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FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY

GENERAL INDEX

APPROVED BY
C. Scott Vogel

REVISION DATE
04/03/19

DETAIL NO.
FCD100

GENERAL NOTES

1. THESE DETAILS HAVE BEEN PREPARED IN AN EFFORT TO STANDARDIZE THE CONSTRUCTION DETAILS USED BY VARIOUS CONTRACTING AGENCIES IN MARICOPA COUNTY
2. AN EFFORT HAS BEEN MADE TO INCLUDE THE MOST COMMONLY USED CONSTRUCTION DETAILS IN THIS BOOK. ITEMS WHICH REQUIRE DESIGN CONSIDERATION BY THE PROJECT ENGINEER HAVE NOT BEEN INCLUDED
3. SOME OF THE DETAILS PRINTED HEREIN MAY BE USED BY SOME OF THE AGENCIES BUT NOT OTHERS. THE THE DESIGNING ENGINEER SHOULD THEREFORE CONTACT THE AGENCY WITHIN WHOSE JURISDICTION HE IS WORKING FOR DIRECTION AS TO WHICH DETAIL OR PORTIONS OF DETAILS SHOULD BE USED.
4. DETAIL DRAWINGS HEREIN ARE NOT TO SCALE



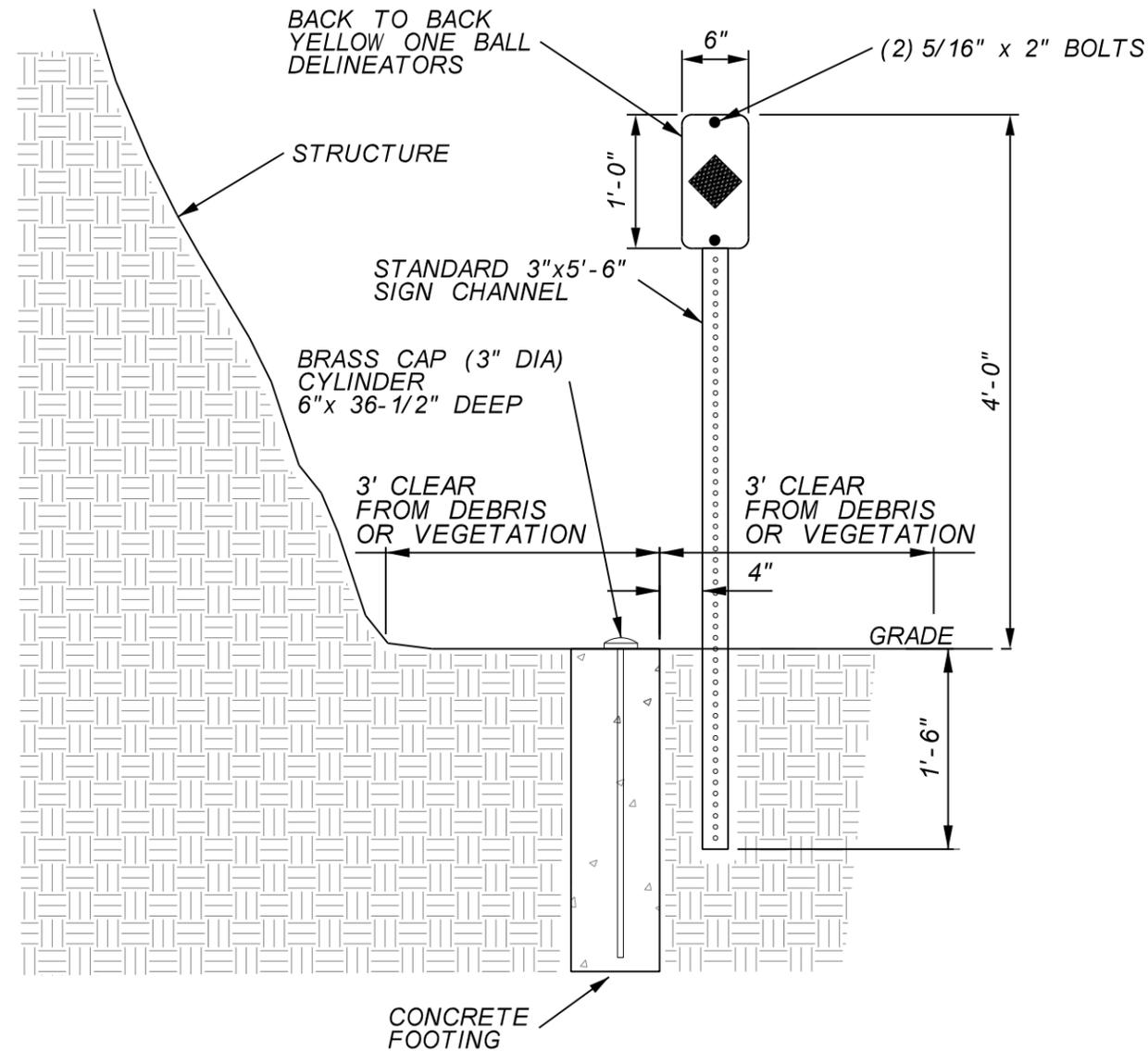
FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY

GENERAL INFORMATION

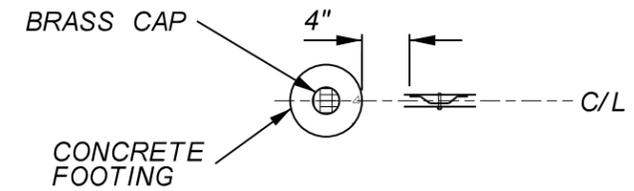
APPROVED BY
C. Scott Vogel

REVISION DATE
10/05/15

DETAIL NO.
FCD101



ELEVATION VIEW



TOP VIEW

NOTES

- 1) MARKER SIGN PLATES WILL BE PLACED TO ALLOW VIEWING FROM BOTH DIRECTIONS.
- 2) IF NO ACCESS ROAD EXISTS, SIGNS WILL BE FACING DOWN STREAM
- 3) CONCRETE SHALL BE CLASS "B" CONCRETE



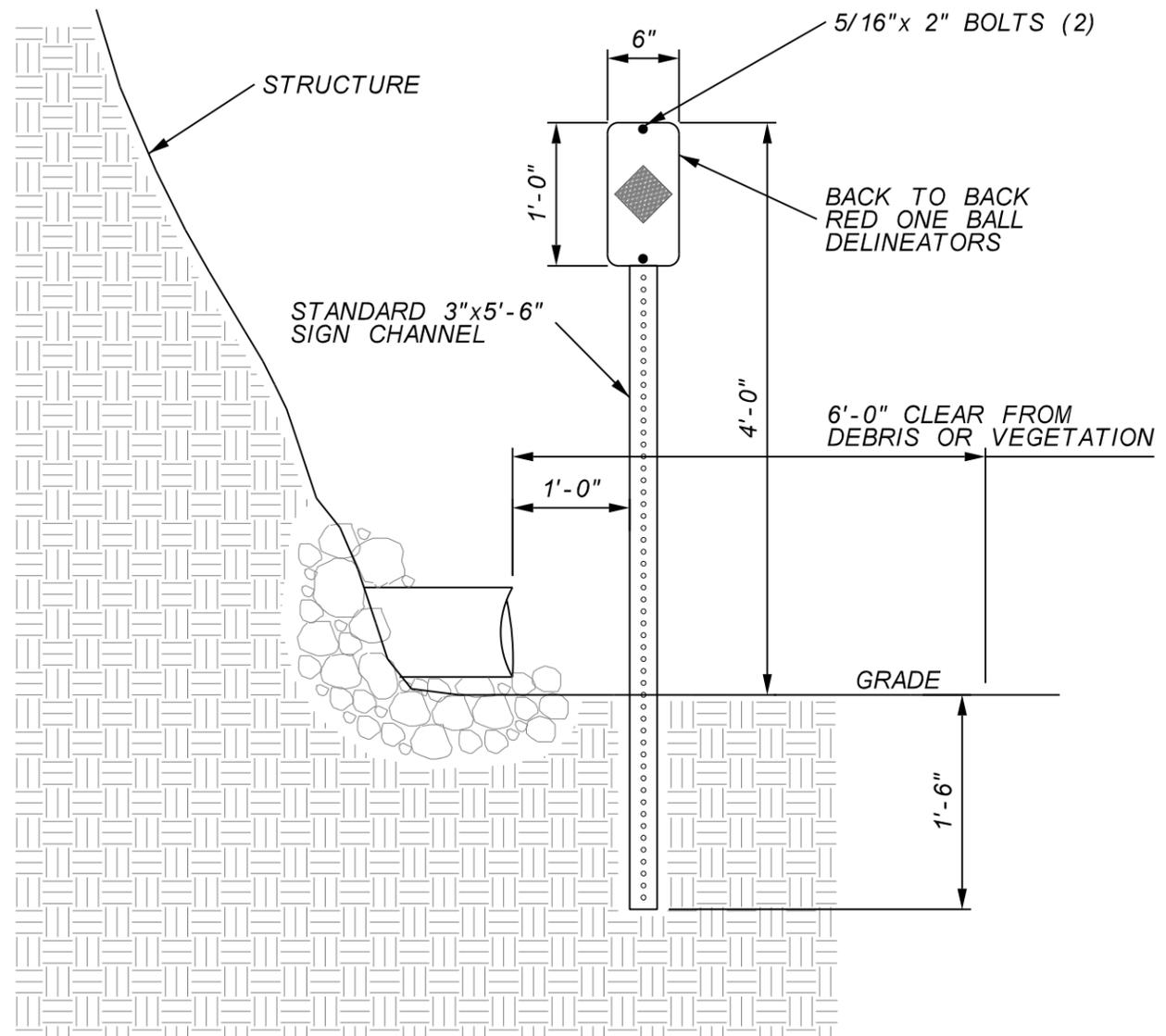
FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY

SUBSIDENCE MONUMENT
MARKERS DETAIL

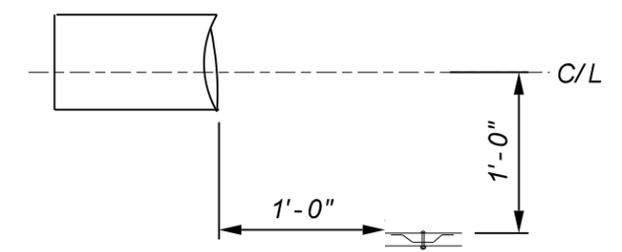
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C. Scott Vogel

REVISION DATE
10/05/15

DETAIL NO.
FCD120-1



ELEVATION VIEW

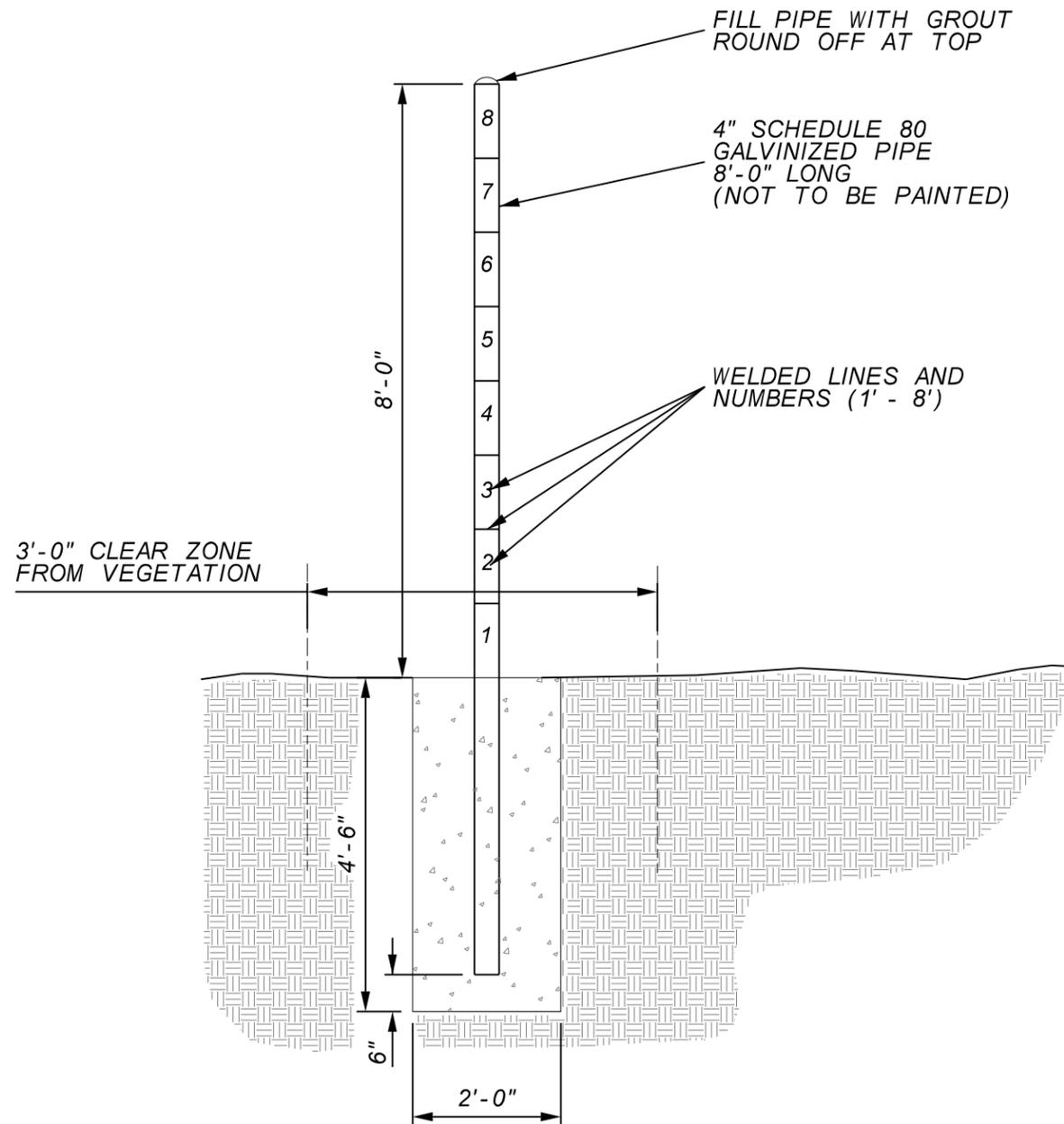


TOP VIEW

NOTES

- 1) MARKER SIGN PLATES WILL BE PLACED TO ALLOW VIEWING FROM BOTH DIRECTIONS.
- 2) MARKER SHALL BE PLACED 1 FOOT DOWN STREAM AND 1 FOOT OFF CENTERLINE OF CORE DRAIN
- 3) IF NO ACCESS ROAD EXISTS, SIGNS WILL BE FACING DOWN STREAM
- 4) CONCRETE SHALL BE CLASS "B" CONCRETE

| | | | | | |
|--|--|---|--|-----------------------------------|--------------------------------|
| | <p>FLOOD CONTROL DISTRICT OF MARICOPA COUNTY</p> | <p>CORE DRAIN MARKER POSTS DETAIL</p> | <p>APPROVED BY <i>C. Scott Vogel</i></p> | <p>REVISION DATE 10/05/15</p> | <p>DETAIL NO. FCD120-2</p> |
|--|--|---|--|-----------------------------------|--------------------------------|



NOTES

- 1) SEDIMENT GAGES SHALL BE 8'-0" FOR DAM AND FRS STRUCTURES UNLESS NOTED OTHERWISE
- 2) SEDIMENT GAGES PLACED IN CHANNELS AND FLOODWAYS WILL NOT EXCEED BANK HEIGHT OR 8'-0" MAX.
- 3) CONCRETE SHALL BE CLASS "B" CONCRETE



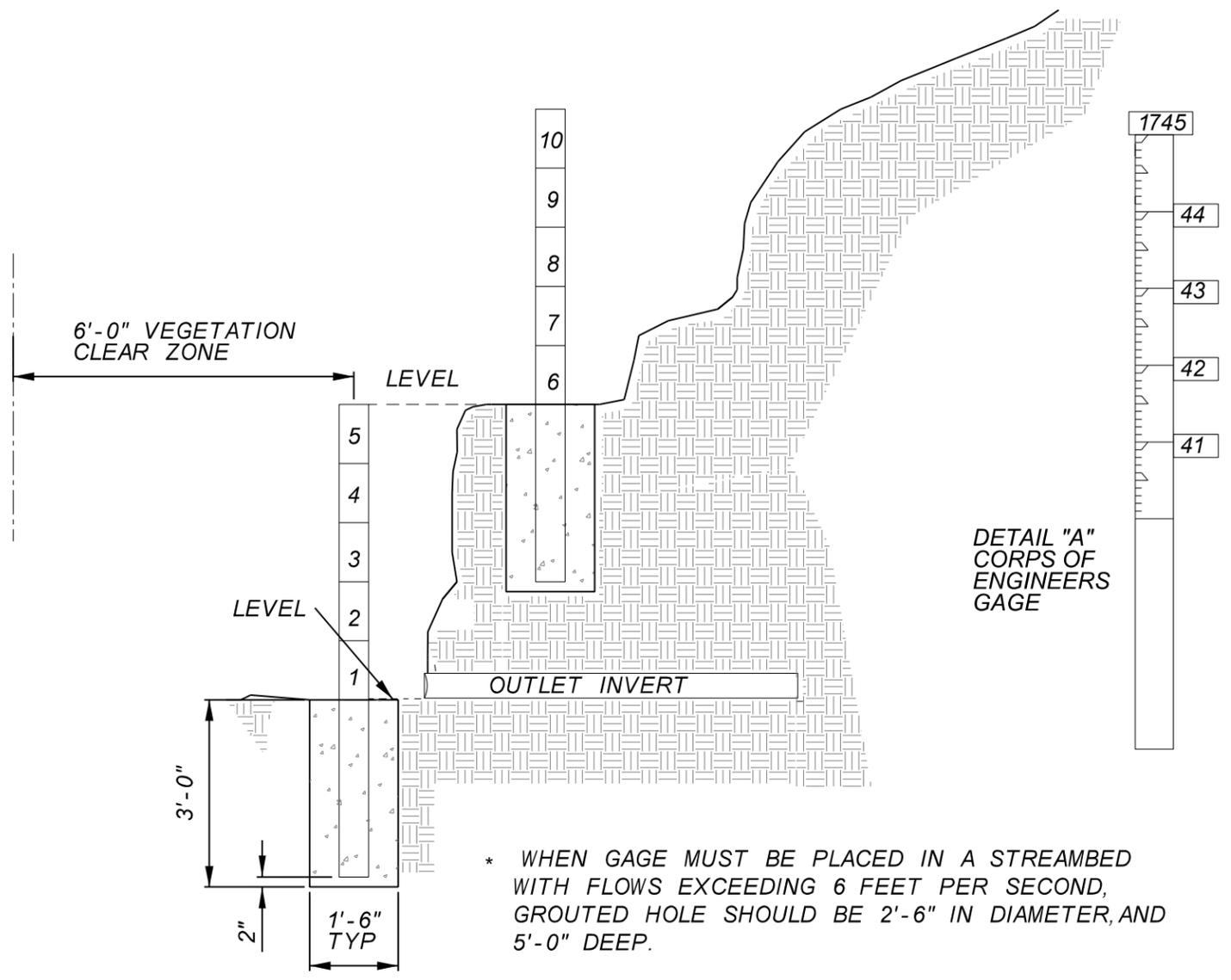
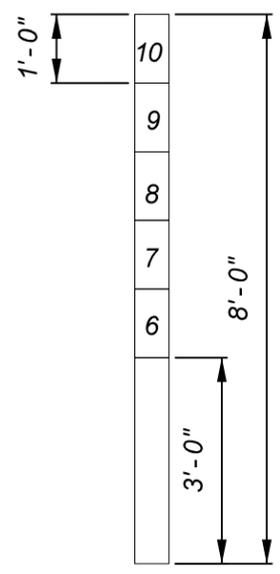
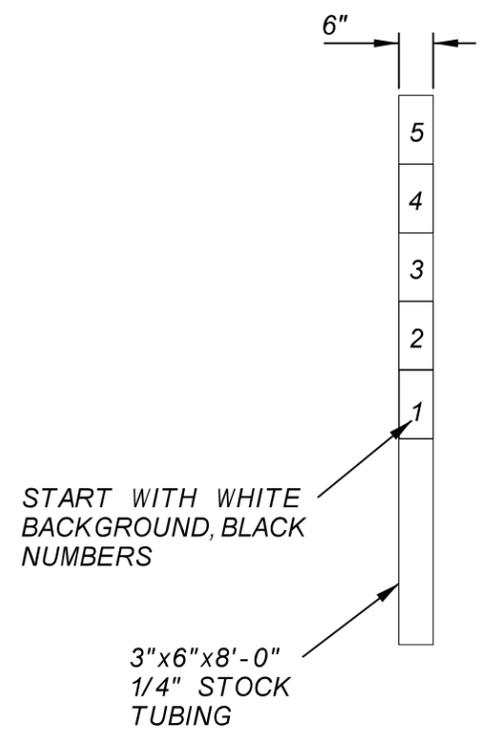
FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY

SEDIMENT GAGE
DETAIL

APPROVED BY
C. Scott Vogel

REVISION DATE
10/05/15

DETAIL NO.
FCD120-3

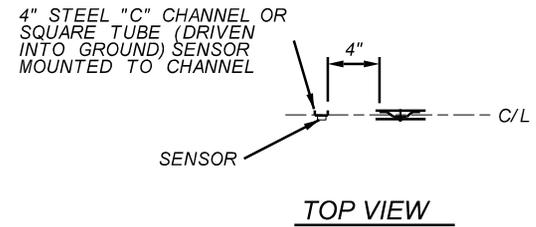
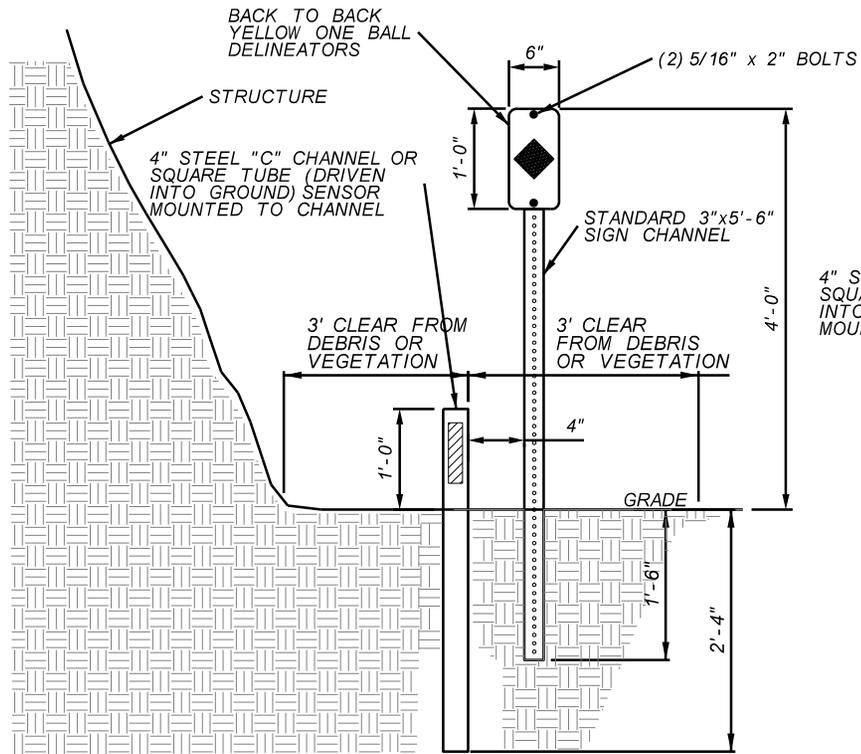


1:2:3 CONCRETE MIX

1 PART CEMENT
2 PARTS SAND
3 PARTS COARSE AGGREGATE

NOTES

- 1) PLAIN BLACK AND WHITE BACKGROUND.
- 2) PAINT NUMBERS USING STENCILS.
- 3) SET GAGES USING A LEVEL.
 - a) BOTTOM OF +1 SHALL BE LEVEL WITH THE INVERT OF OUTLET.
 - b) BOTTOM OF +6 SHALL BE LEVEL WITH TOP OF +5
- 4) EMBED BOTH PORTIONS OF GAGE 3' INTO THE GROUND AND SET IN CONCRETE, USING 1:2:3: CONCRETE MIX. PUT SLIGHT SLOPE ON ALL FOOTINGS.
- 5) FILL WITH GROUT OR CAP.
- 6) NUMBER ARRANGEMENT WILL VARY TO FIT SITUATION.
- 7) FOR GAGES PAINTED ON STRUCTURES, USE THE SAME COLOR CODING SCHEME.

