

CITY OF
Yuma

CONSTRUCTION STANDARD DETAIL DRAWINGS

ORDINANCE NO. O2019-??

May 2019

**Prepared By:
City of Yuma
Engineering Department**

1-000 SERIES: GENERAL

Detail	Title
1-005	TRASH ENCLOSURE
1-010	NON-RETAINING 8' TALL CMU SITE WALL (2 SHEETS)
1-015	NON-RETAINING CONCRETE BLOCK WALL
1-020	CMU RETAINING WALL (5 SHEETS)
1-025	UTILITY POTHOLE REPAIR
1-030	TRENCH PLATING DETAIL
1-035	6' CHAIN LINK FENCE AND GATE (INDUSTRIAL USE ONLY)
1-040	STEEL TUBE FENCING
1-045	TYPE III BARRICADE
1-050	ACCESS GATE

2-000 SERIES: ROADWAY CLASSIFICATIONS

2-005	EXPRESSWAY
2-010	PRINCIPAL ARTERIAL STREET (2 SHEETS)
2-015	MINOR ARTERIAL STREET
2-020	COLLECTOR STREET
2-025	ALTERNATIVE COLLECTOR STREET
2-030	LOCAL TWO LANE STREET
2-035	COMMERCIAL/INDUSTRIAL STREET
2-040	GUIDELINES FOR TRAFFIC IMPACT STUDIES
2-045	FIRE DEPARTMENT ACCESS ROAD
2-050	R.O.W. REQUIREMENTS AT INTERSECTIONS

3-000 SERIES: STREET DESIGN

3-005	SCHEMATIC STREET LAYOUT REQUIREMENTS
3-010	<i>(Reserved for future use)</i>
3-015	DEPTH OF AGGREGATE BASE COURSE FOR LOCAL STREETS
3-020	DEPTH OF AGGREGATE BASE COURSE FOR COLLECTOR STREETS
3-025	DEPTH OF AGGREGATE BASE COURSE FOR PRINCIPAL, EXPRESSWAY AND MINOR ARTERIAL STREETS
3-030	TYPICAL ALLEY
3-035	PARKWAY GRADING
3-040	CUL-DE-SAC
3-045	LOCAL STREET KNUCKLE
3-050	MEDIAN
3-055	SAFETY NOSE MEDIAN
3-060	VERTICAL CURB AND GUTTER
3-065	ADOT TYPE VERTICAL CURB AND GUTTER
3-070	ROLL CURB AND GUTTER
3-075	VERTICAL CURB AND TYPICAL CURB TERMINATION
3-080	RESIDENTIAL ADDRESSING ON CURBS
3-085	VALLEY GUTTER LAYOUT
3-090	VALLEY GUTTER
3-095	INTERSECTION WITH STANDARD VALLEY GUTTERS
3-100	TRANSITION FROM ADOT TYPE CURB AND GUTTER TO CITY CURB AND GUTTER

3-105	DRIVEWAY ENTRANCE WITH SIDEWALK ADJACENT TO CURB
3-110	DRIVEWAY ENTRANCE WITH PARKWAY
3-115	RESIDENTIAL DRIVEWAY WITH ROLL CURB AND GUTTER
3-120	DRIVEWAY ENTRANCE WITH CURB RETURNS
3-125	DRIVEWAY ENTRANCE LOCATIONS
3-130	SIDEWALK LOCATIONS
3-135	SIDEWALK
3-140	SIDEWALK A.D.A PASSING ZONE
3-145	SIDEWALK RAMP (2 SHEETS)
3-150	SIDEWALK RAMP (STRAIGHT SECTION)
3-155	DETECTABLE WARNING MAT (2 SHEETS)
3-160	CURB RAMP AND ISLAND PASSAGEWAY DETAILS
3-165	REVERSE CURVES
3-170	ANGLE OF INTERSECTIONS
3-175	LOCAL STREET OFFSETS
3-180	TURN LANE TREATMENT (3 SHEETS)
3-185	RIGHT TURN CHANNELIZATION (2 SHEETS)
3-190	DRIVEWAY CHANNELIZATION (7 SHEETS)
3-195	BUS BAY DESIGN
3-200	CLEAR SIGHT TRIANGLES AT TYPICAL STOP INTERSECTIONS
3-205	SPEED TABLE (2 SHEETS)
3-210	HAMMERHEAD TEE TURNAROUND

4-000 SERIES: SURVEYING

4-005	SURVEY MONUMENT SPECIFICATIONS
4-010	TYPICAL SUBDIVISION MONUMENTS
4-015	BOUNDARY MONUMENT
4-020	SURVEY FRAME AND COVER
4-025	TEMPORARY SURVEY MONUMENT
4-030	SURVEY MONUMENT AND PLACEMENT
4-035	SURVEY MONUMENT STAMPING

5-000 SERIES: WATER

5-005	TYPICAL WATER AND SEWER CROSSINGS
5-010	TYPICAL WATER AND SEWER MAIN TRENCH BACKFILL
5-015	TYPICAL WATER AND SEWER SERVICE LINE TRENCH BACKFILL
5-016	PAVEMENT REPLACEMENT
5-020	THRUST BLOCK DATA
5-025	THRUST BLOCK INSTALLATION
5-030	TRACER WIRE
5-035	WATER METER INSTALLATION 1" AND SMALLER
5-040	2" WATER SERVICE
5-045	DUAL 1" WATER SERVICE FROM 2" SERVICE LINE (2 SHEETS)
5-050	3" THROUGH 8" TURBO SERIES, COMPOUND SERIES OR ULTRASONIC SERIES METER ABOVE GROUND
5-055	WATER METER BOX FOR 1" METERS AND SMALLER
5-060	WATER METER BOX 1 ½" AND 2" METERS
5-065	VALVE ANCHORS
5-070	CONCRETE BASE FOR VALVES 20" AND LARGER
5-075	VALVE BOX INSTALLATION

5-080	VALVE BOX COVER, DROP IN
5-085	WATERMAIN BLOWOFF
5-090	WATERMAIN BLOWOFF DRAIN
5-095	AIR RELEASE VALVE MANHOLE
5-100	8" CAST IRON FRAME AND COVER
5-105	STEEL CASING END SEALS WITH VENT PIPE
5-110	TEMPORARY CONSTRUCTION ANTI-BACKFLOW ASSEMBLY
5-115	AIR GAP SEPARATION BACKFLOW PREVENTION
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5-140	PRESSURE VACUUM BREAKER ASSEMBLY (ALL SIZES)
5-145	CAGE FOR BACKFLOW PREVENTER
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5-155	FIRE HYDRANTS
5-160	FIRE HYDRANT STREET MARKERS
5-165	FIRE HYDRANT AND STAKE MARKER LOCATIONS
5-170	FIRE LINE VALVING
5-175	PRIVATE FIRE SPRINKLER LINE INSTALLATION
5-180	FIRE DEPARTMENT CONNECTIONS
5-185	DEFLECTING/LOWERING OF A WATERLINE FOR UTILITY CROSSING (EXCEPT SANITARY SEWER)

6-000 SERIES: SANITARY SEWER

6-005	SANITARY SEWER CLEANOUT
6-010	FORCEMAIN PRESSURE CLEANOUT
6-015	LATERAL CONNECTION TO WASTEWATER SYSTEM WITH SANITARY WYE
6-020	LESS THAN 13' DEEP PRECAST CONCRETE MANHOLE
6-025	13' - 40' DEEP PRECAST CONCRETE MANHOLE
6-030	CCTV CAMERA ACCESS
6-035	STANDARD MANHOLE FRAME AND COVER
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6-055	TYPE "A" DROP SEWER CONNECTION
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6-065	SANITARY SEWER LIFT STATION (3 SHEETS)
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6-075	CONCRETE COLLAR WITH CONTRACTION JOINTS
6-080	60" POLYMER MANHOLE (2 SHEETS)
6-085	<i>(Reserved for future use)</i>
6-090	PIPE JOINTS AT POLYMER MANHOLE
6-095	<i>(Reserved for future use)</i>
6-100	TWO STAGE GREASE INTERCEPTOR
6-105	THREE STAGE GREASE INTERCEPTOR
6-110	OIL/WATER/GRIT SEPARATOR
6-115	CONTROL SAMPLING VAULT
6-120	RECREATIONAL VEHICLE DISPOSAL FACILITY

7-000 SERIES: STREET LIGHTS

7-005	STREET LIGHT ASSEMBLY 8'x 8' HI-RISE MAST ARM(S) ON 32' STEEL POLE
7-010	STREET LIGHT ASSEMBLY 72"x 20" MAST ARM AND 25' STEEL POLE
7-015	STREET LIGHT DESIGN
7-020	STREET LIGHT SPACING
7-025	STREET LIGHT LAYOUT
7-030	STREET LIGHT ASSEMBLY DETAIL INTERNAL POLE WIRING FOR UNDERGROUND CIRCUIT
7-035	PROTECTIVE COATING FOR STEEL LIGHT POLES
7-040	STREET LIGHT FIXTURES LED LUMINAIRES
7-045	<i>(Reserved for future use)</i>
7-050	HEAVY DUTY POLYMER JUNCTION BOX FOR STREET LIGHT SERVICE
7-055	MAST ARM CONNECTION DETAIL
7-060	ROUND POLE HAND HOLE DETAIL
7-065	BASE PLATE DISPLAY
7-070	POLE STEP-DOWN DETAIL
7-075	STREET LIGHT STRUCTURAL NOTES
7-080	POLE FOOTING DETAIL
7-085	MAST ARM DETAILS (3 PAGES)
7-090	32' STEEL POLE
7-095	25' STEEL POLE

8-000 SERIES: TRAFFIC SIGNING

8-005	PLACEMENT REQUIREMENTS FOR TRAFFIC SIGNS (2 SHEETS)
8-010	STOP SIGN AND STREET NAME SIGN PLACEMENT
8-015	ALL-WAY STOP TO 2-WAY STOP TRANSITION
8-020	TRAFFIC SIGN MOUNTING (4 SHEETS)
8-025	STREET NAME SIGN MOUNTING BRACKETS (2 SHEETS)
8-030	GUIDELINES FOR WARNING SIGN PLACEMENT
8-035	STOP SIGN VISIBILITY AND ADVANCE WARNING
8-040	SIGNING OF ONE-WAY EXIT DRIVEWAYS
8-045	WORK ZONE IDENTIFICATION SIGN (2 SHEETS)
8-050	STREET NAME SIGN LAYOUT AND DESIGN (6 SHEETS)

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9-005	TYPE "O" CONTROLLER CABINET LAYOUT (2 SHEETS)
9-010	ELECTRIC SERVICE ENCLOSURE ON CONTROLLER CABINET (2 SHEETS)
9-015	TRAFFIC SIGNAL CONTROL CABINET FOUNDATION
9-020	TYPICAL PULL BOX INSTALLATION (3 SHEETS)
9-025	NO. 9 VAULT INSTALLATION (3 SHEETS)
9-030	CABINET, POLE, AND PEDESTAL GROUNDING
9-035	MAST ARM SIGNAL MOUNTING ASSEMBLY, 3 TO 5 SECTION STRAIGHT
9-040	MAST ARM SIGNAL MOUNTING ASSEMBLY, 5 SECTION CLUSTER MOUNT
9-045	SIGNAL MOUNTING ASSEMBLIES FOR POLES AND PEDESTALS (4 SHEETS)
9-050	SIGNAL POLE FOUNDATIONS (2 SHEETS)
9-055	TYPE SP-1A AND SP-1B TRAFFIC SIGNAL POLE AND MAST ARM (4 SHEETS)
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9-080	TRAFFIC SIGNAL SET UP DESIGN (2 SHEETS)
9-085	CONDUIT AND PULL BOXES AT CONTROLLER CABINET
9-090	TRAFFIC SIGNAL FIBER OPTIC CABLE CONNECTIONS
9-095	SCHEMATIC TRAFFIC SIGNAL FIBER OPTIC CHANNEL CONNECTIONS
9-100	TYPICAL TRAFFIC SIGNAL FIBER OPTIC CHANNEL COMPLEX SPLICES
9-105	LOOP SYSTEM INSTALLATION (5 SHEETS)
9-110	EXAMPLE OF TRAFFIC SIGNAL LAYOUT FOR CONDUIT, CABLE, AND ELECTRICAL CONNECTIONS DESIGN (4 SHEETS)
9-115	SPEED LIMIT BEACON ASSEMBLY
9-120	TEMPORARY SPAN WIRE TRAFFIC SIGNAL ASSEMBLY
9-125	TAPE COLOR CODES FOR TRAFFIC SIGNAL WIRING
9-130	INTELLIGENT CENTRAL CONTROL UNIT FOR SHELF MOUNT (2 SHEETS)
9-135	IT/COMMUNICATIONS TRENCH DETAIL
9-140	ETHERNET RADIO DETAIL
9-145	CCTV CAMERA DETAIL
9-150	VIDEO DETECTION SPECIFICATIONS

10-000 SERIES: PAVEMENT MARKINGS

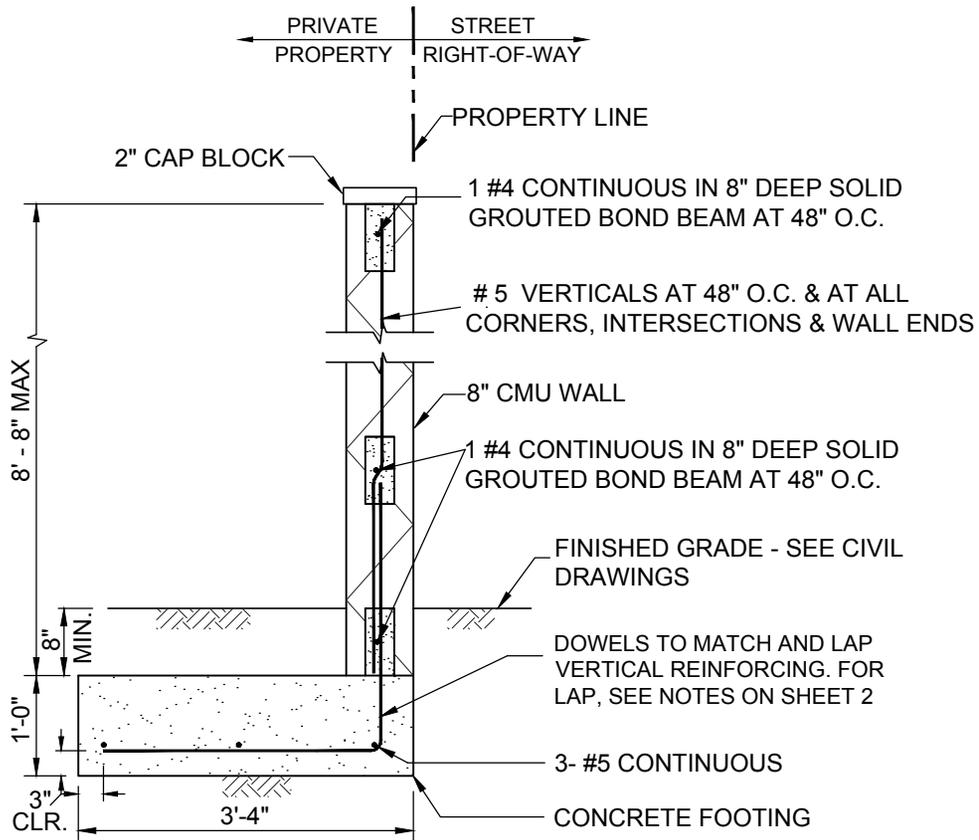
10-005	TAPER LENGTHS FOR PAVEMENT MARKING AND WORK ZONE/SPECIAL EVENT TRAFFIC CONTROL
10-010	APPROACH END TREATMENT FOR MEDIANS (2 SHEETS)
10-015	LANE DROP SIGNING AND MARKING
10-020	INTERSECTION PAVEMENT MARKINGS
10-025	PAVEMENT MARKING DEFINITIONS

11-000 SERIES: STORMWATER AND EROSION CONTROL

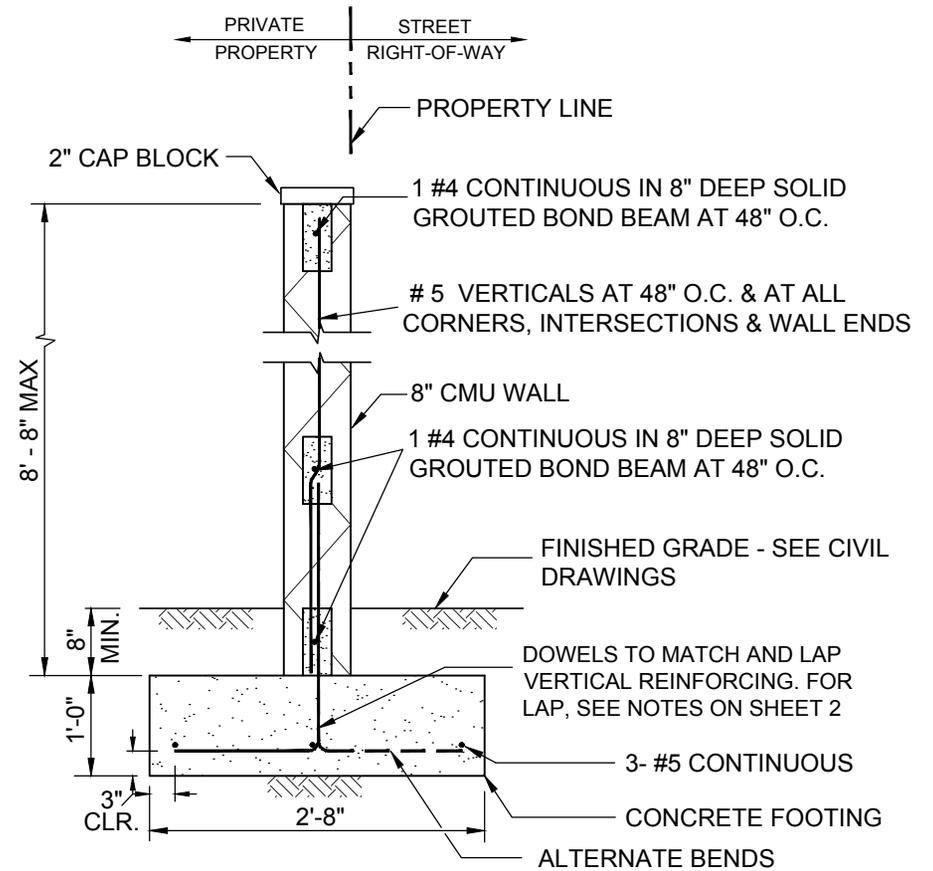
11-005	TYPE A CATCH BASIN FOR USE WITHOUT CURB AND GUTTER
11-010	TYPE B CATCH BASIN 5' TO 6' CURB OPENING WITH ACCESS
11-015	TYPE C CATCH BASIN 8' CURB OPENING WITH ACCESS
11-020	TYPE D CATCH BASIN
11-025	TYPE E CATCH BASIN SINGLE, DOUBLE, OR TRIPLE GRATE
11-030	TYPE F CATCH BASIN CURB OPENING WITH SINGLE, DOUBLE OR TRIPLE GRATE
11-035	CATCH BASIN WITH HDPE STRUCTURE
11-040	COVER FOR ACCESS OPENING TYPE "B" AND "C" CATCH BASINS
11-045	CURB OPENING INLET AND PIPE ENTRY DETAIL
11-050	CONCRETE SCUPPER
11-055	CONCRETE PIPE COLLAR
11-060	REINFORCED CONCRETE PIPE END SECTION
11-065	SPILLWAY INLET AND OUTLET
11-070	EROSION PROTECTION, GABIONS
11-075	STABILIZED CONSTRUCTION EXIT/ENTRANCE
11-080	SILT FENCE
11-085	SEDIMENT WATTLE
11-090	GRAVEL FILTER BERM
11-095	PIPE OUTLET PROTECTION
11-100	TEMPORARY DIVERSION DIKE
11-105	TEMPORARY DRAINAGE SWALE
11-110	CONCAVE MEDIAN
11-115	INLET PROTECTION (2 SHEETS)
11-120	CONCRETE WASHOUT AREA
11-125	STORM DRAIN SAFETY GRATE
11-130	STORM SEWER LIFT STATION (3 SHEETS)

12-000 SERIES: OVERHEAD UTILITIES

12-010	OVERHEAD WIRE AND CABLE CLEARANCE AT SIGNIFICANT INTERSECTIONS (3 SHEETS)
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FREESTANDING CMU WALL



**FREESTANDING CMU WALL
w/ ALTERNATE BENDS**

NOTES

1. For location of site walls, see architectural and/or civil drawings.
2. Provide masonry control joints (MCJ) at 24'-0" o.c. max in site walls. Bond beam shall be continuous through MCJ at top & bottom bond beam.
3. This wall is designed as a freestanding site wall with no retaining.
4. No utilities shall pass through footing.
5. Omit mortar in all vertical joints in first course above grade.

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Sheet 1 of 2

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 1-010
NON-RETAINING
8' TALL CMU SITE WALL

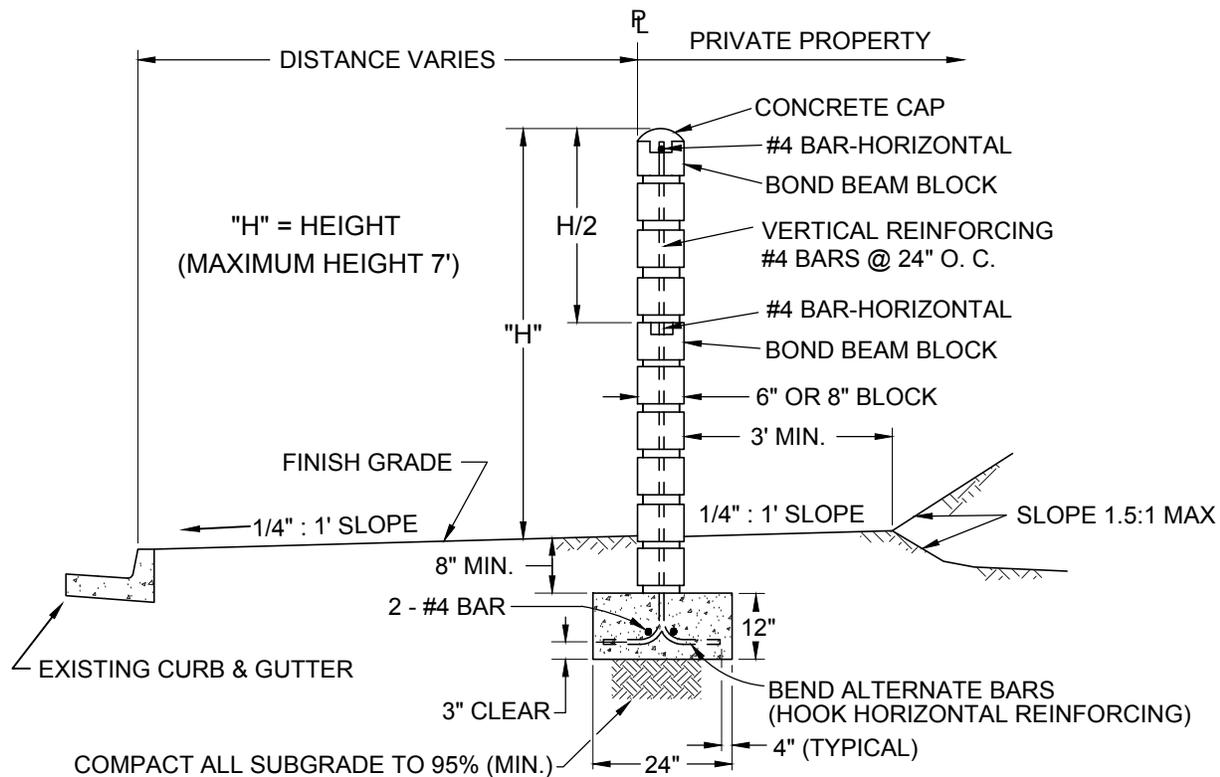
1. All work shall conform to the 2018 International Building Code.
2. Notes and details on drawings shall take precedence over general structural notes and typical details. Where no specific details are shown, construction shall conform to similar work on the project.
3. Verify all dimensions with civil drawings prior to start of construction, resolve any discrepancy with the civil engineer. Do not scale drawings.
4. All footings shall bear on firm, undisturbed native soil. All soil below footings and slabs shall be compacted to 95% minimum in accordance with ASTM D698. Design soil bearing pressure=1500 PSF. The City of Yuma accepts no responsibility for existing soil conditions. Footing design is based upon minimum International Building Code soil bearing values as required by the Building Safety department in the absence of a soil report. It shall be the contractor's responsibility to verify the soil bearing pressure and to determine whether unsuitable soil conditions (I.E., expansive or collapsible soils, loose fill, etc.) exist.
5. The contractor shall take all measures necessary to protect the structure during construction, including, but not limited to, bracing, shoring, etc. The contractor shall be responsible for the design and implementation of all scaffolding, bracing and shoring. Observation visits to the site by the structural engineer shall not include inspection of the above items. The City will not be responsible for the contractor's means, methods, techniques, sequences or procedures of construction nor will the structural engineer be responsible for construction site safety, or the safety precautions and the programs incident thereto.
6. The contract structural drawings represent the finished structure. They do not indicate the method of construction.
7. Provide bent corner bars to match and lap horizontal reinforcing at corners and intersections in masonry wall bond beams and footings.
8. Design loads:
 - a. Assumed soil properties
 - i. Allowable soil bearing pressure= 1,500 PSF
 - b. Wind pressure= 20.0 PSF ULT (based on 99 MPH, Exposure C, Risk Category II)
 - c. Seismic design force= 0.40W, R=1.25
SDS= 0.50, I_E = 1.0, Risk Category II, SDC= D
9. Materials of construction:
 - a. concrete: ACI 318-14
 - i. ASTM C94, F'c = 3,000 PSI at 28 days (design is based on 2,500 PSI).
 - b. reinforcing:
 - i. ASTM A 615 grade 40 for #3 and smaller
 - ii. ASTM A 615 grade 60 for #4 and larger
 - iii. Lap length for #4 bars in concrete is 29"
 - iv. Lap length for #4 bars in CMU is 24"
 - v. Lap length for #5 bars in concrete is 36"
 - vi. Lap length for #5 bars in CMU is 30"
 - vii. Lap length for #6 bars in concrete is 43"
- c. CMU: Masonry work shall conform to TMS 402-16 "Building Code Requirements for Masonry Structures" and the 2018 International Building Code.
 - i. ASTM C90, grade N, type I, F'm=1500 PSI, laid in running bond.
- d. Grout:
 - i. ASTM C476, 2000 PSI at 28 days, tested per ASTM C1019.
 - ii. grout all cells and courses containing reinforcing.
- e. Mortar:
 - i. ASTM C270, Type S, 1800 PSI at 28 days, per ASTM C270 proportion specification.
10. All walls shall be plumb.
11. Backfill shall be compacted to a minimum of 95%.
12. Walls shall not extend into visibility triangles at alleys, driveways and street intersections.
13. Graffiti inhibiting coating required if wall is permitted within City or abutting right-of-way.
FOR ALL WALLS OVER 7'
14. Building permit required from City Building Official.
15. Building Safety inspection required prior to placing footing concrete and grouting activities.
16. Special inspections: special inspections shall be performed by a qualified inspector approved by the building official. The contractor shall be responsible for providing a minimum of 24 hours notice to the special inspector and the testing laboratory prior to beginning any work for which special inspection or testing is required.
 - a. Special inspection is required during the following operations per IBC chapter 17:
 - i. Structural masonry: during preparation of prisms, placement of reinforcing, inspection of footing rebar and vertical dowels prior to pouring footing concrete, inspection of grout space immediately prior to closing of cleanouts and during placement of all grout. Special inspection for placing of units may be performed on a periodic basis.
 - b. Duties and responsibilities of the special inspector:
 - i. The special inspector shall observe the work assigned for conformance with the approved design drawings and specifications.
 - ii. The special inspector shall furnish inspection reports to the building official. All discrepancies shall be brought to the immediate attention of the contractor for correction, then, if uncorrected, to the building official.
 - iii. Upon completion of the assigned work, the special inspector shall complete and sign a final report certifying that to the best of the inspector's knowledge, the work is in conformance with the approved plans and specifications, and the applicable workmanship provisions of the code.

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Sheet 2 of 2

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 1-010
GENERAL STRUCTURAL NOTES
FREESTANDING WALL**



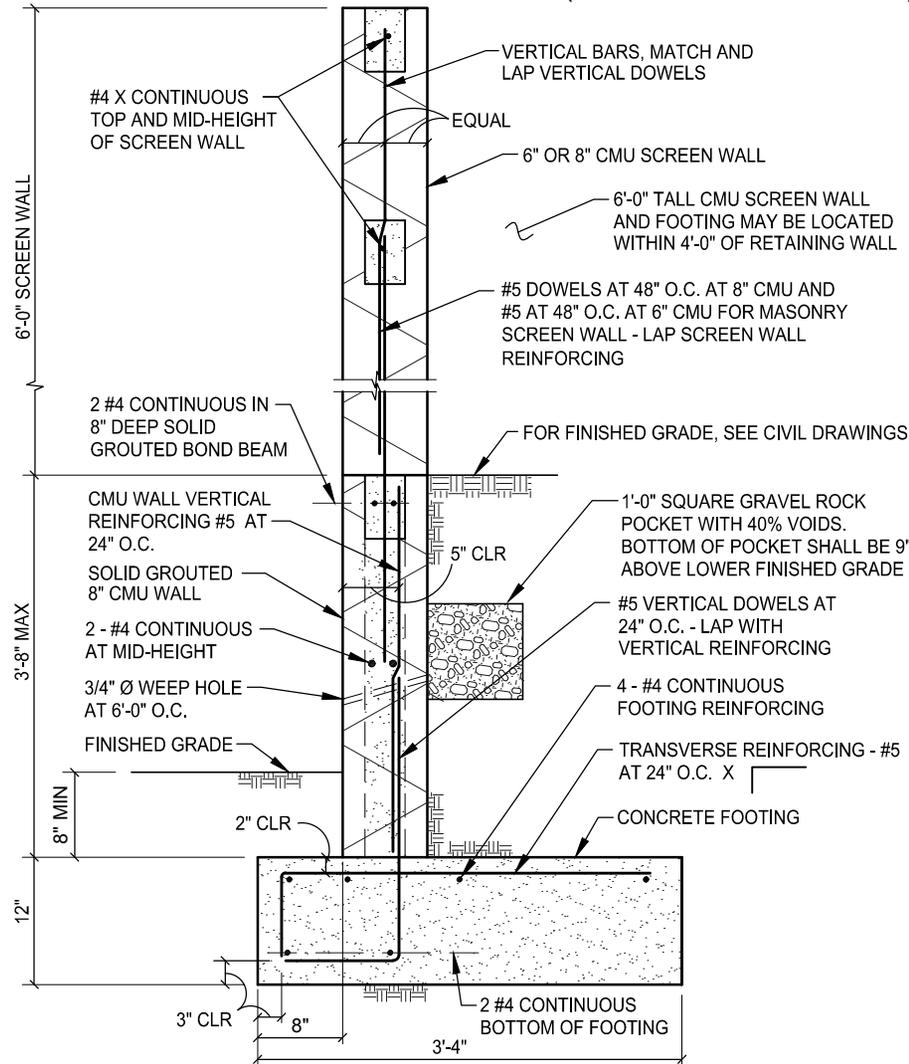
NOTES

1. All blocks below grade and vertical cells containing reinforcing steel shall be filled with grout. In addition, where 6" blocks are used, all cells without vertical reinforcing steel shall be filled with grout to top of bond beam, at mid-height of wall.
2. The block wall courses and footings may be built parallel with the street grade (7% maximum) or stepped.
3. All walls shall be plumb.
4. Backfill shall be compacted to a minimum of 95%.
5. Footings shall be constructed of Class B concrete per MAG section 725.
6. Concrete block shall be Grade A units conforming to ASTM designation No. C-90.
7. Reinforcing steel, grout mortar and Class B concrete shall conform to the latest MAG Standard Specifications
8. Omit mortar in all vertical joints in first course above finish grade.
9. One-half inch (1/2") open expansion joints extending through the footing and entire height of the block wall shall be spaced at a maximum of 50'.
10. Horizontal steel reinforcing shall discontinue through expansion joints and instead shall be doweled for movement.
11. Eliminate mid-height bond beam in walls where "H" dimension is four feet (4') or less.
12. Walls shall not extend into visibility triangles at alleys, driveways and street intersections.
13. A building permit is required for walls taller than seven feet (7'). Building Safety inspection is required prior to placing footing concrete and grouting activities.
14. This detail drawing is only applicable for walls within or adjacent to City of Yuma street rights-of-way.
15. Graffiti inhibiting coating required.

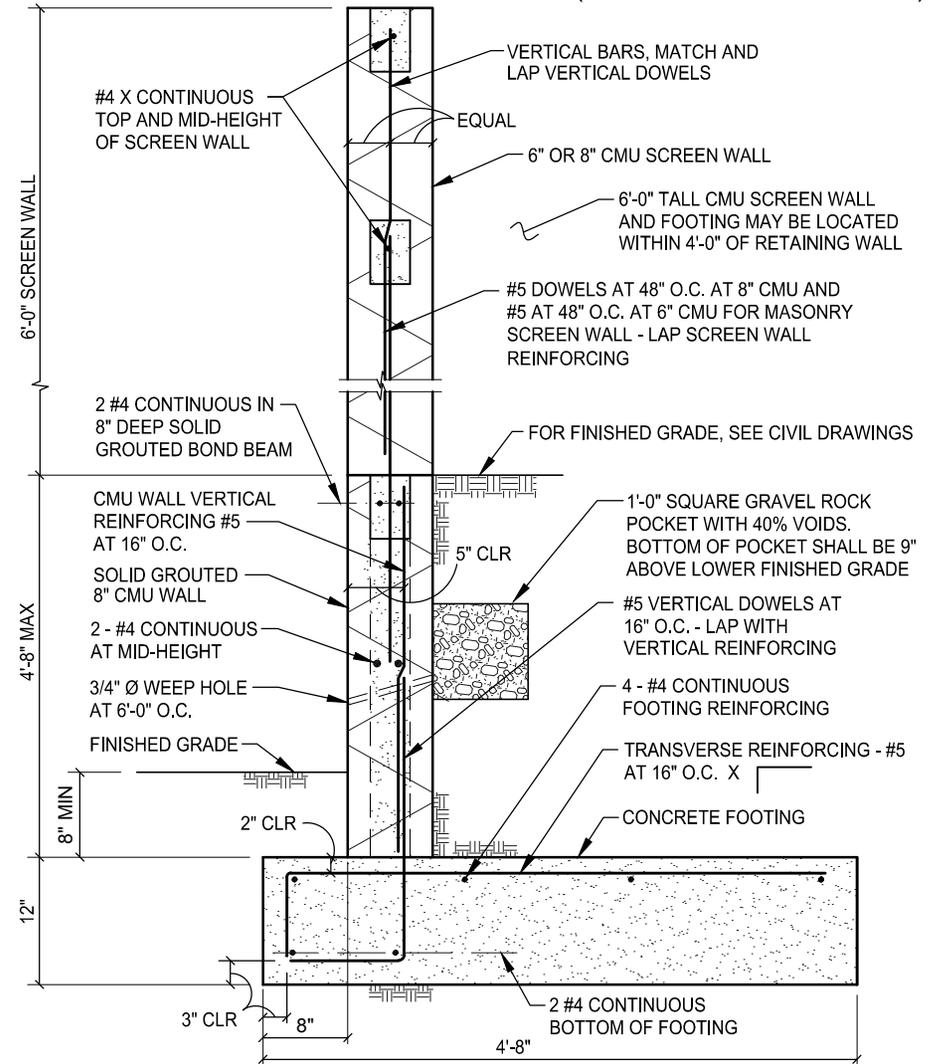
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CITY OF YUMA
 CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 1-015
NON-RETAINING
CONCRETE BLOCK WALL

DETAIL "A" (3'-0" GRADE DIFFERENCE)



DETAIL "B" (4'-0" GRADE DIFFERENCE)



NOTES

1. For location of site walls, see architectural and/or civil drawings.
2. Provide masonry control joints (MCJ) at 24'-0" o.c. maximum in site walls. Bond beam shall be continuous through MCJ at top of screen wall, top of retaining wall and at bottom bond beam.
3. No building footing, swimming pool, roadway, driveway, or parking lot, allowed within 4'-0" of wall. 6'-0" tall CMU screen walls may be located within 4'-0" of the wall.
4. See sheet 4 for utility and stepped footing details, and sheet 5 for general structural notes.
5. Swimming pools located on the high soil side, less than 10'-0" and greater than 4'-0" from the property line face of wall shall be designed with a negative edge pool shell.

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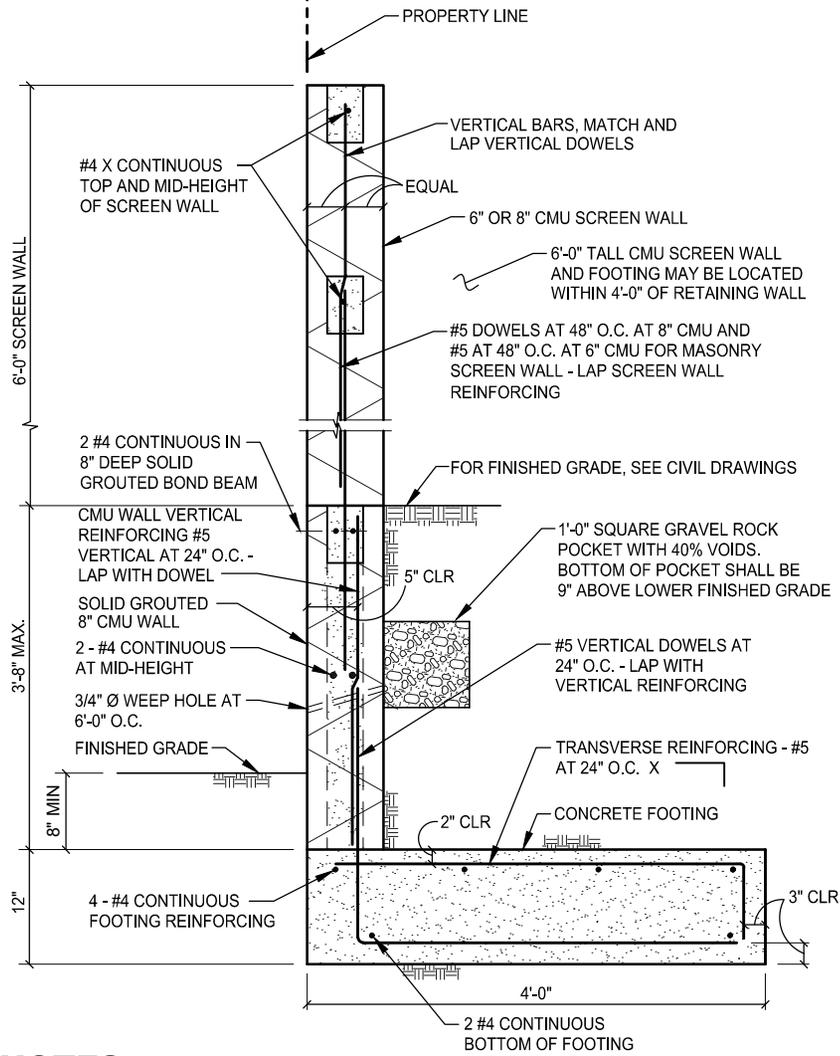
Sheet 1 of 5

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

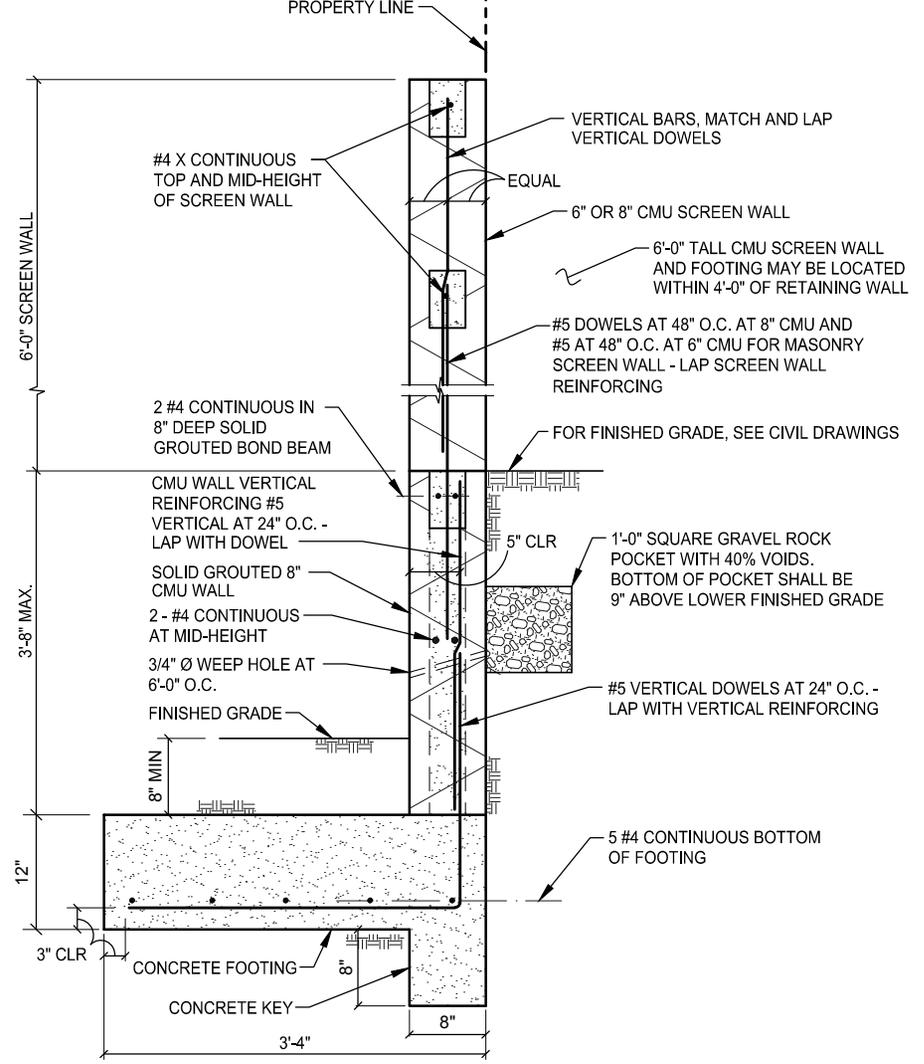
STANDARD NO. 1-020
CMU SITE RETAINING WALL
3'-0" AND 4'-0"

DETAIL "C"

(3'-0" GRADE DIFFERENCE)



DETAIL "D"



NOTES

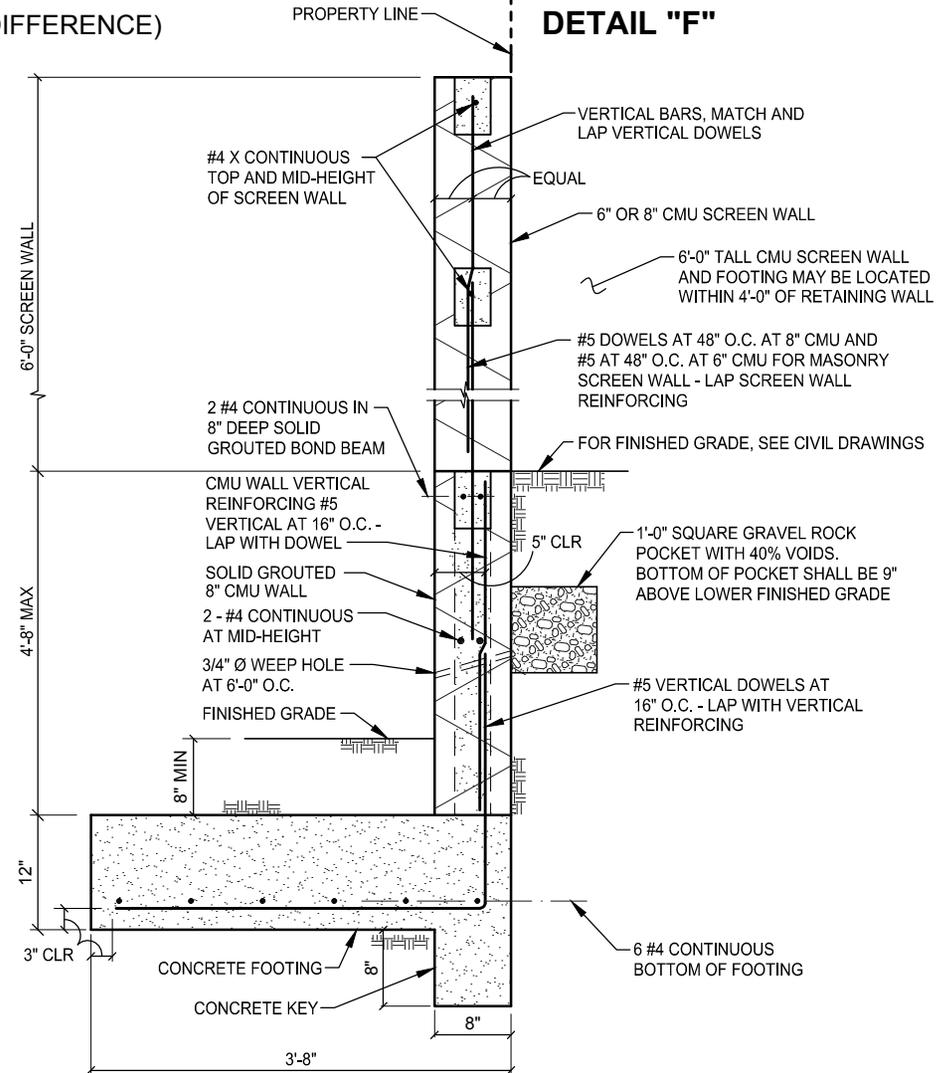
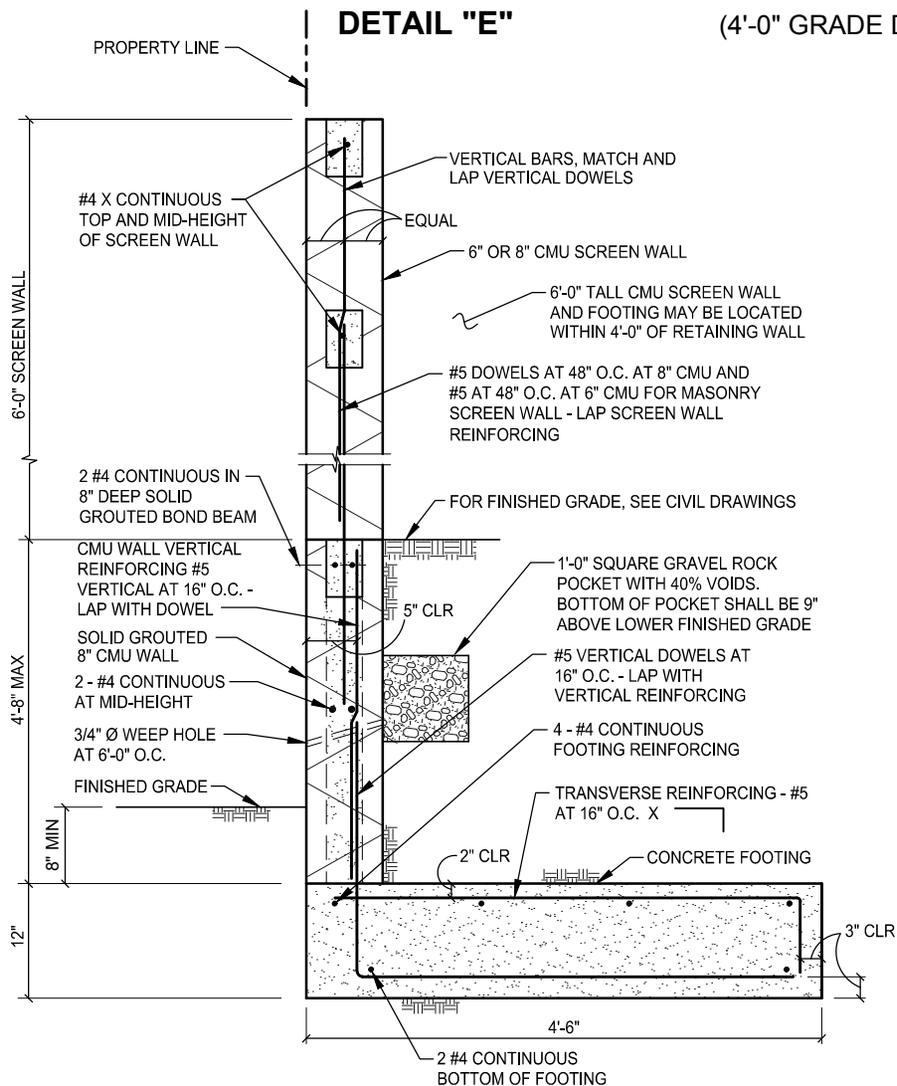
1. For location of site walls, see architectural and/or civil drawings.
2. Provide masonry control joints (MCJ) at 24'-0" o.c. maximum in site walls. Bond beam shall be continuous through MCJ at top of screen wall, top of retaining wall and at bottom bond beam.
3. No building footing, swimming pool, roadway, driveway, or parking lot, allowed within 4'-0" of wall. 6'-0" tall CMU screen walls may be located within 4'-0" of the wall.
4. See sheet 4 for utility and stepped footing details, and sheet 5 for general structural notes.
5. Swimming pools located on the high soil side, less than 10'-0" and greater than 4'-0" from the property line face of wall shall be designed with a negative edge pool shell.

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 1-020
CMU 3'-0" SITE RETAINING WALL
AT PROPERTY LINE



NOTES

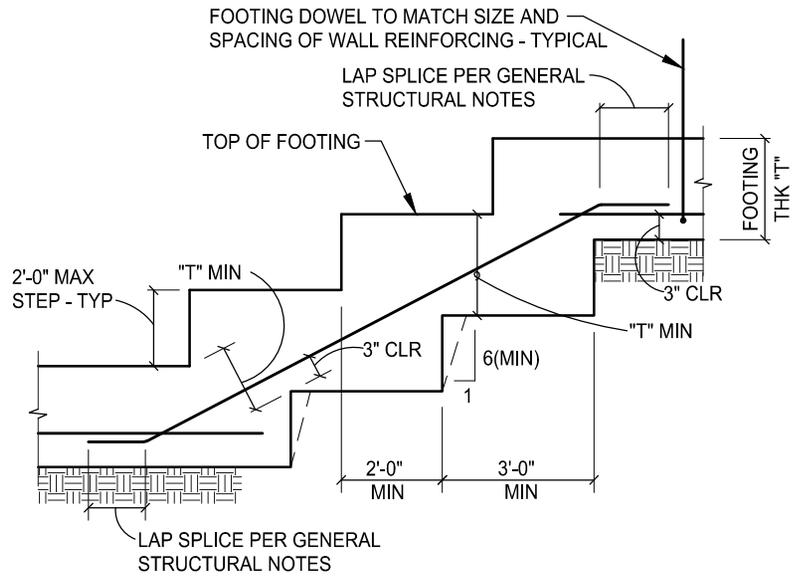
1. For location of site walls, see architectural and/or civil drawings.
2. Provide masonry control joints at (MCJ) 24'-0" o.c. maximum in site walls. Bond beam shall be continuous through MCJ at top of screen wall, top of retaining wall and at bottom bond beam.
3. No building footing, swimming pool, roadway, driveway, or parking lot, allowed within 4'-0" of wall. 6'-0" tall CMU screen walls may be located within 4'-0" of the wall.
4. See sheet 4 for utility and stepped footing details, and sheet 5 for general structural notes.
5. Swimming pools located on the high soil side, less than 10'-0" and greater than 4'-0" from the property line face of wall shall be designed with a negative edge pool shell.

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

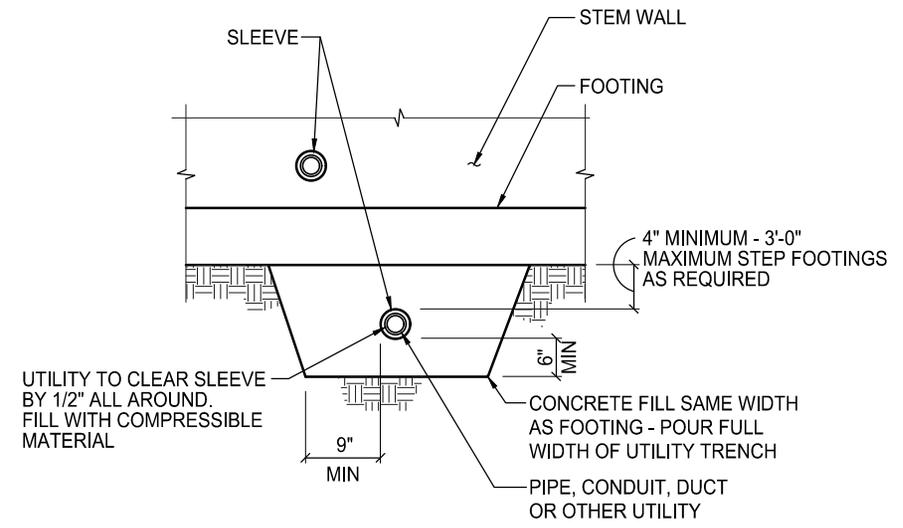
STANDARD NO. 1-020
CMU 4'-0" SITE RETAINING WALL
AT PROPERTY LINE



NOTES

1. This detail shall be used as required to maintain footing depths shown on details.
2. See details for reinforcing and footing sizes.
3. Bottom of footings shall be stepped - sloping footing bottoms are not permitted.

TYPICAL STEPPED FOOTING DETAIL



NOTES

1. No utilities shall pass through footing.
2. Provide 4" minimum spacing between multiple pipes.

UTILITIES THROUGH/UNDER FOUNDATION

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<p>CITY OF YUMA CONSTRUCTION STANDARD DETAIL DRAWINGS</p> <p>STANDARD NO. 1-020 RETAINING WALL TYPICAL DETAILS</p>	

1. All work shall conform to the 2018 International Building Code.
2. Notes and details on drawings shall take precedence over general structural notes and typical details. Where no specific details are shown, construction shall conform to similar work on the project.
3. Verify all dimensions with civil drawings prior to start of construction, resolve any discrepancy with the civil engineer. Do not scale drawings.
4. All footings shall bear on firm, undisturbed native soil. All soil below footings and slabs shall be compacted to 95% minimum in accordance with ASTM D698. Design soil bearing pressure = 1500 PSF. The City of Yuma accepts no responsibility for existing soil conditions. Footing design is based upon minimum international building code soil bearing values as required by the building safety department in the absence of a soil report. It shall be the contractor's responsibility to verify the soil bearing pressure and to determine whether unsuitable soil conditions (I.E., expansive or collapsible soils, loose fill, etc.) exist.
5. The contractor shall take all measures necessary to protect the structure during construction, including, but not limited to, bracing, shoring, etc. The contractor shall be responsible for the design and implementation of all scaffolding, bracing and shoring. Observation visits to the site by the structural engineer shall not include inspection of the above items. The City will not be responsible for the contractor's means, methods, techniques, sequences or procedures of construction nor will the structural engineer be responsible for construction site safety, or the safety precautions and the programs incident thereto.
6. The contract structural drawings represent the finished structure. They do not indicate the method of construction.
7. Provide bent corner bars to match and lap horizontal reinforcing at corners and intersections in masonry wall bond beams and footings.
8. Design loads:
 - a. Assumed soil properties:
 - i. Allowable soil bearing pressure = 1,500 PSF
 - ii. Active soil pressure = 45 PCF
 - iii. Passive soil pressure = 200 PCF
 - iv. Footing/soil friction = 0.30
 - b. Wind pressure= 20.0 PSF ULT (based on 99 MPH, exposure C, risk category II)
 - c. Seismic design force= 0.40W, R=1.25
SDS= 0.50, $I_E = 1.0$, risk category II, SDC= D
 - d. Vertical surcharge = 40 PSF
9. Materials of construction:
 - a. Concrete: ACI 318-14
 - i. ASTM C94, F'c = 3000 PSI at 28 days (design is based on 2,500 PSI).
 - b. Reinforcing -
 - i. ASTM A615 grade 40 for #3 and smaller
 - ii. ASTM A615 grade 60 for #4 and larger
 - iii. Lap length for #4 bars in concrete is 29"
 - iv. Lap length for #4 bars in CMU is 24"
 - v. Lap length for #5 bars in concrete is 36"
 - vi. Lap length for #5 bars in CMU is 30"
 - vii. Lap length for #6 bars in concrete is 43"
 - c. CMU: masonry work shall conform to TMS 402-16 "Building Code Requirements for Masonry Structures" and the 2018 International Building Code.
 - i. ASTM C90, grade N, Type I, F'm = 1500 PSI, laid in running bond.
 - d. Grout:
 - i. ASTM C476, 2000 PSI at 28 days, tested per ASTM C1019.
 - ii. Grout all cells and courses containing reinforcing.
 - e. Mortar:
 - i. ASTM C270, Type S, 1800 PSI at 28 days, per ASTM C270 proportion specification.
10. All walls shall be plumb.
11. Backfill shall be compacted to a minimum of 95%.
12. Walls shall not extend into visibility triangles at alleys, driveways and street intersections.
13. Building permit required from City Building Official.
14. Graffiti inhibiting coating required within city right-of-way.
15. Building safety inspection required prior to placing footing concrete and grouting activities.
16. Special inspections: special inspections shall be performed by a qualified inspector approved by the building official. The contractor shall be responsible for providing a minimum of 24 hours notice to the special inspector and the testing laboratory prior to beginning any work for which special inspection or testing is required.
 - a. Special inspection is required during the following operations per IBC chapter 17:
 - i. Structural masonry: during preparation of prisms, placement of reinforcing, inspection of footing rebar and vertical dowels prior to pouring footing concrete, inspection of grout space immediately prior to closing of cleanouts and during placement of all grout. Special inspection for placing of units may be performed on a periodic basis.
 - b. Duties and responsibilities of the special inspector:
 - i. The special inspector shall observe the work assigned for conformance with the approved design drawings and specifications.
 - ii. The special inspector shall furnish inspection reports to the building official. All discrepancies shall be brought to the immediate attention of the contractor for correction, then, if uncorrected, to the building official.
 - iii. Upon completion of the assigned work, the special inspector shall complete and sign a final report certifying that to the best of the inspector's knowledge, the work is in conformance with the approved plans and specifications, and the applicable workmanship provisions of the code.

Issued: May 2019

Sheet 5 of 5

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 1-020
RETAINING WALL
GENERAL STRUCTURAL NOTES

ASPHALT VARIABLE THICKNESS

TYPE A OR B PAVEMENT REPAIR
FLUSH WITH EXISTING PAVEMENT

FINAL BACKFILL MATERIAL OPTIONS:

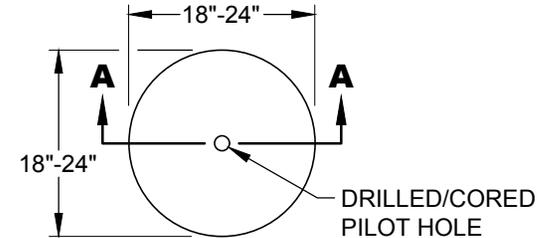
- NATIVE SOIL PER MAG SECTION 601 (TYPE B ONLY)
- ABC PER MAG SECTION 702 (TYPE B ONLY)
- 1/2-SACK CONTROLLED LOW STRENGTH MATERIAL PER MAG SECTION 728

HIGHEST EXISTING UTILITY(S)

MATERIAL TO CONFORM TO
MAG SECTION 601

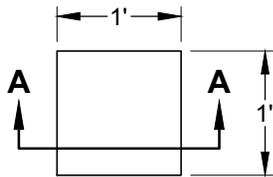
SECTION VIEW

**TYPE B
PAVEMENT REPAIR**

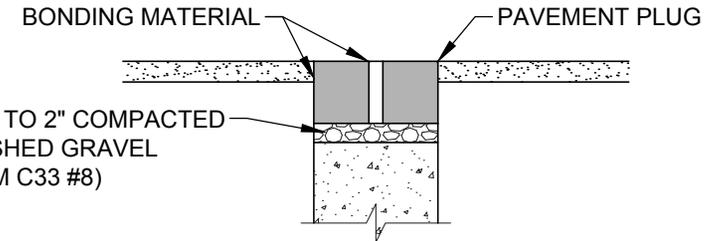


PLAN VIEW

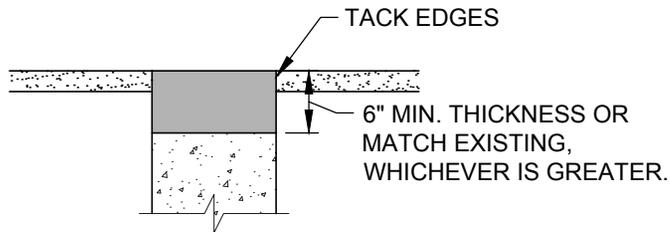
**TYPE A
PAVEMENT REPAIR**



PLAN VIEW



SECTION A-A



SECTION A-A

NOTES

1. Cut, remove and replace pavement. Plug in accordance with MAG Section 355.
2. Place backfill in accordance with MAG Section 355.
3. Bonding material shall be as specified in MAG Section 708.

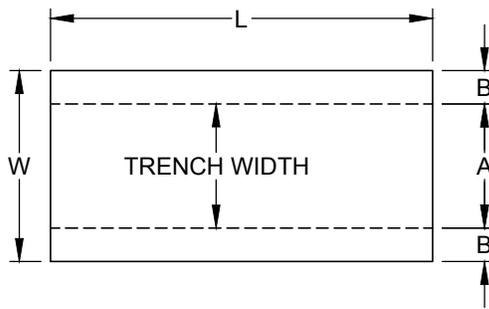
NOTES

1. Dimensions are nominal.
2. Edges shall be cut to a neat vertical face.
3. Place controlled low strength material backfill in accordance with MAG section 604.
4. Place agency-approved asphalt concrete in maximum 2" lifts.

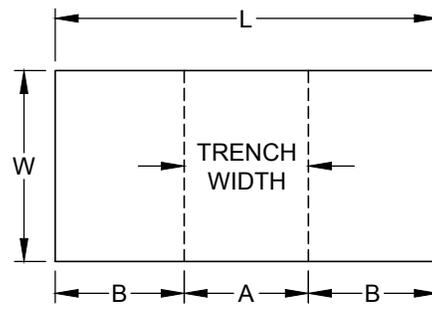
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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

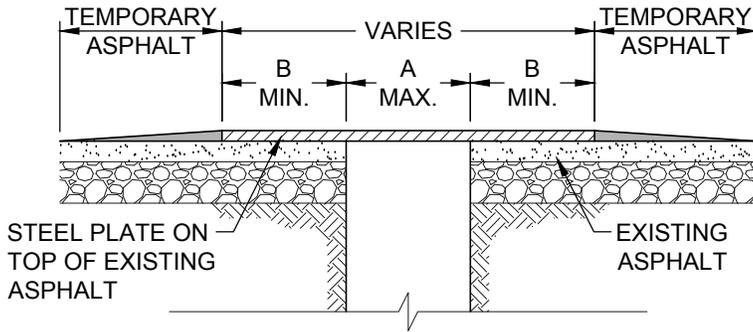
**STANDARD NO. 1-025
UTILITY POTHOLE
REPAIR**



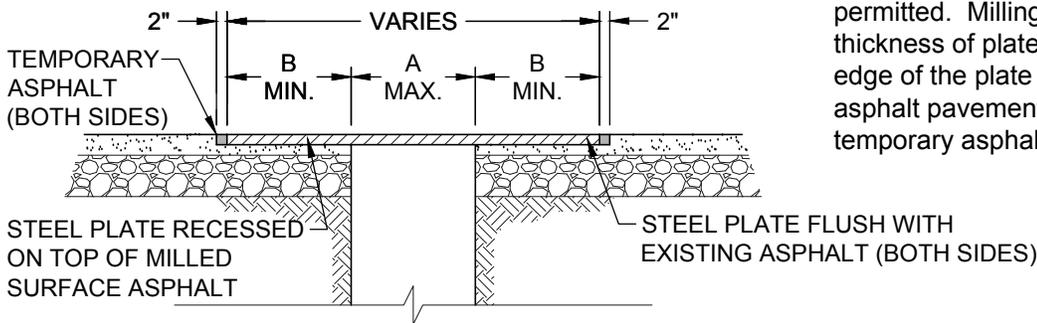
LONGITUDINAL STEEL PLATE



TRANSVERSE STEEL PLATE



TYPE 1



TYPE 2

NOTES

1. Use Type 1 plate installation where posted speed limit is less than 30 MPH. Use Type 2 installation where posted speed limit is 30 MPH or greater.
2. For Type 2 plate installation, the steel plate shall be recessed by milling into the existing asphalt to set flush with the surface of the existing asphalt. Full depth cutting of pavement section outside of trench is not permitted. Milling depth shall match thickness of plate. The gap between the edge of the plate and the adjacent existing asphalt pavement must be filled with temporary asphalt.
3. Trench widths are based on an analysis per the 14th edition of Standard Specifications for Highway Bridges by AASHTO. An assumed axle loading of 12 tons with a 30% impact factor was used. The axle length is 6 feet; therefore the number of wheels carried by a plate depends on the roadway width.
4. Steel plate must be able to withstand H-20 traffic loadings without any movement.
5. Plates shall be fabricated from ASTM A36 steel (min).
6. Plates shall be secured from lateral movement and vertical vibration (associated noise) while in use by temporary asphalt (cold mix.)

PLATE SIZE

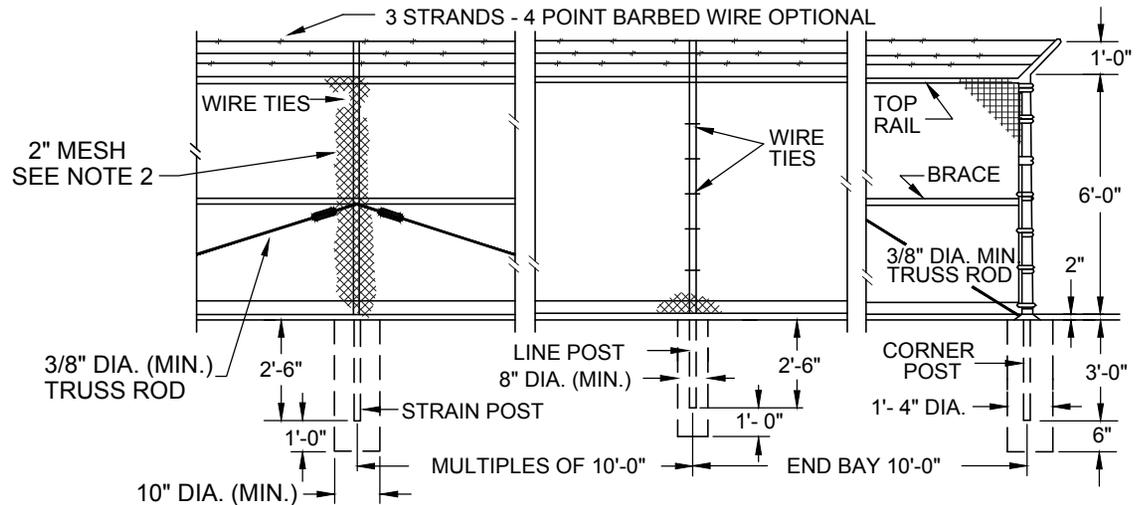
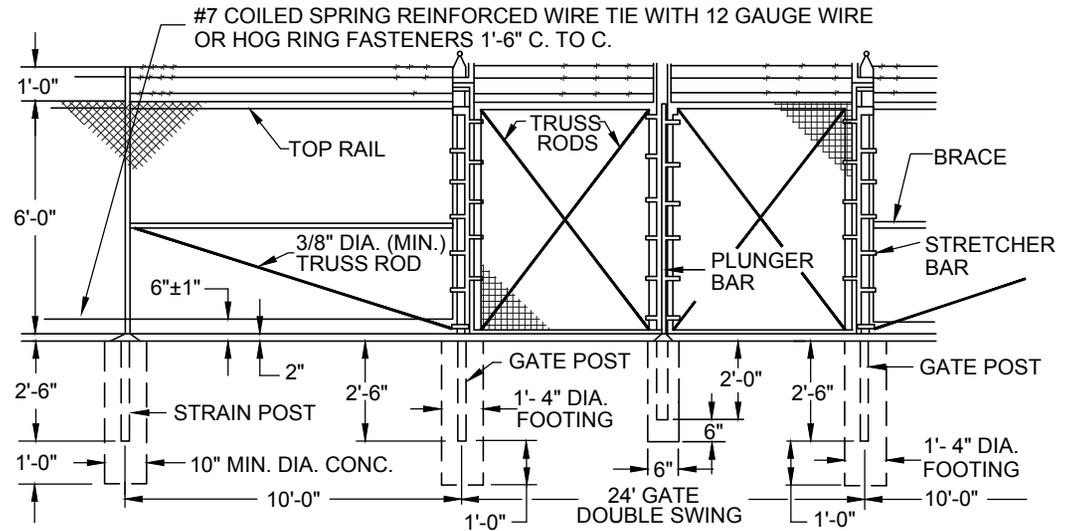
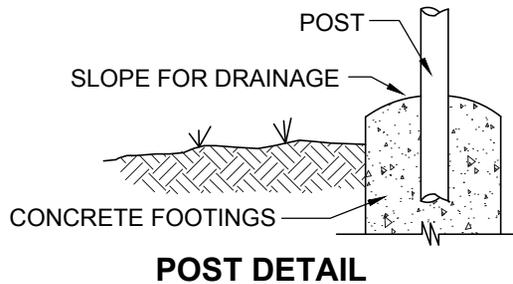
LONGITUDINAL					TRANSVERSE	
(A)	(B)	THICKNESS	(W)	(L)	(A)	(B)
12"	18"	1"	4'	8'	58"	19"
12"	18"	1"	4'	10'	58"	31"
24"	18"	1"	5'	10'	70"	25"
36"	18"	1"	6'	10'	44"	38"
48"	18"	1"	7'	10'	52"	34"
60"	18"	1"	8'	10'	58"	31"
12"	18"	1-1/4"	4'	15'	88"	47"
24"	18"	1-1/4"	5'	12'	104"	20"
36"	18"	1-1/4"	6'	12'	66"	39"
36"	18"	1-1/4"	6'	16'	66"	63"
48"	18"	1-1/4"	7'	12'	76"	33"
48"	18"	1-1/4"	7'	16'	76"	58"
60"	18"	1-1/4"	8'	12'	86"	29"
60"	18"	1-1/4"	8'	15'	86"	47"
60"	18"	1-1/4"	8'	16'	86"	63"
60"	18"	1-1/4"	8'	20'	86"	77"
60"	18"	1-3/8"	8'	20'	102"	69"

Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 1-030
TRENCH PLATING
DETAIL**

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



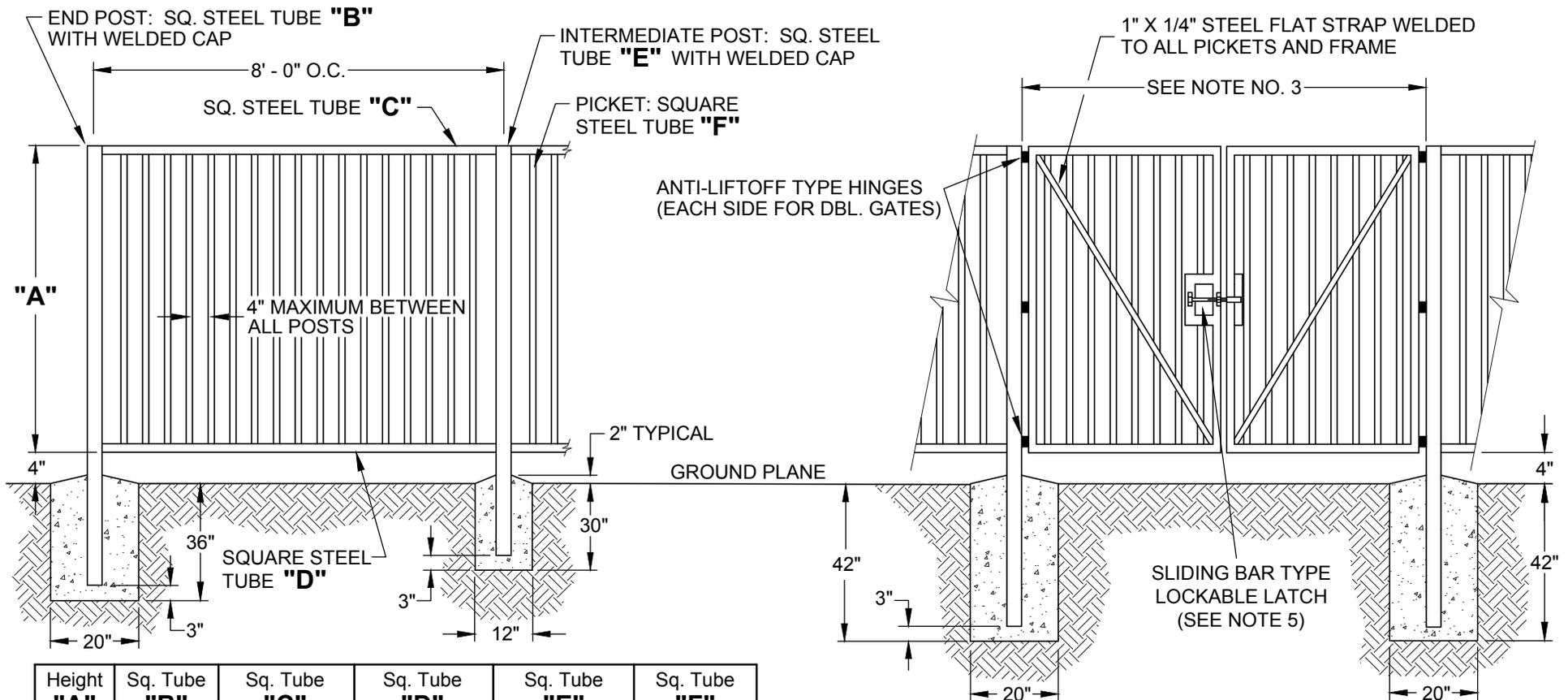
NOTES

1. All concrete shall be Class C per MAG Section 725.
2. Fence fabric shall be nine gauge / 2" mesh chain link.
3. Strain posts shall be spaced at 500' intervals (maximum).
4. Both corner and strain posts shall have at least one strain panel.
5. All posts shall be capped and plumb.
6. Fence shall not extend into visibility triangles at alleys, driveways and street intersections.
7. Fences built in front yard setbacks shall have a maximum height of three feet (3').
8. Construction and materials shall conform to MAG Sections 420 and 772 respectively.
See MAG Table 772-1 for weight of member

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 1-035
6' CHAIN LINK FENCE & GATE
(INDUSTRIAL USE ONLY)



Height "A"	Sq. Tube "B"	Sq. Tube "C"	Sq. Tube "D"	Sq. Tube "E"	Sq. Tube "F"
4'-0"	3" x 3" x 11 Gauge	1 1/2" x 1 1/2" 14 Gauge	1 1/2" x 1 1/2" 14 Gauge	2 1/2" x 2 1/2" 14 Gauge	3/4" x 3/4" x 14 Gauge
6'-0"	4" x 4" x 3/8" thick	2" x 2" x 1/8" thick	2" x 2" x 1/4" thick	3" x 3" x 1/4" thick	1" x 1" x 1/16" thick

NOTES

1. All welded joints shall be free of sharp edges and/or burrs.
2. All metal surfaces shall be black powder coated.
3. Single access gate shall be four feet (4') wide (minimum) and vehicle access shall require two ten foot (10') wide gates (minimum).
4. Field verify all gate openings and fabricate gates to fit.
5. Contractor shall submit design drawings of the gate locking system to the City Engineer for approval.
6. Panels shall be welded to posts. Bolt-up assembly is not permitted.
7. All footings shall consist of class B concrete per MAG section 725.

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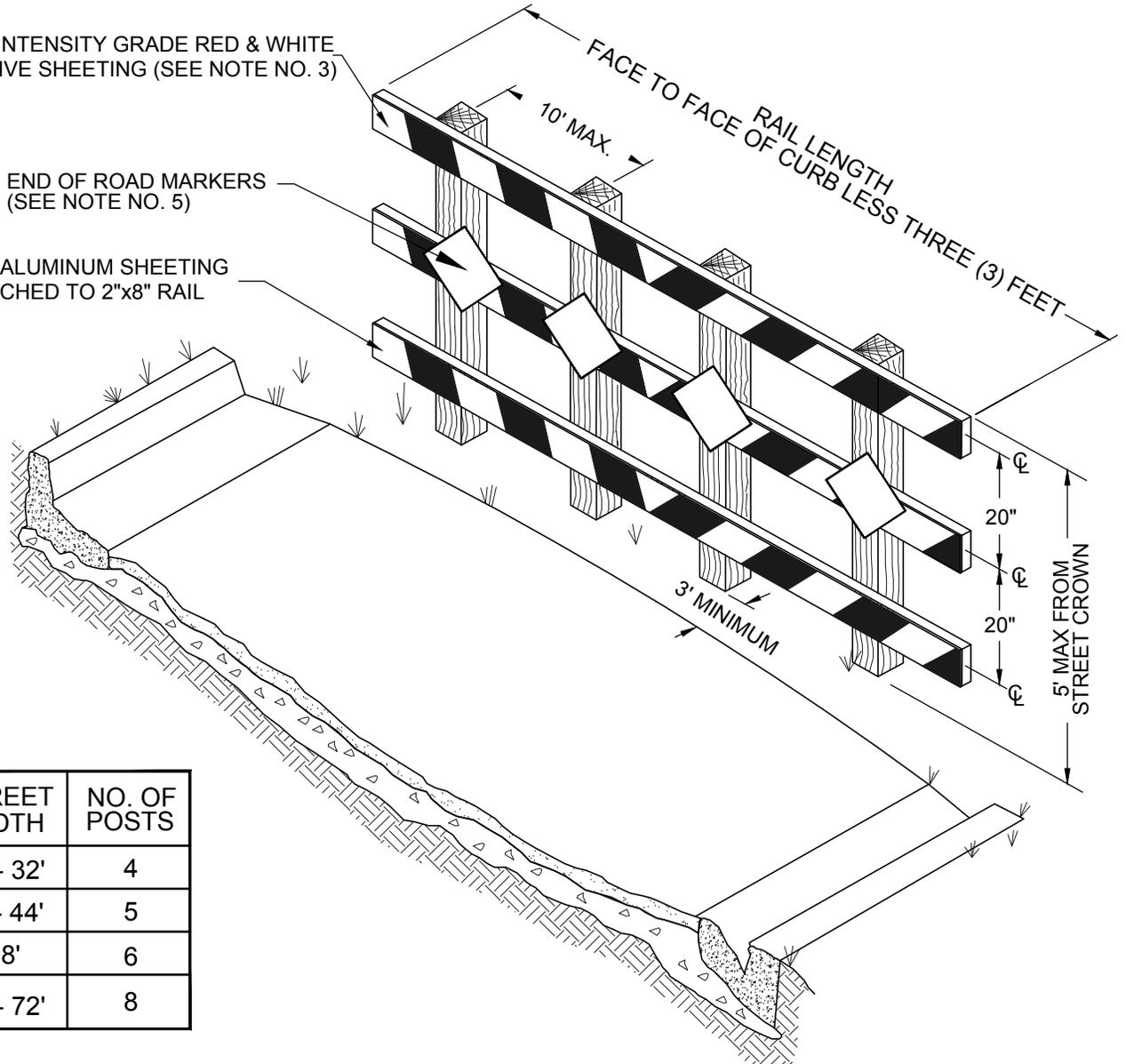
CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 1-040
STEEL TUBE FENCING

3M HIGH INTENSITY GRADE RED & WHITE REFLECTIVE SHEETING (SEE NOTE NO. 3)

END OF ROAD MARKERS (SEE NOTE NO. 5)

.080" ALUMINUM SHEETING ATTACHED TO 2"x8" RAIL

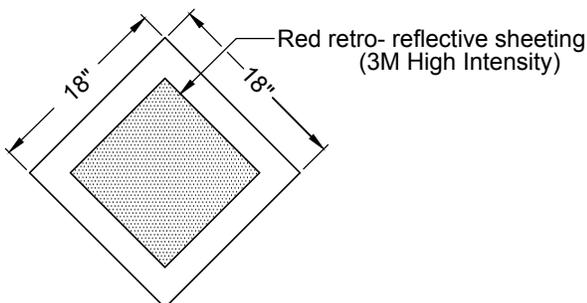


STREET WIDTH	NO. OF POSTS
26' - 32'	4
38' - 44'	5
48'	6
68' - 72'	8

NOTES

1. Barricade posts shall be 6" x 6" x 8' long (minimum) redwood, S4S, and shall be treated for direct burial. Posts shall be buried a minimum of two feet (2') deep and backfill shall be compacted to a minimum of 95%.
2. Rail timber shall be 2" x 8" No. 1 D.F., S4S, and shall receive two coats of exterior grade paint on all surfaces.
3. Barricade stripes shall be 3M Brand, high intensity prismatic grade, reflective tape applied on .080" thick aluminum sheeting or approved equal. Alternate six inch (6") wide red and white reflector tape at a 45° angle (stripes shall slope towards the center of the pavement).
4. Barricade rails are to be attached to the posts using two 3/8" x 10" long steel lag bolts at each contact point.
5. Install end of road markers (see detail below) on every post as per OM4-3 of the "Manual On Uniform Traffic Control Devices".

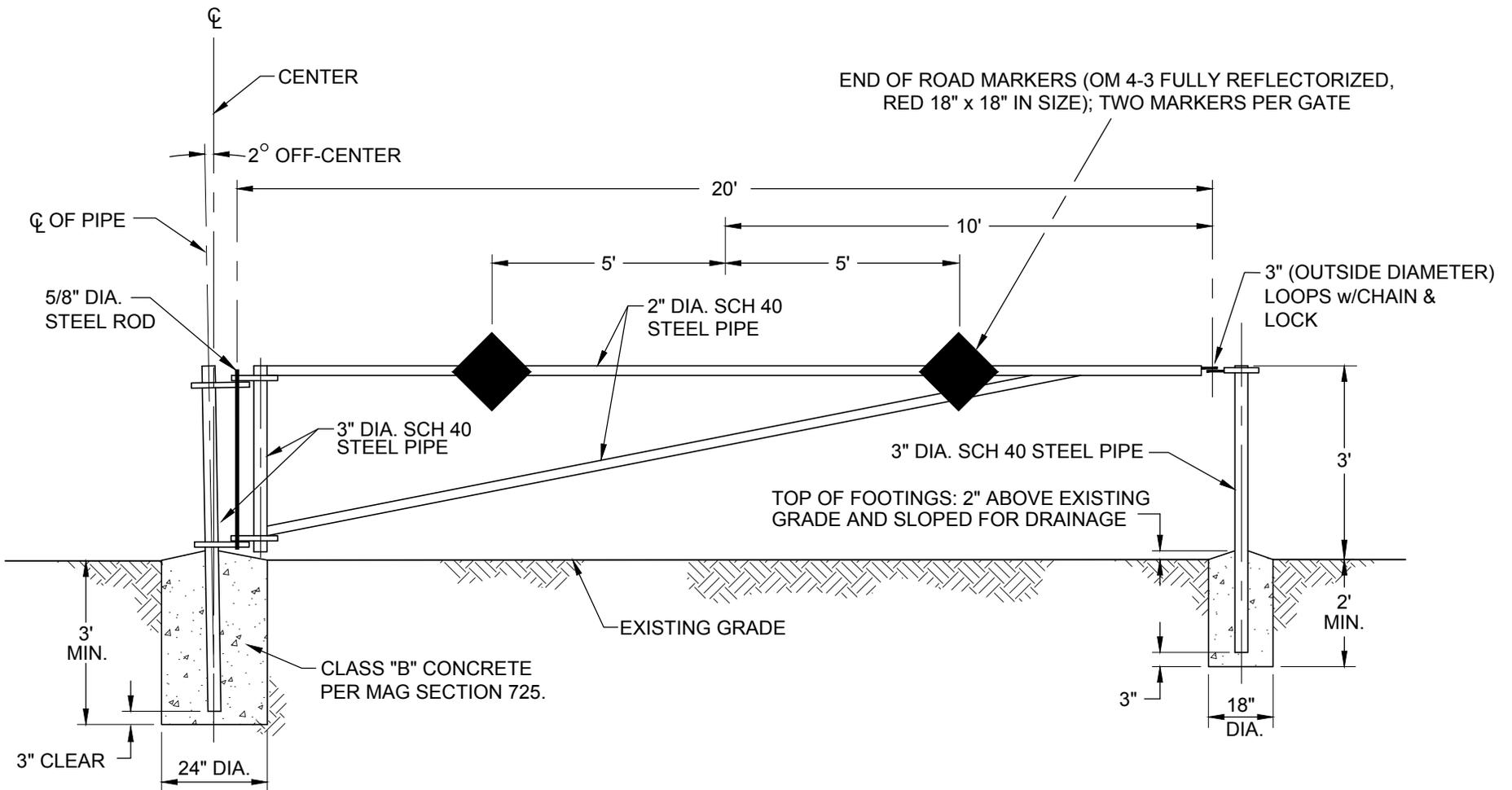
END OF ROAD MARKER (OM4-3)



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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

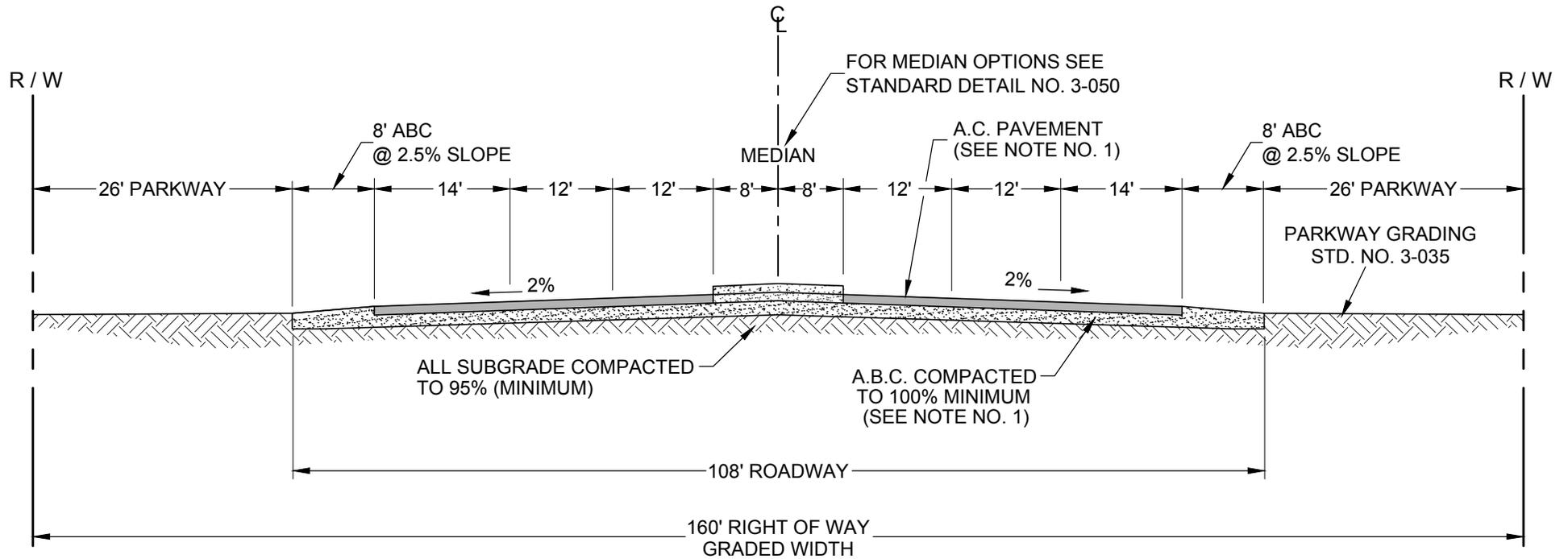
**STANDARD NO. 1-045
TYPE III BARRICADE**



NOTES

1. Gate shall be installed 2° off vertical as shown so it will remain open when unlocked.
2. This gate is for alley, emergency and commercial access.
3. Gate shall swing in the direction of access.
4. Completed assembly shall be painted "Safety Yellow" utilizing paint designed for this purpose.

<p>Issued: May 2019</p>
<p>CITY OF YUMA CONSTRUCTION STANDARD DETAIL DRAWINGS</p> <p>STANDARD NO. 1-050 ACCESS GATE</p>



6 LANE DESIGN

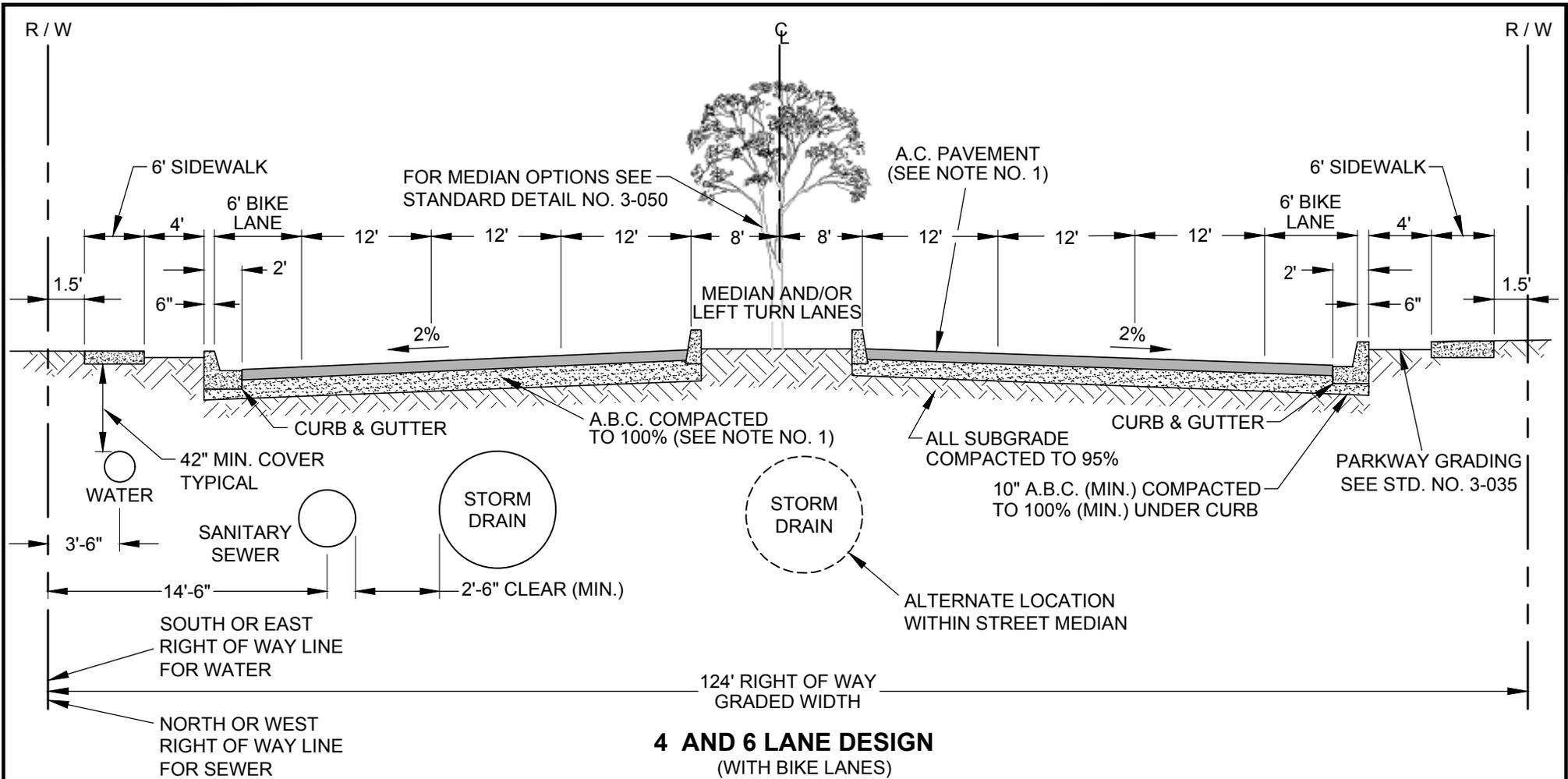
NOTES

1. Structural design of combined thickness of base and surface shall be determined by soil tests. While the soil test may require a greater paving thickness, the following minimum paving thickness is required: 4" plant hot mix asphalt surfacing over 12" of A.B.C. compacted to 100% of maximum density as determined by AASHTO T-99 method C or D.
2. All pavement marking and/or raised pavement markers shall be in accordance with ADOT standards, latest edition.
3. 6" white edge road stripe at 1-1/2' from edge of pavement.
4. All A.B.C. shall be per MAG Specifications.
5. Utility locations shown in Standard Detail 2-010.

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

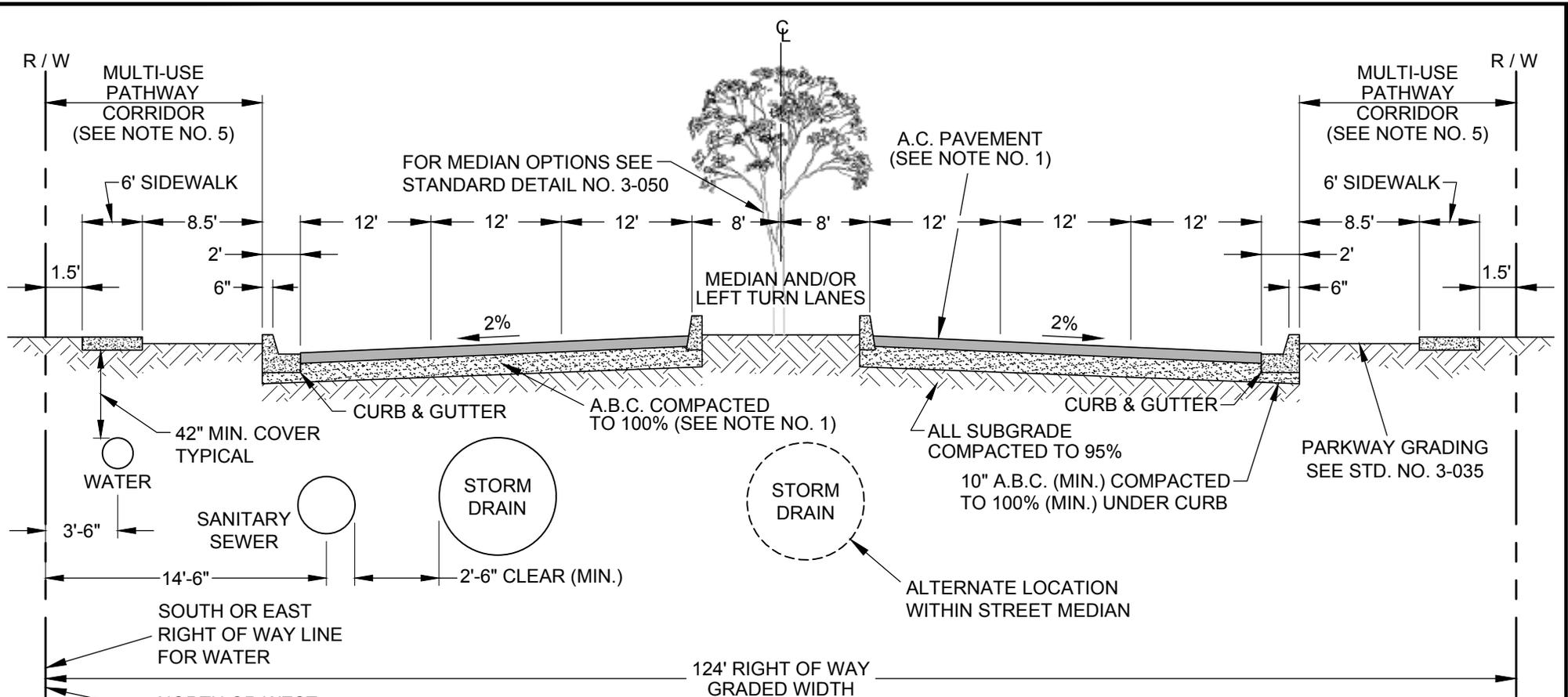
**STANDARD NO. 2-005
EXPRESSWAY**



NOTES

1. Structural design of combined thickness of base and surface shall be determined by soil tests. While the soil test may require a greater paving thickness, the following minimum paving thickness is required: 4" plant hot mix asphalt surfacing over 12" of A.B.C. compacted to 100% of maximum density as determined by AASHTO T-99 method C or D.
2. Sidewalk location detached from curb or as approved by the City Engineer.
3. All pavement marking and/or raised pavement markers shall be in accordance with ADOT standards, latest edition.
4. Parkway and medians shall be planted in accordance with Yuma City Code, Title 15, Chapter 154, Article 20, Landscape Regulations.
5. Bicycle facilities according to the City of Yuma General Plan and most recently adopted supporting facility plans.

Issued: May 2019	Sheet 1 of 2
<p>CITY OF YUMA</p> <p>CONSTRUCTION STANDARD DETAIL DRAWINGS</p> <p>STANDARD NO. 2-010</p> <p>PRINCIPAL ARTERIAL STREET</p>	

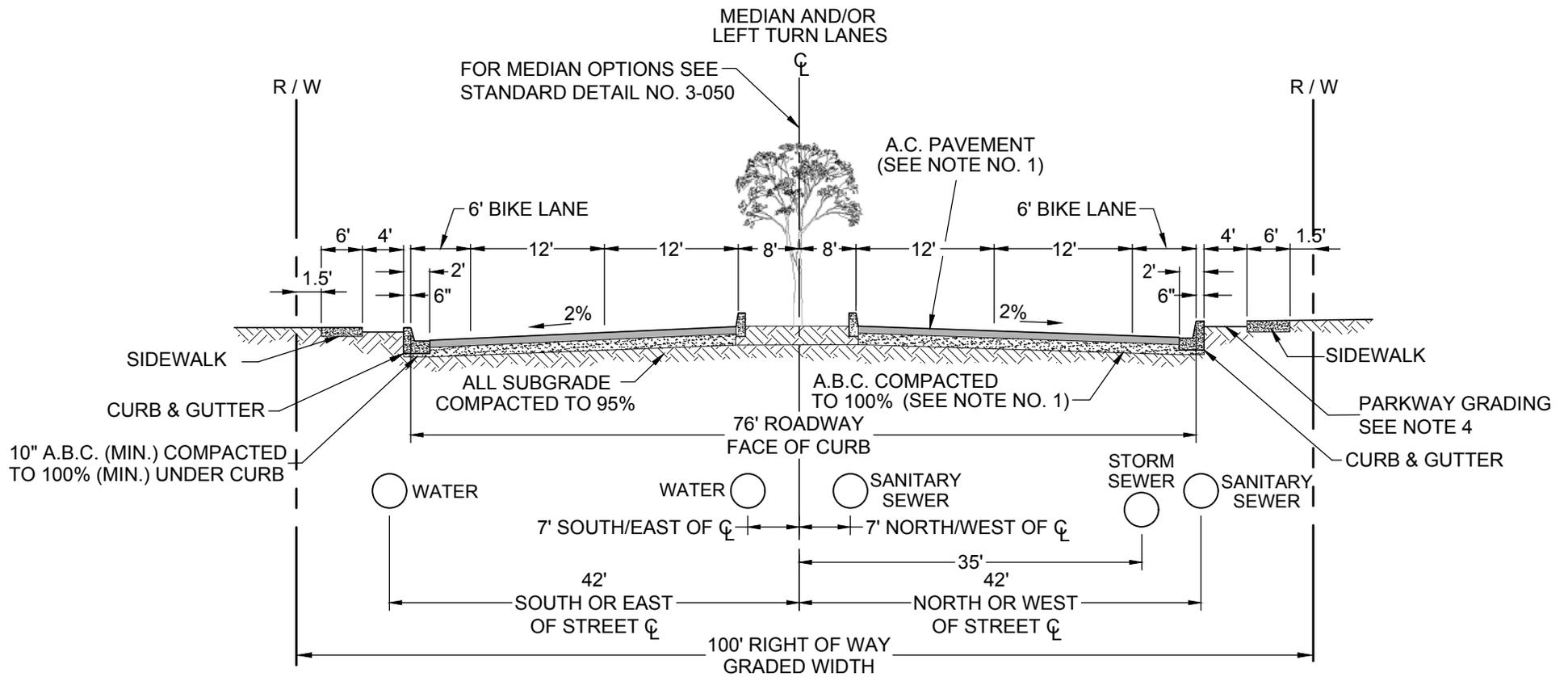


4 AND 6 LANE DESIGN
(WITHOUT BIKE LANES)

NOTES

1. Structural design of combined thickness of base and surface shall be determined by soil tests. While the soil test may require a greater paving thickness, the following minimum paving thickness is required: 4" plant hot mix asphalt surfacing over 12" of A.B.C. compacted to 100% of maximum density as determined by AASHTO T-99 method C or D.
2. Sidewalk location detached from curb or as approved by the City Engineer.
3. All pavement marking and/or raised pavement markers shall be in accordance with ADOT standards, latest edition.
4. Parkway and medians shall be planted in accordance with Yuma City Code, Title 15, Chapter 154, Article 20, Landscape Regulations.
5. Multi-use pathway adjacent to principal arterial streets may require shifting of street centerline 16' to accommodate 10' minimum width for multi-use pathway. Multi-use pathway will be within the 124' right of way needed for principal arterial street.

Issued: May 2019	Sheet 2 of 2
<p>CITY OF YUMA CONSTRUCTION STANDARD DETAIL DRAWINGS</p> <p>STANDARD NO. 2-010 PRINCIPAL ARTERIAL STREET</p>	



4 LANE DESIGN

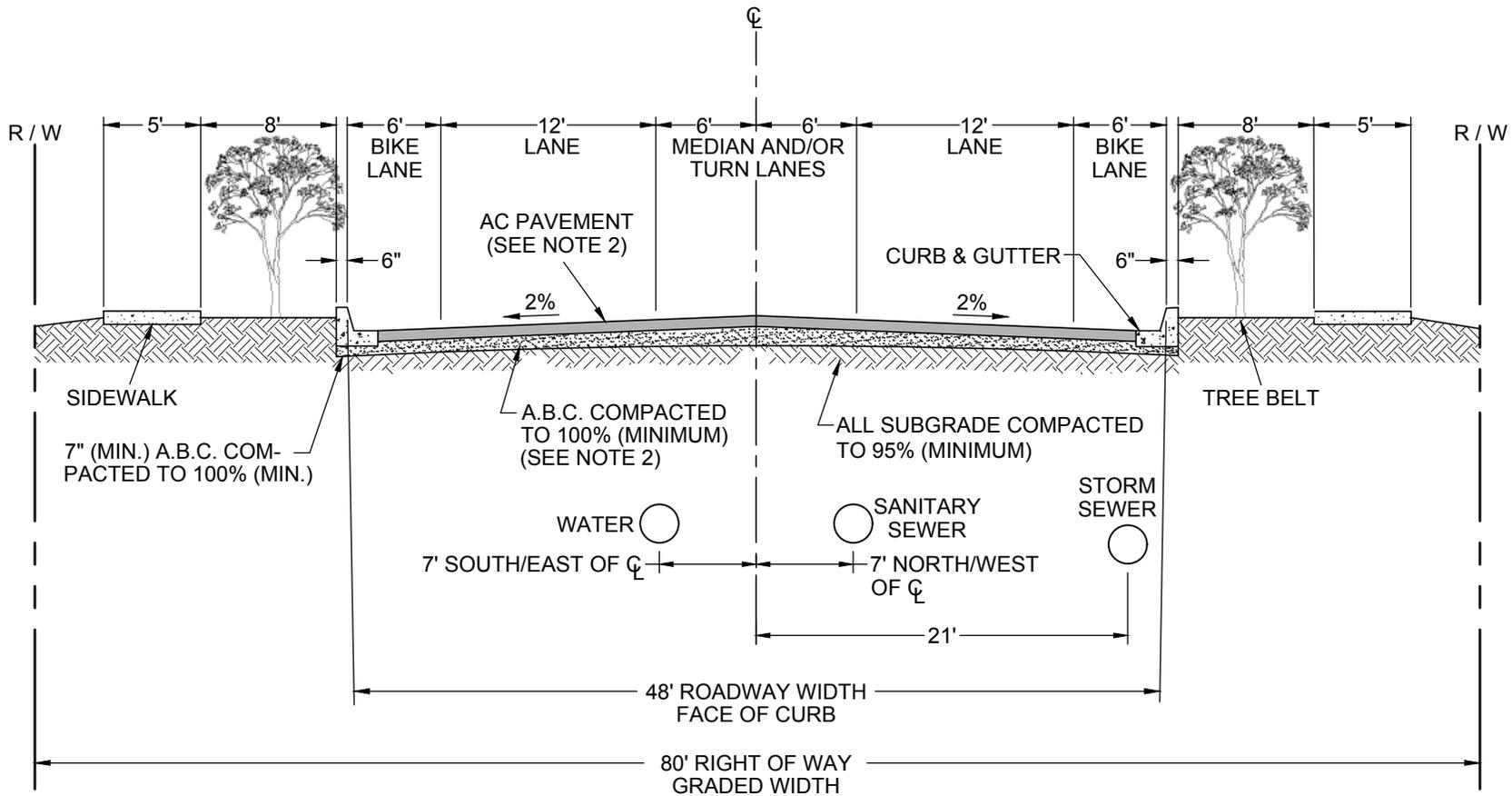
NOTES

1. Structural design of combined thickness of base and surface shall be determined by soil tests. While the soil test may require a greater paving thickness, the following minimum paving thickness is required: 4" plant hot mix asphalt surfacing over 12" of A.B.C. compacted to 100% of maximum density as determined by AASHTO T-99 method C or D.
2. Sidewalk location detached from curb or as approved by the City Engineer.
3. All pavement marking and/or raised pavement markers shall be in accordance with ADOT standards, latest edition.
4. Parkways and medians shall be planted in accordance with Yuma City Code, Title 15, Chapter 154, Article 20, Landscape Regulations.
5. Bicycle facilities according to the City of Yuma General Plan and most recently adopted supporting facility plans.
6. Multi-use pathway adjacent to minor arterial streets may require shifting of street centerline 16' to accommodate 10' minimum width for multi-use pathway. Multi-use pathway will be within the 100' right of way needed for minor arterial street.

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 2-015
MINOR ARTERIAL STREET**



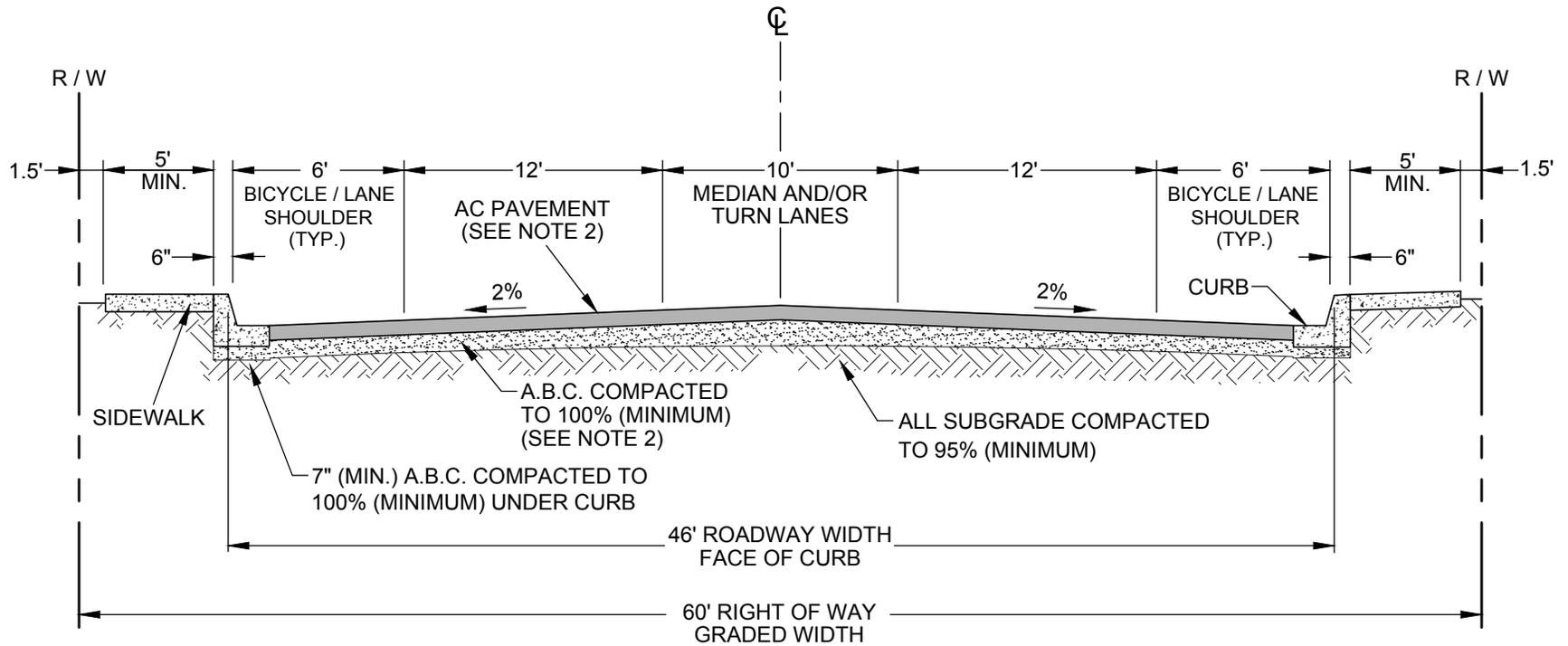
NOTES

1. Structural design of combined thickness of base and surface shall be determined by soils test.
2. Minimum paving thickness: 3" plant hot mix asphalt surfacing over 10" of A.B.C. compacted to 100% of maximum density as determined by AASHTO T-99 method C or D. A.B.C. shall be per MAG Specifications.
3. Sidewalk location detached from curb or as approved by the City Engineer.
4. All pavement marking and/or raised pavement marker material must be in accordance with ADOT standards, latest edition.
5. Bicycle facilities according to the City of Yuma General Plan and most recently adopted supporting facility plans.

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CITY OF YUMA
 CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 2-020
 COLLECTOR STREET**



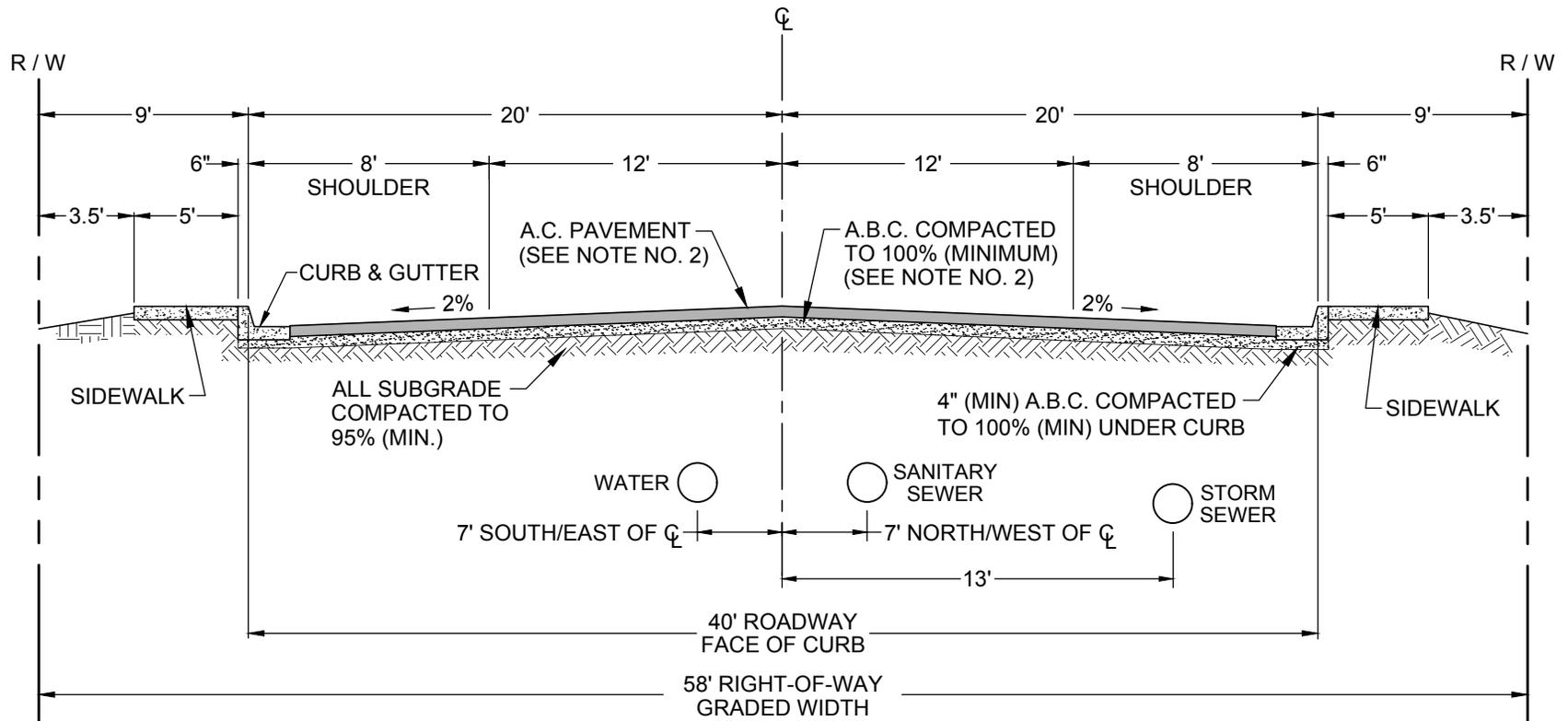
NOTES

1. Structural design of combined thickness of base and surface shall be determined by soils test.
2. Minimum paving thickness: 3" plant hot mix asphalt surfacing over 10" of A.B.C. compacted to 100% of maximum density as determined by AASHTO T-99 method C or D. A.B.C. shall be per MAG Specifications.
3. Sidewalk location adjacent to curb or as approved by the City Engineer.
4. All pavement marking and/or raised pavement marker material must be in accordance with ADOT standards, latest edition.
5. Not for new construction. To be used only when approved by City Engineer in existing developments, or street reconstruction projects.

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 2-025
ALTERNATIVE
COLLECTOR STREET



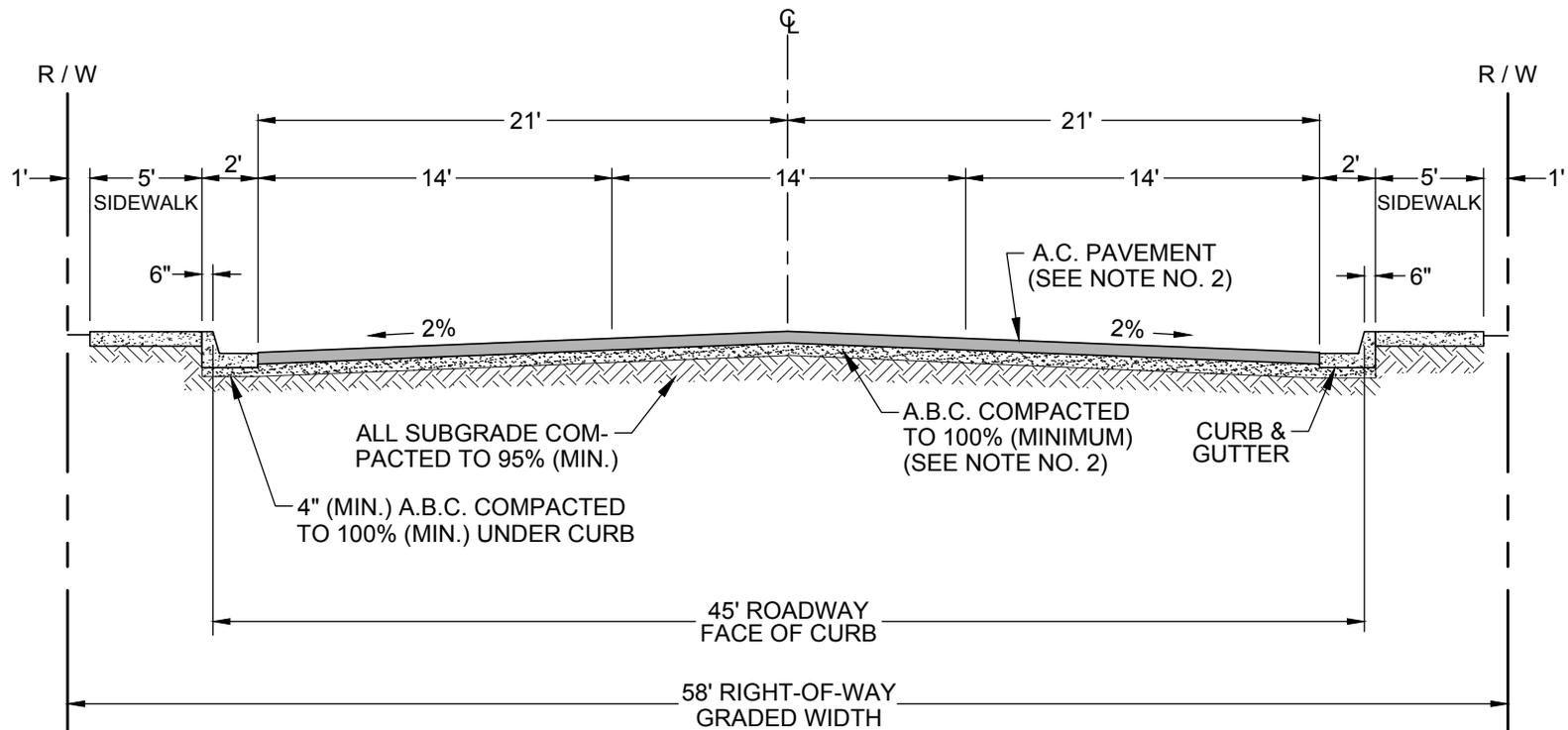
NOTES

1. Structural design of combined thickness of base and surface shall be determined by soils test.
2. Minimum paving thickness shall be 3" plant hot mixed asphalt surfacing over 6" of A.B.C. compacted to 100% of maximum density as determined by AASHTO T-99 method C or D. See Standard Detail 3-015 for A.B.C. thickness required. A.B.C. shall be per MAG Specifications.
3. Sidewalk location adjacent to curb or as approved by the City Engineer.
4. See Standard Detail 3-035 for grading behind sidewalk.
5. Extend aggregate base course beneath curb & gutter. See Standard Detail 3-060.

