



CITY OF ANTIOCH

CONSTRUCTION

DETAILS

Updated October 9, 2023

Also available on our website:

<https://www.antiochca.gov/fc/public-works/engineering/Construction-Details.pdf>

CONSTRUCTION DETAILS
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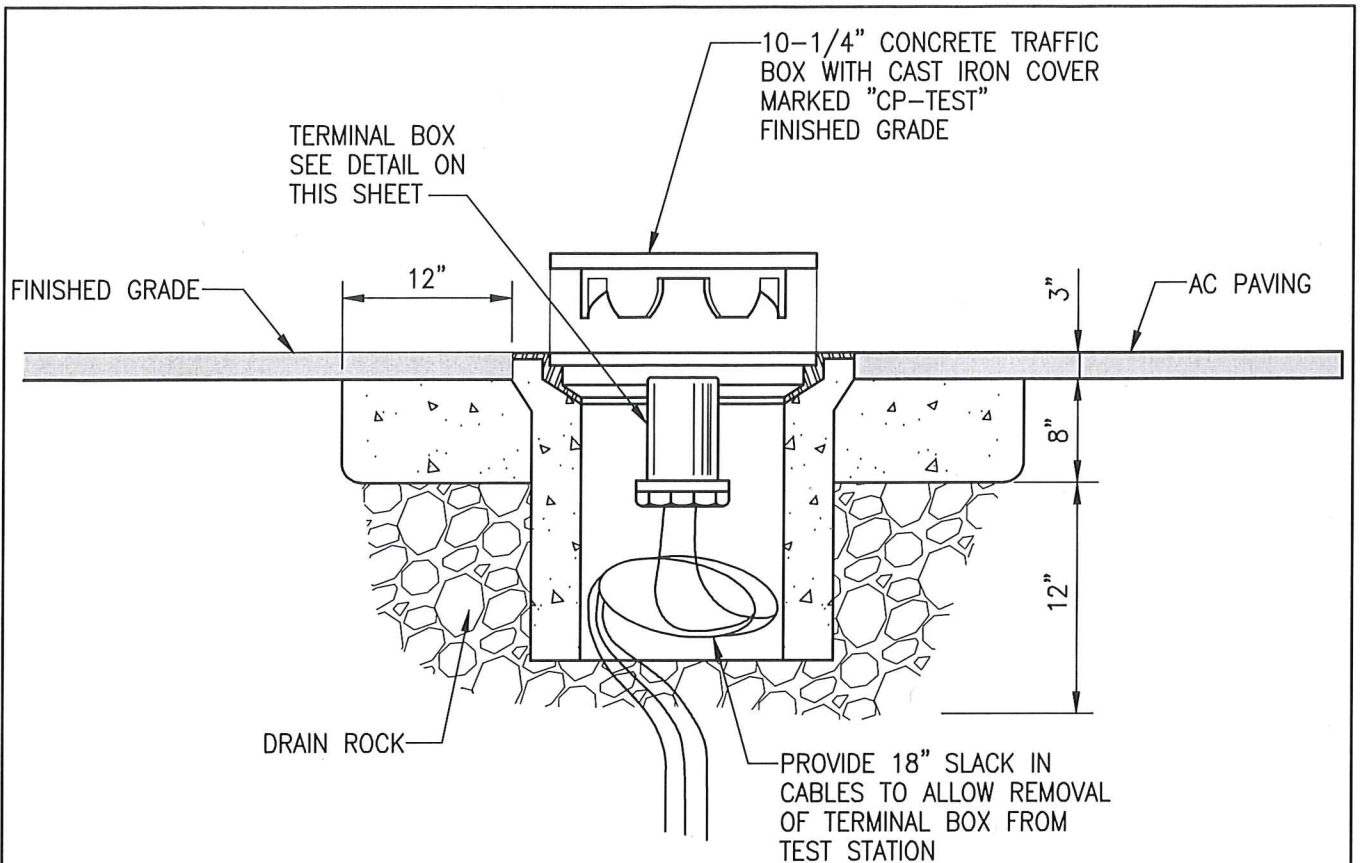
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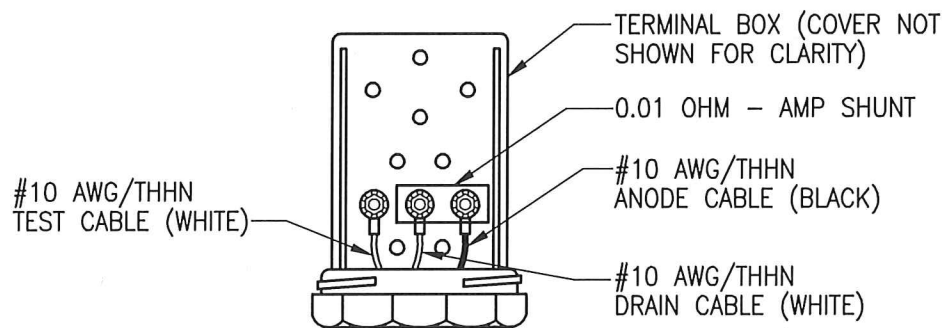
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TEST STATION



NOTE:

IDENTIFY CABLES PER DETAIL ON CP-02

ATS TERMINAL BOX



CITY OF ANTIOCH
DEPARTMENT OF PUBLIC WORKS – ENGINEERING SERVICES

DRAWN BY: S. Rodriguez

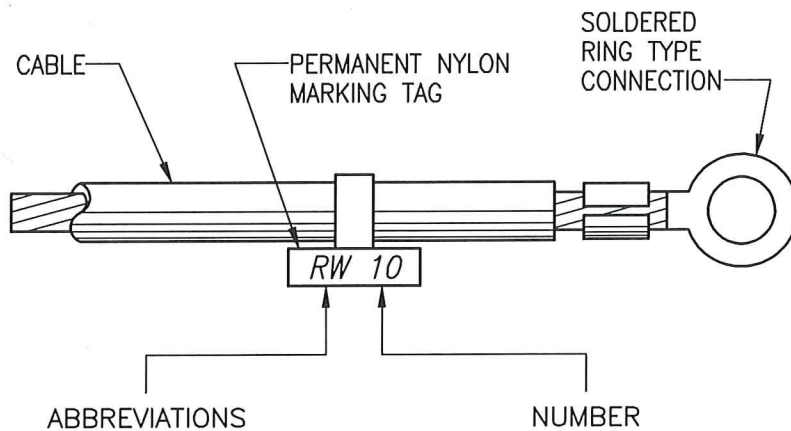
REVISIONS:

**CATHODIC PROTECTION
TEST STATION AND TERMINAL BOX**

CP-01

APPROVED BY:
Ron Bernal
RON BERNAL, P.E.
CITY ENGINEER

DATE: JAN 17, 2017



ABBREVIATIONS	NUMBER
RW	PIPE DIAMETER
OF	(INCHES)
DR	
AN	
RE	
FP	
CA	
DW	
NPW	



CITY OF ANTIOCH
DEPARTMENT OF PUBLIC WORKS – ENGINEERING SERVICES

DRAWN BY: S. Rodriguez

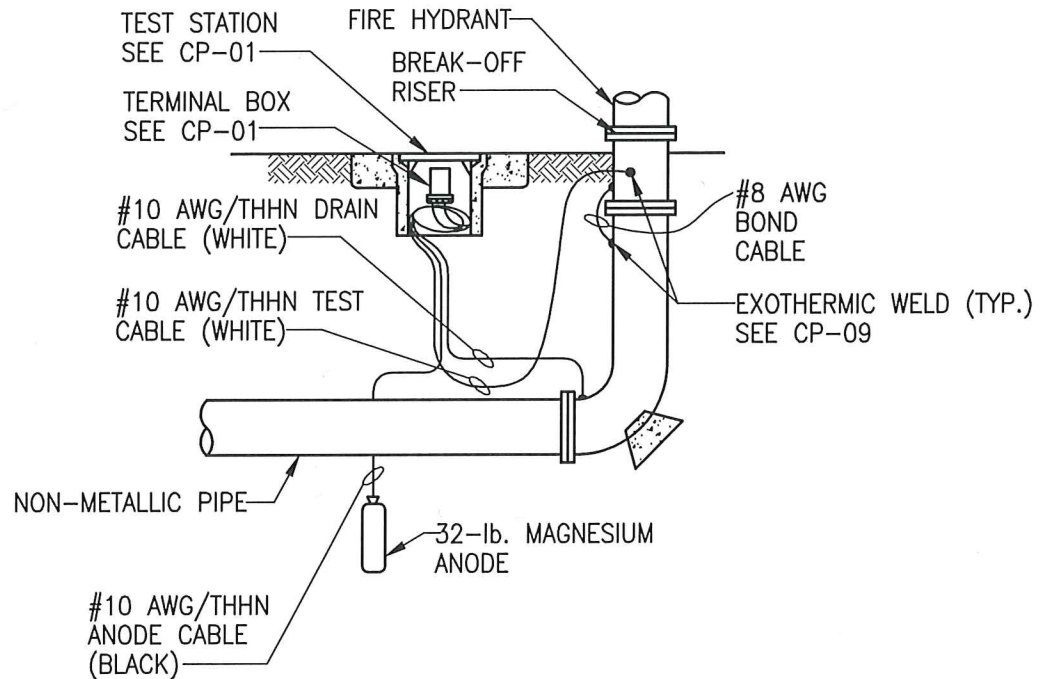
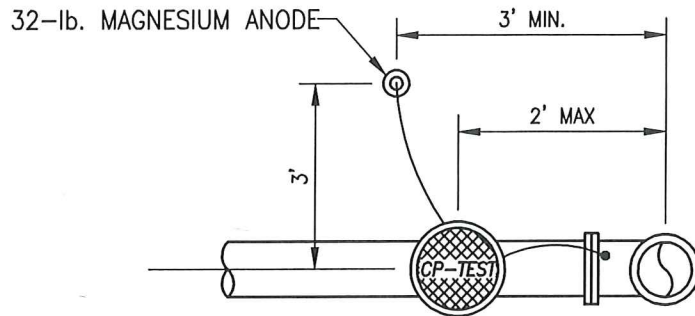
REVISIONS:

CATHODIC PROTECTION
CABLE IDENTIFICATION

CP-02

APPROVED BY:
Ron Bernal
RON BERNAL, P.E.
CITY ENGINEER

DATE: JAN 17, 2017



NOTE:

FOR TERMINAL BOX WIRING SEE CP-01



**CITY OF ANTIOCH
DEPARTMENT OF PUBLIC WORKS – ENGINEERING SERVICES**

DRAWN BY: S. Rodriguez

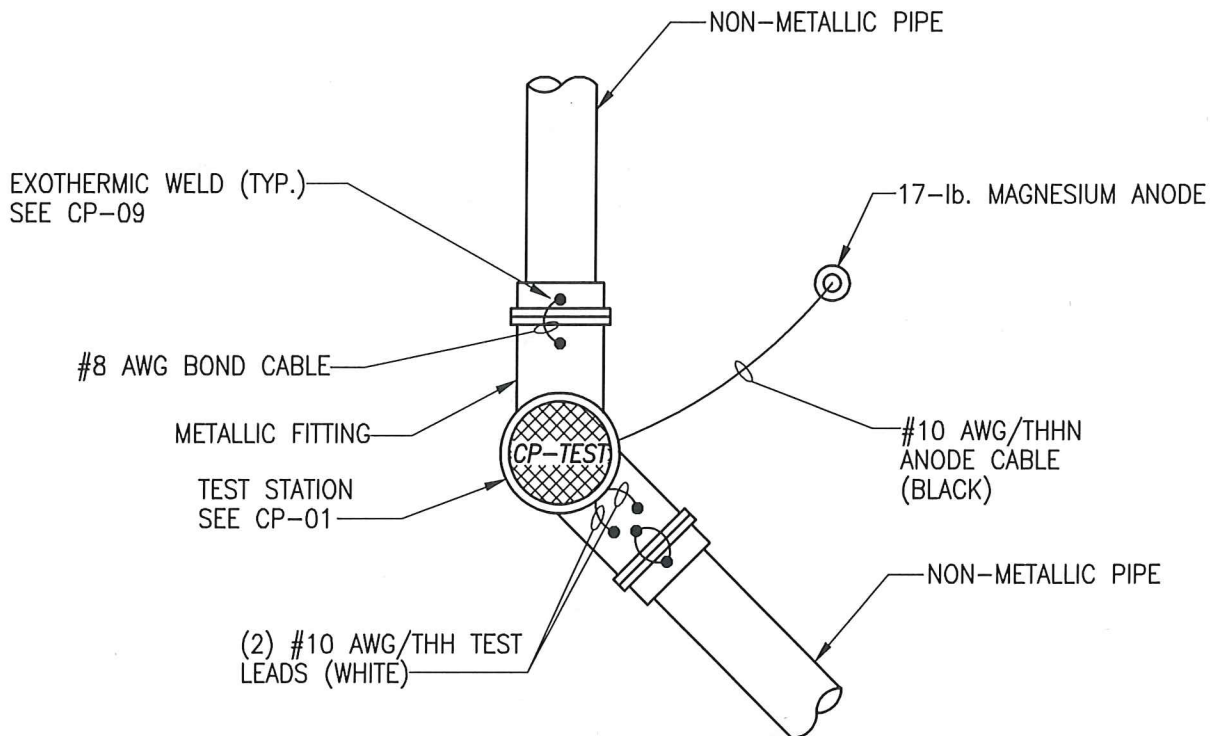
REVISIONS:

**CATHODIC PROTECTION
ANODE TEST STATION – FIRE HYDRANT**

CP-03

APPROVED BY:
Ron Bernal
RON BERNAL, P.E.
CITY ENGINEER

DATE: JAN 17, 2017



NOTE:
FOR TERMINAL BOX WIRING SEE CP-01

T:\PW STANDARD DRAWINGS\CURRENT CD'S AUTOCAD\CP-04 - ELBOW.DWG



**CITY OF ANTIOCH
DEPARTMENT OF PUBLIC WORKS – ENGINEERING SERVICES**

DRAWN BY: S. Rodriguez

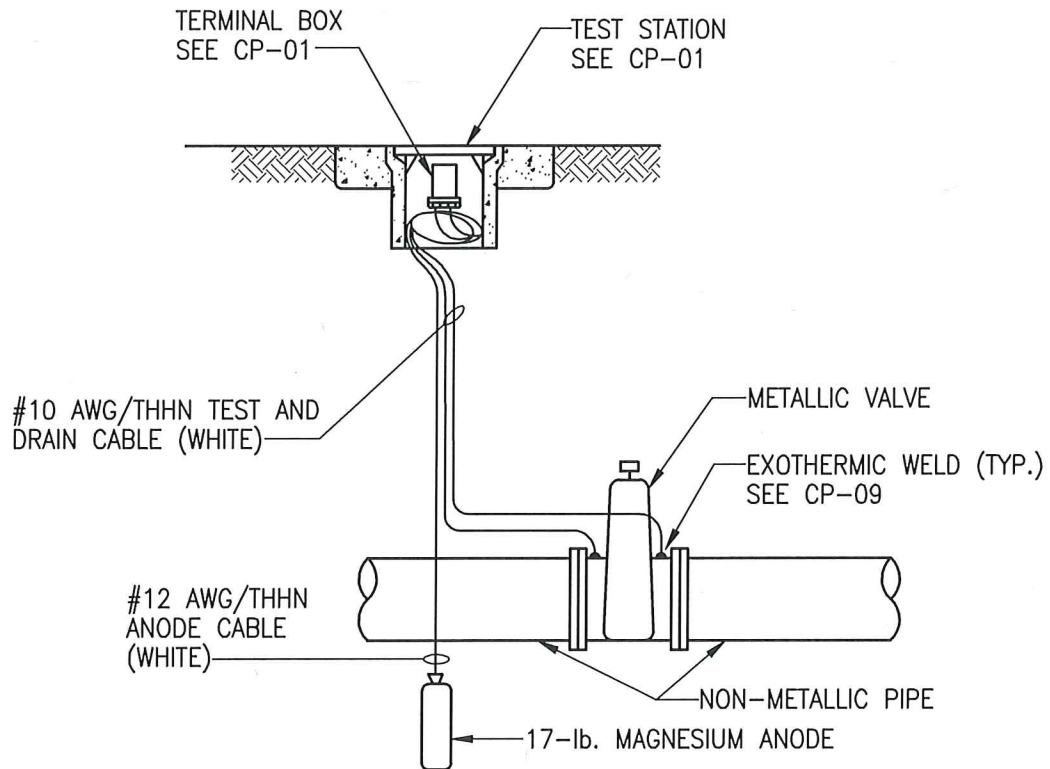
REVISIONS:

**CATHODIC PROTECTION
ANODE TEST STATION – ELBOW**

CP-04

APPROVED BY:
Ron Bernal
RON BERNAL, P.E.
CITY ENGINEER

DATE: JAN 17, 2017



NOTE:
INSTALL ANODE A MINIMUM 2 FEET FROM VALVE



**CITY OF ANTIOCH
DEPARTMENT OF PUBLIC WORKS – ENGINEERING SERVICES**

DRAWN BY: S. Rodriguez

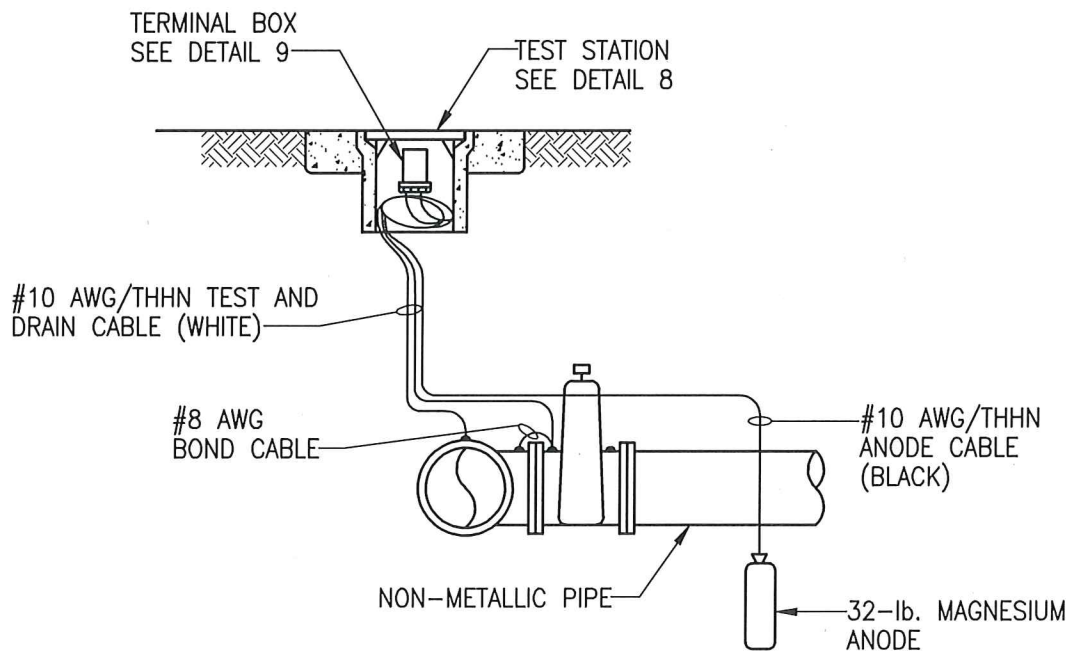
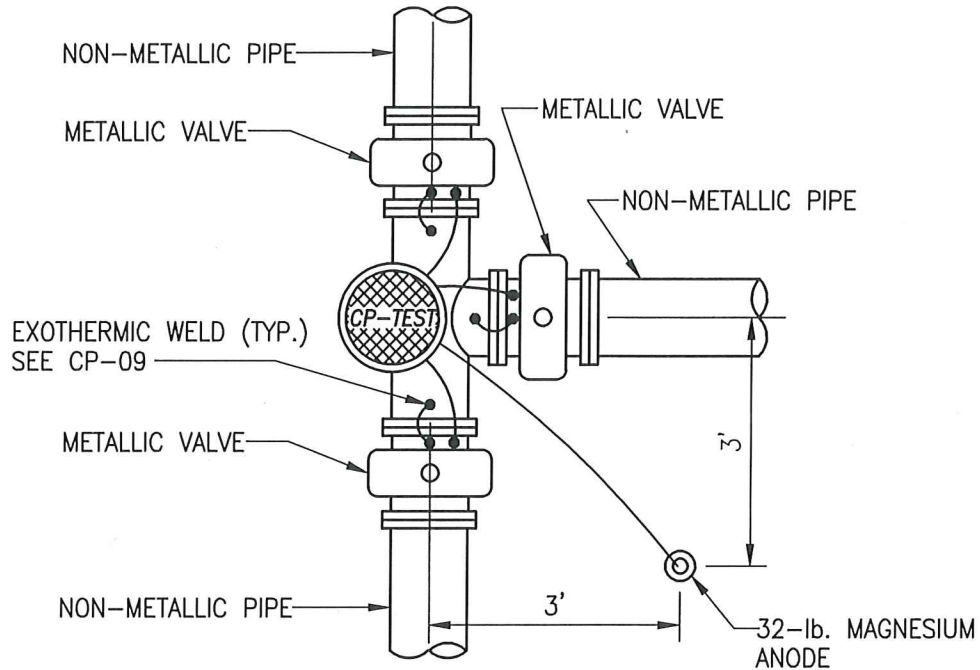
REVISIONS:

**CATHODIC PROTECTION
ANODE TEST STATION – VALVE**

CP-05

APPROVED BY:
Ron Bernal
RON BERNAL, P.E.
CITY ENGINEER

DATE: *JAN 17, 2017*



NOTE:
FOR TERMINAL BOX WIRING SEE CP-01

T:\PW STANDARD DRAWINGS\CURRENT CD'S AUTOCAD\CP-06 - TEE.DWG



CITY OF ANTIOCH
DEPARTMENT OF PUBLIC WORKS – ENGINEERING SERVICES

DRAWN BY: S. Rodriguez

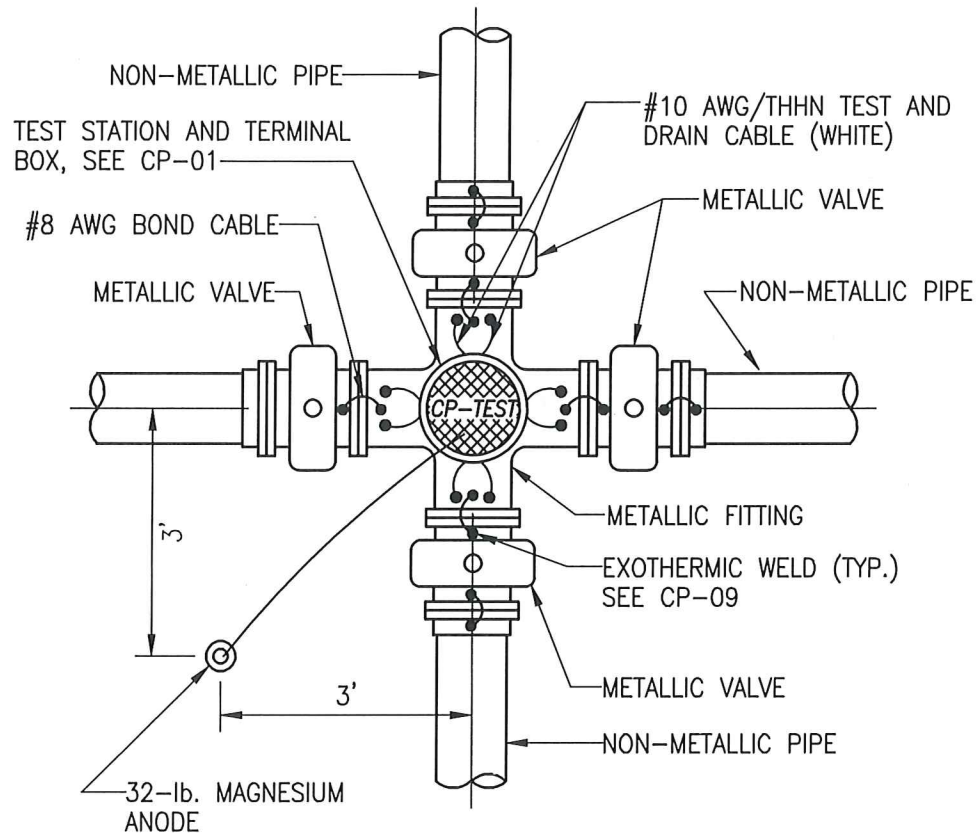
REVISIONS:

CATHODIC PROTECTION
ANODE TEST STATION – TEE

CP-06

APPROVED BY:
Ron Bernal
RON BERNAL, P.E.
CITY ENGINEER

DATE: JAN 17, 2017



NOTE:
FOR TERMINAL BOX WIRING SEE CP-01



CITY OF ANTIOCH
DEPARTMENT OF PUBLIC WORKS – ENGINEERING SERVICES

DRAWN BY: S. Rodriguez

REVISIONS:

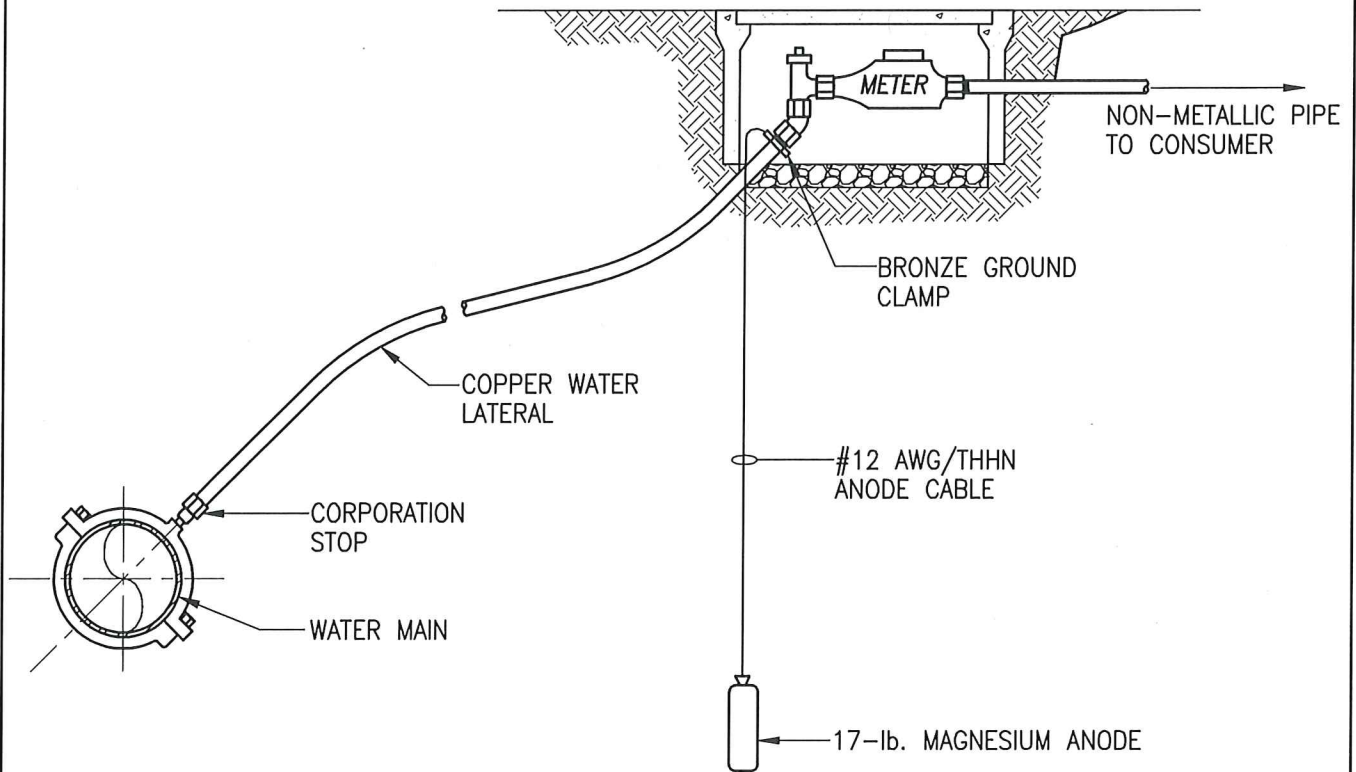
CATHODIC PROTECTION
ANODE TEST STATION – CROSS

CP-07

APPROVED BY:
Ron Bernal
RON BERNAL, P.E.
CITY ENGINEER

DATE: JAN 17, 2017

SHOWN HERE WITH SERVICE METER;
ALSO FOR USE WITH BLOW-OFFS, AIR
RELEASE VALVES AND OTHER FACILITIES.



NOTES:

1. A MINIMUM CLEARANCE OF 2' SHALL BE MAINTAINED BETWEEN THE ANODE AND THE LATERAL
2. TOP OF ANODE SHALL BE 5' MIN. FROM THE GROUND SURFACE



CITY OF ANTIOCH
DEPARTMENT OF PUBLIC WORKS – ENGINEERING SERVICES

DRAWN BY: S. Rodriguez

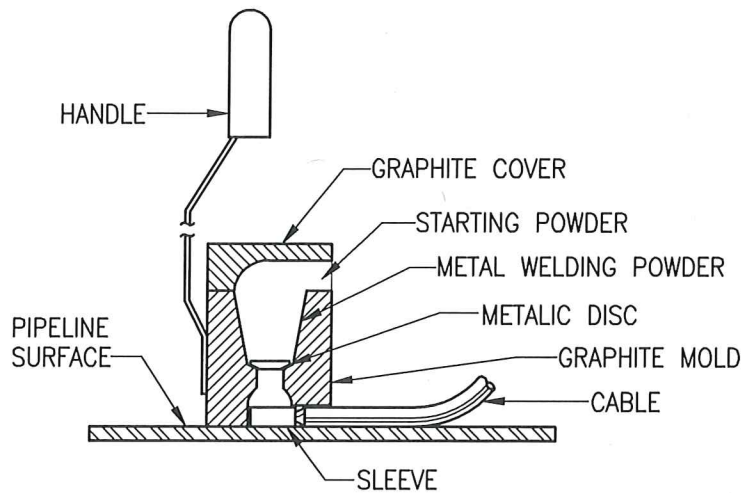
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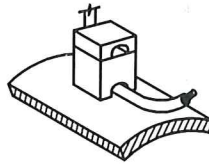


CATHODIC PROTECTION
ANODE TEST STATION – LATERAL

CP-08

APPROVED BY:
Ron Bernal
RON BERNAL, P.E.
CITY ENGINEER

DATE: JAN 17, 2017



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

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



**CITY OF ANTIOCH
DEPARTMENT OF PUBLIC WORKS – ENGINEERING SERVICES**

DRAWN BY: S. Rodriguez

REVISIONS:

**CATHODIC PROTECTION
EXOTHERMIC WELD PROCESS**

CP-09

APPROVED BY:

RON BERNAL, P.E.
CITY ENGINEER

DATE: JAN 17, 2017

FOR MAPS:

CITY ENGINEER'S STATEMENT

I, JOHN D. SAMUELSON, CITY ENGINEER, DO HEREBY STATE THAT I HAVE EXAMINED THIS MAP AND THAT SAID SUBDIVISION AS SHOWN IS SUBSTANTIALLY THE SAME AS IT APPEARED ON THE TENTATIVE MAP AND ANY APPROVED ALTERATIONS THEREOF. ALL PROVISIONS OF THE SUBDIVISION MAP ACT AND ANY STATE LAWS AND LOCAL ORDINANCES GOVERNING THE FILING OF MAPS HAVE BEEN COMPLIED WITH.

DATE: _____, 20_____

JOHN D. SAMUELSON, CITY ENGINEER
R.C.E. NO. 67734



WET STAMP

PROFESSIONAL LICENSED SURVEYOR'S STATEMENT

I, _____, A PROFESSIONAL LICENSED SURVEYOR, DO HEREBY STATE THAT I HAVE EXAMINED THIS MAP ON BEHALF OF THE CITY ENGINEER, AND I AM SATISFIED THAT SAID MAP IS TECHNICALLY CORRECT.

DATE: _____, 20_____

P.L.S. NO. _____



WET STAMP

FOR PLANS:

THE PLANS HAVE BEEN REVIEWED FOR COMPLIANCE WITH TITLE 9, CHAPTER 4 OF THE ANTIOCH MUNICIPAL CODE.

ACCEPTED BY:

JOHN D. SAMUELSON, CITY ENGINEER
R.C.E. NO. 67734

DATE



**CITY OF ANTIOCH
PUBLIC WORKS DEPARTMENT**

ANTIOCH
CALIFORNIA
OPPORTUNITY LIVES HERE

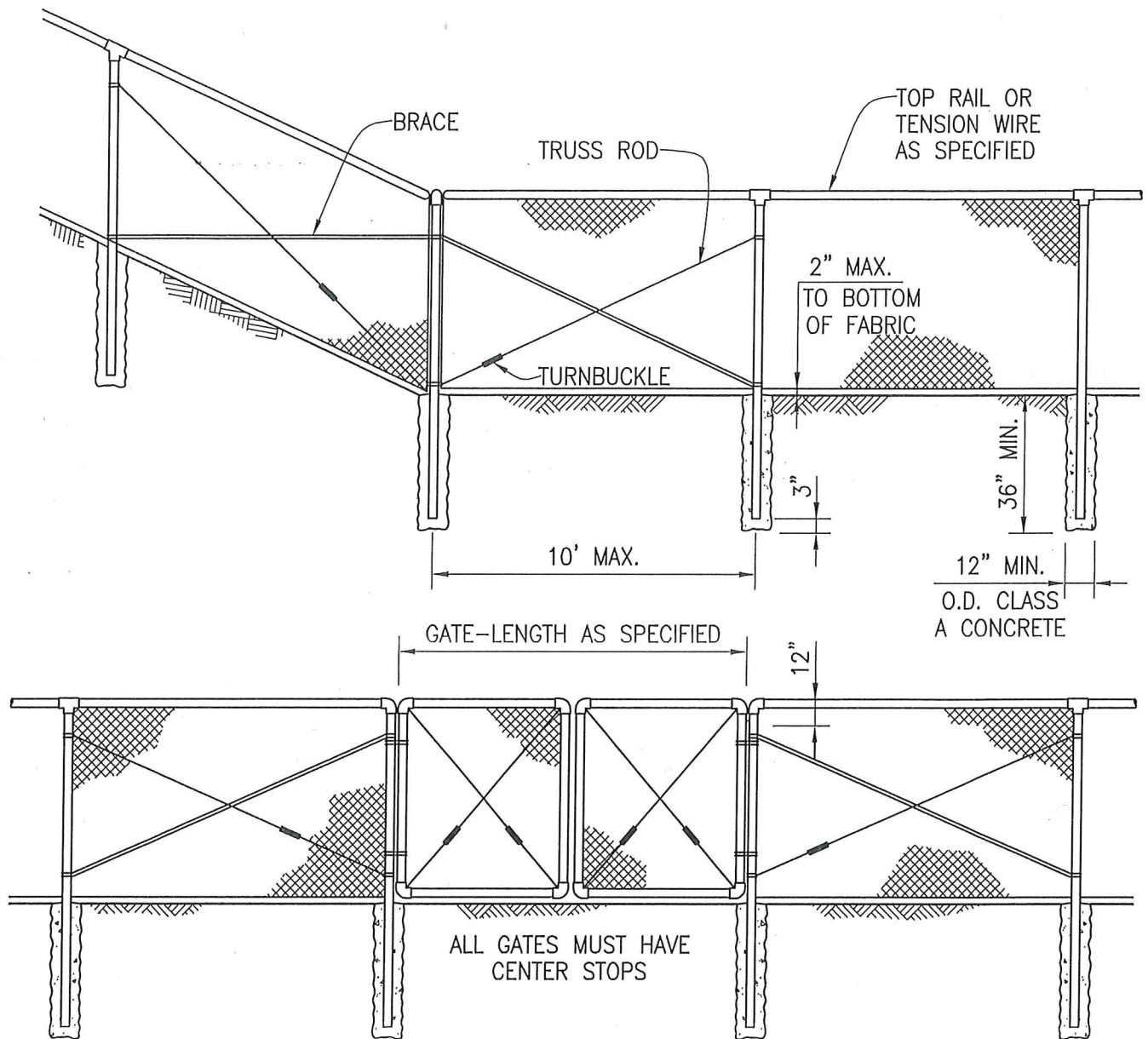
CITY ENGINEER'S SIGNATURE BLOCK STANDARDS


JOHN D. SAMUELSON, CITY ENGINEER

DATE: 6/24/2020

REV.: _____

DRAWING NO.
G-01



TYPICAL MEMBER DIMENSIONS

HEIGHT	LINE POSTS	TERMINAL POSTS	TOP RAIL & BRACES	GATE		POSTS
				GATE WIDTH		
LESS THAN 6'	1½" NOM. ID	2" NOM. ID	1¼" NOM. ID	UP THRU 6'		2½"
	2.72 lbs./L.F.	3.65 lbs./L.F.	2.27 lbs./L.F.	7' THRU 13'		3½"
				14' THRU 18'		6"
STANDARD C LINE POSTS	2.34 lbs./L.F.	OUTSIDE DIMENSIONS	1.875" x 1.625	UP THRU 6'		3"
6' AND OVER	2" NOM. ID	2½" NOM. ID	1¼" NOM. ID	7' THRU 13'		4"
	3.65 lbs./L.F.	5.79 lbs./L.F.	2.27 lbs./L.F.	14' THRU 18'		6"



CITY OF ANTIOCH DEPARTMENT OF PUBLIC WORKS – ENGINEERING SERVICES

DRAWN BY: S. Rodriguez

REVISIONS: 7/2019

CHAIN LINK FENCE

L-01 (SHEET 1 of 4)

APPROVED BY:

Jon Blank
JON BLANK, P.E.
PUBLIC WORKS DIRECTOR/
CITY ENGINEER
DATE: JULY, 2019

CHAIN LINK FENCE AND GATES

ALL MATERIALS SHALL CONFORM TO XXX OF THE STANDARD SPECIFICATIONS EXCEPT AS MODIFIED HEREIN BY THESE SPECIAL PROVISION.

HEIGHT: STANDARD FENCE HEIGHTS TO BE SIXTEEN FEET (16'), EIGHT FEET (8'), SIX FEET (6'), FOUR FEET (4'), AND THREE FEET (3'), ABOVE GRADE WHEN ERECTED AS SHOWN ON THE PLANS AND DETAILS.

GALVANIZED FABRIC: GALVANIZED CHAIN LINK WIRE, HEAVILY ZINC COATED BY HOT-DIP PROCESS AFTER WEAVING, 11 GA. UP TO 84", OVER 84" USE 9 GA., WOVEN IN 2" MESH. TOP AND BOTTOM SALVAGES TO HAVE KNUCKLED FINISH.

WIRE PICKETS, OF WHICH THIS FABRIC IS MADE, SHALL BE OF GOOD COMMERCIAL QUALITY STEEL AND SHALL STAND A TENSILE STRENGTH TEST OF 80,000 LBS. PER SQUARE INCH BASED ON THE CROSS-SECTIONAL AREA OF THE GALVANIZED WIRE.

CHAIN LINK FABRIC TO HAVE A MINIMUM COATING OF 2.0 OZ. OF ZINC PER SQ. FT. TEST FOR COATING TO BE MADE ON A SECTION OF WIRE PICKET 24 INCHES LONG PER ASTM-A90.

FABRIC WITH REDWOOD PICKETS: CLEAR HEART REDWOOD STANDARD GRAD A STAINED PICKETS $\frac{3}{8}$ " x $2\frac{1}{2}$ " INSERTED VERTICALLY IN EACH MESH OF THE CHAIN LINK FABRIC.

CHAIN LINK WIRE, CLASS III, 0.80 OZ. ZINC COATING PER ASTM A-116, #9 GAUGE WOVEN IN A $3\frac{1}{2}$ " x $5\frac{1}{2}$ " MESH. TOPO AND BOTTOM SALVAGE FURNISHED IN KNUCKLED FINISH.

VINYL-CLAD FABRIC: CHAIN LINK FENCE SHALL BE AS MANUFACTURED BY COLORGUARD CORPORATION, 1 JOHNSON DRIVE, RARITAN, NEW JERSEY 08869, UNDER TRADE NAME OF "COLORBOND", MADE IN U.S.A. IN ACCORDANCE WITH U.S. GOV'T. SPEC. RR-F-191 TYPE IV, OR APPROVED EQUAL. COLOR SHALL BE SHERWOOD GREEN-MUNSELL COLOR SYSTEM NO. 2-1/2G-2.3/3.5 OR APPROVED EQUAL. THE BIDDER SHALL SUBMIT SAMPLES OF THE FENCING TO BE USED, UPON REQUEST OF THE CITY ENGINEER.

FABRIC SHALL BE 2" COATED WOVEN WIRE MESH WITH KNUCKLED FINISH TOP AND BOTTOM. BASE METAL SHALL BE MEDIUM HIGH QUALITY CARBON STEEL WIRE, TENSILE STRENGTH, 100,000 PSI FOR 9 GA., HOT-DIP GALVANIZED TO AISI SPECIFICATIONS. TYPE 1 COATED WEIGHT FROM SLAB ZINC CONFORMING TO ASTM SPEC. B6. THE WIRE SHALL BE VINYL-CLAD BEFORE WEAVING BY THE THERMAL EXTRUSION PROCESS UNDER PRESSURES TO 5,000 PSI, TO INSURE A DENSE AND IMPERVIOUS COVERING FREE OF VOIDS, HAVING A SMOOTH LUSTROUS SURFACE.

RESIN COATING SHALL BE "BAKELITE" PLASTICIZED POLYVINAL CHLORIDE (PVC) WITH SUITABLE NON-MIGRATORY LOW TEMPERATURE PLASTICIZER, SHALL NOT SUPPORT FIRE COMBUSTION, AND INSULATED FOR 12,000 VOLTS, OR EQUAL. COLORS SHALL BE STABILIZED AND SHALL WITHSTAND A



CITY OF ANTIOCH DEPARTMENT OF PUBLIC WORKS – ENGINEERING SERVICES

DRAWN BY: S. Rodriguez

REVISIONS: 7/2019

CHAIN LINK FENCE

L-01 (SHEET 2 of 4)

APPROVED BY:

Jon Blank
JON BLANK, P.E.

PUBLIC WORKS DIRECTOR/
CITY ENGINEER

DATE: JULY, 2019

CHAIN LINK FENCE AND GATES (CON'T)

MINIMUM WEATHEROMETER EXPOSURE TEST OF 2,000 HOURS WITHOUT DETERIORATION. THE VINYL COVERED WIRE SHALL WITHSTAND AN ACCELERATED AGING TEST OF A MINIMUM OF 2,000 HOURS AT 145°F, WITHOUT ANY CRACKING OR PEELING AND SHALL EXHIBIT A MAXIMUM SHRINKAGE OF $\frac{1}{16}$ INCH PER 12 INCHES. THE VINYL-CLAD CHAIN LINK FABRIC SHALL WITHSTAND A MANDRAL BEND TEST (10 X O.D. ON WIRE AT MINUS 50°c) WITHOUT CRACKING.

LINE POSTS: HOT DIP GALVANIZED PIPE 2" NOMINAL DIAMETER, 3.65 LBS. PER LINEAL FOOT FOR FENCES 6 FEET HIGH OR OVER AND $1\frac{1}{2}$ " NOMINAL DIAMETER, 2.72 LBS. PER LINEAL FOOT FOR FENCES LESS THAN 6 FEET HIGH.

TERMINAL POSTS: END, CORNER, GATE, AND PULL POSTS HOT-DIPPED GALVANIZED PIPE $2\frac{1}{2}$ " NOMINAL DIAMETER, 5.79 LBS. PER LINEAL FOOT FOR FENCES 6 FEET HIGH AND OVER AND 2" NOMINAL DIAMETER, 3.65 LBS. PER LINEAL FOOT FOR FENCES LESS THAN 6 FEET HIGH.

POST SPACING: POSTS TO BE SPACED IN LINE OF FENCE NOT FARTHER APART THAN 10 FT. CENTERS AND SHALL BE SPACED AT EVEN INTERVALS EXCEPT THE POSTS FOR THE 16-FOOT CHAIN LINK FENCE SHALL HAVE 8 FT. CENTERS.

POST SETTING: ALL POSTS TO BE SET 36 INCHES IN CONCRETE FOOTINGS OF NOT LESS THAN 12 INCHES IN DIAMETER AND CROWNED AT THE TOP TO SHED WATER. THE EDGES OF CONCRETE FOOTINGS SHALL BE FLUSH TO THE EXISTING GROUND.

TOPS: ALL POSTS TO BE FITTED WITH HEAVY ORNAMENTAL TOPS APPROVED BY THE CITY ENGINEER. BASE OF TOP TO CARRY APRON AROUND OUTSIDE OF POST AND SHALL BE SECURELY FASTENED TO THE POSTS.

TOP RAIL: HOT-DIP GALVANIZED PIPE $1\frac{1}{2}$ " NOMINAL DIAMETER, WEIGHT 2.27 LBS. PER LINEAL FOOT; PROVIDE WITH COUPLINGS APPROXIMATELY EVERY 20 FEET. COUPLINGS TO BE OUTSIDE SLEEVE TYPE AND AT LEAST 7 INCHES LONG. TOP RAIL TO PASS THROUGH BASE OF LINE POST TOPS AND FORM A CONTINUOUS BRACE FROM END TO END OF EACH STRETCH OF FENCE. TOP RAIL TO BE SECURLY FASTENED TO TERMINAL POSTS BY PRESSED STEEL CONNECTIONS, APPROVED BY THE CITY ENGINEER.

TRUSS RODS: HOT-DIP GALVANIZED $\frac{3}{8}$ " STEEL RODS WITH GALVANIZED TURNBUCKLES.

TIE WIRES: TIE WIRES SHALL CONFORM TO SECTION XXX OF THE STANDARD SPECIFICATIONS.

BRACES: HOT-DIP GALVANIZED. BRACE MATERIAL SAME AS TOP RAIL, TO BE INSTALLED AS SHOWN ON THE CHAIN LINK FENCE DETAIL SHEET 1 OF 4. TURNBUCKLES ON TRUSS RODS SHALL BE TIED WITH TIE WIRES TO FENCE FABRIC TO PREVENT LOOSENING BY VANDALS.

TENSION WIRE: A NO. 7 GUAGE GALVANIZED COILED SPRING WIRE TO BE STRETCHED ALONG BOTTOM OF CHAIN LINK FABRIC APPROXIMATELY 6 INCHES ABOVE GRADE. THE CHAIN LINK FABRIC TO BE ATTACHED TO THIS WIRE WITH TIE WIRES SPACED 24 INCHES APART.



CITY OF ANTIOCH DEPARTMENT OF PUBLIC WORKS – ENGINEERING SERVICES

DRAWN BY: S. Rodriguez

REVISIONS: 7/2019

CHAIN LINK FENCE

L-01 (SHEET 3 of 4)

APPROVED BY:

Jon Blank
JON BLANK, P.E.

PUBLIC WORKS DIRECTOR/
CITY ENGINEER

DATE: JULY, 2019

CHAIN LINK FENCE AND GATES (CON'T)

FITTINGS: HOT-DIP GALVANIZED. ALL FITTINGS TO BE MALLEABLE, CAST IRON OR PRESSED STEEL.

FABRIC BRANDS: FABRIC TO BE FASTENED TO LINE POSTS WITH FABRIC BANDS SPACED APPROXIMATELY 14 INCHES APART, AND TO TOP RAIL WITH TIE WIRES SPACED APPROXIMATELY 24 INCHES APART.

GATES: GATE FRAMES TO BE MADE OF $1\frac{1}{2}$ " NOMINAL DIAMETER HOT-DIP GALVANIZED PIPE, WEIGHT 2.72 LBS. PER LINEAR FOOT. CORNER FITTINGS HEAVY PRESSED STEEL OR MALLEABLE CASTINGS. FABRIC SAME AS FENCE. GATES TO BE COMPLETE WITH MALLEABLE IRON BALL AND SOCKET HINGES, CATCH, STOP, AND CENTER REST. HINGES TO PERMIT GATE TO SWING BACK AGAINST FENCE (180°). GATE SIZES GIVEN ARE FROM GATE POST TO GATE POST. ALL GATES SHALL INCLUDE LOCKS. ALL LOCKS SHALL BE AS APPROVED BY THE CITY ENGINEER.

FRAMEWORK MATERIAL: ALL POSTS, RAILS AND BRACES HEAVILY HOT-DIPPED GALVANIZED.

GALVANIZING: ALL GALVANIZING SHALL BE A MINIMUM OF 2.0 OZ. PER SQ. FT. IMPERFECTLY GALVANIZED MATERIALS OR MATERIALS UPON WHICH ABRASION OF THE GALVANIZING HAVE OCCURRED SHALL BE REJECTED BY THE ENGINEER. ALL REJECTED MATERIAL MUST BE REMOVED FROM THE JOB SITE WITHIN 24 HOURS AFTER NOTICE OF SUCH REJECTION TO THE CONTRACTOR.

CERTIFICATES OF COMPLIANCE: SUPPLIERS OF ANY OR ALL MATERIALS SHALL FURNISH A CERTIFICATE STATING THE REQUIRED SPECIFICATION AND THE COMPLIANCE OF MATERIALS TO SPECIFICATIONS.



CITY OF ANTIOCH DEPARTMENT OF PUBLIC WORKS – ENGINEERING SERVICES


DRAWN BY: S. Rodriguez

REVISIONS: 7/2019

CHAIN LINK FENCE

L-01 (SHEET 4 of 4)

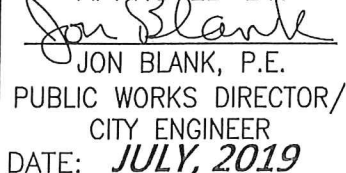
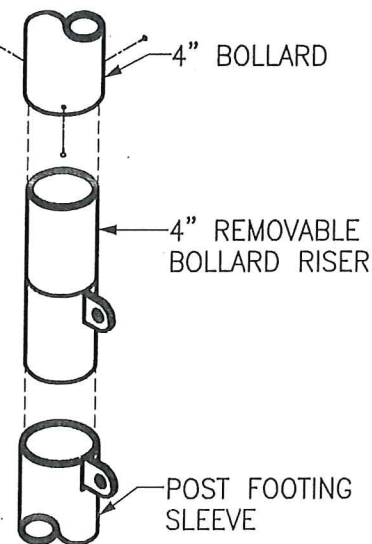
APPROVED BY:

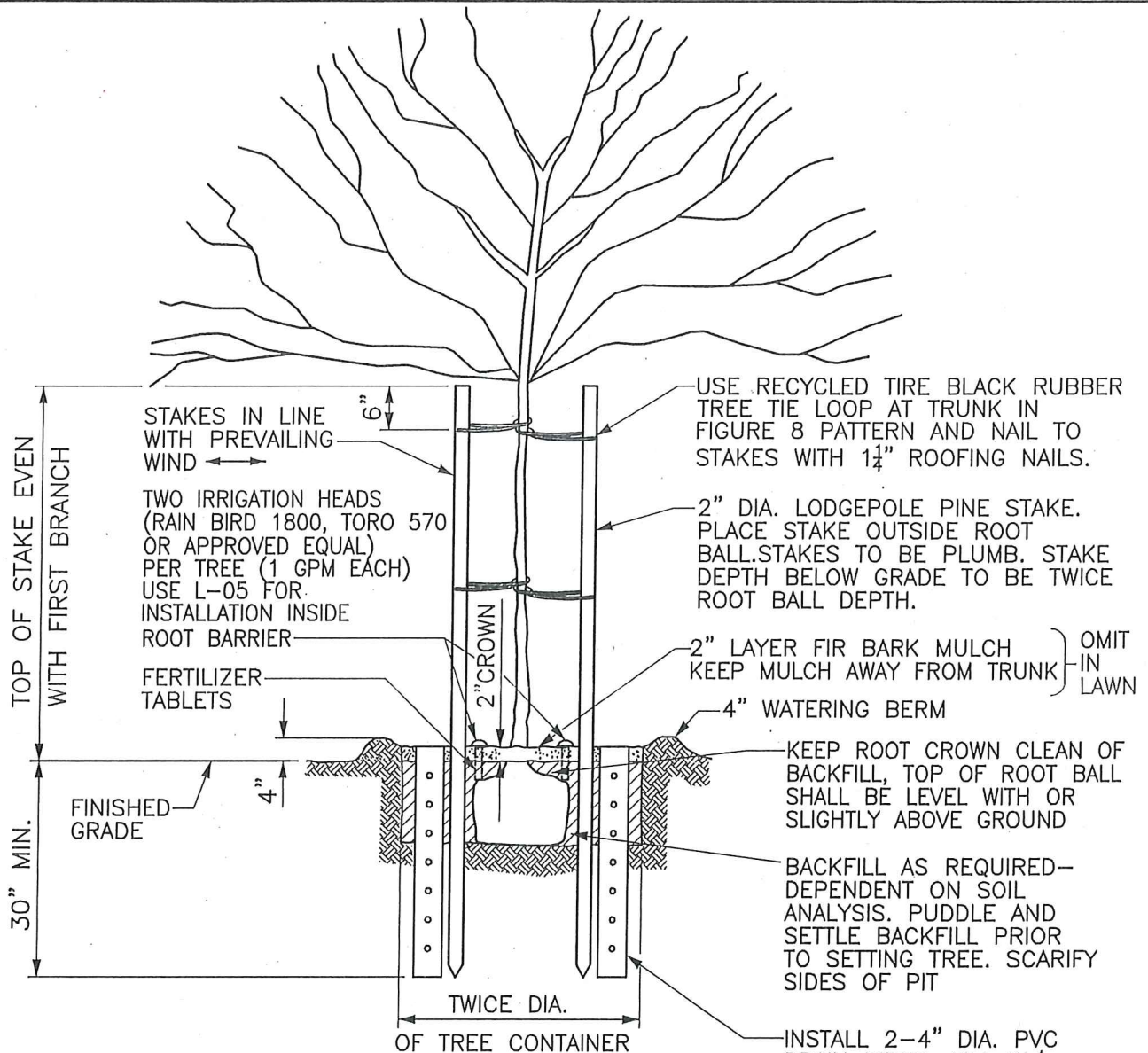

JON BLANK, P.E.
PUBLIC WORKS DIRECTOR/
CITY ENGINEER
DATE: JULY, 2019



DETAIL 1

INSTALLATION DETAIL





NOTES:

1. REMOVE ALL DEAD OR BROKEN BRANCHES.
2. REMOVE SUCKERS, LEAVE ANY SHORT BRANCHES ON TRUNK.
3. WORK ROOTS AWAY FROM ROOT BALL (OUTSIDE EDGE ONLY)
4. REMOVE NURSERY STAKES.
5. INSTALL ROOT BARRIER IF TREE IS LOCATED WITHIN 10' OF WALKWAY OR CURB. AND AT BACK OF CURB WITHIN CUL-DE-SAC PLANTER AREA.
6. 4' EXCAVATION REQUIRED BELOW TREE IF PLANTED IN MEDIAN OR CUL-DE-SAC.
7. ROOT BARRIER PANELS AT BACK OF CURB AND ALONG SIDEWALK 8' EACH WAY CENTER OF TREE.
8. PLACE ROOT BARRIER 24" DEEP AROUND ENTIRE PLANTER AT CUL-DE-SAC.



CITY OF ANTIOCH DEPARTMENT OF PUBLIC WORKS – ENGINEERING SERVICES

DRAWN BY: S. Rodriguez

REVISIONS: 7/2019

TREE STAKING

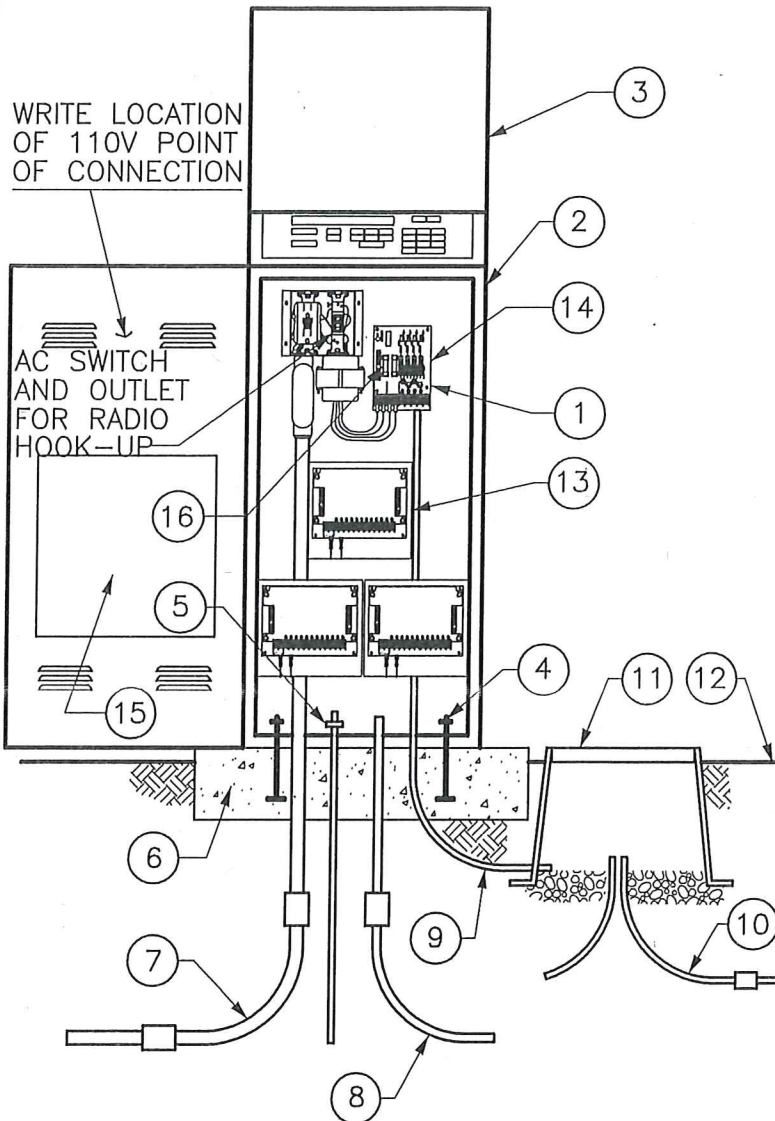
L-03

APPROVED BY:

Jon Blank
JON BLANK, P.E.
PUBLIC WORKS DIRECTOR/
CITY ENGINEER
DATE: JULY, 2019

WRITE LOCATION
OF 110V POINT
OF CONNECTION

AC SWITCH
AND OUTLET
FOR RADIO
HOOK-UP



NOTE:

CONTRACTOR TO EXTEND CONDUIT
& WIRE TO PG.&E SECONDARY BOX
PG&E TO MAKE HOOK-UP AFTER
INSPECTION.