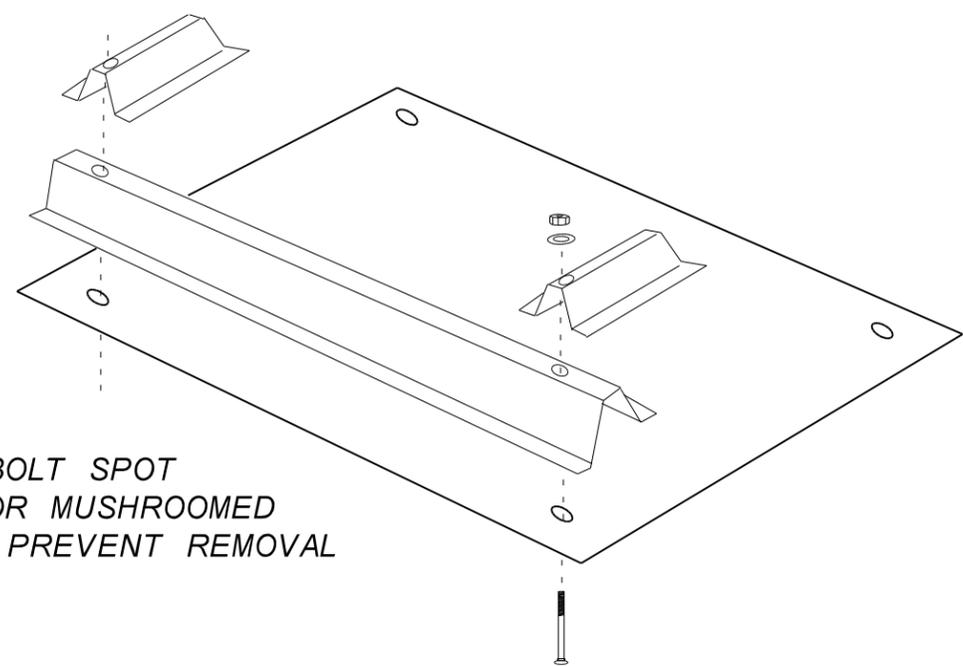
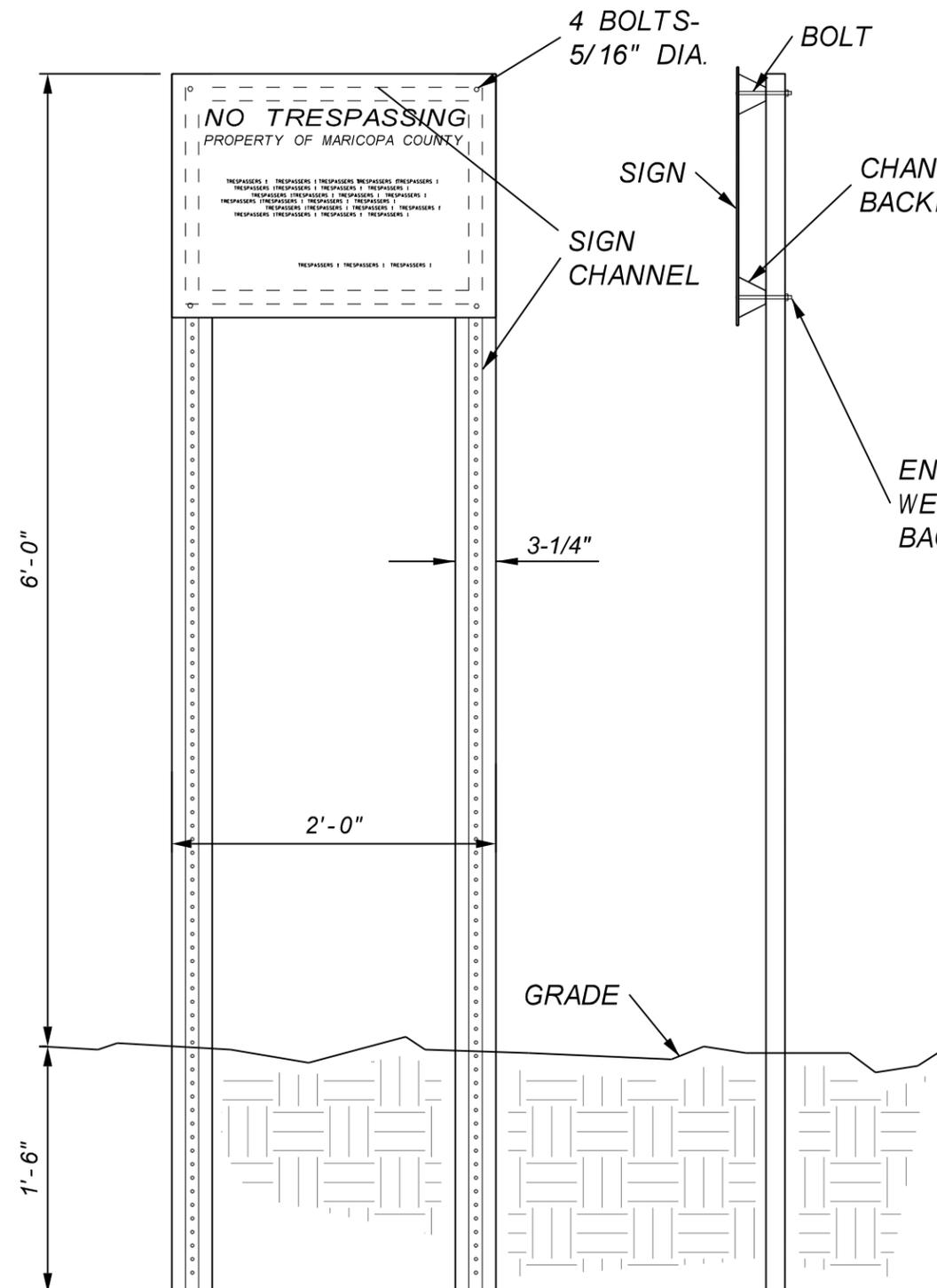


ELEVATION VIEW

NOTES

- 1) CONTINUOUS SLOPE AREA GAGE PLATES WILL BE PLACED TO ALLOW VIEWING FROM BOTH DIRECTIONS.
- 2) IF NO ACCESS ROAD EXISTS, SIGNS WILL BE FACING DOWN STREAM

| | | | | |
|--|--|--|-----------------------------------|--------------------------------|
|  <p>FLOOD CONTROL DISTRICT OF MARICOPA COUNTY</p> | <p>USGS CONTINUOUS SLOPE AREA GAGE MARKERS</p> | <p>APPROVED BY <i>C. Scott Vogel</i></p> | <p>REVISION DATE 04/03/19</p> | <p>DETAIL NO. FCD120-5</p> |
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MATERIAL LIST

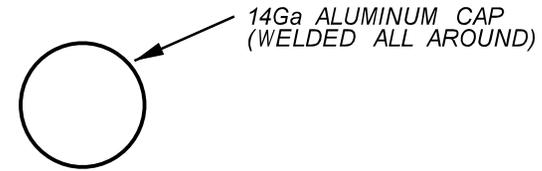
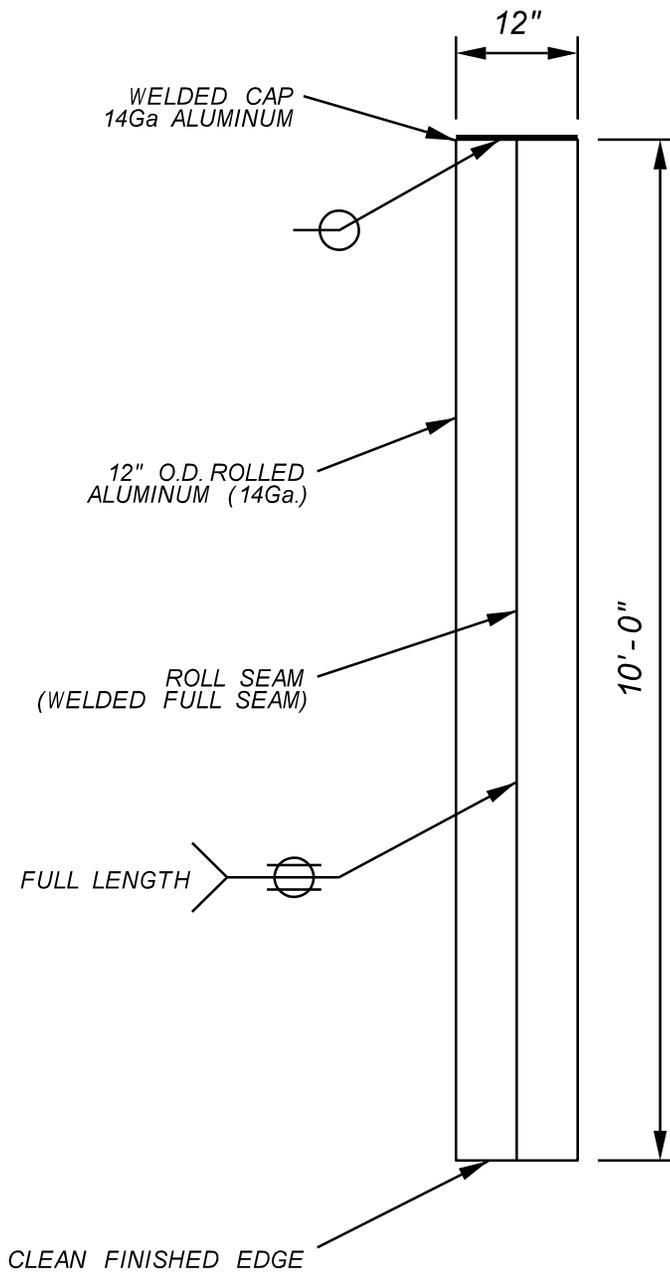
| QTY. | ITEM |
|------|---|
| 2 | SIGN CHANNEL POSTS 7'-6 |
| 2 | SIGN CHANNEL POST BACKERS 2'-0 |
| 1 | F.C.D. RIGHT OF WAY SIGN |
| 4 | 5/16" DIA. BOLTS, 3 1/2" LONG, ALL THREAD, WITH NUTS AND WASHERS. |

NOTES

ALL WELDED JOINTS SHALL BE COATED WITH ZINC DUST-ZINC OXIDE COATING CONFORMING TO AASHTO M-36 PER MAG 771.4 UNLESS OTHERWISE SPECIFIED. GALVANIZED SURFACES THAT ARE FIELD OR SHOP CUT, BROKEN, BURNED OR ABRADED, THUS BREAKING THE GALVANIZING, SHALL BE REPAIRED AT ALL LOCATIONS WITH ZINC DUST-ZINC OXIDE COATING CONFORMING TO AASHTO M-36 TO THE SATISFACTION OF THE PROJECT ENGINEER. ALL WIRE SHALL CONFORM TO ADOT SPEC. SECTION 903-2.04 STANDARD FENCING WIRE.

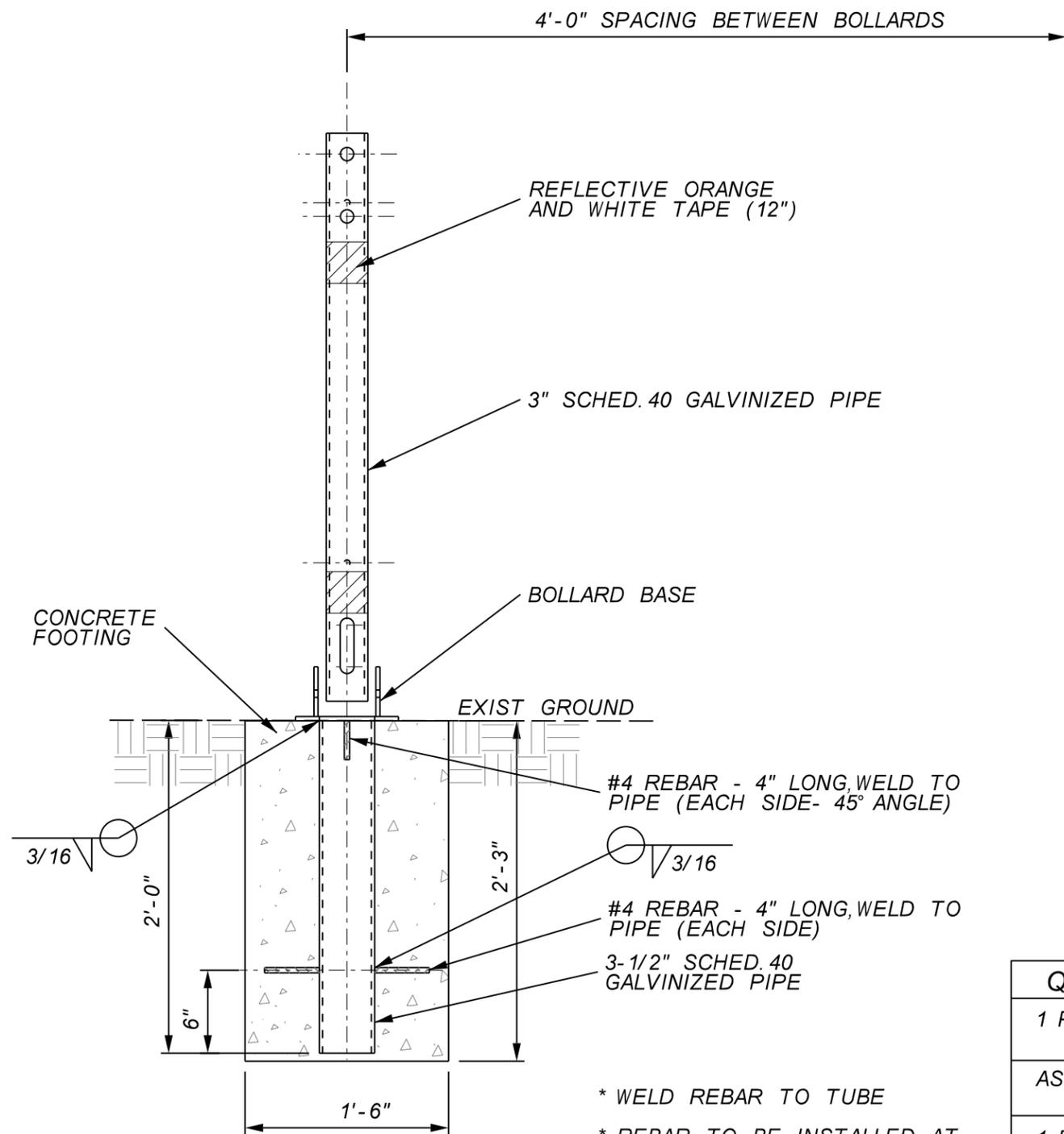
FRONT VIEW

SIDE VIEW



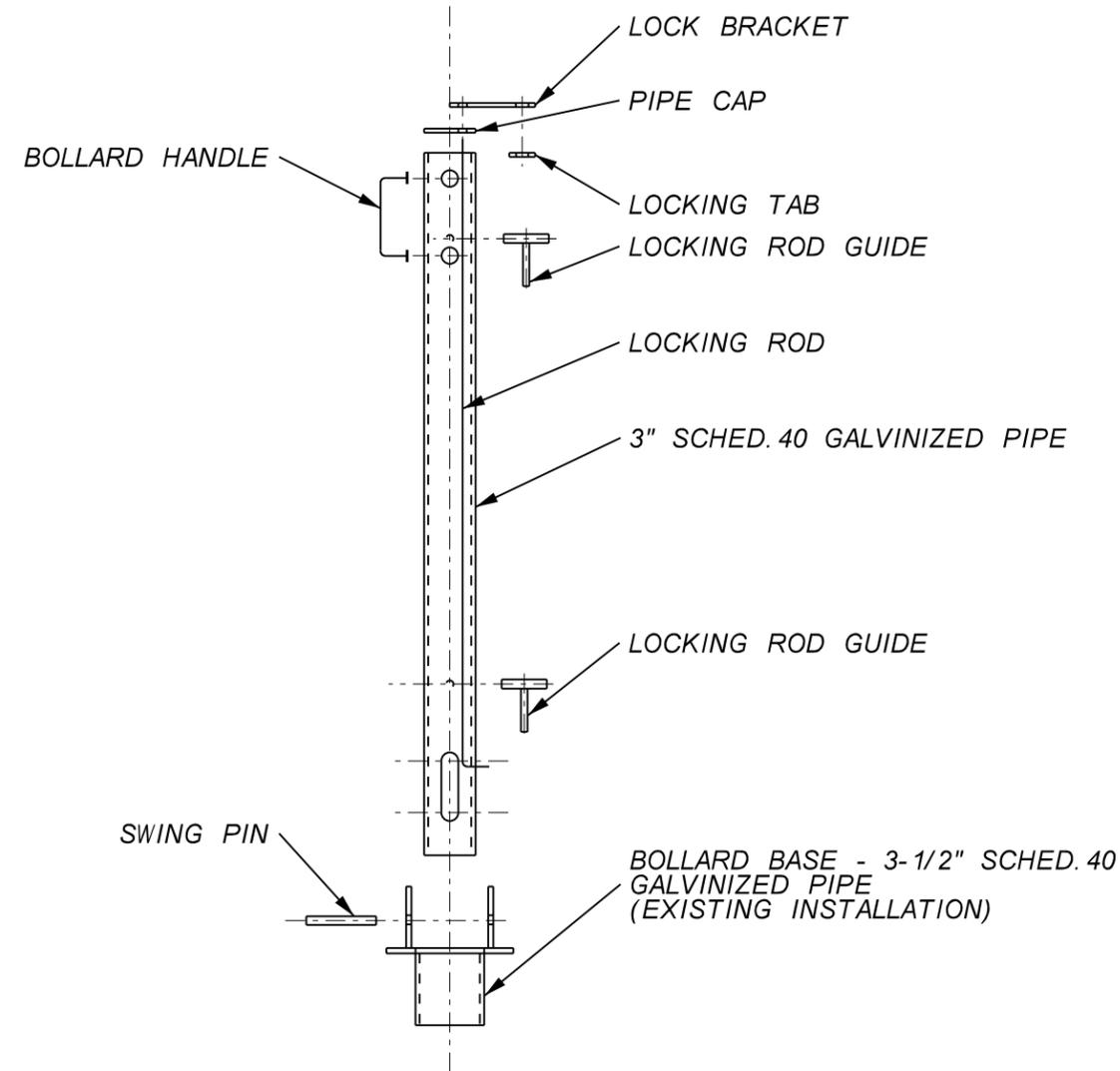
GENERAL NOTES

- 1) ALL MATERIAL SHALL BE 14Ga. ALUMINUM
- 2) ALUMINUM CAP SHALL BE WELDED ALL AROUND - NO GAPS ALONG SEAM



BOLLARD BASE AT NEW INSTALLATION

- * WELD REBAR TO TUBE
- * REBAR TO BE INSTALLED AT OPPOSITE SIDES ON PIPE



ASSEMBLY PARTS (EXPLODED VIEW)

| QUANTITY | ITEM |
|---------------|---|
| 1 PER BOLLARD | 3-1/2" (I.D.) GALVANIZED STEEL PIPE (SCHEDULE 40) |
| AS NEEDED | 12" REFLECTIVE TAPE (ORANGE AND WHITE) |
| 1 PER BOLLARD | 3/8" DIAMETER STEEL ROD |
| 1 PER BOLLARD | 1/2" DIAMETER STAINLESS STEEL ROD |
| AS NEEDED | 3/8" STEEL PLATE |
| 1 PER BOLLARD | 1/2" STEEL TUBING |
| AS NEEDED | 5/16" STEEL WASHER |
| AS NEEDED | CONCRETE FOR FOOTING |
| 4 PER BOLLARD | #4 REBAR (4" LONG) |

NOTES:

- 1) PUT SLIGHT SLOPE ON ALL FOOTINGS CLASS "B" CONCRETE MIX
- 2) ALL WELDS SHALL BE COATED WITH ZINC DUST-ZINC OXIDE COATING CONFORMING TO AASHTO M-36 PER MAG 771.4
- 3) 12" REFLECTIVE TAPE TO BE INSTALLED IN 2 ROWS EVENLY SPACED ON BOLLARD



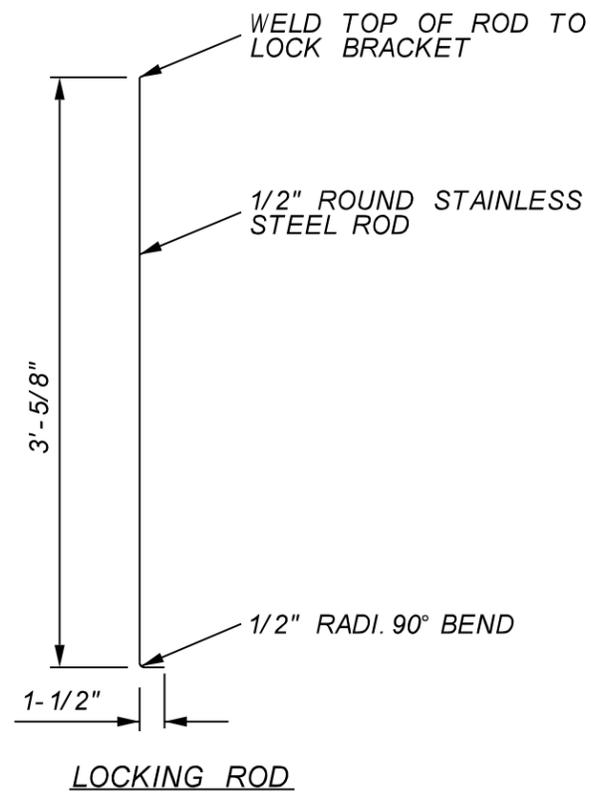
**FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY**

**REMOVABLE BOLLARD
DETAIL**

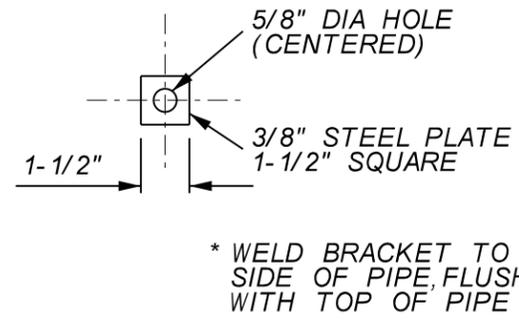
APPROVED BY
C. Scott Vogel

REVISION DATE
10/05/15

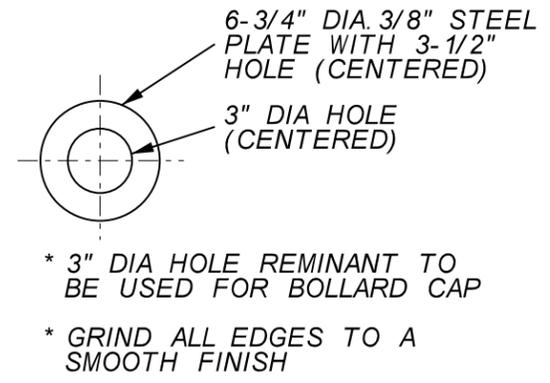
DETAIL NO.
FCD140-1



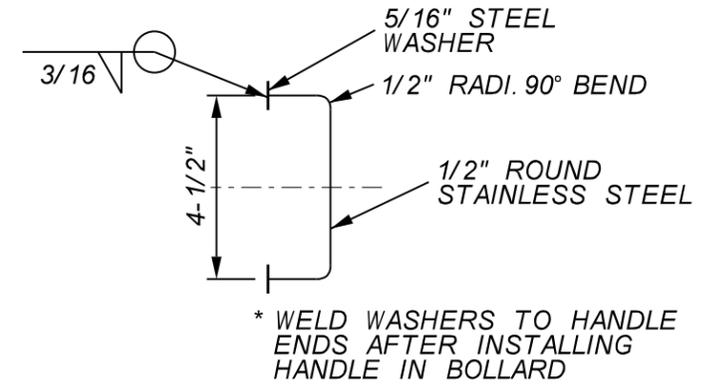
LOCKING ROD



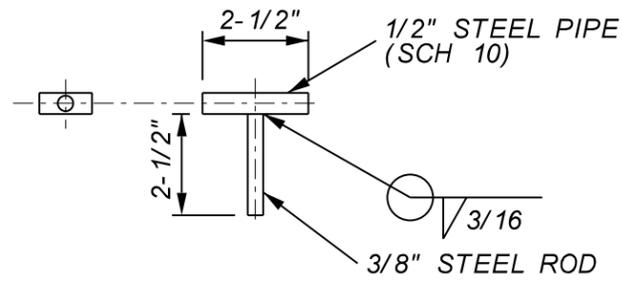
LOCK TAB ON BOLLARD



BOLLARD BASE PLATE

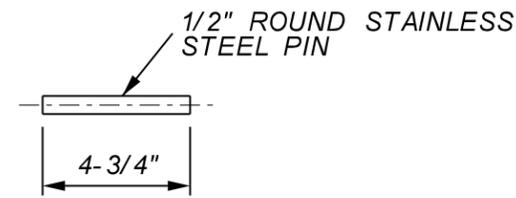


PIPE BOLLARD HANDLE

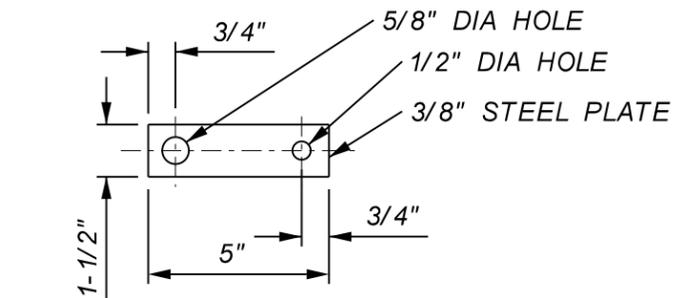


- * WELD STEEL ROD TO STEEL PIPE
- * INSERT STEEL ROD INTO HOLE FROM INSIDE OF PIPE, CUT OFF EXCESS & WELD TO PIPE GRIND TO A SMOOTH FINISH
- * GUIDES TO BE INSERTED INTO 3/8\"/>