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 2-030
LOCAL 2 LANE STREET



NOTES

1. Structural design of combined thickness of base and surface shall be determined by soils test.
2. Minimum paving thickness shall be 3" plant mixed surfacing over 10" of A.B.C. compacted to 100% of maximum density as determined by AASHTO T-99 method C or D. A.B.C. shall be per MAG Specifications.
3. Sidewalk location adjacent to curb or as approved by the City Engineer.
4. See Standard Detail 3-035 for grading behind sidewalk.
5. Extend aggregate base course beneath curb & gutter. See Standard Detail 3-060.

Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 2-035
COMMERCIAL/ INDUSTRIAL
STREET

CITY OF YUMA GUIDELINES FOR TRAFFIC IMPACT STUDIES

A traffic impact study may be required for new and expanded or changed developments at the rezoning stage, the platting or lot tie / lot split stage, and for conditional use permits. When state roads are adjacent, such studies must satisfy the requirements of the Arizona Department of Transportation's publication "Traffic Impact Analysis for Proposed Development" (current edition) and those additional requirements specified in the City Engineering Department "Traffic Impact Study Guidelines".

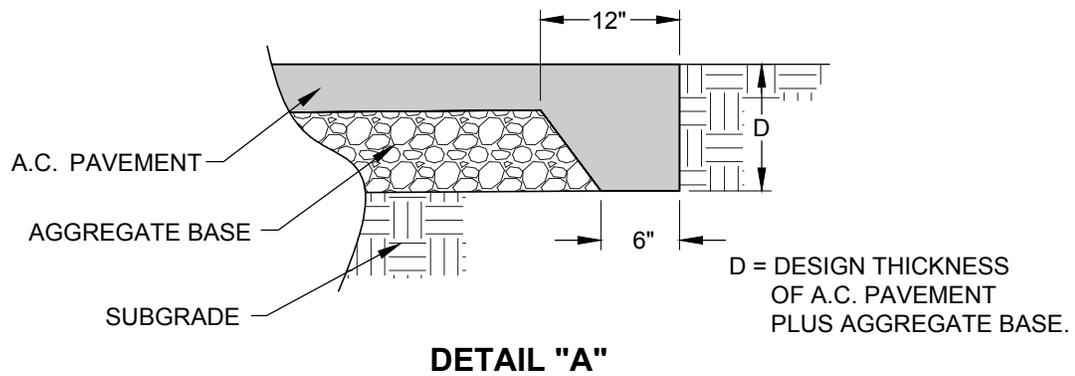
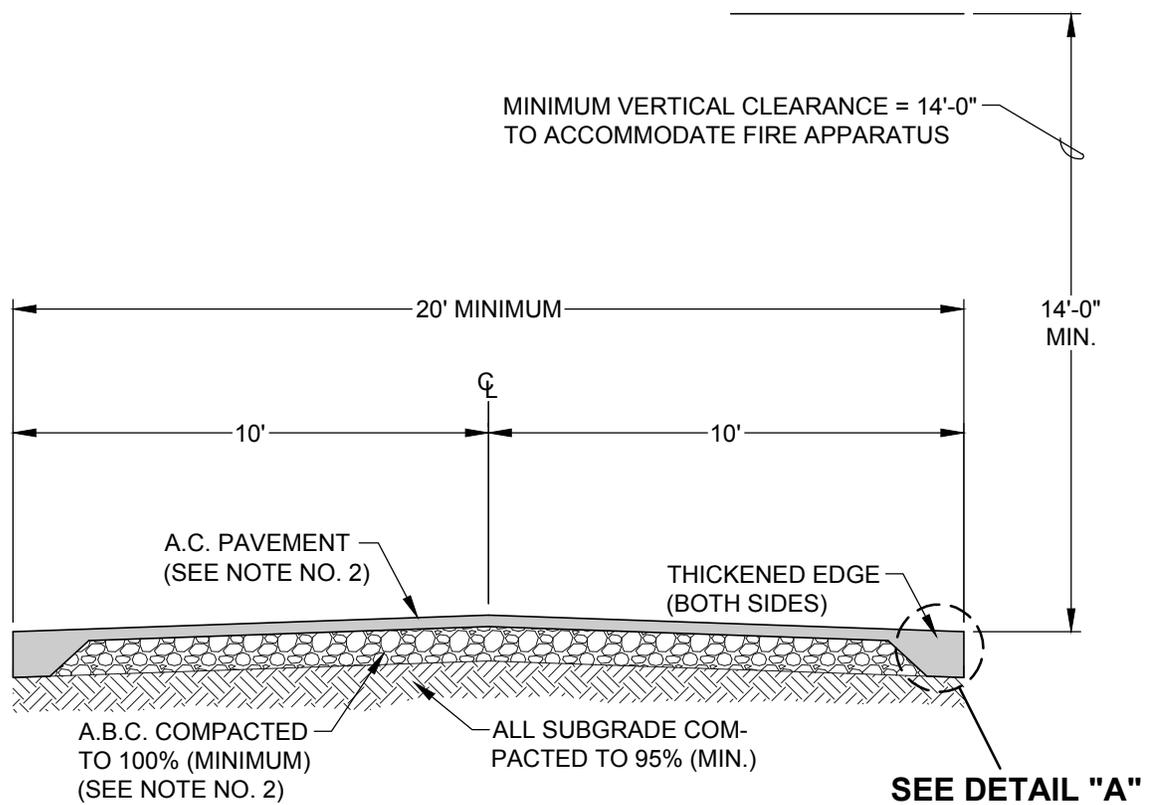
Traffic impact studies may be required for all developments and modifications to developments that are expected to generate 100 or more additional trips during any hour. Where staged or phased development is planned, the traffic impact study must include all development phases. If it becomes apparent that a request is being made for a development that is, in fact, an extension of a recent (less than 5 years) development that already exists or is in progress, and no traffic impact study has been accepted for the original development, the traffic impact study must also include the original development.

The amount of traffic expected to be generated by the development shall be determined using the procedures set forth in "The Trip Generation Manual", current edition, published by the Institute of Transportation Engineers. In all cases, the trip data for a given land use must be at least the average rate for that land use as shown in the tables associated with the land use (the fitted curves data may not be used). The City Engineer may require that a value higher than the average rate be used depending on the specific use or business planned for the site. Said higher value, if required, will not exceed the average rate plus fifty percent (50%) of the difference between the average rate and the maximum rate for the range.

Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 2-040
GUIDELINES FOR TRAFFIC
IMPACT STUDIES**



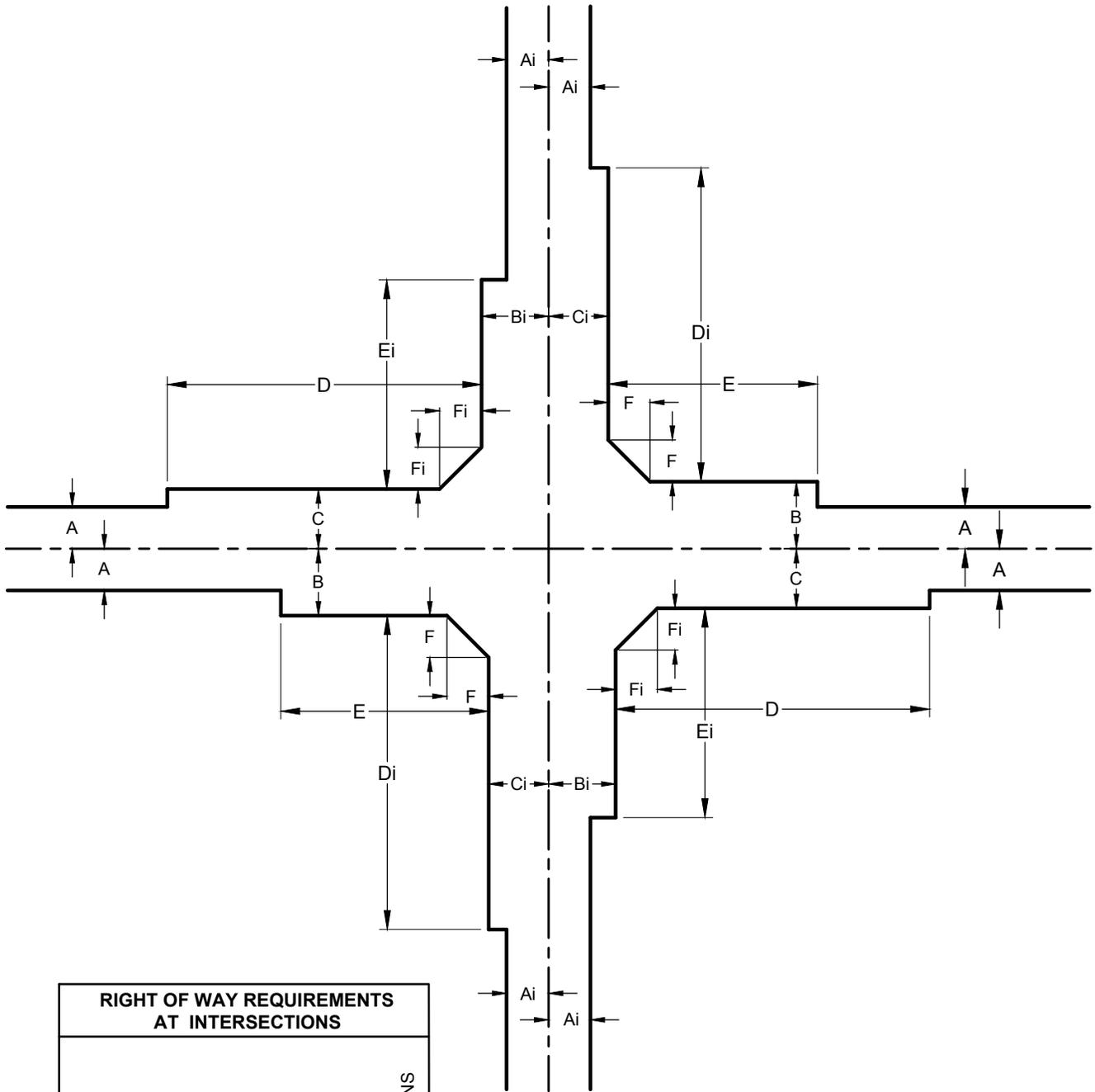
NOTES

1. Structural design of combined thickness of base and surface shall be determined by soils test.
2. Minimum paving thickness shall be 2" plant hot mixed asphalt surfacing over 6" of A.B.C. compacted to 100% of maximum density as determined by AASHTO T-99 method C or D.
3. The turning radius of a fire department access road shall be approved by the fire department, and shall maintain the minimum road width.
4. A.B.C. shall be per MAG Specifications.

Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 2-045
FIRE DEPARTMENT
ACCESS ROAD



RIGHT OF WAY REQUIREMENTS AT INTERSECTIONS							
STREET DIMENSIONS	INTERSECTING STREET DIMENSIONS						
LOCAL RESIDENTIAL	COMMERCIAL / INDUSTRIAL	COLLECTOR	MINOR ARTERIAL	PRINCIPAL ARTERIAL	EXPRESSWAY		
A = 29'	29'	40'	50'	62'	80'	= Ai	
B = N/A	N/A	64'	68'	80'	92'	= Bi	
C = N/A	N/A	57'	61'	73'	85'	= Ci	
D = N/A	N/A	300'	450'	450'	800'	= Di	
E = N/A	N/A	200'	250'	300'	500'	= Ei	
F = 25'	25'	40'	75'	75'	75'	= Fi	

Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

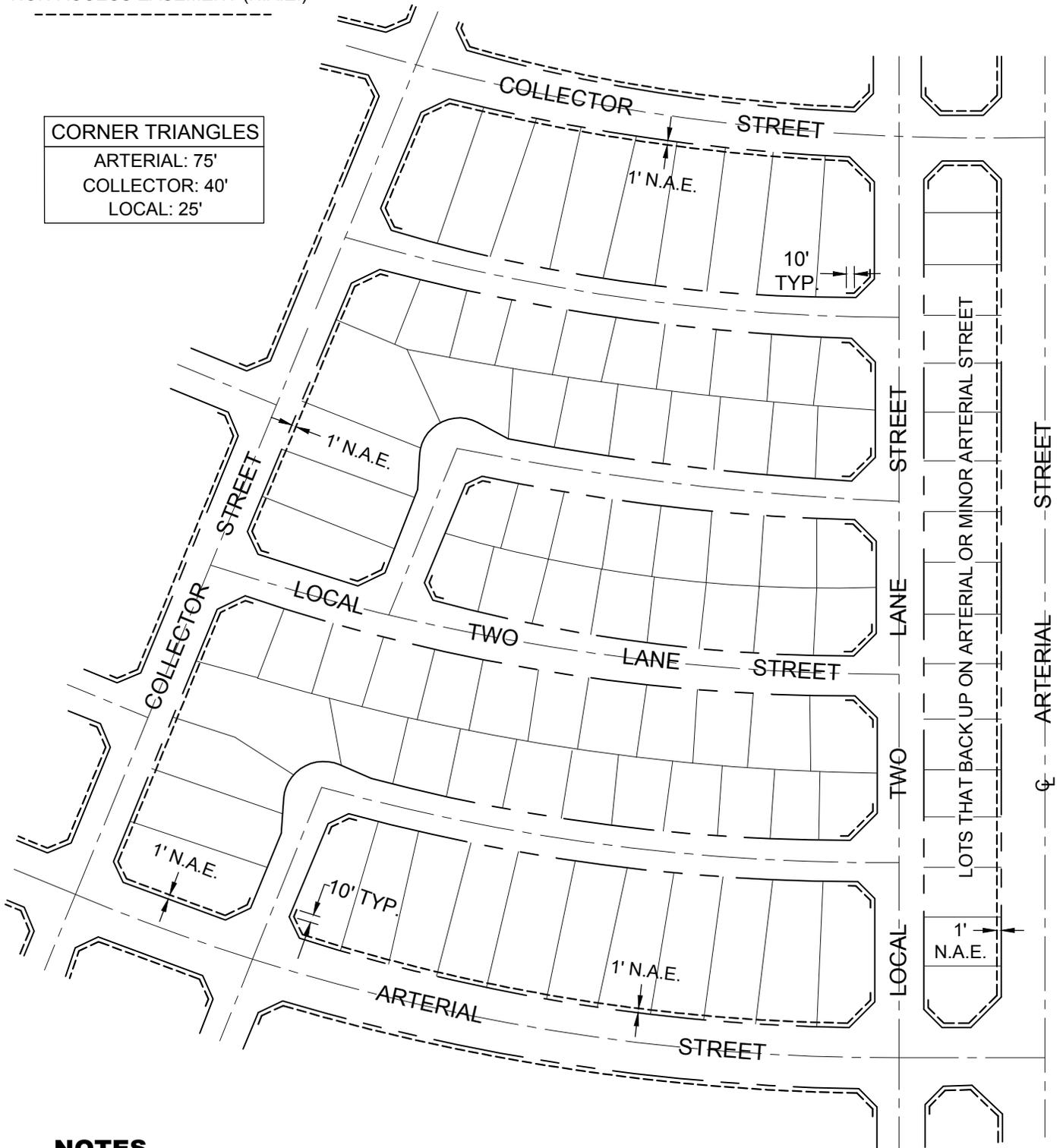
STANDARD NO. 2-050
R.O.W. REQUIREMENTS AT INTERSECTIONS

NOTE: THIS DRAWING IS FOR ILLUSTRATIVE PURPOSES ONLY.

NON-ACCESS EASEMENT (N.A.E.)

CORNER TRIANGLES

ARTERIAL: 75'
COLLECTOR: 40'
LOCAL: 25'



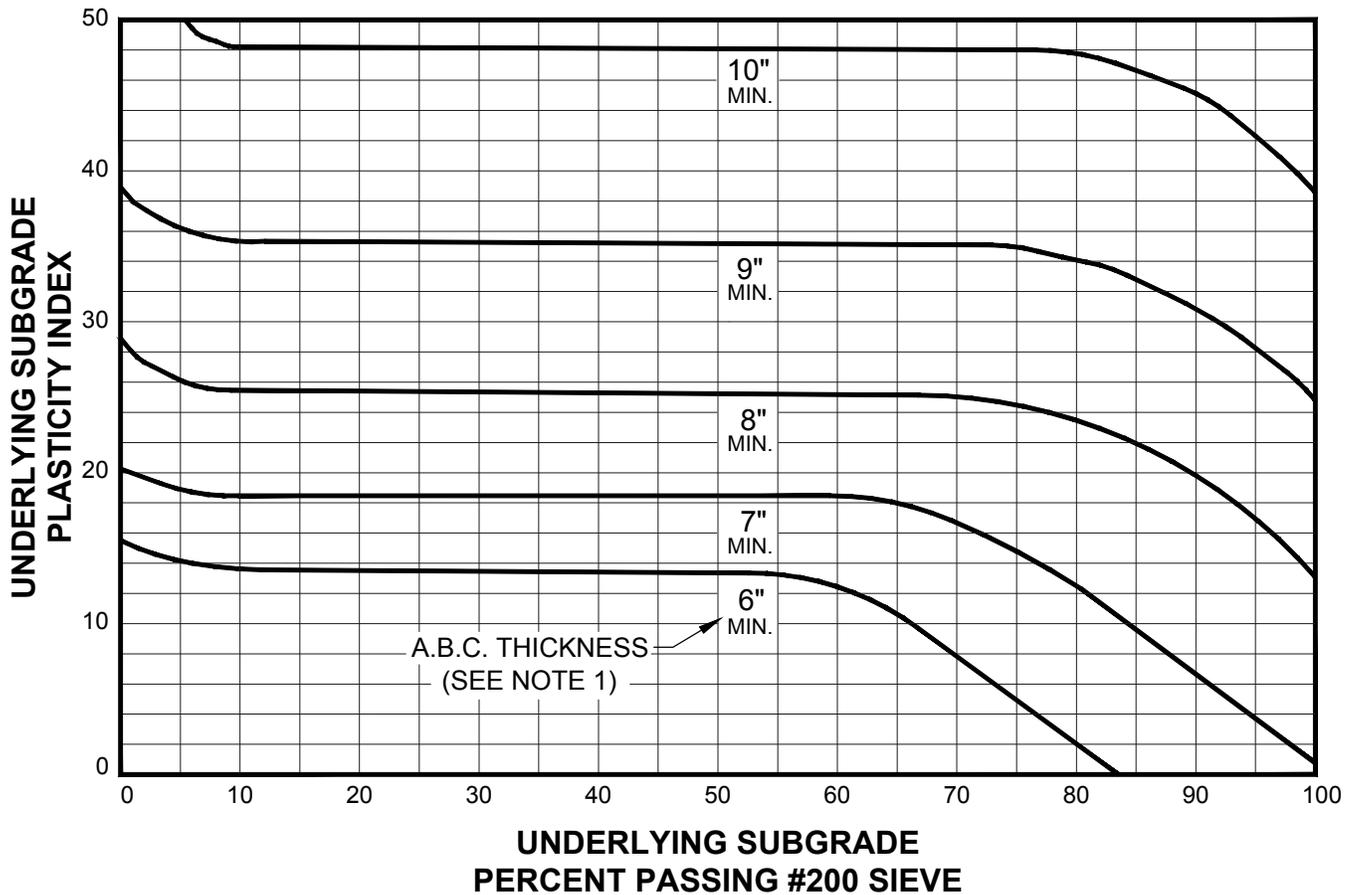
NOTES

1. Lots abutting arterial or collector streets shall have non-access easements (N.A.E.) to prevent direct access and driveways to those streets.
2. All corner lots shall have N.A.E.'s along corner triangles to prevent direct vehicle access through and over handicap ramps.
3. For corner triangles, where two streets of differing roadway classifications intersect, apply the smaller triangle.

Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 3-005
SCHEMATIC STREET
LAYOUT REQUIREMENTS**



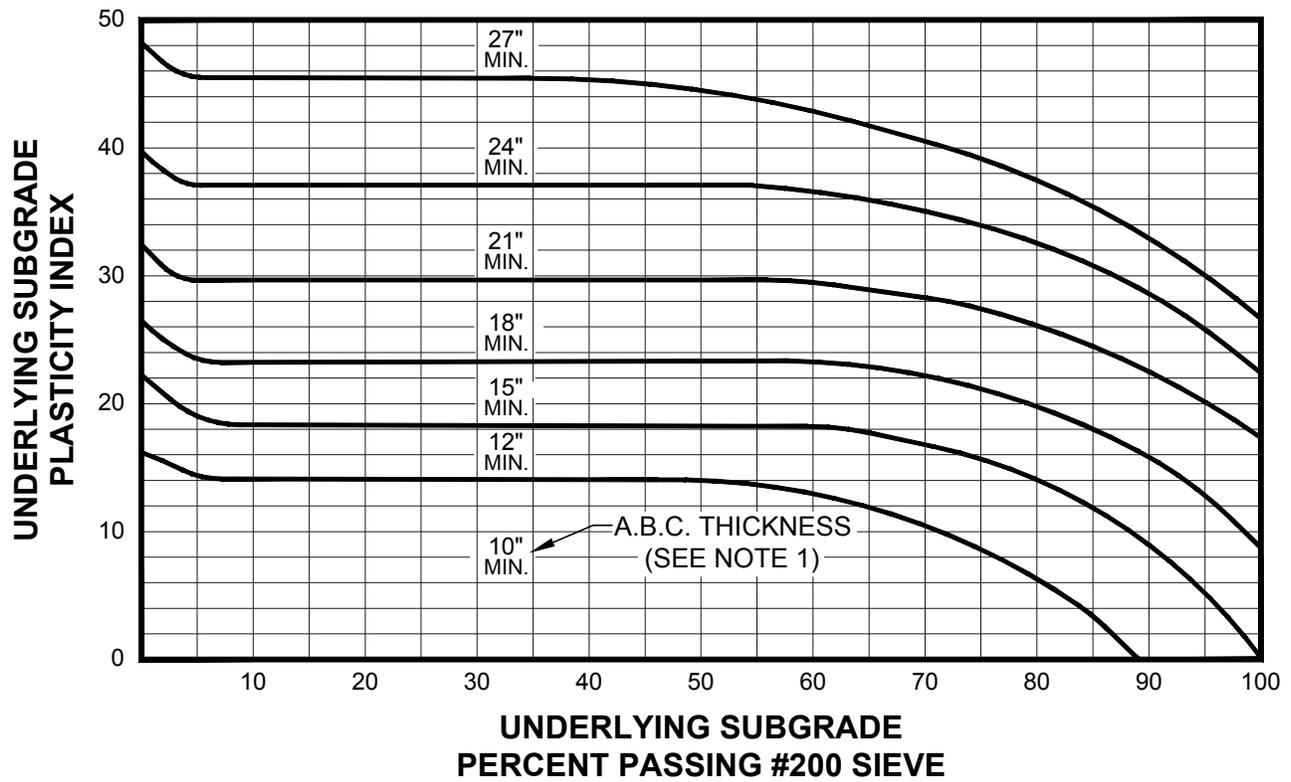
NOTES

1. Aggregate base course (A.B.C.) depth required under 3" (minimum) asphalt concrete hot plant mix surface course.
2. A.B.C. shall be compacted to 100% of the maximum density determined by AASHTO T99, method C or D.
3. A.B.C. shall be per MAG Section 310.

Issued: May 2019

CITY OF YUMA
 CONSTRUCTION STANDARD DETAIL DRAWINGS

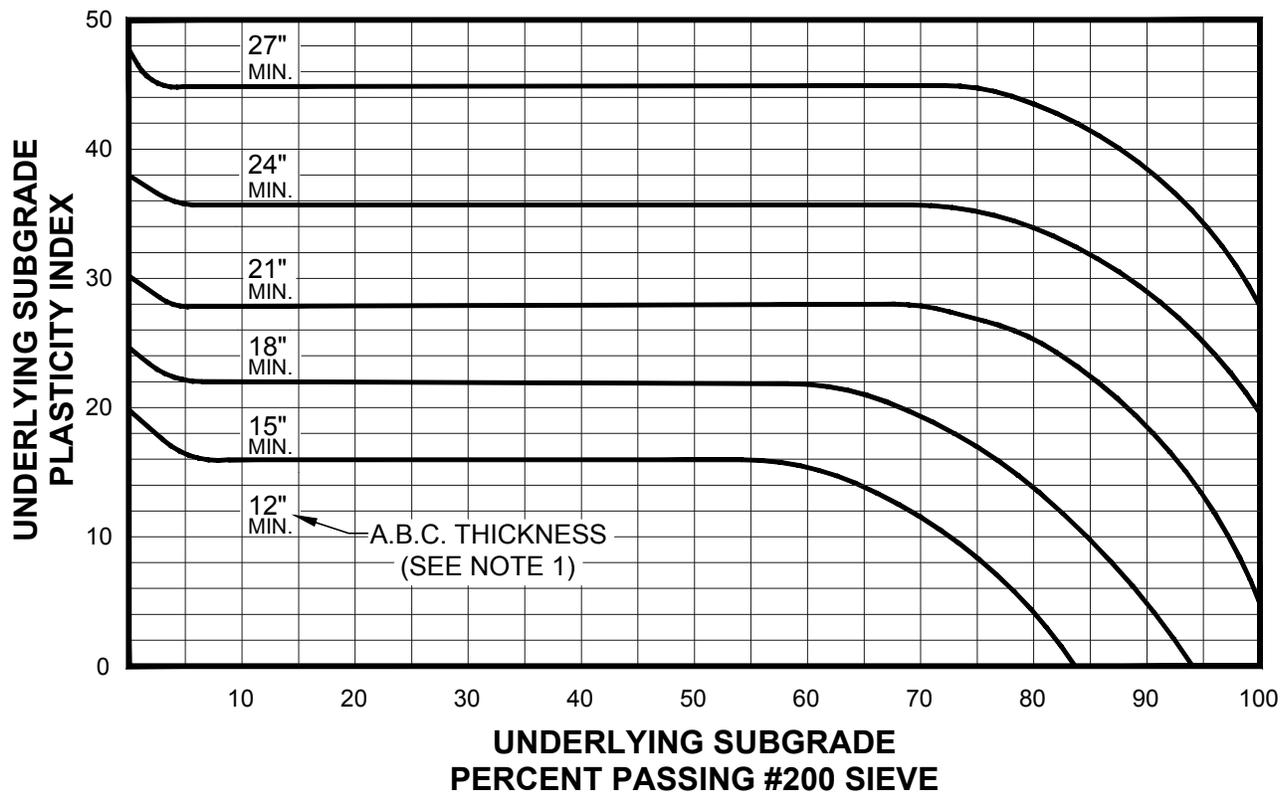
STANDARD NO. 3-015
DEPTH OF AGGREGATE BASE COURSE
FOR LOCAL TWO LANE STREETS



NOTES

1. Aggregate base course (A.B.C.) depth required under 3" (minimum) asphalt concrete hot plant mix surface course.
2. A.B.C. shall be compacted to 100% of the maximum density determined by AASHTO T99, method C or D.
3. A.B.C. shall be per MAG Section 310.

Issued: May 2019
CITY OF YUMA CONSTRUCTION STANDARD DETAIL DRAWINGS STANDARD NO. 3-020 DEPTH OF AGGREGATE BASE COURSE FOR COLLECTOR STREETS

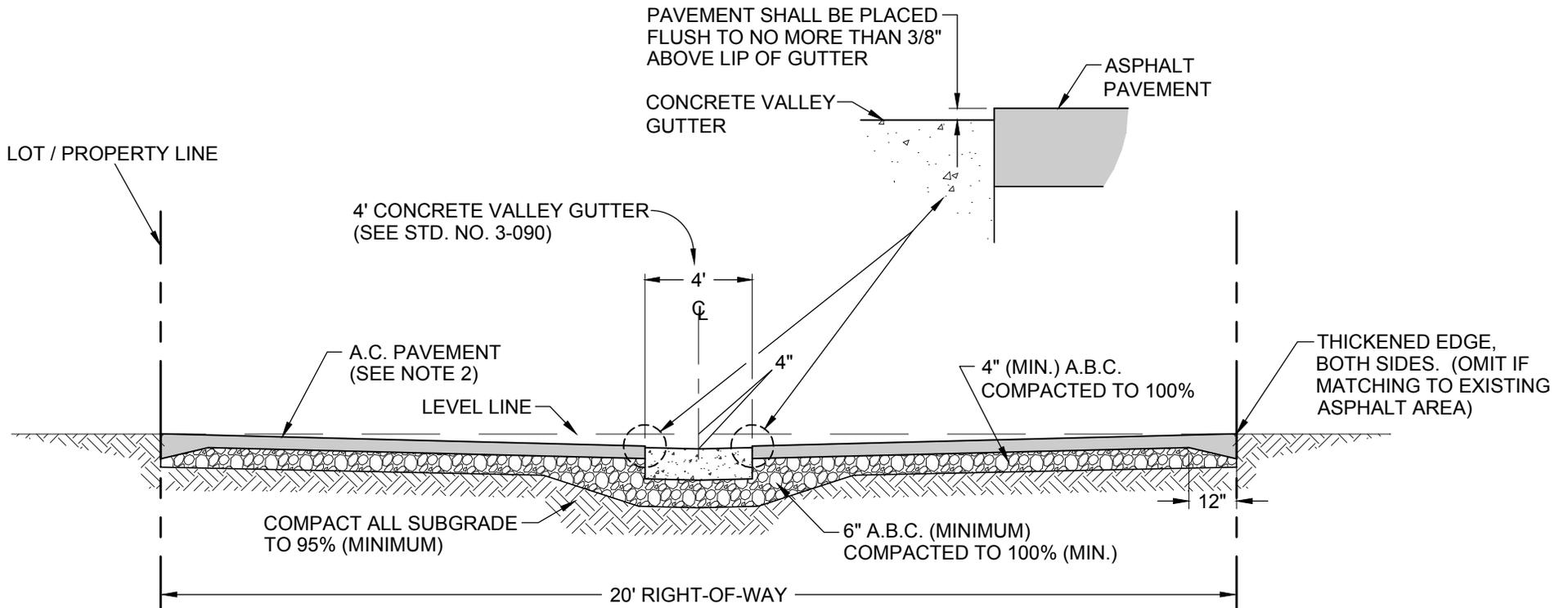


NOTES

1. Aggregate base course (A.B.C.) depth required under 4" (minimum) asphalt concrete hot plant mix surface course.
2. A.B.C. shall be compacted to 100% of the maximum density determined by AASHTO T99, method C or D.
3. A.B.C. shall be per MAG Section 310.

Issued: May 2019

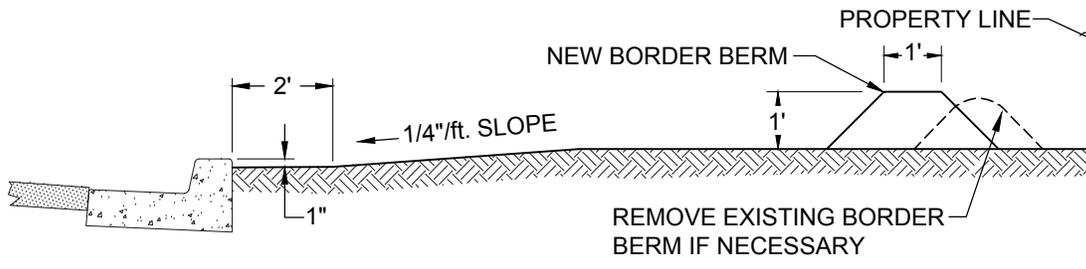
CITY OF YUMA
 CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 3-025
DEPTH OF AGGREGATE BASE COURSE
FOR PRINCIPAL, EXPRESSWAY AND
MINOR ARTERIAL STREETS



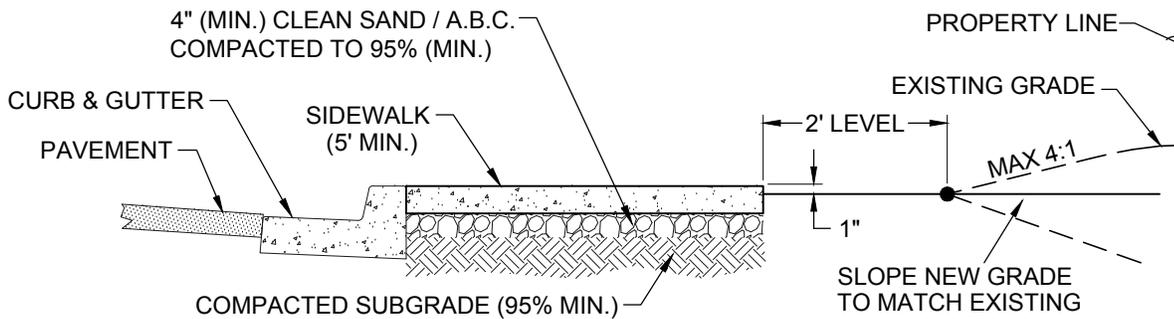
NOTES

1. Refer to Standard Detail 3-015.
2. Structural design of combined thickness of base and surface shall be determined by soil test.
3. Minimum paving thickness: 3" asphalt concrete hot plant mix surface course.
4. Fog seal coat required.
5. A.B.C. shall be per MAG Section 310.
6. Concrete shall be Class "B" per MAG Section 725.

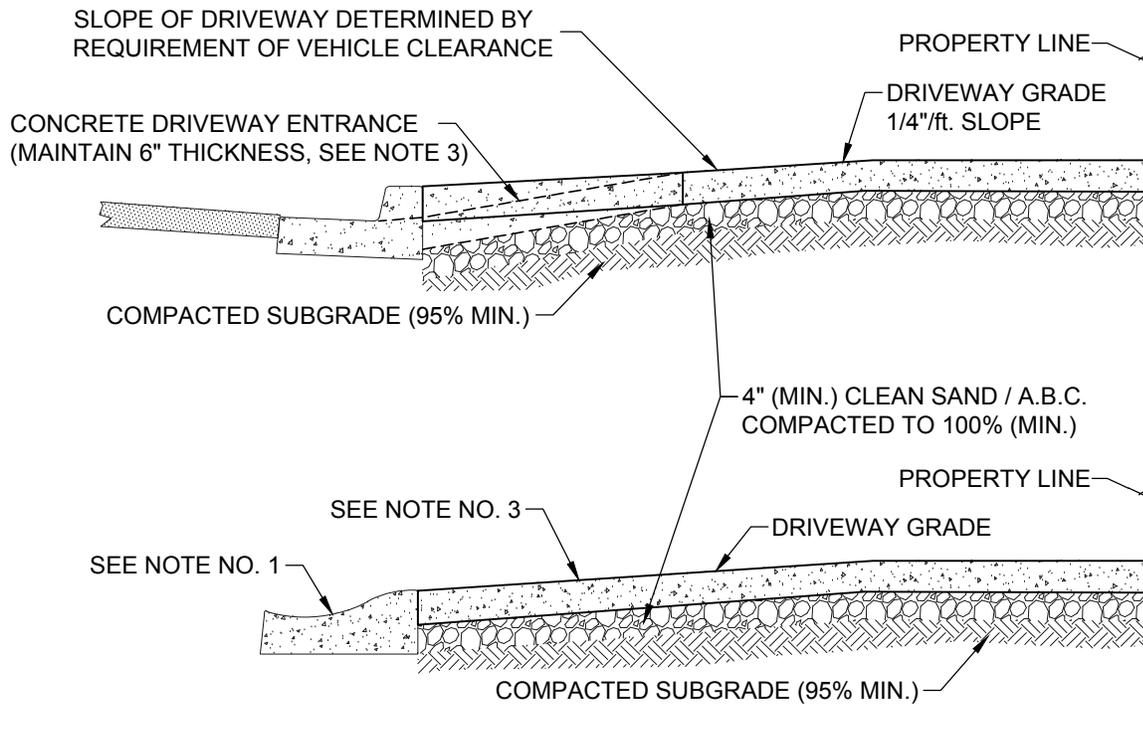
Issued: May 2019
CITY OF YUMA CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 3-030 TYPICAL ALLEY



ROADWAY IMPROVEMENT ADJACENT TO IRRIGATED LAND



ROADWAY IMPROVEMENTS ADJACENT TO OPEN LAND



ROADWAY IMPROVEMENT ADJACENT TO EXISTING DRIVEWAY

NOTES

1. Roll curb only allowed with approval of the City Engineer.
2. These details apply to all curb types with or without sidewalks.
3. All driveways located within City right-of-way shall be constructed of 6" thick (minimum) Class "B" concrete and shall extend to the right-of-way and/or property line (Concrete shall be per MAG Section 725).

Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 3-035
PARKWAY GRADING**

PROPERTY LINE

DRAINAGE IN THE CUL-DE-SAC.
SLOPE OF 0.40% RECOMMENDED
MIN. SLOPE OF 0.25% REQUIRED

SURVEY MONUMENT
(STD. DET. 4-030)

VARIABLE

600' MAXIMUM

- R = 57' RADIUS MINIMUM
- R₁ = 48' RADIUS MINIMUM
- R₂ = 25' RADIUS MINIMUM
(COMMERCIAL & RESIDENTIAL)
- R₂ = 30' RADIUS MIN. (INDUSTRIAL)

NOTE

R₁ & R₂ MEASURED TO FRONT FACE
OF CURB

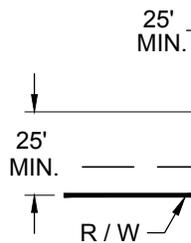
8' PUBLIC UTILITY EASEMENT
(TYPICAL)

DRAINAGE

SLOPE OF 0.40% RECOMMENDED.
MIN. SLOPE OF 0.20% REQUIRED.

DRAINAGE

8' P.U.E.



R/W

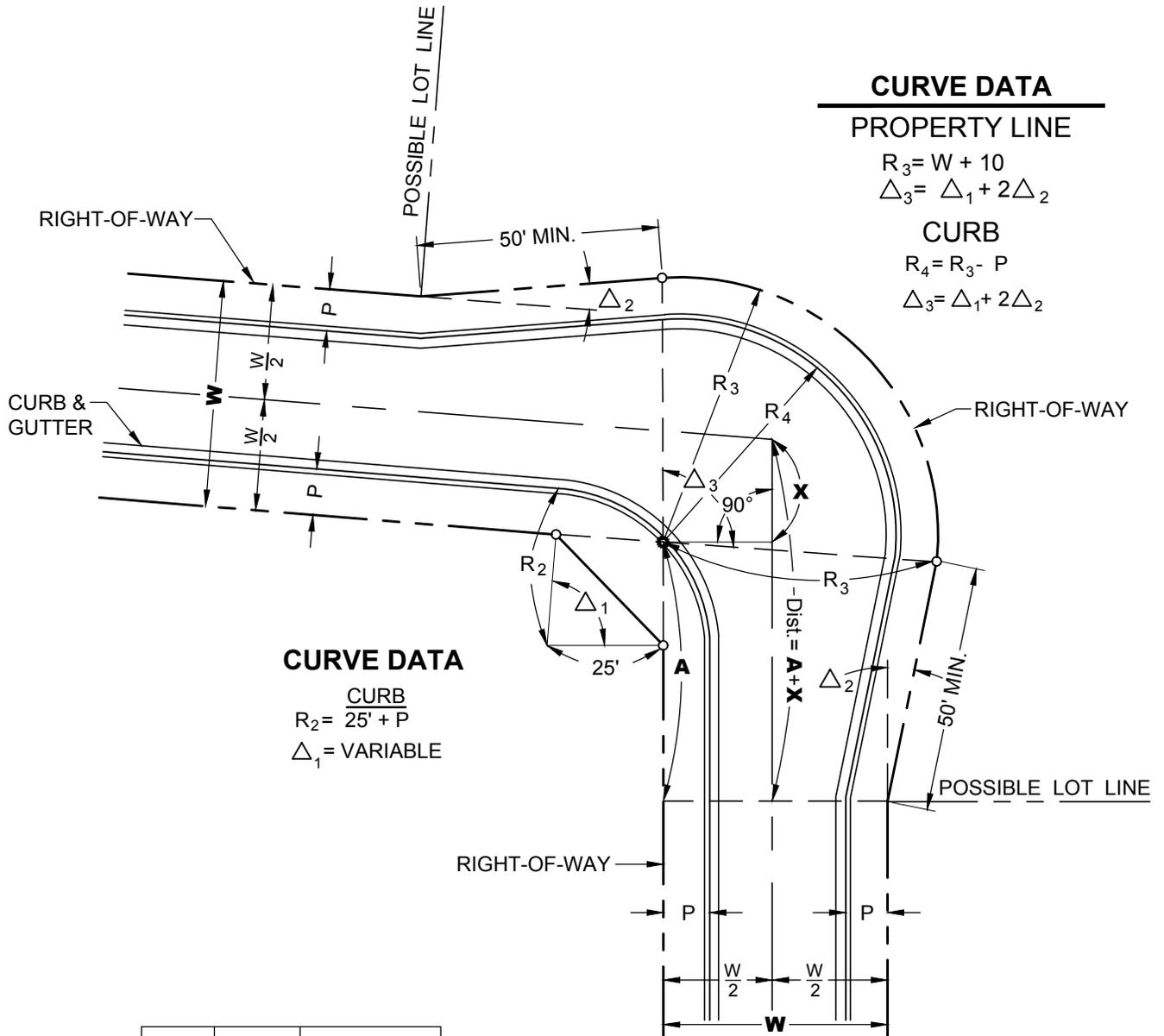
NOTE

SHOW RAD, Δ & LEN FOR ALL
CURVES ON DESIGN DRAWINGS.

Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 3-040
CUL-DE-SAC**



CURVE DATA

CURB
 $R_2 = 25' + P$
 $\Delta_1 = \text{VARIABLE}$

CURVE DATA

PROPERTY LINE

$R_3 = W + 10$
 $\Delta_3 = \Delta_1 + 2\Delta_2$

CURB

$R_4 = R_3 - P$
 $\Delta_3 = \Delta_1 + 2\Delta_2$

W	A	Δ_2
58'	61.32'	10° 15' 59"

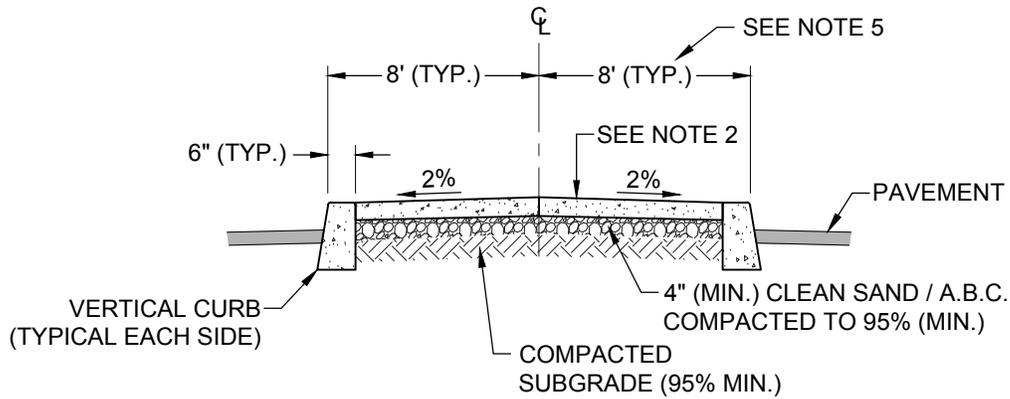
NOTE

1. This design to be used with local two-lane streets only.

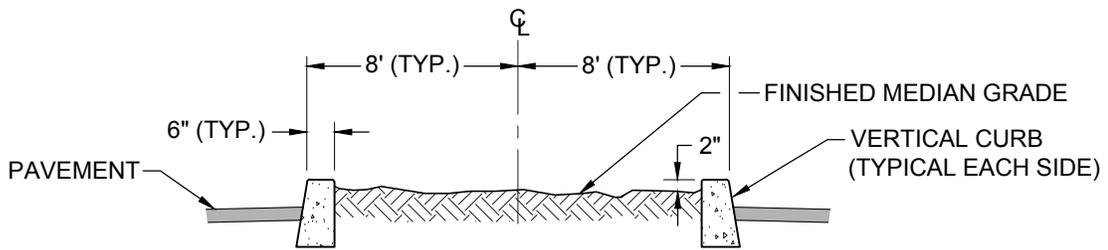
Issued: May 2019

CITY OF YUMA
 CONSTRUCTION STANDARD DETAIL DRAWINGS

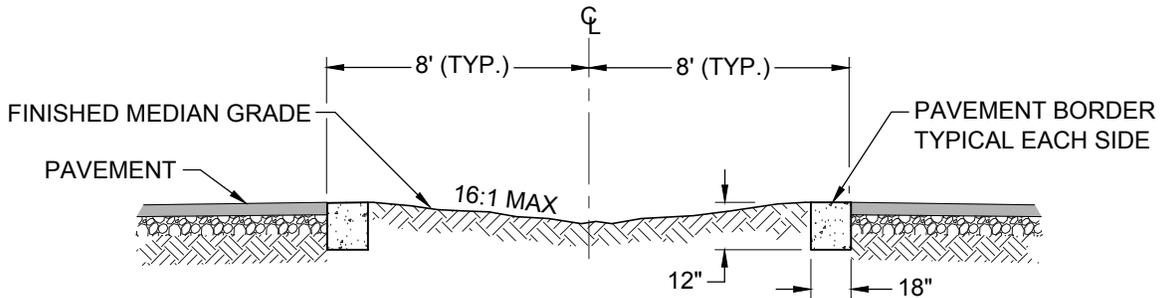
STANDARD NO. 3-045
LOCAL STREET KNUCKLE



TYPE 'A' MEDIAN



TYPE 'B' MEDIAN



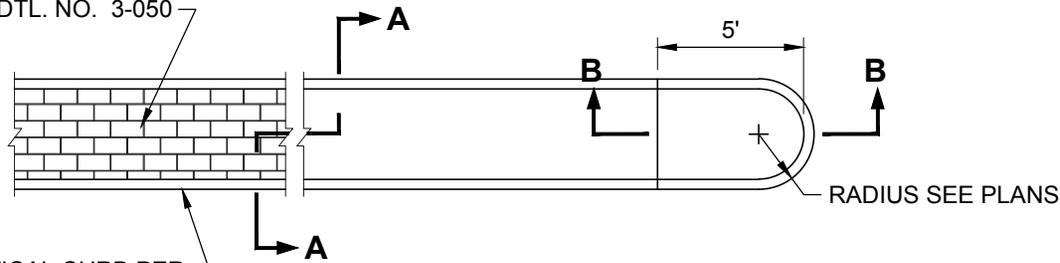
TYPE 'C' MEDIAN

NOTES

1. Unpaved medians shall meet the City of Yuma landscape regulations.
2. Median paving: decorative block / brick or integral colored stamped concrete (4" thick minimum).
3. All concrete shall be Class "B", per MAG Section 725.
4. A.B.C. shall be per MAG Section 310.
5. Median width varies depending on roadway classification.

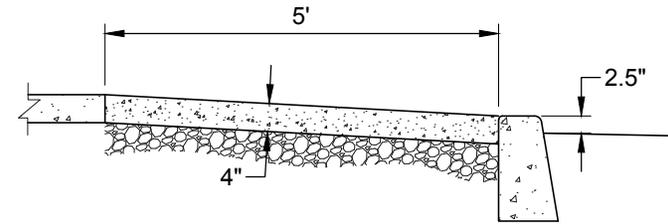
Issued: May 2019
<p>CITY OF YUMA CONSTRUCTION STANDARD DETAIL DRAWINGS STANDARD NO. 3-050 MEDIAN</p>

MEDIAN PAVING PER
STD. DTL. NO. 3-050

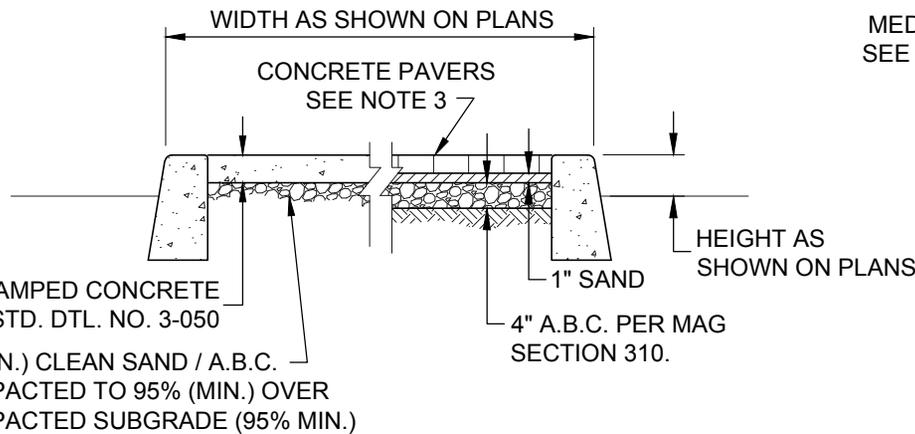


VERTICAL CURB PER
STD. DTL. NO. 3-075

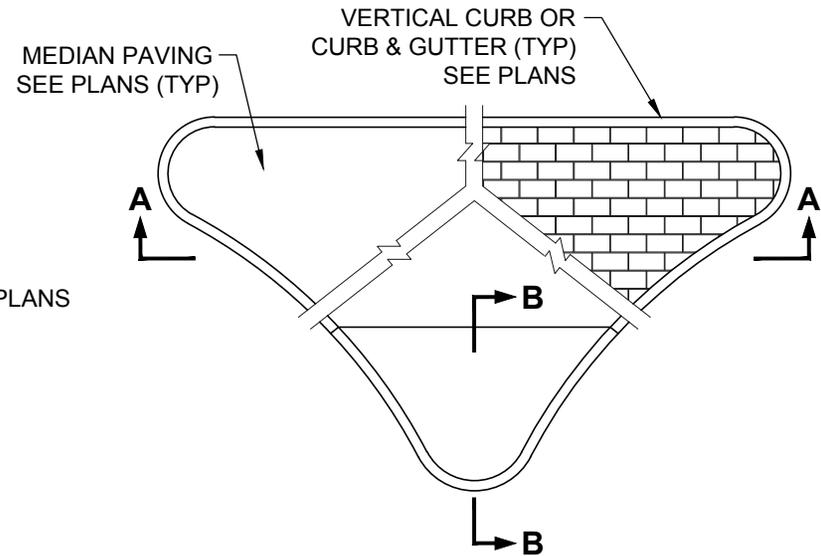
PLAN



SECTION B-B



SECTION A-A



NOSE LAYOUT

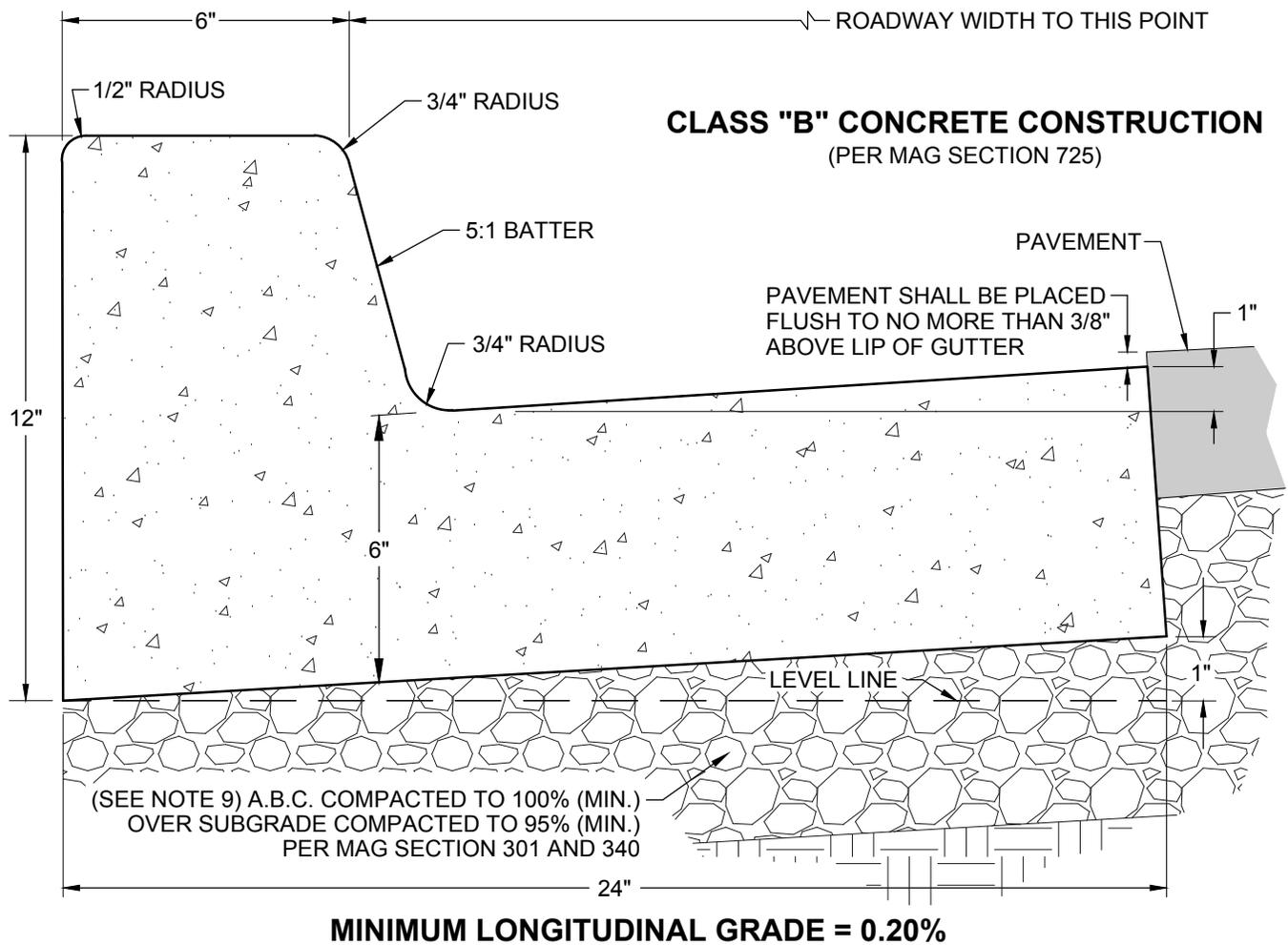
NOTES

1. Traffic signal foundations, traffic sign foundations and pull boxes for traffic signs and traffic signals shall be installed prior to placement of median paving.
2. Decorative median paving may be stamped concrete, concrete pavers, or as specified on the project plans.
3. Decorative median paving shall not be placed on a median nose transition or on a median island on a structure.
4. A 4"x 6" concrete header shall be used to end decorative paving at locations when concrete sidewalk ramps are not present.
5. Median nose transitions shall not be placed on departure ends of raised medians.
6. Median paving shall be Class "B" concrete, per MAG Section 725.

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 3-055
SAFETY NOSE MEDIAN**



NOTES

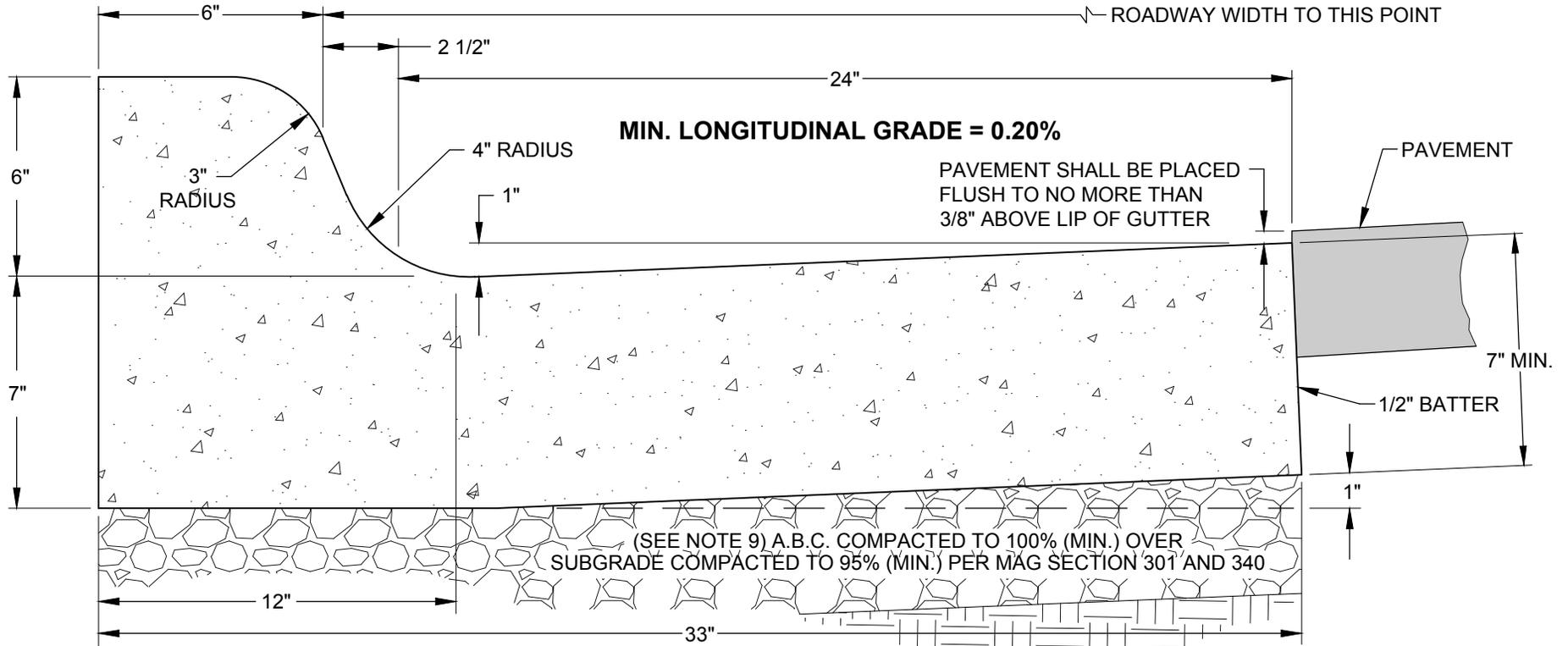
1. Vertical curb & gutter may be constructed by the use of forms or the concrete may be machine extruded.
2. When the pavement slopes away from the gutter, the slope of the gutter shall match the pavement's cross slope. Gutter depression will not be needed.
3. Contraction joint spacing shall be either hand tooled and/or saw cut and shall be placed ten feet (10') apart. Contraction joint shall have a minimum depth of one inch (1").
4. Expansion joints shall be located at tangent points, in curb returns, at structures and at a maximum of twenty foot (20') intervals. Expansion joint material shall comply with MAG Section 729.
5. Expansion joint material shall be placed in accordance with MAG Section 340.
6. Curb & gutter shall be finished per MAG Section 340. All exposed edges and hand tooled joints shall have a one-quarter inch (1/4") radius unless a larger radius is called for in the construction plans.
7. Vertical curb & gutter shall be used on all city streets unless otherwise approved by the City Engineer.
8. Additional information regarding joint construction can be seen in Standard Detail 3-135.
9. ABC thickness per street cross section Standard Details 2-005 to 2-035.

Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 3-060
VERTICAL CURB AND GUTTER

THIS CURB IS FOR REPLACEMENT ONLY



MIN. LONGITUDINAL GRADE = 0.20%

PAVEMENT SHALL BE PLACED FLUSH TO NO MORE THAN 3/8" ABOVE LIP OF GUTTER

(SEE NOTE 9) A.B.C. COMPACTED TO 100% (MIN.) OVER SUBGRADE COMPACTED TO 95% (MIN.) PER MAG SECTION 301 AND 340

CLASS "B" CONCRETE CONSTRUCTION
(PER MAG SECTION 725)

NOTES

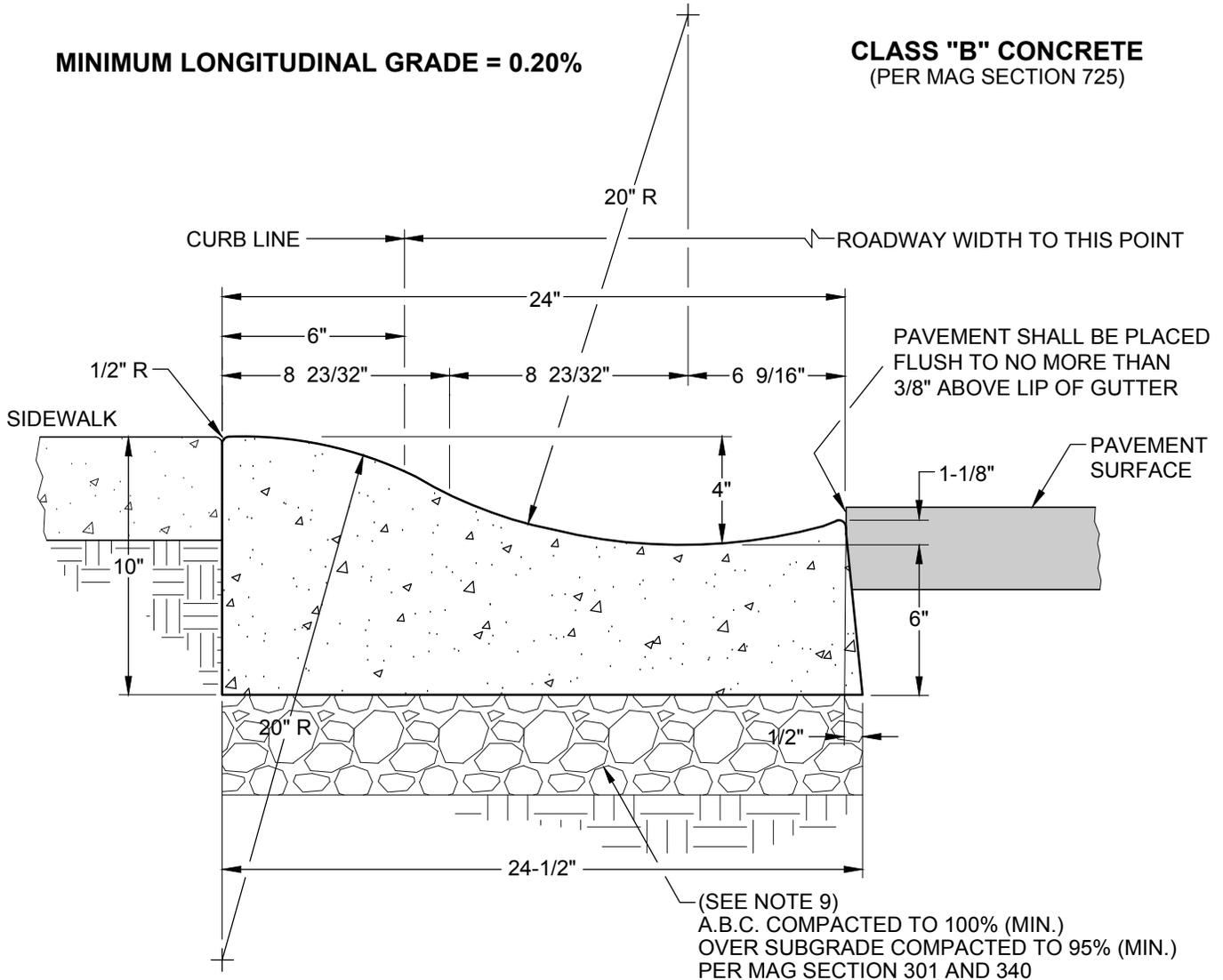
1. Vertical curb & gutter may be constructed by the use of forms or the concrete may be machine extruded.
2. When the pavement slopes away from the gutter, the slope of the gutter shall match the pavement's cross slope. Gutter depression will not be needed.
3. Contraction joint spacing shall be either hand tooled and/or saw cut and shall be placed ten feet (10') apart. Depth of the contraction joint shall have a minimum depth of one inch (1").
4. Expansion joints shall be located at tangent points, in curb returns, at structures and at a maximum twenty foot (20') intervals. Expansion joint material shall comply with MAG Section 729.
5. Expansion joint material shall be placed in accordance with MAG Section 340.
6. Curb & gutter shall be finished per MAG Section 340. All exposed edges and hand tooled joints shall have a one-quarter inch (1/4") radius unless a larger radius is indicated in the construction plans.
7. Vertical curb & gutter shall be used on all city streets unless otherwise approved by the City Engineer.
8. Additional information regarding joint construction can be seen in Standard Detail 3-135.
9. ABC thickness per street cross section Standard Details 2-005 to 2-035.

Issued: May 2019 CITY OF YUMA CONSTRUCTION STANDARD DETAIL DRAWINGS STANDARD NO. 3-065 ADOT TYPE VERTICAL CURB AND GUTTER

THIS CURB IS FOR REPLACEMENT ONLY

MINIMUM LONGITUDINAL GRADE = 0.20%

CLASS "B" CONCRETE
(PER MAG SECTION 725)



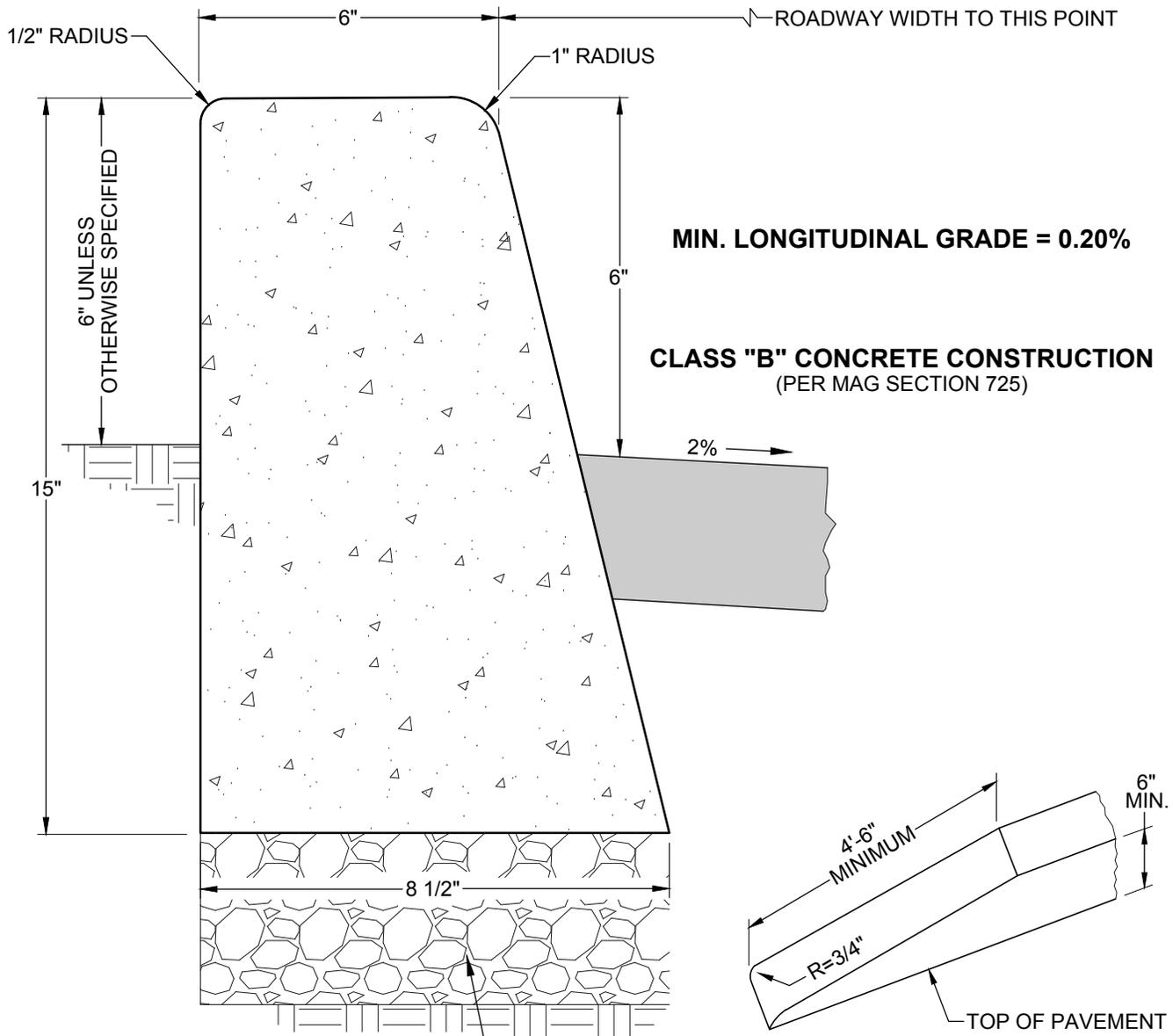
NOTES

1. Roll curb & gutter may be constructed by the use of forms or the concrete may be machine extruded.
2. When the pavement slopes away from the gutter, the slope of the gutter will match the pavement's cross slope. Gutter depression will not be needed.
3. Contraction joint spacing shall be either hand tooled and/or saw cut and shall be placed ten feet (10') apart. Contraction joint shall be a minimum depth of one inch (1").
4. Expansion joints shall be located at tangent points, in curb returns, at structures and at a maximum of twenty foot (20') intervals. Expansion joint material shall comply with MAG Section 729.
5. Expansion joint material shall be placed in accordance with MAG Section 340.
6. Curb & gutter shall be finished per MAG Section 340. All exposed edges and hand tooled joints shall have a one-quarter inch (1/4") radius unless a larger radius is called for in the construction plans.
7. Roll curb & gutter shall only be used to replace existing roll curb & gutter unless otherwise approved by the City Engineer.
8. Additional information regarding joint construction can be seen in Standard Detail 3-135.
9. ABC thickness per street cross section Standard Details 2-005 to 2-035.

Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 3-070
ROLL CURB & GUTTER



(SEE NOTE 7) A.B.C. COMPACTED TO 100% (MIN.)
OVER SUBGRADE COMPACTED TO 95% (MIN.)
PER MAG SECTION 301 AND 340

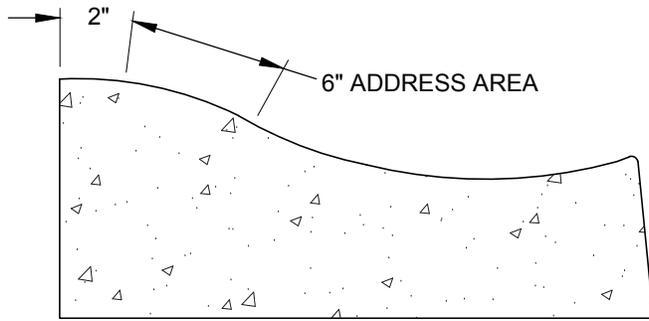
**TYPICAL
CURB TERMINATION**

NOTES

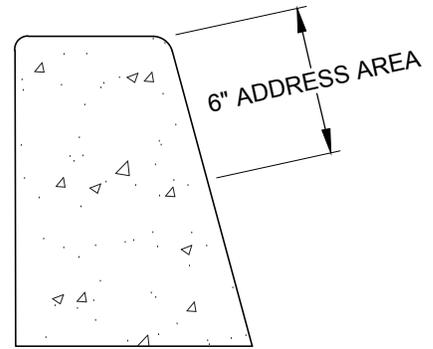
1. Vertical curb may be constructed by the use of forms or the concrete may be machine extruded.
2. Contraction joint spacing shall be either hand tooled and/or saw cut and shall be placed ten feet (10') apart. Contraction joint shall have a minimum depth of one inch (1").
3. Expansion joints shall be located at tangent points in curb returns, at structures and at a maximum of twenty foot (20') intervals. Expansion joint material shall comply with MAG Section 729.
4. Vertical curb shall be finished per MAG Section 340. All exposed edges and hand tooled joints shall have a one-quarter inch (1/4") radius unless a larger radius is called for in the construction plans.
5. Expansion joint material shall be placed in accordance with MAG Section 340.
6. Additional information regarding joint construction can be seen in Standard Detail 3-135.
7. ABC thickness per street cross section Standard Details 2-005 to 2-035.

Issued: May 2019

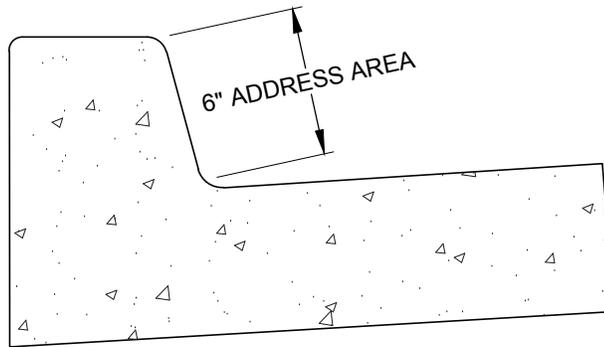
CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 3-075
VERTICAL CURB
AND
TYPICAL CURB TERMINATION



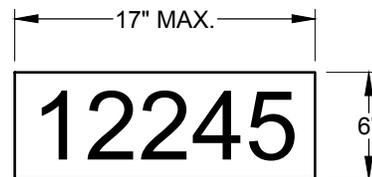
ROLL CURB & GUTTER



VERTICAL CURB



VERTICAL CURB & GUTTER



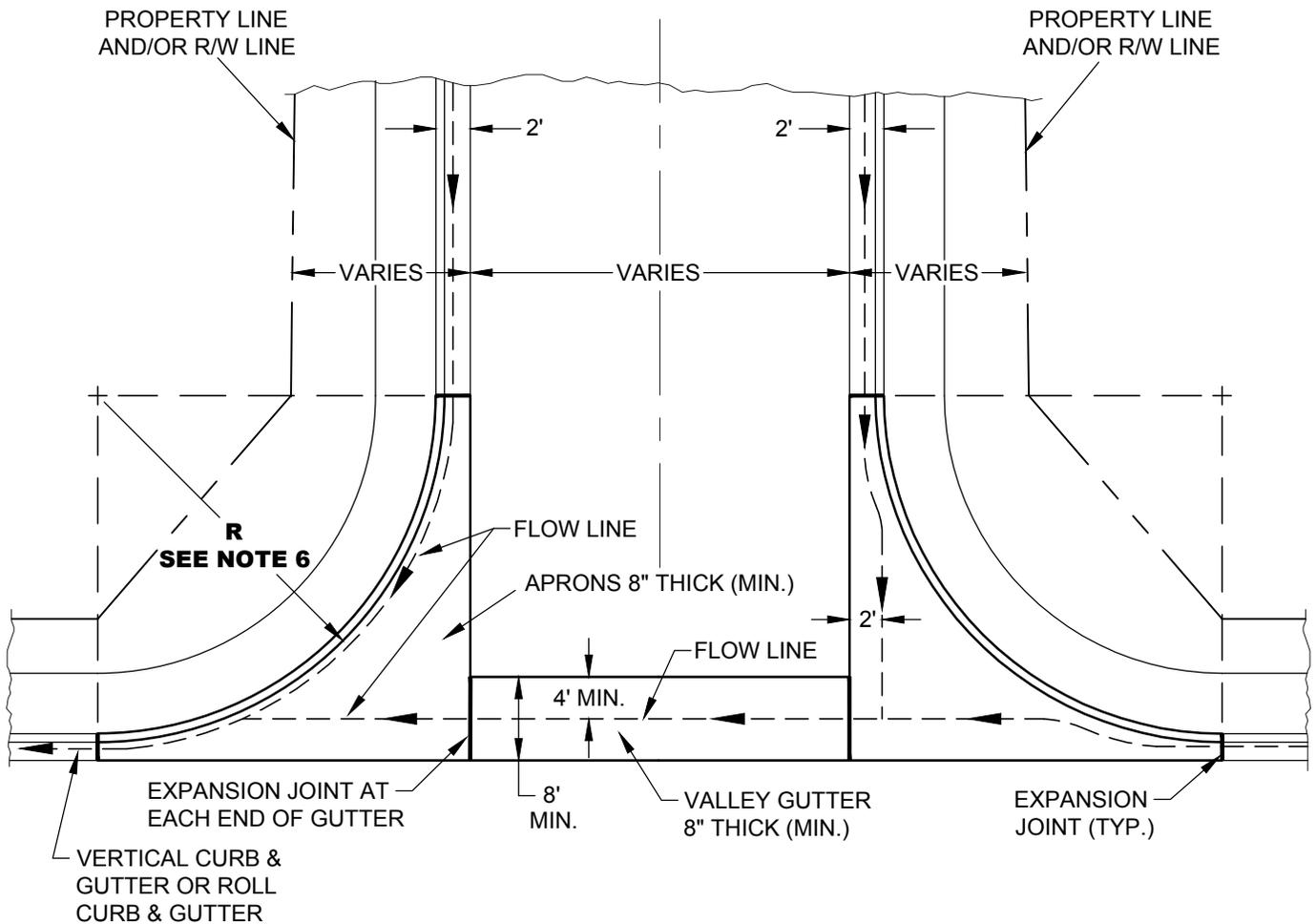
NOTES

1. Alternate location: adjacent to curbside mailbox.
2. Paint shall conform to ADOT specifications for street paint.
3. An encroachment permit is required.
4. If markings are put in for pay, then a business license is required from the City.
5. Address area: 4" black numbers on a solid white background

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

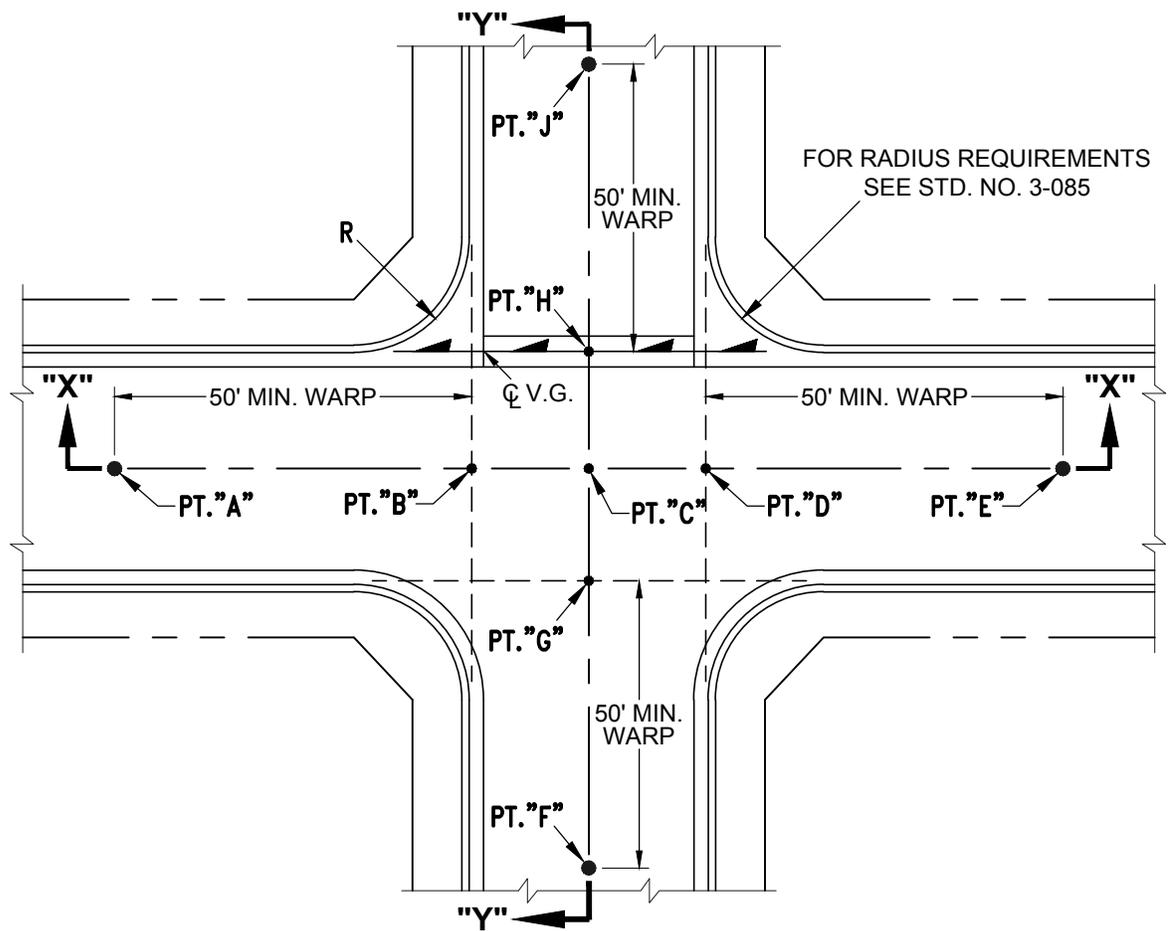
**STANDARD NO. 3-080
RESIDENTIAL
ADDRESSING ON CURBS**



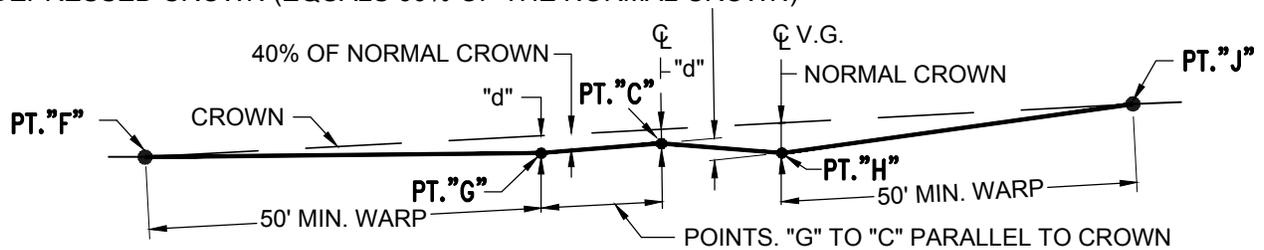
NOTES

1. Concrete shall receive a longitudinal broom finish on all exposed surfaces.
2. Asphalt valley gutters are not allowed.
3. Six inches (6") of A.B.C. shall be placed under both aprons and valley gutter and shall be compacted to 100% of the maximum dry density determined by AASHTO T99, method C or D. (See Standard Drawing No. 3-090)
4. Expansion joints shall be located at tangent points in curb returns, at structures and at a maximum twenty foot (20') intervals. Expansion joint material shall comply with MAG Section 729. Expansion joints shall not be placed in front of sidewalk ramp landings.
5. Expansion joint material shall be placed in accordance with MAG Section 340.
6. Radius requirements (face of curb):
 - A. Local streets: 25' minimum
 - B. Collector streets: 40' minimum
 - C. Arterial streets: 50' minimum
7. The curb return and apron construction shall be a monolithic pour.
8. Aprons & gutters to be constructed of Class "B" concrete per MAG Section 725.

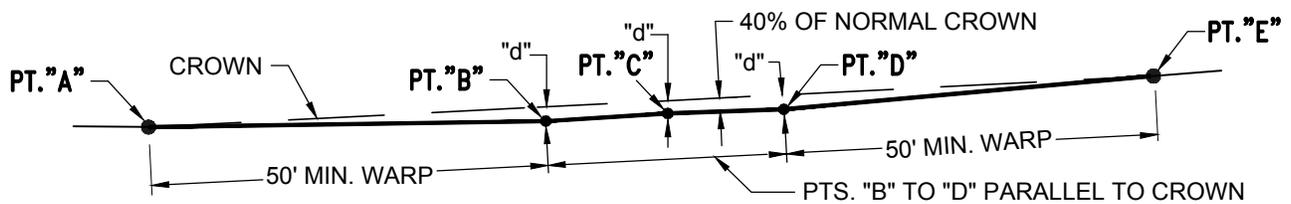
Issued: May 2019
CITY OF YUMA CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 3-085 VALLEY GUTTER LAYOUT



DEPRESSED CROWN (EQUALS 60% OF THE NORMAL CROWN) "d" = 40% NORMAL CROWN



SECTION "Y-Y"



SECTION "X-X"

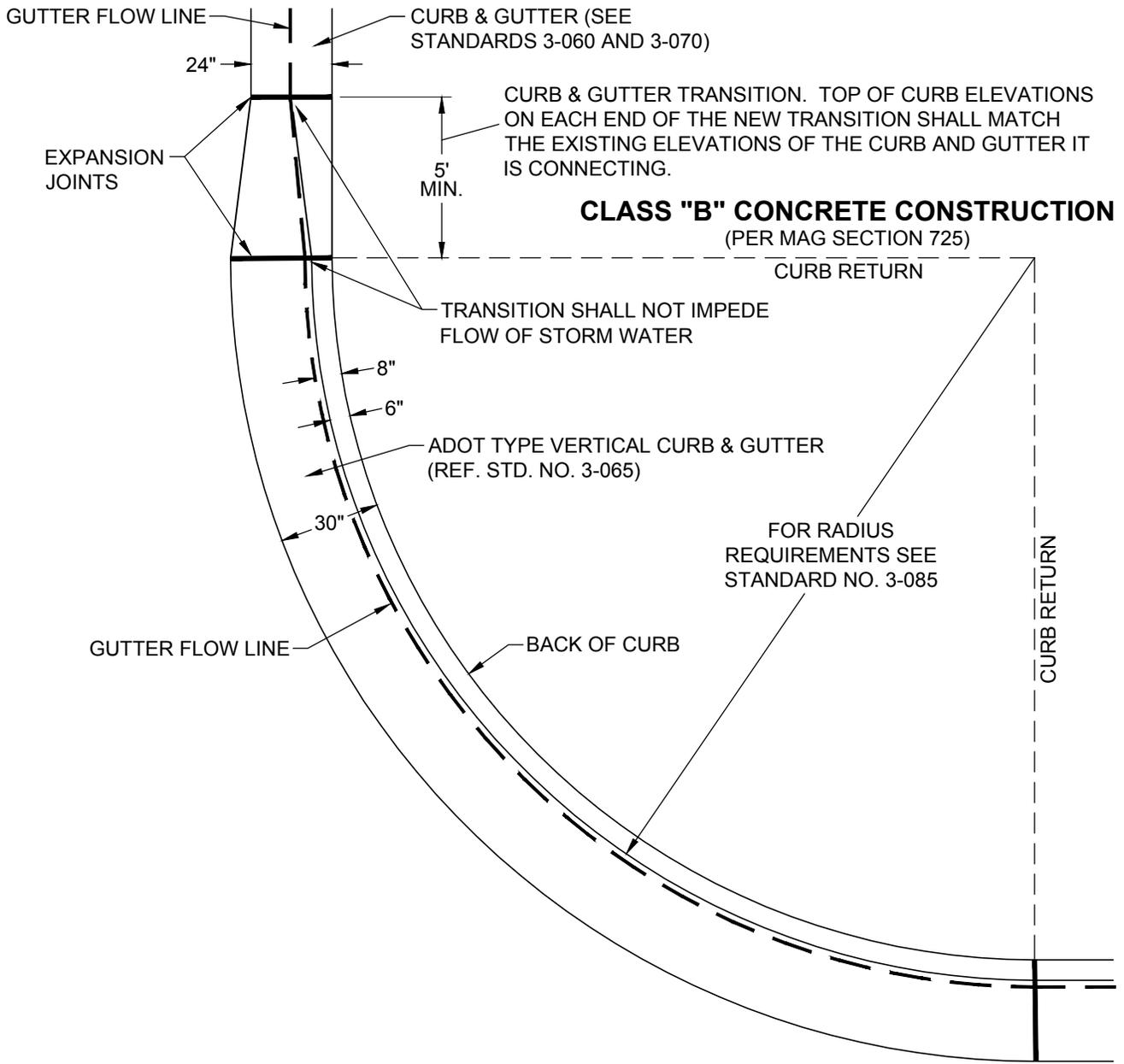
NOTES

1. Crown on centerline of intersection (PT's. "B" to "D") shall be depressed 40% of the normal crown and pavement shall be warped linearly parallel to the valley gutter 50' approaching and leaving points "B" and "D".
2. Show centerline profile of matching streets perpendicular to the valley gutter on the respective plan and profile sheets.

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 3-095
INTERSECTION WITH
STANDARD VALLEY GUTTERS**

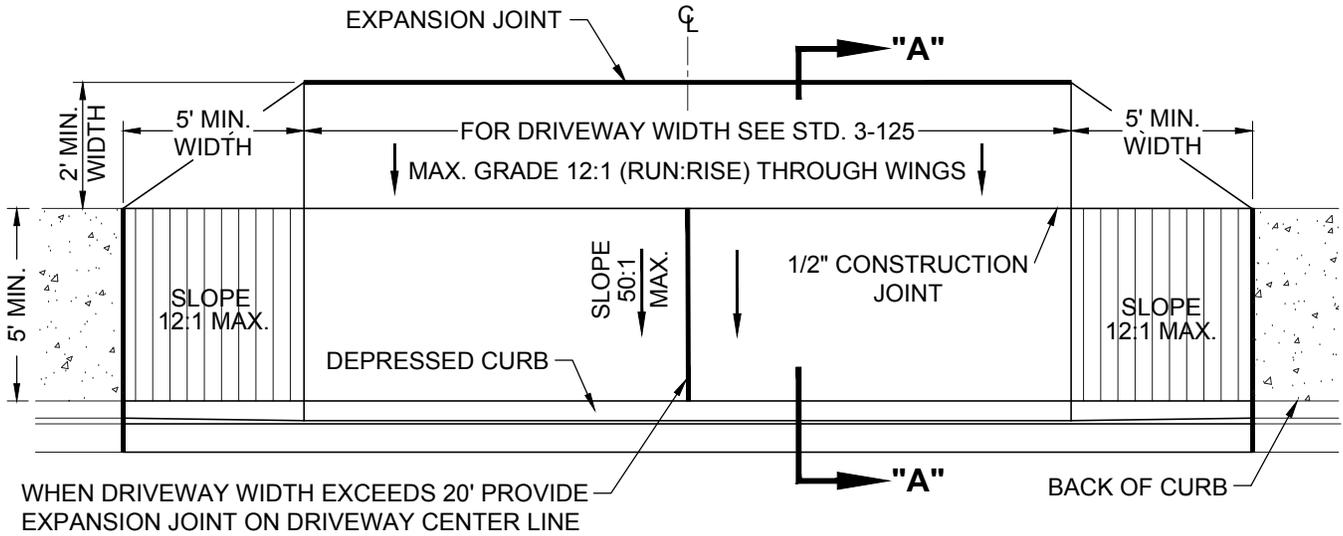
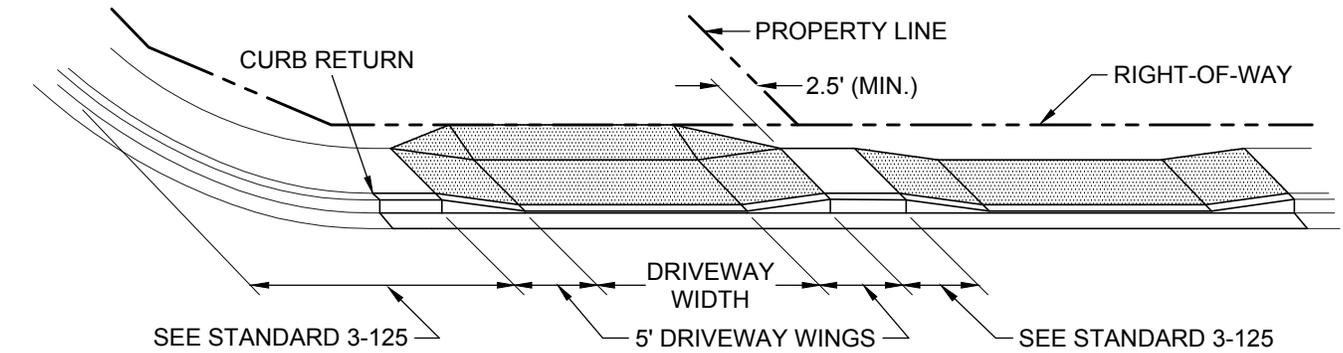


NOTES

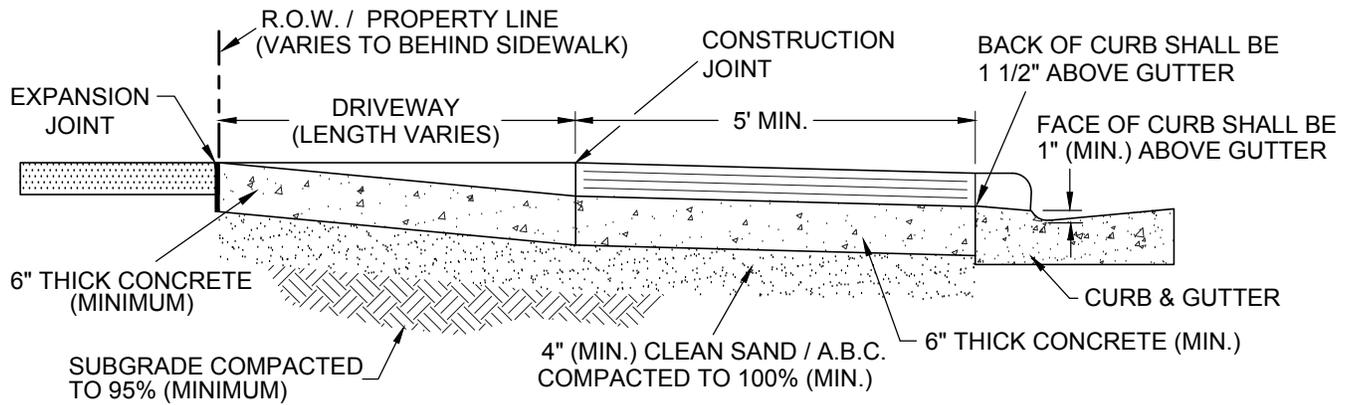
1. Vertical curb & gutter may be constructed by the use of forms or the concrete may be machine extruded.
2. When the pavement slopes away from the gutter, the slope of the gutter will match the pavement's cross slope. Gutter depression will not be needed.
3. Contraction joint spacing shall be either hand tooled and/or saw cut and shall be placed ten feet (10') apart. Contraction joint shall have a minimum depth of one inch (1").
4. Expansion joints shall be located at tangent points in curb returns, at structures and at a maximum of twenty foot (20') intervals. Expansion joint material shall comply with MAG Section 729.
5. Expansion joint material shall be placed in accordance with MAG Section 340.
6. Curb & gutter shall be finished per MAG Section 340. All exposed edges and hand tooled joints shall have a one-quarter inch (1/4") radius unless a larger radius is called for in the construction plans.
7. Additional information regarding joint construction can be seen in Standard Drawing No. 3-135.

Issued: May 2019

CITY OF YUMA
 CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 3-100
TRANSITION FROM ADOT TYPE
CURB & GUTTER TO CITY
CURB & GUTTER



PLAN VIEW



SECTION "A - A"

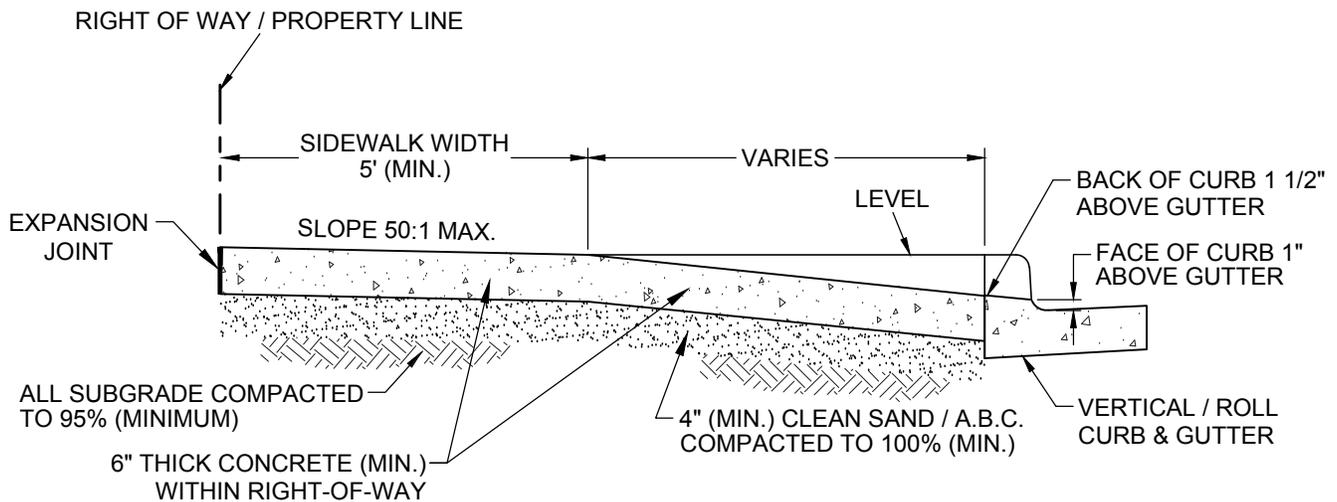
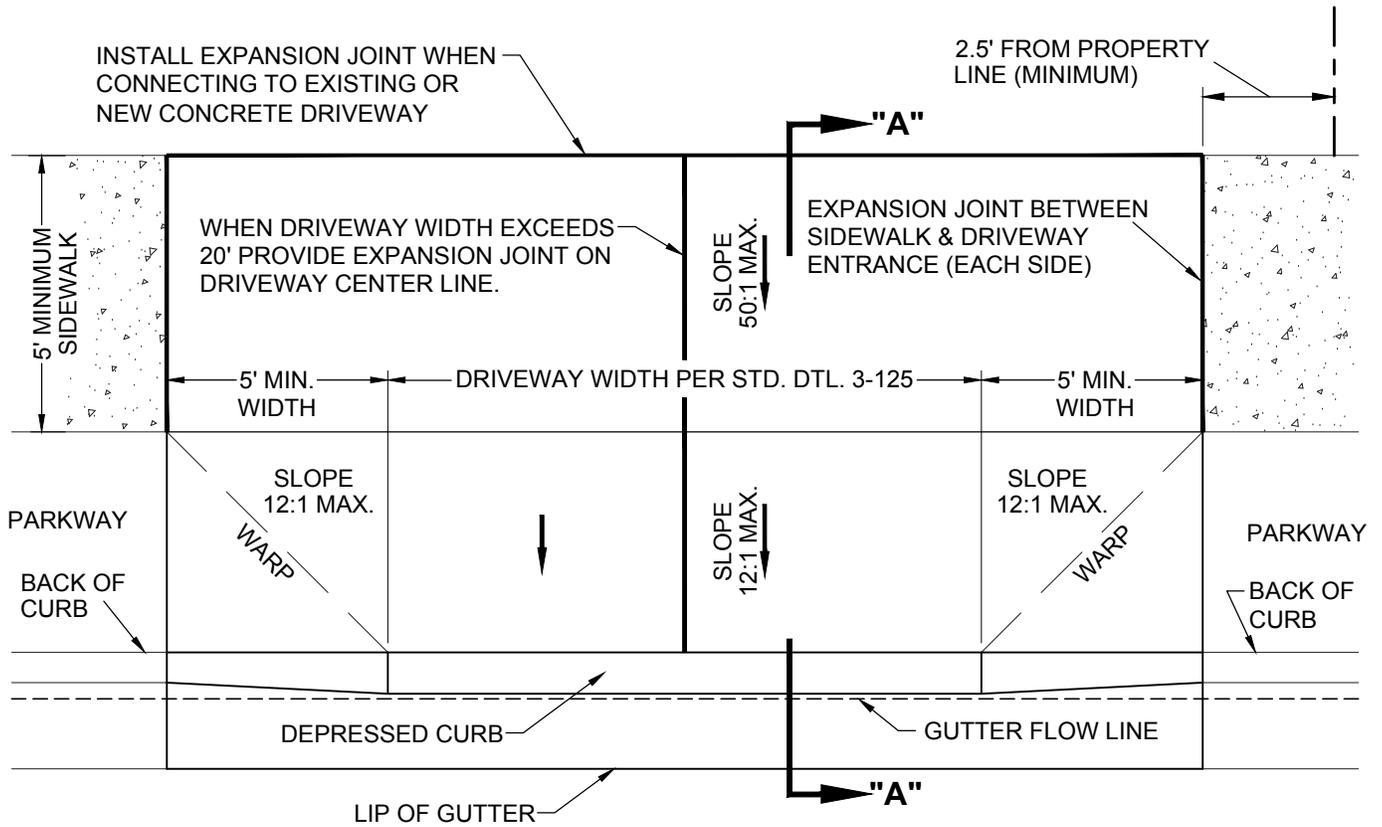
NOTES

1. Expansion joints shall be located at tangent points in curb returns, at structures and placed at 20' intervals (maximum). Expansion joint material shall comply with MAG Section 729.
2. Expansion joint material shall be placed in accordance with MAG Section 340.
3. Approved driveway locations can be found in Standard Detail 3-125.
4. All concrete shall be Class B per MAG Section 725.

Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 3-105
DRIVEWAY ENTRANCE WITH
SIDEWALK ADJACENT TO CURB



NOTES

1. Expansion joints shall be located at tangent points in curb returns, at structures and placed at 20' intervals (maximum). Expansion joint material shall comply with MAG Section 729.
2. Expansion joint material shall be placed in accordance with MAG Section 340.
3. Approved driveway locations can be found in Standard Detail 3-125.
4. All concrete shall be Class B per MAG Sec 725.

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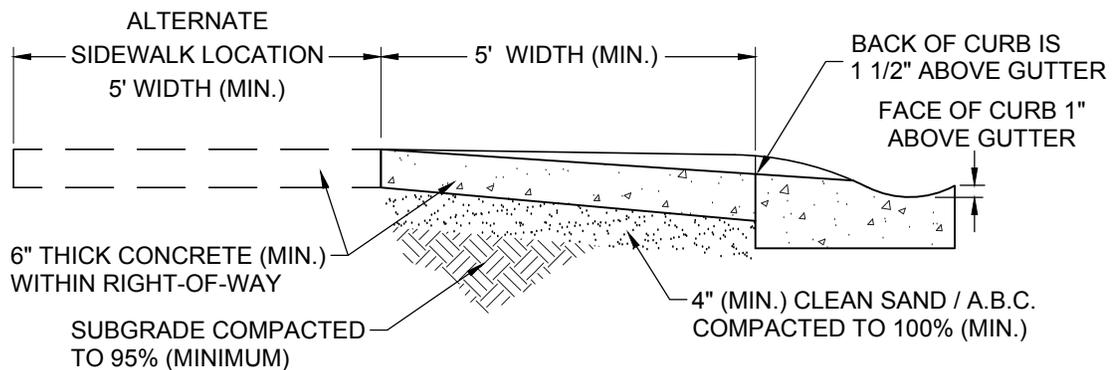
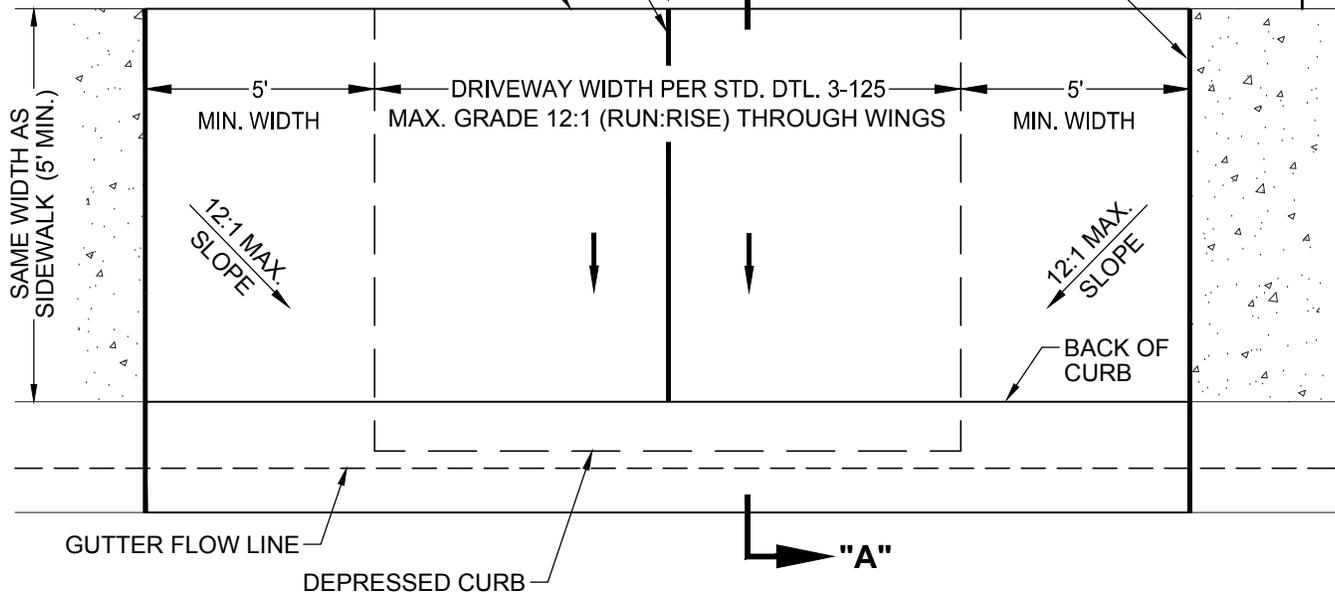
CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 3-110
DRIVEWAY ENTRANCE
WITH PARKWAY

WHEN DRIVEWAY WIDTH EXCEEDS 20' PROVIDE EXPANSION JOINT ON DRIVEWAY CENTERLINE

INSTALL EXPANSION JOINT WHEN CONNECTING TO EXISTING OR NEW CONCRETE DRIVEWAY

2.5' (MIN.) FROM PROPERTY LINE



SECTION "A - A"

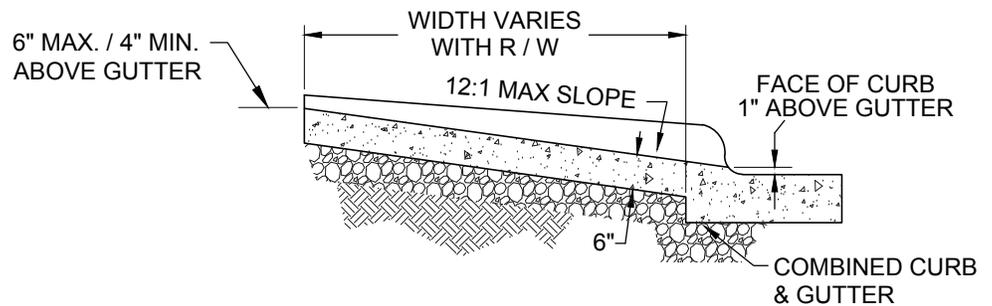
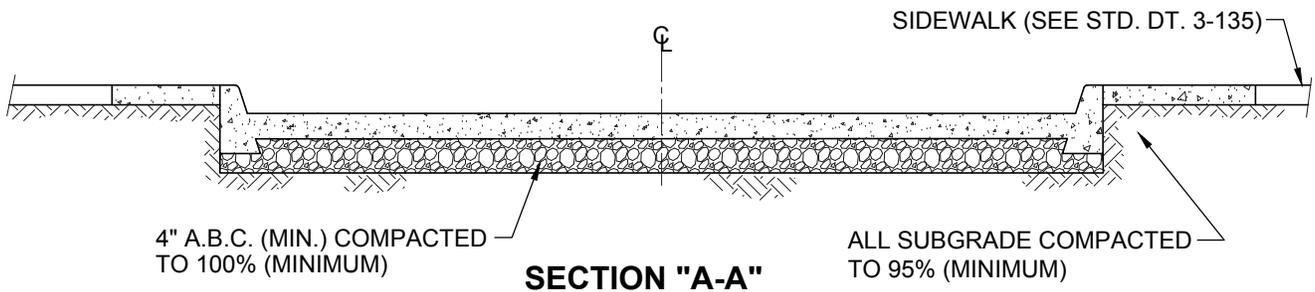
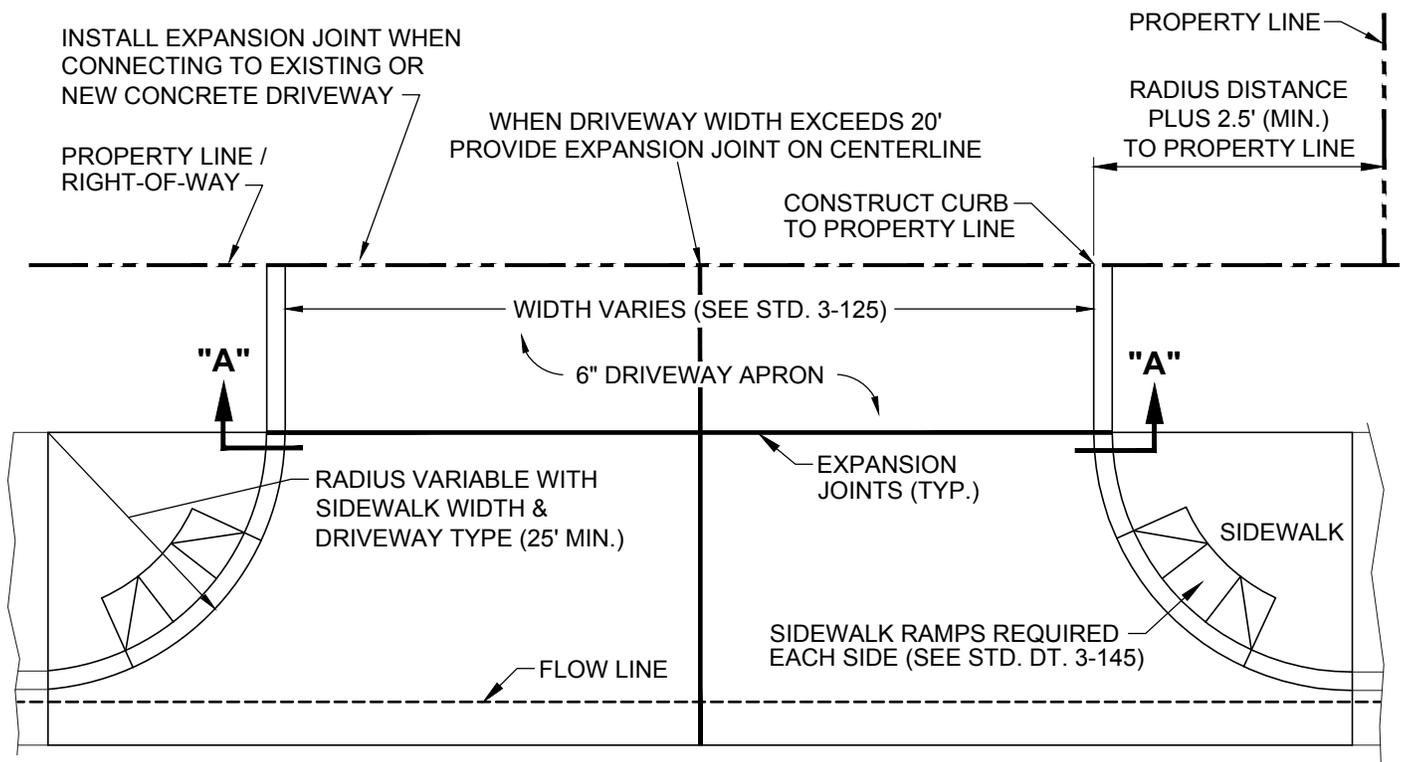
NOTES

1. Expansion joints shall be located at tangent points in curb returns, at structures and placed at 20' intervals (maximum). Expansion joint material shall comply with MAG Section 729.
2. Expansion joint material shall be placed in accordance with MAG Section 340.
3. Approved driveway locations can be found in Standard Detail 3-125.
4. New roll curb and gutter can only be used to replace existing roll curb or with the approval of the City Engineer.
5. All concrete shall be Class B per MAG Sec 725.

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 3-115
RESIDENTIAL DRIVEWAY
WITH ROLL CURB & GUTTER**



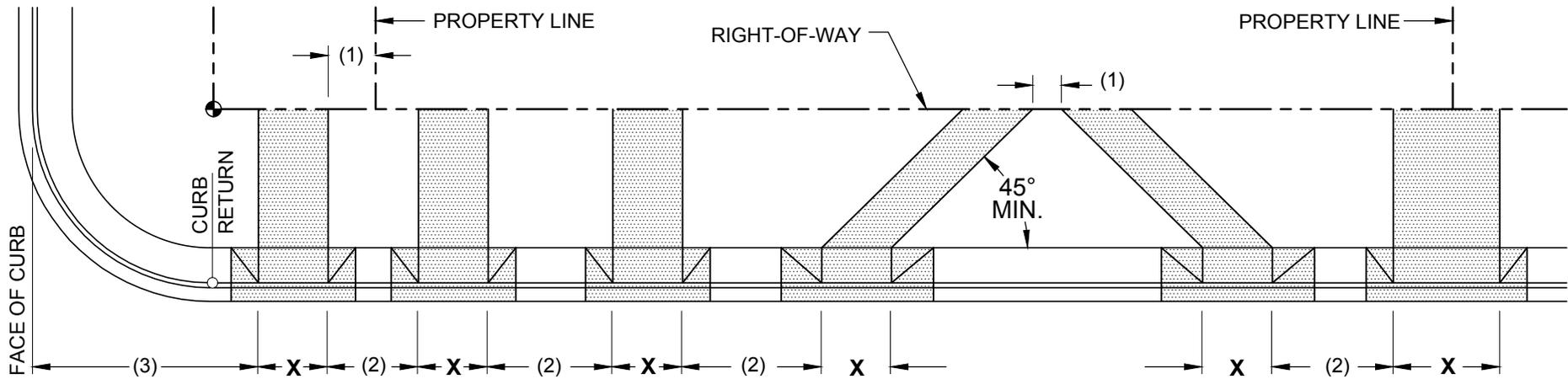
NOTES

1. This standard is to be used on commercial, industrial and emergency access driveways.
2. The access turning radii shall accommodate the largest vehicle using this access on a daily basis.
3. Expansion joints shall be located at tangent points in curb returns, at structures and placed at 20' intervals (maximum). Expansion joint material shall comply with MAG Section 729.
4. Expansion joint material shall be placed in accordance with MAG Section 340.
5. A minimum of four inches (4") of A.B.C., compacted to a minimum of 100% shall be used under aprons, curb and gutter.
6. All concrete shall be Class B per MAG Sec 725.

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 3-120
DRIVEWAY ENTRANCE
WITH CURB RETURNS**



STREET CLASSIFICATION	MINIMUM DIMENSION		
	(1)	(2)	(3)
LOCAL	7'	25'	40'
COLLECTOR	10'	100'	150'
MINOR ARTERIAL	25'	150'	300'
PRINCIPAL ARTERIAL	25'	350'	500'

X DIMENSION	
RESIDENTIAL:	
PRIMARY DRIVEWAY:	16' MIN., 30' MAX.
SECONDARY DRIVEWAY:	12' MIN., 30' MAX.
COMMERCIAL:	ONE WAY: 20' MIN., 30' MAX. TWO WAY: 24' MIN., 40' MAX.
INDUSTRIAL:	20' MIN., 40' MAX.
JOINT USE:	40' MAX.

NOTES

1. Driveway definitions:
 - Residential - providing access to a single family residence, duplex or to an apartment building containing five or fewer dwelling units.
 - Commercial - providing access to an office, retail or institutional building or to an apartment building having more than five dwelling units.
 - Industrial - directly serves a substantial number of truck movements to and from loading docks of an industrial facility, warehouse or truck terminal.
2. Joint use driveways may become desirable for land owners of adjacent properties to service both properties. Should this be the case only one of the two adjacent land owners need apply for the encroachment permit. A notarized written mutual agreement, signed by all parties involved, must accompany the application form and will be recorded by the owner of record.
3. Driveway designs are subject to review and approval by the City Engineer.
4. Commercial and industrial driveways shall have curb returns (see Standard Detail 3-120).
5. Driveways and depressed curbs shall be located as noted or as directed by the City Engineer.
6. Drainage structures shall be provided under driveways where necessary.
7. Base material shall be the same as that shown for main roadways unless otherwise noted. All subgrade shall be compacted to 95% (minimum). Clean sand and A.B.C. shall also be compacted to 100% (minimum).