- ① AUTOMATIC CONTROLLER,
CONTROLLER SHALL BE
RAIN MASTER DX3 48 STATION
- ② RAINMASTER EVOLUTION DX2
STAINLESS STEEL PEDESTAL CABINET.
- ③ SLANT TOP LOCKING LID.
- ④ ANCHOR BOLTS (TYP.)
- ⑤ 5/8" DIA. x 8' COPPER - CLAD
GROUNDING ROD W/#6 BARE
COPPER CONNECTOR.
- ⑥ CONCRETE PAD (24"x30"x6")
W/ LAMP BLACK COLOR
(1 1/2" LBS./C. YD.)
- ⑦ 120-VOLT POWER SUPPLY IN 1 1/2"
RIGID STEEL CONDUIT.
- ⑧ 2 1/2" CONTROL WIRING NMC
W/ SWEEP ELBOW.
- ⑨ 1" NMC SWEEP ELBOW
(PHONE LINE CONDUIT)
- ⑩ 2" NMC CONTROL WIRE CONDUIT.
- ⑪ CARSON NO. 1419-12B PULL
6" PEA GRAVEL IN THE BOTTOM.
- ⑫ FINISH GRADE.
- ⑬ TERMINAL STRIP.
- ⑭ RADIO CONTROLLER PROVIDED
BY THE INSTALLER.
- ⑮ PROVIDE REDUCED SCALE, 11 x 17
LAMINATED COLOR CODED
LAYOUT OF IRRIGATION
SYSTEM - ALL VALVES TO BE
IDENTIFIED.
- ⑯ CONTRACTOR TO PROVIDE 15 AMP
FUSED DISCONN. PER LOCAL LOADS.



**CITY OF ANTIOCH
DEPARTMENT OF PUBLIC WORKS - ENGINEERING SERVICES**

DRAWN BY: S. Rodriguez

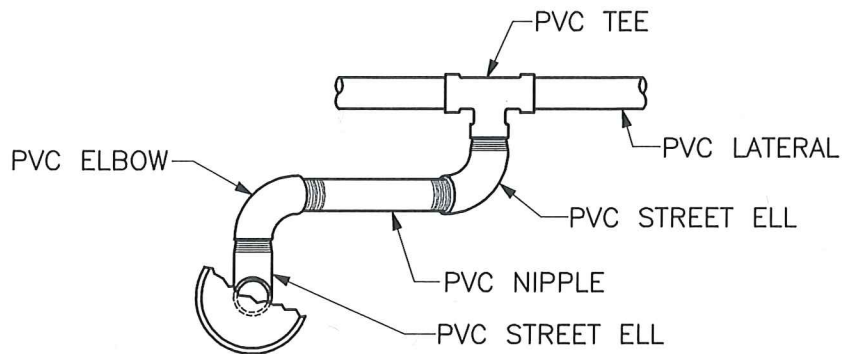
REVISIONS: 7/2019

**PEDESTAL IRRIGATION
CONTROLLER**

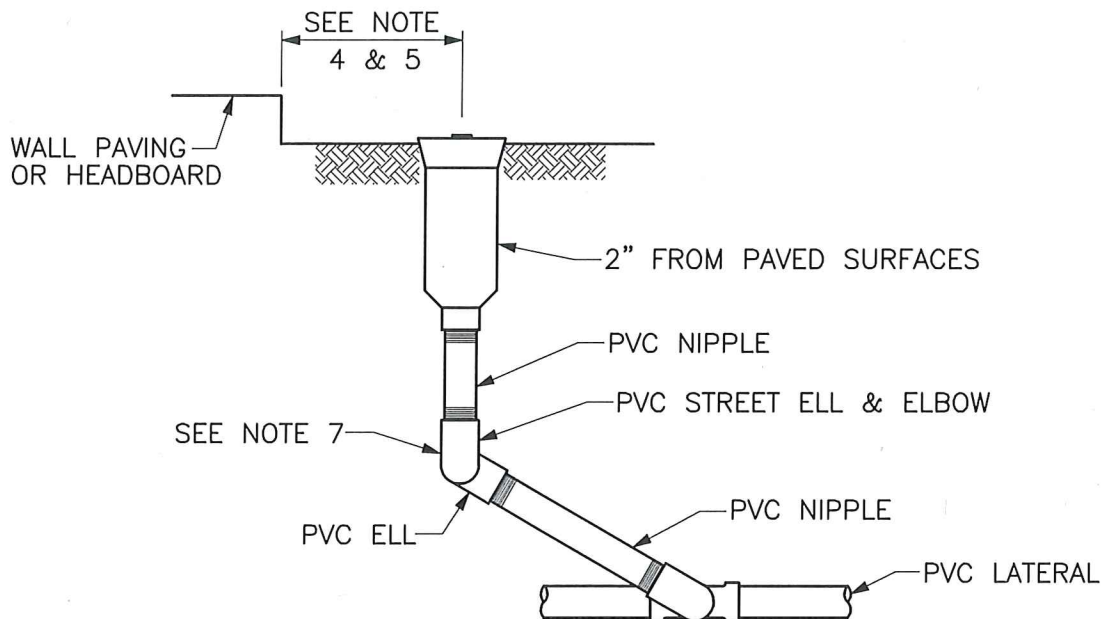
L-04

APPROVED BY:

Jon Blank
JON BLANK, P.E.
PUBLIC WORKS DIRECTOR/
CITY ENGINEER
DATE: **JULY, 2019**



PLAN



ELEVATION

NOTES:

1. TEFLON TAPE REQUIRED ON ALL THREADED FITTINGS.
2. SPRINKLER HEAD SHALL BE RAIN BIRD 1800, TORO 570, OR AS APPROVED BY THE CITY ENGINEER.
3. ALL NIPPLES TO BE SCHEDULE 80.
4. PLACE POP-UP SPRAY SPRINKLERS AND BUBBLERS AT 3" MAX FROM WALLS, PAVING AND HEADER BOARDS. PLACE LAWN HEADS NO CLOSER THAN 2".
5. PLACE ROTARY SPRINKLERS AT 6" MAX FROM WALLS, PAVING AND HEADER BOARDS. PLACE LAWN HEADS NO CLOSER THAN 4".
6. LATERAL FITTING FIPT OUTLET, RISER NIPPLES AND FITTINGS SHALL BE THE SAME DIAMETER (IPS) AS SPRINKLER HEAD INLET.
7. FITTING ON LATERAL SIDE CAN BE SCHEDULE 40 OR MARLEX.



CITY OF ANTIOCH DEPARTMENT OF PUBLIC WORKS – ENGINEERING SERVICES

DRAWN BY: S. Rodriguez

REVISIONS:

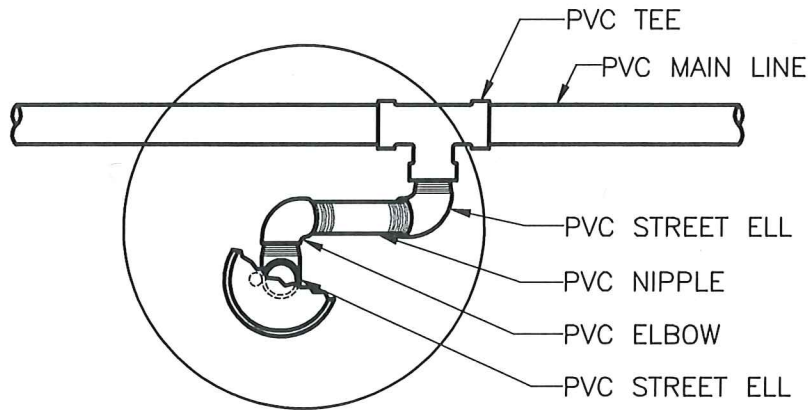
**SPRINKLER
LATERAL**

L-05

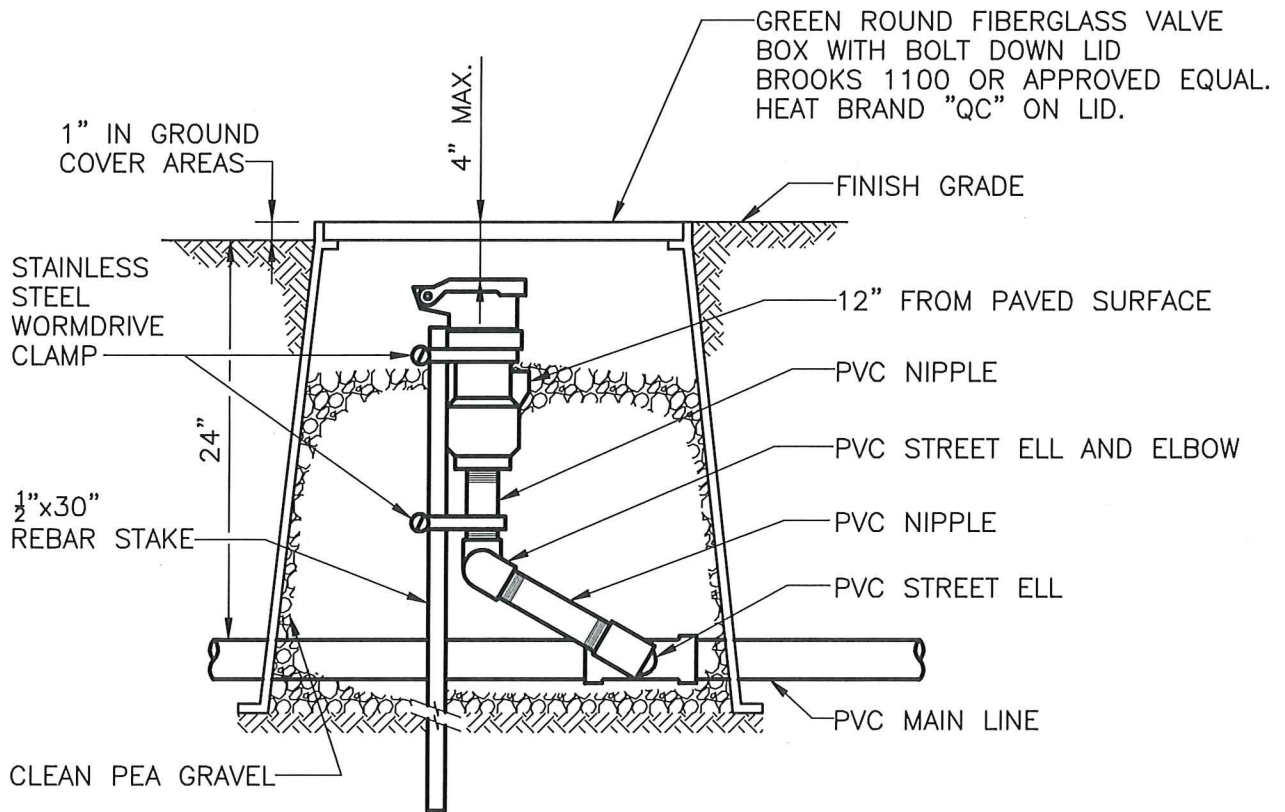
APPROVED BY:
Ron Bernal
RON BERNAL, P.E.
CITY ENGINEER

DATE: DEC 20, 2016

- NOTES:**
1. TEFLON TAPE REQUIRED ON ALL THREADED FITTINGS.
 2. QUICK COUPLER TO BE RAIN BIRD 44LRC OR APPROVED EQUAL
 3. ALL FITTINGS AND NIPPLES TO BE SCHEDULE 80.



PLAN



ELEVATION



CITY OF ANTIOCH DEPARTMENT OF PUBLIC WORKS – ENGINEERING SERVICES

DRAWN BY: S. Rodriguez

REVISIONS:

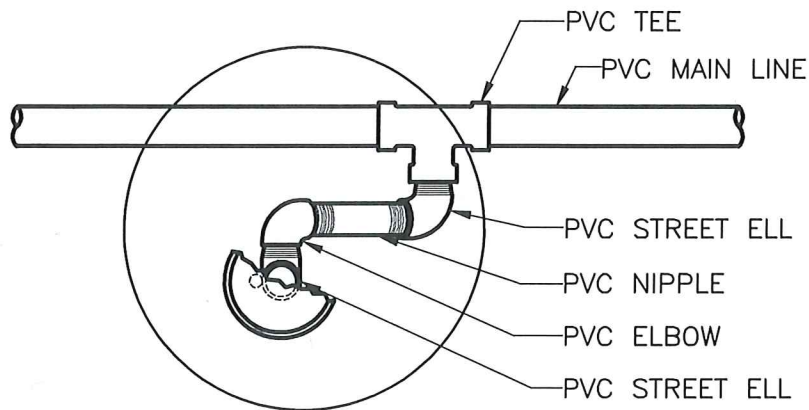
QUICK COUPLER MAIN LINE (POTABLE)

L-06

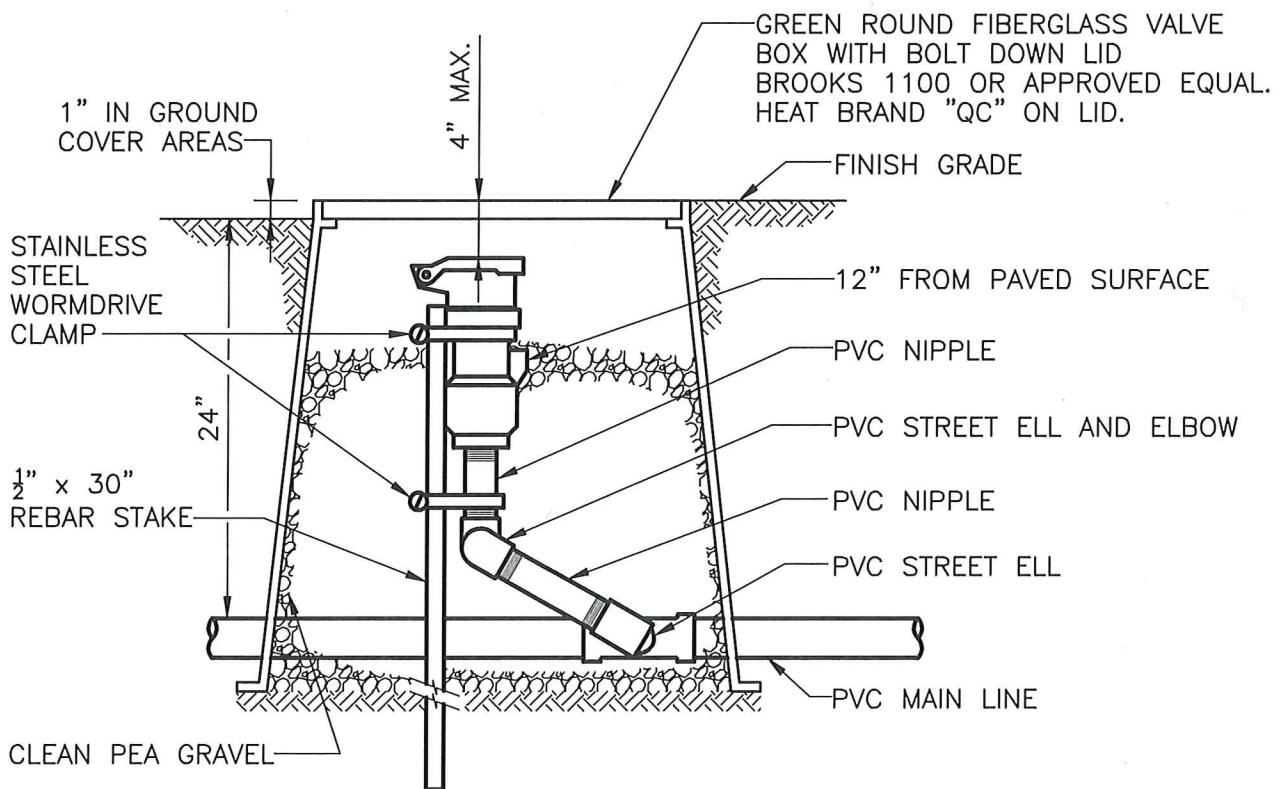
APPROVED BY:
Ron Bernal
RON BERNAL, P.E.
CITY ENGINEER

DATE: DEC 20, 2016

- NOTES:
1. TEFLON TAPE REQUIRED ON ALL THREADED FITTINGS.
 2. QUICK COUPLER TO BE RAIN BIRD 44NP OR APPROVED EQUAL
 3. ALL FITTINGS AND NIPPLES TO BE SCHEDULE 80.



PLAN



ELEVATION



**CITY OF ANTIOCH
DEPARTMENT OF PUBLIC WORKS – ENGINEERING SERVICES**

DRAWN BY: S. Rodriguez

REVISIONS:

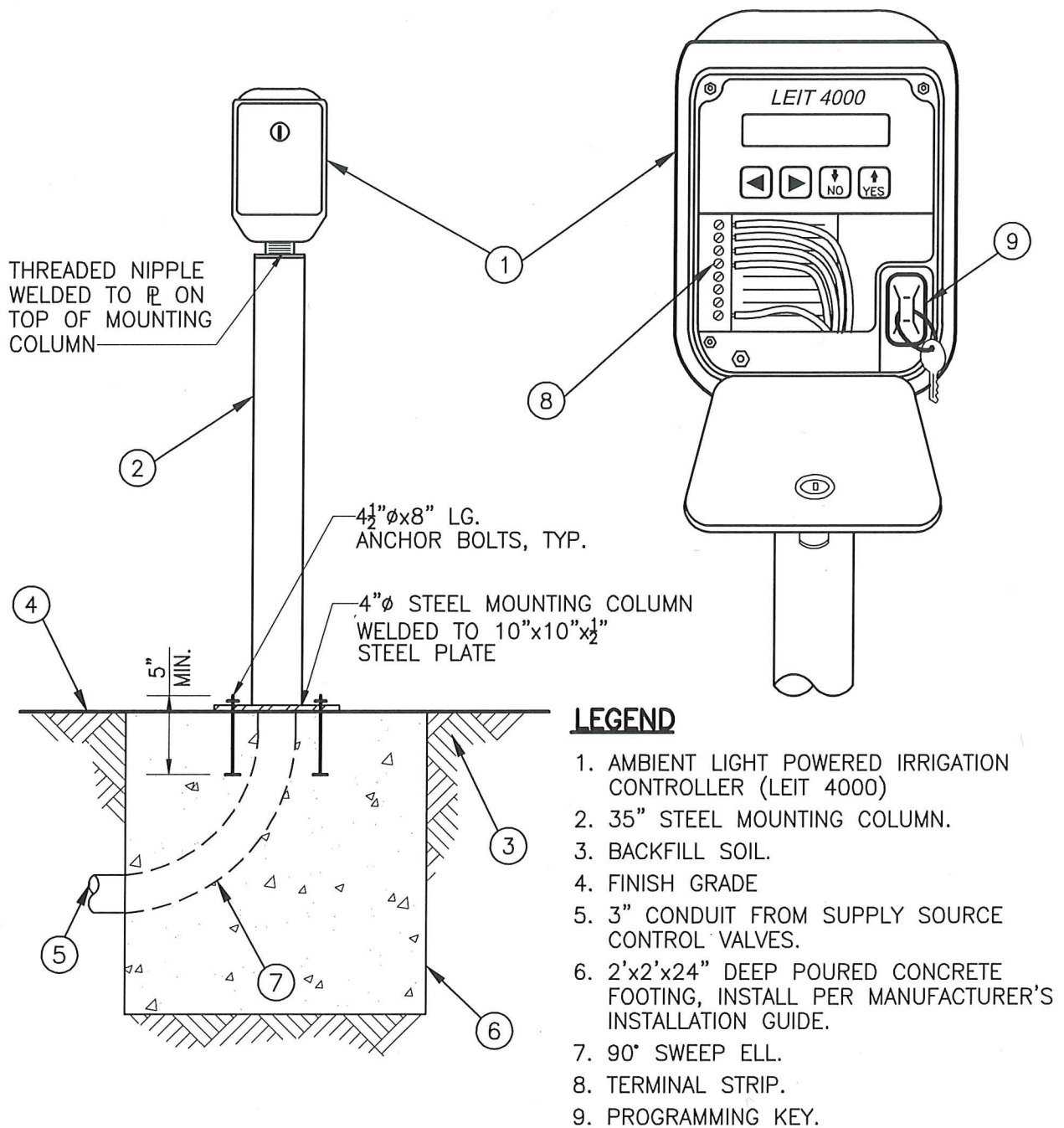
**QUICK COUPLER
MAIN LINE (NON-POTABLE)**

L-07

APPROVED BY:
Ron Bernal
RON BERNAL, P.E.
CITY ENGINEER

DATE: DEC 20, 2016

FOR USE IN CUL-DE-SACS ONLY



CITY OF ANTIOCH
DEPARTMENT OF PUBLIC WORKS – ENGINEERING SERVICES

DRAWN BY: S. Rodriguez

REVISIONS:

**LIGHT ENERGIZED
IRRIGATION CONTROLLER**

L-08

APPROVED BY:
Ron Bernal
RON BERNAL, P.E.
CITY ENGINEER

DATE: DEC 20, 2016

DOWEL #4 BAR x 24" LONG
@ 24" O.C. GREASE ONE SIDE

6x6 #10 x #10 WELDED
WIRE MESH

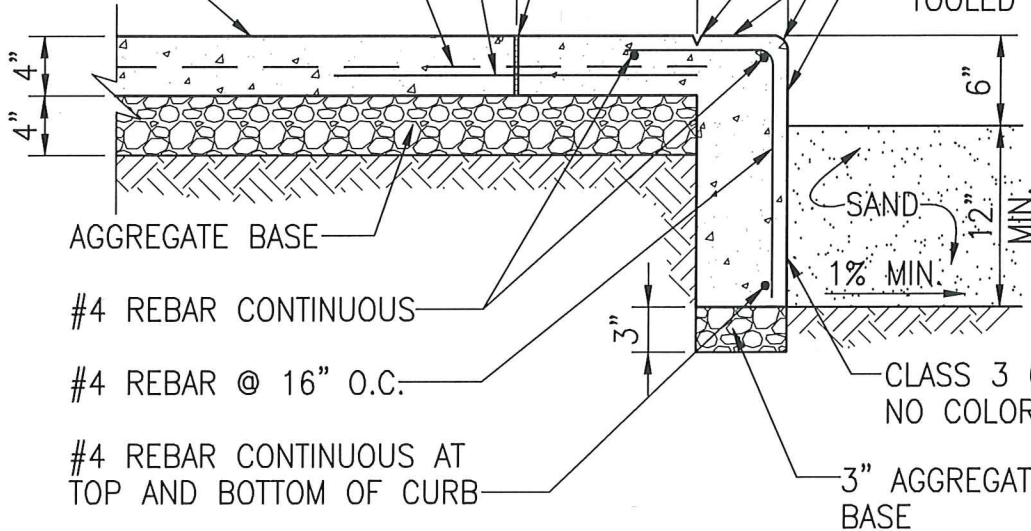
TYP. EXPOSED AGGREGATE
FINISH

COLD JOINT

SCORE LINE

TOOLED EDGE

MEDIUM SANDBLAST
FINISH 12" BELOW
TOOLED EDGE



AGGREGATE BASE

#4 REBAR CONTINUOUS

#4 REBAR @ 16" O.C.

#4 REBAR CONTINUOUS AT
TOP AND BOTTOM OF CURB

CLASS 3 CONCRETE
NO COLOR ADDED

3" AGGREGATE
BASE



CITY OF ANTIOCH
DEPARTMENT OF PUBLIC WORKS – ENGINEERING SERVICES

DRAWN BY: S. Rodriguez

REVISIONS:

PLAY AREA
CURB SECTION

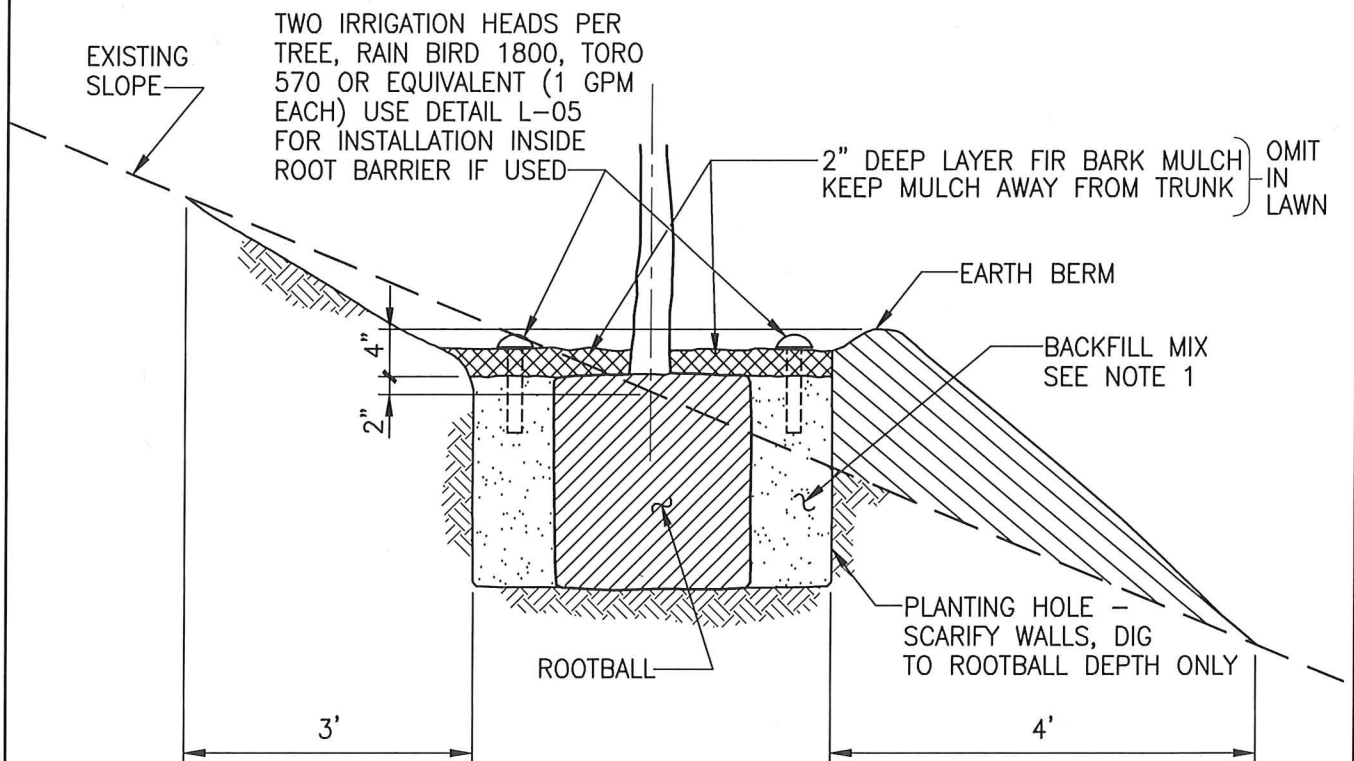
L-09

APPROVED BY:
Ron Bernal
RON BERNAL, P.E.
CITY ENGINEER

DATE: DEC 20, 2016

NOTES:

1. DEPENDENT OF SOIL ANALYSIS. BACKFILL MIX, AGRIFORM TABLETS.
2. PLANTING PIT DIMENSIONS TWICE THE DIAMETER OF CONTAINER.



**CITY OF ANTIOCH
DEPARTMENT OF PUBLIC WORKS – ENGINEERING SERVICES**

DRAWN BY: S. Rodriguez

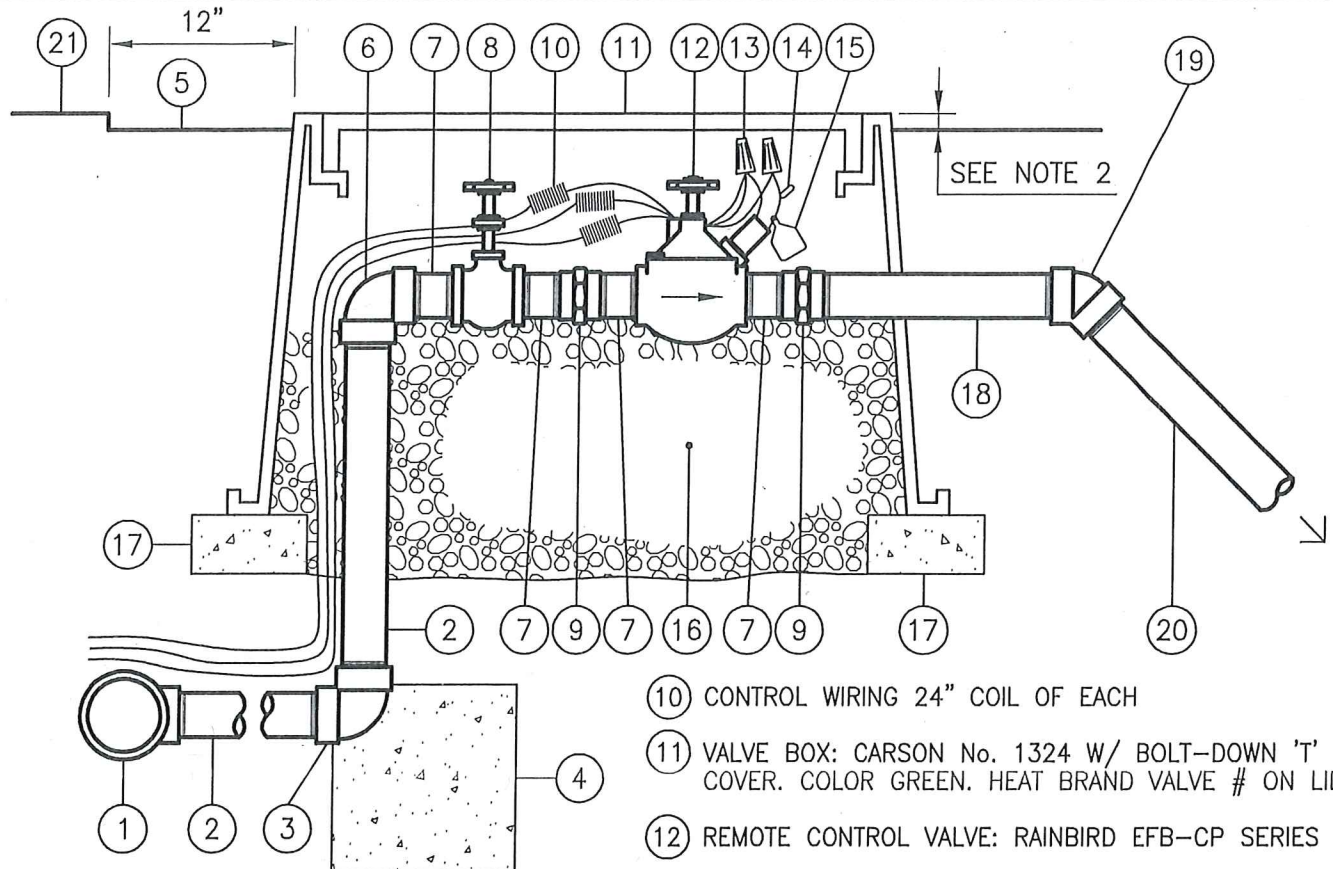
REVISIONS:

**SHRUB & TREE
PLANTING ON SLOPE**

L-10

APPROVED BY:
Ron Bernal
RON BERNAL, P.E.
CITY ENGINEER

DATE: DEC 20, 2016



- ① MAIN LINE FITTING (S x S x T)
- ② SCH. 80 PIPE. LENGTH AS REQUIRED
- ③ SCH. 80 PVC 90° ELBOW (T x T)
- ④ CONCRETE THRUST BLOCK. 1 CU. FT.
- ⑤ FINISH GRADE
- ⑥ SCH. 80 PVC 90° ELBOW (T x T)
- ⑦ SCH. 80 PVC NIPPLE MIN. LENGTH 2"
- ⑧ SHUT-OFF VALVE: NIBCO T-113 W/ WHEEL HANDLE
- ⑨ SCH. 80 PVC UNION (T x T)
- ⑩ CONTROL WIRING 24" COIL OF EACH
- ⑪ VALVE BOX: CARSON No. 1324 W/ BOLT-DOWN 'T' COVER. COLOR GREEN. HEAT BRAND VALVE # ON LID.
- ⑫ REMOTE CONTROL VALVE: RAINBIRD EFB-CP SERIES
- ⑬ SPLICE KIT: 3M 'BY', SNAP TITE, PEN TITE
- ⑭ WIRE LABEL W/ VALVE NUMBER CODE
- ⑮ BRASS VALVE TAG
- ⑯ $\frac{1}{4}$ " CLEAN PEA GRAVEL TO FULLY SUPPORT VALVE (MIN. 2 CU. FT.)
- ⑰ 1 COMMON BRICK AT EA. CORNER
- ⑱ SCH. 80 PVC NIPPLE 12" LENGTH
- ⑲ SCH. 80 PVC 45° ELBOW - ONE OF TWO
- ⑳ REQUIRED TO TRANSITION TO LATERAL DEPTH LATERAL PIPE
- ㉑ EDGE OF PAVING, HEADER BOARD

NOTES:

1. MANIFOLD PIPING, FITTINGS, NIPPLES AND SHUT-OFF VALVE TO BE SAME DIAMETER SIZE (IPS) AS REMOTE CONTROL VALVE.
2. SET TOP OF BOX AT $\frac{3}{4}$ " ABOVE FINISH GRADE IN TURF AREA. IN NON-TURF AREAS SET TOP OF BOX TO TOP OF MULCH.
3. ALL TEES AND FITTINGS ON MAIN LINE SIDE ARE TO BE SCHEDULE 80.



**CITY OF ANTIOCH
DEPARTMENT OF PUBLIC WORKS – ENGINEERING SERVICES**

DRAWN BY: S. Rodriguez

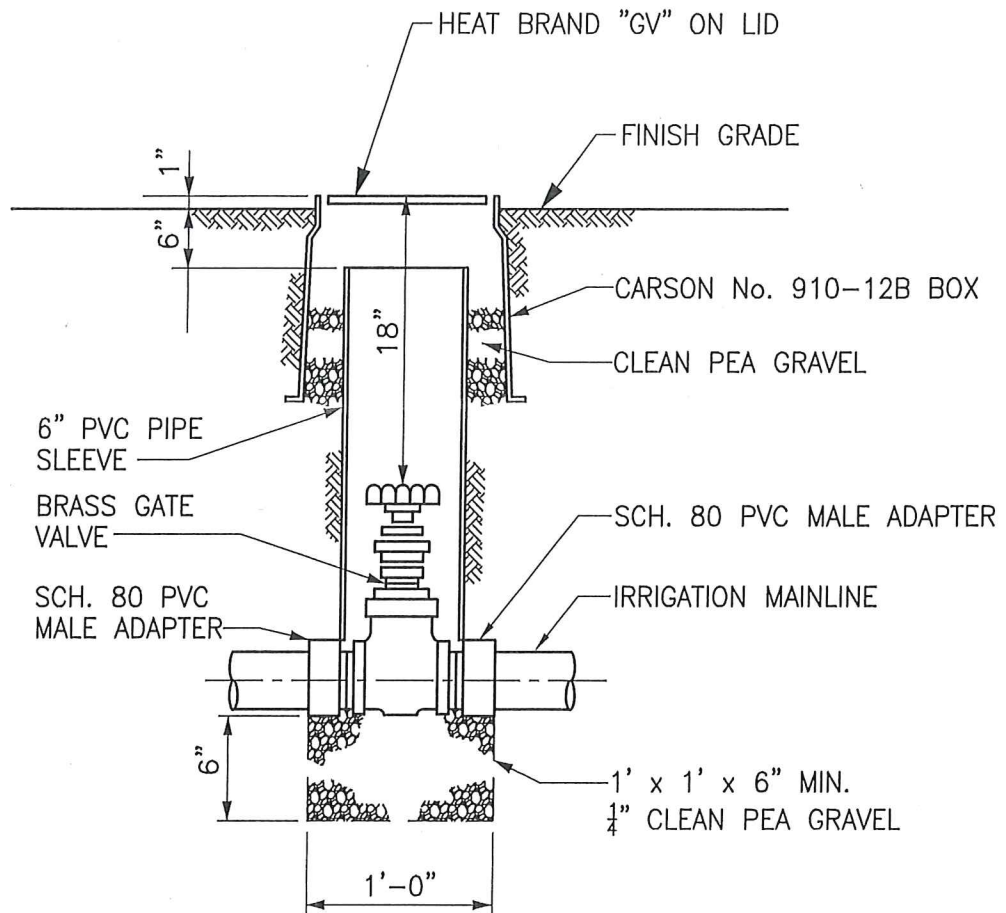
REVISIONS: 7/2019

**IRRIGATION REMOTE
CONTROL VALVE**

L-12

APPROVED BY:

Jon Blank
JON BLANK, P.E.
PUBLIC WORKS DIRECTOR/
CITY ENGINEER
DATE: **JULY, 2019**



CITY OF ANTIOCH
DEPARTMENT OF PUBLIC WORKS – ENGINEERING SERVICES

DRAWN BY: S. Rodriguez

REVISIONS: 7/2019

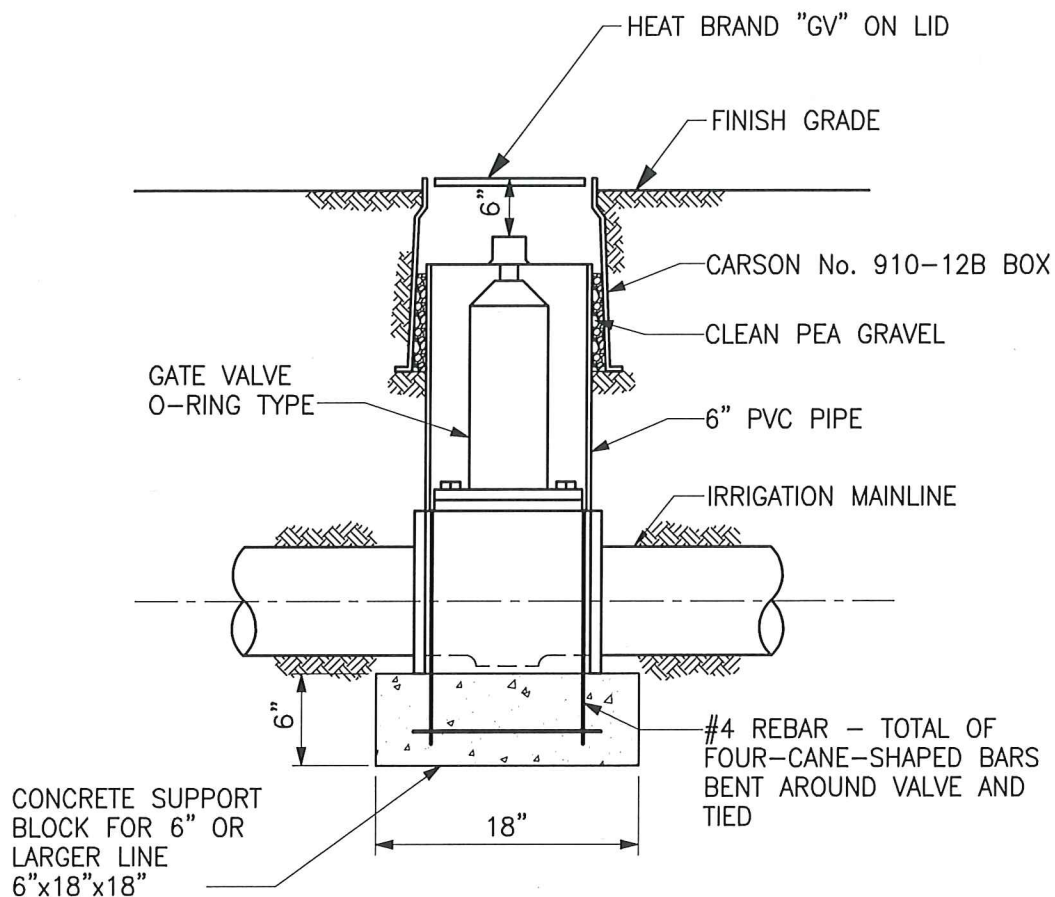
ISOLATION GATE VALVE
2" AND UNDER

L-13

APPROVED BY:

Jon Blank
JON BLANK, P.E.
PUBLIC WORKS DIRECTOR/
CITY ENGINEER

DATE: July, 2019



CITY OF ANTIOCH
DEPARTMENT OF PUBLIC WORKS - ENGINEERING SERVICES

DRAWN BY: S. Rodriguez

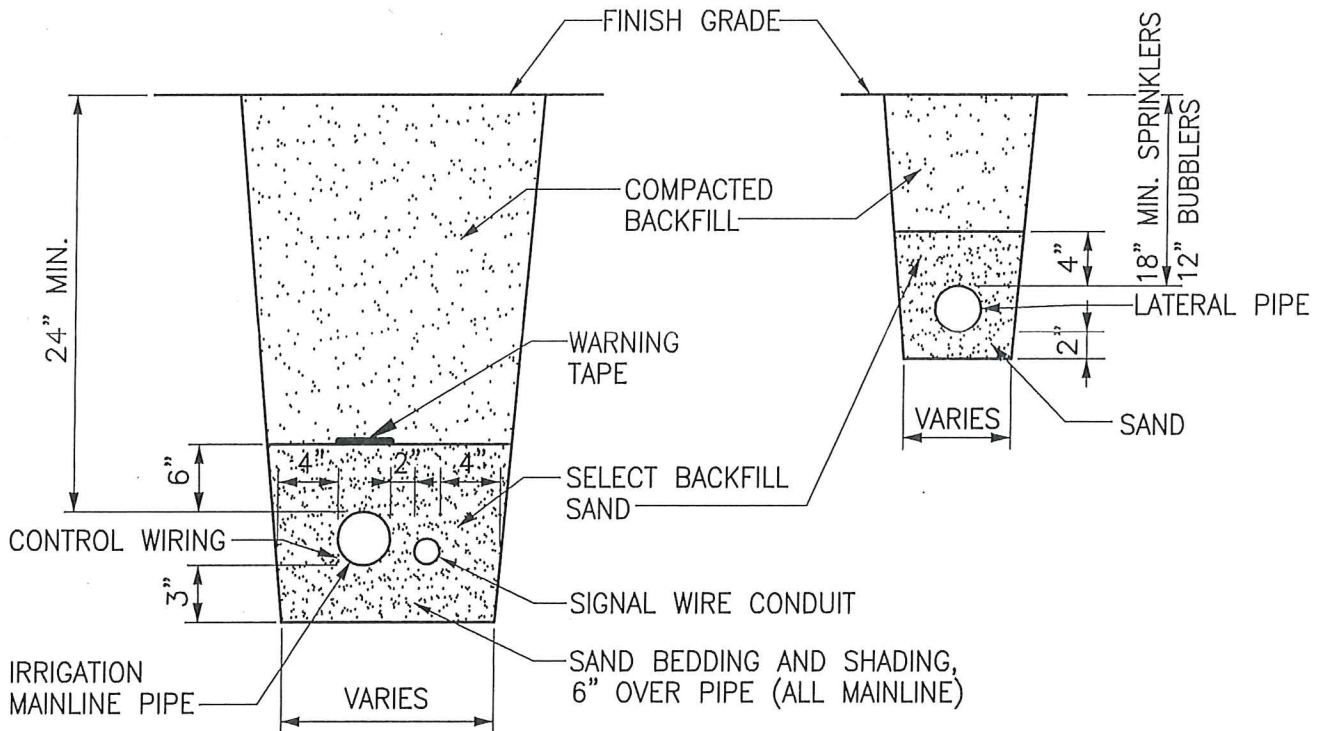
REVISIONS:

ISOLATION GATE VALVE
2-1/2" & OVER

L-14

APPROVED BY:
Ron Bernal
RON BERNAL, P.E.
CITY ENGINEER

DATE: DEC 20, 2016



NOTES:

1. TAPE CONTROL WIRING AT 10' INTERVALS. LEAVE 24" SLACK AT ALL CHANGES OF DIRECTION.
2. PRESSURE TEST SYSTEM AT 125 P.S.I. FOR 2 HOURS ON MAIN LINE AND LATERALS.



**CITY OF ANTIOCH
DEPARTMENT OF PUBLIC WORKS – ENGINEERING SERVICES**

DRAWN BY: S. Rodriguez

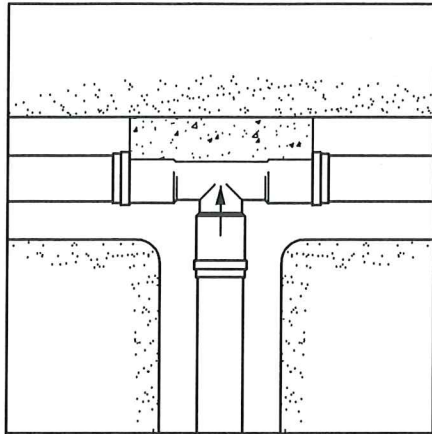
REVISIONS: 7/2019

**TRENCH SECTIONS FOR
IRRIGATION PIPE**

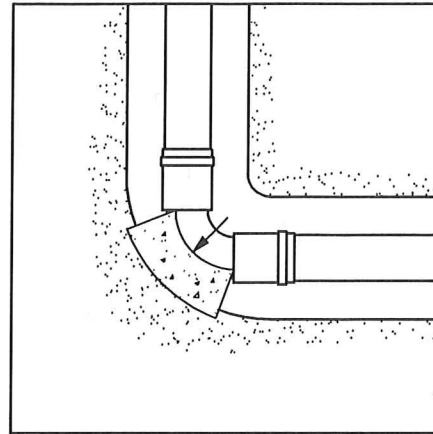
L-15

APPROVED BY:

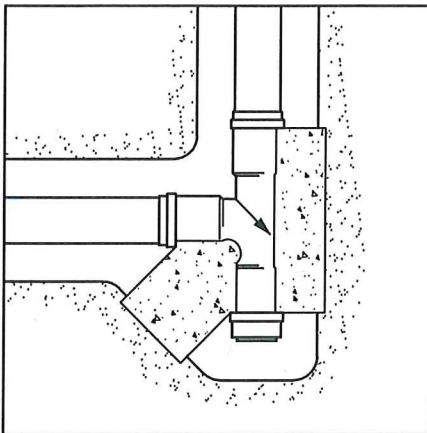
Jon Blank
JON BLANK, P.E.
PUBLIC WORKS DIRECTOR/
CITY ENGINEER
DATE: **JULY, 2019**



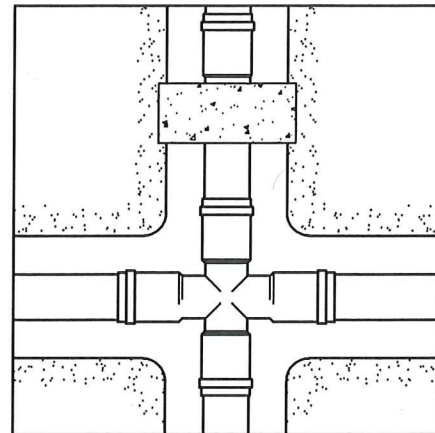
THRU LINE CONNECTION, TEE



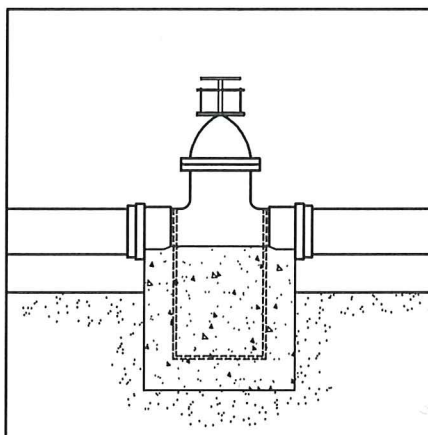
DIRECTION CHANGE, ELBOW



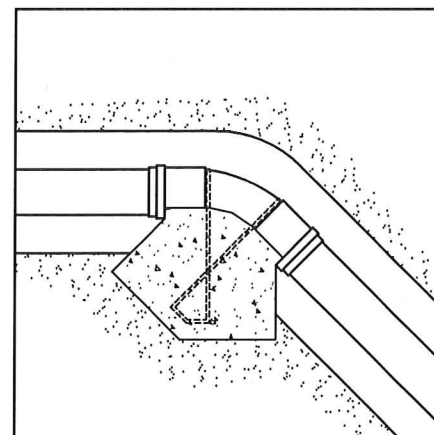
DIRECTION CHANGE, TEE USED
AS ELBOW



CHANGE LINE SIZE, REDUCER



VALVE ANCHOR



DIRECTION CHANGE VERTICAL
BEND ANCHOR

T:\PW STANDARD DRAWINGS\CURRENT CD'S AUTOCAD\L-16 - IRRIGATION TYPICAL THRUST BLOCKS.DWG



CITY OF ANTIOCH
DEPARTMENT OF PUBLIC WORKS – ENGINEERING SERVICES

DRAWN BY: S. Rodriguez

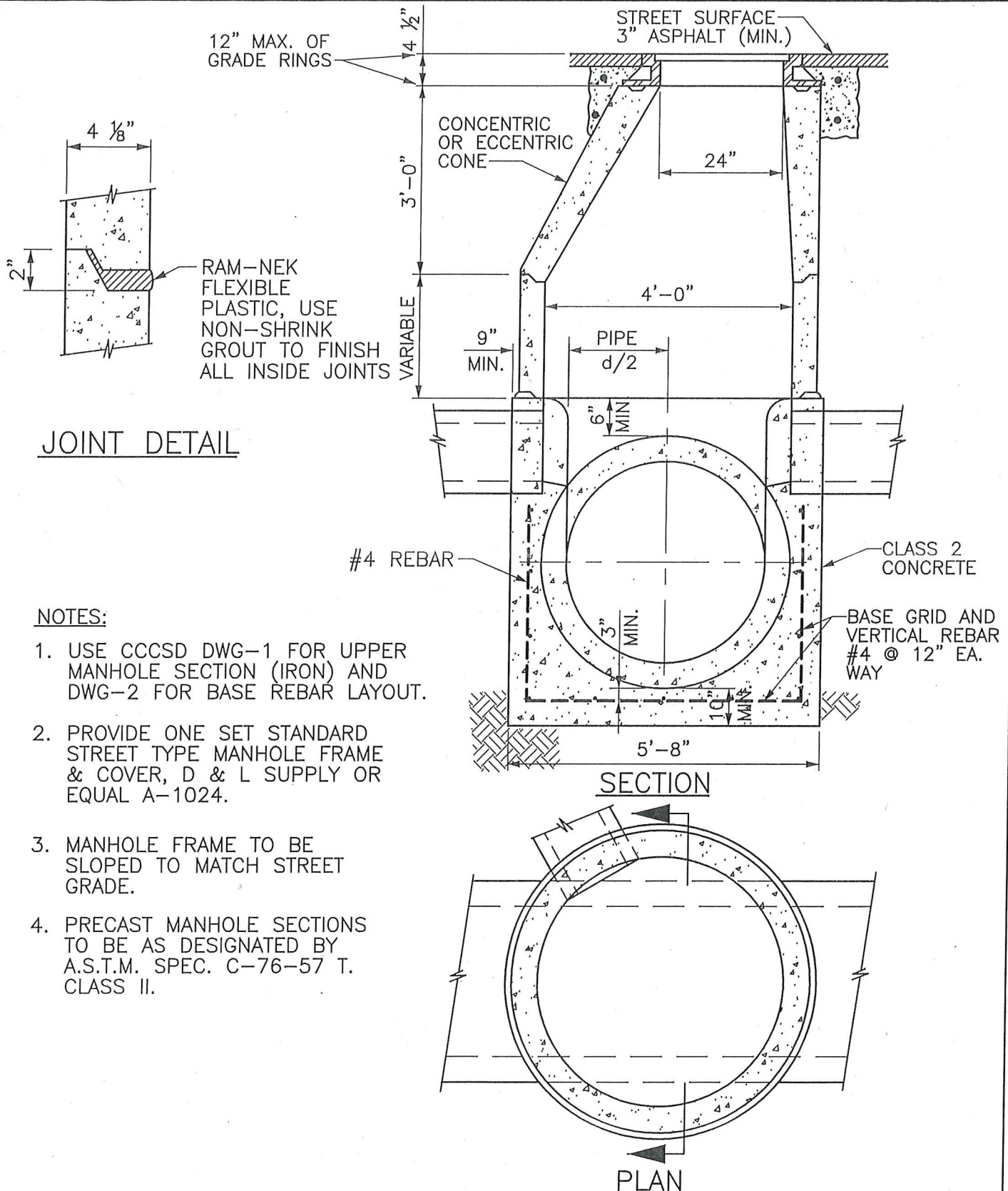
REVISIONS:

IRRIGATION TYPICAL
THRUST BLOCKS

L-16

APPROVED BY:
Ron Bernal
RON BERNAL, P.E.
CITY ENGINEER

DATE: DEC 20, 2016



NOTES:

1. USE CCCSD DWG-1 FOR UPPER MANHOLE SECTION (IRON) AND DWG-2 FOR BASE REBAR LAYOUT.
2. PROVIDE ONE SET STANDARD STREET TYPE MANHOLE FRAME & COVER, D & L SUPPLY OR EQUAL A-1024.
3. MANHOLE FRAME TO BE SLOPED TO MATCH STREET GRADE.
4. PRECAST MANHOLE SECTIONS TO BE AS DESIGNATED BY A.S.T.M. SPEC. C-76-57 T. CLASS II.



CITY OF ANTIOCH
DEPARTMENT OF PUBLIC WORKS – ENGINEERING SERVICES

DRAWN BY: S Rodriguez

REVISIONS: 7/2019

REINFORCED CONCRETE
STORM DRAIN MANHOLE

SD-01

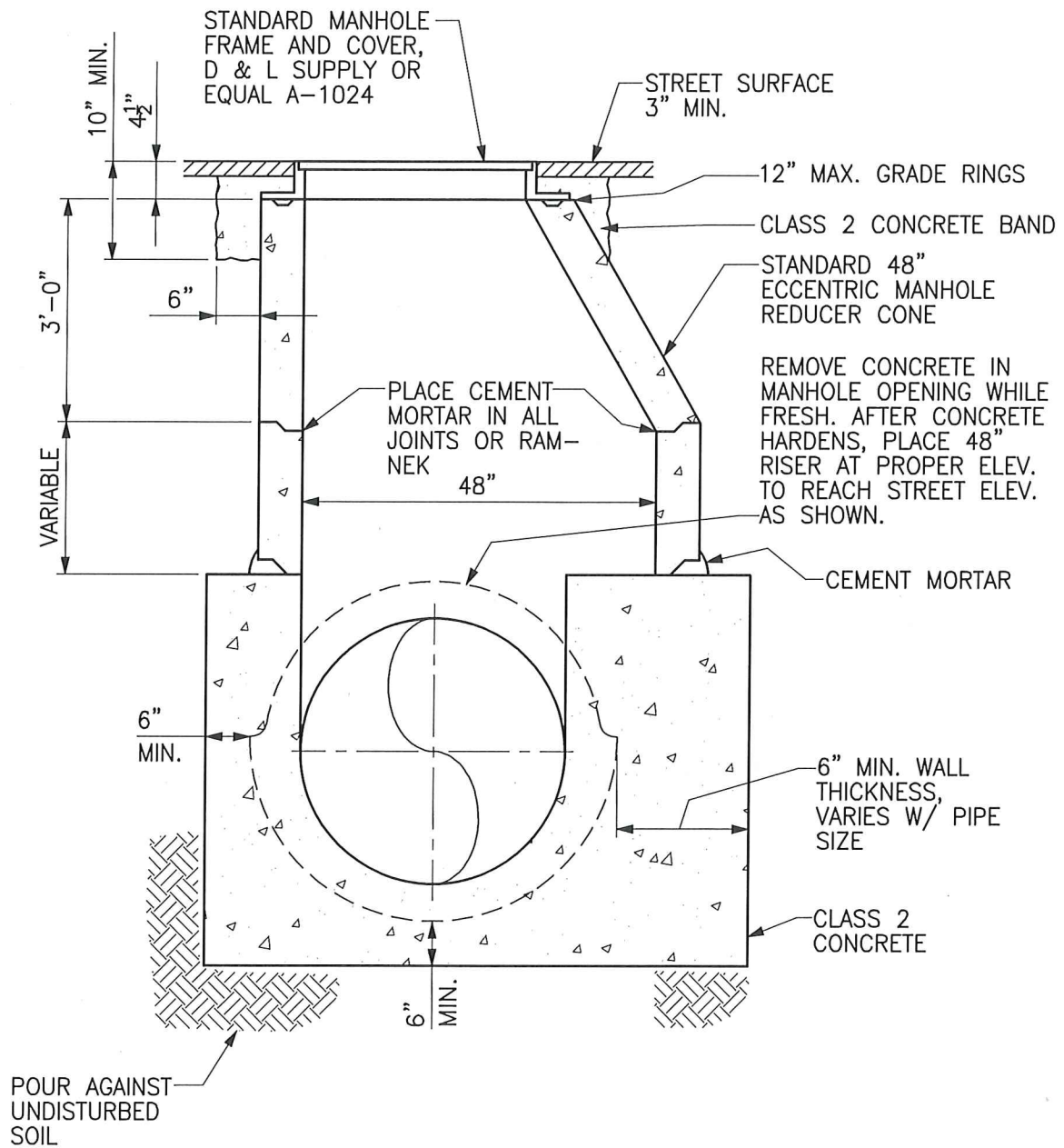
APPROVED BY:

Jon Blank
 JON BLANK, P.E.