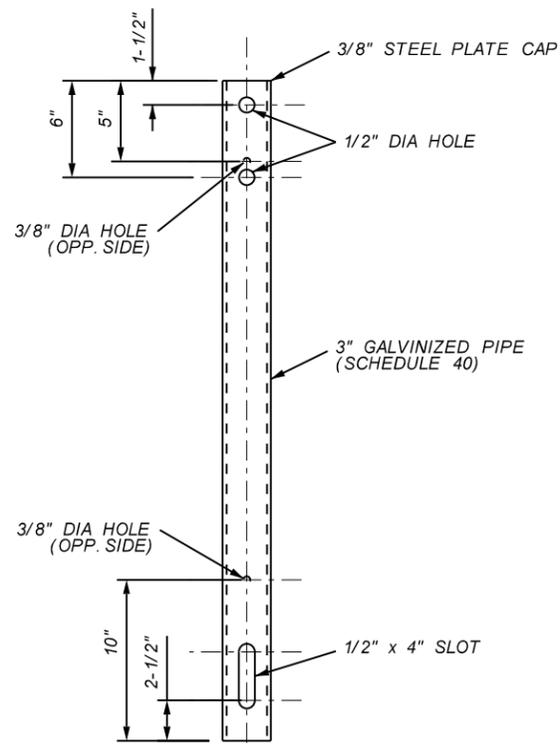
LOCKING ROD GUIDE



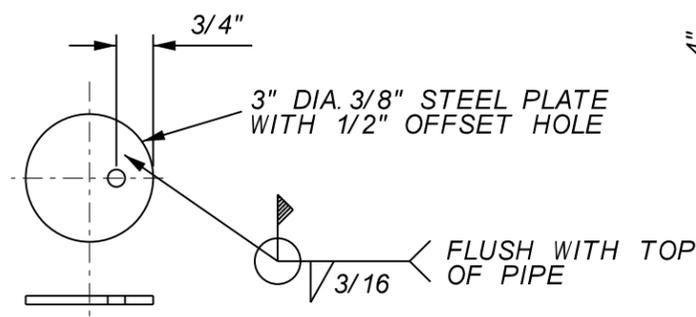
STEEL SWING PIN



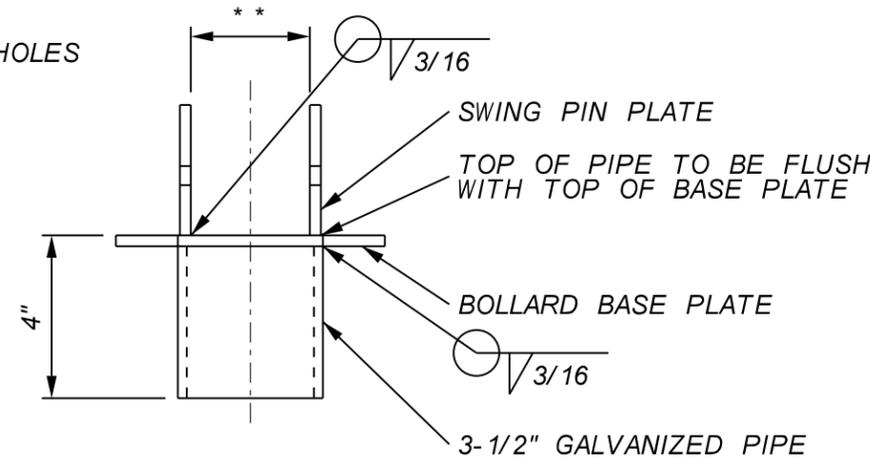
STEEL LOCK BRACKET



STEEL PIPE BOLLARD

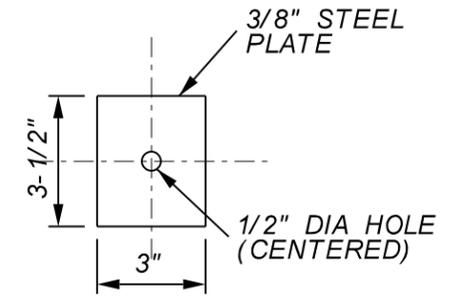


3/8\"/>



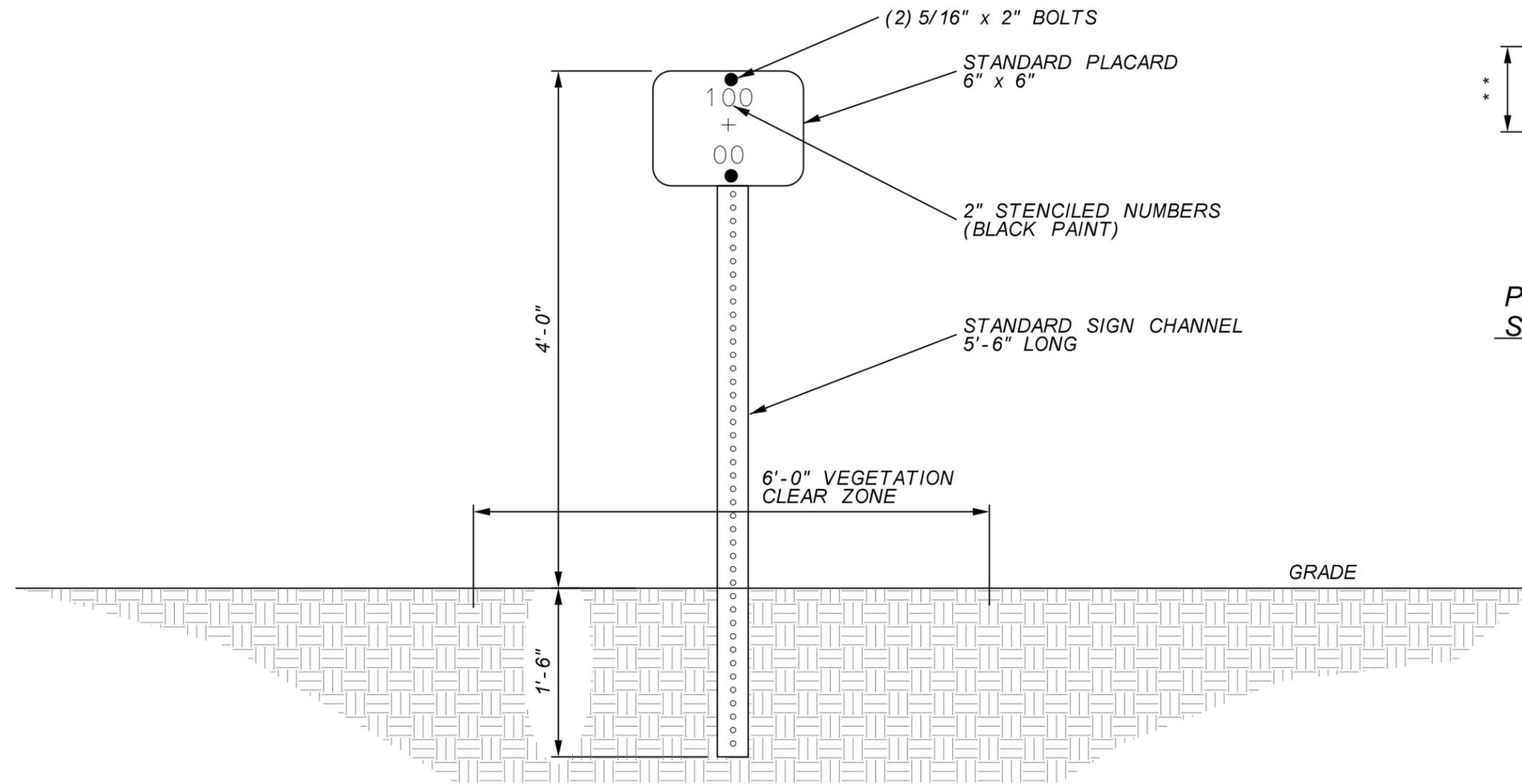
- * WELD TOP OF PIPE FLUSH WITH TOP OF BASE PLATE
- * * SPACING FOR 3\"/>

BOLLARD BASE AT EXISTING BOLLARD INSTALL (RETROFIT)

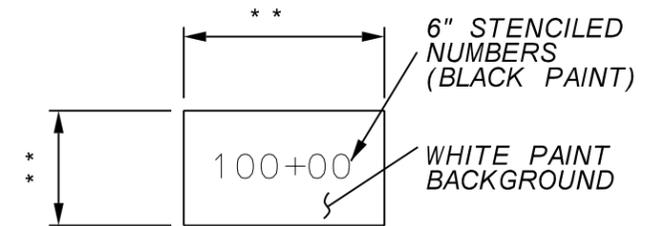


SWING PIN PLATE





METAL STATION PLACARD
NTS



** = WIDTH VARIES MATCH EXISTING, HEIGHT VARIES 8" MINIMUM OR MATCH EXISTING

PAINTED ON CONCRETE STATION MARKER

NTS

NOTES

- 1) STATION MARKERS SHALL BE INSTALLED ALONG THE STRUCTURE/ MAINTENANCE ROAD TO BE VISIBLE IN ASCENDING DIRECTION
- 2) STATION MARKERS PLACED ON CONCRETE SHALL NOT EXCEED BANK HEIGHT OR 8'-0" MAX.



FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY

STATIONING PLACARD
DETAIL

APPROVED BY
C. Scott Vogel

REVISION DATE
10/05/15

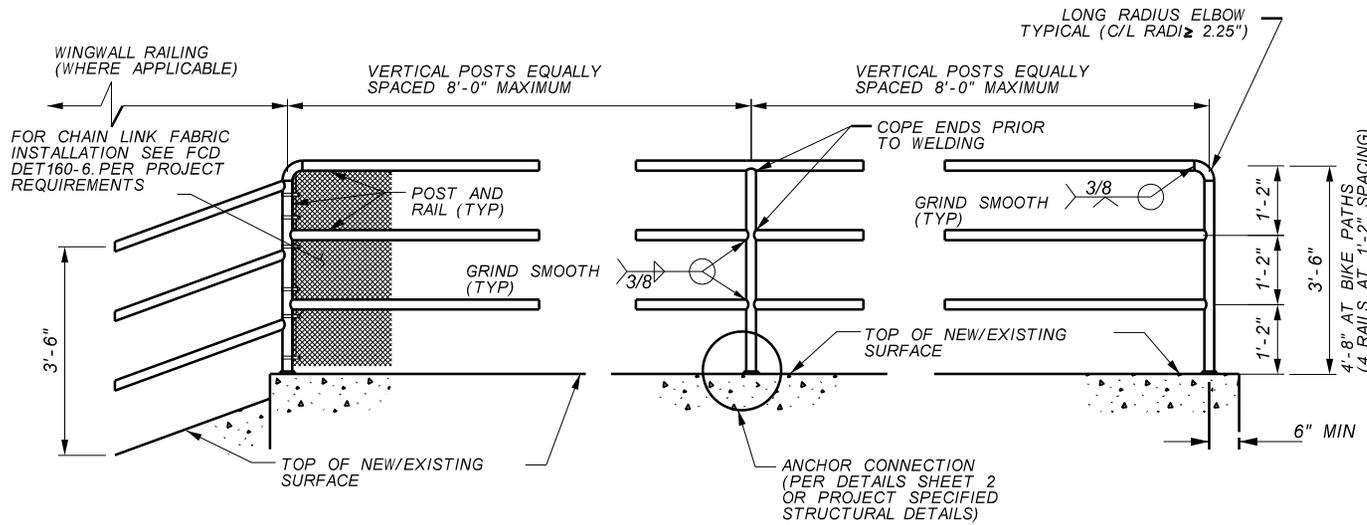
DETAIL NO.
FCD141-1

NOTES

- 1) POSTS AND RAILS SHALL BE 1.5" SCHEDULE 40 HOT-DIPPED GALVANIZED STEEL PIPE (ASTM A-53) GRADE B (2.72#/LF - 1.9" O.D.) GALVANIZING SHALL BE IN ACCORDANCE WITH M.A.G. SPECIFICATION 771
- 2) ALL WELDED JOINTS SHALL BE COATED WITH ZINC DUST-ZINC OXIDE COATING CONFORMING TO AASHTO M-36 PER MAG 7714 UNLESS OTHERWISE SPECIFIED GALVANIZED SURFACES THAT ARE FIELD OR SHOP CUT, BROKEN, BURNED OR ABRADED THUS BREAKING THE GALVANIZING SHALL BE REPAIRED AT ALL LOCATIONS WITH ZINC DUST-ZINC OXIDE COATING CONFORMING TO AASHTO M-36 TO THE SATISFACTION OF THE PROJECT ENGINEER.
- 3) PAINT RAILING PER M.A.G. SPECIFICATION SECTION 530 WHEN REQUIRED BY PLANS SHOP PRIME WITH RUST INHIBITING PRIMER (FIELD REPAIR PRIMER AS NEEDED) COLOR PER PLANS.
- 4) GRIND DOWN ALL SHARP EDGES.
- 5) EMBEDMENT FOR ANCHOR TYPES 1, 2 AND 3 SHALL BE LOCATED INSIDE OF WALL REINFORCEMENT CAGE FOR REINFORCED CONCRETE APPLICATIONS.
- 6) ANCHOR CONNECTION TYPE 4 SHALL BE USED FOR GROUND APPLICATIONS INCLUDING UNREINFORCED CONCRETE OR SOIL CEMENT APPLICATIONS.
- 7) SAFETY RAIL SHALL NOT BE USED AS PEDESTRIAN BRIDGE RAILING.
- 8) THE REQUIREMENTS PRESENTED HEREON ARE GENERAL REQUIREMENTS, ADDITIONAL REQUIREMENTS/RESTRICTIONS MAY APPLY TO SPECIFIC STRUCTURES

DOWEL NOTES

- 1) FOR GROUTED RIP-RAP DRILL 7/8" DIAMETER HOLES 13" DEEP FOR #6 DOWELS. EPOXY DOWEL IN HOLE WITH AN APPROVED EPOXY ADHESIVE. EPOXY ANCHORAGE SHALL DEVELOP A TENSILE PULLOUT STRENGTH OF 9 KIPS FOR #6 DOWELS.
- 2) FOR CSA DRILL 7/8" DIAMETER HOLES 31" DEEP FOR #6 DOWELS. GROUT DOWEL IN HOLE WITH AN APPROVED GROUT. GROUT ANCHORAGE SHALL DEVELOP A TENSILE PULLOUT STRENGTH OF 9 KIPS FOR #6 DOWELS.
- 3) FOR PAVEMENT DRILL 4" DIAMETER HOLES 31" DEEP FOR #6 DOWELS. GROUT DOWEL IN HOLE WITH AN APPROVED GROUT. GROUT ANCHORAGE SHALL DEVELOP A TENSILE PULLOUT STRENGTH OF 9 KIPS FOR #6 DOWELS.
- 4) SOLID GROUT UNDER BASE PLATES IS REQUIRED.
- 5) AVOID DRILLING HOLE THROUGH EXPOSED RIP-RAP.



ELEVATION VIEW



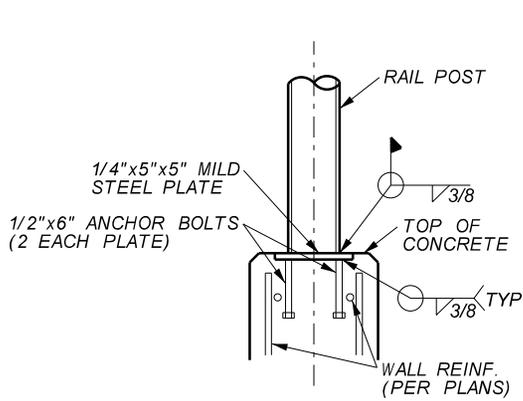
FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY

PIPE RAIL FENCE
DETAIL SHEET 1 OF 2

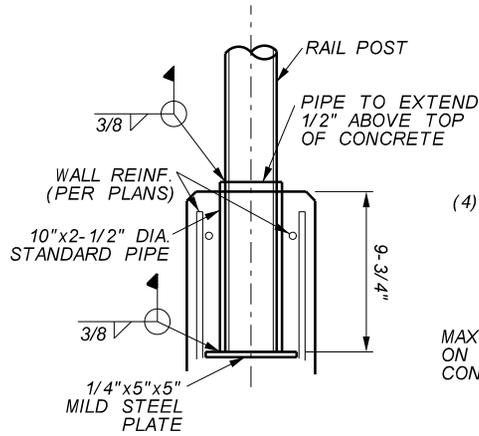
APPROVED BY
C. Scott Vogel

REVISION DATE
04/03/19

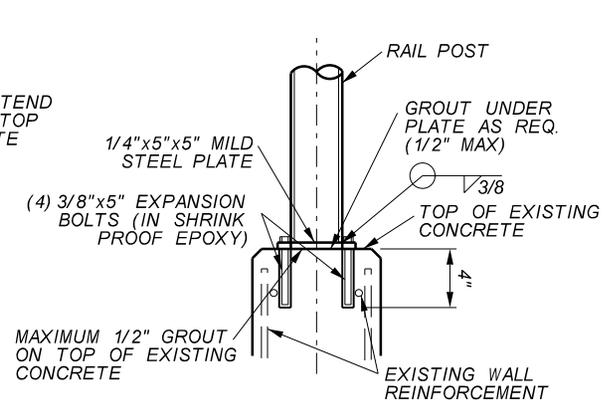
DETAIL NO.
FCD145-1



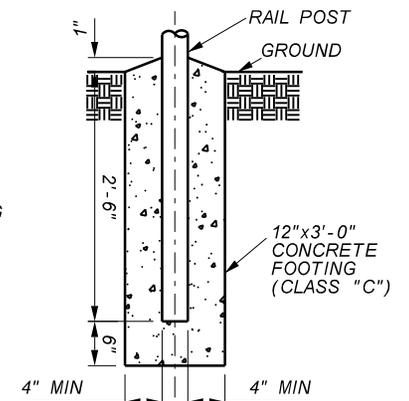
TYPE 1
ANCHOR BOLT CONNECTION



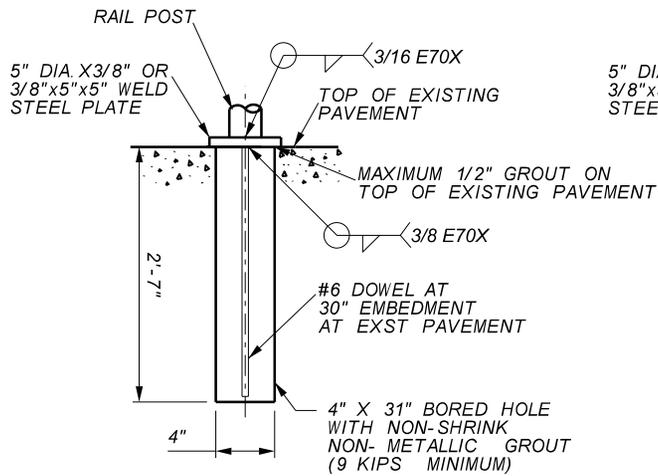
TYPE 2
PIPE SLEEVE CONNECTION



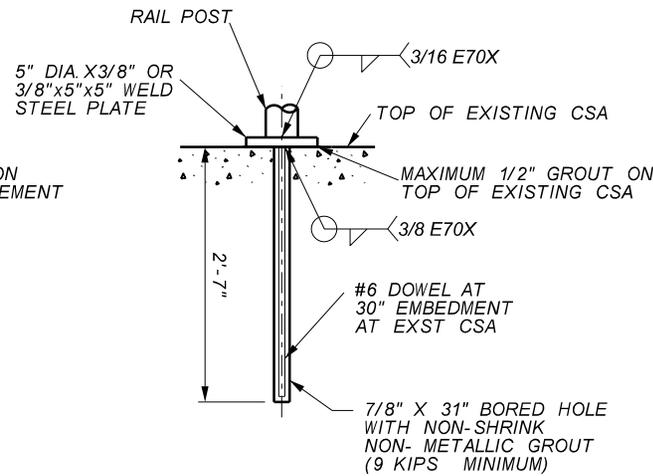
TYPE 3
EXPANSION BOLT CONNECTION
FOR EXISTING CONCRETE



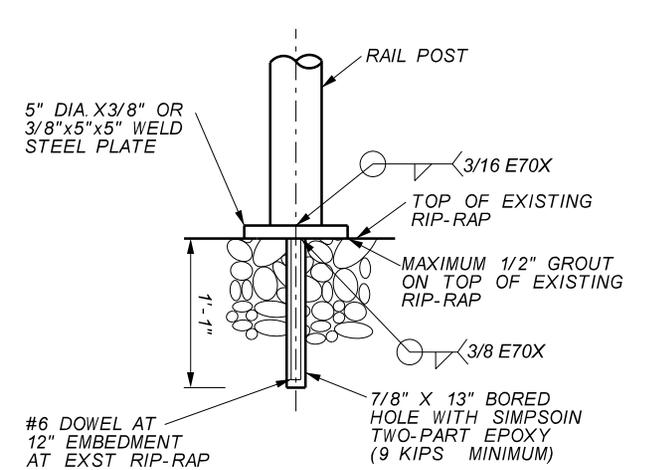
TYPE 4
RIP-RAP/ NATIVE GROUND
FOOTING



TYPE 5
PAVEMENT ANCHOR CONNECTION

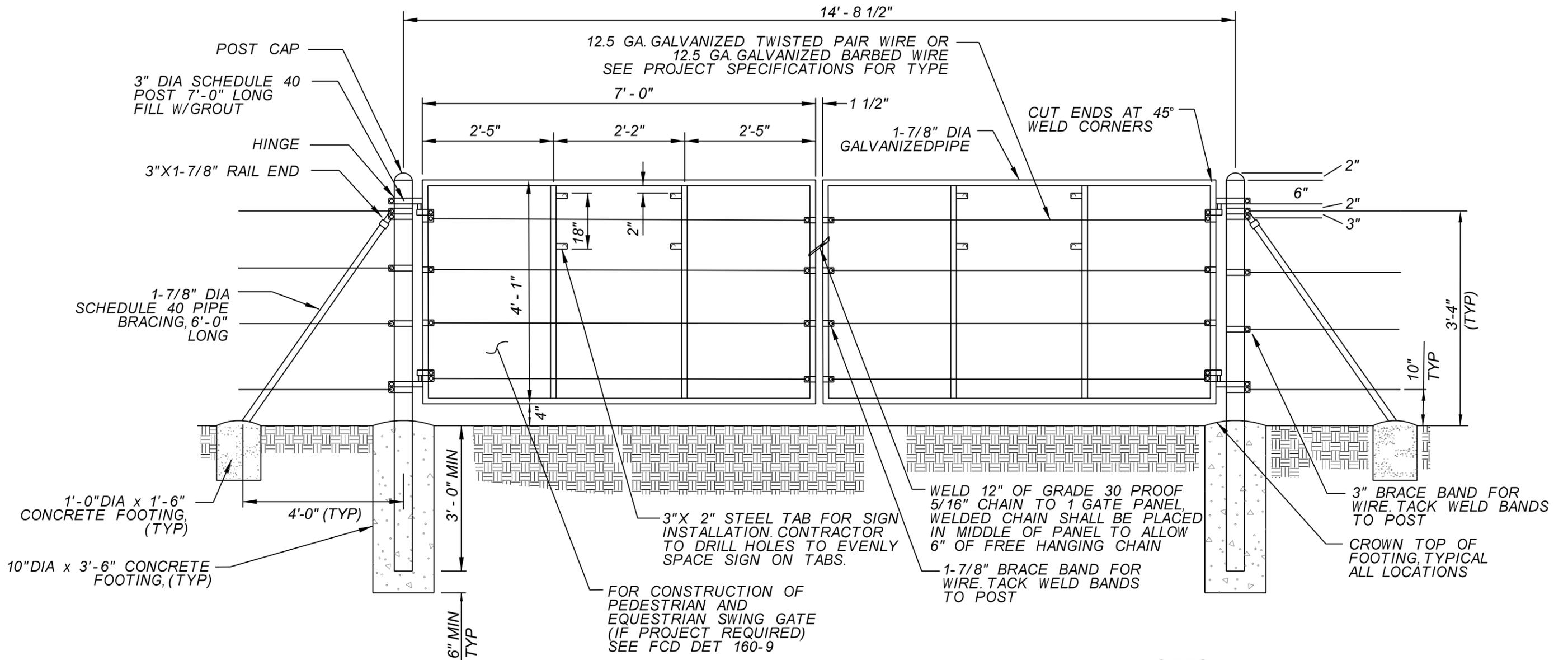


TYPE 6
CSA ANCHOR CONNECTION



TYPE 7
GROUTED RIP-RAP ANCHOR
CONNECTION



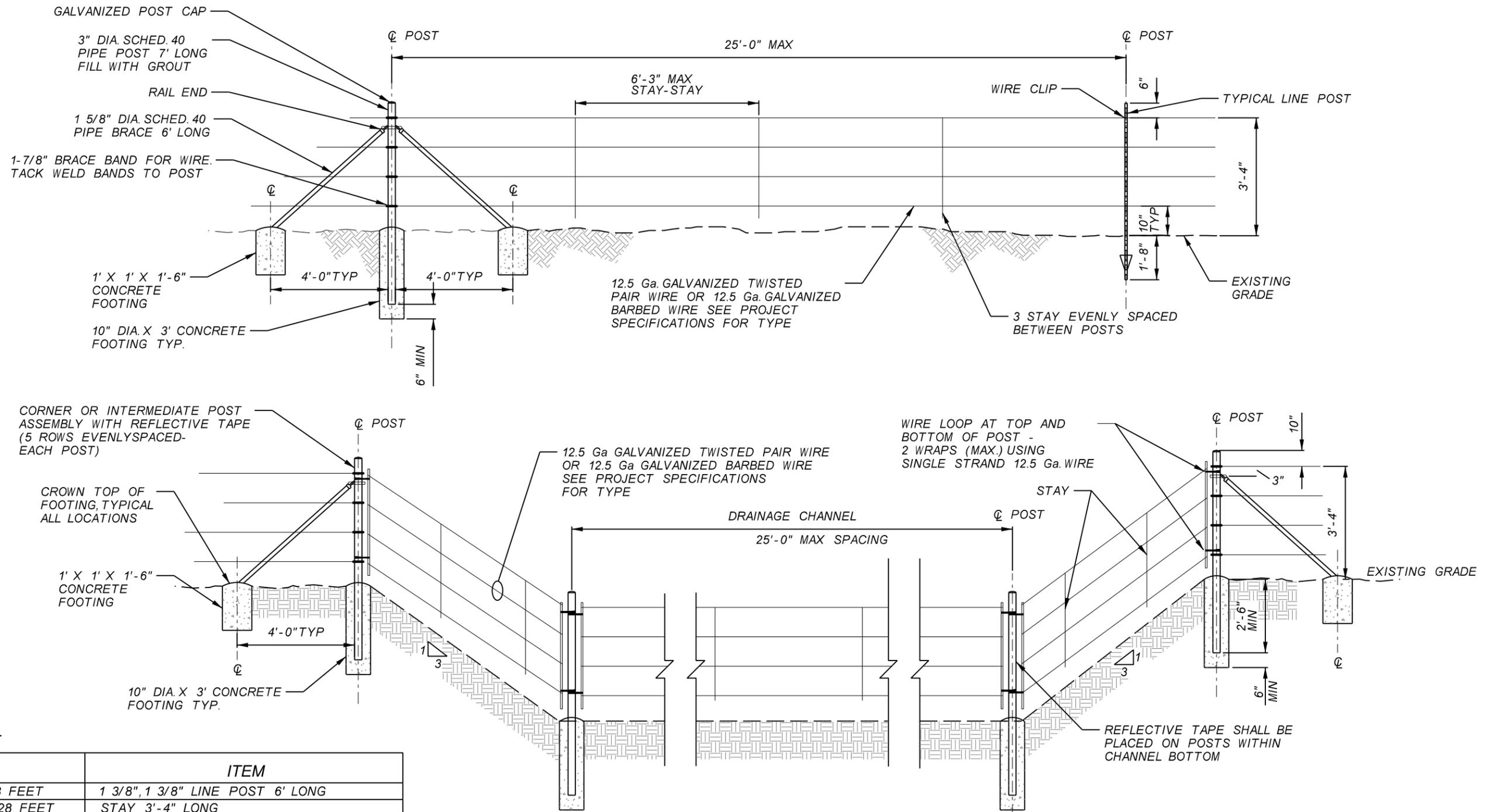


NOTES

- 1) ALL BOLTS, BRACE BANDS AND HINGES SHALL BE WELDED TO POSTS AND/ OR GATE PANELS
- 2) ALL WELDED JOINTS SHALL BE COATED WITH ZINC DUST-ZINC OXIDE COATING CONFORMING TO AASHTO M-36 PER MAG 771.4 UNLESS OTHERWISE SPECIFIED. GALVANIZED SURFACES THAT ARE FIELD OR SHOP CUT, BROKEN, BURNED OR ABRADED, THUS BREAKING THE GALVANIZING, SHALL BE REPAIRED AT ALL LOCATIONS WITH ZINC DUST-ZINC OXIDE COATING CONFORMING TO AASHTO M-36 TO THE SATISFACTION OF THE PROJECT ENGINEER. ALL WIRE SHALL CONFORM TO ADOT SPEC. SECTION 903-2.04 STANDARD FENCING WIRE.

