

**OWNER / DEVELOPER**  
 CITY OF BRENTWOOD  
 150 CITY PARK WAY  
 BRENTWOOD, CA 94513  
 (925) 516-5420 FAX (925) 516-5421  
 ATTN: MIKI TSUBOTA

**CIVIL ENGINEER**  
 NV5, Inc.  
 2525 NATOMAS PARK DRIVE, SUITE 300  
 SACRAMENTO, CA 95833  
 (916) 641-9100 FAX (916) 641-9222  
 ATTN: VICTOR ALANIZ

**IMPROVEMENT PLAN  
 NON-POTABLE WATER DISTRIBUTION SYSTEM - PHASE III (CIP 592-59170)  
 GRANT STREET  
 CITY OF BRENTWOOD, CALIFORNIA**

**GENERAL NOTES:**

- THIS IMPROVEMENT PLAN IS TO BE USED IN CONJUNCTION WITH THE FOLLOWING. IN CASE OF CONFLICT, THE ORDER OF PRECEDENCE WILL BEGIN WITH THESE PLANS FOLLOWED BY:
  - ALL WORK SHALL CONFORM TO THE CURRENTLY ADOPTED EDITIONS OF THE STANDARD PLANS AND SPECIFICATIONS OF THE CITY OF BRENTWOOD UNLESS OTHERWISE NOTED.
  - STANDARD PLANS AND SPECIFICATIONS OF CALTRANS.
- THE "CITY ENGINEER" SHALL MEAN THE CITY ENGINEER FOR THE CITY OF BRENTWOOD OR HIS AUTHORIZED AGENT ACTING WITHIN THE SCOPE OF HIS/HER AUTHORITY.
- THE "ENGINEER" IS THE ENGINEER OF RECORD, NV5, INC.
- SHOULD IT APPEAR THAT THE WORK TO BE PERFORMED OR ANY MATTER PERTAINING THERETO IS NOT SUFFICIENTLY DETAILED ON THESE PLANS OR IF ANY ERROR, OMISSIONS, OR CONFLICTS BECOME APPARENT, THE CONTRACTOR SHALL CONTACT THE CITY ENGINEER FOR CLARIFICATION.
- APPROVAL OF THESE PUBLIC IMPROVEMENT PLANS AS SHOWN DOES NOT CONSTITUTE APPROVAL OF ANY CONSTRUCTION OUTSIDE THE PROJECT BOUNDARY.  
 ANY DEVIATION FROM THIS APPROVED PLAN REQUIRES THE PRIOR WRITTEN APPROVAL OF THE CITY ENGINEER. ALL CHANGES SHALL BE ACCURATELY SHOWN ON RECORD DRAWINGS PRIOR TO THE ACCEPTANCE OF THE WORK AS COMPLETE. ALL WORK IS TO BE DONE IN ACCORDANCE WITH THE STANDARD PLANS AND SPECIFICATIONS OF THE CITY OF BRENTWOOD AND CONTRA COSTA COUNTY, WHICH ARE HEREBY INCORPORATED INTO THESE PLANS.
- ALL OPERATIONS ASSOCIATED WITH TRENCH BACKFILL, FINISH GRADING, SUBGRADE PREPARATION AND PLACEMENT OF STREET STRUCTURAL SECTION SHALL BE COMPLETED IN ACCORDANCE WITH THE CITY OF BRENTWOOD STANDARD SPECIFICATIONS AND UNDER THE DIRECT OBSERVATION OF THE CITY ENGINEER.
- THE CONTRACTOR SHALL SCHEDULE ALL REQUIRED INSPECTIONS OF HIS WORK. ALL INSPECTION FEES WILL BE PAID BY THE CITY EXCEPT THAT THE CONTRACTOR SHALL BEAR THE COSTS OF ANY RE-INSPECTION RESULTING FROM HIS FAILURE TO COMPLY WITH THE SPECIFICATIONS OR RESULTING FROM HIS FAILURE TO BE READY FOR A SCHEDULED INSPECTION.
- THE CONTRACTOR SHALL TELEPHONE THE CITY OF BRENTWOOD ENGINEERING DEPARTMENT (925) 516-5420 AT LEAST TWO (2) WORKING DAYS PRIOR TO STARTING ANY CONSTRUCTION WORK.
- PAY QUANTITIES SHALL BE BASED UPON HORIZONTAL MEASUREMENTS.
- ANY WORK INCIDENTAL TO AND/OR APPURTENANT TO AN ITEM OF PAYMENT SHALL BE INCLUDED AS A PART OF THE UNIT PRICE BID FOR THAT PARTICULAR ITEM.
- BOUNDARY MARKERS SHALL BE MAINTAINED IN A CLEARLY VISIBLE CONDITION BY THE CONTRACTOR THROUGHOUT THE CONSTRUCTION OPERATIONS. ONE SET OF THE FOLLOWING STAKES SHALL BE FURNISHED BY THE CITY:  
 -WATER LINE AND NON-POTABLE WATER LINE.
- REGULAR HOURS OF WORK WILL BE LIMITED TO 7:00 A.M. TO 3:30 P.M. MONDAY THROUGH FRIDAY. THE CONTRACTOR MUST SUBMIT A WRITTEN REQUEST FOR APPROVAL BY THE CITY ENGINEER AT LEAST TWO (2) WORKING DAYS IN ADVANCE TO WORK DURING ANY OTHER HOURS, WEEKENDS OR HOLIDAYS.  
 THE FOLLOWING SPECIAL HOURS OF WORK WILL BE ENFORCED FROM MONDAY THROUGH FRIDAY:
  - WORK AFFECTING TRAFFIC ON BALFOUR ROAD, BRENTWOOD BOULEVARD, FAIRVIEW AVENUE, LONE TREE WAY, SAND CREEK ROAD, CENTRAL BOULEVARD OR WALNUT BOULEVARD WILL BE LIMITED TO 9:00 AM TO 3:00 PM.
  - WORK ADJACENT TO OR WITHIN FIFTEEN HUNDRED FEET (1500') OF ANY SCHOOL WHILE SCHOOL IS IN SESSION WILL BE LIMITED TO 9:00 A.M. TO 3:00 P.M.

- WORK WITHIN THREE HUNDRED FEET (300') OF OCCUPIED RESIDENTIAL UNITS AND NOT AFFECTING BALFOUR ROAD, BRENTWOOD BOULEVARD, FAIRVIEW AVENUE, LONE TREE WAY OR WALNUT BOULEVARD, SOUTH OF BALFOUR ROAD WILL BE LIMITED TO 8:00 A.M. TO 4:30 P.M.
  - WORK IN EXCESS OF THREE HUNDRED FEET (300') FROM OCCUPIED RESIDENTIAL UNITS AND NOT AFFECTING BALFOUR ROAD, BRENTWOOD BOULEVARD, FAIRVIEW AVENUE, LONE TREE WAY OR WALNUT BOULEVARD, SOUTH OF BALFOUR ROAD, WILL BE LIMITED TO 7:00 A.M. TO 5:00 P.M.
  - ALL SATURDAY WORK SHALL BE RESTRICTED TO 9:00 A.M. TO 4:00 P.M.
  - HOURS OF WORK IN THE EBMUD RIGHT-OF-WAY WILL BE DICTATED BY THE ENCROACHMENT PERMIT REQUIREMENTS AND AS STIPULATED IN THE SPECIAL PROVISIONS.
13. TRAFFIC CONTROL SHALL BE PROVIDED IN CONFORMANCE WITH THE LATEST EDITION OF THE "CALIFORNIA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" ISSUED BY THE STATE OF CALIFORNIA, DEPARTMENT OF TRANSPORTATION AND AS REQUIRED BY THE CITY ENGINEER.

THE CONTRACTOR SHALL PROVIDE ADEQUATE TRAFFIC CONTROL MEASURES THAT MAY BE REQUIRED BY ANY PUBLIC AGENCY HAVING JURISDICTION OVER THIS WORK. THE COST OF THIS REQUIREMENT SHALL BE CONSIDERED AS INCLUDED IN ALL APPLICABLE BID ITEMS AND NO ADDITIONAL COMPENSATION WILL BE MADE TO THE CONTRACTOR.

- THE EXISTENCE AND LOCATION OF EXISTING UNDERGROUND FACILITIES SHOWN ON THESE PLANS WERE OBTAINED BY A SEARCH OF THE AVAILABLE RECORDS. TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO OTHER EXISTING FACILITIES EXCEPT AS SHOWN ON THESE PLANS. HOWEVER, THE CONTRACTOR IS REQUIRED TO TAKE PRECAUTIONARY MEASURES TO PROTECT ANY EXISTING FACILITY WHETHER OR NOT IT IS SHOWN HEREON, AND IS RESPONSIBLE FOR CORRECTING ANY DAMAGE TO SAID UTILITIES.

THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING ALL UTILITY COMPANIES AND/OR AGENCIES HAVING JURISDICTION IN THE AREA OF THIS PROJECT REGARDING LOCATIONS OF ANY EXISTING FACILITIES WITHIN OR ADJACENT TO THIS PROJECT. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO THESE FACILITIES CAUSED BY HIS OPERATIONS. IN NO CASE WILL THERE BE PAYMENT FOR REPAIR WORK PERFORMED BY THE CONTRACTOR TO EXISTING OR PROPOSED FACILITIES.

LOCATION AND ELEVATION OF EXISTING IMPROVEMENTS SHALL BE CONFIRMED BY FIELD MEASUREMENTS PRIOR TO CONSTRUCTION OF NEW WORK. PRIOR TO COMMENCEMENT OF CONSTRUCTION, THE CONTRACTOR SHALL CONTACT UNDERGROUND SERVICE ALERT (1-800-227-2600) TO OBTAIN A U.S.A. IDENTIFICATION NUMBER AND TO HAVE EXISTING UTILITIES LOCATED. CONTRACTOR SHALL MAKE EXPLORATORY EXCAVATIONS AND LOCATE EXISTING UNDERGROUND FACILITIES SUFFICIENTLY AHEAD OF CONSTRUCTION TO PERMIT REVISIONS TO PLANS IF REVISIONS ARE NECESSARY DUE TO ACTUAL LOCATION OF EXISTING FACILITIES.

- THE CONTRACTOR SHALL PROTECT HIS WORK FROM STORM WATER DAMAGE UNTIL THE WORK IS ACCEPTED BY THE CITY. ANY COSTS FOR REPAIR OF DAMAGED WORK SHALL BE BORNE BY THE CONTRACTOR. FURTHERMORE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO ADJACENT AND/OR OFFSITE PROPERTIES OR IMPROVEMENTS CAUSED BY STORM WATER RUN-OFF FROM HIS WORK AREAS.

- THE CONTRACTOR SHALL DISPOSE OF ALL WASTE, DEBRIS, INCLUDING, BUT NOT LIMITED TO, BROKEN OR DISCARDED PAVEMENT, PIPE MATERIALS, SHIPPING MATERIALS, TRASH OR DIRT ON STREETS. ALL WASTE SHALL BE REMOVED FROM THE SITE PRIOR TO FINAL INSPECTION. THE CONTRACTOR WILL BE BACKCHARGED FOR ANY CLEANUP COSTS INCURRED BY THE CITY.

- THE CONTRACTOR SHALL AT ALL TIMES CONFINE ALL DUST TO THE IMMEDIATE AREA OF WORK. THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY DAMAGE CAUSED BY DUST FROM HIS ACTIVITIES OR HIS SUBCONTRACTOR'S ACTIVITIES IN PERFORMING THE WORK UNDER THIS CONTRACT, AND HE SHALL BE RESPONSIBLE FOR ANY CITATIONS, FINES OR CHARGES RESULTING FROM DUST NUISANCE. THE NOISE LEVEL OF THE CONTRACTOR'S OPERATION SHALL BE KEPT TO A MINIMUM.

- IF ANY CULTURAL FEATURES OR ARCHAEOLOGICAL MATERIALS ARE UNCOVERED DURING GRADING, TRENCHING OR OTHER EXCAVATION WORK, ALL WORK WITHIN 100 FEET OF THESE MATERIALS SHALL BE STOPPED UNTIL A PROFESSIONAL ARCHAEOLOGIST CERTIFIED BY THE SOCIETY OF PROFESSIONAL ARCHAEOLOGY (SOPA) AND/OR THE SOCIETY OF CALIFORNIA ARCHAEOLOGY (SCA) HAS HAD AN OPPORTUNITY TO EVALUATE THE SIGNIFICANCE OF THE FIND AND APPROPRIATE MITIGATION MEASURES ARE DETERMINED AND IMPLEMENTED.
- AN ENCROACHMENT PERMIT SHALL BE OBTAINED FROM EBMUD AND UPRR PRIOR TO START OF WORK. THE CONTRACTOR SHALL NOTIFY EBMUD PRIOR TO STARTING WORK NEAR DISTRICT'S FACILITIES AND SHALL COORDINATE ALL WORK WITH DISTRICT'S REPRESENTATIVES. THE CONTRACTOR SHALL NOTIFY KINDER-MORGAN AREA MANAGER, GRANT MCCLELLAN (925) 682-0764, AT LEAST TWO WEEKS PRIOR TO COMMENCEMENT OF WORK TO ARRANGE FOR A PIPELINE REPRESENTATIVE TO BE PRESENT DURING WORK NEAR THE ACTIVE PIPELINE. THE CONTRACTOR SHALL NOTIFY PG&E T&R SUPERVISOR, JAY RANDOLPH (925) 674-6576, THREE WORKING DAYS PRIOR TO ANY EXCAVATION WITHIN 10 FEET OF TRANSMISSION LINES FOR AN EMPLOYEE TO BE PRESENT. CONTRACTOR SHALL CONTACT CHEVRON AT LEAST 48 HOURS IN ADVANCE FOR A FACILITY INSPECTOR TO LOCATE THE PIPELINES AND ASSIST WITH POTHOLES. CHEVRON FACILITY INSPECTOR, MIKE MACHADO (925) 766-9209, MUST ALSO BE PRESENT DURING ANY EXCAVATION NEAR CHEVRON PIPELINES.
- THE CONTRACTOR SHALL LEAVE AN EMERGENCY TELEPHONE NUMBER WITH THE POLICE DEPARTMENT, FIRE DISTRICT AND THE CITY OF BRENTWOOD, AND KEEP THEM INFORMED DAILY OF ANY DETOURS.
- CONTRACTOR'S OPERATIONS SHALL CONFORM TO THE RULES AND REGULATIONS OF THE STATE OF CALIFORNIA CONSTRUCTION SAFETY ORDERS PERTAINING TO TRENCHES AND EXCAVATIONS.
- CONTRACTOR SHALL GIVE AT LEAST 2 WORKING DAYS ADVANCE NOTICE TO THE CITY ENGINEER PRIOR TO CONNECTING TO EXISTING WATER FACILITIES. THE MANIPULATION OF EXISTING VALVES SHALL BE DONE UNDER THE DIRECTION OF THE CITY WATER DIVISION PERSONNEL OF THE PUBLIC WORKS DEPARTMENT.
- ALL TRAFFIC SIGNS AND STREET NAME SIGNS SHALL BE HIGH REFLECTIVE GRADE MATERIALS.
- JOINTS BETWEEN NEW PAVEMENT AND EXISTING PAVEMENT SHALL BE MADE BY SAW-CUTTING EXISTING PAVEMENT TO EFFECT A NEAT BUTT JOINT AS DEPICTED ON CITY STANDARD PLANS. FEATHERING NEW ASPHALT PAVING OVER EXISTING PAVEMENT IS NOT ALLOWED.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE VARIOUS UTILITY AGENCIES, ADVISE THE AGENCIES OF THE PROPOSED IMPROVEMENTS, AND PAY FOR THE COST OF RELOCATIONS, IF NEEDED.

UTILITY CONTACTS		
WATER	CITY	(925) 516-6000
SEWER	CITY	(925) 516-6000
STORM	CITY	(925) 516-6000
GAS	PG&E	(925) 674-6775 PIERRE NICHOLS
ELECTRIC	PG&E	(925) 674-6379 RHONDA MARTINEZ
CABLE	CABLECOM	(707) 759-5242 BEN GREENWOOD
TELEPHONE	AT&T	(925) 328-6820 KEVEN BLUTH
PETROLEUM	KINDER-MORGAN	(714) 560-4940 PETER MARTIN
PETROLEUM	CHEVRON	(925) 753-2003 JEREMY GROSS
MOKELUMNE AQUEDUCT	EBMUD	(209) 946-8009 BILL PULSIFER
GAS	CALPINE	(916) 996-0156 CHRIS DELANEY
RAILROAD	UPRR	(916) 789-5152 KEVIN YODER

**FINISH GRADING, PAVING AND CONCRETE NOTES:**

- SUBGRADE FOR ALL STREET, CURB AND GUTTER AND CONCRETE FLATWORK SHALL BE COMPACTED TO NINETY-FIVE PERCENT (95%) RELATIVE COMPACTION IN ACCORDANCE WITH SECTION 19 OF THE CITY OF BRENTWOOD STANDARD SPECIFICATIONS. SUBGRADE MUST BE CERTIFIED BY THE CITY ENGINEER PRIOR TO AGGREGATE BASE INSTALLATION.
- THE CITY ENGINEER PRIOR TO THE PLACEMENT OF CONCRETE MUST APPROVE FORMS FOR CURBS, GUTTERS, AND SIDEWALKS.
- BLUE REFLECTIVE PAVEMENT MARKERS MUST BE INSTALLED AT EACH FIRE HYDRANT LOCATION AS SHOWN ON THE CITY OF BRENTWOOD STANDARD PLANS. THE COST SHALL BE INCLUDED IN THE UNIT OR LUMP SUM PRICE FOR STRIPING AND PAVEMENT MARKERS.
- EXISTING MONUMENTS IN CONSTRUCTION AREA ARE TO BE PROTECTED IN PLACE. ANY MONUMENT THAT WILL BE DESTROYED SHALL BE REFERENCED IN ACCORDANCE WITH THE RULES AND PROCEDURES APPROVED BY THE COUNTY SURVEYOR. REPLACEMENT SHALL BE AT CONTRACTOR'S EXPENSE.
- ALL PAVEMENT MARKINGS IN THE PUBLIC RIGHT-OF-WAY SHALL BE THERMOPLASTIC UNLESS SPECIFICALLY CALLED OUT AS PAINT. NO PERMANENT MARKING SHALL BE PLACED UNTIL THE CITY TRAFFIC ENGINEER, CITY ENGINEER OR HIS REPRESENTATIVE APPROVES CAT TRACKING IN THE FIELD.

**UNDERGROUND NOTES:**

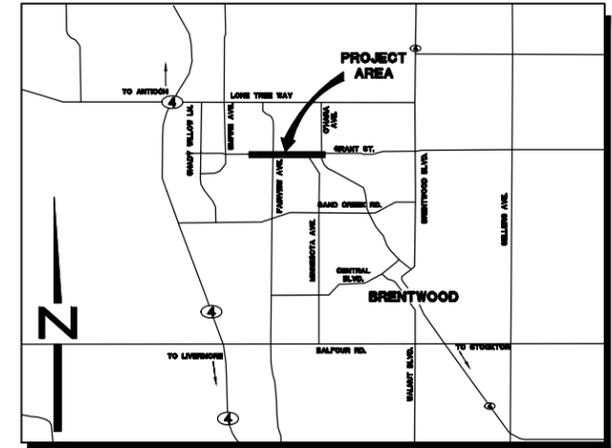
- ALL WATER PIPE UP TO 12" DIAMETER SHALL BE AWWA C-900 CLASS 200 POLYVINYL CHLORIDE (PVC) PIPE, AND C-905 CLASS 200 FOR LARGER THAN 12" DIAMETER UNLESS NOTED OTHERWISE ON PLANS. ALL VALVES, FITTINGS AND APPURTENANCES SHALL CONFORM TO CURRENT CITY OF BRENTWOOD STANDARD DRAWINGS AND SPECIFICATIONS.
- ALL ABANDONED UNDERGROUND PIPELINES EXPOSED DURING TRENCHING SHALL BE REMOVED.
- EXISTING CURB, GUTTER AND SIDEWALK THAT IS DAMAGED OR DISPLACED, EVEN THOUGH IT WAS NOT SCHEDULED TO BE REMOVED, SHALL BE REPLACED EVEN IF DAMAGE OR DISPLACEMENT OCCURRED PRIOR TO ANY WORK PERFORMED BY THE CONTRACTOR.
- APPROVAL OF THESE PLANS BY THE CITY ENGINEER DOES NOT RELIEVE THE CONTRACTOR FROM THE RESPONSIBILITY FOR THE IMPROVEMENTS AND ANY DEFICIENCIES RESULTING FROM THE DESIGN THEREOF.

**BASIS OF BEARING**

THE BASIS OF BEARINGS IS BETWEEN FOUND EBMUD BRASS DISK MONUMENTS 2011 AND 2069 PER RECORD OF SURVEY NO. 2496 (118 LSM 40). CALIFORNIA COORDINATE SYSTEM ZONE 3 (NAD83). BEARING BEING N89°21'13" W.

**BASIS OF ELEVATIONS**

ELEVATIONS ARE BASED ON THE EBMUD BRASS DISK MONUMENT 3029. ELEVATION GIVEN AS 104.16'.