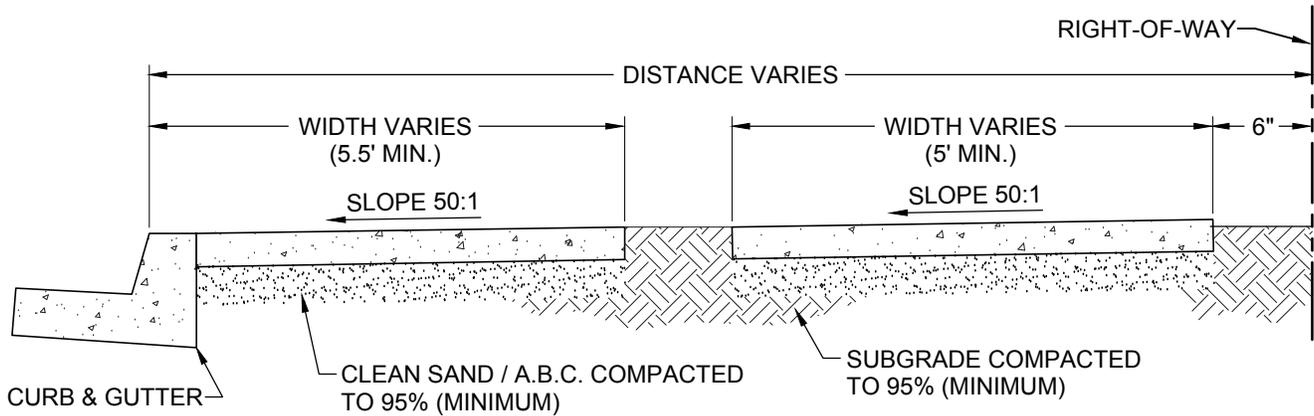
Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 3-125
DRIVEWAY ENTRANCE
LOCATIONS**

ALL SIDEWALK 4" (MIN.) CLASS "B" CONCRETE CONSTRUCTION
(SEE NOTE NO. 2)

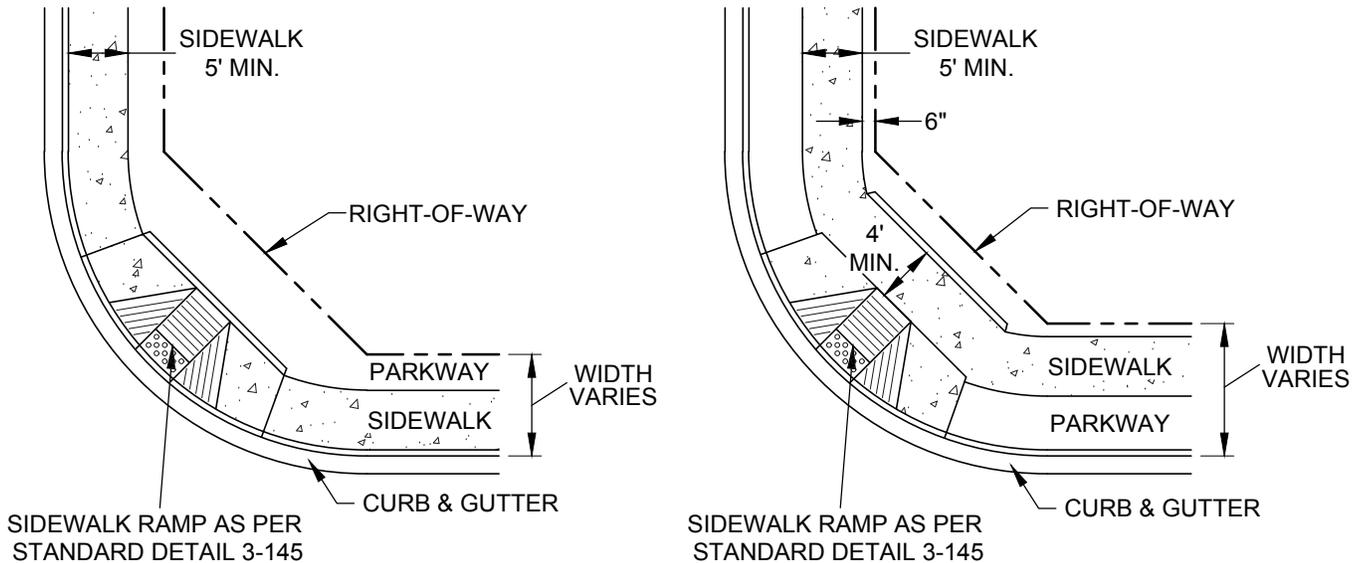
OPTIONAL SIDEWALK LOCATIONS



PREFERRED SIDEWALK LOCATION

ALTERNATE SIDEWALK LOCATION

PROFILE VIEW



PREFERRED SIDEWALK LOCATION

ALTERNATE SIDEWALK LOCATION

PLAN VIEW

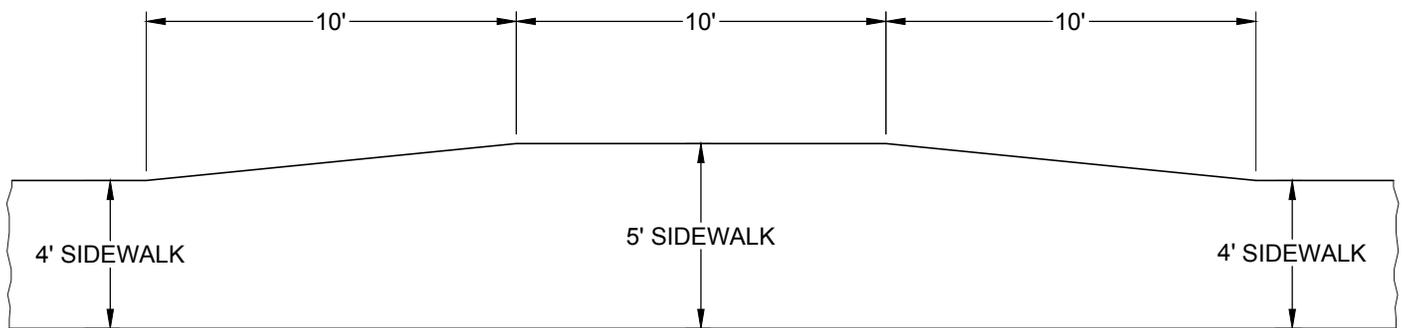
NOTES

1. A 50:1 cross slope per ADA requirements is required for drainage from back of sidewalk to curb.
2. Sidewalk shall be a minimum of 4" thick, Class "B" concrete construction per MAG Section 725.
3. Sidewalks containing power poles, light standards, mailboxes or other such obstructions shall be widened sufficiently to meet current ADA clearance requirements.
4. Reconfigure sidewalk in intersection so that ramp slope and lengths achieve no steeper than a 12:1 (run:rise) slope approaching/departing ramp.
5. All new development shall be required to construct sidewalks adjacent to all streets.
6. Expansion joint material shall be placed between curb and gutter and sidewalk when the back of the sidewalk abuts concrete driveways or other concrete paving.

Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 3-130
SIDEWALK LOCATIONS



PLAN VIEW

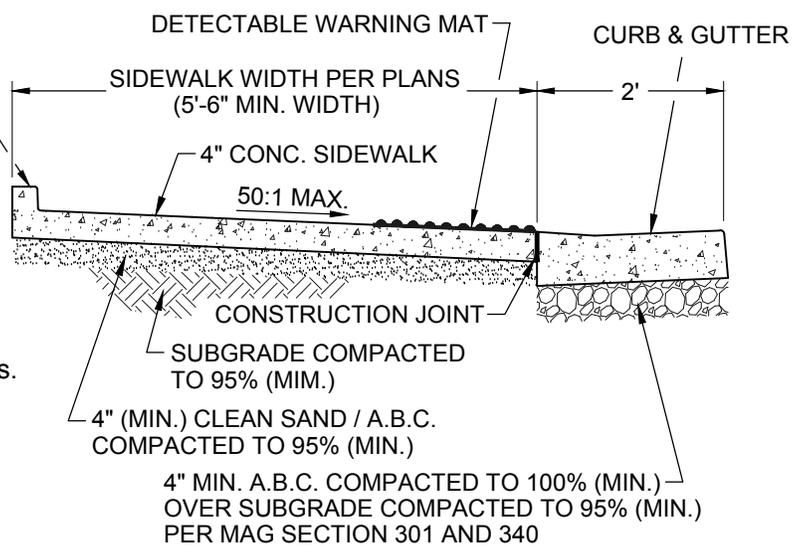
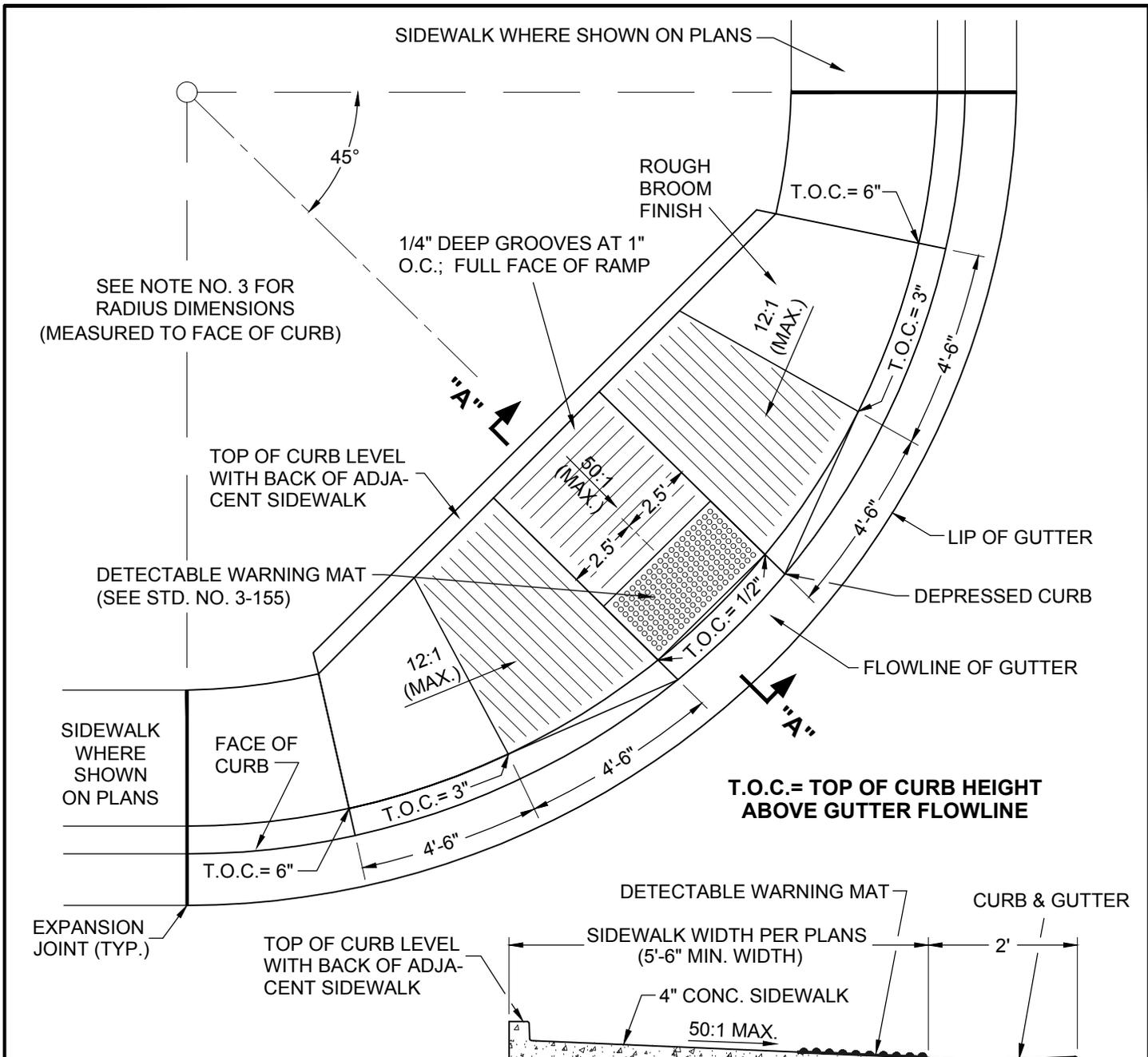
NOTES

1. Passing zones shall be located every 200' (Maximum), where width of sidewalk is less than 5 feet.
2. This standard is for replacement or retrofit applications only.

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 3-140
SIDEWALK
ADA PASSING ZONE

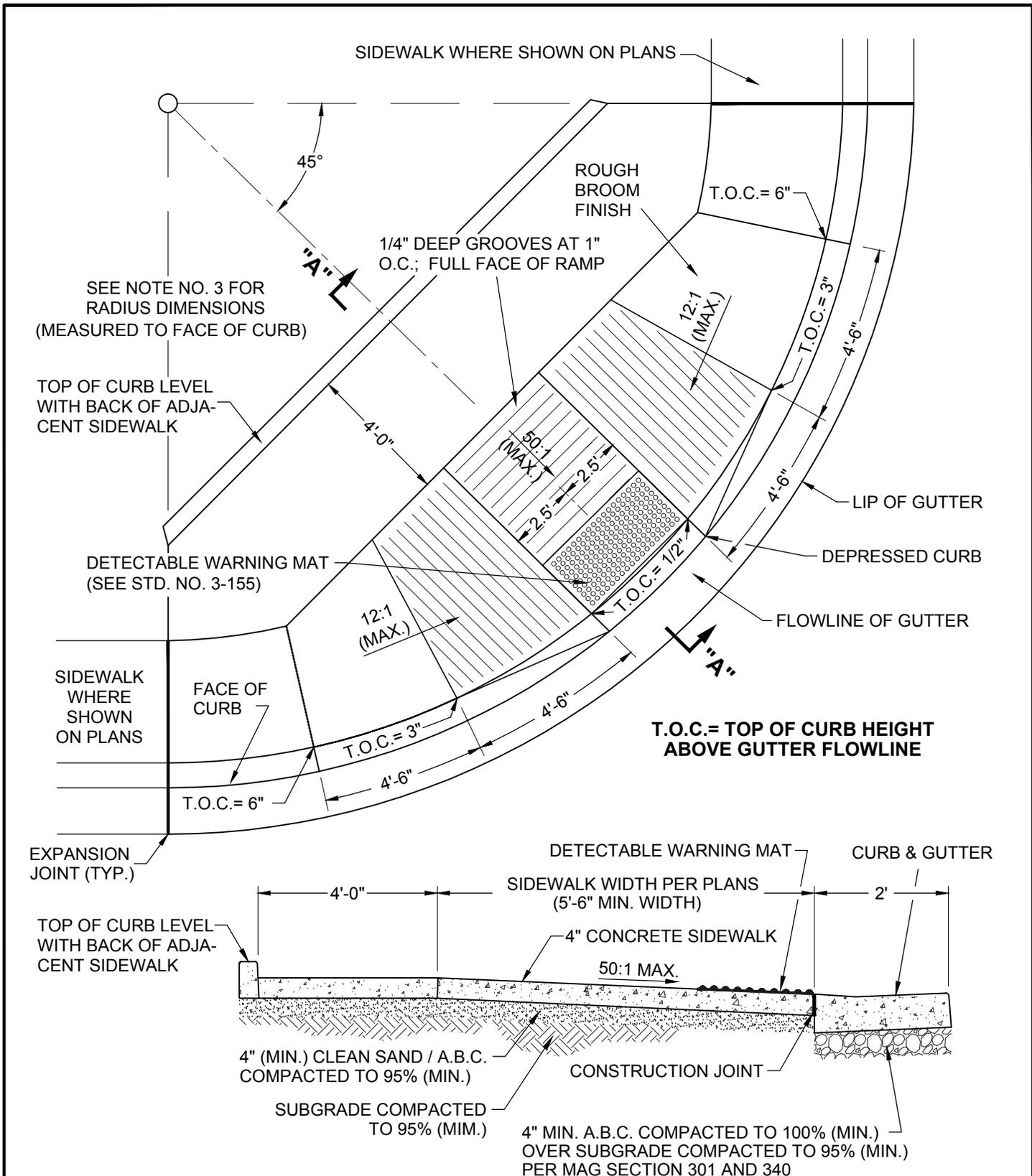


NOTES

1. For Collectors, Arterials and Area Service Highways place ramp at each crosswalk location, in accordance with ADA requirements.
2. Construct with Class "B" concrete per MAG Section 725.
3. Radius requirements (face of curb):
 - A. Local street: 25' minimum
 - B. Collector streets: 40' minimum
 - C. Arterial streets: 50' minimum
 - D. Service highways: 50' minimum
4. Expansion joints shall be located at tangent points in curb returns, at structures and at a maximum 20 foot interval. Expansion joint material shall comply with MAG Section 729.
5. Expansion joint material shall be placed in accordance with MAG Section 340.
6. Back of curb and gutter shall be depressed (no lip).

SECTION "A-A"

Issued: May 2019	Sheet 1 of 2
<p>CITY OF YUMA CONSTRUCTION STANDARD DETAIL DRAWINGS</p> <p>STANDARD NO. 3-145 SIDEWALK RAMP</p>	



SEE NOTE NO. 3 FOR RADIUS DIMENSIONS (MEASURED TO FACE OF CURB)

TOP OF CURB LEVEL WITH BACK OF ADJACENT SIDEWALK

DETECTABLE WARNING MAT (SEE STD. NO. 3-155)

SIDEWALK WHERE SHOWN ON PLANS

FACE OF CURB

EXPANSION JOINT (TYP.)

TOP OF CURB LEVEL WITH BACK OF ADJACENT SIDEWALK

4" (MIN.) CLEAN SAND / A.B.C. COMPACTED TO 95% (MIN.)

SUBGRADE COMPACTED TO 95% (MIN.)

4" MIN. A.B.C. COMPACTED TO 100% (MIN.) OVER SUBGRADE COMPACTED TO 95% (MIN.) PER MAG SECTION 301 AND 340

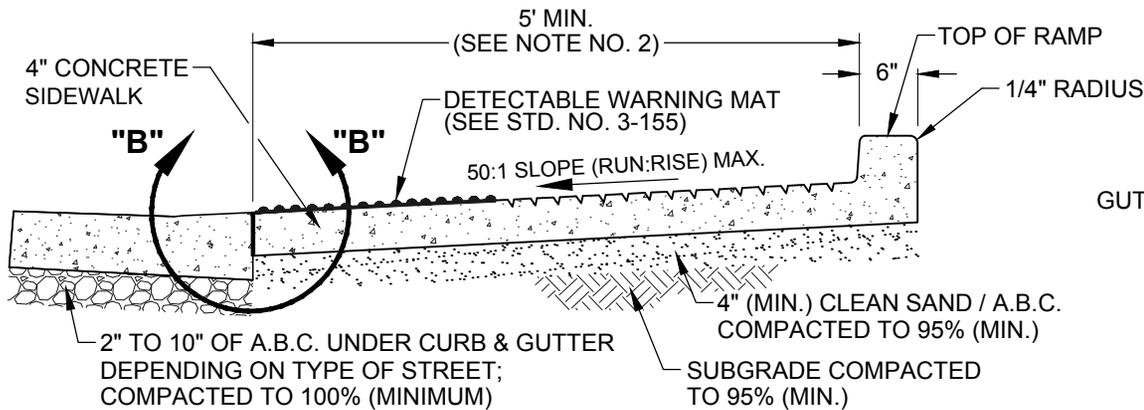
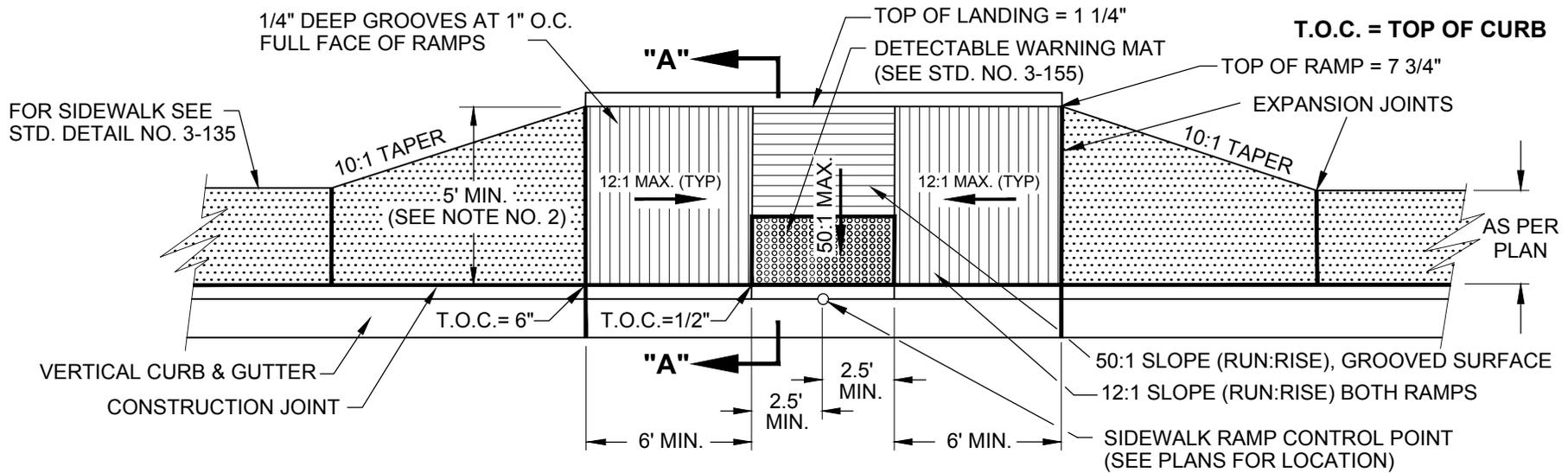
T.O.C.= TOP OF CURB HEIGHT ABOVE GUTTER FLOWLINE

SECTION "A-A"

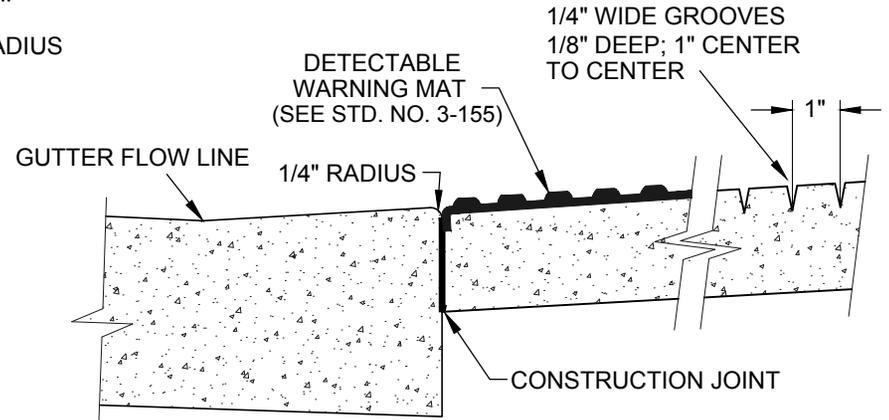
NOTE

See notes on sheet 1.

Issued: May 2019	Sheet 2 of 2
<p>CITY OF YUMA CONSTRUCTION STANDARD DETAIL DRAWINGS</p> <p>STANDARD NO. 3-145 SIDEWALK RAMP</p>	



SECTION "A - A"



VIEW "B - B"

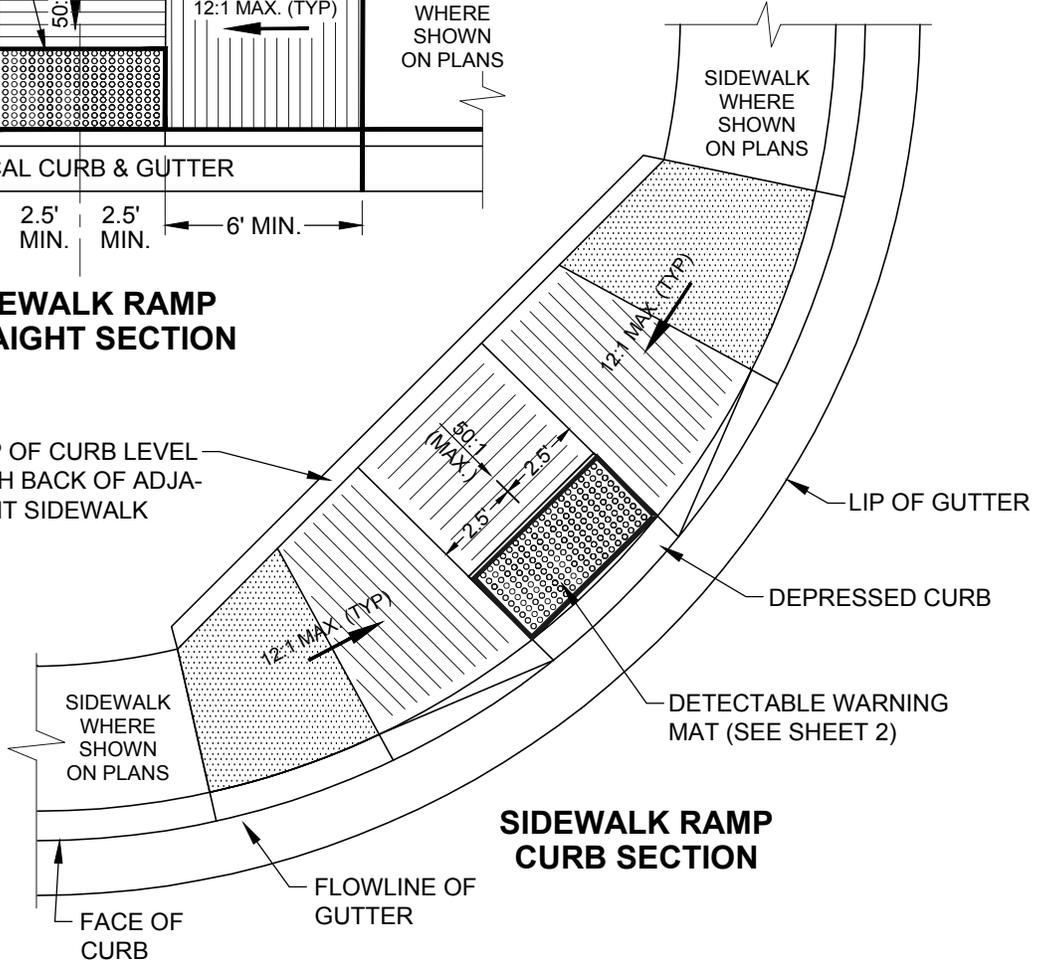
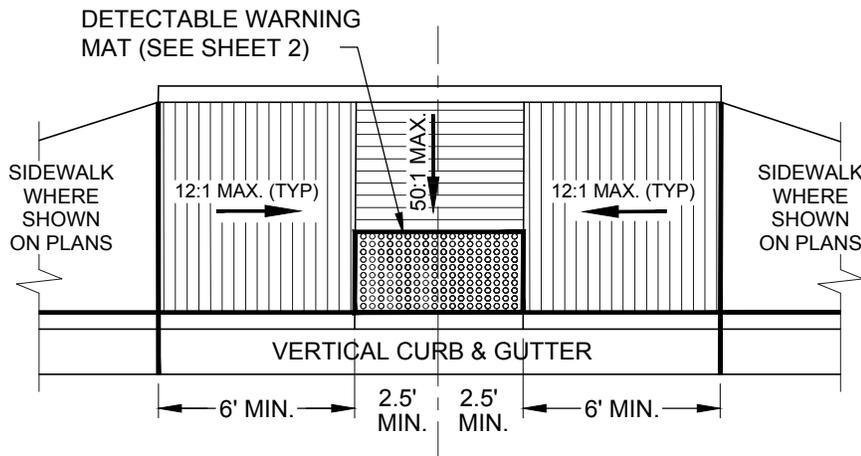
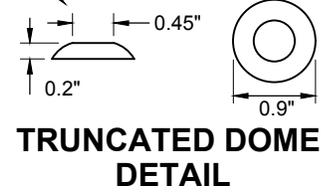
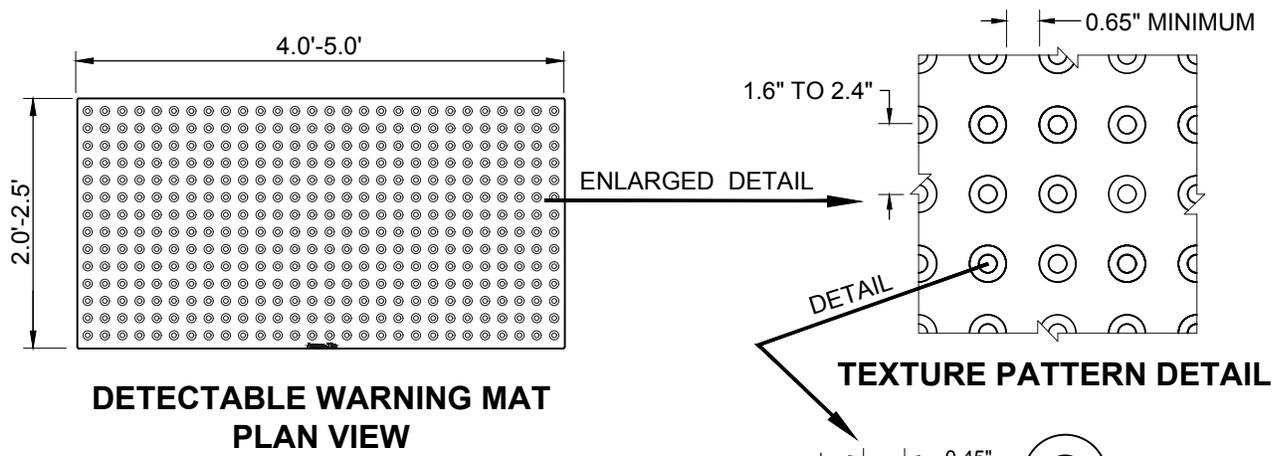
NOTES

1. Top of curb (T.O.C.) and top of ramp elevations shown are measured from the flow line of the gutter. Gutter elevation = 0.00.
2. Sidewalks greater in width than five feet (5'), the overall sidewalk ramp length shall match the sidewalk width.
3. Expansion joints shall be located at tangent points, in curb returns, at structures and placed at 20' intervals (maximum). Expansion joint material shall comply with MAG Section 729.
4. Expansion joint material shall be placed in accordance with MAG Section 340.
5. Ramp and sidewalks shall be constructed of Class "B" concrete per MAG Section 725.

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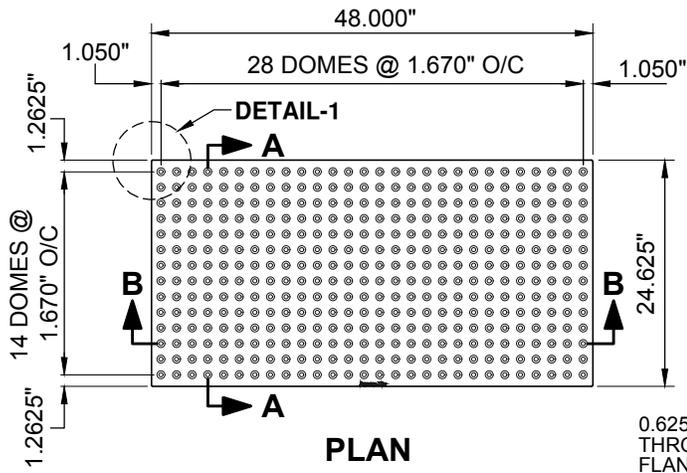
CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 3-150
SIDEWALK RAMP
(STRAIGHT SECTION)

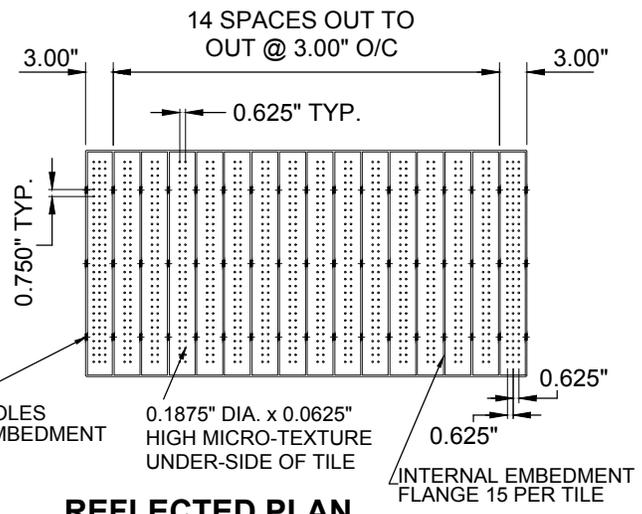


NOTE

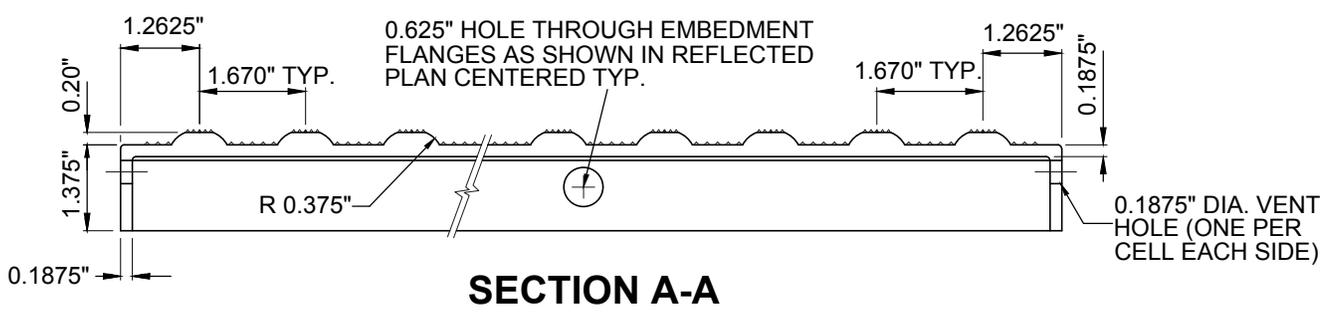
1. See sheet 2 of this standard for additional details about the detectable warning mat.



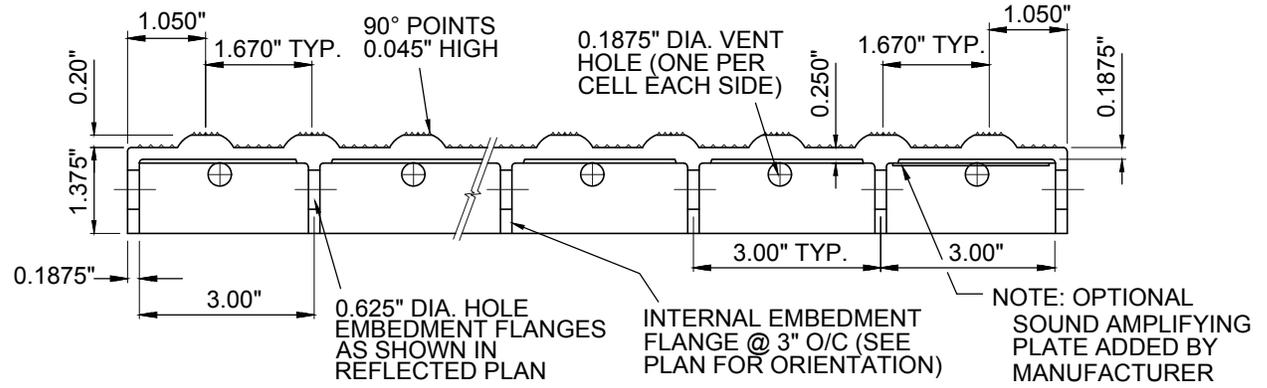
PLAN



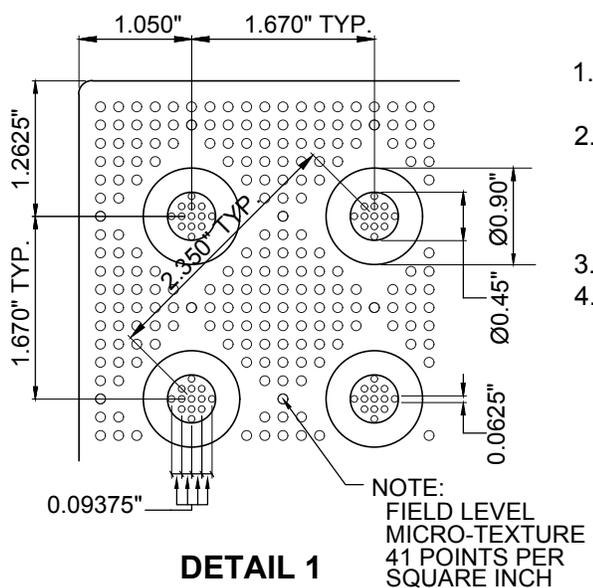
REFLECTED PLAN



SECTION A-A



SECTION B-B

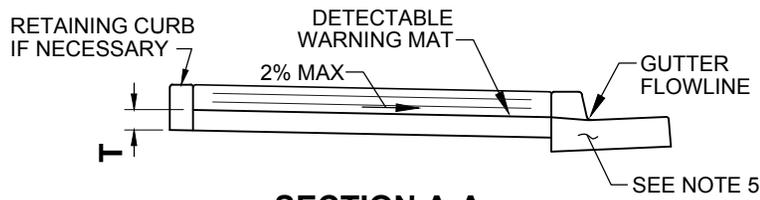


DETAIL 1

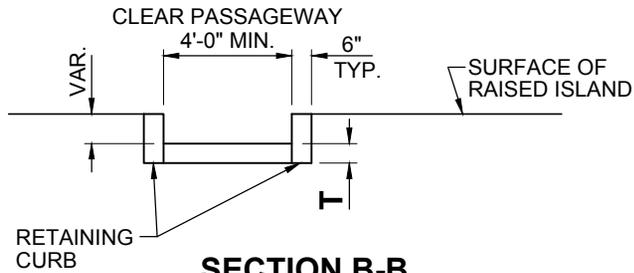
NOTES

1. ADA Solutions, Inc., cast-in-place tactile panels are approved commercial products.
2. The approved items are not necessarily exclusive. If a similar product of comparable and equal quality and performance is desired, a request supported by appropriate information and data may be submitted to the City Engineer for review.
3. Embedments shall be as per manufacturers recommendations.
4. Color shall be federal yellow.

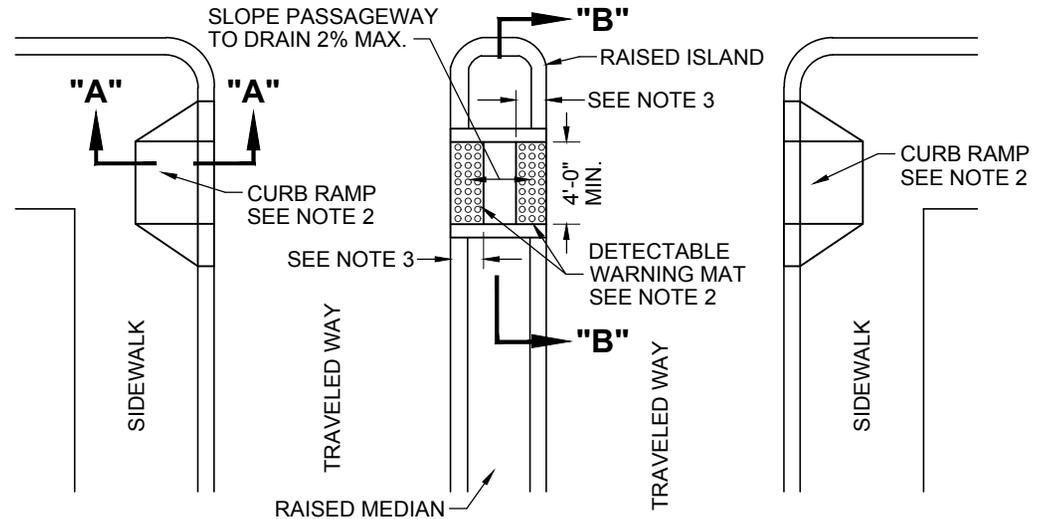
Issued: May 2019	Sheet 2 of 2
<p>CITY OF YUMA CONSTRUCTION STANDARD DETAIL DRAWINGS</p> <p>STANDARD NO. 3-155 DETECTABLE WARNING MAT</p>	



SECTION A-A



SECTION B-B



PASSAGEWAY

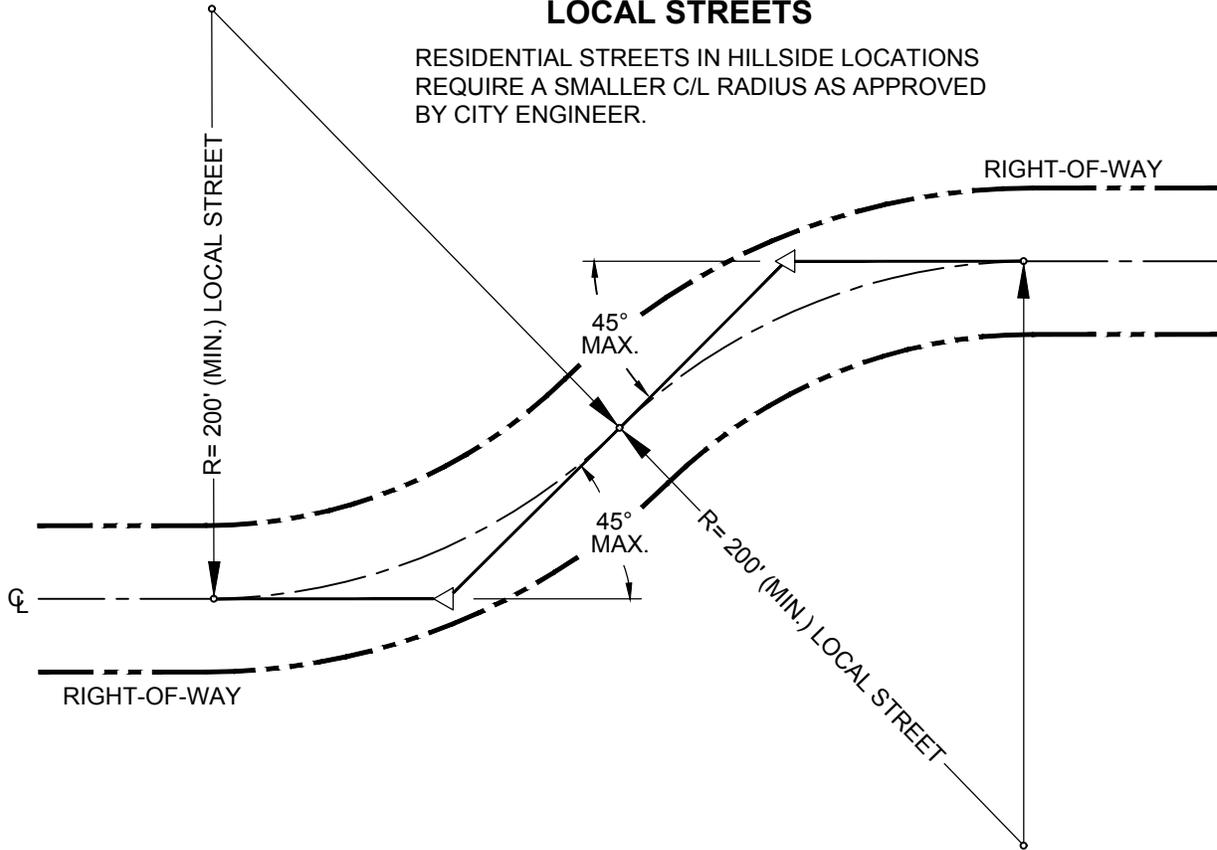
NOTES

1. Sidewalk, ramp and passageway thickness, "T", shall be 4" minimum.
2. For details of detectable warning mat, see Standard No. 3-155.
3. Where an island is less than 6'-0" wide, the detectable warning mat shall extend the full width and full length of the passage way. Where an island width is greater than or equal to 6'-0", but less than 8'-0", each detectable warning mat shall extend the full width of the passageway for a distance of 2' from each curb face. Where an island width is greater than or equal to 8'-0", each detectable warning mat shall extend the full width of the passageway for a distance of 3' from each curb face.
4. Transitions from ramps to walks, gutters or streets shall be flush and free of abrupt changes.
5. Max. slopes of adjoining gutters, the road surface immediately adjacent to the curb ramp or accessible route shall not exceed 5 percent within 4'-0" of the top and bottom of the curb ramp.
6. Utility pullboxes, manholes, vaults and all other utility facilities within the boundaries of the curb ramp shall be relocated or adjusted to grade by the facility owner prior to, or in conjunction with, curb ramp construction.

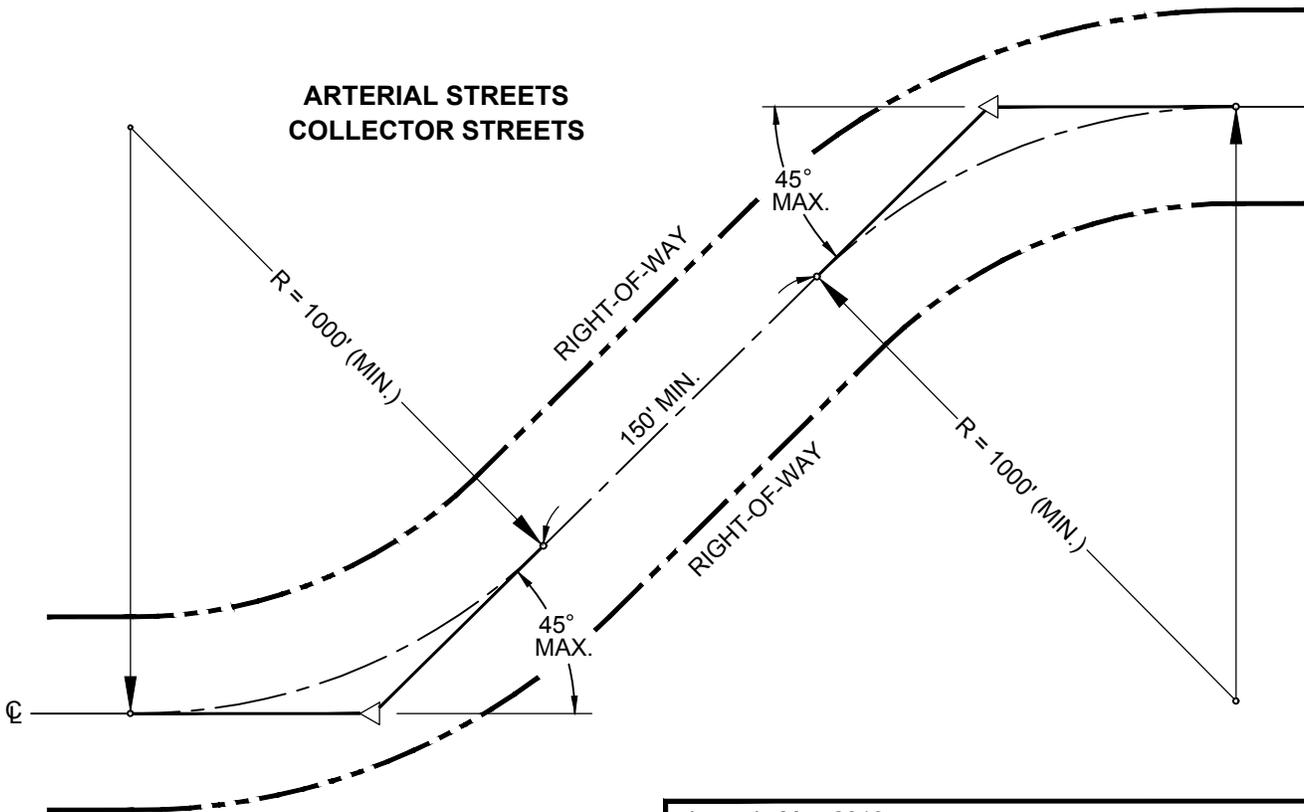
Issued: May 2019
CITY OF YUMA CONSTRUCTION STANDARD DETAIL DRAWINGS STANDARD NO. 3-160 CURB RAMP & ISLAND PASSAGEWAY DETAILS

LOCAL STREETS

RESIDENTIAL STREETS IN HILLSIDE LOCATIONS
REQUIRE A SMALLER C/L RADIUS AS APPROVED
BY CITY ENGINEER.



ARTERIAL STREETS COLLECTOR STREETS



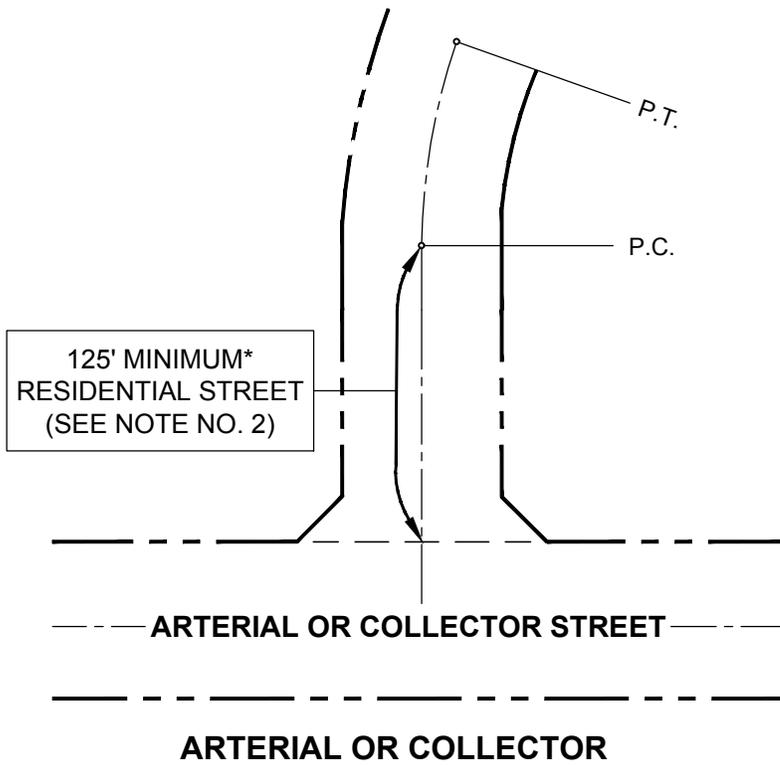
NOTE

1. Arterial and collector streets shall have a minimum centerline radius of 1,000'.

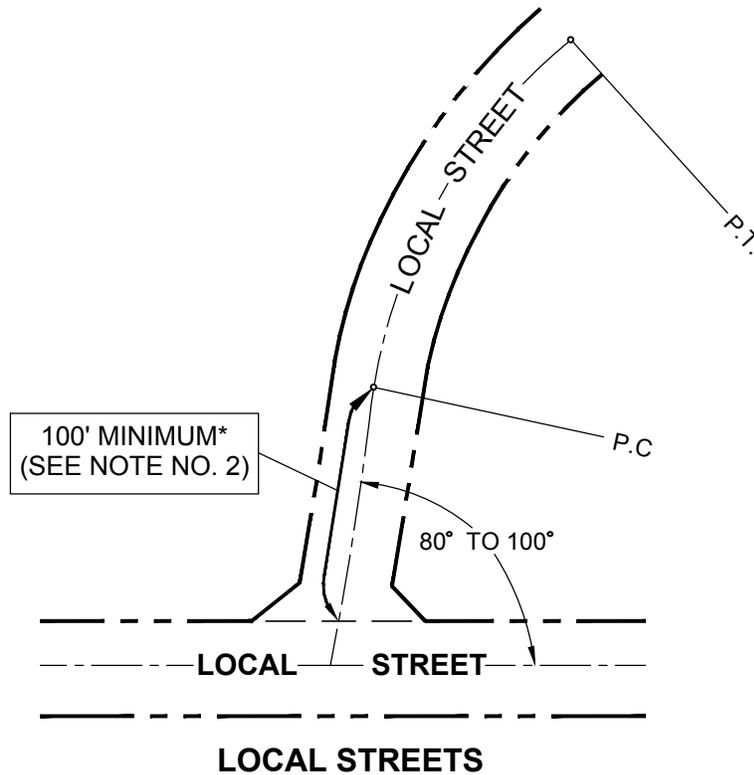
Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 3-165
REVERSE CURVES



DESIGN SPEED (MPH)	DISTANCE *
20	125'
25	150'
30	200'
35	225' - 250'
40	275' - 325'
45	325' - 400'
50	400' - 475'
55	450' - 550'



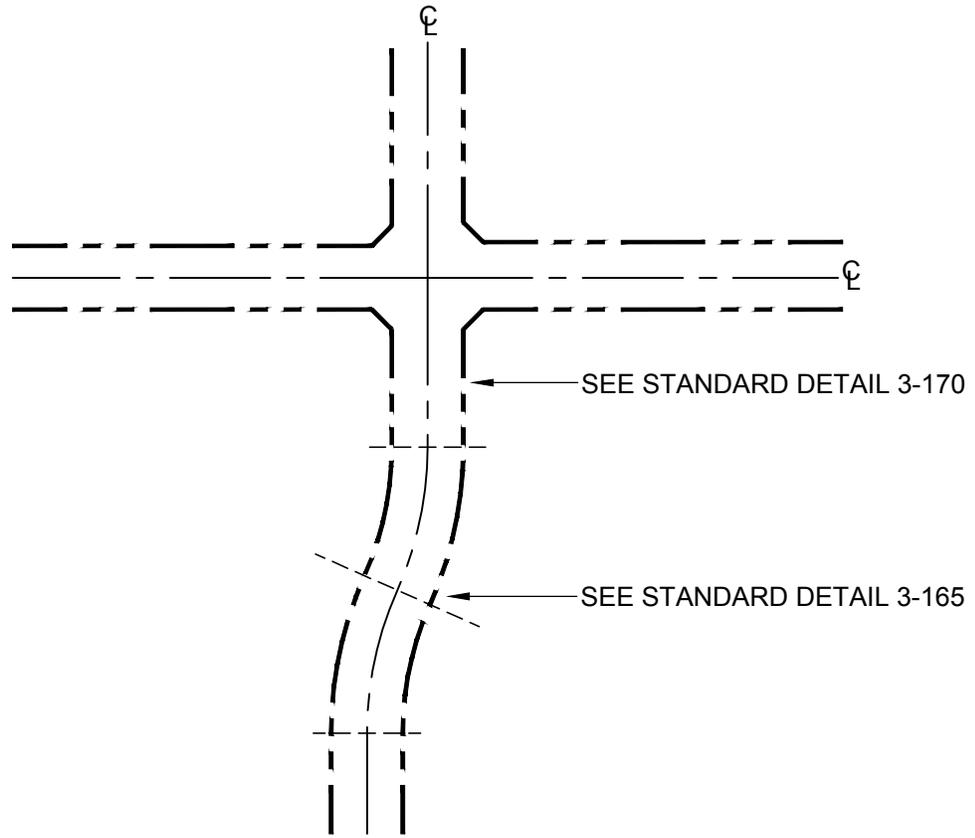
NOTES

1. All intersections with arterials or collector streets shall be at right angles.
2. Denotes minimum centerline distance from cross street right-of-way line to point of curvature.
3. Street intersections shall be carefully designed as to eliminate conflicting traffic movements and odd shaped lots.

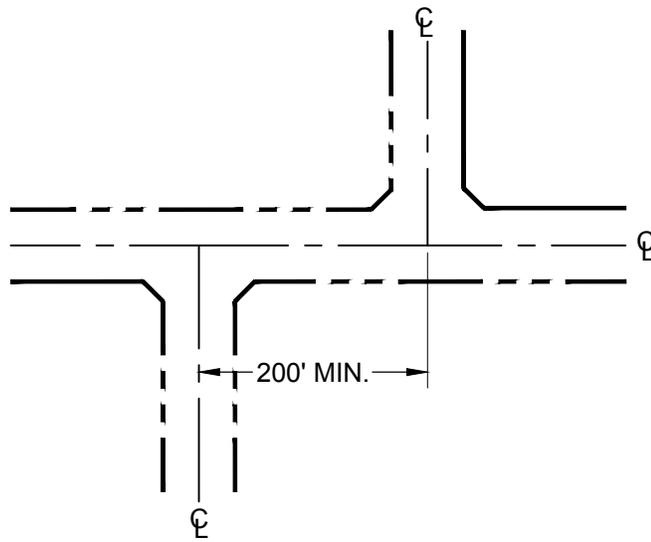
Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 3-170
ANGLE OF INTERSECTIONS



PREFERRED



ACCEPTABLE - LOCAL STREETS ONLY

NOTE

1. Arterial and collector streets shall not have offsets.

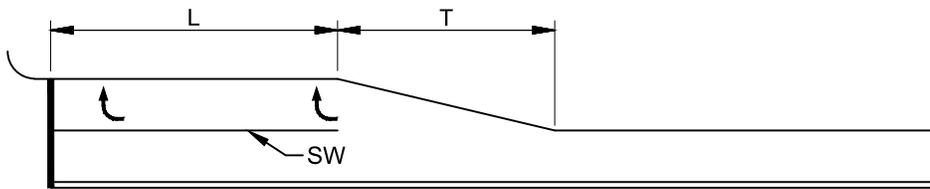
Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

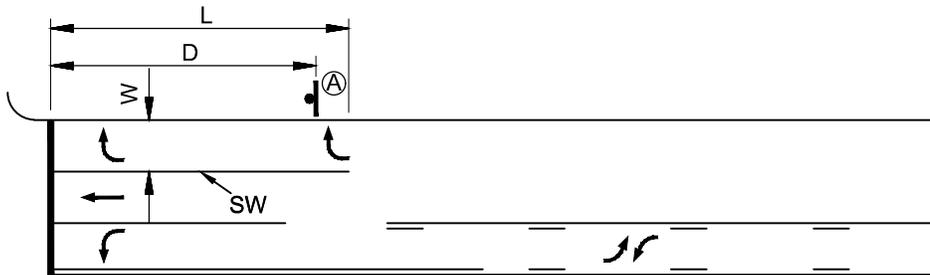
**STANDARD NO. 3-175
LOCAL STREET OFFSETS**

RIGHT TURN LANES

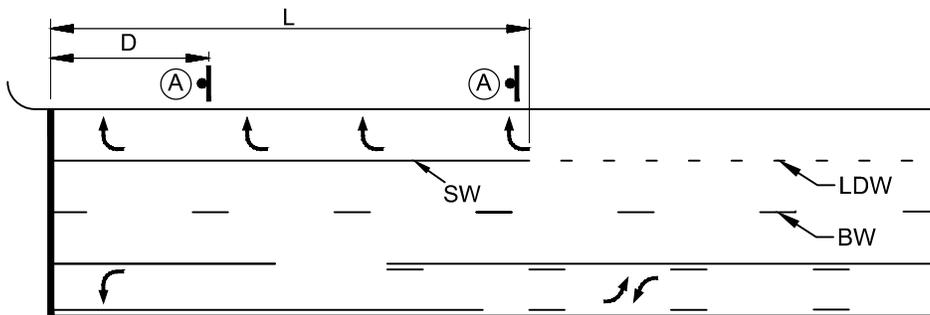
CASE 1R - RECESSED RIGHT-TURN LANE



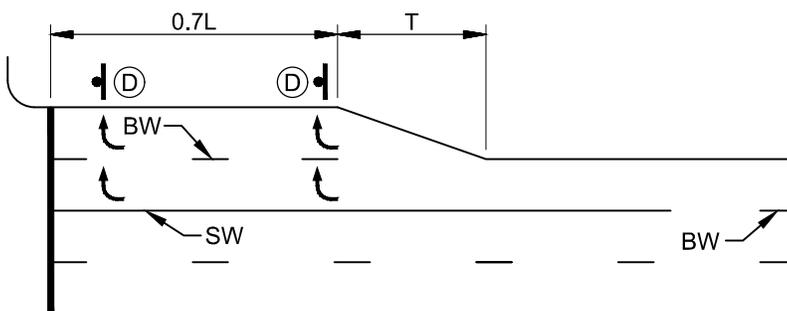
CASE 2R - CREATED RIGHT-TURN LANE



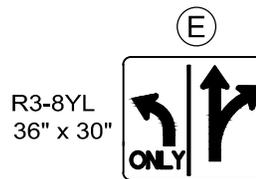
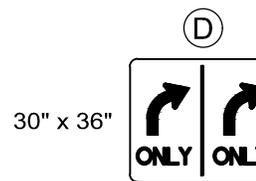
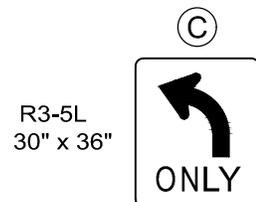
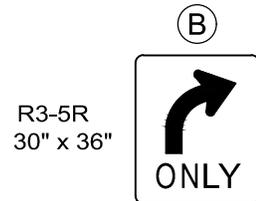
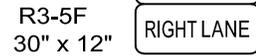
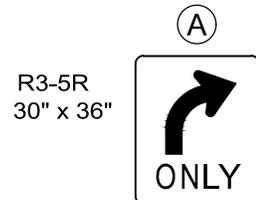
CASE 3R - RIGHT-TURN TRAP LANE



CASE 4R - DUAL RIGHT-TURN LANE



SIGN LEGEND



LINE LEGEND

(See Standard 10-025)

- SW = 6" SOLID WHITE
- 8SW = 8" SOLID WHITE
- 12SW = 12" SOLID WHITE
- BW = 6" BROKEN WHITE, 10' LINE, 30' SPACE
- DW = 6" DOTTED WHITE, 2' LINE, 6' SPACE
- LDW = 12", 3' LINE, 9' SPACE
- DY = DOUBLE 6" SOLID YELLOW
- CY = COMBINATION YELLOW LINE

NOTES

1. Drawings are schematic, not to scale.
2. Adapt as necessary for specific sites.
3. Pavement arrows to be 75' to 100' apart.
4. Normal 2-lane approaches on the stem of a T-intersection do not require lane use signs or pavement arrows.
5. Lanes are typically 12' wide to lip of gutter. Use 13.5' where no gutter.
6. See sheet 3 for dimensions.

Issued: May 2019

Sheet 1 of 3

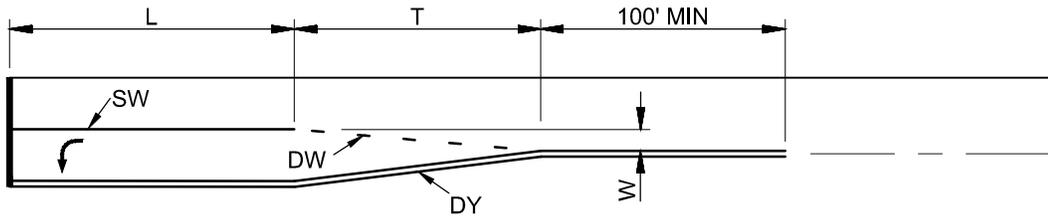
CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 3-180
TURN LANE TREATMENT

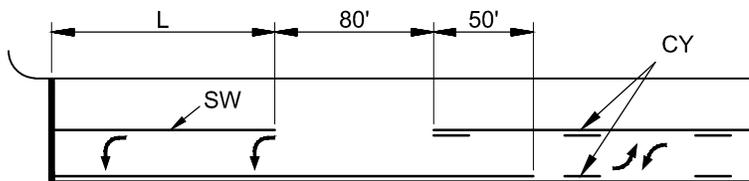
LEFT TURN LANES

(Continued on Sheet 3)

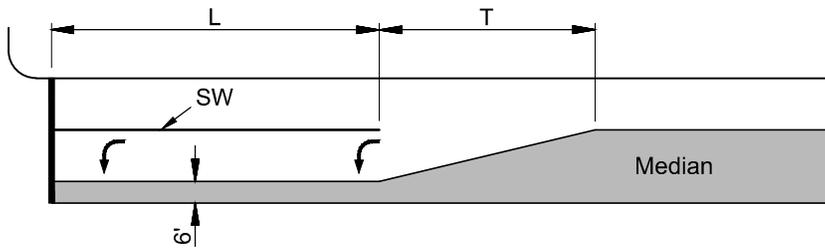
CASE 1L-LEFT - TURN LANE ON STREET WITH NO CENTER LANE



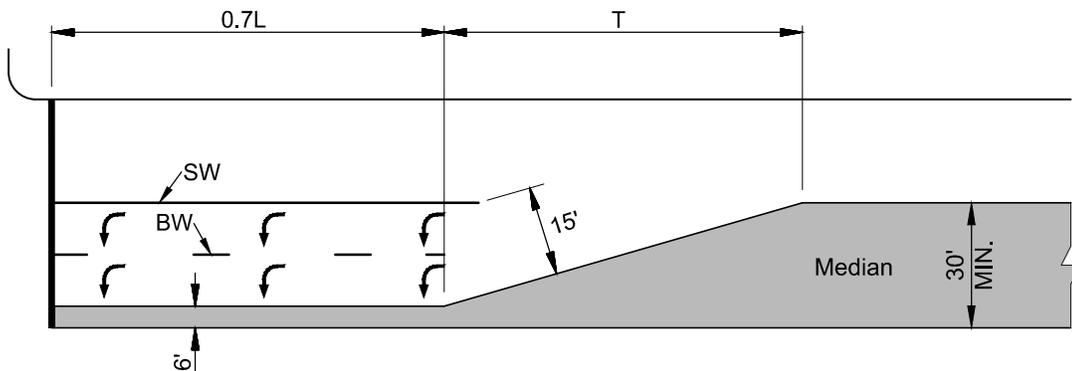
CASE 2L - 2 - WAY LEFT-TURN LANE CHANGES TO DEDICATED LEFT-TURN LANE



CASE 3L - SINGLE LEFT-TURN LANE IN MEDIAN



CASE 4L - DUAL LEFT-TURN LANES IN MEDIAN



NOTES

1. See Sheet 1 notes.
2. Median tapers are to be straight.
Do not use reverse curves.
3. See Line Legend on Sheet 1.
4. See Sign Legend on Sheet 1.

Issued: May 2019

Sheet 2 of 3

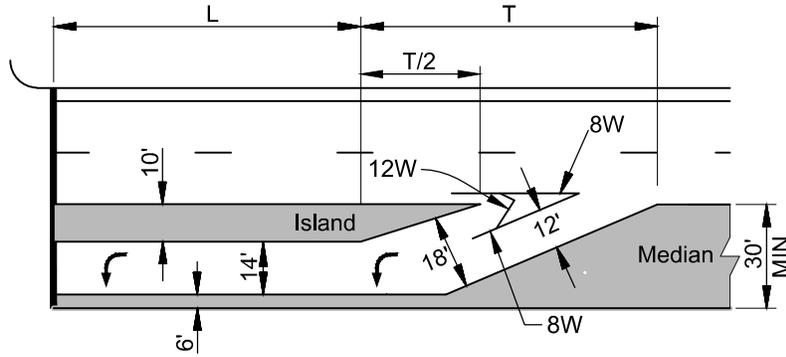
CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 3-180
TURN LANE TREATMENT

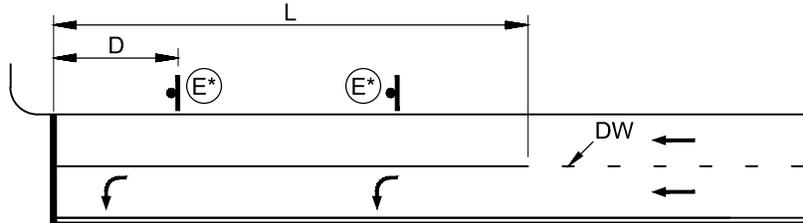
LEFT TURN LANES

(Continued)

CASE 5L - SINGLE LEFT-TURN LANE IN WIDE MEDIAN



CASE 6L - LEFT-TURN TRAP LANE



Note: Adjust sign (E) to match actual lane use.

NOTES

1. See Sheet 1 notes.
2. Median tapers are to be straight. Do not use reverse curves.
3. See Line Legend on Sheet 1.
4. See Sign Legend on Sheet 1.

Table 1

Type Lane	Case	Dimension (feet)		
		L	T	D
Right-Turn	1R	0.65V, 100 min.	100	
	2R	0.65V, 100 min.	See Taper Lengths table in Standard 10-005	0.75L
	3R	0.65V, 100 min.		100
	4R	0.6V, 500 min.	200, 160 min.	
Left-Turn	1L	0.87V, 100 min.	100	
	2L	0.87V, 100 min.		
	3L	0.87V, 100 min.	100	
	4L	0.6V, 100 min.	200, 160 min.	
	5L	0.87V	200 min.	
	6L	0.87V, 500 min.	200 min.	100

V = design turning volume in vehicles per hour.

S = estimated 85th-percentile speed, mph

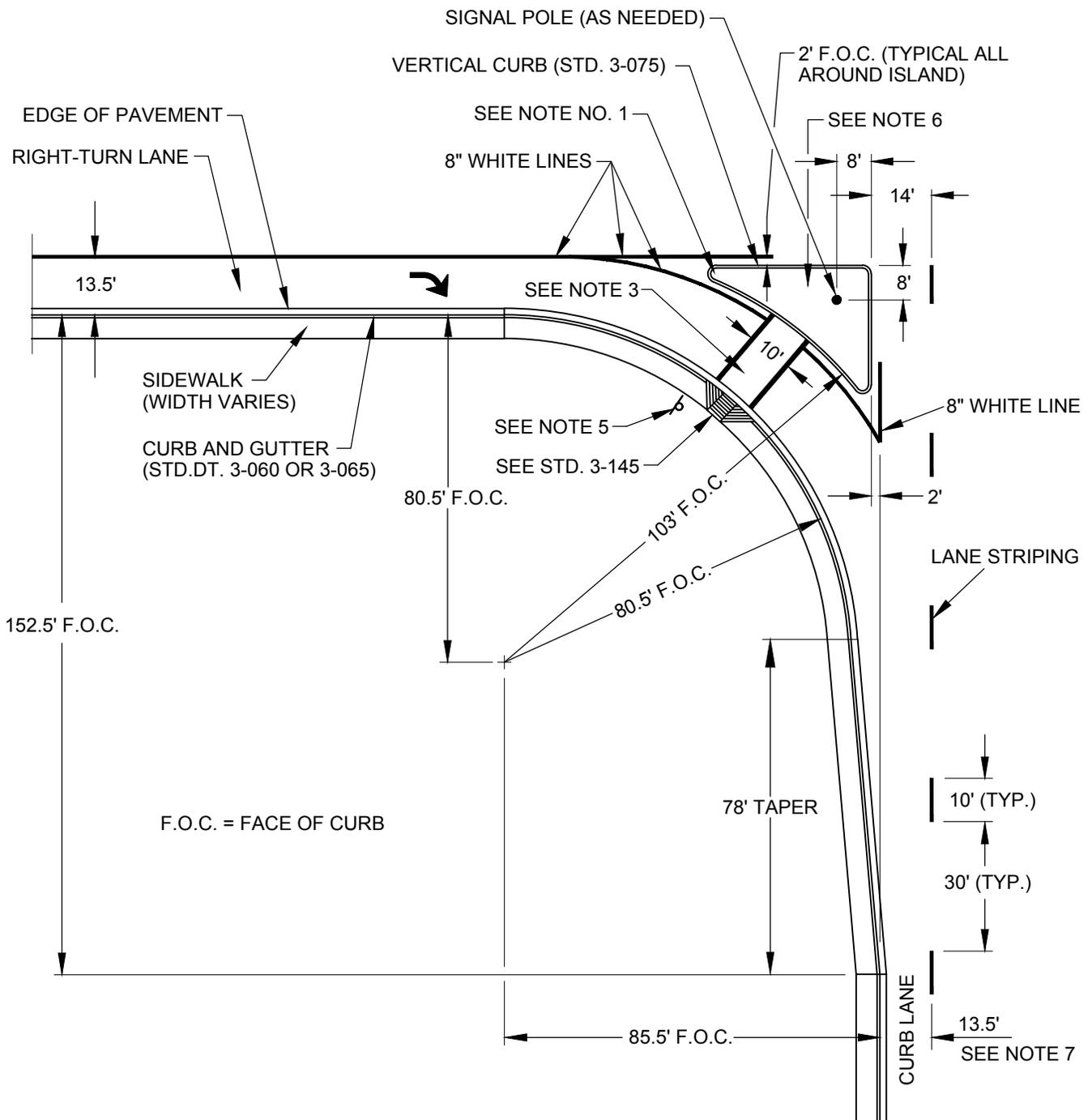
W = width of transition, feet

Issued: May 2019

Sheet 3 of 3

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 3-180
TURN LANE TREATMENT**



NOTES

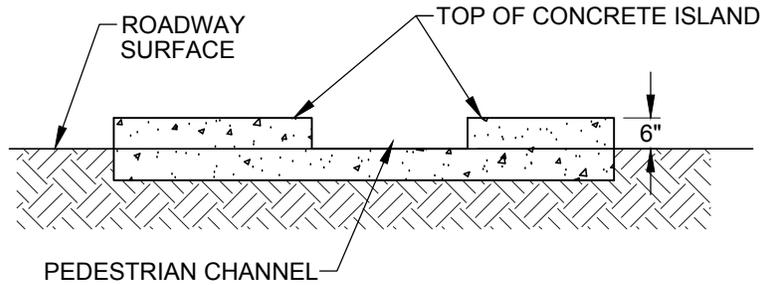
1. Island corners: 2' radius at F.O.C. (typical).
2. Adapt design as necessary to accommodate WB-50 design vehicles where intersection angle is other than 90 degrees.
3. Refer to Standard Detail 10-020 for crosswalk markings.
4. Bicycle lane permitted with approval by the City Engineer.
5. STOP or YIELD sign as approved by the City Engineer.
6. The location of ramps may vary depending upon the site conditions.
7. If bike lane, add 6' to curb lane.

Issued: May 2019 Sheet 1 of 2

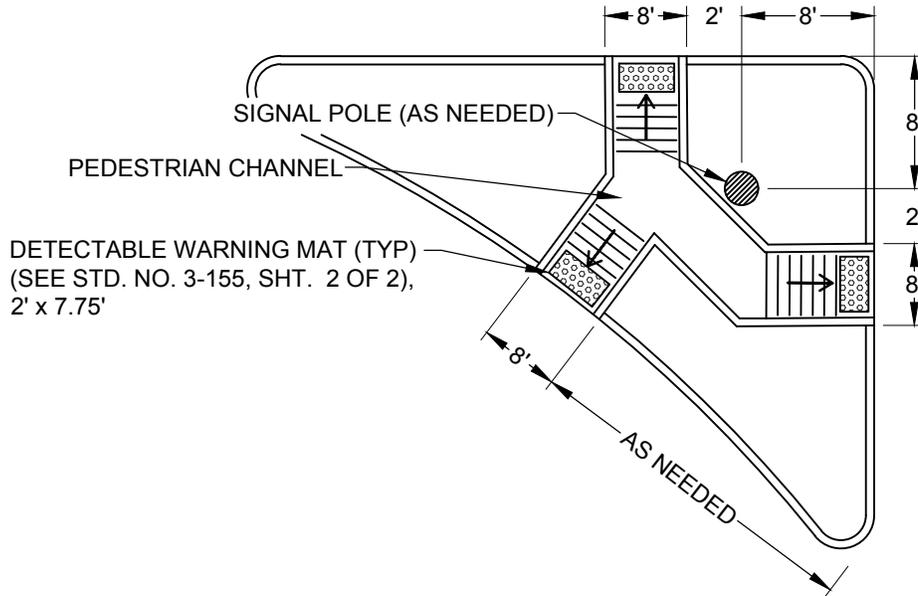
CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 3-185
RIGHT TURN
CHANNELIZATION**

PEDESTRIAN CHANNEL REQUIREMENTS



SCHEMATIC ELEVATION



NOTES

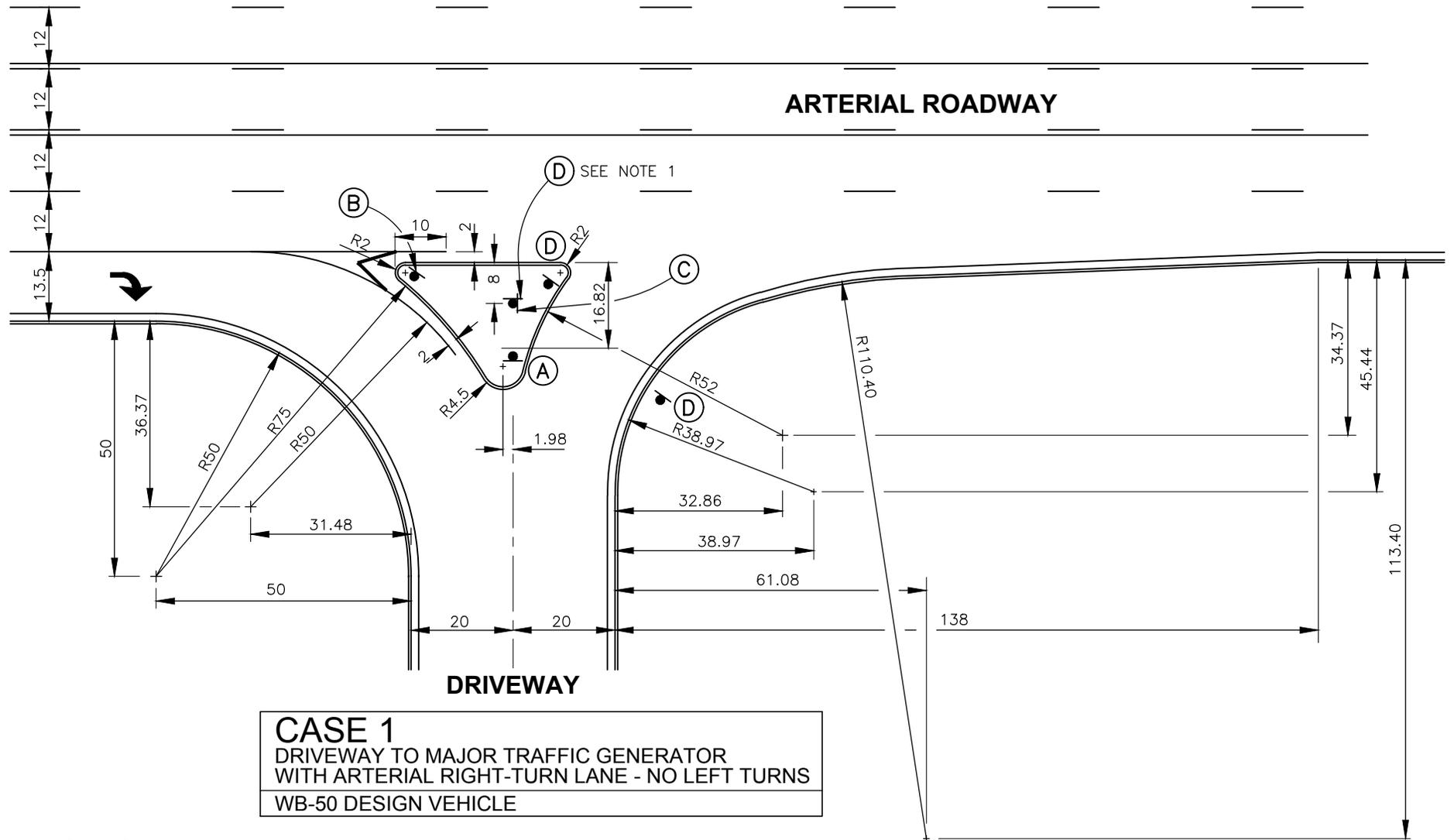
1. Pedestrian channels in island must be a minimum of 8' wide with the ends centered on the associated crosswalks. The center of the traffic signal pole, if needed, must be within 2.5' of the face of the channel edges. The location of ramps may vary depending upon the site conditions.
2. Island corners: 2' radius at F.O.C. (typical).
3. Pedestrian channel to match slope of adjacent pavement. Adjust slightly as directed by Engineer to achieve drainage.
4. Ramp interconnection to sidewalk 1" Above highest adjacent gutter.

Issued: May 2019

Sheet 2 of 2

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 3-185
RIGHT TURN
CHANNELIZATION

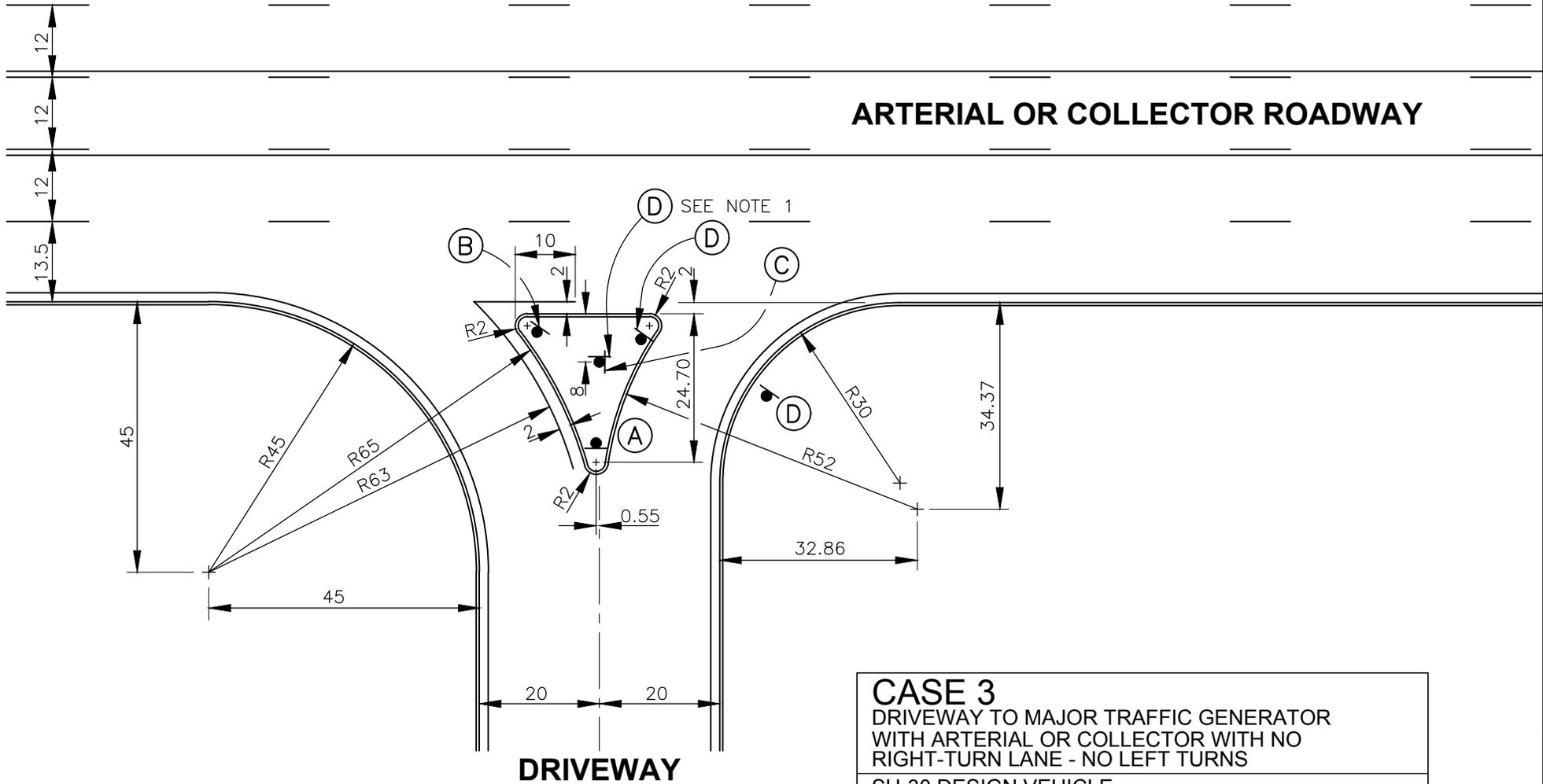


CASE 1
 DRIVEWAY TO MAJOR TRAFFIC GENERATOR
 WITH ARTERIAL RIGHT-TURN LANE - NO LEFT TURNS
 WB-50 DESIGN VEHICLE

NOTES

1. Use "DO NOT ENTER" sign facing perpendicular to arterial traffic flow only if there is a roadway or driveway directly opposite the subject driveway.
2. Adapt as needed to match site conditions.
3. All dimensions in feet and to face of curb.
4. See Standard No. 10-010 for pavement markings.
5. See sign legend on sheet 7 of 7.

Issued: May 2019	Sheet 1 of 7
<p>CITY OF YUMA CONSTRUCTION STANDARD DETAIL DRAWINGS</p> <p>STANDARD NO. 3-190 DRIVEWAY CHANNELIZATION</p>	



ARTERIAL OR COLLECTOR ROADWAY

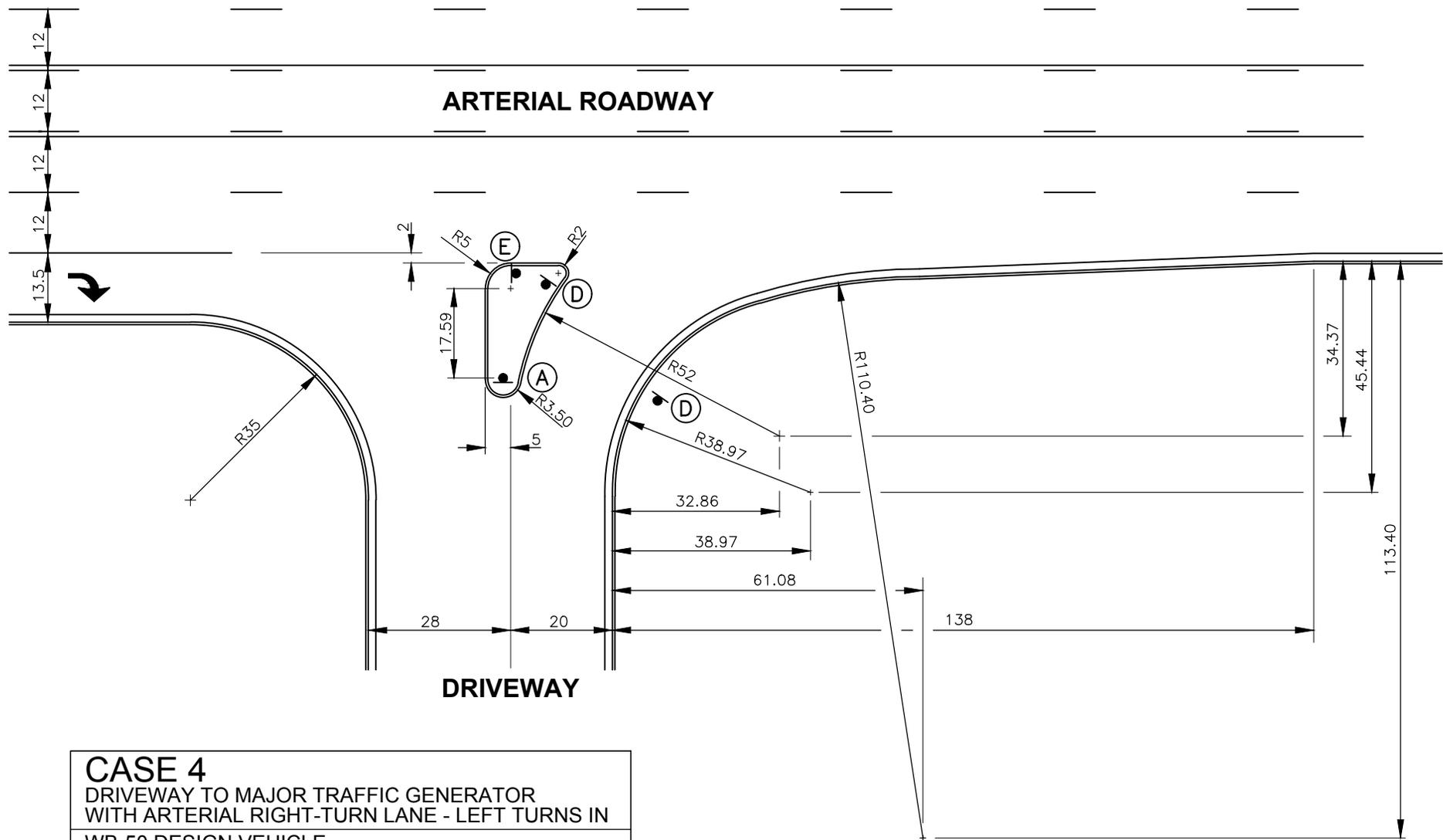
DRIVEWAY

CASE 3
 DRIVEWAY TO MAJOR TRAFFIC GENERATOR
 WITH ARTERIAL OR COLLECTOR WITH NO
 RIGHT-TURN LANE - NO LEFT TURNS
 SU-30 DESIGN VEHICLE

NOTES

1. Use "DO NOT ENTER" sign facing perpendicular to arterial traffic flow only if there is a roadway or driveway directly opposite the subject driveway.
2. Adapt as needed to match site conditions.
3. All dimensions in feet and to face of curb.
4. See sign legend on sheet 7 of 7.
5. See Standard No. 10-010 for pavement markings.

Issued: May 2019	Sheet 3 of 7
<p>CITY OF YUMA CONSTRUCTION STANDARD DETAIL DRAWINGS</p> <p>STANDARD NO. 3-190 DRIVEWAY CHANNELIZATION</p>	

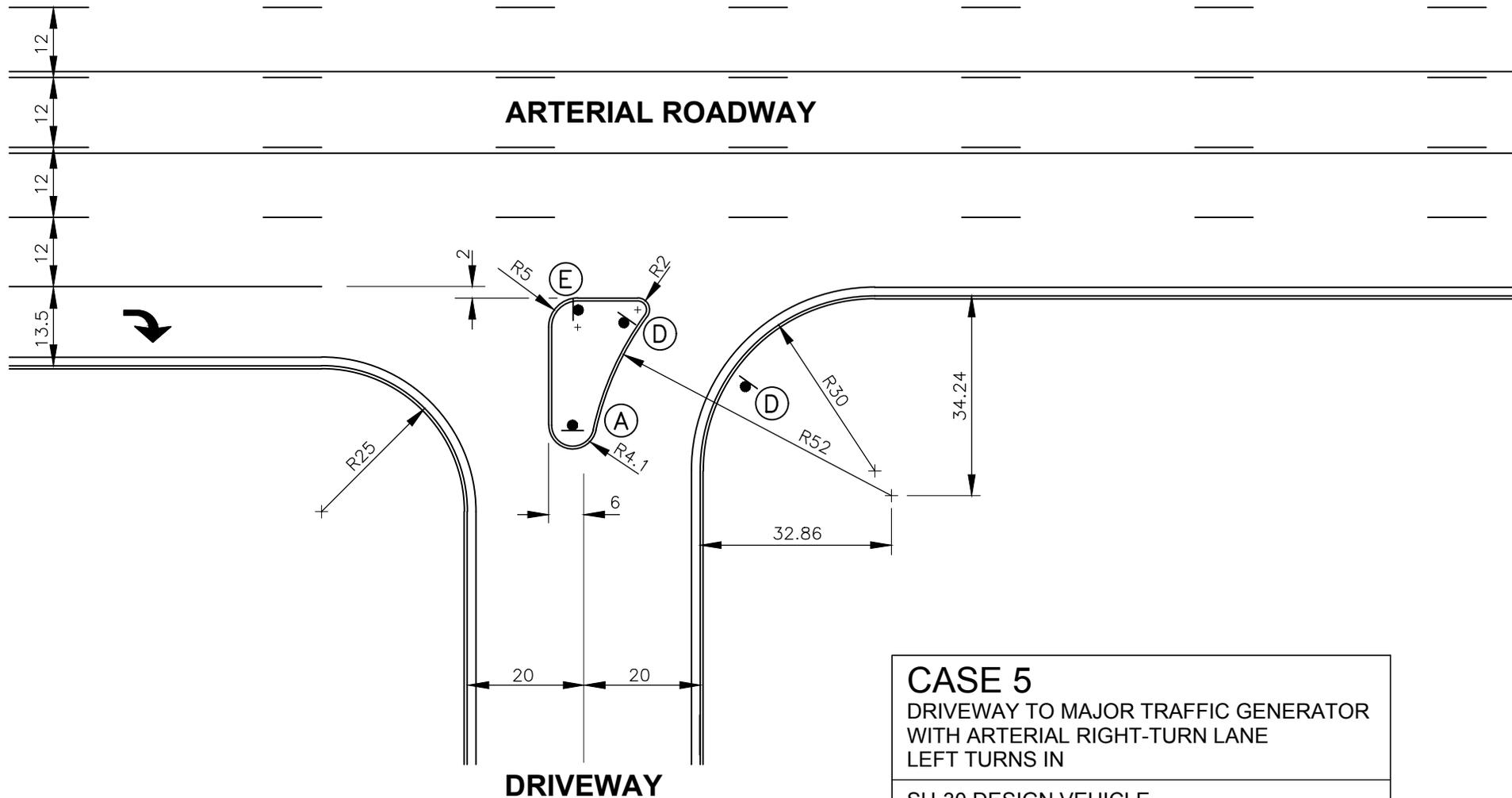


CASE 4
 DRIVEWAY TO MAJOR TRAFFIC GENERATOR
 WITH ARTERIAL RIGHT-TURN LANE - LEFT TURNS IN
 WB-50 DESIGN VEHICLE

NOTES

1. Adapt as needed to match site conditions.
2. All dimensions in feet and to face of curb.
3. See sign legend on sheet 7 of 7.
4. See Standard No. 10-010 for pavement markings.

Issued: May 2019	Sheet 4 of 7
<p>CITY OF YUMA CONSTRUCTION STANDARD DETAIL DRAWINGS</p> <p>STANDARD NO. 3-190 DRIVEWAY CHANNELIZATION</p>	

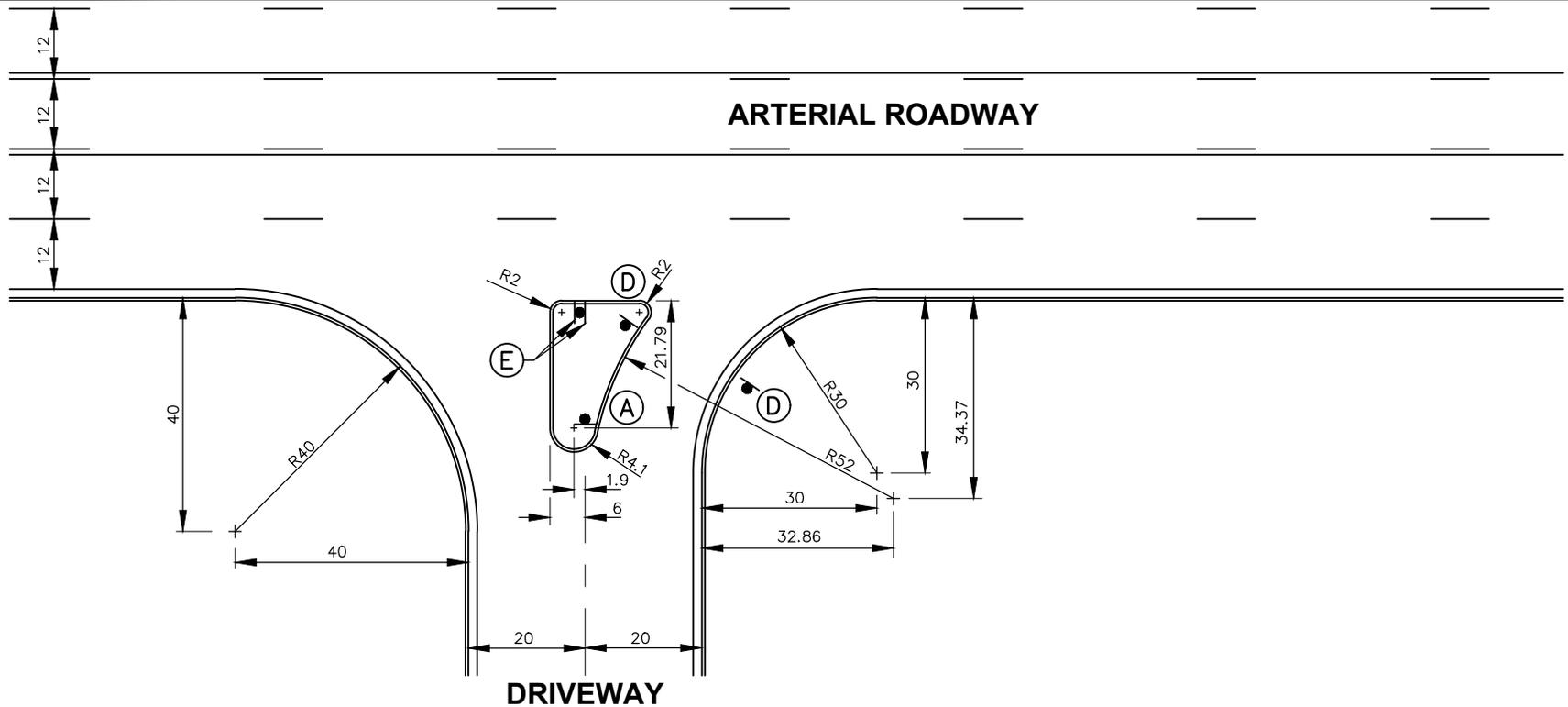


CASE 5
 DRIVEWAY TO MAJOR TRAFFIC GENERATOR
 WITH ARTERIAL RIGHT-TURN LANE
 LEFT TURNS IN
 SU-30 DESIGN VEHICLE

NOTES

1. Adapt as needed to match site conditions.
2. All dimensions in feet and to face of curb.
3. See sign legend on sheet 7 of 7.
4. See Standard No. 10-010 for pavement markings.

Issued: May 2019	Sheet 5 of 7
<p>CITY OF YUMA CONSTRUCTION STANDARD DETAIL DRAWINGS</p> <p>STANDARD NO. 3-190 DRIVEWAY CHANNELIZATION</p>	



(A)
R3-5R
30" x 36"



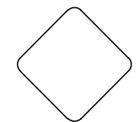
(B)
R3-2
30" x 30"



(C)
R3-2
24" x 24"



(D)
R5-1
30" x 30"



(E)
OM1-3
18" x 18"
MOUNT WITH
BOTTOM 4'
ABOVE ISLAND

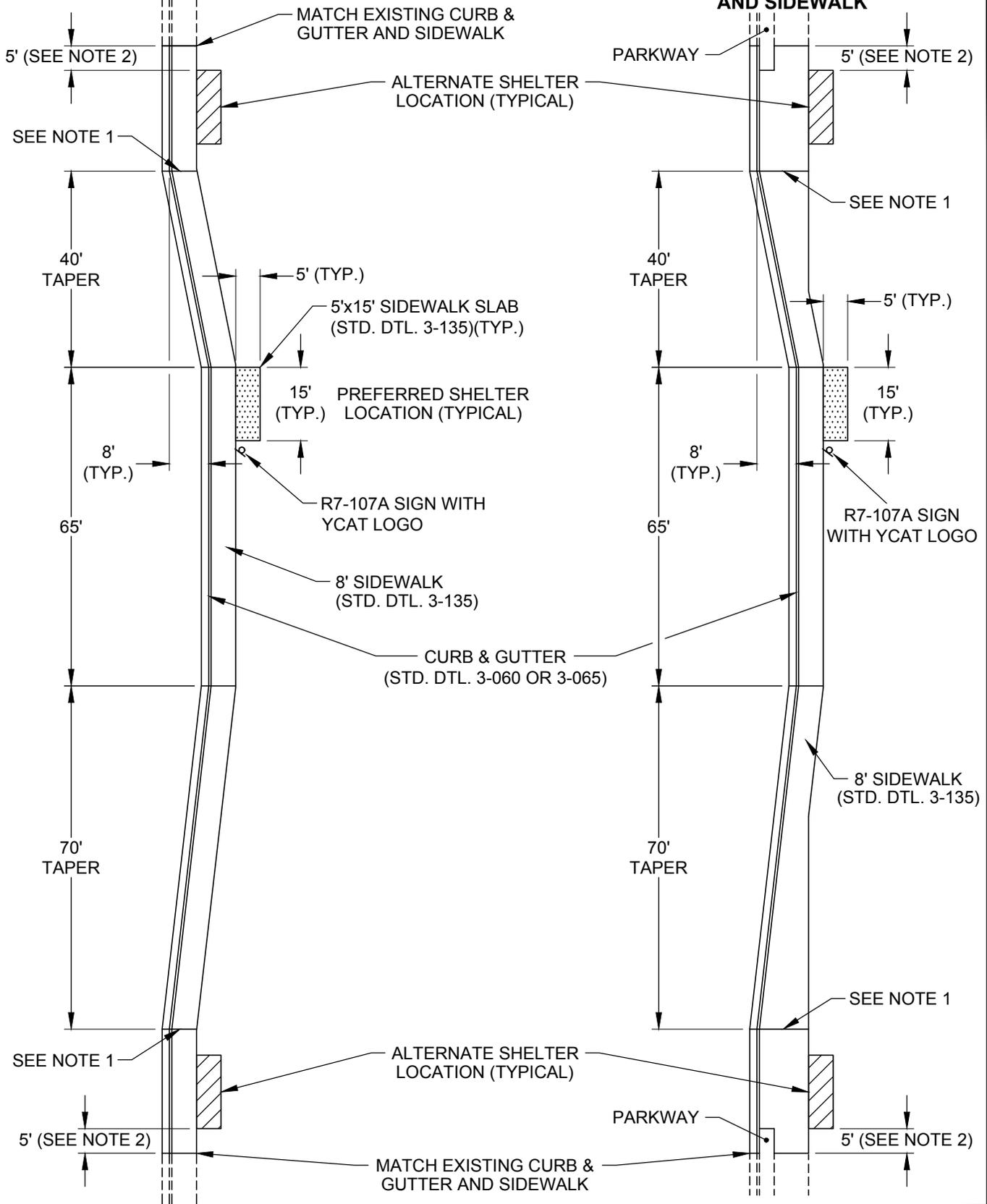
Issued: May 2019 Sheet 7 of 7

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 3-190
DRIVEWAY CHANNELIZATION**

SIDEWALK ADJACENT TO CURB

PARKWAY BETWEEN CURB AND SIDEWALK



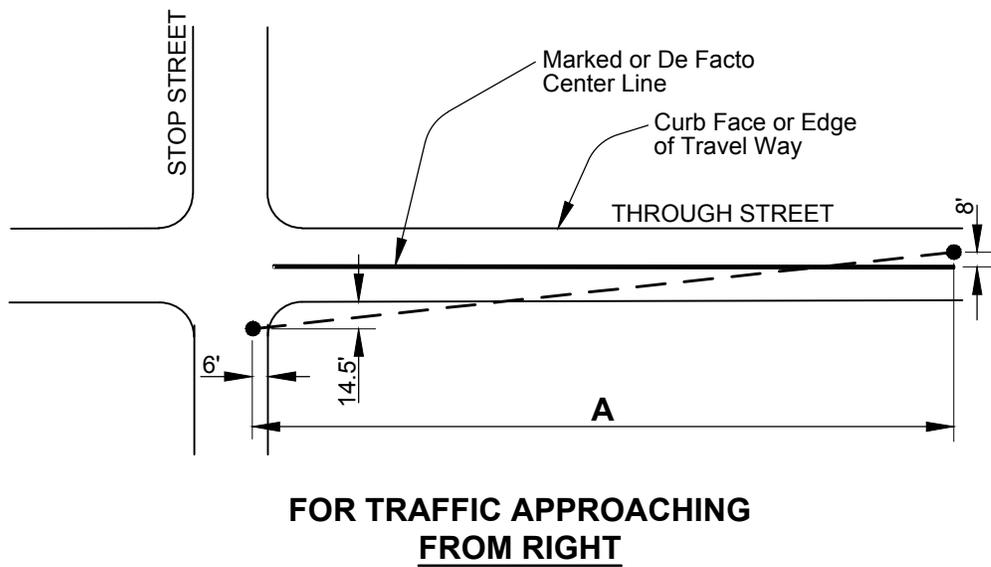
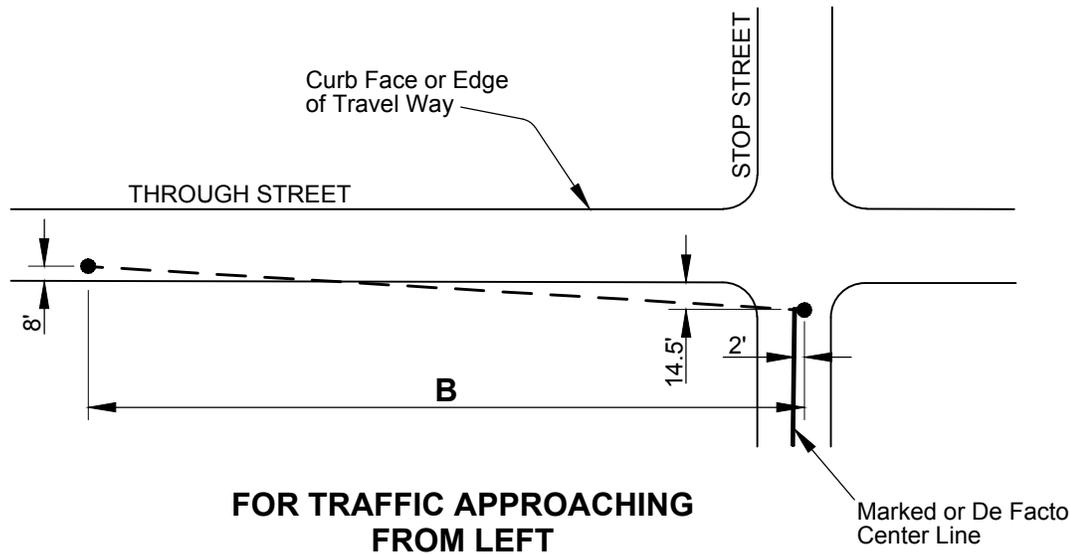
NOTES

1. If no existing sidewalk, the new sidewalk must extend to where the curb return ends.
2. If a bus bay is constructed in an area where sidewalk does not exist and the ALTERNATIVE SHELTER is used, the new sidewalk must extend five feet (5') past the ALTERNATIVE SHELTER.

Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 3-195
BUS BAY DESIGN**



85%-ile or Design Speed (mph)	Intersection sight distance for passenger cars (A) - left	Intersection sight distance for passenger cars (B) - right
15	170	145
20	225	195
25	280	240
30	335	290
35	390	335
40	445	385
45	500	430
50	555	480
55	610	530
60	665	575
65	720	625
70	775	670
75	830	720
80	885	765

NOTES

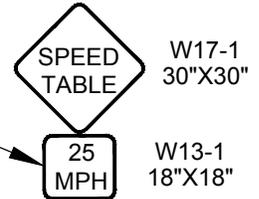
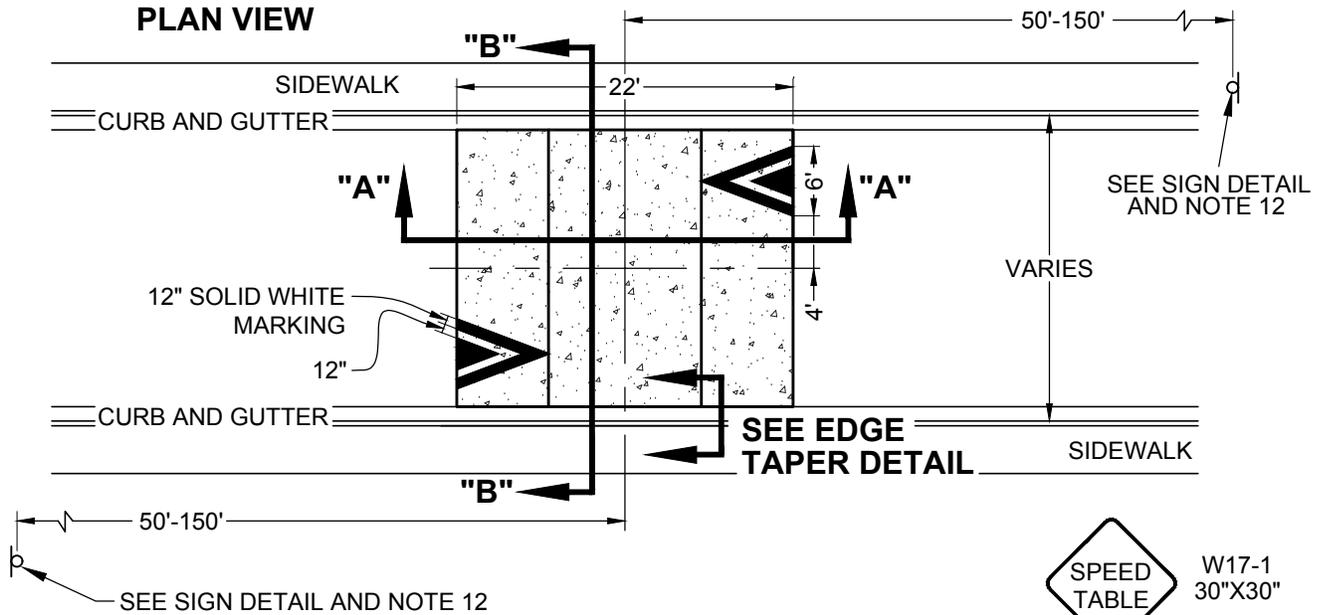
1. Good for up to 3% grade. Use for grade < or = to 3%.
2. For existing conditions, base on 85th-percentile speed, not speed limit.
3. Adapted from "A Policy on Geometric Design of Streets and Highways," American Association of State Highway and Transportation Officials, 2011.

Issued: May 2019

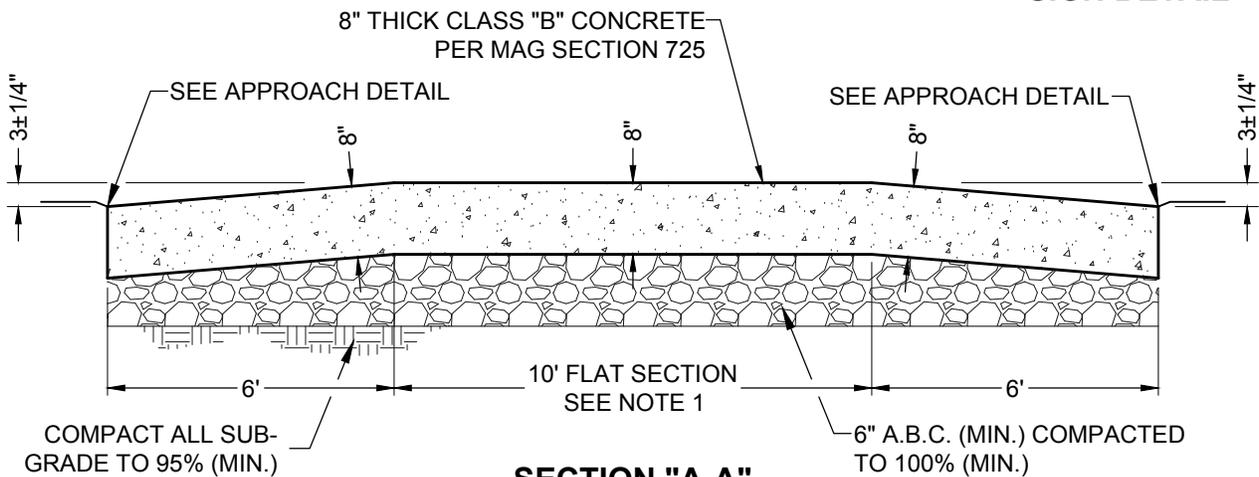
CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 3-200
CLEAR SIGHT TRIANGLES AT
TYPICAL STOP INTERSECTIONS**

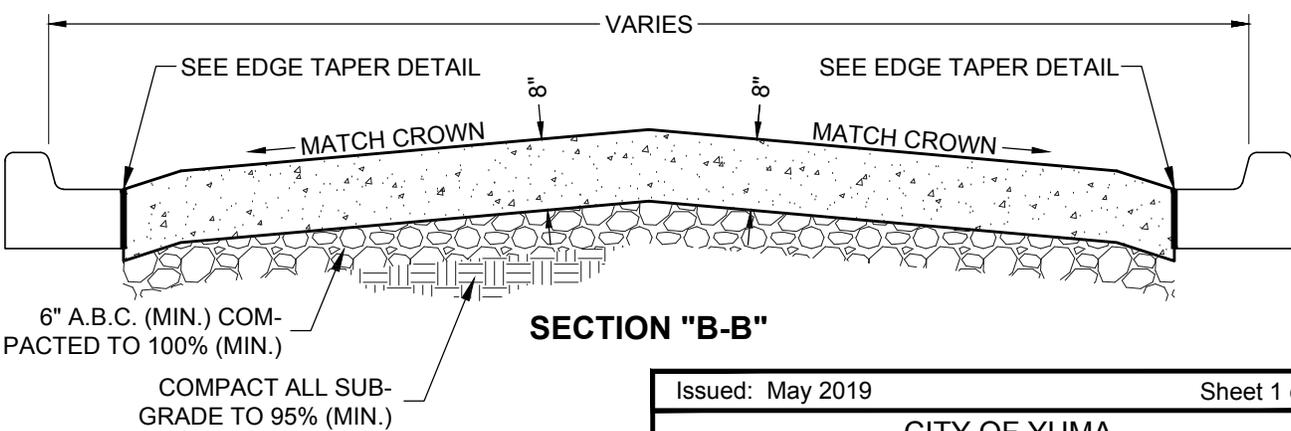
PLAN VIEW



SIGN DETAIL



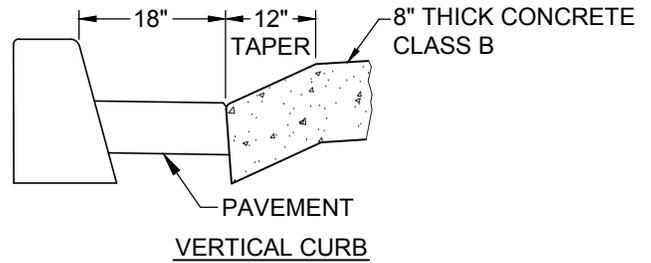
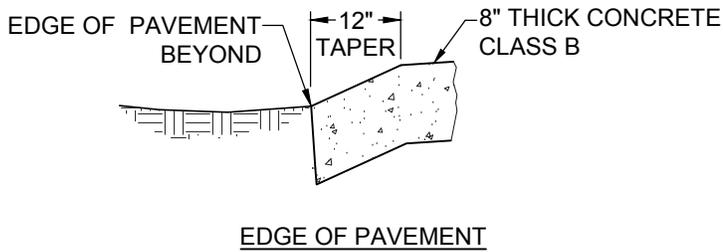
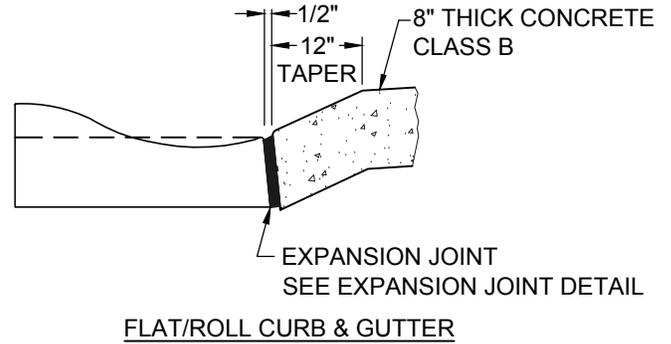
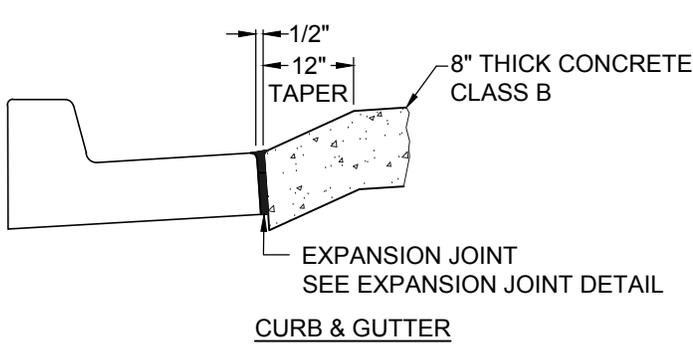
SECTION "A-A"



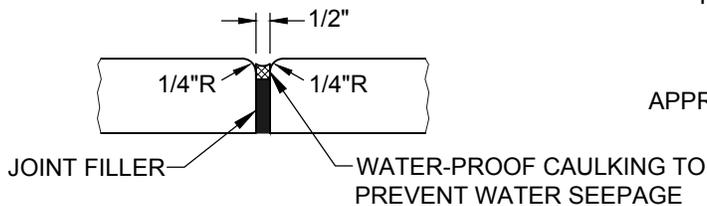
SECTION "B-B"

NOTE
See notes on sheet 2

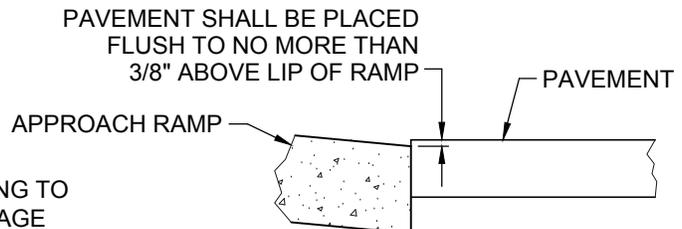
Issued: May 2019	Sheet 1 of 2
CITY OF YUMA CONSTRUCTION STANDARD DETAIL DRAWINGS	
STANDARD NO. 3-205 SPEED TABLE	



EDGE TAPER DETAILS



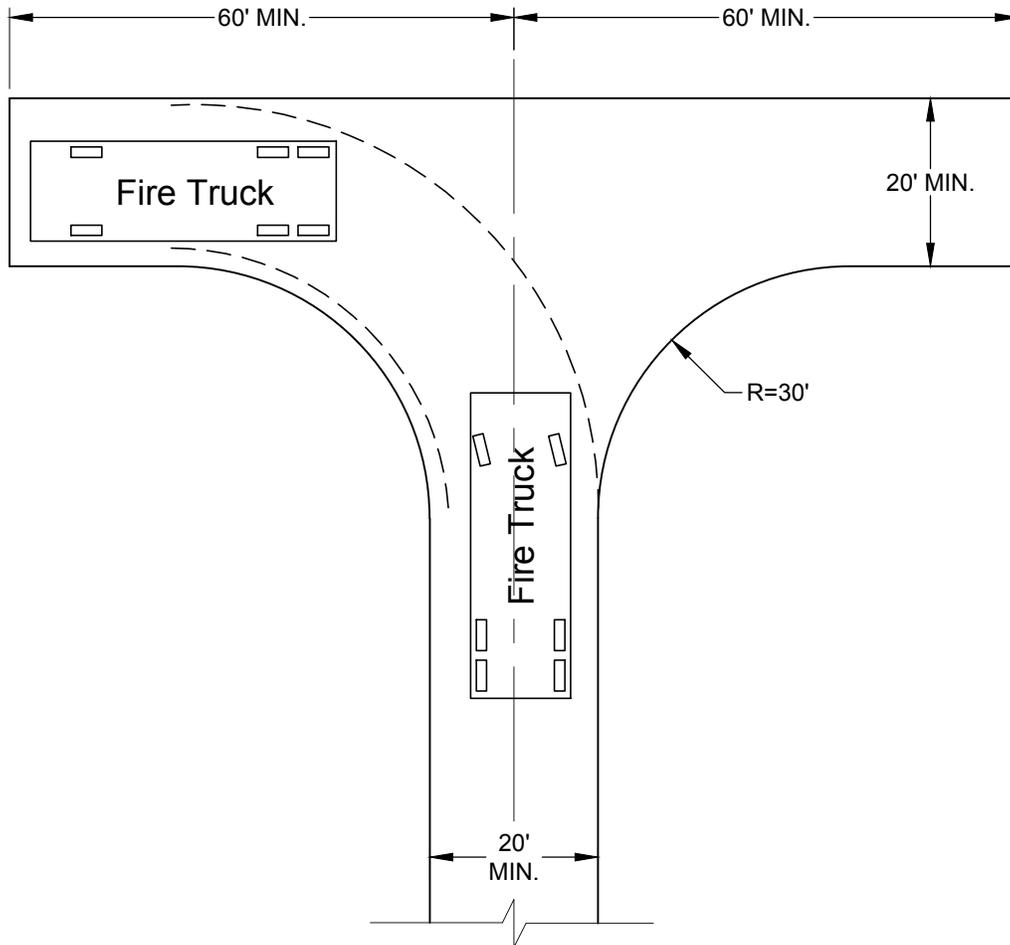
EXPANSION JOINT DETAIL



APPROACH/DEPARTURE DETAIL

NOTES

1. Speed table shall follow roadway grade and crown.
2. Speed table shall not be installed in a location that drainage or accessibility is compromised.
3. Speed tables shall not be placed over manholes, water valves, survey monuments, etc.
4. Speed table shall be placed at least twenty-five feet (25') from fire hydrants and manholes.
5. Where possible, speed table should be placed adjacent to street lights.
6. Where possible, edge of speed table should be a minimum of ten feet (10') from edge of driveways.
7. For use in existing roadways full depth asphalt replacement shall extend five feet (5') on both approaches.
8. Expansion joints shall be placed no further than twenty feet (20') apart. Expansion joint material shall comply with MAG Section 729 and shall be placed in accordance with MAG Section 340.
9. Contraction joint spacing shall be either hand tooled and/or saw cut and shall be placed no further than five feet (5') apart beginning at centerline. Contraction joint shall have a minimum depth of two inches (2").
10. Surfaces outside approved work areas shall be kept clean and free of bituminous and asphaltic material and debris.
11. Where possible, place warning sign on common lot line within specified range.
12. See Standard Detail 8-020 for sign mounting details.