MATERIAL LIST

| QTY. | ITEM |
|------|--|
| 2 | 84" HORIZONTAL POSTS WITH 45° ANGLE CUTS (BOTH ENDS) |
| 2 | 4'-1" VERTICAL POST OUTER FRAME WITH 45° ANGLE CUTS (BOTH ENDS) |
| 2 | 3'-9 1/4" INNER VERTICLE POSTS (NOTCH EACH END TO FIT) |
| 4 | 2"X3"X3/16" STEEL MOUNTING TABS (FOR SIGN ATTACHMENT) HOLES TO BE DRILLED IN FIELD |
| 5 | 12.5 GA. TWISTED PAIR WIRE OR 12.5 GA. BARBED WIRE |



MATERIAL LIST

| QTY. | ITEM |
|-----------------------|---|
| 1 FOR EVERY 23 FEET | 1 3/8", 1 3/8" LINE POST 6' LONG |
| 1 FOR EVERY 6.28 FEET | STAY 3'-4" LONG |
| 1 PER CORNER POST | 3" DIA. SCHED. 40 PIPE 7' LONG |
| 1 PER CORNER POST | 3" DIA. GALVANIZED POST CAP |
| 2 PER CORNER POST | 1 5/8" DIA. SCHED. 40 PIPE 7' LONG |
| 2 PER CORNER POST | 1 5/8" DIA. RAIL END |
| 2 PER CORNER POST | 3" DIA. BRACE BANK OR DBL BAND |
| 4 PER LINE POST | WIRE CLIPS |
| AS NEEDED | SMOOTH WIRE/BARBED WIRE, PER ADOT |
| AS NEEDED | CONCRETE FOR FOOTING (CLASS A CONCRETE) |
| AS NEEDED | 2" REFLECTIVE TAPE (ORANGE AND WHITE) |

NOTES

ALL WELDED JOINTS SHALL BE COATED WITH ZINC DUST-ZINC OXIDE COATING CONFORMING TO AASHTO M-36 PER MAG 771.4 UNLESS OTHERWISE SPECIFIED. GALVANIZED SURFACES THAT ARE FIELD OR SHOP CUT, BROKEN, BURNED OR ABRADED, THUS BREAKING THE GALVANIZING, SHALL BE REPAIRED AT ALL LOCATIONS WITH ZINC DUST-ZINC OXIDE COATING CONFORMING TO AASHTO M-36 TO THE SATISFACTION OF THE PROJECT ENGINEER.

NOTES (WIRE)

- 1) ALL WIRE SHALL CONFORM TO ADOT SPEC SECTION 903-2.04 12.5 GAUGE. STANDARD FENCING WIRE.
- 2) PUT SLIGHT SLOPE ON ALL FOOTINGS, USE 1-2-3 CONCRETE MIX
- 3) PLACE WIRE ON THE DOWNSTREAM SIDE OF POSTS WHEN BEING INSTALLED ON BREAK AWAY FENCE
- 4) WIRE ON ALL OTHER FENCING SHALL BE ON OUTSIDE OF POSTS, EXCEPT ON CURVES WHERE WIRE SHALL BE ON OUTSIDE OF CURVE
- 5) FASTEN WIRE TO LINE POSTS WITH WIRE CLIPS
- 6) FASTEN WIRE TO CORNER OR INTERMEDIATE POSTS WITH BRACE BANDS WHERE WIRE ENDS AT POST.
- 7) INTERMEDIATE POST ASSEMBLIES SHALL BE LOCATED AT INTERVALS NOT TO EXCEED 500 FEET



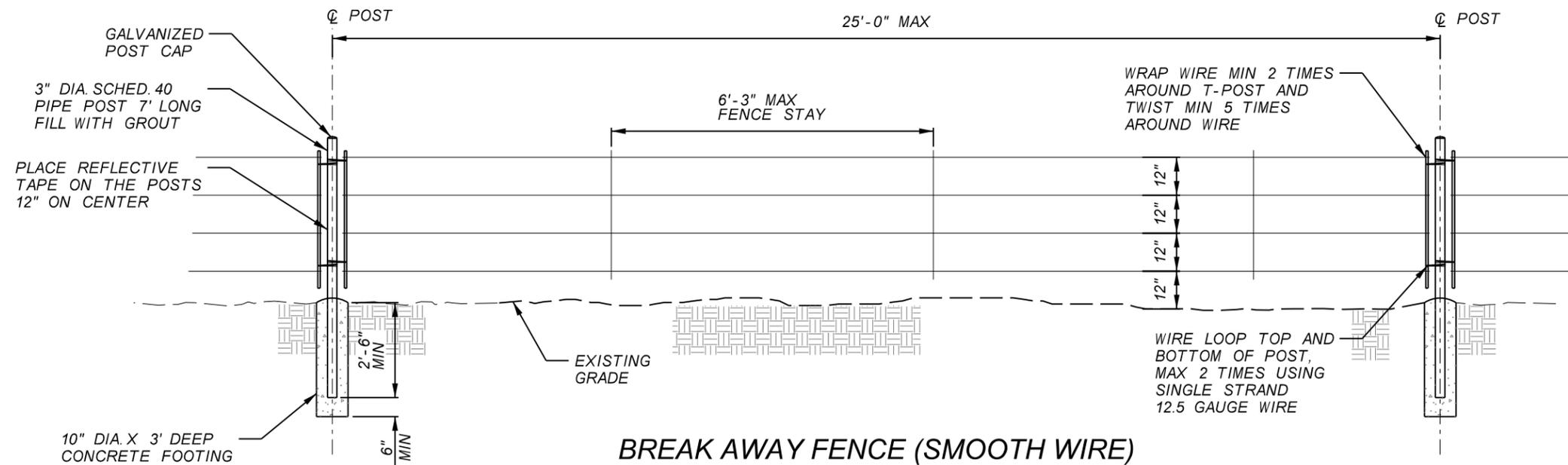
**FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY**

**WIRE FENCE
DETAIL**

APPROVED BY
C. Scott Vogel

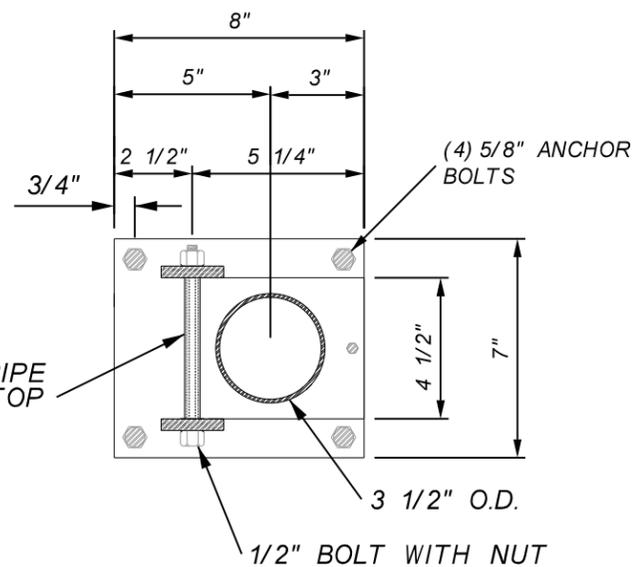
REVISION DATE
10/05/15

DETAIL NO.
FCD160-2



**BREAK AWAY FENCE (SMOOTH WIRE)
HINGE DETAIL**

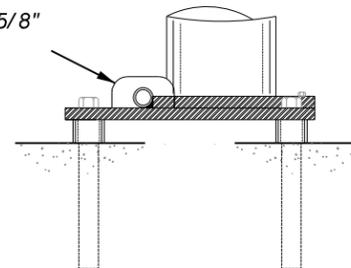
NTS



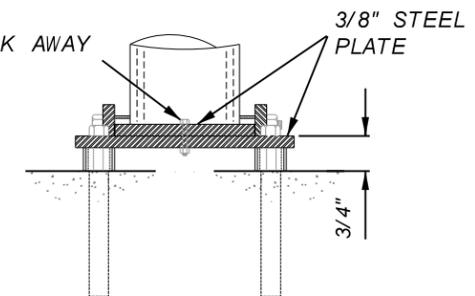
**BREAK AWAY FENCE (CHAIN LINK)
HINGE DETAIL**

NTS

3/8" PLATE W/ 5/8" HOLE, WELD TO BOTTOM PLATE



3/16" BREAK AWAY BOLT



MATERIAL LIST

| QTY. | ITEM |
|-----------------------|---|
| 2 PER SECTION | "T" POSTS 4'-6" LONG |
| 1 FOR EVERY 6.28 FEET | STAY 3'-4" LONG |
| 1 PER CORNER POST | 3" DIA. SCHED. 40 PIPE 7' LONG |
| 1 PER CORNER POST | 3" DIA. GALVANIZED POST CAP |
| 2 PER CORNER POST | 3" DIA. SCHED. 40 PIPE 7' LONG |
| 2 PER CORNER POST | 1 5/8" DIA. RAIL END |
| 2 PER CORNER POST | 3" DIA. BRACE BANK OR DBL BAND |
| 4 PER LINE POST | WIRE CLIPS |
| AS NEEDED | BARBLESS WIRE/BARBED WIRE, PER ADOT |
| AS NEEDED | CONCRETE FOR FOOTING (CLASS B CONCRETE) |
| AS NEEDED | 2" REFLECTIVE TAPE (ORANGE AND WHITE) |

NOTES

- 1) ALL WELDED JOINTS SHALL BE COATED WITH ZINC DUST-ZINC OXIDE COATING CONFORMING TO AASHTO M-36 PER MAG 771.4 UNLESS OTHERWISE SPECIFIED.
- 2) GALVANIZED SURFACES THAT ARE FIELD OR SHOP CUT, BROKEN, BURNED OR ABRADED, THUS BREAKING THE GALVANIZING, SHALL BE REPAIRED AT ALL LOCATIONS WITH ZINC DUST-ZINC OXIDE COATING CONFORMING TO AASHTO M-36 TO THE SATISFACTION OF THE PROJECT ENGINEER.

NOTES (WIRE)

- 1) ALL WIRE SHALL CONFORM TO ADOT SPECIFICATION SECTION 903-2.04 12.5 GAUGE. STANDARD FENCING WIRE.
- 2) PUT SLIGHT SLOPE ON ALL FOOTINGS, USE 1-2-3 CONCRETE MIX
- 3) PLACE WIRE ON THE DOWNSTREAM SIDE OF POSTS WHEN BEING INSTALLED ON BREAK AWAY FENCE
- 4) WIRE ON ALL OTHER FENCING SHALL BE ON OUTSIDE OF POSTS, EXCEPT ON CURVES WHERE WIRE SHALL BE ON OUTSIDE OF CURVE
- 5) FASTEN WIRE TO LINE POSTS WITH WIRE CLIPS
- 6) FASTEN WIRE TO CORNER OR INTERMEDIATE POSTS WITH BRACE BANDS WHERE WIRE ENDS AT POST.
- 7) INTERMEDIATE POST ASSEMBLIES SHALL BE LOCATED AT INTERVALS NOT TO EXCEED 500 FEET



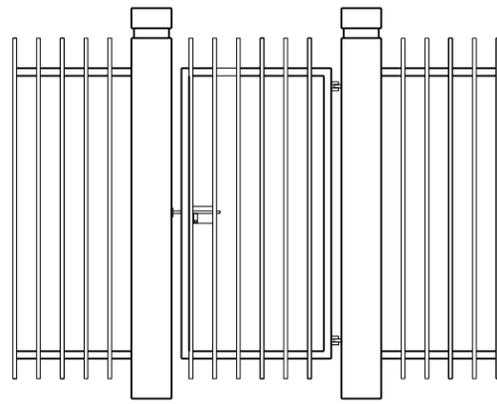
**FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY**

**BREAK AWAY FENCE
DETAIL**

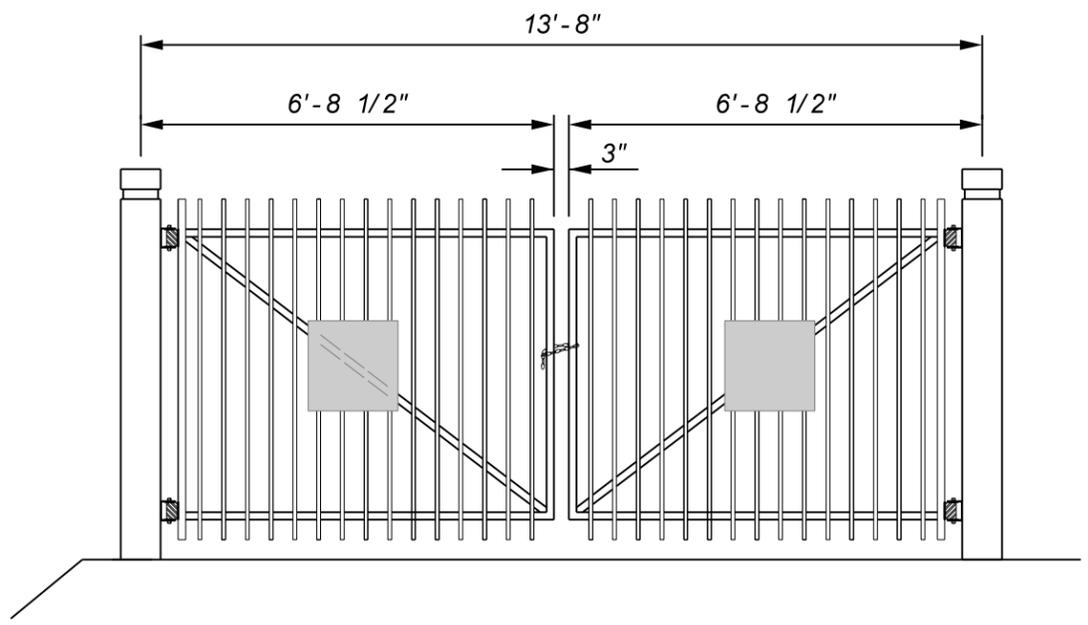
APPROVED BY
C. Scott Vogel

REVISION DATE
10/05/15

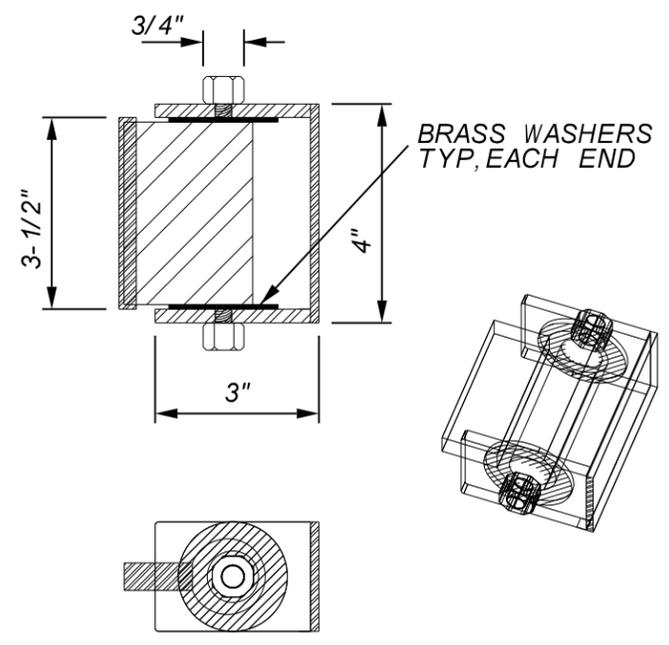
DETAIL NO.
FCD160-3



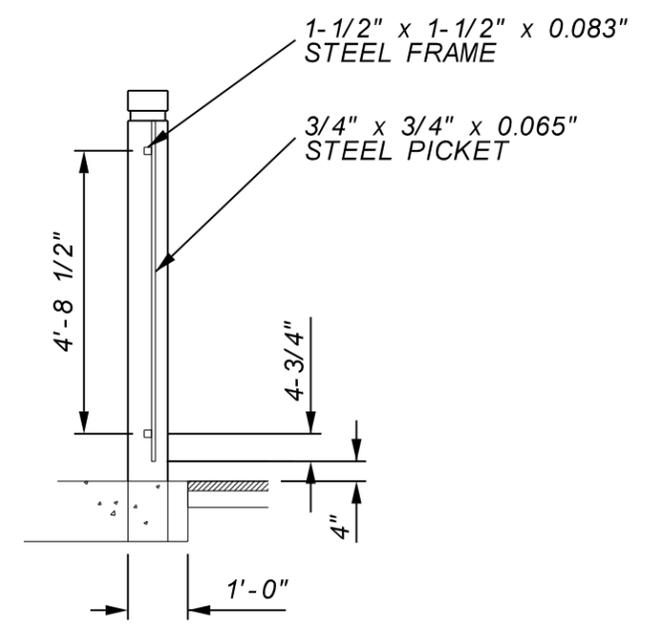
TYPICAL GATE ELEVATION
(PERSON ACCESS)



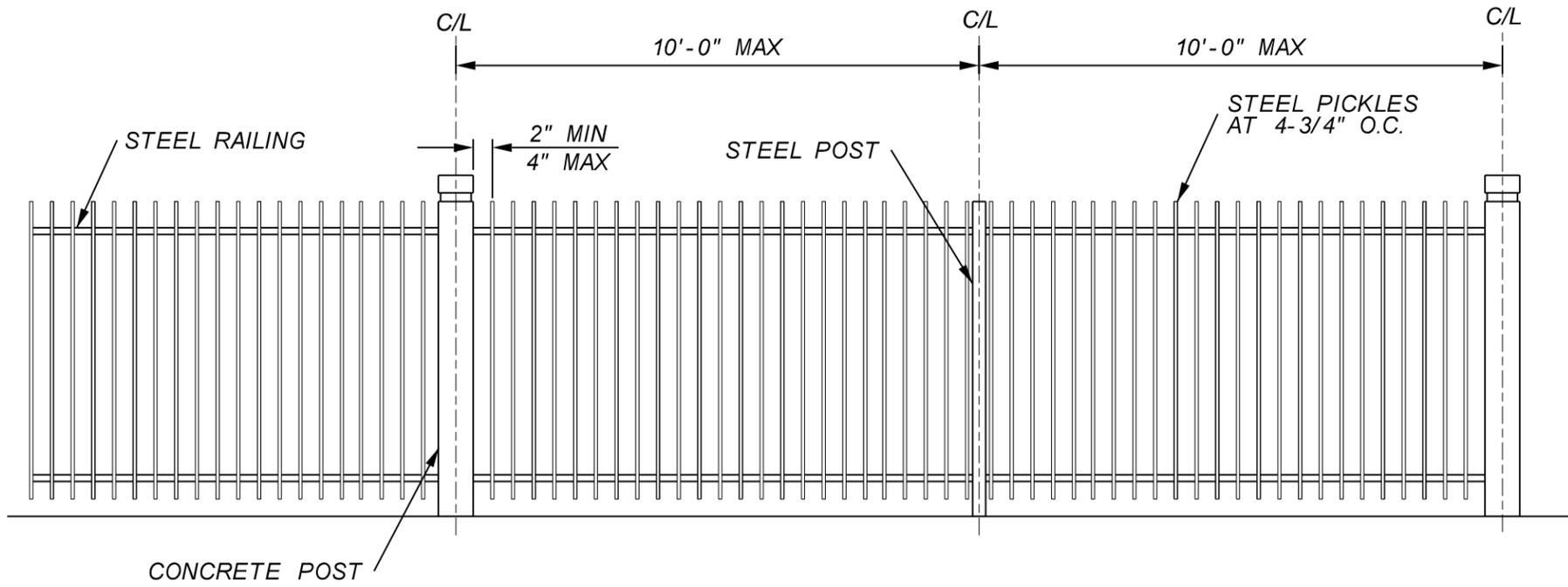
TYPICAL GATE ELEVATION
(VEHICLE ACCESS)



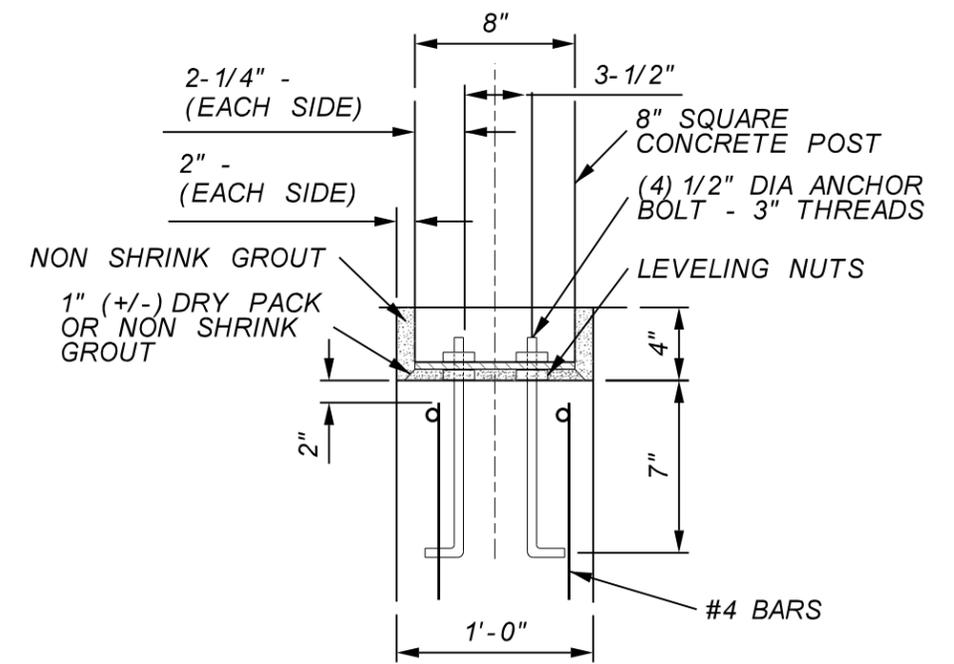
GATE HINGE



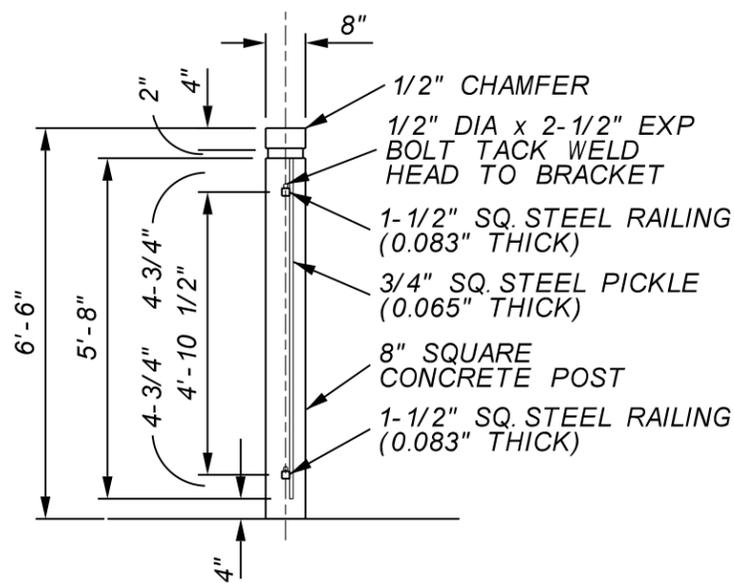
GATE POST



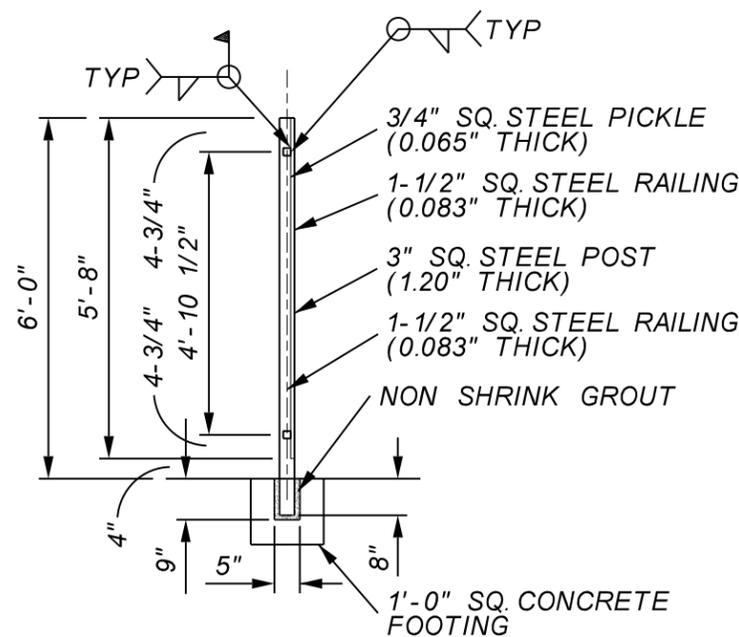
FENCE ELEVATION
NTS



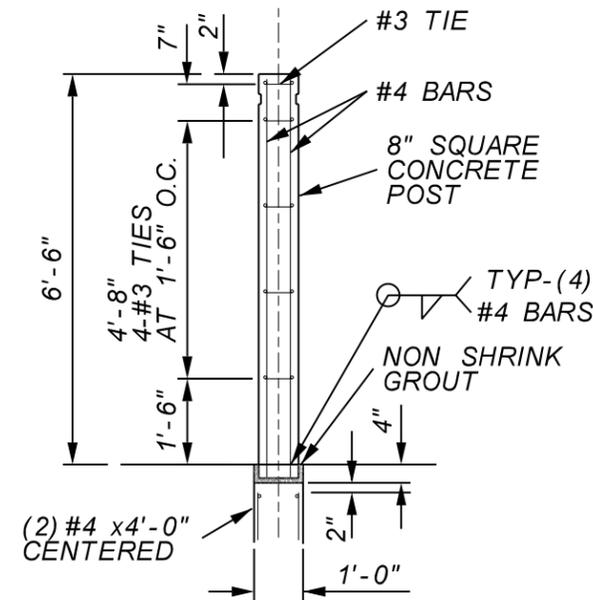
CONCRETE POST ATTACHMENT
NTS



CONCRETE POST
NTS



STEEL POST
NTS



CONCRETE POST ATTACHMENT
NTS

NOTES

- 1) ALL POSTS LOCATED ACROSS SPILLWAY WINGS AND INVERT SHALL BE STEEL POSTS AND EQUALLY SPACED WITH A MAXIMUM SPACING OF 10 FT
- 2) ALL STEEL POSTS AND PICKETS SHALL HAVE STEEL CAPS WELDED TO THE TOP ENDS
- 3) CONCRETE POSTS DESIGNED TO BE PLACED ON REINFORCED CONCRETE WALL, OTHER FOOTING DESIGNS SHALL BE PRE-APPROVED BY DISTRICT STAFF