**VICINITY MAP**  
 NOT TO SCALE

SHEET	DESCRIPTION	SHEET	DESCRIPTION
1	TITLE SHEET AND GENERAL NOTES	10	UPRR CROSSING - BORE AND JACK
2	INDEX MAP & EBMUD NOTES	11	8" NPWL AT MIWOK PARK
3	LEGENDS AND SYMBOLS	12	2" AT MAYWOOD & 12" NPWL STUB-OUT AT FAIRVIEW
4	DETAILS AND TRAFFIC LOOP LOCATIONS	13	CATHODIC PROTECTION SCHEDULES & DETAILS
5	CONSTRUCTION STAGING PLAN	14	CATHODIC PROTECTION DETAILS II
6	PLAN & PROFILE - GRANT STREET	15	CATHODIC PROTECTION DETAILS III
7	PLAN & PROFILE - GRANT STREET	16	CATHODIC PROTECTION DETAILS IV
8	PLAN & PROFILE - GRANT STREET	17	CATHODIC PROTECTION DETAILS V
9	FAIRVIEW CROSSING - HDD		

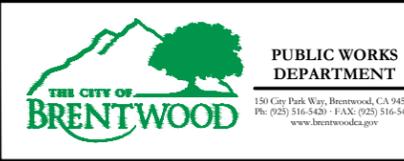
APPLICABLE CITY OF BRENTWOOD AND CONTRA COSTA COUNTY STANDARD DRAWINGS ARE INCORPORATED INTO THIS PLAN SET BY REFERENCE. THIS INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING STANDARD DETAILS:

STANDARDS LIST	STANDARD DRAWING NUMBER
NON-POTABLE WATER SIGNAGE	I-23
TRENCH AND BACKFILL REQUIREMENTS	ST-25
OPEN TRENCH, BACKFILL AND REPAIR OF EXISTING STREETS	ST-25a, ST-25b
INDUSTRIAL/COMMERCIAL FIRE HYDRANT INSTALLATION	W-2
STANDARD WATER SERVICE	W-5
LARGE DIAMETER WATER SERVICE	W-7
2" BLOWOFF ASSEMBLY	W-10
STANDARD AIR AND VACUUM RELIEF VALVE	W-11
AIR AND VACUUM RELIEF VALVE ENCLOSURE	W-11a
WATER QUALITY SAMPLING STATION	W-12
VALVE BOX AND RISER INSTALLATION	W-13
CONCRETE CAP OVER WATERMAIN	W-14
THRUST BLOCK BEARING AREA	W-15
BEDDING FOR VALVES UP TO 12" MAINS	W-16
LOCATING WIRE FOR PLASTIC MAINS	W-17
CONDUCTOR CASING	W-18

REVIEWED FOR CONFORMANCE WITH THE CITY OF BRENTWOOD STANDARDS AND REQUIREMENTS. APPROVAL FOR CONSTRUCTION IS SUBJECT TO THE INFORMATION SHOWN HEREIN. CITY OF BRENTWOOD AND THE UNDERSIGNED ARE NOT RESPONSIBLE FOR ANY ERRORS OR OMISSIONS THAT MAY EXIST ON THESE PLANS.

*Miki Tsubota*  
 MIKI TSUBOTA  
 DIRECTOR OF PUBLIC WORKS/CITY ENGINEER  
 R.C.E. No. 61648

June 10, 2016  
 DATE  
 EXPIRES 6-30-17



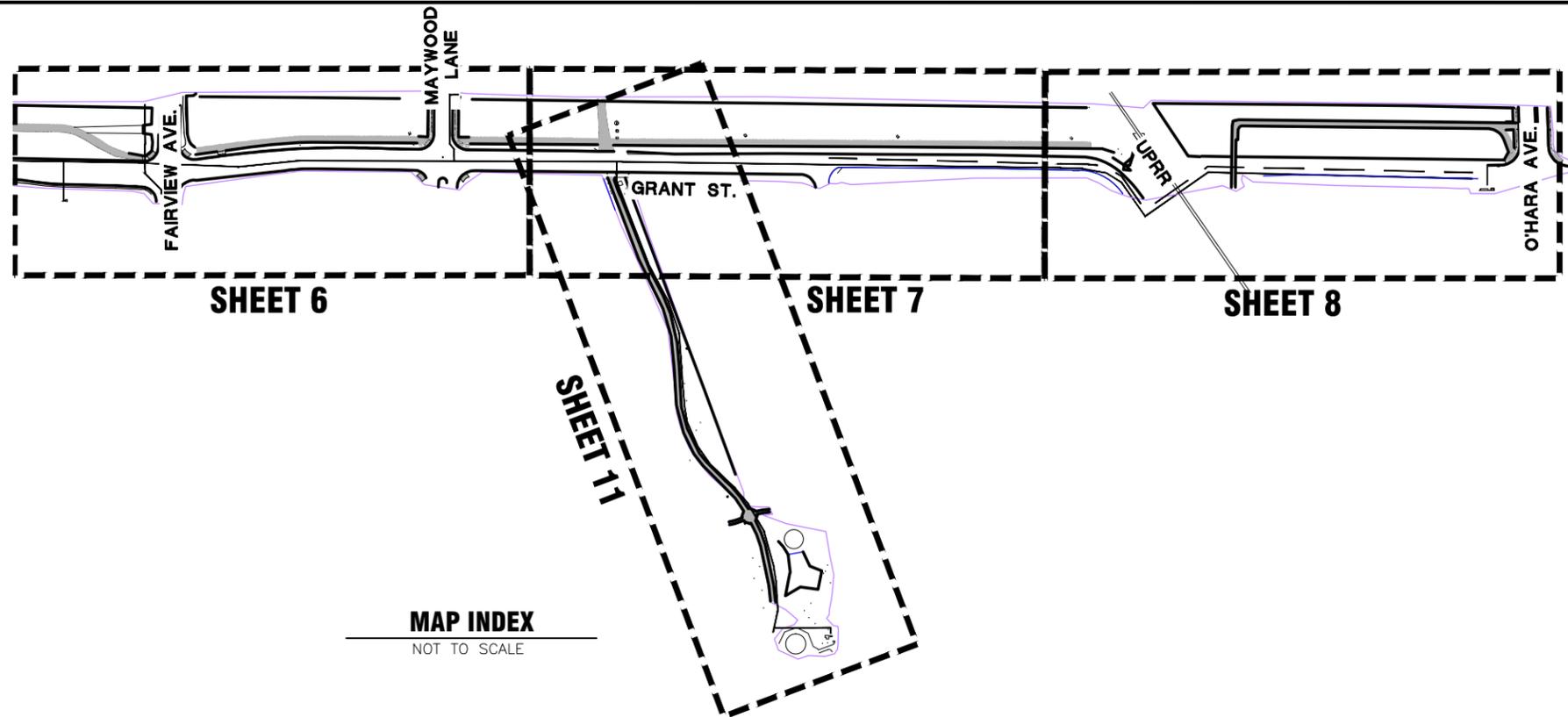
NO.	REVISIONS	BY	APP	DATE

**IMPROVEMENT PLAN NON-POTABLE WATER GENERAL**  
**DISTRIBUTION SYSTEM - PHASE III**  
**TITLE SHEET AND GENERAL NOTES**  
**CIP 592-59170**  
**BRENTWOOD CONTRA COSTA COUNTY CALIFORNIA**

DESIGNED UNDER THE DIRECTION OF: <i>Victor M. Alaniz</i>	DATE: 6/7/16
VICTOR M. ALANIZ R.C.E. No. C57825 REGISTRATION EXPIRES 06-30-18	DATE: 6/7/16
DESIGN: V. ALANIZ	JOB NUMBER: 226216-00023
DRAWN: Z. ALI	DATE: June 2016
CHECKED: V. ALANIZ	SCALE: TBD



SHEET  
**1**  
 1 OF 17 SHEETS



**MAP INDEX**  
NOT TO SCALE

**EBMUD (DISTRICT) GENERAL NOTES:**

- Requests for encroachment rights or for other uses of the District's aqueduct properties shall be directed to the Manager of Water Supply Division, P.O. Box 228, Stockton, California 95201. Property uses shall only be permitted subject to appropriate written permit, license, easement, or lease agreement.
- Requests for property uses shall be in writing and accompanied by a completed application, plan and profile drawings of the area and work involved. District aqueduct stationing and adjacent aboveground structures must be shown. Applicant's horizontal and vertical control must be correlated to the District's. Drawings and maps shall be full size or half-size (11x17inch). Application must include complete insurance documentation.
- The applicant must agree to indemnify and hold harmless the District from any loss, claim, or liability which may arise by reason of applicant's use of District property and may be required to provide insurance coverage.
- All requests for uses of District property must be consistent with requirements and limitations set forth by Procedure 718 and will be reviewed and approved on a case-by-case basis.
- District land and facilities shall be restored to a condition as good as that which existed before applicant's entry on the right-of-way.
- Applicant's use of property shall not increase District costs or interfere with District access, operations, maintenance, or repair of its facilities.
- The applicant must pay the District the appraised value of the easement or lease, if appropriate, for the rights granted to the applicant. Appropriate environmental documentation must be completed in accordance with the California Environmental Quality Act before the rights can be granted.
- For any District-approved encroachment, the applicant must pay the District for any of the following measures, as needed:
  - Design of structural protective measures
  - Design of fences or other structures
  - Corrosion control protective measures
  - District engineering, plan review, and inspection of activities
  - Environmental documentation
  - Application, permit or license fees.
- The plan for the execution of the work must be approved by the District.
- The type and weight of equipment working over the aqueduct must be approved by the District.
- The use of vibratory compaction equipment is prohibited on the aqueduct right-of-way.
- A minimum of 48 hours notice must be given to the District before work commences. To contact the District by telephone, call: The Aqueduct Section's Stockton Office at (209) 946-8000.
- A preconstruction meeting is required prior to start of work.
- No building or portions of buildings shall be constructed on the property. No other types of structures shall be constructed unless specific approval is given by the District.
- No longitudinal encroachments such as drainage ditches; gas, phone, or electrical lines; pipelines, or roads will be permitted. All property line fences (including footings) must be located completely outside the aqueduct property lines.

- No pile driving will be allowed within 100 feet of the aqueducts.
- Railroad, freeway and highway crossings of the aqueduct right-of-way shall be on permanent bridges with a minimum vertical clearance of 14 feet 6 inches between the finished ground surface and the underside of the bridge. Crossings on grade will be over structurally-encased aqueducts with a sleeve for a fourth aqueduct.
- Street and road crossings constructed on grade shall incorporate protection of the aqueducts. Protective measures will be designed by the District or by applicant's licensed engineer to District standards with specific District approval of each design. Existing aqueduct protective measures such as concrete slabs shall not be cut, penetrated, or otherwise disturbed. If a protective measure is cut, penetrated, or disturbed, it shall be replaced with a new protective measure, designed by a District engineer or applicant's licensed engineer to District standards with specific District approval of design.
- Traffic control fences or approved barriers shall be installed along each side of the street, road or trail before opening to the public.
- Temporary construction fences and barricades shall be installed by contractor as directed by the District.
- No geotechnical exploration such as drilling or boring shall be allowed on an Aqueduct right-of-way.
- Any changes in finished grade must be approved by the Aqueduct Section. Earthfills or cuts on adjacent property shall not encroach onto District property except where authorized for vehicular crossings on grade and where the District determines that there will be no detrimental effect on the aqueducts or their maintenance.
- Pipeline crossings shall be perpendicular to the aqueducts and on a constant grade across District property. Sanitary sewers, water lines or petroleum product lines crossing above the aqueducts must be encased in a steel or polyvinyl chloride (PVC) conduit or reinforced concrete with a minimum vertical clearance of two (2) feet between the pipeline and the top of District aqueducts unless other protective measures are provided. Under no circumstances will the minimum clearance be less than one foot.
- All pipelines crossing below the aqueducts must be encased in a steel or reinforced concrete conduit and provide a minimum of two (2) feet of clearance between the casing and the bottom of the District aqueducts.
- On pressurized pipe crossings, shutoff valves shall be provided outside and adjacent to both sides of District property.
- At the point of crossing, steel pipeline crossings and steel casings shall incorporate electrolysis test leads, bond leads, and leads necessary for interference testing. Corrosion control devices, when required, must be approved by the District.
- Cathodic protection for steel encasements must be installed as follows:
  - Provide a dielectric coating to the exterior surface of the steel casing within the District's right-of-way, 16 mil epoxy or equivalent.
  - Provide galvanic protection to the portion of the steel casing within the District's right-of-way in accordance with the National Association of Corrosion Engineers RP-01-69.
  - If the carrier pipe is constructed of ductile iron or steel, provide electrical isolation between the carrier and casing using casing insulators; redwood skids are not permitted.
  - Provide test results to the District demonstrating the adequacy of the cathodic protection system, and the adequacy of the electrical isolation of the carrier (if metallic) from the casing. The District reserves the right to witness any such tests.

- Gravity drainage of District property shall be maintained. Open channels constructed across the right-of-way shall be paved with reinforced concrete. Headwalls, inlets, and other appurtenances shall be located outside District property. Drainage facilities shall be provided outside the District's property at the top and/or toe of fill slopes or cuts constructed adjacent to District property to assure adequate drainage.
- Overhead electrical power conductors across the property shall be a minimum of 30 feet above ground. Communication and cable TV crossings shall be a minimum of 20 feet above the ground. Supporting poles or towers shall be located outside the aqueduct right-of-way.
- Buried electrical cables passing over the aqueducts shall be installed in PVC conduit and encased in red concrete across the entire width of the right-of-way. In some cases, PVC-coated steel conduit with a red concrete cap may be substituted. All other buried cables shall be installed in conduit and marked in the appropriate Underground Service Alert (USA) colored marking materials across the entire width of the aqueduct right-of-way. The minimum vertical clearance between the conduit and the top of the District's aqueducts is two (2) feet unless other protective measures are provided. Under no circumstances will the minimum vertical clearance be less than one foot.
- Electrical or telecommunications cables passing under the aqueducts shall be encased in conduit and marked at both edges of the aqueduct right-of-way with the appropriate USA color coded markers. The minimum vertical clearance between the conduit and the bottom of the District's aqueducts is two feet. For directional bored conduits the minimum vertical clearance is five feet.
- Vehicular parking and storage of equipment or material on aqueduct property are specifically prohibited.
- Extraction of oil and gas from aqueduct properties may be permitted under appropriate lease agreements.
- All District survey monuments and markers shall be undisturbed. If any District survey markers or monuments must be disturbed, they will be replaced or relocated by the District at applicant's expense prior to the start of any ground disturbing work.
- All aqueduct crossings involving mechanical excavation on the right-of-way require potholing of all three aqueducts at the site of the proposed crossing. Visible reference markings showing the aqueduct alignments and depths to top of pipe shall be maintained for the duration of any mechanical excavation on District property. Entry permits are required for pothole work.
- All grading or excavating of the right-of-way requires USA notification and the maintenance of a current inquiry identification number.
- Certified six-sack mix is the minimum acceptable concrete batch to be used on the aqueduct right-of-way. Concrete compression strength shall be 3,000 per square inch (PSI) or better at 28 days. If samples do not reach 3,000 PSI at 28 days, entire section of slab or encasement related to that sample must be removed and replaced at applicant's expense.
- Each truckload of concrete to be placed on the aqueduct right-of-way may be sampled by the District. No water may be added to the mix after sampling.
- Maximum allowable slump is three inches. All concrete exceeding three inches will be rejected and cannot be used on the aqueduct right-of-way.
- No traffic will be allowed over protective slabs until 3,000 PSI is reached.
- All work areas shall be inspected by the District for final approval. As-built drawing submittals are required for District approval.

Drawing Path: N:\226216\00023.00 NPWL Phase III\CAD\IP\... 02 INDEX MAP & EBMUD NOTES.dwg 6/7/2016 10:01 AM

NO.	REVISIONS	BY	APP	DATE

DESIGNED UNDER THE DIRECTION OF:	
	6/7/16
VICTOR M. ALANIZ	DATE
R.C.E. No. C57825	REGISTRATION EXPIRES 06-30-18
DESIGN: V. ALANIZ	DATE: June 2016
DRAWN: Z. ALI	DATE: June 2016
CHECKED: V. ALANIZ	DATE: June 2016



<b>IMPROVEMENT PLAN</b> <b>BRENTWOOD</b>	<b>NON-POTABLE WATER</b> <b>DISTRIBUTION SYSTEM - PHASE III</b> <b>INDEX MAP &amp; EBMUD NOTES</b> <b>CIP 592-59170</b> <b>CONTRA COSTA COUNTY</b>	<b>GRANT STREET</b> <b>CALIFORNIA</b>	SHEET
			2
2 OF 17 SHEETS			

**GENERAL ABBREVIATIONS**

AB	AGGREGATE BASE	MFR	MANUFACTURER
ARV	AIR RELEASE VALVE	MH	MANHOLE
BF	BLIND FLANGE	MIN	MINIMUM
BOV	BLOW-OFF VALVE	MISC	MISCELLANEOUS
CL	CENTERLINE	MJ	MECHANICAL JOINT
CCC	CONTRA COSTA COUNTY	NO.	NUMBER
CMP	CORRUGATED METAL PIPE	NTS	NOT TO SCALE
COB	CITY OF BRENTWOOD	NIC	NOT IN CONTRACT
CONC	CONCRETE	OC	ON CENTER
COORD	COORDINATE	OD	OUTSIDE DIAMETER
CU FT	CUBIC FEET	OH	OVERHEAD ELECTRICAL
CU IN	CUBIC INCH	PE	PLAIN END
CY	CUBIC YARD	POC	POINT OF CURVE
C-C	CENTER TO CENTER	PI	POINT OF INTERSECTION
DET	DETAIL	P/L	PROPERTY LINE
DIA, Ø	DIAMETER	PP	POWER POLE
DIP	DUCTILE IRON PIPE	PT	POINT OF TANGENCY
DWG	DRAWING	PVC	POLYVINYL CHLORIDE
EL, ELEV	ELEVATION	R	RADIUS
EA	EACH	RCP	REINFORCED CONCRETE PIPE
ELB	ELBOW	REF	REFER OR REFERENCE
ELEC	ELECTRIC	REINF	REINFORCE(D)
ENGR	ENGINEER	RMJ	RESTRAINED MECHANICAL JOINT
EX, (E)	EXISTING	R.O.W.	RIGHT-OF-WAY
FG	FINISHED GRADE	SS	SANITARY SEWER
FIG	FIGURE	SCHED	SCHEDULE
FL	FLANGED	SHT	SHEET
FLR	FLOOR	SLP	SLOPE
FT	FOOT	SQ	SQUARE
GPS	GLOBAL POSITIONING SYSTEM	SQ FT	SQUARE FOOT
GSP	GALVANIZED STEEL PIPE	SQ IN	SQUARE INCH
GV	GATE VALVE	SS	SANITARY SEWER
HDD	HORIZONTAL DIRECTIONAL DRILLING	SST	STAINLESS STEEL
HGT	HEIGHT	STD	STANDARD
HORIZ	HORIZONTAL	STL	STEEL
IC	IRRIGATION CONTROLLER	TBM	TEMPORARY BENCH MARK
ID	INSIDE DIAMETER	TOP	TOP OF PIPE
IN	INCH	TR	TREE
INV, IE	INVERT ELEVATION	TYP	TYPICAL
LF	LINEAR FEET	UE	UNDERGROUND ELECTRIC
MAX	MAXIMUM		
MECH	MECHANICAL		

**GENERAL SYMBOLS**

ELEVATION	100 X
TOP OF CURB	TC 112.20
TOP OF PAVEMENT	TP 111.70
EDGE OF PAVEMENT	_____
RIDGE	_____
FENCE	—x—x—
RIGHT-OF-WAY	— - - - -
PROPERTY LINE	— - - - -
FLOW DIRECTION	→
POWER OR TELEPHONE POLE	●
MANHOLE	● OR ○
CLEANOUT	● CO OR ○ CO
FIRE HYDRANT	●
HANDRAIL	—+—+—+—
WATER METER	WM
ABANDON IN PLACE	///
DEMOLISH PIPE OR STRUCTURE	////

**PIPING SYMBOLS**

	FLANGE JOINT
	BELL & SPIGOT JOINT
	FLEXIBLE COUPLING
	FLEXIBLE COUPLING WITH THRUST TIES
	FLANGE COUPLING ADAPTER
	GROOVED COUPLING
	REDUCER
	UNION
	BLIND FLANGE
	END CAP (SCREWED/WELDED)
	FLEXIBLE CONNECTOR
	EXPANSION JOINT
	BLOW-OFF VALVE (BOV)

**VALVE SYMBOLS**

	GATE VALVE
	BUTTERFLY VALVE
	BALL VALVE
	GLOBE VALVE
	CHECK VALVE
	PLUG VALVE
	BACK PRESSURE REGULATING VALVE
	PRESSURE REDUCING VALVE
	A=AIR V=VACUUM C=COMBINATION R=RELEASE
	PRESSURE SAFETY VALVE
	PRESSURE GAGE

**PIPING SYSTEM DESIGNATIONS**

SYMBOL	SERVICE
CATV	CABLE TV LINE
ELEC	ELECTRICAL LINE
FO	FIBER OPTIC CABLE
GAS	GAS LINE
IRR	IRRIGATION LINE
NPWL	NON-POTABLE WATER LINE
OVR	OLD VALLEY PIPELINE
PET	PETROLEUM
RWL	RECYCLED WATER LINE
SD	STORM DRAIN
SS	SANITARY SEWER
TAOC	TIDEWATER ASSOCIATED OIL COMPANY
TEL	TELEPHONE LINE
W, PWL	POTABLE WATER

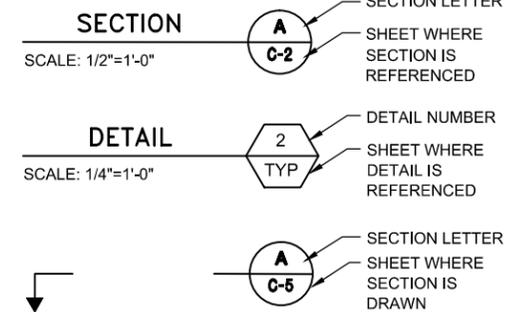
  

PROPOSED PIPE	_____	NOMINAL DIAMETER	8" NPWL	SERVICE
EXISTING PIPE	- - - - -		16" W	

**MATERIAL DESIGNATIONS**

	ASPHALTIC CONCRETE (A.C.)
	AGGREGATE BASE (A.B.)
	CONCRETE
	EARTH
	NATIVE ROCK
	CHECKERED PLATE
	GRATING

**SECTION/DETAIL SYMBOLS**



Drawing Path: N:\226216\_000233.00 NPWL Phase III\CAD\IP\...03 LEGENDS AND SYMBOLS.dwg 6/7/2016 10:02 AM

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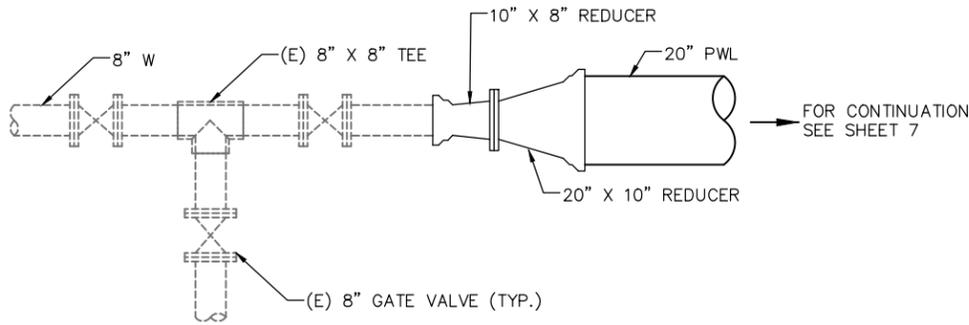
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NO.	REVISIONS	BY	APP	DATE

DESIGNED UNDER THE DIRECTION OF: <i>V. M. Alaniz</i>	6/7/16
VICTOR M. ALANIZ	DATE
R.C.E. No. C57825	EXP. 06-30-18
DESIGN: V. ALANIZ	DATE: June 2016
DRAWN: Z. ALI	DATE: June 2016
CHECKED: V. ALANIZ	DATE: June 2016



<b>IMPROVEMENT PLAN</b>	<b>NON-POTABLE WATER DISTRIBUTION SYSTEM - PHASE III LEGENDS AND SYMBOLS</b>	<b>GRANT STREET</b>	SHEET
<b>BRENTWOOD</b>	<b>CONTRA COSTA COUNTY</b>	<b>CALIFORNIA</b>	<b>3</b>
			3 OF 17 SHEETS

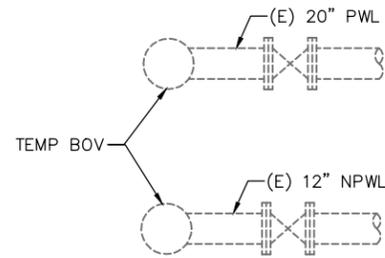


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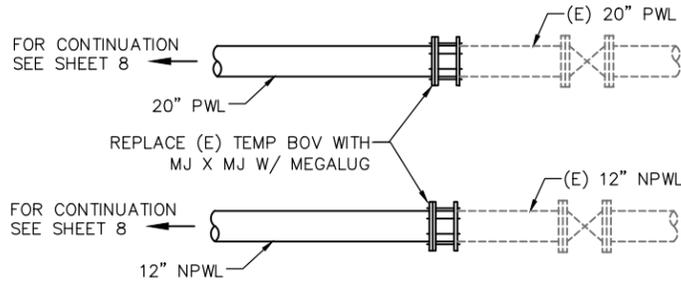
1. CONTRACTOR SHALL FIELD VERIFY SIZE, LOCATION, DEPTH AND END CONDITION OF EXISTING 8-INCH POTABLE WATER PIPELINE. CONTRACTOR TO DESIGN CONNECTION TO EXISTING 8-INCH POTABLE WATER PIPELINE ACCORDINGLY AND SUBMIT TO CITY ENGINEER FOR APPROVAL.
2. JOINTS SHALL BE RESTRAINED.

