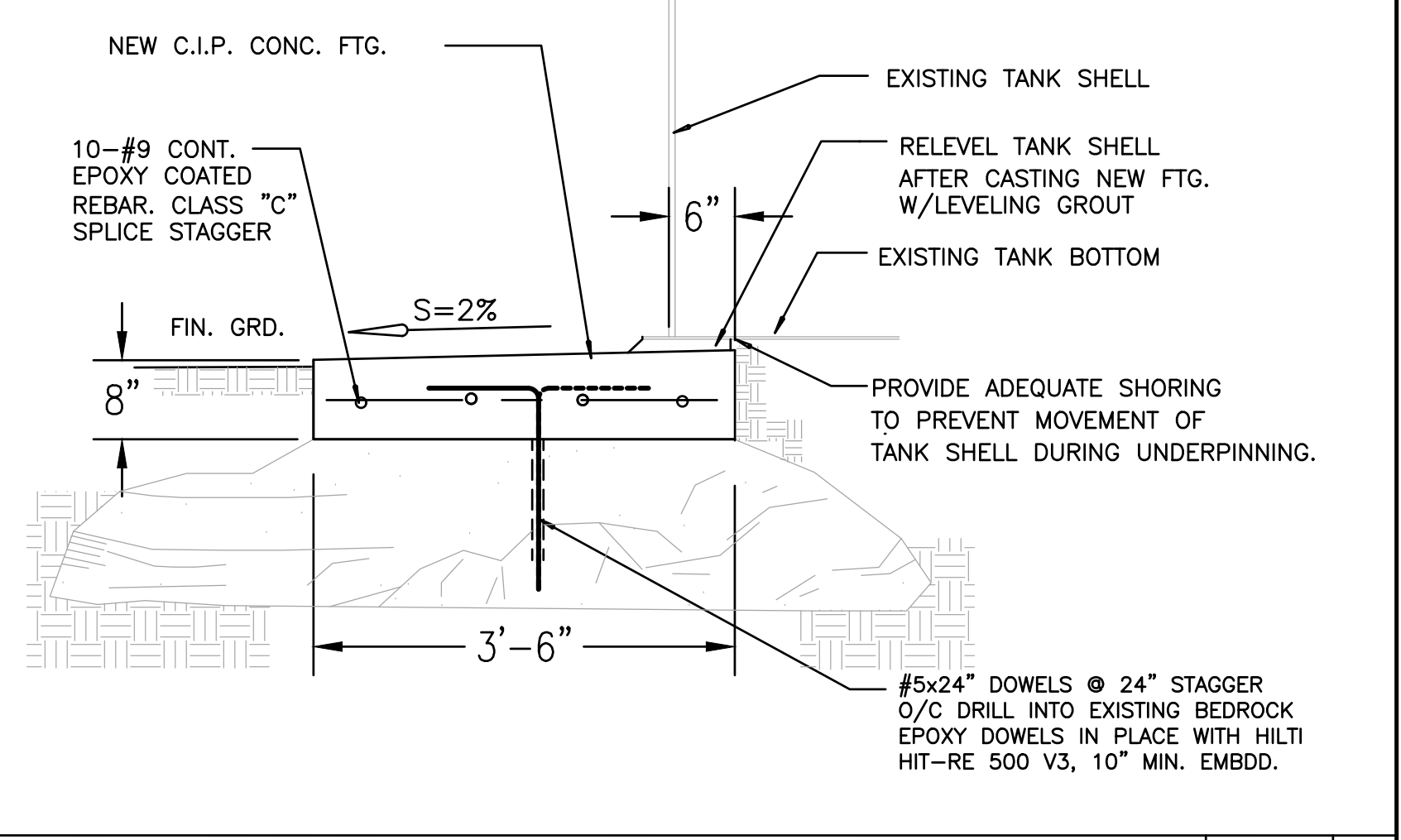
LAP SPLICE SCHEDULE SCALE: NOT SCALE 5



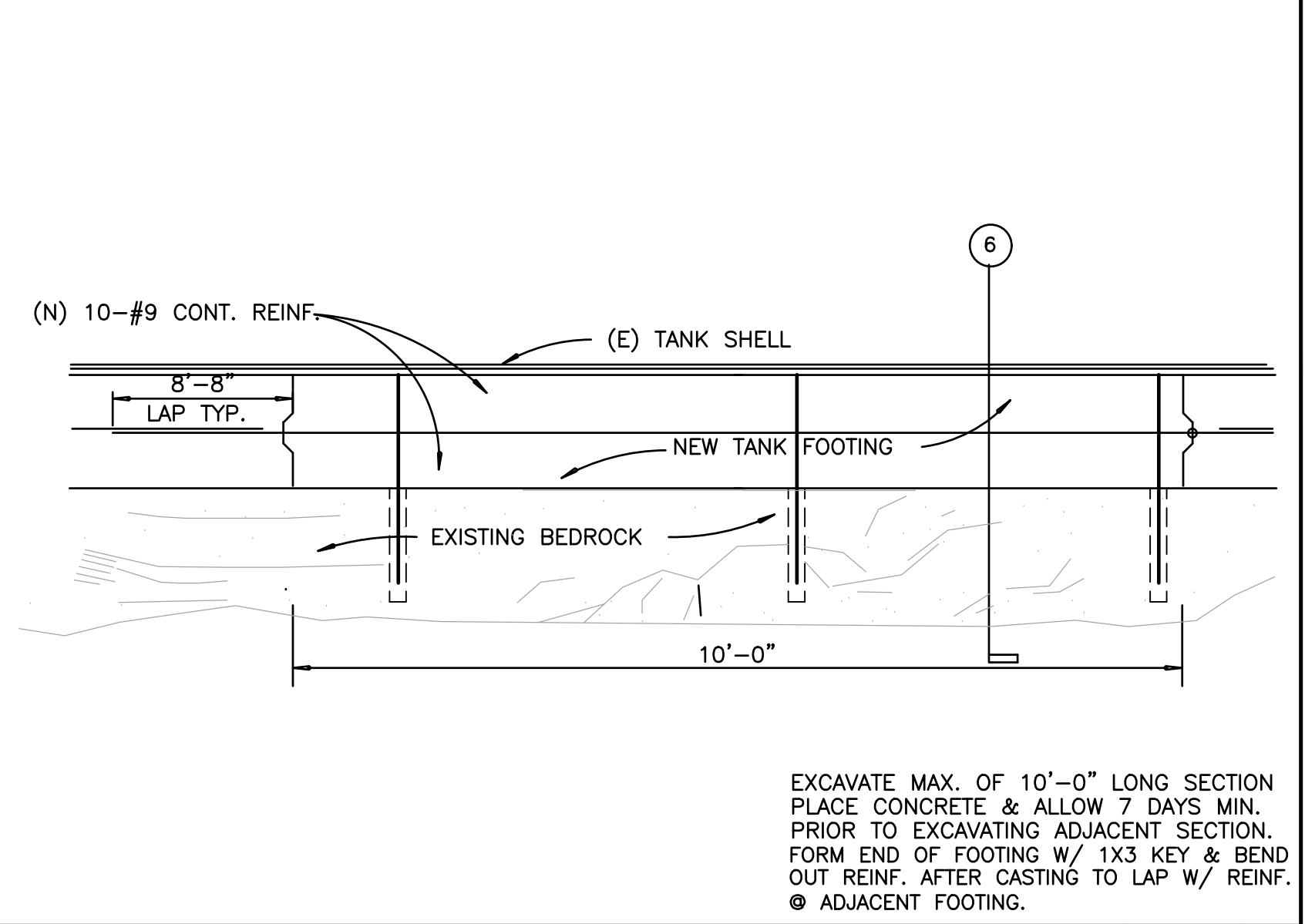
TYPICAL FOOTING SCALE: 3/4"=1'-0" 7



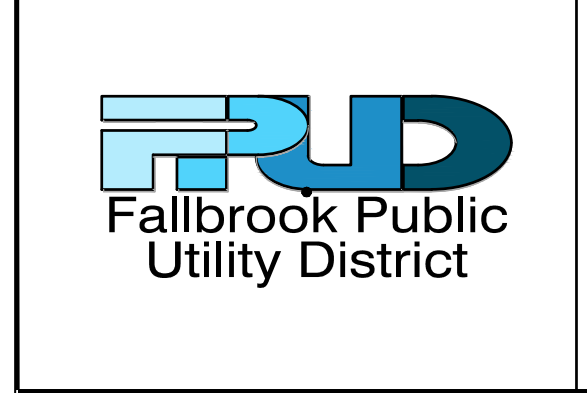
FOOTING STEP DETAIL SCALE: 3/4"=1'-0" 4



ALTERNATIVE SHALLOW BEDROCK FOOTING SCALE: 3/4"=1'-0" 6



FOOTING ELEVATION SCALE: NO SCALE 8



REVISIONS			
NO.	BY	DATE	REMARKS

PROJECT NAME
FALLBROOK PUBLIC UTILITY DISTRICT
 990 E. MISSION ROAD, FALLBROOK, CA

FOUNDATION PLAN AND DETAILS

DWG No. **S-2**
 JOB NO. **-**
 SHEET: **8** of **8**

DWG PATH: Z:\2402100\dwg\2402100_STRUCTURAL_SHEETS.dwg