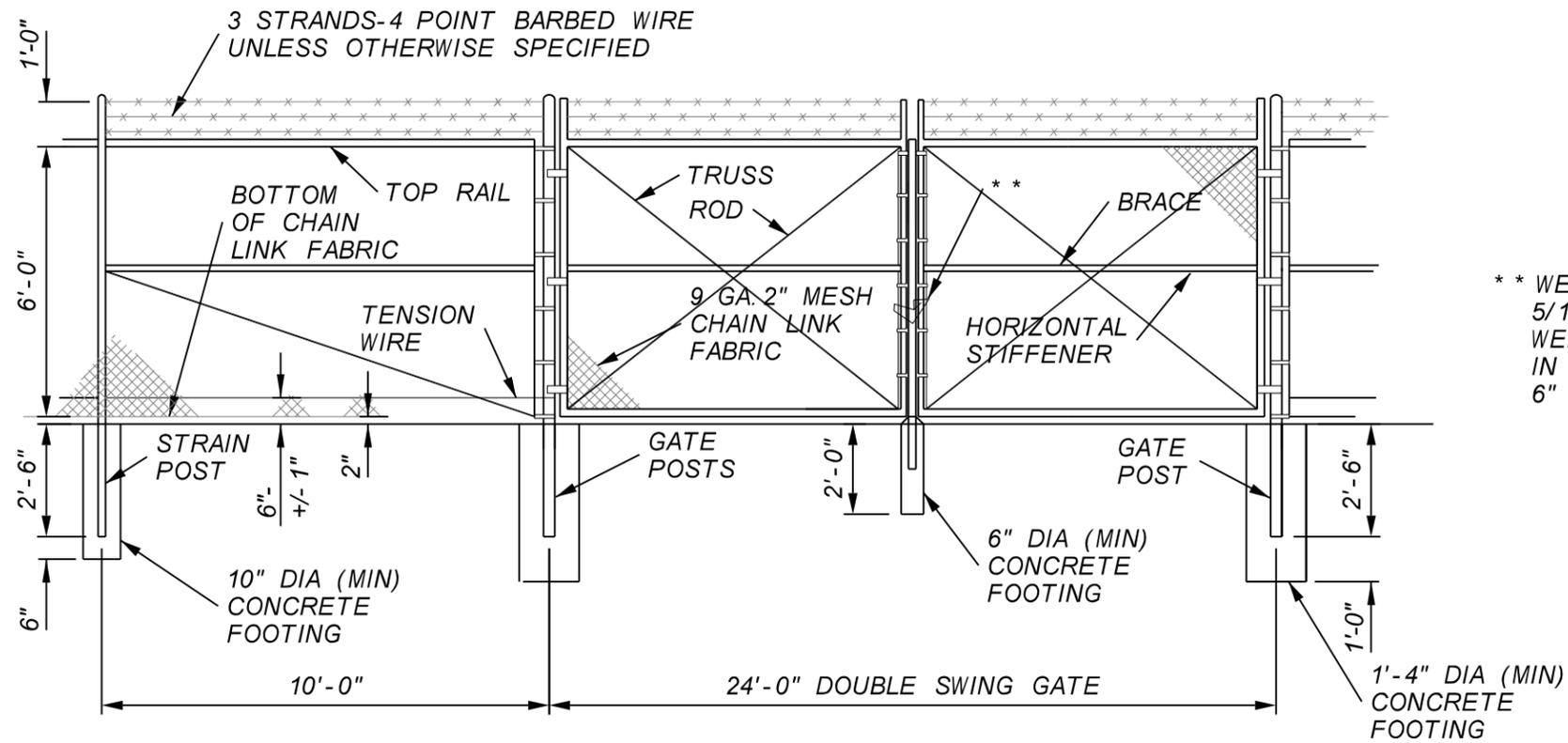
FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY

WROUGHT IRON
FENCE DETAIL

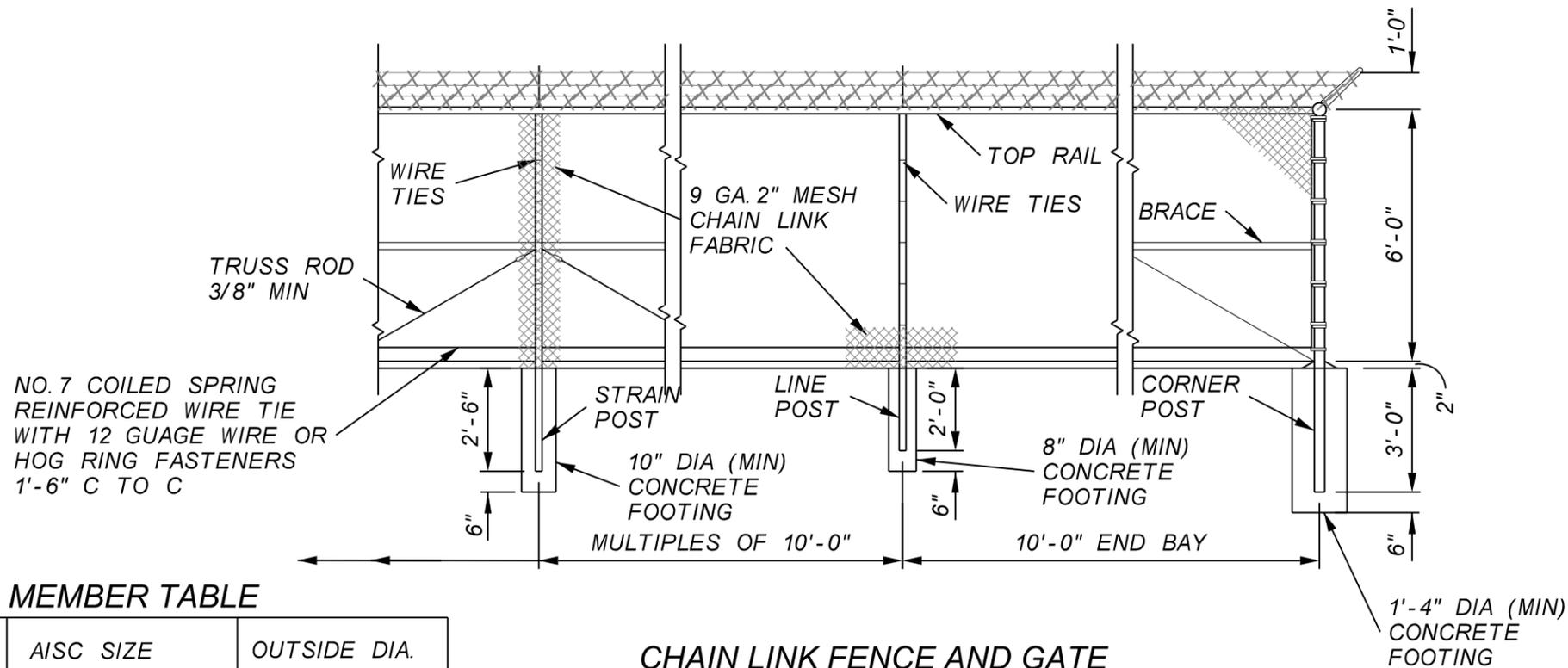
APPROVED BY
C. Scott Vogel

REVISION DATE
10/05/15

DETAIL NO.
FCD160-5



** WELD 12" OF GRADE 30 PROOF 5/16" CHAIN TO 1 GATE PANEL, WELDED CHAIN SHALL BE PLACED IN MIDDLE OF PANEL TO ALLOW 6" OF FREE HANGING CHAIN



NOTES

- 1) ALL WELDED JOINTS SHALL BE COATED WITH ZINC DUST-ZINC OXIDE COATING CONFORMING TO AASHTO M-36 PER MAG 771.4, UNLESS OTHERWISE SPECIFIED
- 2) GALVANIZED SURFACES THAT ARE FIELD OR SHOP CUT, BROKEN, BURNED OR ABRADED SHALL BE REPAIRED WITH ZINC DUST-ZINC OXIDE COATING CONFORMING TO AASHTO M-36 AND THE SATISFACTION OF THE PROJECT ENGINEER
- 3) CHAIN LINK FENCE FABRIC, FRAMEWORK FITTINGS AND HARDWARE SHALL CONFORM TO M.A.G. SPEC 772 TYPE-C
- 4) ALL EXPOSED EDGES SHALL BE SMOOTHED
- 5) ALL BOLT HEADS SHALL BE FACING INSIDE
- 6) ALL CONCRETE SHALL BE CLASS 'C' PER M.A.G. SECT. 725.
- 7) STRAIN POSTS SHALL BE SPACED AT 500' MAXIMUM SPACING.
- 8) BOTH CORNER AND STRAIN POSTS SHALL HAVE STRAIN PANELS.
- 9) ALL POSTS SHALL BE CAPPED.

MEMBER TABLE

| MEMBER | AISC SIZE | OUTSIDE DIA. |
|-------------|-----------------|-----------------|
| CORNER POST | 2-1/2" | 2.875" |
| LINE POST | 1-1/2" | 1.900" |
| STRAIN POST | 1-1/2" | 1.900" |
| BRACE | 1-1/4" | 1.666" |
| STRETCH BAR | 3/16"x3/4" FLAT | 3/16"x3/4" FLAT |
| GATE POST | 3-1/2" | 4.000" |
| TOP RAIL | 1-1/4" | 1.666" |

CHAIN LINK FENCE AND GATE
NTS



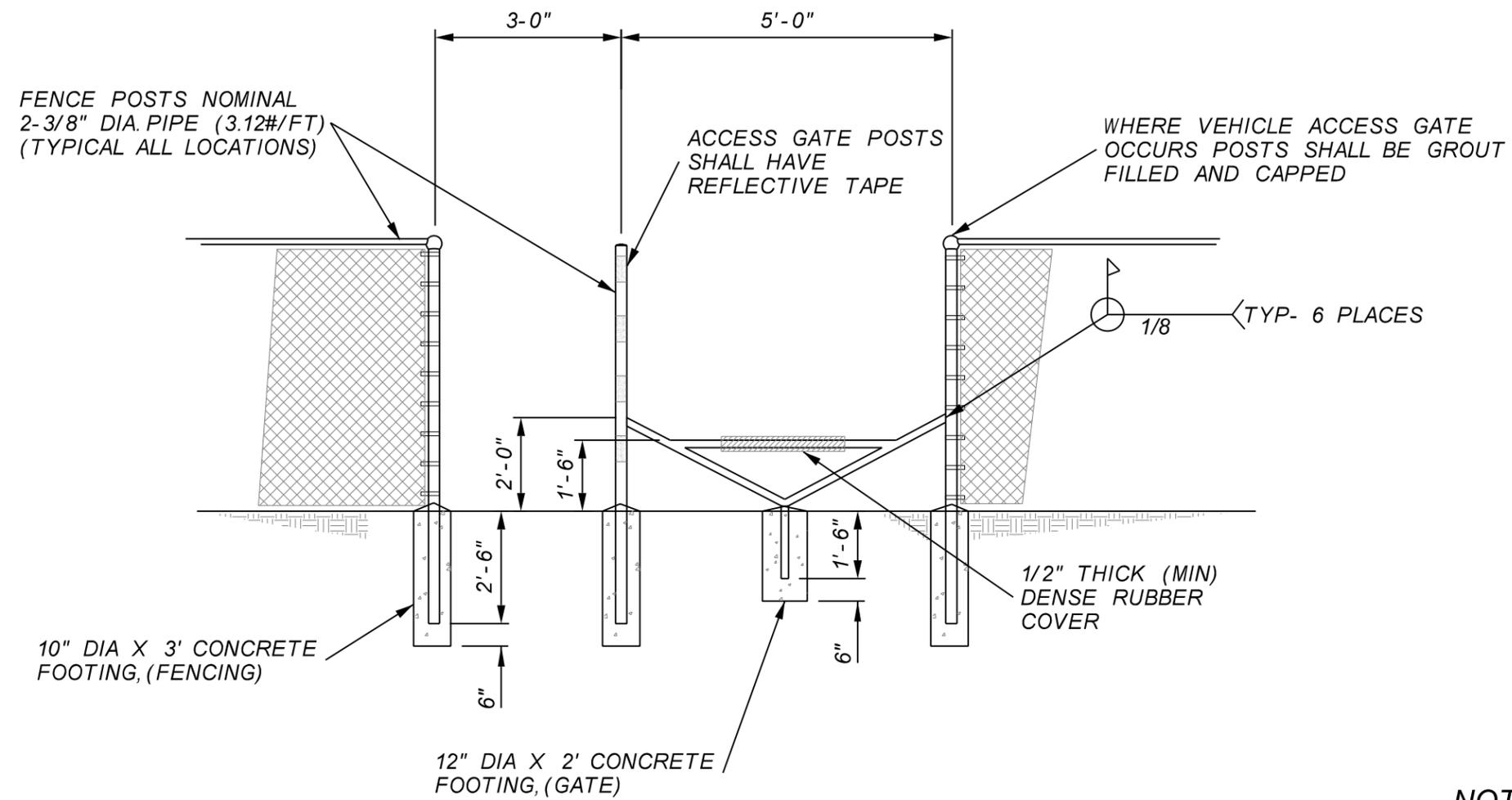
FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY

CHAIN LINK FENCE
AND GATE DETAIL

APPROVED BY
C. Scott Vogel

REVISION DATE
10/05/15

DETAIL NO.
FCD160-6



**PEDESTRIAN AND EQUESTRIAN
GATE IN FENCE LINE**

NTS

NOTES

- 1) ALL WELDED JOINTS SHALL BE COATED WITH ZINC DUST-ZINC OXIDE COATING CONFORMING TO AASHTO M-36 PER MAG 771.4 UNLESS OTHERWISE SPECIFIED
- 2) GALVANIZED SURFACES THAT ARE FIELD OR SHOP CUT, BROKEN, BURNED OR ABRADED SHALL BE REPAIRED WITH ZINC DUST-ZINC OXIDE COATING CONFORMING TO AASHTO M-36 AND THE SATISFACTION OF THE PROJECT ENGINEER
- 3) CHAIN LINK FENCE FABRIC, FRAMEWORK FITTINGS AND HARDWARE SHALL CONFORM TO M.A.G. SPEC 772 TYPE-C
- 4) ALL EXPOSED EDGES SHALL BE SMOOTHED
- 5) ALL BOLT HEADS SHALL BE FACING INSIDE



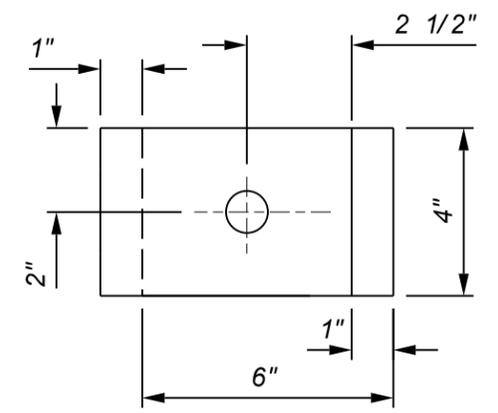
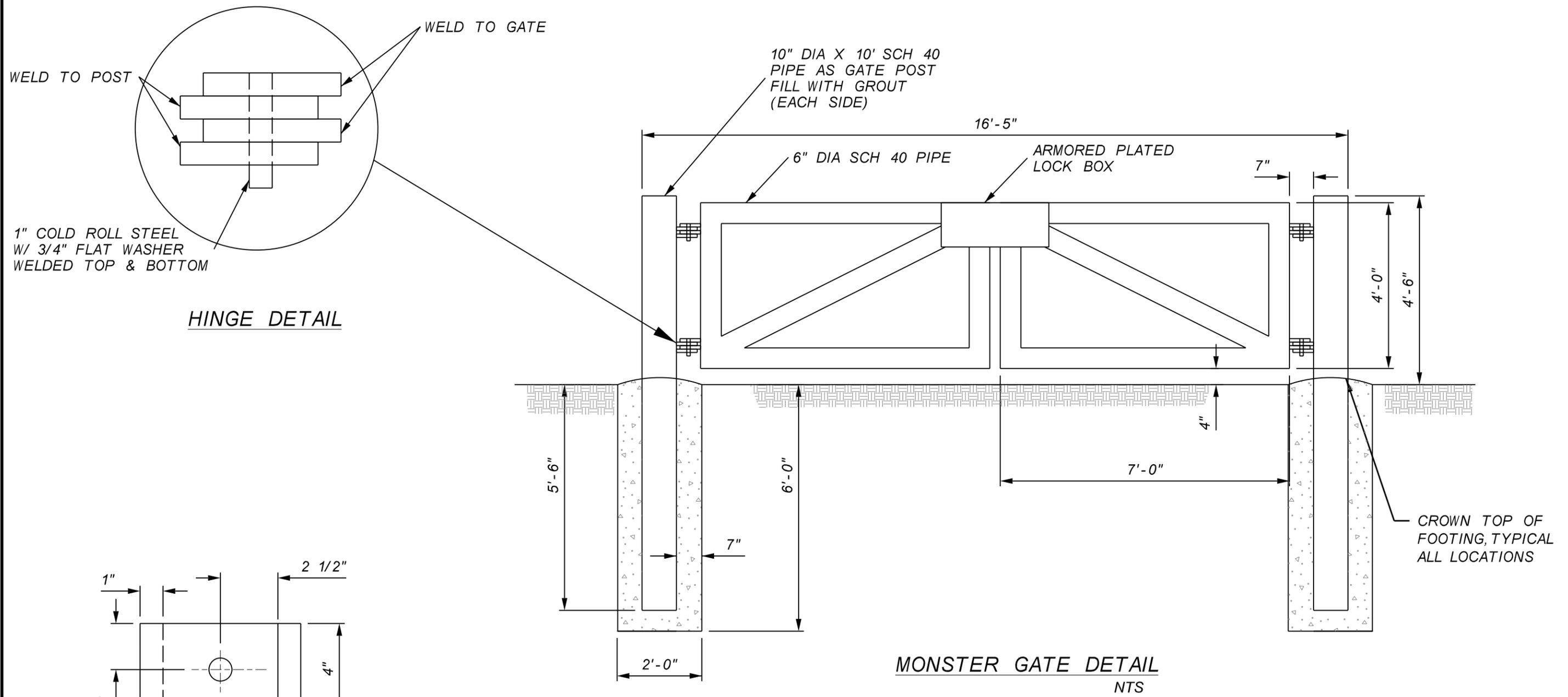
FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY

EQUESTRIAN GATE
DETAIL

APPROVED BY
C. Scott Vogel

REVISION DATE
10/05/15

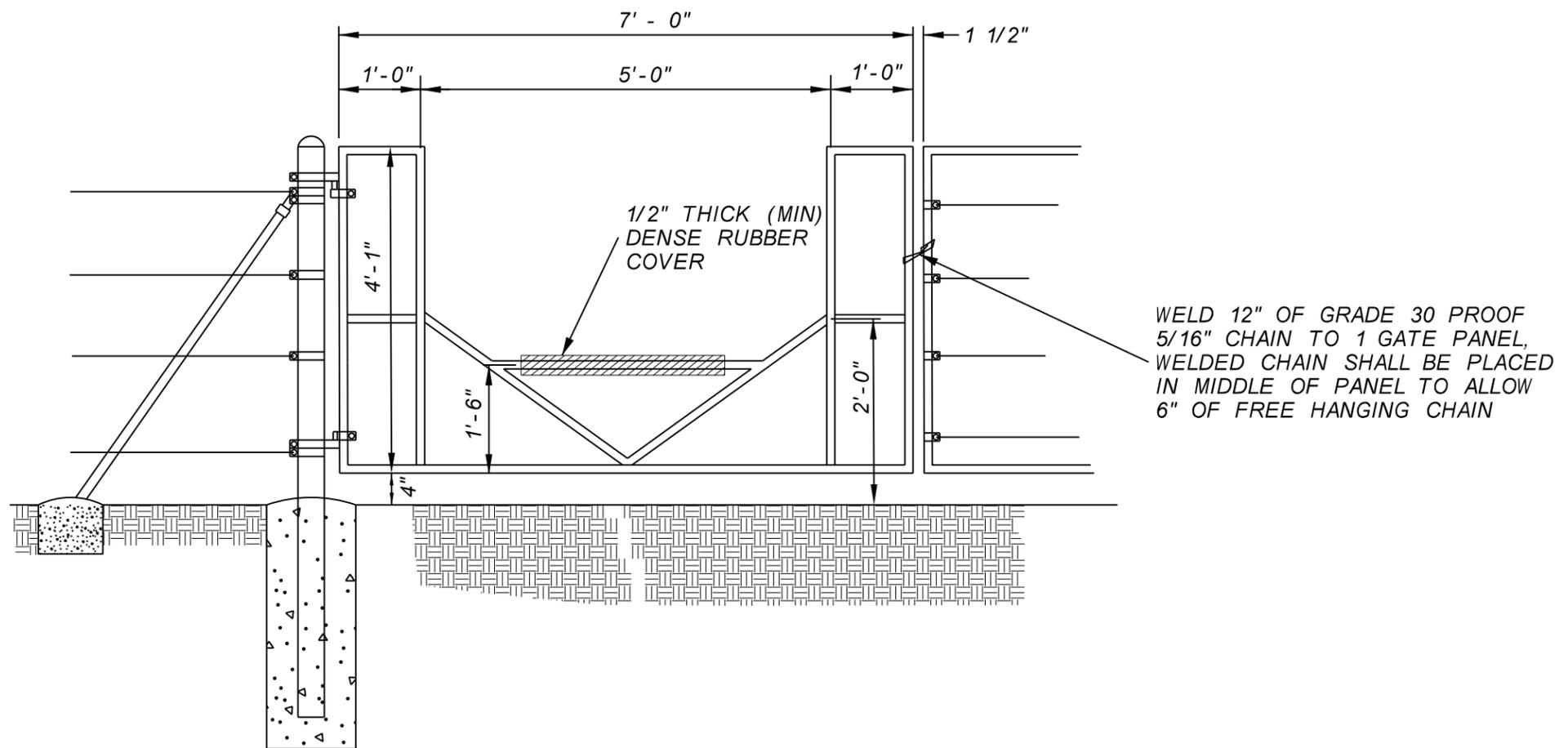
DETAIL NO.
FCD160-7



NOTES

1. VERTICAL GAPS WILL HAVE 3" SPACE
2. THERE WILL BE A 4" GROUND CLEARANCE UNDER GATES

| | | | | | |
|--|--|--------------------------------|--|-----------------------------------|--------------------------------|
| | <p>FLOOD CONTROL DISTRICT OF MARICOPA COUNTY</p> | <p>MONSTER GATE DETAIL</p> | <p>APPROVED BY <i>C. Scott Vogel</i></p> | <p>REVISION DATE 10/05/15</p> | <p>DETAIL NO. FCD160-8</p> |
|--|--|--------------------------------|--|-----------------------------------|--------------------------------|



PEDESTRIAN AND EQUESTRIAN SWING GATE

NOTES

- 1) FOR STANDARD GATE CONSTRUCTION SEE FCD DET 160-1
- 2) FOR FENCE CONSTRUCTION SEE FCD DET 160-2



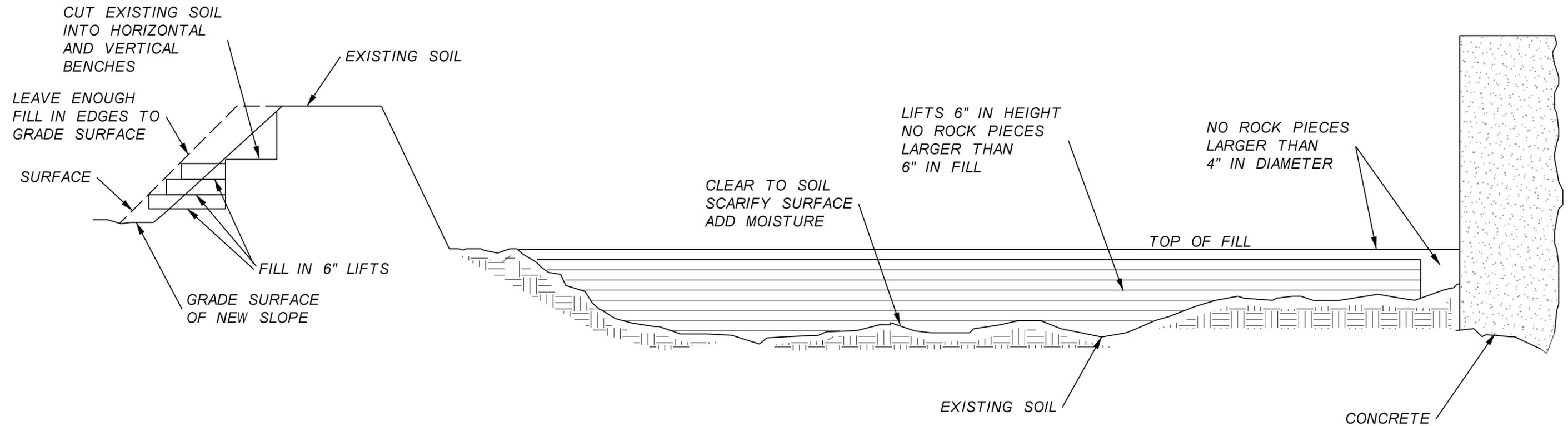
FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY

EQUESTRIAN SWING
GATE DETAIL

APPROVED BY
C. Scott Vogel

REVISION DATE
10/05/15

DETAIL NO.
FCD160-9



PLACING FILL AGAINST
EXISTING EMBANKMENTS

- 1.) BENCH HILLSIDE INTO HORIZONTAL A VERTICAL CUTS.
- 2.) FILL IN 6" LIFTS, LEAVING ENOUGH MATERIAL ON EDGES TO GRADE SLOPE SURFACE.

PLACING FILL IN DEPRESSION

- 1.) CLEAR AREA OF TOPSOIL A VEGETATION
- 2.) SCARIFY TO 6" DEPTH ADD MOISTURE
- 3.) FILL IN 6" LIFTS

PLACING FILL AROUND
STRUCTURES

- 1.) DON'T FILL AROUND FRESH CONCRETE, ALLOW IT TO CURE AT LEAST 7 DAYS BEFORE FILLING.
- 2.) WITHIN 1' OF STRUCTURE OR SURFACE NO ROCK SHALL EXCEED 4" IN DIAMETER.