**CONNECTION TO EXISTING WATERLINE – ST. MARTIN PLACE**

NOT TO SCALE



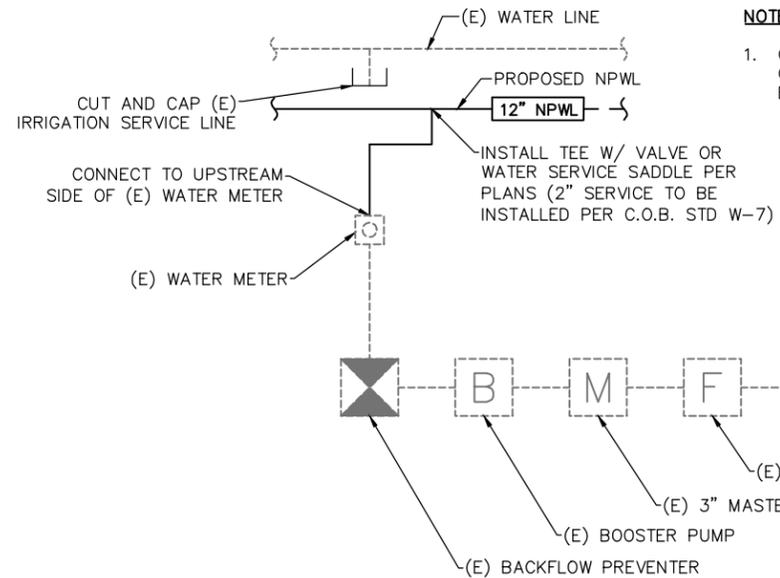
**EXISTING**



**PROPOSED**

**CONNECTION TO EXISTING NON-POTABLE AND POTABLE WATERLINES – O'HARA AVE.**

NOT TO SCALE

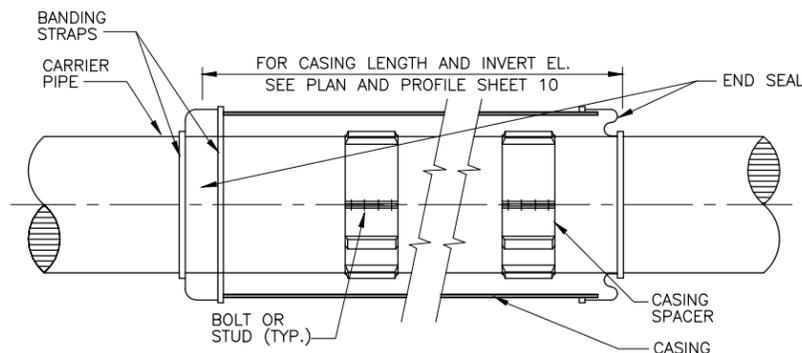


**NOTES:**

1. CONTRACTOR TO SUBMIT PROPOSED CONNECTION SCHEMATIC TO CITY ENGINEER FOR APPROVAL.

**TYPICAL CONNECTION TO EXISTING IRRIGATION CONTROLLER**

NOT TO SCALE

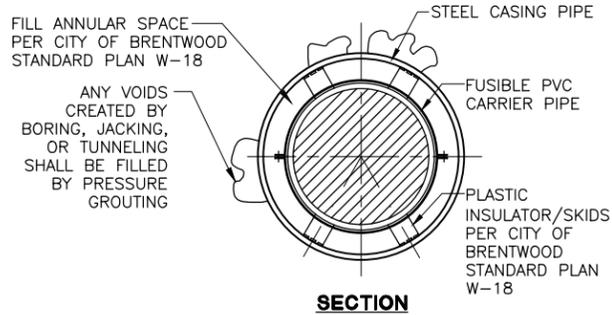


**NOTES:**

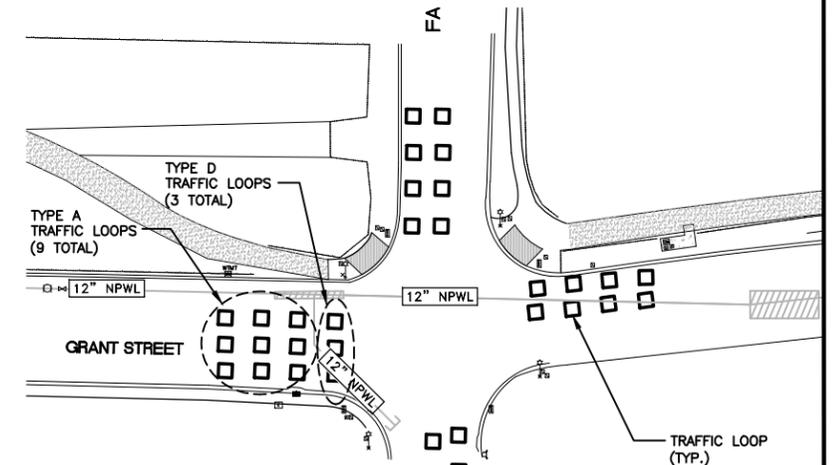
1. ALL JOINTS OF CARRIER PIPE WITHIN CASING SHALL BE WELDED RESTRAINED JOINTS.
2. CARRIER PIPE SHALL BE TESTED BEFORE INSTALLATION OF END SEALS ON CASING.
3. SEE PLAN AND PROFILE SHEET 10 FOR CASING DIAMETER.

**UPRR CASING DETAIL**

NOT TO SCALE



**SECTION**



**NOTES:**

1. CONTRACTOR TO REPAIR/REPLACE ANY TRAFFIC LOOPS AFFECTED BY THE CONSTRUCTION OF THIS PROJECT.
2. CONTACT CCC SIGNAL SHOP (925) 313-7054 PRIOR TO INTERRUPTION OF ANY SIGNALS OR LOOPS.

**TRAFFIC LOOP LOCATION GRANT STREET AND FAIRVIEW AVENUE INTERSECTION (FOR DETAILS SEE SHEET 9)**

NOT TO SCALE

Drawing Path: N:\226246\_00023.00 NPWL Phase III\CAD\IP\... 04 DETAILS AND TRAFFIC LOOP LOCATIONS.dwg 6/7/2016 10:02 AM



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DESIGNED UNDER THE DIRECTION OF:

*Victor M. Alaniz*

6/7/16

VICTOR M. ALANIZ DATE  
R.C.E. No. C57825 REGISTRATION EXPIRES 06-30-18

DESIGN: V. ALANIZ DATE: June 2016

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**IMPROVEMENT PLAN NON-POTABLE WATER DISTRIBUTION SYSTEM - PHASE III**

**DETAILS AND TRAFFIC LOOP LOCATIONS**

**CIP 592-59170**

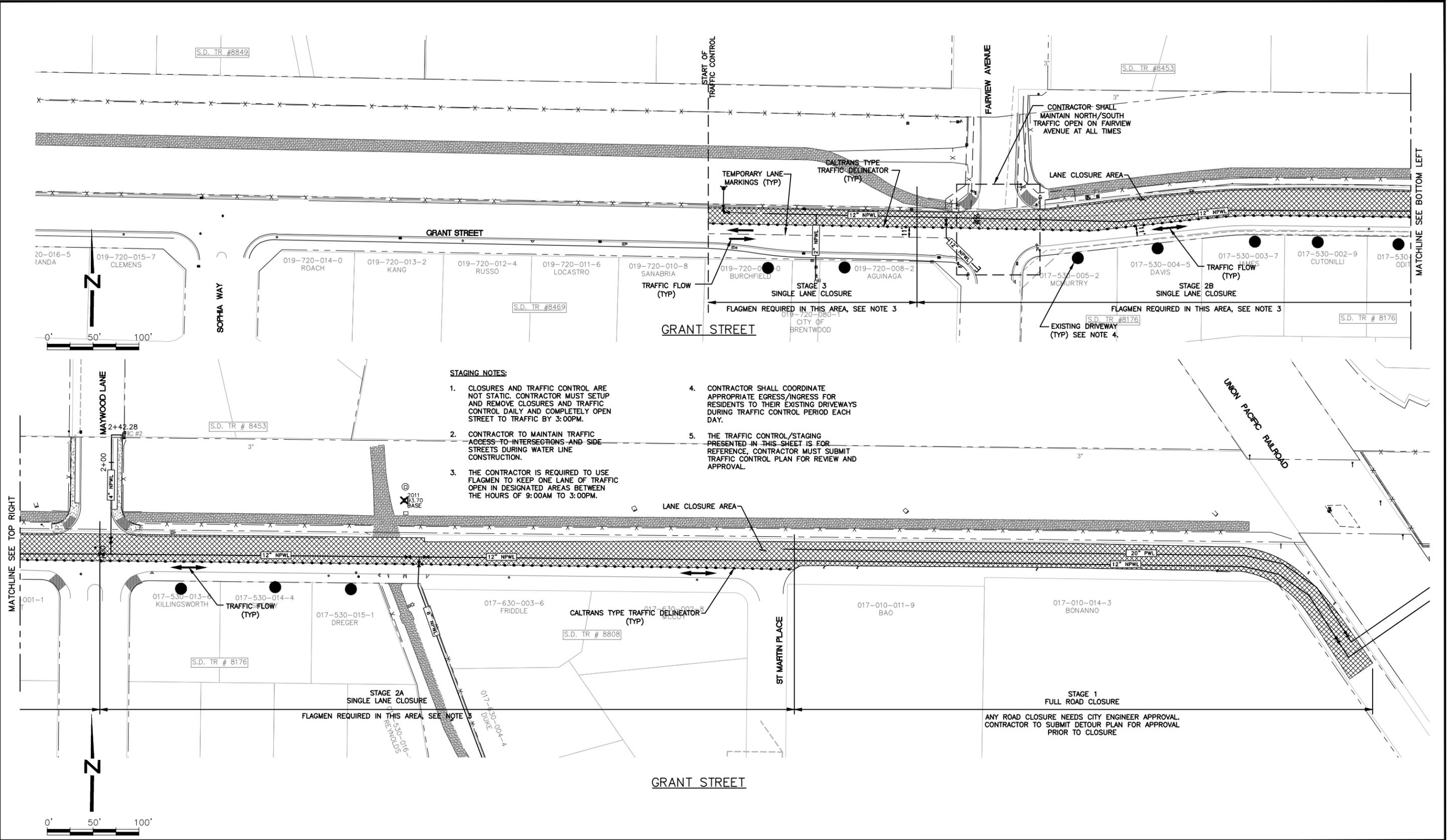
**BRENTWOOD CONTRA COSTA COUNTY CALIFORNIA**

SHEET

**4**

4 OF 17 SHEETS

Drawing Path: N:\226216-00023.00 NPWL Phase III\CAD\IP\...05 CONSTRUCTION STAGING PLAN.dwg  
6/7/2016 10:02 AM



**STAGING NOTES:**

1. CLOSURES AND TRAFFIC CONTROL ARE NOT STATIC. CONTRACTOR MUST SETUP AND REMOVE CLOSURES AND TRAFFIC CONTROL DAILY AND COMPLETELY OPEN STREET TO TRAFFIC BY 3:00PM.
2. CONTRACTOR TO MAINTAIN TRAFFIC ACCESS TO INTERSECTIONS AND SIDE STREETS DURING WATER LINE CONSTRUCTION.
3. THE CONTRACTOR IS REQUIRED TO USE FLAGMEN TO KEEP ONE LANE OF TRAFFIC OPEN IN DESIGNATED AREAS BETWEEN THE HOURS OF 9:00AM TO 3:00PM.
4. CONTRACTOR SHALL COORDINATE APPROPRIATE EGRESS/INGRESS FOR RESIDENTS TO THEIR EXISTING DRIVEWAYS DURING TRAFFIC CONTROL PERIOD EACH DAY.
5. THE TRAFFIC CONTROL/STAGING PRESENTED IN THIS SHEET IS FOR REFERENCE, CONTRACTOR MUST SUBMIT TRAFFIC CONTROL PLAN FOR REVIEW AND APPROVAL.

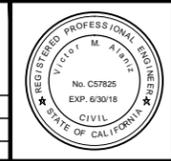
ANY ROAD CLOSURE NEEDS CITY ENGINEER APPROVAL. CONTRACTOR TO SUBMIT DETOUR PLAN FOR APPROVAL PRIOR TO CLOSURE

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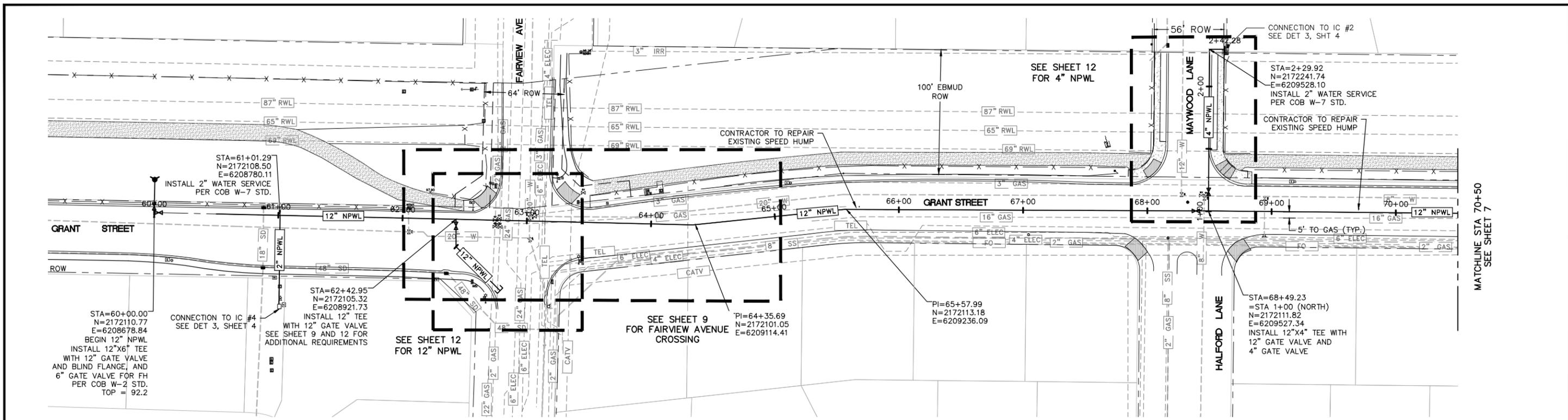
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VICTOR M. ALANIZ DATE  
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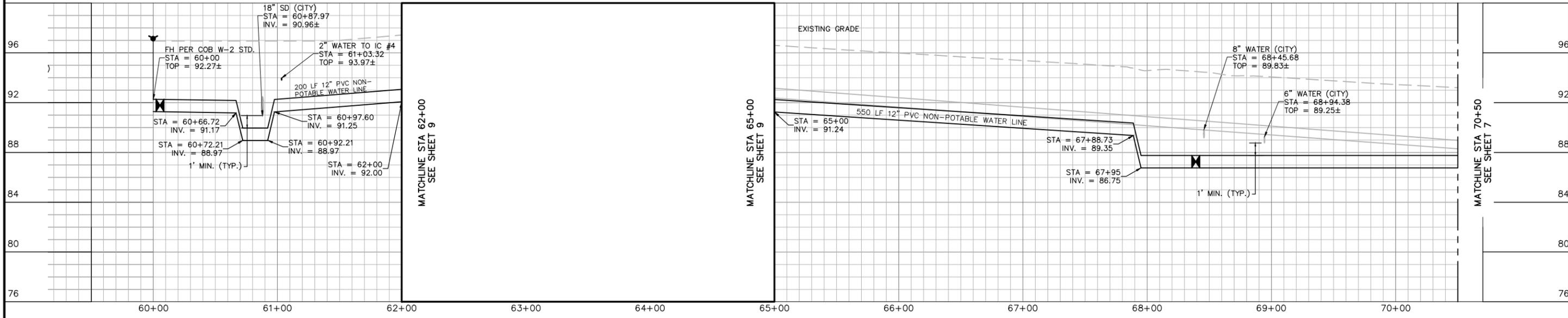
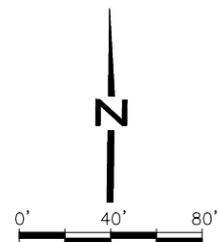
<b>IMPROVEMENT PLAN</b> <b>BRENTWOOD</b>	<b>NON-POTABLE WATER DISTRIBUTION SYSTEM - PHASE III</b>	<b>GRANT STREET</b>	SHEET
	<b>CONSTRUCTION STAGING PLAN</b> CIP 592-59170 CONTRA COSTA COUNTY	CALIFORNIA	<b>5</b> 5 OF 17 SHEETS



**GRANT STREET**  
SCALE: 1"=40' HORIZONTAL  
1"=4' VERTICAL

**NOTES:**

1. PROVIDE 4' MINIMUM COVER UNLESS OTHERWISE SPECIFIED.
2. PROVIDE 10' MINIMUM HORIZONTAL SEPARATION BETWEEN 12"NPWL AND EXISTING 8"W & 20"W. IF 10' MINIMUM HORIZONTAL SEPARATION CANNOT BE MAINTAINED, 4' MINIMUM HORIZONTAL AND 1' VERTICAL SEPARATION BELOW EXISTING WATER LINE IS REQUIRED.
3. ALL VALVE BOX LIDS SHALL BE TRIANGULAR CHRISTY G4 OR APPROVED EQUAL, SEE NOTE 2 ON COB W-13 STD.