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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 3-210
HAMMERHEAD TEE
TURNAROUND

SURVEY MONUMENTS

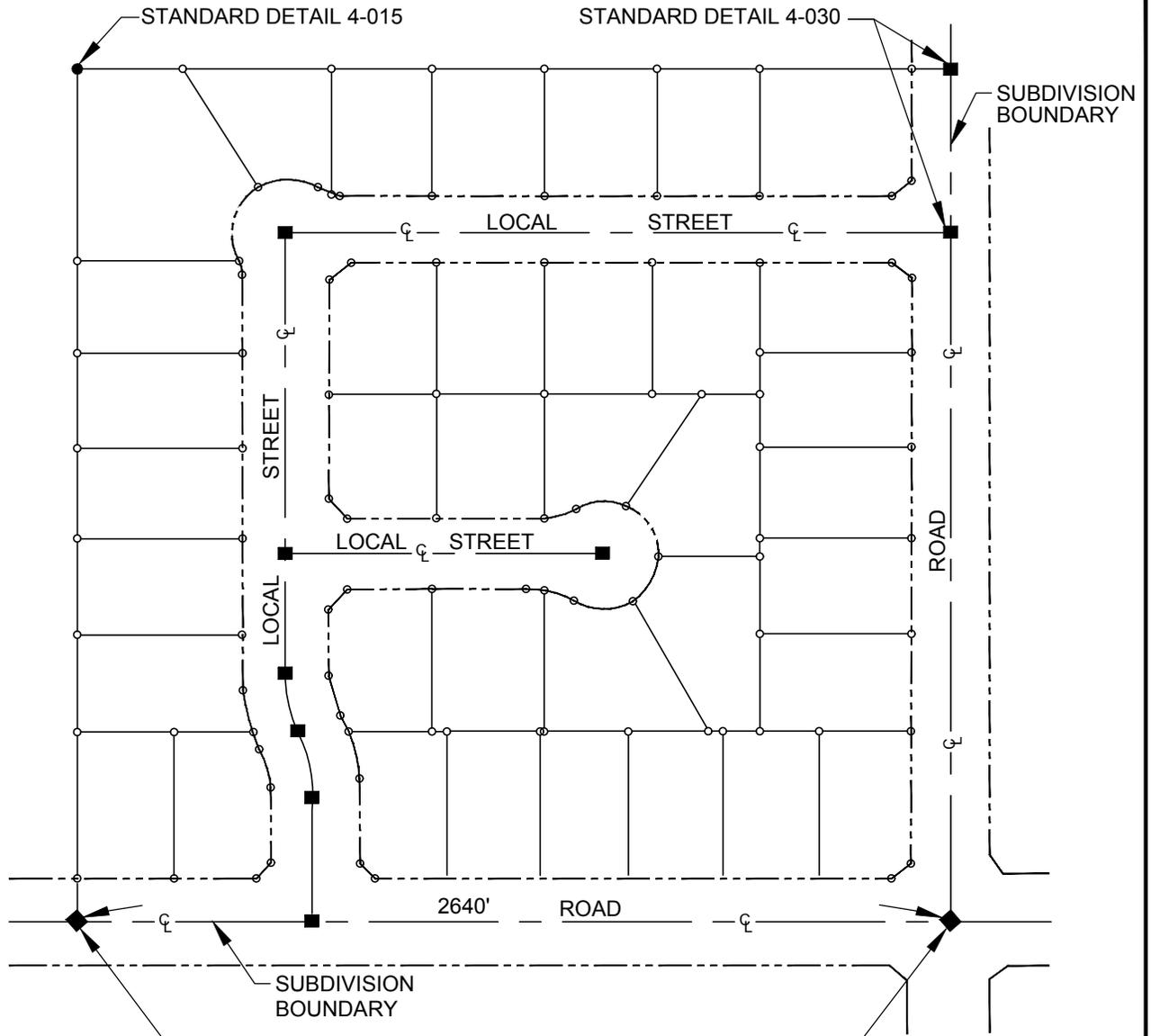
1. All street centerline intersections, street centerline angle points, street centerline beginning of curve points, street centerline end of curve points and public land survey system, (PLSS), corners shall be monumented as shown in standard detail No. 4-010.
2. All subdivision boundary corners not in pavement shall be monumented as shown on standard detail No. 4-010 using standard detail No. 4-015, (boundary monument).
3. Subdivision boundary monuments not in roadways shall be subsurface as shown in standard detail No. 4-015, (boundary monument).
4. Upon completion of all required improvements, an Arizona Licensed Surveyor shall furnish to the City Engineer and the City's Registered Land Surveyor a complete and accurate set of field notes, or field sketches, which shall clearly indicate the ties between the subsurface monument and the surface monuments.
5. Any subdivision boundary, street control line, or right of way centerline survey monument having characteristics other than as described and shown in standard detail No. 4-010 (typical subdivision monuments), shall not be set without written approval from the City Engineer and the City's Registered Land Surveyor.
6. In locations where pavement has been laid but there will be a "significant" time delay in setting a standard No. 4-030 survey monument the contractor shall have an Arizona Licensed Land Surveyor define the correct precise position of the future survey monument location by setting a standard survey monument per. No. 4-025 temporary survey monument.
7. All survey monuments set shall meet the minimum criteria as listed in the Arizona Boundary Survey Minimum Standards, and the AAC R4-30-301 per ARS 41-1012.

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 4-005
SURVEY MONUMENT
SPECIFICATIONS**

TYPICAL SUBDIVISION MONUMENTATION BOUNDARY, STREET, AND LOTS



INSTALL MONUMENT NO. 4-020, AND 4-030, AT ALL 1/4 AND SECTION CORNERS. INSTALL MONUMENT 4-030 AT ALL COLLECTOR AND PRIME ARTERIAL INTERSECTIONS.

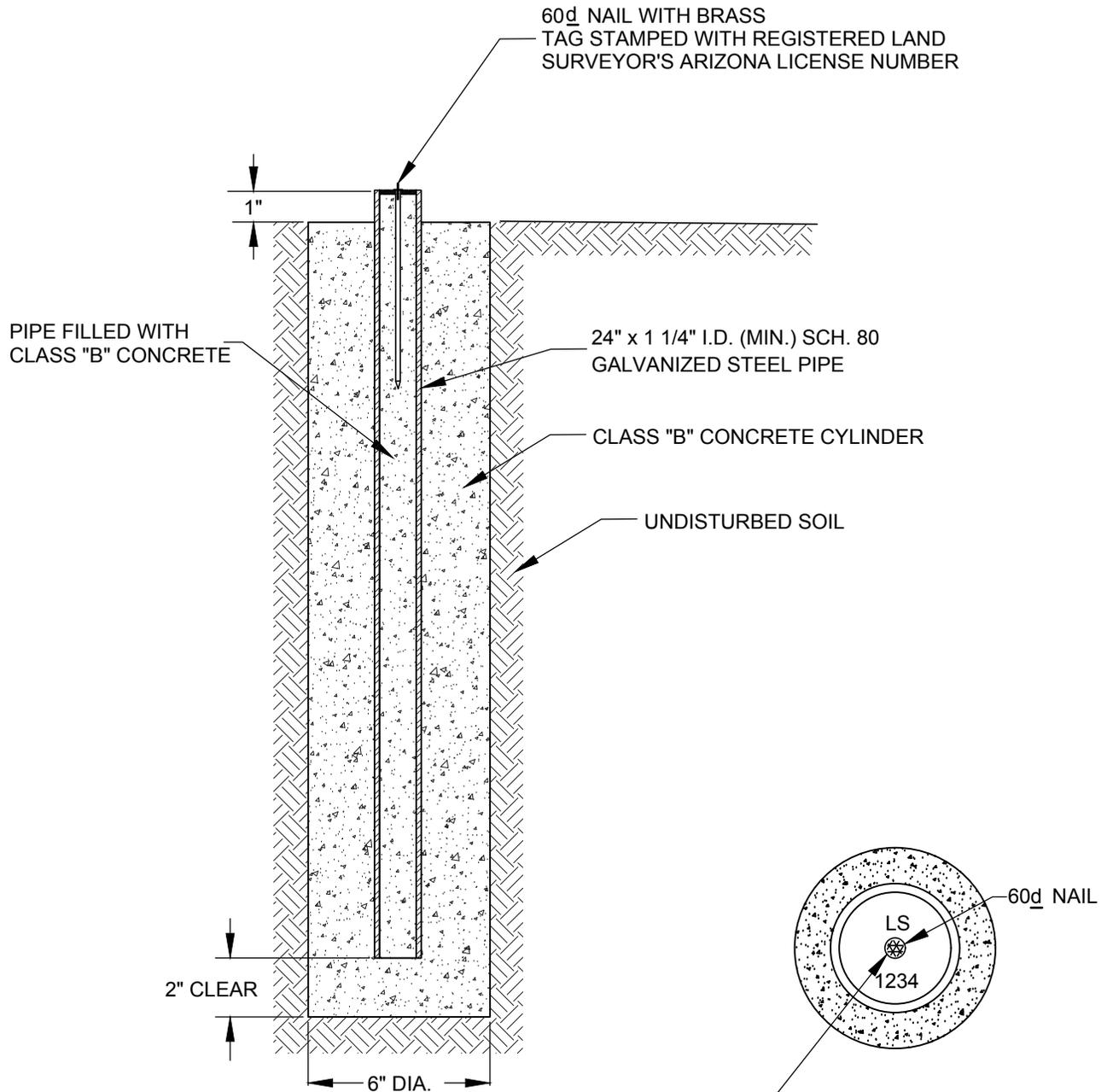
LEGEND

- Indicates tagged property corner rebar or wooden stake
- ◆ Indicates standard survey monument (Standard Detail 4-020, and 4-030)
- Indicates standard subdivision monument (Standard Detail 4-015 Boundary Monument)
- Indicates standard survey monument (Standard Detail 4-030 Survey Monument)

Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 4-010
TYPICAL SUBDIVISION MONUMENTS**



TOP VIEW OF PIPE WITH BRASS TAG STAMPED WITH THE REGISTERED LAND SURVEYOR'S ARIZONA LICENSE NUMBER. IMPRINTS TO BE APPROXIMATELY 1/32" WIDE AND 1/32" DEEP (MINIMUM).

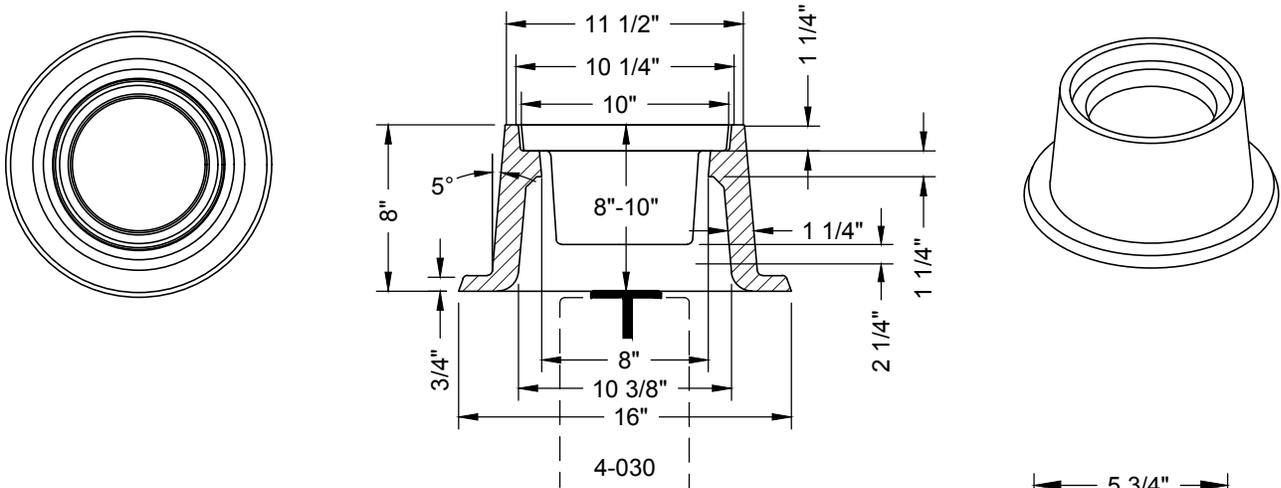
NOTES

1. Top of concrete shall be set 14-inches below surface when constructed in an unpaved street or road.
2. Top of concrete shall be set flush with surface when constructed in a paved street or roadway.
3. Concrete shall be per MAG Section 725.

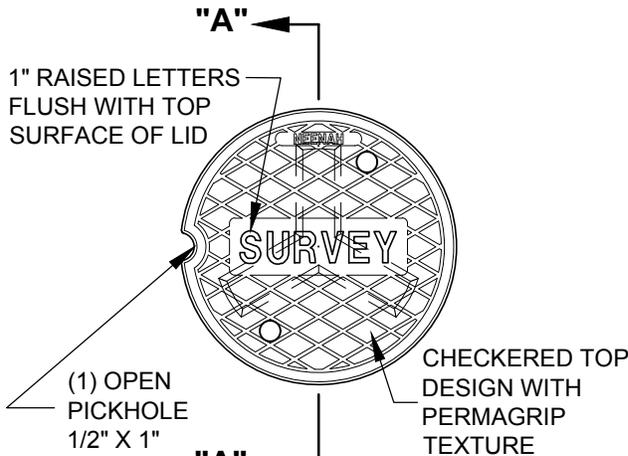
Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

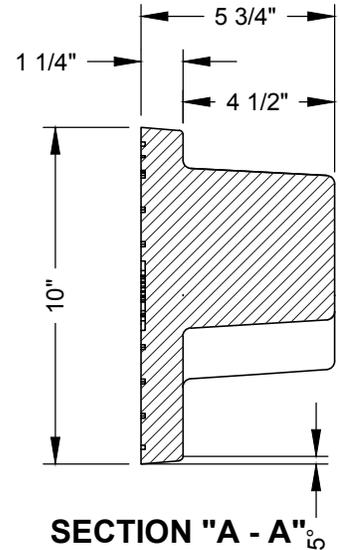
**STANDARD NO. 4-015
BOUNDARY MONUMENT**



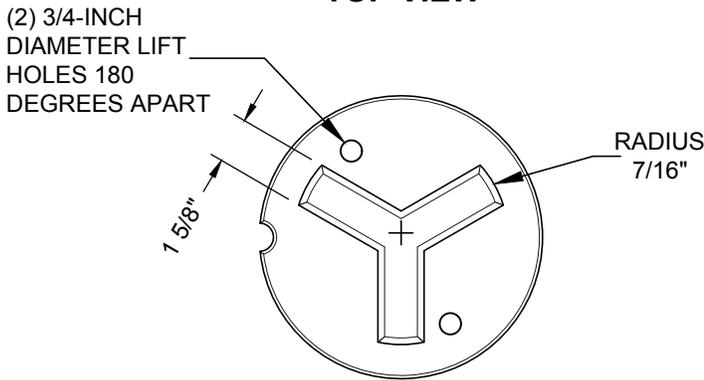
FRAME WEIGHT: 101 POUNDS



TOP VIEW

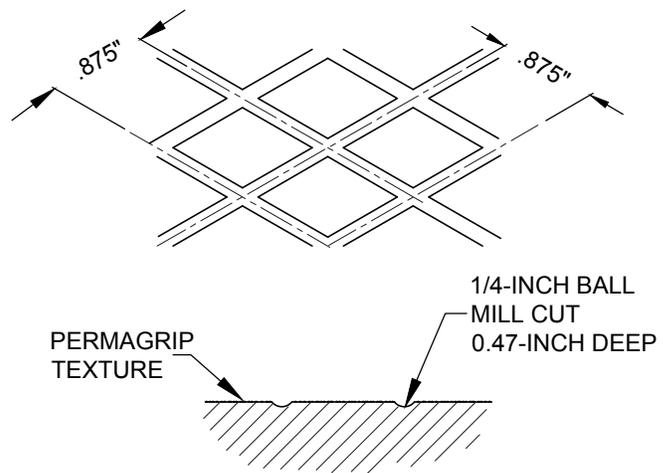


SECTION "A - A"



BOTTOM VIEW

COVER WEIGHT: 40 POUNDS



CHECKERED TOP DETAIL

NOTE

Manufactured by: Neenah Foundry, Inc. and Deeter Foundry, Inc. as survey monument frame and cover identification number DF 1838

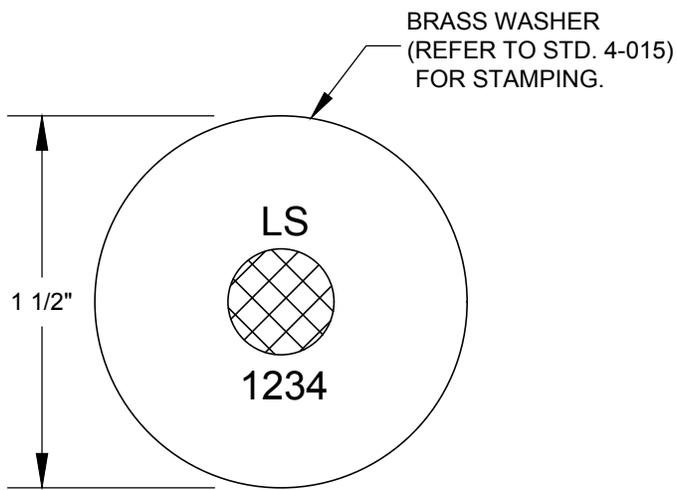
MATERIAL

CAST GRAY IRON
ASTM A-48,
CLASS 35B

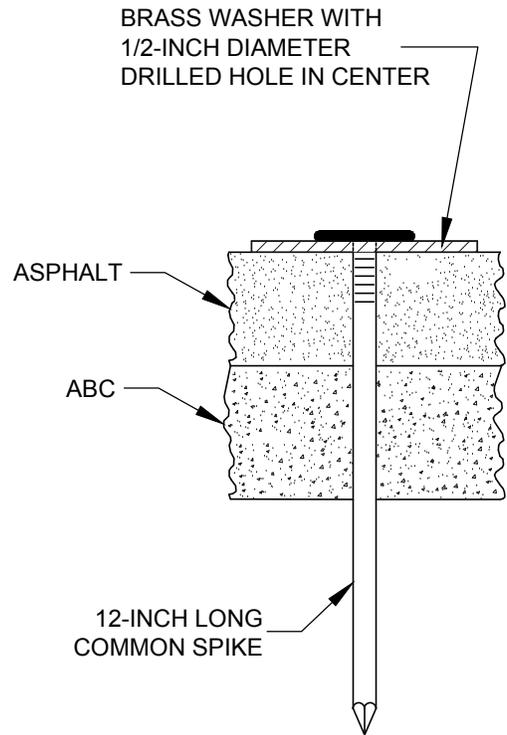
Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

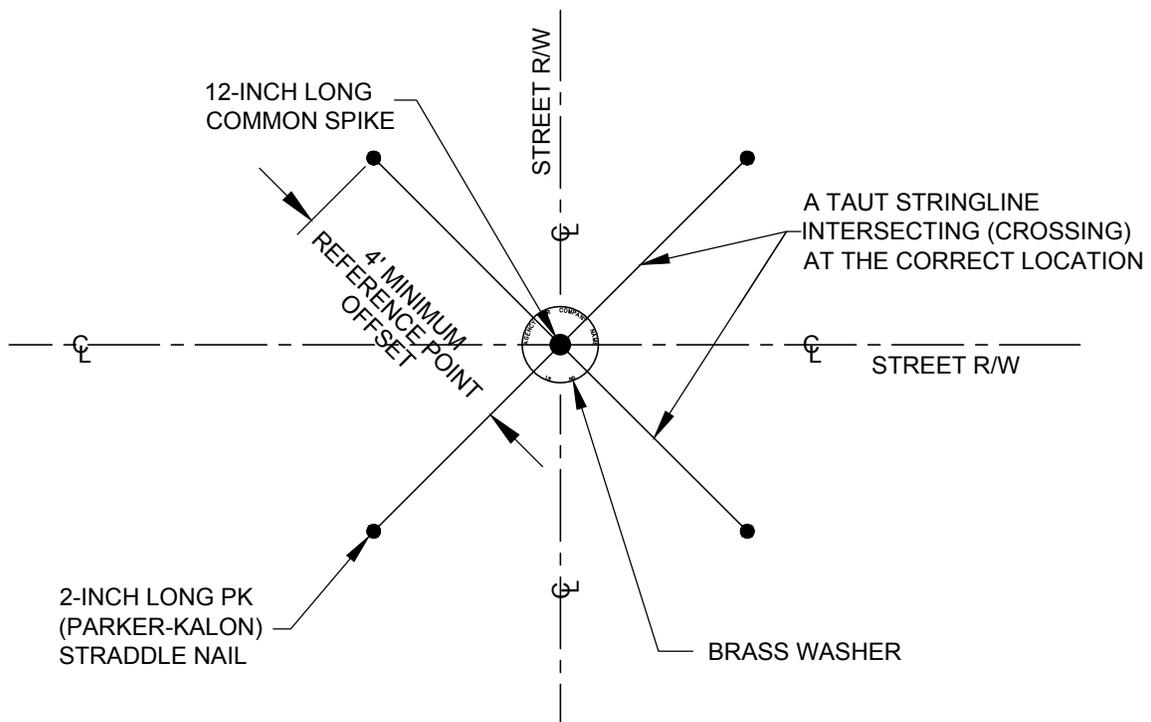
STANDARD NO. 4-020
SURVEY FRAME AND COVER



TOP VIEW



SIDE VIEW



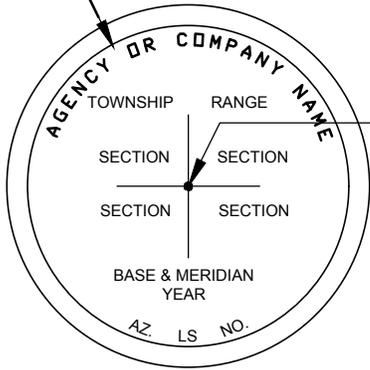
AERIAL VIEW

Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

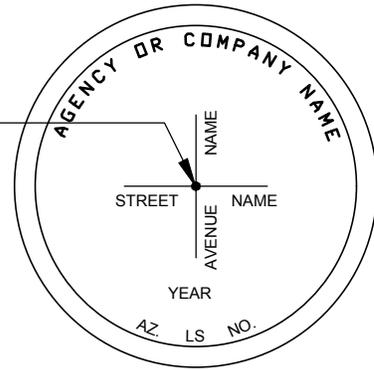
STANDARD NO. 4-025
TEMPORARY SURVEY MONUMENT

LETTERS TO BE NOT LESS THAN 1/8" HIGH (TYPICAL). IMPRINTS TO BE APPROXIMATELY 1/32" WIDE AND 1/32" DEEP

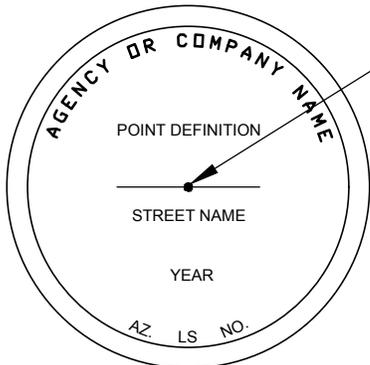


EXAMPLE #1

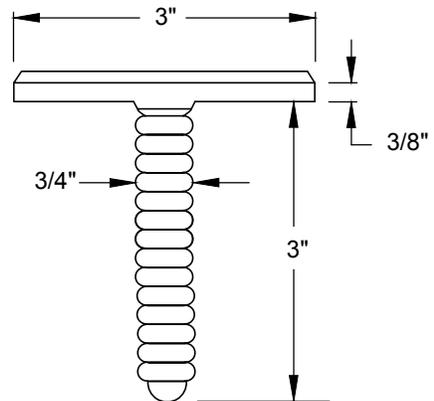
A DOMINANT, DISTINCT, CENTERED PUNCHMARK



EXAMPLE #2



EXAMPLE #3



FLAT 3" DIAMETER BRONZE DISC

POINT DEFINITIONS FOR CONSTRUCTION CENTERLINES

- AP/CC=Angle point in construction centerline.
- PC/CC=Point of curvature (begin curve) in construction centerline.
- PT/CC=Point of tangency (end curve) in construction centerline.
- PRC/CC= Point of reverse curve in construction centerline.

POINT DEFINITIONS

- AP/RW=Angle point.
- PC/RW=Point of curvature (begin curve).
- PT/RW=Point of tangency (end curve).
- PRC/RW= Point of reverse curve.

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 4-035
SURVEY MONUMENT STAMPING

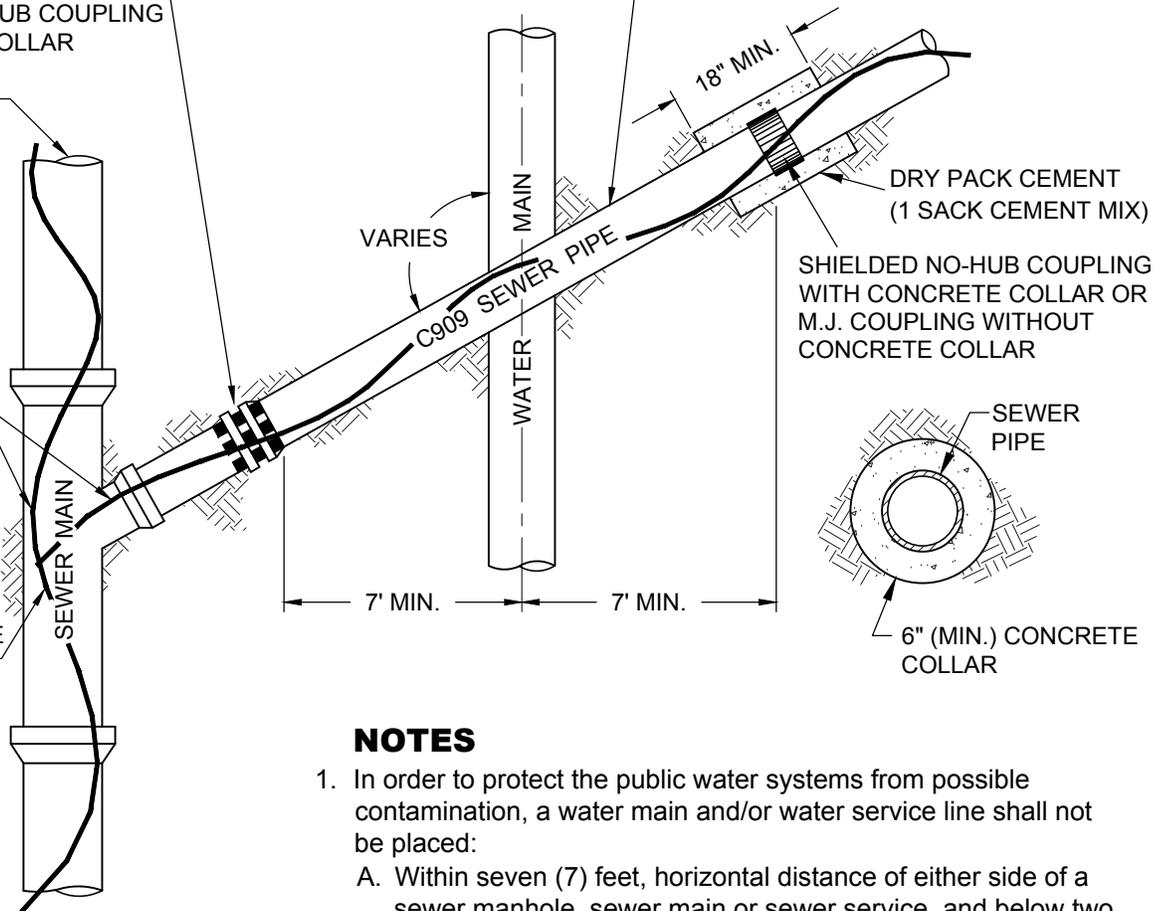
MECHANICAL JOINT COUPLING WITHOUT CONCRETE COLLAR OR SHIELDED NO-HUB COUPLING WITH CONCRETE COLLAR

P.V.C. OR V.C.P. SEWER LINE

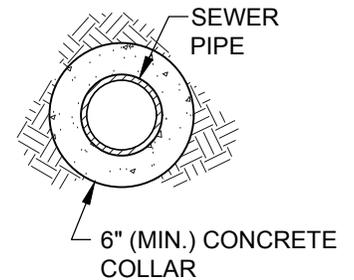
12 GAUGE, HMWPE COATED, SOLID COPPER TRACER WIRE

CONNECTION MADE AND INSULATED FROM GROUND

SINGLE LENGTH (14' MIN.) OF SEWER PIPE, SEE NOTES NO. 2 AND 3



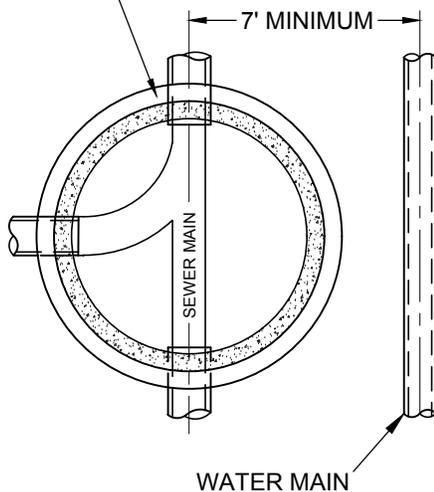
SHIELDED NO-HUB COUPLING WITH CONCRETE COLLAR OR M.J. COUPLING WITHOUT CONCRETE COLLAR



NOTES

1. In order to protect the public water systems from possible contamination, a water main and/or water service line shall not be placed:
 - A. Within seven (7) feet, horizontal distance of either side of a sewer manhole, sewer main or sewer service, and below two (2) feet vertical distance, above the top of the sewer line unless extra protection is provided. Extra protection shall consist of constructing the sewer main with mechanical joints or with approved no-hub joints encased in a minimum of 6" thick by 18" long concrete collar centered on the joint.
 - B. Within 2 feet horizontally and 2 feet below the sewer main.
2. For extra protection use molecularly oriented polyvinyl chloride (PVCO) which meets ANSI/AWWA C909 installed at crossing location per drawing.
3. Water over sewer:
 - 2' or less separation: C909 required
 - Over 2' separation: C909 not required.
 Sewer over water:
 - C909 is required no matter the distance of separation.
4. All ferrous fittings, pipe, connectors and appurtenances shall receive a 10mil (minimum) polyethylene wrap to prevent direct contact with soil.
5. All sewer lines shall have tracer wire in accordance with State Law and City utility department policy.

SEWER MANHOLE (TOP VIEW)

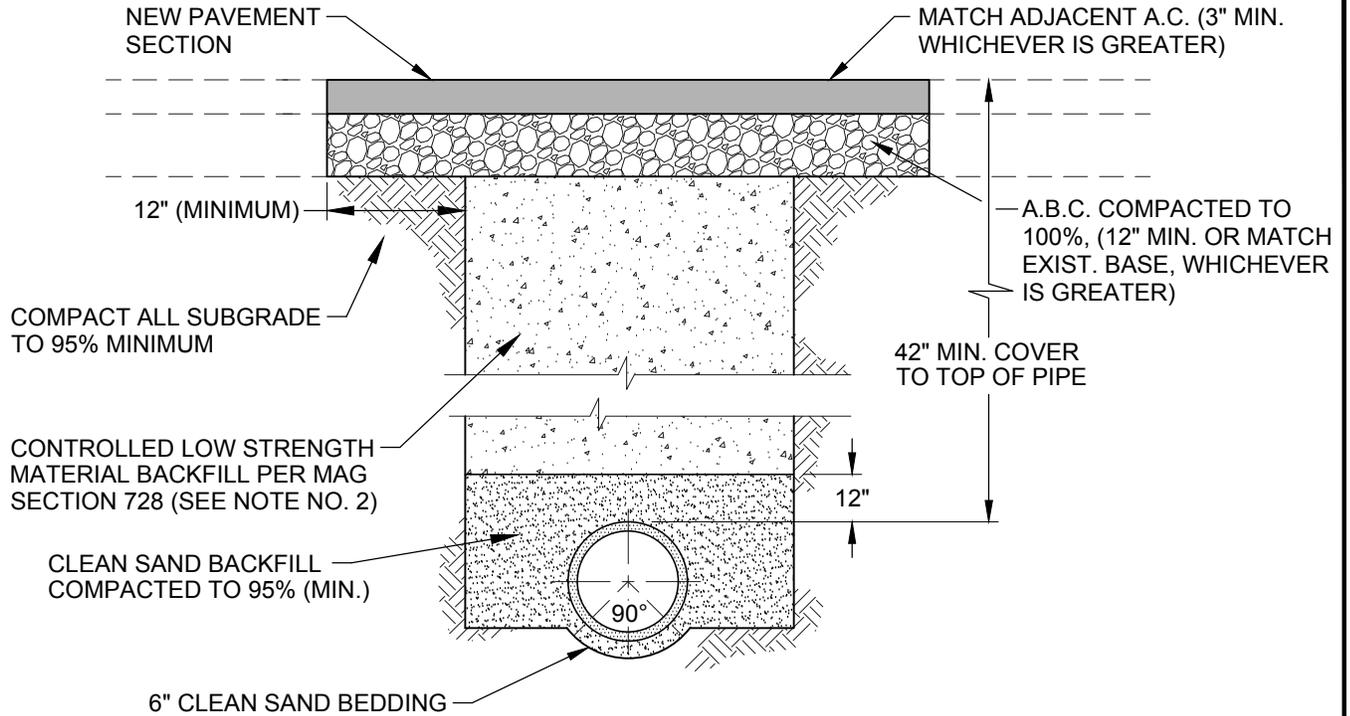


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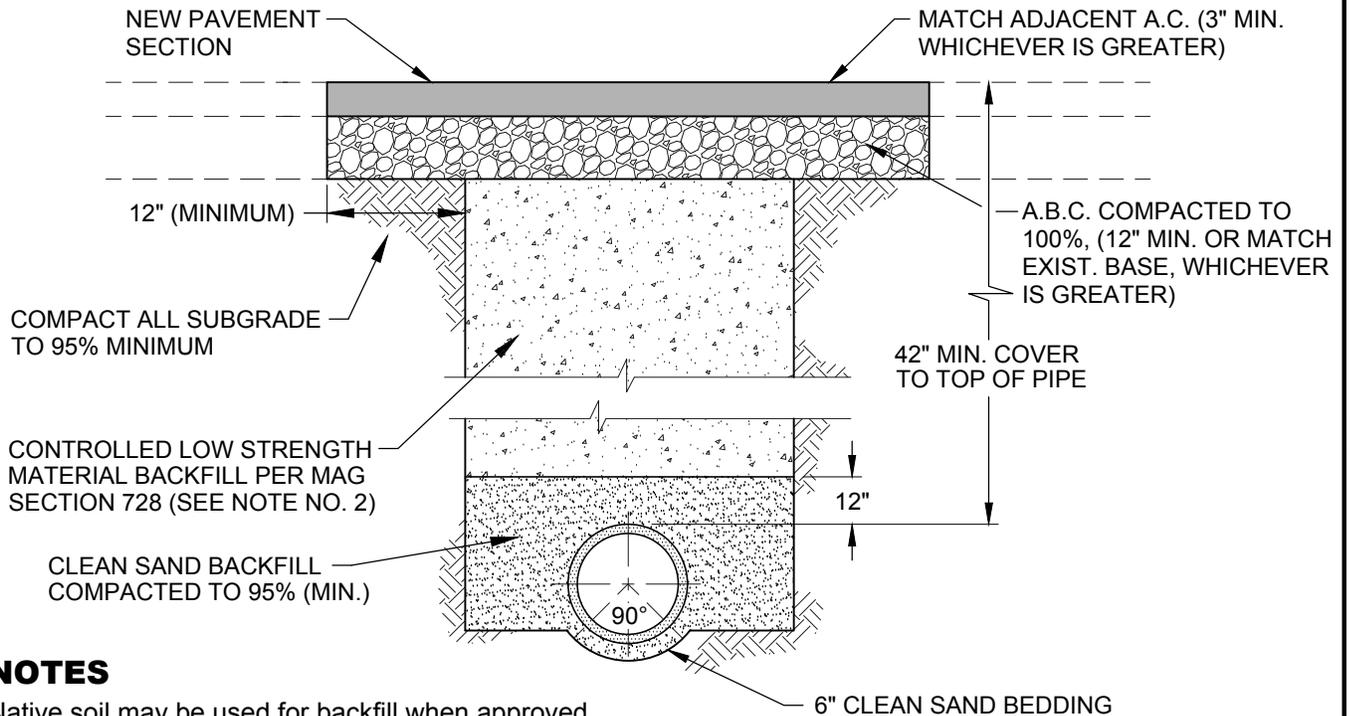
CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 5-005
TYPICAL WATER & SEWER
CROSSINGS**

WATER MAIN TRENCH



SEWER MAIN TRENCH



NOTES

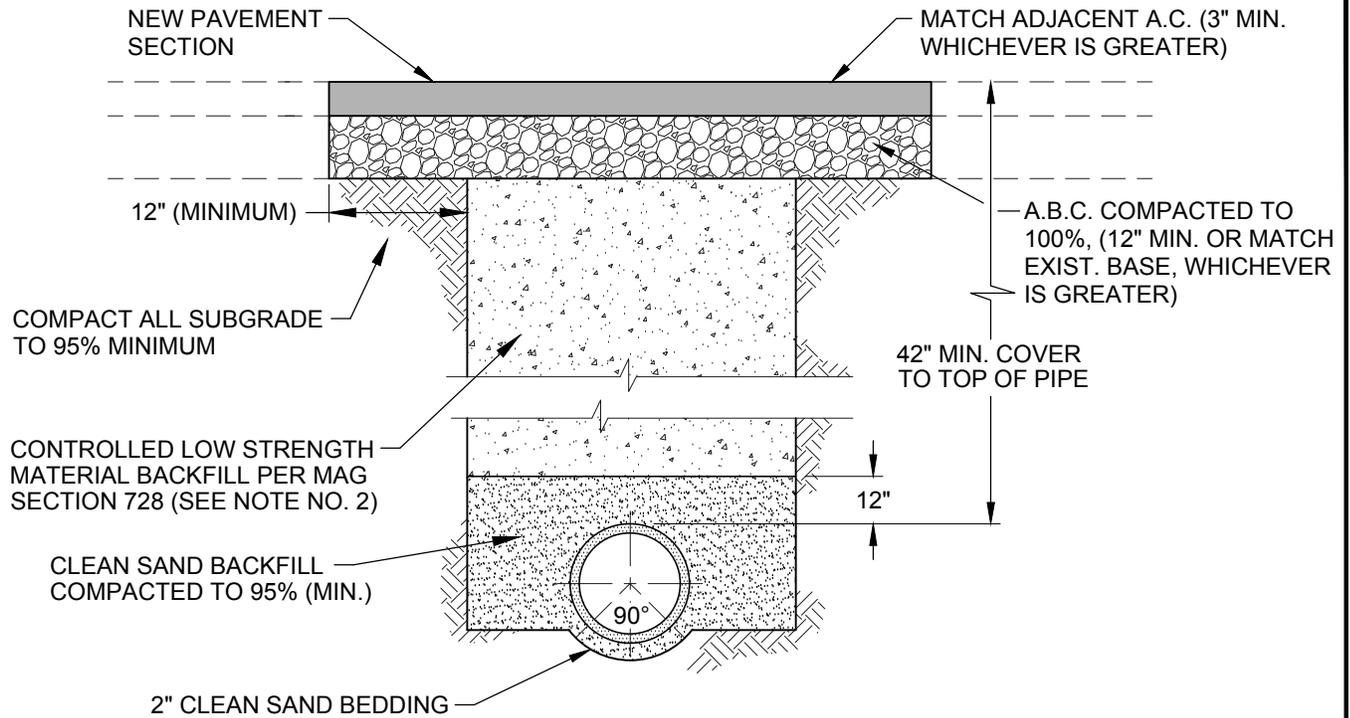
1. Native soil may be used for backfill when approved by the City Engineer.
2. Controlled low strength material shall consist of one sack of cement per cubic yard of clean sand.
3. Bedding shown is a minimum standard for shallow trenches and acceptable native base. Exact type of bedding shall be determined by the City Engineer.
4. Ditch sides shall be sloped or shored as required per OSHA standards.
5. All trenches shall be cold-patched if left open to traffic. All trenches shall be hot-mix paved within two (2) weeks of its excavation.

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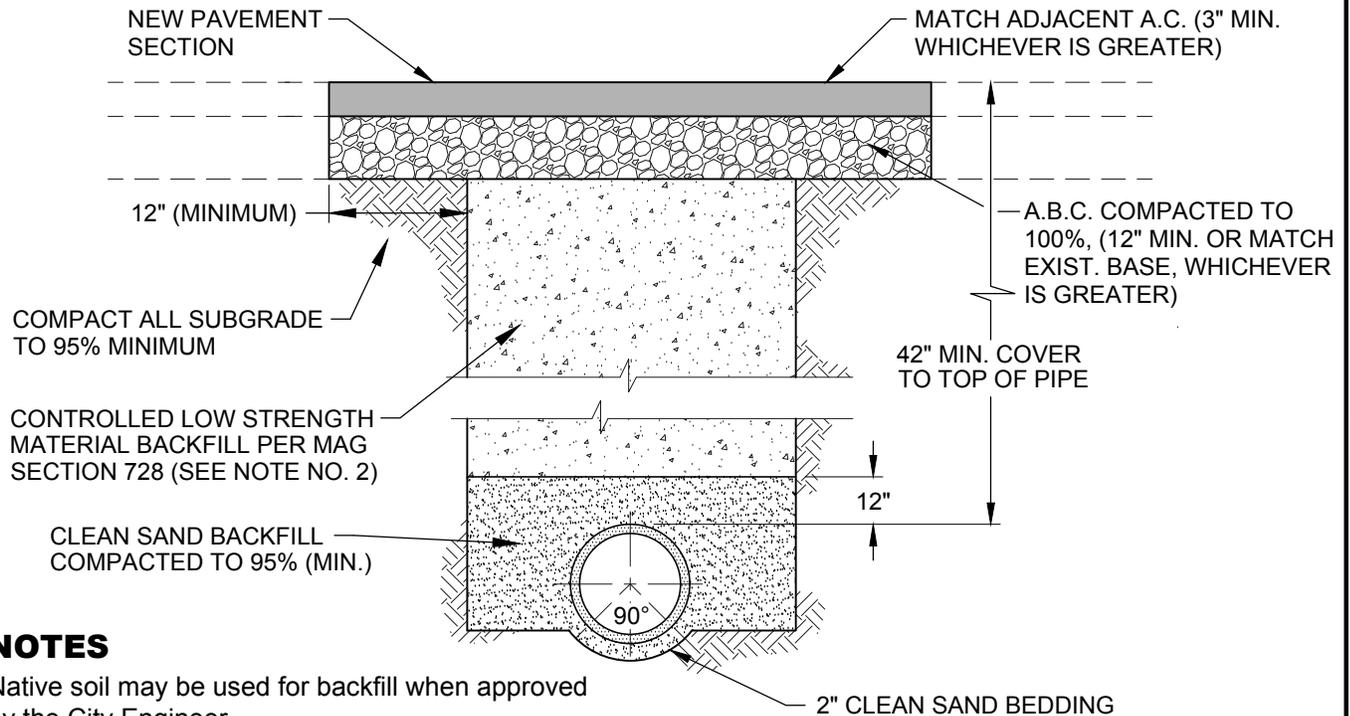
CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 5-010
TYPICAL WATER & SEWER
MAIN TRENCH BACKFILL**

WATER SERVICE TRENCH



SEWER SERVICE TRENCH

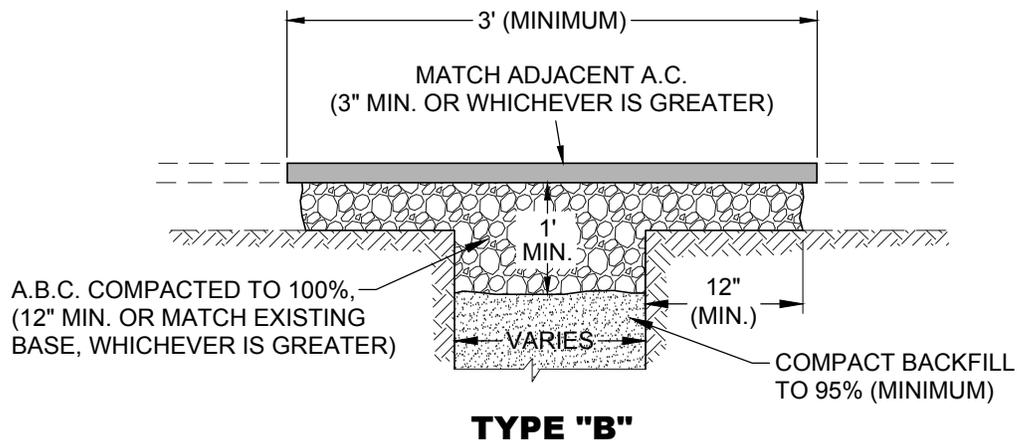
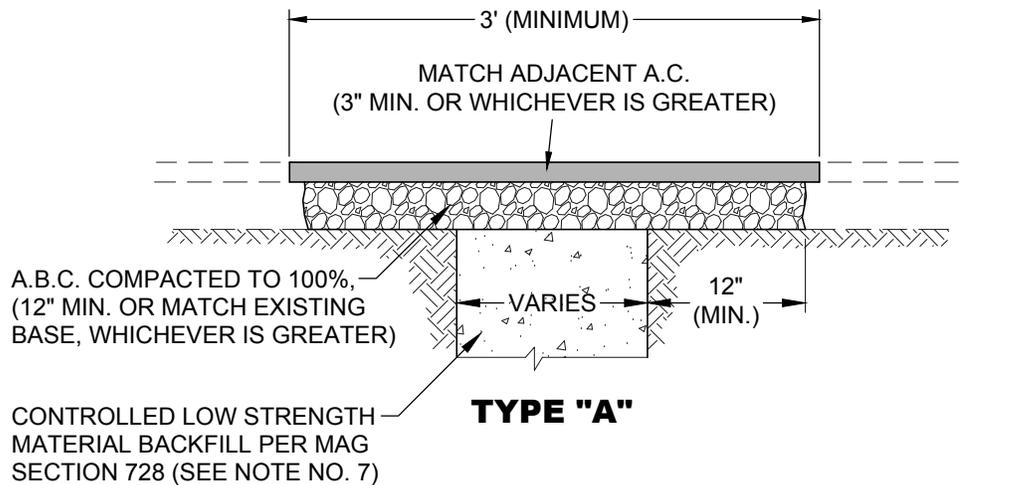


NOTES

1. Native soil may be used for backfill when approved by the City Engineer.
2. Controlled low strength material shall consist of one sack of cement per cubic yard of clean sand.
3. Bedding shown is a minimum standard for shallow trenches and acceptable native base. Exact type of bedding shall be determined by the City Engineer.
4. Ditch sides shall be sloped or shored as required per OSHA standards.
5. All trenches shall be cold-patched if left open to traffic. All trenches shall be hot-mix paved within two (2) weeks of its excavation.
6. Minimum cover for service line is 42 inches.

Issued: May 2019

CITY OF YUMA
 CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 5-015
TYPICAL WATER & SEWER
SERVICE LINE
TRENCH BACKFILL



NOTES

1. This detail is to be used for trench backfill and pavement replacement.
2. All cut edges shall be sawcut to a true regular line and free of all foreign matter.
3. Edges of asphalt pavement shall be painted with emulsified asphalt or hot asphalt before permanent repair material is placed.
4. Type "B" repairs will not be permitted without prior approval of the City Engineer.
5. Asphaltic concrete for pavement repairs shall meet or be equivalent to requirements of the latest MAG Standard Specifications Section 710.
6. Pavement replacement in State highways or County highways shall be in accordance with ADOT and/or Yuma County requirements.
7. Controlled low strength material shall consist of one sack of cement per cubic yard of clean sand.
8. All trenches shall be cold-patched if left open to traffic prior to hot-mix paving. All trenches shall be hot-mix paved within two (2) weeks from its excavation.

Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 5-016
PAVEMENT REPLACEMENT

**THRUST AT FITTINGS IN POUNDS
AT 150 POUNDS PER SQUARE INCH OF WATER PRESSURE
ALL PIPE & FITTINGS SHALL BE CLASS 235 DR 18 (MINIMUM)**

Size	Tee's & Dead Ends	90° Bend	45° Bend	22 1/2° Bend	Per Degrees of Deflection
2"	1,740	2,460	1,335	675	30.3
4"	2,715	3,840	2,085	1,065	47.3
6"	5,625	7,950	4,320	2,190	98.3
8"	9,780	13,800	7,500	3,795	171.0
10"	16,050	22,650	12,300	6,225	280.5
12"	22,800	32,250	17,550	8,850	399.0
14"	31,050	42,300	23,850	12,075	543.0
16"	40,200	57,000	30,750	15,600	705.0

Soil	Safe Bearing Load Pounds Per Square Foot
MUCK, PEAT, ETC.	0
SOFT CLAY	1000
SAND	2000
SAND & GRAVEL	3000
SAND & GRAVEL CEMENTED WITH CLAY	4000

TO CALCULATE THE NEEDED AREA OF A THRUST BLOCK

Divide thrust by safe bearing load. Note: Thrust block area for 6" and larger pipe shall not be less than three (3) square feet in size.

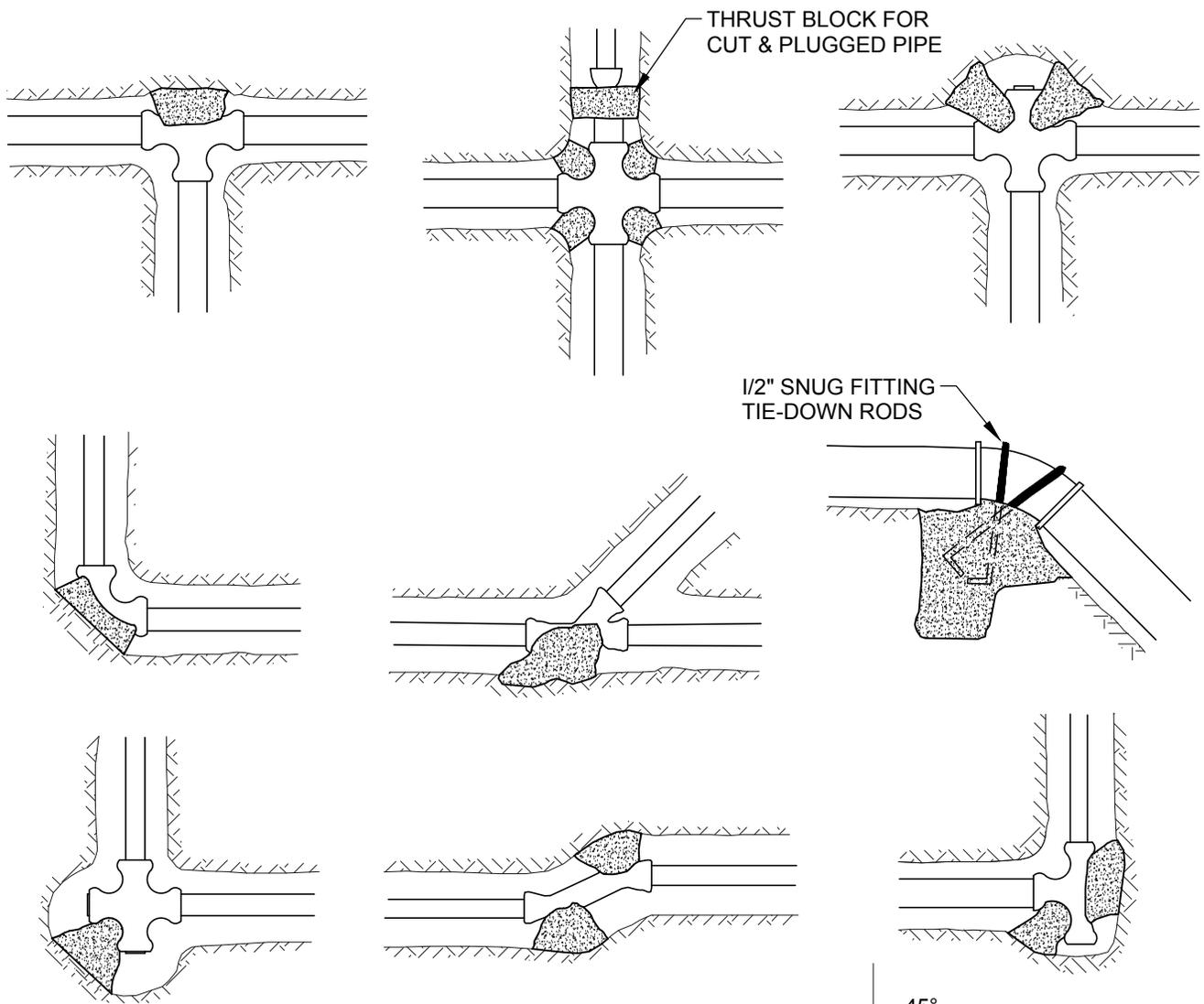
NOTES

1. All domestic pipe and fittings shall be Class 235 DR 18 (min.) unless otherwise noted.
2. All private fire suppression pipe shall have a minimum class 235 DR 18.
3. Thrust block area shall be determined by soil tests for pipe greater in size than 16".
4. Concrete shall not come in direct contact with pipe.

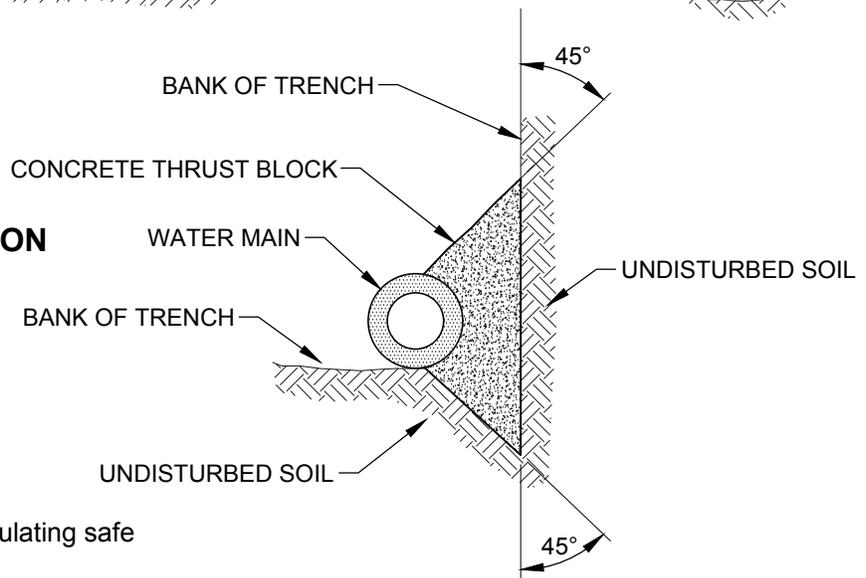
Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 5-020
THRUST BLOCK DATA**



TYPICAL SECTION



NOTES

1. See Standard Detail 5-020 for calculating safe bearing areas.
2. All ferrous fittings, pipe, connectors and appurtenances shall receive a 10 mil (min.) polyethylene wrap to prevent direct contact with the soil.
3. Thrust blocks shall consist of Class B concrete per MAG Section 725.
4. Concrete shall not come in direct contact with pipe.
5. 316-stainless steel tie-down rods required for pipe larger than 8".
6. Place a minimum of 8" concrete under all fittings.

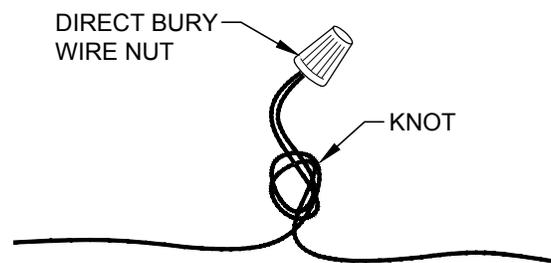
Issued: May 2019

CITY OF YUMA
 CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 5-025
TYPICAL
THRUST BLOCK INSTALLATION

TRACER WIRE

Only 12 gauge, HMWPE coated, solid copper wire is to be used, do not use thin wire. Bring tracer wire to surface at every meter box, vault, valve riser, dead end hydrants, and as called out in the drawings. Tracer wire shall be brought to the surface at least every one thousand (1,000) feet. Take care not to damage the wire coating. Repair damaged coating with electrical tape.



DIRECT BURY WIRE NUT CONNECTION

TRACER WIRE CONNECTIONS

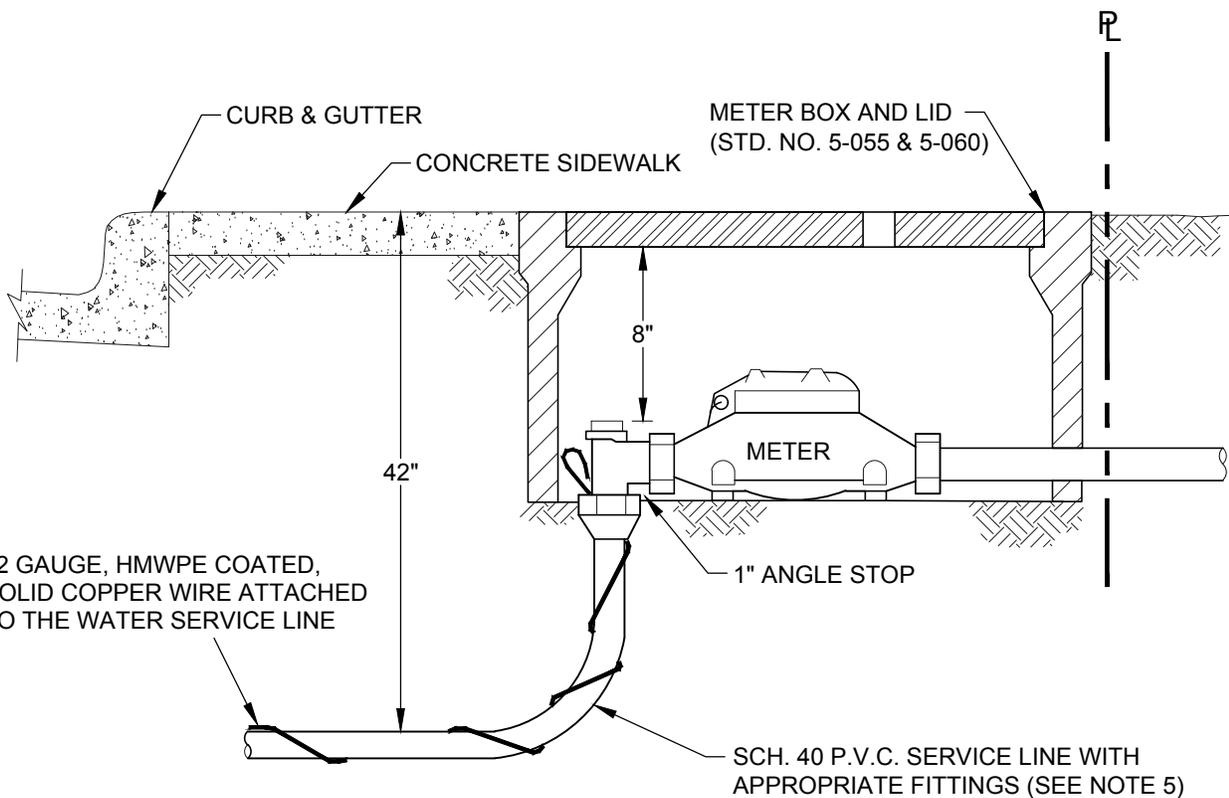
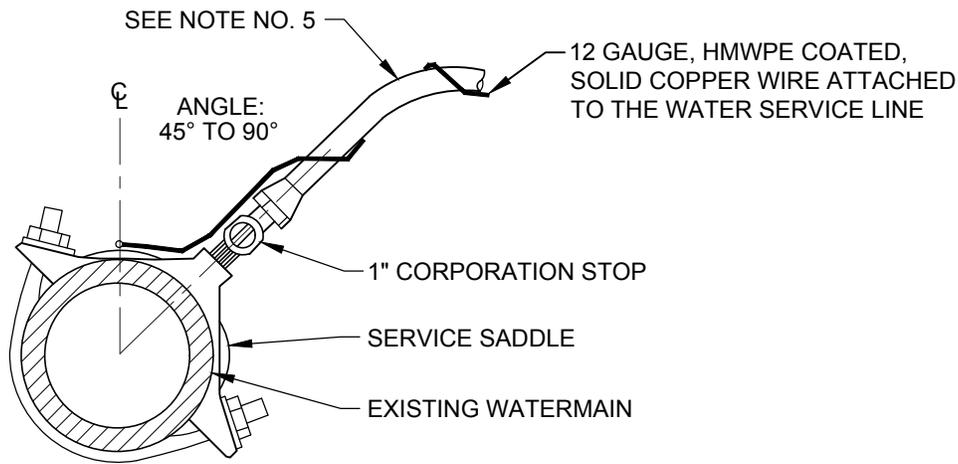
Joining ends of tracer wire: Connections into existing tracer wire, connections into tracer wire used during water main bores, connections between one spool of tracer wire to another, and other similar connections shall be made using a silicone filled, direct bury wire nut.

When connecting tracer wire ends together, strip 5/8" of insulation from the end of each wire. Insert the two ends firmly into the direct bury wire nut. Twist the wire nut clockwise while pushing the wire firmly into the nut. Do not over torque. Twist wires in a knot as shown.

Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 5-030
TRACER WIRE



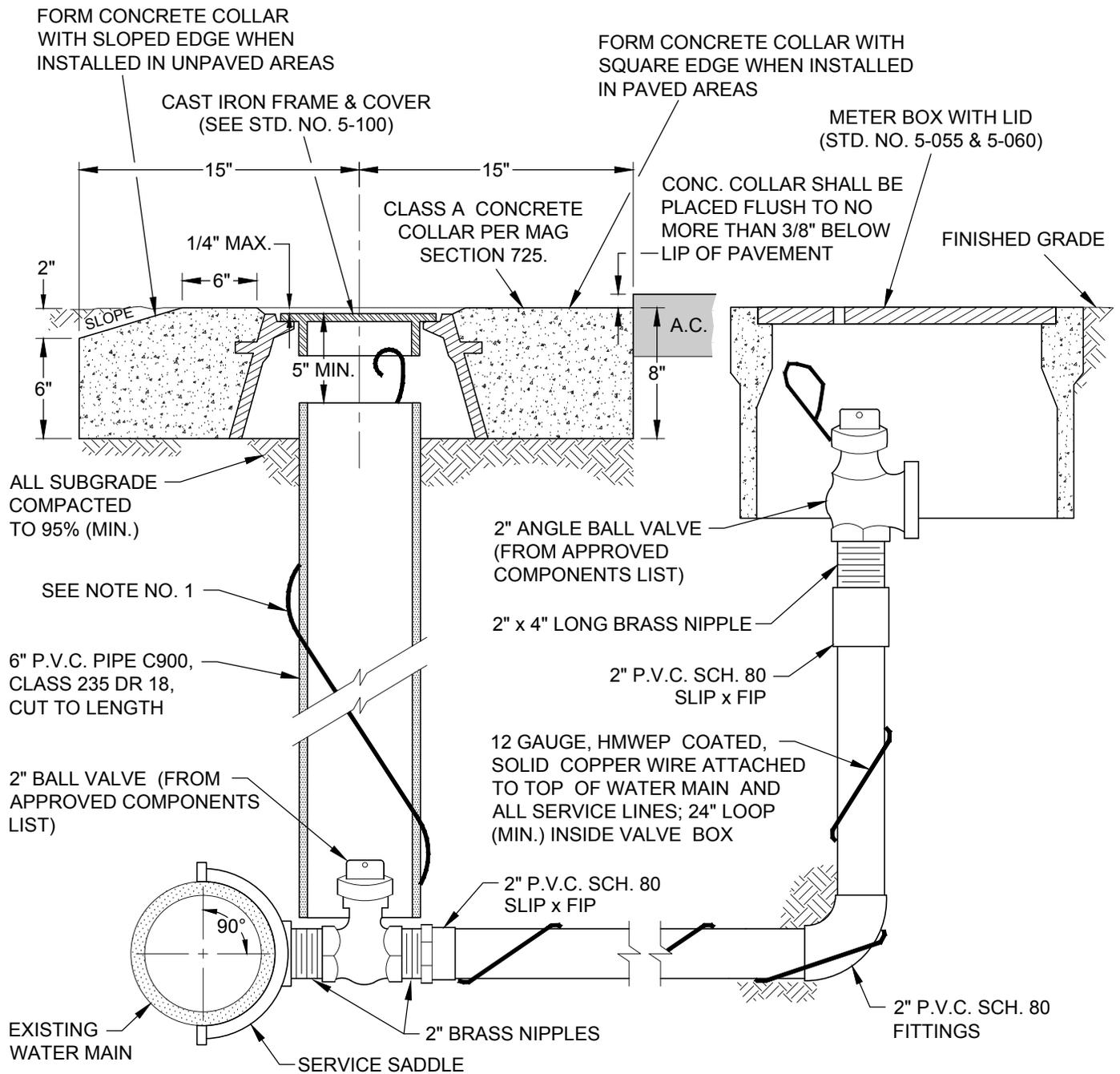
NOTES

1. Tracer wire required on all service lines between watermain and meter.
2. Meter box to be set adjacent to the public right-of-way line.
3. Water meter boxes shall not be subject to vehicular traffic. They shall not be placed in driveways, parking spots or traffic areas.
4. Meter boxes shall not be located in sidewalks.
5. Do not bend or crimp water service line. Use 45° bends and/or appropriate fittings.
6. Each meter must have its own dedicated 1" water service line. Dual meters off a single 1" service line are not allowed.
7. All new water services 2" and smaller off of an existing water main will be installed by City of Yuma utilities personnel.

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 5-035
WATER METER INSTALLATION
1" AND SMALLER**



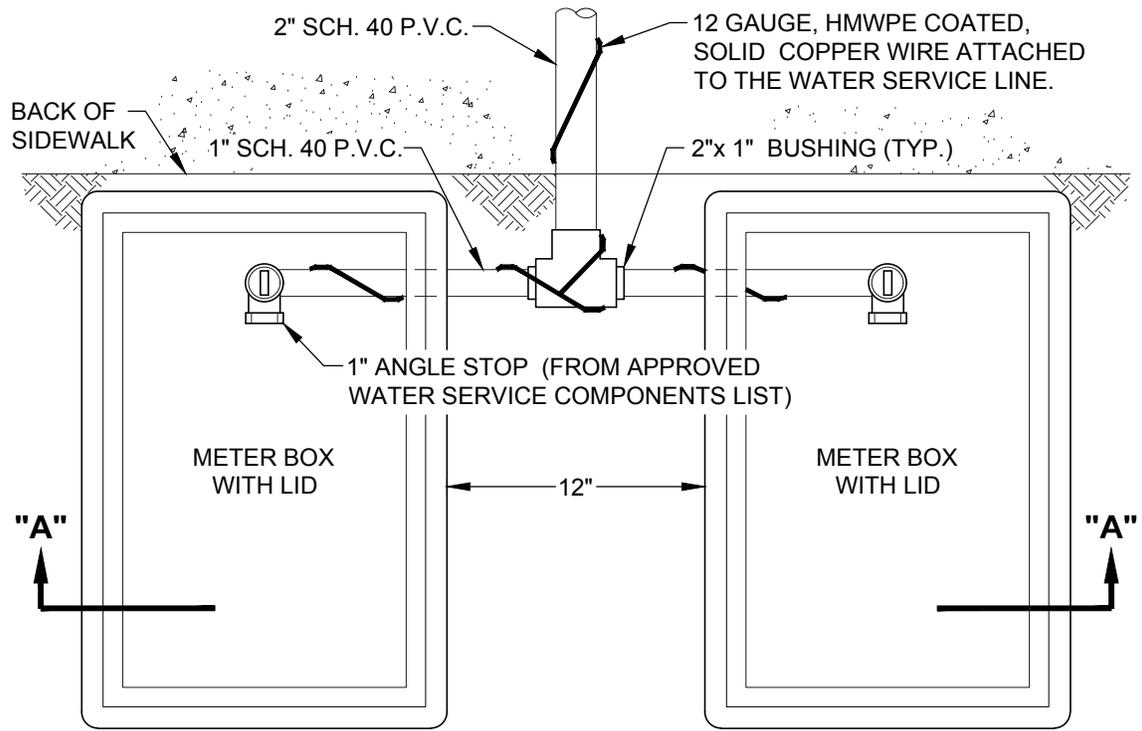
NOTES

1. Tracer wire required on all service lines between watermain and meter.
2. Meter box to be set adjacent to the public right-of-way line.
3. Water meter boxes shall not be subject to vehicular traffic. They shall not be placed in driveways, parking spots or traffic areas.
4. Meter boxes shall not be located in sidewalks.
5. Do not bend or crimp water service line. Use 45° bends and/or appropriate fittings.
6. On multiple 2" services, saddles shall be at least 24" clear (minimum) between saddles.
7. All new water service requests 2" and smaller off of an existing water main will be done by City of Yuma utilities personnel.
8. Pipe shall be Sch. 40 minimum, fittings shall be Sch. 80 minimum.
9. Concrete collar shall be Class A per MAG Section 725.

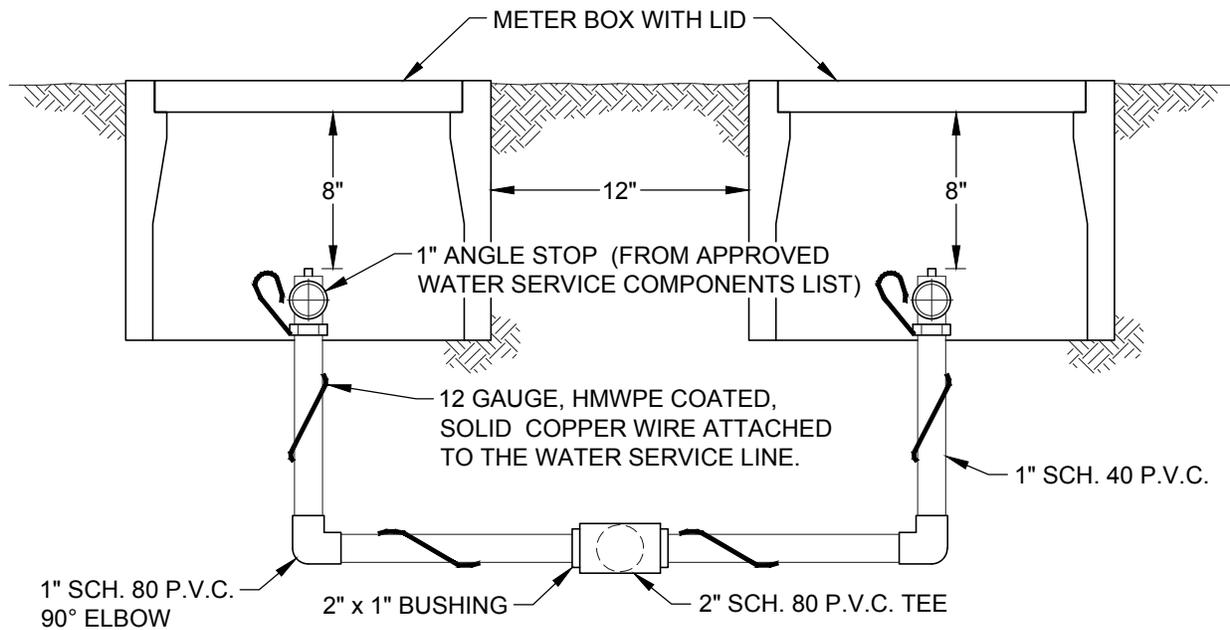
Issued: May 2019

CITY OF YUMA
 CONSTRUCTION STANDARD DETAIL DRAWINGS

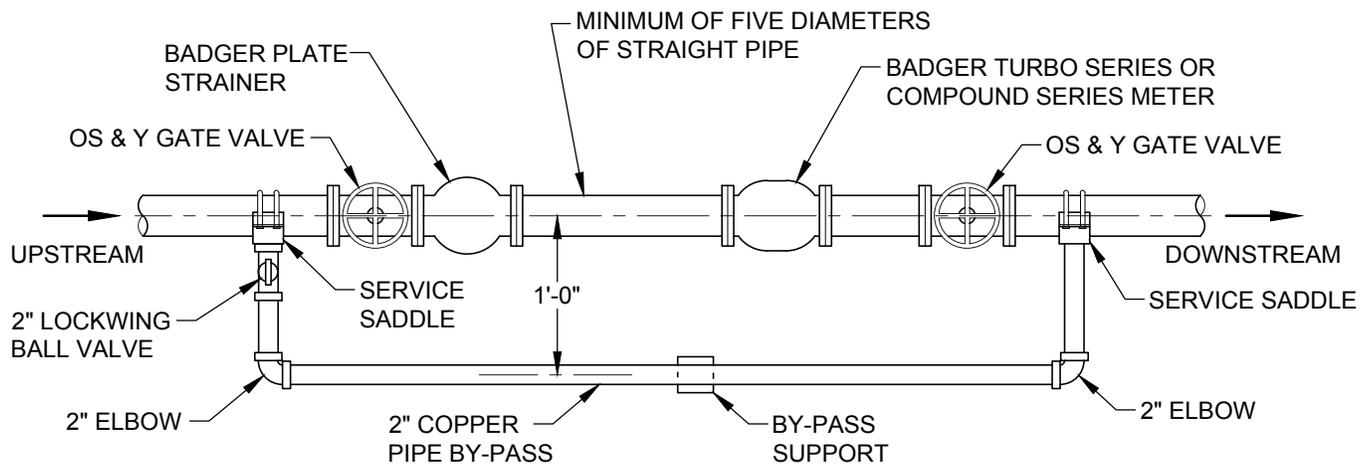
STANDARD NO. 5-040
2" WATER SERVICE



TOP VIEW



SECTION A-A



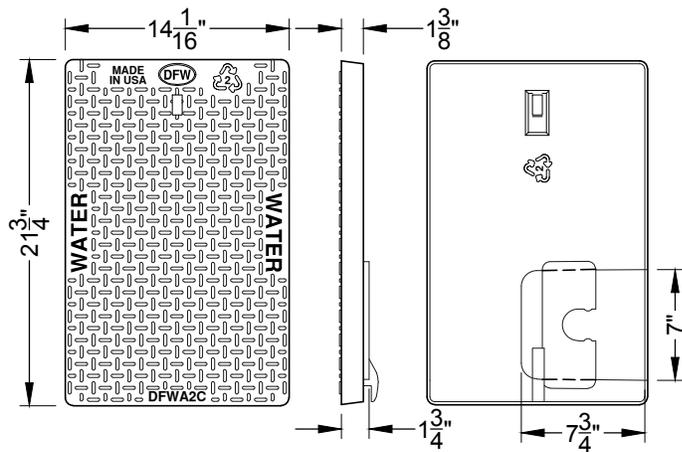
PLAN VIEW

NOTES

1. Water meter and strainer shall be installed in accordance with manufacturer's instructions. (See approved water service components list for water meter information).
2. All above ground pipe must be flanged ductile iron.
3. All buried ductile iron pipe and fittings shall be wrapped with 10 mil. (minimum) polyethylene pipe tape.
4. For buried pipe: All joints and fittings shall be restrained with mechanical joint wedge action restraining glands or bell joint restraining harness.
5. Service line for 3" meter shall be 4", reduced to 3" after the 90° fitting and before the OS&Y Valve.
6. By-Pass shall be tapped off the side of the pipe and must be wrapped with 10 mil. (min.) polyethylene pipe tape.
7. Water meter and valves shall have 24"x 24"x 6" Class B (MAG Section 725) concrete pads and pipe supports.

Issued: May 2019

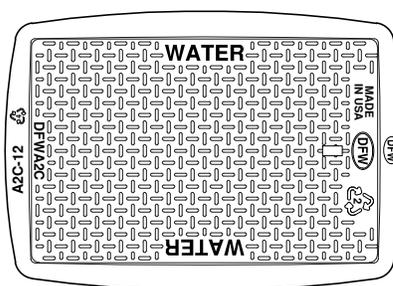
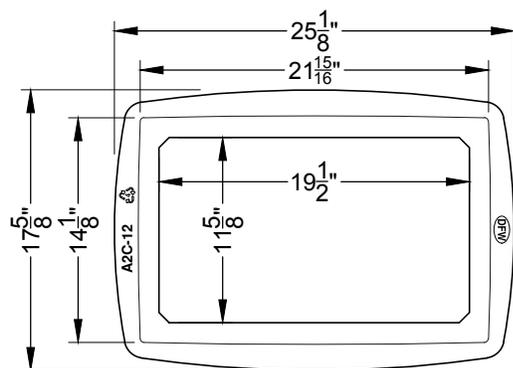
CITY OF YUMA
 CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 5-050
3" THROUGH 8" TURBO SERIES,
COMPOUND SERIES OR ULTRASONIC
SERIES METER ABOVE GROUND



LID KEY	
1	BLACK COLOR
M	MAGNET
A	AMR SLIDE MOUNT

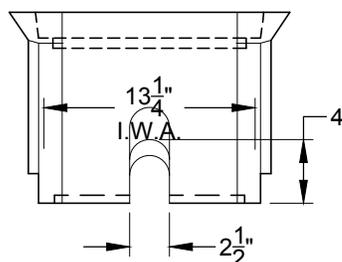
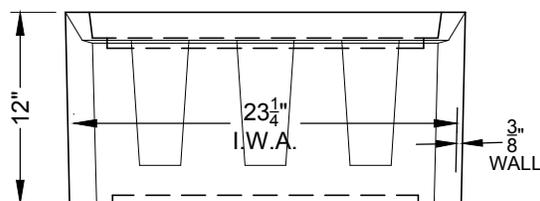
The polymer meter box lid must be detectable with a Ferromagnetic Locator.

DFWA2C-1MA-LID OR APPROVED EQUAL.



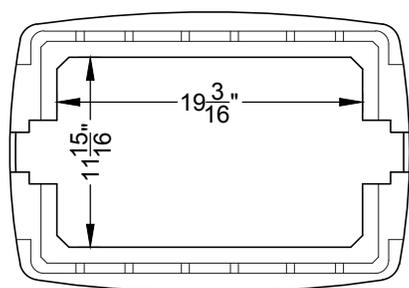
TOP VIEW

DFWA2C-12-1MA



DFWA2C-12-BODY OR APPROVED EQUAL.

SIDE VIEW



BOTTOM VIEW

DFWA2C-12-1MA BY DFW PLASTICS, INC. OR APPROVED EQUAL.

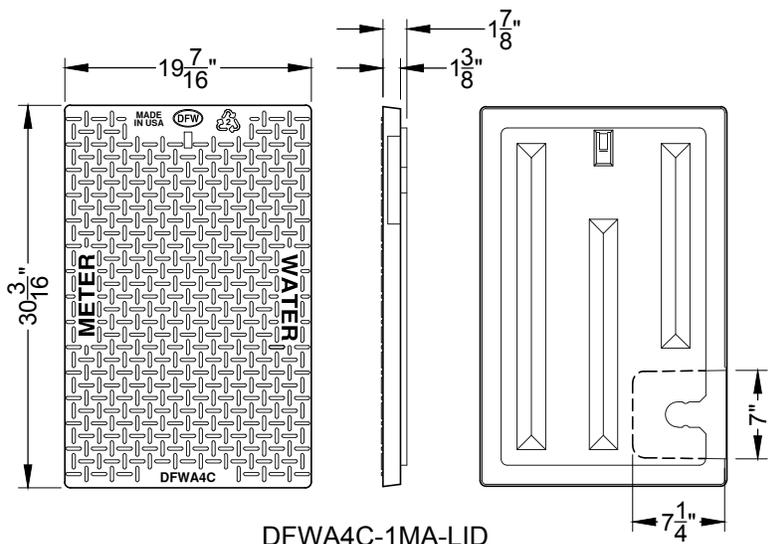
NOTES

1. Dim's $\pm 1/8"$ U.N.O.
2. Lid material: HDPE
3. Body material: LLDPE
4. Wall thickness: $3/8"$ minimum
5. I.W.A. = Inside work area
6. Snap lock pocket will receive AMR/AMI device endpoint. Snap lock slot is $1.80" \pm .015"$ to allow for a finger force install.

Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

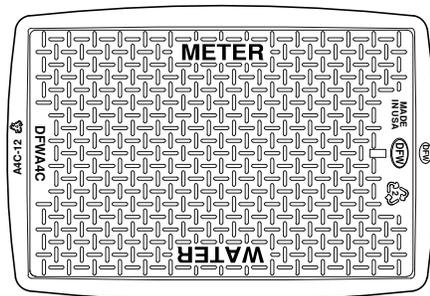
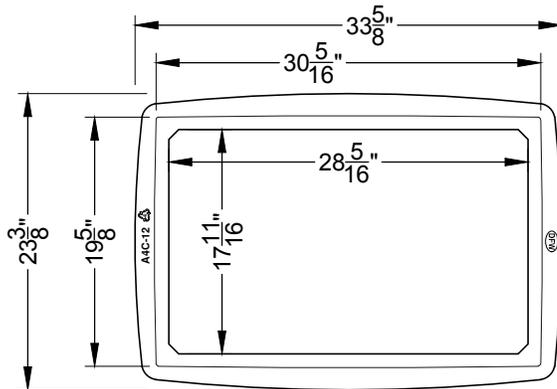
STANDARD NO. 5-055
WATER METER BOX
FOR 1" METERS & SMALLER



LID KEY	
1	BLACK COLOR
M	MAGNET
A	AMR SLIDE MOUNT

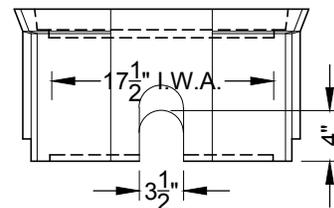
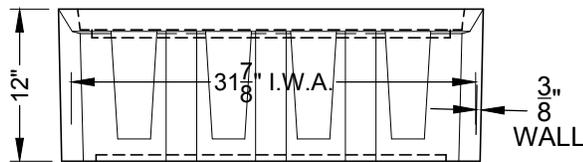
The polymer meter box lid must be detectable with a Ferromagnetic Locator.

DFWA4C-1MA-LID

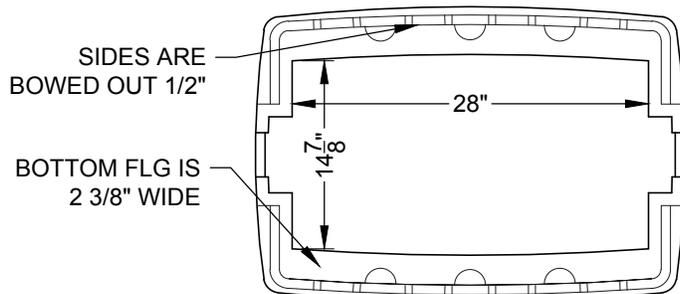


TOP VIEW

DFWA4C-12-1MA



SIDE VIEW



DFWA4C-12-BODY
BOTTOM VIEW

NOTES

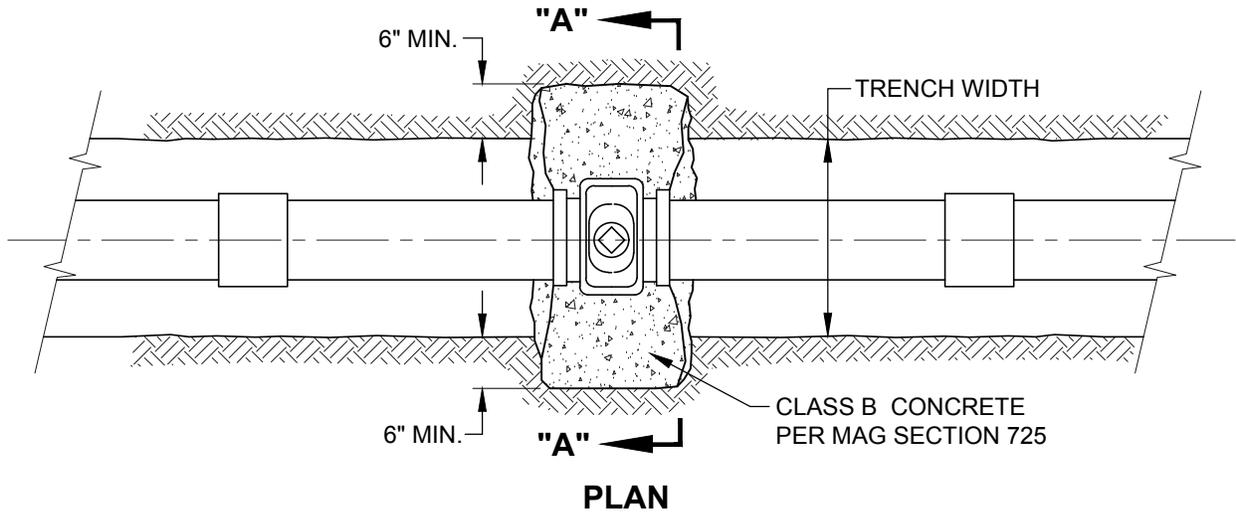
1. Dim's ± 1/8" U.N.O.
2. Lid material: HDPE
3. Body material: LLDPE
4. Wall thickness: 3/8" minimum
5. I.W.A. = Inside work area
6. Snap lock pocket will receive AMR/AMI device endpoint. Snap lock slot is 1.80" ± .015" to allow for a finger force install. Pocket height is 15/16 for min 1/8" air gap.

DFWA4C-12-1MA BY DFW PLASTICS, INC. OR APPROVED EQUAL.

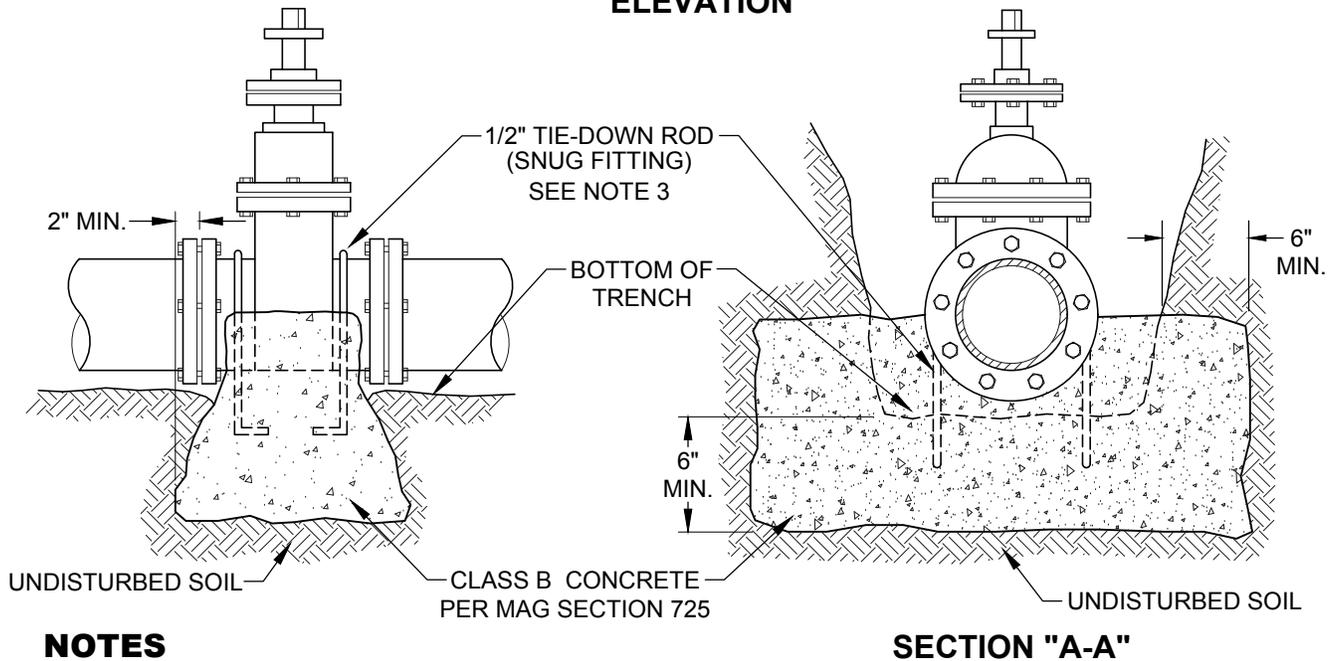
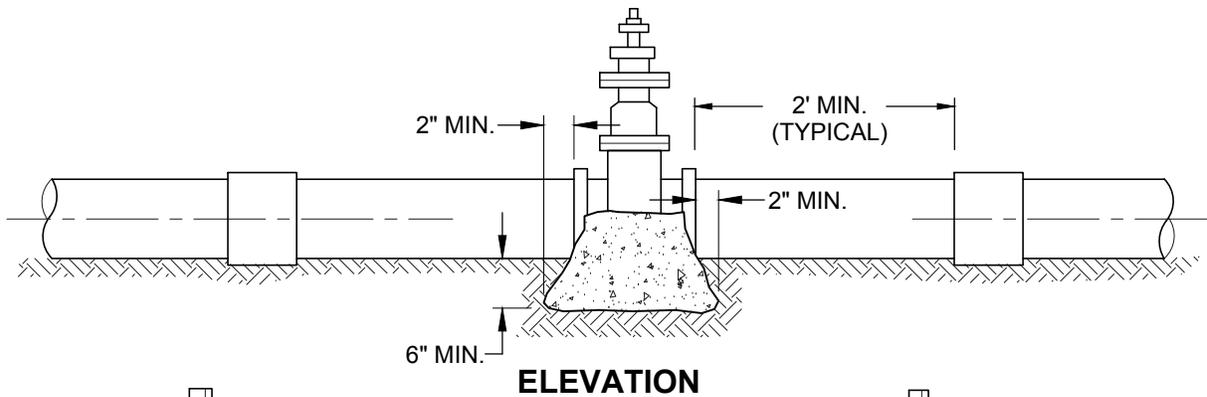
Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 5-060
WATER METER BOX
1 1/2" & 2" METERS



REFER TO STANDARD DETAIL 5-070 FOR VALVES 20" AND LARGER



NOTES

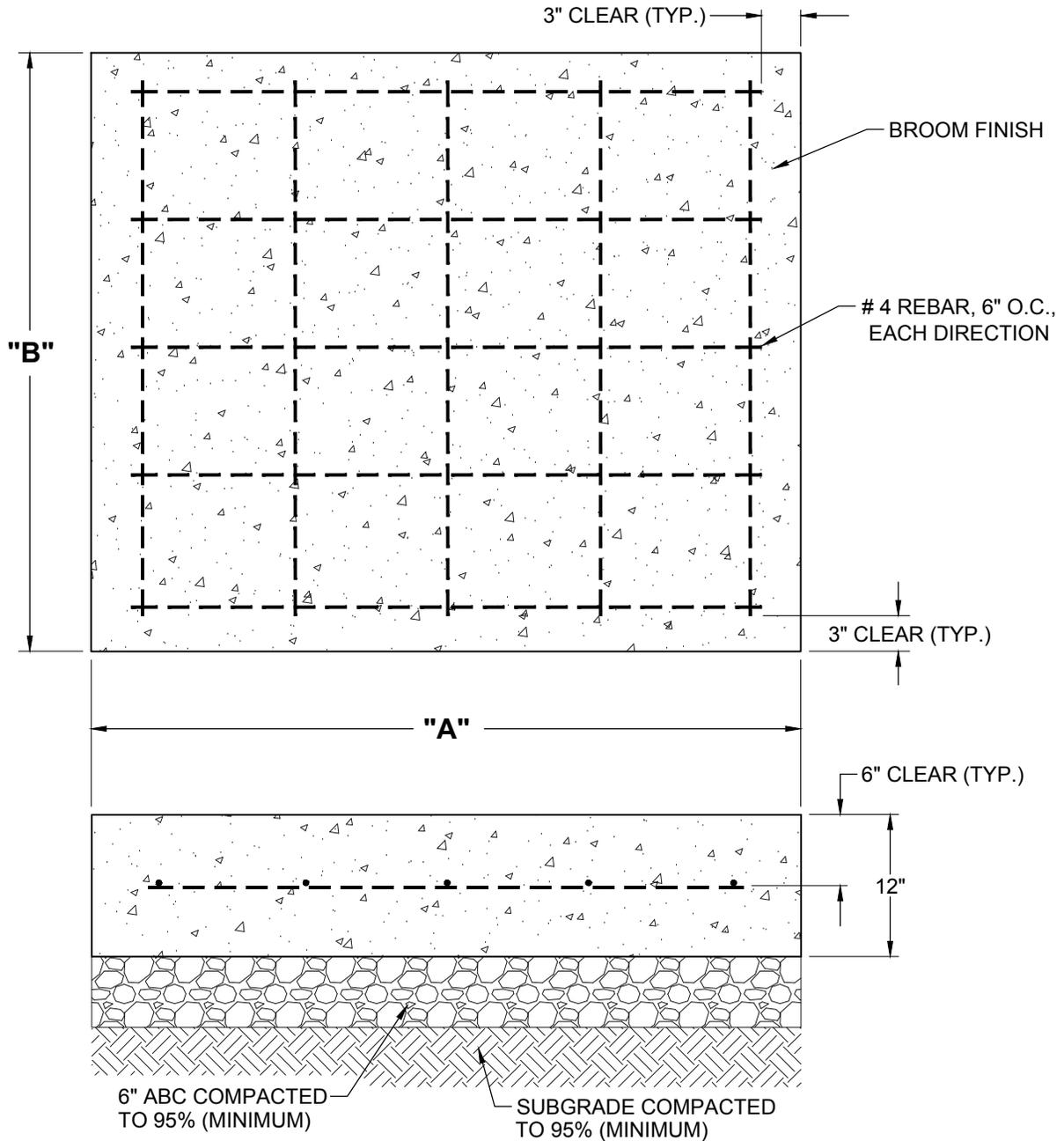
1. This detail covers water valves 4" or larger.
2. All buried iron and ferrous fittings shall receive a 10 mil (minimum) polyethelene plastic wrap to prevent direct contact with soil.
3. 316-stainless steel tie-down rods required for pipes larger than 8".
4. Concrete shall not come into contact with water pipe.
5. Refer to Standard Detail 5-070 for valves twenty inch (20") and larger.

Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 5-065
VALVE ANCHORS**

CONCRETE SLAB



A = 20" for 20" valve
 A = 24" for 24" valve
 A = 30" for 30" valve
 A = 36" for 36" valve

B = 20" for 20" valve
 B = 24" for 24" valve
 B = 30" for 30" valve
 B = 36" for 36" valve

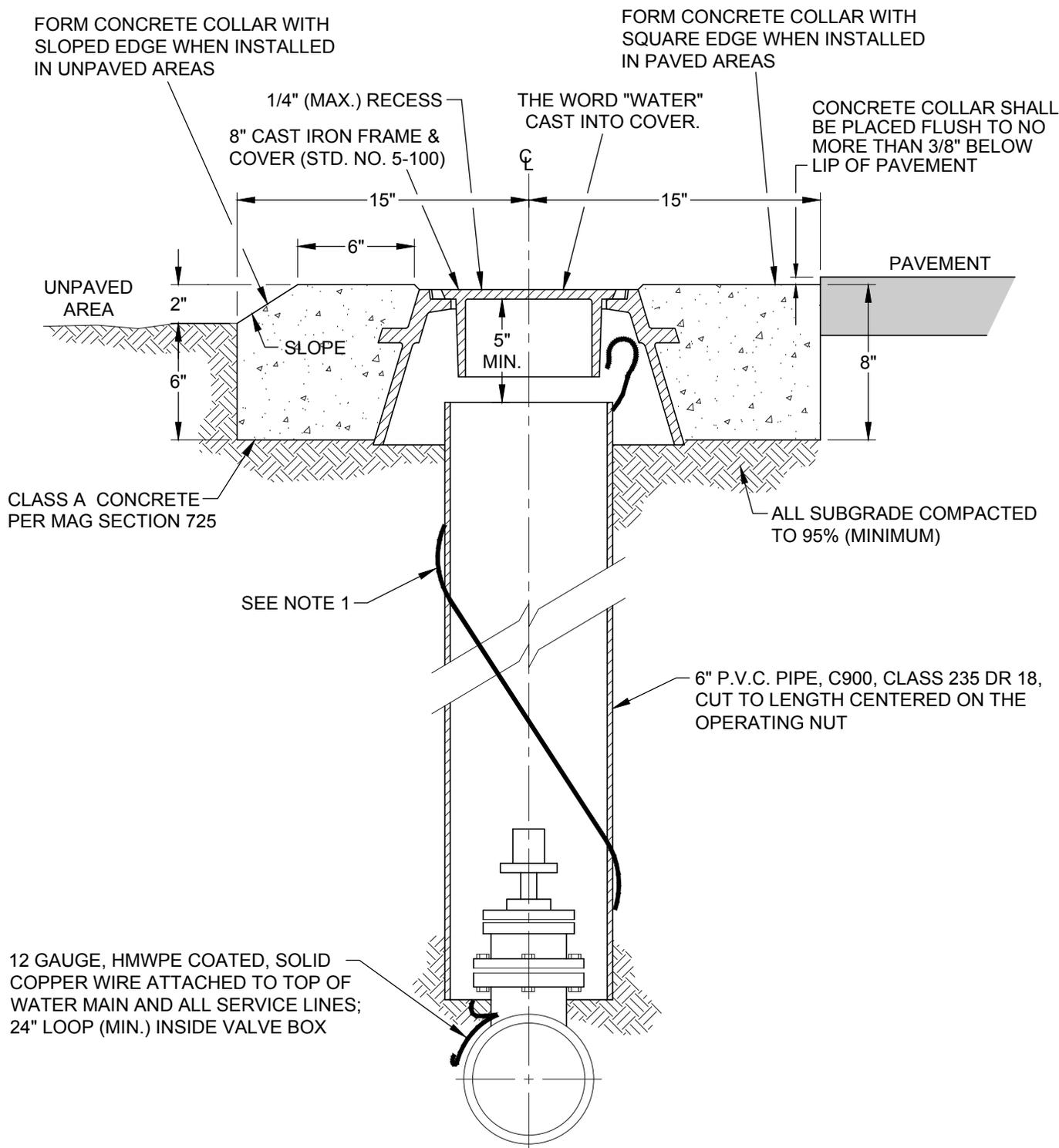
NOTES

- Slab constructed from Class A concrete per MAG Section 725.

Issued: May 2019

CITY OF YUMA
 CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 5-070
CONCRETE BASE FOR VALVES
20" AND LARGER



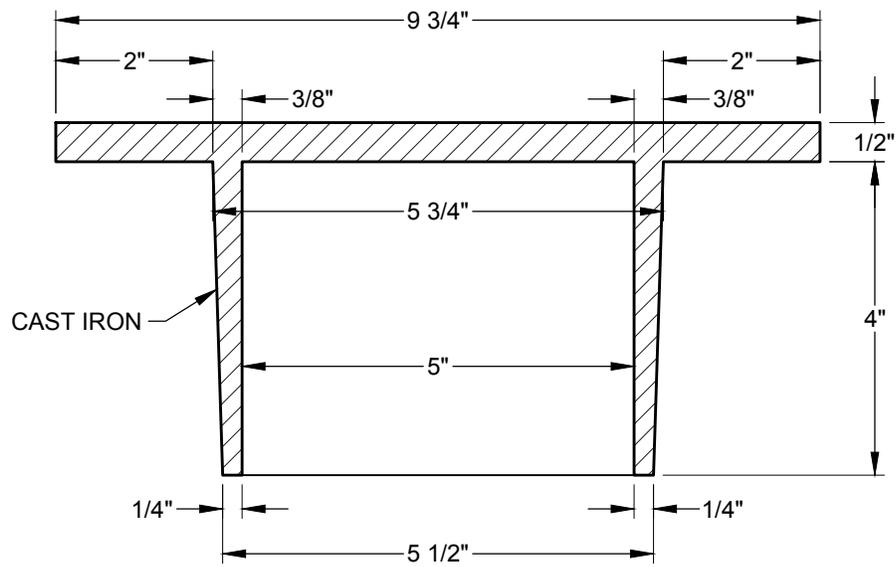
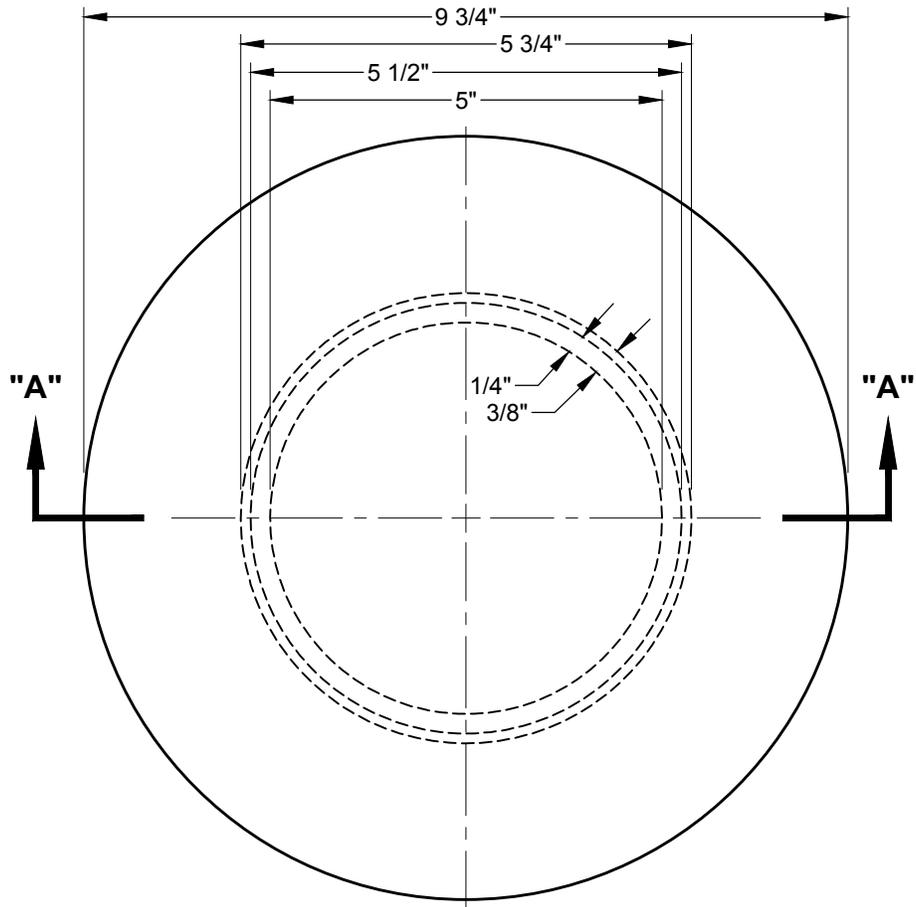
NOTE

1. 12 gauge solid copper tracer wire shall extend into the frame of each in-line valve, air release valve, blowoff, etc.

Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 5-075
VALVE BOX INSTALLATION**

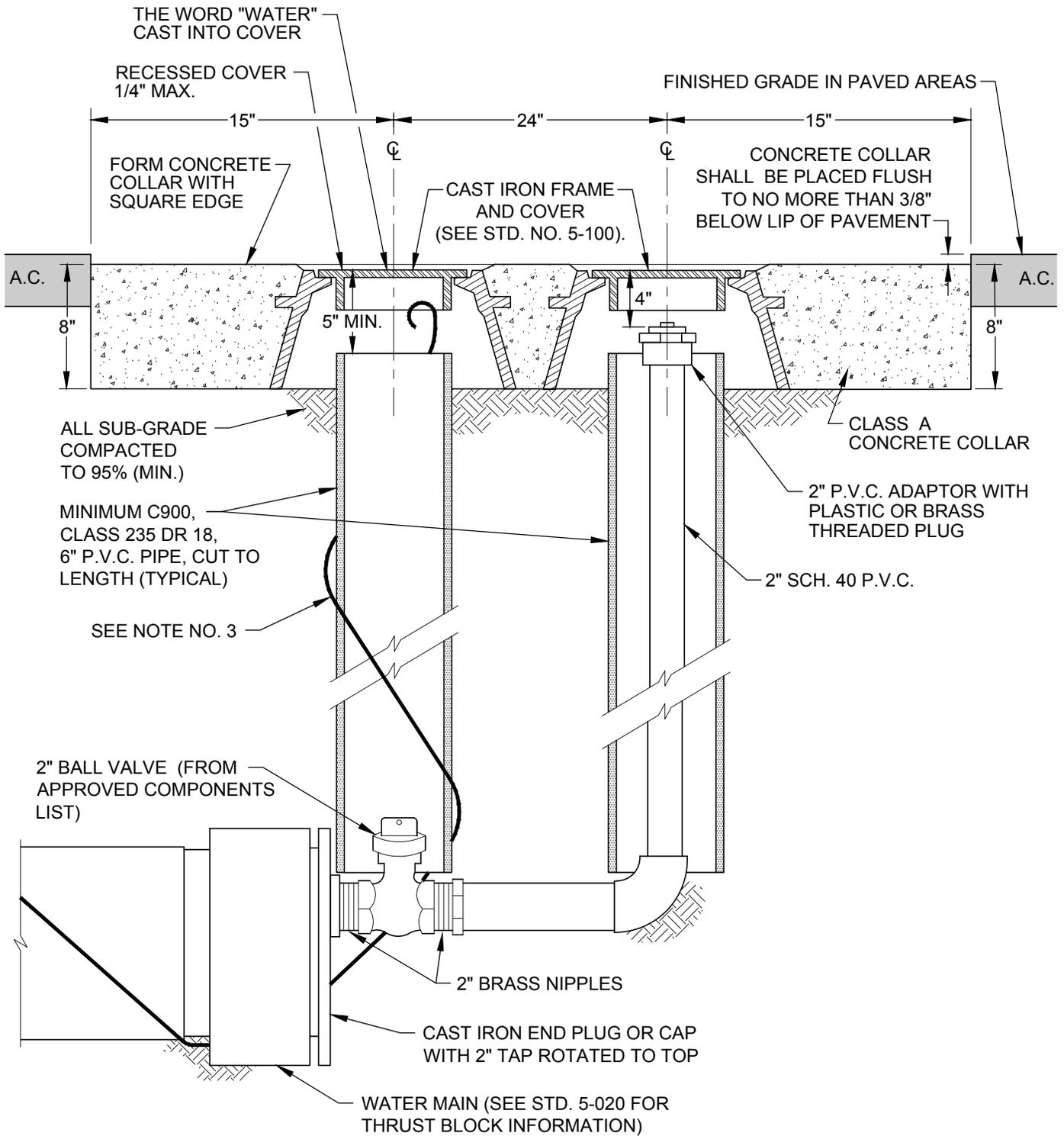


SECTION "A - A"

Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 5-080
VALVE BOX COVER, DROP IN**



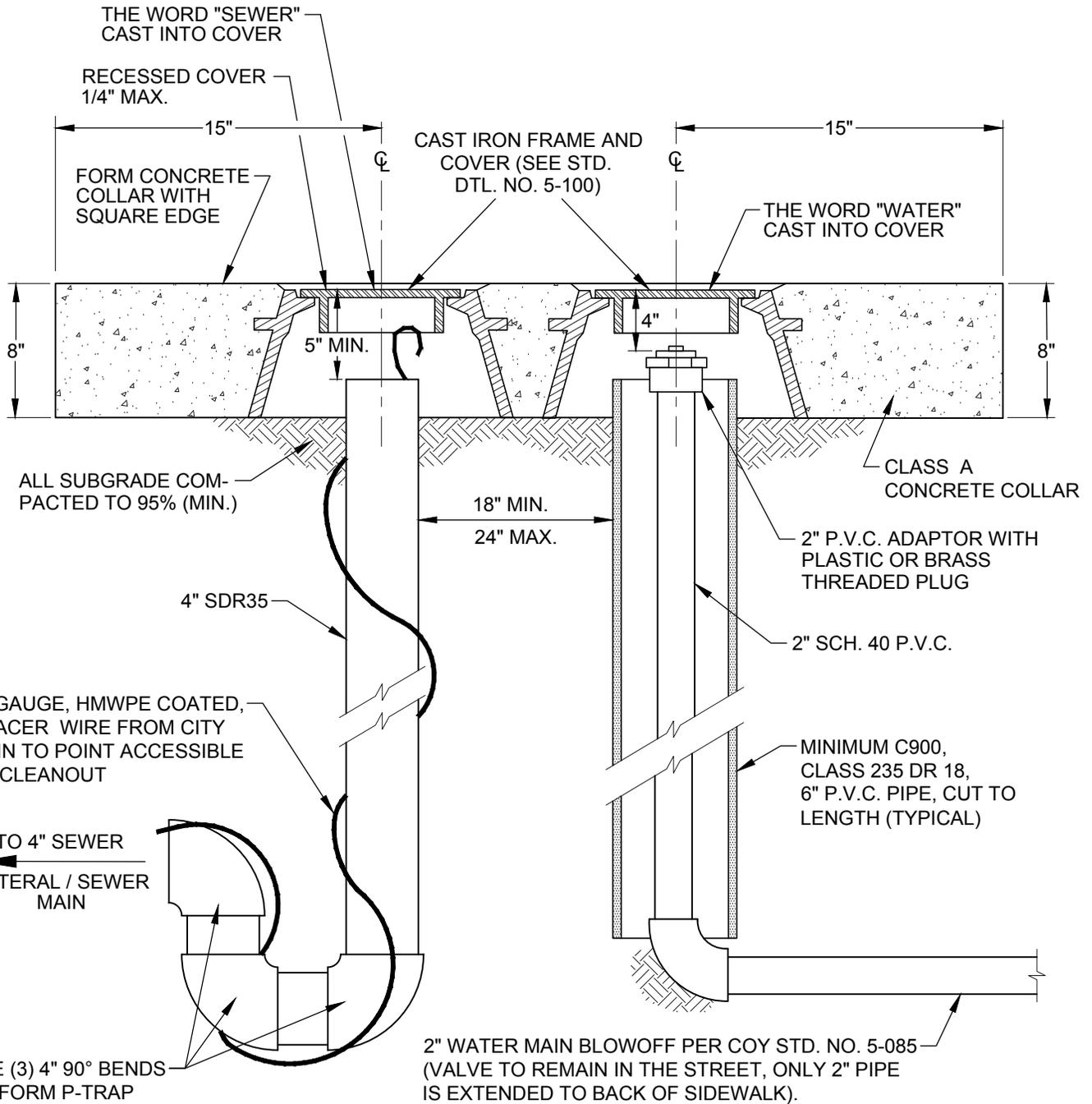
NOTES

1. Blowoff shall be located within 20' (max.) from last in-line valve.
2. Tracer wire shall be installed on all water mains and extensions. Tracer wire shall extend into the valve frame.
3. 12 gauge, HMWPE coated, solid copper tracer wire attached to top of water main and all service lines; 24" loop (min.) inside valve box.
4. All concrete shall be Class A per MAG Section 725.

Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 5-085
WATERMAIN BLOWOFF**



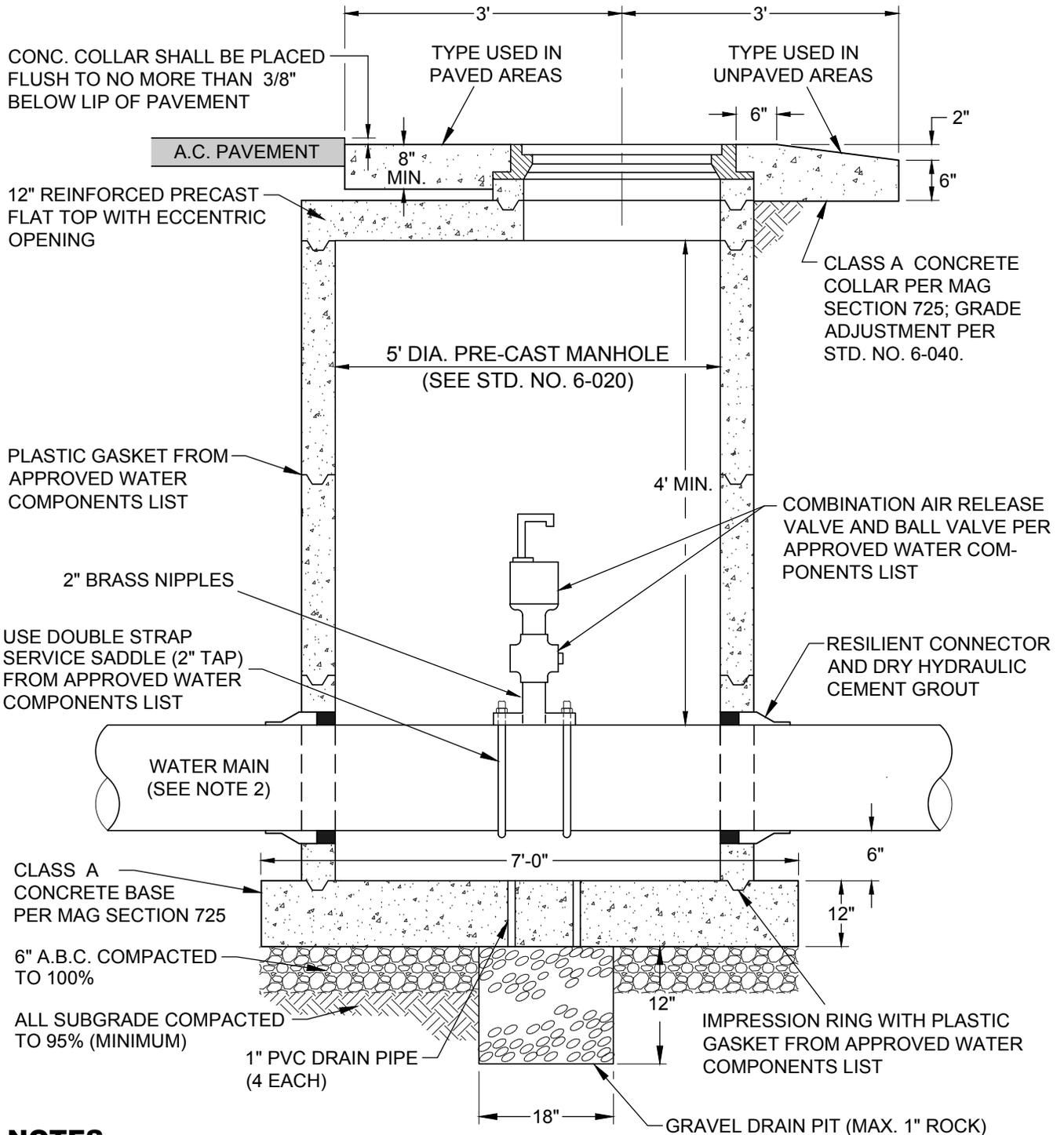
NOTES

1. Complete 2" blowoff installed per COY Standard No. 5-085.
2. Blowoff and sewer lateral installed behind the sidewalk and in the utility easement.
3. Cleanout installed per COY Std. No. 6-005 but to include P-Trap.
4. All concrete shall be per MAG Section 725.

Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

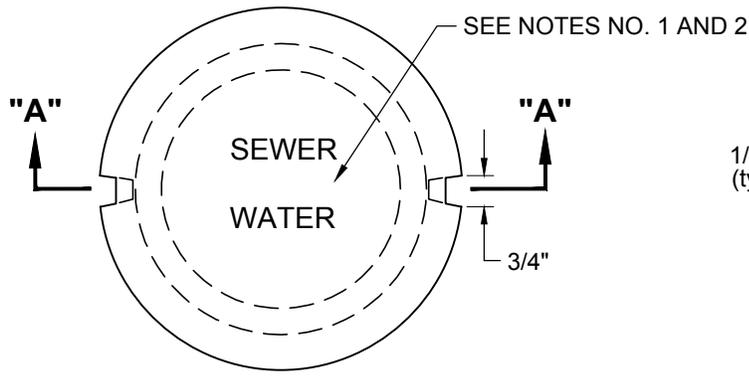
STANDARD NO. 5-090
WATERMAIN BLOWOFF
DRAIN



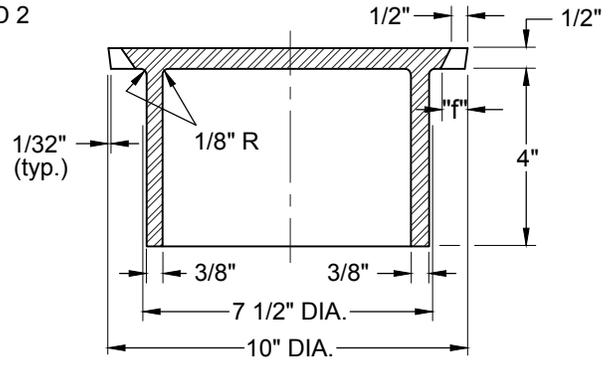
NOTES

1. Manhole frame and cover shall be Neenah Foundry R-1295 with the word WATER cast into the cover.
2. There shall be no pipe joints within two feet (2') of the manhole's exterior wall face.
3. Backfill used to fill manhole excavation shall be lean sand slurry consisting of one sack of cement per cubic yard of clean sand. Protect water main from direct contact with concrete backfill.
4. Apply asphalt waterproofing seal to the exterior surfaces of the manhole. Apply asphalt caulking to seal all joints.

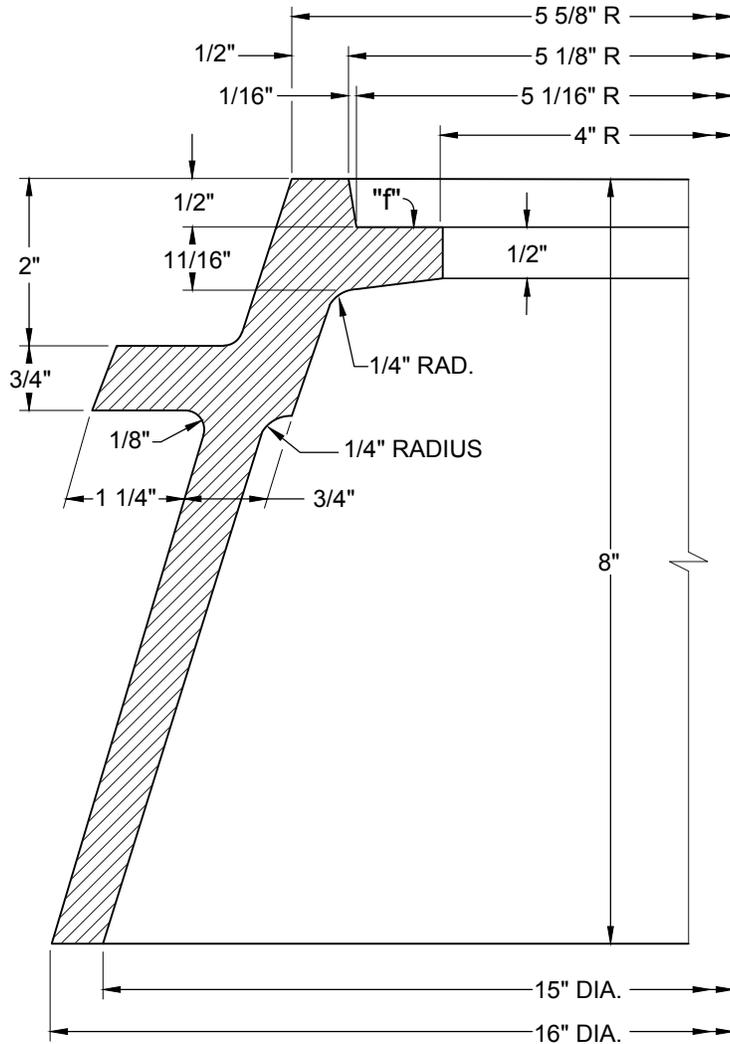
Issued: May 2019
CITY OF YUMA CONSTRUCTION STANDARD DETAIL DRAWINGS STANDARD NO. 5-095 AIR RELEASE VALVE MANHOLE



COVER
MINIMUM WEIGHT 16 LBS.



SECTION "A - A"



FRAME
MINIMUM WEIGHT 63 LBS.

FRAME AND COVER:
PER APPROVED
COMPONENTS LIST

"f" INDICATES ORDINARY MACHINING
TOLERANCE FOR MACHINE FINISH: $\pm 1/64"$

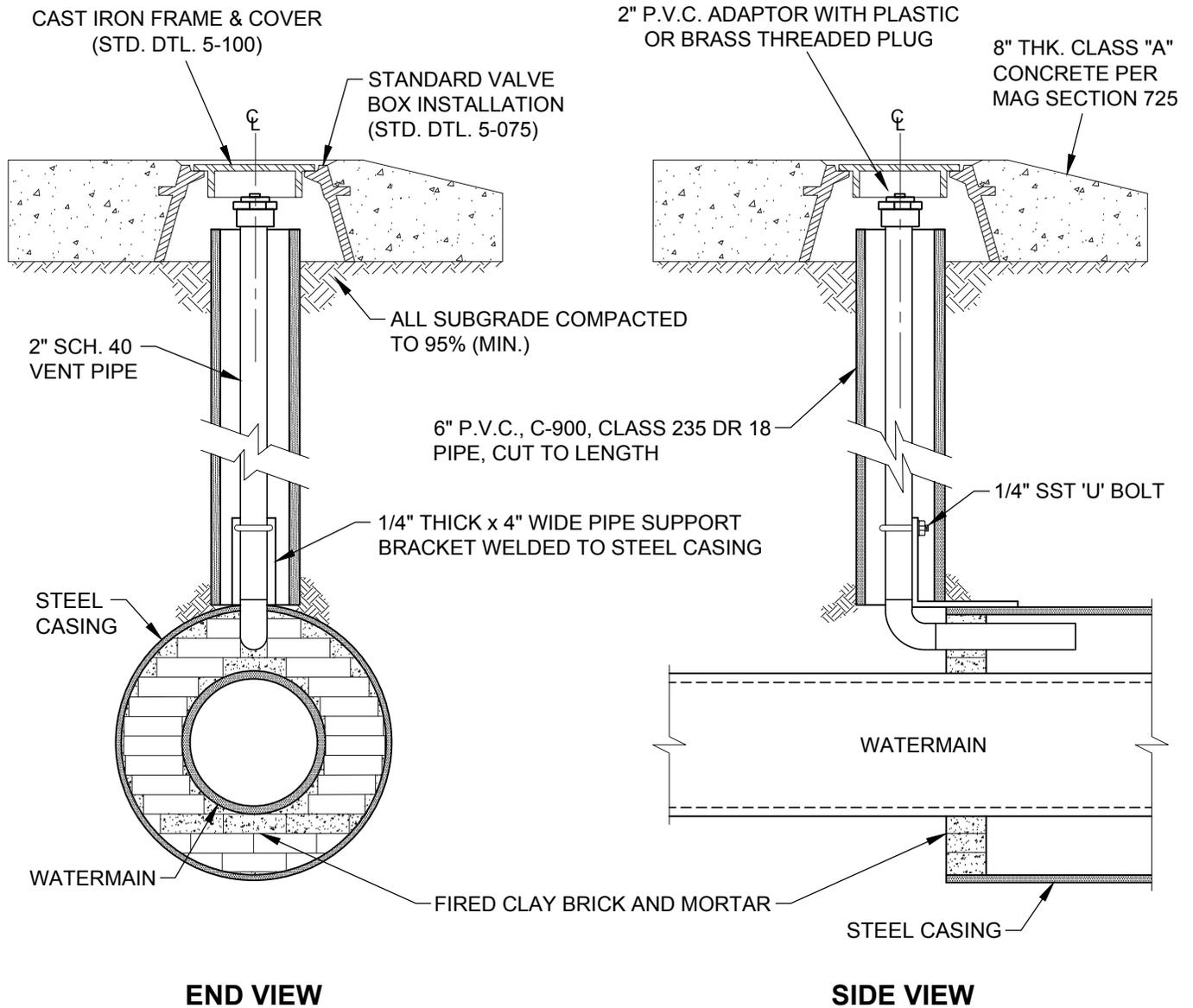
NOTES

1. The word "WATER" or "SEWER" shall be cast on the cover. Letter size: 5/8" x 3/4" raised 1/16" above level of cover.
2. Type of letters are to be submitted for approval.

Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

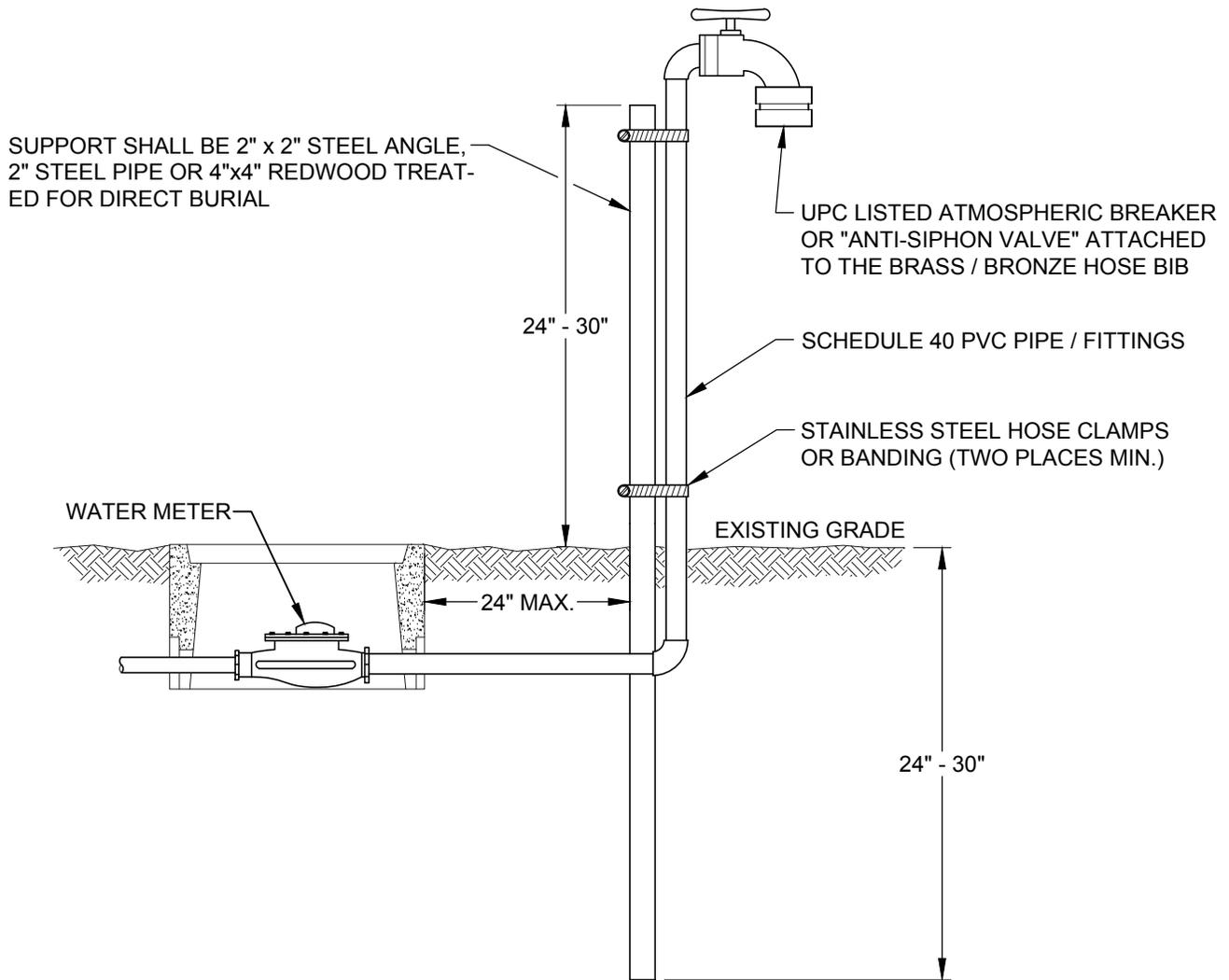
STANDARD NO. 5-100
8" CAST IRON
FRAME AND COVER



Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 5-105
STEEL CASING END SEALS
WITH VENT PIPE

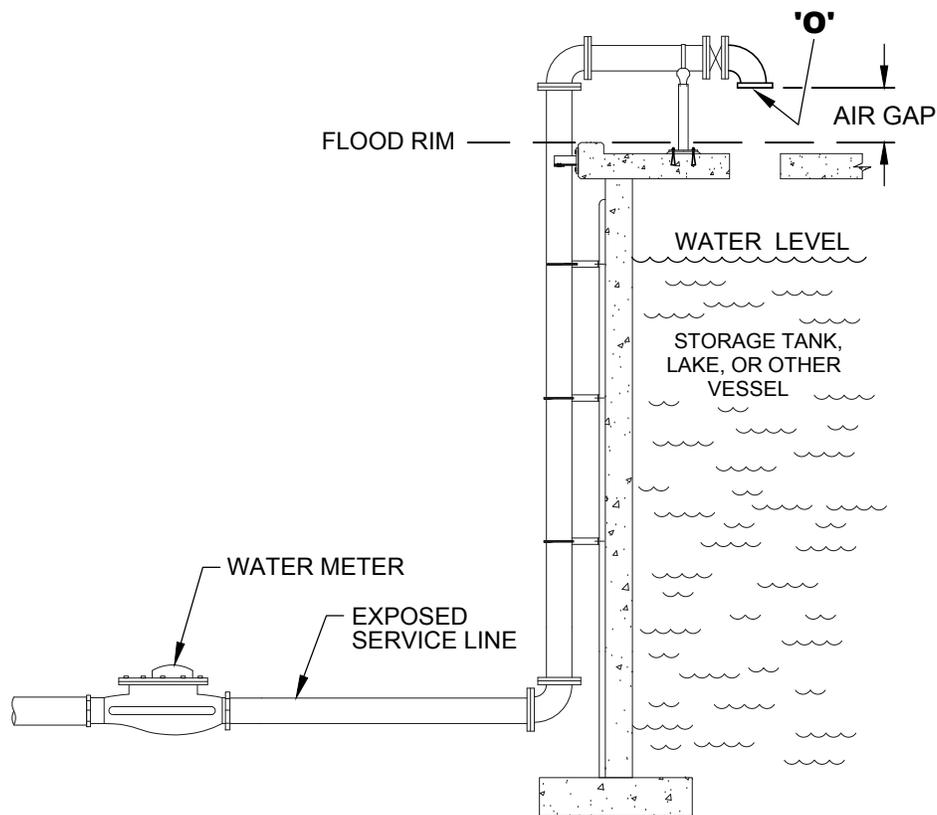


NOTES

1. This configuration shall be used until a permanent water service line is constructed from the water meter to the structure to be served.
2. In no case shall a water meter be allowed to remain in a location where the possibility of contamination could occur to the City's potable water system.

<p>Issued: May 2019</p>
<p>CITY OF YUMA CONSTRUCTION STANDARD DETAIL DRAWINGS</p> <p>STANDARD NO. 5-110 TEMPORARY CONSTRUCTION ANTI-BACKFLOW ASSEMBLY</p>

For additional information contact the City of Yuma Pretreatment Section at (928) 373-4544.



NOTES

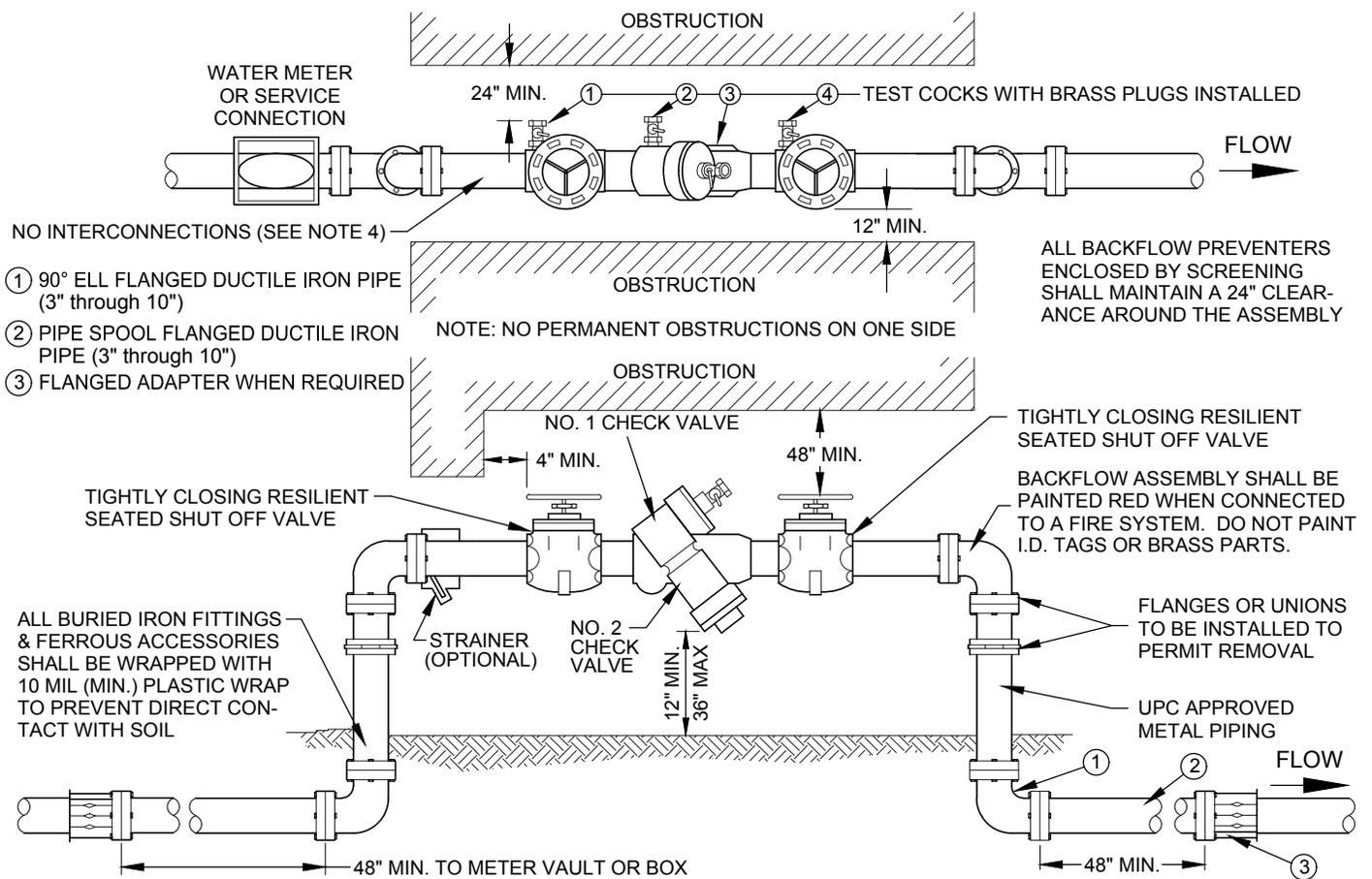
1. The prevention of backflow in a potable water supply system is necessary to prevent contamination or pollution of the water supply. Prevention is accomplished by the use of air gap separations or mechanical backflow prevention assemblies. Air gap separations and backflow prevention assemblies shall be installed according to current City of Yuma Construction Standard Detail Drawings and written Specifications to assure the protection of the public water supply system.
2. An air gap is not generally utilized for water service line protection since all supply pressure is lost. A water service line to a lake, tank or other vessel is generally where an air gap assembly is used. However, for service protection, another deterrent is that all piping to the air gap must remain exposed.
3. The minimum required air gap separation shall be measured vertically from the lowest end of the potable water outlet to the flood rim of the receptacle into which the potable water discharges. This air gap distance shall be a minimum of twice the diameter of the effective opening ('O') of the potable water outlet but not less than one inch (1").
4. There shall not be any provisions for extending the fixture below the flood level rim. If the end of the potable water pipe or fixture outlet is threaded or allows for any type of extension by any means, a properly installed and approved backflow preventer shall be installed.
5. The opening of the air gap device ('O') may be screened or shielded with an appropriate perforated material for protection.

Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 5-115
AIR GAP SEPARATION
BACKFLOW PREVENTION

For additional information contact the City of Yuma
Pretreatment Section at (928) 373-4544.



- NO INTERCONNECTIONS (SEE NOTE 4)
- ① 90° ELL FLANGED DUCTILE IRON PIPE (3" through 10")
 - ② PIPE SPOOL FLANGED DUCTILE IRON PIPE (3" through 10")
 - ③ FLANGED ADAPTER WHEN REQUIRED

ALL BACKFLOW PREVENTERS ENCLOSED BY SCREENING SHALL MAINTAIN A 24" CLEARANCE AROUND THE ASSEMBLY

NOTE: NO PERMANENT OBSTRUCTIONS ON ONE SIDE

TIGHTLY CLOSING RESILIENT SEATED SHUT OFF VALVE

BACKFLOW ASSEMBLY SHALL BE PAINTED RED WHEN CONNECTED TO A FIRE SYSTEM. DO NOT PAINT I.D. TAGS OR BRASS PARTS.

FLANGES OR UNIONS TO BE INSTALLED TO PERMIT REMOVAL

UPC APPROVED METAL PIPING

ALL BURIED IRON FITTINGS & FERROUS ACCESSORIES SHALL BE WRAPPED WITH 10 MIL (MIN.) PLASTIC WRAP TO PREVENT DIRECT CONTACT WITH SOIL

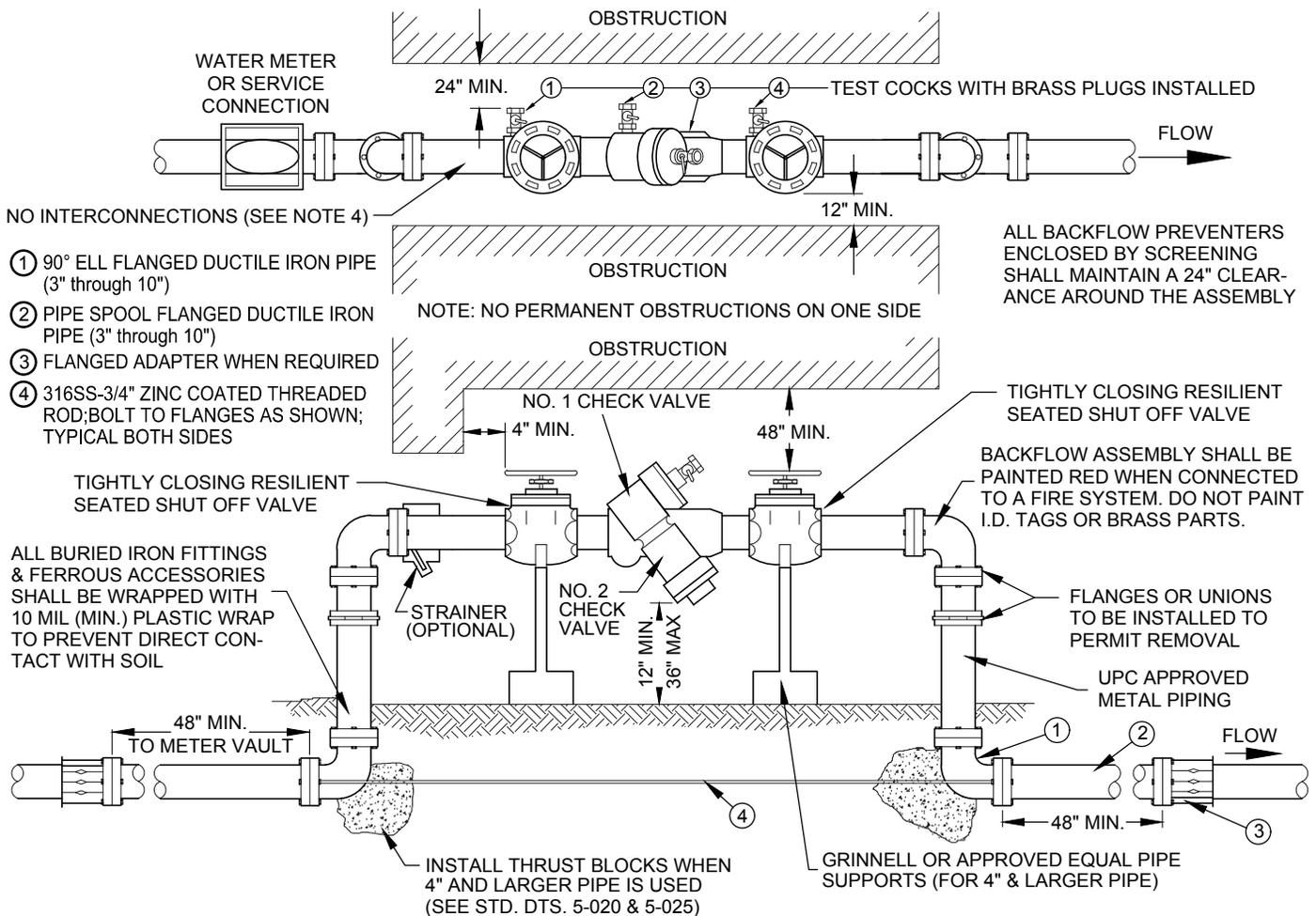
NOTES

1. A permit is required before installing or replacing a backflow assembly. Permits are obtained at the Department of Community Development, 1 City Plaza (SW corner of Madison Ave. and 3rd St.).
2. For a list of approved backflow assemblies, refer to the University of Southern California Foundation for Cross-Connection Control and Hydraulic Research.
3. The D.C.V.A. shall be installed outside, above ground, as close to the water meter as possible. The D.C.V.A. shall be located on private property unless otherwise authorized.
4. There shall be no other piping connected to the piping between the water meter and the backflow assembly except for parallel assembly installations.
5. Installations shall meet all current uniform plumbing codes in addition to the City of Yuma building codes.
6. Installations shall be left exposed until inspected and approved by the City of Yuma.
7. If this unit is installed to serve a retention basin, this unit shall be placed a minimum of 12" (36" maximum) above the flood rim of the retention basin.
8. Protective cages are optional and will meet clearance, access and drainage requirements. Tamperproof switches may be required on fire backflow assemblies.
9. It is recommended that backflow assemblies be protected from the elements. Care shall be taken to ensure that the protection does not hinder the assembly's operation.
10. Approval from the City of Yuma Fire Marshal is required before any backflow assembly is connected to any fire system.
11. All backflow units are to be tested by a certified professional prior to final approval. Backflow units shall be tested on an annual basis.
12. The installation of a backflow assembly may create a closed system. Consult with the City of Yuma Building Official for pressure relief valves, thermal expansion or other needed requirements.

Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 5-120
DOUBLE CHECK VALVE (D.C.V.A.)
BACKFLOW PREVENTION ASSEMBLY
3" AND SMALLER WATER LINE

For additional information contact the City of Yuma Pretreatment Section at (928) 373-4544.



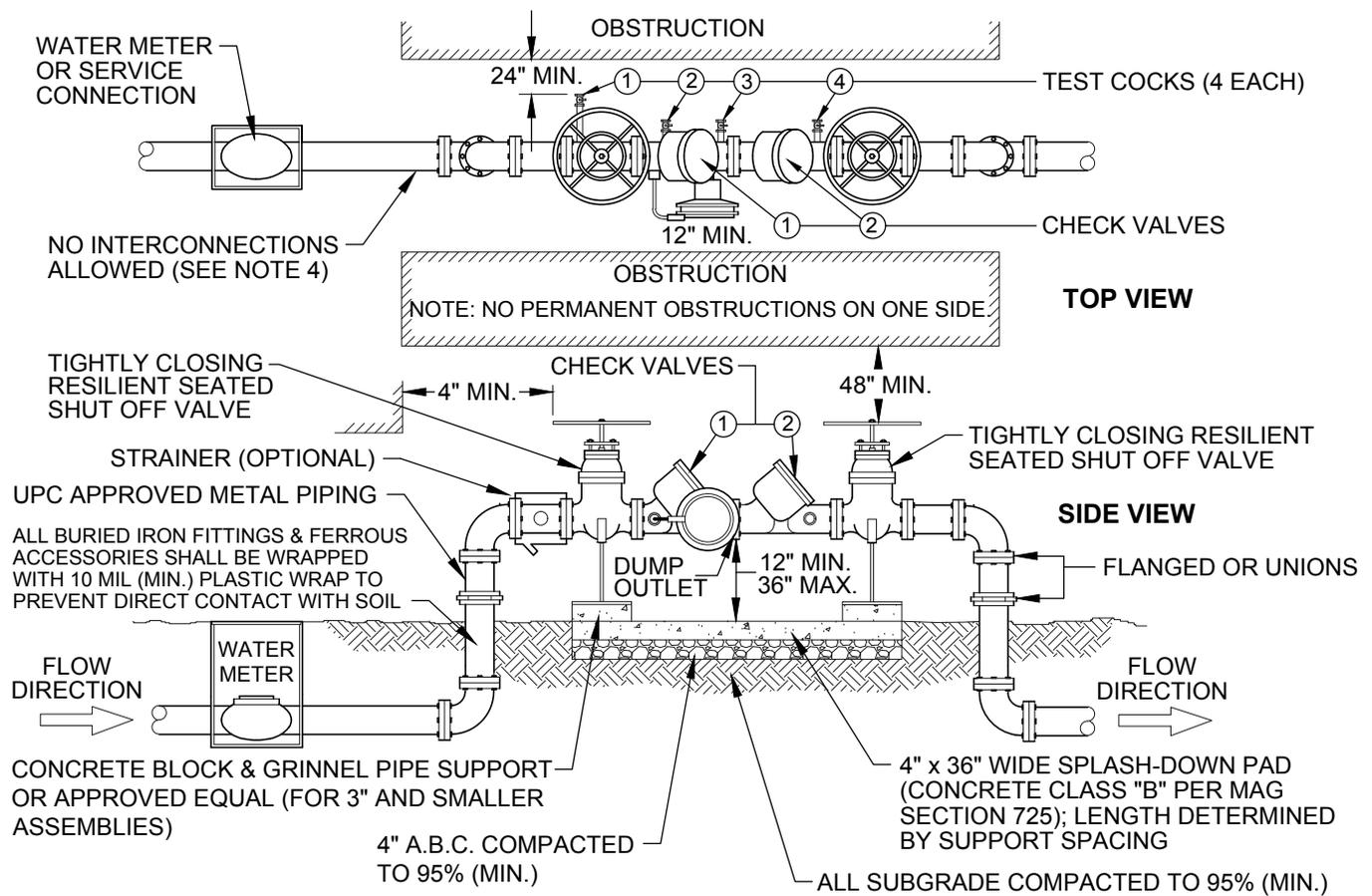
NOTES

1. A permit is required before installing or replacing a backflow assembly. Permits are obtained at the Department of Community Development, 1 City Plaza (SW corner of Madison Ave. and 3rd St.).
2. For a list of approved backflow assemblies, refer to the University of Southern California Foundation for Cross-Connection Control and Hydraulic Research.
3. The D.C.V.A. shall be installed outside, above ground, as close to the water meter as possible. The D.C.V.A. shall be located on private property unless otherwise authorized.
4. There shall be no other piping connected to the piping between the water meter and the backflow assembly except for parallel assembly installations.
5. Installations shall meet all current uniform plumbing codes in addition to the City of Yuma building codes.
6. Installations shall be left exposed until inspected and approved by the City of Yuma.
7. If this unit is installed to serve a retention basin, this unit shall be placed a minimum of 12" (36" maximum) above the flood rim of the retention basin.
8. Protective cages are optional and will meet clearance, access and drainage requirements. Tamperproof switches may be required on fire backflow assemblies.
9. It is recommended that backflow assemblies be protected from the elements. Care shall be taken to ensure that the protection does not hinder the assembly's operation.
10. Approval from the City of Yuma Fire Marshal is required before any backflow assembly is connected to any fire system.
11. All backflow units are to be tested by a certified professional prior to final approval. Backflow units shall be tested on an annual basis.
12. The installation of a backflow assembly may create a closed system. Consult with the City of Yuma Building Official for pressure relief valves, thermal expansion or other needed requirements.

Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 5-125
DOUBLE CHECK VALVE (D.C.V.A.)
BACKFLOW PREVENTION ASSEMBLY
4" AND LARGER WATER LINE

For additional information contact the City of Yuma Pretreatment Section at (928) 373-4544.



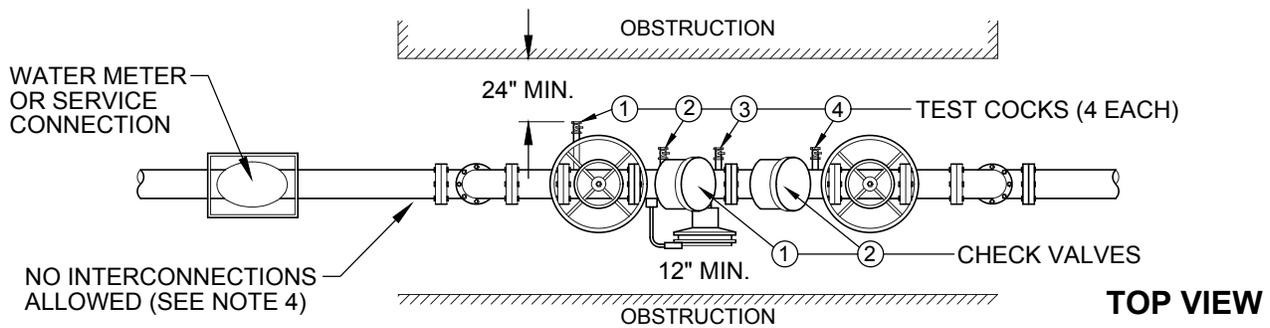
NOTES

1. A permit is required before installing or replacing a backflow assembly. Permits are obtained at the Department of Community Development, 1 City Plaza (SW corner of Madison Avenue and 3rd Street).
2. For a list of approved backflow assemblies, refer to the University of Southern California Foundation for Cross-Connection Control and Hydraulic Research.
3. The R.P.A. shall be installed outside, above ground, as close to the water meter as possible and on private property unless otherwise authorized.
4. There shall be no other piping connected to the piping between the meter and the backflow assembly except for parallel assembly installations.
5. Installations shall meet current uniform plumbing codes in addition to City of Yuma building codes.
6. Installations shall be left exposed until inspected and approved by the City of Yuma.
7. If this unit is installed to service a retention basin, this unit shall be placed a minimum 12" (36" maximum) above the flood rim of the retention basin.
8. Protective cages are optional and will meet clearance, access and drainage requirements.
9. It is recommended that backflow assemblies be protected from the elements. Care shall be taken to ensure that the protection does not hinder the assembly's operation.
10. Approval from the City of Yuma's fire marshal is required before any backflow assembly is connected to any fire system. R.P.A. shall be painted red when used with a fire system.
11. All backflow units are to be tested by a certified professional prior to final approval. Backflow units shall be professionally tested on an annual basis.
12. The installation of a backflow assembly may create a closed system. Consult with the City of Yuma Building Official for pressure relief valves, thermal expansion, or other needed requirements.

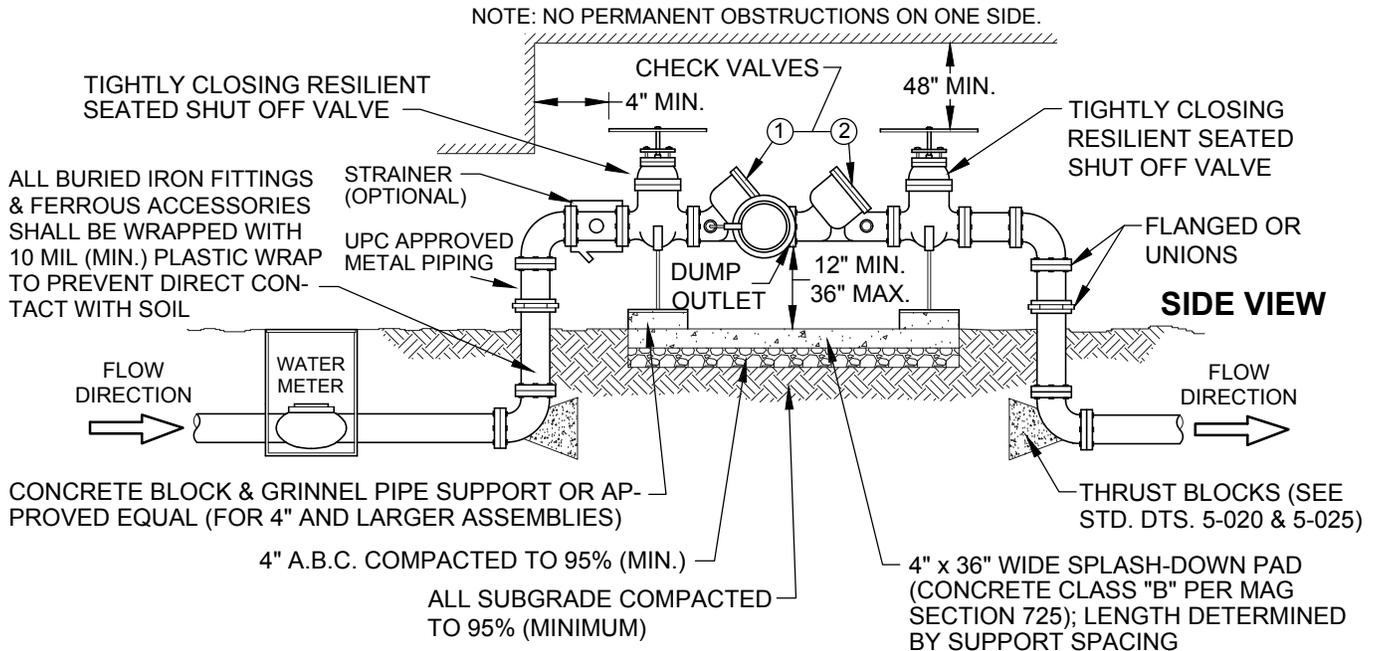
Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 5-130
REDUCED PRESSURE ASSEMBLY (R.P.A.)
FOR
3" AND SMALLER WATER LINE

For additional information contact the
City of Yuma Pretreatment Section
at (928) 373-4544.



TOP VIEW



SIDE VIEW

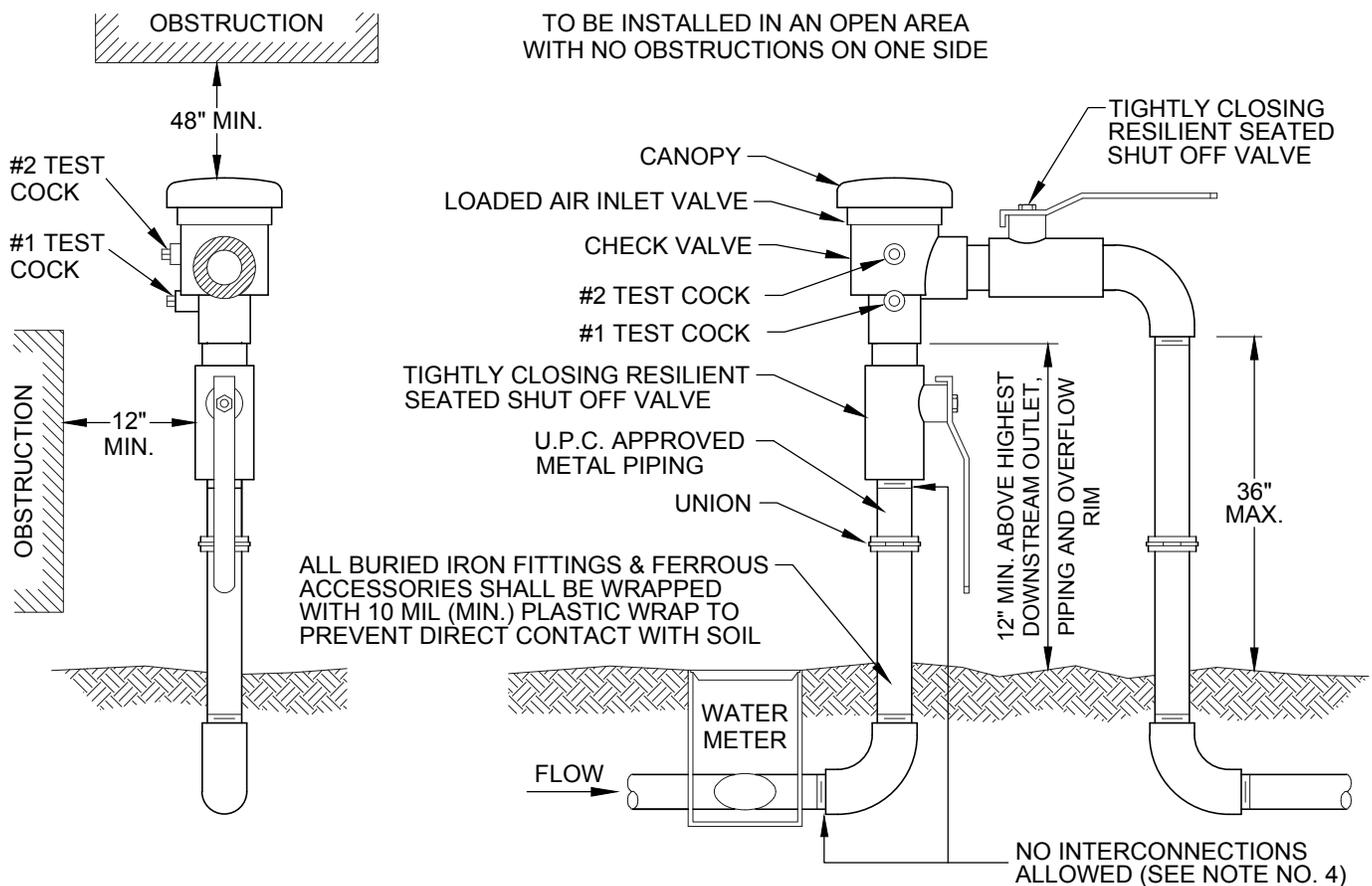
NOTES

1. A permit is required before installing or replacing a backflow assembly. Permits are obtained at the Department of Community Development, 1 City Plaza (SW corner of Madison Ave. and 3rd St.).
2. For a list of approved backflow assemblies, refer to the University of Southern California Foundation for Cross-Connection Control and Hydraulic Research.
3. The R.P.A. shall be installed outside, above ground, as close to the water meter as possible. The R.P.A. shall be located on private property unless otherwise authorized.
4. There shall be no other piping connected to the piping between the water meter and the backflow assembly except for parallel assembly installations.
5. Installations shall meet all current uniform plumbing codes in addition to the City of Yuma building codes.
6. Installations shall be left exposed until inspected and approved by the City of Yuma.
7. If this unit is installed to serve a retention basin, this unit shall be placed a minimum of 12" (36" maximum) above the flood rim of the retention basin.
8. Protective cages are optional and will meet clearance, access and drainage requirements. Tamperproof switches may be required on fire backflow assemblies.
9. It is recommended that backflow assemblies be protected from the elements. Care shall be taken to ensure that the protection does not hinder the assembly's operation.
10. Approval from the City of Yuma Fire Marshal is required before any backflow assembly is connected to any fire system. Forward flush valves are required for fire line back-flow preventers.
11. All backflow units are to be tested by a certified professional prior to final approval. Backflow units shall be tested on an annual basis.
12. The installation of a backflow assembly may create a closed system. Consult with the City of Yuma Building Official for pressure relief valves, thermal expansion or other needed requirements.

Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 5-135
REDUCED PRESSURE ASSEMBLY
(R.P.A.) FOR
4" AND LARGER WATER LINE

For additional information contact the City of Yuma Pretreatment Section at (928) 373-4544.



NOTES

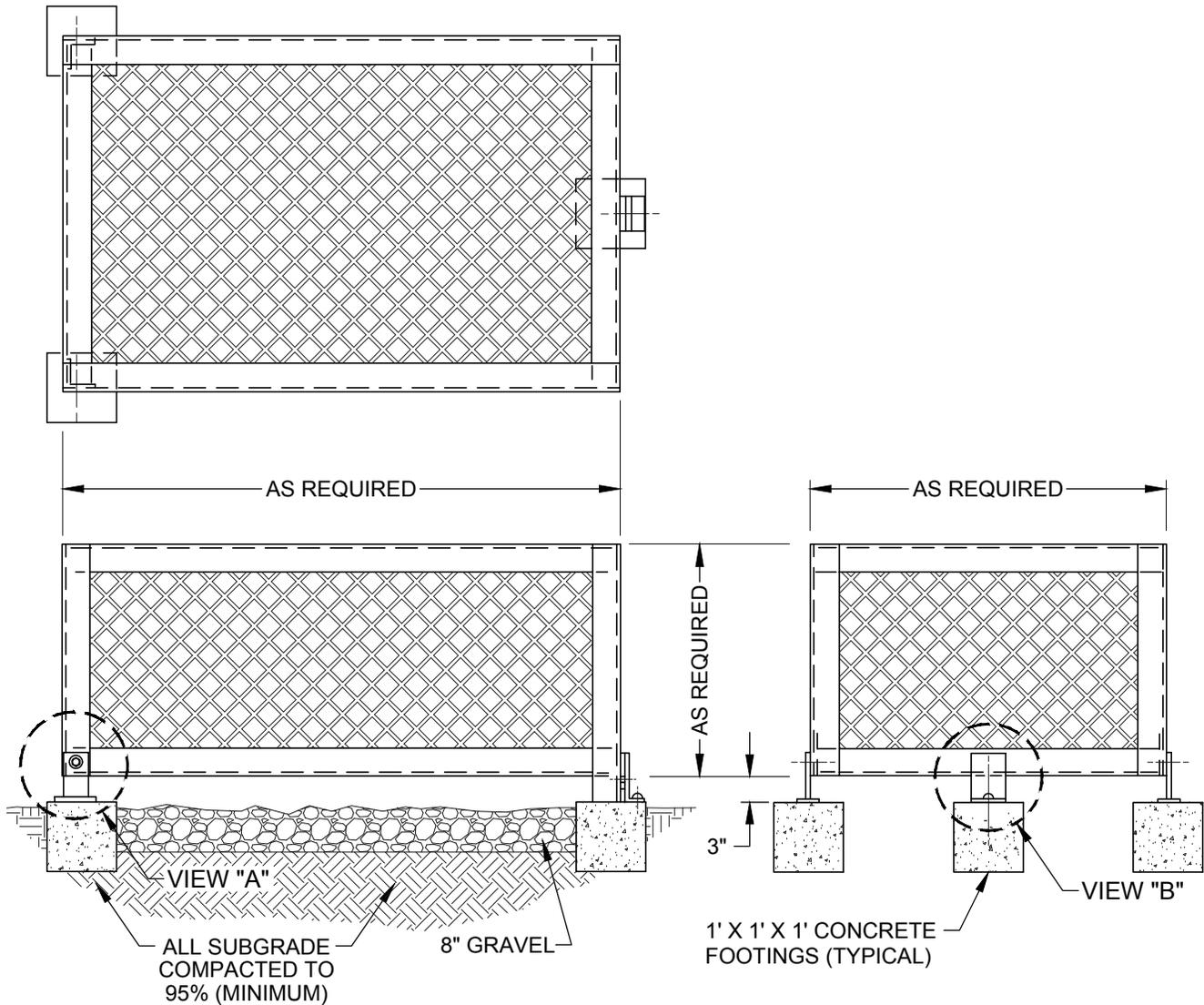
1. A permit is required before installing or replacing a backflow assembly. Permits are obtained at the Department of Community Development, 1 City Plaza (SW corner of Madison Ave. and 3rd St.).
2. For a list of approved backflow assemblies, refer to the University of Southern California Foundation for Cross-Connection Control and Hydraulic Research.
3. The P.V.B. shall be installed outside, above ground, as close to the water meter as possible. The P.V.B. shall be located on private property unless otherwise authorized.
4. There shall be no other piping connected to the piping between the water meter and the backflow assembly except for parallel assembly installations.
5. Installations shall meet all current uniform plumbing codes in addition to the City of Yuma building codes.
6. Installations shall be left exposed until inspected and approved by the City of Yuma.
7. If this unit is installed to serve a retention basin, this unit shall be placed a minimum of 12" (36" maximum) above the flood rim of the retention basin.
8. Protective cages are optional and will meet clearance, access and drainage requirements.
9. It is recommended that backflow assemblies be protected from the elements. Care shall be taken to ensure that the protection does not hinder the assembly's operation.
10. All backflow units are to be tested by a certified professional prior to final approval. Backflow units shall be tested on an annual basis.
11. The installation of a pressure vacuum breaker assembly can cause a closed system. Consult with the City of Yuma Building Official for pressure relief valves, thermal expansion or other needed requirements.
12. P.V.B.'s may be maintained under constant pressure and have shutoff valves downstream but there shall be no means of imposing back pressure on the P.V.B. from any other source.
13. P.V.B.'s shall only be approved for irrigation system service protection unless otherwise authorized.

Issued: May 2019

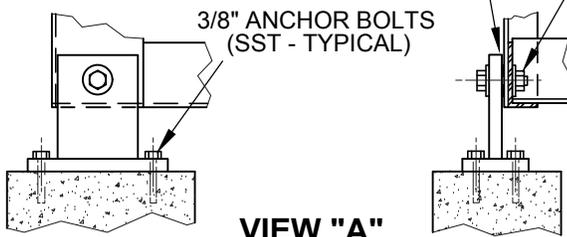
CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 5-140
PRESSURE VACUUM BREAKER
ASSEMBLY (ALL SIZES)

For additional information contact the
City of Yuma Pretreatment Section
at (928) 373-4544.

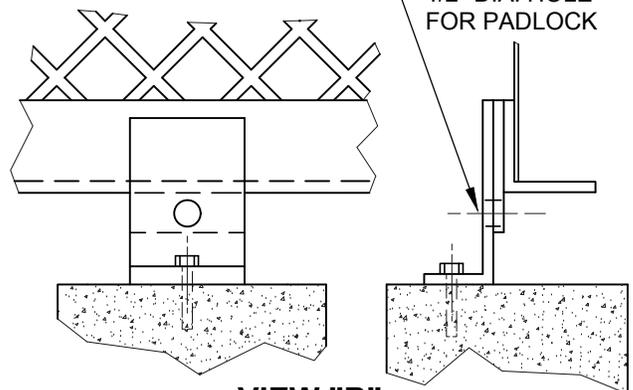


PLACE A NYLON WASHER BETWEEN THE CAGE FRAME AND HINGE



**VIEW "A"
METAL HINGE**

STAINLESS STEEL BOLT, FLAT WASHERS AND NUT



**VIEW "B"
HOLD DOWN BRACKET**

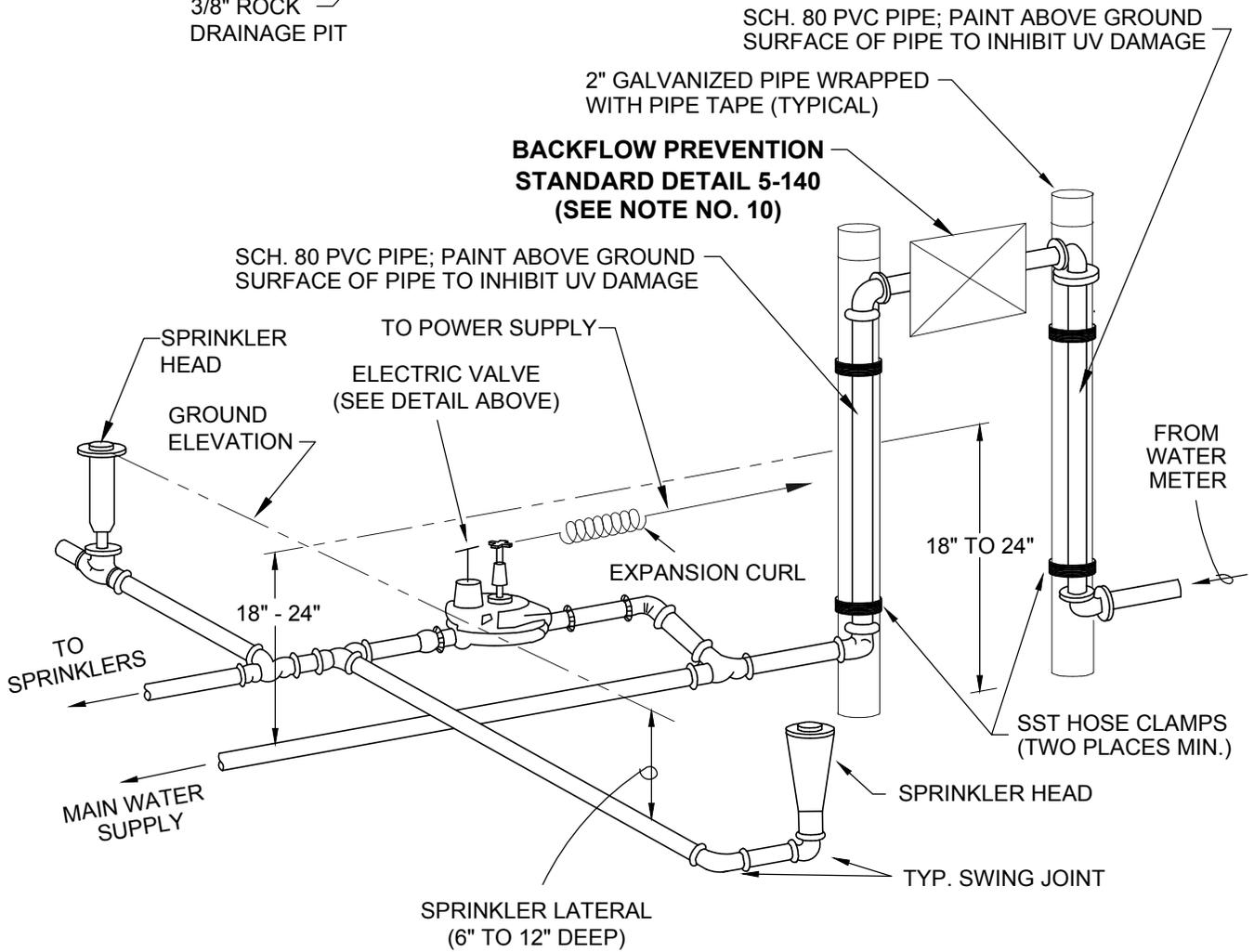
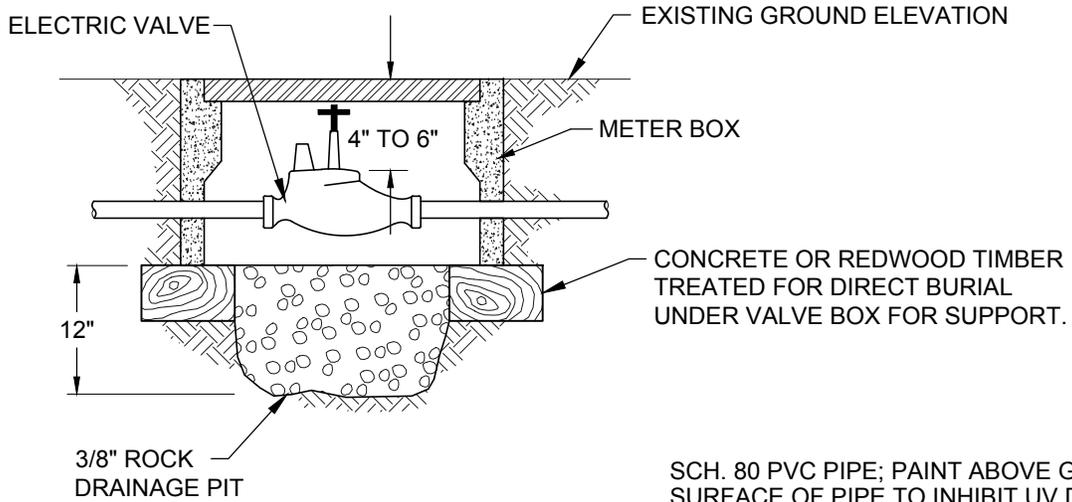
NOTES

1. Construct frame from 1 1/2" x 1 1/2" x 1/4" angle iron (welded assembly).
2. Construct hinges / hold down bracket from 1/4" steel.
3. 1/4" x 1/4" steel mesh tack welded to angle iron frame.
4. De-burr and round all welds and sharp edges.
5. Overall dimensions (height/length & width) to be determined by application.
6. Assembly shall receive one coat of metal primer and two finish coats of *INDUSTRON* "SAHARA SAND" rust resistant paint (or approved equal).
7. Concrete footings shall be constructed of Class "B" concrete per MAG Section 725.

Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 5-145
CAGE FOR
BACKFLOW PREVENTER**



NOTES ARE FOUND ON SHEETS 2 AND 3 OF THIS DETAIL.

Issued: May 2019

Sheet 1 of 3

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 5-150
IRRIGATION SPRINKLER SYSTEM**

NOTES

1. All main and lateral lines shall be snaked from side to side of trenches to allow for expansion and contraction.
2. All parts shall be "HUNTER" or approved equal.
3. Swing joints shall be installed for any sprinkler with 3/4" & larger inlet size, using street ells ("MARLEX" or approved equal).
4. Pipe type:
 - a. Mains and laterals (minimum): **SCHEDULE 40 PVC.**
 - b. Risers for sprinklers and electrical control valves shall be of schedule 80 PVC pipe and, if exposed to direct sunlight, shall be painted to inhibit U.V. damage.
 - c. No polyethylene tubing allowed.
5. Trenches:

Should be continuous and smooth, free of rocks and rubbish. Areas with ledge rock, hardpan or rocky soil shall be padded with sand or fine grained soil. The trenches for the mains shall be 18" - 24" below existing grade. The trenches for the sprinkler laterals shall be 12" below the surface.
6. Backflow preventers:
 - a. Shall be constructed of brass and stainless steel, brass body and accessory construction with replaceable seats, stainless steel trim and removable brass seats.
 - b. Check valve and relief valve assemblies shall be constructed with tight seating rubber discs.
 - c. Shall include two brass and stainless steel gate or ball valves for isolating unit and testing system.
 - d. Shall be installed 12" higher than the highest sprinkler head and / or basin highwater level. The backflow preventers shall be supported above ground with galvanized pipe (wrapped with pipe tape) and SST hose clamps.
 - e. Units smaller than 2 1/2" diameter shall include unions for ease of repair and / or replacement. Units 2 1/2" and larger shall be flanged.
 - f. All backflow preventers shall be housed in a protective cage (see Standard detail no. 5-145).
7. Manual shut-off valves:

Shall be constructed of brass and stainless steel, heavy-duty, and contain angle or ball type valves. If it will be installed above ground, it shall be supported by galvanized pipe (wrapped with pipe tape) and SST hose clamps. If installed at ground level or below, it shall be supported by schedule 80 PVC pipe. All valves shall be enclosed within heavy duty plastic valve boxes with lids.
8. Solvents and primers:

Only solvents and primers recommended by the pipe and fitting manufacturer shall be used. All excess solvent shall be removed from pipe and fittings.
9. Plastic fittings:

Threaded fittings shall be treated with a non-hardening pipe dope on all plastic to metal threaded joints. Slip fittings shall be used when installing risers to the sprinklers, allowing easier installation of new risers and sprinklers.
10. Electric remote control valves:
 - a. Shall be constructed of durable plastic, body and bonnet, corrosion resistant internal components.
 - b. Manual open and close control flow, adjustable control, 24 volt solenoid coil.
 - c. Shall be "HARDIE" or approved equal.

ADDITIONAL NOTES ARE LOCATED
ON PAGE 3 OF THIS DETAIL.

Issued: May 2019

Sheet 2 of 3

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 5-150
IRRIGATION SPRINKLER SYSTEM

NOTES (continued)

10. Electrical remote control valves (continued):
 - d. Electrical wiring to solenoid shall be installed with expansion curls.
 - e. All electrical valves shall be enclosed in heavy duty valve boxes with lids. Lids shall be level with the ground, 3/8" rock shall be placed under all electric valves at a depth of 8" - 12".
 - f. Electrical wiring for valves shall be 14 gauge, low voltage, rated for direct burial, and weather resistant. All connections shall be made with wire connectors and protected with sealant approved by manufacturer. Wire conduit may be required for special applications, i.e., rodents.
 - g. Where electrical power is not readily available, solar powered controllers ("TROPE-16" or approved equal) are to be used. Solar powered controllers shall have a minimum height of three (3) feet and are to be housed in a metal case.
11. Irrigation controllers:
 - a. Shall be electro-mechanical or micro-electronics solid state.
 - b. Shall be capable of fully automatic or manual operation of the system.
 - c. Shall be housed in a wall or pedestal mountable heavy duty metal or plastic weather proof cabinet.
 - d. Controllers shall operate on 120 volts A.C. power input and be capable of operating 24-volt A.C. electric remote control valves. The controllers shall have a reset circuit breaker to protect from power overload.
 - e. The controllers shall have features for setting irrigation running times, days and hours, a 14 day calendar and shall have the capability of being programmed to operate for 1-60 minutes in one minute increments.
12. Sprinklers:

Pop-ups are to be spaced from 5 to 24 feet apart for 15 to 30 PSI working pressure. Pop-up height shall be 4" and be constructed of plastic and stainless steel materials with a heavy duty stainless steel retract spring. Nozzles shall be interchangeable for different patterns, have a 12-15 foot radius, have adjustable water flow under nozzle filters, and full - flow inlet opening.
13. Full or part- circle impact rotor sprinklers:
 - a. Precipitation rate: 18.79 inches per hour
 - b. Spacing: 28 to 54 feet apart.
 - c. Operating pressure: 25 to 60 psi
 - d. Interchangeable standard trajectory, heavy-duty plastic case, 3" pop-up height, adjustable arm spring, straight through flow, full or adjustable arc (20 to 340 degrees), and distance control diffuser pin.
14. Adjustable radius gear driven sprinkler:

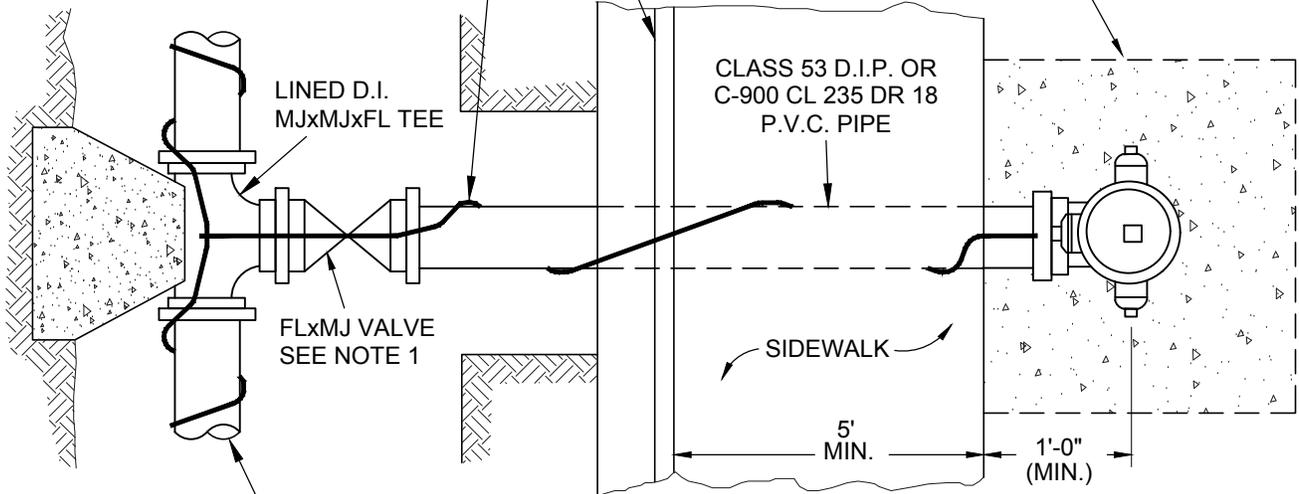
interchangeable nozzles, adjustable precipitation rate, 4" pop-up height, constructed of heavy-duty plastic and stainless steel materials.
15. Miscellaneous information:
 - a. Location of electric control valves:

Where possible valves shall be located in series along the main waterline or off a manifold next to the water meter. All electric valves shall be connected to the main waterline with schedule 80 risers. All electric valves shall be 4" to 6" below the surface.
 - b. All trenches shall be backfilled and leveled. All main and lateral lines shall be snaked from side to side of trenches to allow for expansion and contraction. All sprinkler heads shall be leveled to the terrain, adjusted properly, and pressure tested. All electrical wiring for the irrigation system shall be placed alongside the mainlines, free of cuts and/or folds.

12 GAUGE, HMWPE COATED, SOLID COPPER TRACER WIRE EXTENDED INTO THE VALVE FRAME (SEE NOTE 3)

CURB & GUTTER

4' x 4' x 8" THICK SQUARE (OR ROUND) CLASS B CONCRETE COLLAR TO BE CENTERED AROUND HYDRANT

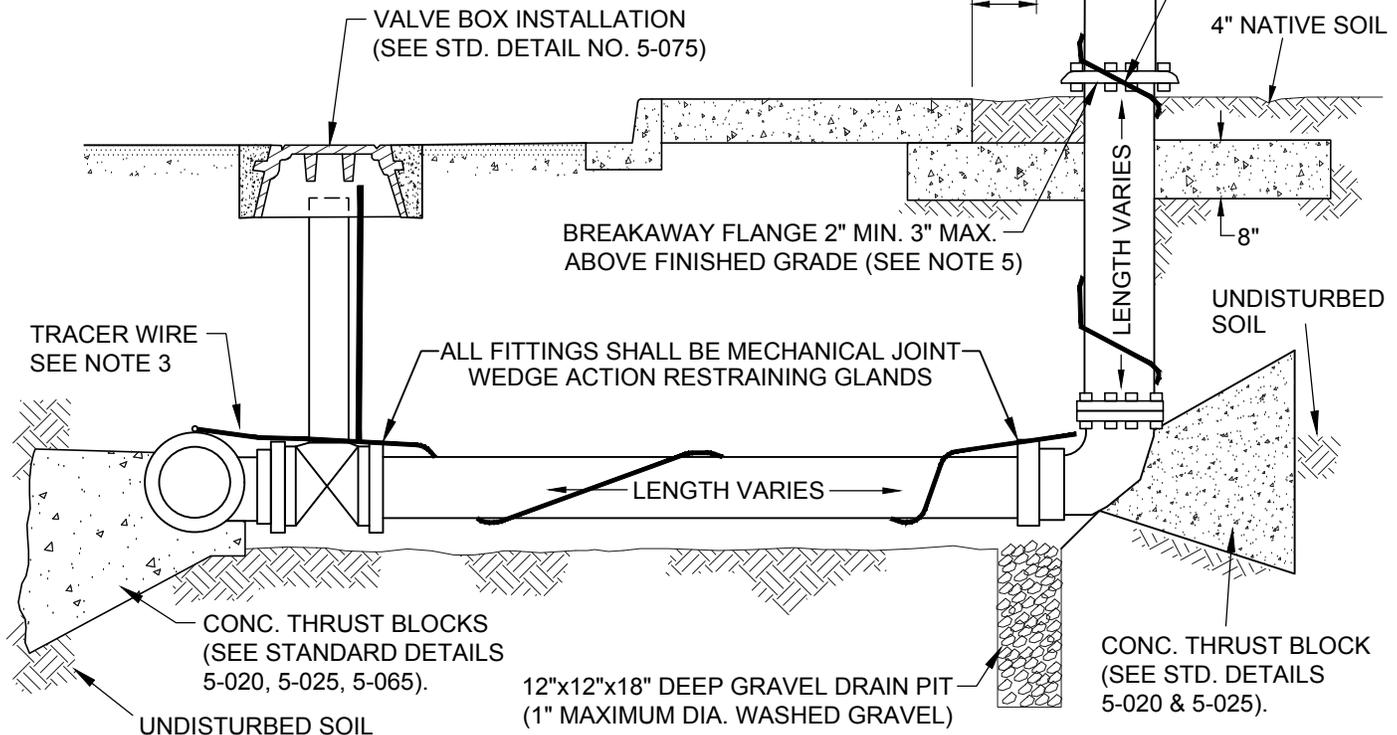


CLASS 53 D.I.P. OR C-900 CL 235 DR 18 P.V.C. PIPE

PLAN

N.S.T. = NATIONAL STANDARD THREAD

HYDRANT PER APPROVED COMPONENTS LIST
 TWO 2 1/2" N.S.T. CONNECTIONS
 4 1/2" N.S.T. STEAMER CONNECTION



PROFILE

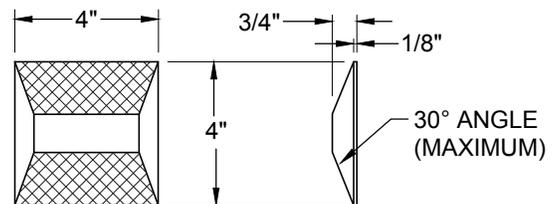
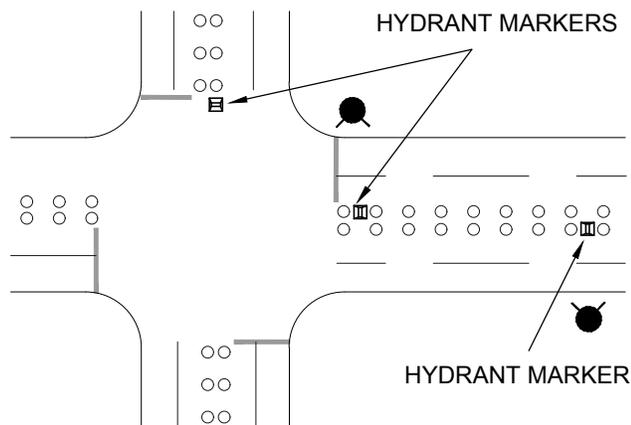
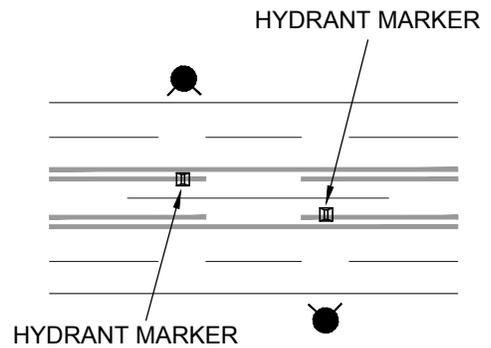
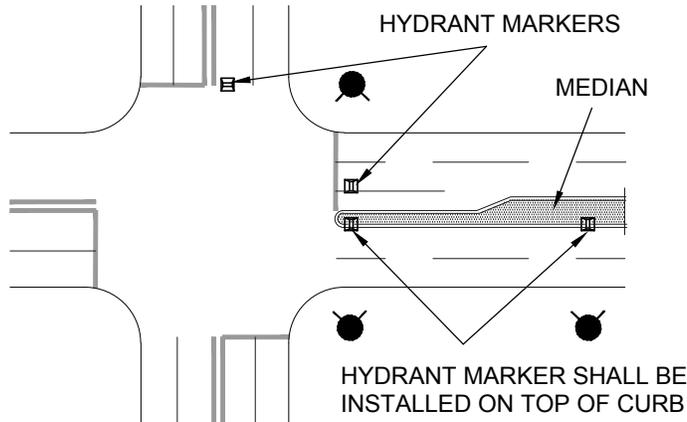
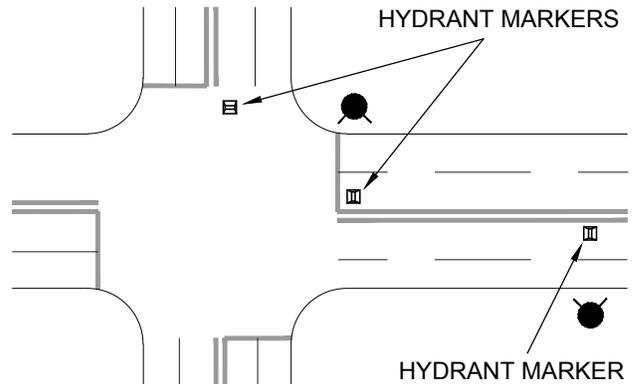
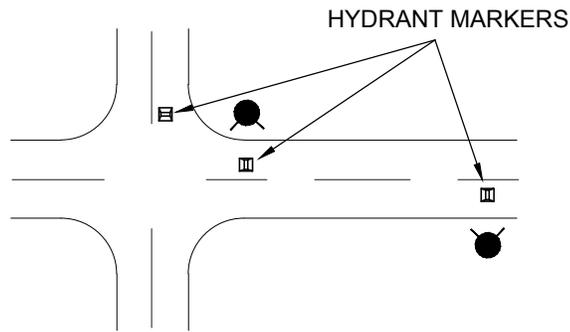
NOTES

1. Approved valves can be found on the Approved Water Service Components List (contact COY Utilities Dept.).
2. All buried ductile iron pipe and fittings shall be wrapped with 10 mil (minimum) polyethylene plastic wrap.
3. Tracer wire required on line from water main to hydrant.
4. No break-away flange bolts may make contact with soil.
5. Utilize a MJ Gradelok or offset to adjust breakaway flange height.
6. Concrete shall be per MAG Section 725.
7. Minimum supply for hydrant shall be 6" line.

Issued: May 2019

CITY OF YUMA
 CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 5-155
 FIRE HYDRANTS**



HYDRANT MARKER

NOTES

1. Ceramic highway markers shall be placed in roadway relative to the fire hydrant location. Markers will be blue in color with "two-way" reflective surfaces. Markers shall be placed so that the reflective surfaces are visible from both directions of travel. Markers shall be 4" from painted street centerlines or double line stripes of the roadway. Offset shall correspond with the hydrant's location. When a hydrant is located at an intersection markers shall be placed on both roadways.
2. When raised pavement markers are used to designate travel lanes, fire hydrant markers shall be placed in line with the other street markers.
3. See approved components list for marker sources.

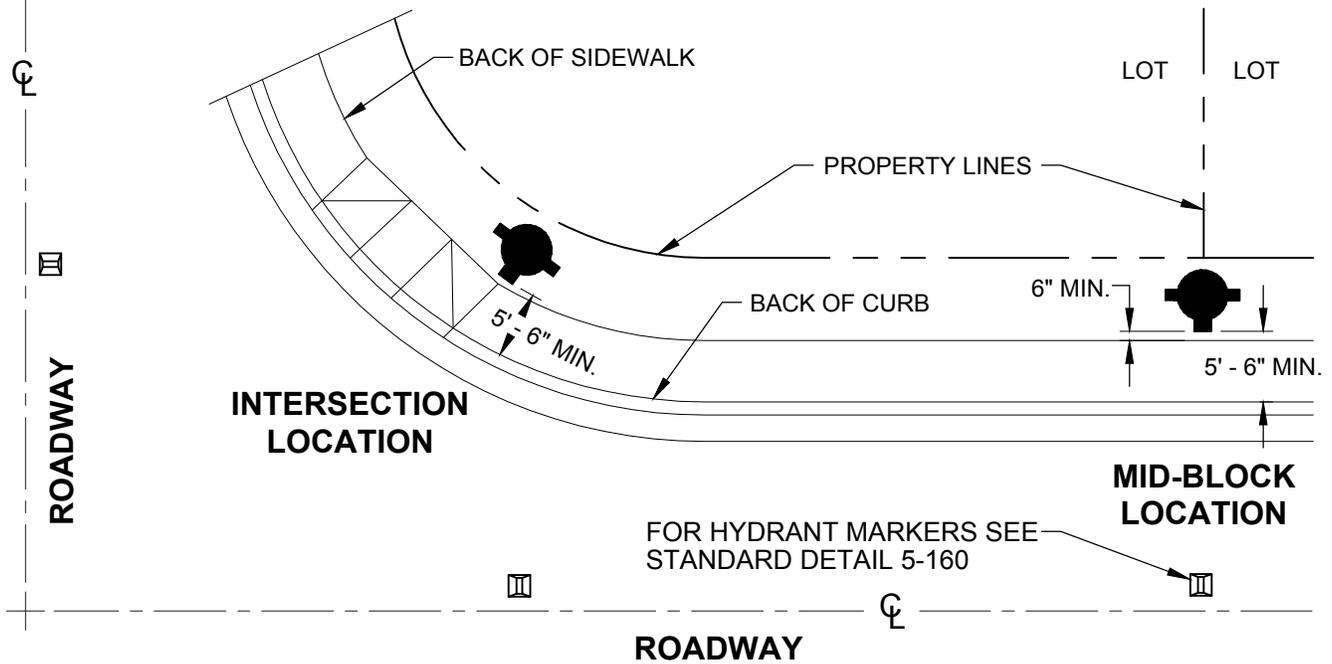
Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 5-160
FIRE HYDRANT
STREET MARKERS**

(a) LOCATE HYDRANT PUMPING NOZZLE 5' - 6" BEHIND BACK OF CURB OR: WHERE CURB, GUTTER OR SIDEWALK ARE PRESENT:

(b) LOCATE HYDRANT PUMPER NOZZLE 6" BEHIND BACK OF SIDEWALK



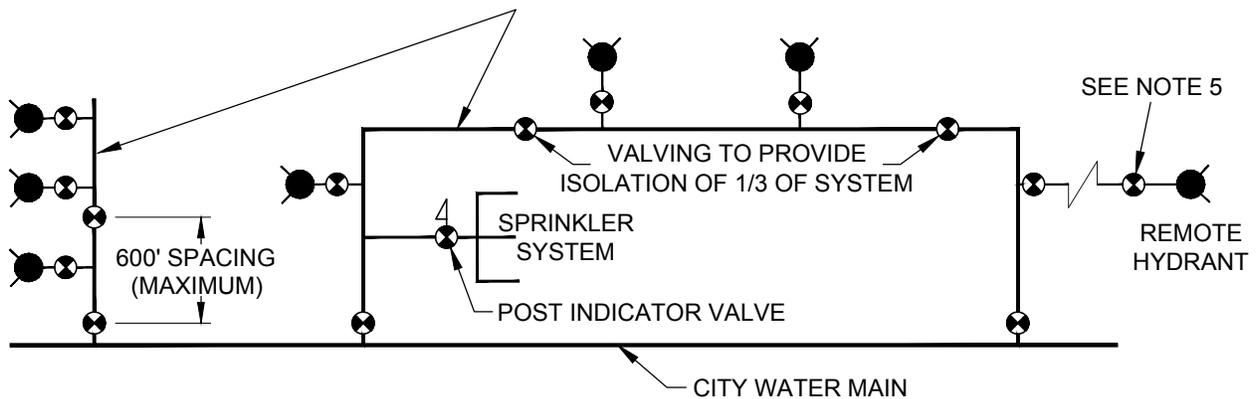
NOTES

1. Area around fire hydrant shall be level and firm. There shall be a minimum five feet (5') wide clear access from the hydrant directly to the roadway. This clear area shall also extend uninterrupted vertically.
2. Utility poles, street signs, fences, etc. shall not be placed between curb and hydrant. Obstructions will not be permitted within a three foot (3') radius of the hydrant.
3. In all installations the pumper connections shall point toward the street or access.
4. Install stake markers if the hydrant is not protected by vertical curb. Stake markers shall be from the approved components list, 48" tall (or approved equal). Total number and location of stake markers will be determined by the City Engineer. Stake markers shall not be placed in line with the hydrant connections.

Issued: May 2019
CITY OF YUMA CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 5-165 FIRE HYDRANT AND STAKE MARKER LOCATIONS

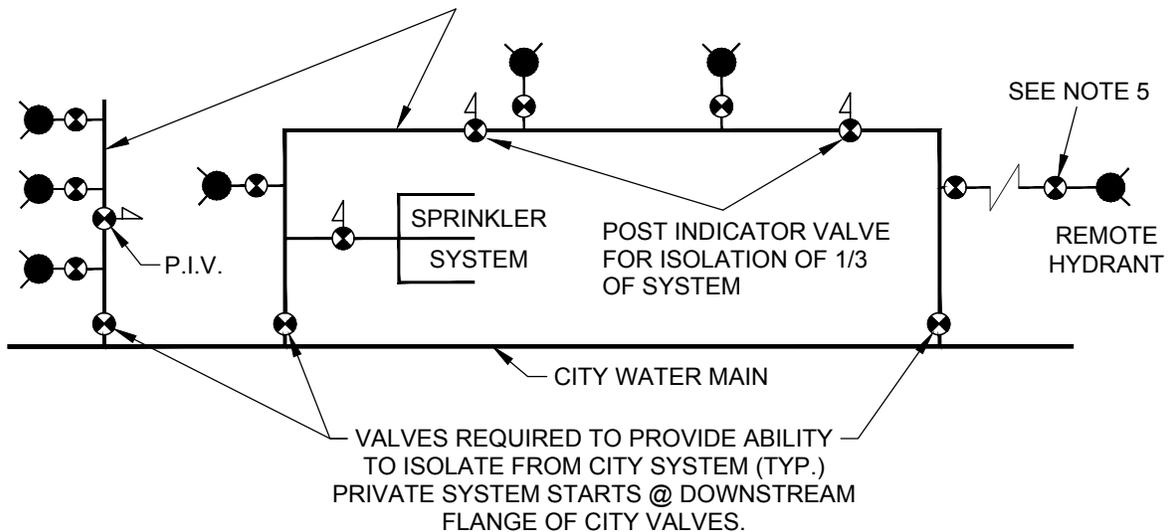
CASE 1: PUBLIC FIRE LINE

FIRE MAIN ACCEPTED WITHIN A DEDICATED PUBLIC EASEMENT.
MINIMUM RATING FOR C900 PIPE IS CLASS 235 DR 18



CASE 2: PRIVATE FIRE LINE

FIRE MAIN WITHOUT A DEDICATED PUBLIC EASEMENT.
MINIMUM RATING FOR C900 PIPE IS CLASS 235 DR 18



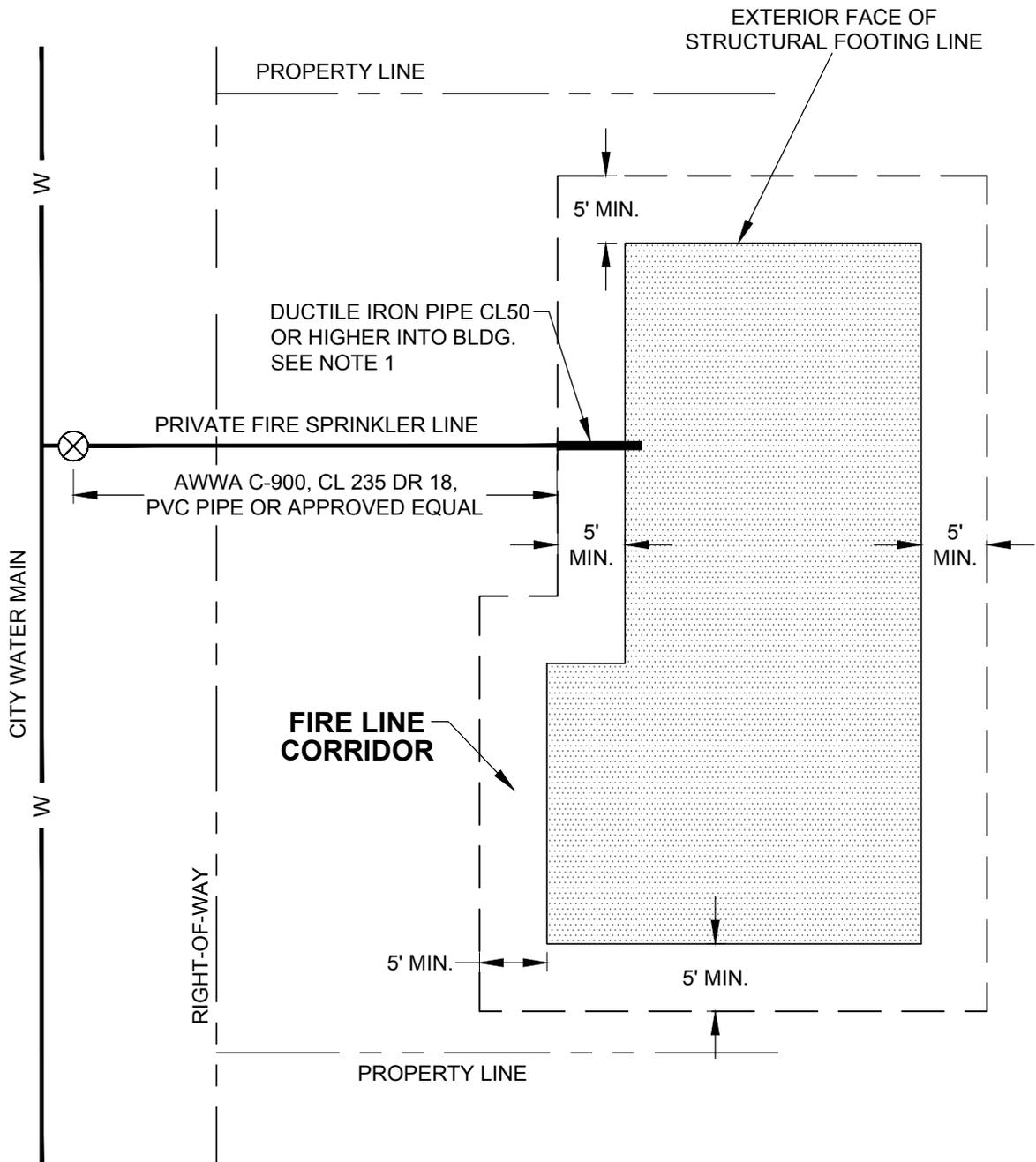
NOTES

1. In private fire line systems the more restrictive standard shall apply with respects to City of Yuma and N.F.P.A. requirements.
2. In private fire line a two hour, 200 psi hydrostatic test showing no pressure loss is required for acceptance of the piping.
3. Fire department connections shall be sited six inches (6") back of sidewalk.
4. All public / private fire lines and mains shall have tracer wire installed in accordance with Standard Detail 5-030.
5. For remote hydrants (lead length greater than 200') a second valve shall be installed within 20' of the hydrant.
6. Fire hydrant spacing shall conform to most recently adopted fire code.

Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 5-170
FIRE LINE VALVING



NOTE

1. Any fire line sprinkler line pipe installed inside the five foot (5') fire line corridor shall be a minimum CL50 ductile iron pipe.

<p>Issued: May 2019</p> <p>CITY OF YUMA CONSTRUCTION STANDARD DETAIL DRAWINGS</p> <p>STANDARD NO. 5-175 PRIVATE FIRE SPRINKLER LINE INSTALLATION</p>

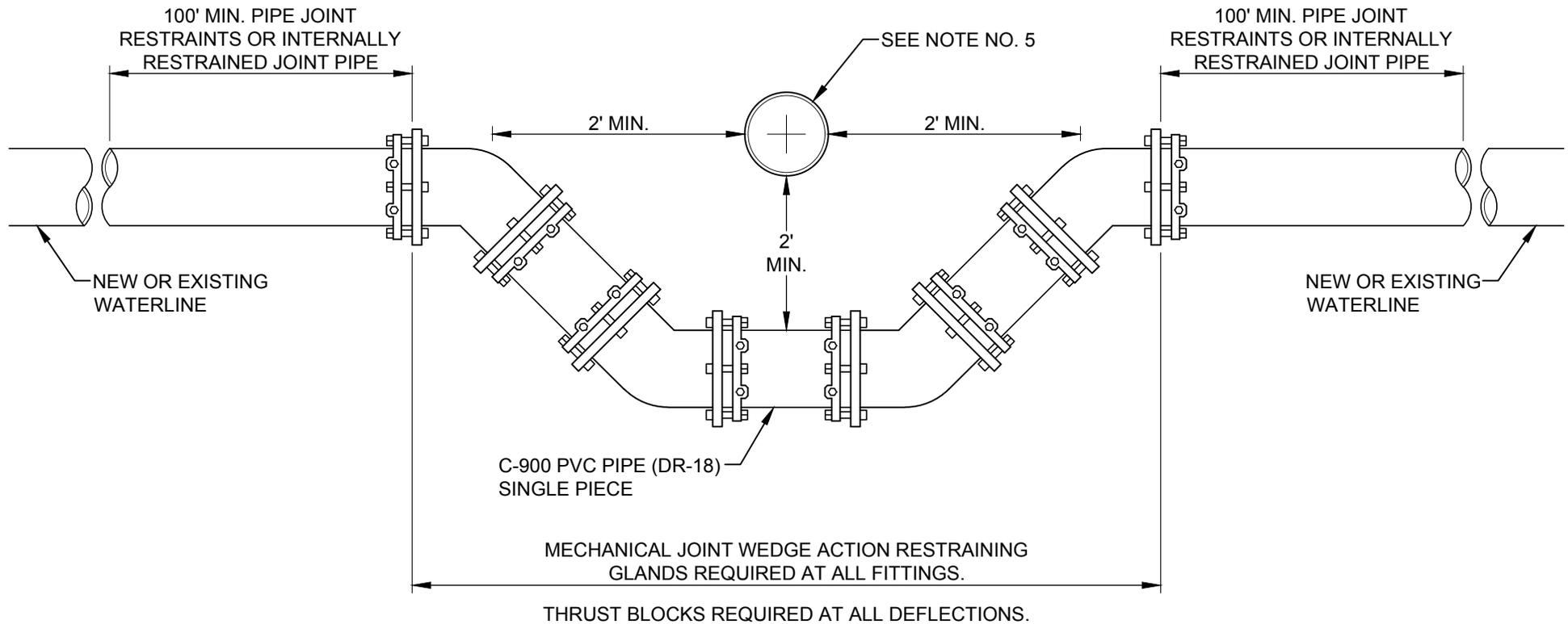
FIRE DEPARTMENT CONNECTIONS (F.D.C.)

1. Acceptable locations for the F.D.C.'s will be determined by Fire Department policy and recorded through the plan review process. Generally, this location will be remote from the building on the address (or front) side a minimum of 1 1/2 times the building height. Exceptions may apply due to site limitations.
2. A check valve shall be located just below the F.D.C. Siamese connection. The Siamese connection shall have two 2-1/2" swivels with national standard threads (NTS) and shall be provided with listed caps or plugs.
3. Whether the F.D.C. is remote or not:
 - A. The height of the Siamese connection shall be between 30 and 42 inches to the center of the openings measured from the finished grade. Remote F.D.C.'s shall be oriented towards the street or access unless otherwise noted during plan review.
 - B. As required in N.F.P.A. 24 adopted by City ordinance, underground piping requires a minimum cover of 30 inches. 36 inches of cover is required should the piping be located under a driveway. 48 inches of cover is required should the piping be located under a railway unless railway criteria is more stringent. All measurements are from the top of the pipe to the finished grade.
 - C. Piping through or adjacent to any underground structural element requires a minimum 2 inches of clearance around the piping to prevent damage from seismic activity or settling of the foundation.
 - D. A two hour, 200 psi hydrostatic test showing no pressure loss is required for acceptance of the piping.
 - E. All supply piping, both sprinkler and F.D.C., shall be ductile iron when located within five feet of a building foundation or under the slab of a building (reference Standard No. 5-175). Ductile iron pipe shall be properly protected from corrosion.
 - F. The F.D.C. shall be located a minimum of 40' and a maximum of 150' from a fire hydrant.

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 5-180
FIRE DEPARTMENT
CONNECTIONS**

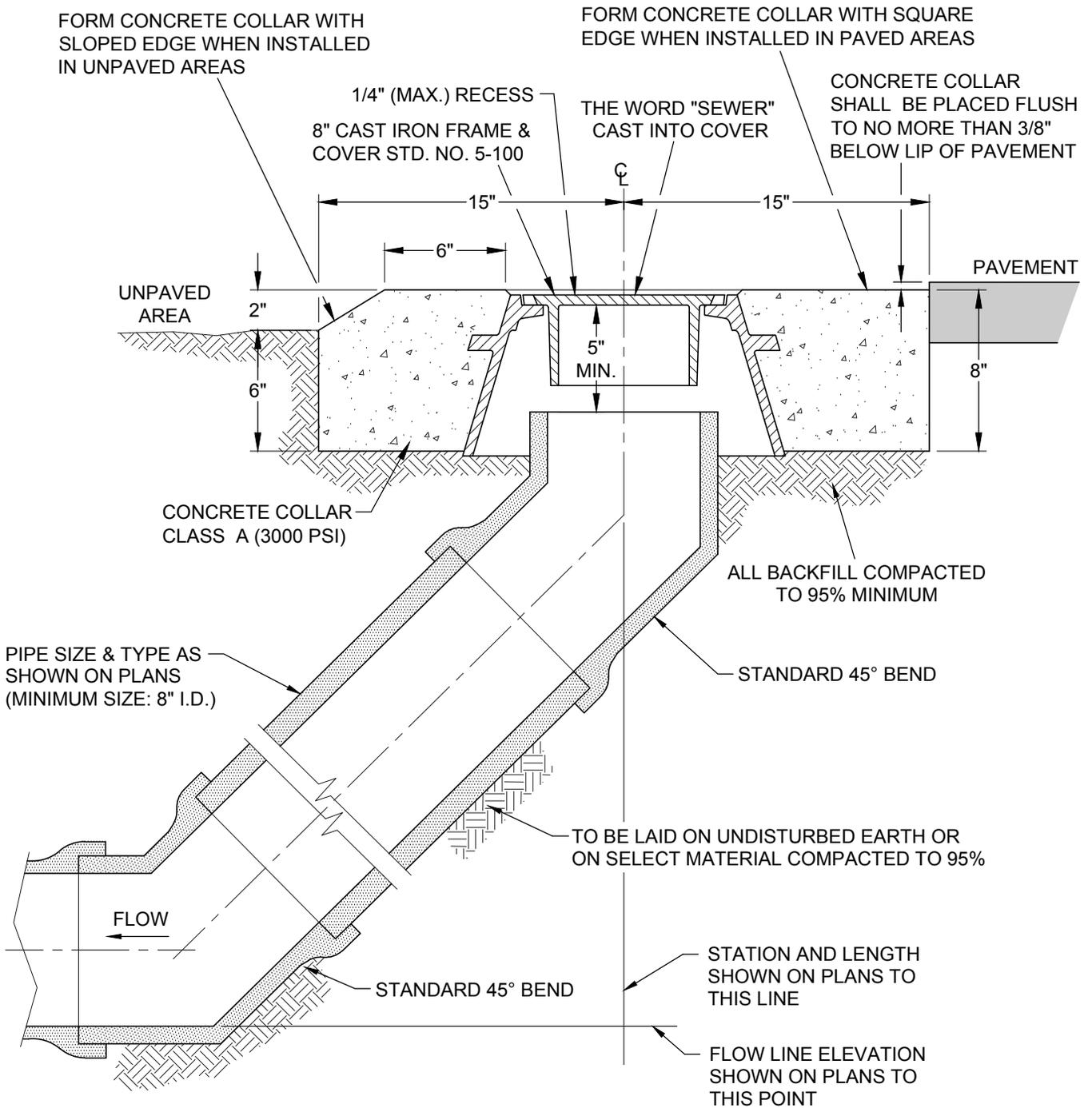


NOTES

1. All pipe joints within 100' of the deflection/lowering, shall have pipe joint restraints installed.
2. Any mechanical joint fitting within 100' of either side of the deflection/lowering must have mechanical joint wedge action restraining glands installed.
3. Any push-on pipe joints within 100' of either side of the deflection/lowering shall be restrained with a bell joint restraining harness or internally restrained joint pipe.
4. All deflections shall have thrust blocks poured per Standard Detail 5-025.
5. For sanitary sewer crossing, see Standard Detail 5-005.

Issued: May 2019

CITY OF YUMA
 CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 5-185
DEFLECTING/LOWERING OF A
WATERLINE FOR UTILITY CROSSING
(EXCEPT SANITARY SEWER)



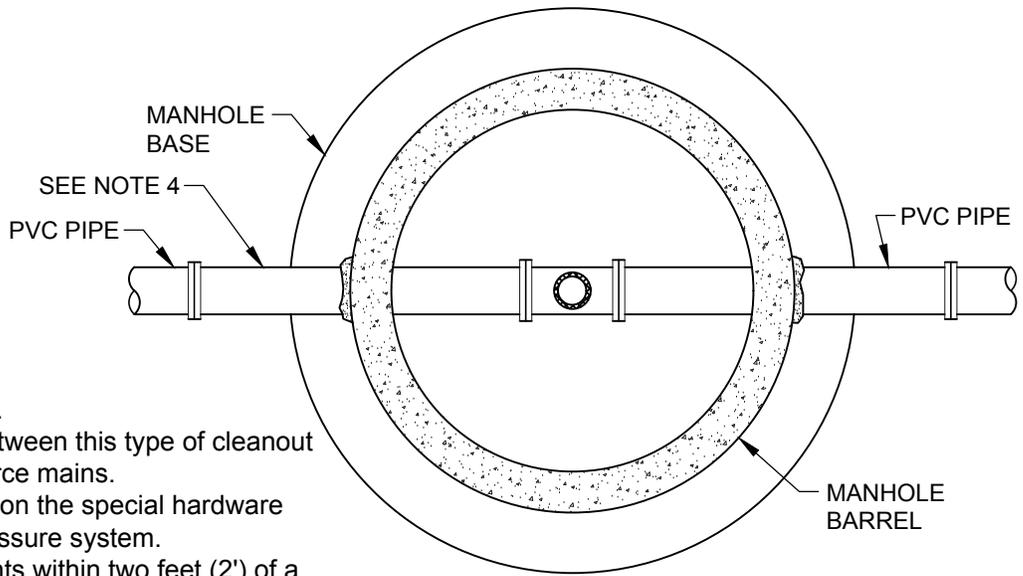
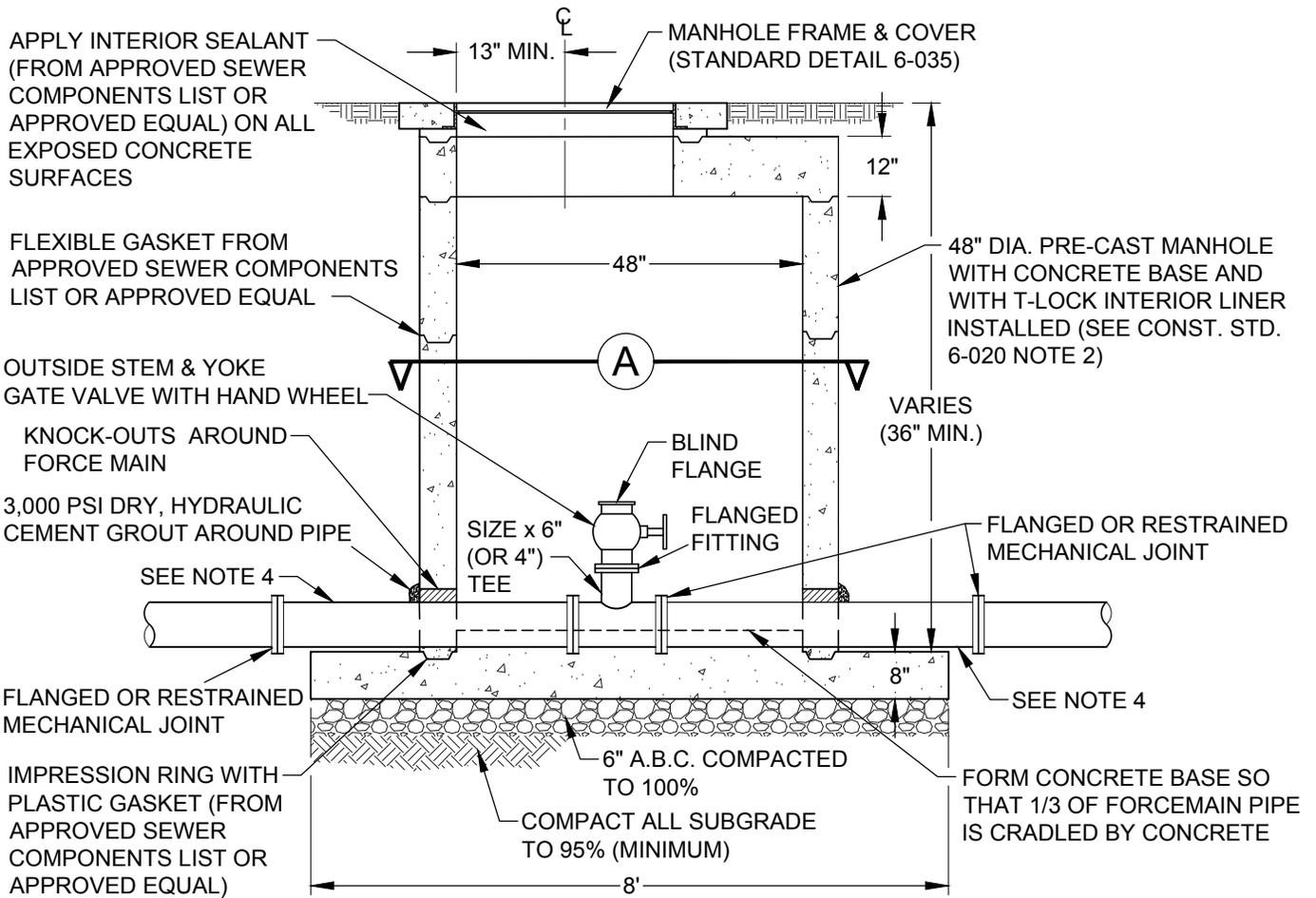
NOTE

1. Use of sanitary sewer cleanout in lieu of a manhole is only allowed with the approval of the Utilities Director or City Engineer.

Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 6-005
SANITARY SEWER CLEANOUT**



VIEW "A"

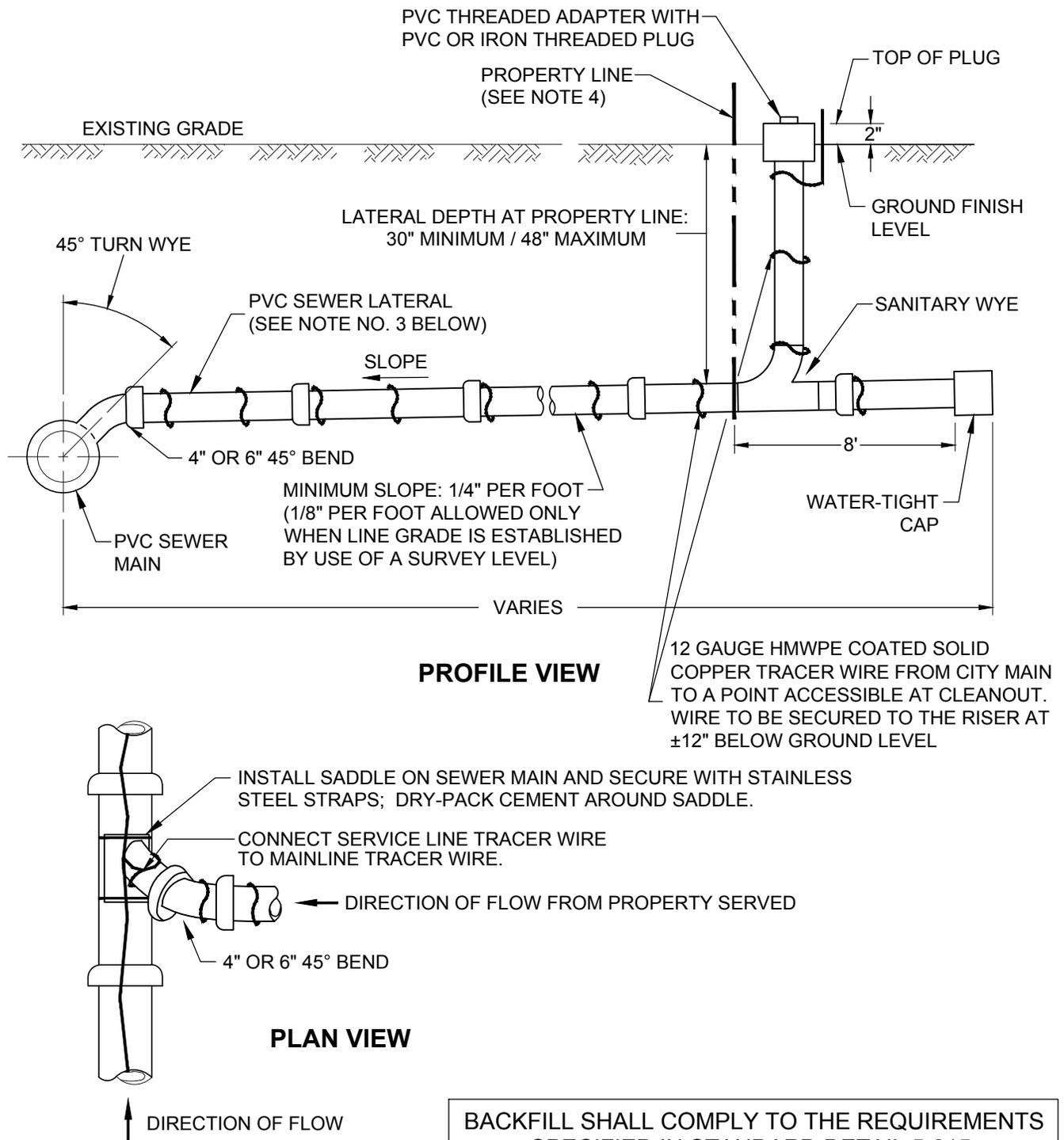
NOTES

1. No drains allowed in base.
2. The maximum spacing between this type of cleanout is 600' on 8" and larger force mains.
3. Emphasis shall be placed on the special hardware necessary for use in a pressure system.
4. There shall be no pipe joints within two feet (2') of a manhole's exterior wall face.
5. Backfill used to fill manhole excavation shall be a one sack cement per cubic yard of sand slurry mixture.
6. Apply asphalt waterproofing to the exterior surfaces of the manhole. Apply asphalt caulking to seal all joints.
7. Precast concrete manholes shall have a PVC T-Lock liner, sealed gas tight. Liner and interior surfaces shall be spark tested:(applies only to sanitary sewer manholes) see Arizona Administrative Code R18-9-E 301 D.3.e Manholes General Permit: Sewage Collection Systems pertaining to Holiday testing.

Issued: May 2019

CITY OF YUMA
 CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 6-010
 FORCEMAIN
 PRESSURE CLEANOUT**



NOTES

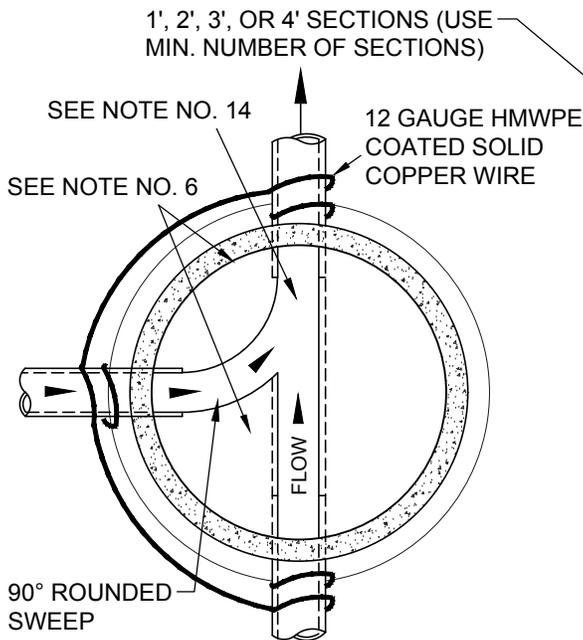
1. Where conditions exist that a larger lateral than 4" is required, the sanitary sewer main shall be checked to see if it has sufficient capacity to handle the additional flows from the new service connection before connection is permitted.
2. No commercial lateral shall be less than 6".
3. Certified "As Built" drawings shall be submitted to the City Engineer showing exact locations of all lateral connections from the nearest manhole or recorded property lines.
4. The termination point of a sewer lateral shall be eight feet (8') behind a property line and/or at the back of a public utility easement, whichever is furthest from the sewer main.

Issued: May 2019

CITY OF YUMA
 CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 6-015
LATERAL CONNECTION
TO WASTEWATER SYSTEM
WITH SANITARY WYE

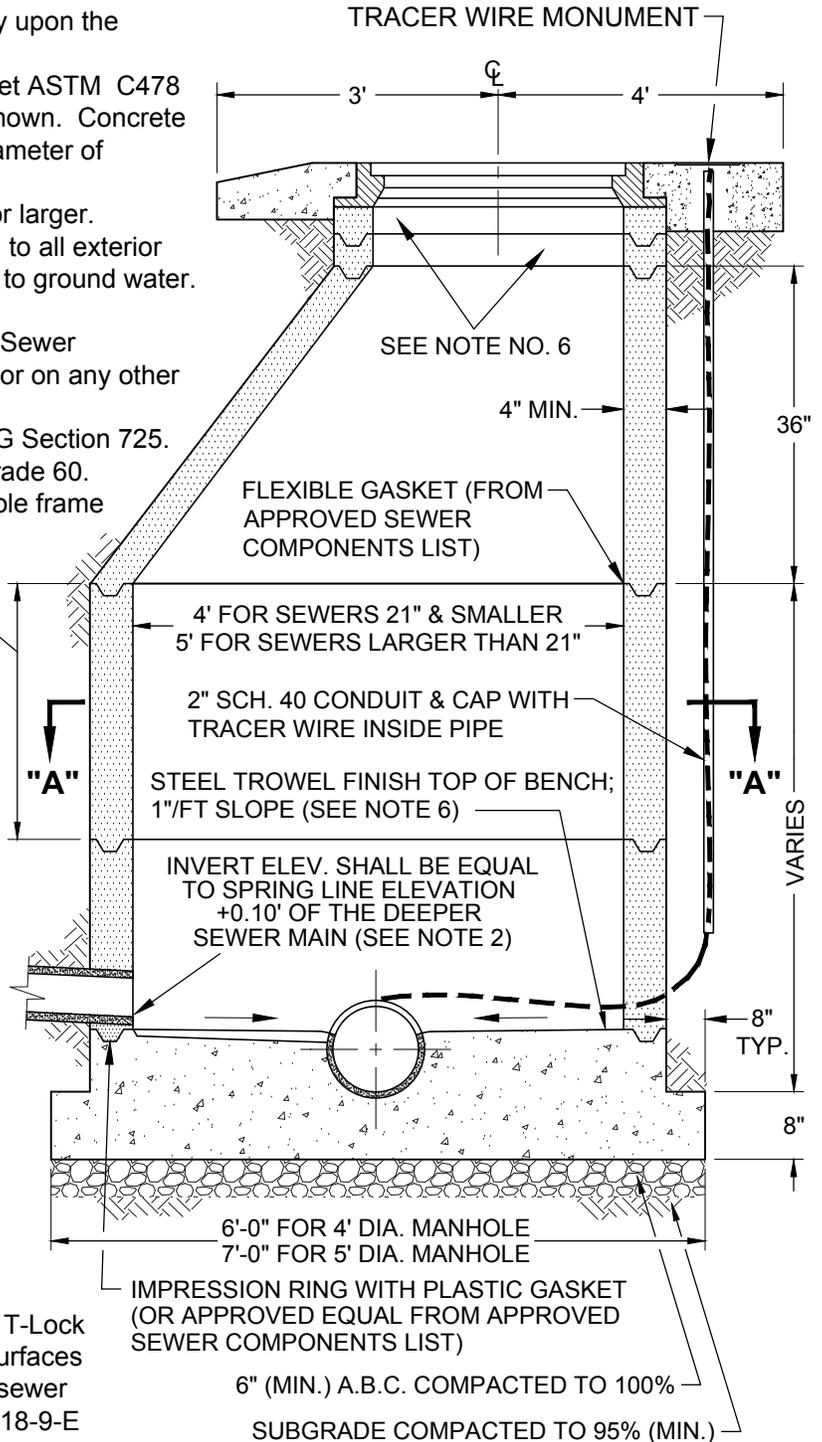
NOTES

1. Concentric manholes shall be constructed only upon the approval of the City Engineer.
2. Precast concrete cones and sections shall meet ASTM C478 specifications (latest revision) except where shown. Concrete shall be Type III with flyash additive. Inside diameter of manhole and elevations as shown on plans.
3. Use Polymer manhole for any sewer line 15" or larger.
4. An asphalt waterproofing seal shall be applied to all exterior surfaces of the manhole that may be exposed to ground water.
5. Provide a 20' wide vehicular access road.
6. Apply interior surface sealant (from Approved Sewer Components List) on adjustment rings, bench or on any other concrete surface.
7. Base constructed of Class A concrete per MAG Section 725.
8. Base reinforcing steel shall be ASTM A615, grade 60.
9. See standard Detail 6-040 for adjusting manhole frame and cover to final grade.



SECTION "A-A"

10. Precast concrete manholes shall have a PVC T-Lock liner and sealed gas tight. Liner and interior surfaces shall be spark tested (applies only to sanitary sewer manholes, see Arizona Administrative Code R18-9-E 301 D.3.e Manholes General Permit: Sewage Collection Systems pertaining to Holiday testing).
11. Backfill used to fill manhole excavation shall be a one sack cement per cubic yard of sand slurry mixture, unless otherwise approved.
12. Grout seal around pipe. Match and apply same protective coating on grout as used on the other exposed concrete surfaces (see Note 6).
13. Special details shall be required for: Manholes greater than 40' in depth; at deflection manholes; for multiple pipe penetrations with at least one pipe greater than 21"; or if sewer main is larger than 48" in diameter. Calculations shall be signed/sealed by a registered professional engineer (AZ license) and submitted to the City Engineer for review & acceptance.