NOTES

- 1) PLACE BACKFILL IN LIFTS OF HEIGHT WHICH CAN BE EFFECTIVELY COMPACTED, IN NO CASE LARGER THAN 6"
- 2) IF MATERIAL IS ROCKY, MIX WITH FINER MATERIAL TO FILL VOIDS.
- 3) TO ACHIEVE COMPACTION; SOIL SHOULD HAVE OPTIMUM MOISTURE, (SOIL CAN BE FORMED INTO A BALL WHICH WILL FALL APART UPON HITTING THE GROUND WHEN DROPPED FROM A HEIGHT OF 3'.)
- 4) COMPACT WITH NECESSARY EQUIPMENT.
- 5) SURFACE SHOULD BE PRESENTABLE AND BLEND WITH EXISTING AREA. GRADE SURFACE TO DRAIN.
- 6) COMPACT TO 95% OF STANDARD PROCTOR WITH DENSITY TESTS ON EVERY OTHER LIFT



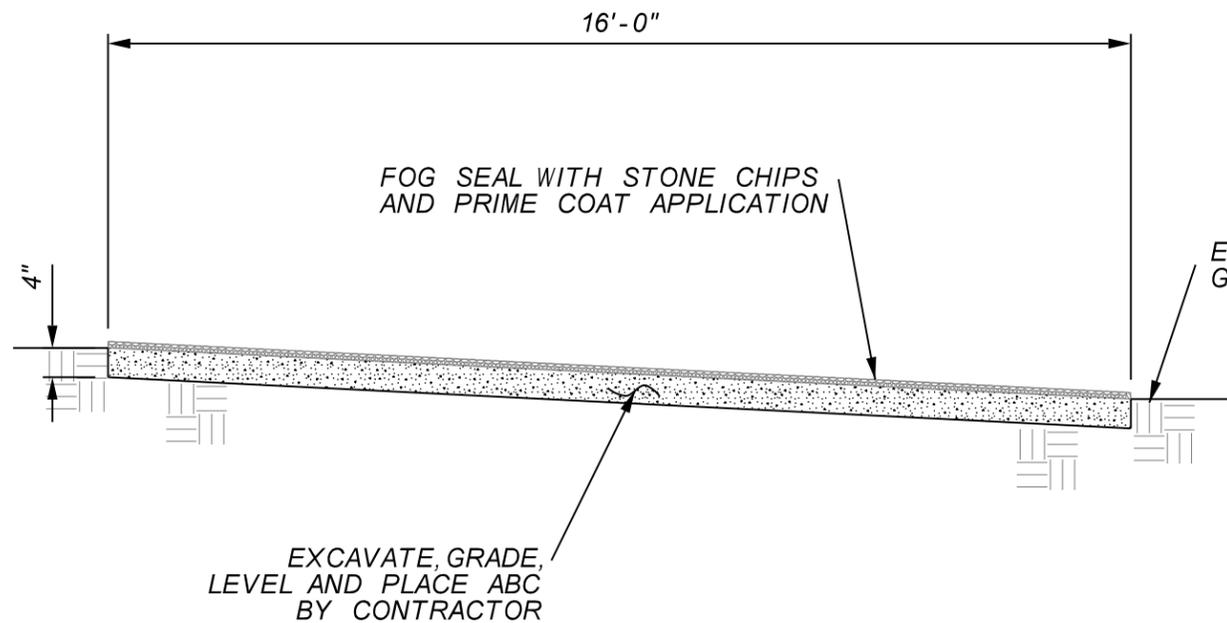
FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY

EMBANKMENT BACKFILLING
DETAIL

APPROVED BY
C. Scott Vogel

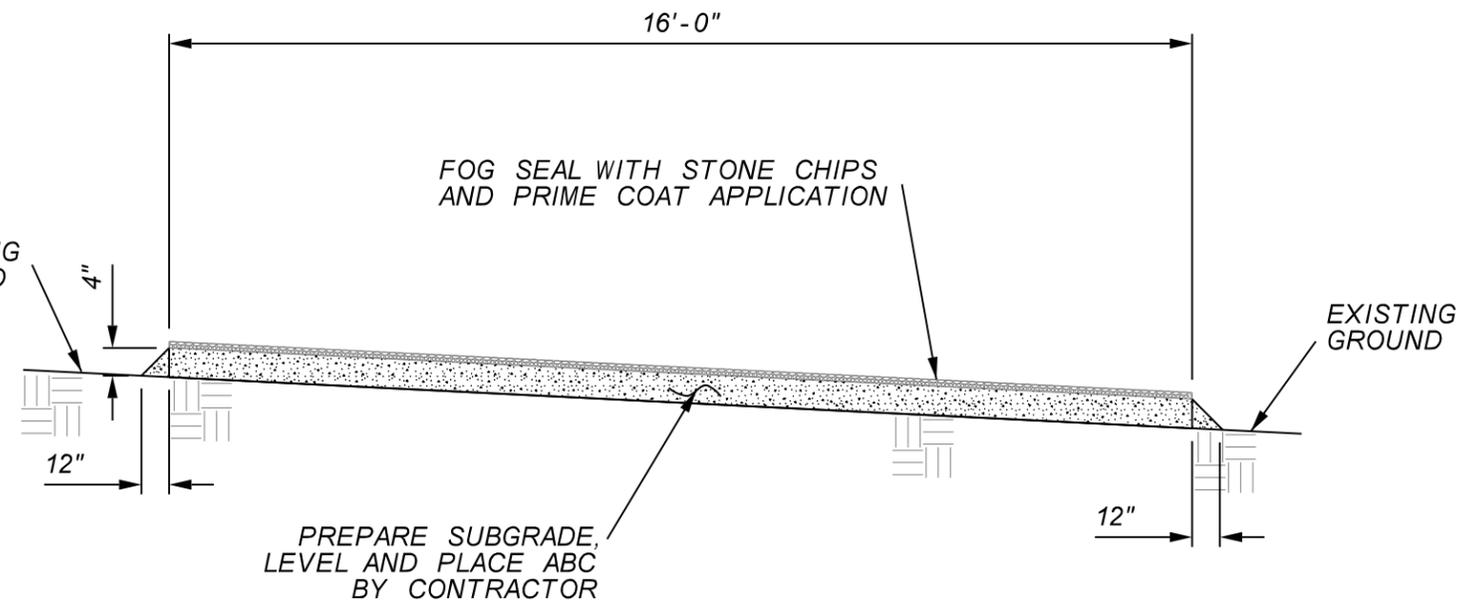
REVISION DATE
10/05/15

DETAIL NO.
FCD200-1



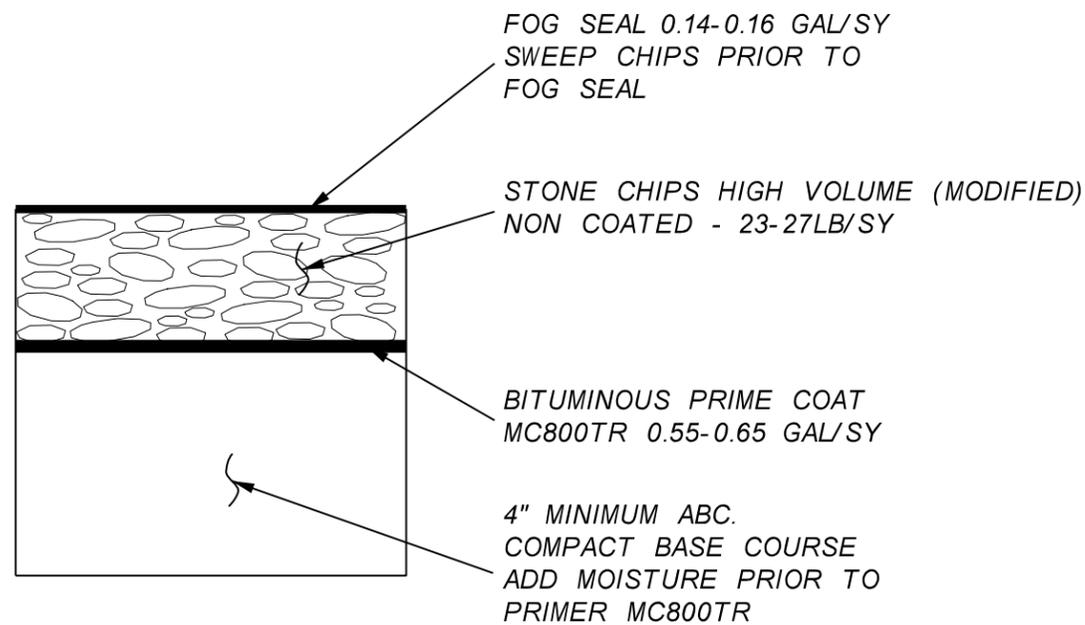
TYPICAL MAINTENANCE ROAD PAVING CONSTRUCTION (WITH EXCAVATION)

NTS



TYPICAL MAINTENANCE ROAD PAVING CONSTRUCTION (WITHOUT EXCAVATION)

NTS



TYPICAL MAINTENANCE ROAD PAVING CONSTRUCTION SECTION

NTS

NOTES

- 1) MAXIMUM CROSS SLOPE SHALL BE 2%
- 2) CROSS SLOPE SHALL DRAIN TOWARD UPSTREAM SIDE ON ALL DAMS AND FLOOD RETARDING STRUCTURES (FRS)



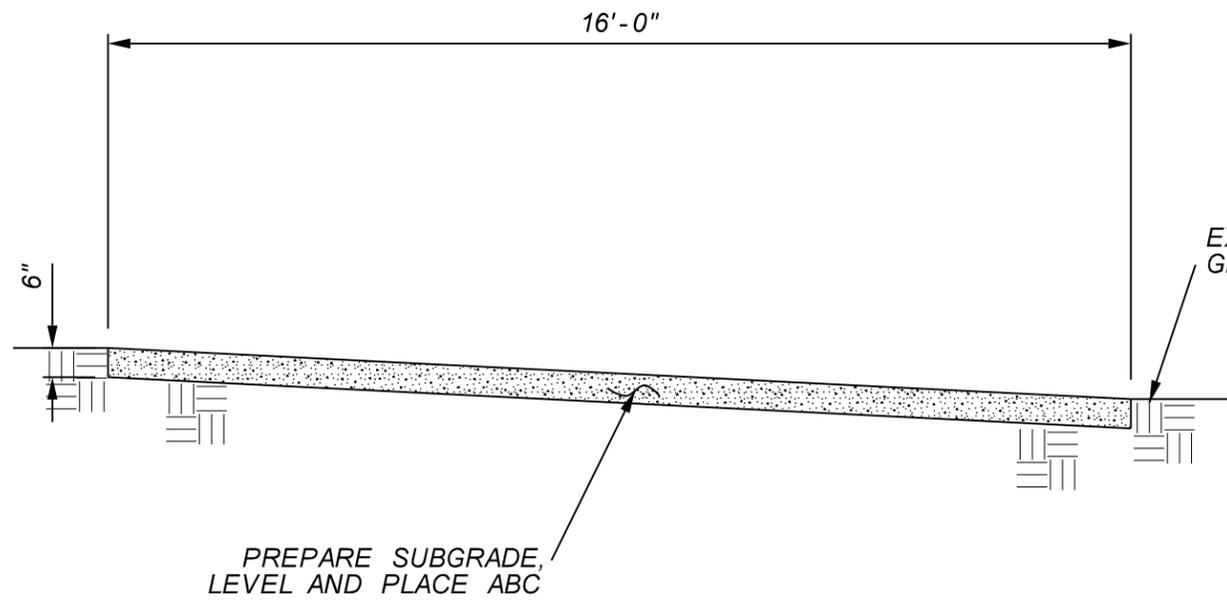
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

MAINTENANCE ROAD (CHIP SEAL) DETAIL

APPROVED BY
C. Scott Vogel

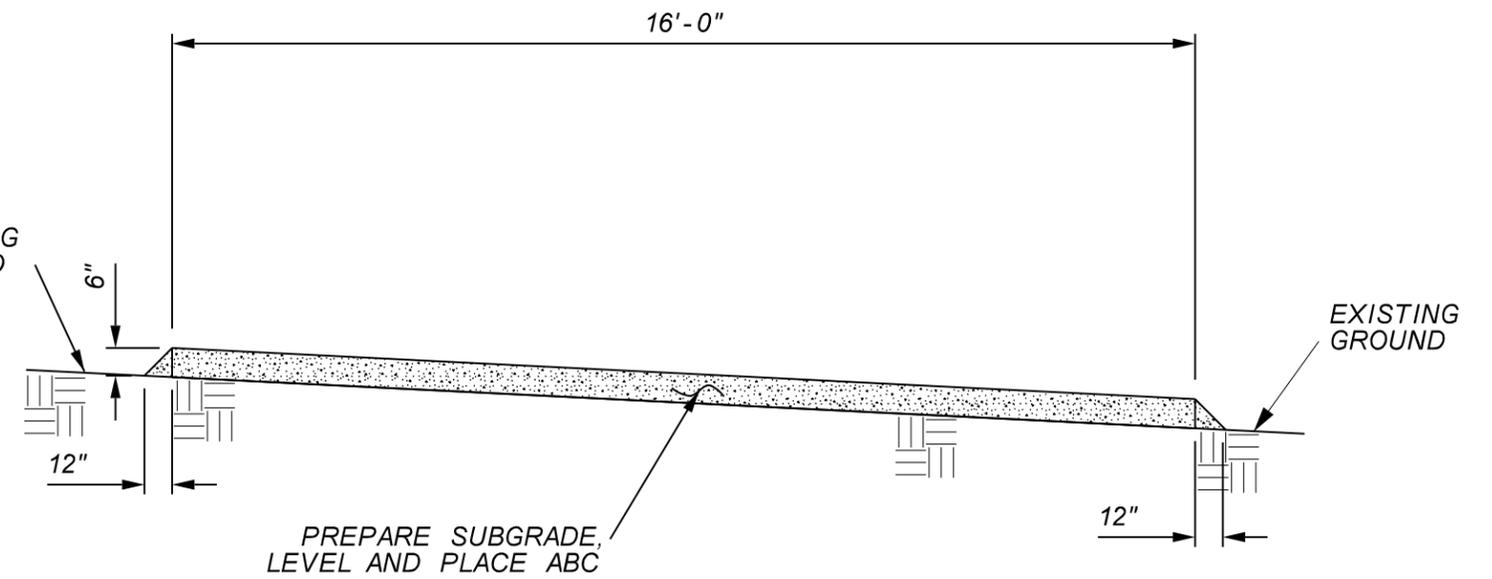
REVISION DATE
10/05/15

DETAIL NO.
FCD201-1



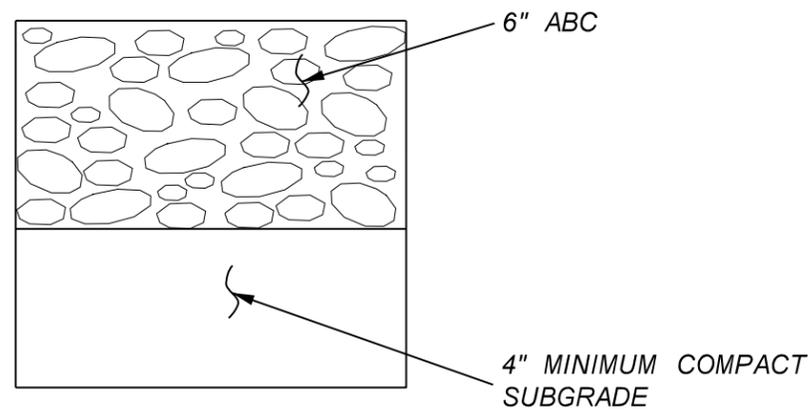
ABC MAINTENANCE ROAD
(WITH EXCAVATION)

NTS



ABC MAINTENANCE ROAD
(WITHOUT EXCAVATION)

NTS



ABC MAINTENANCE ROAD SECTION

NTS

NOTES

- 1) MAXIMUM CROSS SLOPE SHALL BE 2%
- 2) CROSS SLOPE SHALL DRAIN TOWARD UPSTREAM SIDE ON ALL DAMS AND FLOOD RETARDING STRUCTURES (FRS)
- 3) SUBGRADE GRADING PER M.A.G. SPECIFICATION 301
- 4) 6" ABC PER M.A.G. SPECIFICATION 702



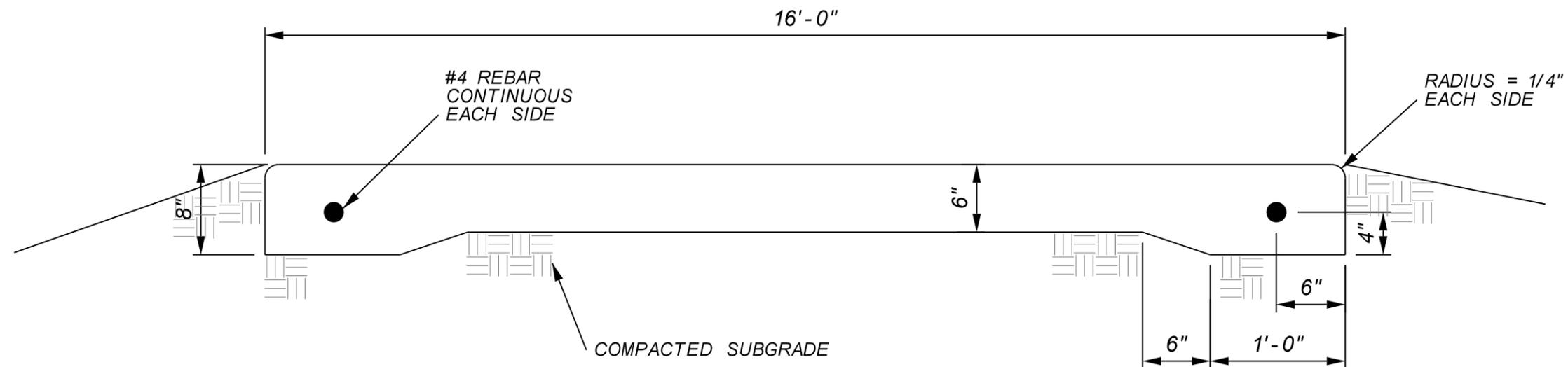
FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY

MAINTENANCE ROAD
(ABC) DETAIL

APPROVED BY
C. Scott Vogel

REVISION DATE
10/05/15

DETAIL NO.
FCD201-2



SECTION VIEW
NTS

NOTES

- 1) MAXIMUM CROSS SLOPE SHALL BE 2%
- 2) CROSS SLOPE SHALL DRAIN TOWARD UPSTREAM SIDE ON ALL DAMS AND FLOOD RETARDING STRUCTURES (FRS)
- 3) CONCRETE SHALL BE CLASS "A" 3000PSI BROOM FINISH
- 4) CONSTRUCTION JOINTS SHALL BE 10'-0" MAX WITH EXPANSION JOINTS AT 50'-0" MAX



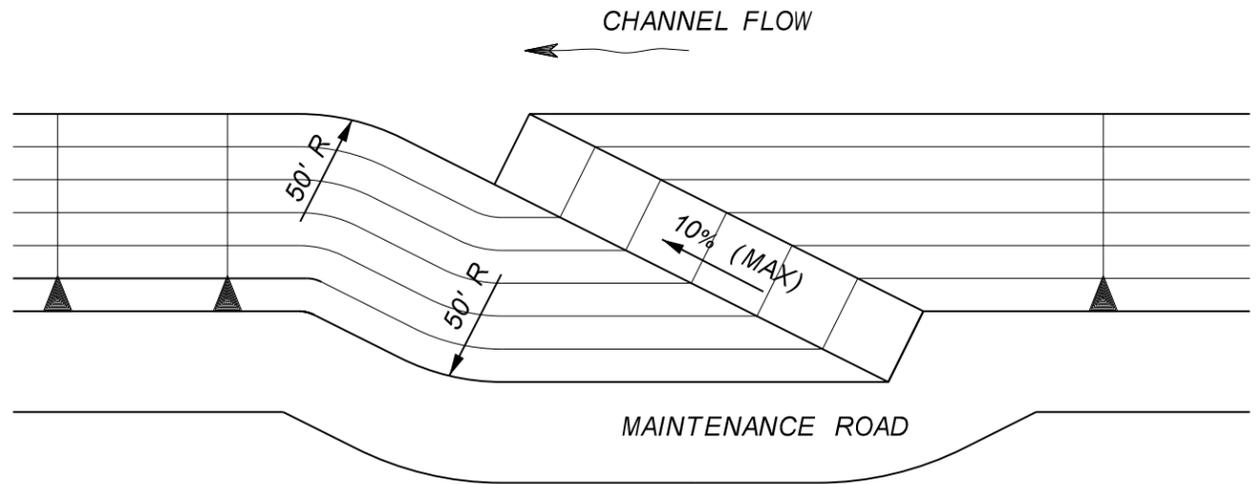
FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY

MAINTENANCE ROAD
(CONCRETE) DETAIL

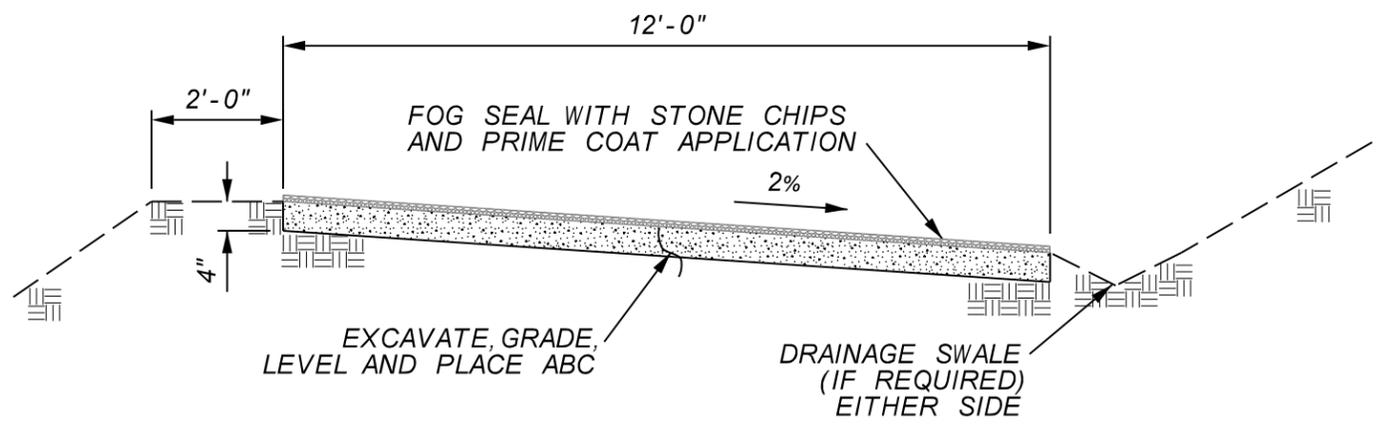
APPROVED BY
C. Scott Vogel

REVISION DATE
10/05/15

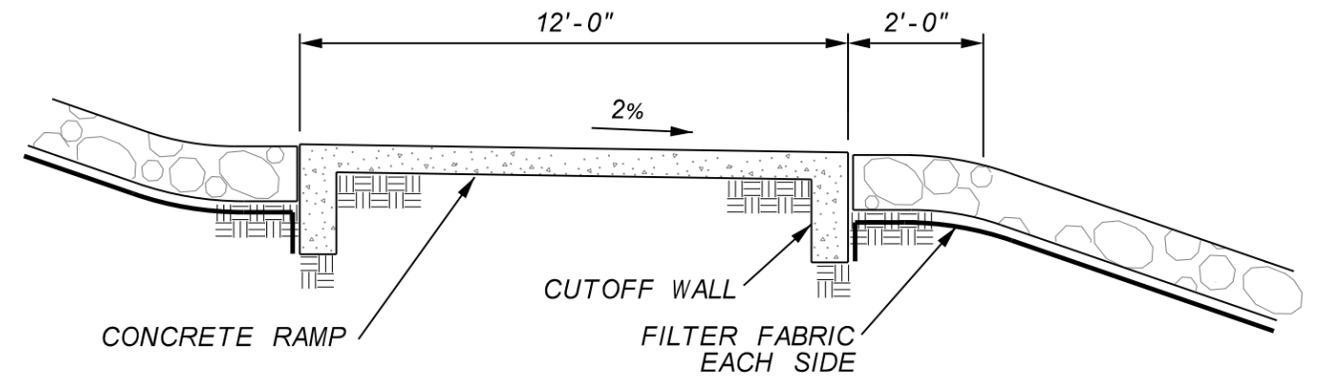
DETAIL NO.
FCD201-3



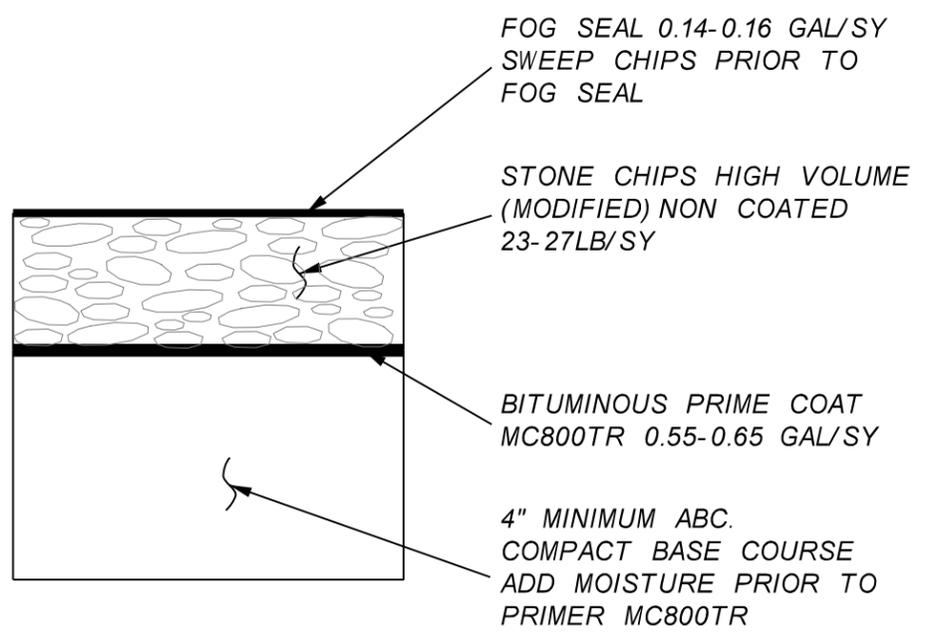
**PLAN VIEW
MAINTENANCE ROAD ACCESS RAMP**
NTS