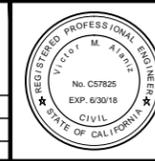
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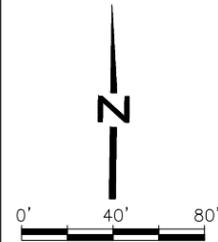
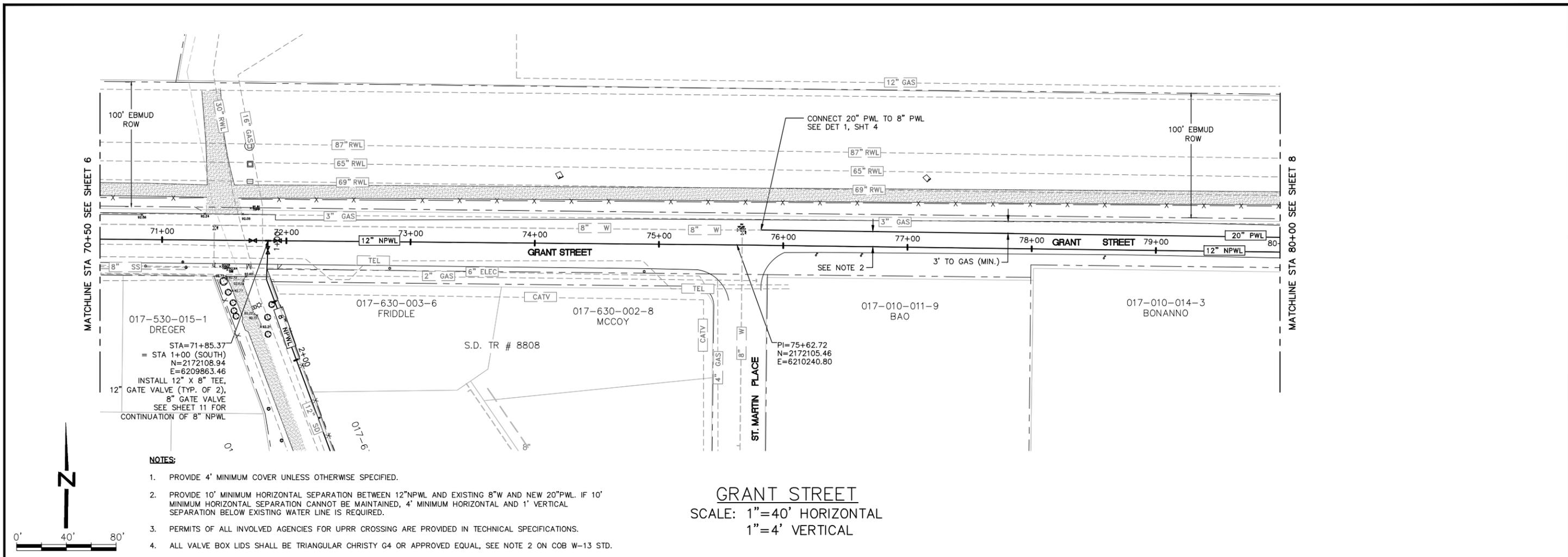
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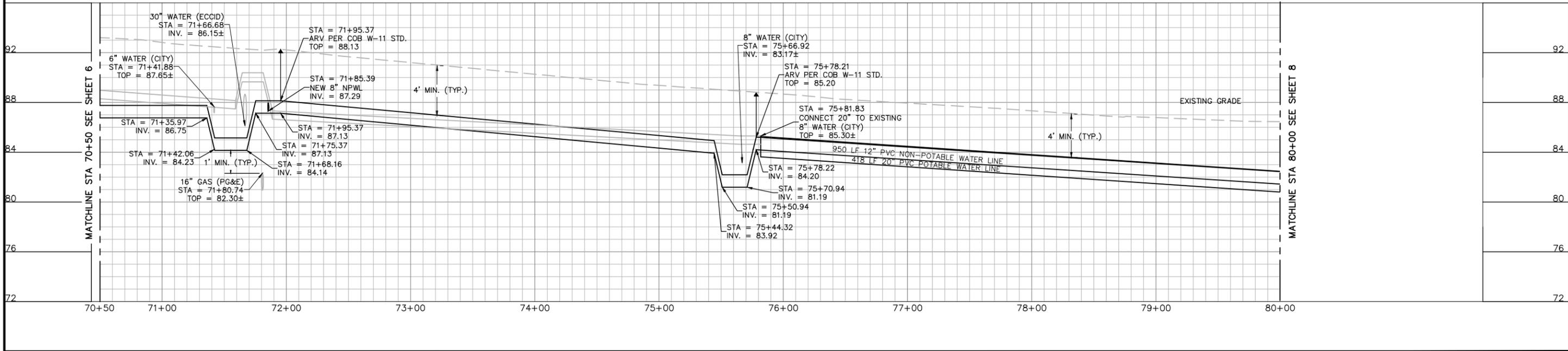
**IMPROVEMENT PLAN NON-POTABLE WATER DISTRIBUTION SYSTEM - PHASE III GRANT STREET**  
**PLAN AND PROFILE - GRANT STREET**  
CIP 592-59170  
BRENTWOOD CONTRA COSTA COUNTY CALIFORNIA

SHEET **6**  
6 OF 17 SHEETS



- NOTES:**
1. PROVIDE 4' MINIMUM COVER UNLESS OTHERWISE SPECIFIED.
  2. PROVIDE 10' MINIMUM HORIZONTAL SEPARATION BETWEEN 12"NPWL AND EXISTING 8"W AND NEW 20"PWL. IF 10' MINIMUM HORIZONTAL SEPARATION CANNOT BE MAINTAINED, 4' MINIMUM HORIZONTAL AND 1' VERTICAL SEPARATION BELOW EXISTING WATER LINE IS REQUIRED.
  3. PERMITS OF ALL INVOLVED AGENCIES FOR UPRR CROSSING ARE PROVIDED IN TECHNICAL SPECIFICATIONS.
  4. ALL VALVE BOX LIDS SHALL BE TRIANGULAR CHRISTY G4 OR APPROVED EQUAL, SEE NOTE 2 ON COB W-13 STD.

**GRANT STREET**  
 SCALE: 1"=40' HORIZONTAL  
 1"=4' VERTICAL



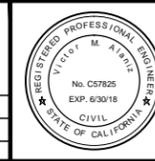
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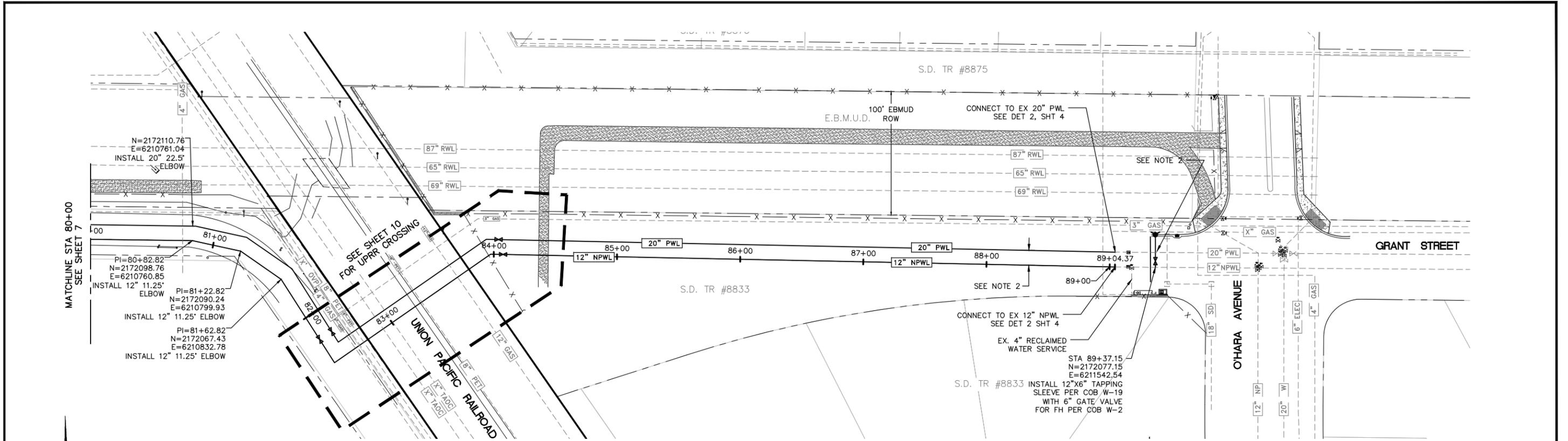
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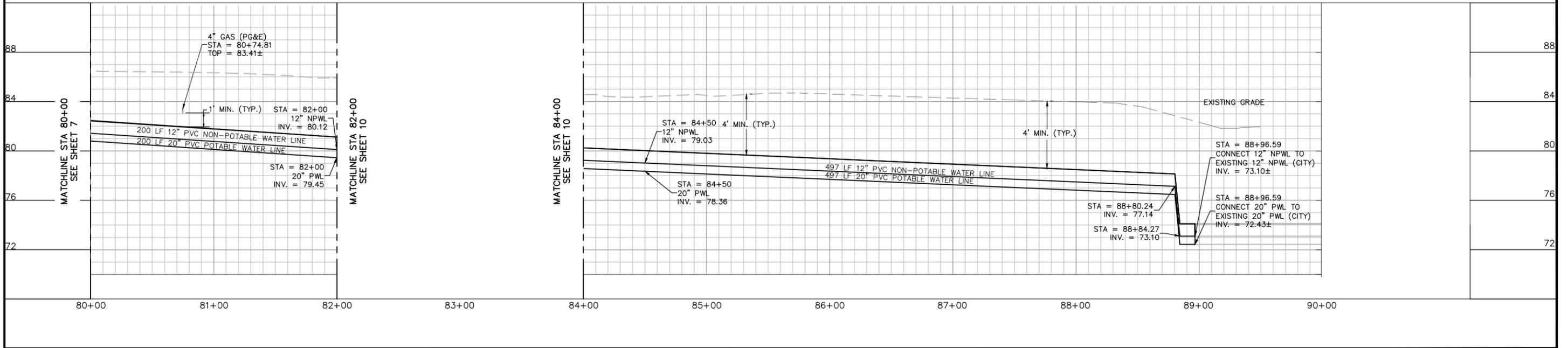
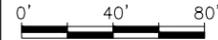
<b>IMPROVEMENT PLAN</b>	<b>NON-POTABLE WATER</b>	<b>GRANT STREET</b>	SHEET <b>7</b>
	<b>DISTRIBUTION SYSTEM - PHASE III</b>	<b>PLAN AND PROFILE - GRANT STREET</b>	
<b>BRENTWOOD</b>	<b>CONTRA COSTA COUNTY</b>	<b>CALIFORNIA</b>	7 OF 17 SHEETS



**GRANT STREET**  
SCALE: 1"=40' HORIZONTAL  
1"=4' VERTICAL

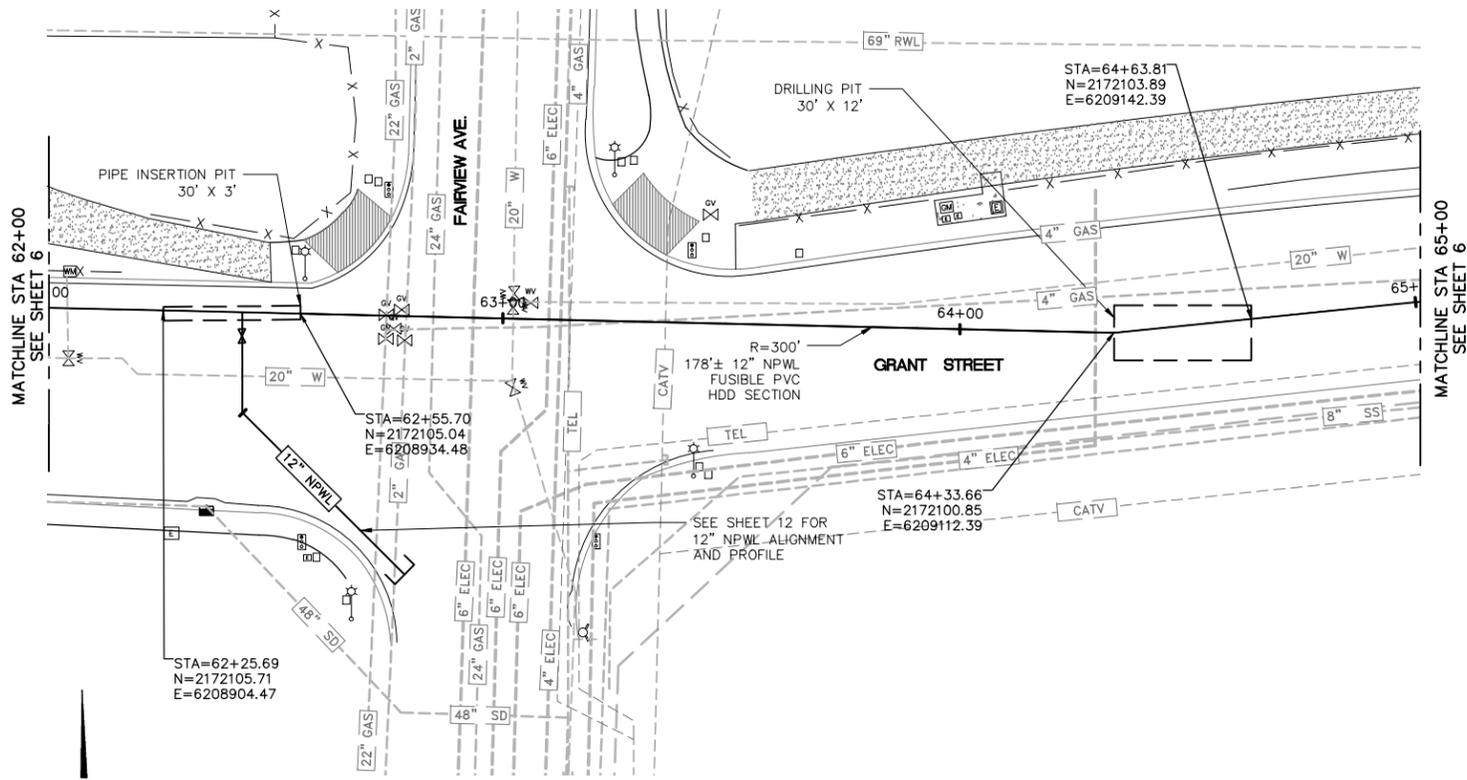
**NOTES:**

1. PROVIDE 4' MINIMUM COVER UNLESS OTHERWISE SPECIFIED.
2. PROVIDE 10' MINIMUM HORIZONTAL SEPARATION BETWEEN 12"NPWL AND NEW 20"PWL. IF 10' MINIMUM HORIZONTAL SEPARATION CANNOT BE MAINTAINED, 4' MINIMUM HORIZONTAL AND 1' VERTICAL SEPARATION BELOW EXISTING WATER LINE IS REQUIRED.
3. ALL VALVE BOX LIDS SHALL BE TRIANGULAR CHRISTY G4 OR APPROVED EQUAL, SEE NOTE 2 ON COB W-13 STD.

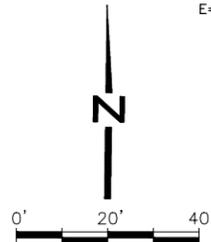


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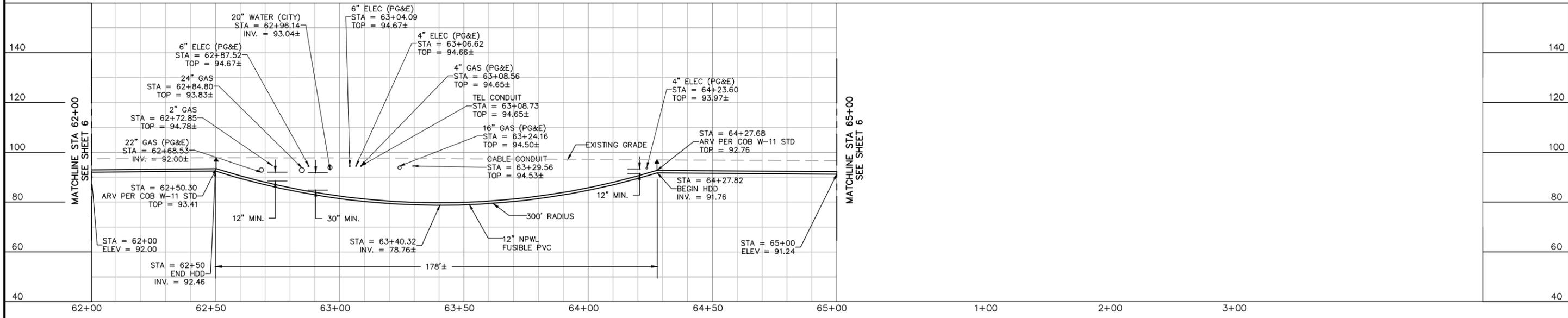
<p><b>PUBLIC WORKS DEPARTMENT</b> 130 City Park Way, Brentwood, CA 94513 Ph: (925) 516-5429 · FAX: (925) 516-5421 www.brentwoodci.gov</p>	<p><b>2025 NATOMAS PARK DRIVE, SUITE 900</b> 916.641.9100 TEL. 916.641.9222 FAX SACRAMENTO, CA 95833 WWW.NV5.COM</p>	<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>NO.</th> <th>REVISIONS</th> <th>BY</th> <th>APP</th> <th>DATE</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>	NO.	REVISIONS	BY	APP	DATE																<p>DESIGNED UNDER THE DIRECTION OF: <i>Victor M. Alaniz</i> 6/7/16 VICTOR M. ALANIZ DATE R.C.E. No. C57825 REGISTRATION EXPIRES 06-30-18 DESIGN: V. ALANIZ DATE: June 2016 DRAWN: Z. ALI DATE: June 2016 CHECKED: V. ALANIZ DATE: June 2016</p>		<p><b>IMPROVEMENT PLAN NON-POTABLE WATER DISTRIBUTION SYSTEM - PHASE III</b> <b>PLAN AND PROFILE - GRANT STREET</b> CIP 592-59170 BRENTWOOD CONTRA COSTA COUNTY CALIFORNIA</p>	<p>SHEET <b>8</b> 8 OF 17 SHEETS</p>
			NO.	REVISIONS	BY	APP	DATE																			
<p align="center">Brentwood, California</p>																										



**GRANT STREET / FAIRVIEW AVENUE INTERSECTION**  
 SCALE: 1"=20' HORIZONTAL  
 1"=20' VERTICAL



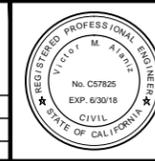
**NOTES:**  
 1. PROVIDE 4' MINIMUM COVER UNLESS OTHERWISE SPECIFIED.



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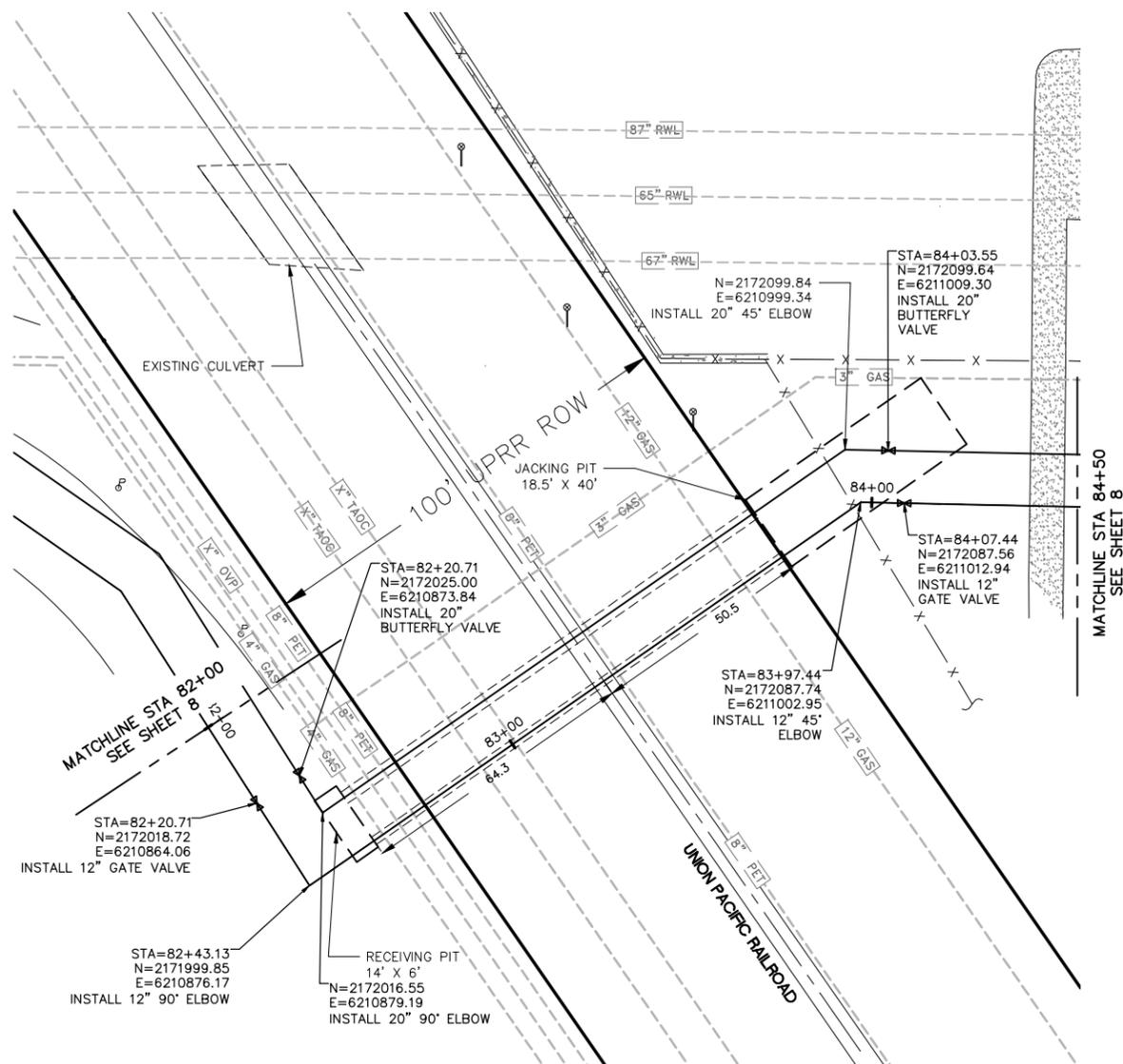
NO.	REVISIONS	BY	APP	DATE

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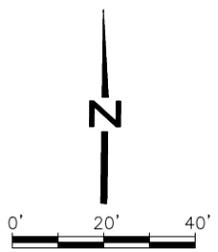


IMPROVEMENT PLAN <b>BRENTWOOD</b>	NON-POTABLE WATER DISTRIBUTION SYSTEM - PHASE III <b>FAIRVIEW CROSSING - HDD</b> CIP 592-59170	GRANT STREET <b>CALIFORNIA</b>	SHEET
			<b>9</b>
CONTRA COSTA COUNTY			9 OF 17 SHEETS