PUBLIC WORKS DIRECTOR/
 CITY ENGINEER

DATE: *July, 2019*

*MANHOLE FRAME TO BE SLOPED TO MATCH STREET GRADE
MACHINE SURFACES - RIM & FRAME



T:\PW STANDARD DRAWINGS\CURRENT CD'S AUTOCAD\SD-02 - MANHOLE 48 INCH AND UNDER CAST IN PLACE CONCRETE PIPE.DWG



CITY OF ANTIOCH
DEPARTMENT OF PUBLIC WORKS - ENGINEERING SERVICES

DRAWN BY: S. Rodriguez

REVISIONS:

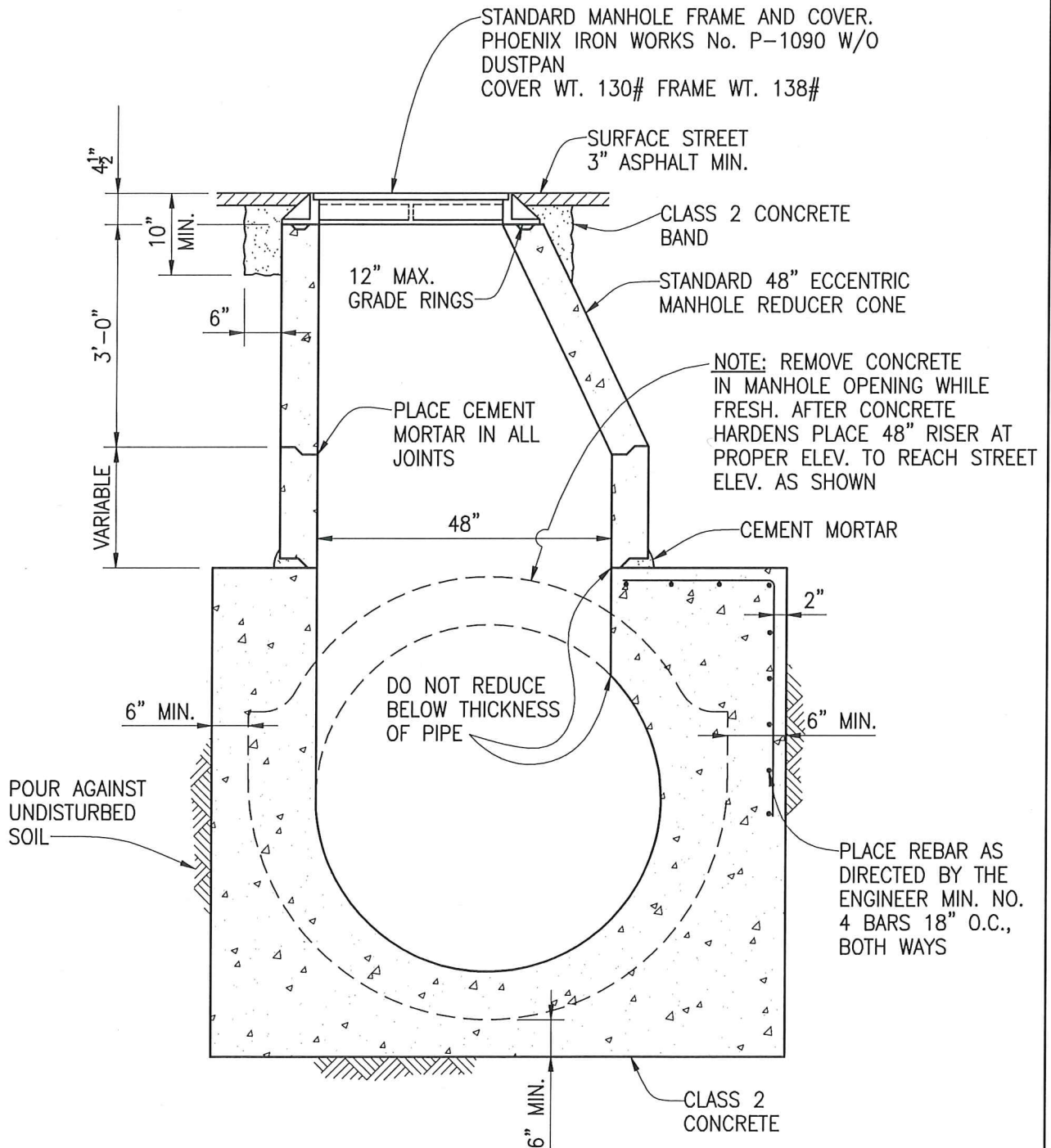
**MANHOLE - 48" AND UNDER
CAST IN PLACE CONCRETE PIPE**

SD-02

APPROVED BY:
Ron Bernal
RON BERNAL, P.E.
CITY ENGINEER

DATE: DEC 20, 2016

MANHOLE FRAME TO BE SLOPED TO MATCH STREET GRADE.
MACHINED SURFACES - RIM AND FRAME.



CITY OF ANTIOCH
DEPARTMENT OF PUBLIC WORKS - ENGINEERING SERVICES

DRAWN BY: S. Rodriguez

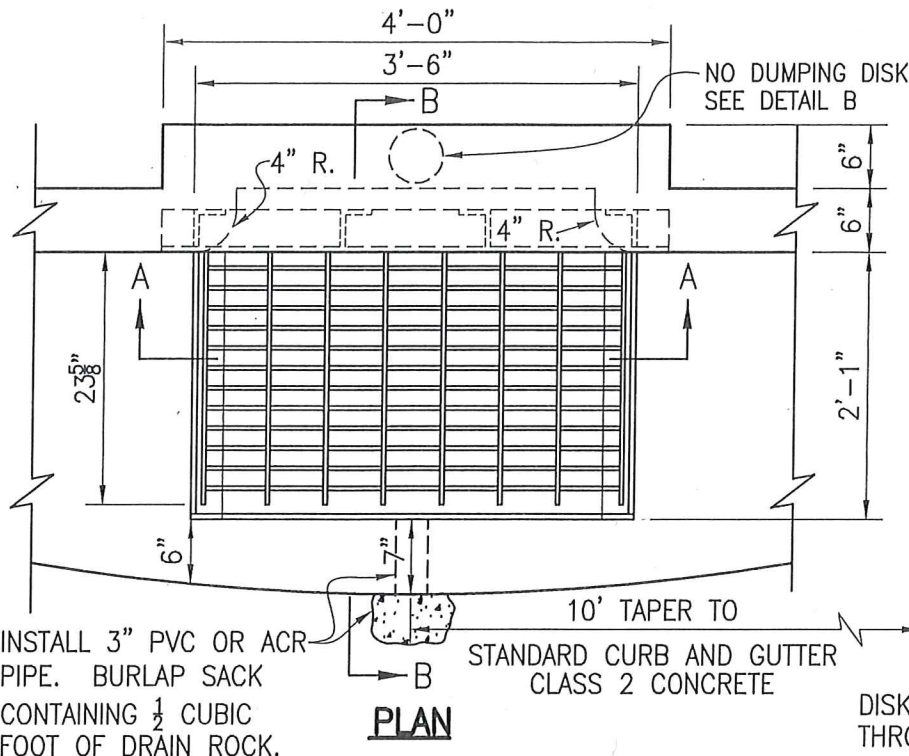
REVISIONS:

**MANHOLE - 52" AND OVER
CAST IN PLACE CONCRETE PIPE**

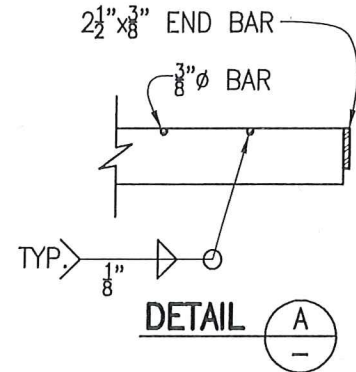
SD-03

APPROVED BY:
Ron Bernal
RON BERNAL, P.E.
CITY ENGINEER

DATE: DEC 20, 2016



STATE OF CALIFORNIA
24-12X GRATE (WELDED STEEL)

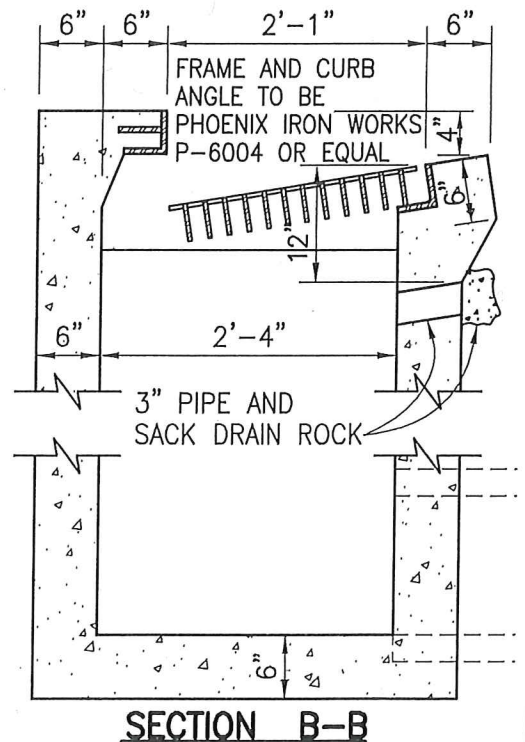
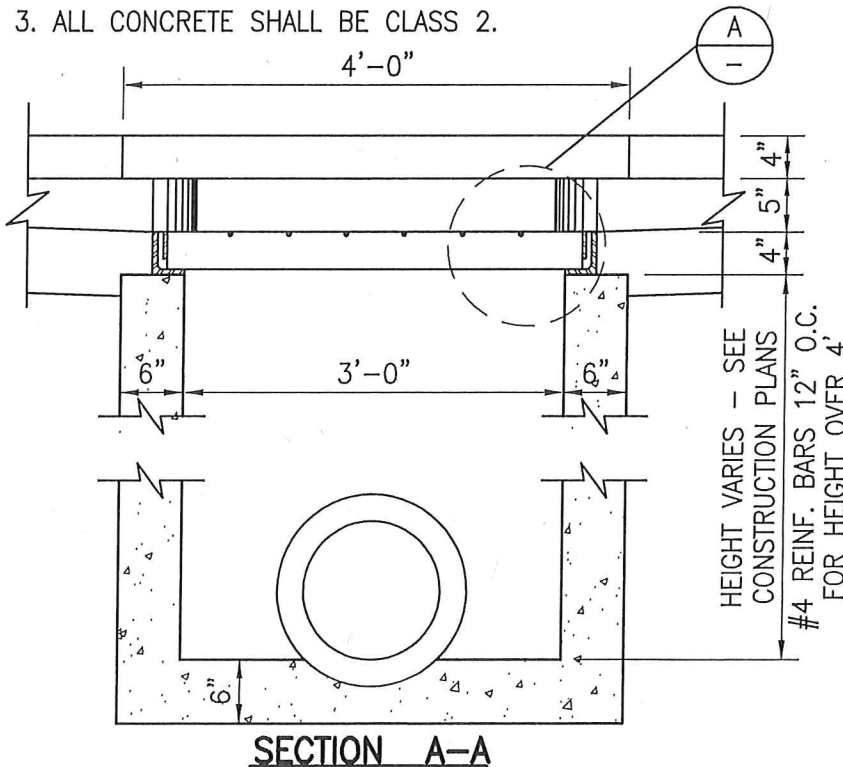


DISK PURCHASED
THROUGH C.O.A.
STORES DIVISION



NOTES:

1. ALL IRON WORK SHALL BE 1/2" GALVANIZED STEEL.
2. GRATES AND FRAMES SHALL BE BICYCLE TYPE.
3. ALL CONCRETE SHALL BE CLASS 2.



CITY OF ANTIOCH
DEPARTMENT OF PUBLIC WORKS - ENGINEERING SERVICES

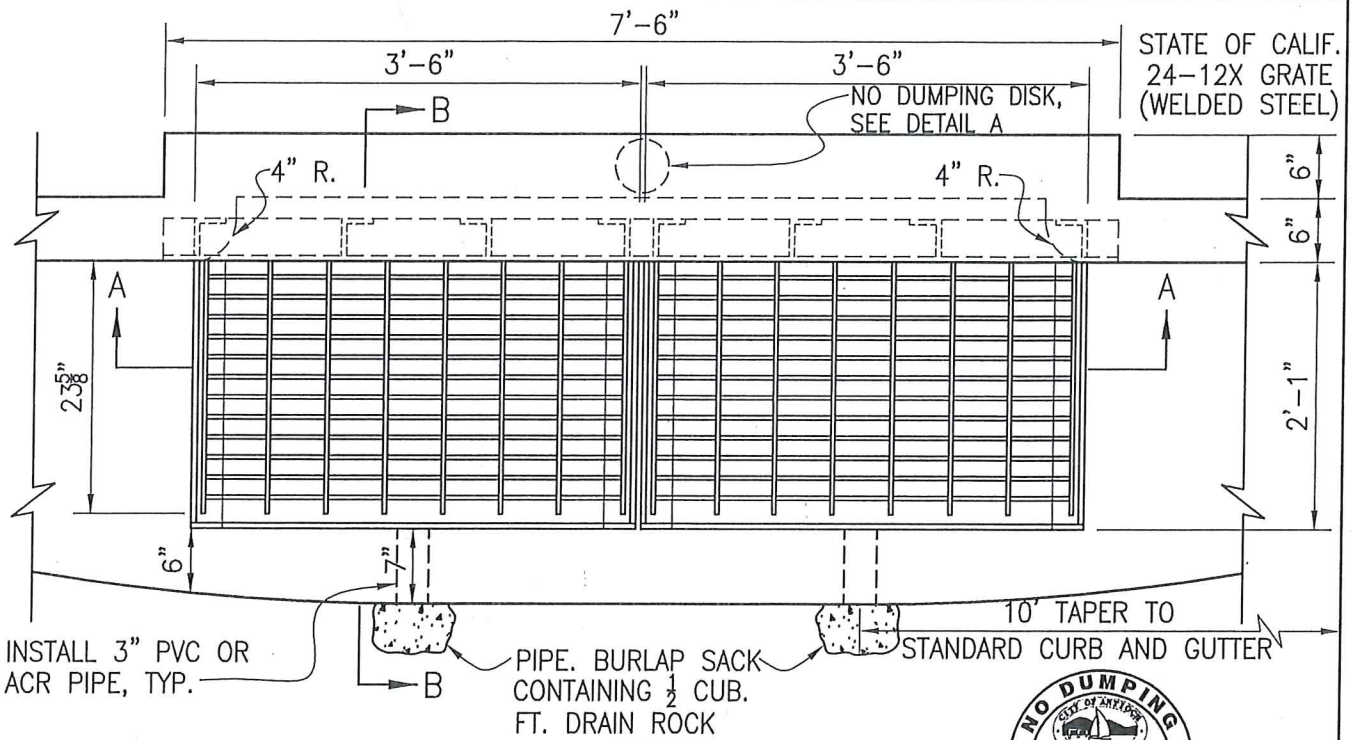
DRAWN BY: S. Rodriguez

REVISIONS: 7/2019

**CATCH BASIN
TYPE 'C' (BICYCLE GRATE)**

SD-04

APPROVED BY:
Jon Blank
JON BLANK, P.E.
PUBLIC WORKS DIRECTOR/
CITY ENGINEER
DATE: **JULY, 2019**

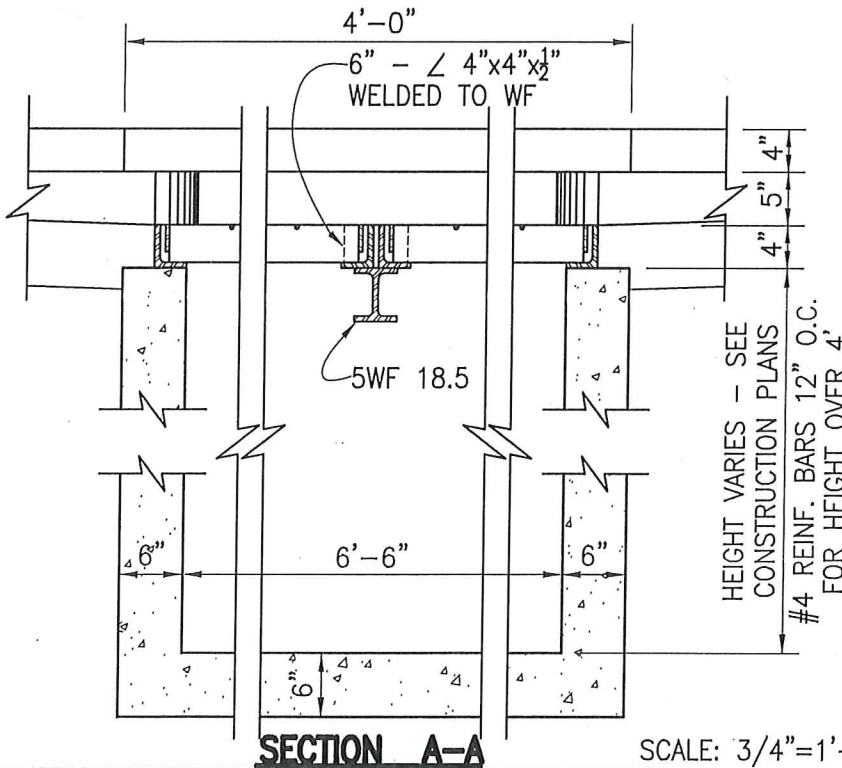


NOTE:

1. ALL IRON WORK SHALL BE 1/2" GALVANIZED STEEL.
2. GRATES AND FRAMES SHALL BE BICYCLE TYPE.
3. ALL CONCRETE SHALL BE CLASS 2.

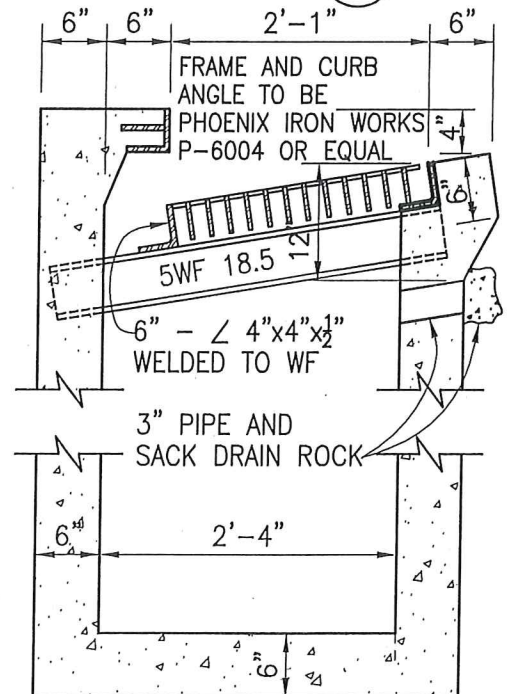
PLAN

DISK PURCHASED THROUGH C.O.A. STORES DIVISION



SECTION A-A

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



SECTION B-B



**CITY OF ANTIOCH
DEPARTMENT OF PUBLIC WORKS - ENGINEERING SERVICES**

DRAWN BY: S. Rodriguez

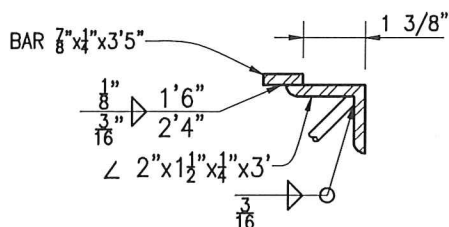
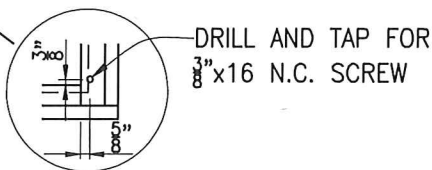
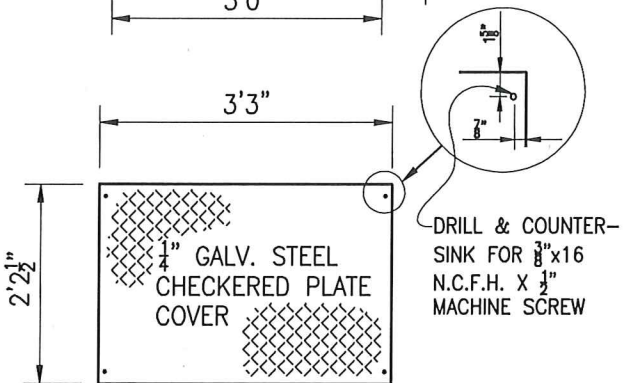
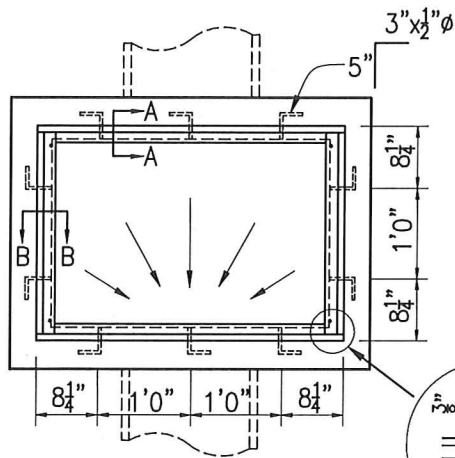
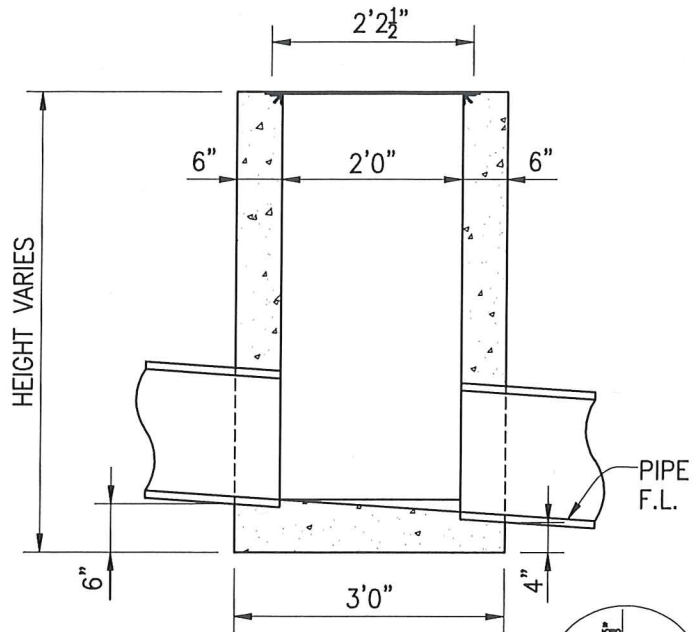
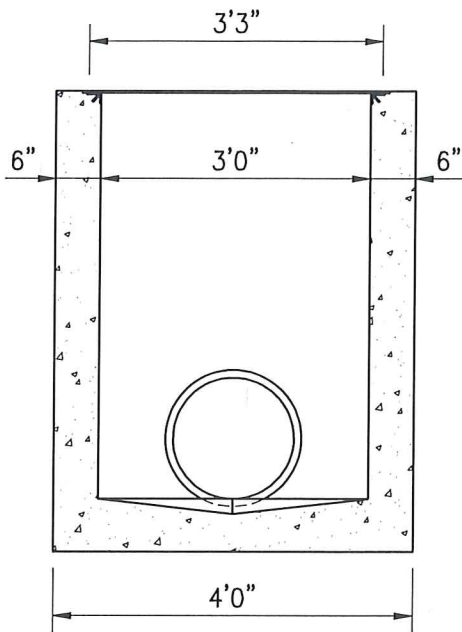
REVISIONS: 7/2019

**DOUBLE CATCH BASIN
TYPE 'C' (BICYCLE GRATE)**

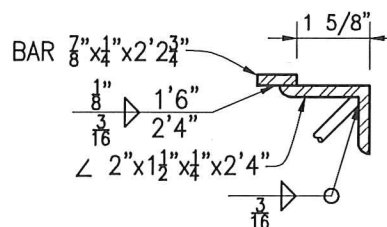
SD-05

APPROVED BY:

Jon Blank
JON BLANK, P.E.
PUBLIC WORKS DIRECTOR/
CITY ENGINEER
DATE: July 2019



SECTION A-A



SECTION B-B

FOR BOX HEIGHTS GREATER THAN 4', USE No. 4 REINF. STEEL AT 18" O.C. MAX. COVER AND FRAME ARE CONTRA COSTA COUNTY STANDARD No. CD 29, DATED MARCH 2014. ALL CONCRETE TO BE CLASS 2.



**CITY OF ANTIOCH
DEPARTMENT OF PUBLIC WORKS – ENGINEERING SERVICES**

DRAWN BY: S. Rodriguez

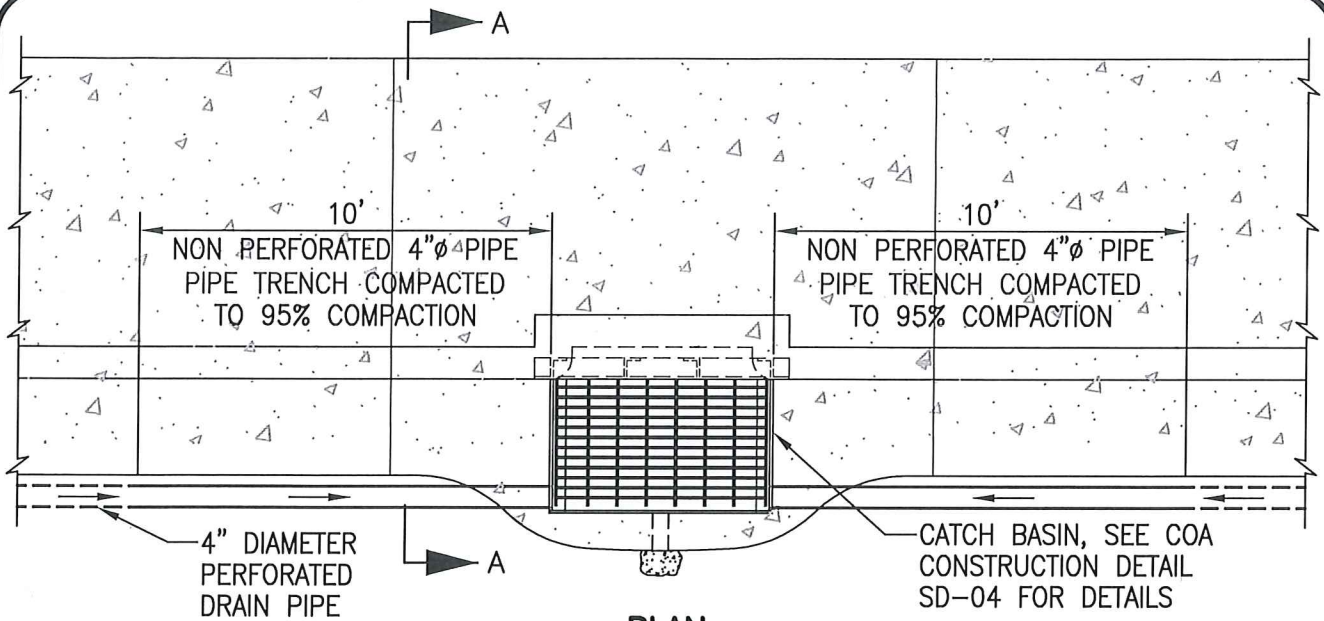
REVISIONS:

JUNCTION BOX

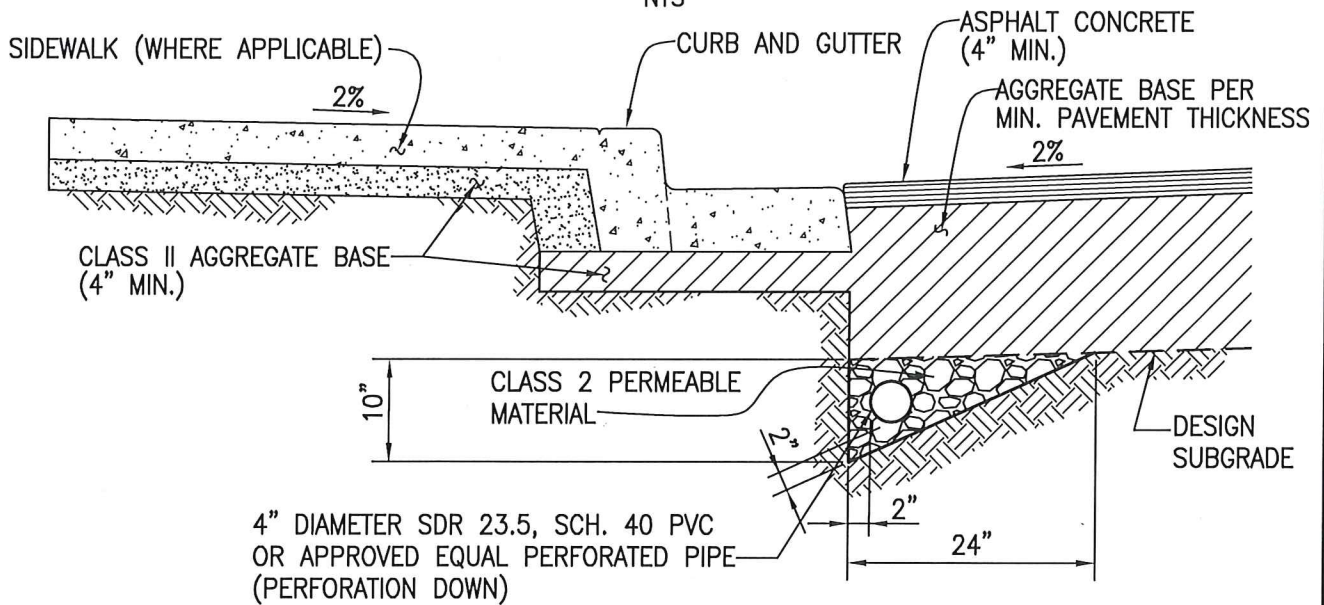
SD-06

APPROVED BY:
Ron Bernal
RON BERNAL, P.E.
CITY ENGINEER

DATE: DEC 20, 2016



PLAN
NTS



SECTION A-A
NTS

NOTES:

1. 4" DIAMETER PERFORATED PIPE TO BE SURROUNDED BY AT LEAST 2" OF CLASS 2 PERMEABLE MATERIAL.
2. 4" DIAMETER PERFORATED PIPE TO DISCHARGE INTO CATCH BASIN OR DRAIN INLET ONLY.
3. LAST 10 FEET OF 4"Ø DIAMETER PIPE TO BE NON PERFORATED PRIOR TO DISCHARGE INTO CATCH BASIN/DRAIN INLET AND PIPE TRENCH TO BE COMPACTED TO 95% COMPACTION.

(NOT TO SCALE)



CITY OF ANTIOCH
PUBLIC WORKS DEPARTMENT

ANTIOCH
CALIFORNIA
OPPORTUNITY LIVES HERE

ROADWAY UNDERDRAIN

JOHN D. SAMUELSON, CITY ENGINEER

DATE: 10/28/2020

REV.:

DRAWING NO.
SD-07

SANITARY SEWER NOTES

1. THE CITY OF ANTIOCH HAS ADOPTED THE CENTRAL CONTRA COSTA SANITARY DISTRICT STANDARD SPECIFICATIONS FOR DESIGN AND CONSTRUCTION AND THE CENTRAL CONTRA COSTA SANITARY DISTRICT APPROVED MATERIALS LIST.
2. SEE ST-14 FOR TRENCH CUT STANDARD.
3. WHEREVER "THE ENGINEER" OR "COUNTY ENGINEER" IS USED, THIS REFERS TO THE ANTIOCH CITY ENGINEER.
4. WHERE THE CCCSD STANDARD SPECIFICATIONS AND STANDARD DRAWINGS MAKE REFERENCE TO "DISTRICT", THE TERM SHALL MEAN THE CITY OF ANTIOCH. EXCEPT WHERE MODIFIED BY THESE CITY STANDARDS, THE CONTRACTOR SHALL FURNISH ALL MATERIALS AND PERFORM ALL CONSTRUCTION OPERATIONS AND INSTALLATIONS, TELEVISION INSPECTION, AND TESTING OF NEW FACILITIES, REGARDLESS OF CONTRADICTION LANGUAGE IN THE CCCSD STANDARDS STATING THAT THE WORK WILL BE PERFORMED BY THE "DISTRICT".
5. NO STEPS IN ANY STRUCTURES (MANHOLES, VAULTS, ETC.)
6. MANHOLE LIDS SHALL SAY "SANITARY SEWER".
7. THE SPECIFICATIONS CAN PURCHASED AT:
CCCSD OFFICES
5019 IMHOFF PLACE
MARTINEZ, CA 94553
(925)229-3890

OR THE SPECIFICATIONS CAN BE FOUND AT:
[HTTP://WWW.CENTRALSAN.ORG/DOCUMENTS/STANDARD_SPECS_2014_EDITION_AMENDED_AUGUST_2015.PDF](http://WWW.CENTRALSAN.ORG/DOCUMENTS/STANDARD_SPECS_2014_EDITION_AMENDED_AUGUST_2015.PDF).
AND THE ASSOCIATED DRAWINGS CAN BE FOUND AT:
[HTTP://WWW.CENTRALSAN.ORG/DOCUMENTS/STANDARD_SPECS_DRAWINGS_ONLY.PDF](http://WWW.CENTRALSAN.ORG/DOCUMENTS/STANDARD_SPECS_DRAWINGS_ONLY.PDF).
THE APPROVED MATERIALS LIST CAN BE FOUND AT:
[HTTP://WWW.CENTRALSAN.ORG/DOCUMENTS/APPROVED_MATERIALS_LIST.PDF](http://WWW.CENTRALSAN.ORG/DOCUMENTS/APPROVED_MATERIALS_LIST.PDF).
8. SOME OF THE MORE COMMONLY USED DETAILS HAVE BEEN INCLUDED IN THE APPENDIX OF THIS DOCUMENT.



CITY OF ANTIOCH DEPARTMENT OF PUBLIC WORKS – ENGINEERING SERVICES

DRAWN BY: S. Rodriguez

REVISIONS:

SANITARY SEWER NOTES

SS-01

APPROVED BY:

RON BERNAL, P.E.
CITY ENGINEER

DATE: DEC 20, 2016

SEWER SERVICE INSTALLATION POLICY

IT IS THE POLICY OF THE CITY OF ANTIOCH TO REGULATE ALL CONSTRUCTION WORK NECESSARY FOR THE TAPPING OF CITY SEWER MAINS IN SERVICE AND FOR THE EXTENDING OF ALL SERVICE LATERALS TO THE STREET RIGHT-OF-WAY LINE IN A LOCATION MUTUALLY ACCEPTABLE TO THE CUSTOMER AND THE CITY, WITH PRIVATE LICENSED CONTRACTORS.

THE ENCROACHMENT PERMIT COST OF EACH INSTALLATION SHALL BE PAID IN ADVANCE BY THE CUSTOMER OR LICENSED CONTRACTOR, IN ADDITION TO THE VARIOUS FEES REQUIRED FOR SERVICES, BY POSTING A DEPOSIT BASED ON A COST ESTIMATE PREPARED BY ENGINEERING SERVICES.

NEW SUBDIVISION AREAS OR OTHER LARGE DEVELOPMENTS WHICH INCLUDE INSTALLATION OF SEWER MAINS WILL BE ALLOWED TO TAP MAINS AND RUN LATERALS BY A QUALIFIED, LICENSED CONTRACTOR IN ACCORDANCE WITH THE SUBDIVISION AGREEMENT OR OTHER PRIOR CITY APPROVAL OF SUCH WORK.

IN ANY CASE, THE CONTRACTOR SHALL NOT DISCONNECT ANY PIPES AFFECTING SEWER SERVICES TO CUSTOMERS IN THE OPERATIONAL SEWER SYSTEM WITHOUT PRIOR CITY APPROVAL AND NOTICE TO CUSTOMERS. ALL WORK SHALL BE DONE IN A MANNER TO MINIMIZE THE INCONVENIENCE TO SEWER CUSTOMERS AND PUBLIC TRAFFIC.

T:\PW STANDARD DRAWINGS\CURRENT CD'S AUTOCAD\SS-02 - SEWER SERVICE INSTALLATION POLICY.DWG



CITY OF ANTIOCH DEPARTMENT OF PUBLIC WORKS – ENGINEERING SERVICES

DRAWN BY: S. Rodriguez

REVISIONS:

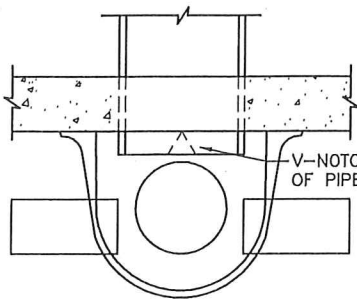
SEWER SERVICE INSTALLATION POLICY

SS-02

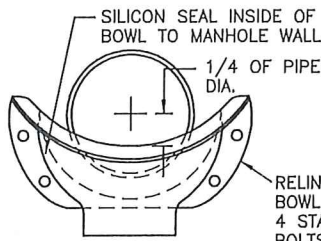
APPROVED BY:

RON BERNAL, P.E.
CITY ENGINEER

DATE: DEC 20, 2016



**DROP BOWL
MOUNTING POSITION
TOP VIEW**



**DROP BOWL
MOUNTING POSITION
FRONT VIEW**

RELINER® INSIDE DROP
BOWL SECURED WITH
4 STAINLESS STEEL
BOLTS

CI/PVC CAULDER
COUPLING OR
APPROVED EQUAL

RELINER® STAINLESS
STEEL STRAPS OR
APPROVED EQUAL.
SECURE TO STRUCTURE
WITH 2 STAINLESS STEEL
BOLTS. STRAP AT 4'
INTERVALS (MIN. OF 2)
SEE SS-03A

1/4 OF PIPE DIA.

PVC SEWER
PIPE SDR-26
MATCH BOWL
OUTLET DIAMETER

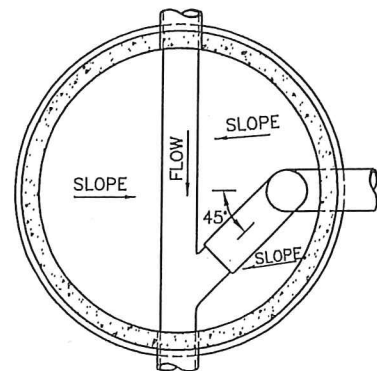
MAX.
6"
1'
2'
BELL & SPIGOT
SHIELDED RUBBER
COUPLING
NON-SHRINK
GROUT
CORE BORE
MIN. HEIGHT
MODEL A-4 & A-6 = 3'
MODEL B-8 & B-10 = 4'

GLUE FITTING

ELBOW EMBEDDED
IN CONC. AT 45°
W/ SEWER FLOW

DROP CONNECTION
PIPE INVERT SHALL
MATCH THE
SPRING LINE OF

1. THE USE OF A DROP MANHOLE MUST BE PRE-APPROVED BY THE CITY ENGINEER.
2. CREATING A HOLE IN THE MANHOLE WALL SHALL BE BY CORE BORE REQUIRING THE OUTSIDE DIAMETER BE PRE DRILLED NO MORE THAN 1" APART AT LEAST TO SPRING LINE OF NEW PIPE LOCATION, THEN ABOUT 2" APART ON THE TOP. EITHER METHOD MUST INSURE MANHOLE INTEGRITY. SEAL BOTH INSIDE AND OUTSIDE WITH NON-SHRINK GROUT.
3. ALL INSIDE DROP CONNECTIONS FOR SERVICES AND COLLECTOR SEWERS SHALL USE THE DROP BOWL AS PRODUCED BY: RELINER-DURAN, INC., 53 MT. ARCHER RD., LYME, CT 06371, (860)434-0277 FAX: (860)434-3195 OR APPROVED EQUAL.
4. DROP BOWL MODEL "A-4" SHALL BE USED FOR ALL LINES UP THROUGH FULL 6" INLETS. DROP BOWL MODEL "A-6" SHALL BE USED FOR ALL 8" INLETS. DROP BOWLS MODEL "B-8" SHALL BE USED FOR ALL 10" INLETS. MODEL "B-10" SHALL BE USED FOR ALL 12" INLETS.
5. FOR RESIDENTIAL SERVICE, 4" PIPE AND 4" BOWL SHALL BE USED.
6. SECURE DROP PIPE TO MANHOLE WALL WITH RELINER-DURAN, INC STAINLESS STEEL ADJUSTABLE CLAMPING BRACKETS OR APPROVED EQUAL (SEE MH-10).
7. ATTACH THE DROP BOWL & EACH CLAMPING BRACKET TO THE MANHOLE WALL WITH STAINLESS STEEL 3/8" X 3 3/4" RAMSET/RED HEAD BOLTS. PRE-ROTO DRILL AND SET BOLTS IN PLACE WITH EPOXY PASTE. EPOXY SHALL MEET THE FOLLOWING REQUIREMENTS:
 - A. EPOXY PASTE SHALL BE A TWO COMPONENT, 100% SOLID SYSTEM. EPOXY SHALL BE SIKADUR 31 HI-MOD GEL BY SIKA CORPORATION (PHONE 592/941-0231) OR EQUAL.
 - B. THE EPOXY PASTE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 5,000 PSI IN 28 DAYS WHEN TESTED IN ACCORDANCE WITH ASTM D695 AT 73 DEGREES.
 - C. THE EPOXY PASTE SHALL DEVELOP A MINIMUM TENSILE STRENGTH OF 3,000 PSI IN 14 DAYS WHEN TESTED IN ACCORDANCE WITH ASTM D638.
 - D. THE EPOXY PASTE SHALL DEVELOP A MINIMUM BOND STRENGTH OF 2,000 PSI IN 2 DAYS WHEN TESTED IN ACCORDANCE WITH ASTM C882 (HARDENED CONCRETE TO HARDENED CONCRETE).
 - E. MANUFACTURER'S INSTRUCTIONS SHALL BE PRINTED ON EACH CONTAINER IN WHICH THE MATERIALS ARE PACKAGED.
8. MAXIMUM 2 DROP CONNECTIONS PER MANHOLE.



**SECTION A-A
PLAN**



**CITY OF ANTIOCH
DEPARTMENT OF PUBLIC WORKS – ENGINEERING SERVICES**

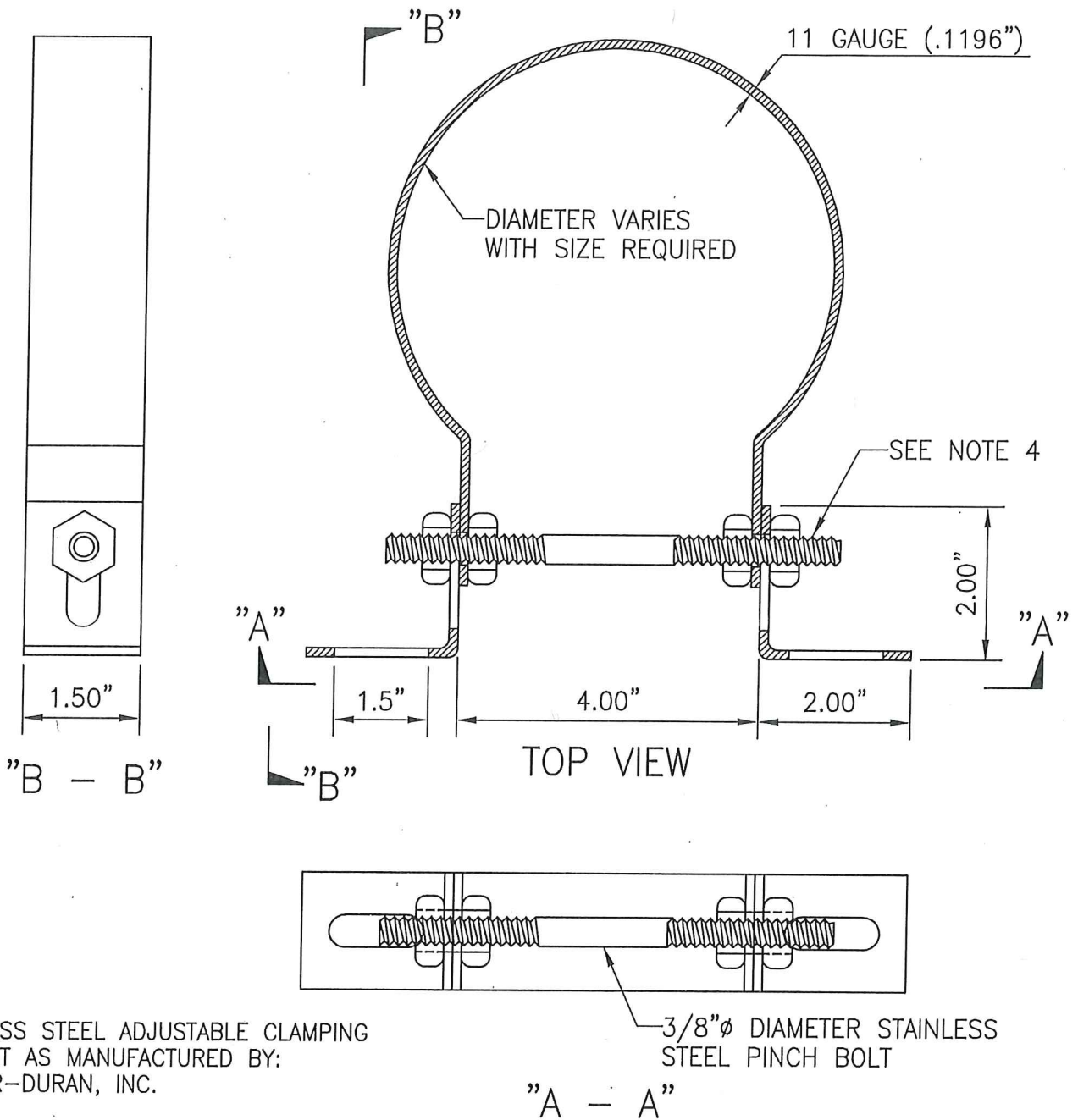
DRAWN BY: S. Rodriguez

REVISIONS: 5/2019

**REINFORCED CONCRETE
DROP MANHOLE**

SS-03

APPROVED BY:
Jon Blank
JON BLANK, P.E.
PUBLIC WORKS DIRECTOR/
CITY ENGINEER
DATE: **May. 2019**



STAINLESS STEEL ADJUSTABLE CLAMPING
BRACKET AS MANUFACTURED BY:
RELINER-DURAN, INC.

SPECIFICATIONS:

1. CLAMP AND BRACKETS ARE TYPE 304 STAINLESS STEEL
11 GAUGE (.1196")
2. 3/8"Ø PINCH BOLT AND NUTS ARE TYPE 18-8
STAINLESS STEEL.
3. STANDARD SIZES TO FIT 6" AND 8" PVC SEWER
PIPE SDR-26.
4. LIBERALLY COAT ALL THREADS WITH ANTI-SEIZE.



CITY OF ANTIOCH
DEPARTMENT OF PUBLIC WORKS – ENGINEERING SERVICES

DRAWN BY: S. Rodriguez

REVISIONS: 5/2019

**DROP CONNECTION
ADJUSTABLE PIPE BRACKET**

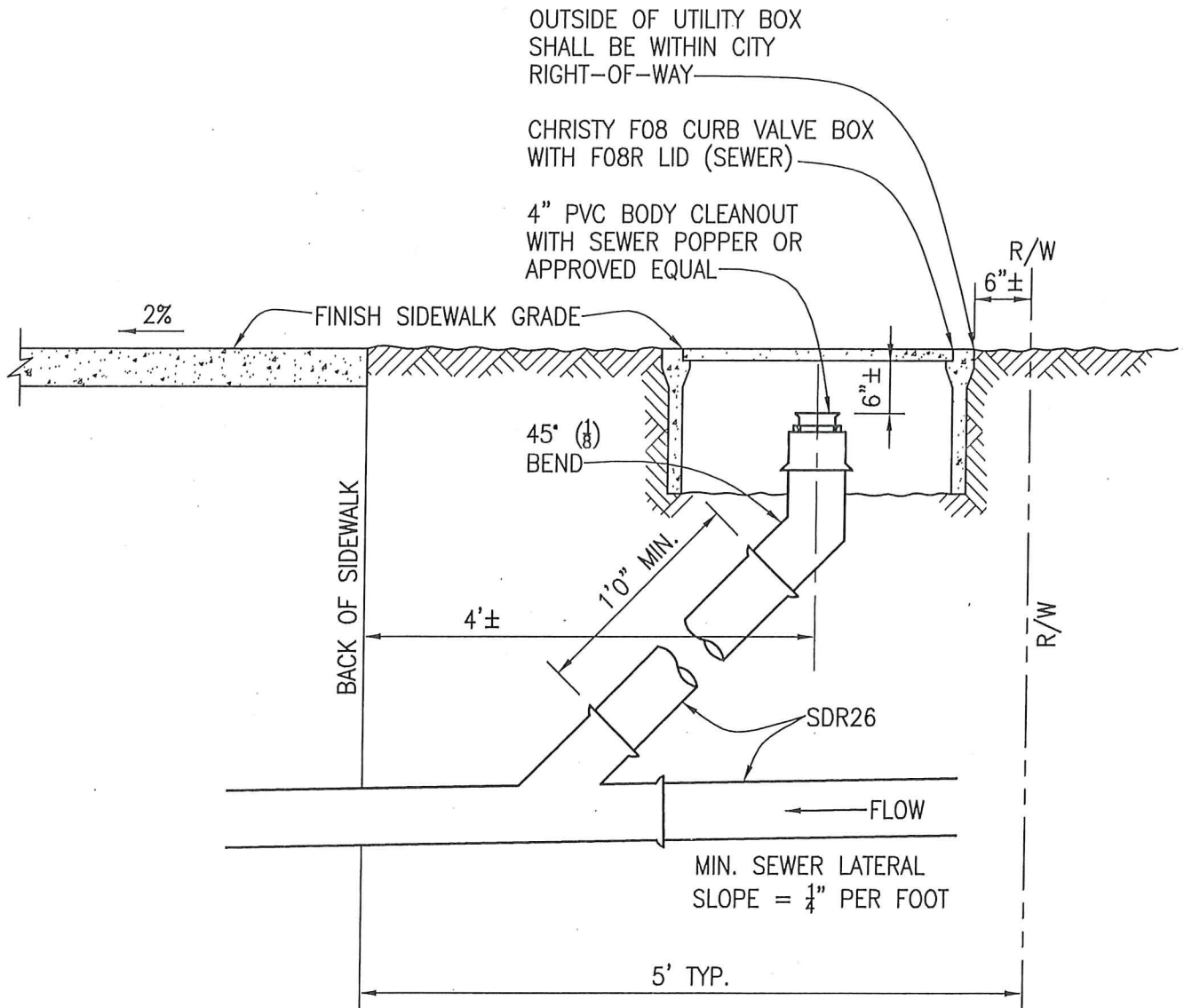
SS-03A

APPROVED BY:

Jon Blank
JON BLANK, P.E.
PUBLIC WORKS DIRECTOR/
CITY ENGINEER
DATE: *May 2019*

NOTE:

1. USE FERNCO STRONG BACK RC COUPLINGS OR APPROVED EQUAL FOR REPAIRS OR TIE INS.
2. FITTINGS SHALL BE SDR26.



CITY OF ANTIOCH
DEPARTMENT OF PUBLIC WORKS – ENGINEERING SERVICES

DRAWN BY: S. Rodriguez

REVISIONS: 5/2019

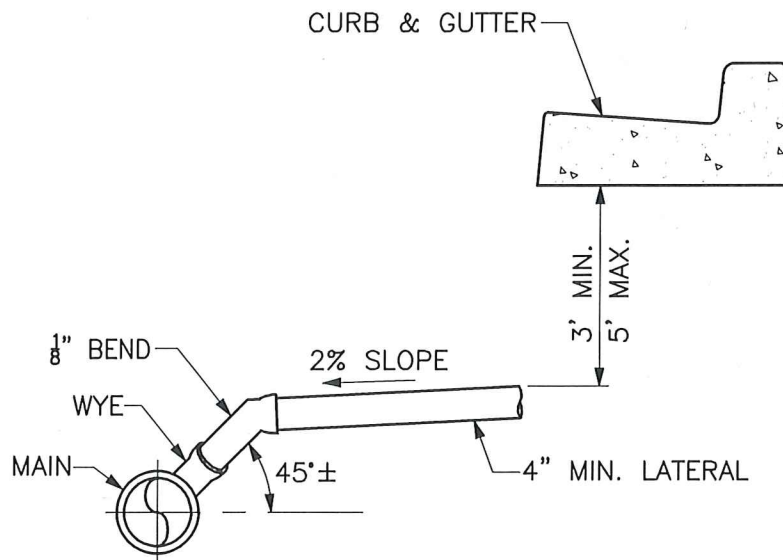
**SEWER LATERAL
CLEANOUT**

SS-04

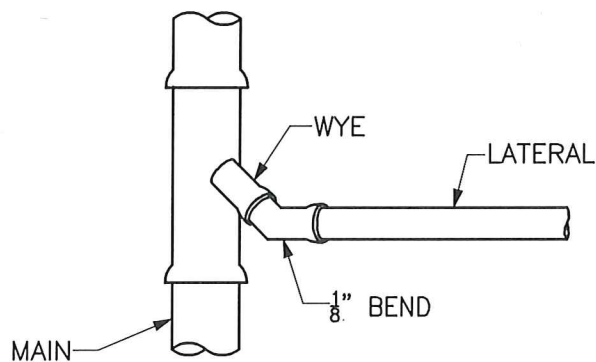
APPROVED BY:

Jon Blank
JON BLANK, P.E.
PUBLIC WORKS DIRECTOR/
CITY ENGINEER

DATE: **May. 2019**



ELEVATION



PLAN

NOTE:

1. USE FERNCO STRONG BAND RC COUPLINGS OR APPROVED EQUAL FOR REPAIRS AND/OR TIE-INS TO EXISTING LINES.
2. SEE CCCSD DWG-25 FOR ADDITIONAL INFORMATION.



**CITY OF ANTIOCH
DEPARTMENT OF PUBLIC WORKS – ENGINEERING SERVICES**

DRAWN BY: S. Rodriguez

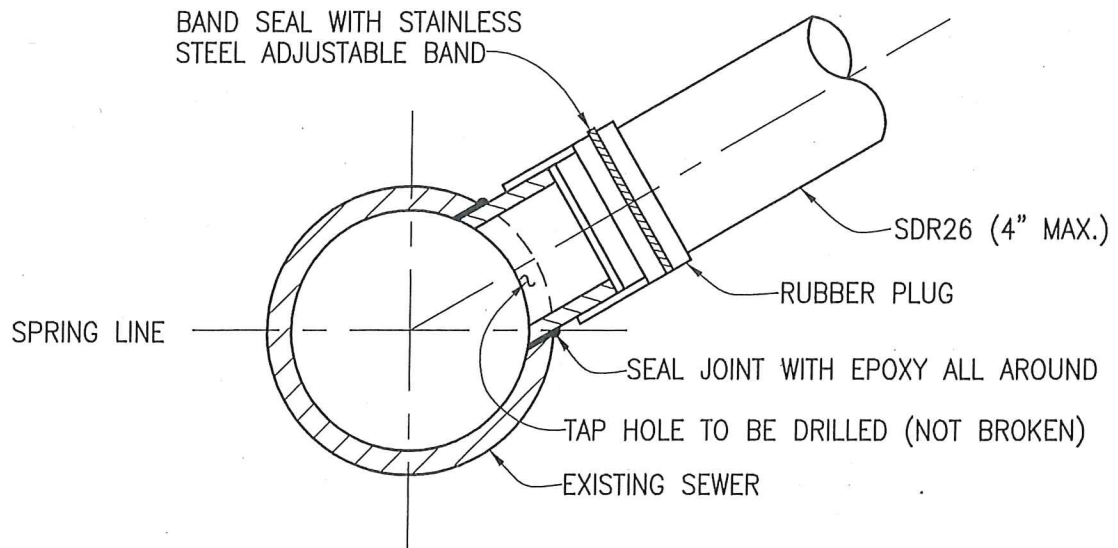
REVISIONS:

SEWER LATERAL WYE

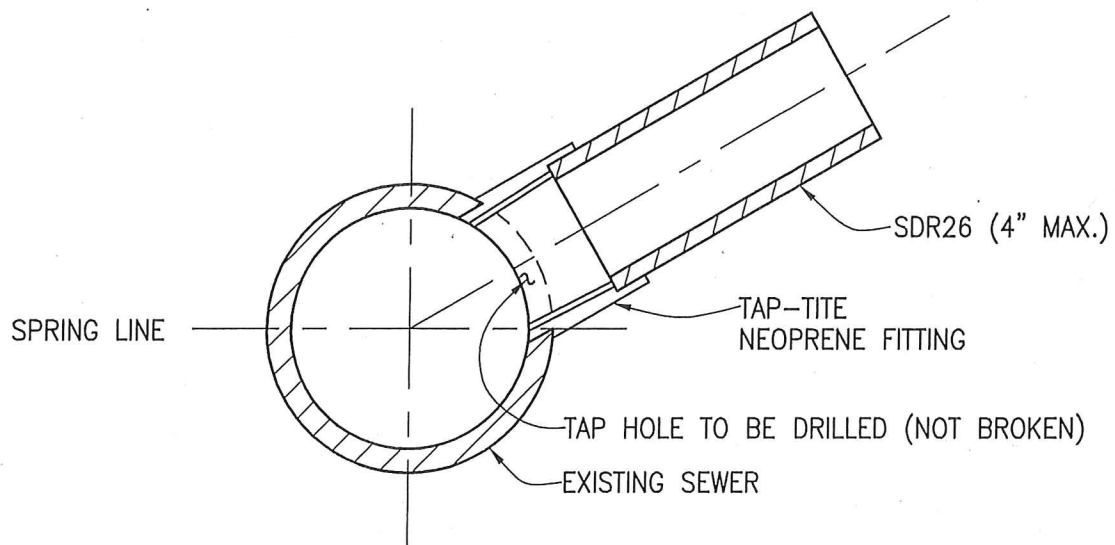
SS-05

APPROVED BY:
Ron Bernal
RON BERNAL, P.E.
CITY ENGINEER

DATE: DEC 20, 2016



SHURE-TAP



TAP-TITE

NOTES:

1. TAPPING METHOD SHALL BE SHURE-TAP, TAP-TITE OR EQUAL APPROVED BY ENGINEER.
2. NO TAP SHALL BE ALLOWED INTO EXISTING SEWER LESS THAN 6" DIA., OR 18" DIA. OR LARGER.
3. USE OF PREFABRICATED WYE'S MUST BE APPROVED BY ENGINEER.



CITY OF ANTIOCH DEPARTMENT OF PUBLIC WORKS – ENGINEERING SERVICES

DRAWN BY: S. Rodriguez

REVISIONS: 5/2019

LATERAL TAP SEWER MAIN

SS-06

APPROVED BY:

Jon Blank
JON BLANK, P.E.
PUBLIC WORKS DIRECTOR/
CITY ENGINEER
DATE: *May 2019*



45° BEND (USE WYE IF IN LINE RODDING INLET OR
IN LINE TO BE EXTENDED AND R.I. WILL REMAIN.)