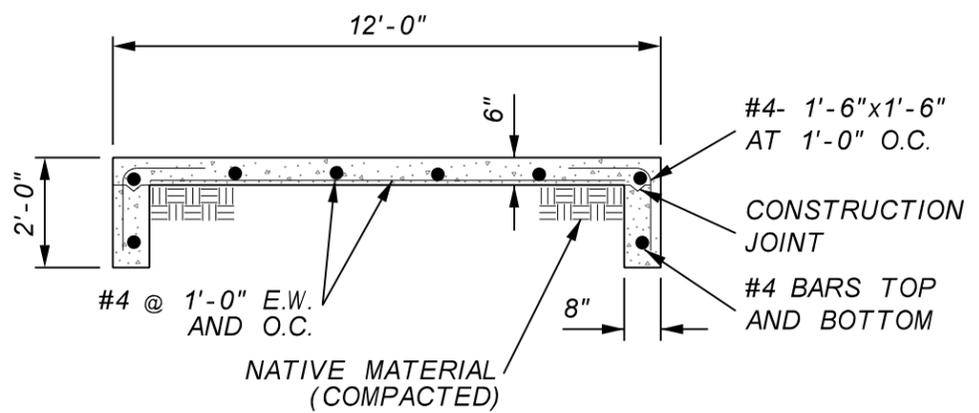
**ACCESS RAMP
CROSS SECTION**
NTS



**CONCRETE RAMP
CROSS SECTION**
NTS

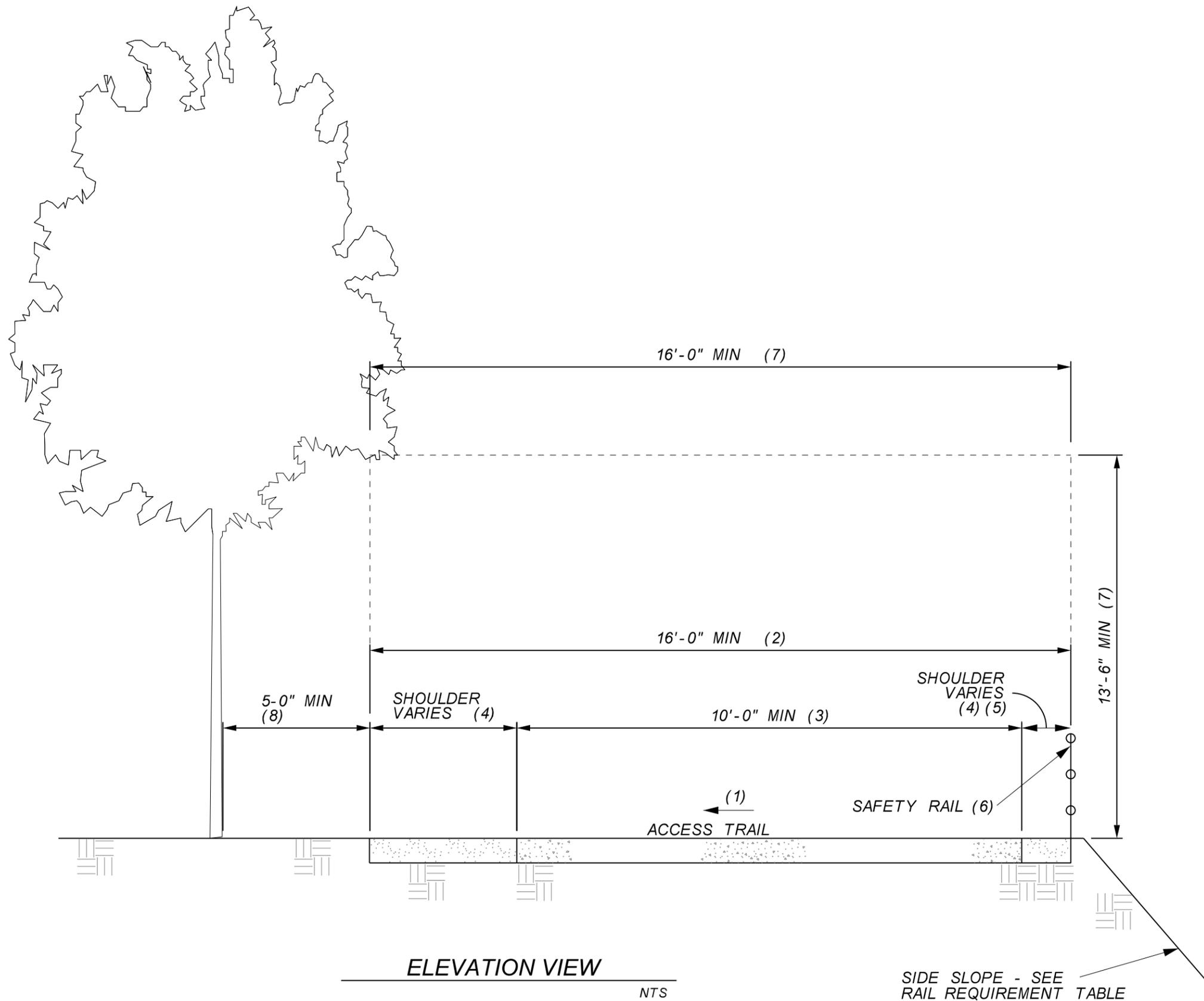


**MAINTENANCE ROAD
CONSTRUCTION SECTION**
NTS



**CONCRETE RAMP
REINFORCING**
NTS

- NOTES**
- 1) MAXIMUM CROSS SLOPE SHALL BE 2%
 - 2) CROSS SLOPE SHALL DRAIN TOWARD UPSTREAM SIDE ON ALL DAMS AND FLOOD RETARDING STRUCTURES (FRS)
 - 3) CONCRETE SHALL BE CLASS "A" 3000PSI BROOM FINISH
 - 4) CONSTRUCTION JOINTS SHALL BE 10'-0" MAX WITH EXPANSION JOINTS AT 50'-0" MAX



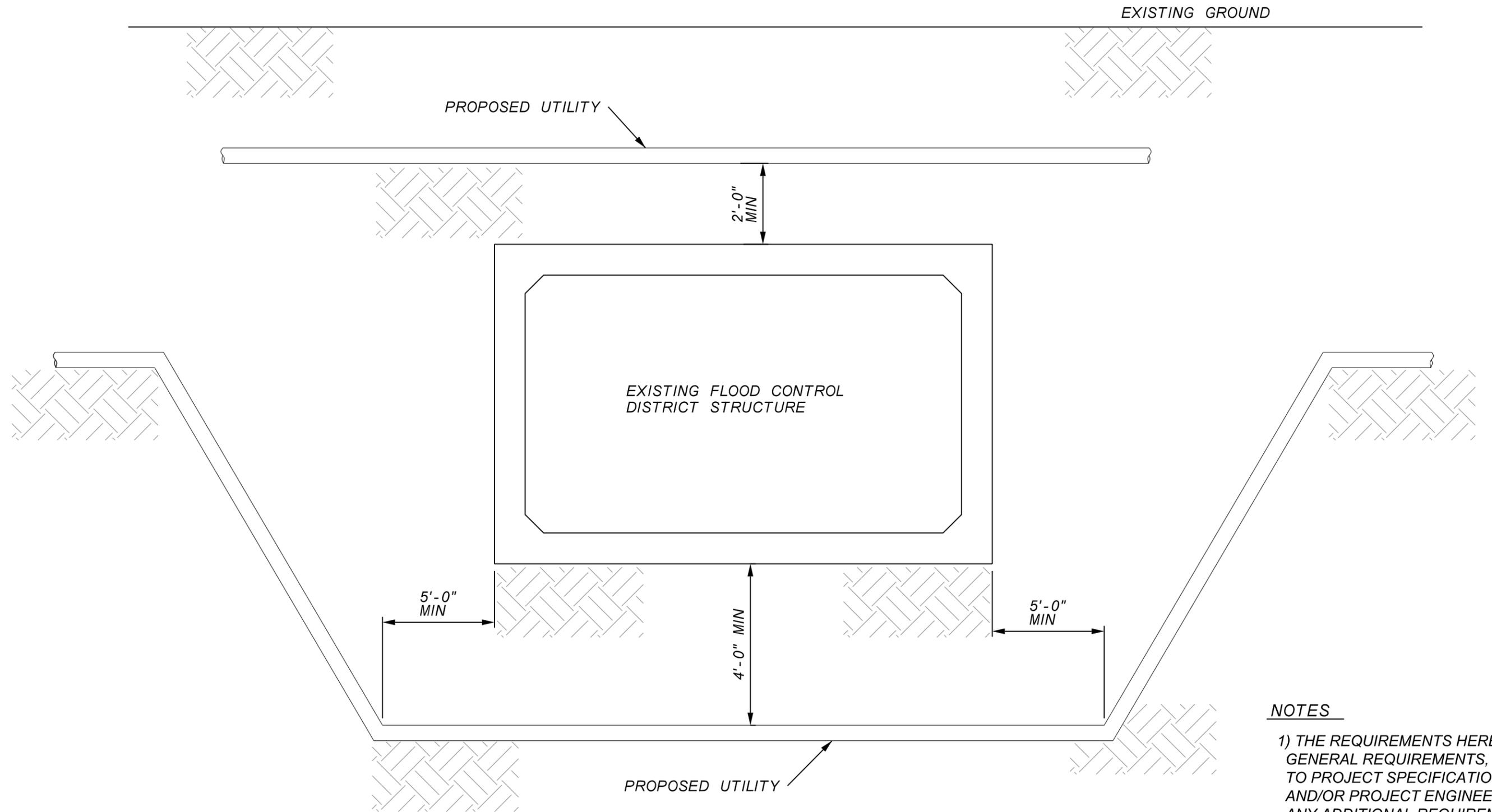
NOTES

- (1) MAXIMUM CROSS SLOPE SHALL BE 2%
- (2) THERE SHALL BE A MINIMUM OF 16 FEET DRIVEABLE WIDTH ALONG TRAIL, IF TRAIL MEANDERS THEN 16'-0" (MIN) DRIVEABLE WIDTH (INCLUDING SHOULDER) SHALL BE MAINTAINED FROM TOP OF BANK
- (3) PAVED TRAIL SHALL HANDLE TRUCK LOADS AS WELL AS BIKE AND PEDESTRIAN TRAFFIC
- (4) DRIVEABLE SHOULDER SHALL BE COMPACTED MATERIAL (AB/DG) OR PAVEMENT. SUB-BASE SOILS SHALL BE COMPACTED TO 95% (MIN) STANDARD PROCTOR
- (5) IF SHOULDER IS 5 FEET OR LESS INSTALL SAFETY RAIL TO PROTECT BICYCLE TRAFFIC PER FCD STANDARD DETAIL 145-1 (4'-8" HEIGHT)
- (6) SAFETY RAIL SHALL MEET FCD STANDARD DETAIL 145-1 (MINIMUM) WITH TYPE 4 FOOTINGS. ALTERNATE RAIL TYPE(S) SHALL BE PRE-APPROVED BY FLOOD CONTROL DISTRICT STAFF
- (7) A CLEARANCE HEIGHT OF 13 FEET 6 INCHES SHALL BE MAINTAINED ABOVE DRIVEABLE AREA (INCLUDING LIGHT POLES AND TREES) FOR EQUIPMENT PASSAGE.
- (8) TREE TRUNKS SHALL HAVE A MINIMUM OF 5 FEET CLEARANCE FROM DRIVEABLE AREA. LARGE TREES MAY NEED TO BE PLACED MORE THEN 5'-0" FROM DRIVEABLE AREA TO PREVENT ENCROACHMENT INTO 13'-6" CLEARANCE AREA. ADDITIONAL RESTRICTIONS ON TREES OR VEGETATION MAY APPLY FOR SOME STRUCTURES (IE: DAMS/LEVEES) REFER TO FLOOD CONTROL DISTRICT STAFF FOR ADDITIONAL RESTRICTIONS
- (9) THE REQUIREMENTS PRESENTED HEREON ARE GENERAL REQUIREMENTS, ADDITIONAL REQUIREMENTS/RESTRICTIONS MAY APPLY TO SPECIFIC STRUCTURES

RAIL REQUIREMENT TABLE

| SIDE SLOPE | RAIL REQUIREMENT |
|----------------------------|--|
| VERTICAL WALL TO 2:1 SLOPE | PIPE RAIL WITH ATTACHED CHAIN LINK FABRIC OR OTHER RESTRICTION TO PROTECT AGAINST FALL HAZARDS |
| 2:1 - 6:1 SLOPE | PIPE RAIL ONLY, UNLESS SIDE SLOPE PRESENTS OTHER HAZARDS |
| 6:1 - FLAT SLOPE | NO PIPE RAIL REQUIRED UNLESS NOTED OTHERWISE BY DISTRICT STAFF |

SIDE SLOPE - SEE RAIL REQUIREMENT TABLE



NOTES

1) THE REQUIREMENTS HEREIN ARE GENERAL REQUIREMENTS, REFER TO PROJECT SPECIFICATIONS AND/OR PROJECT ENGINEER FOR ANY ADDITIONAL REQUIREMENTS



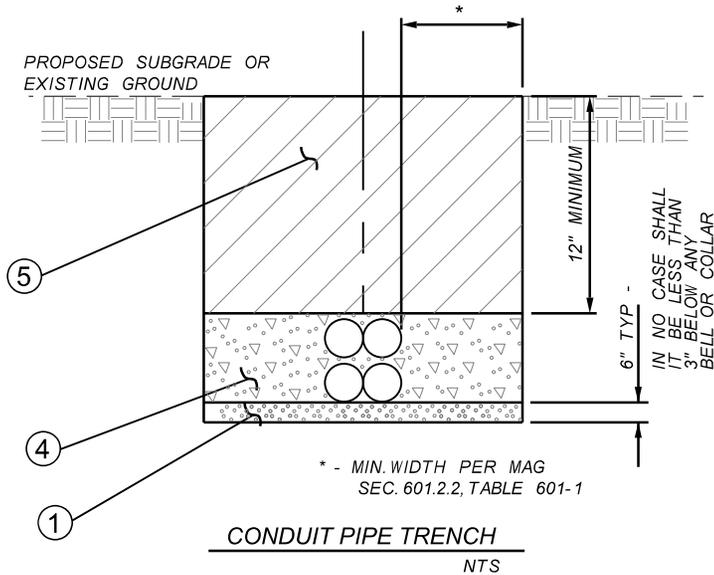
FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY

NEW UTILITY SEPERATION AROUND
EXISTING STRUCTURE DETAIL

APPROVED BY
C. Scott Vogel

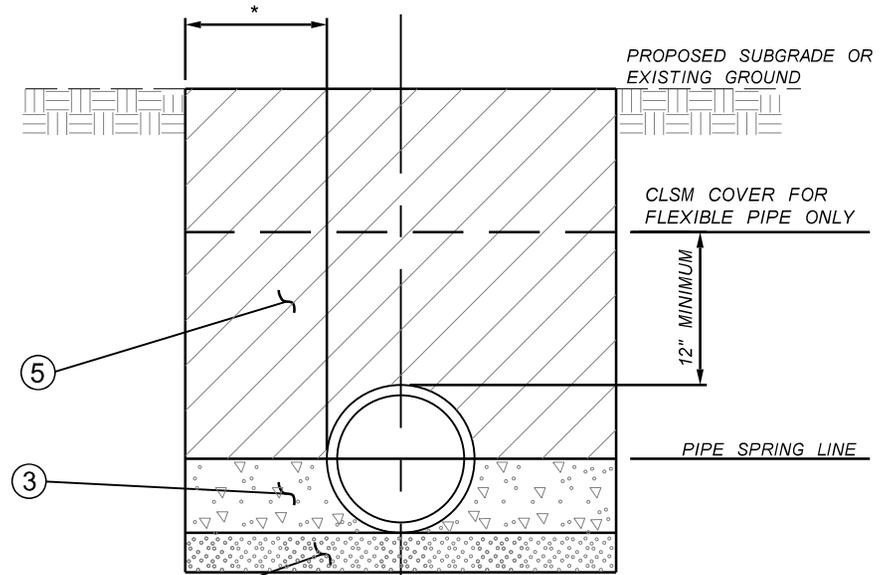
REVISION DATE
10/05/15

DETAIL NO.
FCD404-1



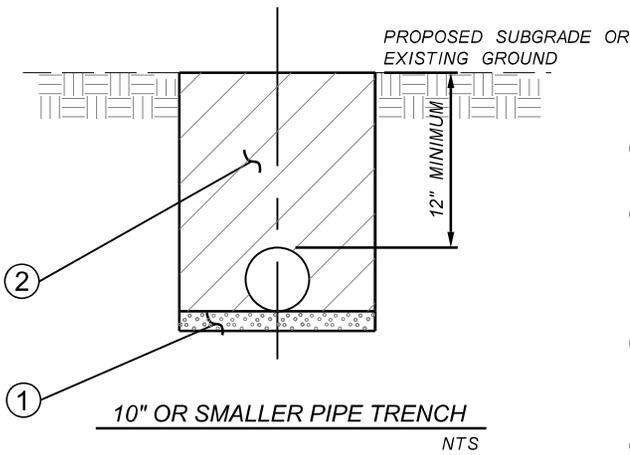
* - MIN. WIDTH PER MAG
SEC. 601.2.2, TABLE 601-1

CONDUIT PIPE TRENCH
NTS



* - MIN. WIDTH PER MAG
SEC. 601.2.2, TABLE 601-1

12" OR LARGER PIPE TRENCH
NTS



10" OR SMALLER PIPE TRENCH
NTS

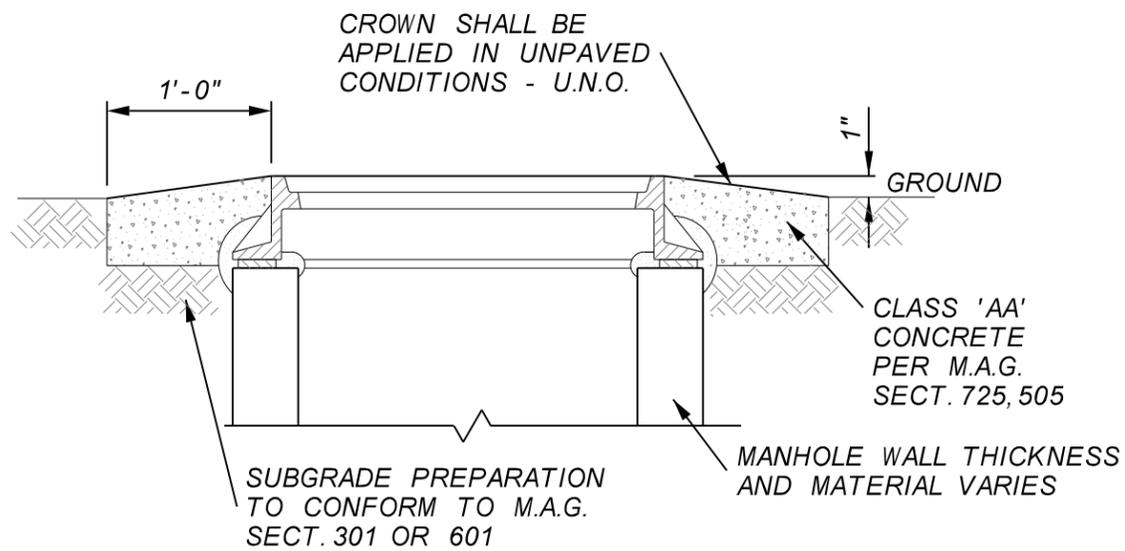
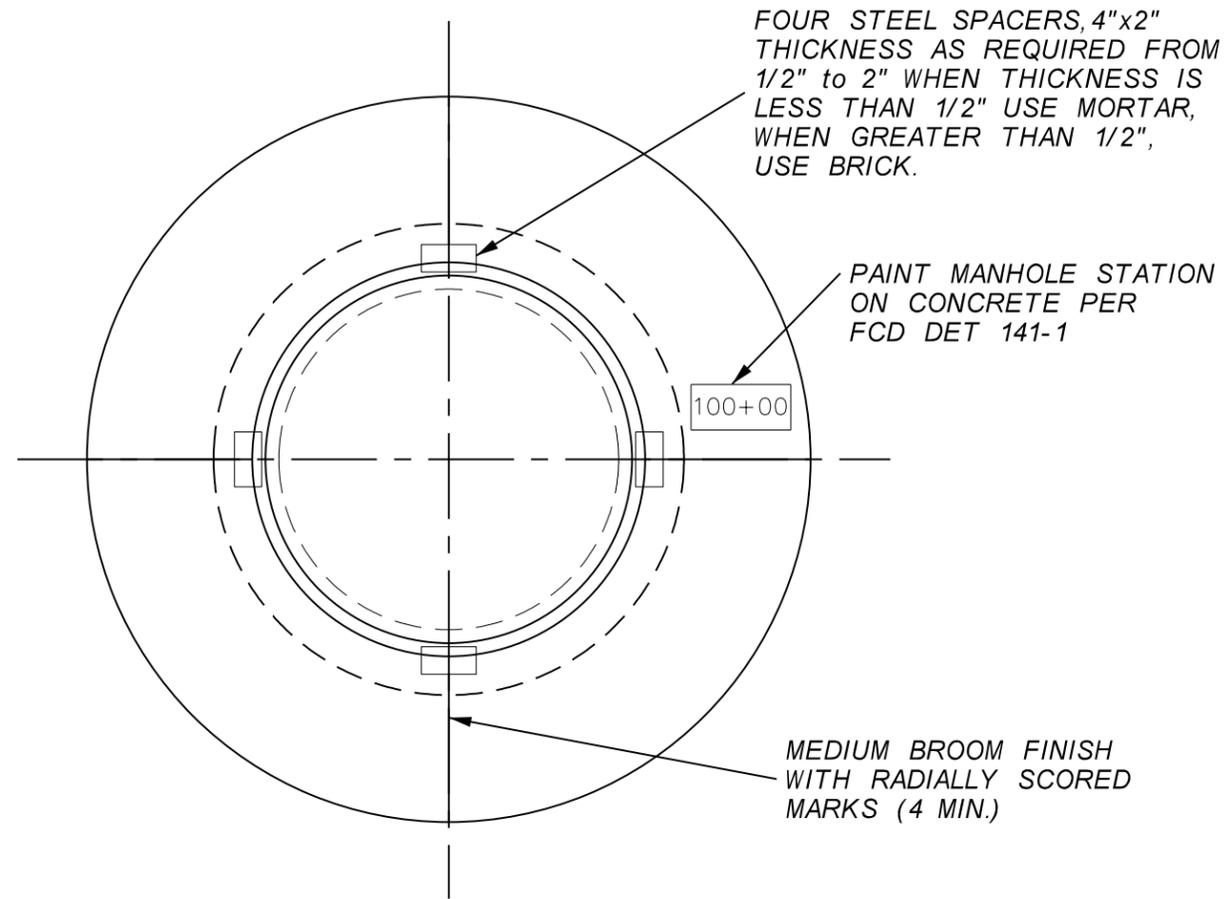
CONSTRUCTION NOTES

- ① BASE OR BEDDING COMPACTED TO 95% OF STANDARD PROCTOR.
- ② FOR PIPES UNDER 12-INCHES IN DIAMETER, PLACE BACKFILL IN 6-INCH LIFTS AND COMPACT TO 95% OF STANDARD PROCTOR WITH COMPACTION TESTS ON EVERY OTHER LIFT AND FOR EACH 300 FEET OF TRENCH.
- ③ FOR PIPES OVER 12-INCHES IN DIAMETER, BACKFILL TRENCH FROM THE BOTTOM OF THE PIPE TO THE SPRING LINE OF THE PIPE WITH 1-SACK CLSM. *
- ④ FOR CONDUIT BUNDLES OR DUCT BANKS, PLACE 1-SACK CLSM FROM THE BOTTOM OF THE BUNDLE/DUCT BANK TO THE TOP OF THE BUNDLE/DUCT BANK. *
- ⑤ PLACE BACKFILL ABOVE PIPES, BUNDLES OR DUCT BANKS IN 6-INCH LIFTS AND COMPACT TO 95% OF STANDARD PROCTOR WITH COMPACTION TESTS ON EVERY OTHER LIFT AND FOR EACH 300 FEET OF TRENCH.

GENERAL NOTES

1. 1-SACK CLSM CAN BE USED INSTEAD OF COMPACTED BACKFILL. *
2. THESE BACKFILL REQUIREMENTS ARE THE MINIMUM REQUIRED FOR TRENCH BACKFILL WITHIN THE DISTRICT'S RIGHT-OF-WAY OR REAL PROPERTY.
3. BACKFILL CAN BE NATIVE MATERIAL THAT MEETS THE REQUIREMENTS OF MAG STANDARD SPECIFICATION 601.4.8 OR OTHER ACCEPTABLE BACKFILL MATERIAL PER SPECIFICATION 601.
4. 1-SACK CLSM SHALL MEET THE REQUIREMENTS OF MAG STANDARD SPECIFICATION 728.
5. FOR FLEXIBLE PIPES, BACKFILL TRENCH FROM THE BOTTOM OF THE PIPE TO 12" ABOVE THE TOP OF PIPE (MINIMUM) WITH 1-SACK CLSM. *
6. DISTRICT INSPECTORS MUST INSPECT THE PIPE INSTALLATION PRIOR TO BACKFILLING AROUND THE PIPE.
7. PEA GRAVEL IS NOT AN ACCEPTABLE BACKFILL OR BEDDING MATERIAL AND MAY NOT BE USED.
8. WATER JETTING IS NOT ALLOWED.
9. BACKFILL COMPACTION TESTS AND CLSM DELIVERY TICKETS MUST BE PROVIDED WITH AS-BUILT DRAWINGS FOR ALL PIPE INSTALLATIONS.

* WITH PERMISSION FROM THE DISTRICT, IN AREAS THAT ARE NOT PART OF A STRUCTURE OR WATER WAY (IE: BASINS, CHANNELS, WASHES, ETC.) HALF-SACK CLSM MAYBE USED INSTEAD OF 1-SACK CLSM.