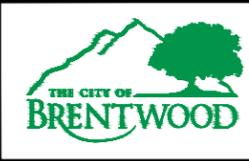
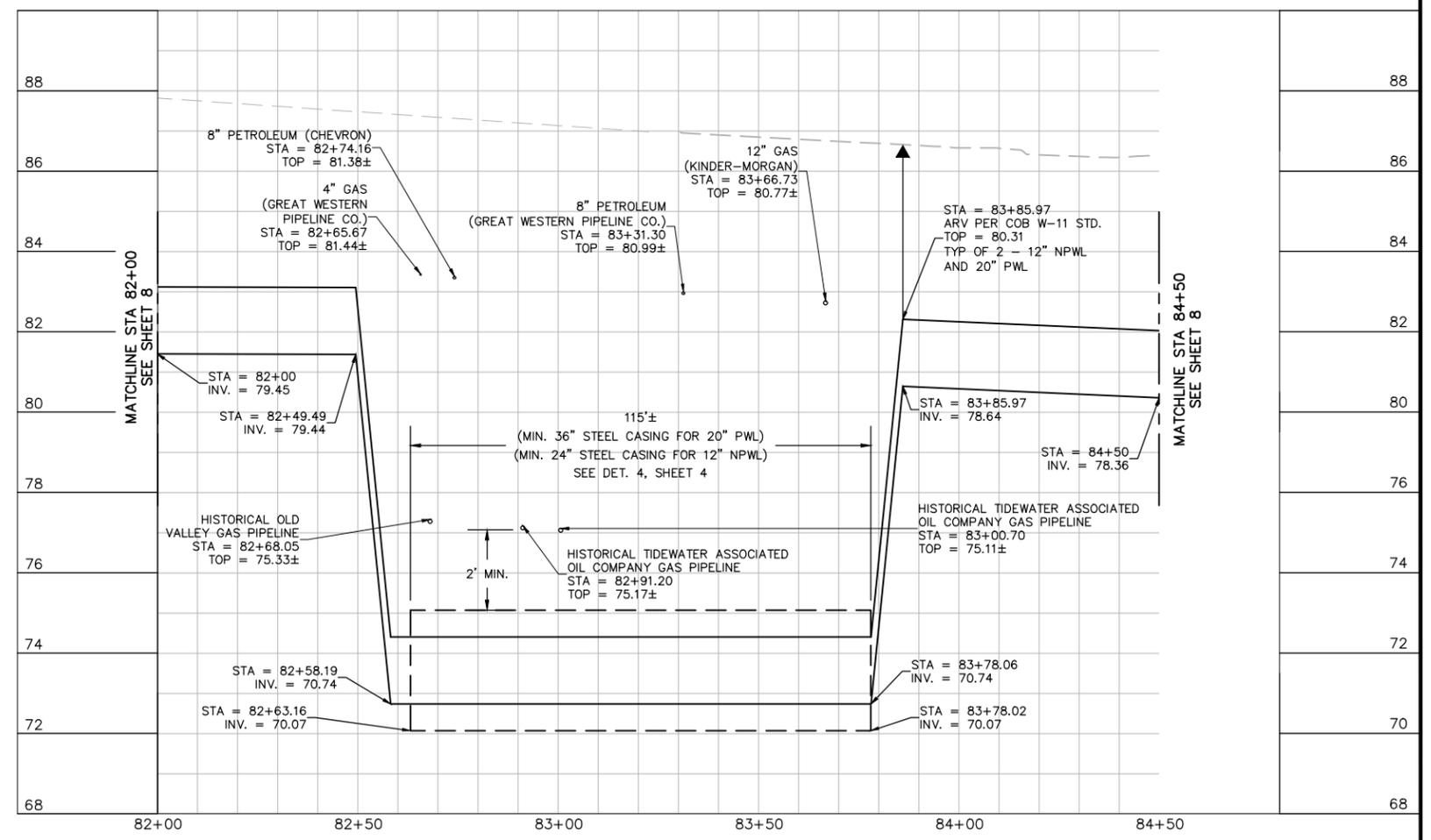
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**UNION PACIFIC RAILROAD**  
SCALE: 1"=20' HORIZONTAL  
1"=2' VERTICAL



- NOTES:**
1. PROVIDE 4' MINIMUM COVER UNLESS OTHERWISE SPECIFIED.
  2. CONTRACTOR TO VERIFY LOCATION, SIZE AND DEPTH OF EXISTING PIPELINES PRIOR TO CONSTRUCTION. CONTRACTOR TO AMEND UPRR AGREEMENT TO REFLECT CONSTRUCTED DEPTH OF PROPOSED BORE AND JACK.
  3. ONLY 20" PWL PROFILE SHOWN FOR CLARITY. 12" NPWL PROFILE TO MATCH 20" PWL TOP ELEVATION.

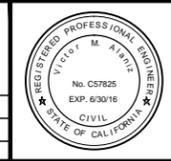


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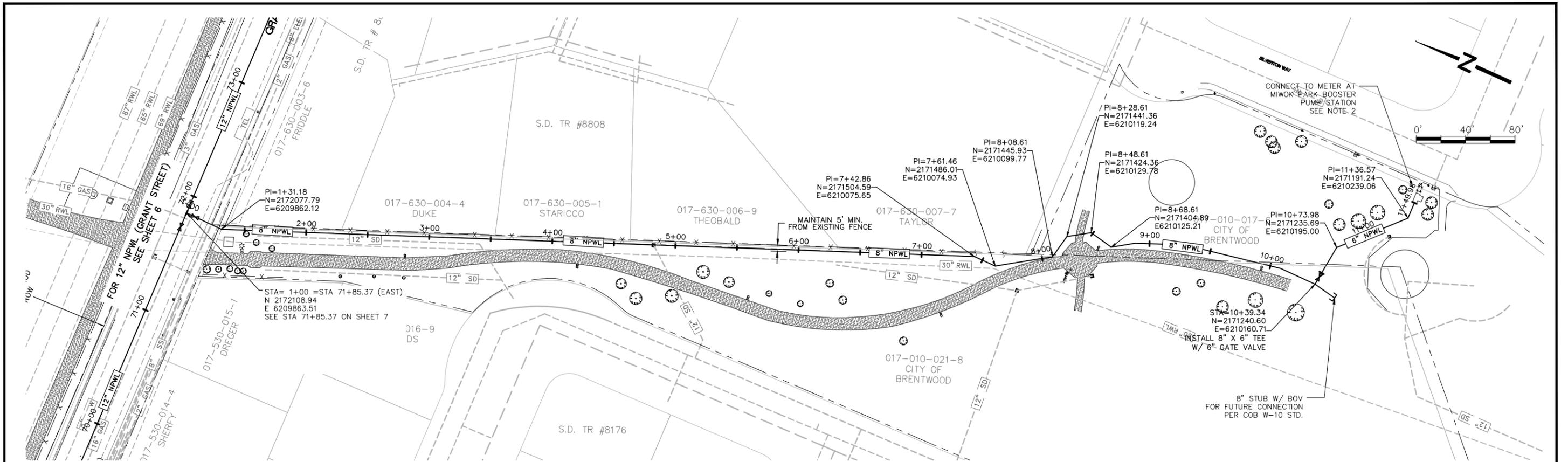
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NO.	REVISIONS	BY	APP	DATE

DESIGNED UNDER THE DIRECTION OF:  
*Victor M. Alaniz* 6/7/16  
VICTOR M. ALANIZ DATE  
R.C.E. No. C57825 REGISTRATION EXPIRES 06-30-16  
DESIGN: V. ALANIZ DATE: June 2016  
DRAWN: Z. ALI DATE: June 2016  
CHECKED: V. ALANIZ DATE: June 2016



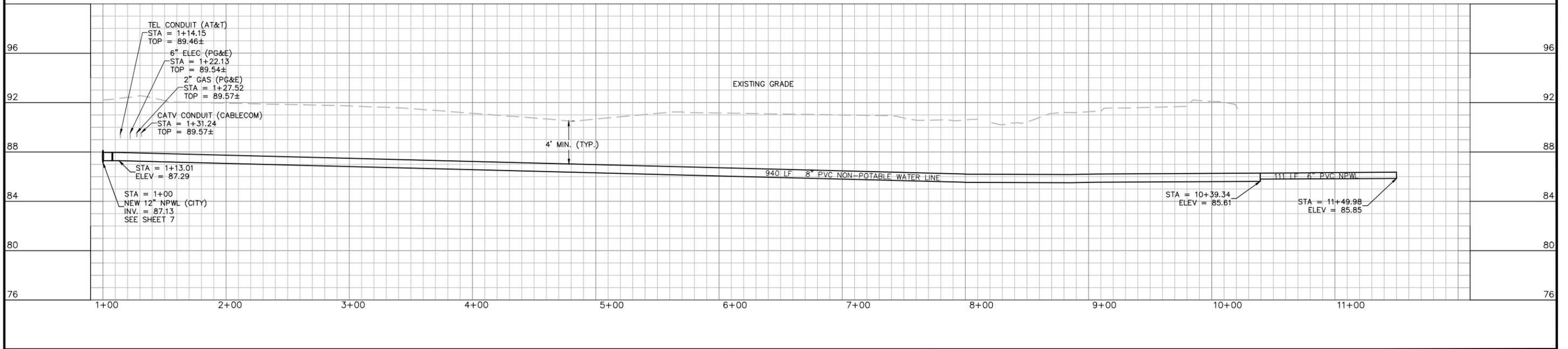
**IMPROVEMENT PLAN NON-POTABLE WATER DISTRIBUTION SYSTEM - PHASE III**  
**UPRR CROSSING - BORE AND JACK**  
CIP 592-59170  
BRENTWOOD CONTRA COSTA COUNTY CALIFORNIA



**MIWOK PARK**  
 SCALE: 1"=40' HORIZONTAL  
 1"=4' VERTICAL

**NOTES:**

1. PROVIDE 4' MINIMUM COVER UNLESS OTHERWISE SPECIFIED.
2. CONTRACTOR TO CUT AND CAP EXISTING 4" POTABLE WATER LINE ON UPSTREAM SIDE OF EXISTING WATER METER. CONTRACTOR TO CONNECT NEW 6" NON-POTABLE WATER LINE AND NEW 6" X 4" REDUCER TO UPSTREAM SIDE OF EXISTING WATER METER.



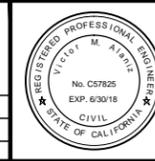
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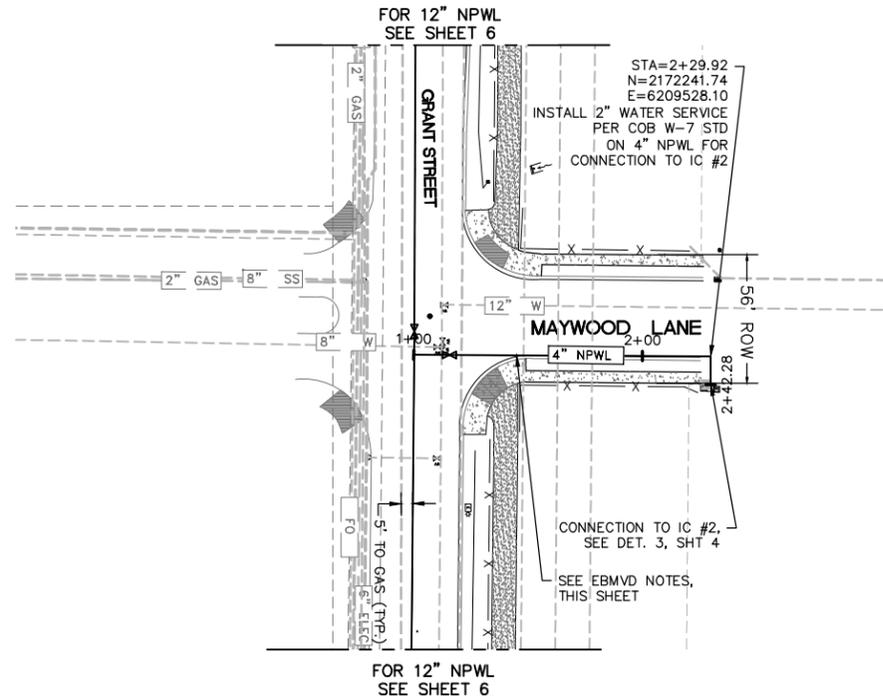
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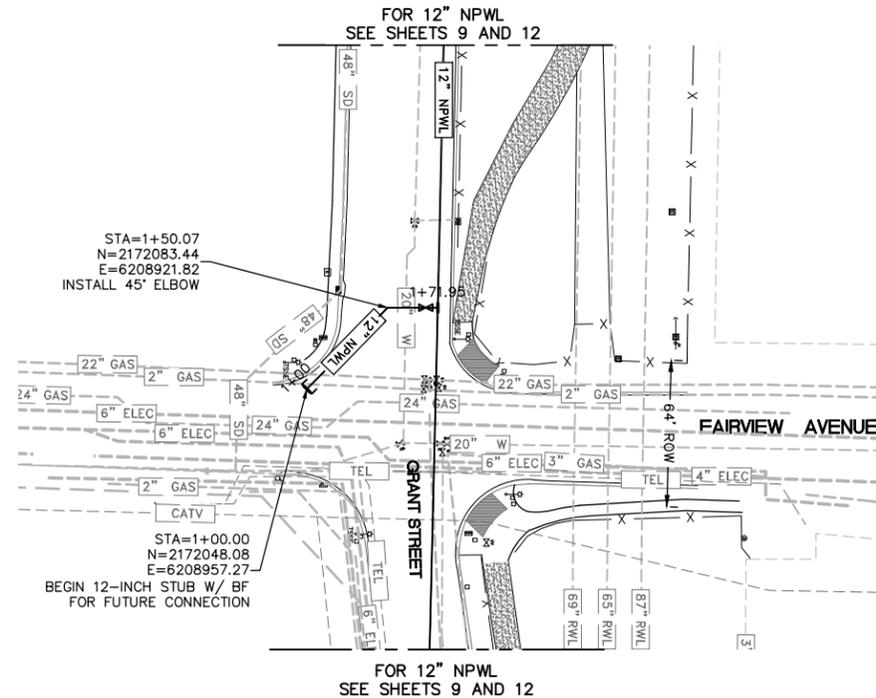
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*Victor M. Alaniz* 6/7/16  
 VICTOR M. ALANIZ DATE  
 R.C.E. No. C57825 REGISTRATION EXPIRES 06-30-18  
 DESIGN: V. ALANIZ DATE: June 2016  
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<b>IMPROVEMENT PLAN</b>	<b>NON-POTABLE WATER</b>	<b>GRANT STREET</b>	SHEET
	<b>DISTRIBUTION SYSTEM - PHASE III</b>		
<b>BRENTWOOD</b>	<b>8" NPWL AT MIWOK PARK</b>	<b>CALIFORNIA</b>	11 OF 17 SHEETS
	<b>CIP 592-59170</b>		
	<b>CONTRA COSTA COUNTY</b>		



**MAYWOOD LANE**  
SCALE: 1"=40' HORIZONTAL  
1"=4' VERTICAL



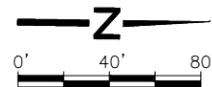
**FAIRVIEW AVENUE**  
SCALE: 1"=40' HORIZONTAL  
1"=4' VERTICAL

**NOTES:**

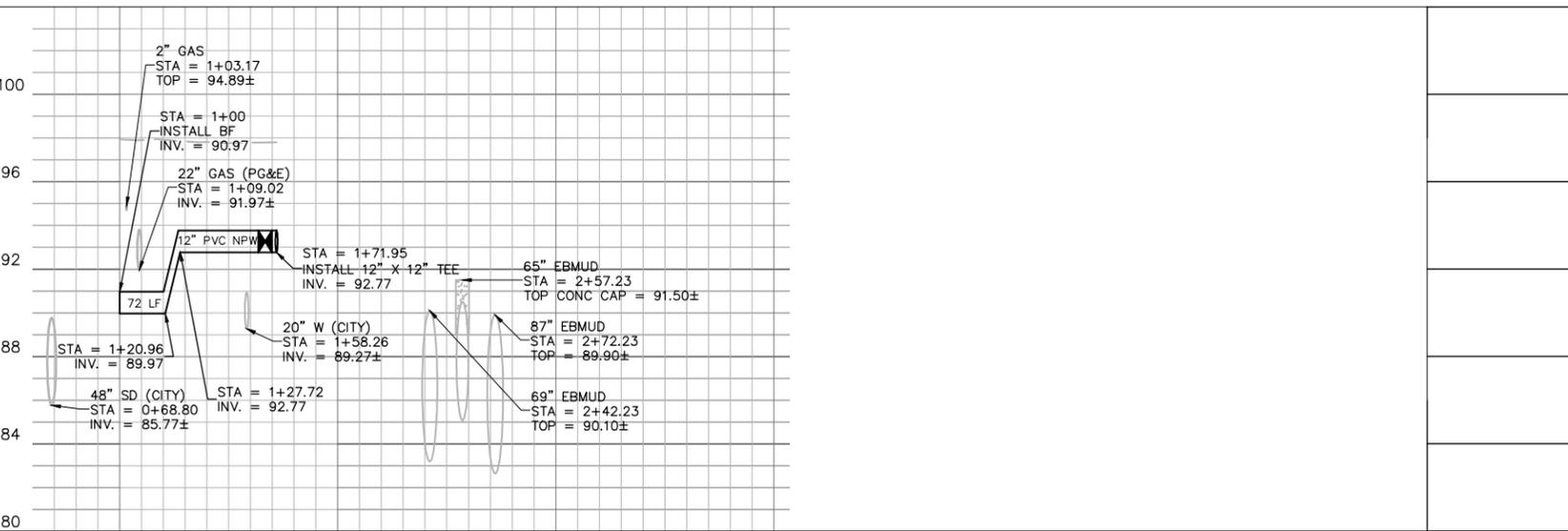
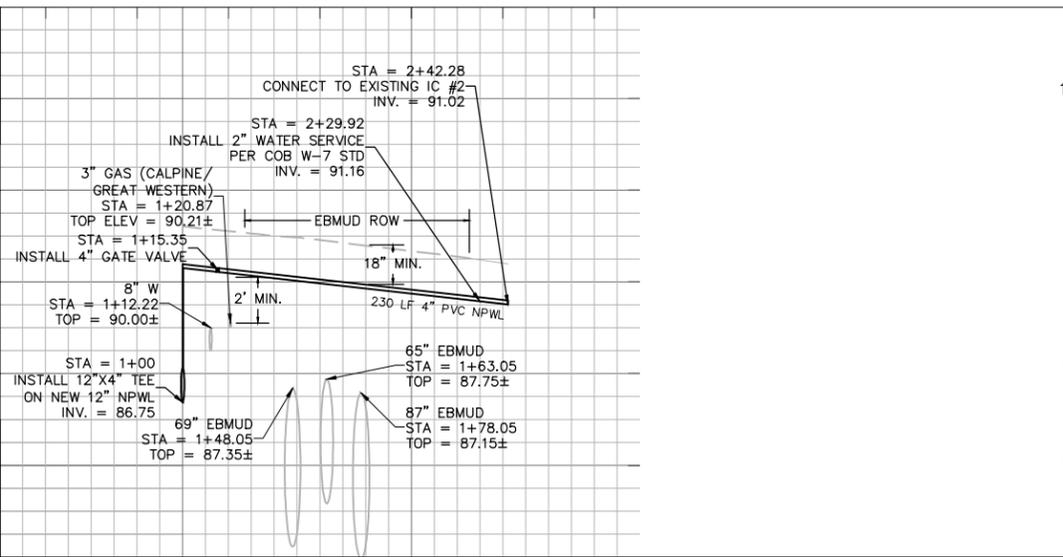
1. PROVIDE 4' MINIMUM COVER UNLESS OTHERWISE SPECIFIED.
2. CONTRACTOR TO CENTER 20' PIPELINE SEGMENT OVER ANY EXISTING POTABLE WATER PIPELINE CROSSING TO ENSURE NO JOINTS WITHIN 10' OF EITHER SIDE OF CROSSING.

**EBMUD NOTES:**

1. CONTRACTOR TO VERIFY LOCATION OF EXISTING PROTECTIVE CONCRETE SLAB OVER EBMUD AQUEDUCTS. EXISTING CONCRETE SLAB TO BE AVOIDED DURING CONSTRUCTION.
2. ALL CONSTRUCTION ON EBMUD PROPERTY SHALL BE WITH OPEN CUT/TRENCH METHODS.
3. NO TRENCHLESS CONSTRUCTION ALLOWED ON EBMUD PROPERTY.
4. SEE SHEET 2 FOR EBMUD REQUIREMENTS FOR ENTRY OR USE OF MOKELUMNE, LAFAYETTE & MORAGA AQUEDUCT RIGHTS-OF-WAY SUPPLEMENT NO. 1 TO PROCEDURE 718.
5. SEE SHEET 13 FOR CATHODIC PROTECTION.