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



CITY OF ANTIOCH
DEPARTMENT OF PUBLIC WORKS – ENGINEERING SERVICES

DRAWN BY: S. Rodriguez

REVISIONS: 5/2019

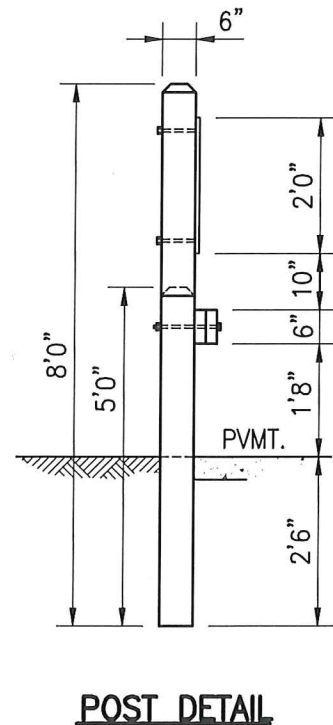
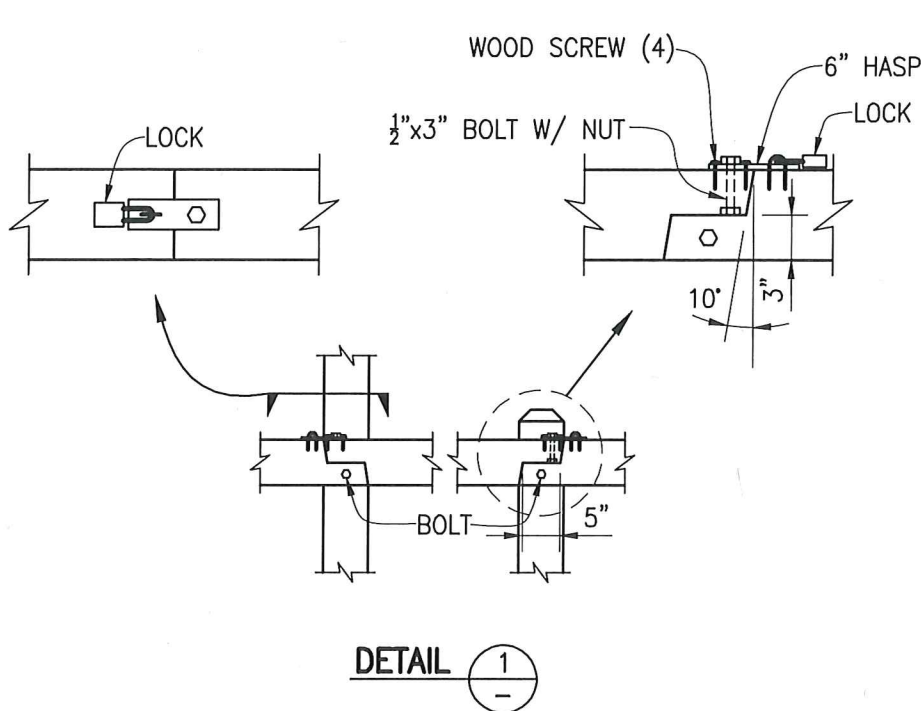
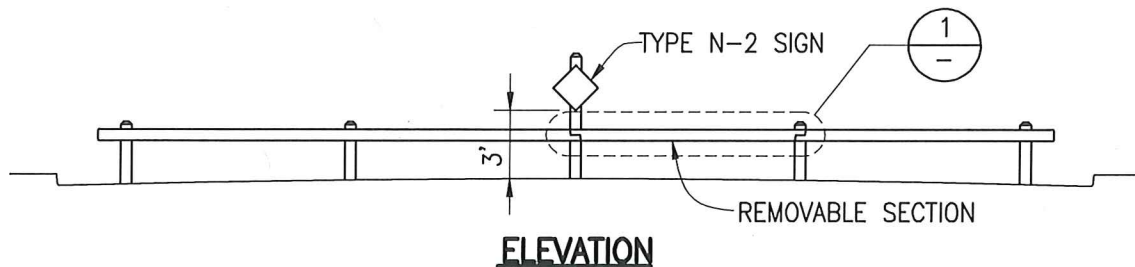
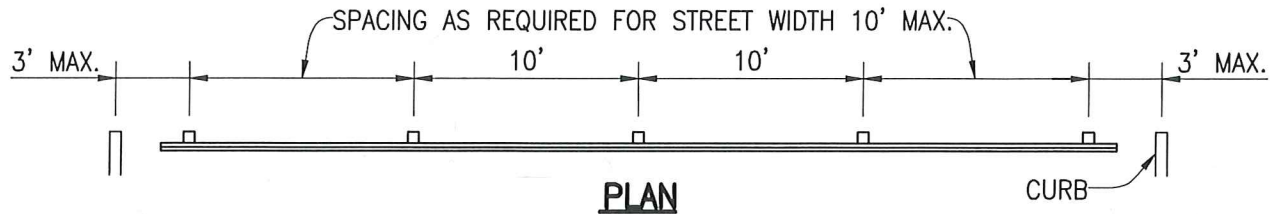
STANDARD RODDING INLET TYPE I

SS-07

APPROVED BY:

JON BLANK, P.E.
 PUBLIC WORKS DIRECTOR/
 CITY ENGINEER
 DATE: *May 2019*

BARRICADE SHALL BE CONSTRUCTED FROM 2 EACH 2x6 D.F. CROSS MEMBERS NAILED TOGETHER AND BOLTED TO THE POSTS WITH $\frac{1}{2}$ " DIA. x 10" LONG M.B.'s AND C.W.'s POSTS SHALL BE 4x6 R.W. 5' LONG EXCEPT THE CENTER POST, WHICH SHALL BE 8' LONG. THE CENTER POST SHALL HAVE ONE 18"x18" TYPE N-2 REFLECTOR. THE BARRICADE SHALL RECEIVE TWO COATS OF WHITE PAINT. WARNING SIGNS SHALL BE PER STATE OF CALIFORNIA, DEPARTMENT OF TRANSPORTATION SPECIFICATIONS. BARRICADES SHALL BE CONSTRUCTED AT THE END OF PAVEMENT. LOCKS TO BE FURNISHED AND INSTALLED BY CITY AND PAID FOR BY DEVELOPER.



T:\PW STANDARD DRAWINGS\CURRENT CD'S AUTOCAD\ST-01 - STREET BARRICADE.DWG



CITY OF ANTIOCH
DEPARTMENT OF PUBLIC WORKS - ENGINEERING SERVICES

DRAWN BY: S. Rodriguez

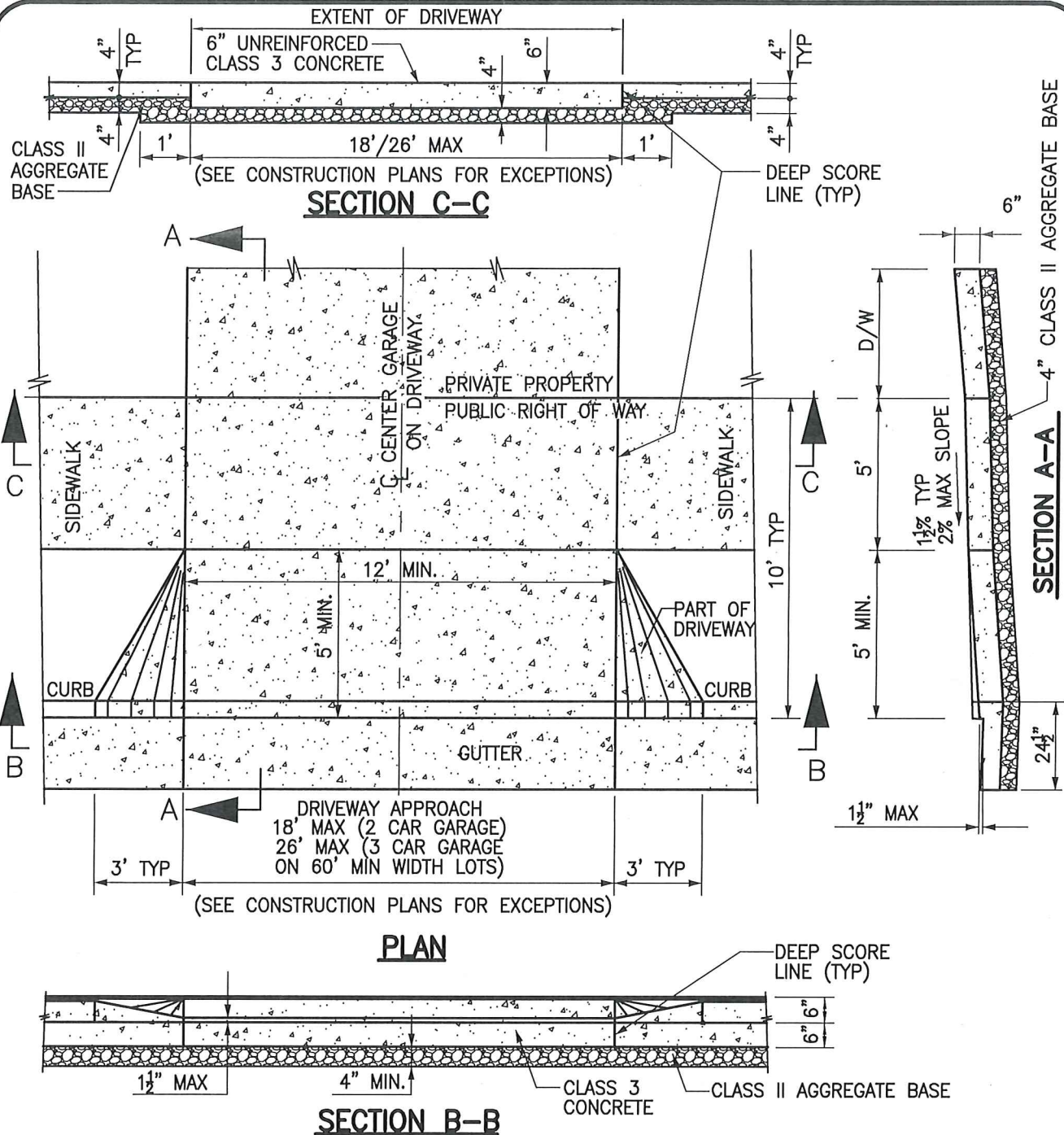
REVISIONS:

STREET BARRICADE

ST-01

APPROVED BY:
Ron Bernal
RON BERNAL, P.E.
CITY ENGINEER

DATE: DEC 20, 2016



NOTE:

ALL NEW CONCRETE SHALL BE CONNECTED TO EXISTING CONCRETE BY DOWELING NINE INCHES (9") INTO CONCRETE WITH EIGHTEEN INCHES (18") LONG #4 BARS. DOWEL SHALL BE SPACED AT EIGHTEEN INCHES (18") ON CENTERS FOR SIDEWALKS AND DRIVEWAYS. THREE DOWELS SHALL BE INSTALLED INTO EACH END OF THE EXISTING CURB AND GUTTER.



CITY OF ANTIOCH
PUBLIC WORKS DEPARTMENT

ANTIOCH
CALIFORNIA
OPPORTUNITY LIVES HERE

DRIVEWAY APRON (RESIDENTIAL)

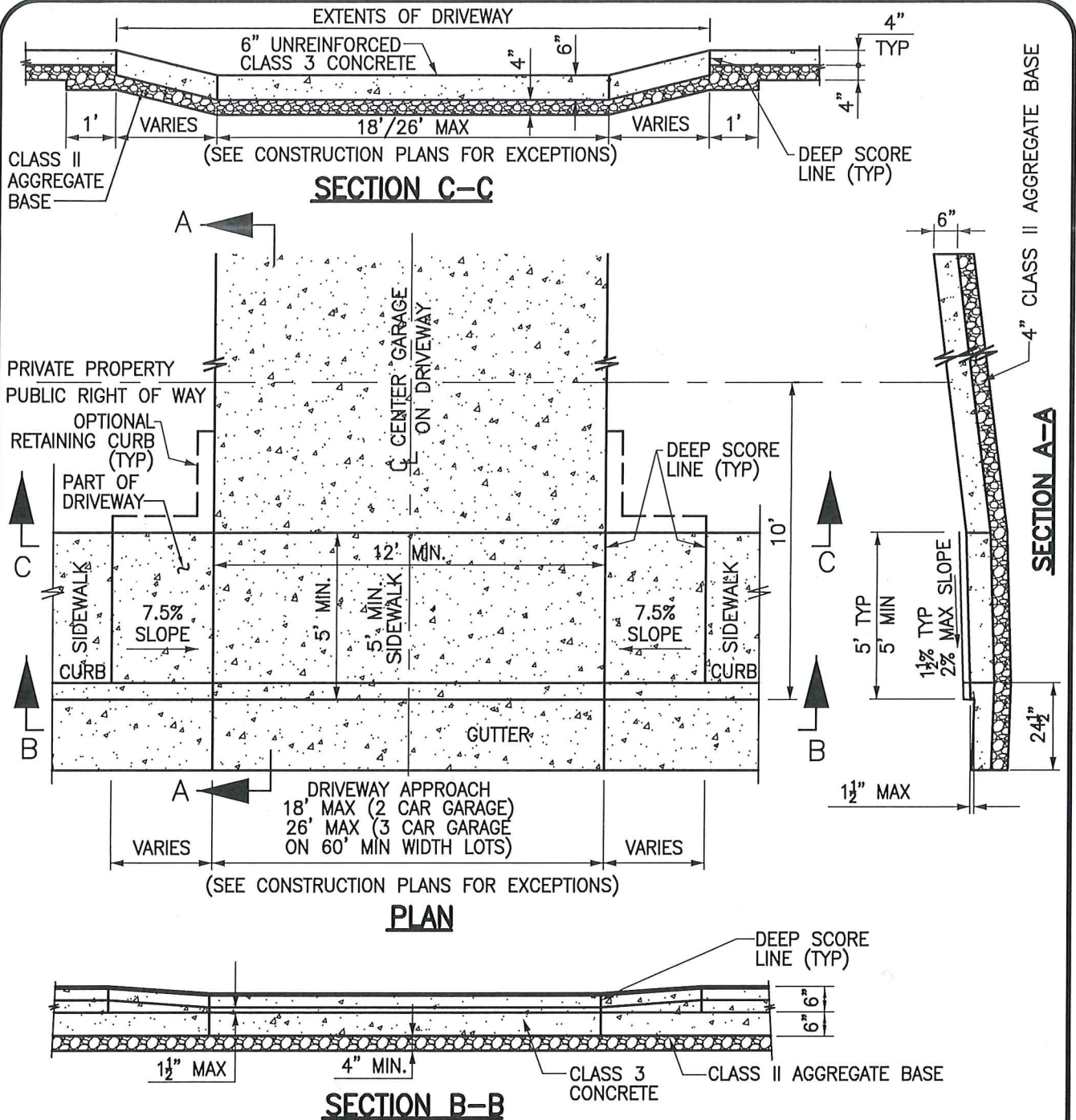
JOHN D. SAMUELSON, CITY ENGINEER

DATE: 10/28/2020

REV.:

DRAWING NO.

ST-02a



NOTE:

ALL NEW CONCRETE SHALL BE CONNECTED TO EXISTING CONCRETE BY DOWELING NINE INCHES (9") INTO CONCRETE WITH EIGHTEEN INCHES (18") LONG #4 BARS. DOWEL SHALL BE SPACED AT EIGHTEEN INCHES (18") ON CENTERS FOR SIDEWALKS AND DRIVEWAYS. THREE DOWELS SHALL BE INSTALLED INTO EACH END OF THE EXISTING CURB AND GUTTER.



**CITY OF ANTIOCH
PUBLIC WORKS DEPARTMENT**

ANTIOCH
CALIFORNIA
OPPORTUNITY LIVES HERE

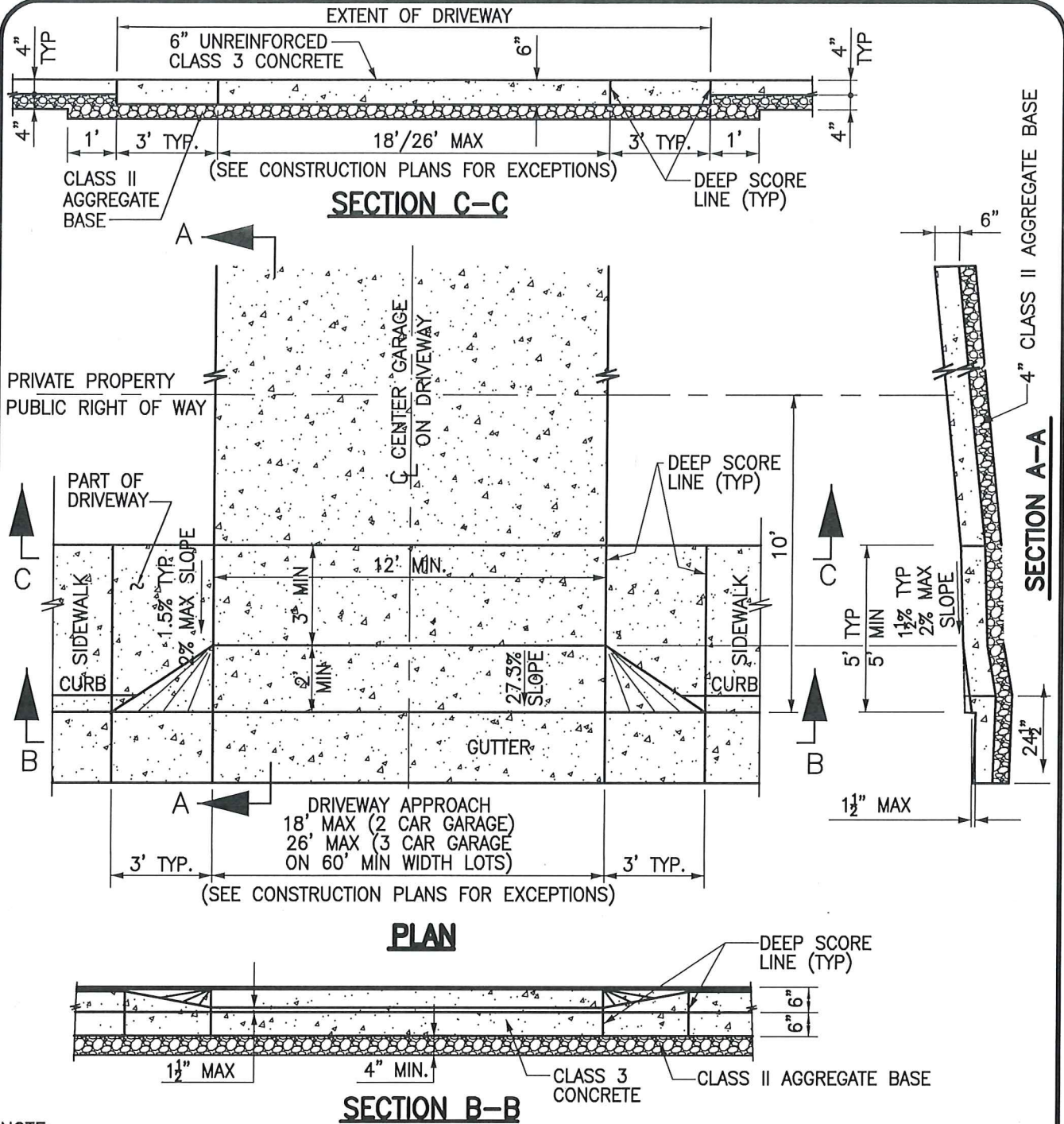
DRIVEWAY APRON (RESIDENTIAL)

JOHN D. SAMUELSON, CITY ENGINEER

DATE: 10/28/2020

REV.:

DRAWING NO.
ST-02b



NOTE:

ALL NEW CONCRETE SHALL BE CONNECTED TO EXISTING CONCRETE BY DOWELING NINE INCHES (9") INTO CONCRETE WITH EIGHTEEN INCHES (18") LONG #4 BARS. DOWEL SHALL BE SPACED AT EIGHTEEN INCHES (18") ON CENTERS FOR SIDEWALKS AND DRIVEWAYS. THREE DOWELS SHALL BE INSTALLED INTO EACH END OF THE EXISTING CURB AND GUTTER.



CITY OF ANTIOCH
PUBLIC WORKS DEPARTMENT

ANTIOCH
CALIFORNIA
OPPORTUNITY LIVES HERE

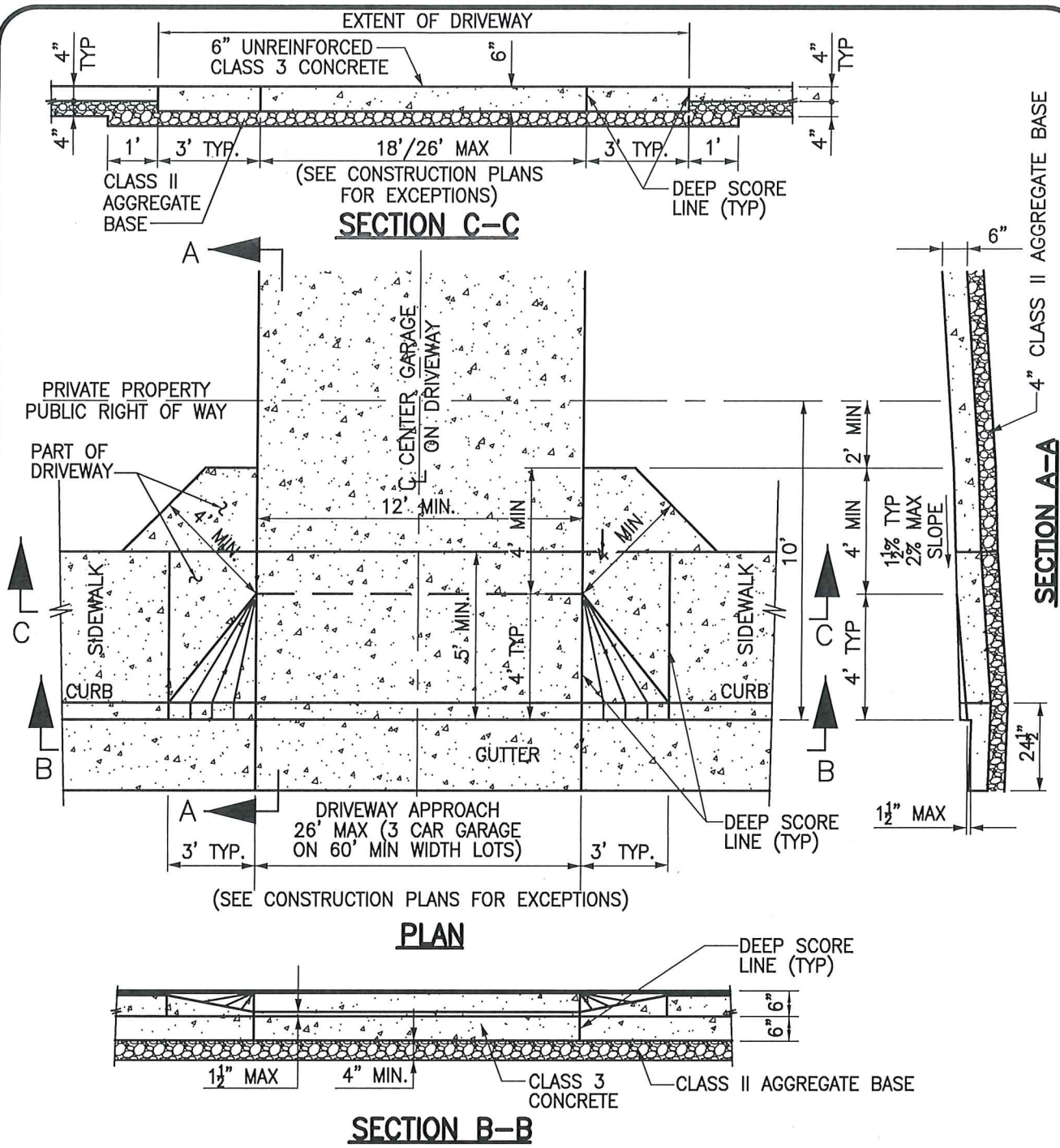
DRIVEWAY APRON (RESIDENTIAL)

JOHN D. SAMUELSON, CITY ENGINEER

DATE: 10/28/2020

REV.:

DRAWING NO.
ST-02c



NOTE:

ALL NEW CONCRETE SHALL BE CONNECTED TO EXISTING CONCRETE BY DOWELING NINE INCHES (9") INTO CONCRETE WITH EIGHTEEN INCHES (18") LONG #4 BARS. DOWEL SHALL BE SPACED AT EIGHTEEN INCHES (18") ON CENTERS FOR SIDEWALKS AND DRIVEWAYS. THREE DOWELS SHALL BE INSTALLED INTO EACH END OF THE EXISTING CURB AND GUTTER.



**CITY OF ANTIOCH
PUBLIC WORKS DEPARTMENT**

**ANTIOCH
CALIFORNIA**
OPPORTUNITY LIVES HERE

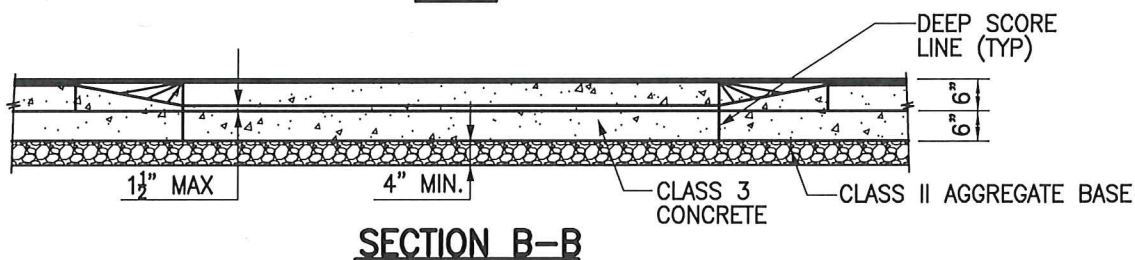
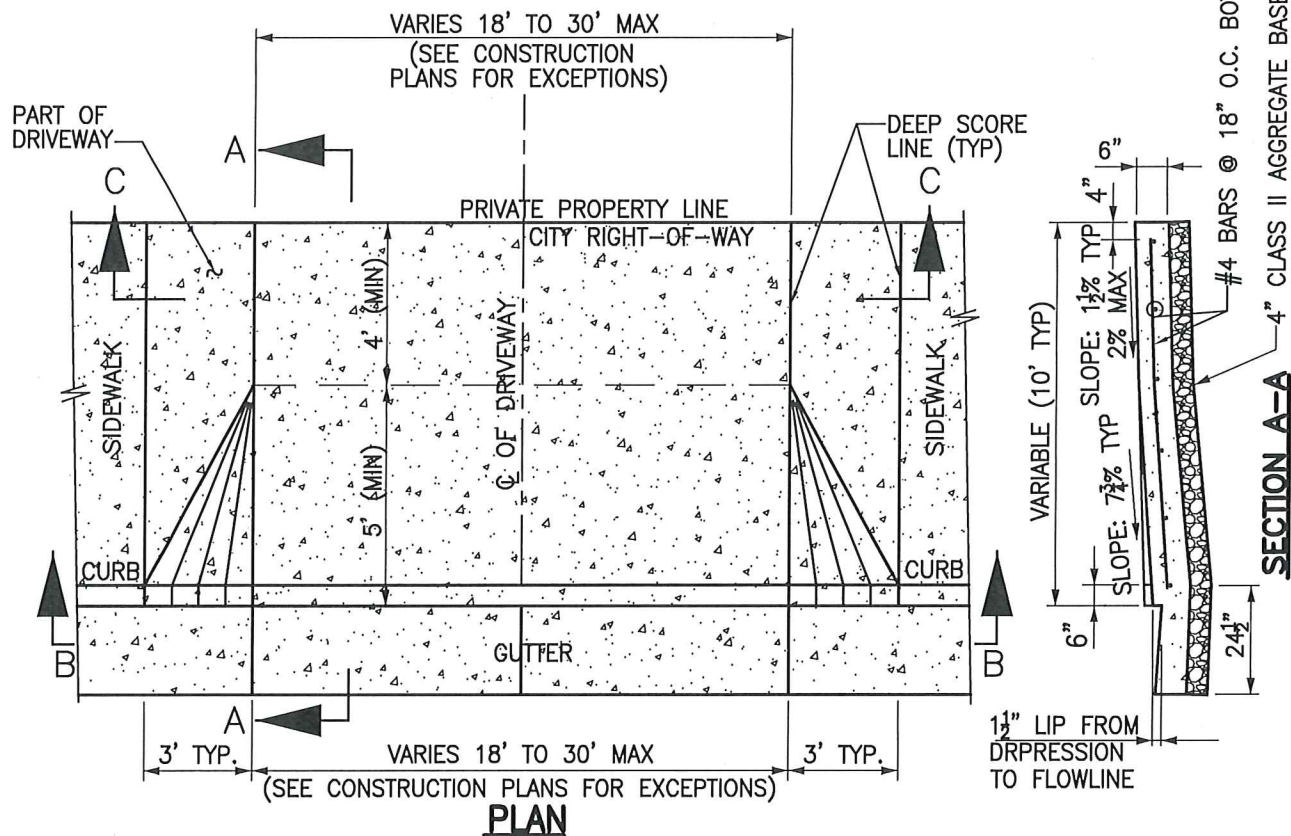
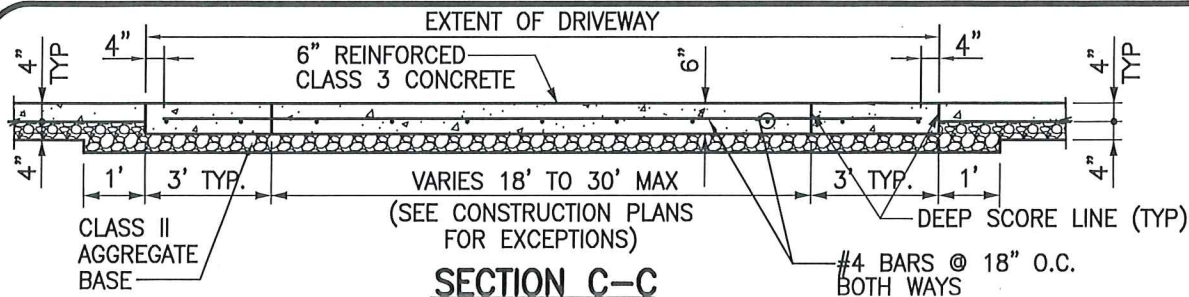
DRIVEWAY APRON (RESIDENTIAL)

JOHN D. SAMUELSON, CITY ENGINEER

DATE: 10/28/2020

REV.:

DRAWING NO.
ST-02d



NOTE:

ALL NEW CONCRETE SHALL BE CONNECTED TO EXISTING CONCRETE BY DOWELING NINE INCHES (9") INTO CONCRETE WITH EIGHTEEN INCHES (18") LONG #4 BARS. DOWEL SHALL BE SPACED AT EIGHTEEN INCHES (18") ON CENTERS FOR SIDEWALKS AND DRIVEWAYS. THREE DOWELS SHALL BE INSTALLED INTO EACH END OF THE EXISTING CURB AND GUTTER.



CITY OF ANTIOCH
PUBLIC WORKS DEPARTMENT

ANTIOCH
CALIFORNIA
OPPORTUNITY LIVES HERE

DRIVEWAY APRON (COMMERCIAL)

JOHN D. SAMUELSON, CITY ENGINEER

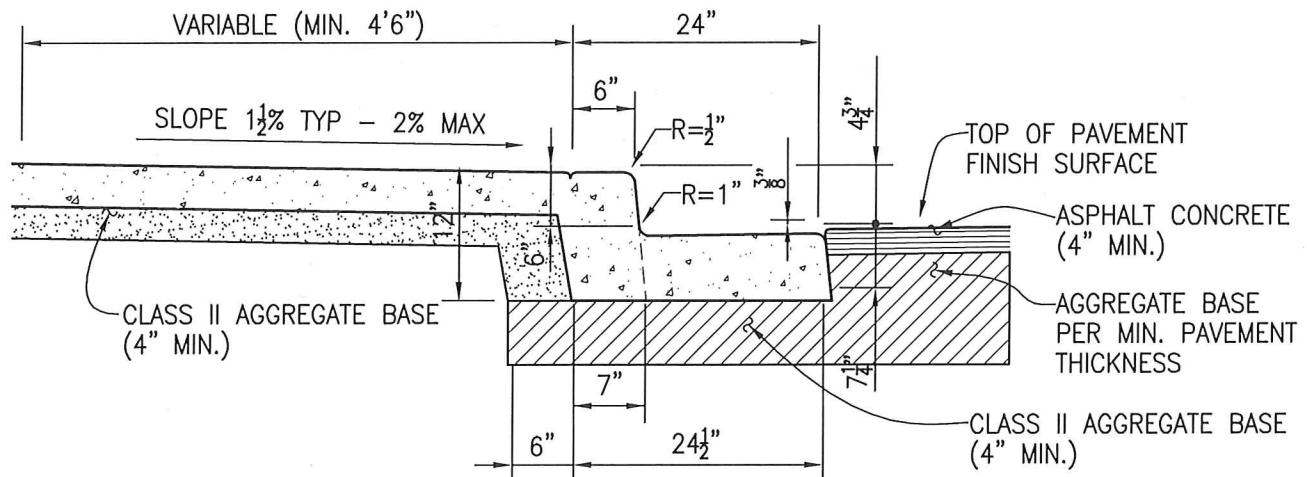
DATE: 11/10/2020

REV.:

DRAWING NO.
ST-03

NOTES:

1. FINISHED ASPHALT SURFACE CARRIED DOWN OVER RADIUS TO MEET TOP SURFACE OF GUTTER.
2. THICKNESS OF AGGREGATE BASE MATERIAL UNDER CURB AND GUTTER TO BE DETERMINED BY THE STREET AGGREGATE BASE ELEVATION. (MIN. THICKNESS = 4").
3. ALL MATERIAL UNDER CURB, GUTTER TO BE COMPACTED TO 95% RELATIVE DENSITY.
4. ALL CONCRETE TO BE CLASS 3.
5. SIDEWALK TO BE SCORED AT 5 FOOT INTERVALS, ALL SCORE LINES SHALL BE $\frac{1}{2}$ " DEEP.
6. THE CURB SHALL BE SCORED AT 10 FOOT INTERVALS, ALL SCORE LINES SHALL BE 1" DEEP.
7. CURB, GUTTER AND SIDEWALK TO BE BROOM FINISHED.
8. ALL MATERIAL UNDER SIDEWALKS TO BE COMPACTED TO 90% RELATIVE DENSITY.
9. ALL NEW CONCRETE SHALL BE CONNECTED TO EXISTING CONCRETE BY DOWELING. EIGHTEEN INCHES (18") LONG #4 BARS AT EIGHTEEN INCHES (18") ON CENTERS WITH NINE INCHES (9") DOWELED INTO EXISTING SIDEWALK AND/OR DRIVEWAY. TWELVE INCHES (12") LONG #4 BARS AT EIGHTEEN INCHES (18") ON CENTERS WITH THREE INCHES (3") DOWELED INTO EXISTING CURB AND GUTTER.



(NOT TO SCALE)



CITY OF ANTIOCH
PUBLIC WORKS DEPARTMENT

ANTIOCH
CALIFORNIA
OPPORTUNITY LIVES HERE

MONOLITHIC SIDEWALK CURB & GUTTER

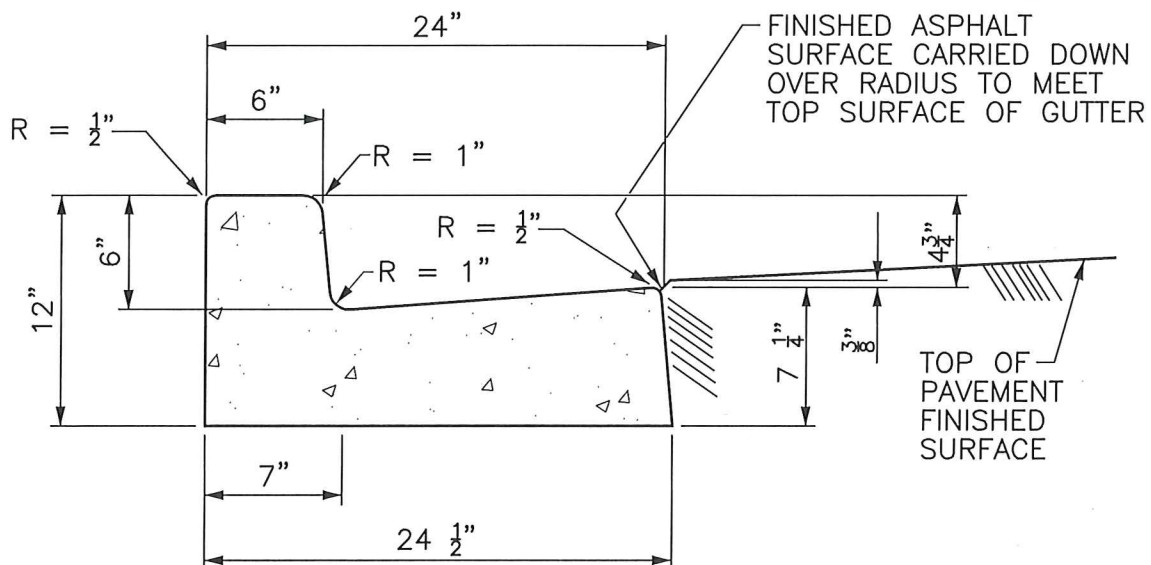
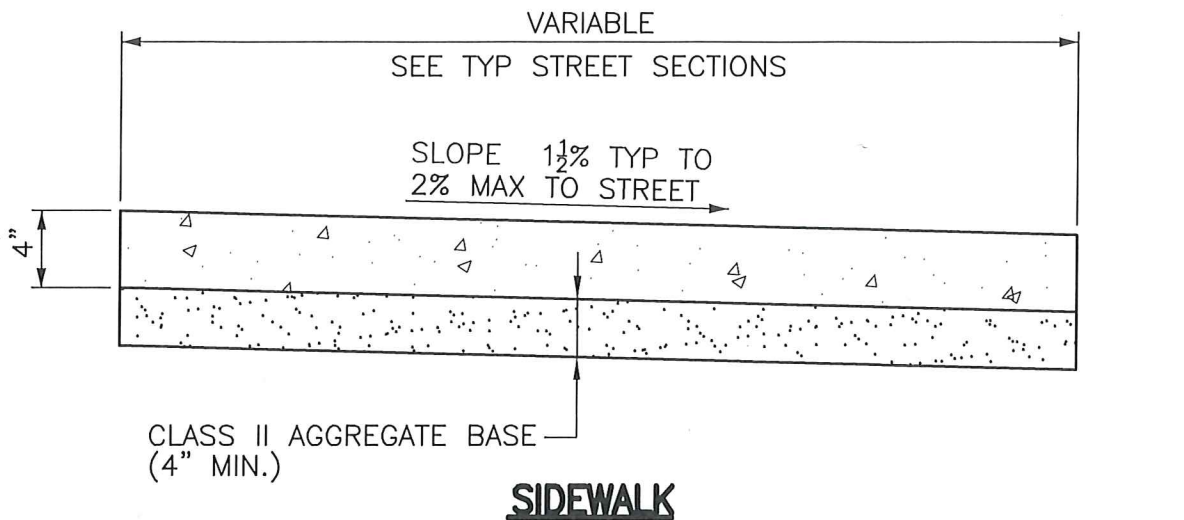
BALWINDER S. GREWAL, CITY ENGINEER

DATE: 3/31/2020

REV.: 5/18/2020

DRAWING NO.

ST-04



ALL CONCRETE TO BE CLASS 3 CONCRETE

INTEGRAL CURB AND GUTTER

NOTES:

1. ALL NEW CONCRETE SHALL BE CONNECTED TO EXISTING CONCRETE BY DOWELING.
2. EXISTING CURB AND GUTTER - USE TWELVE INCH (12") LONG #4 BARS SPACED AT EIGHTEEN INCHES (18") ON CENTERS. THREE INCHES (3") SHALL BE DOWELED INTO EXISTING CURB AND GUTTER.
3. EXISTING SIDEWALK AND DRIVEWAY - USE EIGHTEEN INCHES (18") LONG #4 BARS SPACED AT EIGHTEEN INCHES (18") ON CENTERS. NINE INCHES (9") SHALL BE DOWELED INTO EXISTING SIDEWALK AND DRIVEWAY.

(NOT TO SCALE)



CITY OF ANTIOCH
PUBLIC WORKS DEPARTMENT

ANTIOCH
CALIFORNIA
OPPORTUNITY LIVES HERE

SIDEWALK AND INTEGRAL CURB AND GUTTER

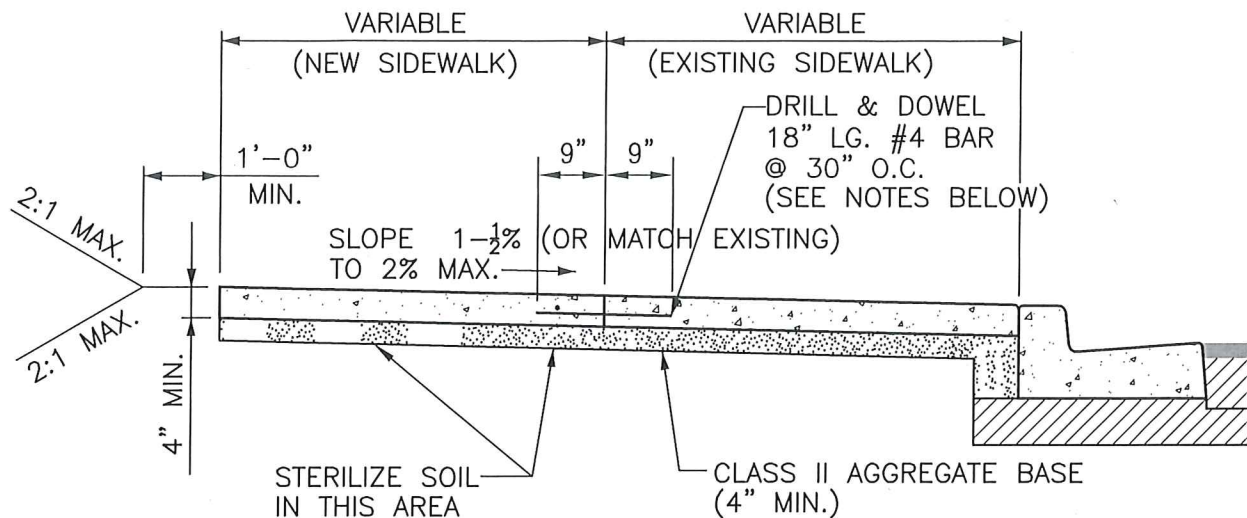
BALWINDER S. GREWAL, CITY ENGINEER

DATE: 3/31/2020

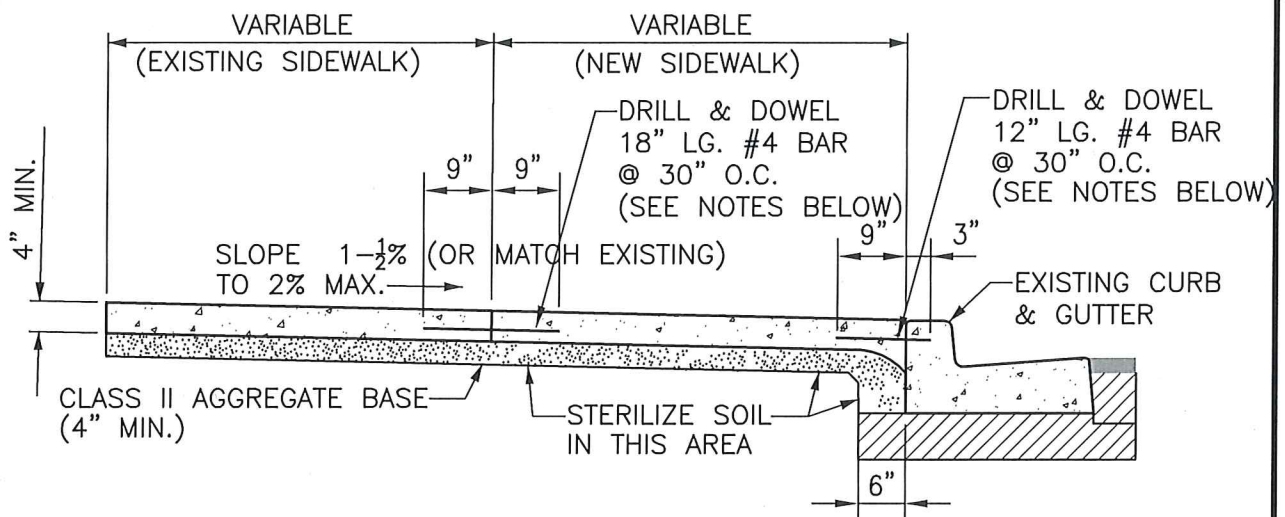
REV.: 5/18/2020

DRAWING NO.

ST-05



ADDITION BEHIND EXISTING SIDEWALK



ADDITION BETWEEN CURB AND EXISTING SIDEWALK

NOTES:

1. ALL NEW CONCRETE SHALL BE CONNECTED TO EXISTING CONCRETE BY DOWELING.
2. EXISTING CURB AND GUTTER – USE TWELVE INCH (12") LONG #4 BARS SPACED AT EIGHTEEN INCHES (18") ON CENTERS. THREE INCHES (3") SHALL BE DOWELED INTO EXISTING CURB AND GUTTER.
3. EXISTING SIDEWALK AND DRIVEWAY – USE EIGHTEEN INCHES (18") LONG #4 BARS SPACED AT EIGHTEEN INCHES (18") ON CENTERS. NINE INCHES (9") SHALL BE DOWELED INTO EXISTING SIDEWALK AND DRIVEWAY.
4. ALL CONCRETE TO BE CLASS 3.
5. SOIL STERILANT TO BE PRAMITOL 25E OR EQUAL AS APPROVED BY THE CITY ENGINEER.

(NOT TO SCALE)



**CITY OF ANTIOCH
PUBLIC WORKS DEPARTMENT**

**ANTIOCH
CALIFORNIA**
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SIDEWALK WIDENING

B. Grewal
BALWINDER S. GREWAL, CITY ENGINEER

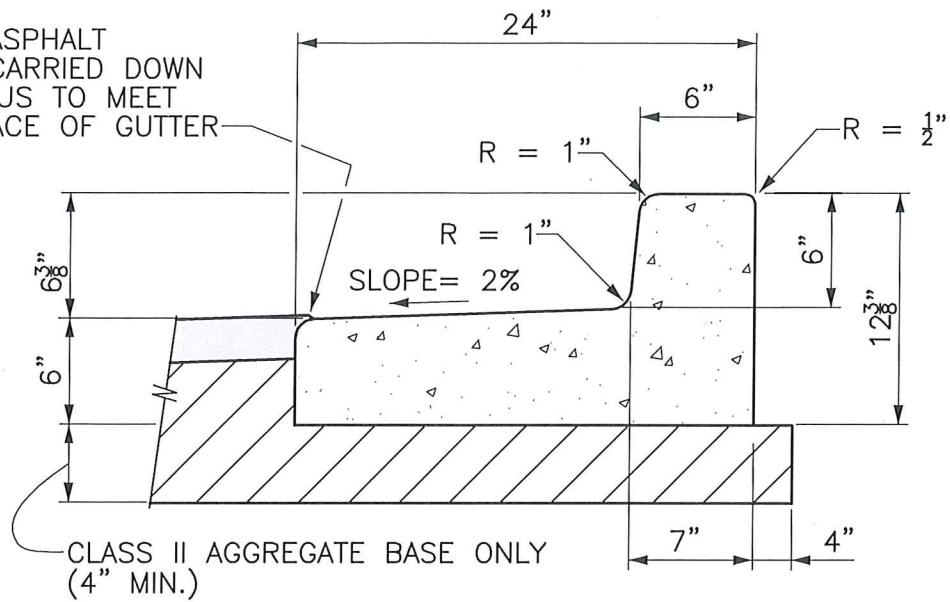
DATE: 3/31/2020

REV.: 5/18/2020

DRAWING NO.

ST-06

FINISHED ASPHALT
SURFACE CARRIED DOWN
OVER RADIUS TO MEET
TOP SURFACE OF GUTTER



ALL CONCRETE TO BE CLASS 3 CONCRETE

MEDIAN SPILL CURB

(NOT TO SCALE)



CITY OF ANTIOCH
PUBLIC WORKS DEPARTMENT

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CALIFORNIA
OPPORTUNITY LIVES HERE

MEDIAN SPILL CURB

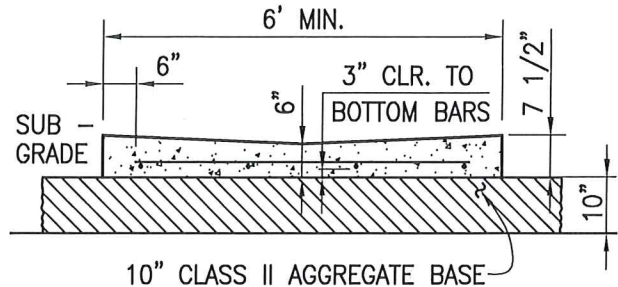
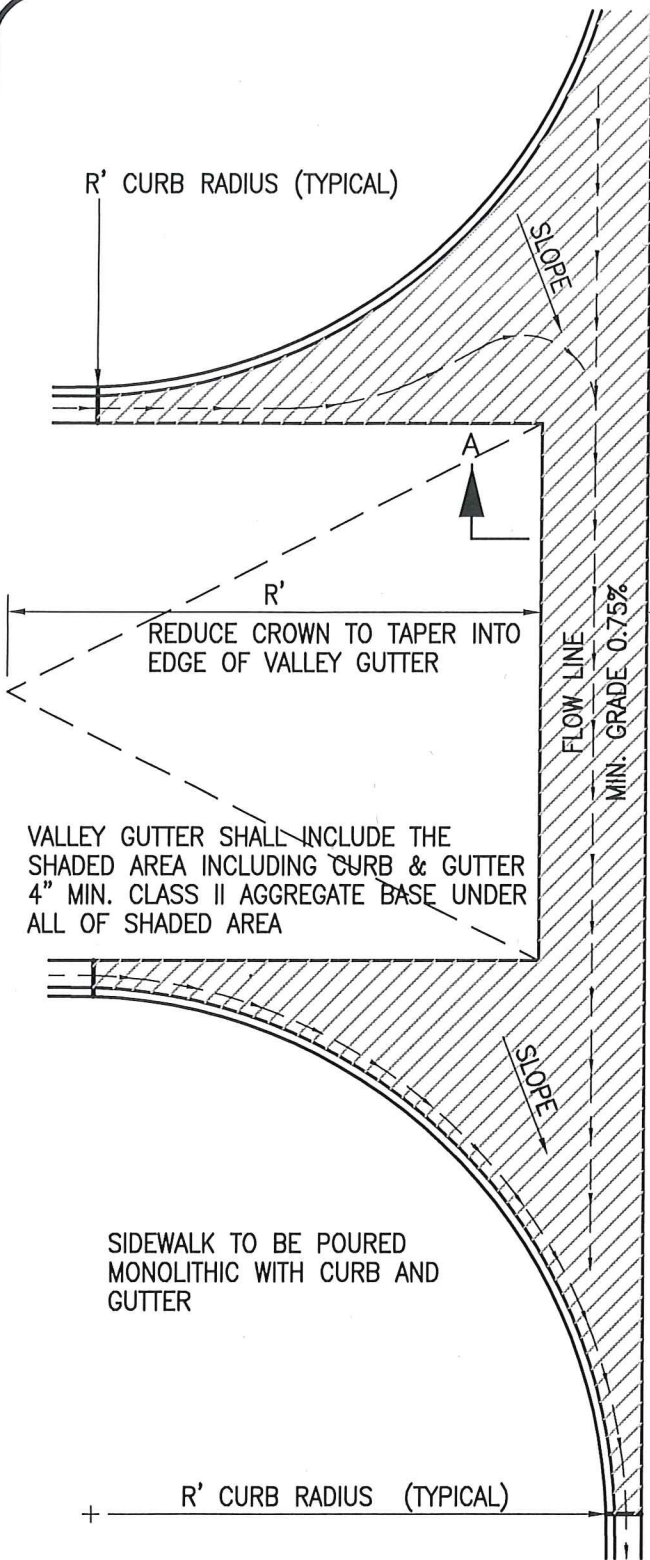
BALWINDER S. GREWAL, CITY ENGINEER

DATE: 3/31/2020

REV.: 5/18/2020

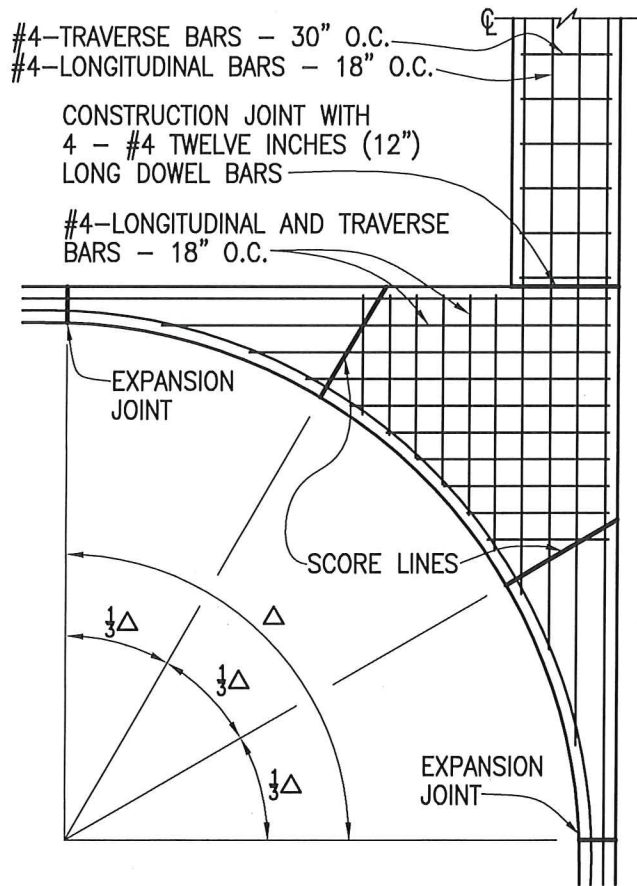
DRAWING NO.

ST-07



NOTE:

1. ALL CONCRETE SHALL BE CLASS 2
2. ALL REINFORCING STEEL BARS SHALL BE #4 PER ASTM A305-50T.



CITY OF ANTIOCH
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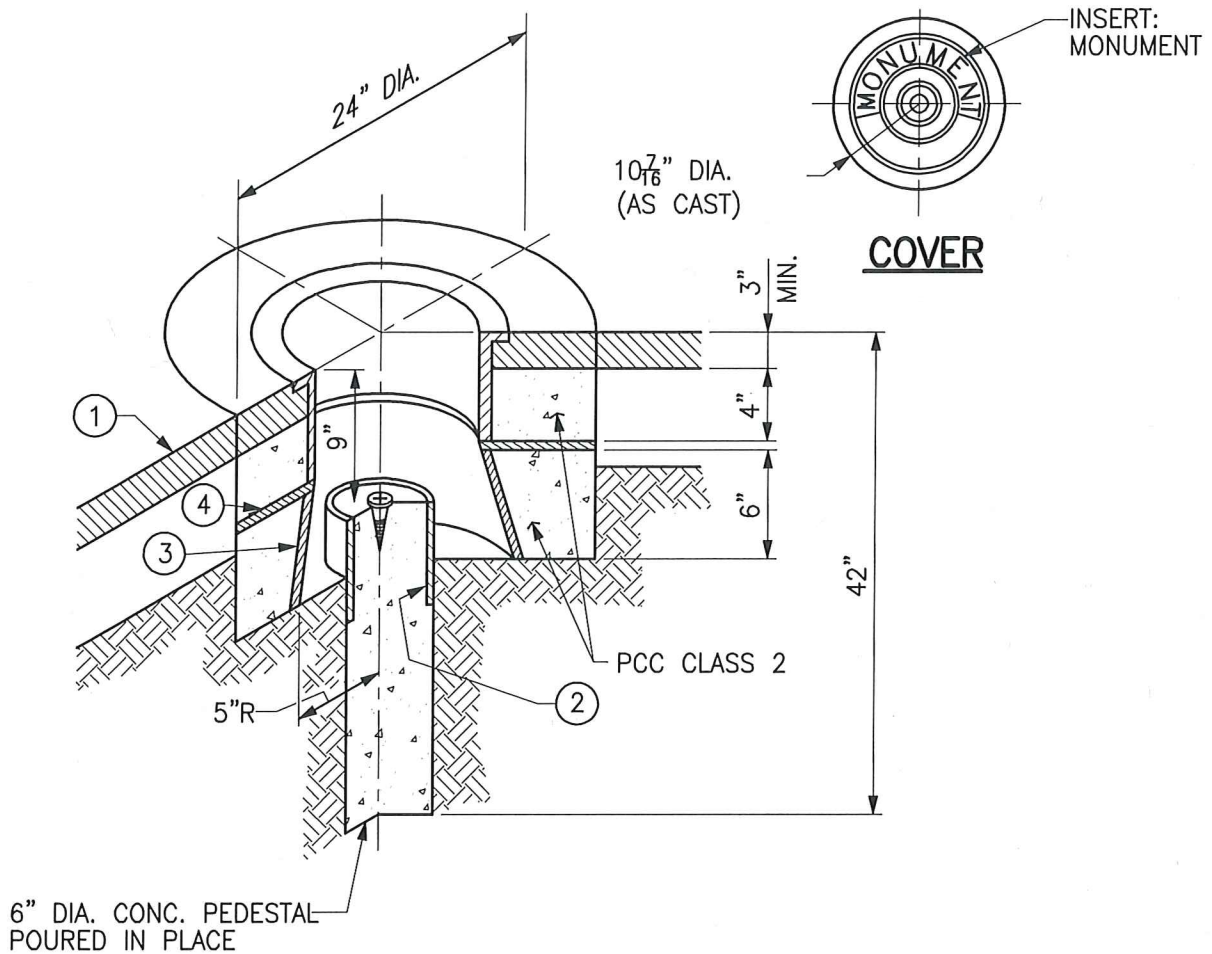
VALLEY GUTTER

JOHN D. SAMUELSON, CITY ENGINEER

DATE: 10/28/2020

REV.:

DRAWING NO.
ST-08



DUCTILE IRON FRAMES AND COVERS SHALL BE D & L FOUNDRY K-6016 BOX WITH "MONUMENT" COVER MARKINGS OR APPROVED EQUAL. MONUMENT INSTALLATION SHALL BE AS SHOWN. A SOLID BRASS SURVEY MARKER, 2 3/4" DIA. (ENGLISH BROTHERS OAKLAND, OR EQUAL) SHALL BE SET FIRMLY INTO THE CONCRETE, MARKED WITH AN "X" AND CENTER PUNCH AT THE TRUE POINT. MONUMENTS SHALL BE TAGGED TO SHOW THE SURVEYOR'S REGISTRATION NUMBER.

1. A.C. PAVEMENT.
2. 6" x 6" DIA. COLLAR FORMED OF 30# FELT.
3. TAPERED METAL CONE OF $\frac{3}{32}$ " OR HEAVIER CHIPBOARD.
4. BOND BREAKER, $\frac{1}{4}$ " OF FELT PAPER OR SAND OR DIRT.

A RECORD OF FINISHED MONUMENT ELEVATIONS SHALL BE FURNISHED TO THE CITY OF ANTIOCH BASED ON U.S.G.S., 1929, SEA LEVEL DATUM OR NAVD 88 WITH CONVERSION INFORMATION.