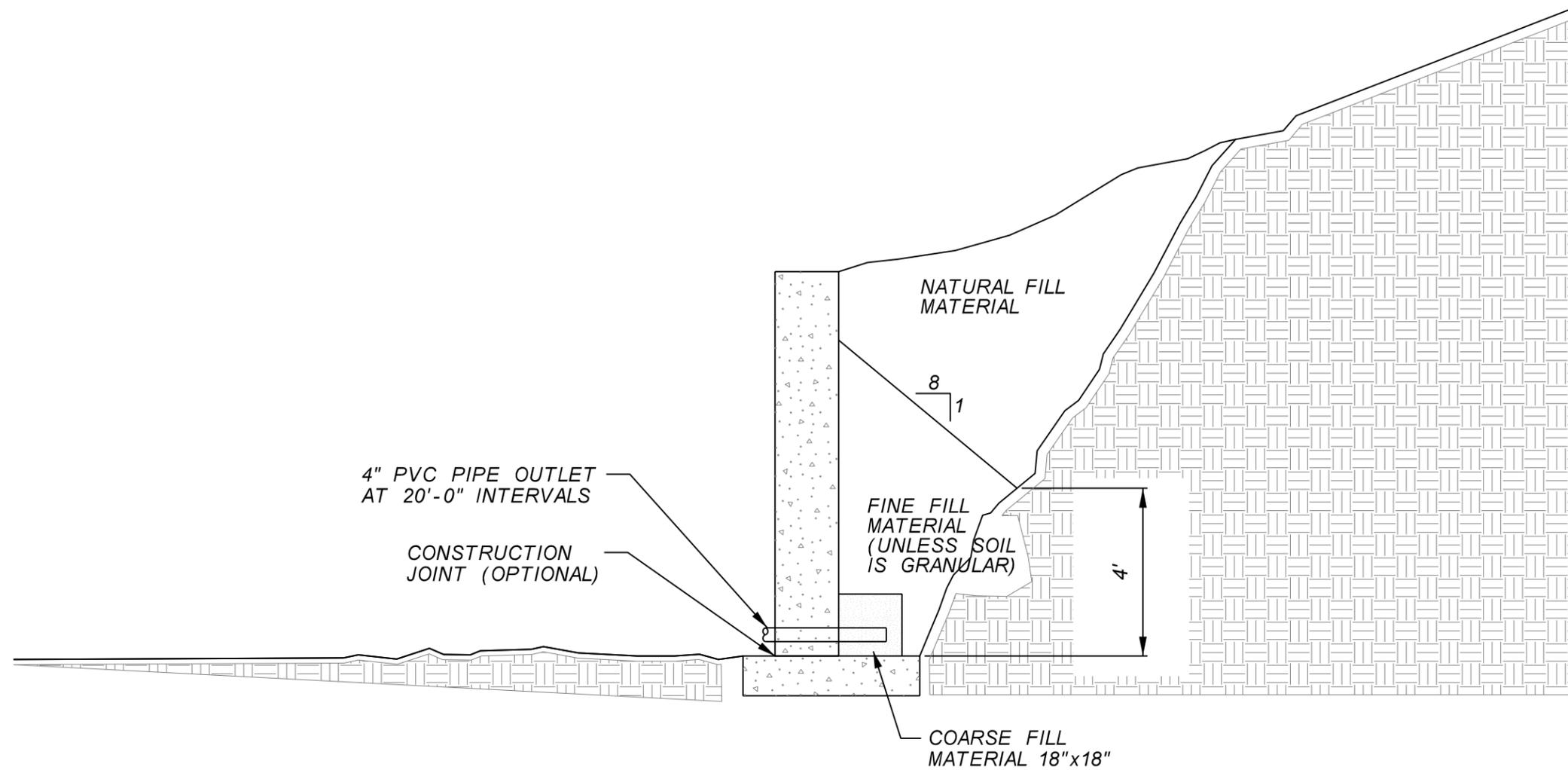
FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY

SEWER MANHOLE
COVER FRAME DETAIL

APPROVED BY
C. Scott Vogel

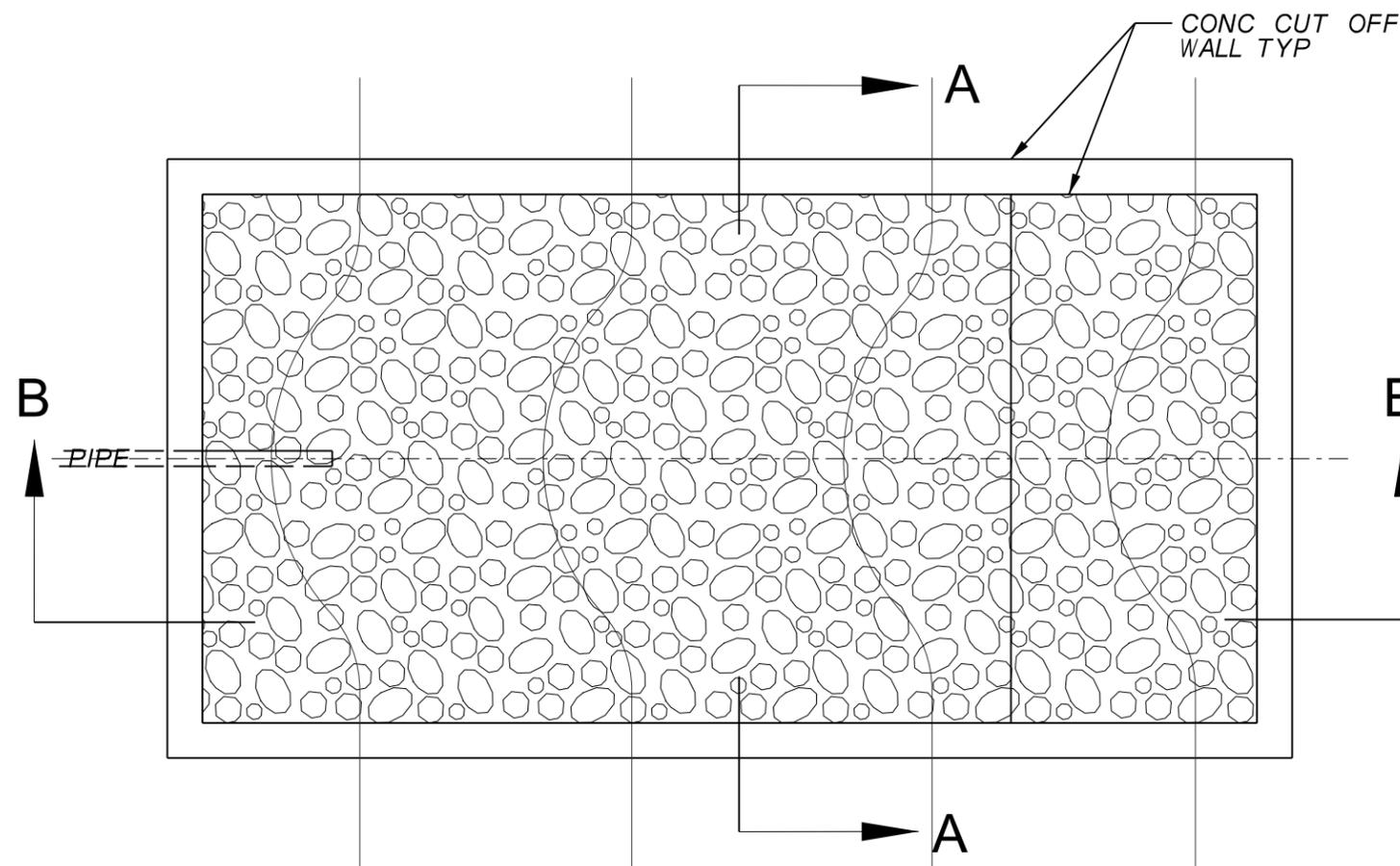
REVISION DATE
10/05/15

DETAIL NO.
FCD422-1

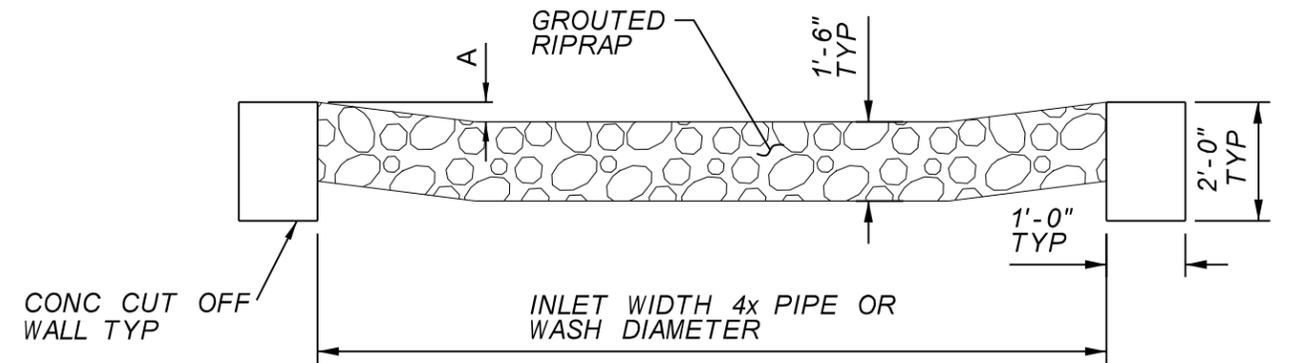


NOTES

- 1) DIMENSIONS OF THE CONCRETE, PLACEMENT OF REINFORCING AND VERTICAL CONCRETE FORMS WILL BE SPECIFIED FOR EACH INDIVIDUAL PROJECT.
- 2) EXCAVATE TO THE DEPTH AND WIDTH REQUIRED, BEING CAREFUL NOT TO OVEREXCAVATE. FOOTER SHALL BE POURED AGAINST THE GROUND, BEING SURE ALL LOOSE MATERIAL IS REMOVED.
- 3) USE 3000 P.S.I. CONCRETE MIX (5.5 BAGS CEMENT PER CUBIC YARD CONCRETE).
- 4) FORM AND POUR VERTICAL WALL AS DIRECTED. CONSOLIDATE CONCRETE BY VIBRATION OR PUDDLING.
- 5) BACKFILL AFTER CONCRETE HAS CURED AT LEAST 7 DAYS. THERE SHALL BE NO ROCK PIECES LARGER THAN 4" WITHIN 1 FOOT FROM THE STRUCTURE.
- 6) FILL IN LIFT 6" OR LESS. COMPACT TO 95% IF NATURAL SOIL IS GRANULAR, FILL CAN BE OMITTED.
- 7) GRADE SURFACE TO BLEND WITH EXISTING GROUND.

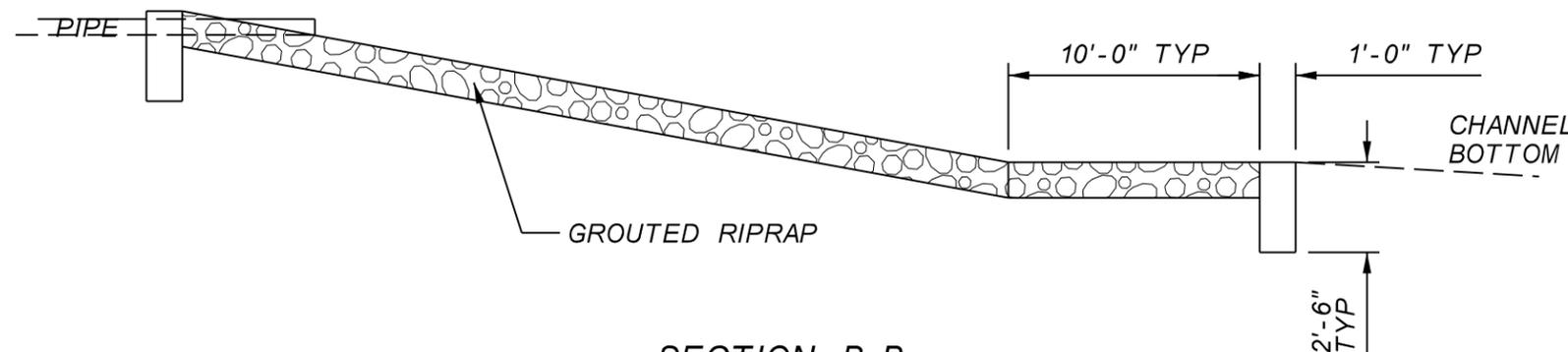


PLAN VIEW
NTS



A = SWALE DEPTH 1/2 PIPE DIAMETER OR WASH DEPTH AT UPSTREAM SLOPE END. SWALE FLARES TO NOTHING AT DOWNSTREAM END

SECTION A-A
NTS



SECTION B-B
NTS

NOTES:

- 1) ALL INLETS ARE TO ENTER THE FLOODWAY AT RIGHT ANGLES.
- 2) RIPRAP BED SHALL HAVE A THICKNESS OF ATLEAST THE SIZE OF THE LARGEST RIPRAP (TYPICALLY RIPRAP HAS A D50=9" AND THE LARGEST ROCK=18").
- 3) RIPRAP SHALL BE OBTAINED FROM ANY SOURCE APPROVED BY THE FLOOD CONTROL DISTRICT OR PROJECT ENGINEER, AND SHALL BE ROUND & REASONABLY WELL GRADED.
- 4) CUTOFF WALLS ARE TO BE CLASS B CONCRETE AND BE CONSTRUCTED THE ENTIRE PERIMETER OF THE RIPRAP.
- 5) RIPRAP GRADATION SHALL BE DETERMINED BY PROJECT-ENGINEER SPECIFICATIONS.
- 6) GROUT SHALL BE A MINIMUM OF 2,500 PSI. GROUT SLUMP SHALL BE A MINIMUM OF 7" - 9" OR TO PROJECT/ENGINEER SPECIFICATIONS.
- 7) GROUT SHALL FULLY PENETRATE TO BASE OF RIPRAP, A PENCIL VIBRATOR SHALL BE USED TO ENSURE GROUT PENETRATION.
- 8) POUR GROUT FROM BASE OF SLOPE IN AN UPHILL DIRECTION.
- 9) SURFACE OF RIPRAP STONE PROJECTING ABOVE GROUT SHALL BE CLEAN TO MATCH ANY EXISTING RIPRAP. SURFACE SHALL BE CLEANED BY AIR-WATER BLASTING OR OTHER APPROVED METHOD. CLEANING SHALL REMOVE ALL GROUT, CEMENT PASTE, AND DISCOLORATION CAUSED BY GROUT, WITHOUT DAMAGING THE GROUT TO REMAIN IN PLACE.



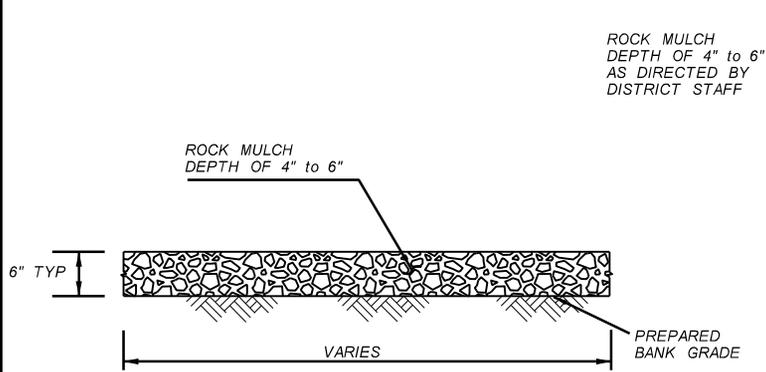
**FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY**

**GROUTED RIPRAP
CONSTRUCTION DETAIL**

APPROVED BY
C. Scott Vogel

REVISION DATE
10/05/15

DETAIL NO.
FCD555-1



SECTION A-A

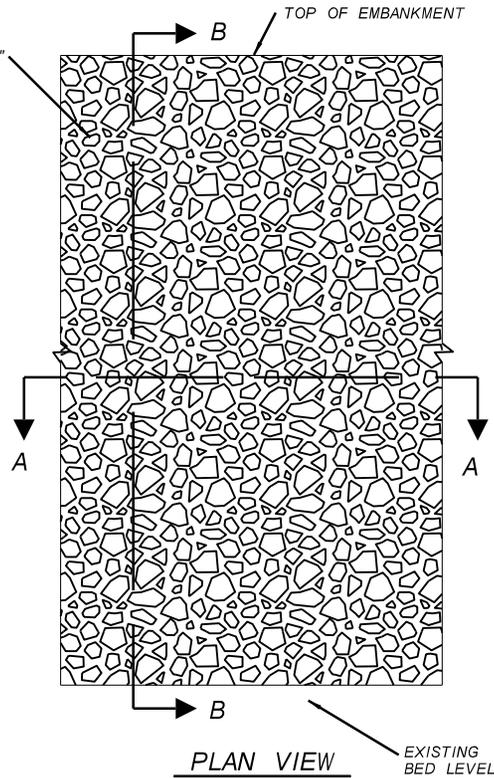
ROCK MULCH DEPTH OF 4" to 6" AS DIRECTED BY DISTRICT STAFF

ROCK MULCH DEPTH OF 4" to 6"

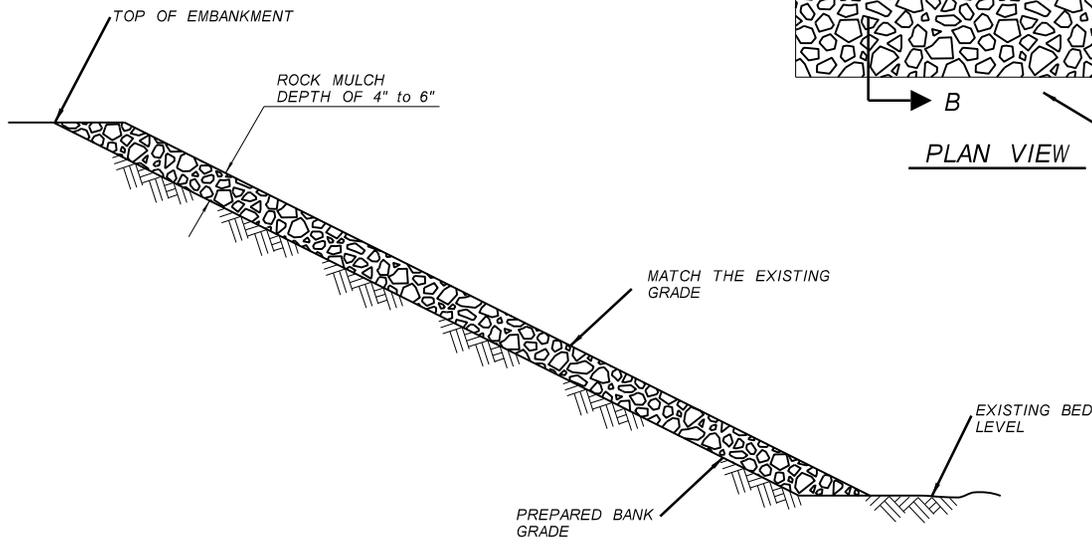
6" TYP

VARIES

PREPARED BANK GRADE



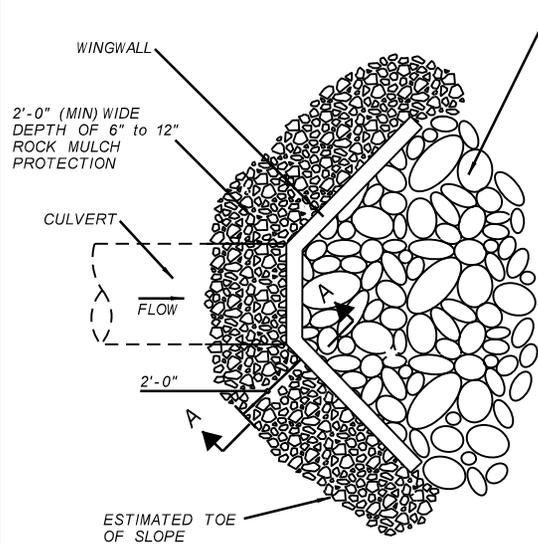
PLAN VIEW



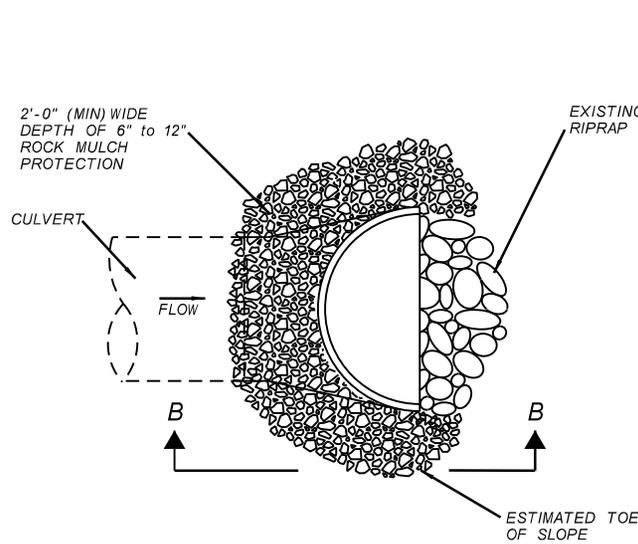
SECTION B-B

1. ROCK MULCH SHALL BE FREE OF CALCAREOUS COATING, CALICHE, ORGANIC MATTER OR OTHER FOREIGN SUBSTANCES.
2. THE SURFACES UPON WHICH THE ROCK MULCH IS TO BE PLACED SHALL INCLUDE PROOF ROLLING WITH RUBBER Tired OR TRACKED EQUIPMENT. SURFACE TO BE PROBED FOR ACCEPTABLE DENSITY AS DETERMINED BY THE ENGINEER.
3. THE ROCK SHALL BE PLACED IN AN EVEN APPLICATION, TIGHTLY PACKED, TO PROVIDE COMPLETE COVERAGE OF THE AREA SHOWN ON THE PROJECT PLANS SO THAT SOIL WILL NOT BE VISIBLE BETWEEN ROCKS.
4. AFTER PLACING AND GRADING THE ROCK MULCH, THE CONTRACTOR SHALL WATER THE MULCH WITH A LIGHT SPRAY TO REMOVE FINE MATERIAL FROM THE SURFACE AS APPROVED BY THE ENGINEER.
5. ROCK MULCH SHALL MEET THE REQUIREMENTS OF THE MAG UNIFORM STANDARD SPECIFICATIONS 701, 702 AND 703. THIS WORK INCLUDES FURNISHING, HAULING, SUBGRADE PREPARATIONS AND PLACEMENT OF ROCK MULCH (AKA GRAVEL MULCH) AS SHOWN ON THESE STANDARD PLANS.
6. ROCK MULCH SHALL BE A GRADED MATERIAL AND SHALL BE ANGULAR, FREE OF CALCAREOUS COATING, CALICHE, ORGANIC MATTER, OR OTHER FOREIGN SUBSTANCES AND SHALL NOT EXCEED 3:1 RATIO FOR FLAT AND/OR ELONGATED PIECES WHEN DETERMINED BY ASTM D4791. ROUNDED AGGREGATE WILL NOT BE ALLOWED. FRACTURED RIVER RUN ROCK MATERIAL WILL NOT BE ACCEPTED AS A SUBSTITUTE.
7. THE DESIGN INTENT FOR THE USE OF ROCK MULCH IS TO PROVIDE A SURFACE TREATMENT THAT IS SIMILAR IN COLOR, TONE AND OVERALL CAST TO THE EXISTING SOILS/ROCK PLACEMENT AT THE PROJECT SITE. THE ROCK MULCH IS INTENDED TO BLEND, NOT CONTRAST, THE PROJECT INTO THE SURROUNDING LANDSCAPE.
8. THE LOSS BY ABRASION IN THE LOS ANGELES ABRASION MACHINE, DETERMINED AS PRESCRIBED IN ASTM C535, SHALL NOT EXCEED 40 PERCENT (BY WEIGHT) AFTER 500 REVOLUTIONS. THE AGGREGATES SHALL BE WELL GRADED WHEN TESTED IN ACCORDANCE WITH ASTM C136 AND ASTM C117.
9. HOLES AND EROSION RILLS THAT WILL INTERFERE WITH ROCK MULCH PLACEMENT SHALL BE FILLED AS DIRECTED BY THE ENGINEER. TRASH, WEEDS AND OTHER DEBRIS THAT WILL INTERFERE WITH ROCK MULCH PLACEMENT SHALL BE REMOVED AND DISPOSED OF AS DETERMINED BY THE ENGINEER.
10. THE MULCH SHALL BE CONSTRUCTED TO THE FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF THE UNDERLYING MATERIALS.
11. THE ROCK MULCH SHALL BE DELIVERED AND PLACED IN A MANNER TO ENSURE THAT THE IN-PLACE MULCH LAYER SHALL BE REASONABLY HOMOGENEOUS AND THE FRACTIONS UNIFORMLY DISTRIBUTED. HAND PLACING OF ROCK MULCH SHALL BE REQUIRED TO THE EXTENT NECESSARY TO PREVENT DAMAGE TO THE PERMANENT WORKS. ROCK MULCH SHALL BE PLACED IN AN EVEN APPLICATION, TIGHTLY PACKED, TO PROVIDE COMPLETE COVERAGE OF THE AREA SHOWN ON THE PROJECT PLANS SO THAT SOIL IS NOT BE VISIBLE BETWEEN ROCKS.
12. PERCENTAGE OF FRACTURED COARSE AGGREGATE PARTICLES SHALL BE DETERMINED BY TEST METHOD ARIZ 212E. THE PERCENTAGE COMPOSITION BY WEIGHT SHALL BE WITHIN THE FOLLOWING LIMITS:

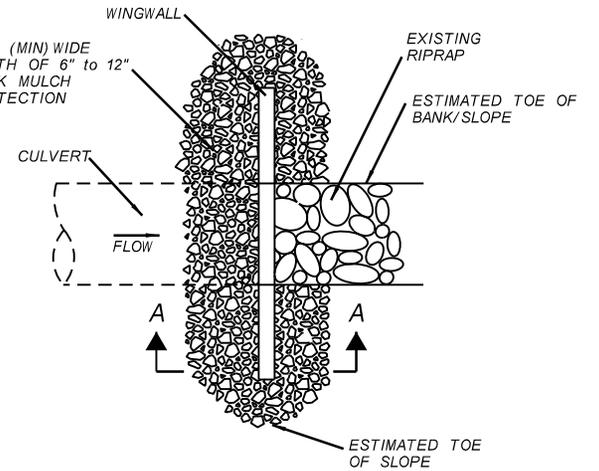
| SIEVE | PERCENT PASSING |
|--------|-----------------|
| 3-INCH | 100% |
| 2-INCH | 40% - 60% |
| 1-INCH | 10% - 15% |



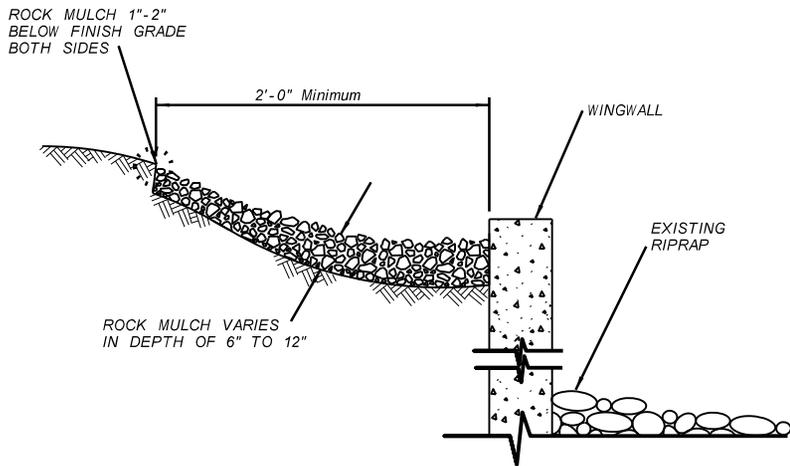
ANGLED HEADWALL
PLAN VIEW (NTS)



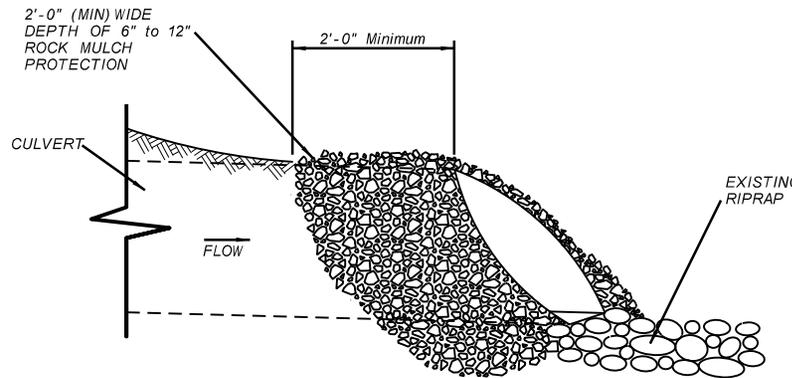
FLARED END
PLAN VIEW (NTS)



FLUSH HEADWALL
PLAN VIEW (NTS)



WINGWALL
SECTION A-A (NTS)



FLARED END
VIEW B-B (NTS)