100  
96  
92  
88  
84  
80

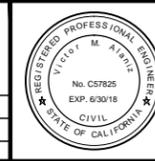


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VICTOR M. ALANIZ DATE  
R.C.E. No. C57825 REGISTRATION EXPIRES 06-30-18  
DESIGN: V. ALANIZ DATE: June 2016  
DRAWN: Z. ALI DATE: June 2016  
CHECKED: V. ALANIZ DATE: June 2016



**IMPROVEMENT PLAN NON-POTABLE WATER GRANT STREET**  
**DISTRIBUTION SYSTEM - PHASE III**  
**2" AT MAYWOOD & 12" NPWL STUB-OUT AT FAIRVIEW**  
BRENTWOOD CONTRA COSTA COUNTY CALIFORNIA

Drawing Path: N:\226216-000233.00 NPWL Phase III\CAD\IP\... 12 2IN AT MAYWOOD & 12IN NPWL STUB-OUT AT FAIRVIEW.dwg 6/7/2016 10:05 AM

**TABLE 1: NON-POTABLE WATER PIPELINE, TEST STATIONS &/OR PREPACKAGED MAGNESIUM ANODE(S)**

STATION	ITEM/TEST STATION DWG #	STREET	TEST STATION /ANODE TYPE	LOCATION	DETAIL	APPURTENANCE	PIPELINE	ANODE QUANTITY & SIZE (LB)
60+00.00 60+00.00	6 6	GRANT STREET GRANT STREET	ATS	60+00	1/15	GV FIRE HYDRANT	12" NPWL	2-32#
60+66.72 60+72.21	6 6	GRANT STREET GRANT STREET	-	60+67	4/14	FITTING FITTING	12" NPWL 12" NPWL	1-17#
60+92.21 60+97.60	6 6	GRANT STREET GRANT STREET	-	60+97	4/14	FITTING FITTING	12" NPWL 12" NPWL	1-17#
61+01.29	6	GRANT STREET	-	61+01.29	5/15	SERVICE	2" NPWL	1-9#
1+00.00	12	FAIRVIEW AVE	-	1+00	5/14	BLIND FLANGE	12" NPWL	1-9#
1+20.96 1+27.72	12 12	FAIRVIEW AVE FAIRVIEW AVE	-	1+27	4/14	FITTING FITTING	12" NPWL 12" NPWL	1-17#
1+50.07	12	FAIRVIEW AVE	-	1+50.07	5/14	FITTING	12" NPWL	1-9#
1+66.88 1+71.95	9 9	FAIRVIEW AVE FAIRVIEW AVE	ATS	1+71.95	2/14	GV FITTING	12" NPWL 12" NPWL	1-17#
62+50.30	9	GRANT STREET	-	62+50.30	3/15	ARV	2" NPWL	1-5#
64+27.68	9	GRANT STREET	-	64+27.68	3/15	ARV	2" NPWL	1-5#
64+33.66	6	GRANT STREET	-	64+35.69	5/14	FITTING	12" NPWL	1-9#
65+57.99	6	GRANT STREET	-	65+57.99	5/14	FITTING	12" NPWL	1-9#
67+88.73 67+95	6 6	GRANT STREET GRANT STREET	-	67+89	4/14	FITTING FITTING	12" NPWL 12" NPWL	1-17#
68+38.97	6	GRANT STREET	ATS	68+39	2/14	GV	12" NPWL	1-9#
68+49.23	6	GRANT STREET	-	68+49.23	5/14	FITTING	12"/4"NPWL	1-9#
1+15.35	12	GRANT STREET	ATS	1+15.35	2/14	GV	4" NPWL	1-9#
2+29.92	12	GRANT STREET	ATS	2+29.92	5/14	FITTING	4" NPWL	1-5#
71+35.97 71+42.06	7 7	GRANT STREET GRANT STREET	-	71+36	4/14	FITTING FITTING	12" NPWL 12" NPWL	1-17#
71+68.16 71+75.37	7 7	GRANT STREET GRANT STREET	-	71+75	4/14	FITTING FITTING	12" NPWL 12" NPWL	1-17#
71+82± 71+85.37 (S) 71+85.37 71+89±	7 7 7 7	GRANT STREET GRANT STREET GRANT STREET GRANT STREET	ATS	71+85	3/14	GV FITTING GV GV	12" NPWL 12" NPWL 8" NPWL 12" NPWL	1-32#
1+31.18	11	MIWOK TRAIL	-	1+31.18	5/14	FITTING	8" NPWL	1-5#
7+42.86	11	MIWOK TRAIL	-	7+42.86	5/14	FITTING	8" NPWL	1-5#
7+61.46	11	MIWOK TRAIL	-	7+61.46	5/14	FITTING	8" NPWL	1-5#
8+08.61	11	MIWOK TRAIL	-	8+08.61	5/14	FITTING	8" NPWL	1-5#
8+28.61	11	MIWOK TRAIL	-	8+28.61	5/14	FITTING	8" NPWL	1-5#
8+48.61	11	MIWOK TRAIL	-	8+48.61	5/14	FITTING	8" NPWL	1-5#
8+68.61	11	MIWOK TRAIL	-	8+68.61	5/14	FITTING	8" NPWL	1-5#
10+39.34 10+42±	11 11	MIWOK TRAIL MIWOK TRAIL	ATS	10+42	2/14	FITTING GV	8"/6" NPWL 6" NPWL	1-9#
10+39.34 (S)	11	MIWOK TRAIL	-	10+39.34 (S)	4/15	BOV	2" NPWL	2-5#
10+73.98	11	MIWOK TRAIL	-	10+73.98	5/14	FITTING	6" NPWL	1-5#
11+36.57	11	MIWOK TRAIL	-	11+36.57	5/14	FITTING	6" NPWL	1-5#
71+95.37	7	GRANT STREET	-	71+95.37	3/15	ARV	2" NPWL	1-5#
75+44.32 75+50.94	7 7	GRANT STREET GRANT STREET	-	75+45	4/14	FITTING FITTING	12" NPWL 12" NPWL	1-17#
75+70.94	7	GRANT STREET	-	75+71	4/14	FITTING	12" NPWL	1-17#

STATION	ITEM/TEST STATION DWG #	STREET	TEST STATION /ANODE TYPE	LOCATION	DETAIL	APPURTENANCE	PIPELINE	ANODE QUANTITY & SIZE (LB)
75+78.22	7	GRANT STREET	-			FITTING	12" NPWL	
75+78.21	7	GRANT STREET	-	75+78.21	3/15	ARV	2" NPWL	1-5#
80+82.82	8	GRANT STREET	-	80+82.82	5/14	FITTING	12" NPWL	1-9#
81+22.82	8	GRANT STREET	-	81+22.82	5/14	FITTING	12" NPWL	1-9#
81+62.82	8	GRANT STREET	-	81+62.82	5/14	FITTING	12" NPWL	1-9#
82+20.71	10	GRANT STREET	ATS	82+20.71	2/14	GV	12" NPWL	1-9#
82+43.13 82+49.49	10 10	GRANT STREET GRANT STREET	-	82+44	4/14	FITTING FITTING	12" NPWL 12" NPWL	1-17#
82+58.19	10	UPRR	-	82+58.19	5/14	FITTING	12" NPWL	1-9#
82+63.16	10	UPRR	CATS	EDGE OF ROW	1/14	CASING	24" CASING	3-32#
83+78.02	10	UPRR	CATS	EDGE OF ROW	1/14	CASING	24" CASING	3-32#
83+78.06	10	UPRR	-	83+78.06	5/14	FITTING	12" NPWL	1-9#
83+85.97	10	UPRR	-	83+85.97	5/14	FITTING	12" NPWL	1-9#
83+85.97	10	UPRR	-	83+85.97	3/15	ARV	2" NPWL	1-5#
83+97.44 84+07.44	10 10	UPRR UPRR	ATS	84+07.44	2/14	FITTING GV	12" NPWL 12" NPWL	1-17#
88+80.24 88+84.27	8 8	GRANT STREET GRANT STREET	-	88+81	4/14	FITTING FITTING	12" NPWL 12" NPWL	1-17#
88+96.59	8	GRANT STREET	-	88+96.59	5/14	FITTING	12" NPWL	1-9#
89+37.15	8	GRANT STREET	-	89+37.15	1/15	FIRE HYDRANT	12"/6" NPWL	1-32#

**TABLE 2: POTABLE WATER PIPELINE, TEST STATIONS &/OR PREPACKAGED MAGNESIUM ANODE(S)**

STATION	ITEM/TEST STATION DWG #	STREET	TEST STATION /ANODE TYPE	LOCATION	DETAIL	APPURTENANCE	PIPELINE	ANODE QUANTITY & SIZE (LB)
75+81.83	7	GRANT STREET	-	75+81.83	5/14	FITTING	20" PWL	1-17#
80+83±	8	GRANT STREET	-	80+83±	5/14	FITTING	20" PWL	1-17#
81+23±	8	GRANT STREET	-	81+23±	5/14	FITTING	20" PWL	1-17#
81+63±	8	GRANT STREET	-	81+63±	5/14	FITTING	20" PWL	1-17#
82+20.71 82+44± 82+47±	10 10 10	GRANT STREET GRANT STREET GRANT STREET	ATS	82+20.71	2/14	GV FITTING FITTING	20" PWL 20" PWL 20" PWL	1-32#
82+58.19	10	UPRR	-	82+58.19	5/14	FITTING	20" PWL	1-17#
82+63.19	10	UPRR	CATS	EDGE OF ROW	1/14	CASING	36" CASING	4-32#
83+78.02	10	UPRR	CATS	EDGE OF ROW	1/14	CASING	36" CASING	4-32#
83+78.06	10	UPRR	-	83+78.06	5/14	FITTING	20" PWL	1-17#
83+85.97	10	UPRR	-	83+85.97	5/14	FITTING	20" PWL	1-17#
83+85.97	10	UPRR	-	83+85.97	3/15	ARV	2" PWL	1-5#
83+95± 84+03.55	10 10	UPRR UPRR	ATS	84+03	2/14	FITTING BV	20" PWL 20" PWL	1-32#
88+80.24 88+84.27	8 8	GRANT STREET GRANT STREET	-	88+81	4/14	FITTING FITTING	20" PWL 20" PWL	1-32#
88+96.59	8	GRANT STREET	-	88+96.59	5/14	FITTING	20" PWL	1-17#

**CORROSION CONTROL GENERAL NOTES**

- THE PIPELINES WHICH ARE THE SUBJECT OF THIS CATHODIC PROTECTION SYSTEM ARE THE DUCTILE IRON FITTINGS ON THE 20" PWL WATER PIPELINES AND THE 12" NPWL WATER PIPELINES, AND ASSOCIATED COPPER PIPING OF THE BLOW OFFS, ARV'S, AND WATER SERVICE PIPING & THE STEEL CASINGS OF THE NON-POTABLE & POTABLE WATER DISTRIBUTION SYSTEM, PHASE III, GRANT STREET IMPROVEMENTS PROJECT. ALL FERROUS METAL PIPE & FITTINGS SHALL BE WRAPPED WITH 8-MIL POLYETHYLENE IN ACCORDANCE WITH AWWA C-105. ALL NUTS & BOLTS ON THE BURIED FERROUS PIPING SHALL BE COATED WITH BITUMASTIC PRIOR TO ENCASEMENT AND BACKFILL. ALL BURIED COPPER PIPE SHALL BE INSTALLED IN MINIMUM 6 MIL THICK POLYETHYLENE SLEEVING, AND SHALL BE ISOLATED FROM DUCTILE IRON PIPING BY MEANS OF AN INSULATING CORPORATION STOP OR INSULATING UNION. THE STEEL CASINGS SHALL BE COATED WITH AN ABRASION RESISTANT COATING.
- CATHODIC PROTECTION FOR THE DUCTILE IRON FITTINGS, THE COPPER PIPING, AND THE STEEL CASINGS SHALL CONSIST OF H-1 ALLOY MAGNESIUM ANODES. THE ANODES SHALL BE INSTALLED ON ALL BURIED METALLIC FITTINGS. THE ANODE SIZE & QUANTITY FOR THE DUCTILE IRON VALVES & FITTINGS, THE STEEL CASINGS, AND COPPER SERVICES ARE INDICATED IN TABLES 1 & 2, "TEST STATIONS &/OR PREPACKAGED MAGNESIUM ANODE(S)" TABLES ON SHEET 13.
- ALL BURIED, NON-WELDED, NON-INSULATING JOINTS SHALL BE BONDED WITH ONE, #8 AWG/HMWPE INSULATED COPPER CABLES FOR ELECTRICAL CONTINUITY OF THE DUCTILE IRON FITTINGS.
- TEST STATIONS ARE REQUIRED FOR ANODE LOCATIONS ON ALL PIPES & FITTINGS. HOWEVER TEST STATIONS ARE NOT REQUIRED ON ISOLATED ELBOWS, AND ANODES SHALL BE CONNECTED DIRECTLY TO THESE FITTINGS AS INDICATED IN TABLES 1 & 2 ON SHEET 13 AND SHOWN IN THE FOLLOWING DETAILS.
- ANY DUCTILE IRON FITTING NOT SHOWN ON THE CIVIL PLANS SHALL BE PROTECTED ACCORDING TO DETAIL 5 ON SHEET 14 WITH AN ANODE SIZED AS INDICATED IN THE ANODE SCHEDULE SHOWN ON SHEET 13. ANY MECHANICAL RESTRAINT HARNESSES ON PVC-TO-PVC PIPE JOINTS SHALL BE CATHODICALLY PROTECTED ACCORDING TO DETAIL 2 ON SHEET 15. IF OFFSETS ARE CONTINUOUS DUCTILE IRON PIPE, PROTECT THEM ACCORDING TO DETAIL 5 ON SHEET 17.
- ANY NEW SERVICE PIPING THAT IS NOT SHOWN ON THE PLAN SHEETS SHALL BE PROTECTED ACCORDING TO DETAILS 3 THROUGH 5 ON SHEET 15.
- ALL ANODES INSTALLED SHALL BE DOCUMENTED AND REPORT PROVIDED TO THE ENGINEER.
- ALL METALLIC PIPE AND FITTINGS SHALL BE ELECTRICALLY ISOLATED FROM REBAR, GROUNDING WIRES, TRACER WIRE, FOREIGN PIPELINES, EXISTING PIPELINES, AND OTHER METALLIC STRUCTURES. INSTALL INSULATING FLANGES OR INSULATING UNIONS ON RISERS TO ISOLATE BELOW GRADE PIPE FROM ABOVE GRADE STRUCTURES.
- AFTER COMPLETION THE SYSTEM SHALL BE TESTED BY A PROJECT CORROSION ENGINEER (JDH CORROSION CONSULTANT, INC. (925)927-6630).



**TABLE 3: PREPACKAGED MAGNESIUM ANODE SCHEDULE FOR FITTINGS NOT SHOWN IN CIVIL PLANS**

PIPE FITTING	NO. OF FITTINGS	ANODE SIZE
2"-8" VALVE, TEE, ELBOW, REDUCER OR MRJ	1	5-LBS
2"-8" VALVE, TEE, ELBOW, REDUCER OR MRJ	2-3	9-LBS
2"-8" VALVE, TEE, ELBOW, REDUCER OR MRJ	4-6	17-LBS
10"-12" VALVE, TEE, ELBOW, REDUCER OR MRJ	1	9-LBS
10"-12" VALVE, TEE, ELBOW, REDUCER OR MRJ	2-3	17-LBS
10"-12" VALVE, TEE, ELBOW, REDUCER OR MRJ	4-6	32-LBS
16"-24" VALVE, TEE, ELBOW, REDUCER OR MRJ	1	17-LBS
16"-24" VALVE, TEE, ELBOW, REDUCER OR MRJ	2-3	32-LBS
16"-24" VALVE, TEE, ELBOW, REDUCER OR MRJ	4-6	48-LBS
F.H. PLUS TEE & 6"-8" VALVE	(COMBINATION)	17-LBS
F.H. PLUS TEE & 10"-12" VALVE	(COMBINATION)	32-LBS
8"-12" OFFSET	PER 100 FT	(TWO) 17-LB
16"-24" OFFSET	PER 100 FT	(TWO) 32-LB
1"-2" COPPER WATER SERVICE, BFP, OR ARV	1	5-LBS
1"-2" COPPER BLOW OFF	1	(TWO) 5-LBS

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(925)927-6630, FAX (925)927-6634

NO.	REVISIONS	BY	APP	DATE

DESIGNED UNDER THE DIRECTION OF:	
<i>Muhammad Ali</i>	DATE
ENGINEER'S NAME	DATE
R.C.R.E. No. 1035 REGISTRATION EXPIRES 06-30-17	
DESIGN: TH	DATE: APRIL 2016
DRAWN: TH	DATE: APRIL 2016
CHECKED: MA	DATE: APRIL 2016

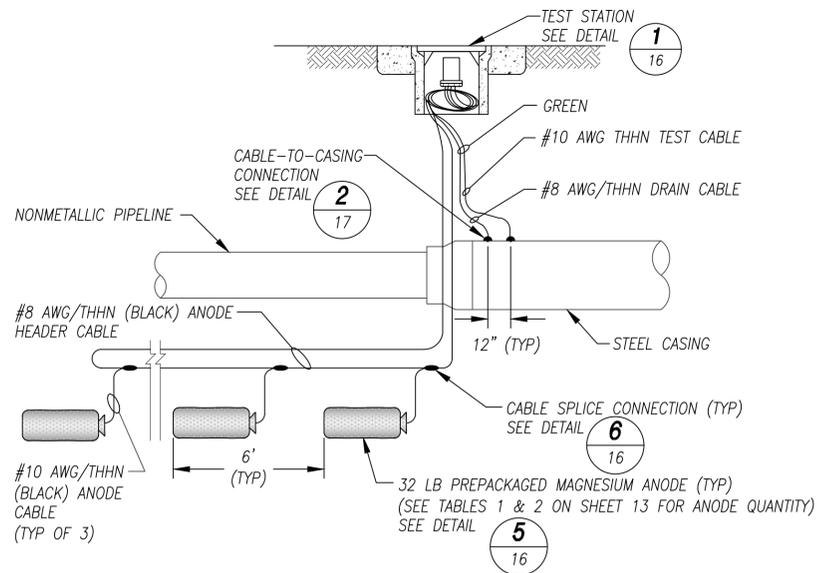


**IMPROVEMENT PLAN NON-POTABLE WATER DISTRIBUTION SYSTEM - PHASE III**

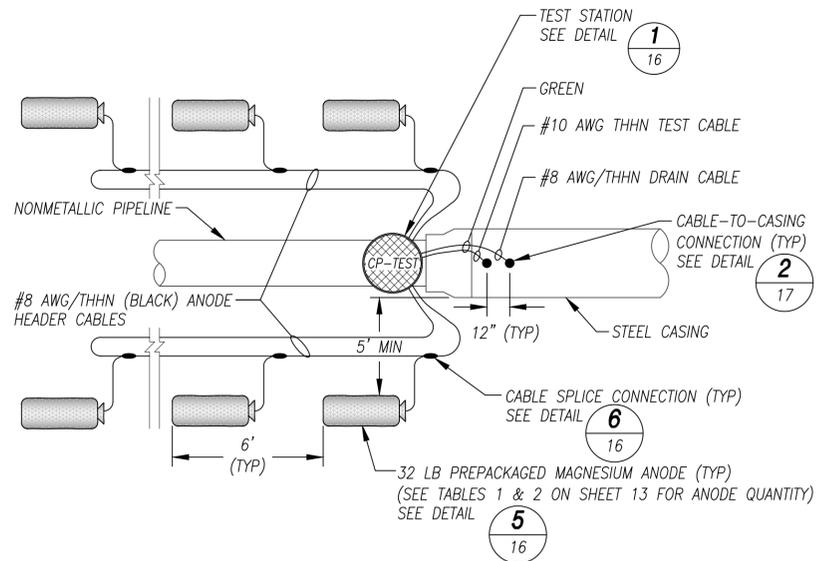
**CATHODIC PROTECTION SCHEDULES & NOTES**

**CIP 592-59170**

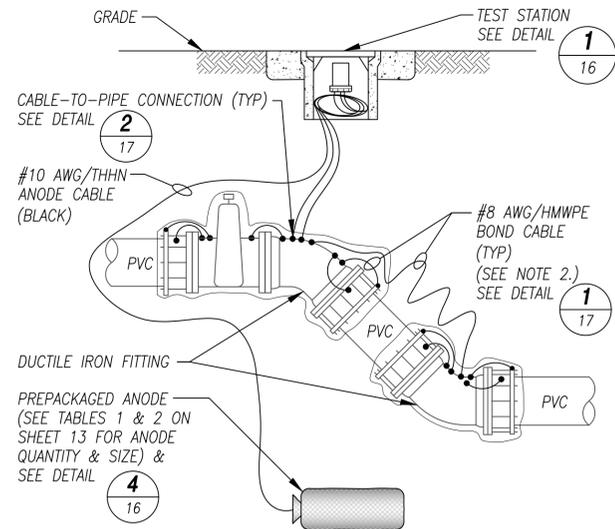
**BRENTWOOD CONTRA COSTA COUNTY CALIFORNIA**



**PROFILE: ANODE INSTALLATION ON ONE SIDE OF CASING ONLY**



**PLAN: ANODE INSTALLATION ON BOTH SIDES OF CASINGS**

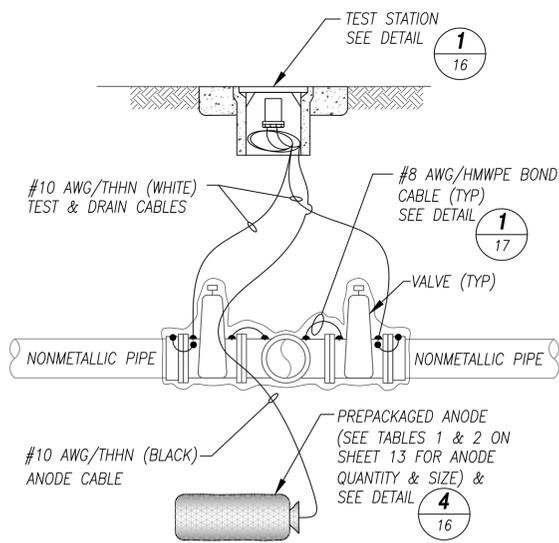


- NOTES:
1. THE ANODES SHALL BE INSTALLED A MINIMUM OF 5 FEET OFF THE EDGE OF THE CASING. INSTALL ANODE FOR ANY ARV OR FITTING ON THE OPPOSITE SIDE OF THE PIPE.
  2. INSTALL CATS AT EACH END OF CASING.
  3. LOOP BACK ANODE HEADER CABLE TO TEST STATION.
  4. CONDUIT OMITTED FOR CLARITY. INSTALL ANODE HEADER CABLES AND TEST CABLES IN 1" Ø PVC CONDUIT.
  5. CASING SHALL BE COATED WITH AN ABRASION RESISTANT COATING.

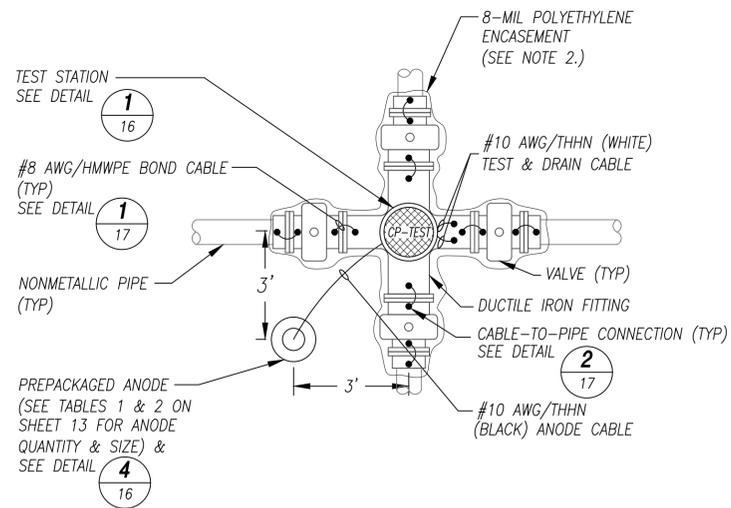
- NOTES:
1. THIS DETAIL IS TYPICAL OF VALVES WITH TEES, ELBOWS, REDUCERS & OTHER FITTINGS.
  2. THE LENGTH OF THE BOND CABLES BETWEEN FITTINGS SHALL BE OF SUFFICIENT LENGTH TO ALLOW FOR ANY SOIL CONTRACTION OR PIPE MOVEMENT.
  3. COAT ALL NUTS AND BOLTS WITH BITUMASTIC AND ENCASE ALL DUCTILE IRON PIPE AND FITTINGS IN POLYETHYLENE PER CATHODIC PROTECTION GENERAL NOTE 1. ON SHEET 13.