CITY OF ANTIOCH
DEPARTMENT OF PUBLIC WORKS – ENGINEERING SERVICES

DRAWN BY: S. Rodriguez

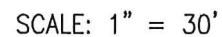
REVISIONS:

**SURVEY
MONUMENT**

ST-09

APPROVED BY:
Ron Bernal
RON BERNAL, P.E.
CITY ENGINEER

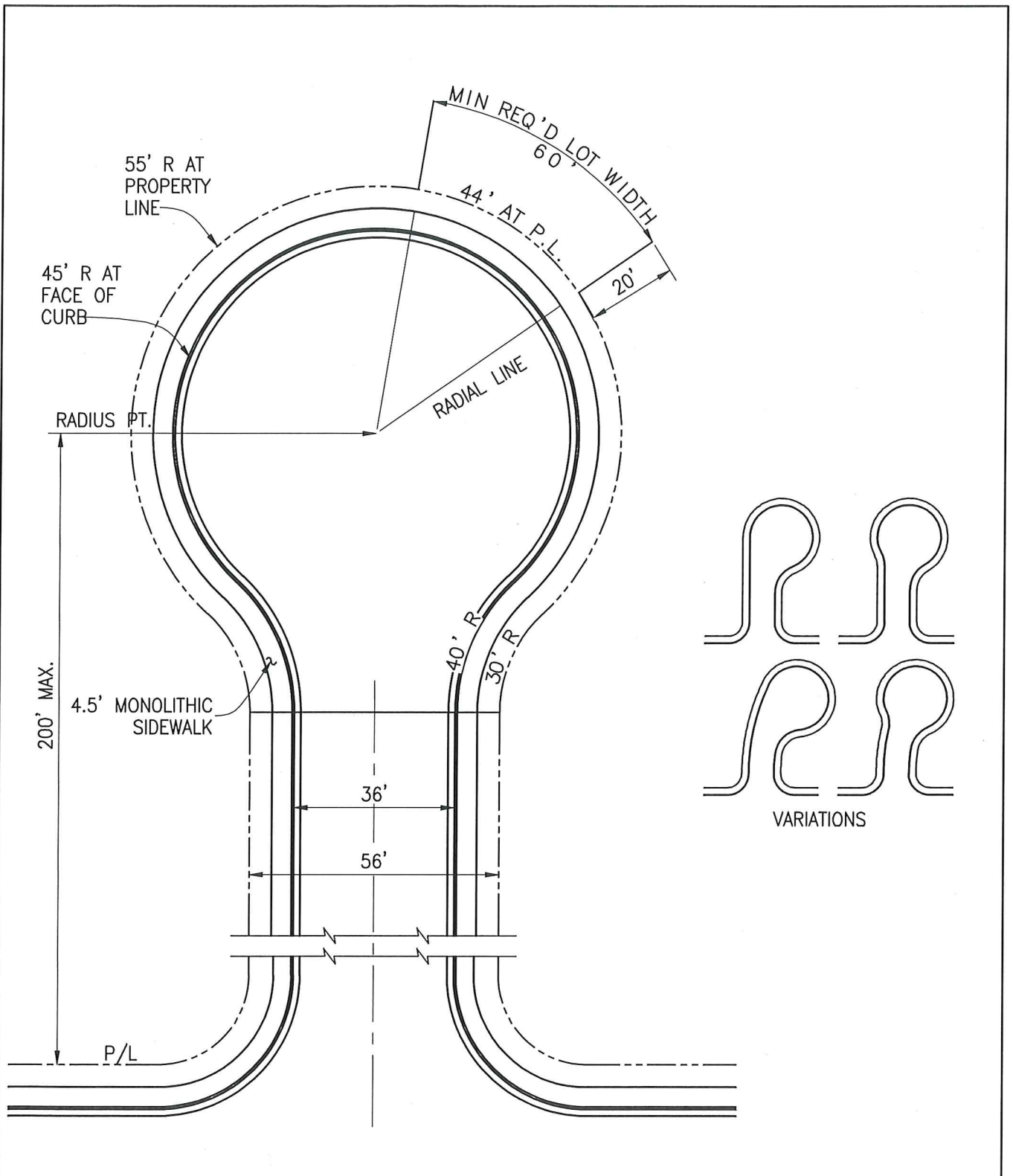
DATE: DEC 20, 2016



APPROVED BY:

RON BERNAL, P.E.
CITY ENGINEER

DATE: *DEC 20, 2016*



T:\PW STANDARD DRAWINGS\CURRENT CD'S AUTOCAD\ST-10B - CUL-DE-SAC TURNING BULB.DWG



CITY OF ANTIOCH
DEPARTMENT OF PUBLIC WORKS – ENGINEERING SERVICES

DRAWN BY: S. Rodriguez

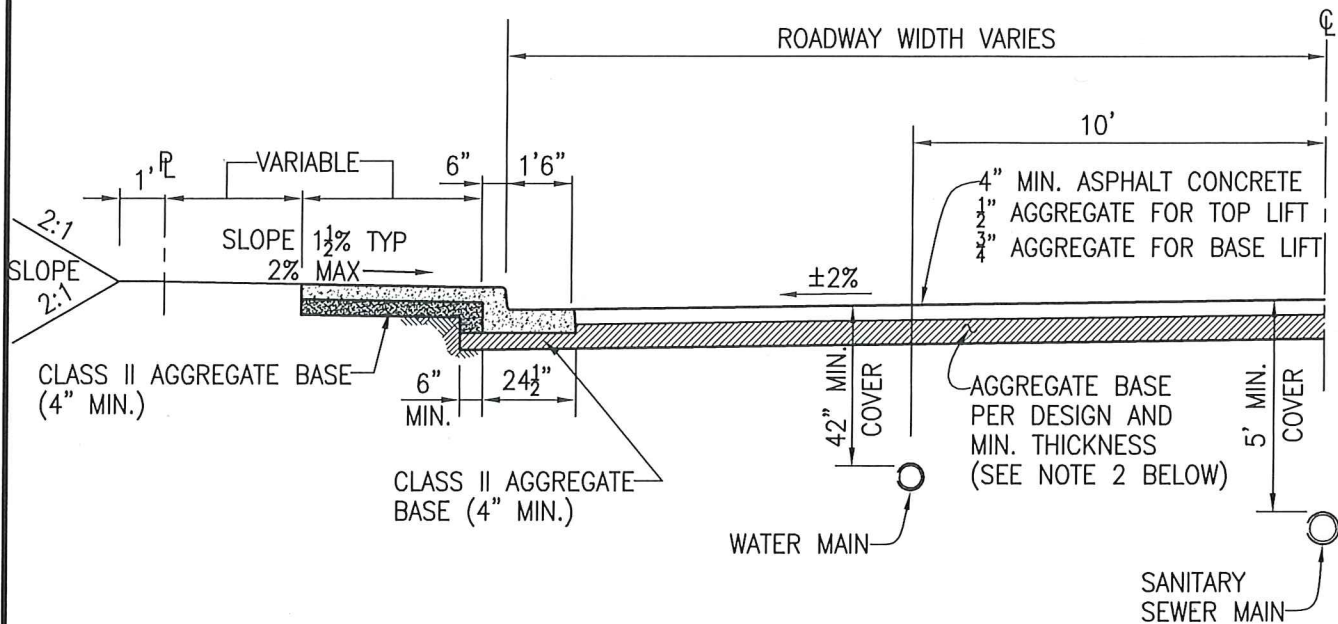
REVISIONS:

CUL-DE-SAC
TURNING BULB

ST-10b

APPROVED BY:
Ron Bernal
RON BERNAL, P.E.
CITY ENGINEER

DATE: DEC 20, 2016



NOTES:

1. RELATIVE COMPACTION OF NOT LESS THAN 95 PERCENT SHALL BE OBTAINED FOR A MINIMUM DEPTH OF 2.5 FEET BELOW FINISHED GRADE FOR THE WIDTH OF THE TRAVELED WAY PLUS 3 FEET ON EACH SIDE THEREOF, WHETHER IN EXCAVATION OR IN EMBANKMENT.
2. PAVEMENT SECTION TO BE DETERMINED BY SOILS TEST FOR RESISTANCE (R) VALUE AND TRAFFIC INDEX AND MIN. PAVEMENT THICKNESS APPROVED BY THE CITY.

(NOT TO SCALE)



CITY OF ANTIOCH PUBLIC WORKS DEPARTMENT

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TYPICAL STREET SECTION AND PAVEMENT CROWN

BALWINDER S. GREWAL, CITY ENGINEER

DATE: 3/31/2020

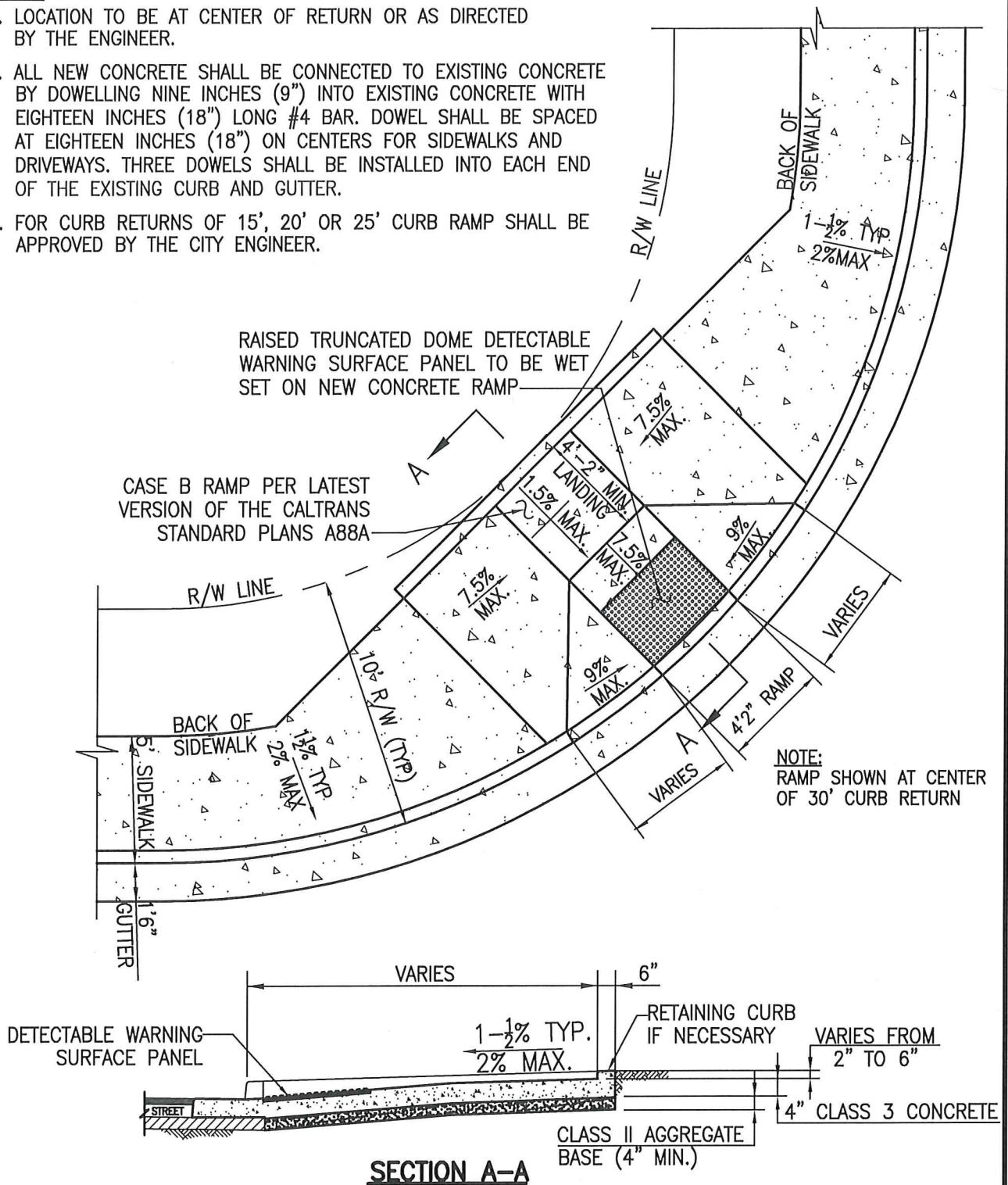
REV.: 5/18/2020

DRAWING NO.

ST-11

NOTES:

1. LOCATION TO BE AT CENTER OF RETURN OR AS DIRECTED BY THE ENGINEER.
2. ALL NEW CONCRETE SHALL BE CONNECTED TO EXISTING CONCRETE BY DOWELLING NINE INCHES (9") INTO EXISTING CONCRETE WITH EIGHTEEN INCHES (18") LONG #4 BAR. DOWEL SHALL BE SPACED AT EIGHTEEN INCHES (18") ON CENTERS FOR SIDEWALKS AND DRIVEWAYS. THREE DOWELS SHALL BE INSTALLED INTO EACH END OF THE EXISTING CURB AND GUTTER.
3. FOR CURB RETURNS OF 15', 20' OR 25' CURB RAMP SHALL BE APPROVED BY THE CITY ENGINEER.



**CITY OF ANTIOCH
PUBLIC WORKS DEPARTMENT**

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CURB RAMP LAYOUT 1

John D. Samuelson
JOHN D. SAMUELSON, CITY ENGINEER

DATE: 3/31/2020

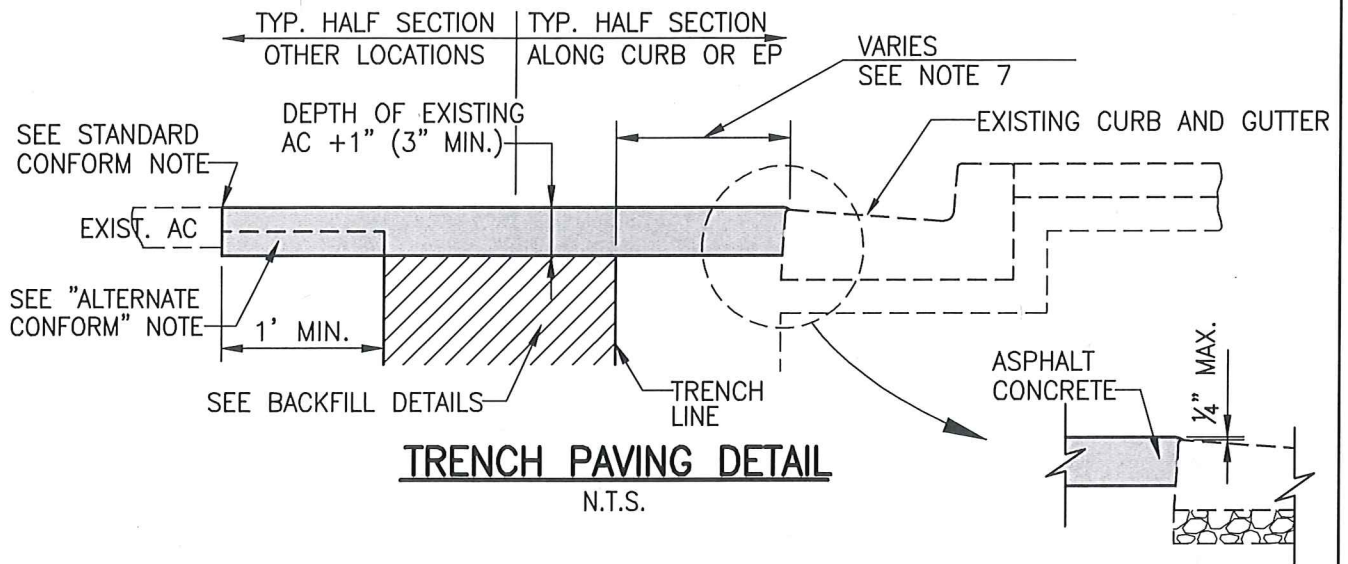
REV.: 10/28/2020

DRAWING NO.
ST-12

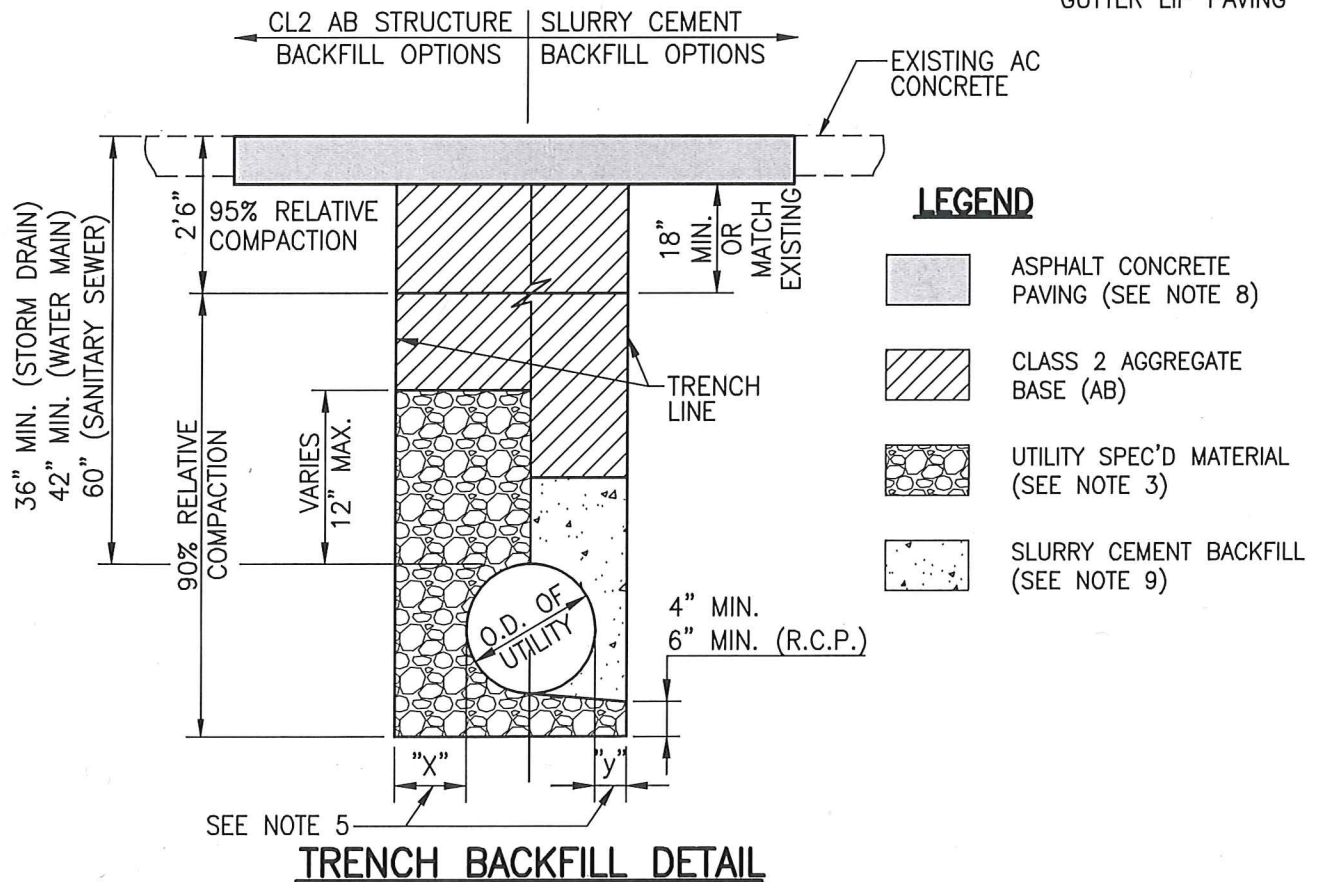
2. ALL NEW CONCRETE SHALL BE CONNECTED TO EXISTING CONCRETE BY DOWELLING NINE INCHES (9") INTO EXISTING CONCRETE WITH EIGHTEEN INCHES (18") LONG #4 BAR. DOWEL SHALL BE SPACED AT EIGHTEEN INCHES (18") ON CENTERS FOR SIDEWALKS AND DRIVEWAYS. THREE DOWELS SHALL BE INSTALLED INTO EACH END OF THE EXISTING CURB AND GUTTER.







REV.: 10/28/2020



DETAIL A
GUTTER LIP PAVING



LEGEND

-  ASPHALT CONCRETE PAVING (SEE NOTE 8)
-  CLASS 2 AGGREGATE BASE (AB)
-  UTILITY SPEC'D MATERIAL (SEE NOTE 3)
-  SLURRY CEMENT BACKFILL (SEE NOTE 9)

T:\PW STANDARD DRAWINGS\CURRENT CD'S AUTOCAD\ST-14 - UTILITY TRENCH CUT 2017-05-08.DWG



CITY OF ANTIOCH
DEPARTMENT OF PUBLIC WORKS – ENGINEERING SERVICES

DRAWN BY: S. Rodriguez

REVISIONS:

UTILITY TRENCH CUT

ST-14 (SHEET 1 of 2)

APPROVED BY:

Lynne B. Filson
LYNNE B. FILSON, P.E.
ASSISTANT CITY ENGINEER

DATE: MAY 8, 2017

CONFORM NOTES:

THE PAVEMENT CONFORM SHALL BE AS FOLLOWS:

STANDARD CONFORM

THE ASPHALT CONCRETE (AC) SHALL BE CUT THROUGH THE FULL DEPTH OF EXISTING AC TO A NEAT STRAIGHT LINE AT LEAST 1' OUTSIDE OF THE TRENCH LINE. PAVEMENT EDGES DAMAGED DURING CONSTRUCTION SHALL BE RE-CUT TO NEAT LINES PRIOR TO PAVING. PAINT BINDER (TACK COAT) SHALL BE APPLIED TO ALL VERTICAL SURFACES IN ACCORDANCE WITH THE LATEST EDITION OF THE CALTRANS STANDARD SPECIFICATIONS.

ALTERNATE CONFORM

THE EXISTING AC OUTSIDE THE TRENCH LINE MAY BE GROUND TO A MINIMUM DEPTH OF 2- $\frac{1}{2}$ " TO A NEAT STRAIGHT LINE AT LEAST 1" OUTSIDE OF THE TRENCH LINE. THE EXISTING AC AT THE TRENCH LINES SHALL BE CUT THROUGH THE FULL DEPTH OF THE EXISTING AC TO A NEAT STRAIGHT LINE. ANY PAVEMENT EDGES, INCLUDING GROUND EDGES, DAMAGED DURING CONSTRUCTION SHALL BE RE-CUT AND RE-GROUND TO NEAT LINES PRIOR TO PAVING. PAINT BINDER (TACK COAT) SHALL BE APPLIED TO ALL VERTICAL SURFACES IN ACCORDANCE WITH THE LATEST EDITION OF THE CALTRANS STANDARD SPECIFICATIONS.

NOTES FOR PIPE ZONE MATERIAL:

1. WATER MAINS - USE SAND IN PIPE ZONE
2. SANITARY SEWER (VCP) - USE $\frac{1}{2}$ " TO $\frac{3}{4}$ " CRUSHED STONE IN PIPE ZONE
3. SANITARY SEWER (PLASTIC) - REFER TO CENTRAL SANITARY DISTRICT STANDARDS
4. STORM DRAIN (RCP) - USE $\frac{3}{4}$ " CRUSHED STONE UP TO SPRING LINE

GENERAL NOTES:

1. AN ENCROACHMENT PERMIT IS REQUIRED FOR ALL WORK WITHIN THE CITY RIGHT-OF-WAY. THE PERMIT SHALL BE OBTAINED PRIOR TO BEGINNING WORK.
2. CONSTRUCTION TRENCH PLATES SHALL BE FLUSH WITH EXISTING ASPHALT.
3. BACKFILL MATERIAL AND ANY BEDDING MATERIAL SHALL BE AS SPECIFIED BY THE UTILITY OWNER AND APPROVE BY THE CITY ENGINEER. IN NO CASE SHALL "PEA" GRAVEL BE ALLOWED.
4. UNSUITABLE NATIVE MATERIAL SHALL BE EXCAVATED BELOW THE LIMIT OF EXCAVATION AND REPLACED WITH SUITABLE BACKFILL MATERIAL WHEN DIRECTED BY THE CITY ENGINEER.
5. "X" AND "Y" SHALL BE AS A MINIMUM THE DIMENSIONS SHOWN BELOW FOR THE UTILITY "O.D."

O.D.	"X"	"Y"
UNDER 1'	6"	3"
1' TO 4'6"	1'	6"
OVER 4'6"	2'	1'

6. MINIMUM COVER OVER NON-CITY UTILITIES IS GOVERNED BY THE CALIFORNIA PUBLIC UTILITIES COMMISSION. UTILITY OWNERS SHALL CONSIDER PLACING THEIR UTILITY LINES AT A GREATER DEPTH TO AVOID FUTURE RELOCATION DUE TO STREET/ROADWAY RECONSTRUCTION. THE INCREASED DEPTH SHOULD INCLUDE SUFFICIENT CLEARANCE BETWEEN THE UTILITY AND PAVEMENT STRUCTURAL SECTION SUBGRADE TO PREVENT DAMAGE BY CONSTRUCTION EQUIPMENT. THE CITY ENGINEER RECOMMENDS A MINIMUM OF 4' OF COVER IN ARTERIAL ROADS AND 3' ELSEWHERE. IF COVER IS LESS THAN 2', A SPECIAL DESIGN IS REQUIRED WITH APPROVAL BY THE CITY ENGINEER.
7. WHERE THE TRENCH PARALLELS THE CURB AND THE NEAREST TRENCH LINE IS LESS THAN 3' FROM THE GUTTER LIP, ALL EXISTING AC SHALL BE REPLACED TO THE GUTTER LIP. SEE DETAIL "A" FOR GUTTER LIP PAVING.
8. AC SHALL BE $\frac{1}{2}$ " TYPE A UNLESS OTHERWISE SPECIFIED IN THE ENCROACHMENT PERMIT'S SPECIAL ROAD ENCROACHMENT PERMIT CONDITIONS OR AS DIRECTED BY THE CITY ENGINEER.
9. SLURRY CEMENT BACKFILL SHALL COMPLY WITH THE LATEST EDITION OF THE CALTRANS STANDARD SPECIFICATIONS.
10. FOR PROJECTS WITH PATCHES FOR TRENCHES OR POTHOLES CLOSER THAN 10' APART, THE ASPHALT SHALL BE GROUND TO A MINIMUM DEPTH OF 0.15' BETWEEN THE PROPOSED PATCHES AND THE ENTIRE SURFACE REPLACE AT ONE TIME.



CITY OF ANTIOCH DEPARTMENT OF PUBLIC WORKS - ENGINEERING SERVICES

DRAWN BY: S. Rodriguez

REVISIONS: 7/2019

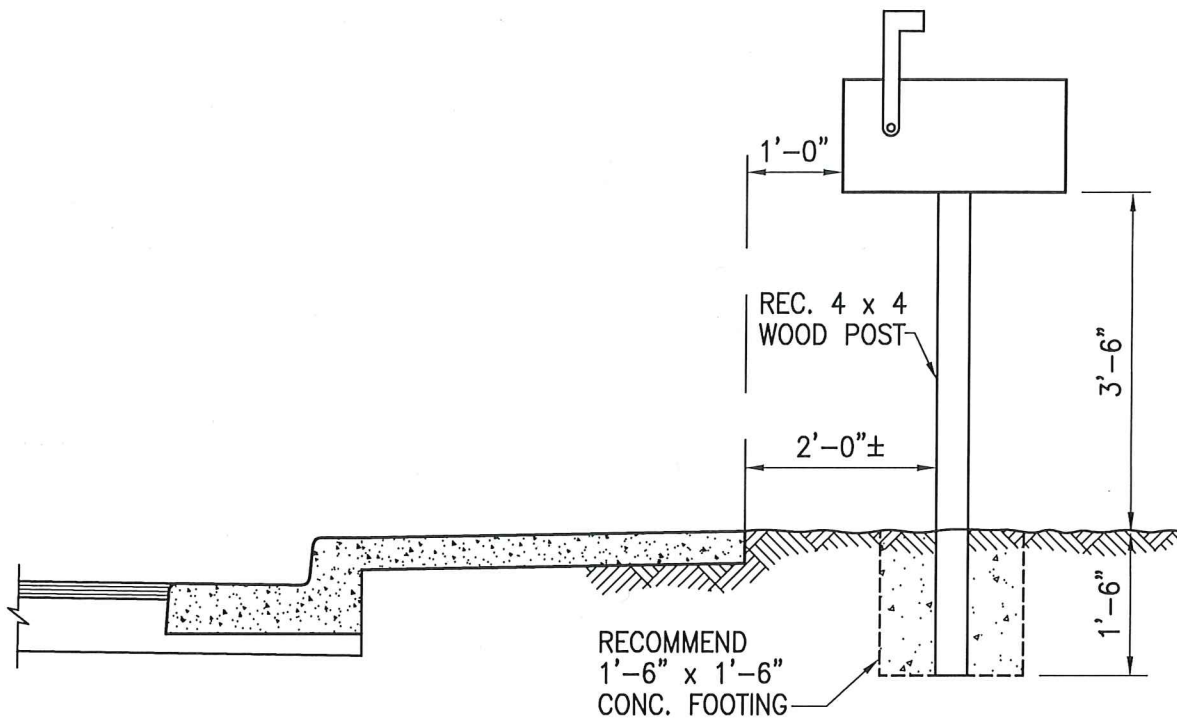
UTILITY TRENCH CUT

ST-14 (SHEET 2 of 2)

APPROVED BY:

JON BLANK, P.E.
PUBLIC WORKS DIRECTOR/
CITY ENGINEER

DATE: July 2019



NOTES:

1. MAINTAIN A MINIMUM 3' HORIZONTAL CLEARANCE FROM FIRE HYDRANT TO NEAREST EDGE OF MAIL BOX.
2. OWNER TO CONTACT USA NORTH 811, A MINIMUM OF 2-14 WORKING DAYS PRIOR TO DIGGING POST HOLE AT <https://www.usanorth811.org> OR BY DIALING 811.
3. MAIL BOX NOT TO BE CONSTRUCTED SO THAT IT OVERHANGS ANY UTILITY OR WATER METER BOX.



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RESIDENTIAL MAIL BOX

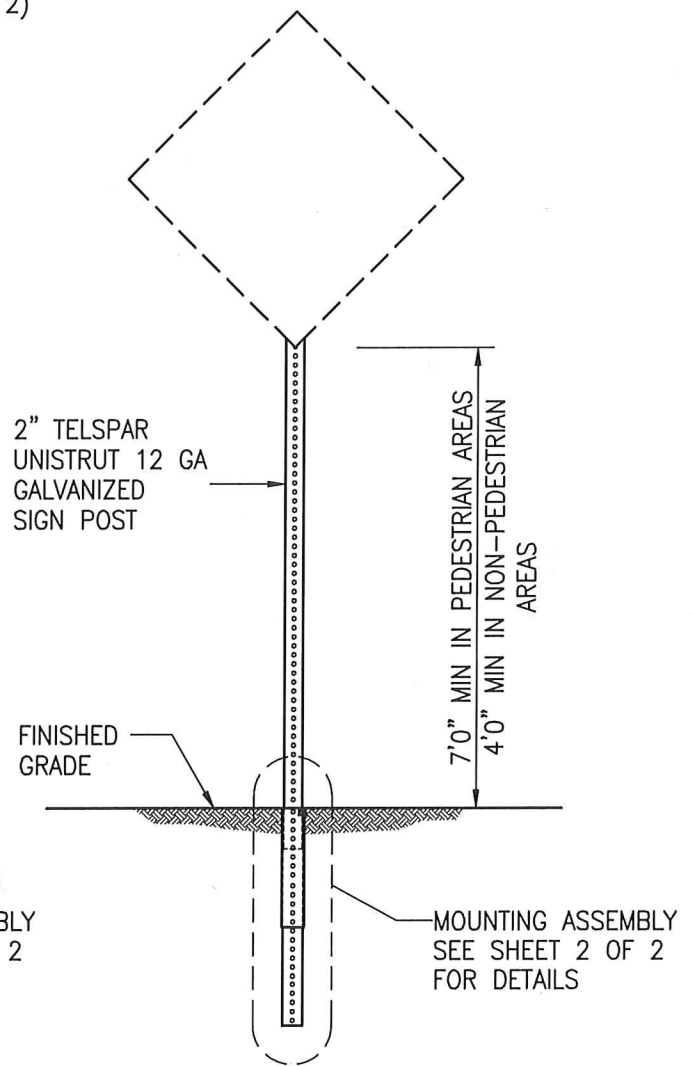
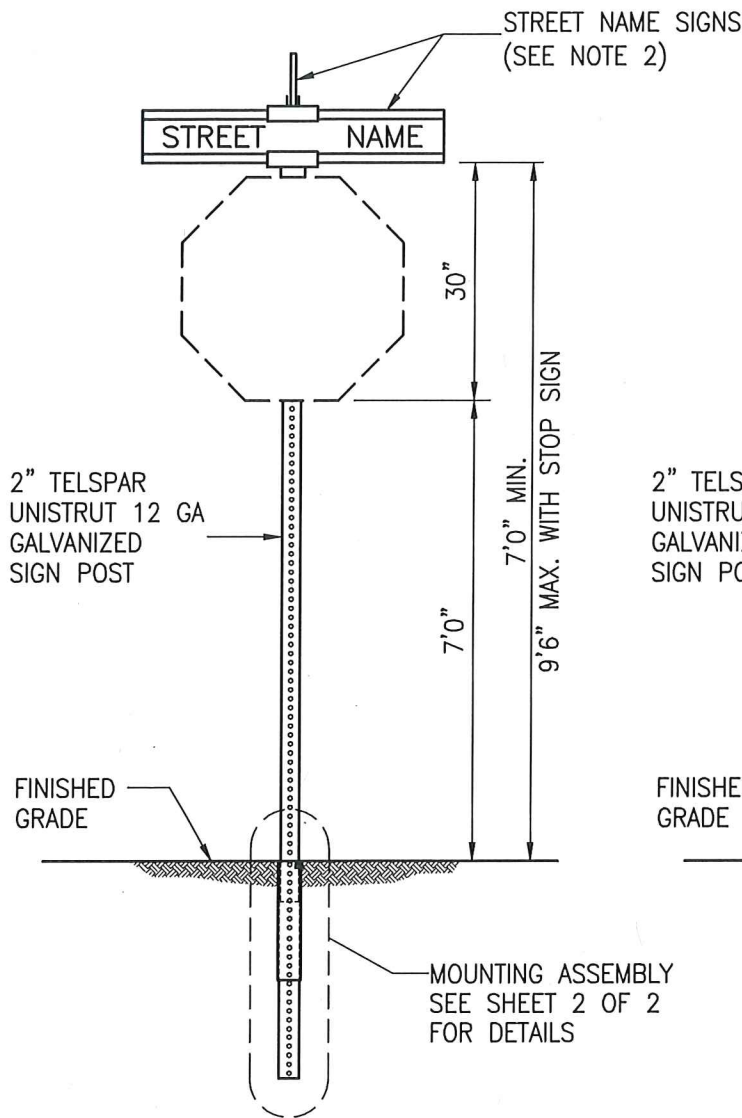
JOHN D. SAMUELSON, CITY ENGINEER

DATE: 12/20/2016

REV.: 8/2/2022

DRAWING NO.

ST-15



NOTES:

1. SIGN LOCATION TO BE DETERMINED BY THE CITY ENGINEER.
2. NAME PLATES AND MOUNTING ASSEMBLIES TO MEET THE CITY, STREET SIGN SPECIFICATIONS UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.
3. SIGNS TO BE TO THE LATEST EDITION OF THE CALTRANS STANDARD PLANS AND SPECS, MINIMUM .080 ALUMINUM.



CITY OF ANTIOCH DEPARTMENT OF PUBLIC WORKS – ENGINEERING SERVICES

DRAWN BY: S. Rodriguez

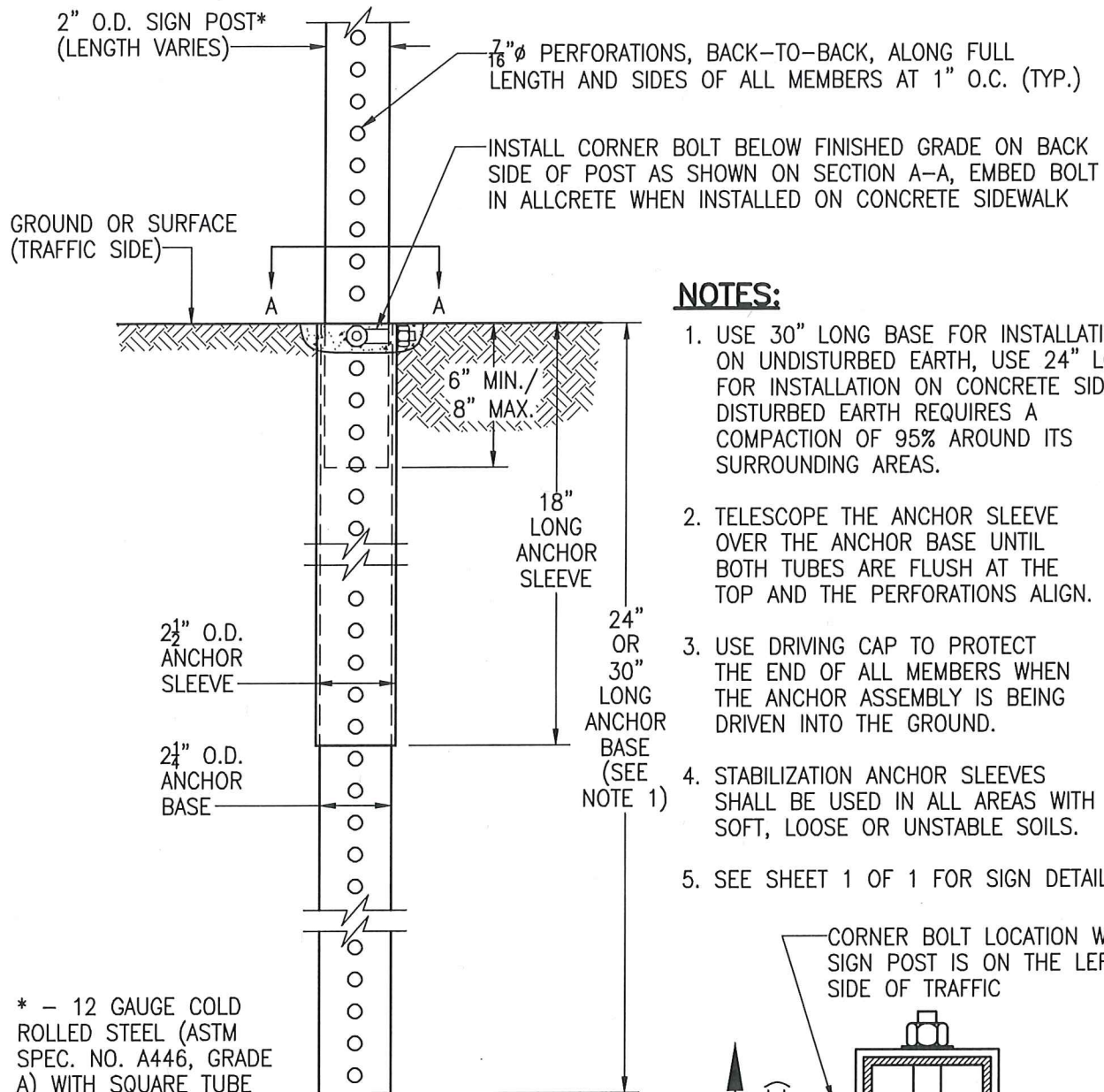
REVISIONS:

STREET NAME AND TRAFFIC SIGNS

ST-16 (SHEET 1 of 2)

APPROVED BY:
Ron Bernal
RON BERNAL, P.E.
CITY ENGINEER

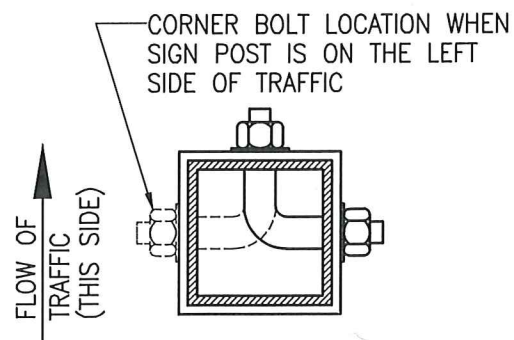
DATE: DEC 20, 2016



NOTES:

1. USE 30" LONG BASE FOR INSTALLATION ON UNDISTURBED EARTH, USE 24" LONG FOR INSTALLATION ON CONCRETE SIDEWALK. DISTURBED EARTH REQUIRES A COMPACTION OF 95% AROUND ITS SURROUNDING AREAS.
2. TELESCOPE THE ANCHOR SLEEVE OVER THE ANCHOR BASE UNTIL BOTH TUBES ARE FLUSH AT THE TOP AND THE PERFORATIONS ALIGN.
3. USE DRIVING CAP TO PROTECT THE END OF ALL MEMBERS WHEN THE ANCHOR ASSEMBLY IS BEING DRIVEN INTO THE GROUND.
4. STABILIZATION ANCHOR SLEEVES SHALL BE USED IN ALL AREAS WITH SOFT, LOOSE OR UNSTABLE SOILS.
5. SEE SHEET 1 OF 1 FOR SIGN DETAIL.

* - 12 GAUGE COLD ROLLED STEEL (ASTM SPEC. NO. A446, GRADE A) WITH SQUARE TUBE CROSS SECTION AND PERFORATED WELDED TUBING IN GALVANIZED FINISH CONFORMING TO ASTM SPEC. NO. A525 COATING DESIGNATION G90.



CORNER BOLT LOCATION SECTION A-A



CITY OF ANTIOCH DEPARTMENT OF PUBLIC WORKS – ENGINEERING SERVICES

DRAWN BY: S. Rodriguez

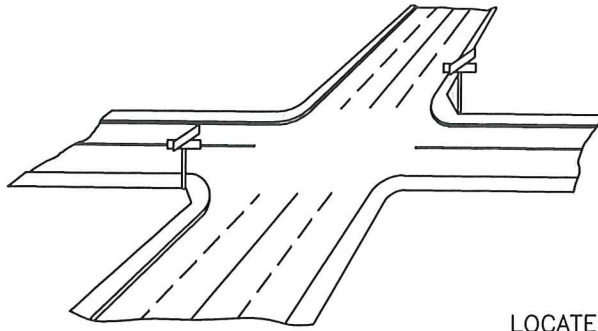
REVISIONS:

STREET NAME AND TRAFFIC SIGNS

ST-16 (SHEET 2 of 2)

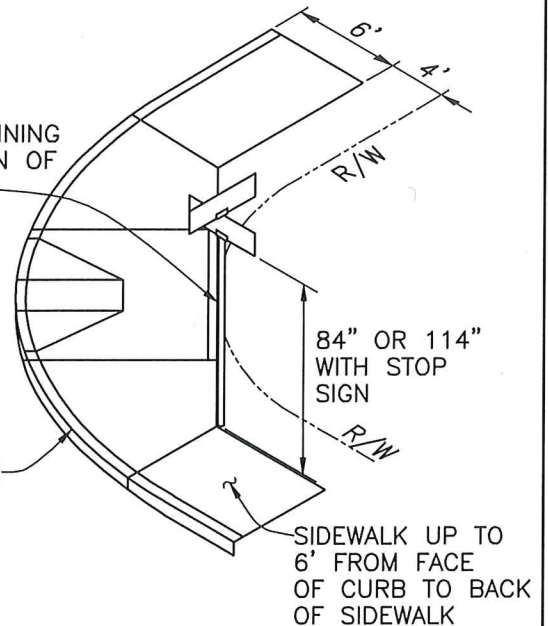
APPROVED BY:
Ron Bernal
RON BERNAL, P.E.
CITY ENGINEER

DATE: DEC 20, 2016

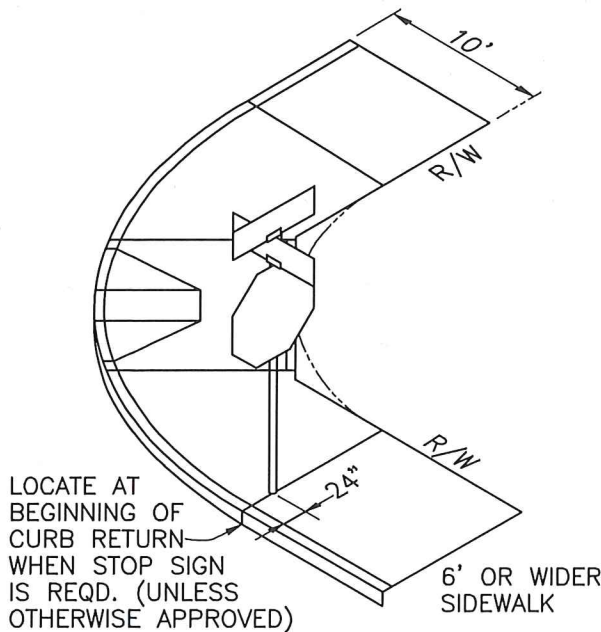


LOCATION AT MULTILANE
ARTERIAL INTERSECTION

LOCATE AT BEGINNING
OF CURB RETURN OF
MINOR STREET



LOCATION BEHIND MONOLITHIC
SIDEWALK UP TO 6 FT. WIDE



LOCATION IN MONOLITHIC
SIDEWALK WIDER THAN 6 FT.

NOTES:

1. CORNER OF INSTALLATION SHALL BE AS DESIGNATED BY THE CITY ENGINEER.
2. CORE CONCRETE IF SIGN INSTALLED AFTER SIDEWALK POURED.
3. WHEN POURED IN SIDEWALK, POST WILL BE SET PRIOR TO SIDEWALK POUR.
4. UTILIZE SAME POST FOR STOP SIGN WHERE APPLICABLE.

NO SCALE



CITY OF ANTIOCH DEPARTMENT OF PUBLIC WORKS – ENGINEERING SERVICES

DRAWN BY: S. Rodriguez

REVISIONS:

STREET NAME SIGN LOCATIONS

ST-17

APPROVED BY:
Ron Bernal
RON BERNAL, P.E.
CITY ENGINEER

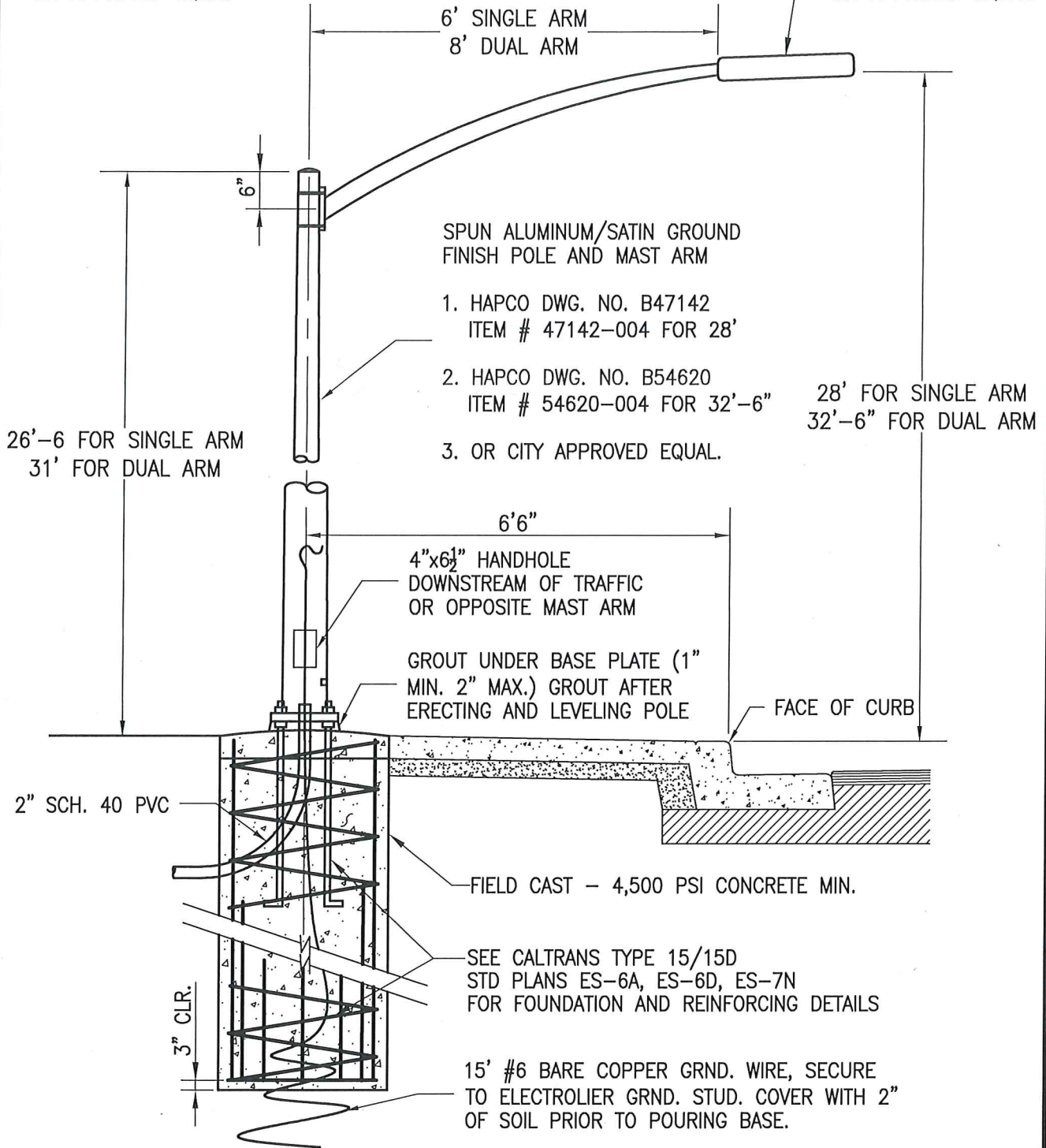
DATE: DEC 20, 2016

AT SIGNALIZED INTERSECTIONS OR AS NOTED

SEE SHEET 3 OF 3
OR APPROVED EQUAL

IN TRACT

SEE SHEET 3 OF 3
OR APPROVED EQUAL



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PUBLIC WORKS DEPARTMENT

ANTIOCH
CALIFORNIA
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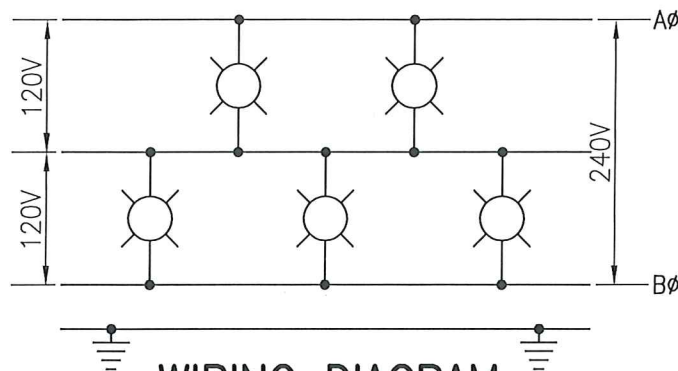
ELECTROLIER

JOHN D. SAMUELSON, CITY ENGINEER

DATE: 10/26/2020

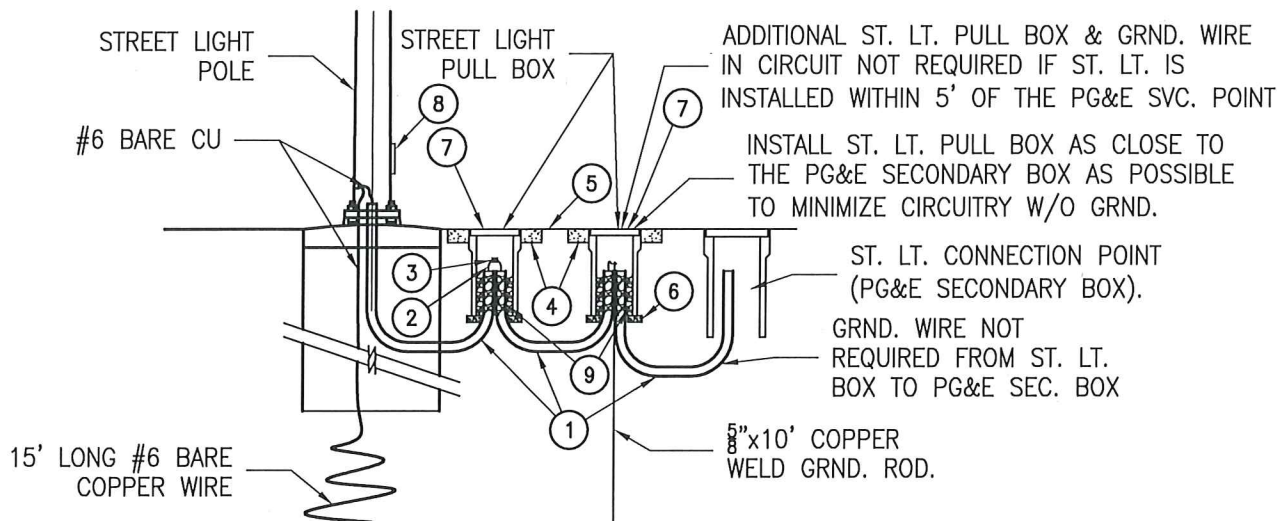
REV.: 4/25/2022

DRAWING NO.
ST-18
(SHEET 1 OF 3)



WIRING DIAGRAM

NOT TO SCALE



GROUNDING DETAIL

NOT TO SCALE

① 2" PVC CONDUIT SCHEDULE 40

② COPPER WIRE #6

③ WATER TIGHT CONNECTORS

④ CONCRETE PAD 1' WIDE 6" DEEP MIN.
AROUND ALL SIDES OF PULL BOXES AND POLE
TO FINISH GRADE

⑤ FINISH GRADE

⑥ 1 BRICK AT EA. CORNER OF BOXES

⑦ LOCKJAW UTILITY BOX SECURITY LID
(SIPRA CORPORATION)

⑧ INSTALL FUSE HOLDER IN POLE, AT HAND HOLE

⑨ 1 1/2" WASHED RIVER ROCK AT BOTTOM OF BOX

NOTES:

1. FUSE HOLDER INSTALLED IN POLE, AT HAND HOLE.

2. CONDUITS TO BE FILLED AT ENDS.

3. LOCKJAW UTILITY BOX SECURITY LID (SIPRA CORPORATION):

ELJ 09 - FITS CHRISTY N09

ELJ 16 - FITS CHRISTY N16

ELJ 30 - FITS CHRISTY N30



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ELECTROLIER

JOHN D. SAMUELSON, CITY ENGINEER

DATE: 10/26/2020

REV.:

DRAWING NO.
ST-18
(SHEET 2 OF 3)

STREET LIGHTING FOR NEW DEVELOPMENTS

MINIMUM CLEARANCE FROM FACE-OF-CURB IS 1.5', BUT AS A GENERAL RULE IS 2.5'. NON-BREAKAWAY FIXTURES (POLES) SHALL BE LOCATED 3.0' FROM CENTER-OF-POLE TO FACE-OF-CURB. POLES SHALL BE LOCATED AT THE BACK OF 5'-WIDE MONOLITHIC SIDEWALK & CURB; SIDEWALKS OVER 6.0' WIDE SHALL BE DETACHED; AND POLES SHALL HAVE A 5.0' MIN. CLEARANCE FROM CATCH BASINS AND FIRE HYDRANTS.

LIGHTING ON PUBLIC STREETS SHALL COMPLY WITH THE FOLLOWING RECOMMENDED MAX. SPACING REQUIREMENTS AND MIN. LIGHTING LEVELS, USE THE CORRECT LEOTEK LED FIXTURE AND BE ADA COMPLIANT.

RESIDENTIAL (CURB TO CURB WIDTH EQUAL OR LESS THAN 40', GENERALLY FRONT-ON HOUSING)

- GCJ1-30J-MV-40K-2R-GY-050-FOC-PCR7-WL-RWG (Type 2R, 30 watts)
- RECOMMENDED SPACING: 180'-200' ON CENTER
- AVERAGE = 0.3FC AVERAGE OR MORE
- UNIFORMITY RATIO (AVERAGE TO MINIMUM) = 6.0 OR LESS
- MINIMUM OF 0.05FC IN STREETS AND 0.10FC MIN AT INTERSECTIONS AND IN KNUCKLES
- USE OF TYPE 3 DISTRIBUTION IN KNUCKLES IS ACCEPTABLE WHEN REQUIRED

COLLECTOR (CURB TO CURB WIDTH GREATER THAN 40' AND LESS THAN 80')

- GCJ2-30J-MV-40K-2R-GY-070-FOC-PCR7-WL-RWG (Type 2R, 44 watts)
- RECOMMENDED SPACING: 180'-200' ON CENTER
- AVERAGE = 0.48FC AVERAGE OR MORE
- UNIFORMITY RATIO (AVERAGE TO MINIMUM) = 4.0 OR LESS
- MINIMUM OF 0.12FC IN STREETS
- USE OF TYPE 3R IS ACCEPTABLE WHEN REQUIRED

ARTERIAL (CURB TO CURB WIDTH EQUAL TO OR GREATER THAN 80')

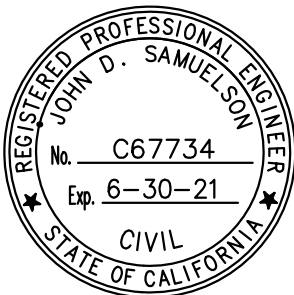
- GCM1-60J-MV-40K-3R-GY-095-FOC-PCR7-WL-RWG (Type 3R, 59 watts)
- RECOMMENDED SPACING: 180'-200' ON CENTER
- AVERAGE = 0.69FC AVERAGE OR MORE
- UNIFORMITY RATIO (AVERAGE TO MINIMUM) = 3.0 OR LESS
- MINIMUM OF 0.23FC IN STREETS

SIGNALIZED INTERSECTIONS

USE THE FOLLOWING LEOTEK FIXTURE ON SIGNALIZED INTERSECTIONS FOR SAFETY LIGHTS:

- GCM1-60J-MV-40K-3R-GY-115-FOC-PCR7-WL-RWG (Type 3R, 72 watts)

RECOMMENDED LIGHT LEVELS FOR PATHWAYS INTERNAL TO DEVELOPMENTS SHOULD BE .30FC AVERAGE WITH 10/1 AVERAGE TO MINIMUM RATIO.