14. For mainline pipe installation through manhole, see standard Detail 6-030.

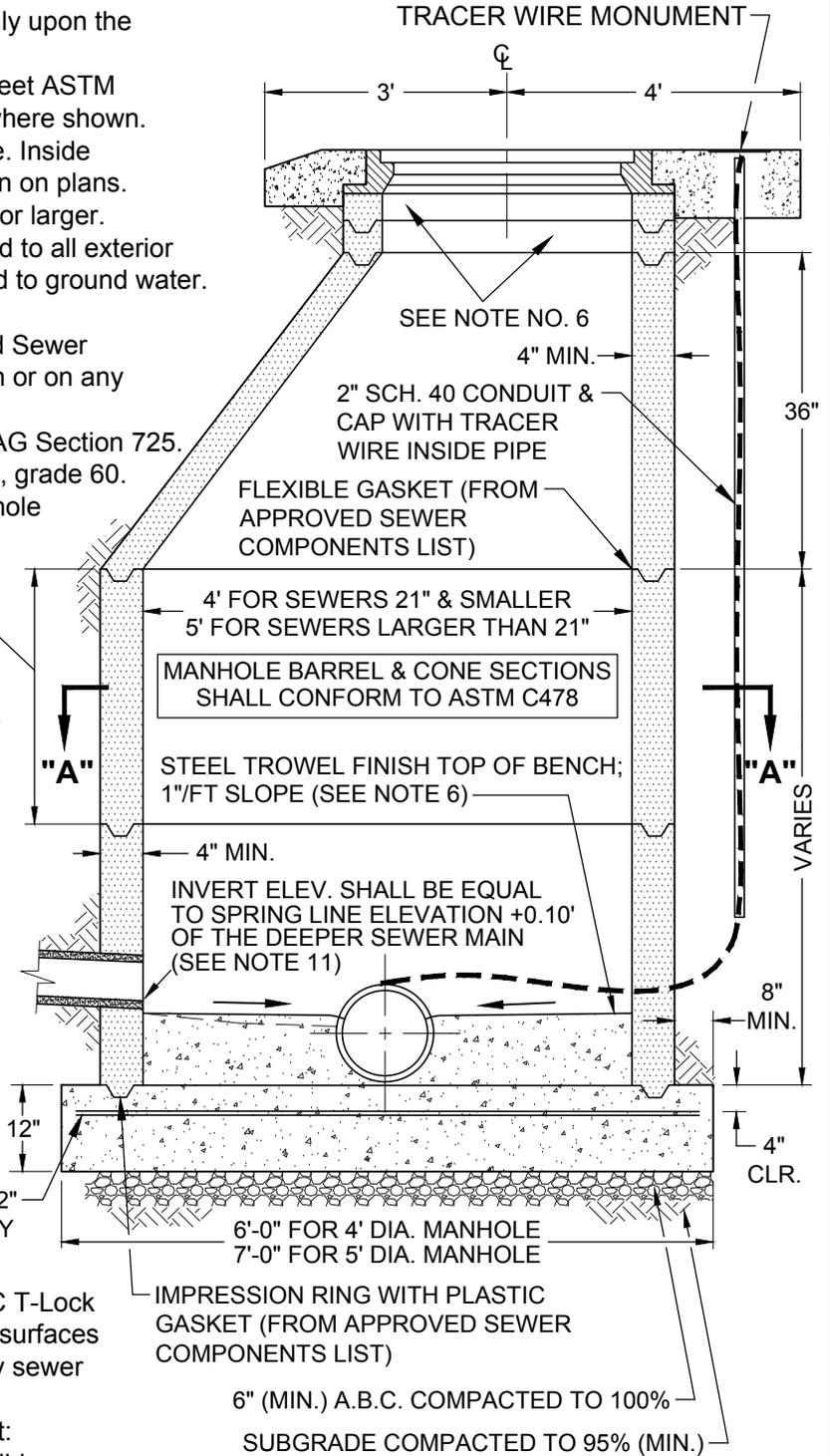
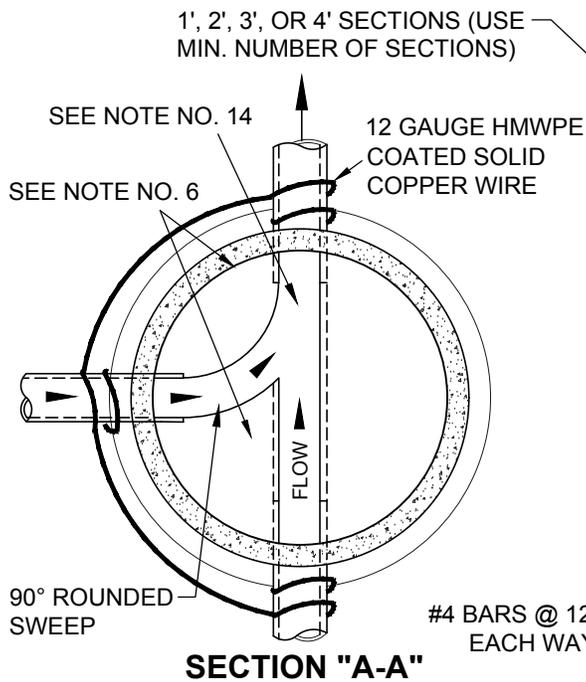
Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 6-020
LESS THAN 13' DEEP
PRECAST CONCRETE MANHOLE**

NOTES

1. Concentric manholes shall be constructed only upon the approval of the City Engineer.
2. Precast concrete cones and sections shall meet ASTM C478 specifications (latest revision) except where shown. Concrete shall be Type III with flyash additive. Inside diameter of manhole and elevations as shown on plans.
3. Use polymer manhole for any sewer line 15" or larger.
4. An asphalt waterproofing seal shall be applied to all exterior surfaces of the manhole that may be exposed to ground water.
5. Provide a 20' wide vehicular access road.
6. Apply interior surface sealant (from Approved Sewer Components List) on adjustment rings, bench or on any other concrete surface.
7. Base constructed of Class A concrete per MAG Section 725.
8. Base reinforcing steel should be ASTM A615, grade 60.
9. See standard Detail 6-040 for adjusting manhole frame and cover to final grade.



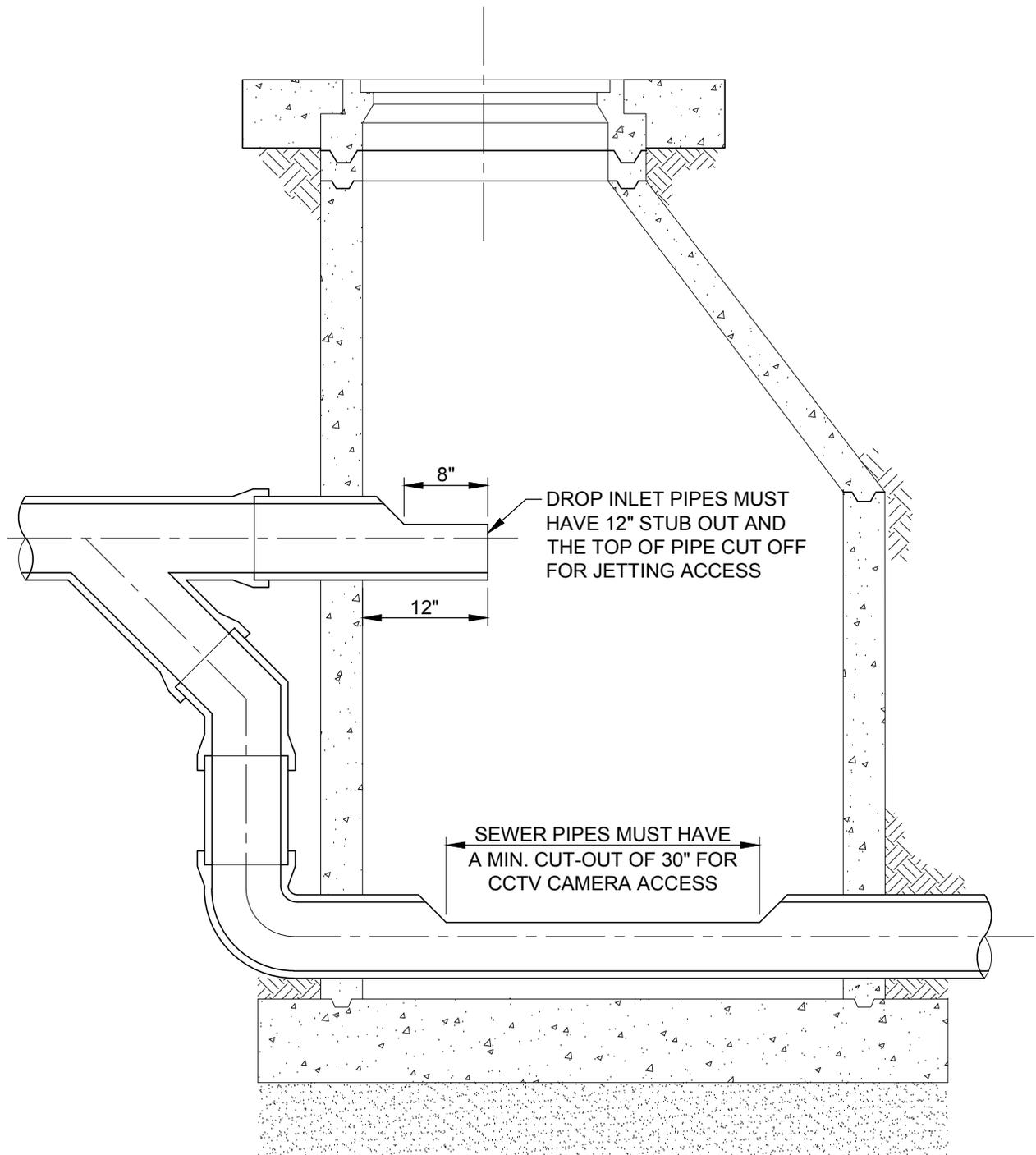
10. Precast concrete manholes shall have a PVC T-Lock liner and sealed gas tight. Liner and interior surfaces shall be spark tested (applies only to sanitary sewer manholes, see Arizona Administrative Code R18-9-E 301 D.3.e Manholes General Permit: Sewage Collection Systems pertaining to Holiday testing).
11. Backfill used to fill manhole excavation shall be a one sack cement per cubic yard of sand slurry mixture, unless otherwise approved.
12. Grout seal around pipe. Match and apply same protective coating on grout as used on the other exposed concrete surfaces (see Note 6).
13. Special details shall be required for: Manholes greater than 40' in depth; at deflection manholes; for multiple pipe penetrations with at least one pipe greater than 21"; or if sewer main is larger than 48" in diameter. Calculations shall be signed/sealed by a registered professional engineer (AZ license) and submitted to the City Engineer for review & acceptance.

14. For mainline pipe installation through manhole, see standard Detail 6-030.

Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 6-025
13'-40' DEEP PRECAST
CONCRETE MANHOLE



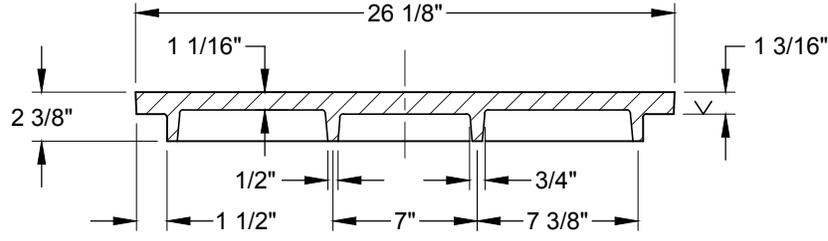
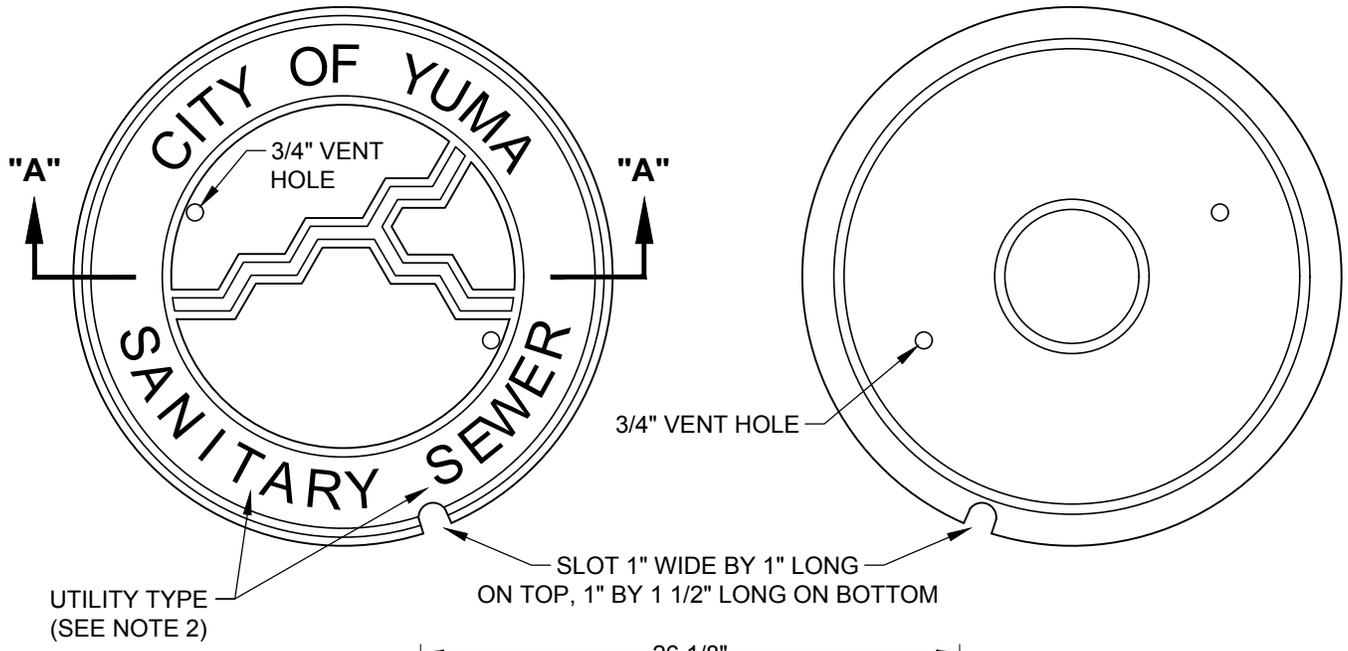
NOTE

(SEWER PIPE THROUGH THE MANHOLE)
 The pipe is the channel of the manhole. Concrete and grout not exposed to sewage, (see standard no. 6-020, 6-025, 6-055, and 6-060 for manhole construction).

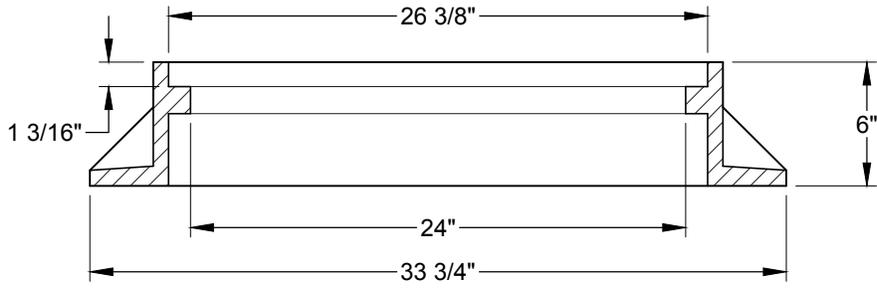
Issued: May 2019
CITY OF YUMA CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 6-030 CCTV CAMERA ACCESS

TOP VIEW

BOTTOM VIEW



SECTION "A - A"

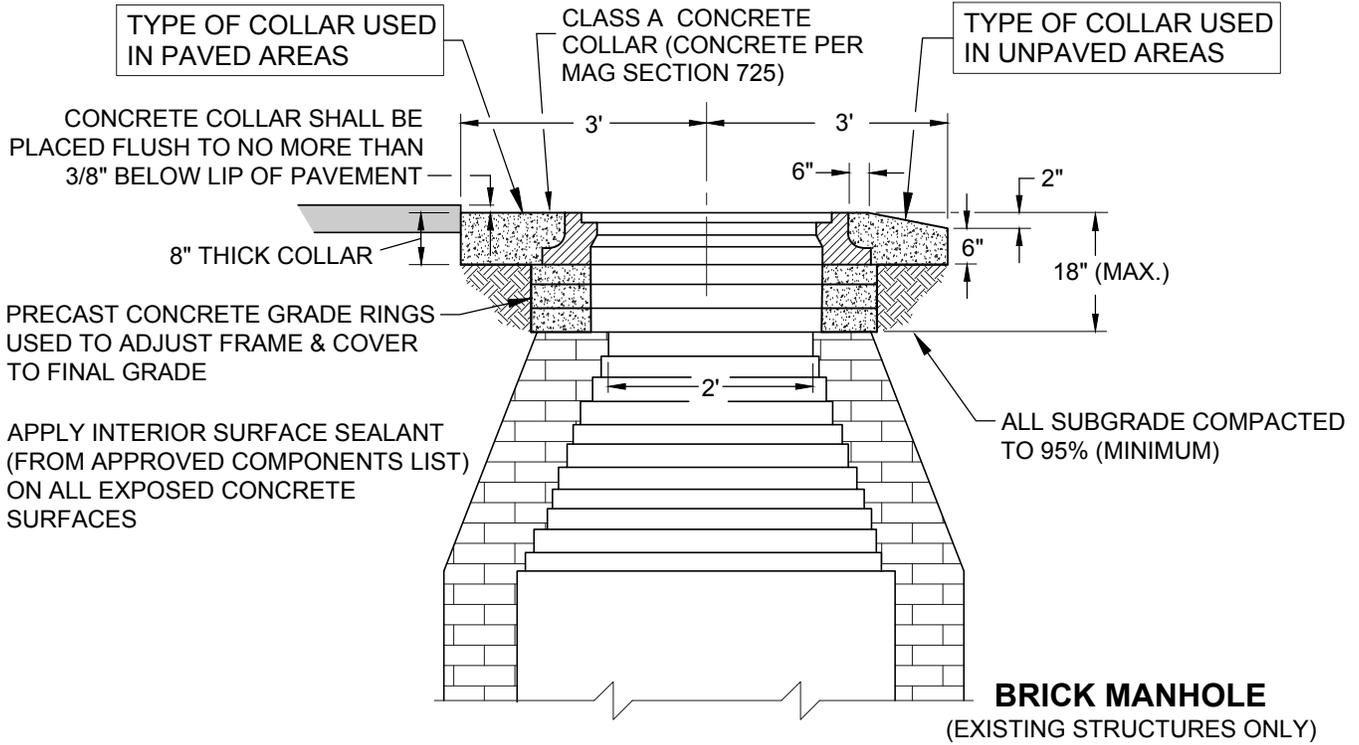
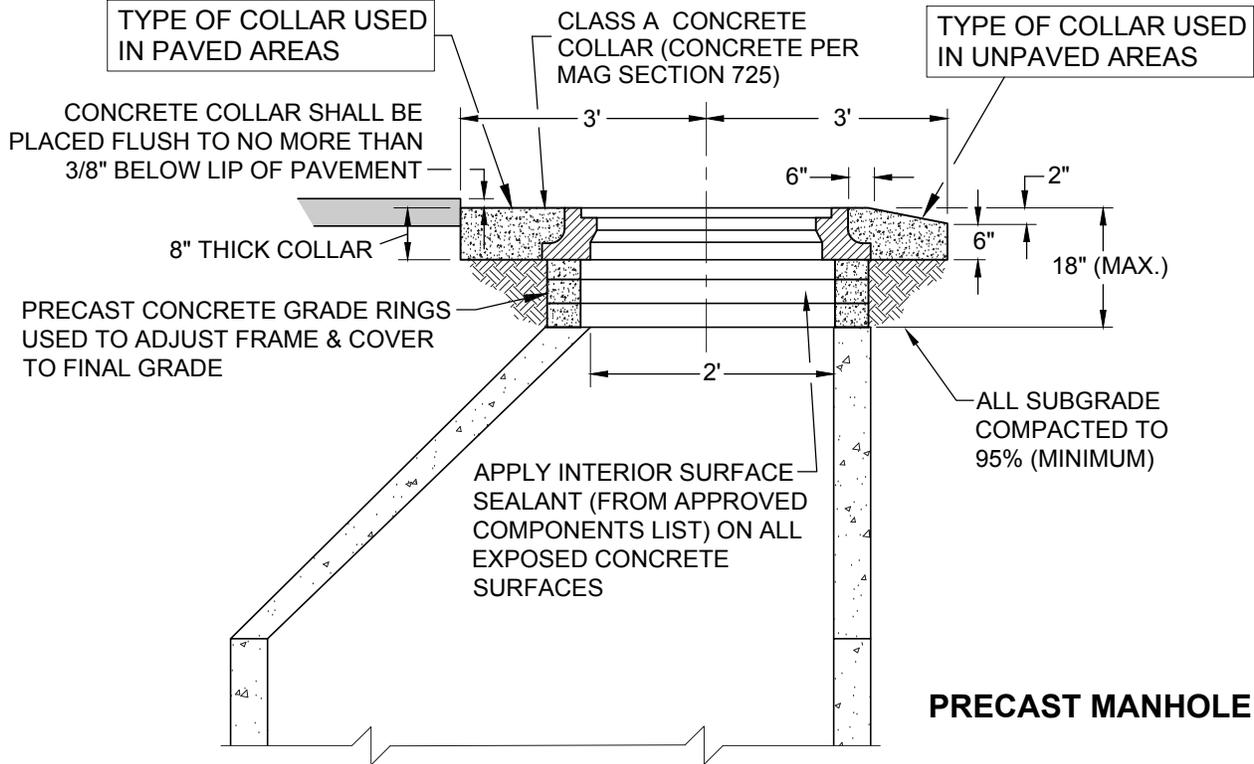


SECTION OF FRAME

NOTES

1. The top of the cover and frame shall be flush, and there shall be 1/8" horizontal clearance all around the frame and cover.
2. Lettering on manhole cover shall contain the City logo, the words "CITY OF YUMA" and the utility for which the manhole will be used (i.e. City of Yuma Sanitary Sewer).
3. Covers shall have a minimum of two 3/4" vent holes. Should a manhole be located within 500 feet of an interceptor sewer, the vent holes shall be eliminated.
4. Standard manhole cover shall be per Approved Sewer Components List.

Issued: May 2019
CITY OF YUMA CONSTRUCTION STANDARD DETAIL DRAWINGS STANDARD NO. 6-035 STANDARD MANHOLE FRAME AND COVER



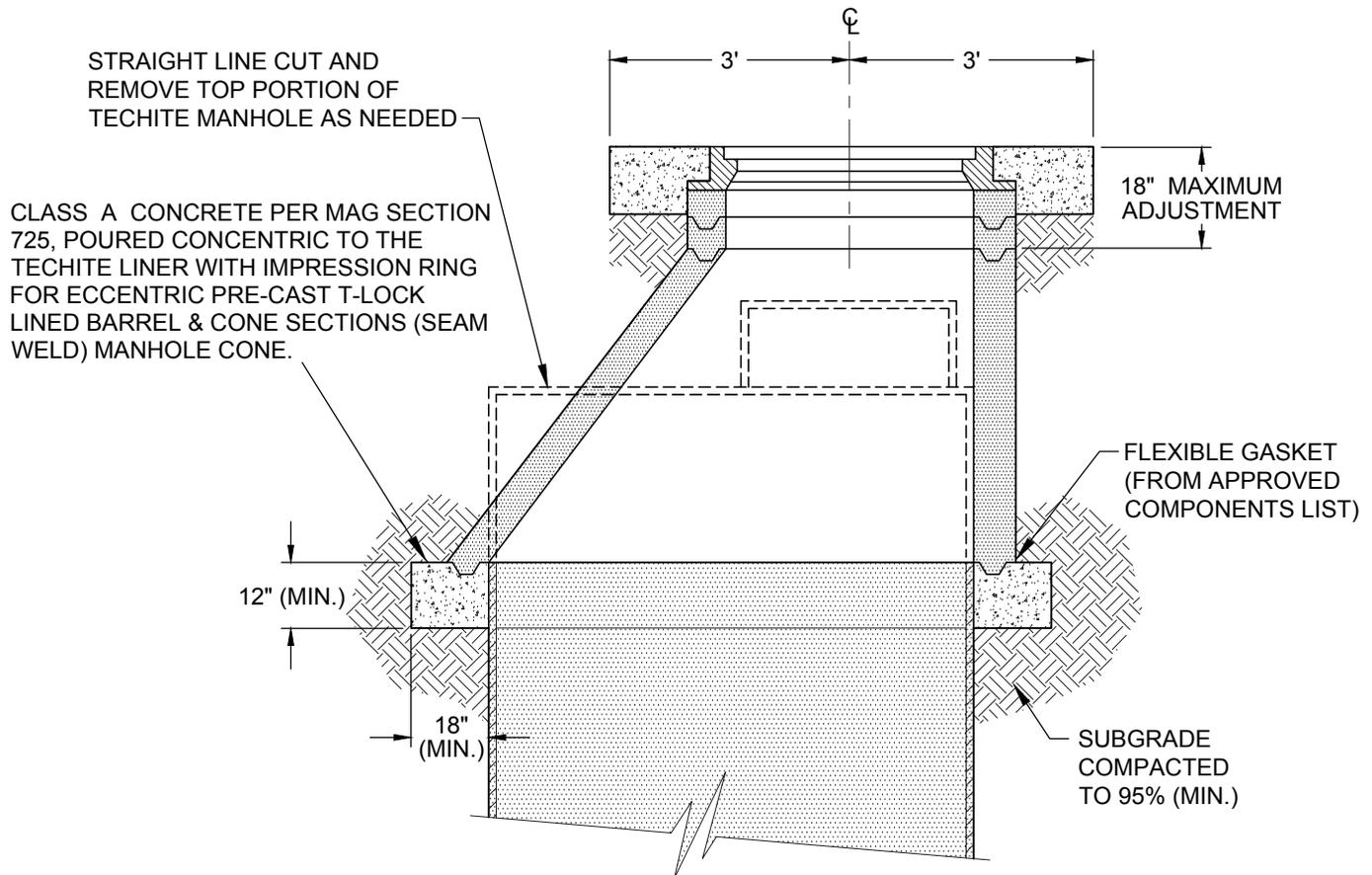
Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 6-040
ADJUSTING MANHOLE
TO FINAL GRADE

FOR MANHOLE FRAME & COVER
SEE STANDARD DETAIL NO. 6-035

SEE STANDARD DETAIL 6-040 FOR ADJUSTING
MANHOLE FRAME AND COVER TO FINAL GRADE



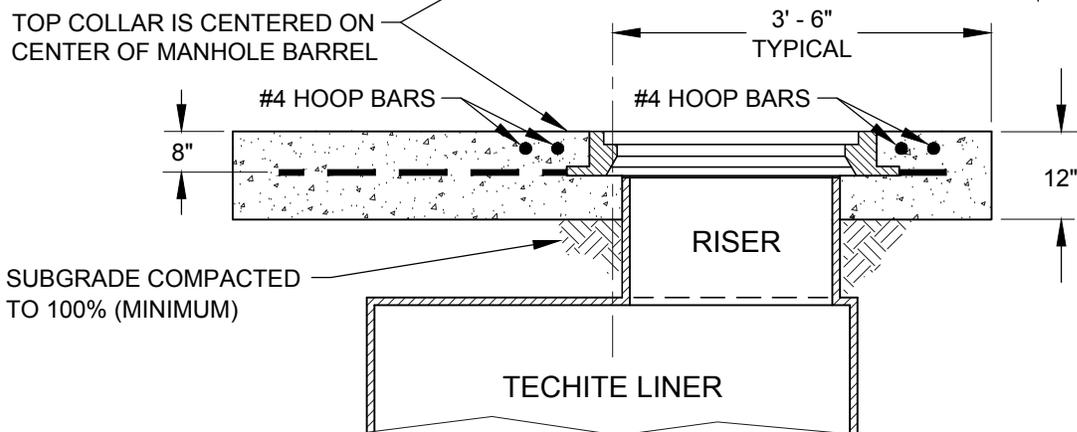
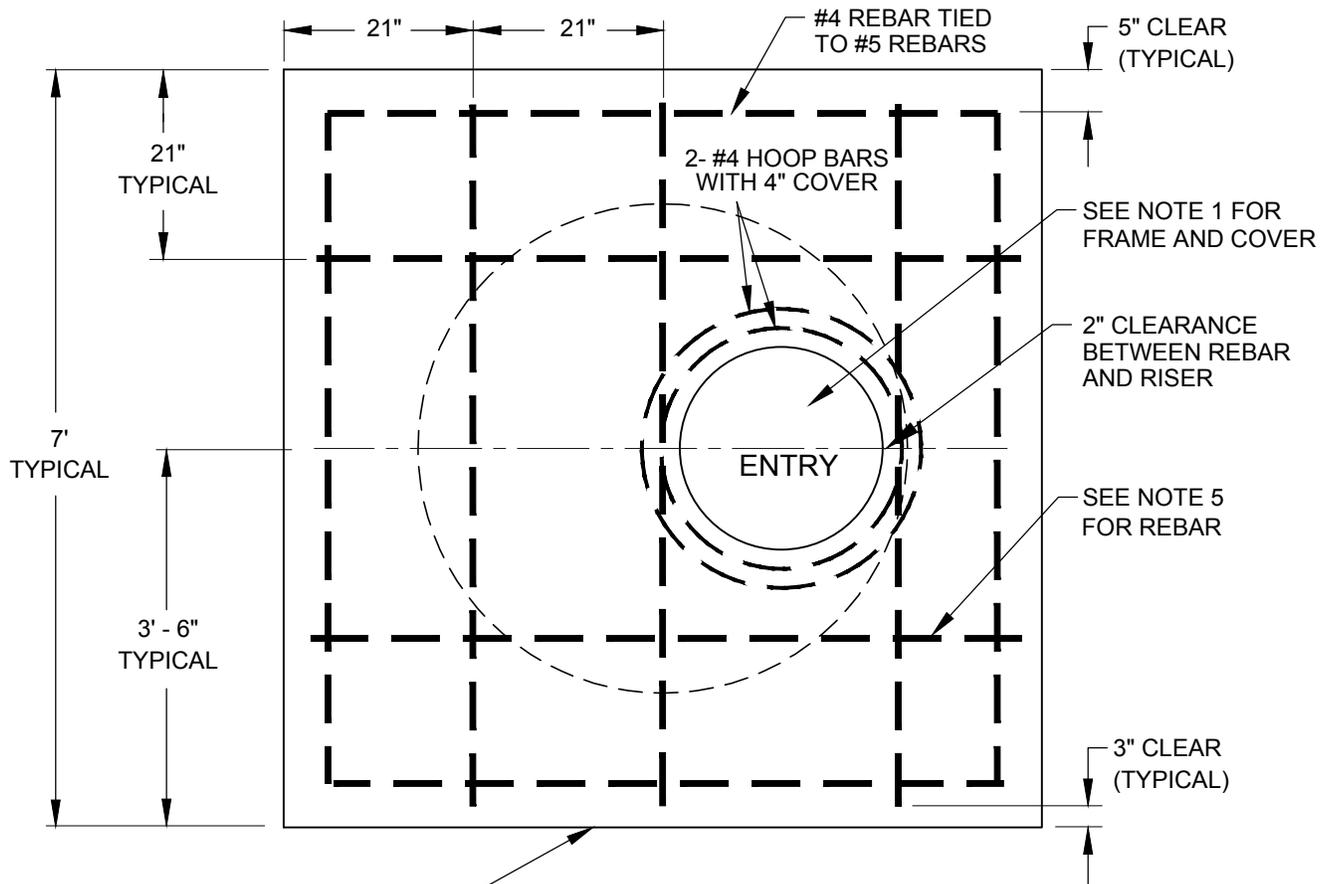
NOTES

1. Precast concrete cones shall meet A.S.T.M. C-478 specifications (latest version) except where shown. Concrete shall be Class A per MAG Section 725, with flyash additive.
2. Inside diameter of manhole and elevations shall be shown on plans.
3. Asphalt caulking shall be used to seal all joints.
4. An asphalt waterproofing seal shall be applied to the exterior surfaces of the manhole cone that will or could be exposed to ground water.
5. Apply surface sealant (from approved components list) on all interior surfaces of the adjustment rings and on any exposed interior concrete surface.
6. Backfill used to fill manhole excavation shall be a one sack cement per cubic yard of sand slurry mixture.
7. Precast concrete manholes shall have a PVC T-Lock liner, sealed gas tight (from approved components list) Liner and interior surfaces shall be spark tested (applies only to sanitary sewer manholes see Arizona Administrative Code R18-9-E 301 D.3.e Manholes General Permit: Sewage Collection Systems pertaining to Holiday testing).
8. Install new frame & cover.

Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 6-045
ADJUSTING TECHITE MANHOLE
TO FINISHED GRADE

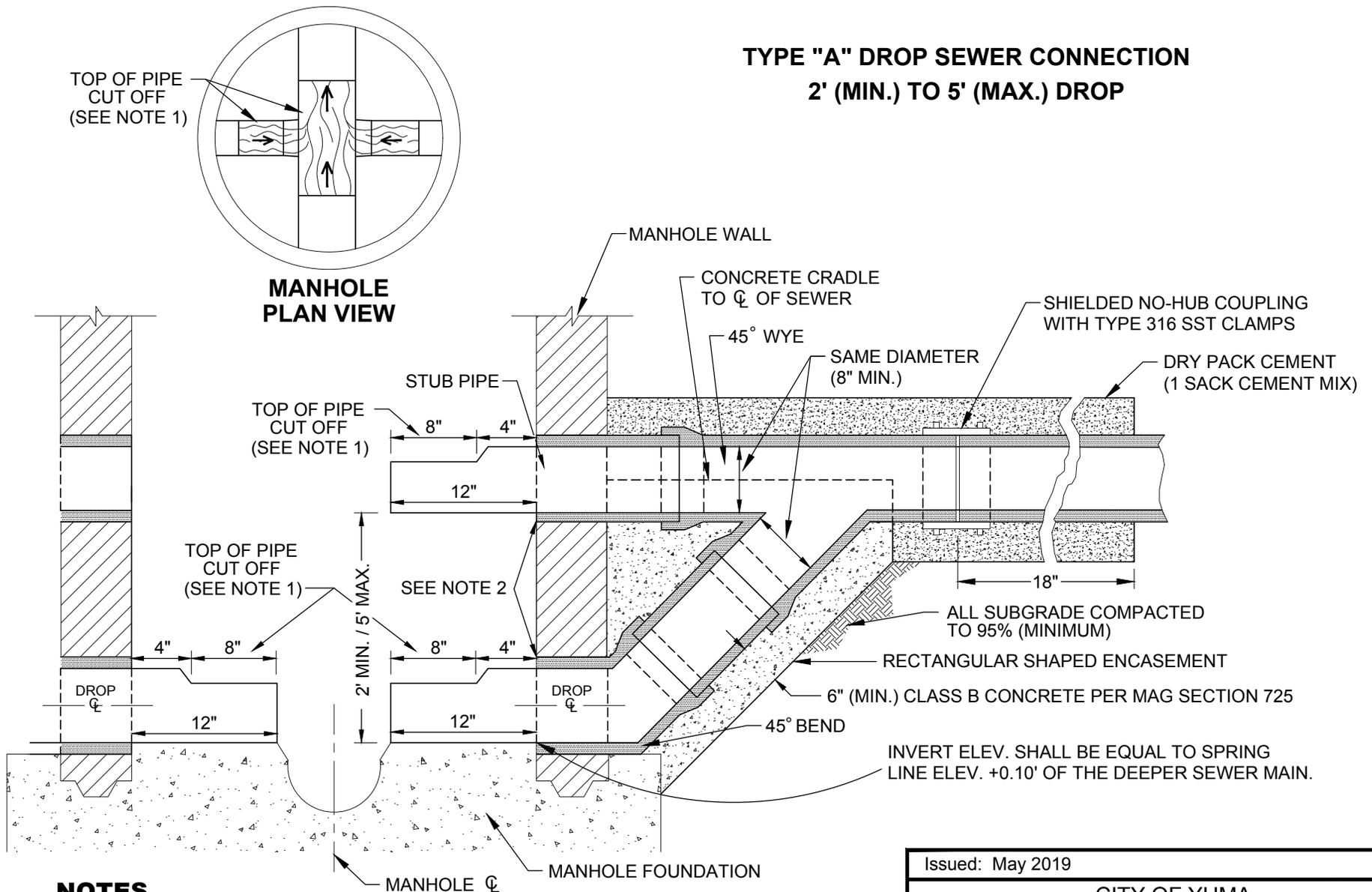


NOTES

1. Frame and cover shall be Neenah R-1295, R-1595, R-1642 or approved equal. Frame shall be embedded into the concrete collar (monolithic pour).
2. Non-vented lid required for manholes installed in or within 500 feet of an interceptor or trunk sewer main.
3. All exposed concrete, mortar or cement shall be coated with surface sealant (from approved components list).
4. Top collar shall be constructed of Class A concrete per MAG Section 725.
5. Nine pieces of No. 5 rebar, six feet (6') long placed eight inches (8") deep.

Issued: May 2019
CITY OF YUMA CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 6-050 TECHITE MANHOLE LINER TOP COLLAR

**TYPE "A" DROP SEWER CONNECTION
2' (MIN.) TO 5' (MAX.) DROP**



NOTES

1. The mainline pipe shall be installed through the manhole. The top 1/3-1/2 portion of the pipe shall be cut off a minimum length of 8" to allow the CCTV camera access and to accept flow from lateral piping.
2. Grout seal around pipe; match existing coating and/or lining inside manhole (both penetrations)

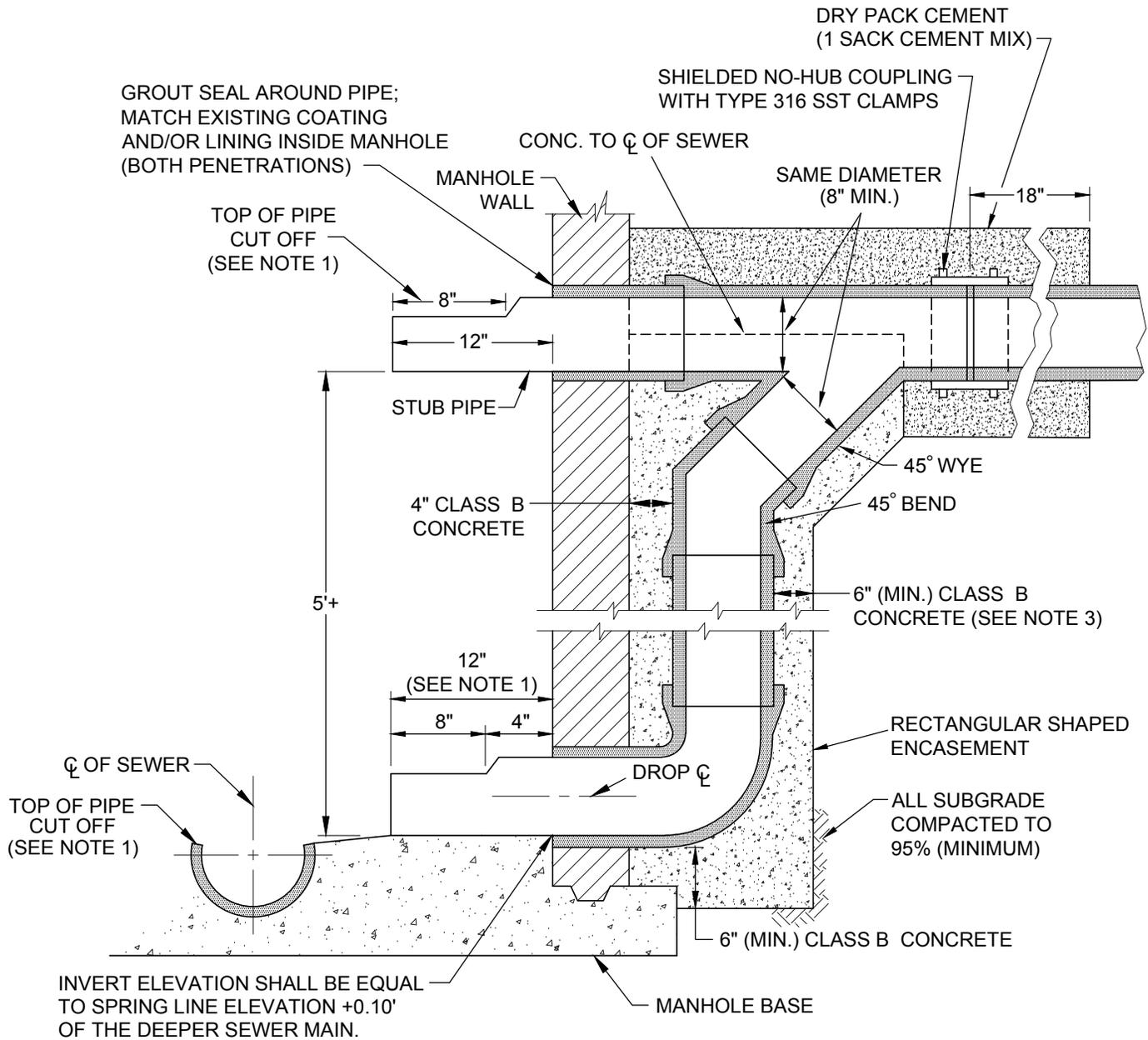
Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 6-055
TYPE "A"
DROP SEWER CONNECTION**

TYPE "B" DROP SEWER CONNECTION

MORE THAN A 5' DROP



NOTES

1. The top 1/3-1/2 portion of the pipe shall be cut off a minimum length of 8" to allow the CCTV camera access and to accept flow from lateral piping.
2. Grout seal around pipe; match existing coating and/or lining inside manhole (both penetrations)
3. Concrete shall be per MAG Section 725.

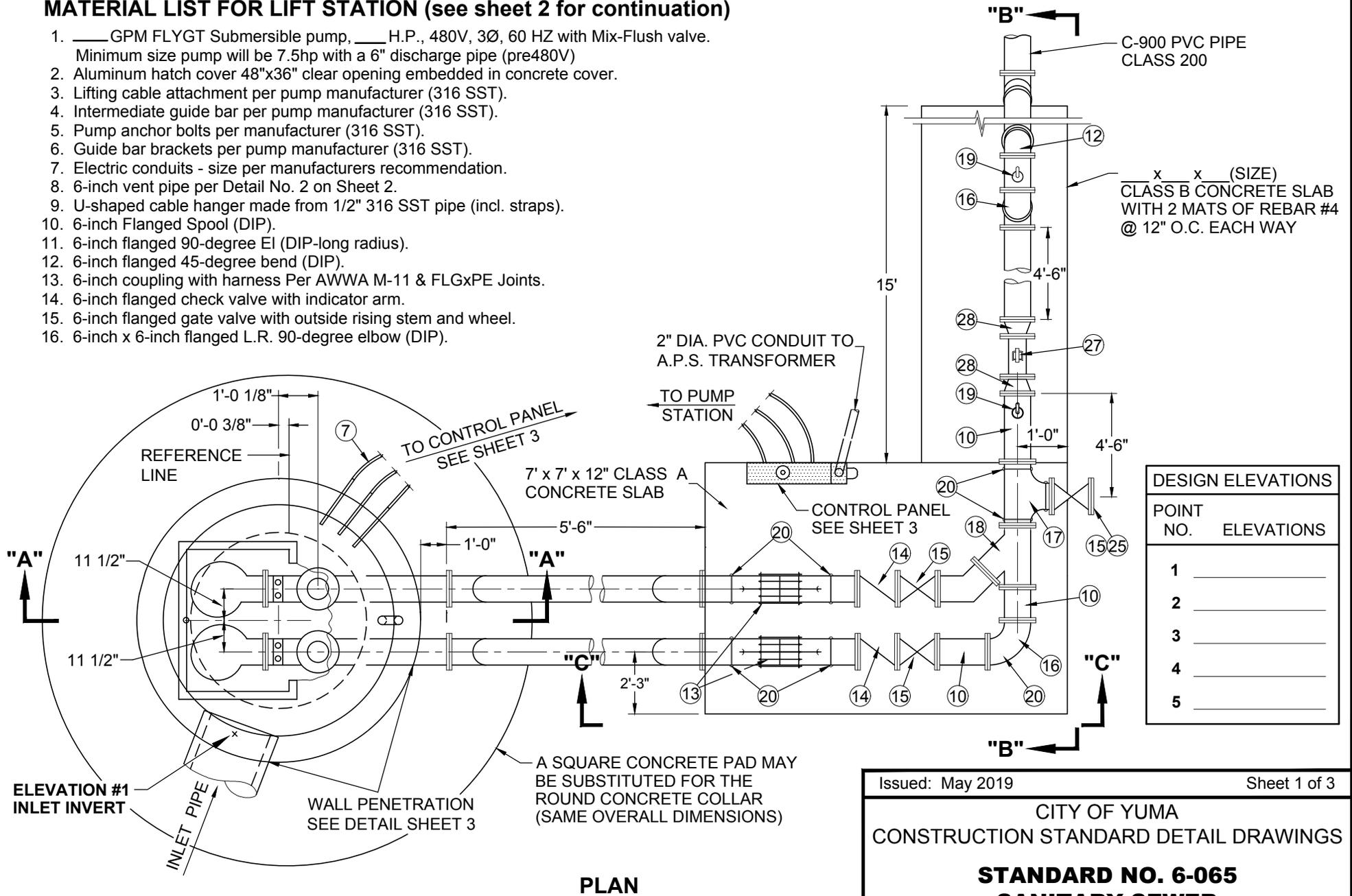
Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 6-060
TYPE "B"
DROP SEWER CONNECTION

MATERIAL LIST FOR LIFT STATION (see sheet 2 for continuation)

1. ___ GPM FLYGT Submersible pump, ___ H.P., 480V, 3Ø, 60 HZ with Mix-Flush valve.
Minimum size pump will be 7.5hp with a 6" discharge pipe (pre480V)
2. Aluminum hatch cover 48"x36" clear opening embedded in concrete cover.
3. Lifting cable attachment per pump manufacturer (316 SST).
4. Intermediate guide bar per pump manufacturer (316 SST).
5. Pump anchor bolts per manufacturer (316 SST).
6. Guide bar brackets per pump manufacturer (316 SST).
7. Electric conduits - size per manufacturers recommendation.
8. 6-inch vent pipe per Detail No. 2 on Sheet 2.
9. U-shaped cable hanger made from 1/2" 316 SST pipe (incl. straps).
10. 6-inch Flanged Spool (DIP).
11. 6-inch flanged 90-degree EI (DIP-long radius).
12. 6-inch flanged 45-degree bend (DIP).
13. 6-inch coupling with harness Per AWWA M-11 & FLGxPE Joints.
14. 6-inch flanged check valve with indicator arm.
15. 6-inch flanged gate valve with outside rising stem and wheel.
16. 6-inch x 6-inch flanged L.R. 90-degree elbow (DIP).



DESIGN ELEVATIONS

POINT NO.	ELEVATIONS
1	_____
2	_____
3	_____
4	_____
5	_____

Issued: May 2019

Sheet 1 of 3

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

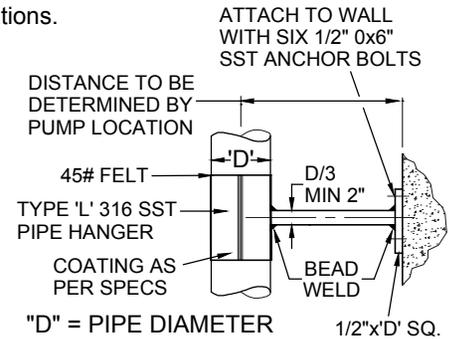
STANDARD NO. 6-065
SANITARY SEWER
LIFT STATION

PLAN

(Continued from sheet 1)

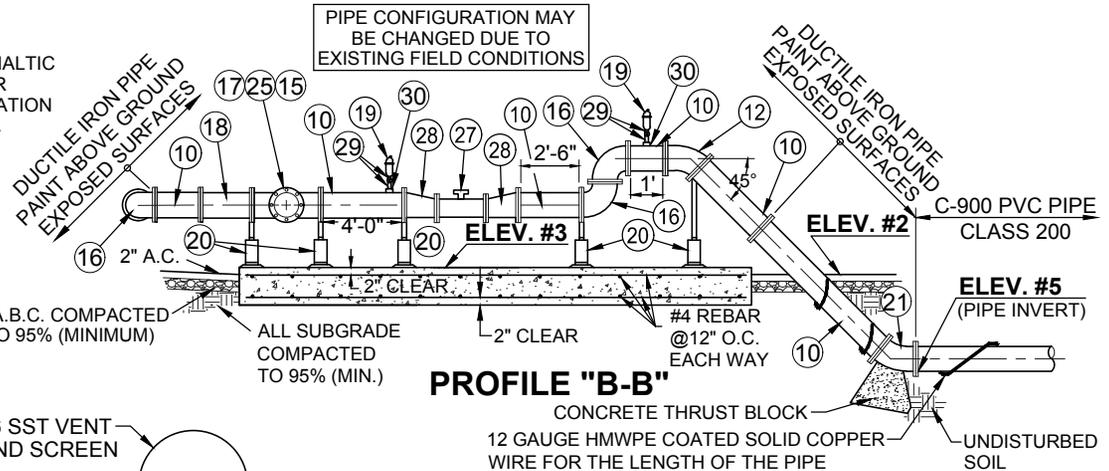
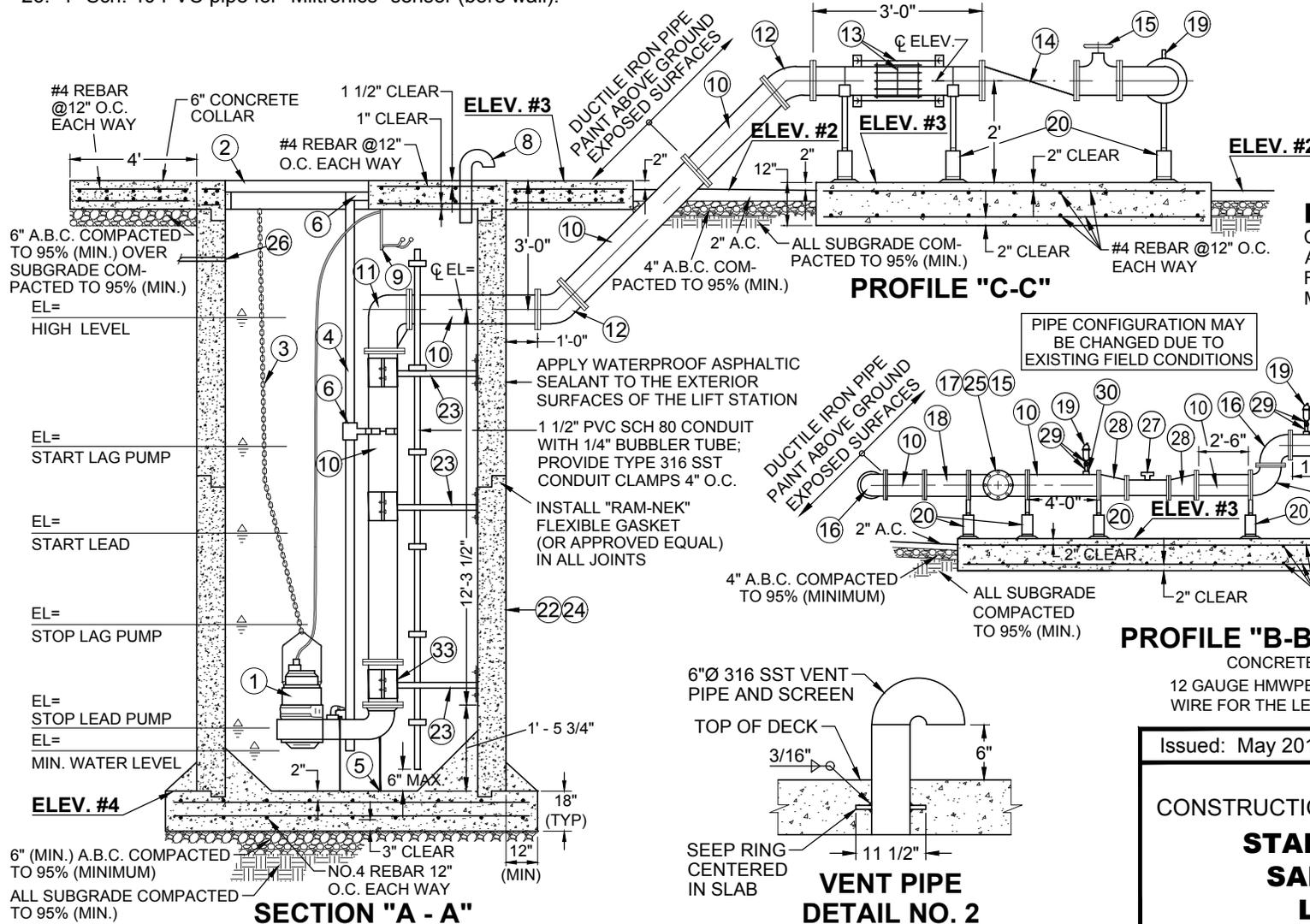
17. 6-inch x 6-inch x 6-inch tee (DIP).
18. 6-inch x 6-inch x 6-inch flanged wye (DIP).
19. 2-inch diameter air release valve (APCO Model 403 or equal).
20. Pipe support per Detail No. 3 on Sheet 3.
21. 6-inch 45-degree flanged elbow with thrust block and PVC adaptor.
22. 96-inch (inside diameter) RGRCP Class 4 structure with base and cover (or approved equal).
23. Pipe sway brace per Detail No. 1.
24. Sanitary sewer lift stations shall have T-Lock liners installed.
25. Blind flange.
26. 1" Sch. 40 PVC pipe for "Miltronics" sensor (bore wall).

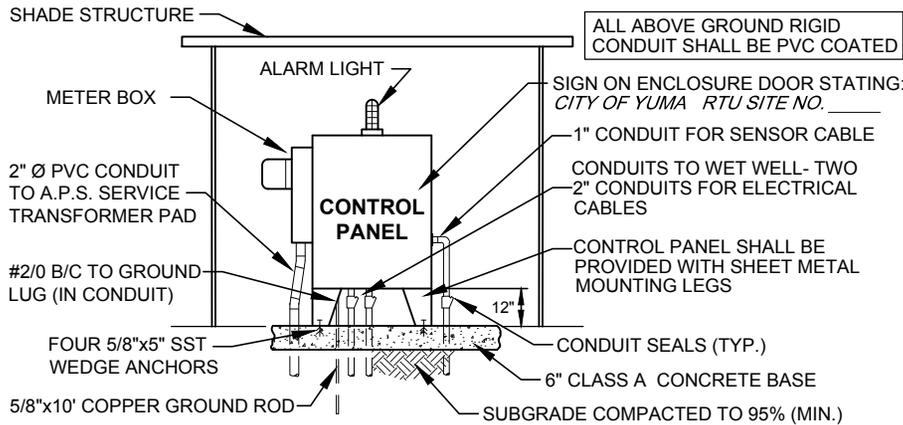
27. ABB Mod. "MAG-CM" magnetic flow meter (or appvd. equal).
Must be installed in accordance to manufacturers recommendations.
28. 6-inch x 4-inch eccentric reducer (DIP).
29. 2" bronze ball valve with bronze nipple.
30. 2" threaded half coupling.
31. Tee Lock Liner on barrel.
32. Dip reducer-variety size with pump supplier.
33. Run a discharge line from air release valve back into the vault.
34. All concrete slab bases to be Class A.



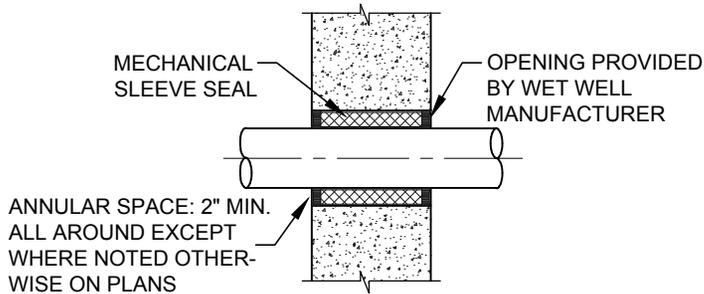
**PIPE SWAY BRACE
DETAIL NO. 1**

NOTE:
CONTRACTOR SHALL USE EPOXY COATED AND LINED DUCTILE IRON PIPE AND FITTINGS. PIPE SHALL BE FLANGED AND MEET ALL CONTRACT SPECIFICATIONS.

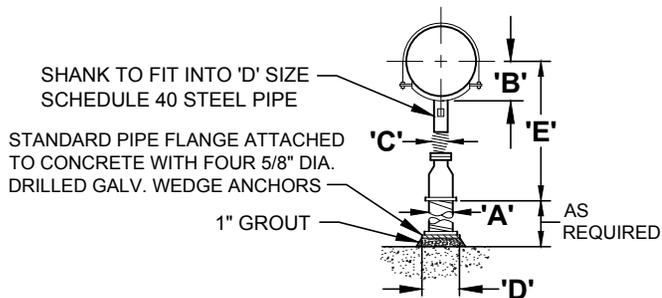




CONTROL PANEL ELEVATION



WALL PENETRATION SEAL DETAIL



PIPE SUPPORT DETAIL NO. 3

NUMBER REQUIRED	SUPPORTED PIPE SIZE	'A'	'B'	'C'	'D'	'E'	
						MIN.	MAX.
SIX	6"	3"	5 7/8"	2.5"	11 3/4"	10 3/4"	14 1/2"

SEWAGE LIFT STATION RTU COMPONENTS

- Allen Bradley, IntelliCENTER with DeviceNet.
 - 1ea 4 Slot Rack: 1746-A4
 - 1ea Power Supply: 1746-P2
 - 1ea Processor Unit: 1747-L532 Ser: E
 - 1ea Device Net: 1747 SDN
 - 1ea Analog Input: 1746-NI8
 - 1ea Device Net Starter Aux.: 100 DNY 42 R
- Allen-Bradley "Intellicenter MCC" outdoor rated enclosure or approved equal.
- All electrical components shall be of a type/manufacture that is supported locally (Allen-Bradley or approved equal).
- Pump controller shall be Hydro Ranger Model 200 with the XPS-10 transducer with 100' of sensor cable and shall be mounted on face of inner door of MCC PLC-radio components cabinet. Coordinate with Instrumentation and Controls (928)373-4471.
- Flow meter controls shall be mounted on face of inner door of MCC PLC-radio components cabinet.
- Antenna support:
 - To be coordinated with Instrumentation and Controls personnel (928)373-4471.
- Radio components:
 - 1ea MDS licensed radio system GE MDS SD9- also with 120-V power supply astron A7 contact SYNETCOM@ (310)379-2000 for radio and telemetry information
 - 1ea 900-960 MHZ 10 DB MDS antenna
 - 1ea Three feet (3') Hellax jumper cable with 3/8" connector on one end and 1/2" on the other.
 - 2ea Type N ninety degree (90°) connector
 - 2ea 900Mhz lightning protector
 - 2ea 1/2" Coaxial weather proof grounding kit
 - 1ea 10dB antenna; 1/2" flexible Heliac antenna cable (length to be determined by location of antenna)
 - 1ea SLC-5/03 PLC data to MDS radio cable
 - 1ea PLC to radio data interface cable assembly
 - 2ea 1/2" heliex N cable terminations
 - 2ea 3' lighting protector 1/2" coaxial cable assembly
- Documentation:
 - Three sets of wiring diagrams for the lift station and RTU; three sets of the O & M manuals.
- For information on SCADA equipment, contact Instrumentation and Controls (928)373-4471.

NOTES

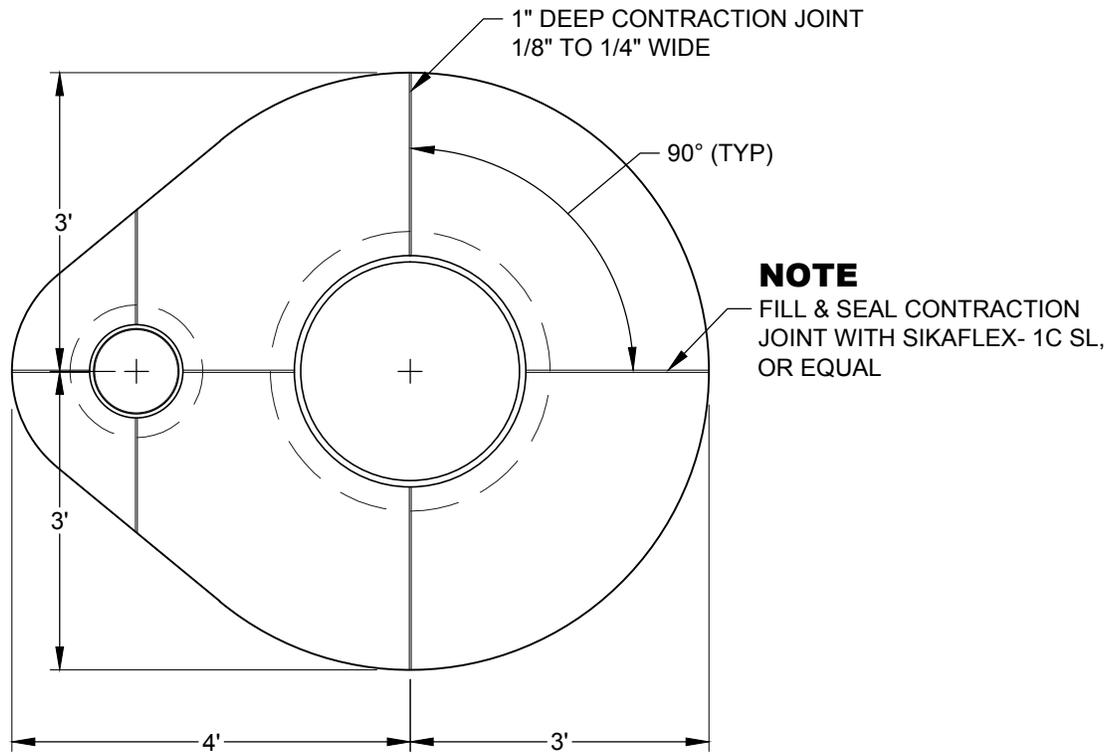
- Provide a 1" water service, a min. 3/4" water meter and R.P. backflow preventer (Standard No. 5-130).
- Provide access for large service vehicles.
- Switched lighting shall be installed.
- An appropriate shade structure shall be constructed over the control panel.
- W.P.C.F. SCADA/RTU connections required when lift station is to be used for sanitary sewer.
- Provide 120V GFI protected convenience outlet.
- Provide "Caterpillar" diesel (or approved equal) emergency generator size to max. pumping and control needs.
- Precast concrete manholes shall have a PVC T-Lock liner, sealed gas tight (from approved components list) Liner and interior surfaces shall be spark tested (applies only to sanitary sewer manholes, see Arizona Administrative Code R18-9-E 301 D.3.e Manholes General Permit: Sewage Collection Systems pertaining to Holiday testing).
- Pump controller shall be "Miltronic Hydro Ranger" in conjunction with "Allen Bradley SLC-500".
- Seal all conduit coming from lift station to junction boxes and control panels with duct seal to prevent migration of gas.
- Adjacent properties shall determine the placement of access gates to the site. Gates shall have a min. 20' wide double swing.
- All valves and check valves shall be installed above ground.
- Any and all hardware/bracing inside lift station shall be manufactured of Type 316 SST.
- Lift stations equipped with pumps 20HP or less at the inlet shall be supplied with a SST strainer baskets to ride on SST guides. A winch type swingline hoist shall be installed to facilitate basket removal.
- A soils report prepared by a registered geo-technical engineer shall be submitted to the City Engineer prior to the construction of the lift station. This report shall be used to design the wetwell structure including recommendations for protection from corrosive soils and anchoring if constructed in high ground water conditions.
- The control panel shall contain properly sized automatic transfer switch for the emergency generator.
- Flow meter to be located next to electronic panels under shaded structure.

Issued: May 2019 Sheet 3 of 3

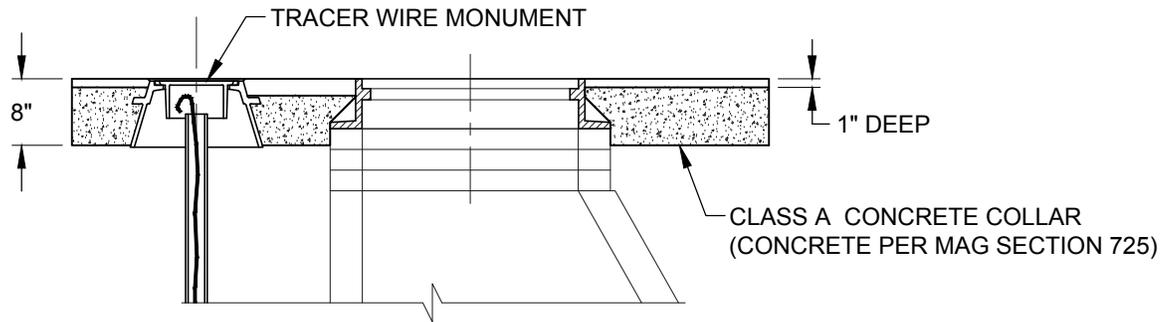
CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 6-065
SANITARY SEWER
LIFT STATION**

ELECTRICAL UTILITY CO.
ARIZONA PUBLIC SERVICE
6700 E. 30th Street
YUMA, ARIZONA 85365



**CONCRETE COLLAR WITH
CONTRACTION JOINTS**
(TOP VIEW)



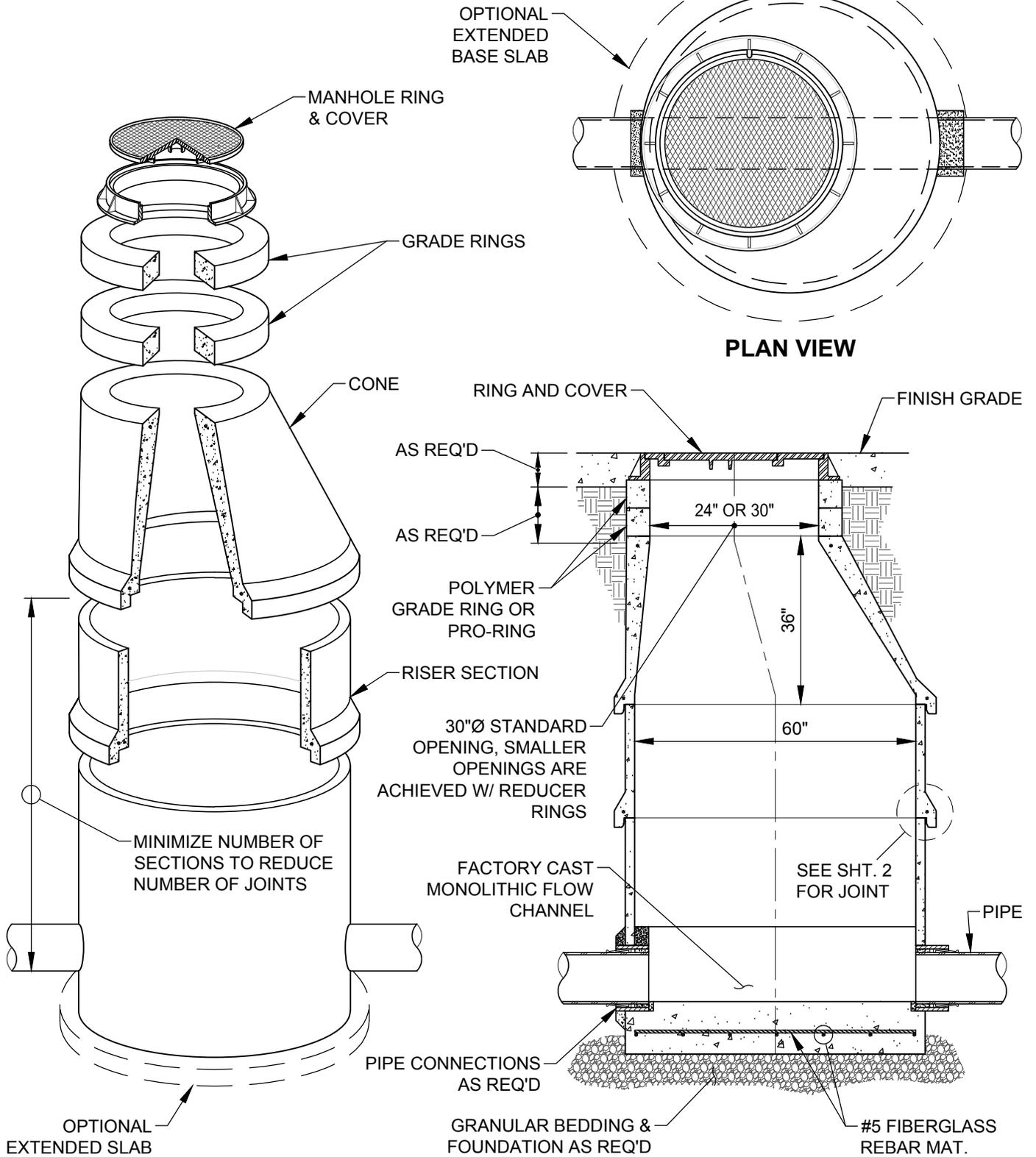
**CONCRETE COLLAR WITH
CONTRACTION JOINTS**
(SIDE VIEW)

REFERENCE DWGS:
COY STD. DETAIL NO. 6-040
COY STD. DETAIL NO. 6-045

Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 6-075
CONCRETE COLLAR WITH
CONTRACTION JOINTS



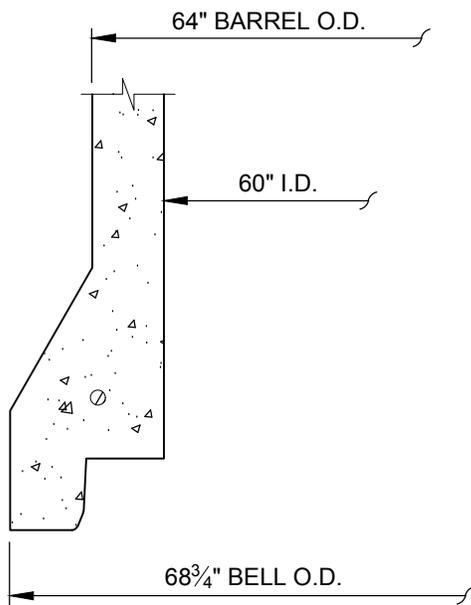
60" POLYMER MONOLITHIC MANHOLE SPECIFICATIONS			
WALL THICKNESS	AVAILABLE BASE HEIGHTS	AVAILABLE RISER HEIGHTS	WALL WEIGHT/FT
2"	3', 4', 5'	1', 2', 3', 4', 5', 6', 7'	375 LBS/FT
APPROX. WEIGHT 3' BASE	APPROX. WEIGHT 4' BASE	CONE WEIGHT	
5,640 LBS	6,350 LBS	2,000 LBS	

** ADD 250 LBS TO EACH RISER FOR THE WEIGHT OF THE BELL.

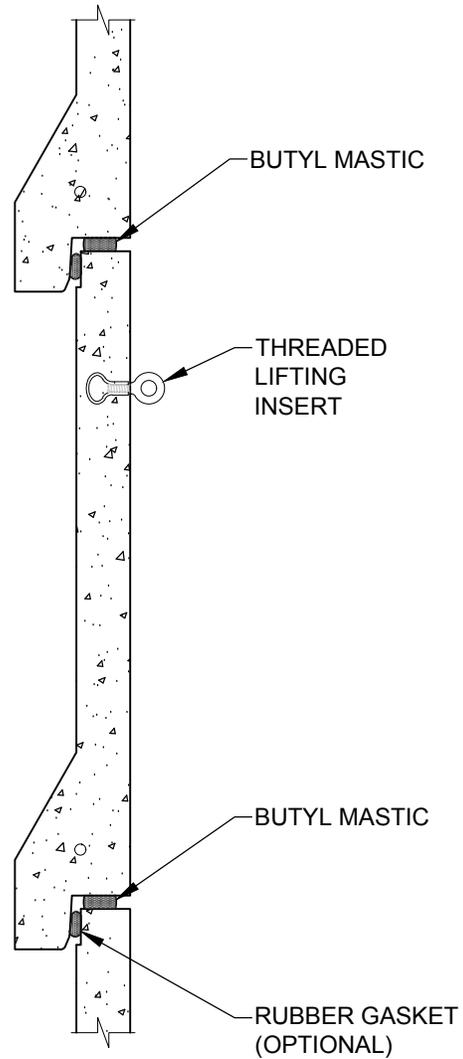
CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 6-080
60" POLYMER MANHOLE**

REFERENCE: ARMOROCK POLYMER PRODUCTS



60" JOINT DETAIL

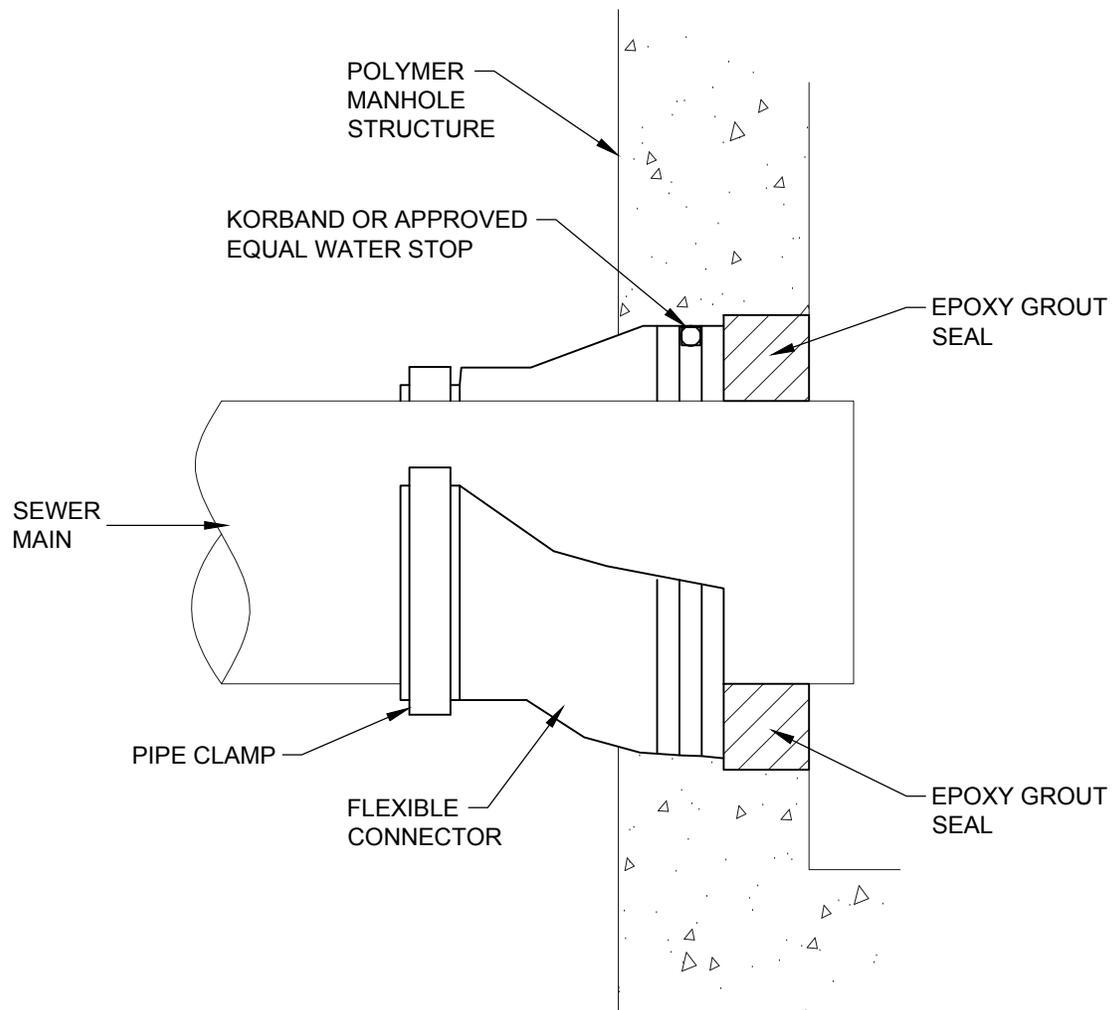


60" STACK UP

POLYMER MANHOLE SPECIFICATIONS			
I.D.	O.D.	WALL THICKNESS	WEIGHT PER FOOT
60"	64"	2"	375 lb

**ADD 250 LBS TO EACH RISER FOR THE WEIGHT OF THE BELL.

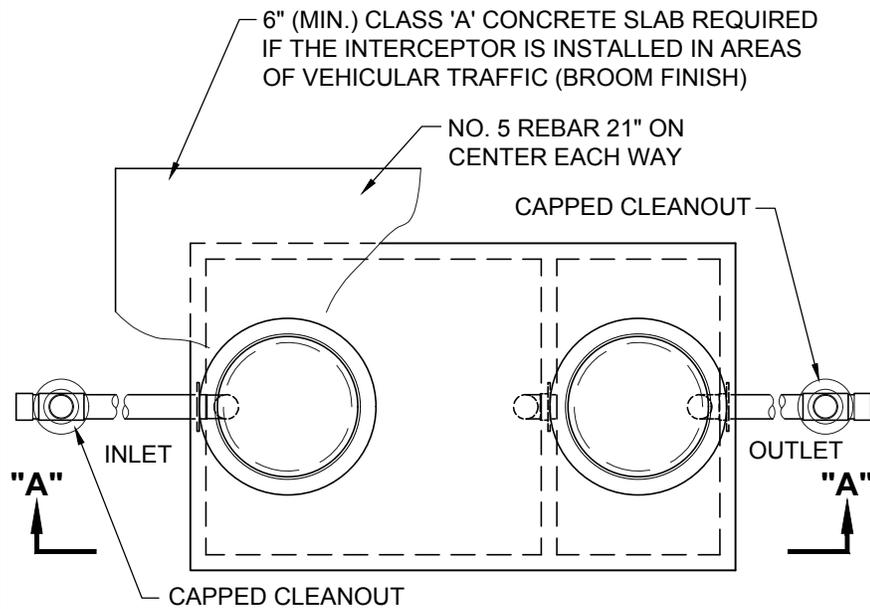
Issued: May 2019	Sheet 2 of 2
CITY OF YUMA CONSTRUCTION STANDARD DETAIL DRAWINGS	
STANDARD NO. 6-080 60" POLYMER MANHOLE JOINT	
REFERENCE: ARMOROCK POLYMER PRODUCTS	



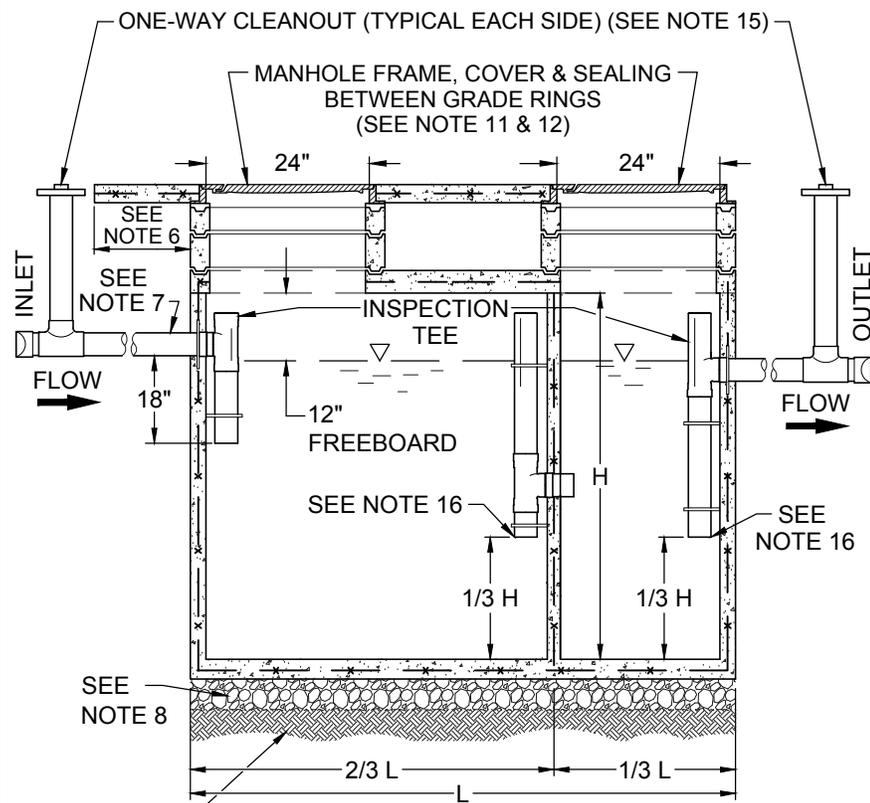
Issued: May 2019

CITY OF YUMA
 CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 6-090
PIPE JOINTS AT
POLYMER MANHOLE

REFERENCE: GENEVA POLYMER PRODUCTS



PLAN



SECTION A-A

SUBGRADE
COMPACTED
TO 95% (MIN)

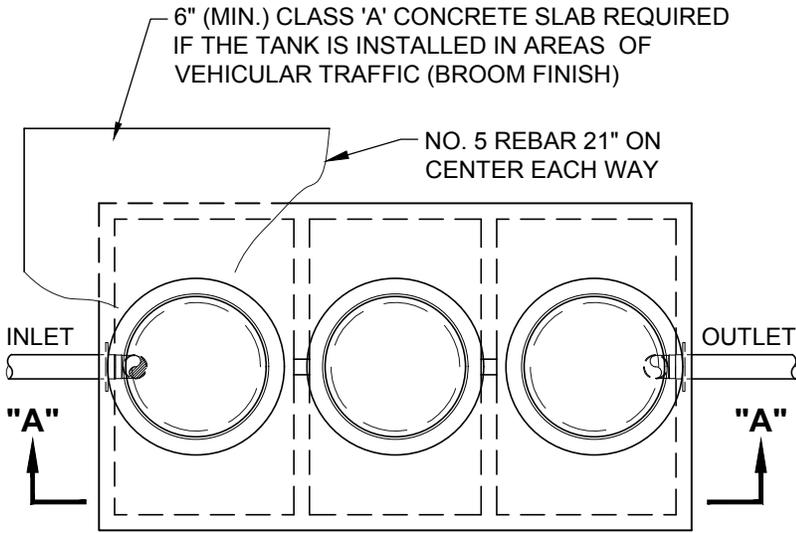
NOTES

1. Grease interceptors shall comply with the City of Yuma's current ordinance and the adopted plumbing code, as amended.
2. All grease interceptor designs shall be signed by a Registered Arizona Professional Engineer.
3. All new food service establishments shall be required to install minimum a 500 gallon outdoor grease interceptor unless granted a variance by the City of Yuma Utilities Division.
4. Tank capacity to be determined at the time of permit application.
5. The grease interceptor shall meet the following structural criteria:
 - a. Class A Concrete 28 day $f'c = 3,000$ psi
 - b. Rebar ASTM A615 Grade 60
 - c. Mesh ASTM A185
 - d. Design: ACI 318-14 (Current Building Code) ASTM C857 Minimum Structural Design Loading for Underground Precast Concrete Utility Structures
 - e. Loads: H20 Truck Wheel w/ 30% Impact per AASHTO
6. Concrete slab shall extend 24" (min.) beyond all sides of the tank in traffic areas.
7. Inlet and outlet shall be watertight to structure. A water stop consisting of a standard manhole adapter gasket shall be grouted into the walls around the inlet and outlet pipes. An asphalt caulking shall be used to seal all joints.
8. Place 12" (min.) ABC bedding material compacted to 100% under the tank.
9. All grease interceptors shall be located outside public right-of-way.
10. Grease interceptors shall be located where it will be accessible to waste hauler pumpers.
11. Manhole covers and grade rings shall be installed in accordance with Standard No. 6-040.
12. Manholes shall have built in gaskets and shall be gastight and watertight when in place.
13. All surface waters shall drain away from manholes.
14. Not approved for use inside an enclosed building. Tank shall be a minimum of 2-feet outside of building foundation.
15. All wyes shall be one-way cleanouts wyes, sweeping away from grease interceptor except as noted by the adopted plumbing code.
16. The outlet down draft tube shall be located $1/3$ of the total interceptor height from the bottom.

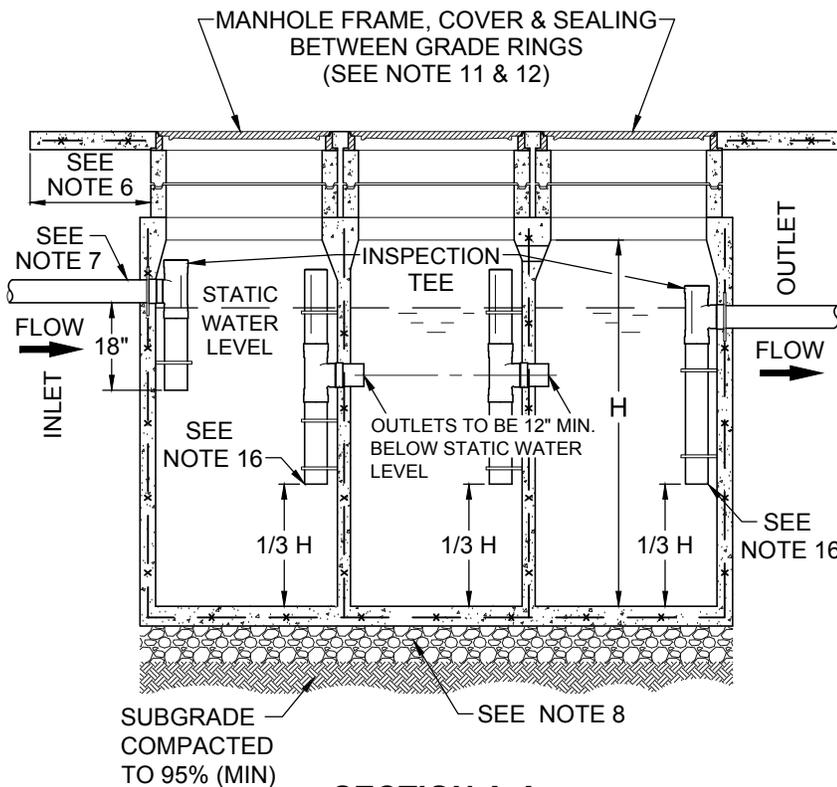
Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 6-100
TWO STAGE GREASE
INTERCEPTOR**



PLAN



SECTION A-A

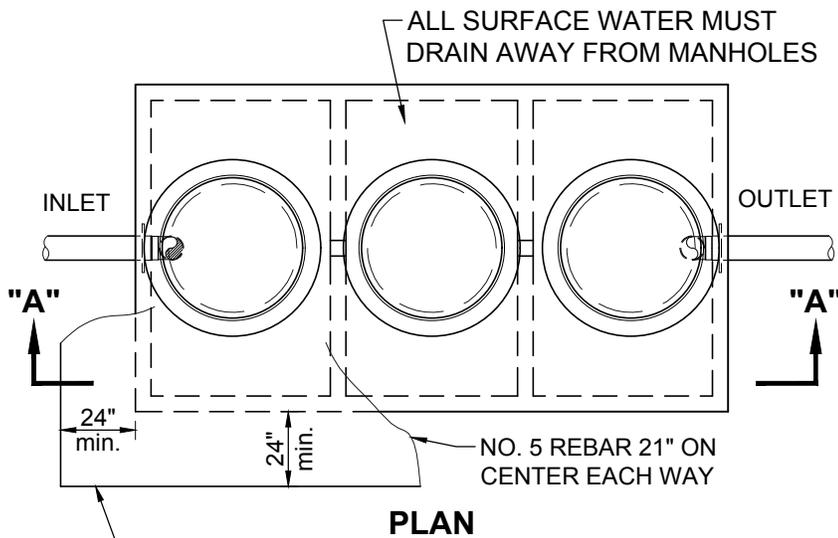
NOTES

1. Grease interceptors shall comply with the City of Yuma's current ordinance and the adopted plumbing code, as amended.
2. All grease interceptor designs shall be signed by a Registered Arizona Professional Engineer.
3. All new food service establishments shall be required to install minimum a 500 gallon outdoor grease interceptor unless granted a variance by the City of Yuma Utilities Division.
4. Tank capacity to be determined at the time of permit application.
5. The grease interceptor shall meet the following structural criteria:
 - a. Class A Concrete 28 day $f'_c = 3,000$ psi
 - b. Rebar ASTM A615 Grade 60
 - c. Mesh ASTM A185
 - d. Design: ACI 318-14 (Current Building Code) ASTM C857 Minimum Structural Design Loading for Underground Precast Concrete Utility Structures
 - e. Loads: H20 Truck Wheel w/ 30% Impact per AASHTO
6. Concrete slab shall extend 24" (min.) beyond all sides of the tank in traffic areas.
7. Inlet and outlet shall be watertight to structure. A water stop consisting of a standard manhole adapter gasket shall be grouted into the walls around the inlet and outlet pipes. An asphalt caulking shall be used to seal all joints.
8. Place 12" (min.) ABC bedding material compacted to 100% under the tank.
9. All grease interceptors shall be located outside public right-of-way.
10. Grease interceptors shall be located where it will be accessible to waste hauler pumpers.
11. Manhole covers and grade rings shall be installed in accordance with Standard No. 6-040.
12. Manholes shall have built in gaskets and shall be gastight and watertight when in place.
13. All surface waters shall drain away from manholes.
14. Not approved for use inside an enclosed building. Tank shall be a minimum of 2-feet outside of building foundation.
15. All wyes shall be one-way cleanouts wyes, sweeping away from grease interceptor except as noted by the adopted plumbing code.
16. The outlet down draft tube shall be located 1/3 of the total tank height from the bottom.

Issued: May 2019

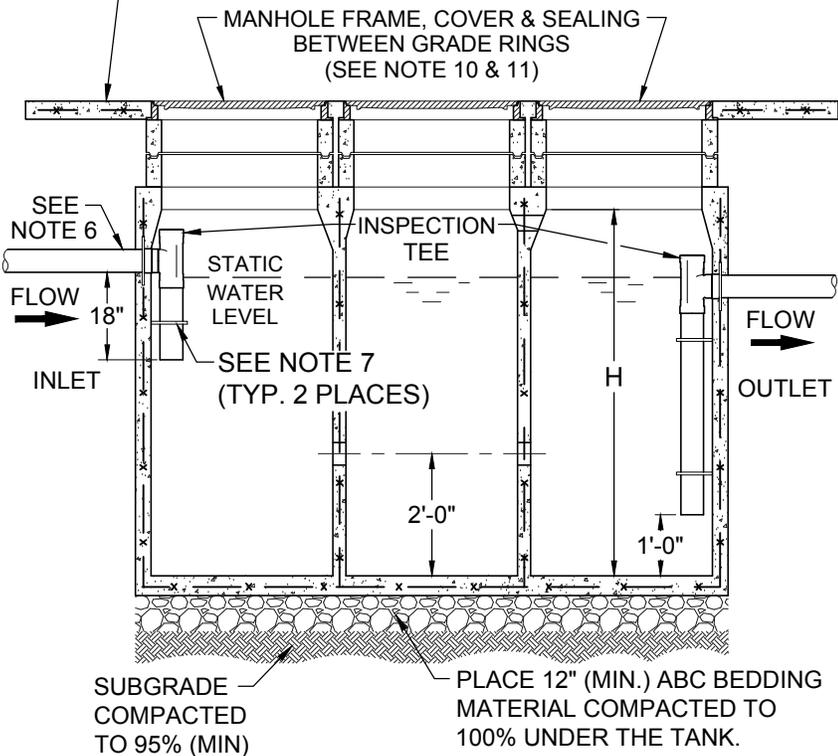
CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 6-105
THREE STAGE
GREASE INTERCEPTOR



PLAN

6" (MIN.) CLASS 'A' CONCRETE SLAB REQUIRED IF THE TANK IS INSTALLED IN AREAS OF VEHICULAR TRAFFIC. EXTEND 24" MIN. BEYOND ALL SIDES OF TANK (BROOM FINISH).



SECTION A-A

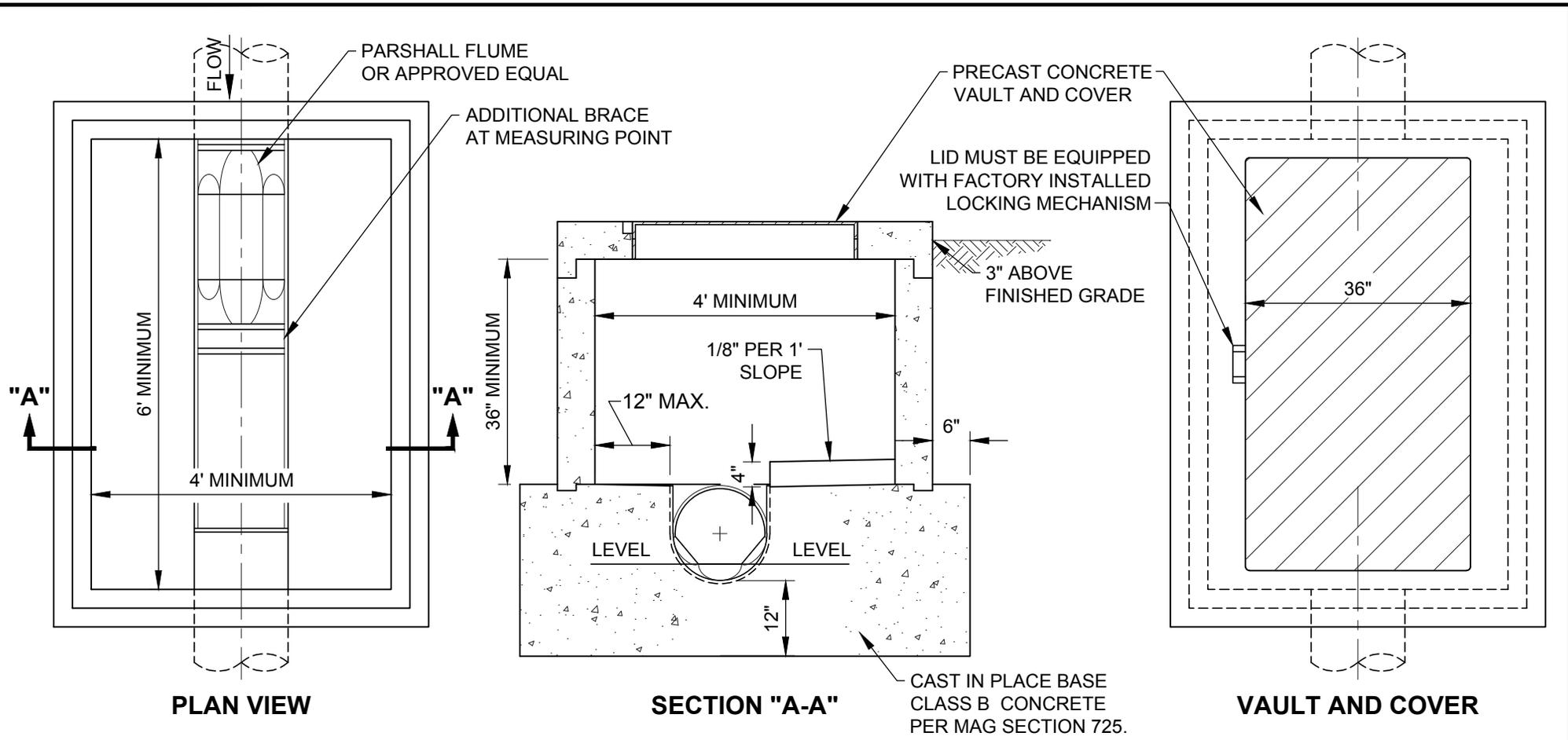
NOTES

1. Oil/water/grit separators shall comply with the City of Yuma's current ordinance and the adopted plumbing code, as amended.
2. All oil/water/grit separator designs shall be signed by a Registered Arizona Professional Engineer.
3. Tank capacity to be determined at the time of permit application.
4. The oil/water/grit separator shall meet the following structural criteria:
 - a. Class A Concrete 28 day $f_c = 3,000$ psi
 - b. Rebar ASTM A615 Grade 60
 - c. Mesh ASTM A185
 - d. Design: ACI 318-14 (Current Building Code) ASTM C857 Minimum Structural Design Loading for Underground Precast Concrete Utility Structures
 - e. Loads: H20 Truck Wheel w/ 30% Impact per AASHTO
5. Invert grades of inlet and outlet pipes to be provided by design engineering.
6. Inlet and outlet shall be watertight to structure. A water stop consisting of a standard manhole adapter gasket shall be grouted into the walls around the inlet and outlet pipes. An asphalt caulking shall be used to seal all joints.
7. Stainless steel clamp and bolts 3'-0" o.c. max. (typical) minimum 2 required.
8. All oil/water/grit separators shall be located outside public right-of-way except with written approval of the City Engineer.
9. Oil/water/grit separators shall be located where it will be accessible to waste hauler pumps.
10. Manhole covers and grade rings shall be installed in accordance with Standard No. 6-040.
11. Manholes shall have built in gaskets and shall be gastight and watertight when in place.
12. Not approved for use inside an enclosed building. Tank shall be a minimum of 2-feet outside of building foundation.
13. All wyes shall be one-way cleanouts wyes, sweeping away from oil/water/grit separator except as noted by the adopted plumbing code.
14. The outlet down draft tube shall be located 1/3 of the total tank height from the bottom.
15. Install interceptor per manufacturer's specifications.
16. Pipe and fittings to be 4" schedule 40 PVC DWV.
17. All waste shall enter through inlet fittings only.
18. Protective coating shall cover all internal surfaces and meet the criteria of ASTM-309.

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

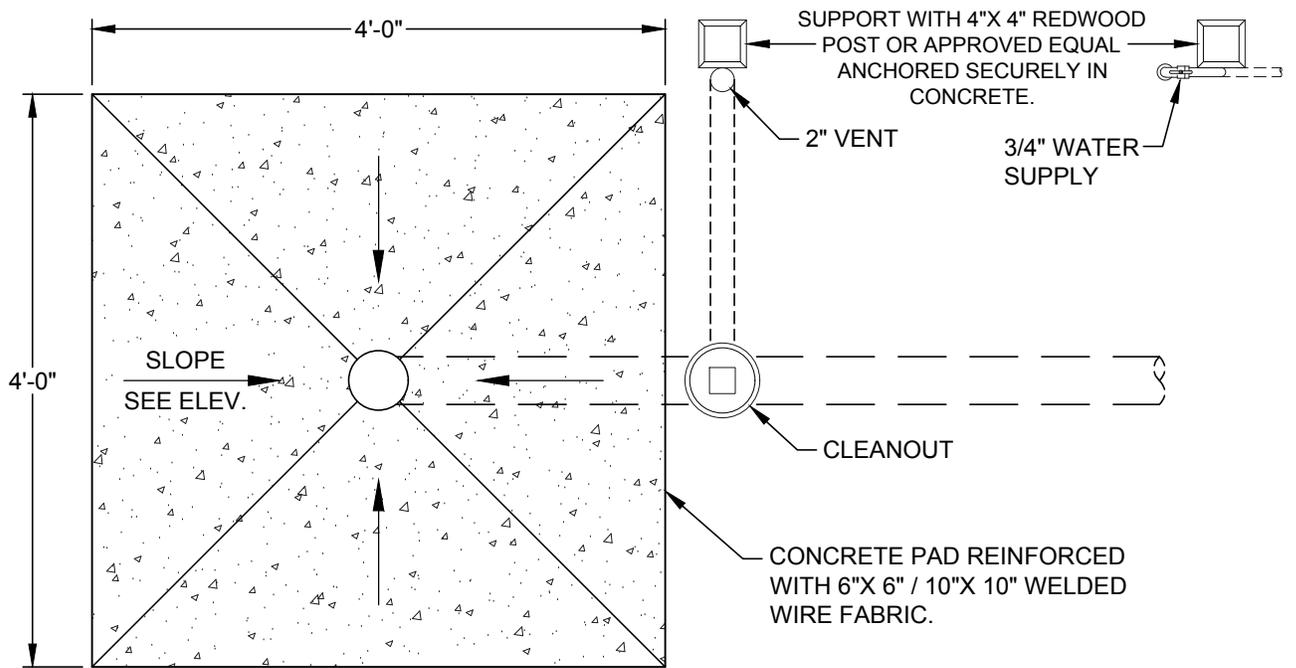
STANDARD NO. 6-110
OIL / WATER / GRIT
SEPARATOR



NOTES

1. Minimum inside dimensions shall be 4'x 6', with a minimum inside height of 36" from top of flume. Any alterations to these requirements will be reviewed on a case by case basis by City of Yuma Utilities Department.
2. Access to vault must be a Bilco style door with a factory installed locking mechanism and a minimum inside opening of 29". Load specifications of door reviewed depending on location of the vault.
3. Vault shall be constructed on a straight run of buildings sewer, with 24 hour accessibility and located on the owners property as close as possible to the public right of way.
4. The Parshall Flume or approved equal, shall be installed per the manufacturer's recommendations.
5. Top of vault shall be a minimum 3", and a maximum of 24" above finished grade.
6. Industry may be required to install flow monitoring equipment approved by the division.

Issued: May 2019
CITY OF YUMA CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 6-115 CONTROL SAMPLING VAULT

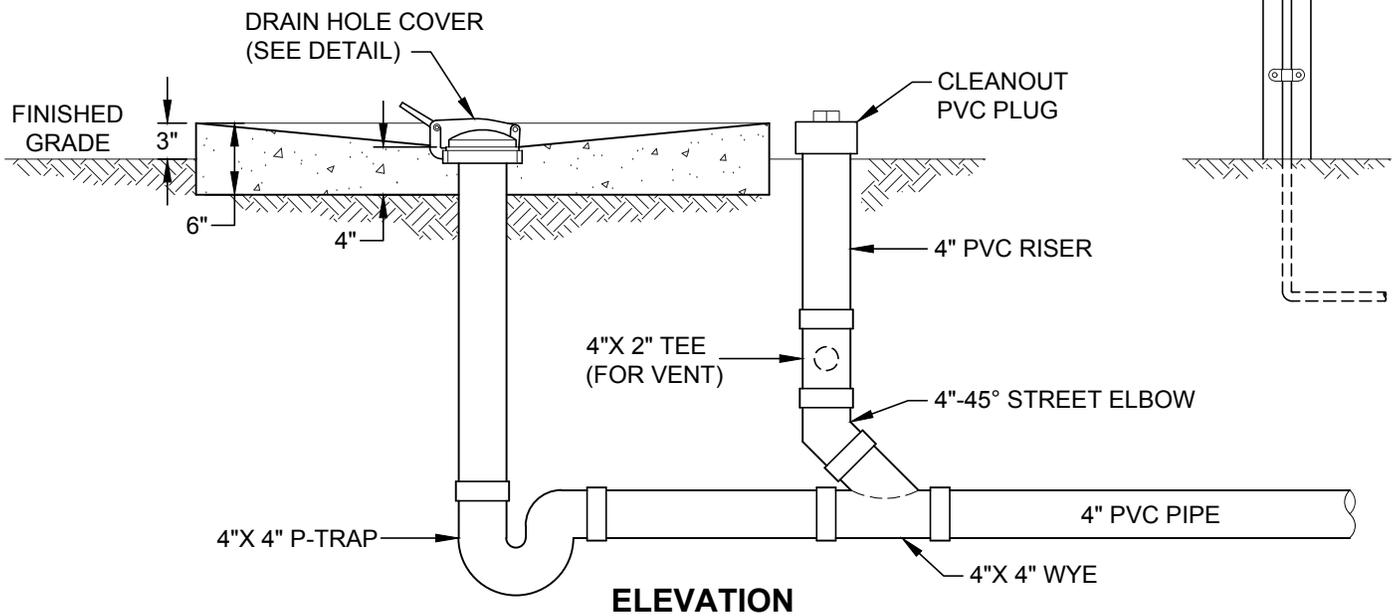


PLAN VIEW

NOTES

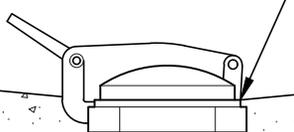
1. Must install Reduced Pressure Backflow Prevention device on water service line prior to installation of this disposal facility.
2. Site must be physically locked when not in use.

*ONLY NEEDED IF EXISTING HOSE BIBB LOCATION IS NOT ACCESSIBLE.



ELEVATION

CAST COVER IN SLAB SO LIP OF OPENING IS FLUSH FOR WASHDOWN.



VAREC FIG. 46 DRAIN HOLE COVER ASSEMBLY FOOT OPERATED, CAST IRON BODY, BRONZE COVER, OR APPROVED EQUAL.

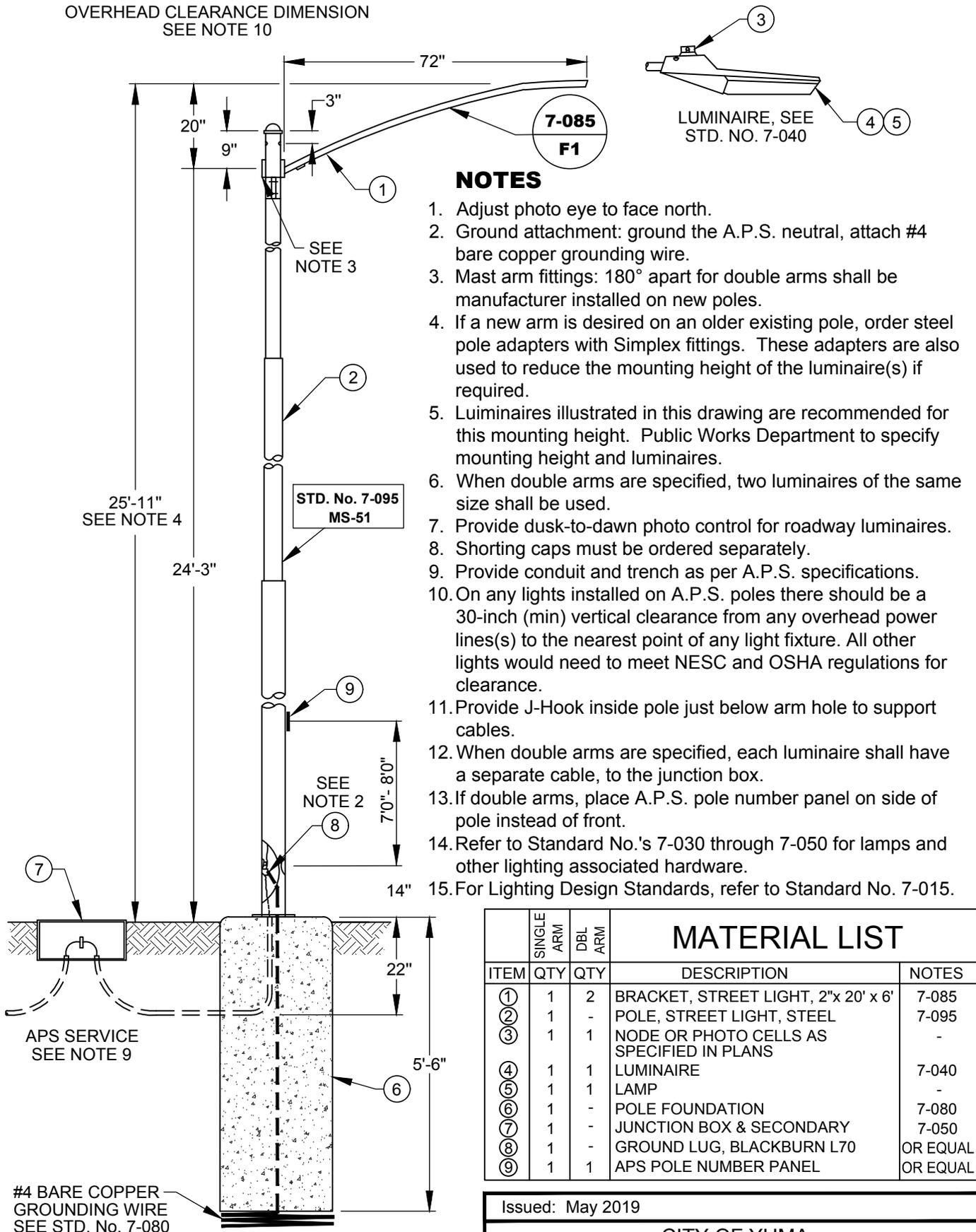
DRAIN HOLE COVER DETAIL

Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

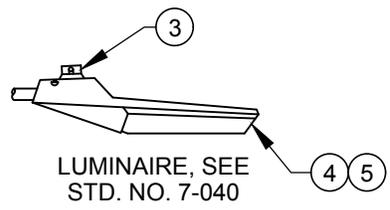
**STANDARD NO. 6-120
RECREATIONAL VEHICLE
DISPOSAL FACILITY**

OVERHEAD CLEARANCE DIMENSION
SEE NOTE 10



NOTES

1. Adjust photo eye to face north.
2. Ground attachment: ground the A.P.S. neutral, attach #4 bare copper grounding wire.
3. Mast arm fittings: 180° apart for double arms shall be manufacturer installed on new poles.
4. If a new arm is desired on an older existing pole, order steel pole adapters with Simplex fittings. These adapters are also used to reduce the mounting height of the luminaire(s) if required.
5. Luminaires illustrated in this drawing are recommended for this mounting height. Public Works Department to specify mounting height and luminaires.
6. When double arms are specified, two luminaires of the same size shall be used.
7. Provide dusk-to-dawn photo control for roadway luminaires.
8. Shorting caps must be ordered separately.
9. Provide conduit and trench as per A.P.S. specifications.
10. On any lights installed on A.P.S. poles there should be a 30-inch (min) vertical clearance from any overhead power lines(s) to the nearest point of any light fixture. All other lights would need to meet NESC and OSHA regulations for clearance.
11. Provide J-Hook inside pole just below arm hole to support cables.
12. When double arms are specified, each luminaire shall have a separate cable, to the junction box.
13. If double arms, place A.P.S. pole number panel on side of pole instead of front.
14. Refer to Standard No.'s 7-030 through 7-050 for lamps and other lighting associated hardware.
15. For Lighting Design Standards, refer to Standard No. 7-015.



MATERIAL LIST				
ITEM	SINGLE ARM QTY	DBL ARM QTY	DESCRIPTION	NOTES
①	1	2	BRACKET, STREET LIGHT, 2"x 20' x 6'	7-085
②	1	-	POLE, STREET LIGHT, STEEL	7-095
③	1	1	NODE OR PHOTO CELLS AS SPECIFIED IN PLANS	-
④	1	1	LUMINAIRE	7-040
⑤	1	1	LAMP	-
⑥	1	-	POLE FOUNDATION	7-080
⑦	1	-	JUNCTION BOX & SECONDARY	7-050
⑧	1	-	GROUND LUG, BLACKBURN L70	OR EQUAL
⑨	1	1	APS POLE NUMBER PANEL	OR EQUAL

Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 7-010
STREET LIGHT ASSEMBLY
72" X 20" MAST ARM
AND 25' STEEL POLE

CITY OF YUMA STREET LIGHT POLES			
POLE TYPE	MOUNTING HEIGHT	MAST ARM	CITY OF YUMA STANDARD
TYPE 1	39'-4"	8'-0"	STD.NO. 7-005
TYPE 2	25'-11"	6'-0"	STD.NO. 7-010

CITY OF YUMA LED STREET LIGHTS				
LED TYPE	NOMINAL LUMENS	OPTICS DISTRIBUTION	LIGHT LOSS FACTOR (LLF)	COLOR TEMPERATURE (CCT)
TYPE A	4,700	TYPE III	0.72	3000 K
TYPE B	9,000	TYPE III	0.72	3000 K
TYPE C	15,700	TYPE III	0.72	3000 K
TYPE D	17,400	TYPE III	0.72	3000 K

LIGHTING DESIGN CRITERIA FOR CITY OF YUMA ROADWAYS / STREETS					
ROAD CLASSIFICATION	PEDESTRIAN CLASSIFICATION	AVERAGE LUMINANCE L_{avg} (cd / m ²)	AVERAGE UNIFORMITY RATIO L_{avg} / L_{min}	MAXIMUM UNIFORMITY RATIO L_{max} / L_{min}	MAXIMUM VEILING LUMINANCE RATIO LV_{max} / L_{avg}
EXPRESSWAY	NONE	1.0	3.0	5.0	0.3
PRINCIPAL / MINOR ARTERIAL	LOW	0.6	3.5	6.0	0.3
COLLECTOR STREET	LOW	0.4	4.0	8.0	0.4
LOCAL STREET	LOW	0.3	6.0	10.0	0.4

L_{avg} - MINIMUM MAINTAINED AVERAGE PAVEMENT LUMINANCE

L_{min} - MINIMUM PAVEMENT LUMINANCE

LV_{max} - MAXIMUM VEILING LUMINANCE

NOTES

1. Street / Roadway lighting for pedestrian areas, bikeways and intersections shall meet the lighting design criteria specified in the Illuminating Engineering Society (IES) Publication RP-08-14.
2. See Standard 7-020 for street light spacing.
3. Leotek fixtures only. Alternative suppliers that are compatible with Smart City Technology might be considered. Such alternatives shall be submitted to Public Works for approval prior to installation.
4. All LED fixtures shall be provided with a photo electric control module.
5. All LED fixtures and luminaire arms shall have a 10 foot minimum clearance from overhead power lines and meet NESC and OSHA regulations for clearance unless installed and maintained by Arizona Public Service (APS).

Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 7-015
STREET LIGHT DESIGN

CITY OF YUMA - STREET LIGHT STANDARD SPACING

STREET CLASSIFICATION	CITY OF YUMA STANDARD	LUMINAIRE	Pole Type I (Standard No. 7-005)				Pole Type II (Standard No. 7-010)				
			Mtg. Ht.: 39.3'		Mast Arm 8'		Mtg. Ht.: 25.9'		Mast Arm 6'		
			Onesided	Median (Twin)	Opposite	Staggered	Onesided	Median (Twin)	Opposite	Staggered	
LOCAL TWO LANE STREET WIDTH (B of S/W)= 51' PAVEMENT TYPE = Asphalt PEDESTRIAN VOLUME= Low	STD. NO. 2-030	TYPE A	110'		240'	240'	100'		175'	280'	
		TYPE B	210'		300'	300'	200'		220'	300'	
		TYPE C	300'								
		TYPE D									
LOCAL COMMERCIAL-INDUSTRIAL STREET WIDTH (B of S/W)= 56' PAVEMENT TYPE = Asphalt PEDESTRIAN VOLUME= Low	STD. NO. 2-035	TYPE A	100'		220'	220'	90'		170'	250'	
		TYPE B	190'		300'	300'	180'		220'	300'	
		TYPE C	290'						300'		
		TYPE D									
RESIDENTIAL COLLECTOR (w / median or turn lane) WIDTH (B of S/W)= 57' PAVEMENT TYPE = Asphalt PEDESTRIAN VOLUME= Low	STD. NO. 2-025	TYPE A		100'	160'	160'		140'	170'	180'	
		TYPE B	130'	210'	300'	300'	120'	190'	210'	300'	
		TYPE C	230'	290'			170'				
		TYPE D									
COLLECTOR (w/ median / turn lane and detached sidewalk)¹ WIDTH (B of S/W)= 75' PAVEMENT TYPE = Asphalt PEDESTRIAN VOLUME= Low	STD. NO. 2-020	TYPE A		100'	150'	150'		140'	170'	190'	
		TYPE B	120'	210'	290'	300'	110'	190'	200'	300'	
		TYPE C	200'	290'			170'				
		TYPE D									
MINOR ARTERIAL (w / median / turn lane and detached sidewalk)² WIDTH (B of S/W)= 97' PAVEMENT TYPE = Asphalt PEDESTRIAN VOLUME= Low	STD. NO. 2-015	TYPE A									
		TYPE B		120'	130'/150'	130'/150'					
		TYPE C		220'	220'/260'	220'/260'					
		TYPE D									
PRINCIPAL ARTERIAL (w / median / turn lane and detached sidewalk)² WIDTH (B of S/W)= 121' PAVEMENT TYPE = Asphalt PEDESTRIAN VOLUME= Low	STD. NO. 2-010	TYPE A									
		TYPE B		110'							
		TYPE C		190'	180'/210'	180'/210'					
		TYPE D									
EXPRESSWAY^{3,4} WIDTH (Pavement Edge to Edge)= 110' PAVEMENT TYPE = Asphalt PEDESTRIAN VOLUME= None	STD. NO. 2-005	TYPE A									
		TYPE B		110'							
		TYPE C		190'	120'	120'					
		TYPE D		210'	140'	140'					

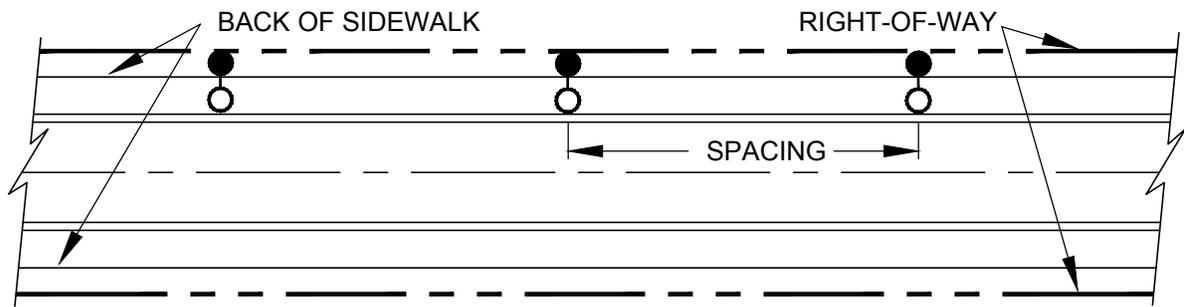
NOTES

1. Refer to Standard 7-025 for standard street light layout configurations.
2. Spacing of street light poles shall not exceed 300 feet on any street type or layout configuration.
3. Street light poles shall be placed a minimum of 4 feet from the back of the curb for urban streets and outside clear zones for rural streets (minimum 10 feet).