**1 CATS - CASING ANODE TEST STATION W/ANODES**  
14 NOT TO SCALE

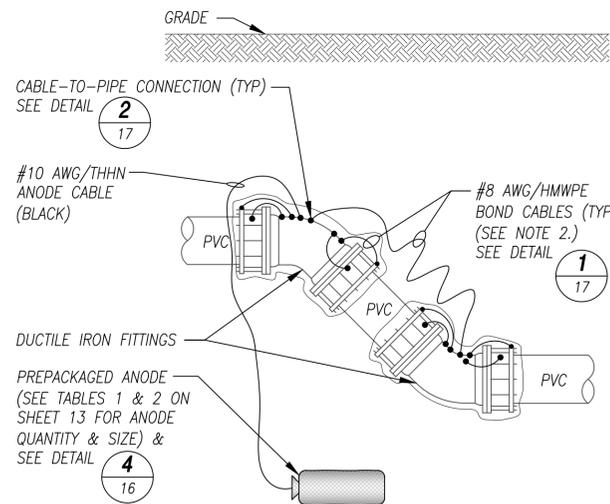
**2 VALVE & FITTINGS - ANODE & TEST STATION**  
14 NOT TO SCALE



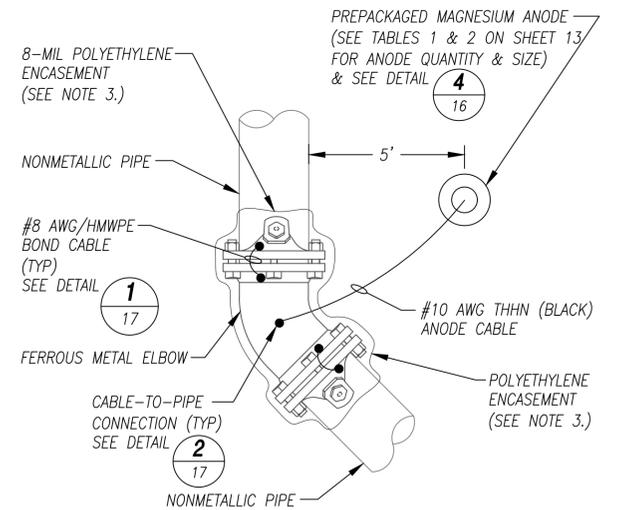
**ELEVATION VIEW**



**PLAN VIEW**



- NOTES:
1. THIS DETAIL IS TYPICAL OF TEES, ELBOWS, REDUCERS & OTHER FITTINGS.
  2. THE LENGTH OF THE BOND CABLES BETWEEN FITTINGS SHALL BE OF SUFFICIENT LENGTH TO ALLOW FOR ANY SOIL CONTRACTION OR PIPE MOVEMENT.
  3. NO TEST STATION IS REQUIRED FOR THESE FITTINGS (UNLESS A VALVE IS INCLUDED), HOWEVER A RECORD OF ALL INSTALLATIONS SHALL BE PROVIDED TO THE PROJECT ENGINEER.
  4. COAT ALL NUTS AND BOLTS WITH BITUMASTIC AND ENCASE ALL DUCTILE IRON PIPE AND FITTINGS IN POLYETHYLENE PER CATHODIC PROTECTION GENERAL NOTE 1. ON SHEET 13.
  5. IF THIS DETAIL IS COMBINED WITH ANOTHER DETAIL INVOLVING AN ANODE TEST STATION DETAIL, DO NOT CONNECT ANODE DIRECTLY TO FITTING. INSTALL ANODE AS SHOWN IN THE ANODE TEST STATION DETAIL.



- NOTES:
1. THIS DETAIL IS TYPICAL OF ELBOWS, REDUCERS & OTHER ISOLATED FITTINGS.
  2. NO TEST STATION IS REQUIRED FOR THESE FITTINGS, HOWEVER A RECORD OF ALL INSTALLATIONS SHALL BE PROVIDED TO THE PROJECT ENGINEER.
  3. COAT ALL BURIED BOLTS & NUTS WITH BITUMASTIC, AND ENCASE ALL DUCTILE IRON PIPE AND FITTINGS IN POLYETHYLENE PER CATHODIC PROTECTION GENERAL NOTE 1. ON SHEET 13.

**3 ATS - VALVE ANODE & TEST STATION - CROSS/TEE/WYE**  
14 NOT TO SCALE

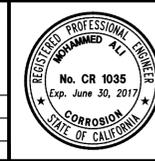
**4 MULTIPLE FITTINGS - ANODE INSTALLATION**  
14 NOT TO SCALE

**5 FITTING - ANODE INSTALLATION**  
14 NOT TO SCALE



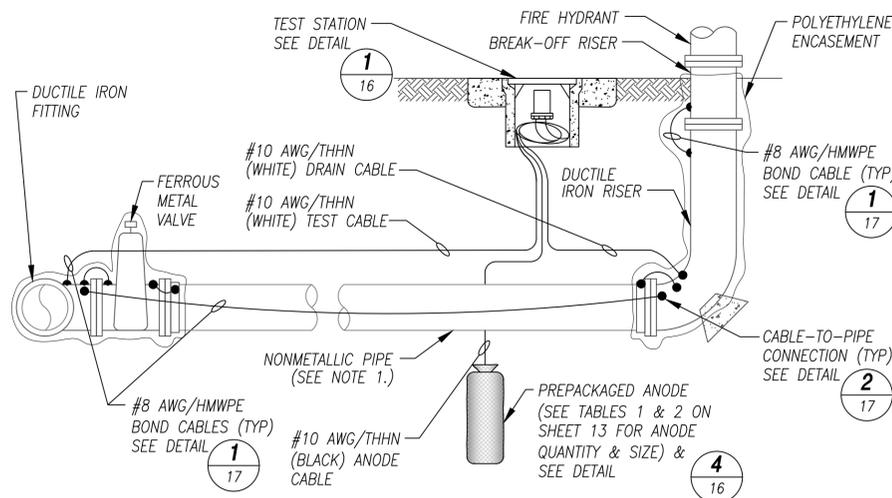
NO.	REVISIONS	BY	APP	DATE

DESIGNED UNDER THE DIRECTION OF:	
<i>Muhammad Ali</i>	DATE
ENGINEER'S NAME	DATE
R.C.R.E. No. 1035 REGISTRATION EXPIRES 06-30-17	
DESIGN: TH	DATE: APRIL 2016
DRAWN: TH	DATE: APRIL 2016
CHECKED: MA	DATE: APRIL 2016

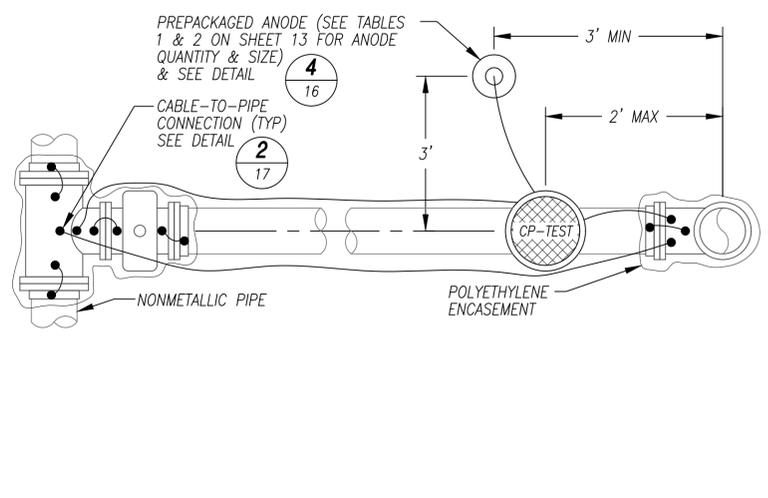


<b>IMPROVEMENT PLAN</b>	<b>NON-POTABLE WATER</b>	<b>GRANT STREET</b>	SHEET <b>14</b> 14 OF 17 SHEETS
	<b>DISTRIBUTION SYSTEM - PHASE III</b>		
	<b>CATHODIC PROTECTION DETAILS I</b>		
<b>BRENTWOOD</b>	<b>CONTRA COSTA COUNTY</b>	<b>CALIFORNIA</b>	

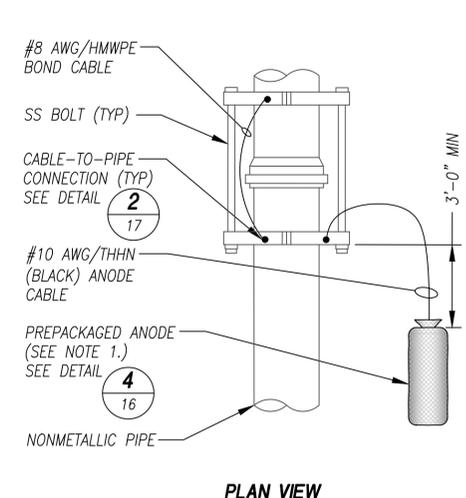
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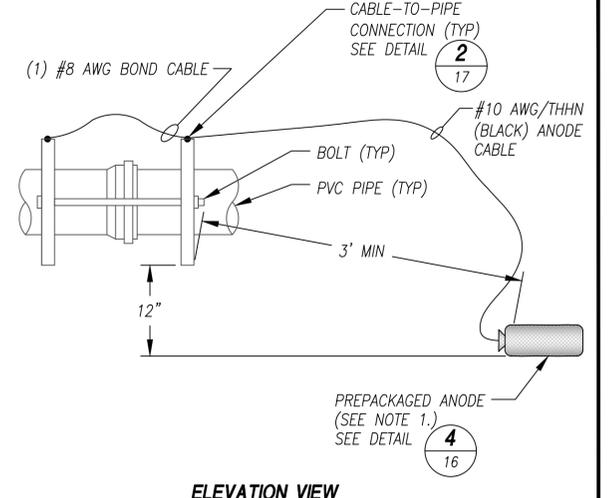
**ELEVATION VIEW**



**PLAN VIEW**



**PLAN VIEW**



**ELEVATION VIEW**

- NOTES:
- INSTALL ADDITIONAL BOND CABLES FOR ANY ADDITIONAL FITTINGS OR MECHANICAL RESTRAINT JOINTS.
  - COAT ALL NUTS AND BOLTS WITH BITUMASTIC AND ENCASE ALL DUCTILE IRON PIPE AND FITTINGS IN POLYETHYLENE PER CATHODIC PROTECTION GENERAL NOTE 1. ON SHEET 13.

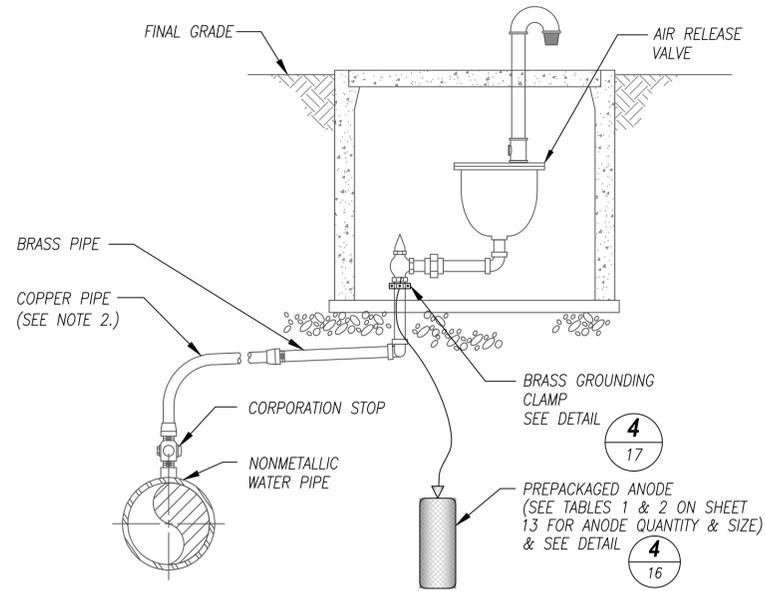
**1 ATS - FIRE HYDRANT - ANODE & TEST STATION**

15 NOT TO SCALE

- NOTES:
- INSTALL 5 POUND ANODE FOR UP TO 8-INCH PIPE; INSTALL 9 POUND ANODE FOR PIPE LARGER THAN 8-INCHES. INSTALL THE ANODE 1'-0" BELOW BOTTOM OF TRENCH IN 1 FOOT OF NATIVE BACKFILL. ATTACH ANODE CABLE DIRECTLY TO THRUST RESTRAINT FITTING.
  - NO TEST STATION IS REQUIRED FOR THESE FITTINGS, HOWEVER A RECORD OF ALL INSTALLATIONS SHALL BE PROVIDED TO THE PROJECT ENGINEER.
  - COAT ALL NUTS AND BOLTS WITH BITUMASTIC AND ENCASE ALL DUCTILE IRON PIPE AND FITTINGS IN POLYETHYLENE PER CATHODIC PROTECTION GENERAL NOTE 1. ON SHEET 13.

**2 MECHANICALLY RESTRAINED JOINT-ANODE INSTALLATION**

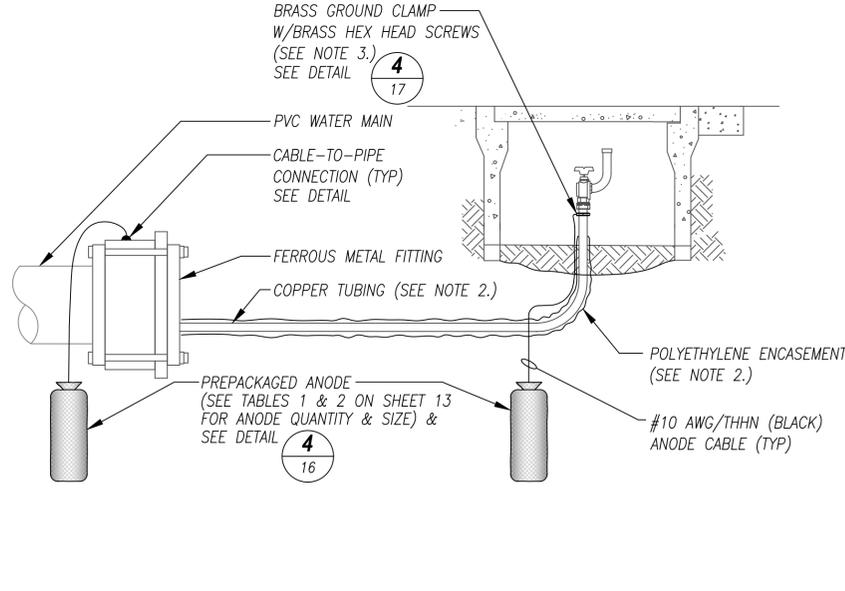
15 NOT TO SCALE



- NOTES:
- THIS DETAIL IS TYPICAL FOR IN-LINE BLOW OFF VALVES.
  - ENCASE ALL BURIED COPPER TUBE/BRASS PIPE IN 6 MIL THICK POLYETHYLENE SLEEVING PER CATHODIC PROTECTION GENERAL NOTE 1 ON SHEET 13.
  - DO NOT BURY BRASS GROUND CLAMP.

**3 ARV - ANODE INSTALLATION**

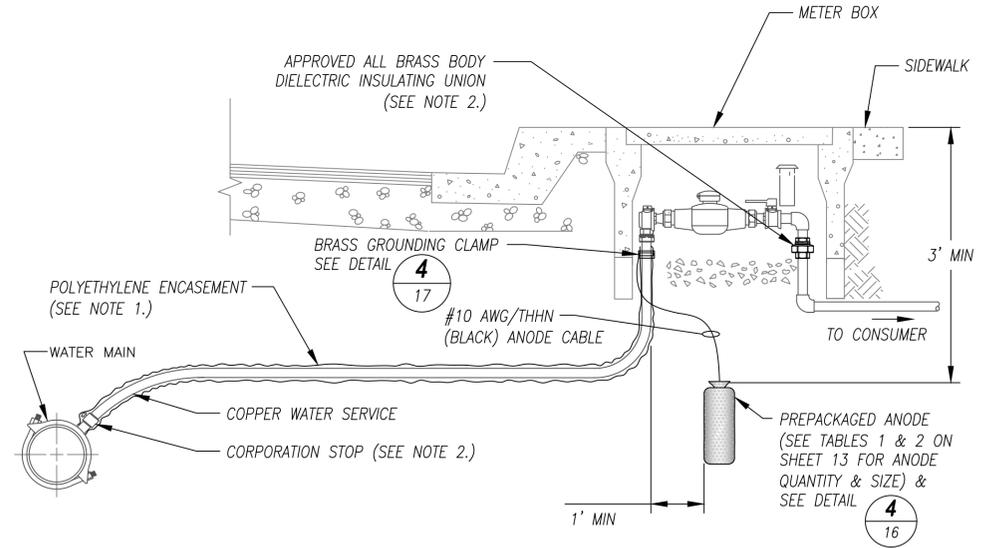
15 NOT TO SCALE



- NOTES:
- A MINIMUM CLEARANCE OF 2 FEET SHALL BE MAINTAINED BETWEEN THE ANODE AND THE COPPER LATERAL. TOP OF THE ANODE SHALL BE 5 FEET MINIMUM FROM THE GROUND SURFACE.
  - COAT ALL BURIED BOLTS & NUTS WITH BITUMASTIC AND ENCASE ALL DUCTILE IRON PIPE AND FITTINGS IN POLYETHYLENE, AND ENCASE ALL COPPER PIPE IN POLYETHYLENE SLEEVING PER CATHODIC PROTECTION GENERAL NOTE 1 ON SHEET 13.
  - DO NOT BURY BRASS GROUND CLAMP.

**4 BLOW OFF - ANODE INSTALLATION**

15 NOT TO SCALE



- NOTES:
- ENCASE THE COPPER PIPE IN MINIMUM 6 MIL POLYETHYLENE SLEEVING PER CATHODIC PROTECTION GENERAL NOTE 1. ON SHEET 13.
  - PROVIDE ELECTRIC ISOLATION OF COPPER PIPE FROM DUCTILE IRON OR STEEL PIPING BY UTILIZING AN INSULATING JOINT. INSTALL INSULATING CORPORATION STOP OR SERVICE INSULATOR BETWEEN COPPER WATER SERVICE AND WATER MAIN. THE INSULATING UNION SHOWN SHALL BE INSTALLED ONLY IF SERVICE LINE FROM BEYOND THE METER TO BUILDING IS METALLIC. IF THE SERVICE LINE FROM THE METER TO THE BUILDING IS COPPER, ALSO INSTALL AN INSULATING UNION ON THE ABOVE GRADE RISER.
  - USE BRASS GROUNDING CLAMP TO ATTACH ANODE WIRE TO PIPE. THE GROUND CLAMP SHALL BE READILY ACCESSIBLE IN THE METER BOX. DO NOT BURY GROUND CLAMP.