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CALIFORNIA
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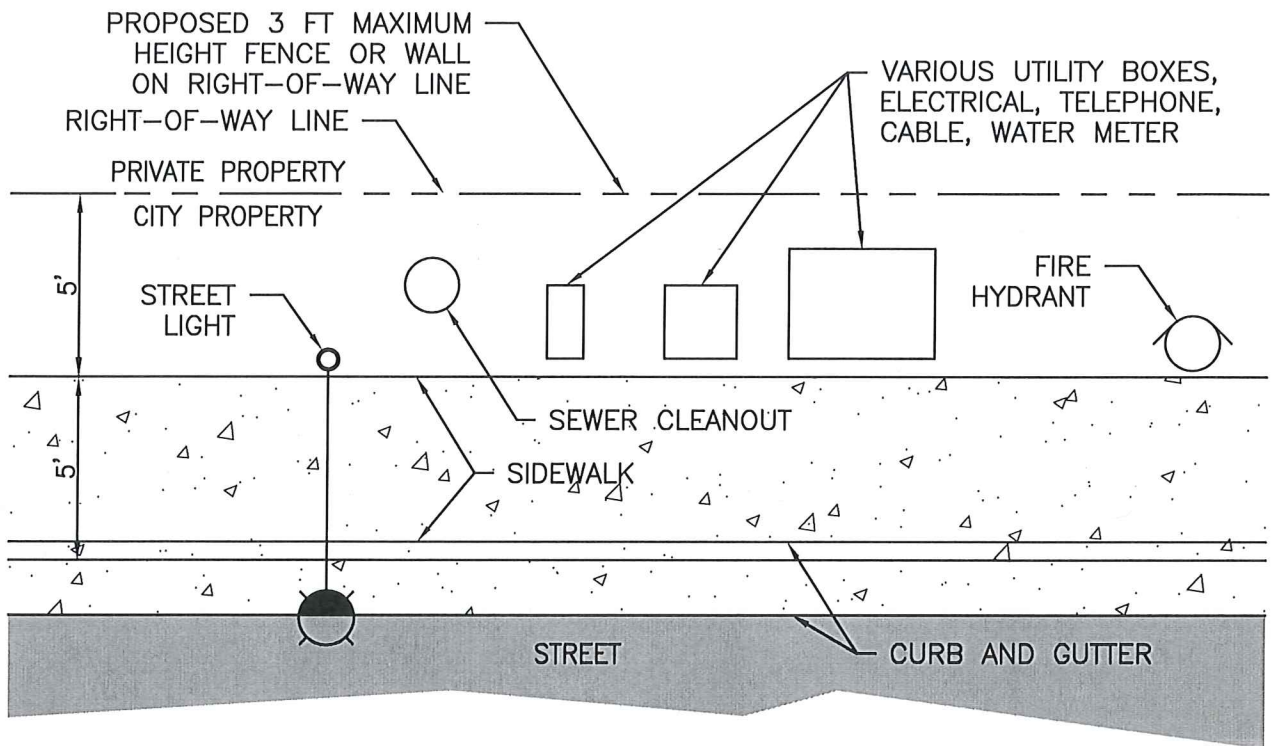
ELECTROLIER


JOHN D. SAMUELSON, CITY ENGINEER

DATE: 10/26/2020

REV.: 8/19/2021

DRAWING NO.
ST-18
(SHEET 3 OF 3)



TYPICAL RESIDENTIAL FRONTAGE

ANTIOCH MUNICIPAL CODE SECTION 6-5.25
SECTIONS 7-2.0 THROUGH 7-2.7

IN MOST AREAS, THE CITY PROPERTY (RIGHT-OF-WAY) EXTENDS 10' BEHIND THE FACE OF CURB. IF THERE IS A 4.5' WIDE SIDEWALK ADJACENT TO THE 6" CURB, THEN THE RIGHT-OF-WAY EXTENDS 5' BEYOND THE SIDEWALK. ALL FENCES OR WALLS SHALL BE ON OR BEHIND THE RIGHT-OF-WAY LINE. SOME FENCES OR WALLS MAY BE WITHIN THE FIVE FOOT AREA BEHIND SIDEWALK IF AN ENCROACHMENT AGREEMENT IS APPROVED BY THE CITY ENGINEER. REMOVAL AND/OR REPAIR OF ALL PRIVATE IMPROVEMENTS ALLOWED WITHIN THE 10' RIGHT-OF-WAY IS AT THE EXPENSE OF THE PERMITTEE OR PROPERTY OWNER. PER STATE LAW, ANY DIGGING WITHIN THE RIGHT-OF-WAY REQUIRES NOTIFICATION OF UNDERGROUND SERVICE ALERT (U.S.A.) BY CALLING 811 OR ON-LINE AT <https://www.usanorth811.org> A MINIMUM OF 2-14 WORKING DAYS IN ADVANCE OF WORK. ALL UTILITY BOXES, FIRE HYDRANTS, STREET LIGHTS AND CLEANOUTS MUST BE DIRECTLY ACCESSIBLE FROM THE SIDEWALK.

VAULT CLEARANCES SHALL BE A MINIMUM OF 24 INCHES ON ALL SIDES; MORE STRINGENT CLEARANCES MAY BE REQUIRED BY THE UTILITY COMPANY. FIRE HYDRANT AND STREET LIGHT CLEARANCES SHALL BE A MINIMUM OF 36 INCHES ON ALL SIDES. ALL SHRUBS SHALL BE TRIMMED ACCORDINGLY. NO TREES ARE PERMITTED WITHIN FIVE FEET BEHIND ANY SIDEWALK. OVERHANGING TREES OR SHRUBS MUST BE TRIMMED TO CLEAR 8 FEET IN HEIGHT ABOVE SIDEWALK AND UTILITIES. WALLS, FENCES AND SHRUBS ARE LIMITED TO 3 FEET IN HEIGHT IN FRONT AND SIDE YARDS (AMC SECTION 9-5.503.1 AND AMC SECTION 9-5.503.2(A)).



CITY OF ANTIOCH
PUBLIC WORKS DEPARTMENT

ANTIOCH
CALIFORNIA
OPPORTUNITY LIVES HERE

UTILITY CLEARANCE POLICY

JOHN D. SAMUELSON, CITY ENGINEER

DATE: 3/2/2017

REV.: 8/2/2022

DRAWING NO.

ST-19
(SHEET 1 OF 2)

ANTIOCH MUNICIPAL CODE

SECTION 6-5.25

OBSTRUCTION OF HYDRANTS, WATER METERS OR OTHER WATER SERVICE EQUIPMENT

NO PERSON SHALL PLACE, PLANT OR CONSTRUCT ANY OBJECT, SHRUBBERY, FENCE OR WALL WHICH ENCROACHES ON THE CLEAR SETBACK ZONE OF ANY HYDRANT, WATER METER OR OTHER WATER SERVICE EQUIPMENT CONNECTED TO THE WATER PIPES OF THE WATER DEPARTMENT.

- A. HYDRANTS REQUIRE A MINIMUM UN-OBSTRUCTED THREE FOOT (3') CLEAR SETBACK ZONE, AT LEAST EIGHT FEET (8') HIGH, COMPLETELY AROUND EACH HYDRANT.
- B. WATER METERS REQUIRE A MINIMUM UN-OBSTRUCTED TWENTY-FOUR INCH (24") CLEAR SETBACK ZONE, AT LEAST EIGHT FEET (8') HIGH, COMPLETELY AROUND EACH WATER METER BOX.
 - 1. THE TWENTY-FOUR INCH (24") CLEAR SETBACK ZONE REQUIRED FOR WATER METERS SHALL BE MEASURED FROM THE OUTSIDE EDGE OF THE WATER METER BOX.
 - 2. NO OBSTRUCTION OF ANY KIND SHALL BE PERMITTED BETWEEN THE WATER METER BOX AND THE PUBLIC SIDEWALK.
- C. WATER GATES AND OTHER WATER SERVICE EQUIPMENT REQUIRE A MINIMUM UN-OBSTRUCTED TWENTY-FOUR INCH (24") CLEAR SETBACK ZONE, AT LEAST EIGHT FEET (8') HIGH, COMPLETELY AROUND EACH PIECE OF EQUIPMENT.

GENERAL INFORMATION

IN MOST AREAS OF THE CITY, THERE IS A TEN FOOT (10') RIGHT-OF-WAY BEHIND THE FACE OF THE CURB. WHERE THE SIDEWALK IS DIRECTLY BEHIND THE CURB, THIS MEANS THAT THERE IS A FIVE FOOT (5') RIGHT-OF-WAY BEHIND THE PUBLIC SIDEWALK. THIS IS A REQUIRED CITY RIGHT-OF-WAY FOR THE INSTALLATION AND RELOCATION OF PUBLIC UTILITIES. GENERALLY, IF YOUR WATER METER IS LOCATED BEHIND THE PUBLIC SIDEWALK, THEN THE FIVE FOOT (5') RIGHT-OF-WAY BEHIND THE SIDEWALK APPLIES TO YOUR PROPERTY. PRIOR TO THE CONSTRUCTION OF A STRUCTURE (INCLUDING FENCING OR WALLS) WITHIN THE RIGHT-OF-WAY, THE PROPERTY OWNER MUST OBTAIN A "CITY ENCROACHMENT AGREEMENT." FENCING, WALLS OR OTHER STRUCTURES REQUIRE A BUILDING PERMIT AS WELL.

APPLICATIONS FOR A CITY ENCROACHMENT AGREEMENT ARE OBTAINED FROM THE ENGINEERING SERVICES DIVISION, DEPARTMENT OF PUBLIC WORKS, (925) 779-7080. BUILDING PERMITS ARE ISSUED BY BUILDING SERVICES DIVISION, DEPARTMENT OF COMMUNITY DEVELOPMENT, (925) 779-7065. BOTH ARE LOCATED AT ANTIOCH CITY HALL, THIRD AND 'H' STREETS, ON THE SECOND FLOOR.

IF YOU HAVE ANY QUESTIONS CONCERNING THE "CLEAR SETBACK ZONE" OF WATER METERS OR HYDRANTS, YOU MAY CONTACT THE WATER SUPERINTENDENT AT (925) 779-6952.



**CITY OF ANTIOCH
PUBLIC WORKS DEPARTMENT**

ANTIOCH
CALIFORNIA
OPPORTUNITY LIVES HERE

UTILITY CLEARANCE POLICY

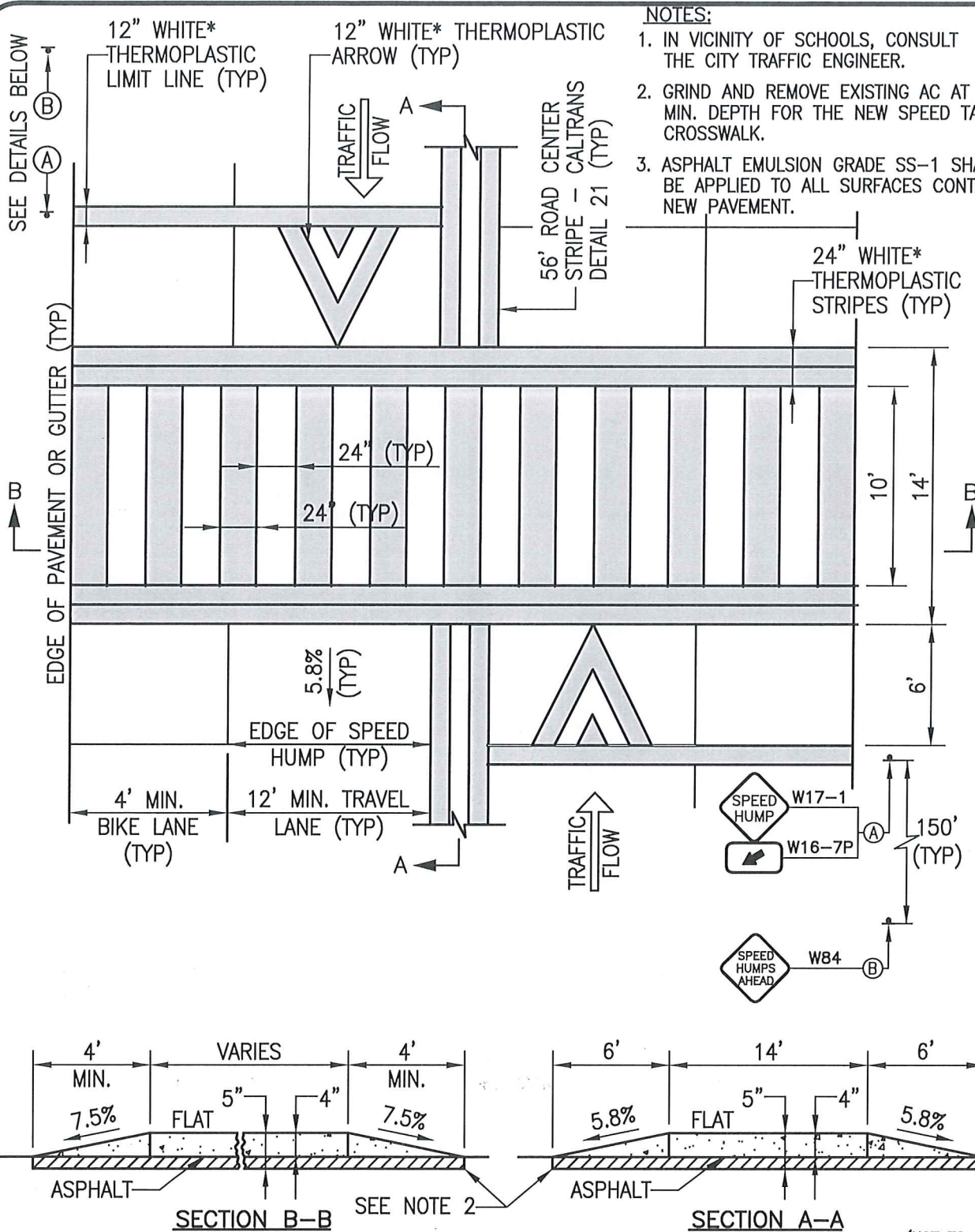

JOHN D. SAMUELSON, CITY ENGINEER

DATE: 3/2/2017

REV.: 8/2/2022

DRAWING NO.

ST-19
(SHEET 2 OF 2)



NOTES:

1. IN VICINITY OF SCHOOLS, CONSULT THE CITY TRAFFIC ENGINEER.
2. GRIND AND REMOVE EXISTING AC AT 1" MIN. DEPTH FOR THE NEW SPEED TABLE CROSSWALK.
3. ASPHALT EMULSION GRADE SS-1 SHALL BE APPLIED TO ALL SURFACES CONTACTING NEW PAVEMENT.

1. CIPAW STANDARD DRAWINGS CURRENT CITY AUTOCAD ST-20 - SPEED TABLE CROSSWALK.DWG



CITY OF ANTIOCH
PUBLIC WORKS DEPARTMENT

ANTIOCH
CALIFORNIA
OPPORTUNITY LIVES HERE

SPEED TABLE CROSSWALK

SCOTT BUENING, ACTING CITY ENGINEER

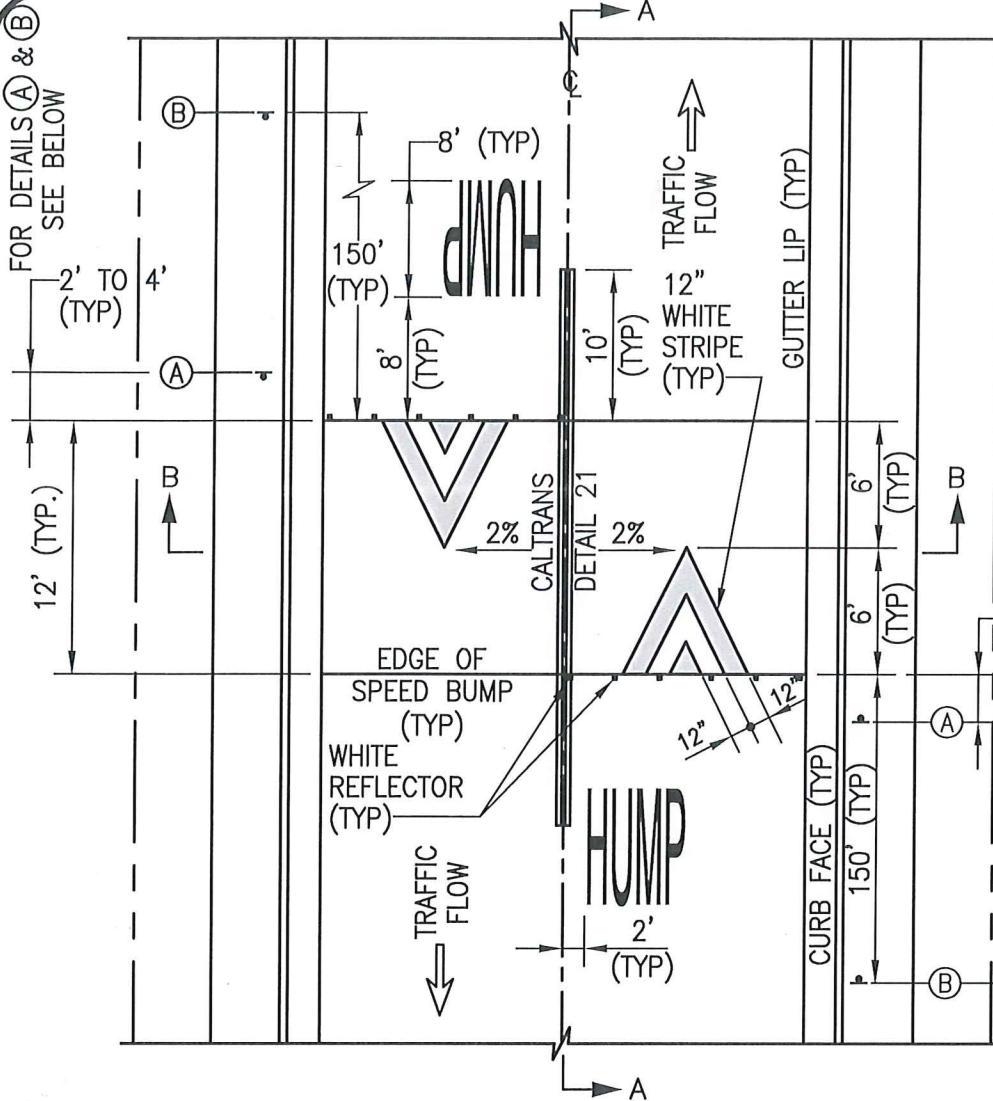
DATE: 5/11/2020

REV.: 8/22/2023

DRAWING NO.

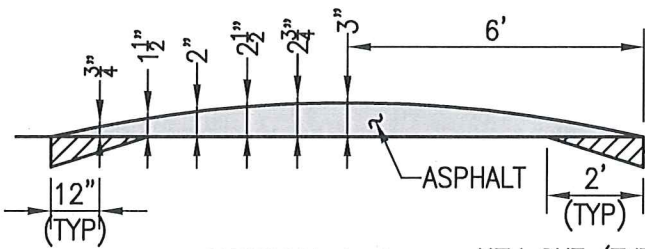
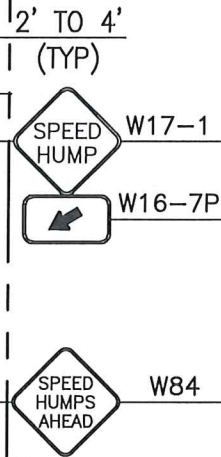
ST-20

FOR DETAILS (A) & (B)
SEE BELOW



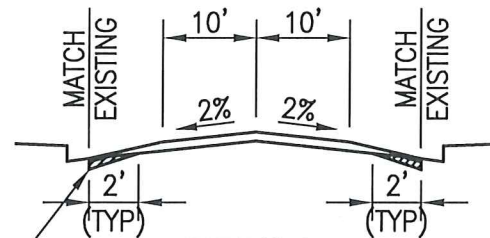
NOTES:

1. IN VICINITY OF SCHOOLS, CONSULT THE CITY TRAFFIC ENGINEER.
2. TYPICAL KEY CUT SHALL BE 1" DEEP X 2' WIDE. WEDGE GRIND EXISTING PAVEMENT ADJACENT TO GUTTER LIP.
3. ASPHALT EMULSION GRADE SS-1 SHALL BE APPLIED TO ALL SURFACES CONTACTING NEW PAVING.



SECTION A-A

KEY CUT (TYP)
SEE NOTE 2



SECTION B-B

(NOT TO SCALE)



CITY OF ANTIOCH
PUBLIC WORKS DEPARTMENT

ANTIOCH
CALIFORNIA
OPPORTUNITY LIVES HERE

SPEED BUMP

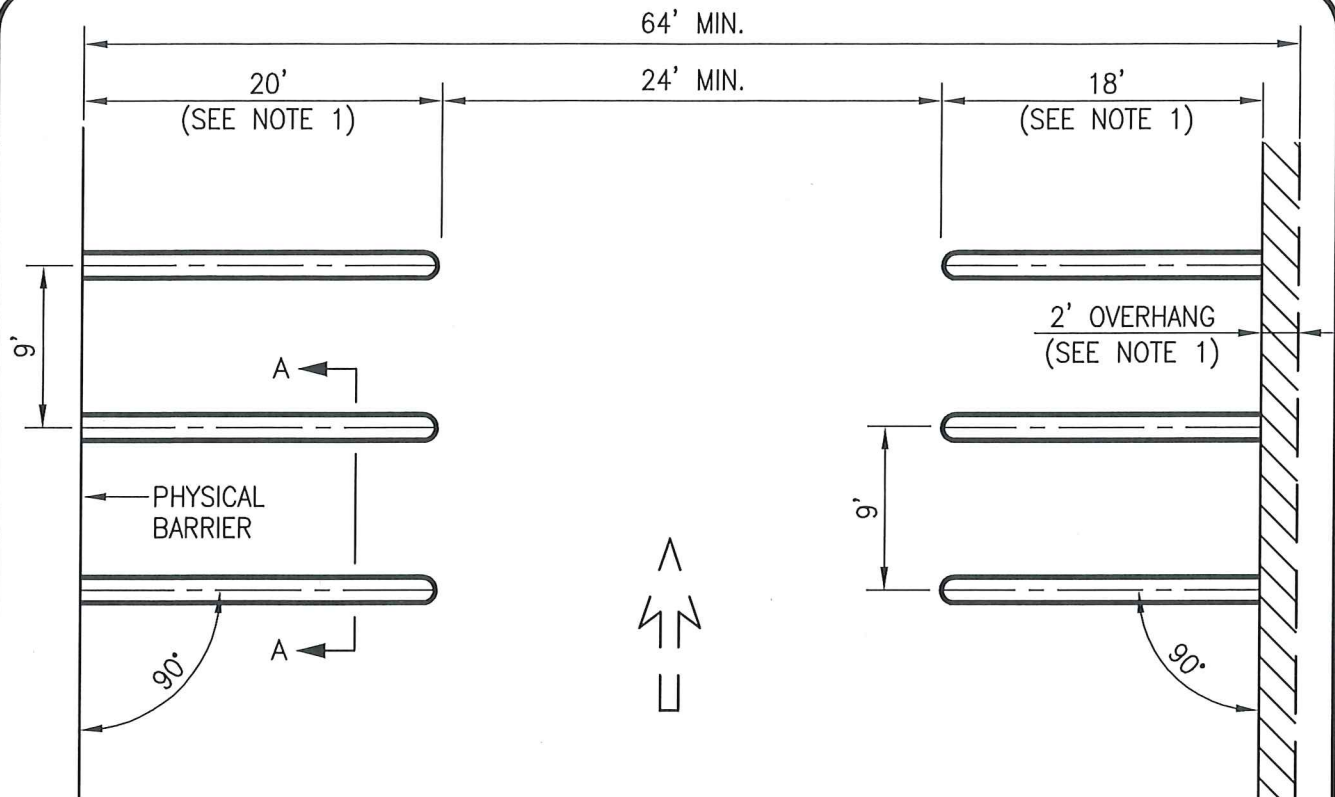
SCOTT BUENING, ACTING CITY ENGINEER

DATE: 5/11/2020

REV.: 8/22/2023

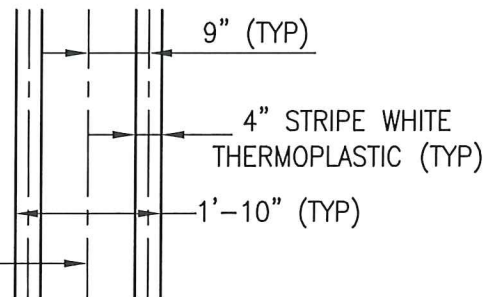
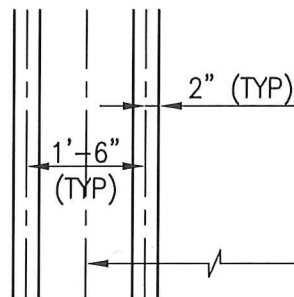
DRAWING NO.

ST-21



NO OVERHANG

WITH OVERHANG



DETAIL A-A

NOTES:

1. PARKING STALL SHALL BE 18' LONG IN CASES WHERE A 2' OVERHANG AREA IS DESIGNED OR AVAILABLE SUCH AS SIDEWALK, LANDSCAPE AND OTHER LOW SURFACING. WHERE THERE IS A PHYSICAL BARRIER SUCH AS WALL, TALL PLANTER OR A PROPERTY LINE, LENGTH SHALL BE 20'.
2. WHEEL-STOPS SHALL BE INSTALLED TO PREVENT VEHICLE OVERHANG ON ADJACENT PLANTERS AND/OR SIDEWALKS. IN CIRCUMSTANCES WHERE THE ADJACENT PLANTER AND/OR SIDEWALK WIDTHS EXCEED CITY STANDARDS THEN A WRITTEN REQUEST FOR AN EXCEPTION MAY BE SUBMITTED SUBJECT TO REVIEW AND APPROVAL BY THE CITY.

(NOT TO SCALE)



**CITY OF ANTIOCH
PUBLIC WORKS DEPARTMENT**

**ANTIOCH
CALIFORNIA
OPPORTUNITY LIVES HERE**

TYPICAL 90° PARKING STALL LAYOUT

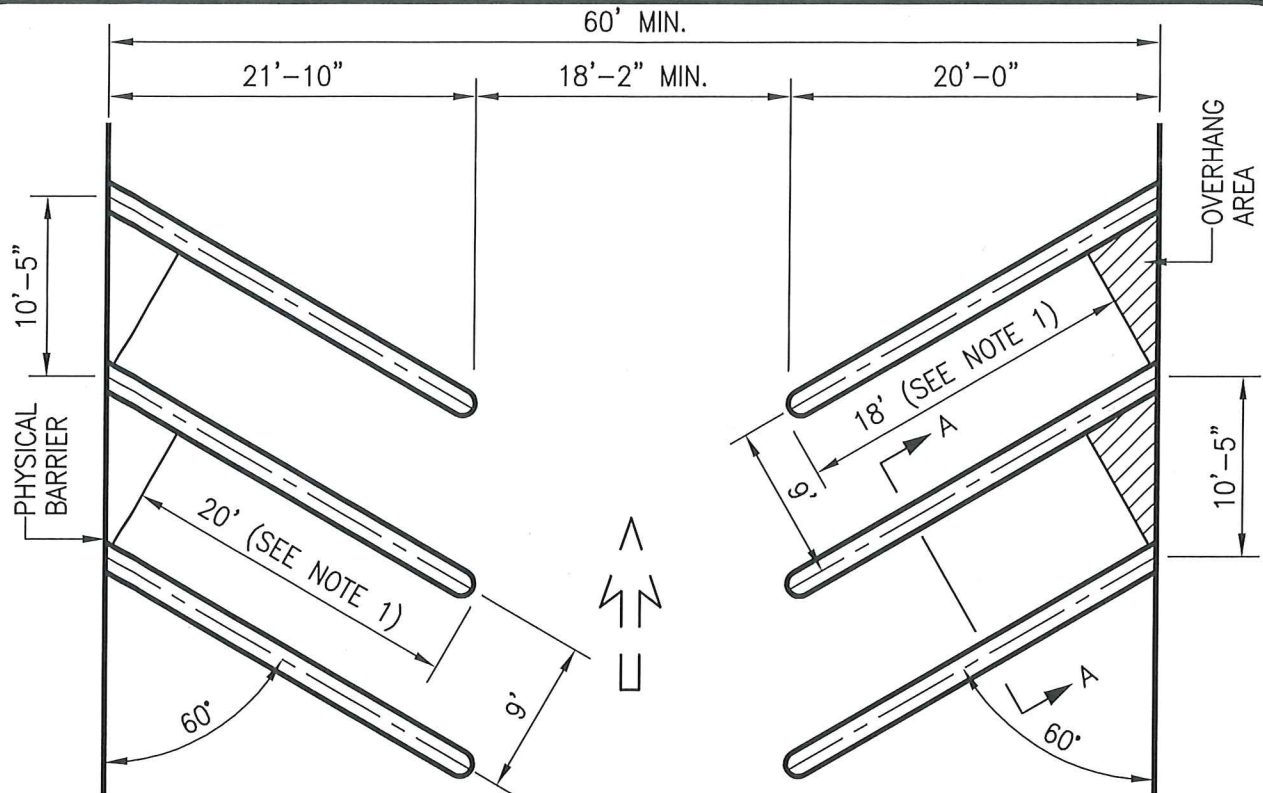
BALWINDER S. GREWAL, CITY ENGINEER

DATE: 5/11/2020

REV.:

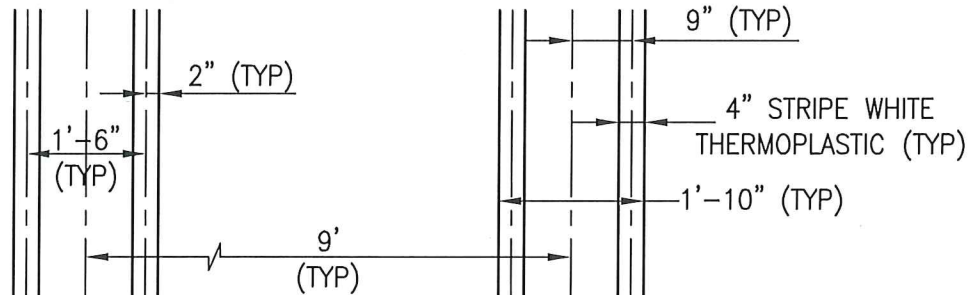
DRAWING NO.

ST-22a



NO OVERHANG

WITH OVERHANG



DETAIL A-A

NOTES:

1. PARKING STALL SHALL BE 18' LONG IN CASES WHERE A 2' OVERHANG AREA IS DESIGNED OR AVAILABLE SUCH AS SIDEWALK, LANDSCAPE AND OTHER LOW SURFACING. WHERE THERE IS A PHYSICAL BARRIER SUCH AS WALL, TALL PLANTER OR A PROPERTY LINE, LENGTH SHALL BE 20'.
2. WHEEL-STOPS SHALL BE INSTALLED TO PREVENT VEHICLE OVERHANG ON ADJACENT PLANTERS AND/OR SIDEWALKS. IN CIRCUMSTANCES WHERE THE ADJACENT PLANTER AND/OR SIDEWALK WIDTHS EXCEED CITY STANDARDS THEN A WRITTEN REQUEST FOR AN EXCEPTION MAY BE SUBMITTED SUBJECT TO REVIEW AND APPROVAL BY THE CITY.

(NOT TO SCALE)



**CITY OF ANTIOCH
PUBLIC WORKS DEPARTMENT**

**ANTIOCH
CALIFORNIA
OPPORTUNITY LIVES HERE**

TYPICAL 60° PARKING STALL LAYOUT

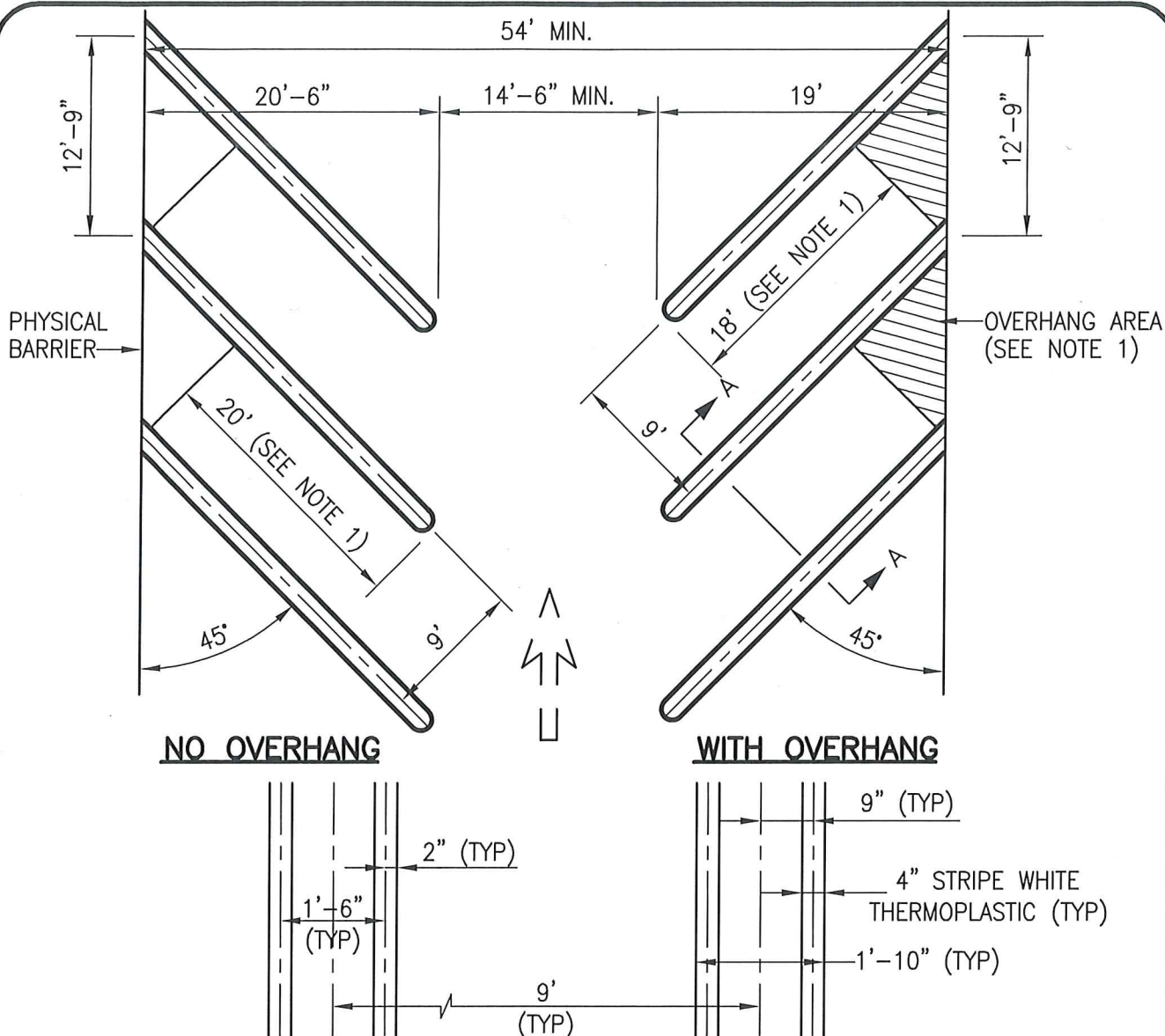
BALWINDER S. GREWAL, CITY ENGINEER

DATE: 5/11/2020

REV.:

DRAWING NO.

ST-22b



DETAIL A-A

NOTES:

1. PARKING STALL SHALL BE 18' LONG IN CASES WHERE A 2' OVERHANG AREA IS DESIGNED OR AVAILABLE SUCH AS SIDEWALK, LANDSCAPE AND OTHER LOW SURFACING. WHERE THERE IS A PHYSICAL BARRIER SUCH AS WALL, TALL PLANTER OR A PROPERTY LINE, LENGTH SHALL BE 20'.
2. WHEEL-STOPS SHALL BE INSTALLED TO PREVENT VEHICLE OVERHANG ON ADJACENT PLANTERS AND/OR SIDEWALKS. IN CIRCUMSTANCES WHERE THE ADJACENT PLANTER AND/OR SIDEWALK WIDTHS EXCEED CITY STANDARDS THEN A WRITTEN REQUEST FOR AN EXCEPTION MAY BE SUBMITTED SUBJECT TO REVIEW AND APPROVAL BY THE CITY.

(NOT TO SCALE)



**CITY OF ANTIOCH
PUBLIC WORKS DEPARTMENT**

**ANTIOCH
CALIFORNIA**
OPPORTUNITY LIVES HERE

TYPICAL 45° PARKING STALL LAYOUT

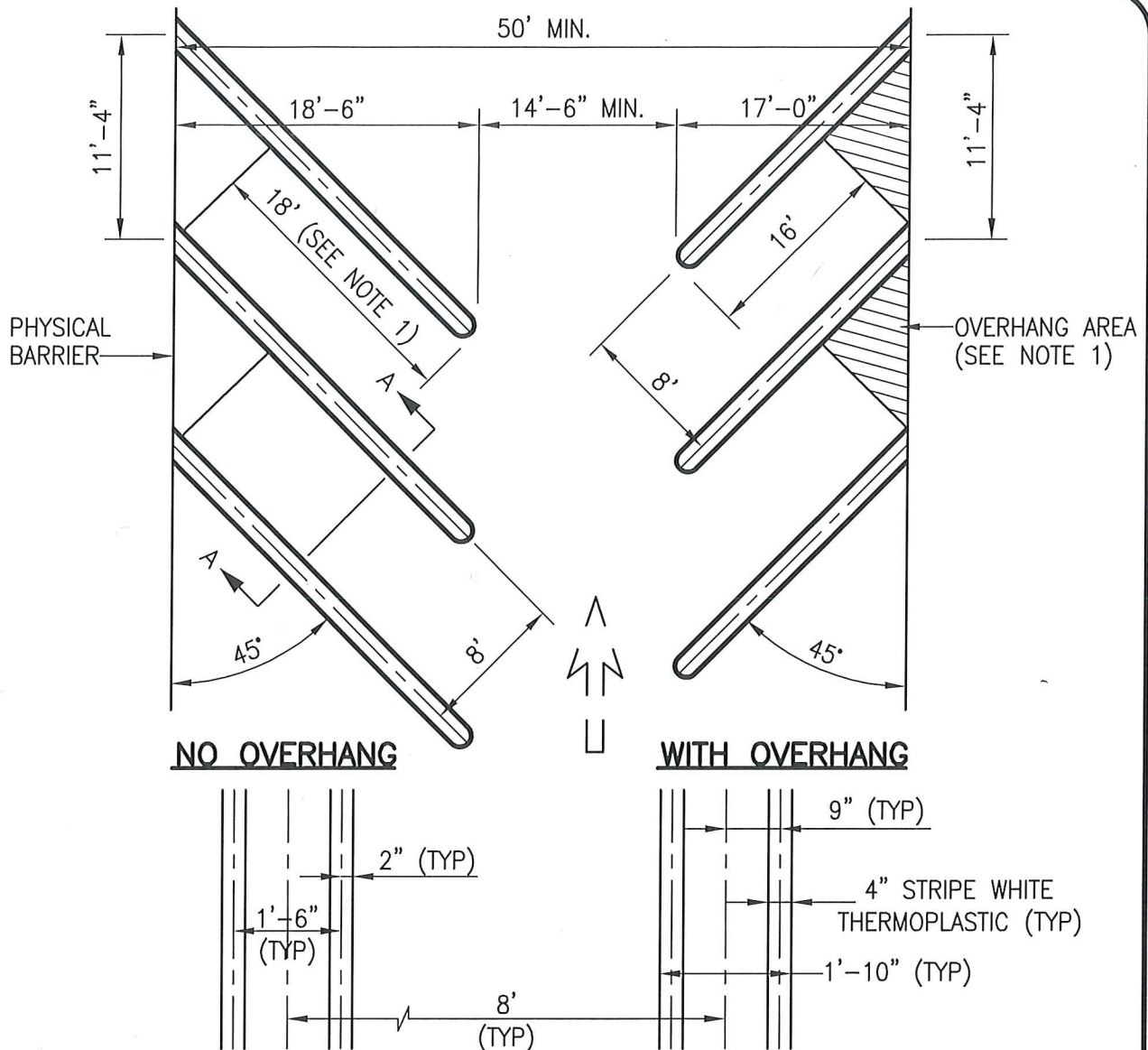
B. Grewal
BALWINDER S. GREWAL, CITY ENGINEER

DATE: 5/11/2020

REV.:

DRAWING NO.

ST-22c



NOTES:

1. PARKING STALL SHALL BE 16' LONG IN CASES WHERE A 2' OVERHANG AREA IS DESIGNED OR AVAILABLE SUCH AS SIDEWALK, LANDSCAPE AND OTHER LOW SURFACING. WHERE THERE IS A PHYSICAL BARRIER SUCH AS WALL, TALL PLANTER OR A PROPERTY LINE, LENGTH SHALL BE 18'.
2. WHEEL-STOPS SHALL BE INSTALLED TO PREVENT VEHICLE OVERHANG ON ADJACENT PLANTERS AND/OR SIDEWALKS. IN CIRCUMSTANCES WHERE THE ADJACENT PLANTER AND/OR SIDEWALK WIDTHS EXCEED CITY STANDARDS THEN A WRITTEN REQUEST FOR AN EXCEPTION MAY BE SUBMITTED SUBJECT TO REVIEW AND APPROVAL BY THE CITY.

(NOT TO SCALE)



CITY OF ANTIOCH
PUBLIC WORKS DEPARTMENT

ANTIOCH
CALIFORNIA
OPPORTUNITY LIVES HERE

TYPICAL 45° COMPACT PARKING STALL LAYOUT

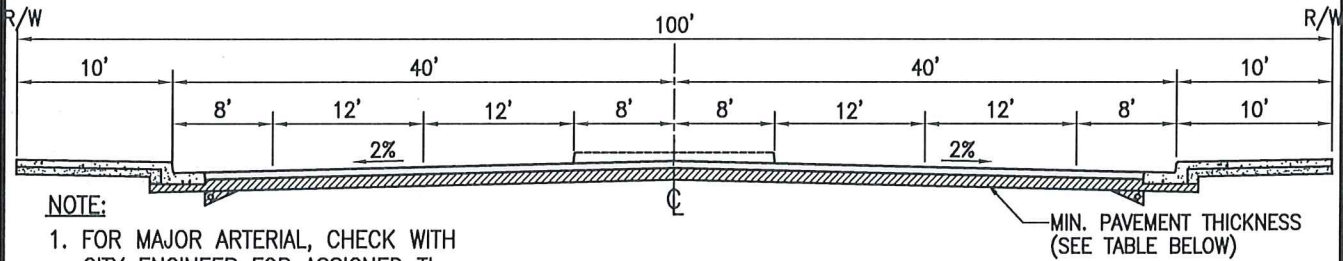
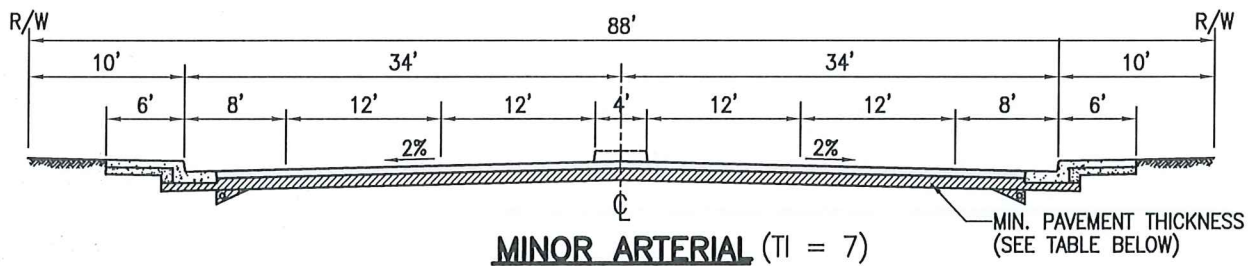
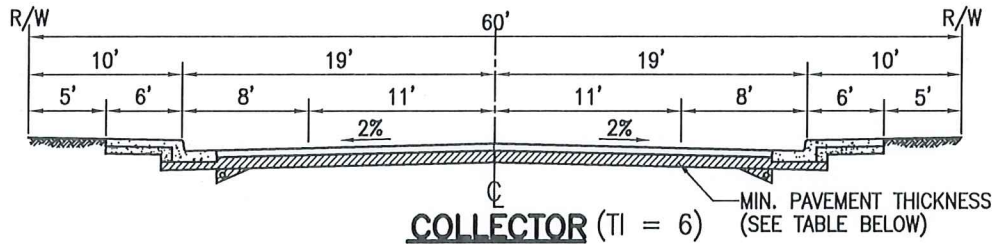
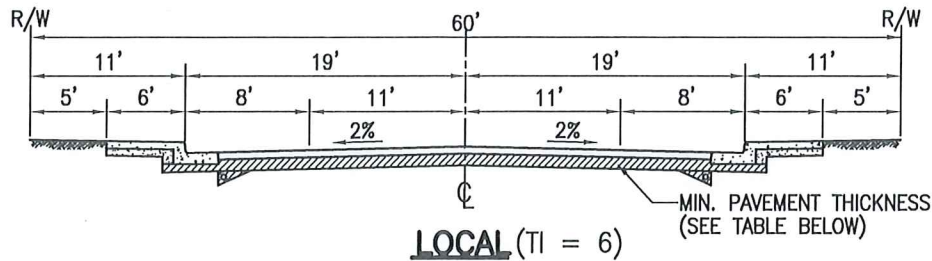
BALWINDER S. GREWAL, CITY ENGINEER

DATE: 5/11/2020

REV.:

DRAWING NO.

ST-22d



NOTE:

1. FOR MAJOR ARTERIAL, CHECK WITH CITY ENGINEER FOR ASSIGNED TI.

RESIDENTIAL STREETS			MINIMUM PAVEMENT THICKNESS	
NO.	STREET TYPE	TI	AC	CLASS II AB
1.	PARKING LOT (PRIVATE)	5	4"	8"
2.	PARKING LOT (PUBLIC)	5.5	4"	10"
3.	LOCAL	6	4"	12"
4.	COLLECTOR	6	4"	12"
5.	MINOR ARTERIAL	7	6"	12"
6.	MAJOR ARTERIAL	8-12	6"-9"	16"-30"

(NOT TO SCALE)



CITY OF ANTIOCH
PUBLIC WORKS DEPARTMENT

ANTIOCH
CALIFORNIA
OPPORTUNITY LIVES HERE

RESIDENTIAL STREET DESIGN STANDARDS

SCOTT BUENTING, ACTING CITY ENGINEER

DATE: 10/9/2023

REV.:

DRAWING NO.
ST-23
SHEET 1 OF 2

STREET CLASSIFICATION	RIGHT OF WAY WIDTH (FEET)	DESIGN SPEED (MPH)	CENTERLINE RADIUS (FT. MINIMUM)	GRADE (% MAXIMUM)
LOCAL	60	25	300	10%
COLLECTOR	60	30	300	10%
MINOR ARTERIAL	88	40	600	7%
MAJOR ARTERIAL	100	50		

NOTES:

1. REQUIRED RIGHT OF WAY WIDTH MAY BE INCREASED FOR SPECIAL REQUIREMENTS AS DETERMINED BY THE CITY ENGINEER.
2. MINIMUM CENTERLINE RADIUS FOR ALL STREETS SHALL COMPLY WITH THE HIGHWAY DESIGN MANUAL. (MINIMUM 300' FOR RESIDENTIAL LOCAL STREETS AND MINIMUM 600' FOR RESIDENTIAL COLLECTOR STREETS.
3. CENTERLINE RADIUS MAY HAVE TO BE INCREASED TO MEET MINIMUM SIGHT DISTANCE STANDARDS.
4. PAVEMENT SECTION DESIGN IS DETERMINED BY TI AND AN R-VALUE OF 5 PER THE HIGHWAY DESIGN MANUAL AND SUBJECTED TO THE CITY OF ANTIOCH MINIMUM PAVEMENT THICKNESS STANDARDS.

CURB RETURN RADIUS (FEET)				
STREET CLASSIFICATION	LOCAL	COLLECTOR	ARTERIAL	MAJOR ARTERIAL
LOCAL	20			
COLLECTOR	20	20		
MINOR ARTERIAL	25	25	30	
MAJOR ARTERIAL	30	30	35	40

NOTE:

1. CALTRANS REQUIRES A 50 FOOT RADIUS FOR STREET CONNECTIONS TO STATE ROUTES.

MINIMUM TANGENT LENGTH AT INTERSECTION (FEET)*				
STREET CLASSIFICATION	ON A LOCAL CONNECTING TO A	ON A COLLECTOR CONNECTING TO A	ON A MINOR ARTERIAL CONNECTING TO A	ON A MAJOR ARTERIAL CONNECTING TO A
LOCAL	60			
COLLECTOR	65	100		
MINOR ARTERIAL	75	120	160	
MAJOR ARTERIAL	85	140	200	260

NOTES:

1. *LENGTH IS FROM CENTERLINE OF INTERSECTION.
2. ANY EXCEPTIONS ARE SUBJECT TO THE APPROVAL OF THE CITY ENGINEER.



**CITY OF ANTIOCH
PUBLIC WORKS DEPARTMENT**

ANTIOCH
CALIFORNIA
OPPORTUNITY LIVES HERE

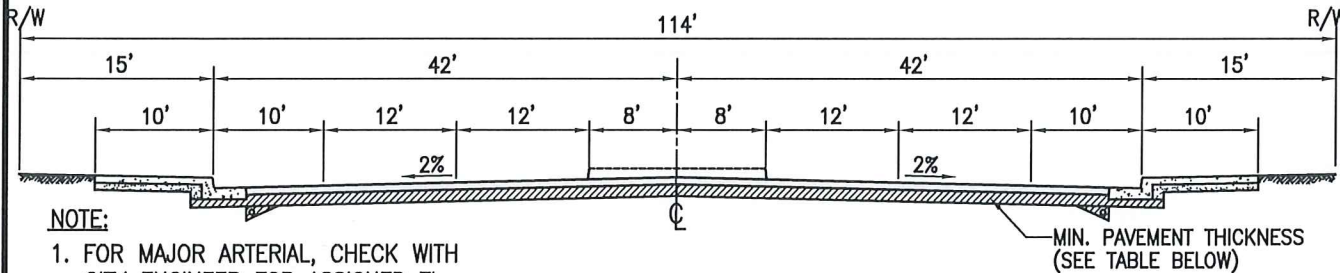
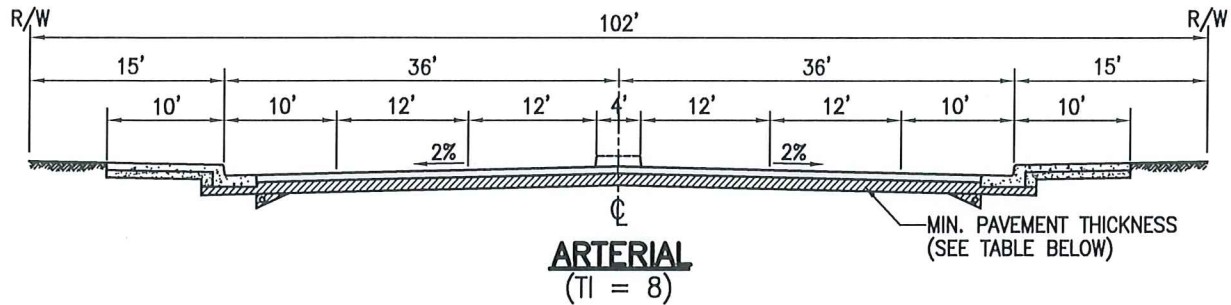
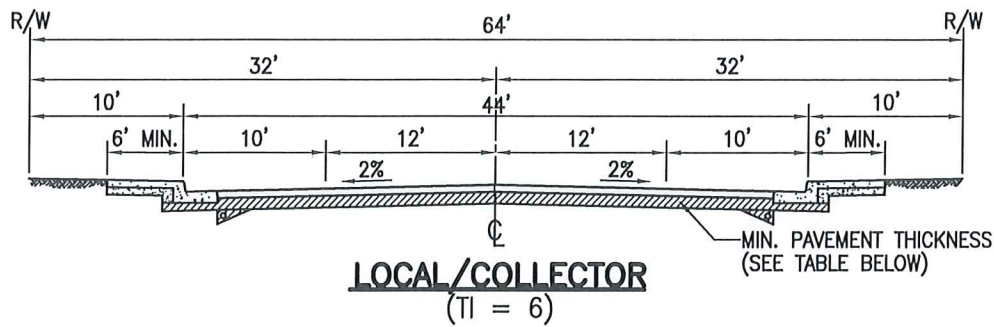
RESIDENTIAL STREET DESIGN STANDARDS

SCOTT BUENING, ACTING CITY ENGINEER

DATE: 10/9/2023

REV.:

DRAWING NO.
ST-23
SHEET 2 OF 2



NOTE:

1. FOR MAJOR ARTERIAL, CHECK WITH CITY ENGINEER FOR ASSIGNED TI.

COMMERCIAL STREETS			MINIMUM PAVEMENT THICKNESS	
NO.	STREET TYPE	TI	AC	CLASS II AB
1.	LOCAL/COLLECTOR	6	4"	12"
2.	ARTERIAL	8	6"	16"
3.	MAJOR ARTERIAL	9-12	6"-9"	20"-30"

(NOT TO SCALE)



**CITY OF ANTIOCH
PUBLIC WORKS DEPARTMENT**

ANTIOCH
CALIFORNIA
OPPORTUNITY LIVES HERE

COMMERCIAL STREET DESIGN STARDARDS

SCOTT BUENING, ACTING CITY ENGINEER

DATE: 10/13/2023

REV.:

DRAWING NO.
ST-24
SHEET 1 OF 2

STREET CLASSIFICATION	RIGHT OF WAY WIDTH (FEET)	DESIGN SPEED (MPH)	CENTERLINE RADIUS (FT. MINIMUM)	GRADE (% MAXIMUM)
LOCAL/COLLECTOR	64	40	600	7%
ARTERIAL	102	50	300	7%
MAJOR ARTERIAL	114	55		

NOTES:

1. REQUIRED RIGHT OF WAY WIDTH MAY BE INCREASED FOR SPECIAL REQUIREMENTS AS DETERMINED BY THE CITY ENGINEER.
2. MINIMUM CENTERLINE RADIUS FOR ALL STREETS SHALL COMPLY WITH THE HIGHWAY DESIGN MANUAL. (MINIMUM 600' FOR COMMERCIAL LOCAL AND COLLECTOR STREETS).
3. CENTERLINE RADIUS MAY HAVE TO BE INCREASED TO MEET MINIMUM SIGHT DISTANCE STANDARDS.
4. PAVEMENT SECTION DESIGN IS DETERMINED BY TI AND AN R-VALUE OF 5 PER THE HIGHWAY DESIGN MANUAL AND SUBJECTED TO THE CITY OF ANTIOCH MINIMUM PAVEMENT THICKNESS STANDARDS.

CURB RETURN RADIUS (FEET)			
STREET CLASSIFICATION	LOCAL/ COLLECTOR	ARTERIAL	MAJOR ARTERIAL
LOCAL/COLLECTOR	25		
ARTERIAL	30	35	
MAJOR ARTERIAL	35	40	45

NOTE:

1. CALTRANS REQUIRES A 50 FOOT RADIUS FOR STREET CONNECTIONS TO STATE ROUTES.

MINIMUM TANGENT LENGTH AT INTERSECTION (FEET)*			
STREET CLASSIFICATION	ON A LOCAL/ COLLECTOR CONNECTING TO A	ON AN ARTERIAL CONNECTING TO A	ON A MAJOR ARTERIAL CONNECTING TO A
LOCAL/COLLECTOR	100		
ARTERIAL	120	160	
MAJOR ARTERIAL	140	200	260

NOTES:

1. *LENGTH IS FROM CENTERLINE OF INTERSECTION.
2. ANY EXCEPTIONS ARE SUBJECT TO THE APPROVAL OF THE CITY ENGINEER.



**CITY OF ANTIOCH
PUBLIC WORKS DEPARTMENT**

ANTIOCH
CALIFORNIA
OPPORTUNITY LIVES HERE

COMMERCIAL STREET DESIGN STANDARDS

Scott Buening
SCOTT BUENING, ACTING CITY ENGINEER

DATE: 10/13/2023

REV.:

DRAWING NO.
ST-24
SHEET 2 OF 2

CITY OF ANTIOCH – MINIMUM PAVEMENT THICKNESS

NO.	DESCRIPTION	WIDTH	TI	R	MINIMUM PAVEMENT THICKNESS	
					AC	CLASS II AB
1.	PARKING LOT (PRIVATE)	–	5	5	4"	8"
2.	PARKING LOT (PUBLIC)	–	5	5	4"	8"
3.	LOCAL RESIDENTIAL STREETS	56'	6	5	4"	12"
4.	COLLECTOR STREETS	60'–64'	6	5	4"	12"
5.	MINOR ARTERIAL STREETS	80'–88'	7	5	6" OR 4"	12" 16"
6.	MAJOR ARTERIAL STREETS	≥100'	8–12	5		
	a) TI = 8	≥100'	8	5	6"	16"
	b) TI = 9	≥100'	9	5	6"	20"
	c) TI = 10	≥100'	10	5	7"	24"
	d) TI = 11	≥100'	11	5	8"	27"
	e) TI = 12	≥100'	12	5	9"	30"



CITY OF ANTIOCH
PUBLIC WORKS DEPARTMENT

ANTIOCH
CALIFORNIA
OPPORTUNITY LIVES HERE

MINIMUM PAVEMENT THICKNESS

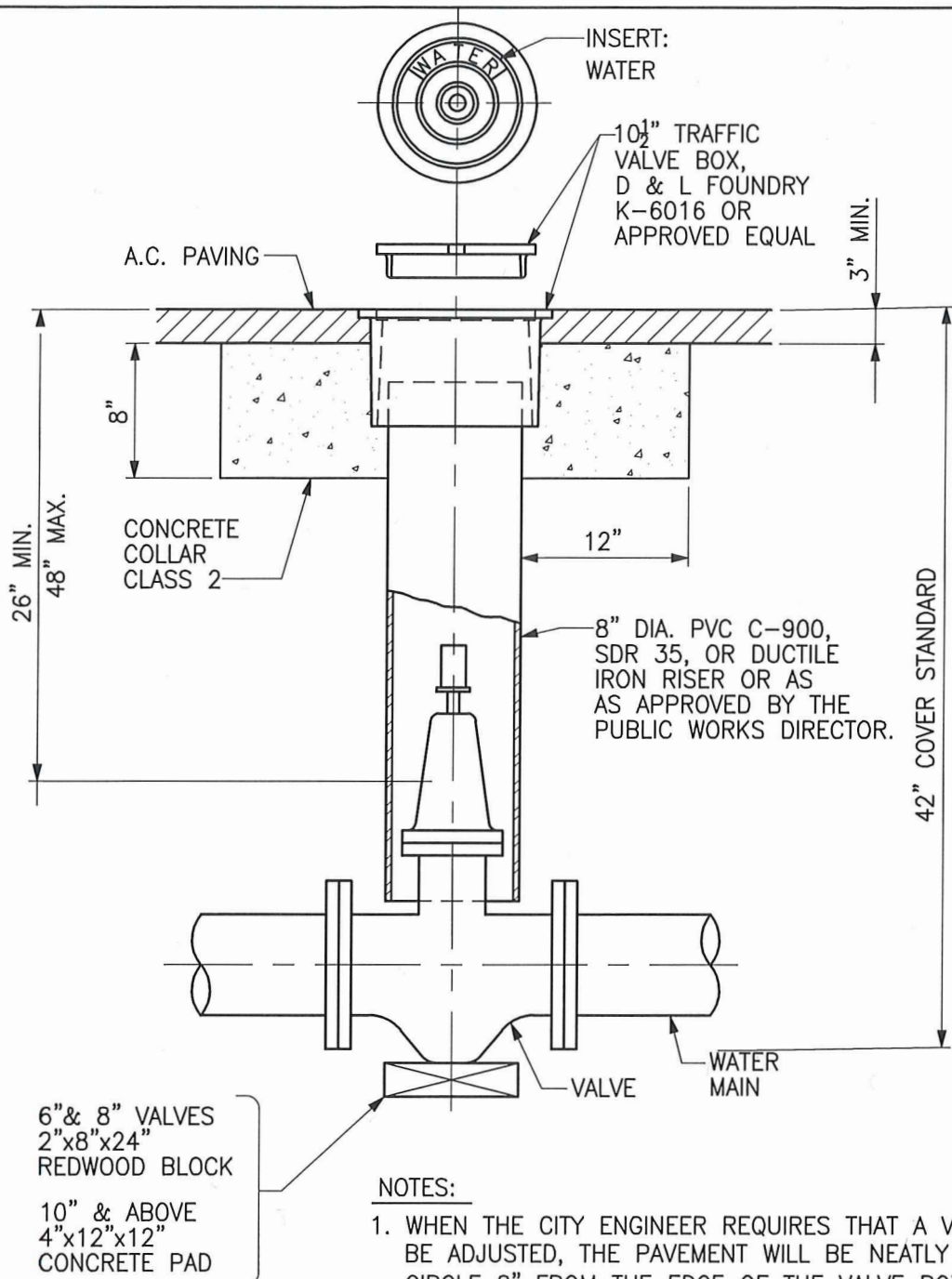
JOHN D. SAMUELSON, CITY ENGINEER

DATE: 10/26/2020

REV.:

DRAWING NO.