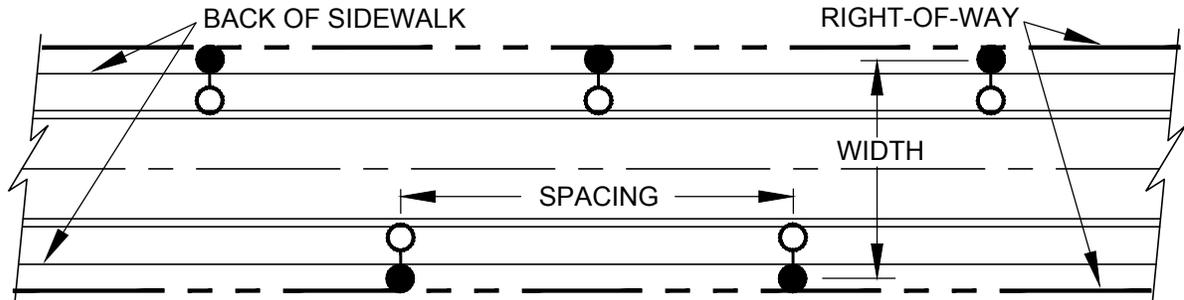
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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

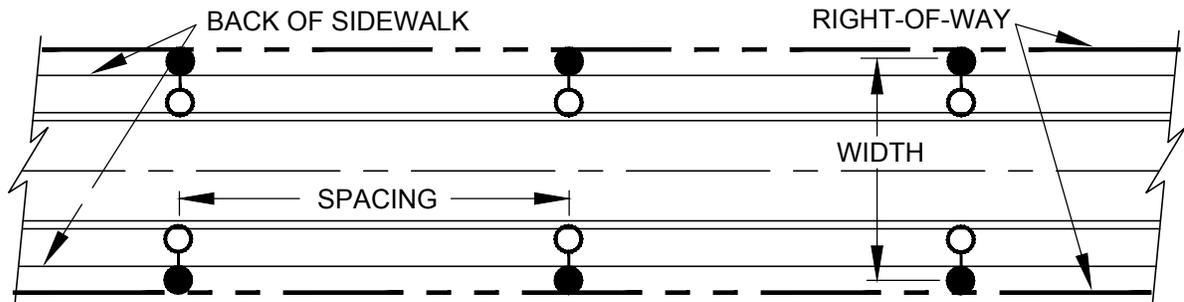
**STANDARD NO. 7-020
STREET LIGHT SPACING**



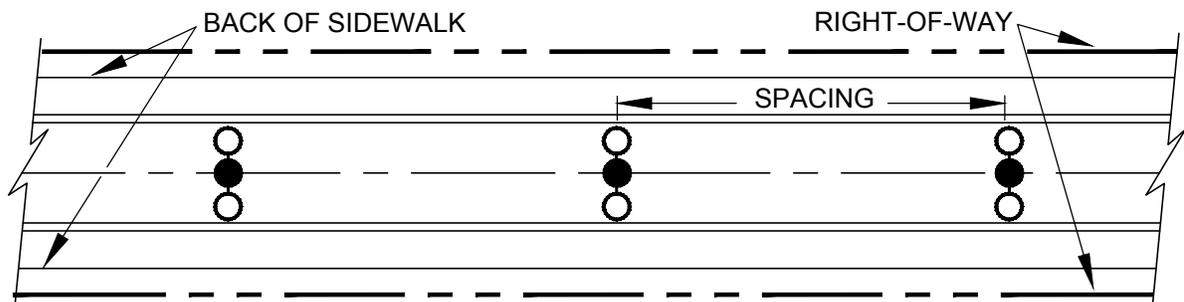
STREET LIGHTS ON ONE SIDE OF THE STREET



STREET LIGHTS STAGGERED - BOTH SIDES OF STREET



STREET LIGHTS OPPOSITE BOTH SIDES OF STREET



STREET LIGHTS IN MEDIAN AND/OR CENTER OF STREET

 SUPPORT POLE
 LUMINAIRE

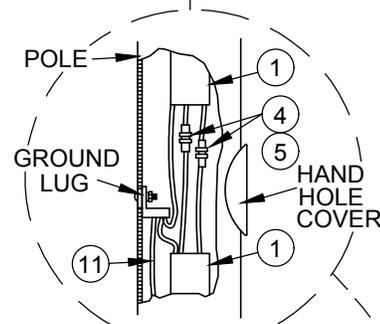
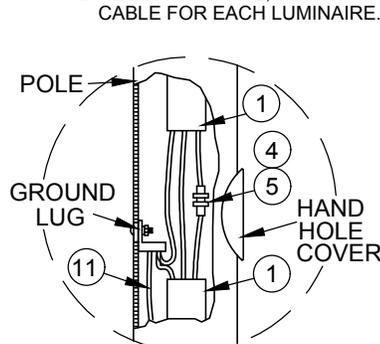
Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 7-025
STREET LIGHT LAYOUT**

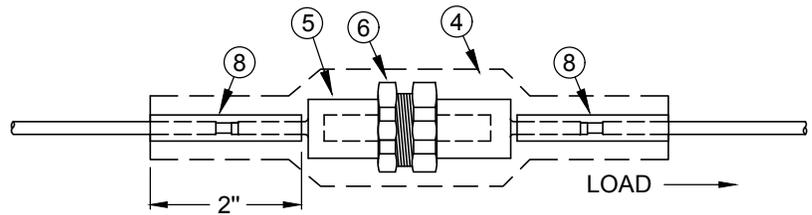
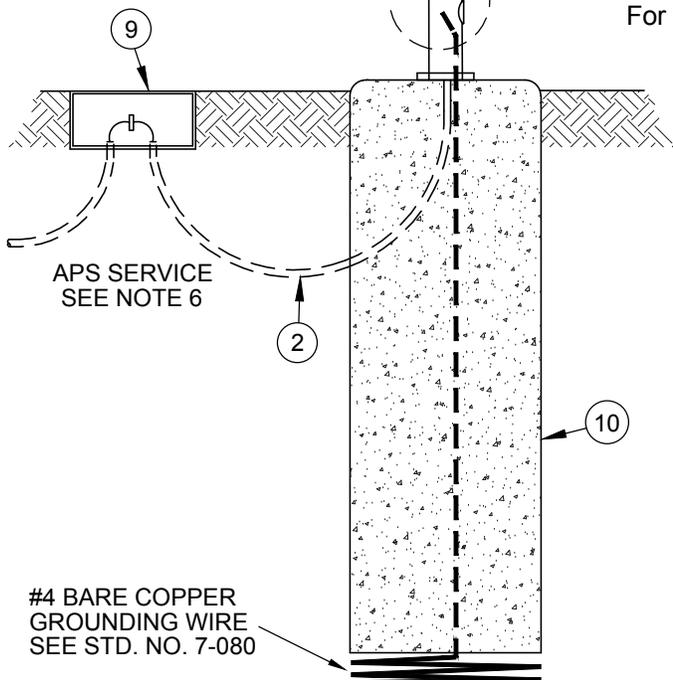
120-VOLT CONNECTION

NOTE: USE A SEPARATE, FUSED CABLE FOR EACH LUMINAIRE.



120 / 240 V CONNECTION

NOTE: USE A SEPARATE, FUSED CABLE FOR EACH LUMINAIRE.



NOTES

1. Use indent tool to compress the fuse holder onto the wire.
2. Cable insulation shall butt against the fuse holder. Do not remove an excess amount of insulation from the conductor.
3. Use a two inch (2") piece of heat shrink tubing on each side of the fuse holder, as shown, to insulate and waterproof.
4. Ground attachment: ground the A.P.S. neutral, attach #4 bare copper grounding wire.
5. Provide conduit and trench as per A.P.S. specifications.
6. If more than one luminaire, provide separate, fused cable from each luminaire to junction box.
7. Cable must be type UFNM (underground feed, non-metallic) having two #12 conductors and a #12 ground wire.
8. For 120-volt connections, provide fuse for hot conductor only. For 240-volt connections, provide fuses for both conductors.

MATERIAL LIST

ITEM	QTY	DESCRIPTION	NOTES
①	47	CABLE, 2-#12 CU. +#12 CU. GRD.	
②	6	CONDUIT, 1" PVC FLEX CORR	
③	-	CONN BUTT SPLICE, #12 - #12	
④	-	COVER, SPLICE 2/0 3/0 4/0	
⑤	1	FUSE, CARTRIDGE 10A	
⑥	1	FUSE HOLDER, IN-LINE 600 V	
⑦	-	NOT USED	
⑧	AR	TUBING, SHRINKABLE 1/4"	
⑨	1	JUNCTION BOX & SECONDARY	7-050
⑩	1	POLE FOUNDATION	7-080
⑪	-	GROUND WIRE, COPPER, AWG-6	7-080

Issued: May 2019

CITY OF YUMA
 CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 7-030
STREET LIGHT ASSEMBLY DETAIL
INTERNAL POLE WIRING
FOR UNDERGROUND CIRCUIT

POLES PAINTS AND COATINGS FOR STEEL STREET LIGHT POLES/ARMS AND STEEL STUB POLES

1.0 ACCEPTABLE BELOW GRADE COATING PROCEDURES FOR GALVANIZED STREET LIGHT AND STUB POLES.

Coat pole from 12" above grade to the butt per either of the following options.

1.1 "CORROCOTE"

Galvanizing thickness shall be a minimum of 2.5 ounces/sq. ft. prior to coating (thickness which is greater than required by ASTM A123 allows for material removal due to surface preparation). "Brush" Blast to etch galvanizing to a minimum acceptable substrate profile of 1.5 mils. Do not fracture zinc coating. Preheat, then coat outside with Madison Chemicals CORROCOTE II or CHEMLINE CHEMTHANE 2260 POLYURETHANE to a minimum dry film thickness of 12 mils.

NOTES

1. All foreign zinc substrate surface contaminants (i.e. oil based or other materials not soluble in water) shall be removed prior to etching.
2. Etching shall not be done when steel is at less than 5 degrees above the dew point.
3. After etching, the surface shall be free of blast residue dust and protected from contamination (including moisture).
4. Coating shall be applied before surface oxidation occurs and preferably within 48 hours after application of zinc coating.
5. Coating must be applied with GRACO HYDRA-CAT SYSTEM No. 954-470 (complete with heated hoses and drum heaters) or approved equal.
6. All edges to be feathered to eliminate lips.

1.2 MASTIC AND TAPE

Clean surface and coat with VALSPAR VM 355 coal tar epoxy, to a minimum dry film thickness of 20 mils. after epoxy has dried, conformably half lap tape pole with corrosion resistant 10 mil tape. This tape shall be uniform and without folds, wrinkles or gaps.

2.0 COATING PROCEDURE FOR BROWN PAINTED STREET LIGHT POLES AND ARMS

Poles shall be powder coated per the following (solvent based paint systems are not acceptable).

2.1 POWDER COAT SYSTEM

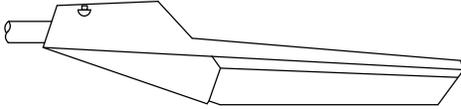
- 2.1.1 Blast clean pole to a minimum of "Commercial Grade" SSPC SP6. Surfaces shall be free of blast residue dust and protected from foreign contaminants (including moisture).
- 2.1.2 Electrostatically apply TGIC polyester powder to a minimum thickness of 3.0 mils. Cure coating per manufacturer's recommendations. Powder coating shall cover the full length of the pole including the below grade portion.
- 2.1.3 Coat from 12" above grade to the butt by either of the following methods.
 - 2.1.3.1 Coat with MADISON CHEMICALS CORROCOTE II or CHEMLINE CHEMTHANE 2260 polyurethane to a minimum dry film thickness of 12 mils,
 - 2.1.3.2 Finish pole from 12" above ground line to bottom with VALSPAR VM 355 coal tar epoxy to a minimum dry film thickness of 20 mils. after epoxy has dried, conformably half lap tape pole with corrosion resistant 10 mil tape. This tape shall be uniform without folds, wrinkles or gaps.

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

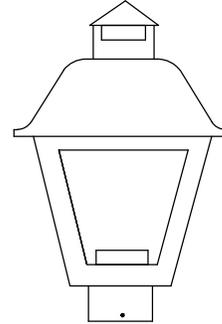
**STANDARD NO. 7-035
PROTECTIVE COATING
FOR STEEL LIGHT POLES**

COBRAHEAD LED FIXTURE



ROADWAY 90° CUTOFF

COLONIAL LED FIXTURE



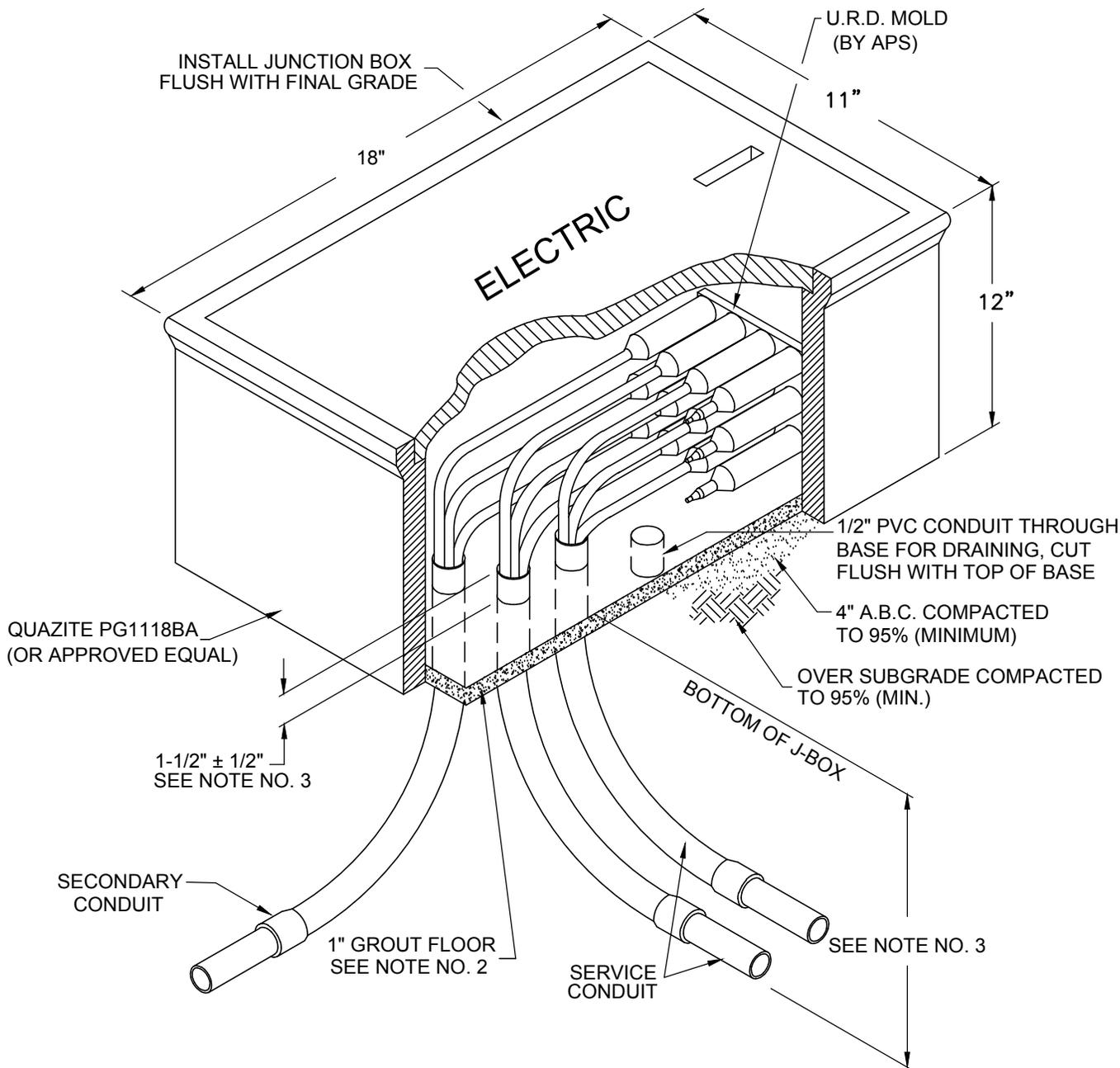
COLONIAL

LED FIXTURES				
TYPE	WATTS	VOLTS	INITIAL LUMENS	LEOTEK MODEL NO. OR APPROVED EQUAL
A	40	120 - 277	4470	GCJ1 20H MV WW 3 GY 608 FPCR7-CR
B	150	MULTI TAP	9000	N/A
C	135	120 - 277	14080	GCM2 30H MV WW 3R 1A FPCR7-CR MOD
D	163	120 - 277	18600	GCL1 60G MV WW 3R GY 800 FPCR7-CR MOD

NOTES

1. Lamps and photo controls must be ordered separately.
2. Contact the City of Yuma Public Works Department for the latest approved manufacturers and model numbers for lamps, fixtures, photoelectric controls, and nodes.

Issued: May 2019
CITY OF YUMA CONSTRUCTION STANDARD DETAIL DRAWINGS STANDARD NO. 7-040 STREET LIGHT FIXTURES LED LUMINAIRES



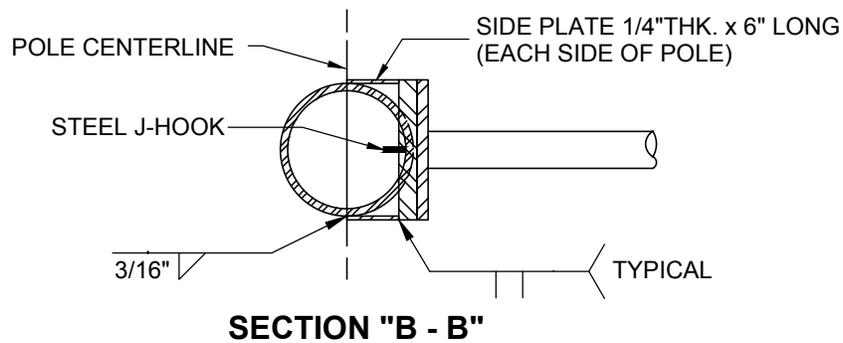
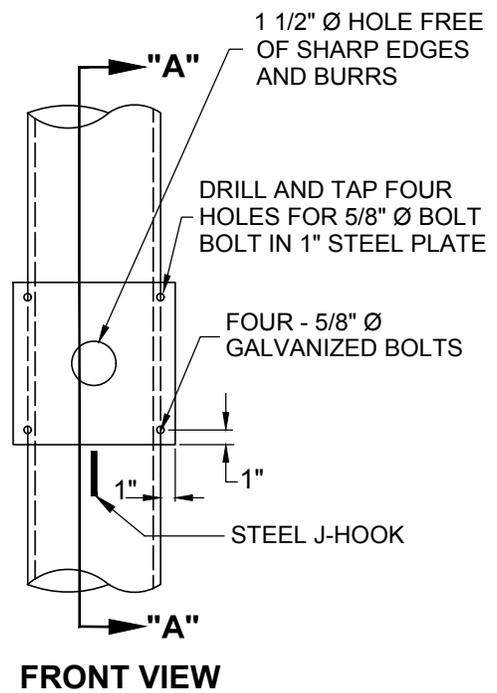
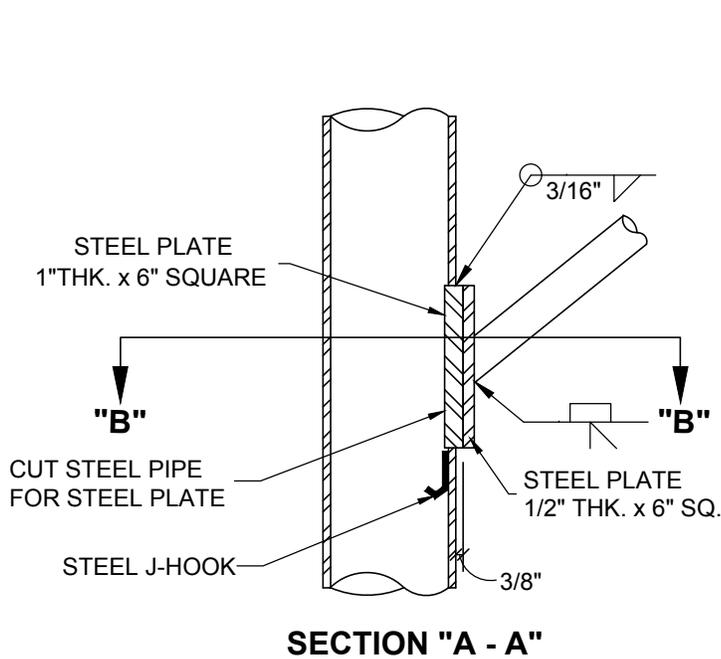
NOTES

1. "Penta-Head" lid-locking bolts shall be installed prior to energizing the underground systems.
2. Concrete grout (minimum 2000psi).
3. Bring all cable/conduits in at the same end of the box to enable cables to be easily raised and lowered. Conduit sweeps shall be positioned and aligned in the best manner suited for each situation.
4. Backfill beneath and around the junction box shall consist of four inches (4") of ABC (minimum) and be compacted to 95% (minimum).

Junction boxes shall be provided by the Arizona Public Service Company at no charge.

Issued: May 2019

CITY OF YUMA
 CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 7-050
HEAVY DUTY POLYMER
JUNCTION BOX
FOR STREET LIGHT SERVICE



**MAST ARM CONNECTION FOR:
STANDARD DETAIL 7-090 (MS-41 & MS-42)
STANDARD DETAIL 7-095 (MS-51)**

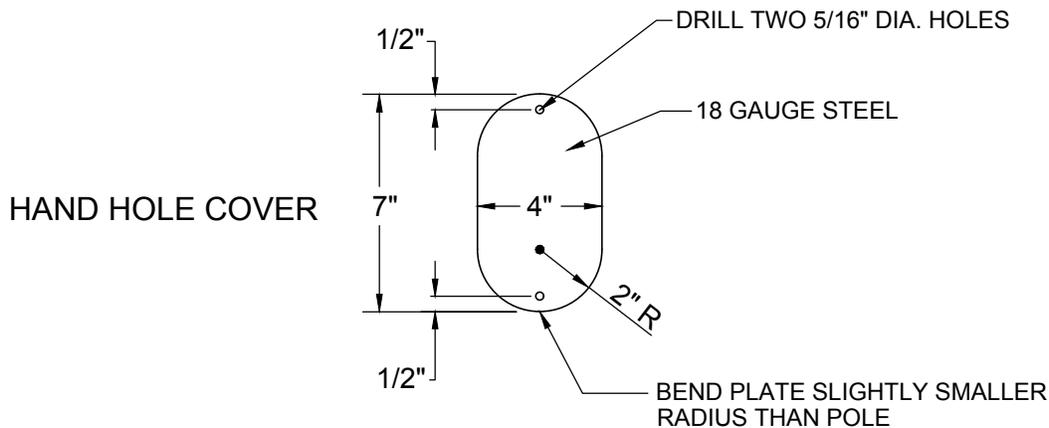
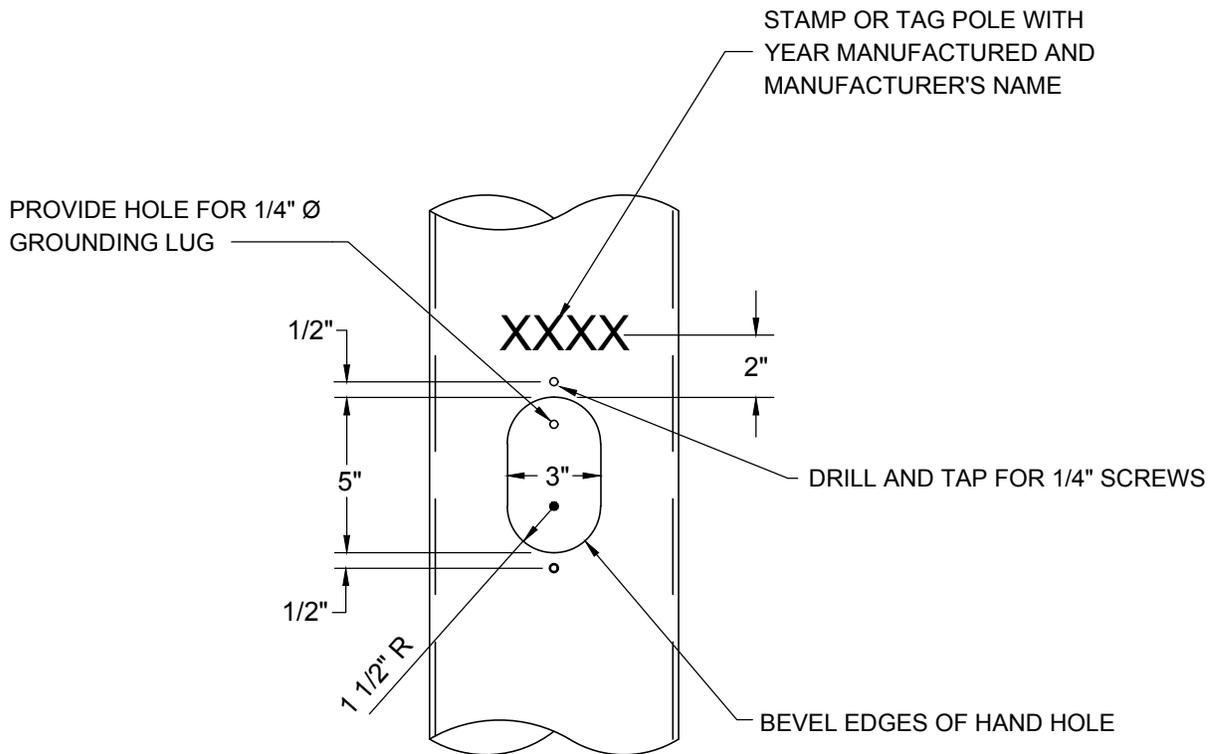
NOTE

1. Provide connection on opposite side of pole at two light condition

Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 7-055
MAST ARM CONNECTION DETAIL**

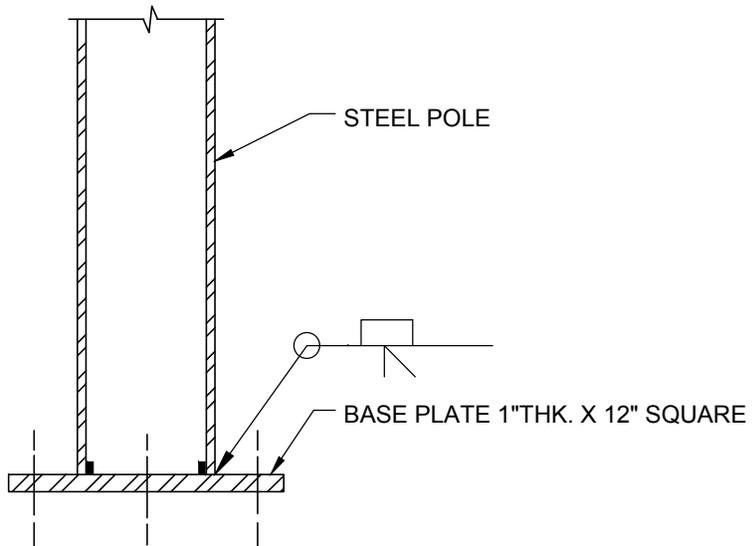


**HAND HOLE DETAIL FOR:
STANDARD DETAIL 7-090 (MS-41 & MS-42)
STANDARD DETAIL 7-095 (MS-51)**

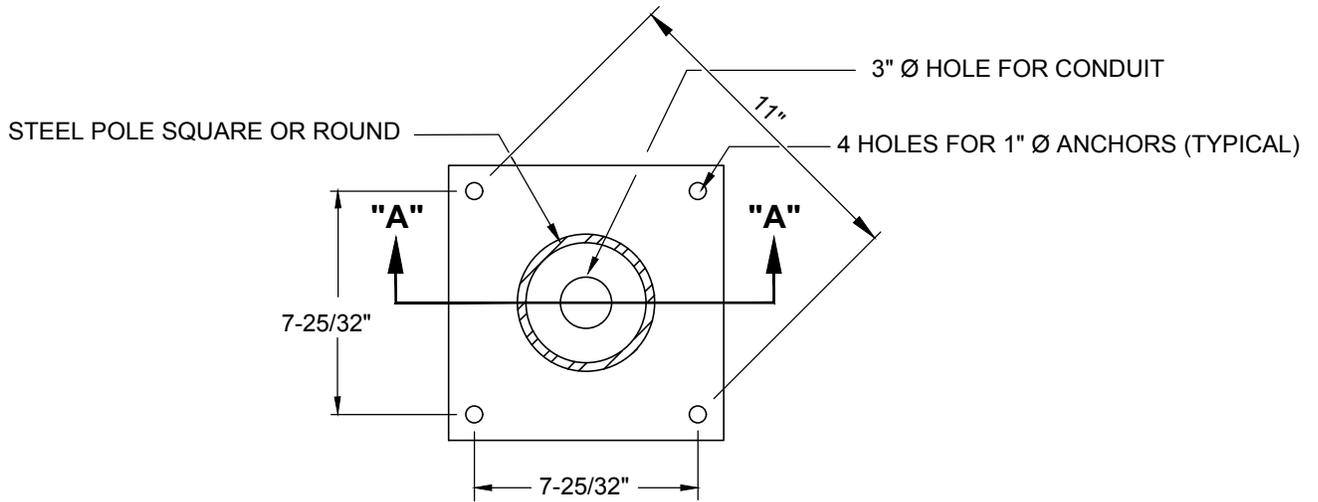
Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 7-060
ROUND POLE HAND HOLE DETAIL**



SECTION "A - A"

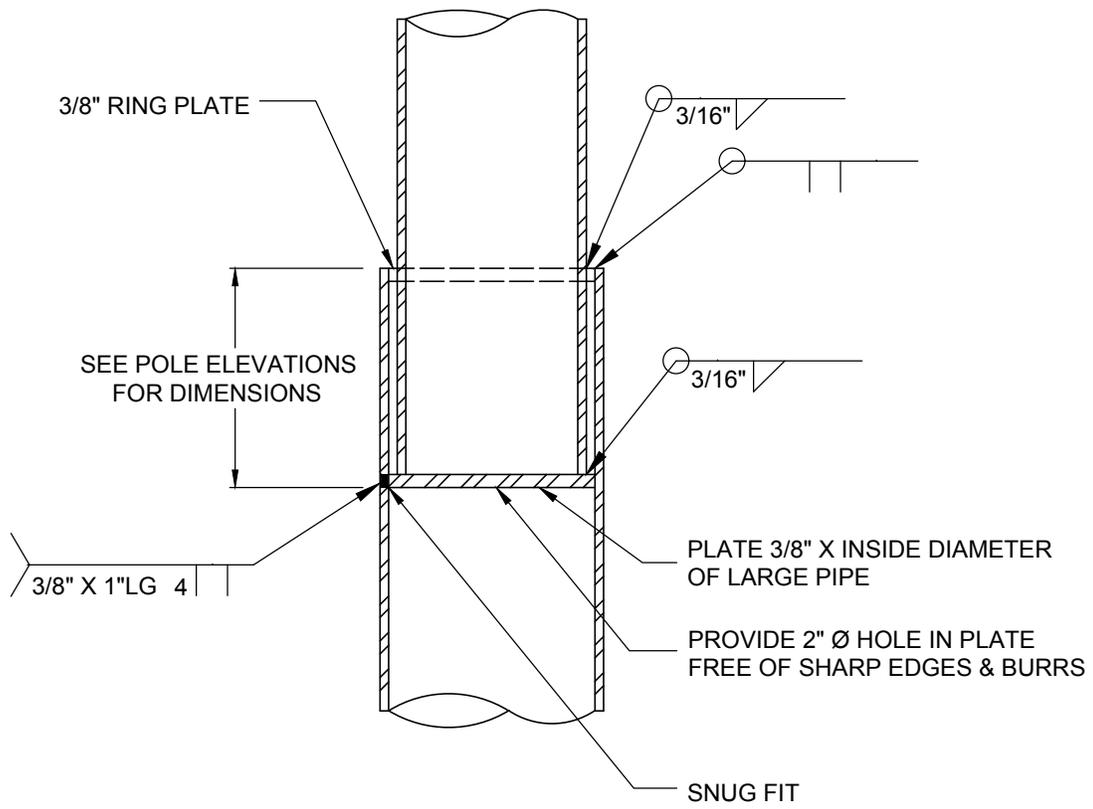


BASIC WELD SYMBOLS										
WELD ALL AROUND	BEAD	FILLET	PLUG OR SLOT	GROOVE OR BUTT						
				SQUARE	V	BEVEL	U	J	FLARE V	FLARE BEVEL

Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 7-065
BASE PLATE DISPLAY



BASIC WELD SYMBOLS										
WELD ALL AROUND	BEAD	FILLET	PLUG OR SLOT	GROOVE OR BUTT						
				SQUARE	V	BEVEL	U	J	FLARE V	FLARE BEVEL

Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 7-070
POLE STEP-DOWN DETAIL

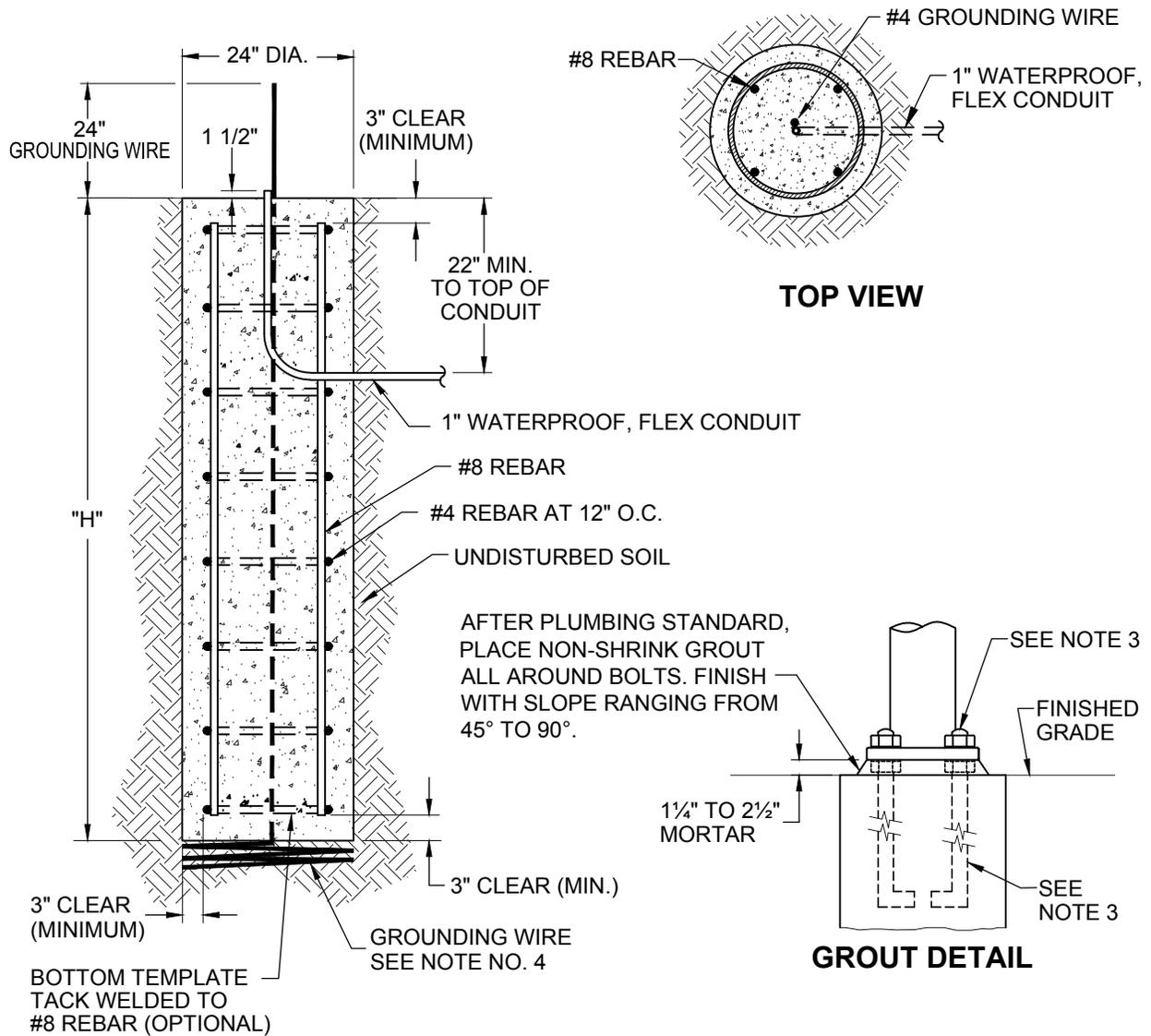
GENERAL STRUCTURAL NOTES

(APPLY UNLESS NOTED OTHERWISE)

1. All work shall conform to the current Uniform Building Code adopted by the City of Yuma and AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaries and Traffic Signals.
2. Notes and details on drawings shall take precedence over general structural notes and typical details. Where no specific details are shown, construction shall conform to similar work on the project.
3. Verify all dimensions prior to the start of construction. Details marked "Typical" may or may not be referenced but shall apply unless noted otherwise.
4. If utilized the contractor shall be responsible for the design and implementation of all scaffolding, bracing and shoring. Observation visits to the job site by the Engineer shall not include inspection of the above items. The Engineer will not be responsible for the contractor's means, methods, techniques, sequences or procedures of construction nor will the Engineer be responsible for construction site safety or the safety precautions and the programs incident thereto.
5. The contract structural drawings represent the finished structure. They do not indicate the method of construction.
6. All footings shall bear on firm, undisturbed native soil. The Engineer accepts no responsibility for existing soil conditions. Footing design is based upon minimum Uniform Building Code soil bearing values as required by the Building Safety Division of the Department of Community Development in the absence of a soil report. It shall be the contractor's responsibility to verify the soil bearing pressure and to determine whether unsuitable soil conditions exist.
7. Lap splices for reinforcing in concrete shall be thirty bar diameters minimum.
8. Design loads: Wind: Basic wind speed = 80 MPH, pressure per AASHTO
Wire tension = 200# (Standard Details 7-005, 7-010)
Wire Tension = 700# (Standard Detail 7-090, MS-42)
9. Construction material:
Concrete: ASTM C94, F'c + 3000psi at 28 days. Maximum water/cement ratio by weight=0.58.
Reinforcing: ASTM A615 Grade 60
Structural steel: ASTM A36 (Fy=36ksi) for plates and shapes.
ASTM A500 Grade B (Fy=46ksi) for tubes.
ASTM A53 Types E or S, Grade B (Fy=35ksi) for pipes.
Bolts: ASTM A325
Welding: E70 series low hydrogen rods. Welding per AWS D1.1 random 25% of welds shall be tested per AASHTO
Protection for structural steel:
 - A. Painted structures: the materials and methods shall conform to the AASHTO standard specifications for highway bridges. Parts inaccessible after erection, except the inside of tubing or pipe, shall be given three shop coats of paint.
 - B. Structures galvanized after fabrication: the coating shall conform to the requirements of AASHTO M111, ASTM A123 and ASTM 143. Tubular steel pole shafts to be galvanized preferably shall have a silicone content equal to or less than 0.66%. Other components, such as base plates, should have a silicon content controlled as required to prevent detrimental galvanizing effects. Damage to the coating shall be repaired subsequent to erection by a method approved by the Engineer.

Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 7-075
STREET LIGHT
STRUCTURAL NOTES



NOTES

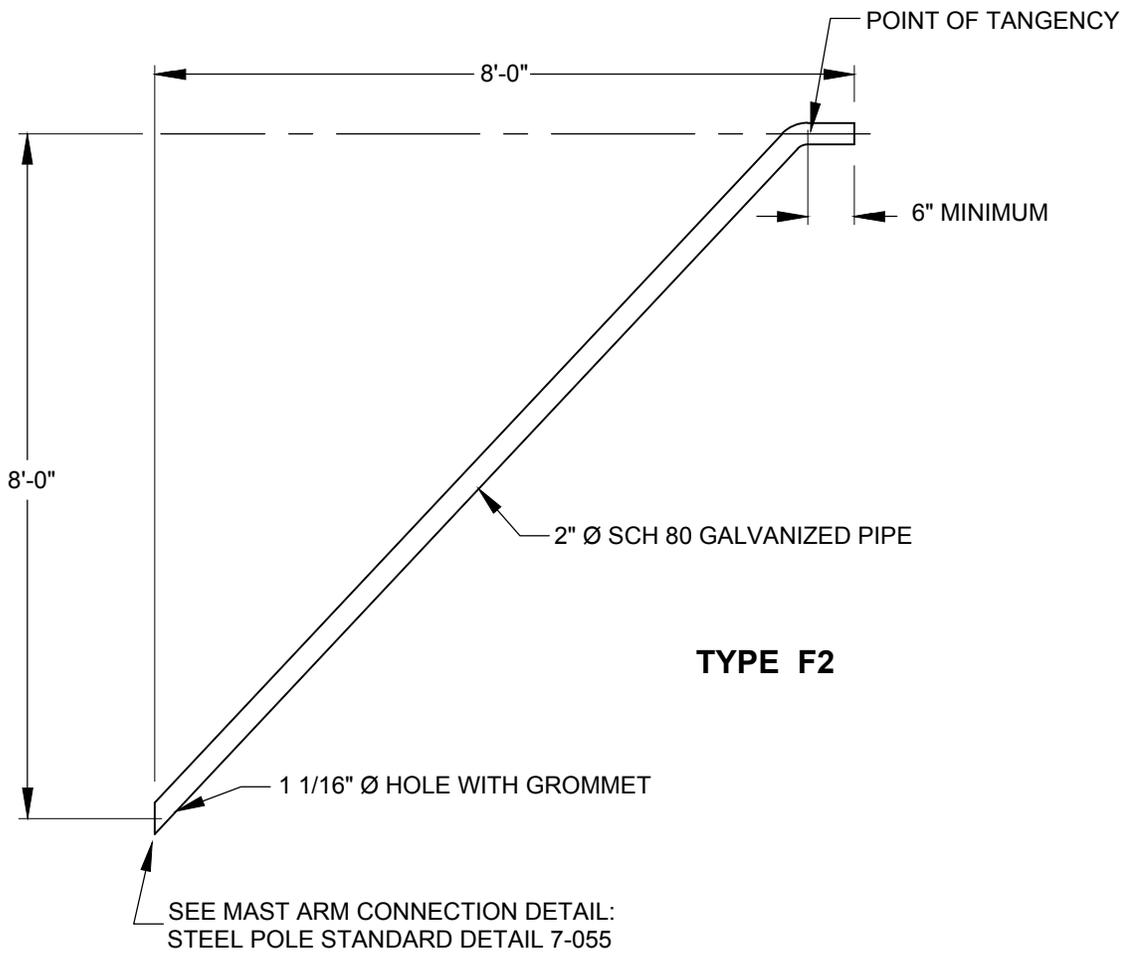
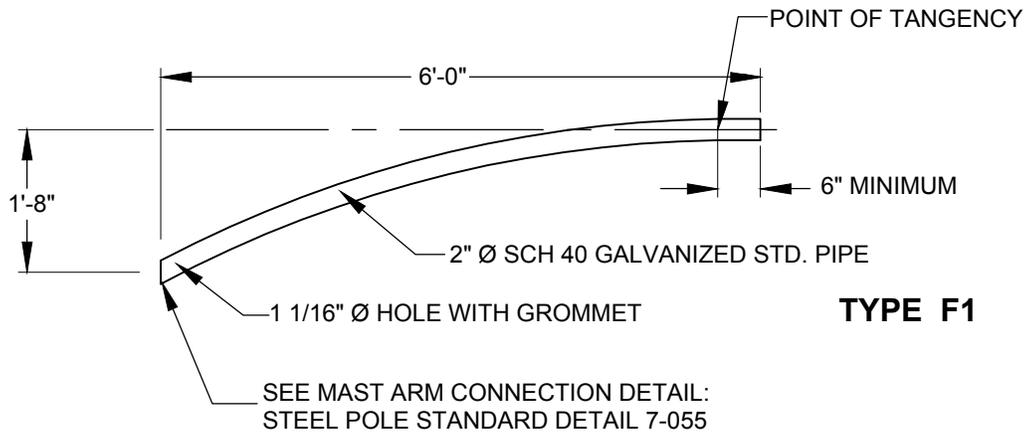
1. Concrete: ASTM C94, F'c = 3000psi at 28 days, maximum water/cement ration by weight = 0.58.
2. Reinforcing: ASTM A615 Grade 60.
3. Light pole shall be installed as per manufacturer's specifications. Manufacturer shall furnish approved anchor bolts and spacing template for bolt installation in concrete footing.
4. Prior to pouring the concrete footing, place a 25' coil of #4 bare wire in the bottom of the hole and extend one end of the wire up through the rebar. Leave 24" of wire clear of concrete footing.
5. Non-shrink grout shall meet ADOT standard specifications section 1017.

FOOTING DEPTH SCHEDULE		
STD. DT.	POLE	"H"
7-090	MS-41	7'-0"
7-090	MS-42	8'-6"
7-095	MS-51	5'-6"

Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 7-080
POLE FOOTING DETAIL**



Issued: May 2019

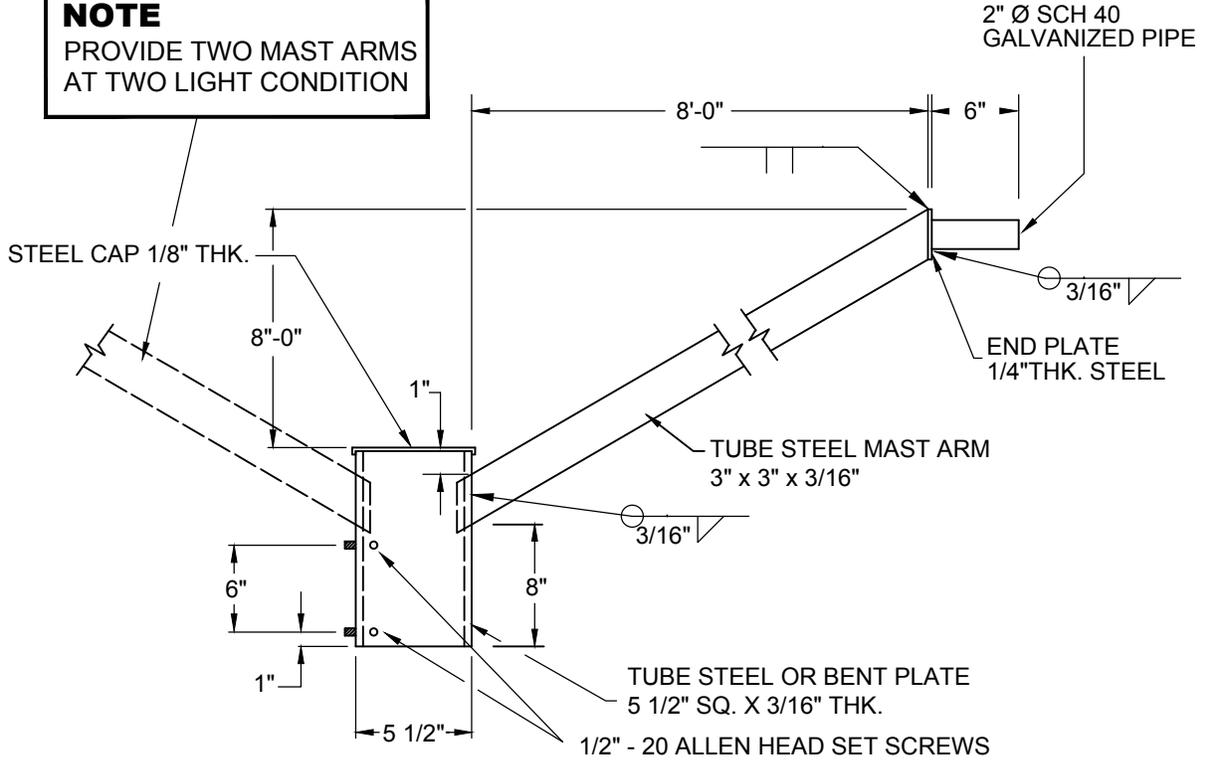
Sheet 1 of 3

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 7-085
MAST ARM DETAILS

NOTE

PROVIDE TWO MAST ARMS
AT TWO LIGHT CONDITION



TYPE F3

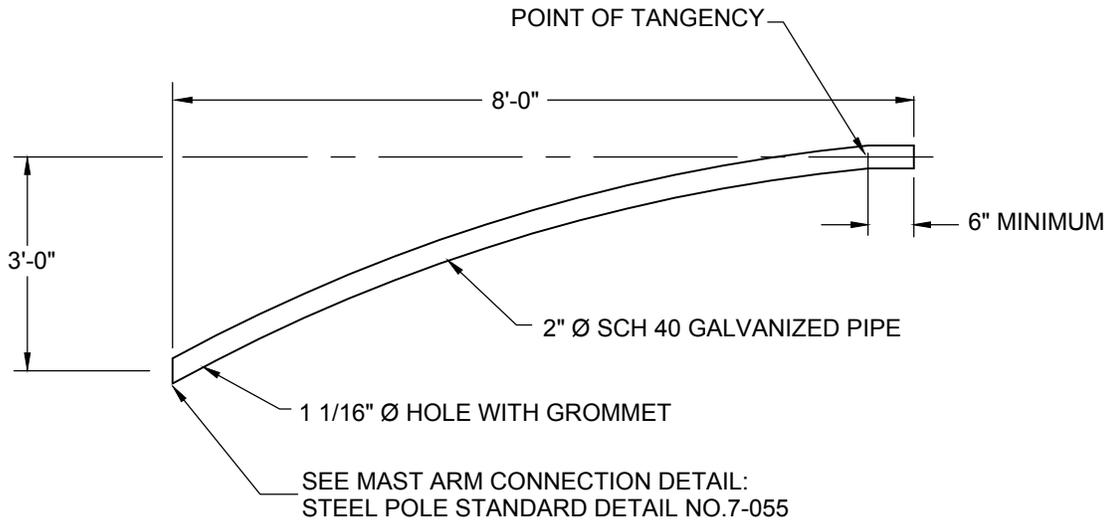
BASIC WELD SYMBOLS										
WELD ALL AROUND	BEAD	FILLET	PLUG OR SLOT	GROOVE OR BUTT						
				SQUARE	V	BEVEL	U	J	FLARE V	FLARE BEVEL

Issued: May 2019

Sheet 2 of 3

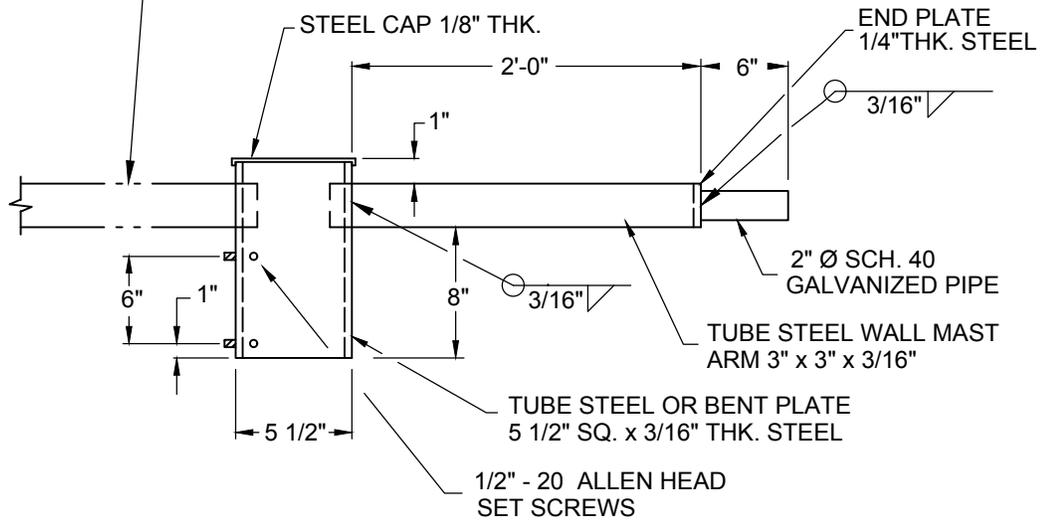
CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 7-085
MAST ARM DETAILS



TYPE F4

NOTE
 PROVIDE TWO MAST ARMS
 AT TWO LIGHT CONDITION



TYPE F5

BASIC WELD SYMBOLS										
WELD ALL AROUND	BEAD	FILLET	PLUG OR SLOT	GROOVE OR BUTT						
				SQUARE	V	BEVEL	U	J	FLARE V	FLARE BEVEL

Issued: May 2019

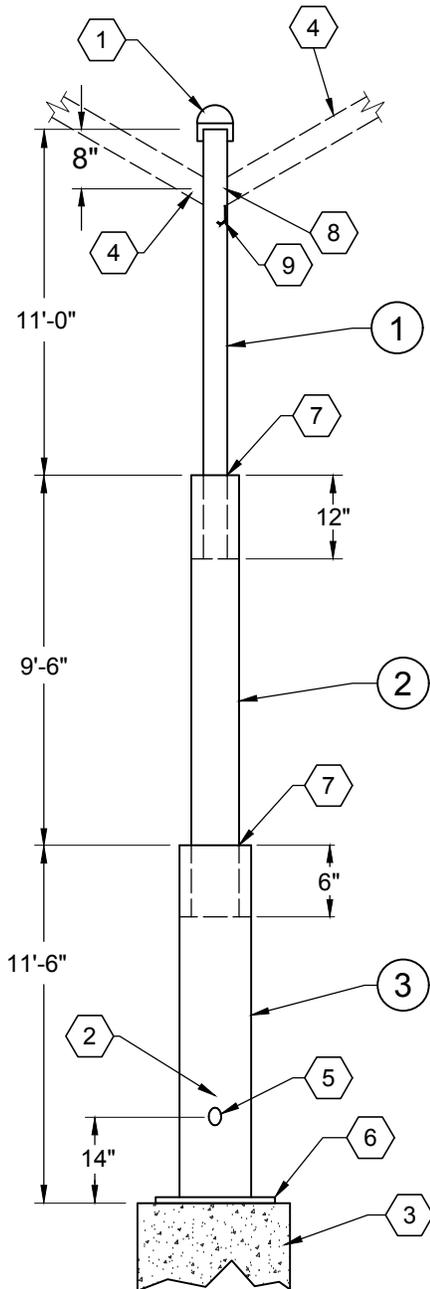
Sheet 3 of 3

CITY OF YUMA
 CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 7-085
MAST ARM DETAILS

LEGEND

- ① Slip-on cap; plate inside diameter shall equal outside diameter of pole tip.
- ② Stamp or tag pole with year manufactured and manufacturer's name.
- ③ Concrete footing detail: refer to Standard No. 7-080.
- ④ Mast arms: refer to Standard No. 7-085.
- ⑤ Hand hole: refer to Standard No. 7-060.
- ⑥ Base plate: refer to Standard No. 7-065.
- ⑦ Step-down connection: refer to Standard No. 7-070.
- ⑧ Mast arm connection: refer to Standard No. 7-055.
- ⑨ J-hook (inside of pole)

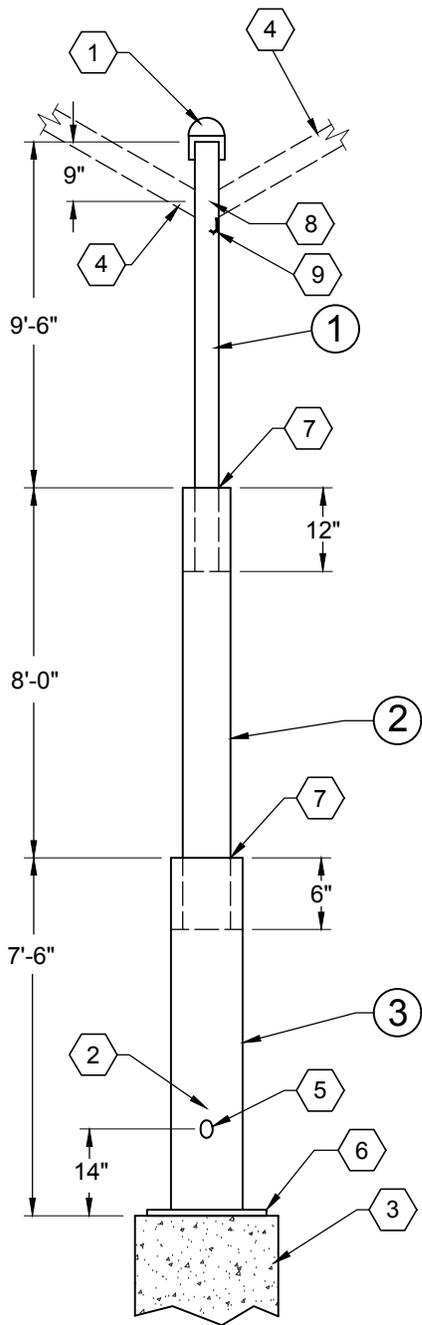


POLE	MS-41	MS-42
①	4" Ø STD.	5" Ø STD.
②	5" Ø STD.	6" Ø STD.
③	6" Ø STD.	8" Ø STD.

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

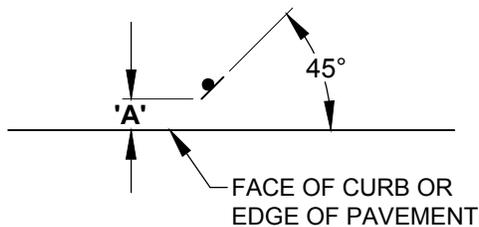
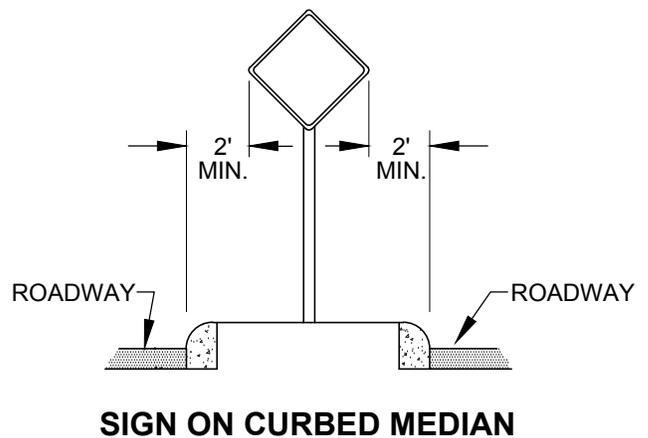
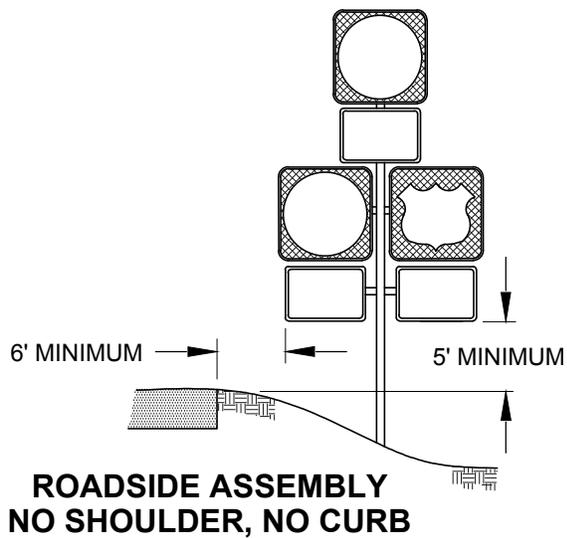
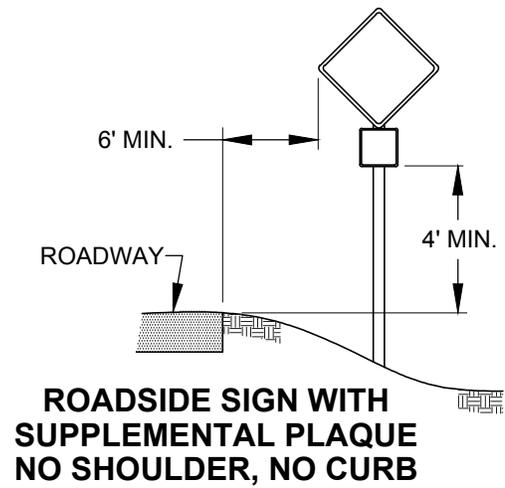
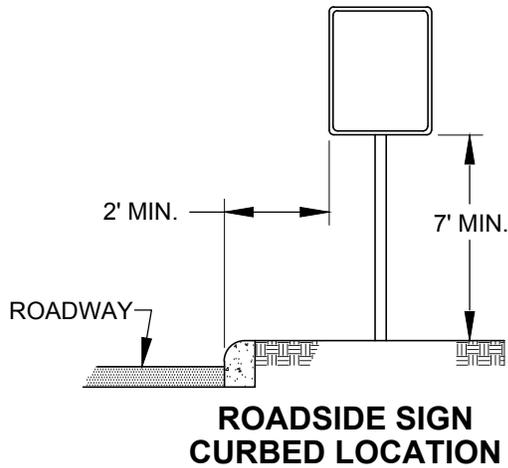
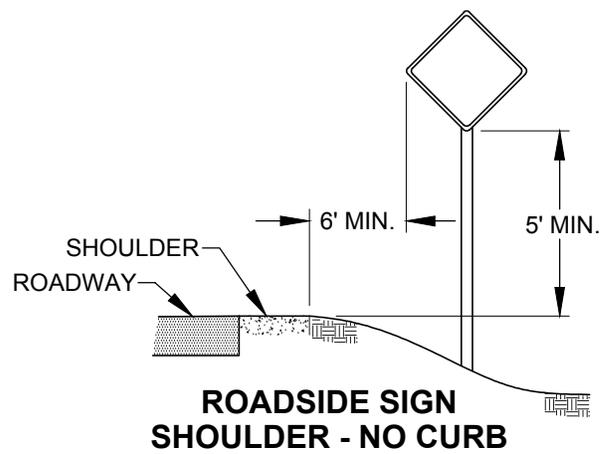
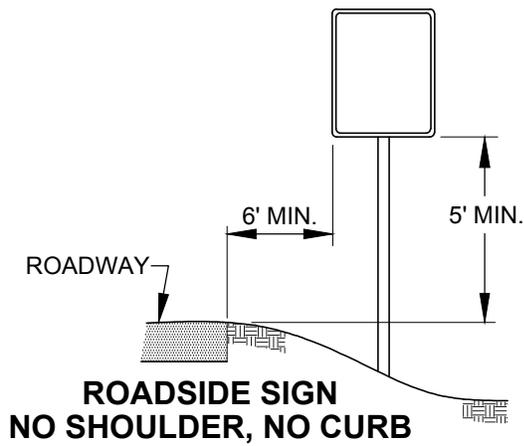
STANDARD NO. 7-090
32' STEEL POLE



LEGEND

- ① Slip-on cap; plate inside diameter shall equal outside diameter of pole tip.
- ② Stamp or tag pole with year manufactured and manufacturer's name.
- ③ Concrete footing detail: refer to Standard No. 7-080.
- ④ Mast arms: refer to Standard No. 7-085.
- ⑤ Hand hole: refer to Standard No. 7-060.
- ⑥ Base plate: refer to Standard No. 7-065.
- ⑦ Step-down connection: refer to Standard No. 7-070.
- ⑧ Mast arm connection: refer to Standard No. 7-055.
- ⑨ J-Hook (inside pole)

POLE	MS-51
①	3" Ø STD.
②	4" Ø STD.
③	5" Ø STD.

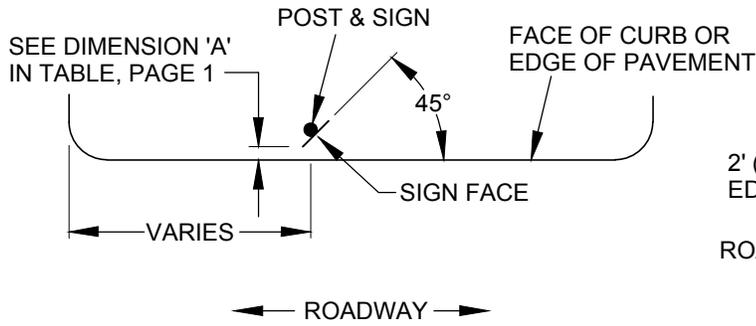


TYPE LOCATION	DIMENSION 'A'
CURBED	2 FT. OR MORE
NO CURB	6 FT. OR MORE

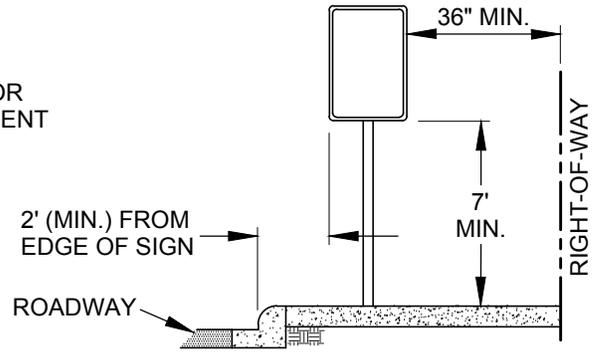
Issued: May 2019

Sheet 1 of 2

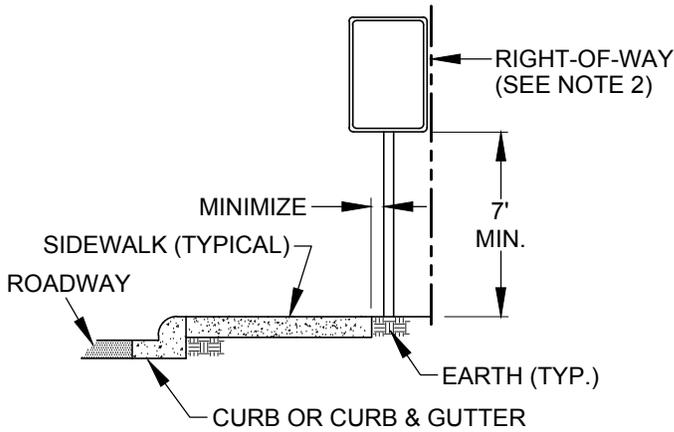
CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
**STANDARD NO. 8-005
PLACEMENT REQUIREMENTS
FOR TRAFFIC SIGNS**



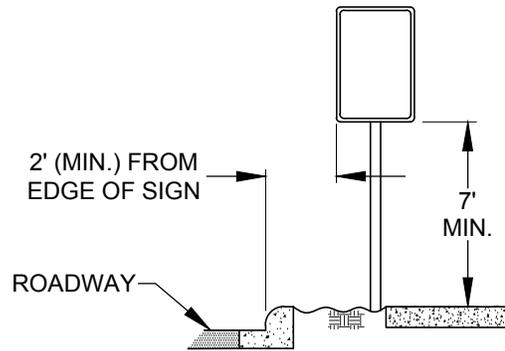
ROADSIDE USE RESTRICTION SIGNS



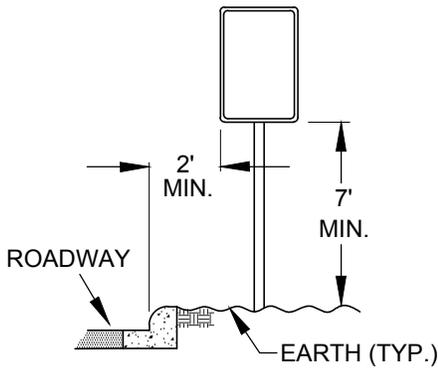
CURBED WITH SIDEWALK TO RIGHT-OF-WAY LINE



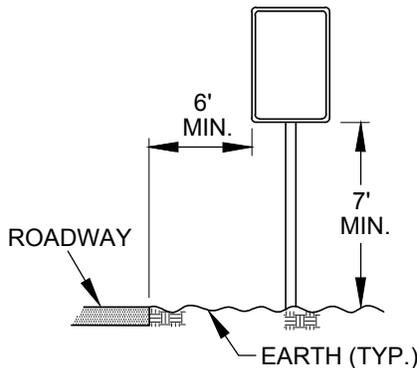
CURBED WITH SIDEWALK AT CURB



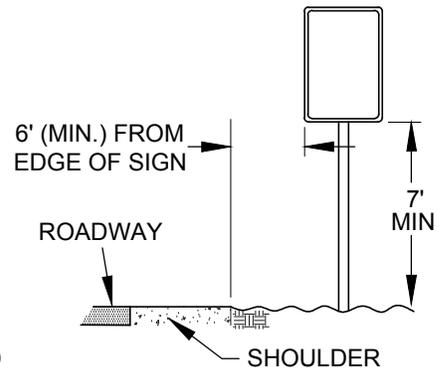
CURBED WITH PARKWAY AND SIDEWALK



CURB WITH NO SIDEWALK



NO CURB OR SHOULDER



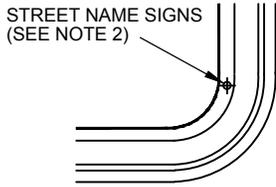
SHOULDER WITH NO CURB

NOTES

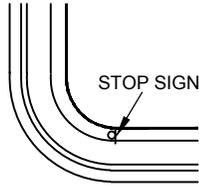
1. Refer to Standard No. 8-020 for additional sign mounting requirements.
2. No part of any sign shall extend beyond edge of right-of-way.
3. If pedestrian or roadside parking activity occurs in areas with no curb, use minimum height of 7' instead of 5'.
4. Consult the City Traffic Engineer for situations not illustrated.

INTERSECTIONS INVOLVING ARTERIAL OR COLLECTOR STREETS

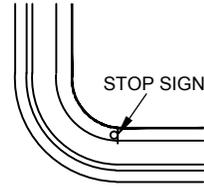
PUT STREET NAME SIGNS ON THROUGH STREET SEPARATE FROM STOP SIGNS



STREET



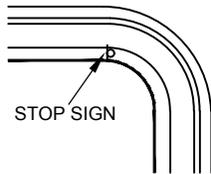
STREET



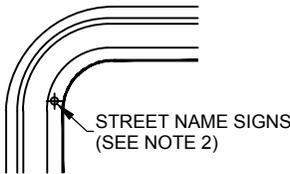
STOP

STREET

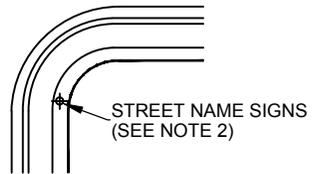
STOP STREET



THROUGH

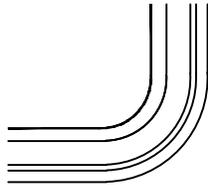


THROUGH

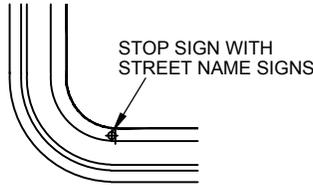


INTERSECTIONS INVOLVING ONLY LOCAL STREETS

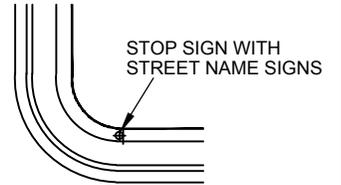
COMBINE STREET NAME SIGNS WITH STOP SIGNS ON STOP STREET.



STREET



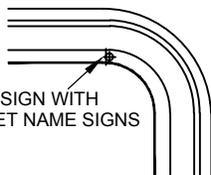
STREET



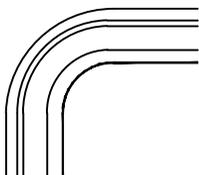
STOP

STREET

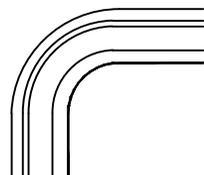
STOP STREET



THROUGH



THROUGH



NOTES

1. Sign locations shall not interfere with sidewalk ramps in accordance with ADA requirements.
2. If through street has a median or is more than 50 feet wide, use second set of street name signs. A second set not required otherwise.

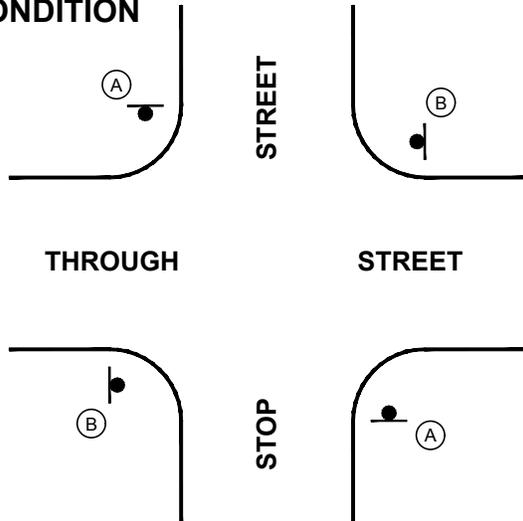
Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

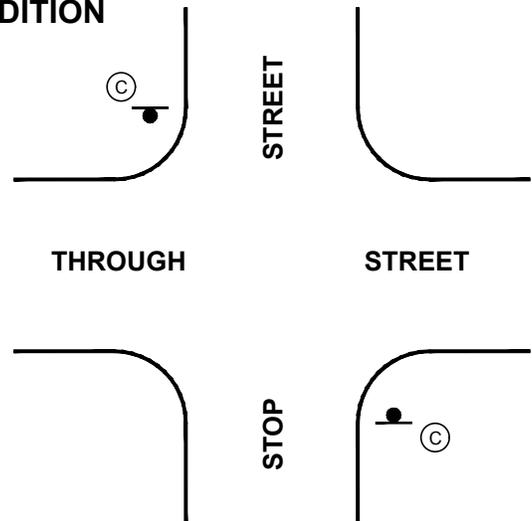
STANDARD NO. 8-010
STOP SIGN AND STREET NAME
SIGN PLACEMENT

TYPICAL TRANSITION FROM ALL-WAY STOP TO 2-WAY STOP CONTROL

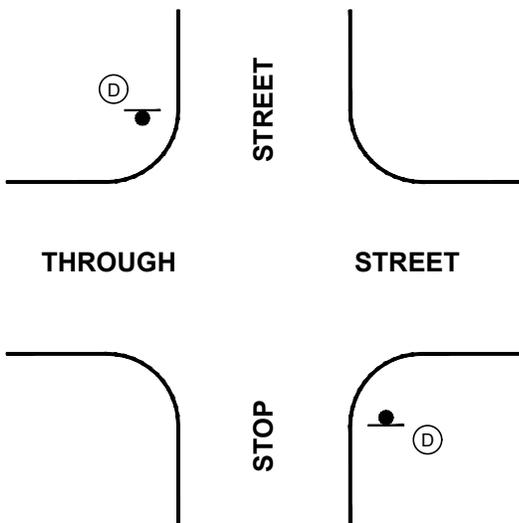
TRANSITION CONDITION



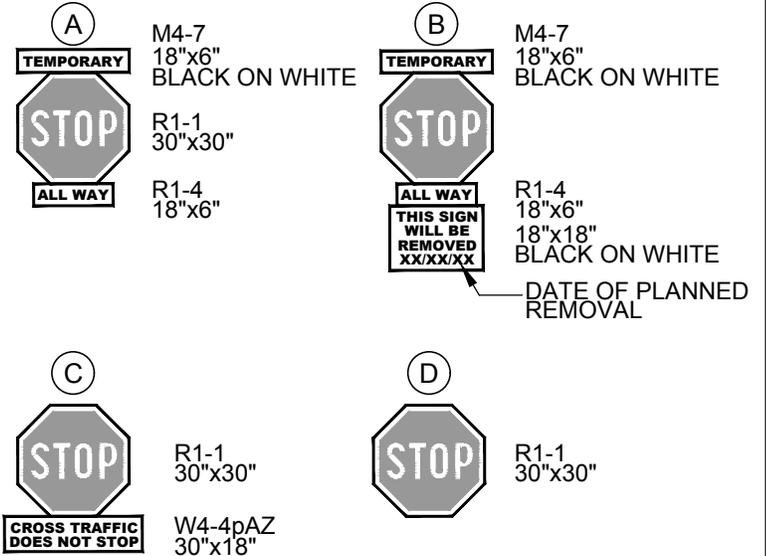
CONFIRMATION CONDITION



FINAL CONDITION



SIGN LEGEND



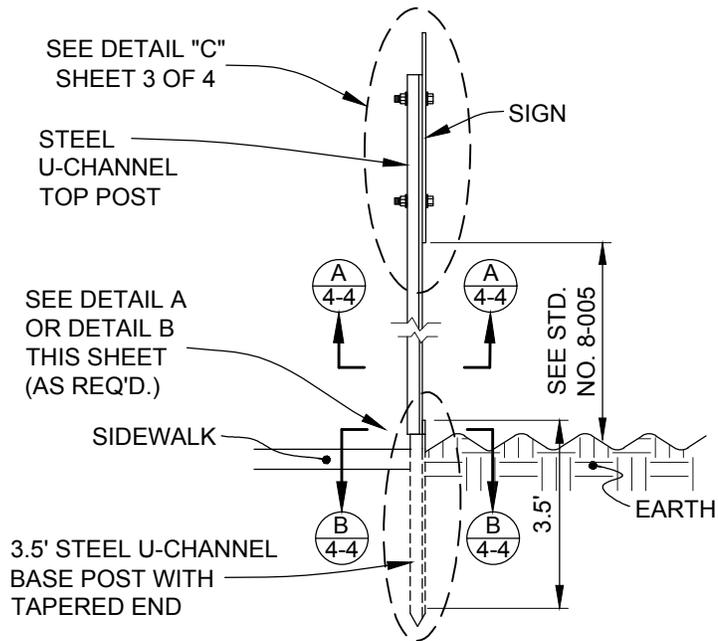
NOTE

1. Transition and confirmation conditions shall be in effect for 30 calendar days.

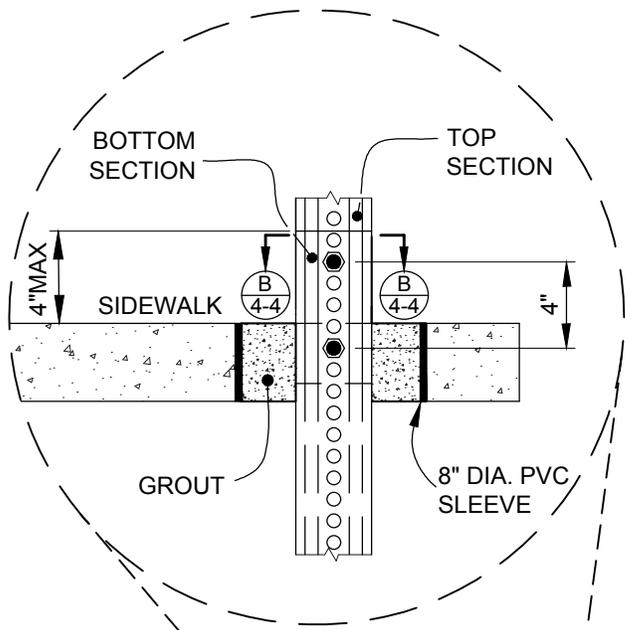
Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

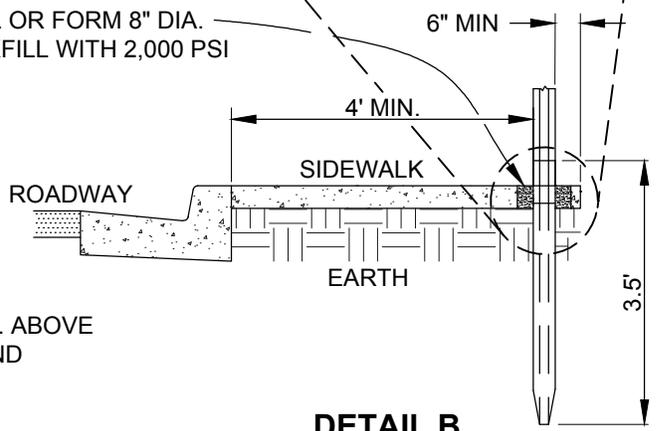
**STANDARD NO. 8-015
ALL-WAY STOP TO
2-WAY STOP TRANSITION**



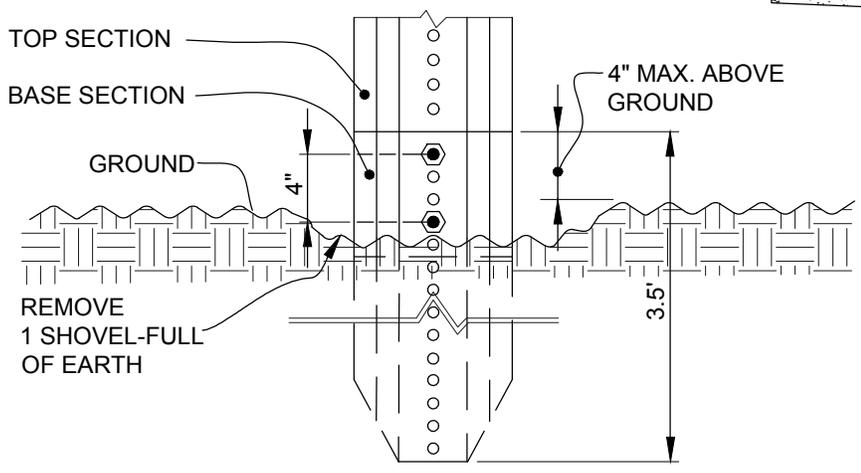
INSTALLATION FOR BREAK-AWAY CAPABILITY



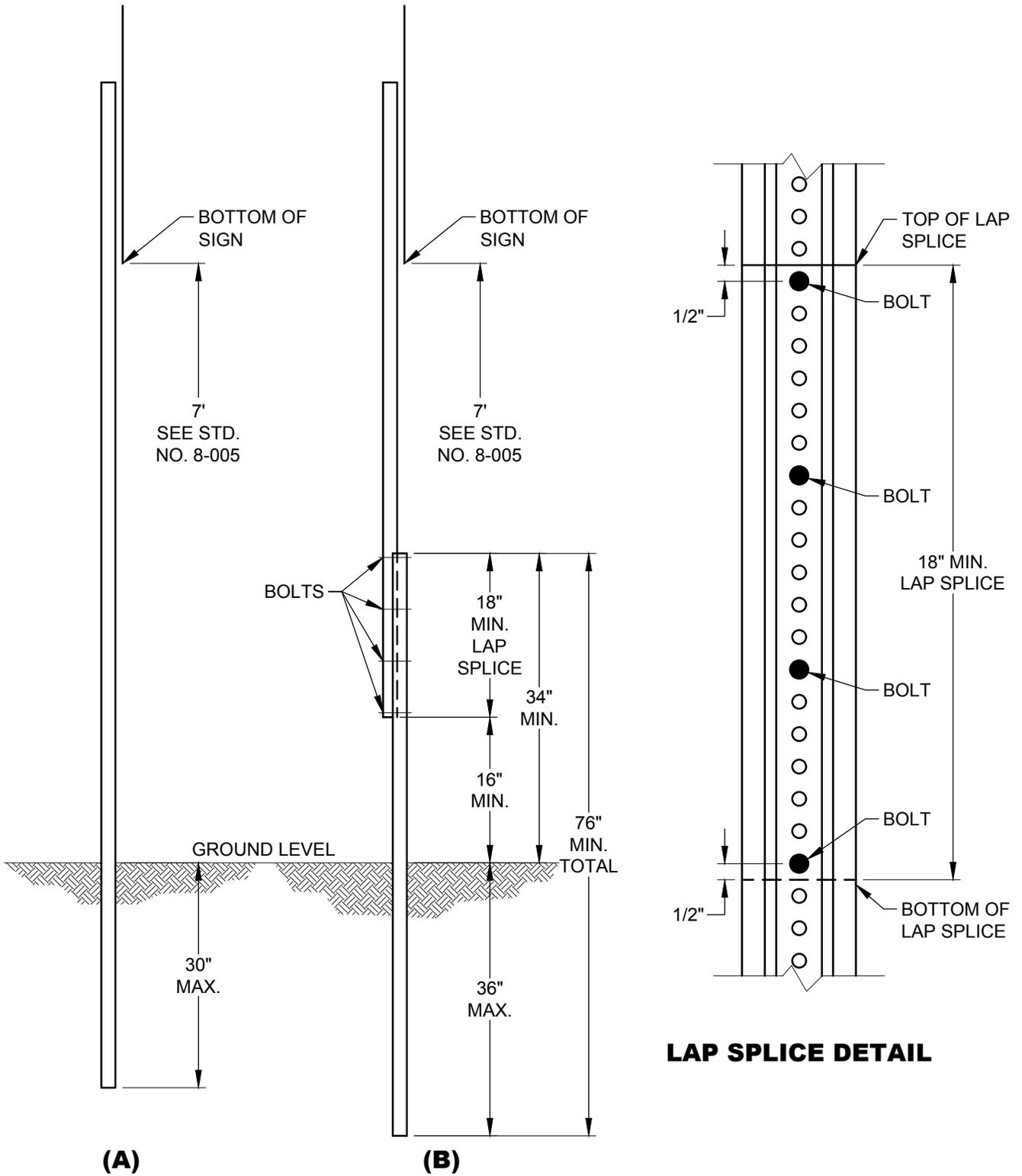
CORE DRILL OR FORM 8" DIA. HOLE, BACKFILL WITH 2,000 PSI GROUT



DETAIL B IN SIDEWALK



DETAIL A IN EARTH



The following installation options shall be used in all traffic sign locations within the City of Yuma that has a speed limit of 35 MPH and below.

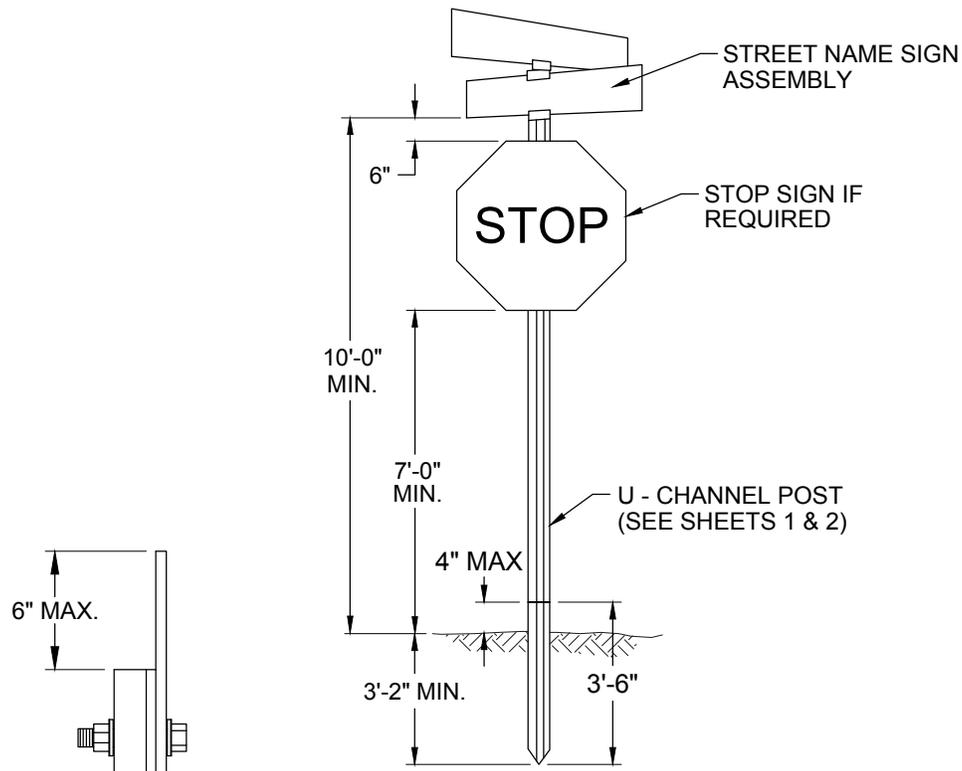
- A) Direct installation: One U-channel post directly installed with a 30" max. into the ground.
- B) Two U-channel post installation: 5.5' or 6' U-channel post directly installed with a 36" max. into the ground with a 7.5' or 8' U-channel post attached to the bottom post with a min. of an 18" overlap with 4 bolts.

Issued: May 2019

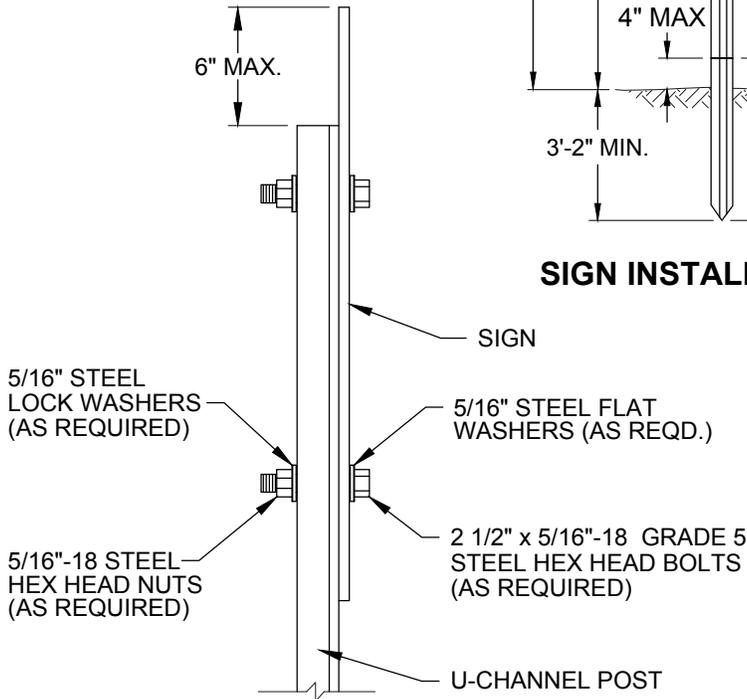
Sheet 2 of 4

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

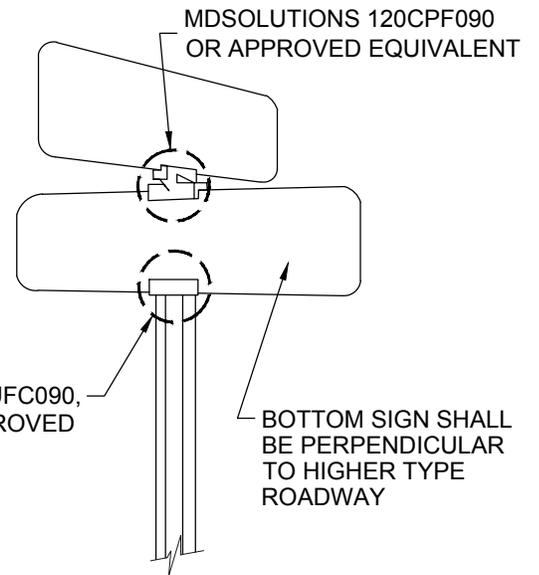
**STANDARD NO. 8-020
TRAFFIC SIGN MOUNTING**



SIGN INSTALLATION



**DETAIL C
SIGN/POST ATTACHMENT**



**STREET NAME
SIGN ASSEMBLY**

NOTES

1. Posts must be manufactured from hot rolled flange channel galvanized steel per ASTM A123 finish and intended to be used as supports for signs.
2. All posts shall be 2 or 3 lb/ft, steel U-channel posts.
3. Posts must be of a uniform flanged channel section with 3/8" dia. holes on one inch (1") centers for the entire length of the channel.
4. See Standard No. 8-030 for additional requirements for roadside use restriction signs.
5. Should there be a supplemental plaque it must be mounted immediately below the sign.
6. Signs on the same post may not be overlapped.
7. See Standard 8-050 for street name signs.
8. See Standard 8-010 for street name sign placement.

Issued: May 2019	Sheet 3 of 4
<p>CITY OF YUMA CONSTRUCTION STANDARD DETAIL DRAWINGS</p> <p>STANDARD NO. 8-020 TRAFFIC SIGN MOUNTING</p>	

GALVANIZED STEEL
U-CHANNEL POST,
2 OR 3 POUNDS/FOOT,
BASE SECTION

5/16" HEX NUT, UNC 18,
GRADE 5, ZINC COATED

GALVANIZED STEEL
U-CHANNEL POST,
2 OR 3 POUNDS/FOOT,
TOP SECTION

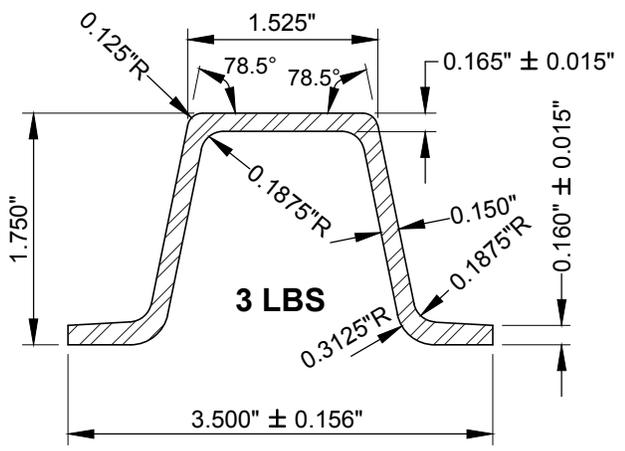
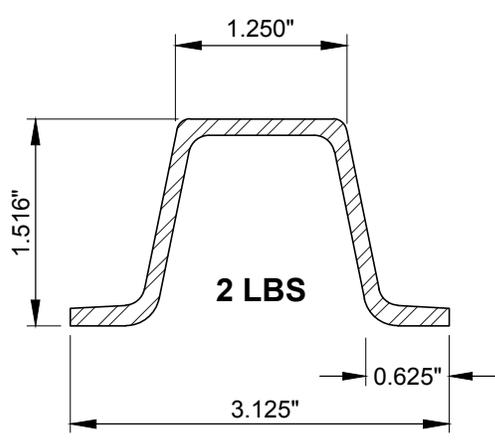
5/16" STEEL FLAT
WASHER, GRADE 5
(AS REQUIRED)

PUSH-ON
RETAINING
WASHER

SPACER BAR 1/2" X 3/4" X 5" (OPTIONAL)

2" X 5/16" - 18
GRADE 5 STEEL HEX
HEAD BOLT, UNC 18
ZINC COATED

SECTION "B - B"



SECTION "A - A"

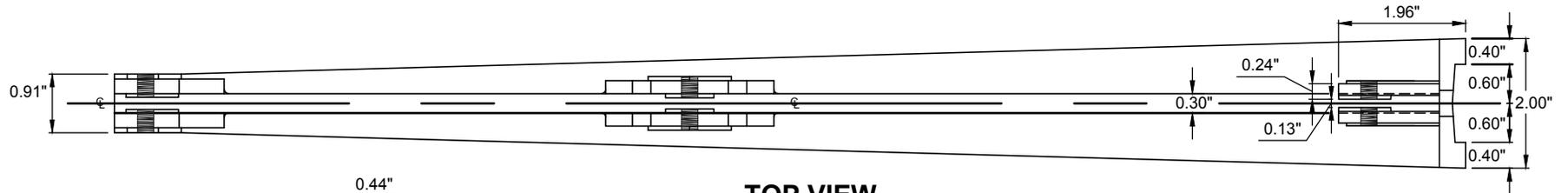
STANDARD POST REQUIREMENTS	
LENGTH (FEET)	COMMENT
3.5	ONE TAPERED END
4	
8	
10	
12	

NOTES

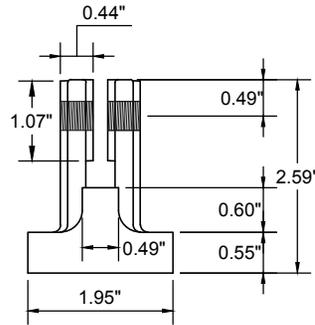
1. Provide 3/8" holes on 1" centers for full length beginning 1" from top of post.
2. Posts must be galvanized rail steel having a nominal weight of 2 or 3 pounds/foot.

Issued: May 2019 Sheet 4 of 4

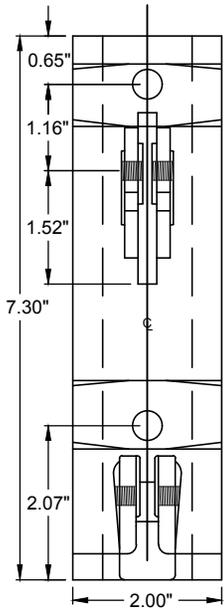
CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 8-020
TRAFFIC SIGN MOUNTING



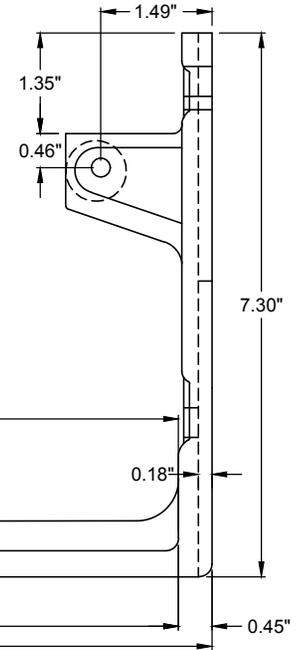
TOP VIEW



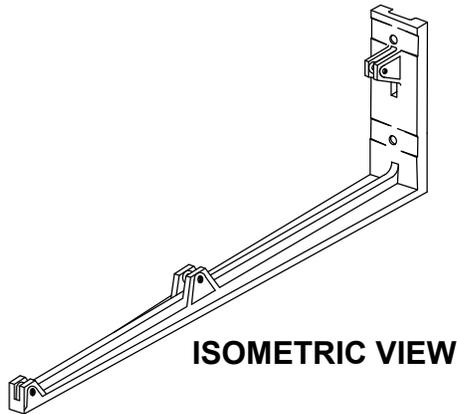
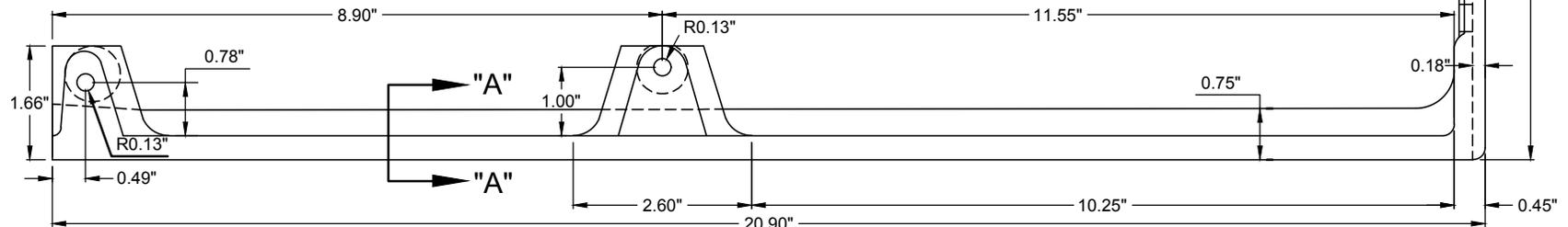
SECTION "A - A"



FRONT VIEW



RIGHT VIEW



ISOMETRIC VIEW

NOTES

1. Bracket must be cast aluminum.
2. Dimensions are nominal. Brackets with slightly different dimensions that are functionally equivalent, in the judgement of the Engineer, will be acceptable.
3. Bracket must include all required set screws for attaching sign.

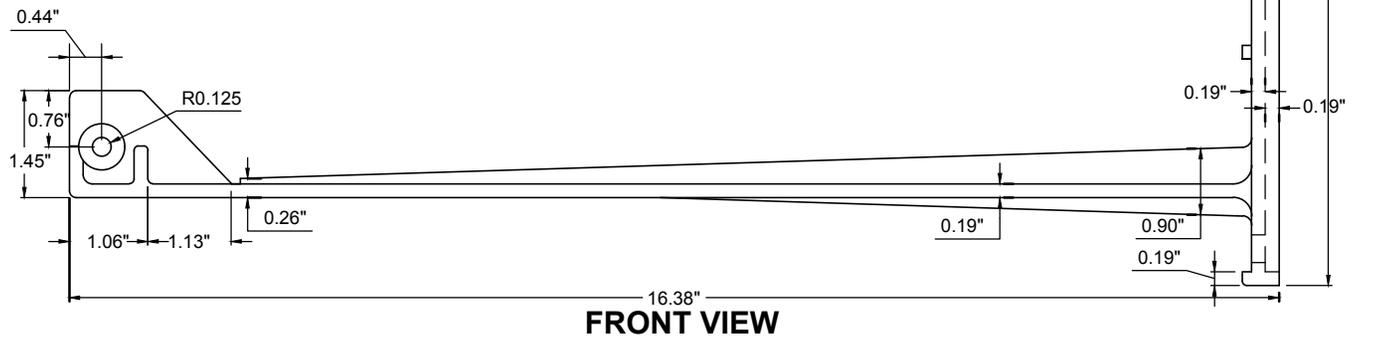
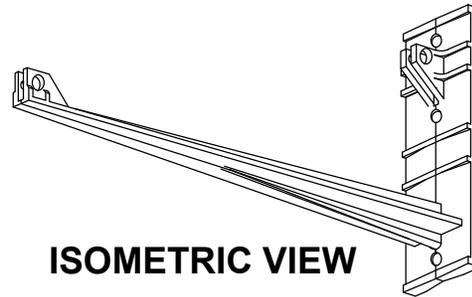
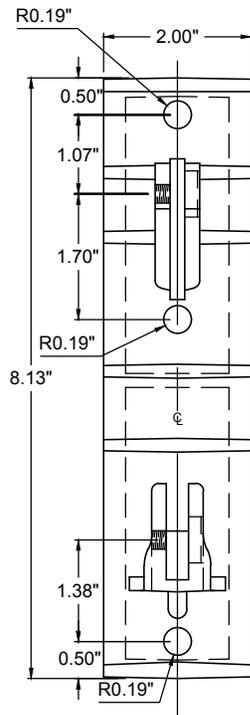
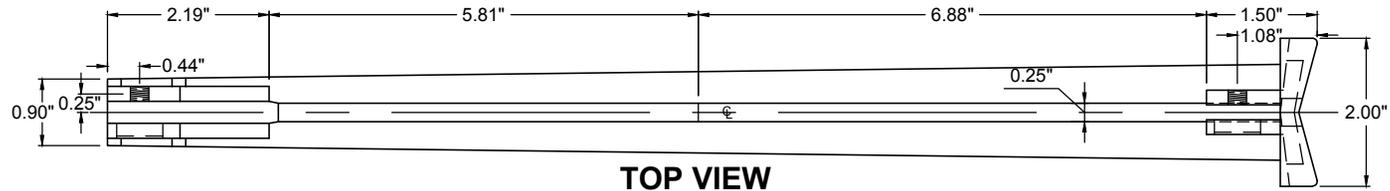
**POLE MOUNTING BRACKET
FOR 8" FLAT SIGNS**

Issued: May 2019

Sheet 1 of 2

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 8-025
STREET NAME SIGN
MOUNTING BRACKETS**



**POLE MOUNTING BRACKET
FOR 6" FLAT SIGNS**

NOTES

1. Bracket must be cast aluminum.
2. Dimensions are nominal. Brackets with slightly different dimensions that are functionally equivalent, in the judgement of the Engineer, will be acceptable.
3. Bracket must include all required set screws for attaching sign.

Issued: May 2019

Sheet 2 of 2

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 8-025
STREET NAME SIGN
MOUNTING BRACKETS**

Table 2C-4. Guidelines for Advance Placement of Warning Signs

Posted or 85th-Percentile Speed	Advance Placement Distance ¹								
	Condition A: Speed reduction and lane changing in heavy traffic ²	Condition B: Deceleration to the listed advisory speed (mph) for the condition							
		0 ³	10 ⁴	20 ⁴	30 ⁴	40 ⁴	50 ⁴	60 ⁴	70 ⁴
20 mph	225 ft	100 ft ⁶	N/A ⁵	—	—	—	—	—	—
25 mph	325 ft	100 ft ⁶	N/A ⁵	N/A ⁵	—	—	—	—	—
30 mph	460 ft	100 ft ⁶	N/A ⁵	N/A ⁵	—	—	—	—	—
35 mph	565 ft	100 ft ⁶	N/A ⁵	N/A ⁵	N/A ⁵	—	—	—	—
40 mph	670 ft	125 ft	100 ft ⁶	100 ft ⁶	N/A ⁵	—	—	—	—
45 mph	775 ft	175 ft	125 ft	100 ft ⁶	100 ft ⁶	N/A ⁵	—	—	—
50 mph	885 ft	250 ft	200 ft	175 ft	125 ft	100 ft ⁶	—	—	—
55 mph	990 ft	325 ft	275 ft	225 ft	200 ft	125 ft	N/A ⁵	—	—
60 mph	1,100 ft	400 ft	350 ft	325 ft	275 ft	200 ft	100 ft ⁶	—	—
65 mph	1,200 ft	475 ft	450 ft	400 ft	350 ft	275 ft	200 ft	100 ft ⁶	—
70 mph	1,250 ft	550 ft	525 ft	500 ft	450 ft	375 ft	275 ft	150 ft	—
75 mph	1,350 ft	650 ft	625 ft	600 ft	550 ft	475 ft	375 ft	250 ft	100 ft ⁶

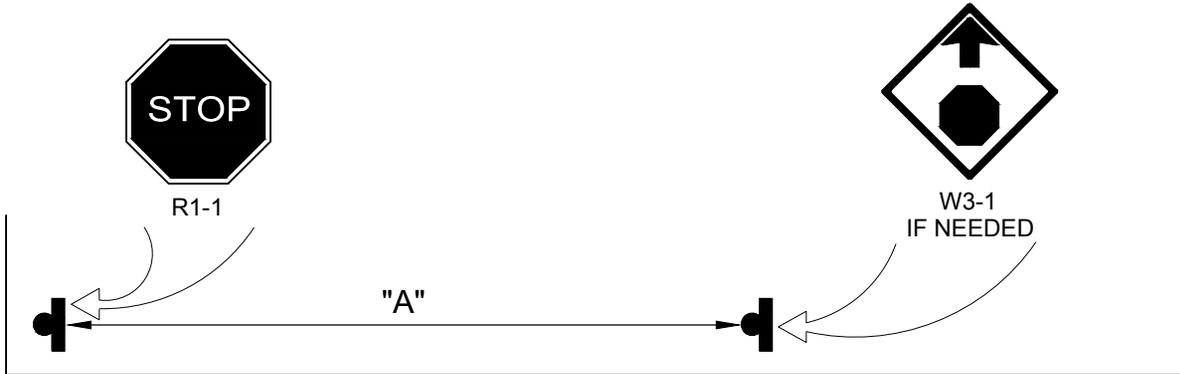
NOTES

1. The distances are adjusted for a sign legibility distance of 180 feet for Condition A. The distances for Condition B have been adjusted for a sign legibility distance of 250 feet, which is appropriate for an alignment warning symbol sign. For Conditions A and B, warning signs with less than 6-inch legend or more than four words, a minimum of 100 feet should be added to the advance placement distance to provide adequate legibility of the warning sign.
2. Typical conditions are locations where the road user must use extra time to adjust speed and change lanes in heavy traffic because of a complex driving situation. Typical signs are Merge and Right Lane Ends. The distances are determined by providing the driver a PRT of 14.0 to 14.5 seconds for vehicle maneuvers (2005 AASHTO Policy, Exhibit 3-3, Decision Sight Distance, Avoidance Maneuver E) minus the legibility distance of 180 feet for the appropriate sign.
3. Typical condition is the warning of a potential stop situation. Typical signs are Stop Ahead, Yield Ahead, Signal Ahead, and Intersection Warning signs. The distances are based on the 2005 AASHTO Policy, Exhibit 3-1, Stopping Sight Distance, providing a PRT of 2.5 seconds, a deceleration rate of 11.2 feet/second, minus the sign legibility distance of 180 feet.
4. Typical conditions are locations where the road user must decrease speed to maneuver through the warned condition. Typical signs are Turn, Curve, Reverse Turn, or Reverse Curve. The distance is determined by providing a 2.5 second PRT, a vehicle deceleration rate of 10 feet/second, minus the sign legibility distance of 250 feet.
5. No suggested distances are provided for these speeds, as the placement location is dependent on site conditions and other signing. An alignment warning sign may be placed anywhere from the point of curvature up to 100 feet in advance of the curve. However, the alignment warning sign should be installed in advance of the curve and at least 100 feet from any other signs.
6. The minimum advance placement distance is listed as 100 feet to provide adequate spacing between signs.

Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 8-030
GUIDELINES FOR WARNING
SIGN PLACEMENT**



Posted or 85th-Percentile Speed (mph)	"A" Visibility Distance (feet)
20	100
25	100
30	100
35	100
40	125
45	175
50	250
55	325
60	400
65	475
70	550
75	650

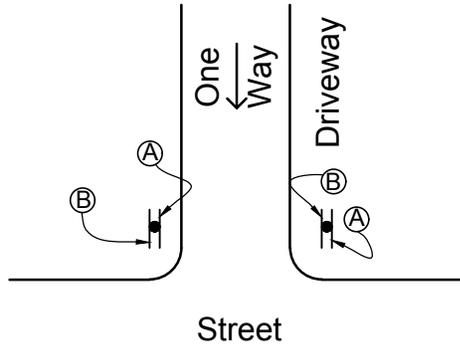
"A"= Distance from which STOP sign must be continuously visible. (See table for value based on approach speed.) Trim all foliage to achieve this. Where clear visibility cannot be provided, install Stop Ahead Symbol sign (W3-1) at approximately distance "A".

Issued: May 2019

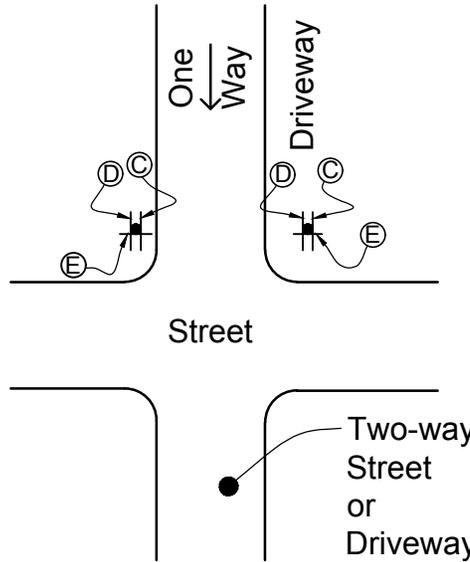
CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 8-035
STOP SIGN VISIBILITY AND
ADVANCE WARNING

CASE 1- MINOR DRIVEWAY



CASE 2- MINOR DRIVEWAY



SIGN LEGEND



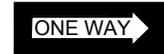
Ⓐ
R6-2L
24" x 30"



Ⓑ
R6-2R
24" x 30"



Ⓒ
R6-1L
36" x 12"



Ⓓ
R6-1R
36" x 12"

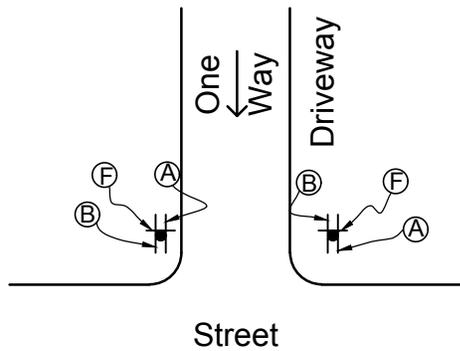


Ⓔ
R5-1
30" X 30"

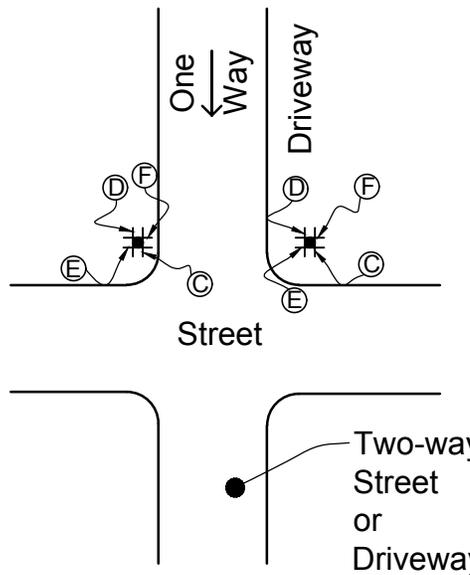


Ⓕ
R1-1
30" X 30"

CASE 3 - MAJOR DRIVEWAY



CASE 4 - MAJOR DRIVEWAY



NOTES

1. Sign locations are schematic
2. Not to scale

Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 8-040
SIGNING OF ONE-WAY
EXIT DRIVEWAYS

SIGN WZIS-1

F.H.W.A.
LETTER SERIES

48" (MIN.)

ORANGE
BACKGROUND

BLACK LETTERING

3/8" ORANGE
BORDER

3/4" BLACK LINE

3/8" WHITE
BORDER

5/8" BLACK
BORDER

WHITE
BACKGROUND

BLACK LETTERING

SEE NOTE NO. 1
ON SHEET 2.

3/4" BLACK LINE

WHITE
BACKGROUND

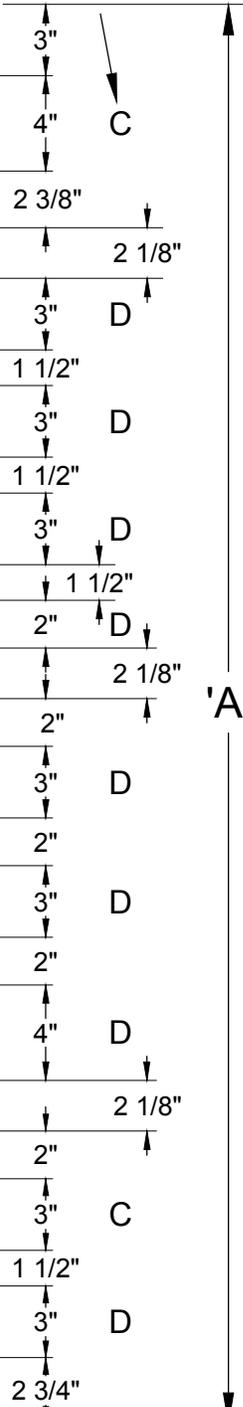
BLACK LETTERING

3/4" BLACK LINE

WHITE
BACKGROUND

BLACK LETTERING

2 1/4" R (TYP.)