**5 ANODE INSTALLATION ON COPPER WATER SERVICE**

15 NOT TO SCALE



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1100 Willow Pass Court, Concord, CA 94520

(925)927-6630, FAX (925)927-6634

NO.	REVISIONS	BY	APP	DATE

DESIGNED UNDER THE DIRECTION OF:

*Muhammad Ali*

ENGINEER'S NAME: *Muhammad Ali* DATE: \_\_\_\_\_  
R.C.R.E. No. 1035 REGISTRATION EXPIRES 06-30-17

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DRAWN: TH DATE: APRIL 2016  
CHECKED: MA DATE: APRIL 2016



**IMPROVEMENT PLAN NON-POTABLE WATER GRANT STREET**

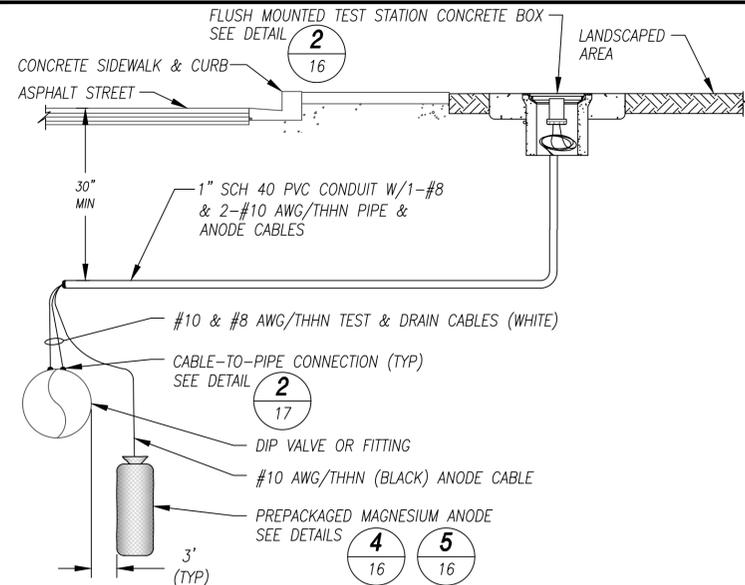
**DISTRIBUTION SYSTEM - PHASE III**

**CATHODIC PROTECTION DETAILS II**

**CIP 592-59170**

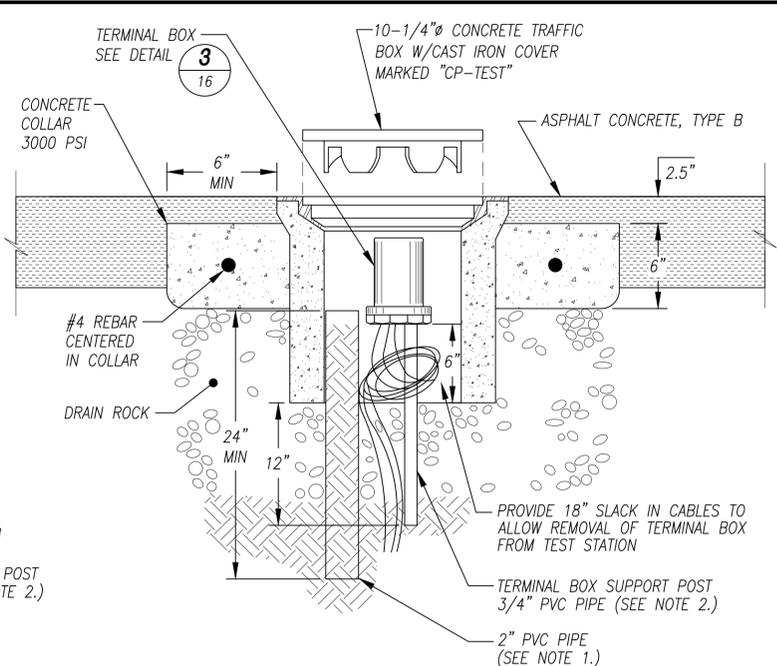
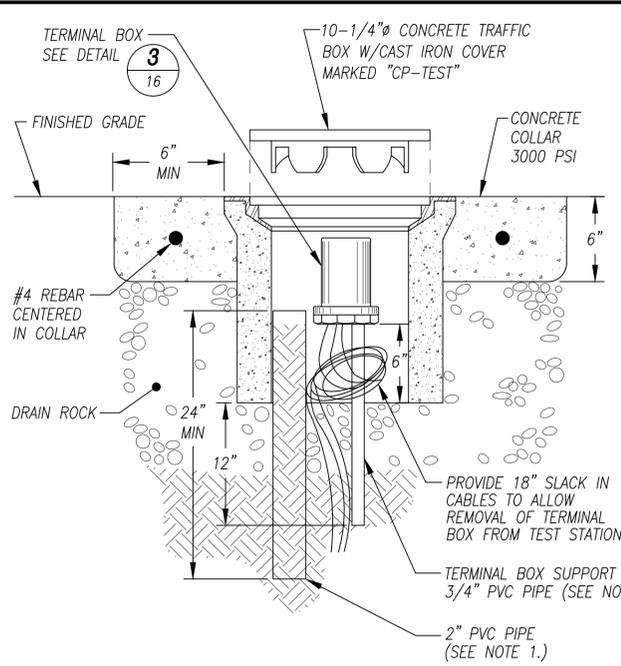
**BRENTWOOD CONTRA COSTA COUNTY CALIFORNIA**

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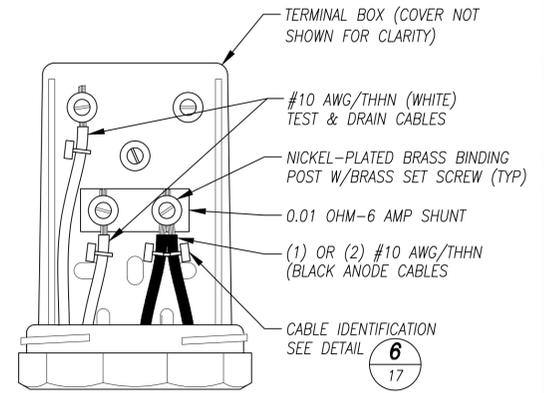
- NOTES:
- CONCRETE COLLAR IS REQUIRED FOR TEST STATIONS PLACED IN ROADWAYS AND UNPAVED AREAS.
  - INSTALL TEST STATION IN LANDSCAPED STRIP BETWEEN CURB AND SIDEWALK OR OTHER NON-TRAFFIC AREAS, ACCESSIBLE FOR FUTURE TESTING. PROVIDE A CONCRETE COLLAR AND SET COLLAR 2 INCHES ABOVE GRADE. WHERE DIRECTED BY THE CITY ENGINEER TO INSTALL THE TEST STATION IN PAVED OR CONCRETE AREA, SET COLLAR LEVEL FLUSH WITH FINISH GRADE.
  - INSTALL FIRE HYDRANT ANODE TEST STATION NEXT TO FIRE HYDRANT CONCRETE PAD.
  - DO NOT INSTALL TEST STATIONS IN DRIVEWAYS.
  - TEST STATIONS MAY BE OMITTED AT THE DISCRETION OF THE CITY ENGINEER. IF THE TEST STATION IS OMITTED, CONNECT ANODE DIRECTLY TO THE FITTING PER DETAIL 4/14 OR 5/14.

**1 TEST STATION INSTALLATION**  
16 NOT TO SCALE

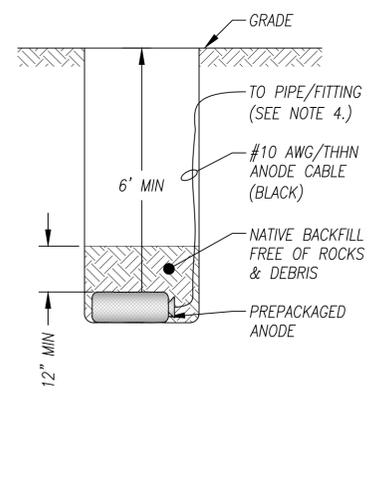
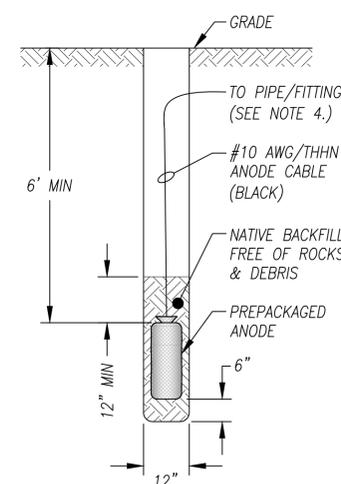


- NOTES:
- INSTALL 2" PVC PIPE IN CLEAN NATIVE SOIL. FILL PIPE WITH CLEAN SOIL, FREE FROM ROCKS & DEBRIS.
  - INSTALL 18" LENGTH OF 3/4" PVC PIPE TO ENSURE THAT THE TERMINAL BOX WILL REMAIN IN THE UPRIGHT POSITION. POSITION THE PIPE SO THAT THE TERMINAL BOX WILL BE AS HIGH AS POSSIBLE WITH THE CAST IRON LID STILL CLOSING PROPERLY.

**2 FLUSH MOUNTED TEST STATION CONCRETE BOX**  
16 NOT TO SCALE

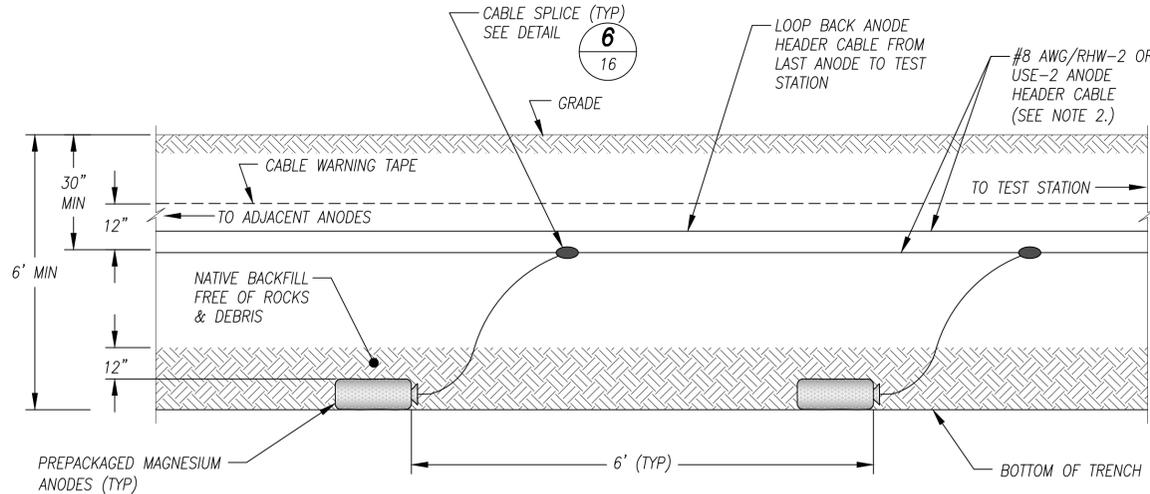


**3 TERMINAL BOX**  
16 NOT TO SCALE



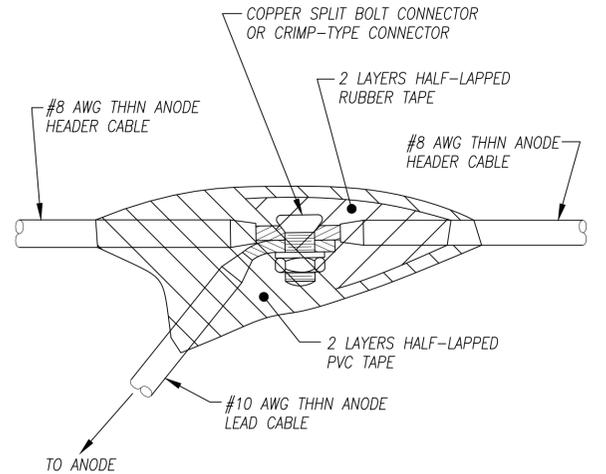
- NOTES:
- INSTALL ANODES 3 FT. OFF THE PIPE/FITTING IN NATIVE SOIL.
  - THE ANODES MAY BE INSTALLED HORIZONTALLY OR VERTICALLY UPON DISCRETION OF THE CONTRACTOR.
  - MAINTAIN A MIN. DISTANCE OF 10 FT BETWEEN ANODES IF MULTIPLE ANODES ARE INSTALLED.
  - CONNECT ANODE CABLE TO TEST STATION OR DIRECTLY TO PIPE OR FITTING AS SHOWN IN THE DRAWINGS.

**4 PROFILE - ANODE INSTALLATION**  
16 NOT TO SCALE



- NOTES:
- INSTALL ANODES PARALLEL TO THE PIPELINE AND 5 FEET OFF THE CASING.
  - ROUTE ANODE HEADER CABLES ALONG WITH TEST & DRAIN CABLES IN PVC CONDUIT TO TEST STATION.

**5 PROFILE - HORIZONTAL MULTIPLE ANODE INSTALLATION**  
16 NOT TO SCALE



**6 SPLICE CONNECTION**  
16 NOT TO SCALE

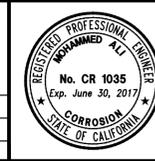
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**THE CITY OF BRENTWOOD**  
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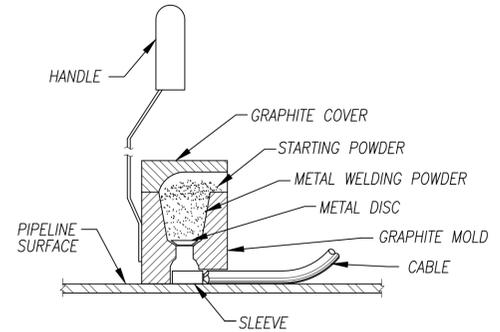
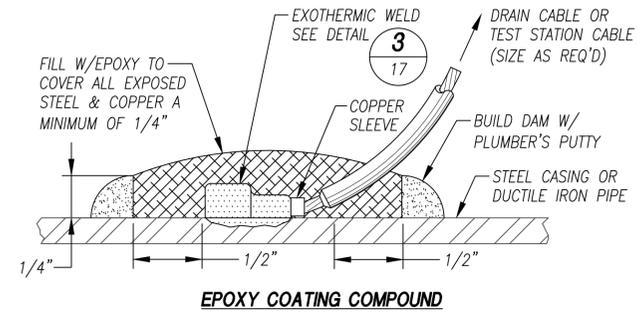
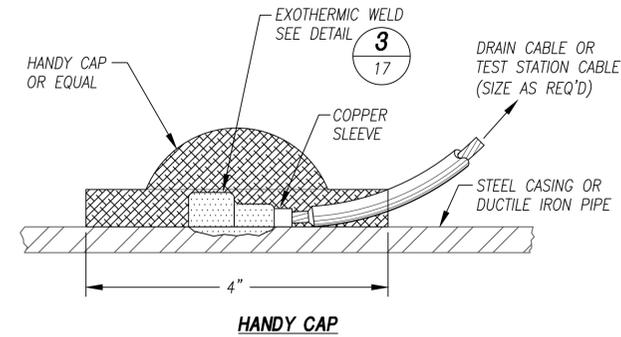
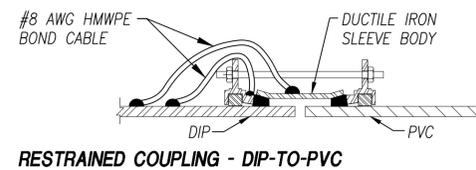
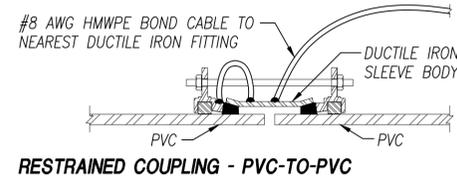
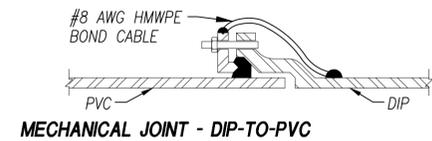
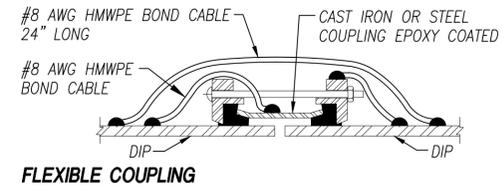
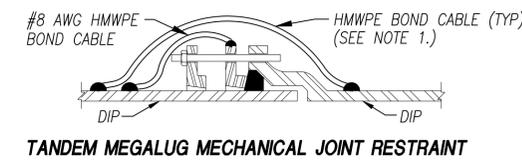
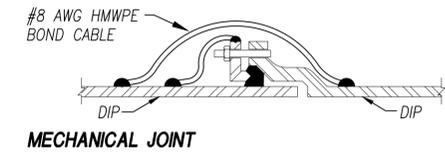
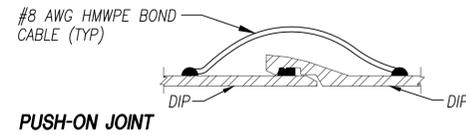
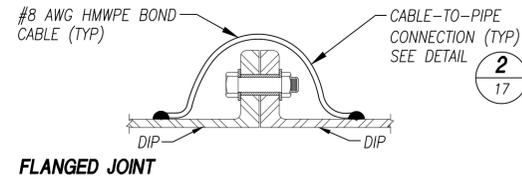
**jdH corrosion**  
consultants, inc.  
1100 Willow Pass Court, Concord, CA 94520  
(925)927-6630, FAX (925)927-6634

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ENGINEER'S NAME: *Muhammad Ali* DATE:   
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IMPROVEMENT PLAN **NON-POTABLE WATER DISTRIBUTION SYSTEM - PHASE III**  
**CATHODIC PROTECTION DETAILS III**  
CIP 592-59170  
BRENTWOOD CONTRA COSTA COUNTY CALIFORNIA



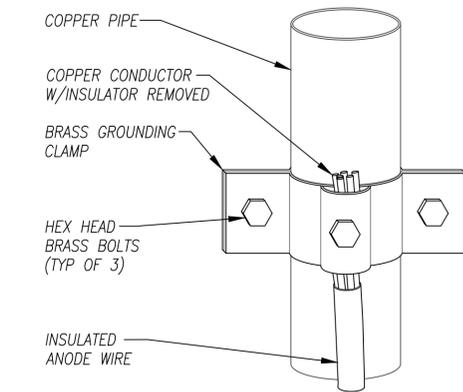
- STEP 1.** FILE STRUCTURE CONNECTION AREA TO BARE SHINY METAL AND CLEAN.
- STEP 2.** STRIP INSULATION FROM WIRE. ATTACH SLEEVE REQUIRED ON #6 AWG WIRE OR SMALLER
- STEP 3.** HOLD MOLD FIRMLY WITH OPENING AWAY FROM OPERATOR AND IGNITE WITH FLINT GUN.
- STEP 4.** REMOVE SLAG FROM CONNECTION AND PEEN WELD FOR SOUNDNESS.
- STEP 5.** COVER CONNECTION AND EXPOSED STRUCTURE SURFACE EPOXY COATING COMPOUND OR WITH A ROYSTON HANDY CAP OR EQUAL PER DETAIL 2 ON SHEET 17.

NOTE: PROCEDURE SHOWN ABOVE IS TO BE USED AS A GENERAL GUIDE ONLY. CONSULT MANUFACTURER'S LITERATURE FOR SPECIFIC INSTALLATION INSTRUCTIONS.

**1 BONDING FOR DUCTILE IRON FITTINGS**  
17 NOT TO SCALE

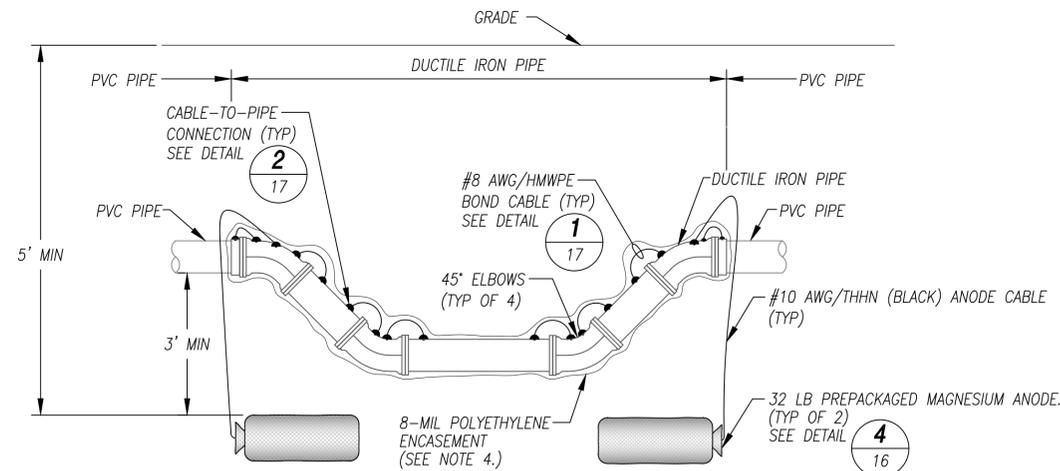
**2 CABLE-TO-PIPE CONNECTION**  
17 NOT TO SCALE

**3 EXOTHERMIC WELD**  
17 NOT TO SCALE



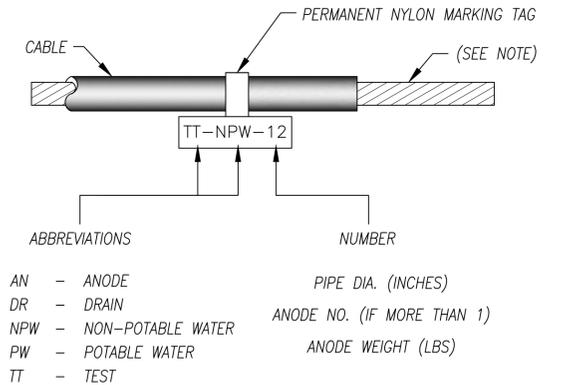
- NOTES:
- STRIP WIRE INSULATION AT THE GROUNDING CLAMP TO ENSURE ELECTRICAL CONTINUITY.
  - ALL BOLTS SHALL BE BRASS WITH HEX HEADS.

**4 GROUNDING CLAMP CONNECTION**  
17 NOT TO SCALE



- NOTES:
- THIS DETAIL MAY BE USED FOR ALL UNDERGROUND SECTIONS OF CONTINUOUS DUCTILE IRON PIPE INCLUDING CROSSING UNDER OR OVER A PIPE, BRIDGE AND SHORT RUNS OF DUCTILE IRON PIPE. IN ALL CASES A MINIMUM OF ONE ANODE SHALL BE INSTALLED ON EACH END OF A DUCTILE IRON PIPE SEGMENT.
  - THE ANODE SHALL BE INSTALLED VERTICALLY OR HORIZONTALLY WITH THE TOP OF THE ANODE A MINIMUM OF 5 FT. BELOW GRADE AND 3 FT. BELOW PIPE.
  - THE BOND CABLES ARE REQUIRED TO MAKE THE DUCTILE IRON PIPE SEGMENT ELECTRICALLY CONTINUOUS FROM END TO END.
  - COAT ALL NUTS AND BOLTS WITH BITUMASTIC AND ENCASE ALL DUCTILE IRON PIPE AND FITTINGS IN POLYETHYLENE PER CATHODIC PROTECTION GENERAL NOTE 1. ON SHEET 13.

**5 DUCTILE IRON OFFSET - ANODE INSTALLATION**  
17 NOT TO SCALE  
LOWERING, RAISING, CROSSING & STRAIGHT RUNS



- EXAMPLES:**
- TEST CABLE ON 20" POTABLE WATER LINE → TT-PW-20
  - DRAIN CABLE ON 12" NON-POTABLE WATER LINE → DR-NPW-12
  - CABLE OF ONE 32 POUND ANODE → AN-32
  - CABLE OF SECOND 32 POUND ANODE → AN-2-32

NOTE: REMOVE INSULATION PRIOR TO FASTENING CABLE WITH SET SCREW OF THE TERMINAL BOX'S BINDING POSTS.

**6 CABLE IDENTIFICATION**  
17 NOT TO SCALE



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ENGINEER'S NAME: Muhammad Ali DATE: APRIL 2016

R.C.R.E. No. 1035 REGISTRATION EXPIRES 06-30-17

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IMPROVEMENT PLAN **NON-POTABLE WATER** GRANT STREET

**DISTRIBUTION SYSTEM - PHASE III**

**CATHODIC PROTECTION DETAILS IV**

**CIP 592-59170**

BRENTWOOD CONTRA COSTA COUNTY CALIFORNIA

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