ST-26



NOTES:

1. WHEN THE CITY ENGINEER REQUIRES THAT A VALVE BOX BE ADJUSTED, THE PAVEMENT WILL BE NEATLY CUT IN A CIRCLE 8" FROM THE EDGE OF THE VALVE BOX.
2. ALL BOLTS CONNECTING TO WATER LINE SHALL BE 304 STAINLESS STEEL.
3. CATHODIC PROTECTION PER CP DETAILS SHALL BE PROVIDED WHERE VALVES ARE INSTALLED IN CORROSIVE SOILS. ANODE SIZE MAY VARY BASED ON SOIL TESTS.



**CITY OF ANTIOCH
DEPARTMENT OF PUBLIC WORKS – ENGINEERING SERVICES**

DRAWN BY: S. Rodriguez

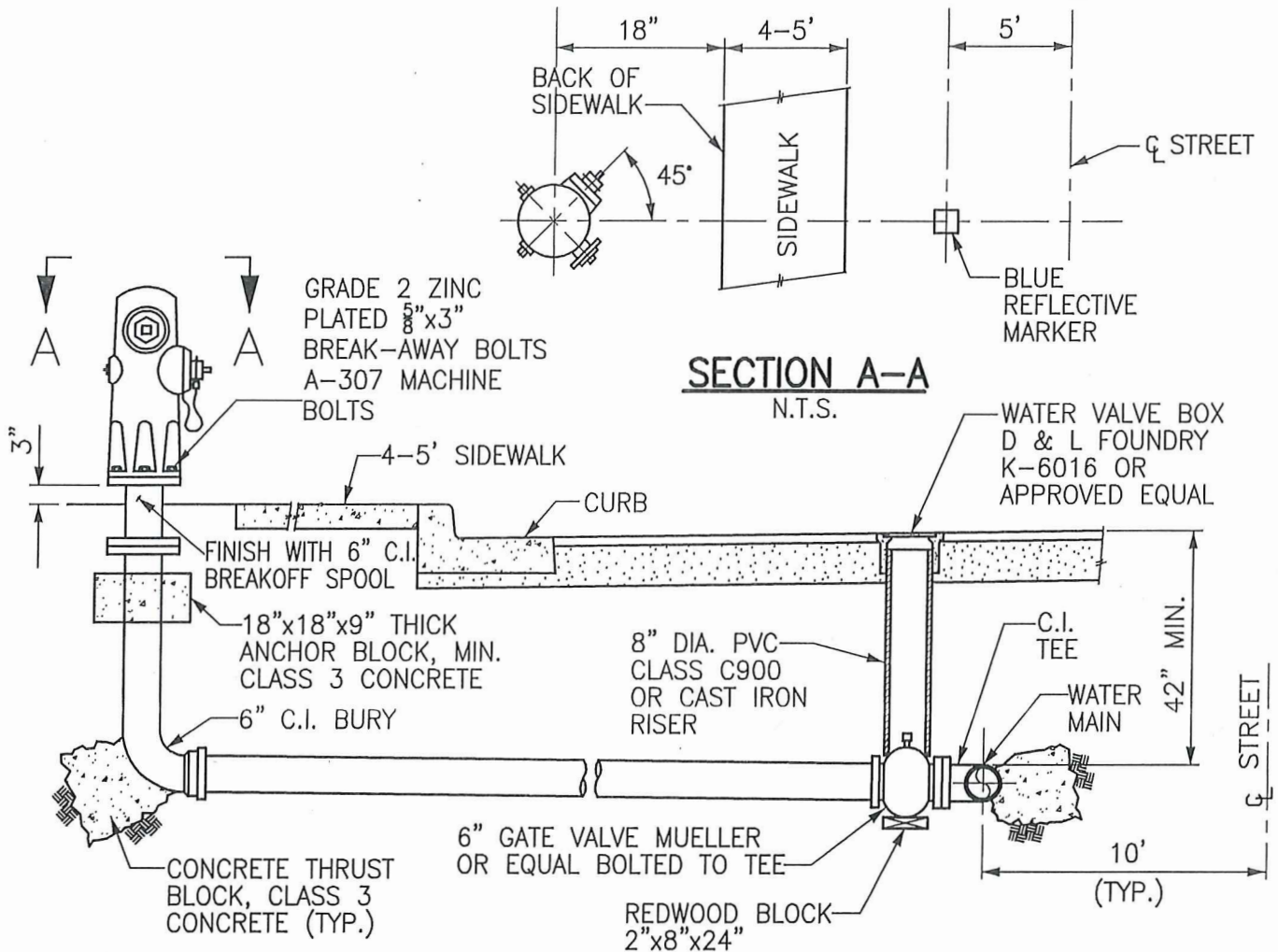
REVISIONS:

WATER VALVE BOX

W-01

APPROVED BY:
Ron Bernal
RON BERNAL, P.E.
CITY ENGINEER

DATE: JAN 17, 2017



FIRE HYDRANT FOR RESIDENTIAL AREA WITH 4-5' SIDEWALK
CLOW 950 2 PORT — ONE 2½" AND ONE 4½" ONLY

NOTES:

1. ALL HOSE OUTLET CAPS SHALL BE ATTACHED TO HYDRANT BY CHAIN.
2. HYDRANT SHALL BE IN ACCORDANCE WITH AWWA STANDARDS; TESTED AND APPROVED BY UNDERWRITERS LABORATORIES, OR EQUIVALENT.
3. FIRE HYDRANT AND EXPOSED BREAKOFF SPOOL INSTALLED SHALL BE PAINTED WHITE AS REQUIRED BY THE CITY OF ANTIOCH. KELLY-MOORE KELGUARD #1700 ARCTIC WHITE #61 OR EQUAL.
4. TWO WAY BLUE REFLECTIVE MARKER TO BE INSTALLED 5 FEET FROM STREET CENTERLINE TOWARD FIRE HYDRANT.
5. INSTALL TRACER WIRE ALONG MAIN LINE TO COME UP IN ALL VALVE BOXES. #10 AWG SINGLE STRAND INSULATED SOFT COPPER WIRE (BLUE).
6. ALL BOLTS CONNECTING TO WATER LINE SHALL BE 304 STAINLESS STEEL.
7. DUCTILE IRON PIPE, FITTINGS AND VALVES SHALL BE ENCASED IN 8-mil. THICK POLYETHYLENE TUBE OR SHEET ENCLOSURE. WHERE FITTINGS AND VALVES CROSS OTHER BURIED METAL PIPES, THE FITTINGS AND VALVES SHALL BE DOUBLE ENCASED IN POLYETHYLENE (16-mil>).
8. FLOW GUARDS SHALL BE INSTALLED AT LOCATIONS REQUIRED BY THE PUBLIC WORKS DIRECTOR.
9. PUSH-ON FITTINGS WILL NOT BE ALLOWED.
10. CATHODIC PROTECTION PER CP DETAILS SHALL BE PROVIDED WHERE FIRE HYDRANTS ARE INSTALLED IN CORROSIVE SOILS. ANODE SIZE MAY VARY BASED ON SOIL TESTS.



CITY OF ANTIOCH
DEPARTMENT OF PUBLIC WORKS — ENGINEERING SERVICES

DRAWN BY: S. Rodriguez

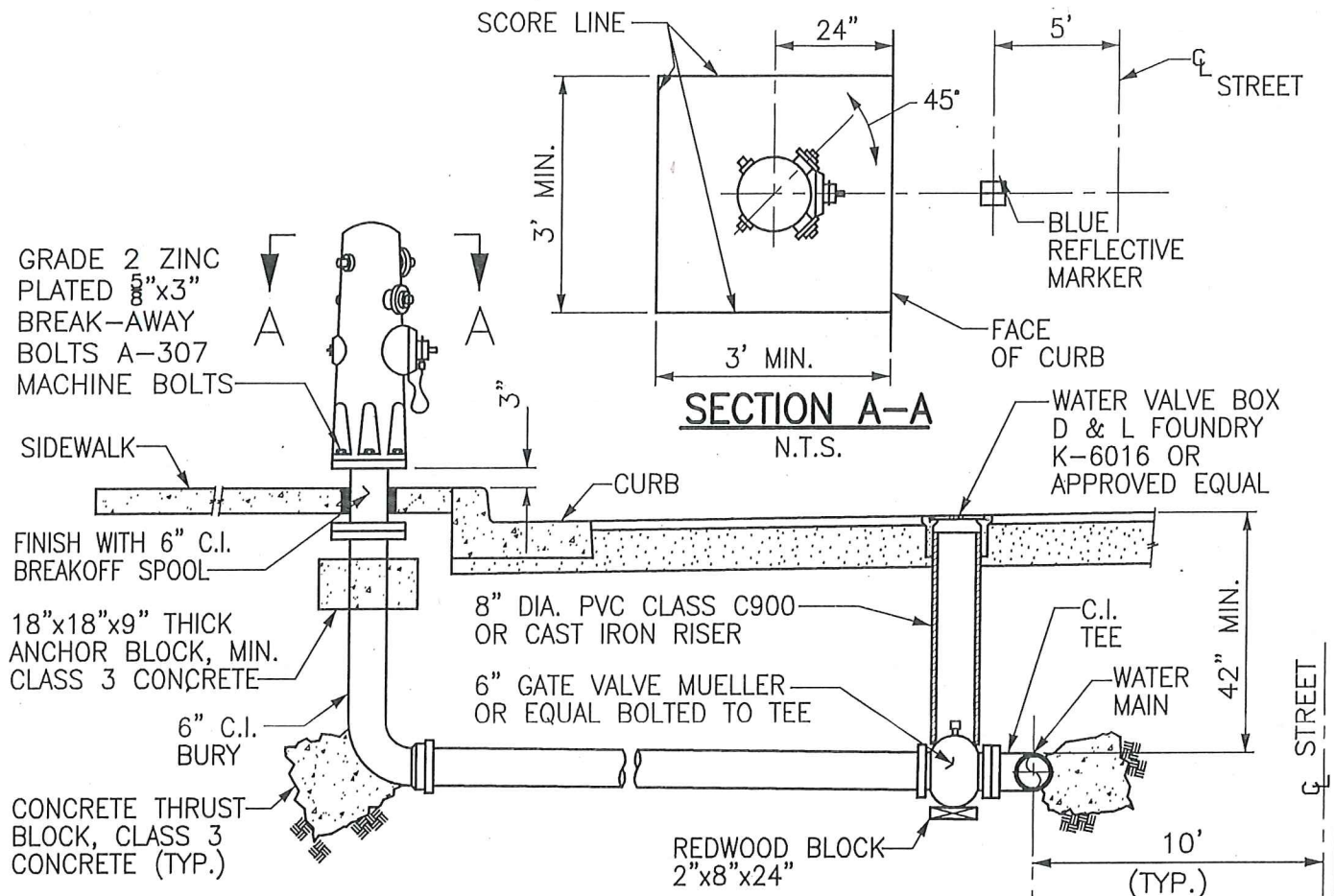
REVISIONS: 7/2019

FIRE HYDRANT
BEHIND SIDEWALK

W-02a

APPROVED BY:

Jon Blank
JON BLANK, P.E.
PUBLIC WORKS DIRECTOR/
CITY ENGINEER
DATE: July 2019



FIRE HYDRANT FOR COMMERCIAL, INDUSTRIAL AND MULTI-FAMILY RESIDENTIAL.
CLOW 960 3 PORT - TWO 2½" AND ONE 4½" ONLY

FIRE HYDRANT FOR SINGLE-FAMILY RESIDENTIAL, WITH SIDEWALKS GREATER THAN 6' OR WITH DETACHED SIDEWALK.

CLOW 950 2 PORT - ONE 2½" AND ONE 4½" ONLY (SEE W-02a)

NOTES:

1. ALL HOSE OUTLET CAPS SHALL BE ATTACHED TO HYDRANT BY CHAIN.
2. HYDRANT SHALL BE IN ACCORDANCE WITH AWWA STANDARDS; TESTED AND APPROVED BY UNDERWRITERS LABORATORIES, OR EQUIVALENT.
3. FIRE HYDRANT AND EXPOSED BREAKOFF SPOOL INSTALLED SHALL BE PAINTED WHITE AS REQUIRED BY THE CITY OF ANTIOCH. KELLY-MOORE KELGUARD #1700 ARCTIC WHITE #61 OR EQUAL.
4. TWO WAY BLUE REFLECTIVE MARKER TO BE INSTALLED 5 FEET FROM STREET CENTERLINE TOWARD FIRE HYDRANT.
5. INSTALL TRACER WIRE ALONG MAIN LINE TO COME UP IN ALL VALVE BOXES. #10 AWG SINGLE STRAND INSULATED SOFT COPPER WIRE (BLUE).
6. ALL BOLTS CONNECTING TO WATER LINE SHALL BE 304 STAINLESS STEEL.
7. DUCTILE IRON PIPE, FITTINGS AND VALVES SHALL BE ENCASED IN 8-mil. THICK POLYETHYLENE TUBE OR SHEET ENCLOSURE. WHERE FITTINGS AND VALVES CROSS OTHER BURIED METAL PIPES, THE FITTINGS AND VALVES SHALL BE DOUBLE ENCASED IN POLYETHYLENE (16-mil>).
8. FLOW GUARDS SHALL BE INSTALLED AT LOCATIONS REQUIRED BY THE PUBLIC WORKS DIRECTOR.
9. PUSH-ON FITTINGS WILL NOT BE ALLOWED.
10. CATHODIC PROTECTION PER CP DETAILS SHALL BE PROVIDED WHERE FIRE HYDRANTS ARE INSTALLED IN CORROSIVE SOILS. ANODE SIZE MAY VARY BASED ON SOIL TESTS.



CITY OF ANTIOCH
DEPARTMENT OF PUBLIC WORKS - ENGINEERING SERVICES

DRAWN BY: S. Rodriguez

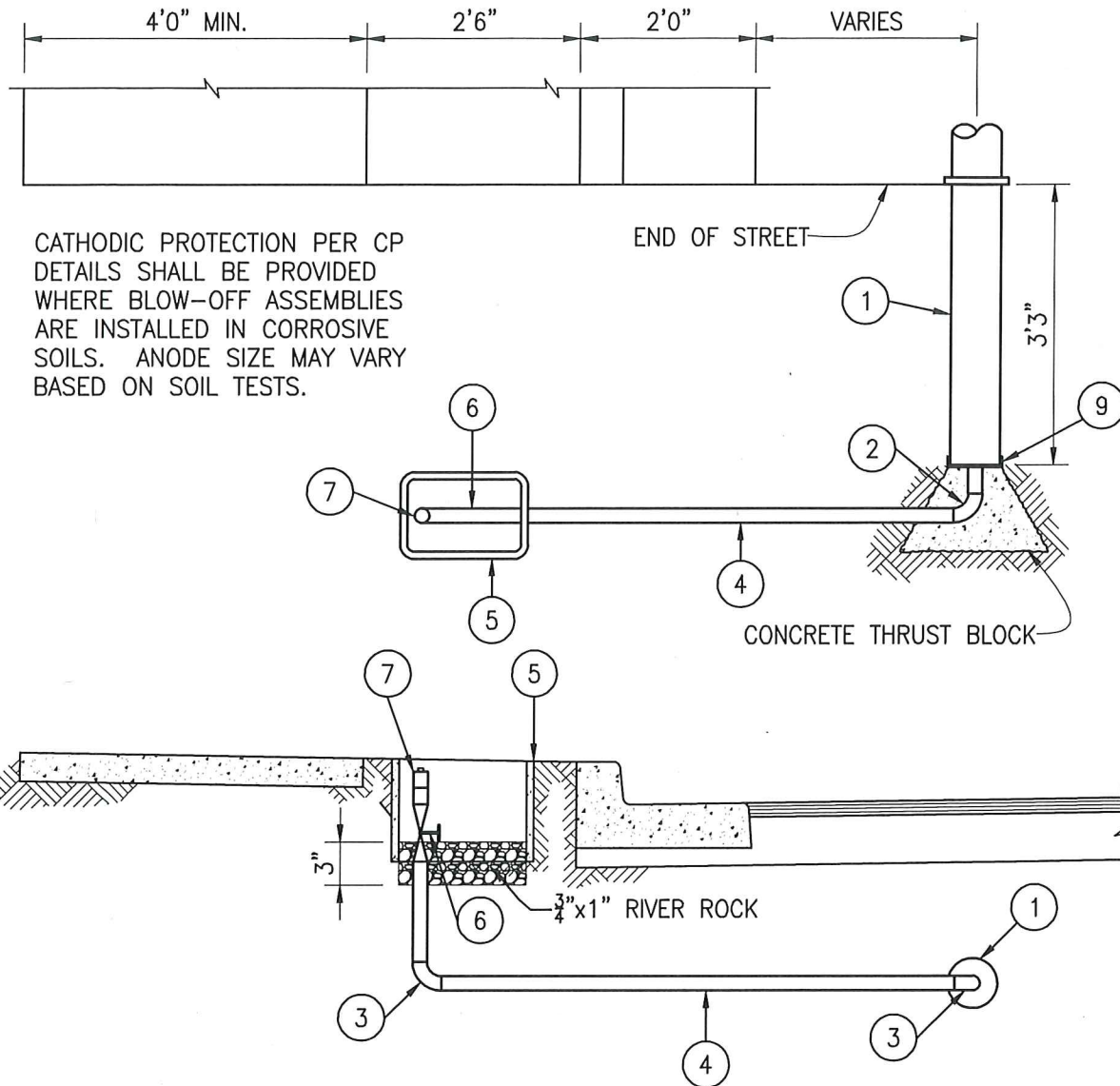
REVISIONS: 7/2019

FIRE HYDRANT
BEHIND CURB

W-02b

APPROVED BY:

Jon Blank
JON BLANK, P.E.
PUBLIC WORKS DIRECTOR/
CITY ENGINEER
DATE: *July 2019*



CATHODIC PROTECTION PER CP DETAILS SHALL BE PROVIDED WHERE BLOW-OFF ASSEMBLIES ARE INSTALLED IN CORROSIVE SOILS. ANODE SIZE MAY VARY BASED ON SOIL TESTS.

1. SUPPLY LINE
2. 2" BRONZE - MUELLER H-15431 MIP x COMP. 90°
3. 2" BRONZE - MUELLER HI5526 COMP. x COMP. 90°
4. 2" PIPE - TYPE K COPPER
5. PRECAST CONCRETE METER BOX, CHRISTY No. B9 WITH TYPE DIO LID
6. 2" BALL VALVE, 150 psi, BRONZE WITH 2" MIP x COMP. ADAPTER
7. 2" BRONZE PLUG, PIPE SHALL BE TYPE K COPPER, FITTINGS SHALL BE BRONZE
8. ALL SERVICES TO BE PLACED IN 8-mil. THICK POLYETHYLENE SLEEVE
9. MJ CAP W/2" TAP
10. ALL BOLTS CONNECTING TO WATER LINE SHALL BE 304 STAINLESS STEEL



CITY OF ANTIOCH
DEPARTMENT OF PUBLIC WORKS - ENGINEERING SERVICES

DRAWN BY: S. Rodriguez

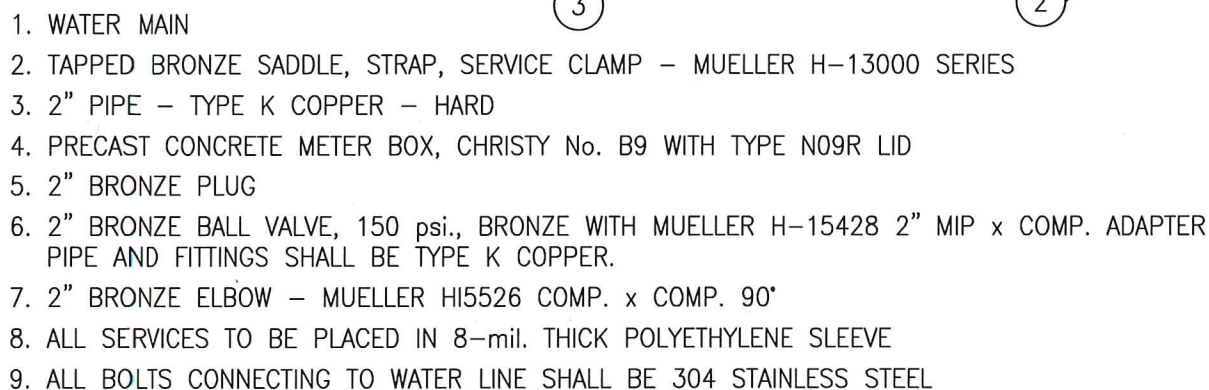
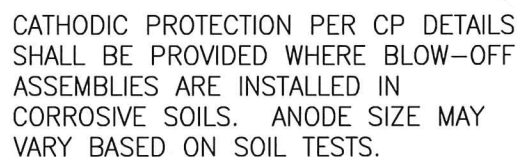
REVISIONS:

WATER MAIN
BLOW-OFF ASSEMBLY

W-03a

APPROVED BY:
Ron Bernal
RON BERNAL, P.E.
CITY ENGINEER

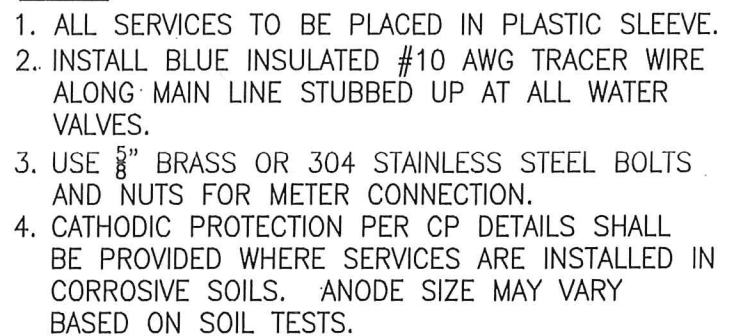
DATE: JAN 17, 2017



CITY OF ANTIOCH
DEPARTMENT OF PUBLIC WORKS – ENGINEERING SERVICES

BALWINDER GREWAL, P.E.
INTERIM PUBLIC WORKS
DIRECTOR/CITY ENGINEER
DATE: 3/31/20

W-03b



ITEM	SPECIFICATIONS	APPROVED FOR USE OR APPROVED EQUAL
① SERVICE CLAMP FOR C-900	BRONZE, SINGLE STRAP, C.C. THREAD.	MUELLER #H-13000 SERIES
② CORPORATION STOP WET/DRY	BRONZE, C.C. THREAD TO COPPER.	MUELLER # B-25008
③ 1½" - 2"	TYPE "K" COPPER	MUELLER STREAMLINE
④ ANGLE METER STOP	BRONZE, COMP. x METER FLANGE	MUELLER # B-24276
⑤ METER BOX	(OLDCASTLE) B36 WITH FL36D WATER FIBRELYTE LID	
⑥ SERVICE COUPLER	WHERE REQUIRED FOR REPAIR.	MUELLER # H-15403



CITY OF ANTIOCH
DEPARTMENT OF PUBLIC WORKS – ENGINEERING SERVICES

DRAWN BY: S. Rodriguez

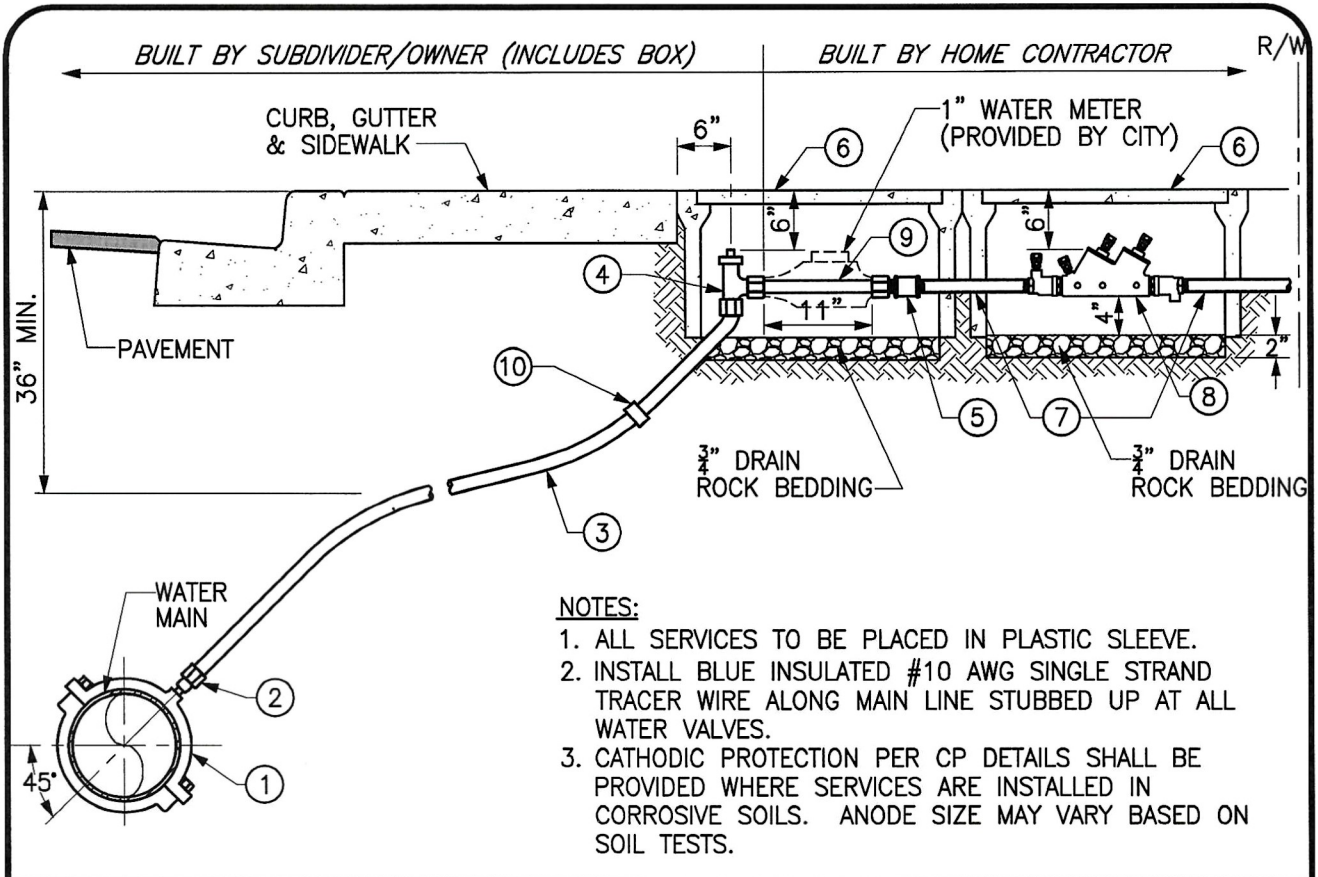
REVISIONS: 5/2019

1 1/2" - 2" WATER SERVICE LATERAL COMPRESSION CONNECTIONS

W-04a

APPROVED BY:

Jon Blank
JON BLANK, P.E.
PUBLIC WORKS DIRECTOR/
CITY ENGINEER
DATE: May 2019



ITEM	SPECIFICATIONS	APPROVED FOR USE (OR APPROVED EQUAL)
① SERVICE CLAMP FOR C-900	BRONZE, SINGLE STRAP, C.C. THREAD. BRONZE, MUELLER H-13000 SERIES OR EQUAL.	MUELLER # H-1344
② CORPORATION STOP	C.C. THREAD TO 1" INCREASING	MUELLER #H-13000 SERIES
③ 1" LATERAL	TYPE "K" COPPER	MUELLER STREAMLINE
④ ANGLE METER VALVE	1" COMP x SWIVEL NUT	MUELLER # B-24258
⑤ COUPLING	1" BRASS	
⑥ METER BOX	CHRISTY N16R CONCRETE RING LID W/ BADGER ORION PROBE HOLE	
⑦ NIPPLE	1"x8" (MIN.) BRASS	
⑧ 1" DC VALVE	1" TOP LOAD DOUBLE CHECK VALVE ASSEMBLY ONLY CENTERED IN BOX 350XL WILKENS OR APPROVED EQUAL	CITY OF ANTIOCH APPROVED
⑨ 11" JUMPER	1½" SCH. 40 PVC PIPE WITH M ADPT. AT EACH END	
⑩ SERVICE COUPLER	ONLY ALLOWED WHERE REQUIRED FOR REPAIR	MUELLER # H-15403



**CITY OF ANTIOCH
PUBLIC WORKS DEPARTMENT**

**ANTIOCH
CALIFORNIA**
OPPORTUNITY LIVES HERE

**WATER SERVICE LATERAL CONNECTION
FOR RESIDENTIAL FIRE SPRINKLER SYSTEMS**

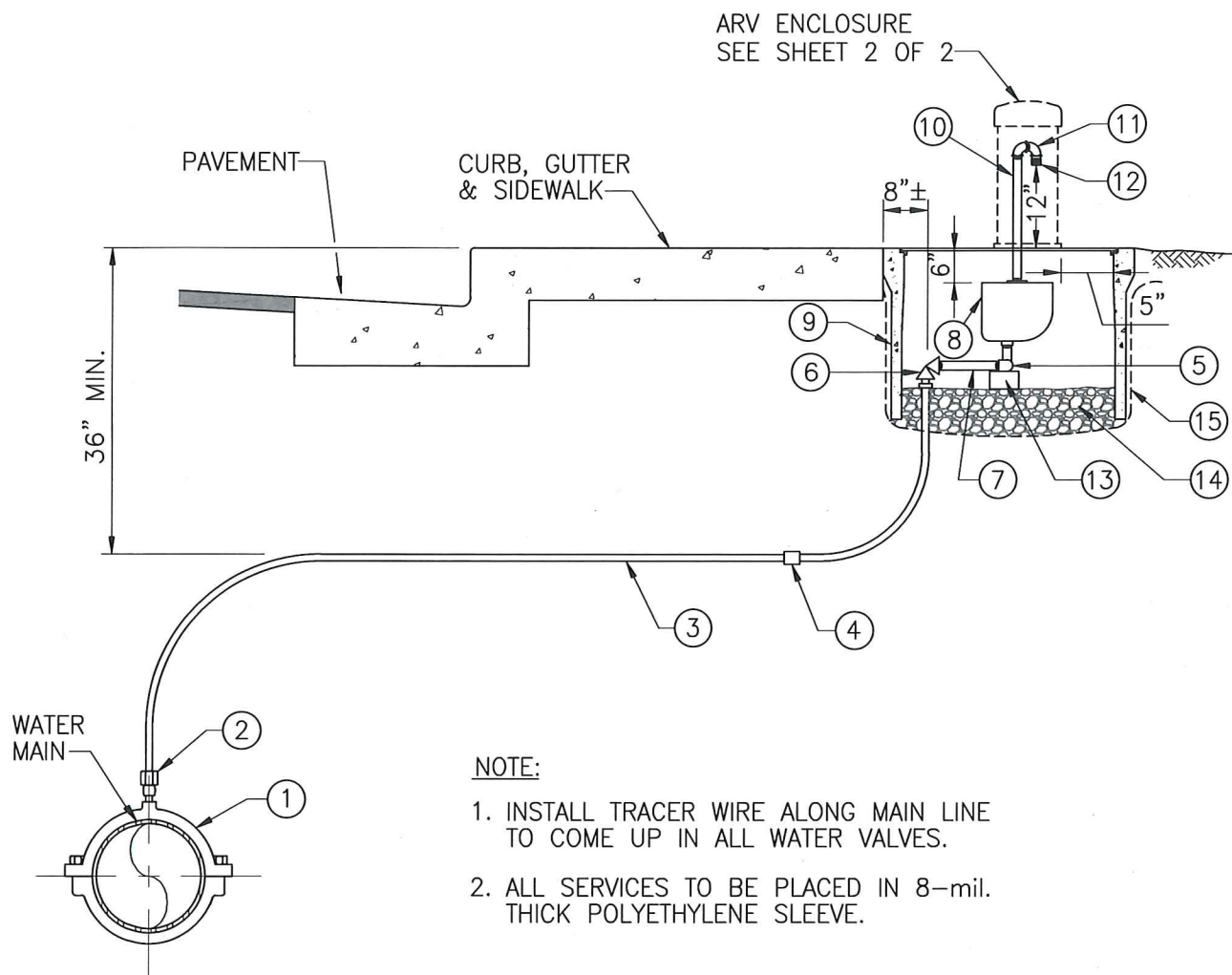
JOHN D. SAMUELSON, CITY ENGINEER

DATE: 1/17/2017

REV.: 9/28/2022

DRAWING NO.

W-04b



- | | |
|--|--|
| ① TAPPED BRONZE, DOUBLE STRAP SERVICE CLAMP
MUELLER H-13000 SERIES | ⑩ 1" GALVANIZED NIPPLE (TYP.) |
| ② CORPORATION STOP, BRONZE - B-25008N | ⑪ 1" GALVANIZED ELL & STREET ELL |
| ③ TYPE "K" COPPER, 1" MIN | ⑫ NORTHTOWN HYTECH STAINLESS STEEL SCREEN AND
HOSE CLAMPS OVER 1" GALVANIZED NIPPLE |
| ④ SERVICE COUPLER WHERE REQUIRED FOR REPAIR, OR
BRONZE ELL WHEN NEEDED TO MAINTAIN REQUIRED DEPTH | ⑬ STANDARD BRICK |
| ⑤ 2 EACH 1" BRONZE ST ELLS | ⑭ 3/4" CRUSHED ROCK |
| ⑥ 5/8" X 3/4" X 1" MUELLER B24258 | ⑮ FILTER FABRIC (CONFORM TO STATE STANDARD SPEC
88-1.03) |
| ⑦ 1" BRONZE NIPPLE | |
| ⑧ 1" AIR RELEASE VALVE - CRADIN UL10 OR APPROVED EQUAL | |
| ⑨ CONCRETE METER BOX (CHRISTY B36 X 12 WITH EXTENSION),
BOX COVER SHALL BE PLACER WATERWORKS CAT #PW/AE3618m
OR APPROVED EQUAL, SEE CD-41 SHEET 2 OF 2 | |

ANTIOCH
CALIFORNIA
OPPORTUNITY LIVES HERE

CITY OF ANTIOCH
DEPARTMENT OF PUBLIC WORKS - ENGINEERING SERVICES

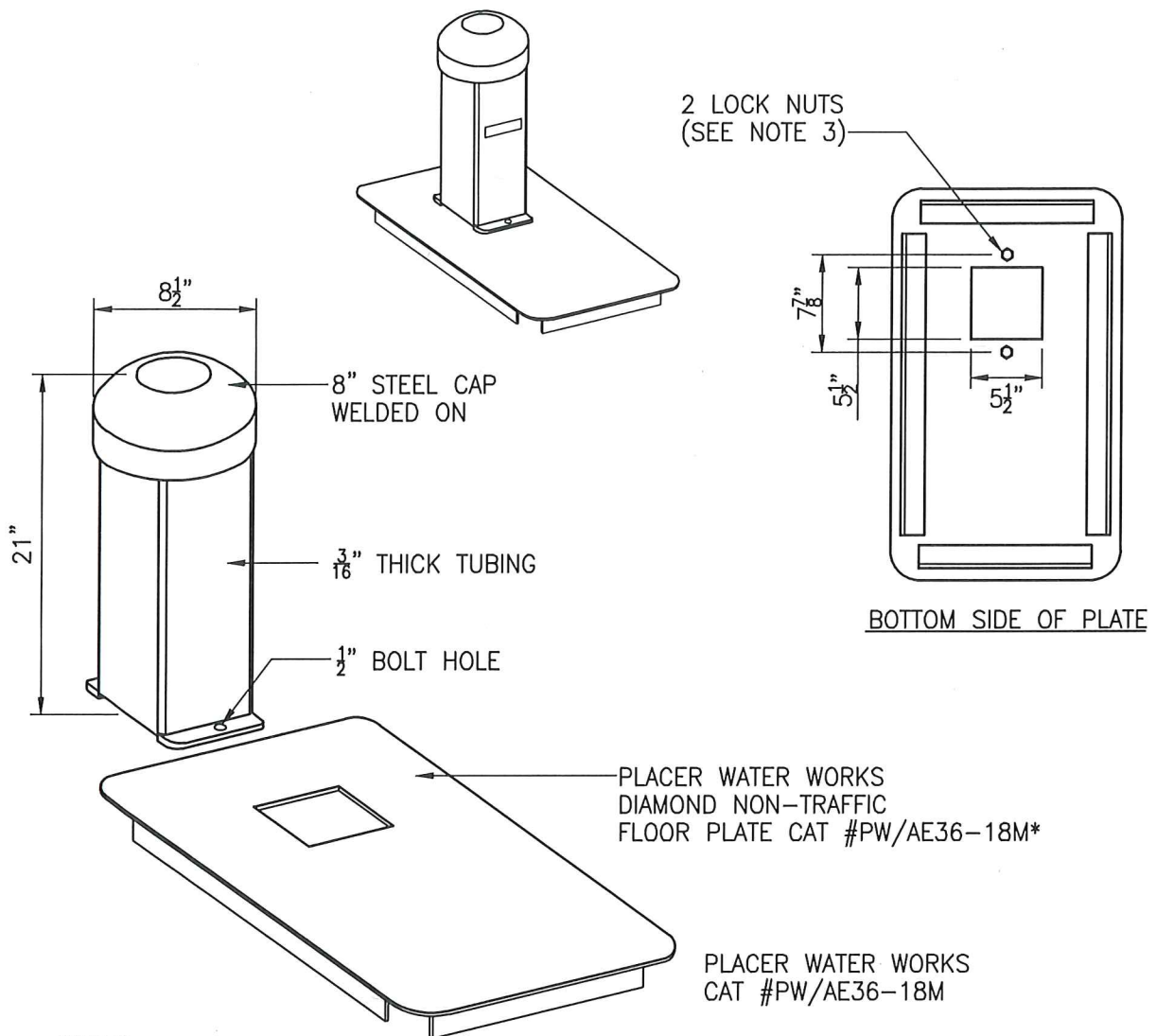
DRAWN BY: S. Rodriguez

REVISIONS: 3/2020

AIR & VACUUM
RELIEF VALVE ENCLOSURE
W-05 (SHEET 1 of 2)

APPROVED BY:

Brewer
BALWINDER GREWAL, P.E.
INTERIM PUBLIC WORKS
DIRECTOR/CITY ENGINEER
DATE: 3/31/20



NOTES:

1. ALL METALS SHALL BE CLEANED WITH DEV PREP 88 BY DEVOE #788T0000*.
2. APPLY 2 TO 3 MILLS THICK OF DEVTRAN 224HS CATALYSED POLYAMIDE EPOXY PRIMER* (COLOR: HUNTER GREEN) AND DEVTANE 379 CATALYZED ALIPHATIC URETHANE FINISH* TOP COAT TO THE STEEL CAP AND TUBING WALL.
3. LOCK NUTS SHALL BE WELDED TO THE UNDERSIDE OF THE FLOOR PLATE.

* OR APPROVED EQUAL



**CITY OF ANTIOCH
DEPARTMENT OF PUBLIC WORKS – ENGINEERING SERVICES**

DRAWN BY: S. Rodriguez

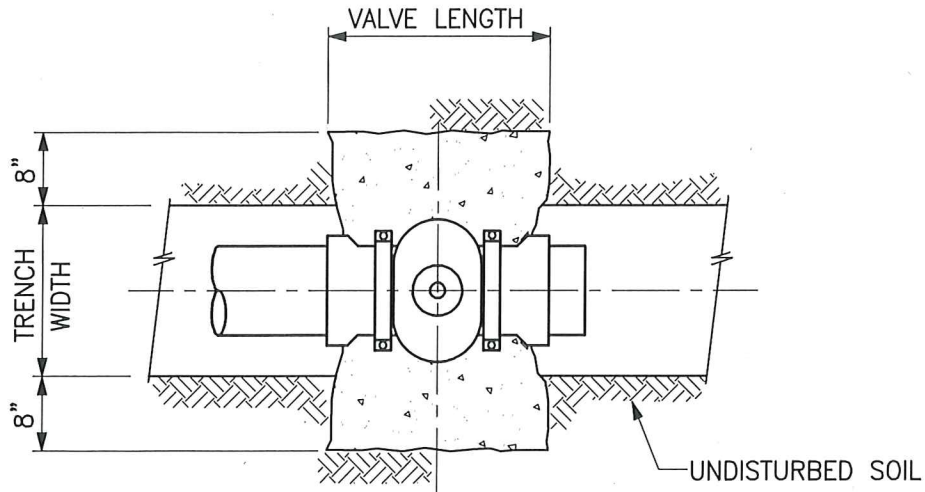
REVISIONS:

**AIR & VACUUM
RELIEF VALVE ENCLOSURE**

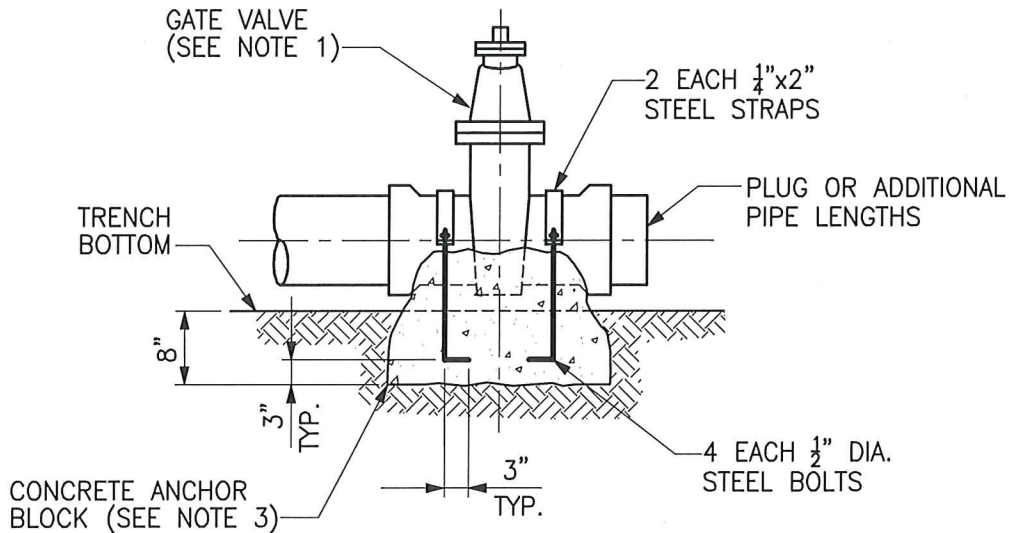
W-05 (SHEET 2 of 2)

APPROVED BY:
Ron Bernal
RON BERNAL, P.E.
CITY ENGINEER

DATE: JAN 17, 2017



PLAN



ELEVATION

NOTES:

1. MUELLER GATE VALVE OR EQUAL, RESILIENT SEAT.
2. ANCHOR BLOCK SHALL BE 5 SACK/CU. YARD, CLASS "B" WITH CONCRETE POURED AGAINST UNDISTURBED SOIL.
3. FOR 12" VALVES AND ABOVE, PLACE CONCRETE PAD SIZE 4x12x12.
4. PUSH-ON FITTINGS WILL NOT BE ALLOWED.
5. CATHODIC PROTECTION PER CP DETAILS SHALL BE PROVIDED WHERE VALVES ARE INSTALLED IN CORROSIVE SOILS. ANODE SIZE MAY VARY BASED ON SOIL TESTS.



**CITY OF ANTIOCH
DEPARTMENT OF PUBLIC WORKS – ENGINEERING SERVICES**

DRAWN BY: S. Rodriguez

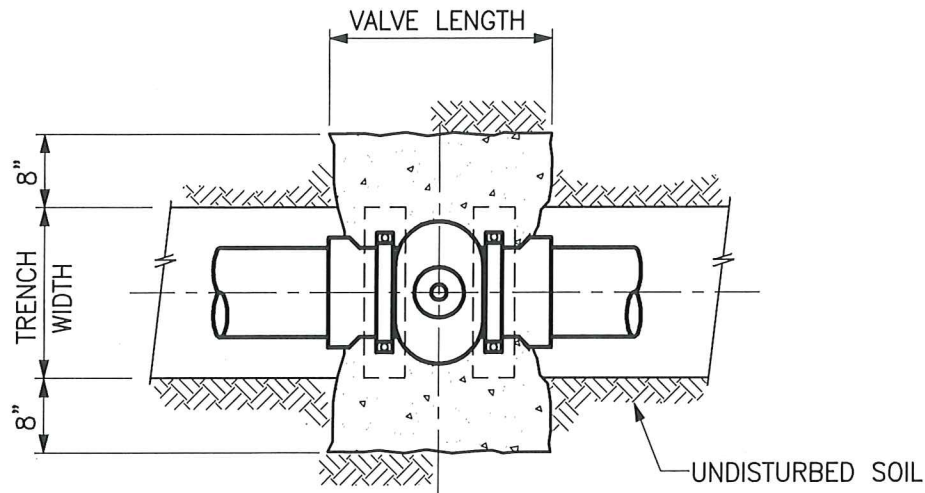
REVISIONS:

**ANCHOR BLOCK FOR
END OF LINE VALVES**

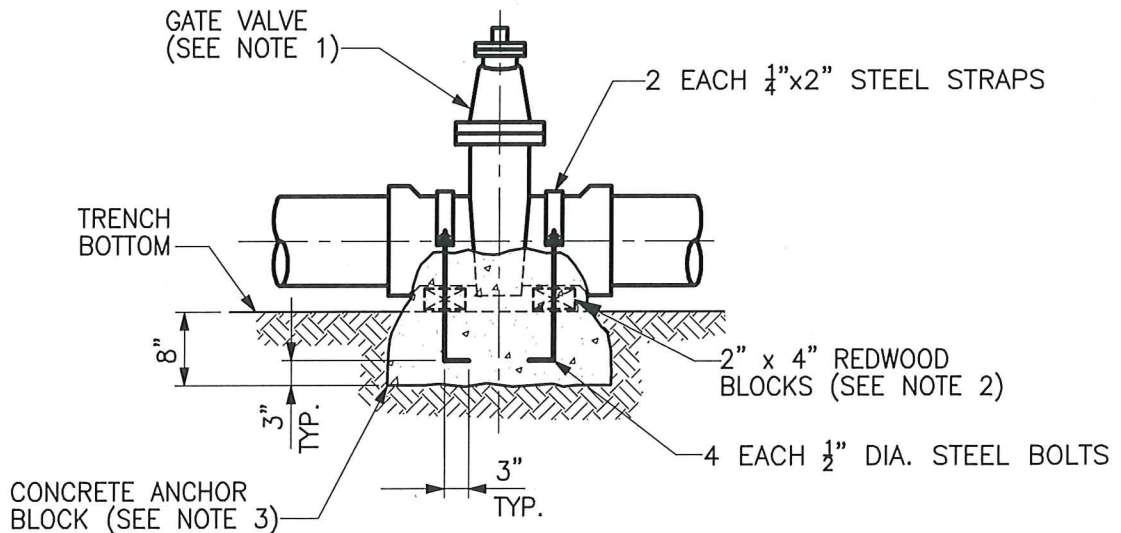
W-06

APPROVED BY:
Ron Bernal
RON BERNAL, P.E.
CITY ENGINEER

DATE: JAN 17, 2017



PLAN



ELEVATION

NOTES:

1. MUELLER GATE VALVE OR EQUAL, RESILIENT SEAT.
2. FOR 10" VALVES AND BELOW, PLACE 2"x4" BLOCKS.
3. FOR 12" VALVES AND ABOVE, PLACE CONCRETE PAD SIZE 4x12x12.
4. PUSH-ON FITTINGS WILL NOT BE ALLOWED.
5. CATHODIC PROTECTION PER CP DETAILS SHALL BE PROVIDED WHERE VALVES ARE INSTALLED IN CORROSIVE SOILS. ANODE SIZE MAY VARY BASED ON SOIL TESTS.



**CITY OF ANTIOCH
DEPARTMENT OF PUBLIC WORKS – ENGINEERING SERVICES**

DRAWN BY: S. Rodriguez

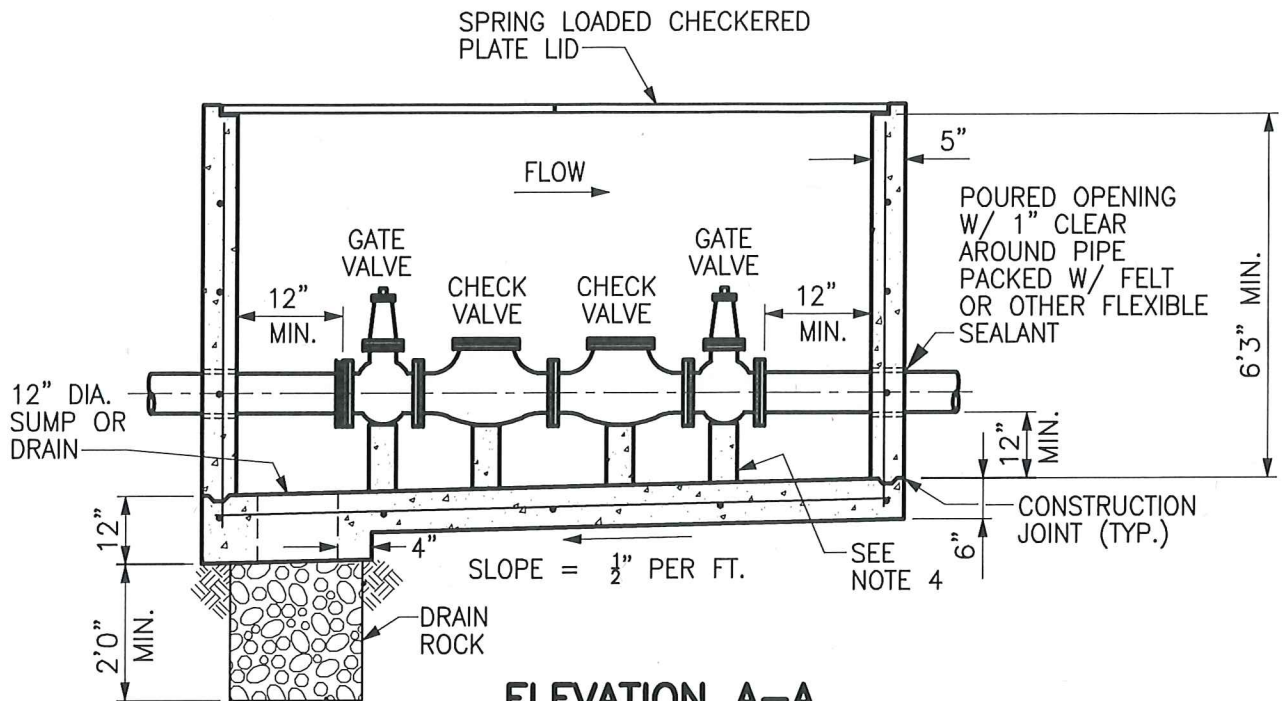
REVISIONS:

**ANCHOR BLOCK FOR
IN-LINE VALVES**

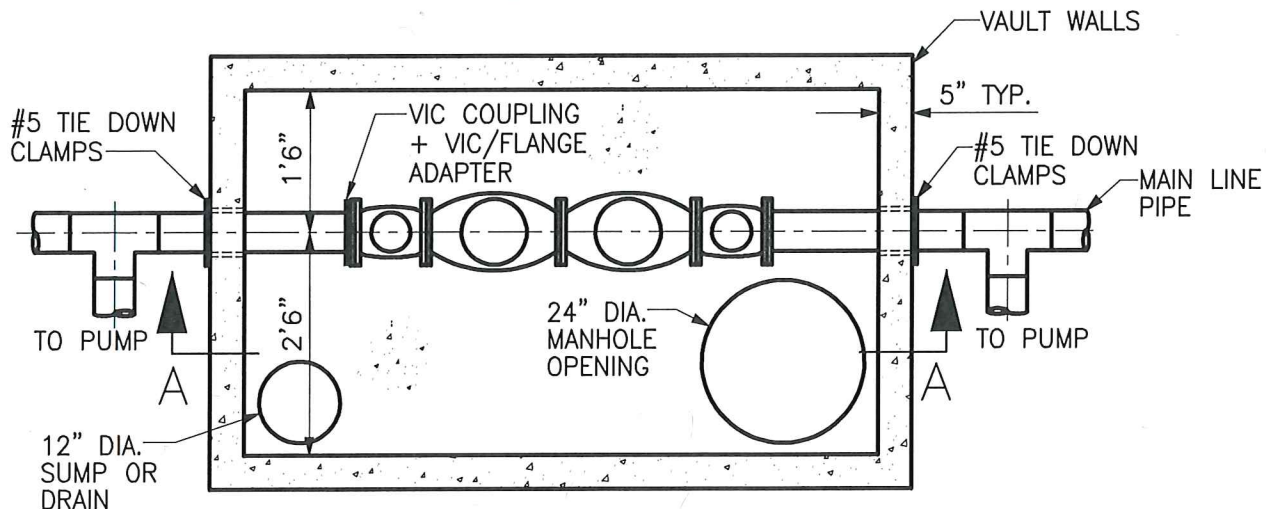
W-07

APPROVED BY:
Ron Bernal
RON BERNAL, P.E.
CITY ENGINEER

DATE: JAN 17, 2017



ELEVATION A-A



PLAN

NOTES:

1. DUCTILE IRON PIPE MUST BE RESTRAINED OUTSIDE OF PIT USING UNDERGROUND TYPE CLAMPS TO PREVENT MOVEMENT DURING REPLACEMENT OF CHECK VALVE.
2. GATE VALVES MUST BE APPROVED RESILIENT SEATED VALVES.
3. PITS MUST BE OF CHRISTY "R" SERIES TYPE WITH SPRING LOADED LIDS.
4. SUMP MAY BE DRAIN ROCK OR P.C.C. HOLE AS DIRECTED BY ENGINEER. CONCRETE BLOCK UNDER VALVES TO BE REMOVABLE.
5. CATHODIC PROTECTION PER CP DETAILS SHALL BE PROVIDED WHERE FITTINGS ARE INSTALLED IN CORROSIVE SOILS. ANODE SIZE MAY VARY BASED ON SOIL TESTS.



**CITY OF ANTIOCH
DEPARTMENT OF PUBLIC WORKS – ENGINEERING SERVICES**

DRAWN BY: S. Rodriguez

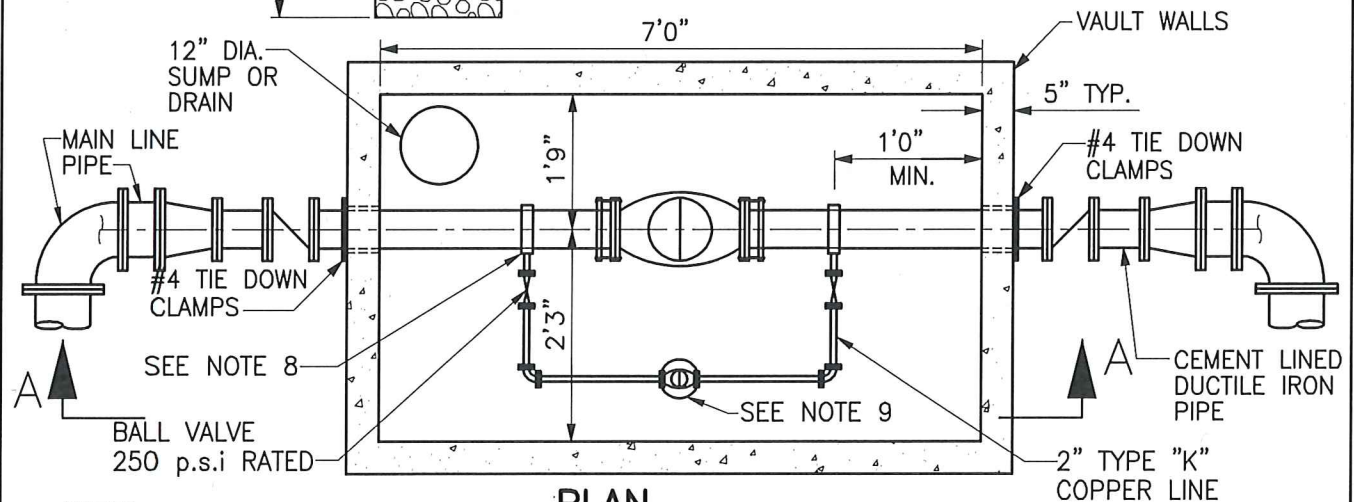
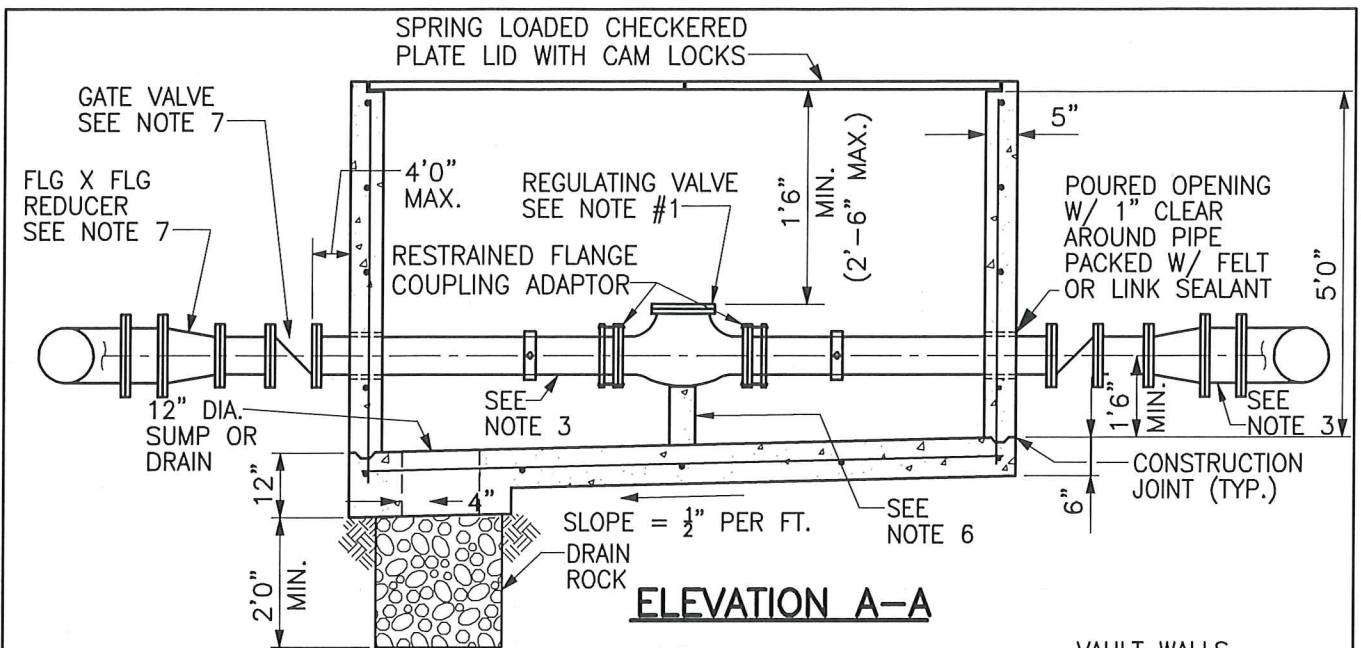
REVISIONS:

**PUMP STATION
CHECK VALVE ASSEMBLY**

W-08

APPROVED BY:
Ron Bernal
RON BERNAL, P.E.
CITY ENGINEER

DATE: JAN 17, 2017



NOTES:

1. AMES A-910 (WITH OIL FILLED GAUGES HIGH & LOW SIDES OF REGULATOR, BALL VALVE SHUT OFF AND SIGHT TUBE ON MAIN STEM INSTALLED) OR EQUAL TYPE VALVE WITH CITY APPROVAL.
2. VALVES MUST HAVE EPOXY COATED OR STAINLESS STEEL BODIES AND BONNETS.
3. DUCTILE IRON SPOOL FLANGE BY FLANGE" (TYP.).
4. REGULATING VALVES SHALL NOT BE INSTALLED IN THE ROADWAY SECTION.
5. VAULTS SHALL BE CHRISTY R37 PIT WITH EXTENSIONS AND SPRING LOADED LIDS IN NON-TRAFFIC AREAS. (SUBMIT FOR CITY ENGINEER APPROVAL).
6. REMOVABLE CONCRETE OR METAL JACK SUPPORTS.
7. DUCTILE IRON PIPE MUST BE RESTRAINED AT ALL CONNECTIONS TO PREVENT MOVEMENT DURING REPLACEMENT OF PRESSURE VALVE.
8. MUELLER H160 SERIES DOUBLE STRAP BRONZE BR2B IRON PIPE THREAD.
9. 2" CLA-VAL MODEL 90-01 WITH OIL FILED GAUGES HIGH & LOW SIDE OF REGULATOR WITH SIGHT TUBE ON MAIN STEM.
10. CATHODIC PROTECTION PER CP DETAILS SHALL BE PROVIDED WHERE FITTINGS ARE INSTALLED IN CORROSIVE SOILS. ANODE SIZE MAY VARY BASED ON SOIL TESTS.



**CITY OF ANTIOCH
DEPARTMENT OF PUBLIC WORKS – ENGINEERING SERVICES**

DRAWN BY: S. Rodriguez

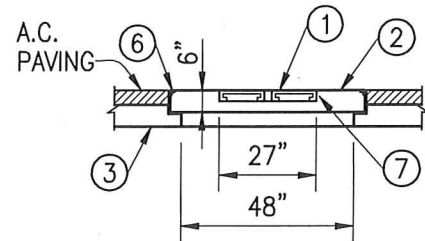
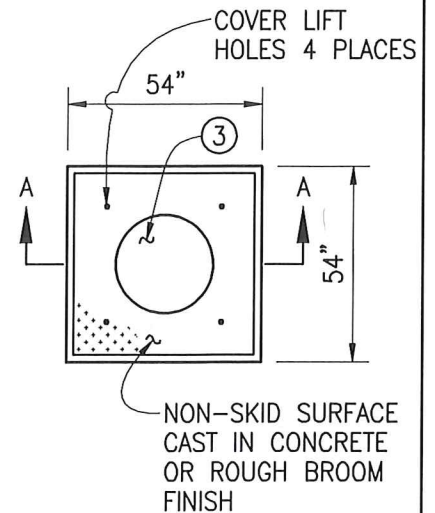
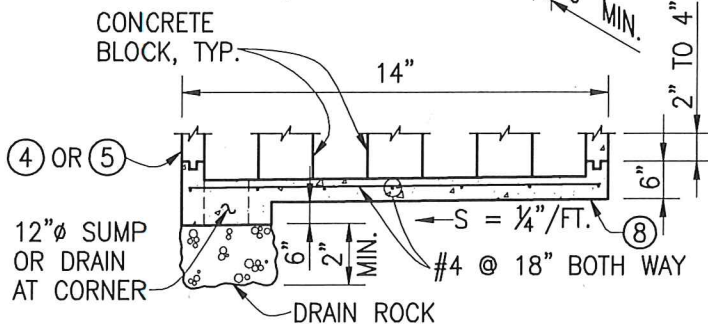
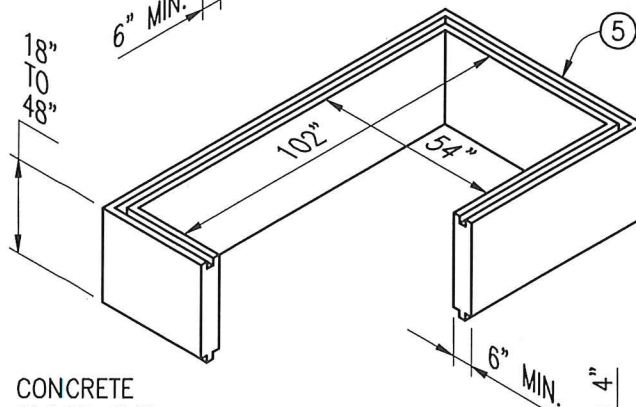
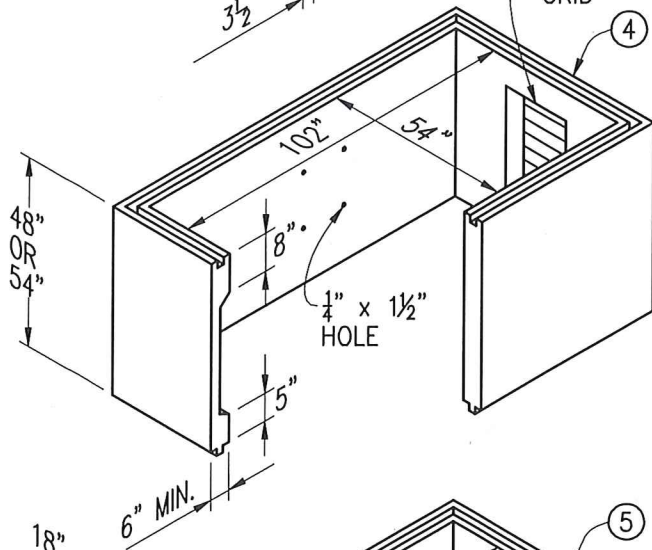
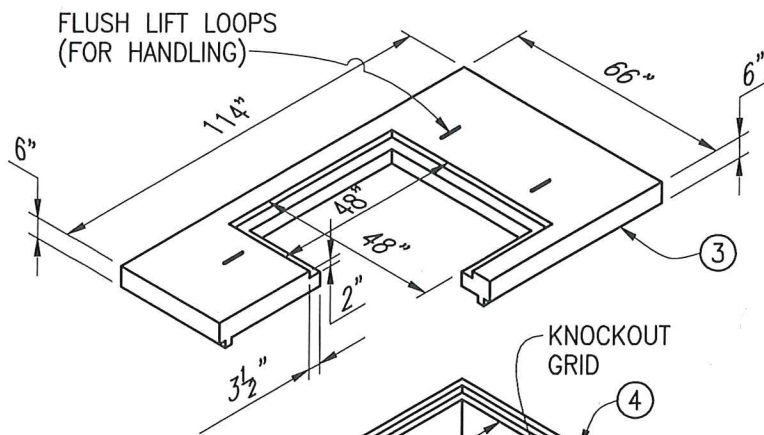
REVISIONS:

**PRESSURE REGULATING
STATION**

W-09

APPROVED BY:
Ron Bernal
RON BERNAL, P.E.
CITY ENGINEER

DATE: JAN 17, 2017



SECTION A-A

NOTES:

- ① C.I. LID ALH FDRY-A-1105 OR EQUAL.
- ② BROOK No. VC-350-2 (COVER) OR EQUAL.
- ③ BROOK No. W-510-9 (TOP SLAB) OR EQUAL.
- ④ BROOK No. M-510 (CENTER SECTION) OR EQUAL.
- ⑤ BROOK No. M-510 (EXTENSION SECTION) OR EQUAL.
- ⑥ STEEL FRAME CAST IN CONCRETE.
- ⑦ C.I. FRAME CAST IN CONCRETE.
- ⑧ REINFORCED CONCRETE BASE.

2:1 PM STANDARD DRAINAGE CURRENT CO'S AUTOCAD W-10 - 4'-6" X 8'-6" CONCRETE VAULT FULL TRAFFIC WITH 6" WALLING



**CITY OF ANTIOCH
DEPARTMENT OF PUBLIC WORKS – ENGINEERING SERVICES**

DRAWN BY: S. Rodriguez

REVISIONS:

**4'6" X 8'6" CONCRETE VAULT
FULL TRAFFIC WITH 6" WALL**

W-10

APPROVED BY:
Ron Bernal
RON BERNAL, P.E.
CITY ENGINEER

DATE: **DEC 20, 2016**

WATER METER PER
CONSTRUCTION
DETAIL 40

12" MIN.
16" MAX.

SEE DET.
BELOW

TYPE "K" RIGID
COPPER

BRASS C x MIP 90
2" OR SMALLER

RESILIENT SEATED
VALVES REQUIRED
ON ASSEMBLIES.

TYPE "K" COPPER
OR DUCTILE IRON,
NO UNIONS

6" FOR DEVICES
2" OR SMALLER

18" MAX.
12" MIN.
CLEARANCE

FOR 4" & LARGER
INSTALL ADJUSTABLE
SUPPORTS—GRINELL
OR APPR. EQUAL
(TWO REQ.)

FINISHED
GRADE

12"
MIN.

SCH. 40 PVC
SLEEVE OR FOR
DEVICES 3" AND
OVER WRAP WITH
HIGH DENSITY FOAM

NOTES:

1. BACKFLOW ASSEMBLY USED MUST BE ON THE MOST CURRENT CITY OF ANTIOCH LIST AND HAS BEEN APPROVED BY THE CITY ENGINEER.
2. DISCHARGE PORT MUST BE KEPT CLEAR OF OBSTRUCTIONS AT ALL TIMES.
3. SIZE OF SPLASH PAD TO BE DETERMINED BY THE CITY ENGINEER.
4. ALL BACKFLOW PREVENTION DEVICES SHALL BE PAINTED W/NAPA AUTO PARTS DETROIT DIESEL GREEN OR AERVO#540 ALPINE GREEN.
5. BACK FLOW ASSEMBLY MUST BE 'Y' PATTERN FOR DEVICES 2" OR SMALLER.
6. ALL BACKFLOW DEVICES SHALL HAVE RECEPTACLE SEATS.
7. 2" OR SMALLER SHALL USE BRASS C x MIP 90.
8. ALL BOLTS CONNECTING TO WATER LINE SHALL BE 304 STAINLESS STEEL.
9. ALL UNDERGROUND PIPING TO BE PLACED IN 8-mil. THICK POLYETHYLENE SLEEVE.
10. INSTALL STRONG BOX CAGES SBBC-30CR ON DEVICES 2" OR SMALLER.
11. INSTALL INSULATED BLANKETS ON DEVICES 2" OR SMALLER.
12. BACKFLOW DEVICES OVER 3" SHALL BE STAINLESS STEEL.
13. CATHODIC PROTECTION PER CP DETAILS SHALL BE PROVIDED WHERE FITTINGS ARE INSTALLED IN CORROSIVE SOILS. ANODE SIZE MAY VARY BASED ON SOIL TESTS.

ANTIOCH
CALIFORNIA
OPPORTUNITY LIVES HERE

CITY OF ANTIOCH
DEPARTMENT OF PUBLIC WORKS — ENGINEERING SERVICES

DRAWN BY: S. Rodriguez

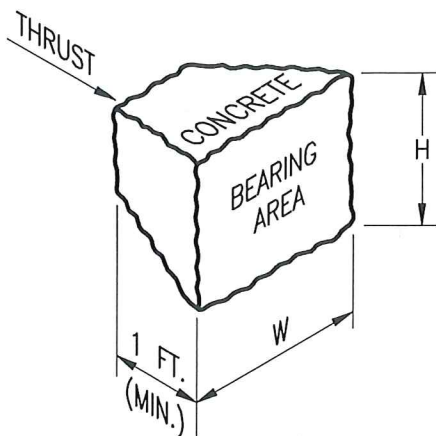
REVISIONS: 3/2020

REDUCED PRESSURE BACKFLOW PREVENTER ASSEMBLY

W-11

APPROVED BY:

BALWINDER GREWAL, P.E.
INTERIM PUBLIC WORKS
DIRECTOR/CITY ENGINEER
DATE: FEBRUARY, 2020



BEARING AREA - SQ. FT. = WIDTH (W) x HEIGHT (H)

MIN. AREAS BASED ON TESTING PRESSURE OF 150 psig
WITH 1.5 SAFETY FACTOR

CONCRETE SHALL BE 5 SACK MIX AND BEAR ONLY AGAINST
THE CAST IRON FITTINGS - NOT AGAINST THE PIPE

BEARING AREA - SQ. FOOT					
SIZE	FITTING	ALLOWABLE SOIL BEARING			
		500 psf	1000 psf	2000 psf	3000 psf
6"	11-1/4"	2.5 SQ. FT.	1.25 SQ. FT.	.63 SQ. FT.	.42 SQ. FT.
	22-1/2"	5.0 "	2.5 "	1.25 "	.8 "
	45°	9.7 "	4.9 "	2.5 "	1.7 "
	90°	18.0 "	9.0 "	4.5 "	3.0 "
	TEE or PLUG	12.7 "	6.4 "	3.2 "	2.1 "
8"	11-1/4"	4.4 SQ. FT.	2.2 SQ. FT.	1.1 SQ. FT.	.74 SQ. FT.
	22-1/2"	8.8 "	4.4 "	2.2 "	1.5 "
	45°	17.1 "	8.6 "	4.3 "	2.9 "
	90°	32.0 "	16.0 "	8.0 "	5.3 "
	TEE or PLUG	22.6 "	11.3 "	5.7 "	3.8 "
10"	11-1/4"	7.2 SQ. FT.	3.6 SQ. FT.	1.8 SQ. FT.	1.2 SQ. FT.
	22-1/2"	14.4 "	7.2 "	3.6 "	2.4 "
	45°	26.8 "	13.4 "	6.7 "	4.5 "
	90°	48.0 "	24.0 "	12.0 "	8.0 "
	TEE or PLUG	33.6 "	16.5 "	8.3 "	5.5 "
12"	11-1/4"	9.3 SQ. FT.	4.7 SQ. FT.	2.3 SQ. FT.	1.6 SQ. FT.
	22-1/2"	18.6 "	9.3 "	4.7 "	3.1 "
	45°	36.0 "	18.0 "	9.0 "	6.0 "
	90°	66.0 "	33.0 "	16.5 "	11.0 "
	TEE or PLUG	50.6 "	25.3 "	12.7 "	8.5 "

TYPICAL SOIL BEARING STRENGTHS:

DAMP SOFT CLAYS 0-500 psf

MEDIUM CLAY 2000 psf

SOFT CLAY 1000 psf

COMPACT SAND 3000 psf

psf = POUNDS PER SQUARE FOOT.



CITY OF ANTIOCH
DEPARTMENT OF PUBLIC WORKS - ENGINEERING SERVICES

DRAWN BY: S. Rodriguez

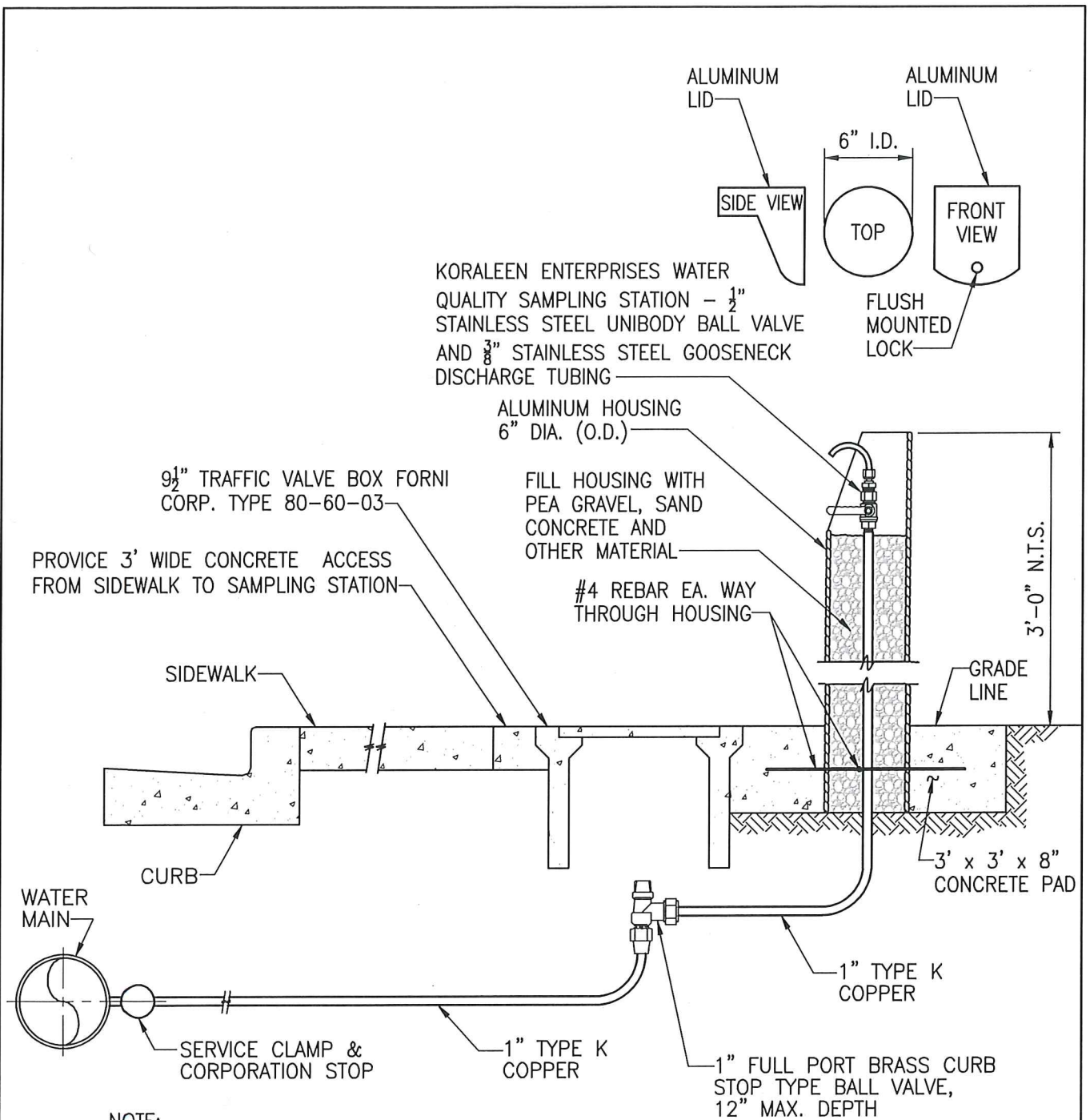
REVISIONS:

**MINIMUM THRUST
BLOCK SIZES**

W-12

APPROVED BY:
Ron Bernal
RON BERNAL, P.E.
CITY ENGINEER

DATE: DEC 20, 2016



NOTE:

1. SERVICE TO BE PLACED IN 8-mil. THICK POLYETHYLENE SLEEVE.
2. CATHODIC PROTECTION PER CP DETAILS SHALL BE PROVIDED WHERE FITTINGS ARE INSTALLED IN CORROSIVE SOILS. ANODE SIZE MAY VARY BASED ON SOIL TESTS.



**CITY OF ANTIOCH
DEPARTMENT OF PUBLIC WORKS – ENGINEERING SERVICES**

DRAWN BY: S. Rodriguez

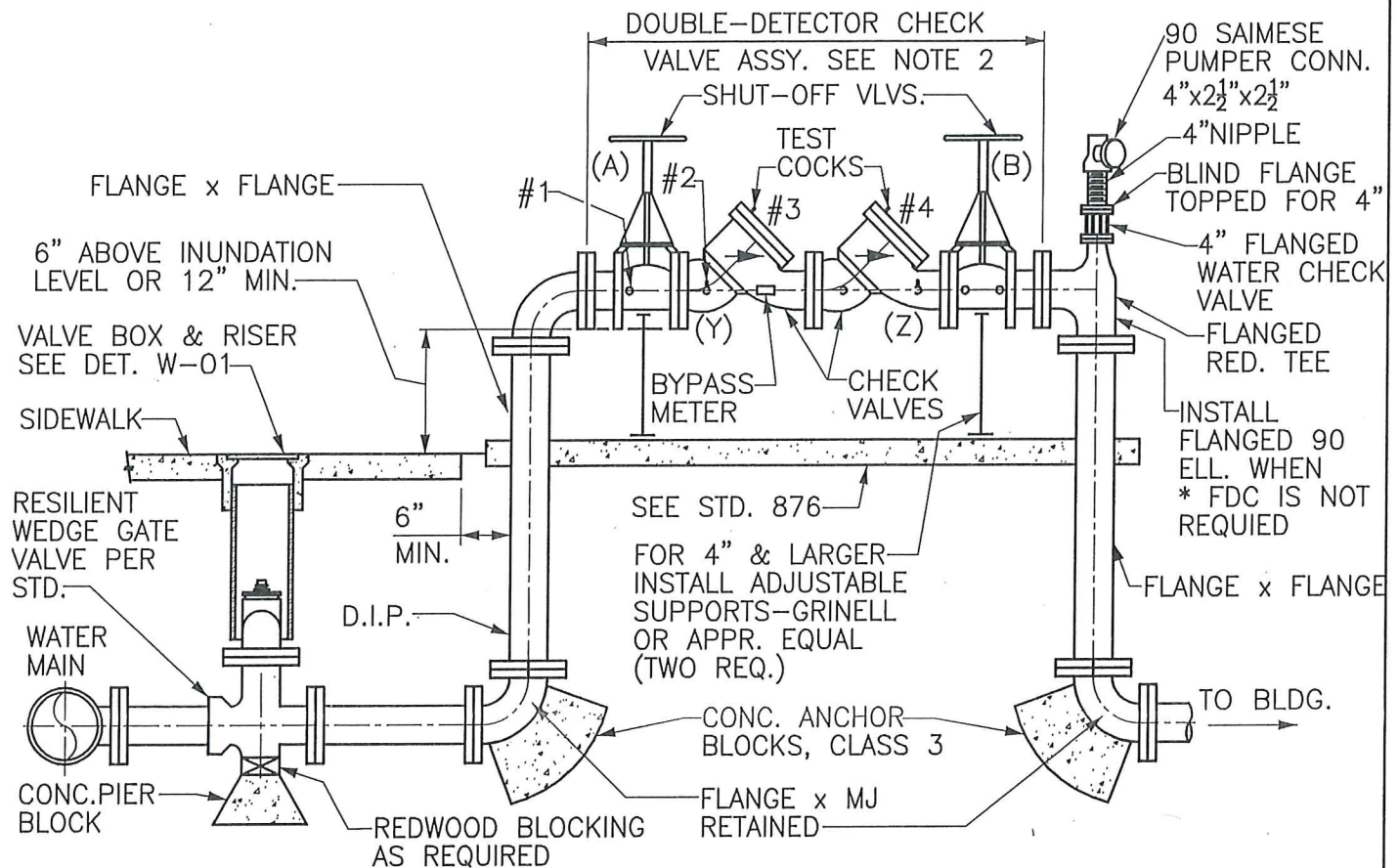
REVISIONS:

**WATER QUALITY
SAMPLER**

W-13

APPROVED BY:
Ron Bernal
RON BERNAL, P.E.
CITY ENGINEER

DATE: DEC 20, 2016



* FDC — FIRE DEPARTMENT CONNECTION

TYPICAL INSTALLATION FOR 4", 6", 8" & 10" LATERALS

NOTES:

1. DOUBLE-DETECTOR CHECK VALVE BACKFLOW ASSEMBLIES SHALL BE REQUIRED ON ALL PROPERTIES W/CLASS 1 OR CLASS 2 FIRE SPRINKLER SYSTEMS, AUX. WATER SYSTEMS ON SITE, OR WHERE THE PUBLIC WORKS DEPT. DETERMINES A HAZARD EXISTS.
2. APPROVED DOUBLE-DETECTOR CHECK BACKFLOW ASSEMBLIES SHALL BE SHOWN ON CITY OF ANTIOCH LIST OF APPROVED BACKFLOW ASSEMBLIES.
3. ALL RESILIENT VALVES MUST BE CHAINED AND PADLOCKED IN OPEN POSITION.
4. SEE DETAIL W-11 FOR ADDITIONAL CONSTRUCTION NOTES.
5. DOUBLE DETECTOR CHECK ASSEMBLY SHALL BE LOCATED AS CLOSE AS POSSIBLE TO THE SIDEWALK OR PUBLIC RIGHT-OF-WAY.
6. ANY COVER OR SCREENING FOR THIS ASSEMBLY MUST HAVE BOTH FIRE DEPT. AND PUBLIC WORKS DEPT. APPROVAL PRIOR TO INSTALLATION.
7. SHUT-OFF VALVES TO BE RESILIENT WEDGE TYPES O.S.&Y. AND MEET U.L. & F.M. APPROVAL.
8. DOUBLE-DETECTOR CHECK VALVE BACKFLOW ASSEMBLIES SHOULD NOT BE USED WHERE THERE ARE YARD HYDRANTS AND ADEQUATE FIRE FLOWS CANNOT BE OBTAINED.
9. DOUBLE-DETECTOR CHECK VALVES SHALL BE THE SAME SIZE AS THE FIRE LINE.
10. ALL UNDERGROUND PIPING TO BE PLACED IN 8-MIL. POLYETHYLENE SLEEVE.
11. ALL BOLTS CONNECTING TO WATER LINE SHALL BE 304 STAINLESS STEEL.
12. BACKFLOW DEVICES OVER 3" SHALL BE STAINLESS STEEL.
13. CATHODIC PROTECTION PER CP DETAILS SHALL BE PROVIDED WHERE FITTINGS ARE INSTALLED IN CORROSIVE SOILS. ANODE SIZE MAY VARY BASED ON SOIL TESTS.



CITY OF ANTIOCH DEPARTMENT OF PUBLIC WORKS — ENGINEERING SERVICES

DRAWN BY: S. Rodrigurz

REVISIONS: 5/2019

DOUBLE DETECTOR CHECK FIRE LINE BACKFLOW ASSEMBLY

W-14

APPROVED BY:

Jon Blank
JON BLANK, P.E.
PUBLIC WORKS DIRECTOR/
CITY ENGINEER

DATE: May 2019

WATER SERVICE INSTALLATION POLICY

IT IS THE POLICY OF THE CITY OF ANTIOCH TO PERFORM ALL CONSTRUCTION WORK NECESSARY FOR THE TAPPING OF THE CITY WATER MAINS IN SERVICE AND FOR THE EXTENDING OF ALL SERVICE LATERALS TO THE STREET RIGHT-OF-WAY LINE WITH CITY FORCES. THE CITY WILL CONSIDER LOCATION REQUESTS BY THE CUSTOMER, BUT THE FINAL LOCATION WILL BE THE DECISION OF THE CITY.

A DEPOSIT FOR THE COST OF EACH INSTALLATION SHALL BE PAID IN ADVANCE BY THE CUSTOMER, IN ADDITION TO THE VARIOUS FEES REQUIRED FOR SERVICE, BY POSTING A DEPOSIT BASED ON COST ESTIMATE PREPARED BY ENGINEERING SERVICES. ALL CITY WORK WILL BE DONE ON A TIME AND MATERIAL BASIS CHARGED AGAINST THIS DEPOSIT.

NEW SUBDIVISION AREAS OR OTHER LARGE DEVELOPMENTS INCLUDING INSTALLATION OF WATER MAINS MAY BE ALLOWED TO TAP MAINS AND RUN LATERALS BY A QUALIFIED, LICENSED CONTRACTOR IN ACCORDANCE WITH AN AGREEMENT OR OTHER PRIOR CITY APPROVAL OF SUCH WORK.

IN ANY CASE, THE CONTRACTOR SHALL NOT TURN ANY VALVES AFFECTING WATER SERVICE CUSTOMERS IN THE OPERATIONAL WATER SYSTEM. CITY FORCES WILL CONTROL ALL VALVES FOR APPROVED WORK ON THE CITY WATER SYSTEM. ALL WORK SHALL BE DONE IN A MANNER TO MINIMIZE THE INCONVENIENCE TO WATER CUSTOMERS.



CITY OF ANTIOCH DEPARTMENT OF PUBLIC WORKS – ENGINEERING SERVICES

DRAWN BY: S. Rodriguez

REVISIONS:

WATER SERVICE INSTALLATION POLICY

W-15

APPROVED BY:

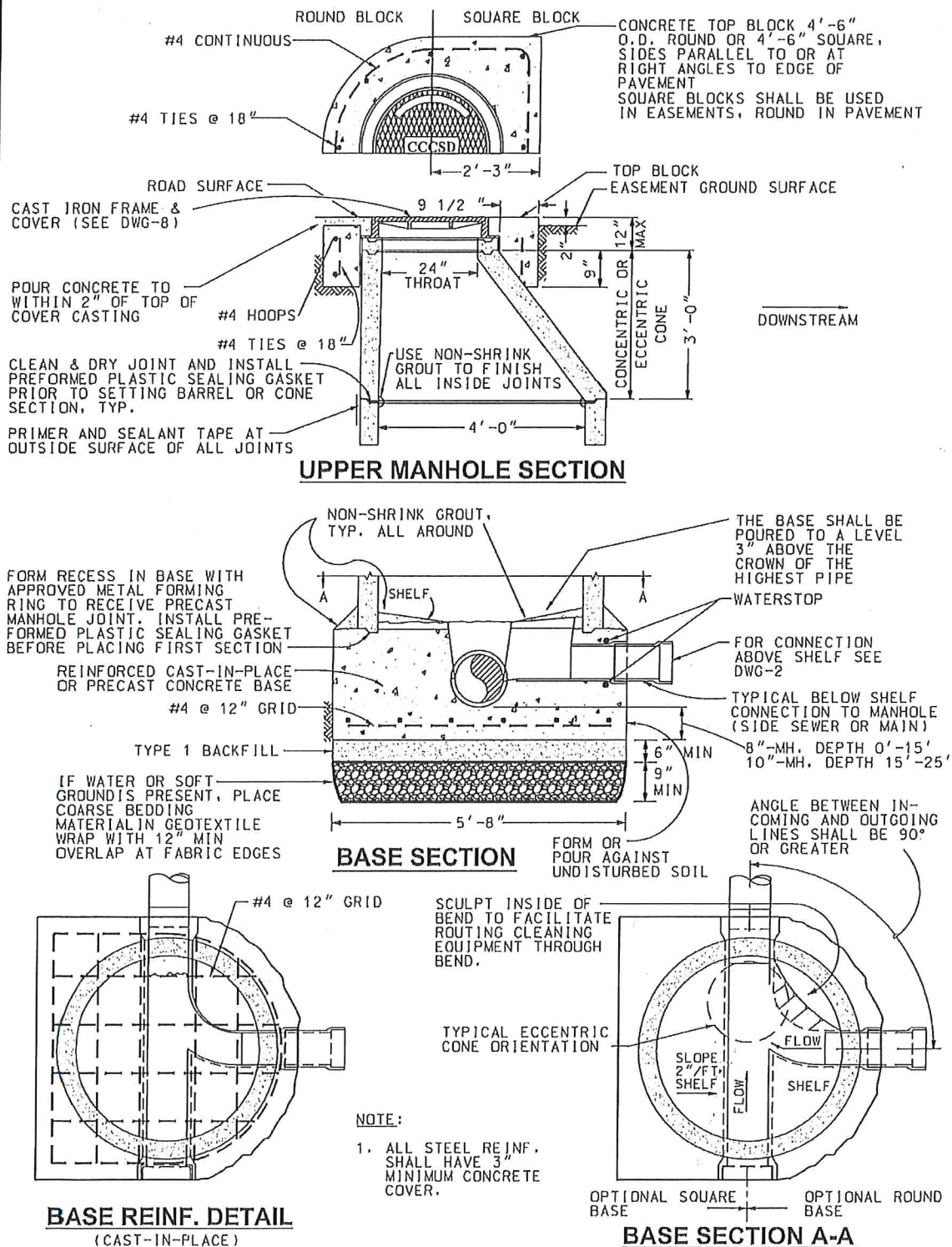
RON BERNAL, P.E.
CITY ENGINEER

DATE: *DEC 20, 2016*

APPENDIX

CENTRAL CONTRA COSTA SANITARY DISTRICT MARTINEZ, CALIFORNIA

STANDARD MAIN MANHOLE



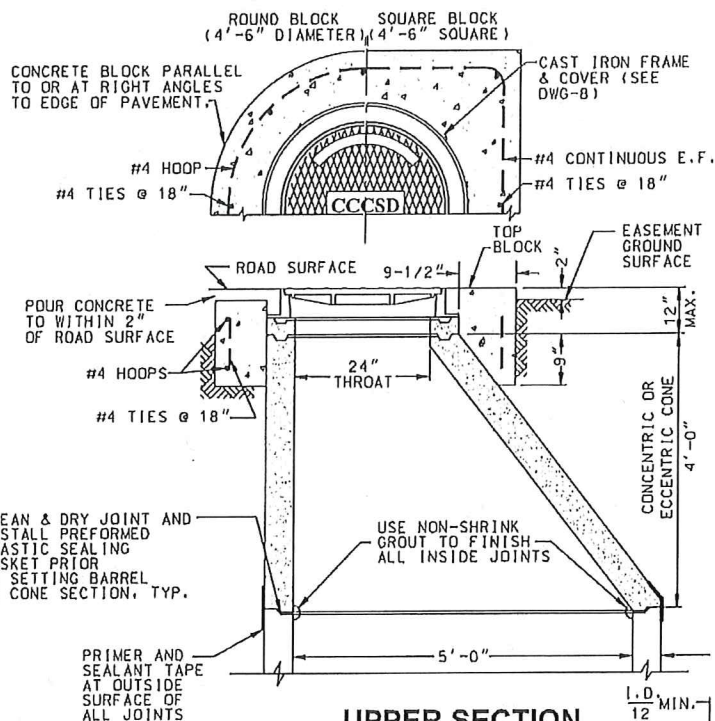
CENTRAL CONTRA COSTA SANITARY DISTRICT MARTINEZ, CALIFORNIA

STANDARD TRUNK MANHOLE

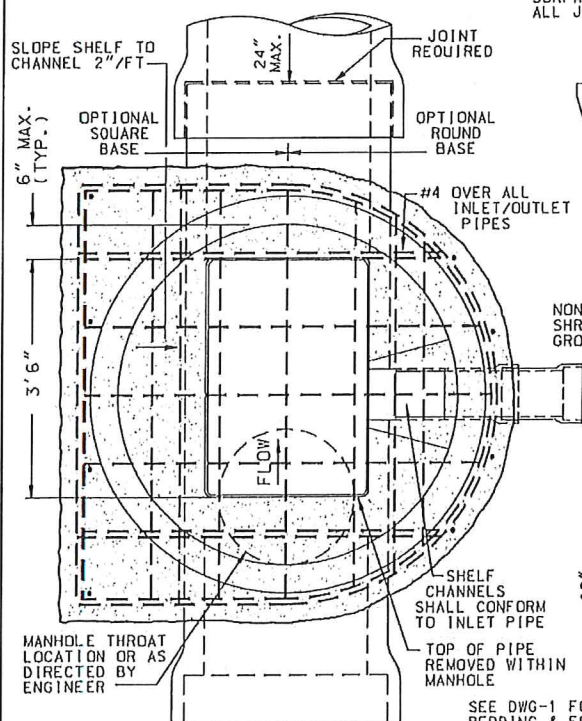
FOR 15" TO 45" LINES

NOTES:

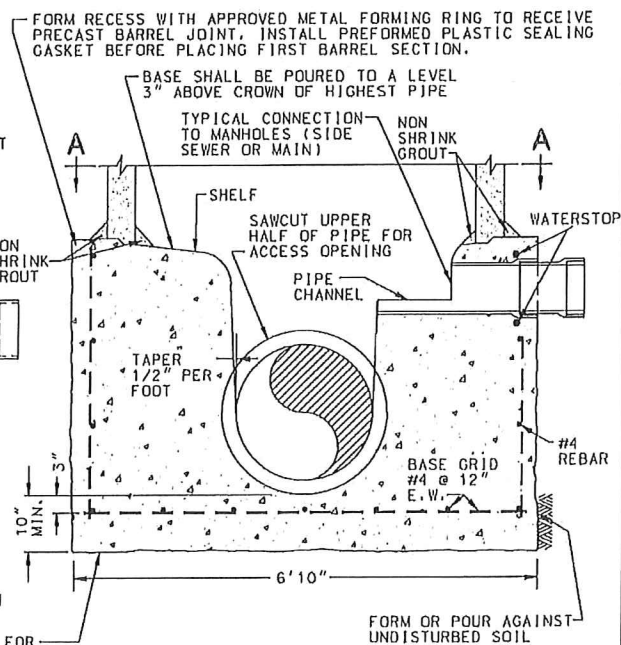
1. LAY PIPE THRU MH WHEN POSSIBLE OR FORM CHANNEL TO MAINTAIN PIPE SECTION. TRUNK SEWER PIPES ENTERING OR LEAVING THE MH BASE SHALL HAVE A STANDARD JOINT LOCATED 12" TO 24" FROM THE BASE.
2. ALL STEEL REINF. SHALL HAVE 3" MINIMUM CONCRETE COVER.
3. SQUARE TOP BLOCKS SHALL BE USED IN EASEMENTS.
4. ROUND TOP BLOCKS SHALL BE USED IN STREETS.
5. FOR CONNECTION OF MAIN OR SIDE SEWERS BELOW SHELF, SEE DWG-1.



UPPER SECTION

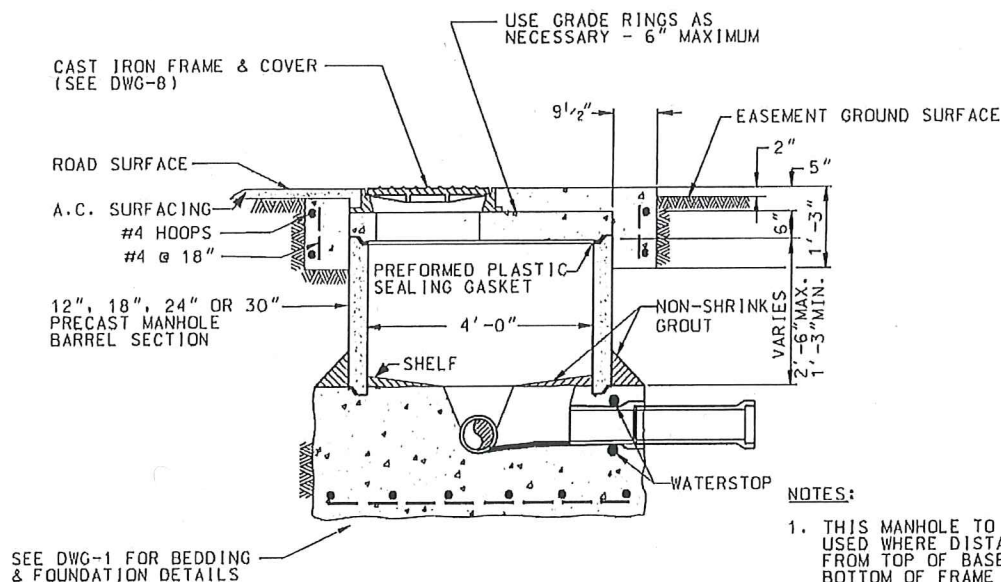


BASE SECTION A-A



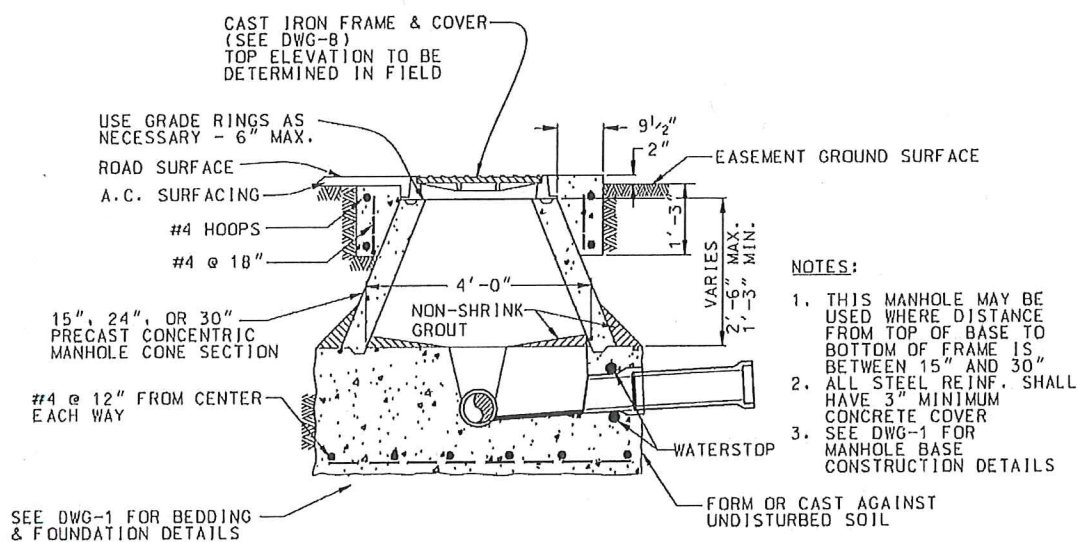
BASE SECTION

SHALLOW MANHOLES (SPECIAL APPROVAL REQUIRED)



SECTION (TYPE I)

- NOTES:**
1. THIS MANHOLE TO BE USED WHERE DISTANCE FROM TOP OF BASE TO BOTTOM OF FRAME IS BETWEEN 18" AND 36"
 2. ALL STEEL REINF. SHALL HAVE 3" MINIMUM CONCRETE COVER
 3. SEE DWG-1 FOR MANHOLE BASE CONSTRUCTION DETAILS

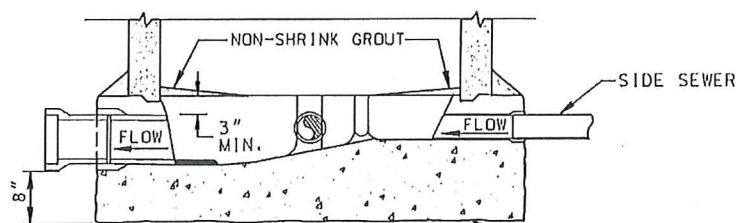
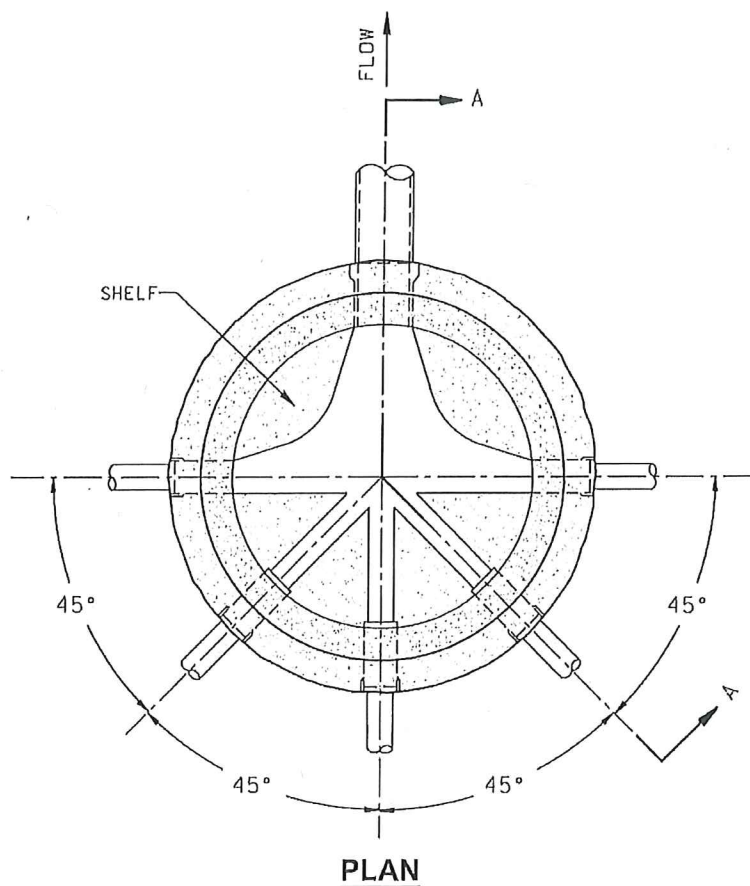


SECTION (TYPE 2)

**CENTRAL CONTRA COSTA SANITARY DISTRICT
MARTINEZ, CALIFORNIA**

MAIN MANHOLE - SPECIAL BASE DETAIL

FOR LINES TERMINATING IN A CUL-DE-SAC



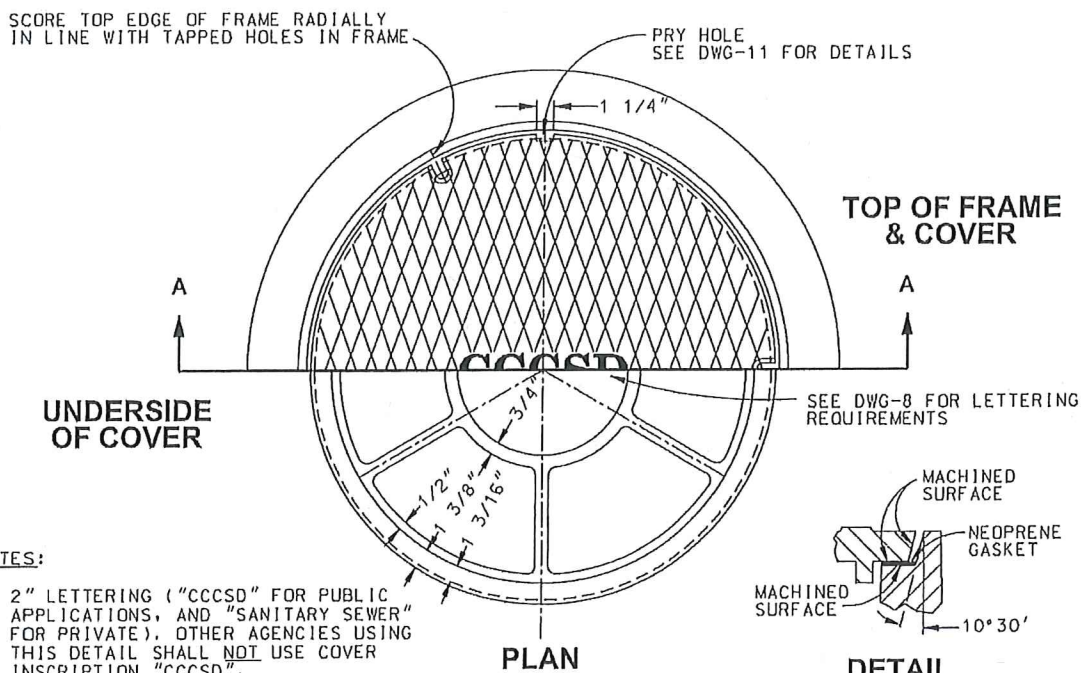
SECTION A-A

SEE DWG-1 FOR MANHOLE
BASE, BEDDING &
FOUNDATION DETAILS.

NOTES:

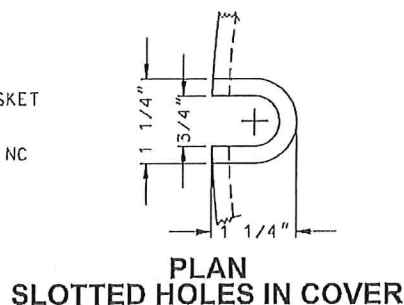
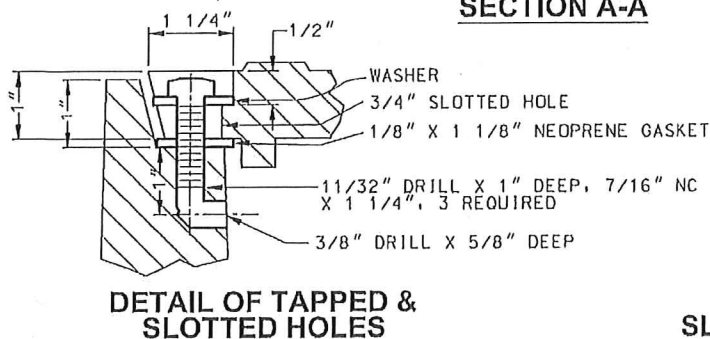
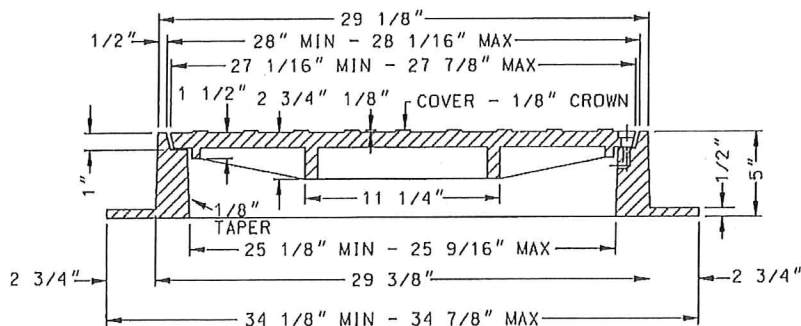
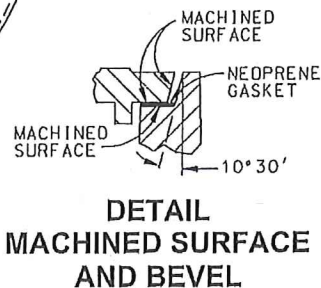
1. NO LATERAL CONNECTIONS SHALL BE MADE IN DOWNSTREAM HALF OF MANHOLE.
2. MAXIMUM NUMBER OF SIDE SEWERS ALLOWED = 5.
3. TOP OF SIDE SEWERS SHALL BE NO LOWER THAN TOP OF OUTLET PIPE.
4. SEE DWG-21 FOR REQUIRED JOINT LOCATIONS.

BOLT - DOWN MANHOLE FRAME & COVER



NOTES:

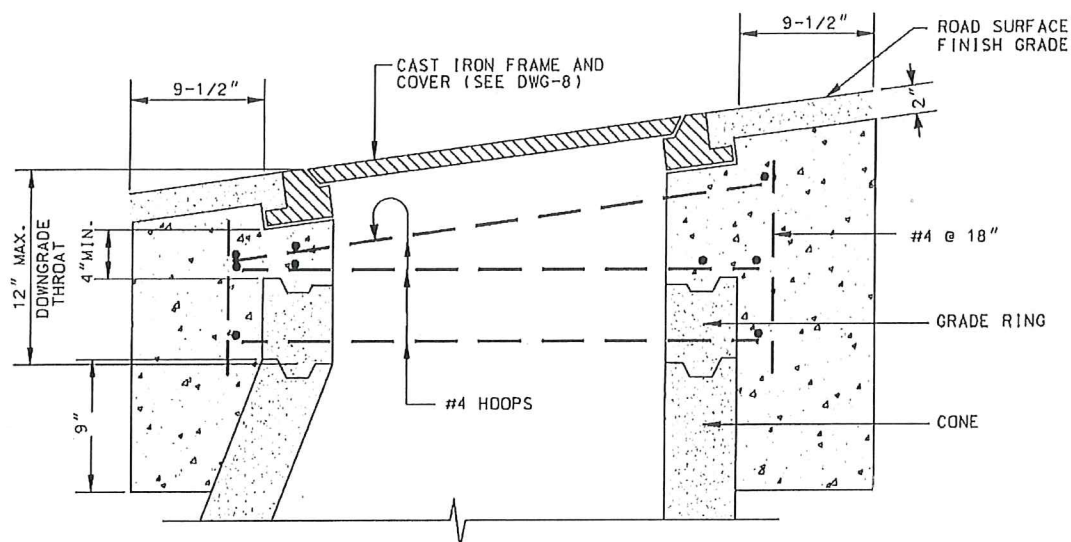
1. 2" LETTERING ("CCCSO" FOR PUBLIC APPLICATIONS, AND "SANITARY SEWER" FOR PRIVATE). OTHER AGENCIES USING THIS DETAIL SHALL NOT USE COVER INSCRIPTION "CCCSO".
2. 4-7/16" X 1-1/4" STAINLESS STEEL MACHINE BOLTS WITH 1-1/4" 13 GA. FLAT WASHERS, AT 1/4 POINTS. INSTALL WITH ANTISEIZE COMPOUND.



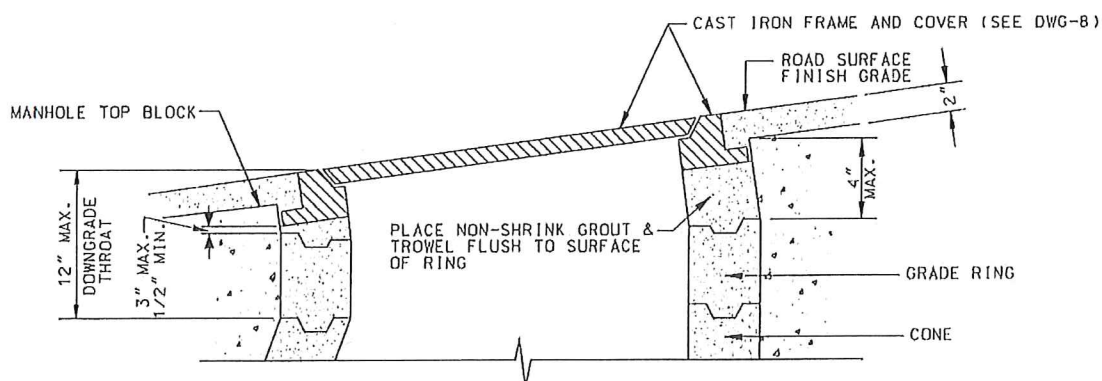
CENTRAL CONTRA COSTA SANITARY DISTRICT MARTINEZ, CALIFORNIA

MANHOLE ADJUSTMENT TO FINISH GRADE

PAVED AREAS



GREATER THAN 13% GRADE



NOTE:

1. SEE DWG-1 FOR TOP BLOCK DETAILS

13% GRADE OR LESS

CENTRAL CONTRA COSTA SANITARY DISTRICT

MARTINEZ, CALIFORNIA

STANDARD BEDDING AND COVER REQUIREMENTS FOR GRAVITY SEWER INSTALLATIONS

PIPE COVER LIMITATION TABLE

PIPE SPECIFICATIONS SEE SEC. 15.15000			MIN. - MAX. COVER IN FT.	
SIZE	MATERIAL	TYPE AND MINIMUM CLASS		
BUILDING SEWERS				
4"-6"	VC	-	2.5	30
4"-6"	CI	SOIL PIPE	1.5	30
4"-6"	DI	CLASS 52	1	30
4"-6"	ABS	SCHEDULE 40	2.5	24
4"-6"	PVC	SDR 26	2.5	24
4"-6"	HDPE	SDR 17	2.5	24
LATERAL SEWERS				
4"	VC	-	5	30
6"	VC	-	5	20
4"-6"	CI	SOIL PIPE	1.5	30
4"-6"	DI	CLASS 52	1	30
4"-6"	ABS	SCHEDULE 40	5	24
4"-6"	PVC	SDR 26	5	24
4"-6"	C900	DR 25	5	24
4"-6"	C900	DR 18	4	24
4"-6"	C900	DR 14	3	24
4"-6"	HDPE	SDR 17	5	24
MAIN SEWERS UNDER ROAD WAY				
8"	VC	-	6	30
10"	VC	-	6	15
8"-10"	DI	CLASS 52	1	35
8"-10"	PVC	SDR 26	5	24
8"-10"	C900	DR 25	5	24
8"-10"	C900	DR 18	4	24
8"-10"	C900	DR 14	3	24
8"-10"	HDPE	SDR 17	5	24
MAIN SEWER NOT UNDER ROAD WAY				
8"-10"	DI	CLASS 52	1	30
8"-10"	C900	DR 14	3	24
SMALL TRUNK SEWERS				
12"	VC	-	6	18
15"	VC	-	6	25
12"	DI	CLASS 52	1	30
14"	DI	CLASS 52	1	30
16"	DI	CLASS 52	1	30
12"-15"	PVC	SDR 26	6	24
14"-24"	C905	DR 51	6	24
14"-24"	C905	DR 41	6	24
14"-24"	C905	DR 32.5	6	24
14"-24"	C905	DR 25	6	24
14"-24"	C905	DR 21	6	24
14"-24"	C905	DR 18	6	24

CENTRAL CONTRA COSTA SANITARY DISTRICT

MARTINEZ, CALIFORNIA

AIR TEST CHART

(GRAVITY SEWERS ONLY)

DIAMETER OF PIPE (INCHES)	LENGTH OF LINE (FEET)	LENGTH OF TEST (MINUTES)
4	ALL	4
6	ALL	4
8	ALL	4
10	0 TO 215	4
10	215 AND GREATER	5
12	0 TO 155	4
12	155 TO 190	5
12	190 AND GREATER	6
15 & 16	0 TO 120	5
15 & 16	120 TO 165	7
15 & 16	165 AND GREATER	8

NOTES:

1. ALL TESTS TO BE PERFORMED @ 4psi USING A 5 lb. GAGE.
2. ALL PIPE GREATER THAN 16 INCHES IN DIAMETER SHALL BE HYDROSTATICALLY TESTED IN ACCORDANCE WITH PROVISIONS CONTAINED IN SECTION 15.02730.

CENTRAL CONTRA COSTA SANITARY DISTRICT MARTINEZ, CALIFORNIA

STANDARD MANHOLE FRAME & COVER