'A' DIMENSION
 59.5" FOR 3-LINE COMPANY NAME
 55" FOR 2-LINE COMPANY NAME
 50.5" FOR 1-LINE COMPANY NAME

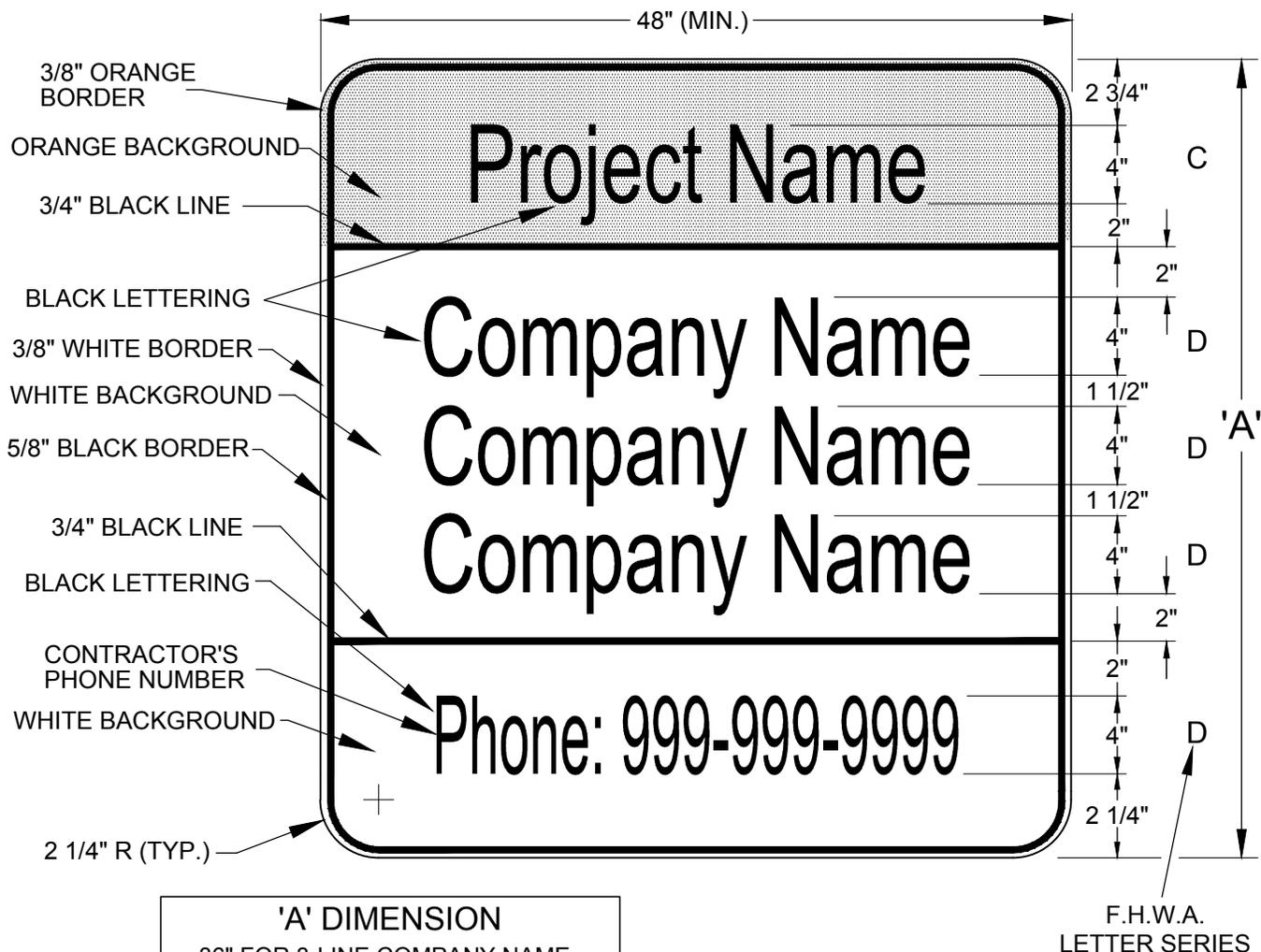
SEE NOTES ON SHEET 2.

Issued: May 2019 Sheet 1 of 2

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 8-045
WORK ZONE
IDENTIFICATION SIGN**

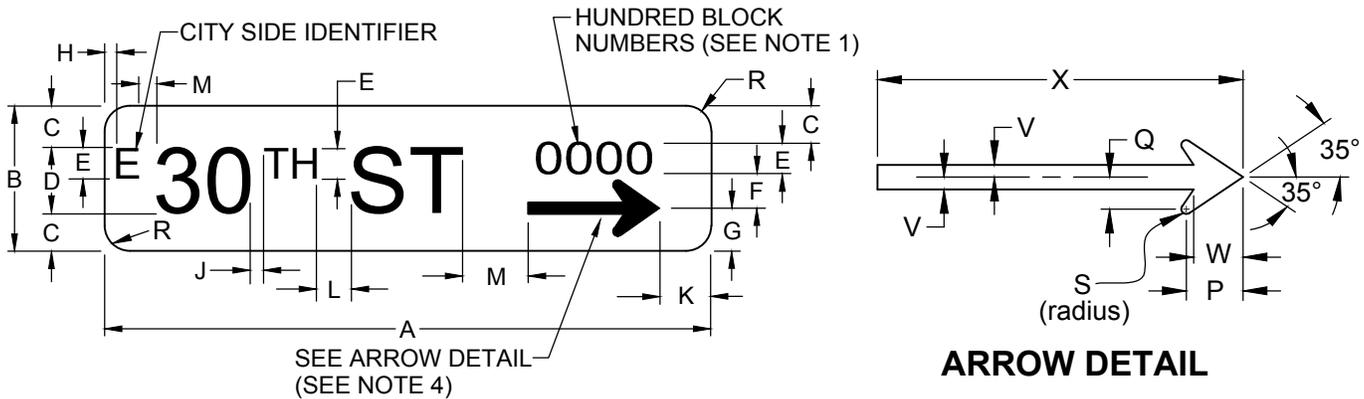
SIGN WZIS-2



'A' DIMENSION
 36" FOR 3-LINE COMPANY NAME
 30" FOR 2-LINE COMPANY NAME
 24" FOR 1-LINE COMPANY NAME

NOTES

1. Use sign WZIS-1 for projects with a duration of ten (10) days or more. Use sign WZIS-2 for projects with a duration of less than ten (10) days. Display the ADEQ NOI certificate number on sign WZIS-1.
2. Do not use leading zeros in month or day numbers.
3. Mount sign with bottom of sign being at least five feet (5') above the ground.
4. Text and borders shall be black in color and must conform to the indicated series in the FHWA publication "Standard Highway Signs".
5. Sign letters to use upper and lower case lettering as indicated.
6. Background shall be fully reflectorized.
7. Adjust spacing as necessary within the COMPANY NAME area for 1-line and 2-line company names.
8. Contractor's phone shall be monitored 24 hours a day, seven days a week.



SIGN DIMENSIONS IN INCHES

Intersection Involving Only Local Streets																	Match width of block number, minimum 8".		
A	B	C	D	E	F	G	H	J	K	L	M	P	Q	R	S	V		W	X
24 min 48 max	6	.875	4.25 Series C	2.0 Series C	1.5	1.625	1.5 min	0.375	1.5 min	2.5 min	1.5 min	1.15	0.65 typ	1 typ	0.1 typ	0.25		1	
Intersection Involving Collector or Arterial Streets																			
A	B	C	D	E	F	G	H	J	K	L	M	P	Q	R	S	V	W	X	
30 min 60 max	8	.875	6.25 Series C	2.5 Series C	2.00	2.375	2 min	0.5	2 min	3.5 min	2 min	1.3	0.75 typ	1 typ	0.125 typ	0.325	1.15		

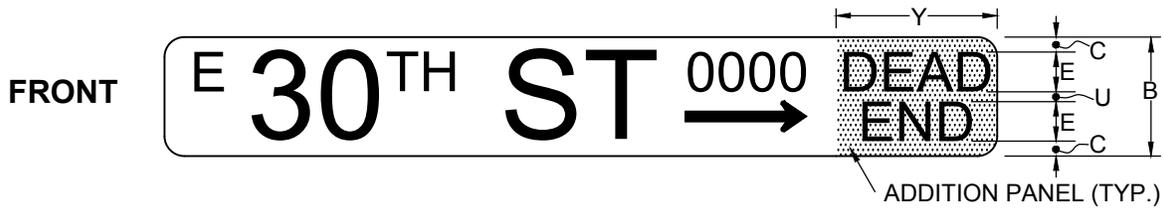
NOTES

1. Verify hundred block number with the City's Department of Community Development.
2. See Sheet 4 for Century Heights sign design.
3. See Sheet 3 for street names requiring sign blade greater than maximum.
4. See Sheet 6 for direction of arrows.
5. All sizes and spacing must conform to the requirements for the indicated series as specified in the current edition of "Standard Highway Signs and Pavement Markings Reference Guide" published by the Federal Highway Administration. Spacing must be 100% unless otherwise approved by City Traffic Engineer in each instance.
6. Each street name sign must have both front and back faces that are identical except for the arrows' directions.
7. Sign blanks must be 0.10" thick aluminum.
8. Do not abbreviate the word "Avenue" when it is a part of a name (i.e. Avenue B) rather than a suffix.
9. See Sheet 2 if "Dead End" or "No Outlet" panel required.
10. All street name letters, except number superscripts, must be the indicated size.
11. When a private street intersects a public street, the sign panel for the public street must be the size and colors indicated. The sign panel for the private street must be the size indicated, but must have a black non-reflectORIZED background with a white reflective legend.
12. Series C letters may be replaced with Series B letters if approved by the City Traffic Engineer in each instance.

COLOR AND REFLECTORIZATION (SEE NOTE 11 FOR PRIVATE STREETS)		
INTERSECTION INVOLVING	BACKGROUND	LEGEND
ONLY LOCAL STREETS	GREEN	WHITE
COLLECTOR OR ARTERIAL STREETS	BLUE	WHITE
SIGNS MUST BE FULLY REFLECTORIZED USING 3M HIGH-INTENSITY SHEETING		

STANDARD ABBREVIATIONS	
AV = AVENUE (SEE NOTE 8)	
BLVD = BOULEVARD	PKWY = PARKWAY
CR = CIRCLE	PL = PLACE
CT = COURT	RD = ROAD
DR = DRIVE	ST = STREET
LN = LANE	WY = WAY

CITY SIDE IDENTIFIER	
INTERSECTION LOCATION	ID
EAST - WEST STREET: EAST OF 1ST AVENUE WEST OF 1ST AVENUE	E W
NORTH - SOUTH STREET NORTH OF 1ST STREET SOUTH OF 1ST STREET	N S



STREET NAME SIGN WITH DEAD END PANEL



STREET NAME SIGN WITH NO OUTLET PANEL

SIGN ADDITION DIMENSIONS						
Intersection Involving	Dimensions (inches)				Y	
	B	C	E SEE NOTE 6	U	Dead End	No Outlet
Only Local Streets	6	0.75	2.0 Series C	0.5	7	9
Collector or Arterial Streets	8	1	2.5 Series C	1	8	12

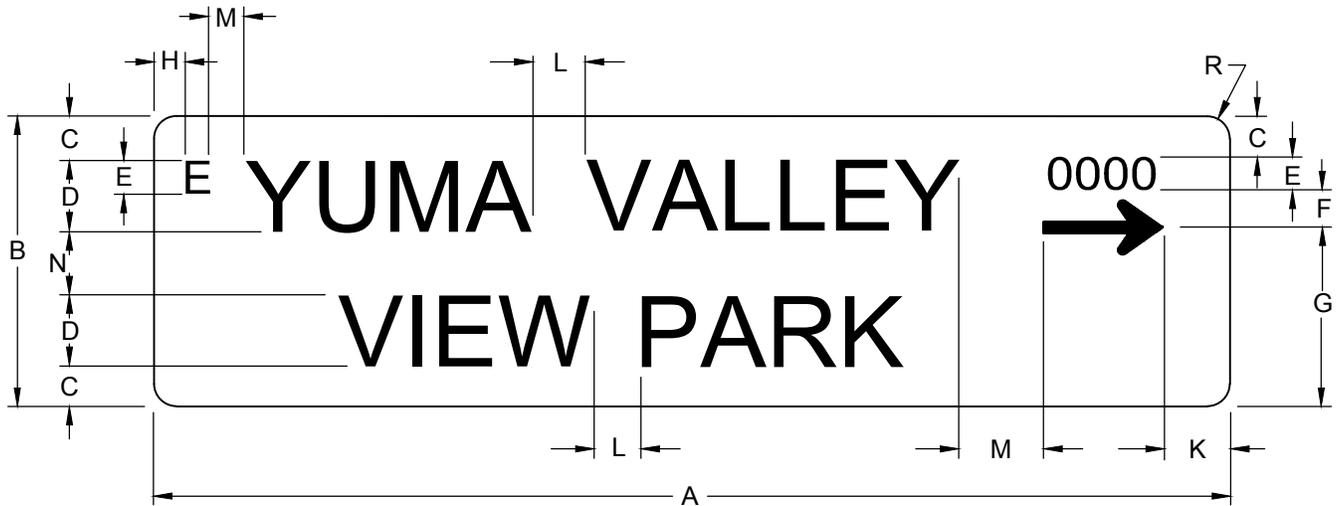
NOTES

1. Additional panels must have a black legend on a YELLOW reflective background and no border.
2. Mount signs with additional panels on side of street closest to "Dead End" or "No Outlet" leg and with additional panel at end of sign closest to "Dead End" or "No Outlet".
3. Main panel of sign must conform to the requirements shown on Sheet 1.
4. Yellow background must be high-intensity sheeting.
5. Center additional panel text.
6. Series C letters may be replaced with Series B letters if approved by the City Traffic Engineer in each instance.

Issued: May 2019 Sheet 2 of 6

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 8-050
STREET NAME SIGN
LAYOUT AND DESIGN**



2-LINE NORMAL STREET NAME SIGN

SIGN DIMENSIONS IN INCHES

Intersection Involving Only Local Streets												
A	B	C	D	E	F	G	H	K	L	M	N	R
24 min 48 max	12	1	4.25 Series C, see note 3	2.0	1.75	7.25	1.5 min	1.5 min	2.5 min	1.5 min	1.5	1 typ
Intersection Involving Collector or Arterial Streets												
A	B	C	D	E	F	G	H	K	L	M	N	R
30 min 60 max	18	1.25	6.25 Series C, see note 3	2.5	2.25	12	2 min	2 min	3.5 min	2 min	3	1 typ

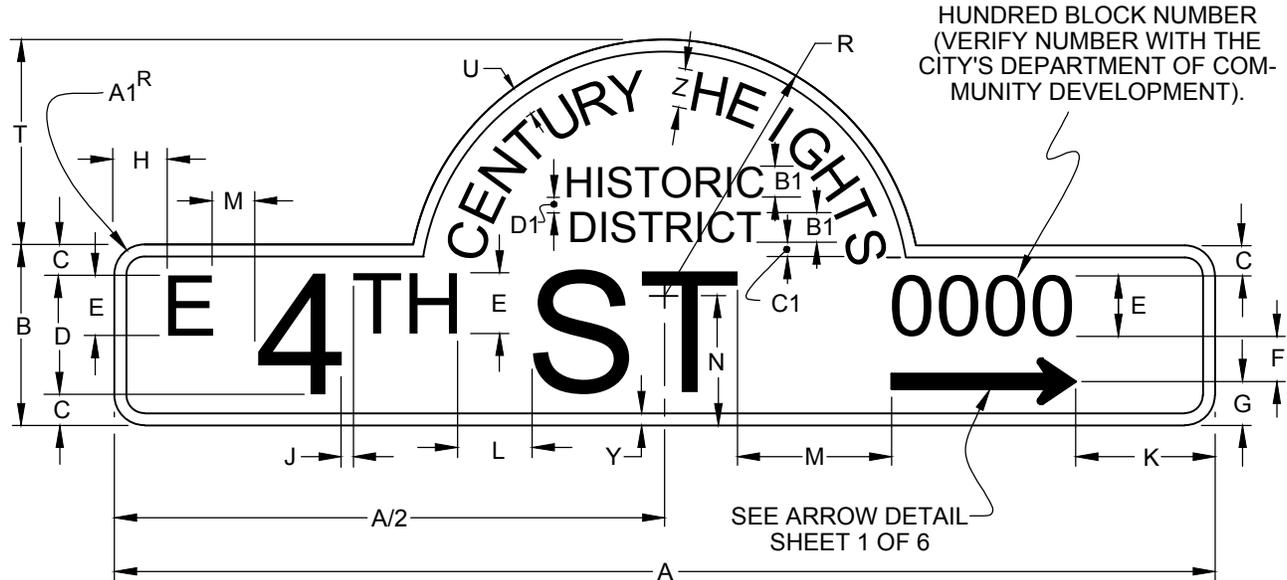
NOTE

1. See Notes on Sheet 1.
2. Colors: Same as Normal Street Name Sign.
3. Series C letters may be replaced with Series B letters if approved by the City Traffic Engineer in each instance.

Issued: May 2019 Sheet 3 of 6

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 8-050
STREET NAME SIGN
LAYOUT AND DESIGN**



CENTURY HEIGHTS STREET NAME SIGN

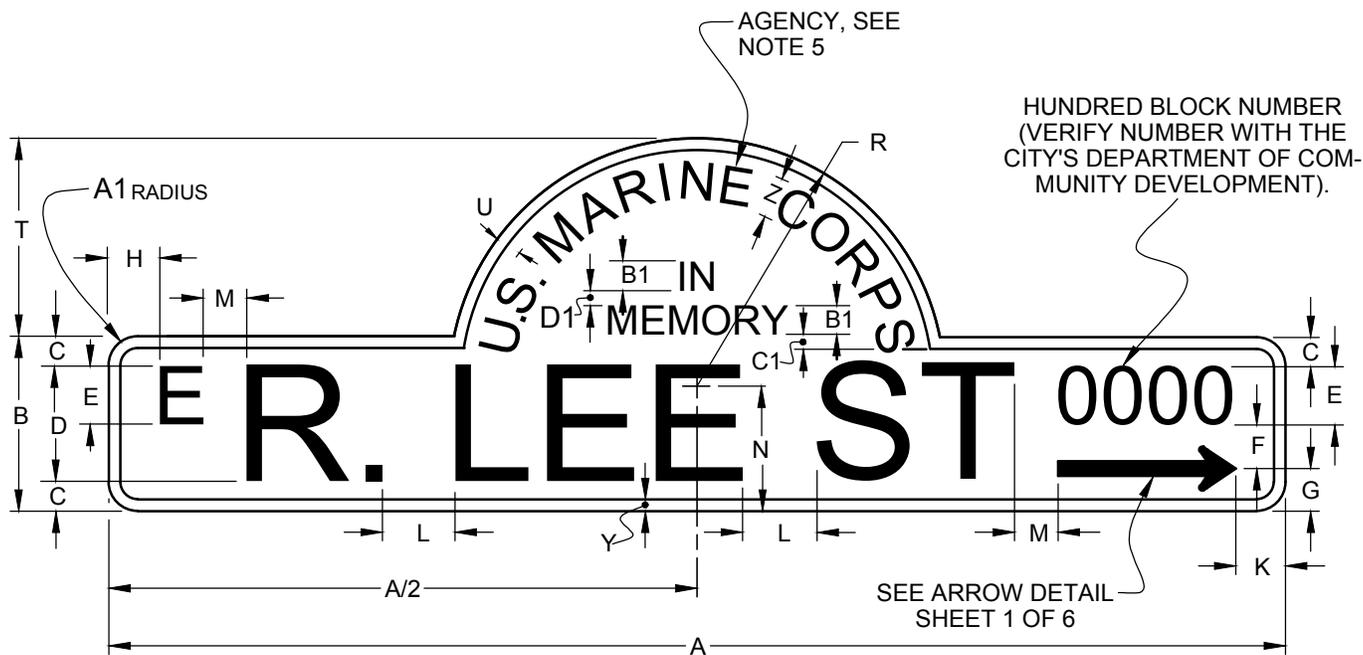
SIGN DIMENSIONS IN INCHES

Intersection Involving Only Local Streets																					
A	B	C	D	E	F	G	H	J	K	L	M	N	R	T	U	Y	Z	A1	B1	C1	D1
24 min 48 max	6	0.75	4 Series C, see note 3	2.0	1.5	1.75	1.75 min	0.375	1.75 min	2.5 min	1.5 min	3.5	8.5	6	0.65	0.4	2.0 Series B	1.0	1.0 Series B	0.2	0.5
Intersection Involving Collector or Arterial Streets																					
A	B	C	D	E	F	G	H	J	K	L	M	N	R	T	U	Y	Z	A1	B1	C1	D1
30 min 60 max	8	1.25	6 Series C, see note 3	2.5	2	2.25	2.5 min	0.5	2.5 min	3.5 min	2 min	5.5	8.5	6	0.65	0.5	2.0 Series B	1.0	1.0 Series B	0.2	0.5

NOTE

1. See Notes on Sheet 1.
2. Colors: See Sheet 1 Borders must be white.
3. Series C letters may be replaced with Series B letters if approved by the City Traffic Engineer in each instance.

Issued: May 2019	Sheet 4 of 6
CITY OF YUMA CONSTRUCTION STANDARD DETAIL DRAWINGS	
STANDARD NO. 8-050 STREET NAME SIGN LAYOUT AND DESIGN	



MEMORIAL STREET NAME SIGN

SIGN DIMENSIONS IN INCHES

Intersection Involving Only Local Streets																				
A	B	C	D	E	F	G	H	K	L	M	N	R	T	U	Y	Z	A1	B1	C1	D1
24 min 48 max	6	1	4 Series C, see note 6	2.0	1.5	2	1.75 min	1.75 min	2.5 min	1.5 min	3.5	8.5	6	0.65	0.4	2.0 Series B	1.0	1.0 Series B	0.2	0.5
Intersection Involving Collector or Arterial Streets																				
A	B	C	D	E	F	G	H	K	L	M	N	R	T	U	Y	Z	A1	B1	C1	D1
30 min 60 max	8	1	6 Series C, see note 6	2.5	2.25	2.75	2.5 min	2.5 min	3.5 min	2 min	5.5	8.5	6	0.65	0.5	2.0 Series B	1.0	1.0 Series B	0.2	0.5

NOTE

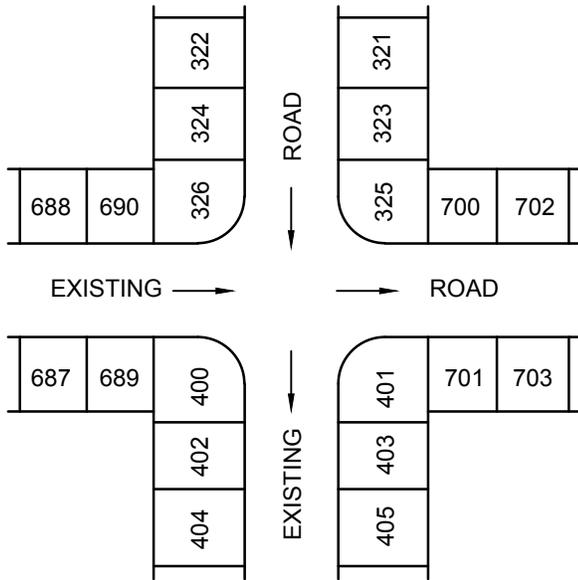
- See Notes on Sheet 1.
- Colors: See sheet 1. Borders must be white.
- If name is too long to fit standard sign lengths, first name will be replaced by first initial.
- Rank will not be shown.
- Choices for Agency are limited to:
 - U.S. Army
 - U.S. Navy
 - U.S. Marine Corps
 - U.S. Air Force
 - U.S. Coast Guard
 - Yuma Police Dept
 - Yuma Fire Dept
 - Yuma Sheriff Dept
 - AZ Public Safety
 - U.S. Border Patrol
- No special mention will be made for Reserves. The Agency will be as defined above.
- Series C letters may be replaced with Series B letters if approved by the City Traffic Engineer in each instance.
- If two Memorial Streets intersect, only the sign for the North-South street will have the circular portion. The other must be a normal street name sign.

Issued: May 2019

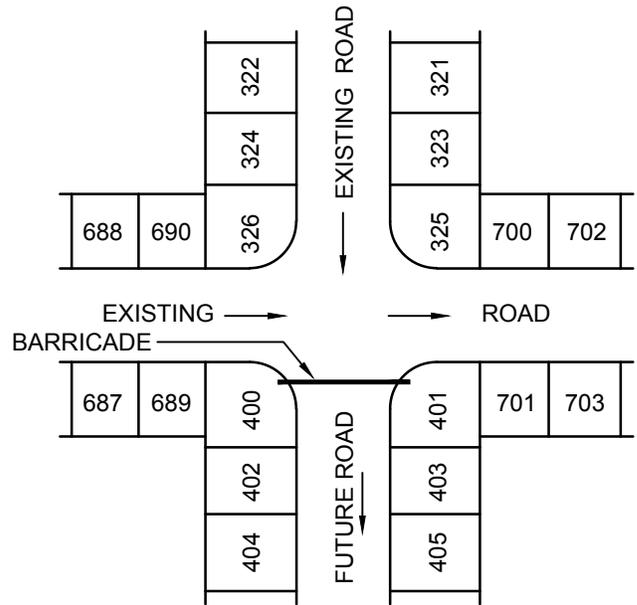
Sheet 5 of 6

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

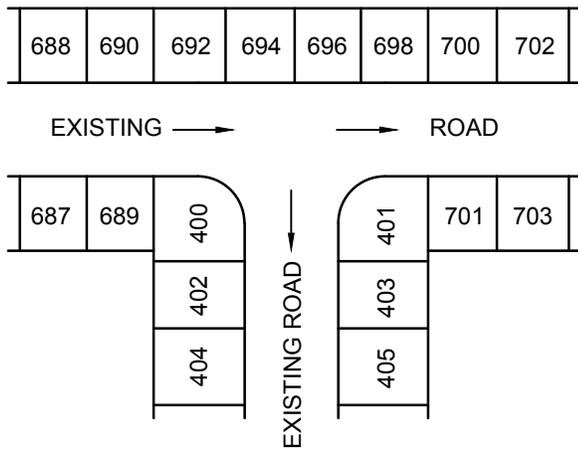
STANDARD NO. 8-050
STREET NAME SIGN
LAYOUT AND DESIGN



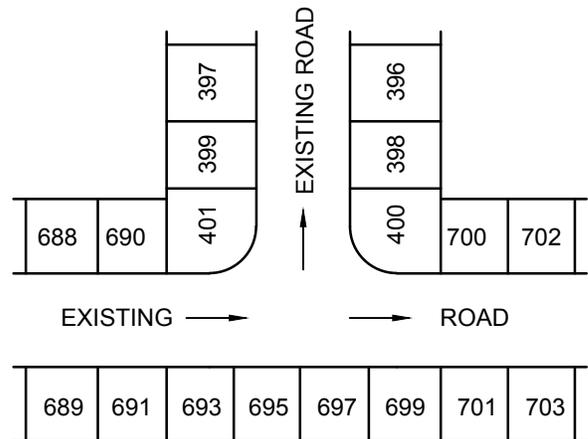
CASE A
NORMAL 4-WAY INTERSECTION



CASE B
NORMAL 4-WAY INTERSECTION WITH FUTURE LEG



CASE C
NORMAL 'T' INTERSECTION WITH 'T' STEM IN DIRECTION OF INCREASING ADDRESS NUMBERS

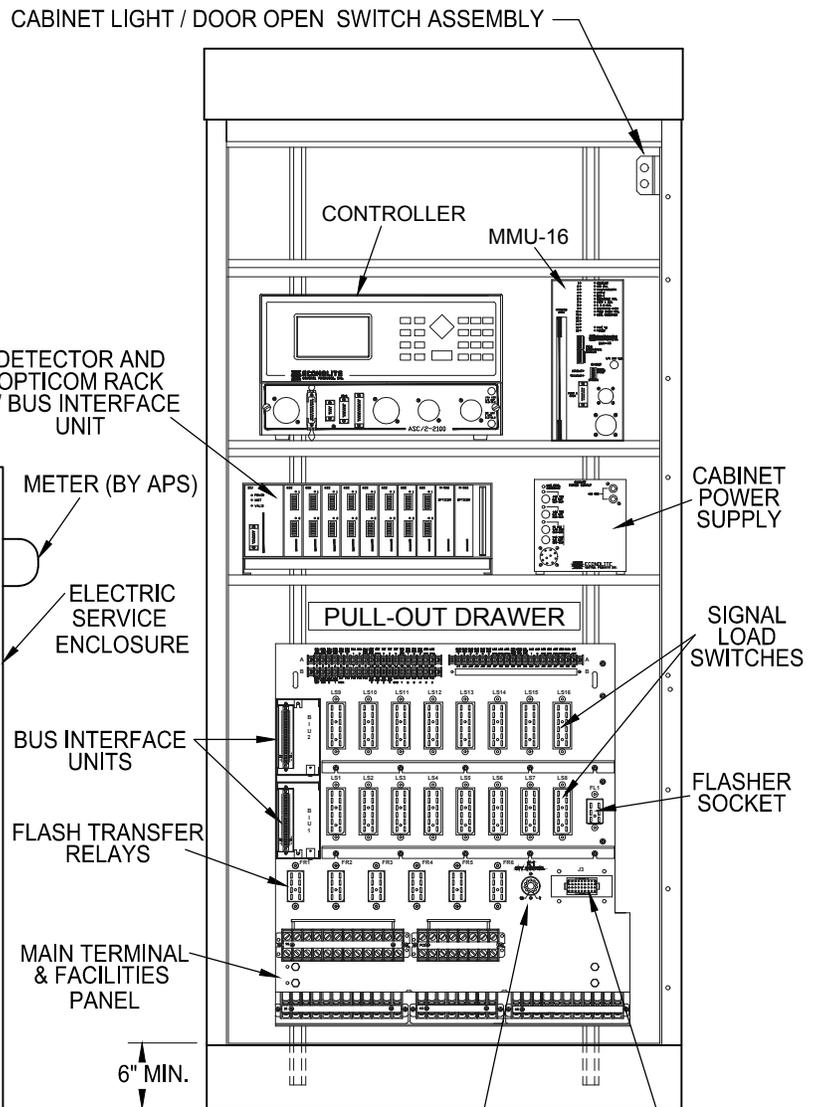
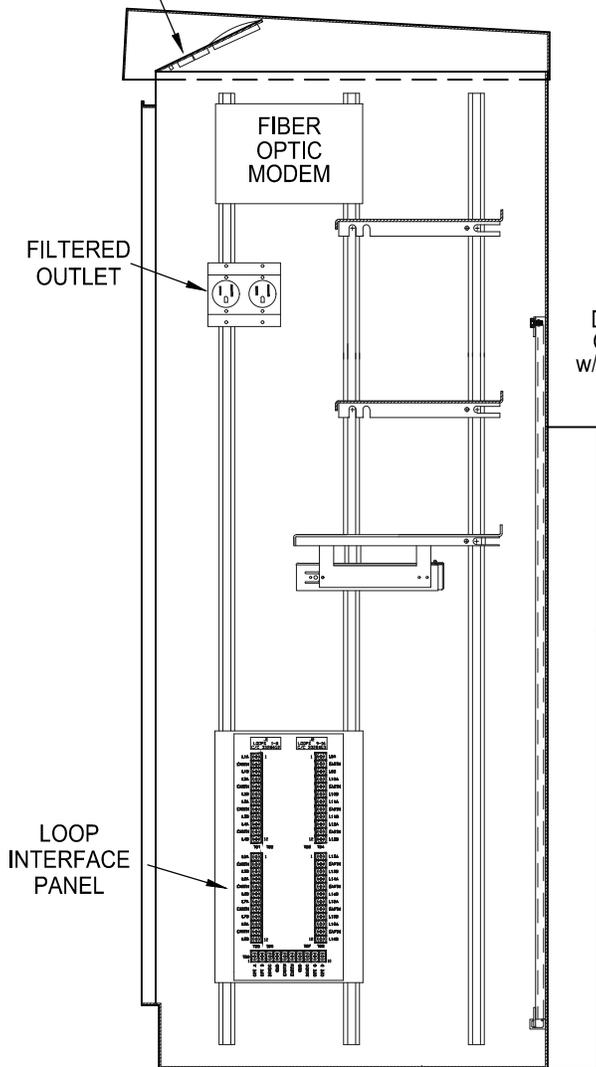
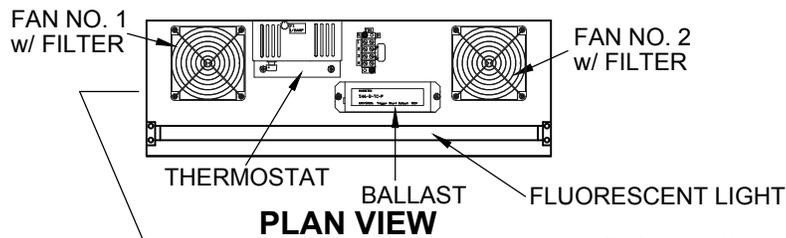


CASE D
NORMAL 'T' INTERSECTION WITH 'T' STEM IN DIRECTION OF DECREASING ADDRESS NUMBERS

NOTE: ARROW FOR 'T' STEM POINTS IN DIRECTION OF DECREASING ADDRESS NUMBERS.

NOTES

1. Arrows on street name signs must point in the direction of the increasing address numbers except for the 'T' stem of CASE D.
2. Use "Dead End" panel for dead end street legs.
3. Use "No Outlet" panel for street legs having no outlet from the area.



PROFILE VIEWS

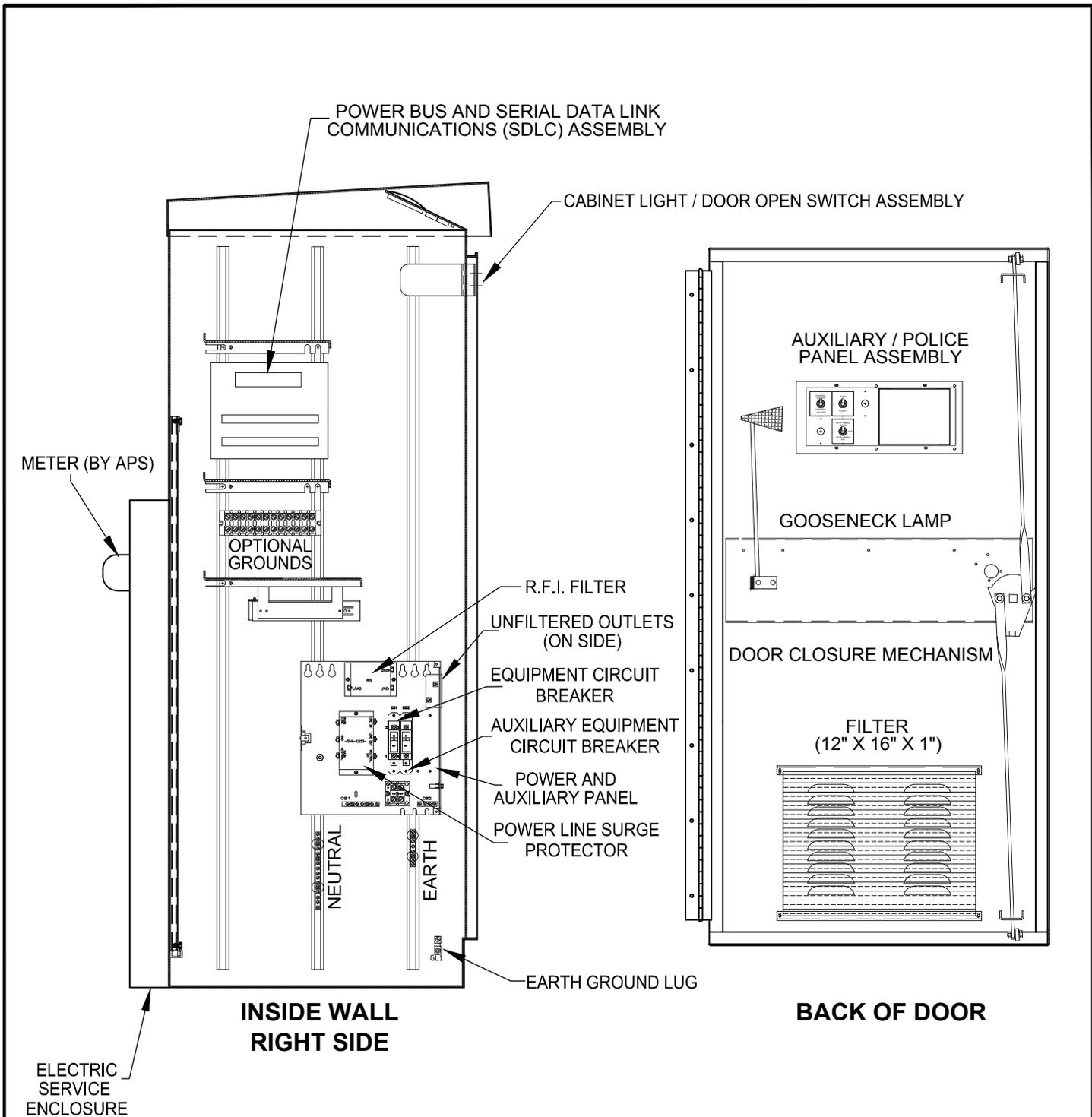
NOTES

1. Nominal minimum cabinet dimensions: 67" high, 30" wide and 25" deep.
2. Equipment locations are approximate.
3. See Standard Detail 9-010 for electrical service enclosure.
4. See Standard Detail 9-015 for cabinet foundation.
5. Power panel must have a rigid cover with slotted screw holes so the cover can be removed without removing the screws.
6. Front of door must be labeled "CITY OF YUMA TRAFFIC CONTROL" with embossed or engraved letters a minimum of one inch (1") high.
7. Cabinet must be an "Econolite Control Products, Inc., Type O, drawing 73156 or approved equivalent.
8. To maintain uniformity with the City of Yuma Smart City Plan, the only currently acceptable controller unit is Econolite Cobalt C P/N: COBS1212012000.

Issued: May 2019 Sheet 1 of 2

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

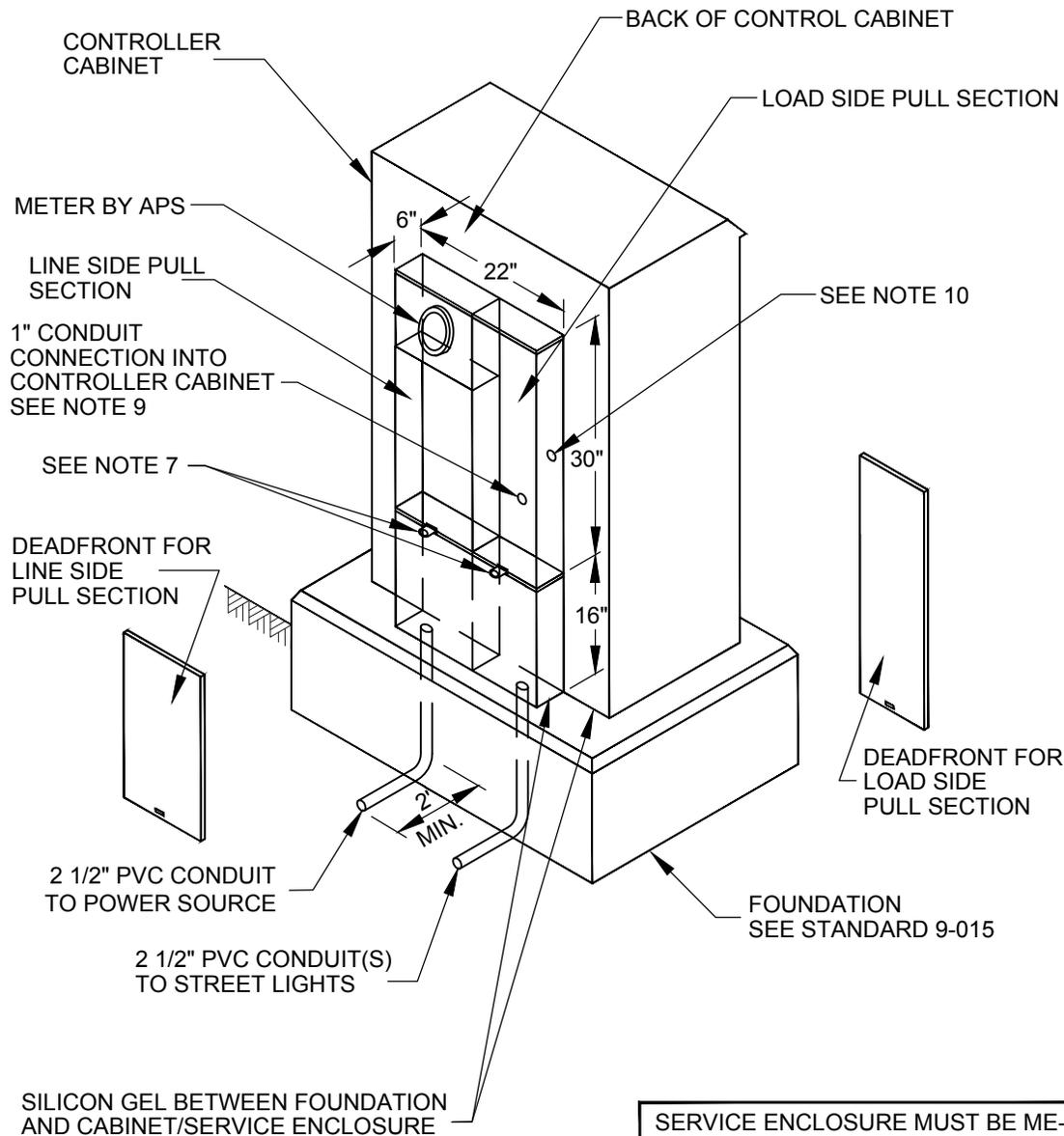
**STANDARD NO. 9-005
TYPE "O" CONTROLLER
CABINET LAYOUT**



**INSIDE WALL
RIGHT SIDE**

BACK OF DOOR

**STANDARD NO. 9-005
TYPE "O" CONTROLLER
CABINET LAYOUT**



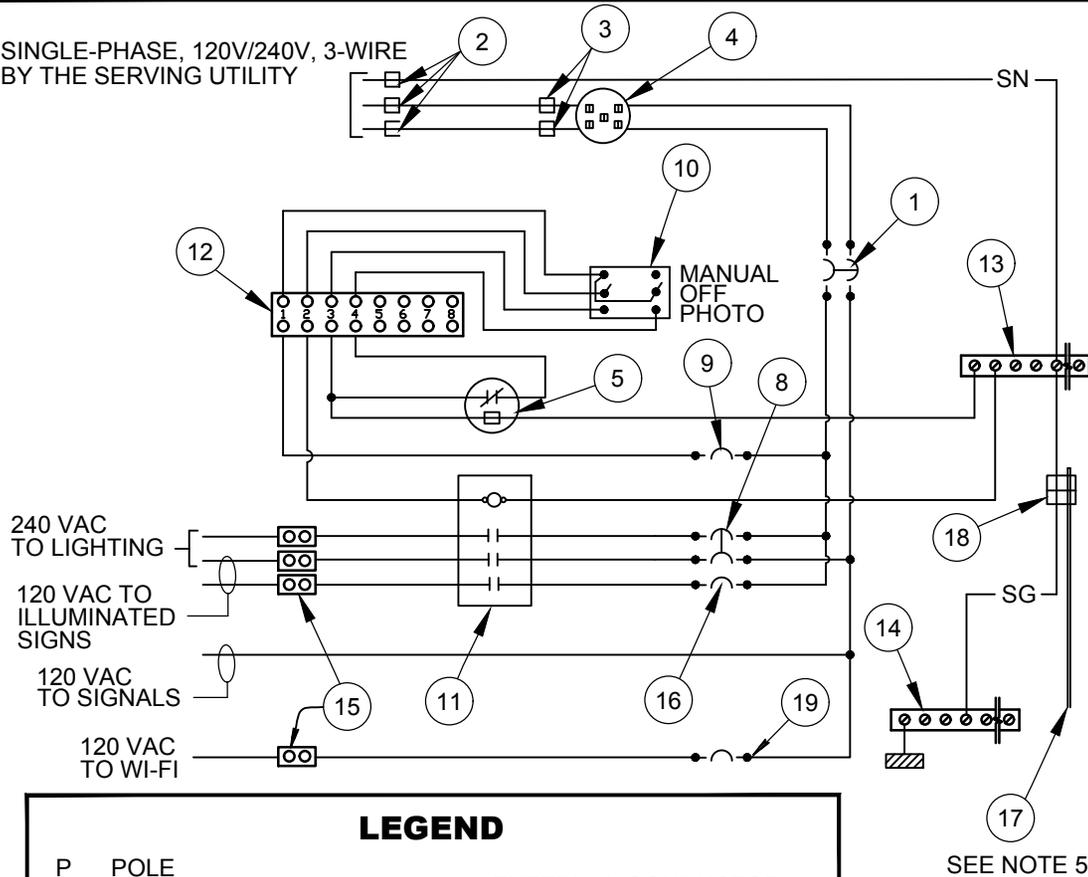
NOTES

1. See Traffic Signal and Roadway Lighting Specifications for construction requirements
2. All service conductors and service panels shall have a 100 ampere capacity.
3. All components shall be rated for 250V operation.
4. Circuit breakers shall be the molded case, thermal magnetic, plug-in type with a minimum fault interrupting capacity of 10,000 amperes.
5. The service enclosure shall be fabricated from zinc-coated 14 gauge steel.
6. The service enclosure shall be N.E.M.A. 3R rated.
7. Each front panel shall be independently padlockable.
8. The service enclosure shall be secured to the control cabinet with four 3/8" cadmium plated bolts. Bolts shall not interfere with interior cabinet wiring or equipment placement.
9. There shall be a 1" flexible metal conduit from the back of the enclosure to the circuit breaker box in the controller cabinet.
10. A photoelectric switch shall be mounted on the inside right side wall of the enclosure. A 2" diameter opening must be provided for the photoelectric cell. The opening must be covered from the inside by a 3" x 3" x 1/4" Plexiglas secured from the inside by 1/2"-12 bolts tapped and threaded into the enclosure.
11. See sheet 2 for enclosure wiring.
12. The dimensions shown are approximate. Enclosures that are functionally equivalent, approximately the same size, and acceptable to the Arizona Public Service Company (APS) may be provided subject to approval by the City Engineer.

SERVICE ENCLOSURE MUST BE ME-TYPE II BY MYERS ELECTRICAL PRODUCTS, INC. OR APPROVED EQUIVALENT.

Issued: May 2019	Sheet 1 of 2
<p>CITY OF YUMA</p> <p>CONSTRUCTION STANDARD DETAIL DRAWINGS</p> <p>STANDARD NO. 9-010</p> <p>ELECTRIC SERVICE ENCLOSURE</p> <p>ON CONTROLLER CABINET</p>	

SINGLE-PHASE, 120V/240V, 3-WIRE
BY THE SERVING UTILITY



LEGEND

P	POLE	—	EXTERNAL CONDUCTOR
CB	CIRCUIT BREAKER	—	CONDUCTOR OR BUS
A	AMPERE	—●—	TIE POINT
V	VOLT	—○—	CONTACTOR COIL
M	METERED	— —	CONTACTOR, CONTACT NO
SN	SOLID NEUTRAL	— /—	CONTACTOR, CONTACT NC
SG	SOLID GROUND	▨	ENCLOSURE BOND
NO	NORMALLY OPEN		
NC	NORMALLY CLOSED		

NOTES

1. Aluminum-bodied terminals for #6 through #1/0 wire with rigid insulating barriers (maximum terminal size 250 KCMIL) per the requirements of the Electrical Utility Service Equipment Requirements Committee (EUSERC) and acceptable to Arizona Public Service Company (APS).
2. Insulated bondable vertical lay-in, double neutral lug with #1/0 wire capacity mounted on either sidewall.
3. Ground rod and clamp are not part of the enclosure.
4. See sheet 1 for service enclosure design.
5. See Standard 9-030 for grounding.

METER PEDESTAL EQUIPMENT LEGEND

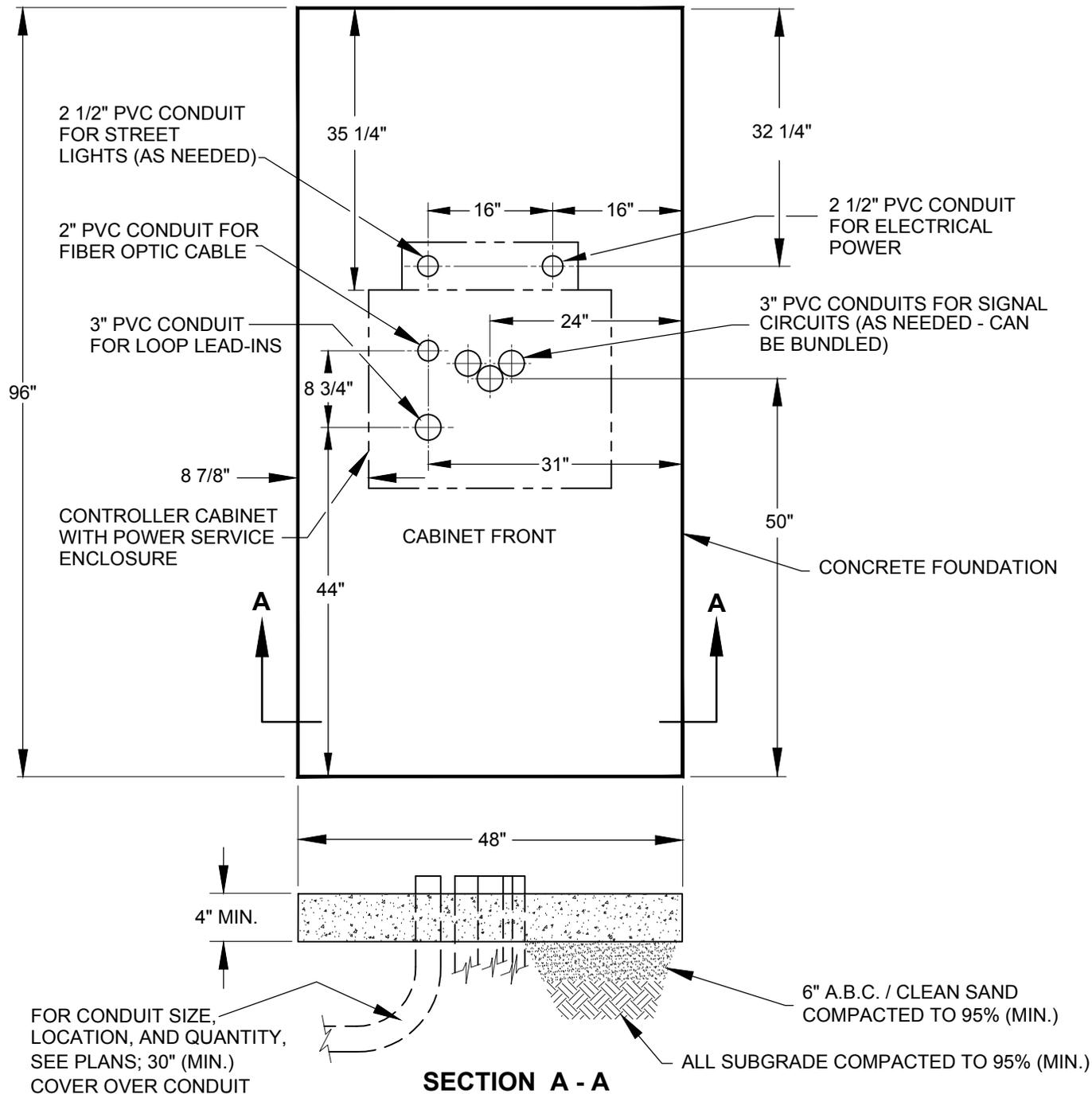
ITEM NO.	COMPONENT	NAME PLATE DESCRIPTION
①	100A, 240V, 2P, CB	MAIN BREAKER
②	UTILITY LANDING LUG	SEE NOTE 1
③	TEST BYPASS BLOCKS	
④	METER SOCKET AND SUPPORT	
⑤	PHOTO ELECTRIC CELL	
⑥	RESERVED	
⑦	NOT USED	
⑧	30A, 240V, 2P, CB	LIGHTING
⑨	15A, 120V, 1P, CB	LIGHTING CONTROL
⑩	SWITCH	LIGHTING & SIGN CONTROL SWITCH (MANUAL, OFF, PHOTO)
⑪	60A, 3P, NO CONTACTOR	
⑫	TERMINAL BLOCK	
⑬	NEUTRAL BUS	SEE NOTE 2
⑭	GROUND BUS	
⑮	LIGHTING LANDING LUGS	
⑯	15A, 120V, 1P, CB	ILLUMINATED SIGN
⑰	CABINET GROUND ROD	SEE NOTE 3
⑱	GROUND ROD CLAMP	SEE NOTE 3
⑲	15A, 120V, 1P, CB	WI-FI

Issued: May 2019

Sheet 2 of 2

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

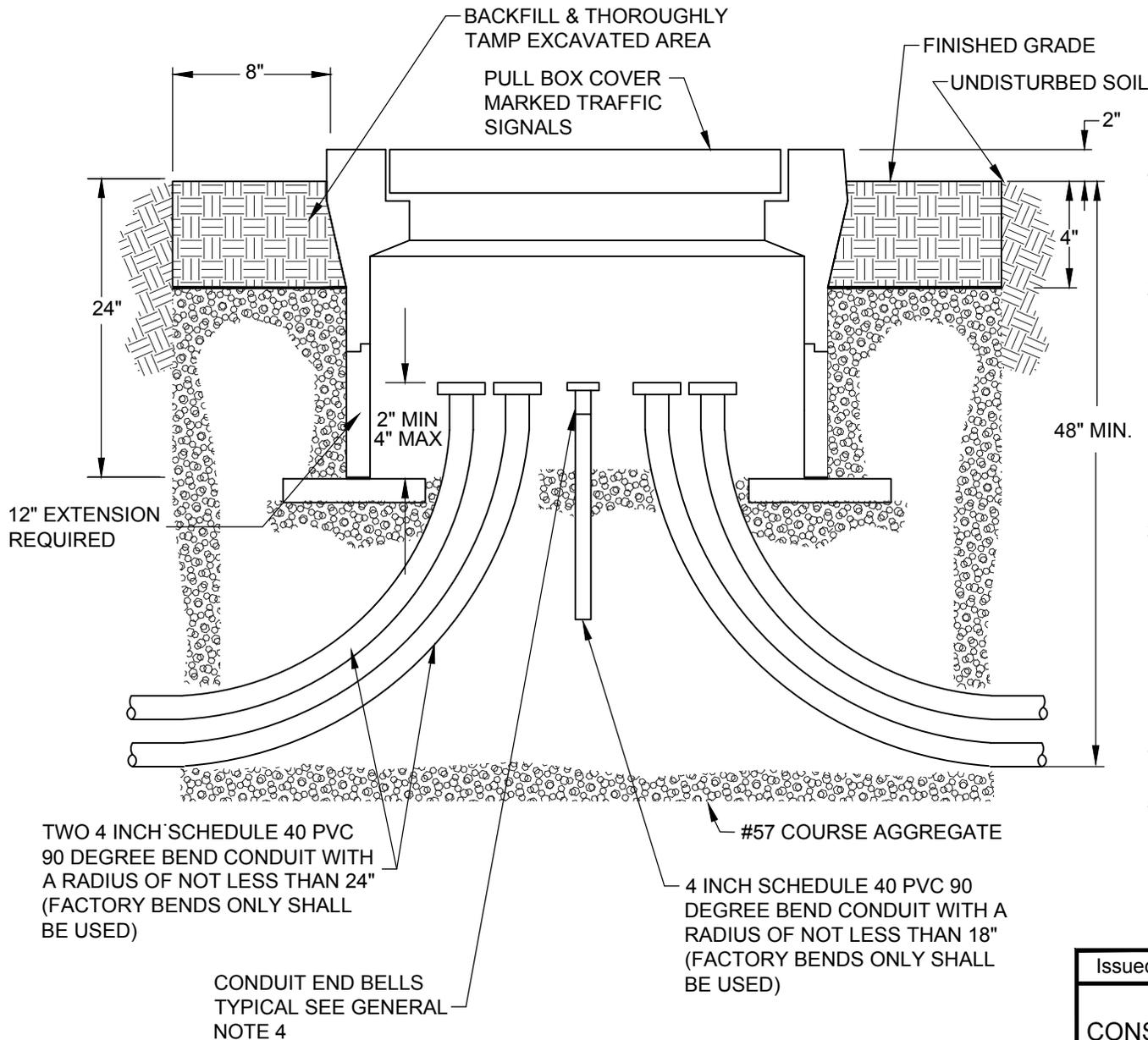
STANDARD NO. 9-010
ELECTRIC SERVICE ENCLOSURE
ON CONTROLLER CABINET



NOTES

1. Foundation must be constructed of Class "B" concrete per Mag. Section 725. Broom finish all exposed surfaces.
2. All dimensions nominal.
3. Attach cabinet to foundation with shot-in threaded studs, oversize washers and nuts.
4. Prior to mounting the cabinet onto foundation, apply "General Electric Silver Silicone Sealant" (or approved equivalent) to bottom of cabinet to provide a weather-proof seal between cabinet and foundation.
5. Orient foundation to provide maximum view of inter-section for personnel looking at front of cabinet.
6. See Standard 9-030 for grounding.
7. All conduit must be Schedule 40 PVC unless otherwise indicated.

Issued: May 2019
CITY OF YUMA CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 9-015 TRAFFIC SIGNAL CONTROL CABINET FOUNDATION



NOTES

1. All finished traffic signal equipment (pole foundations, pull boxes, and controller cabinet pads) shall be at back of sidewalk grade, unless otherwise noted on plans.
2. When traffic signal equipment (poles, pull boxes, and controller cabinets) are installed in an upward slope section, the project engineer shall design a retaining wall or cut back existing grade to obtain a level area for at least 24 inches from the traffic signal equipment. the slope of the finished grade shall not exceed a 1:6 slope and shall match and conform to the existing terrain.
3. When traffic signal equipment (poles, pull boxes, and cabinets) are installed in a downward slope section, needed dirt shall be hauled in to obtain a level area for at least 24 inches from the traffic signal equipment. The slope of the finished grade shall not exceed a 1:6 slope and shall match and conform to the existing terrain.
4. Conduit end bells shall be installed before pulling wire.
5. Backfill with excavated materials and thoroughly tamp per MAG. Standard 601.6. Finish grade shall be 2" down from top of box. Any pavement or sidewalk shall be flush with top of box.

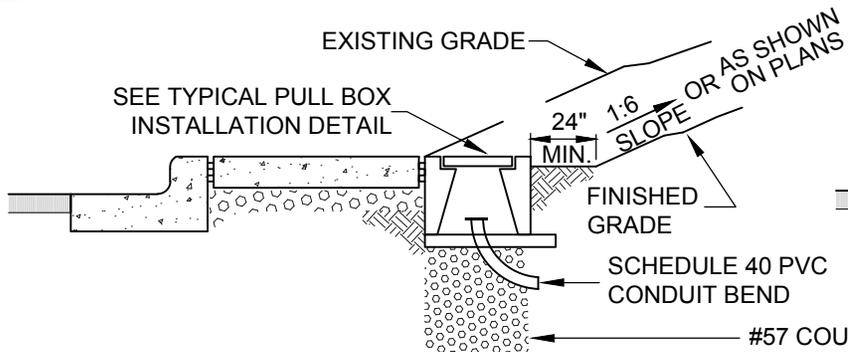
TWO 4 INCH SCHEDULE 40 PVC 90 DEGREE BEND CONDUIT WITH A RADIUS OF NOT LESS THAN 24" (FACTORY BENDS ONLY SHALL BE USED)

CONDUIT END BELLS TYPICAL SEE GENERAL NOTE 4

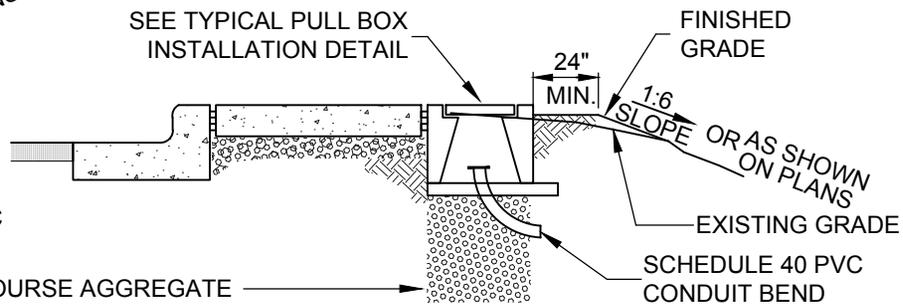
4 INCH SCHEDULE 40 PVC 90 DEGREE BEND CONDUIT WITH A RADIUS OF NOT LESS THAN 18" (FACTORY BENDS ONLY SHALL BE USED)

TYPICAL PULL BOX INSTALLATION DETAIL FOR TRAFFIC SIGNALS

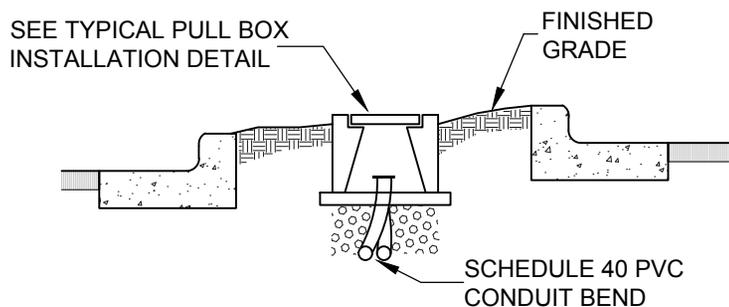
Issued: May 2019	Sheet 1 of 3
<p>CITY OF YUMA CONSTRUCTION STANDARD DETAIL DRAWINGS</p> <p>STANDARD NO. 9-020 TYPICAL PULL BOX INSTALLATION</p>	



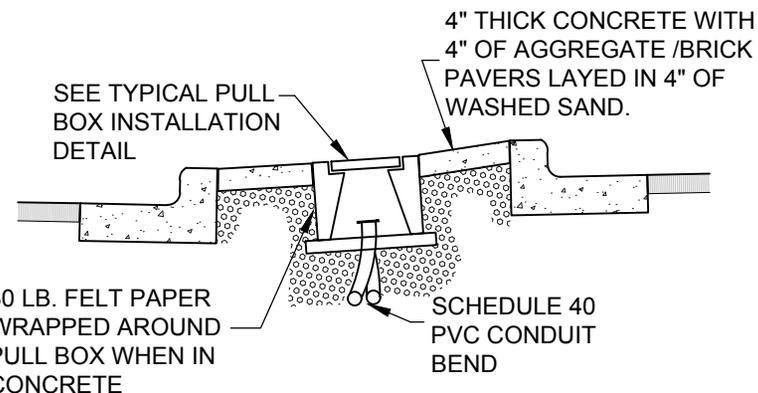
UPWARD SLOPE DETAIL



DOWNWARD SLOPE DETAIL



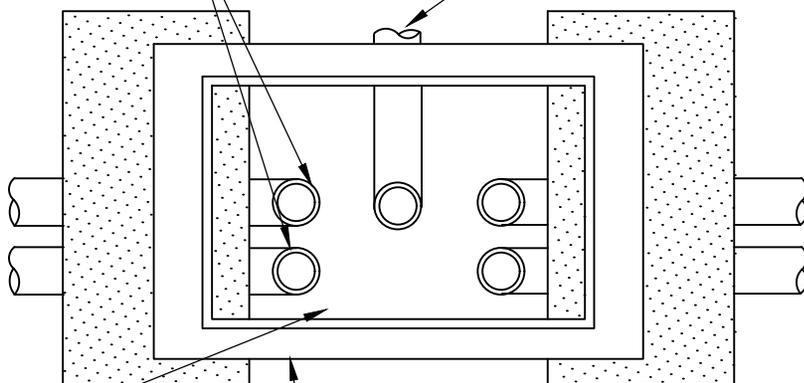
MEDIAN DETAIL



CONCRETE MEDIAN DETAIL

TWO 4 INCH SCHEDULE 40 PVC 90 DEGREE BEND CONDUIT

4 INCH SCHEDULE 40 PVC 90 DEGREE BEND CONDUIT



COVER OMITTED FOR CLARITY

TOP VIEW

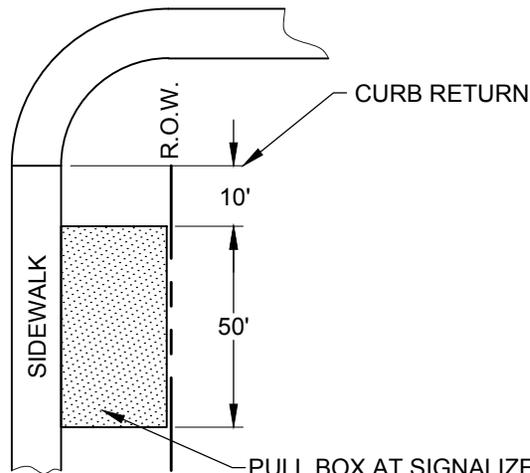
CONCRETE BUILDING BLOCK (8" x 1-1/2" x 16")

Issued: May 2019

Sheet 2 of 3

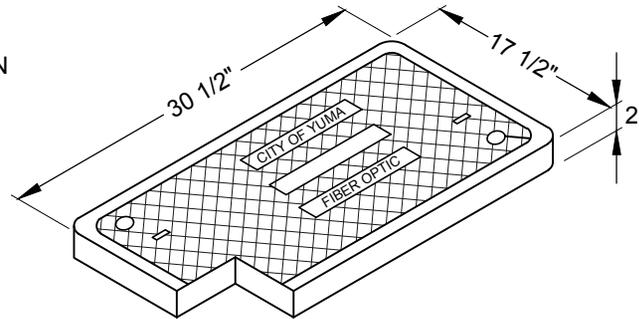
CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 9-020
TYPICAL PULL BOX INSTALLATION

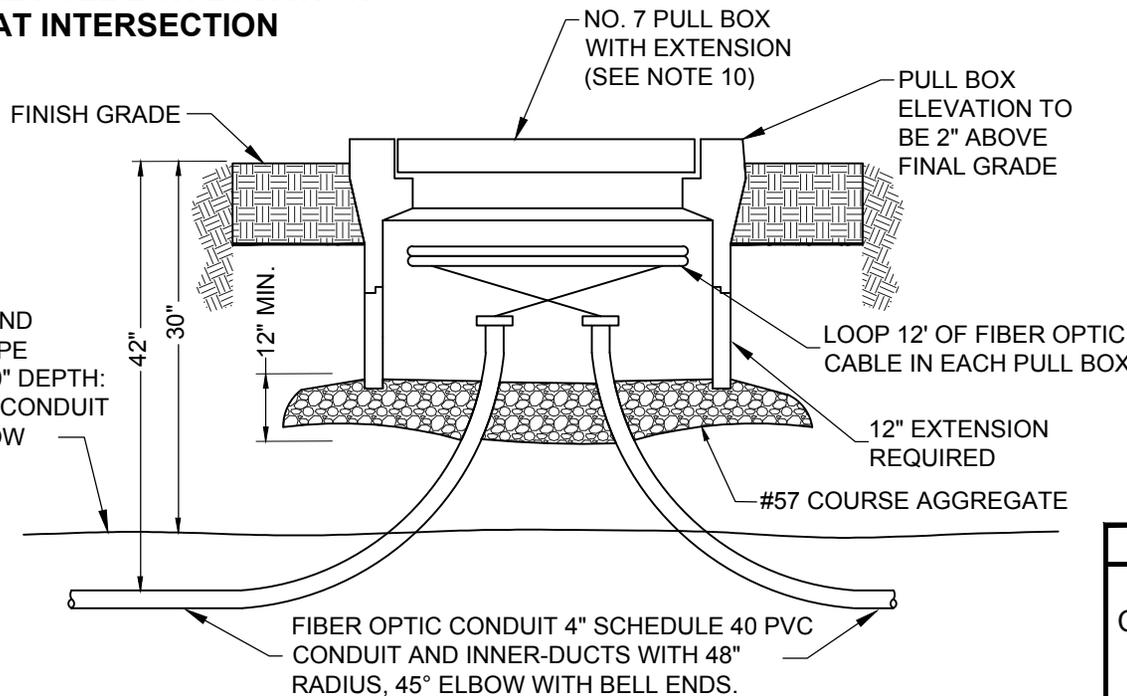


PULL BOX AT SIGNALIZED INTERSECTIONS SHALL BE PLACED IN SHADED AREA AS SHOWN

TYPICAL PULL BOX LOCATION AT INTERSECTION



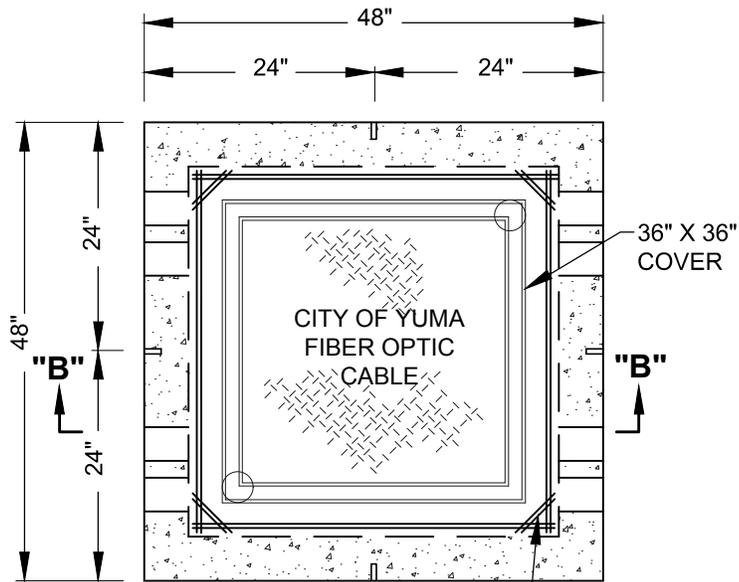
PULL BOX LID DETAIL (SEE NOTE 10)



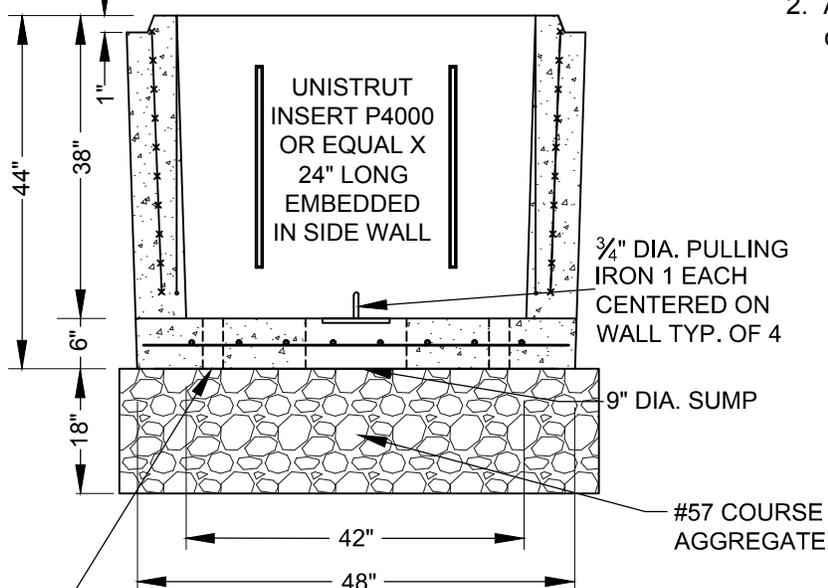
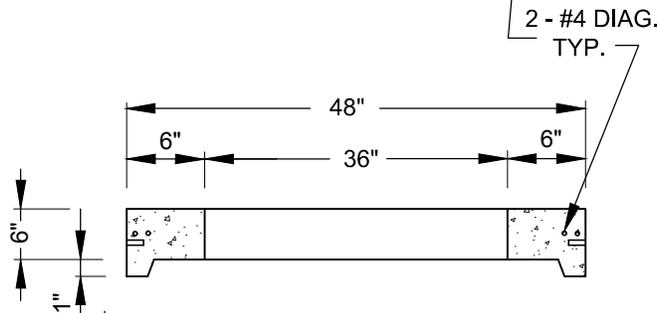
TYPICAL PULL BOX INSTALLATION DETAIL FOR IT/COMMUNICATIONS

NOTES

1. Fiber-Optic conduit runs shall be installed on the same side of the street as traffic signal control cabinet (s).
2. When new street light conduit is being installed, the conduit for the fiber-optic cable shall share a common trench with the street light conduit.
3. Pull box cover lettering shall be 1" letters cast in standard markings "City of Yuma Fiber-Optic"
4. Pull boxes shall be spaced approximately 1000' apart.
5. Cable shall be supplied on 6000' reels.
6. Cable shall be installed as one continuous piece with no splices inside No. 7 pull boxes.
7. One gallon of wire pulling soap shall be used per 660 feet when pulling cable.
8. Conduits for fiber system shall be blown out with compressed air and have an 8" long metal disc mandrel pulled through before fiber cable is installed.
9. Contractor shall perform an "OTDR" (Optical time-domain reflectometer) test and a power meter test on all fibers with the City of Yuma inspector present before final acceptance. Operator shall be qualified to perform test. Written test results shall be provided to inspector as to result of each fiber tested.
10. Pull Box shall be Quazite PG 1730 BA 12 or approved equal. Pull Box cover shall be Quazite PG 1730 HA00 or approved equal.
11. All conduit to have detectable pull tape installed in a continuous run.



PLAN VIEW



SECTION "B - B"

2 EA. 2-1/2" GROUND ROD KNOCKOUTS

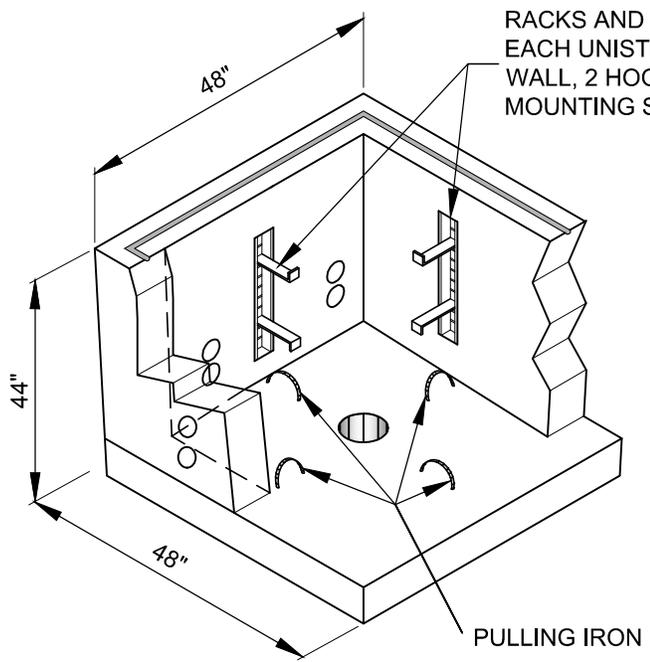
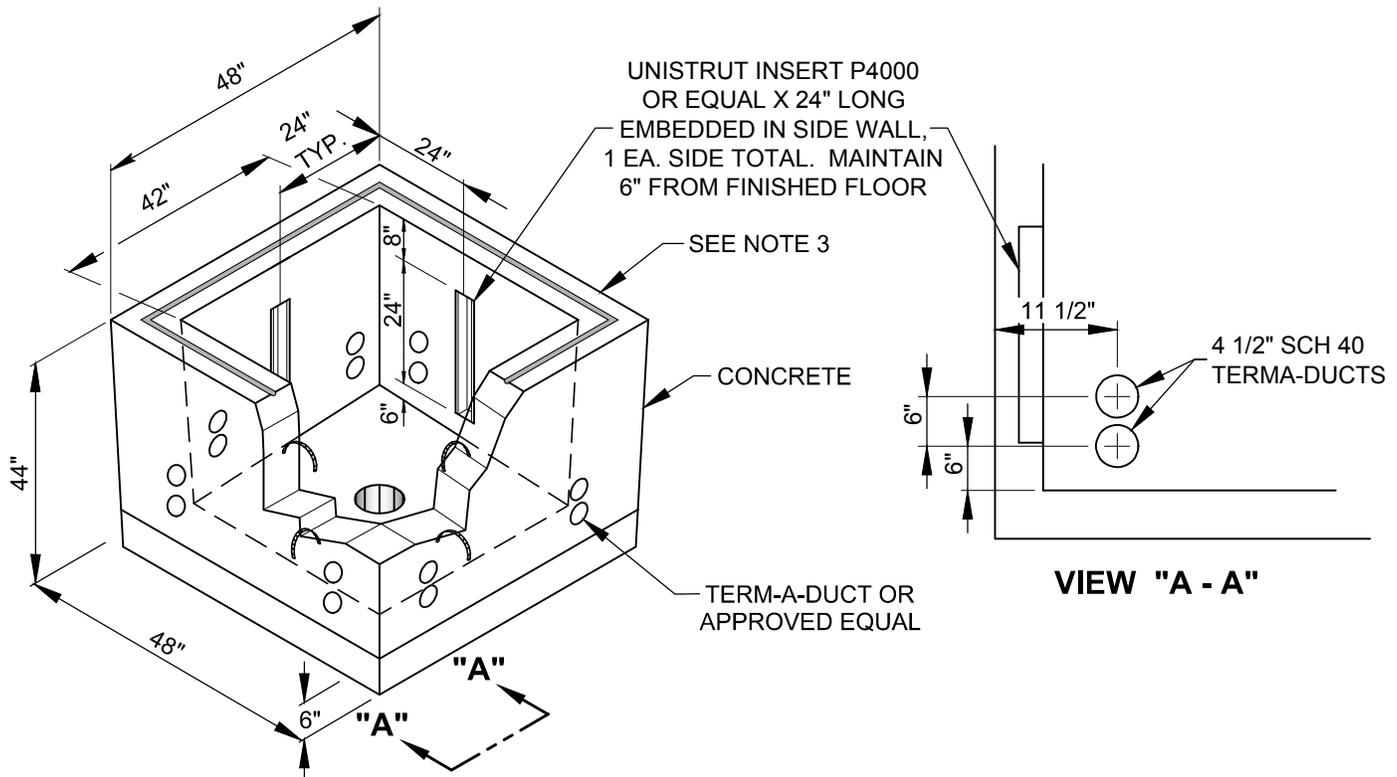
NOTES

Design loads-
 Live load HS 20-44 loading
 HS20 Wheel loading in off-street locations where not subjected to high density traffic.
 80PSF lateral live load surcharge-up to 8' depth.
 Soil: 40 PCF Lateral soil pressure above water table.
 80 PCF Lateral soil pressure below water table.
 120 PCF Soil density.

Material Specifications:
 Concrete: 28 day compressive strength, $f'c = 5,000$ p.s.i.
 Reinforcing Steel: ASTM A 615 grade 60
 Welded Wire Fabric: ASTM A1064 Grade 65.

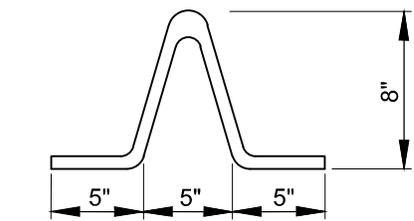
Design Codes:
 American Concrete Institute (ACI) 318-14.
 ASTM C857-16 Minimum Structural Design Loading for Underground - Precast Concrete Utility Structures.

- General Notes:
1. All joints between concrete units shall be sealed with butyl rubber rope to assure watertight integrity.
 2. All reinforcement steel to have equal cover unless otherwise noted.



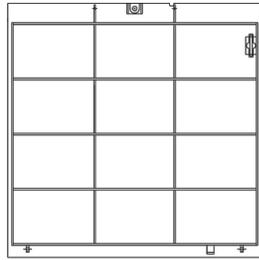
NOTES

1. Four (4) pulling irons shall be cast into the bottom of pull box.
2. All new pull boxes shall be furnished with (4) 18 hole racks, (8) 1/2" spring nuts and bolts, and (8) 7 1/2" straight hooks.
3. Vault shall be installed with a locking lip with seal between wall & cover assembly.
4. Term-a-duct (or approved equal) shall accept a 4" dia. schedule 40 pvc conduit, unless otherwise specified.
5. All communication cables shall be tagged with cable identification.



PULLING IRON DETAIL

**STANDARD NO. 9-025
NO. 9 VAULT INSTALLATION**

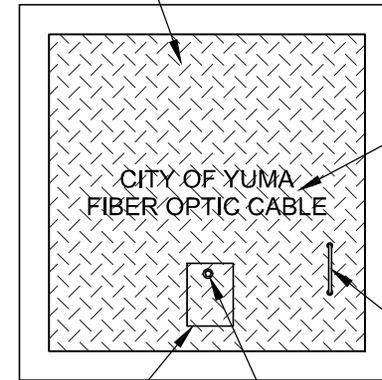


BOTTOM VIEW



SIDE VIEW

TORSION BAR ASSISTED
HINGED COVER



PADLOCK COVER
PLATE 4" X 6"

PLAN VIEW WITH COVER

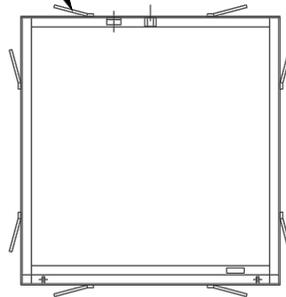
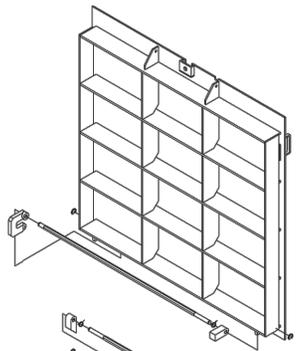
CITY OF YUMA
FIBER OPTIC CABLE

2" LETTERING

RECESSED
LIFTING HANDLE

LOCK DOWN BOLT

FRAME ANCHORS
EMBEDDED INTO
PULL BOX LID



PLAN VIEW OF FRAME



END VIEW OF FRAME

COVER AND FRAME ASSEMBLY

NOTES

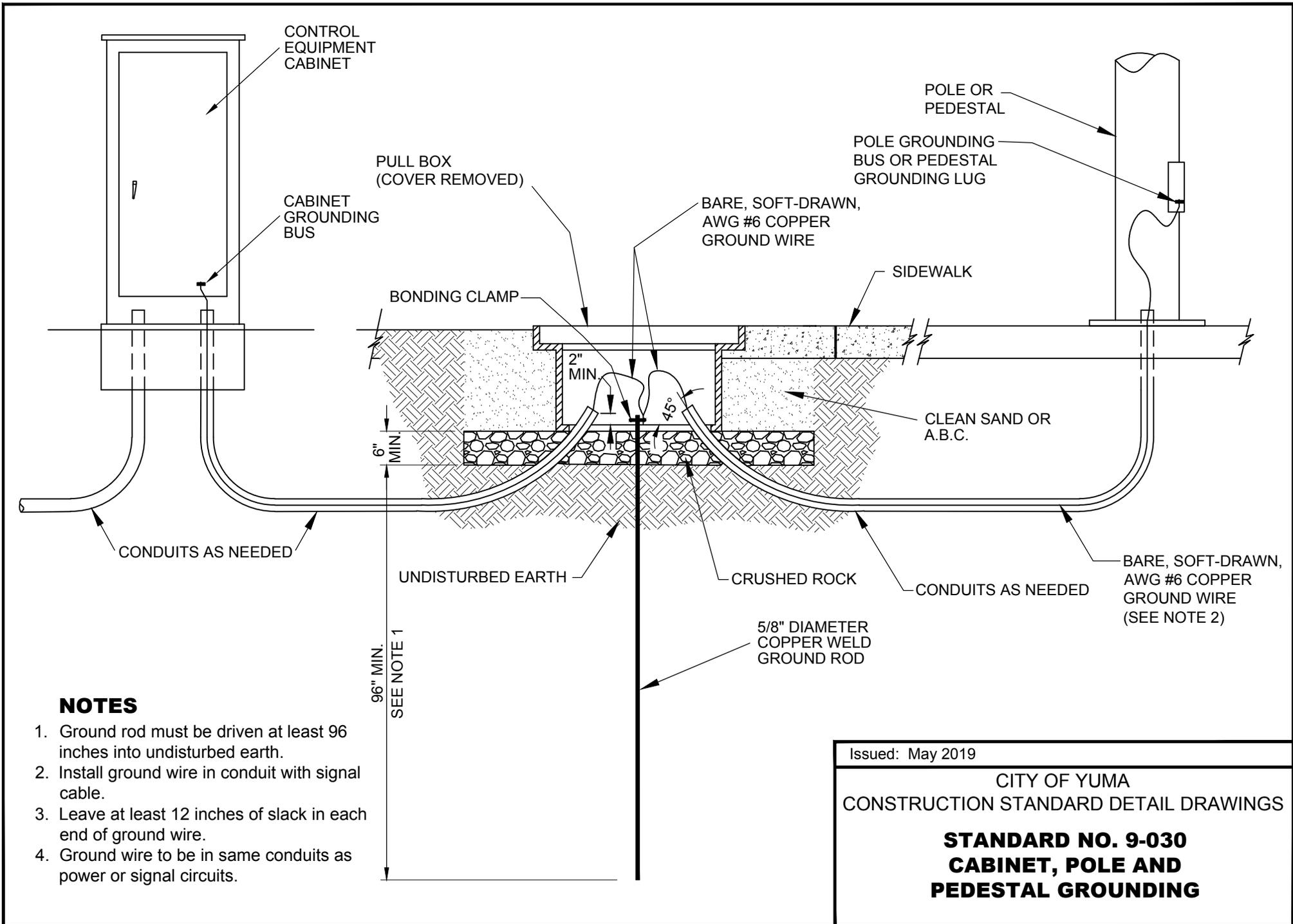
1. Cover Opens to 180-Degree Position.
2. Exclude All Provisions for 90-Degree Open Position.
3. Easily Opened and Closed By One Person, Maximum Force Required to Open/Close = 30 Lbs.
4. Torsion Assist with Spring Mechanism. No Hydraulic System.
5. Locking Hardware Required.
6. 2" Welded Lettering on Lid to Read "CITY OF YUMA FIBER OPTIC CABLE"
7. Load Rated for HS 20-44
8. Weight: 200 Lbs. Maximum.
9. Grounding Lug to Be Attached On Frame for Cover Grounding Per NEC.
10. Dimensions: 36" x 36" Minimum.
11. Material of Construction: Galvanized Steel.

Issued: May 2019

Sheet 3 of 3

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 9-025
NO. 9 VAULT INSTALLATION



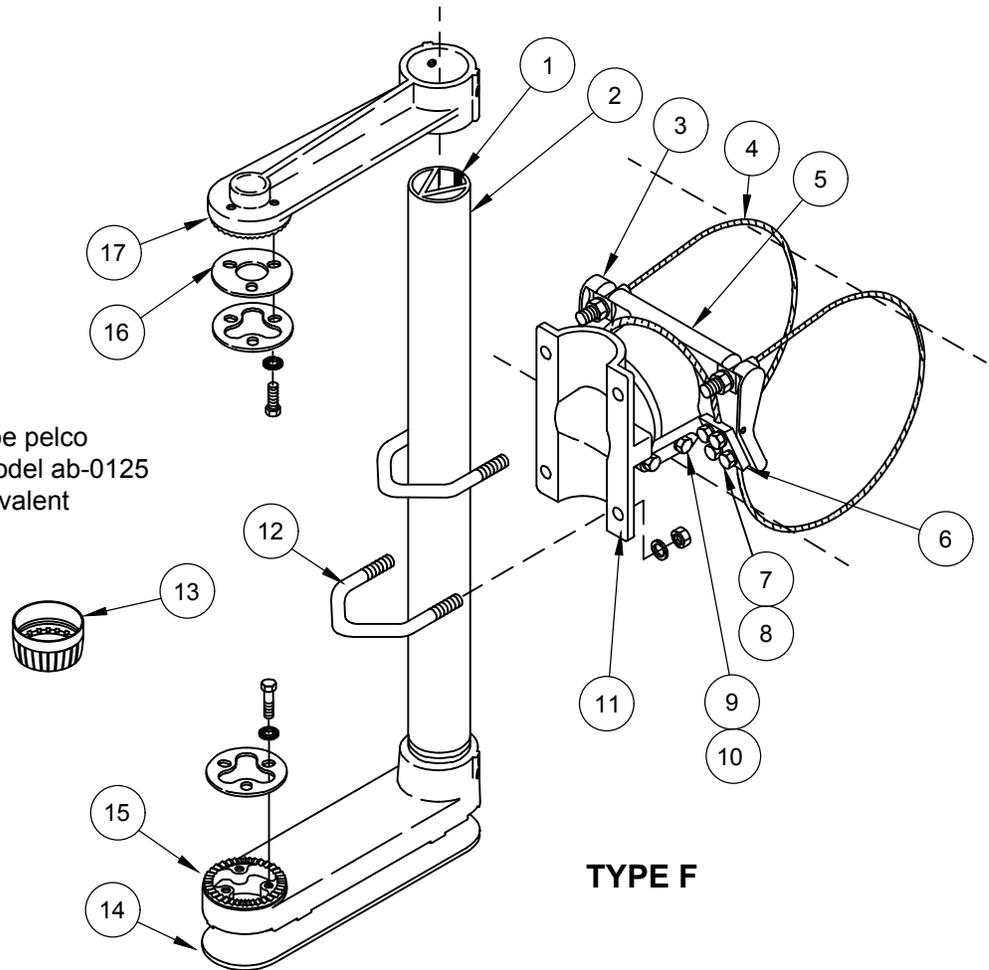
NOTES

1. Ground rod must be driven at least 96 inches into undisturbed earth.
2. Install ground wire in conduit with signal cable.
3. Leave at least 12 inches of slack in each end of ground wire.
4. Ground wire to be in same conduits as power or signal circuits.

Issued: May 2019
CITY OF YUMA CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 9-030 CABINET, POLE AND PEDESTAL GROUNDING

NOTE

1. Assembly must be pelco products, inc. model ab-0125 or approved equivalent



TYPE F

ITEM	PART NO.	DESCRIPTION	QTY
1	AB-0233	INSERT, VINYL	1
2	AB-0306	GUSSETED TUBE, TOE 1½" ALUM	1
3	AB-0354-M2	CLAMP, FEMALE CABLE MNT, ALUM	1
4	AB-0280	CABLE ASSY W/ GALV CABLE & STAINLESS HDWR	1
5	AB-0263-ZN2	RETAINING RING, 2-7/8", ZINC 2	1
6	AB-0339-M1	PLATE, CABLE CLAMP, ASTRO-BRAC, ALUM	2
7	FS-2098-SS	BOLT, HEX HD 5/16"-18 x 7/8", STAINLESS	8
8	FS-4201-SS	WASHER, SPLIT LOCK 5/16", STAINLESS	8
9	FS-2025-SS	BOLT, HEX HD 5/16"-18 x 1½", STAINLESS	2
10	FS-4201-SS	WASHER, LOCK 5/16", STAINLESS	2
11	AB-0265-M1	CLAMP, MALE, ALUM	1
12	AB-0256-SS	V-BOLT KIT, 5/16"-18, STAINLESS	1
13	B-4001	THREAD PROTECTOR, 1-1/2", PLASTIC	1
14	AB-0236-M1	COVER, LOWER ARM, ABS PLASTIC	1
15	AB-0215-M1	LOWER ARM, ASTRO-BRAC 1-WAY, 8-1/2	1
16	AB-0205-SS	HARDWARE KIT, 1-WAY ARM W/ ZINC WASHER & SS HDWR	1
17	AB-0214-M1	UPPER ARM, ASTRO-BRAC 1-WAY, 8-1/2"	1
	B-2015	BAG, .004 X 6-1/2" X 14", POLY W/ "AB-4000 ARM KIT"	1

OPTIONS

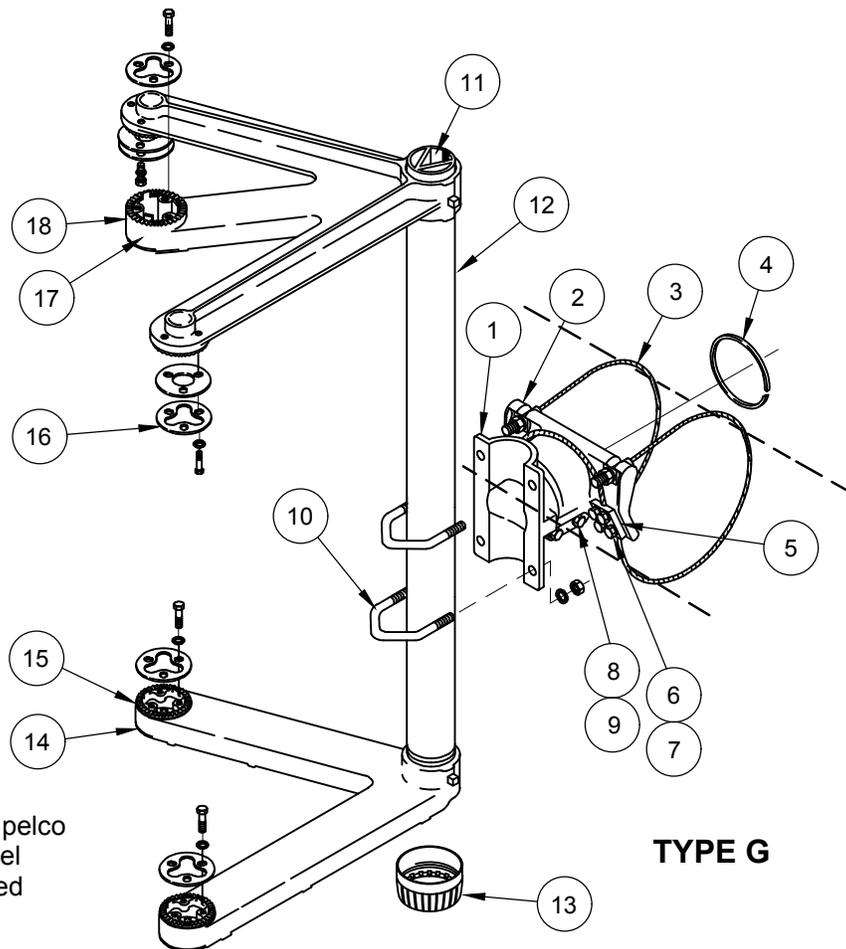
SIGNAL SECTIONS:
3, 4, or 5 SECTIONS

CABLE LENGTH:

- 62" FITS 4"-8.6" POLE/ARM DIA.
- 84" FITS 4"-11.6" POLE/ARM DIA.
- 96" FITS 4"-14.6" POLE/ARM DIA.

Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 9-035
MAST ARM
SIGNAL MOUNTING ASSEMBLY
3 TO 5 SECTION STRAIGHT



NOTE

1. Assembly must be pelco products, inc. model ab-0138 or approved equivalent.

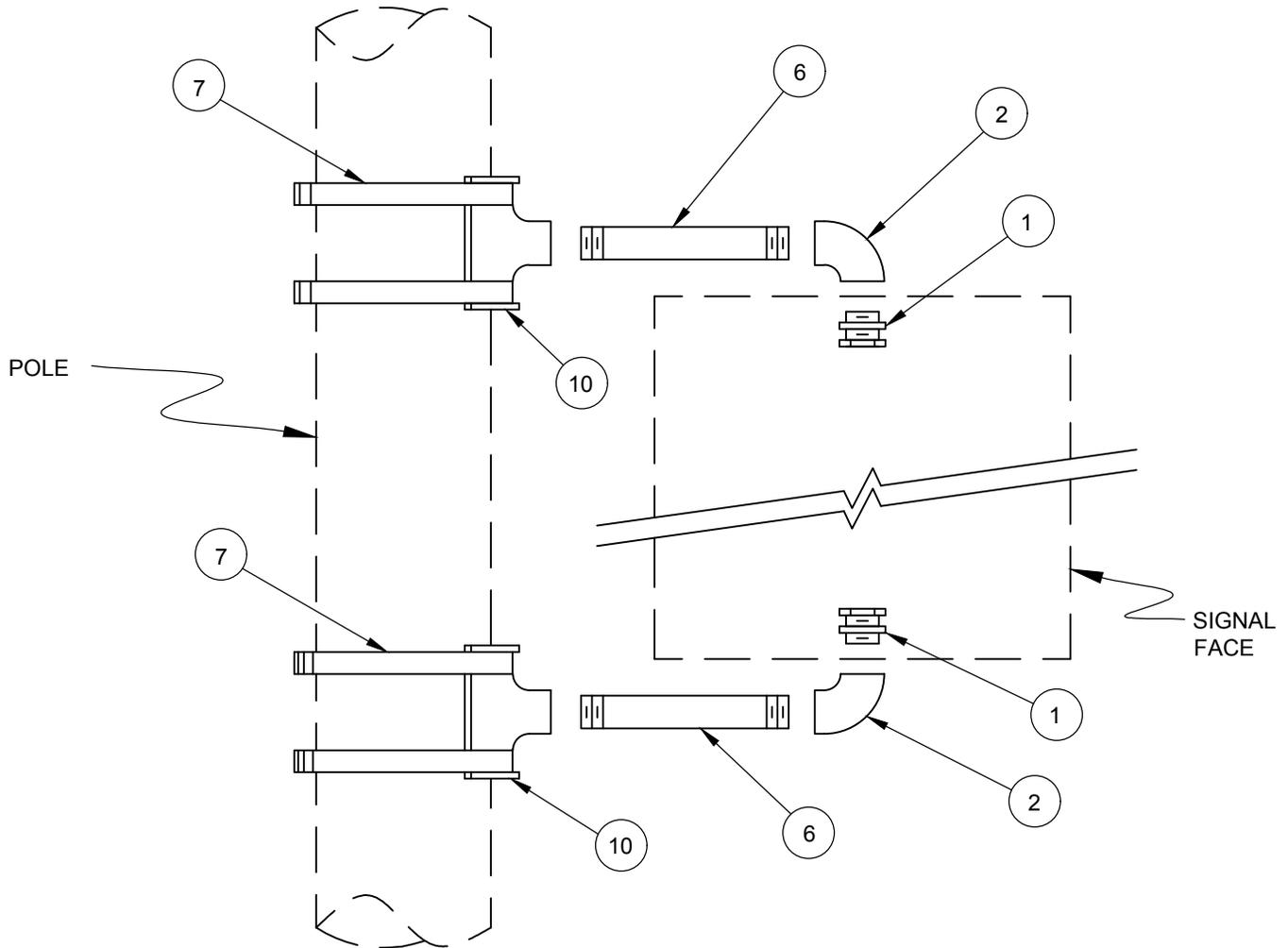
ITEM	PART NO.	DESCRIPTION	QTY
1	AB-0265-M1	CLAMP, MALE, ALUM	1
2	AB-0354-M2	CLAMP, FEMALE CABLE MNT, ALUM	1
3	AB-0280	CABLE ASSY W/ GALV CABLE & STAINLESS HDWR	1
4	AB-0263-ZN2	RETAINING RING, 2-7/8", ZINC 2	1
5	AB-0339-M1	PLATE, CABLE CLAMP, ASTRO-BRAC, ALUM	2
6	FS-4201-SS	WASHER, SPLIT LOCK 5/16", STAINLESS	8
7	FS-2098-SS	BOLT, HEX HD 5/16"-18 x 7/8", STAINLESS	8
8	FS-2025-SS	BOLT, HEX HD 5/16"-18 x 1½", STAINLESS	2
9	FS-4201-SS	WASHER, LOCK 5/16", STAINLESS	2
10	AB-0256-SS	V-BOLT KIT, 5/16"-18, STAINLESS	1
11	AB-0233-35	INSERT, VINYL, 35"	1
12	AB-0306-37-M1	GUSSETED TUBE, 1½"-11½" NPS X 37" TOE, SLOT BACK, ALUM	1
13	B-4001	THREAD PROTECTOR, 1½", PLASTIC	1
14	AB-0236-M2	COVER SET, LOWER ARM, 2-WAY, ABS PLASTIC	1
15	AB-0297-M1	LOWER ARM, ASTRO-BRAC, 2-WAY, ALUM	1
16	AB-0270-SS	HDWR KIT, 5 SEC CLUSTER W/ STAINLESS HDWR	1
17	AB-0236-M4	COVER, SINGLE UPPER CLUSTER ARM, ABS PLASTIC	1
18	AB-0298-M1	UPPER ARM, ASTRO-BRAC, 5-SEC CLUSTER, ZINC 2	1
	B-2013	BAG, W/ PELCO LOGO .004" x 4" x 4", POLY	1

OPTIONS

CABLE LENGTH:
 62" FITS 4"-8.6" POLE/ARM DIA.
 84" FITS 4"-11.6" POLE/ARM DIA.
 96" FITS 4"-14.6" POLE/ARM DIA.

Issued: May 2019

CITY OF YUMA
 CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 9-040
MAST ARM
SIGNAL MOUNTING ASSEMBLY
5 SECTION CLUSTER MOUNT



TYPE A
1-WAY SIGNAL HEAD
POLE - SIDE

BILL OF MATERIALS

ITEM	DESCRIPTION
1.	Locking Nipple
2.	Standard Elbow
3.	Conduit Body with cover, gasket, and screws, T-Type
4.	Pedestal-Top Adapter, 2-Way, 4.5" Slipfitter
5.	Pedestal-Top Adapter, 3-Way, 4.5" Slipfitter
6.	Pipe, 1.5", Threaded Both Ends (appropriate length)
7.	316 Stainless Steel Strap with Clamp, 0.5 inch
8.	Bracket Assembly, 2-Way
9.	Bracket Assembly, 3-Way
10.	Pole Plate, Simple, 1.5" threaded

NOTE

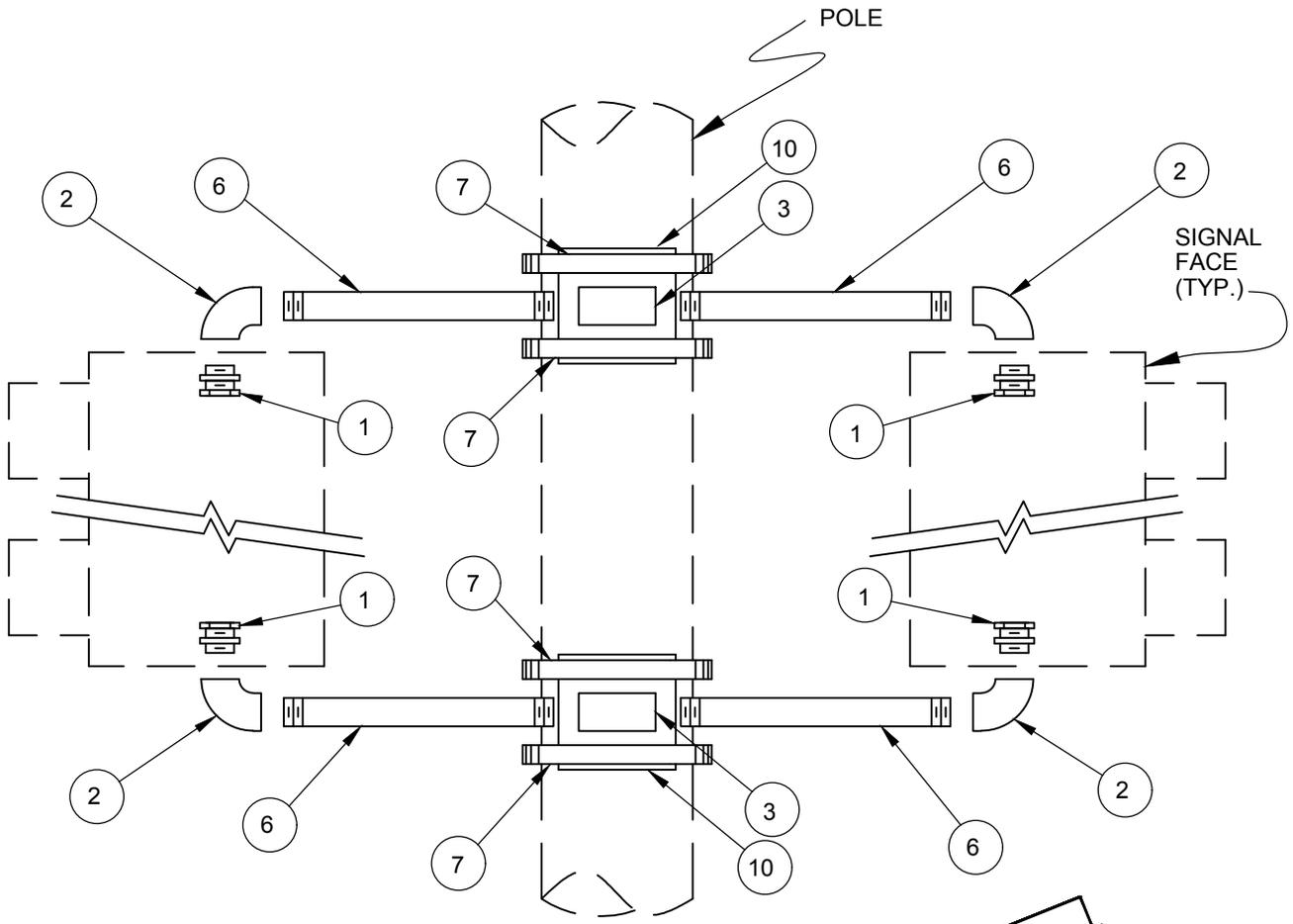
1. All materials, except stainless steel straps, must be finished with flat black powder coating.

Issued: May 2019

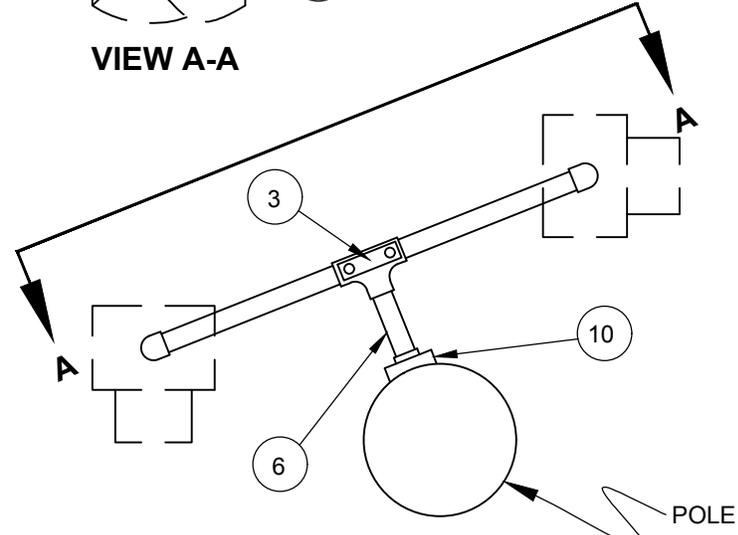
Sheet 1 of 4

CITY OF YUMA
 CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 9-045
SIGNAL MOUNTING ASSEMBLIES
FOR POLES AND PEDESTALS



VIEW A-A



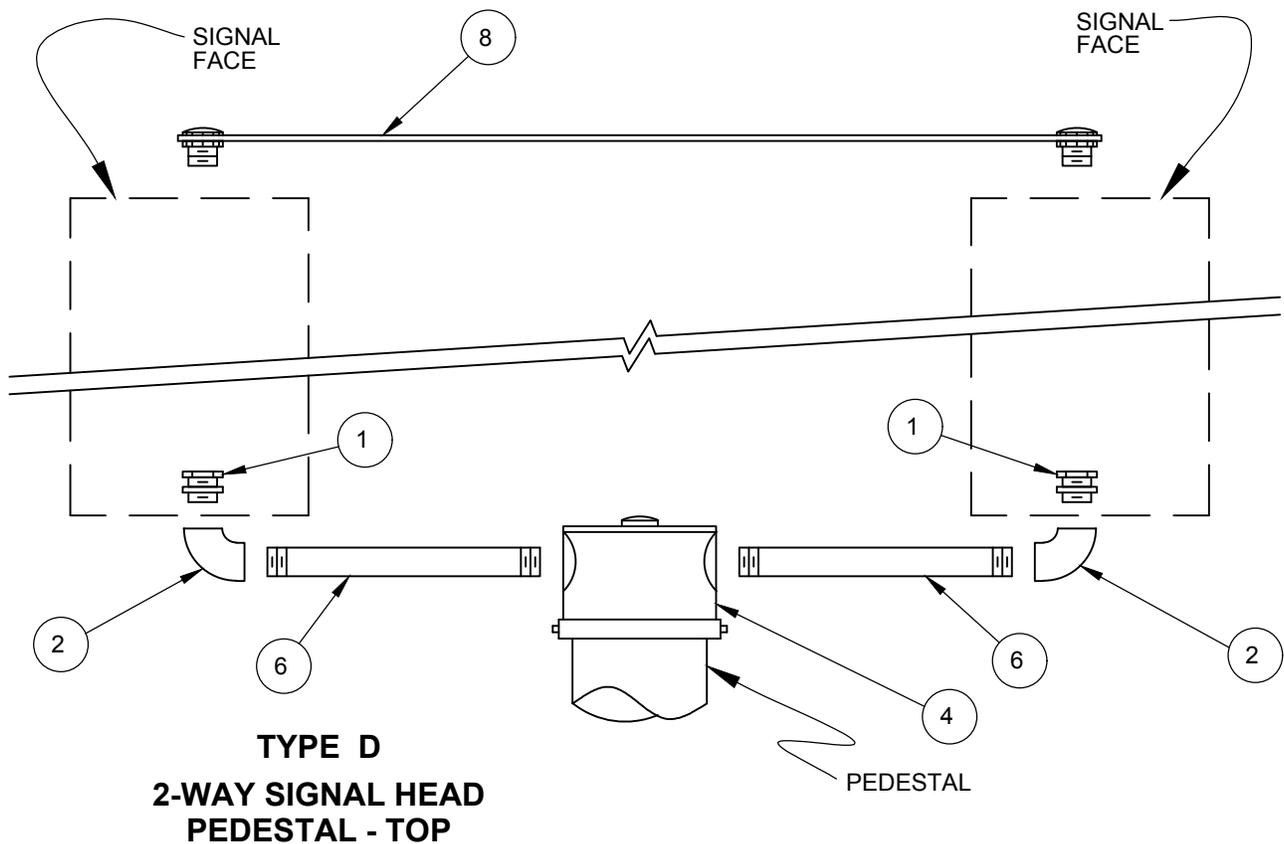
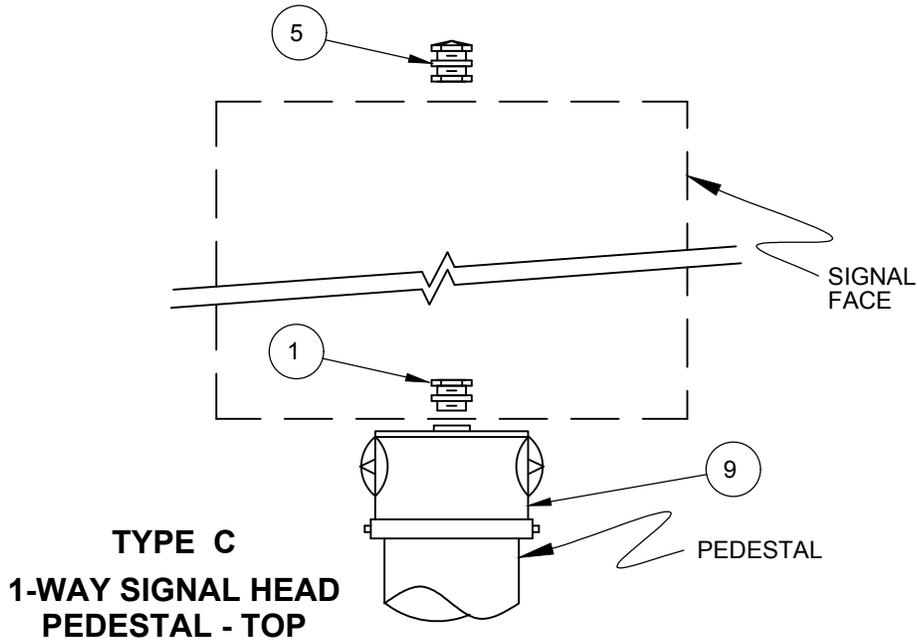
**TYPE B
2-WAY SIGNAL HEAD
POLE - SIDE**

TOP VIEW

NOTE

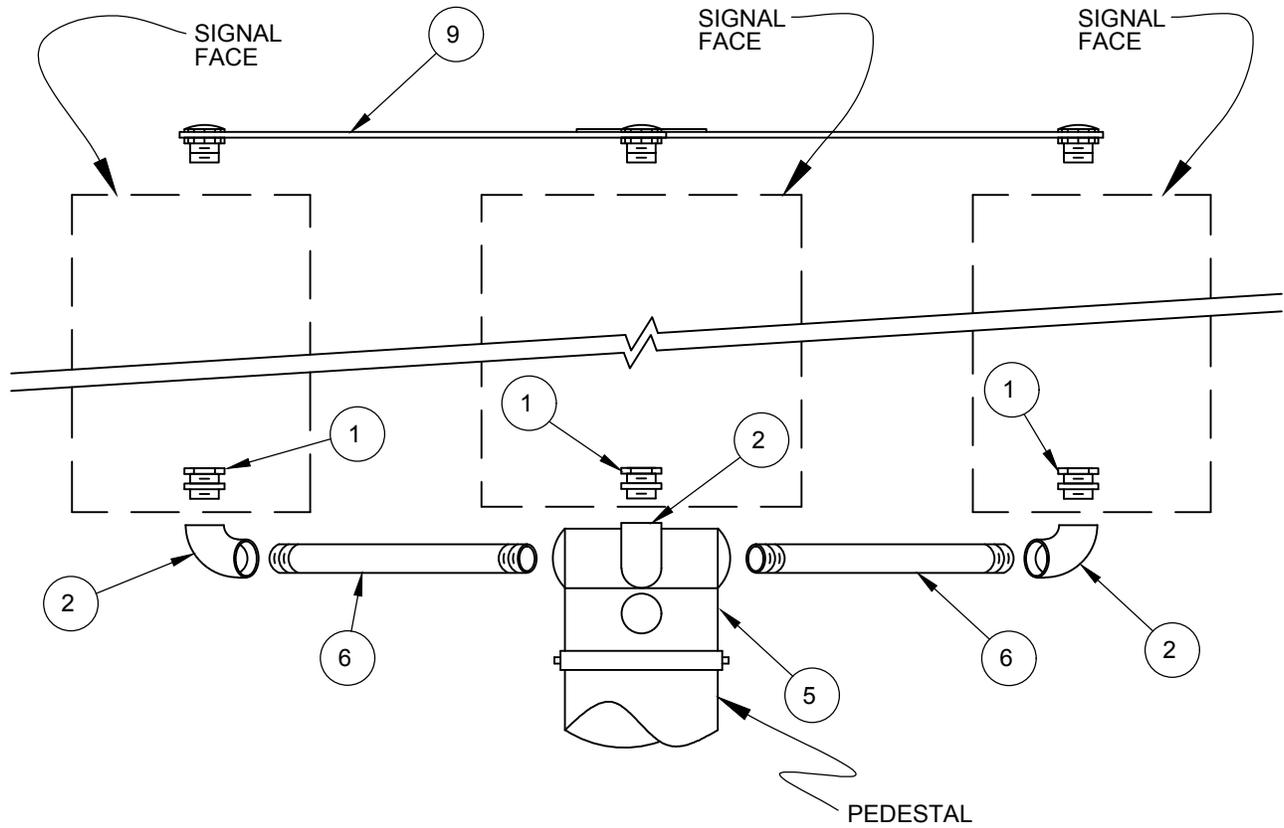
1. See Sheet 1 for Bill of Materials.

Issued: May 2019	Sheet 2 of 4
CITY OF YUMA CONSTRUCTION STANDARD DETAIL DRAWINGS	
STANDARD NO. 9-045 SIGNAL MOUNTING ASSEMBLIES FOR POLES AND PEDESTALS	



NOTE

1. See Sheet 1 for Bill of Materials.



**TYPE E
3-WAY SIGNAL HEAD
PEDESTAL - TOP**

NOTE

1. See Sheet 1 for Bill of Materials.

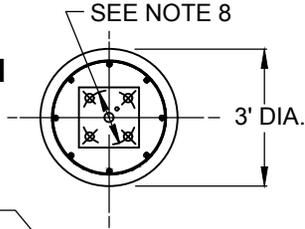
Issued: May 2019

Sheet 4 of 4

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

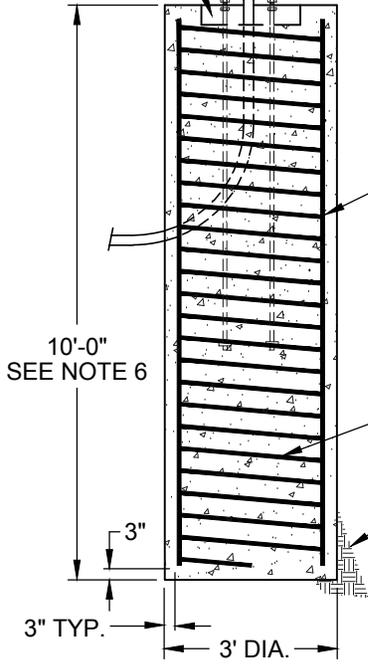
**STANDARD NO. 9-045
SIGNAL MOUNTING ASSEMBLIES
FOR POLES AND PEDESTALS**

FOUNDATION PLAN
(TYPICAL)



SEE NOTE 4
SEE NOTES 2 & 3
BLOCK OUT FOR LEVELING NUTS

SEE NOTE 4
SEE NOTES 2 & 3
BLOCK OUT FOR LEVELING NUTS

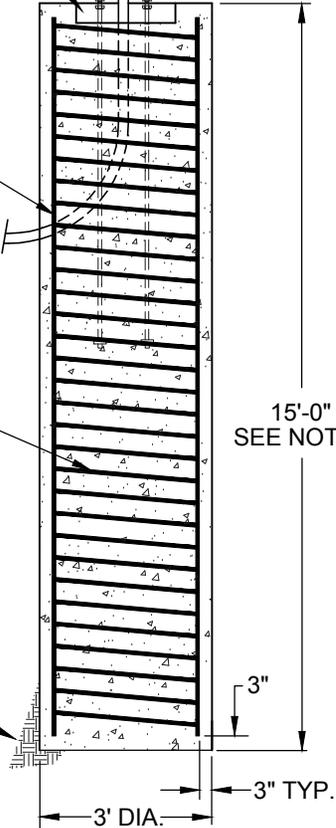


EIGHT NO. 7 VERTICAL REBARS

3/8" DIA. COLD DRAWN STEEL WIRE SPIRAL CAGE WITH 3" PITCH

SEE NOTE 5

TYPE A-1
FOR USE ON YUMA MESA



SEE NOTE 5

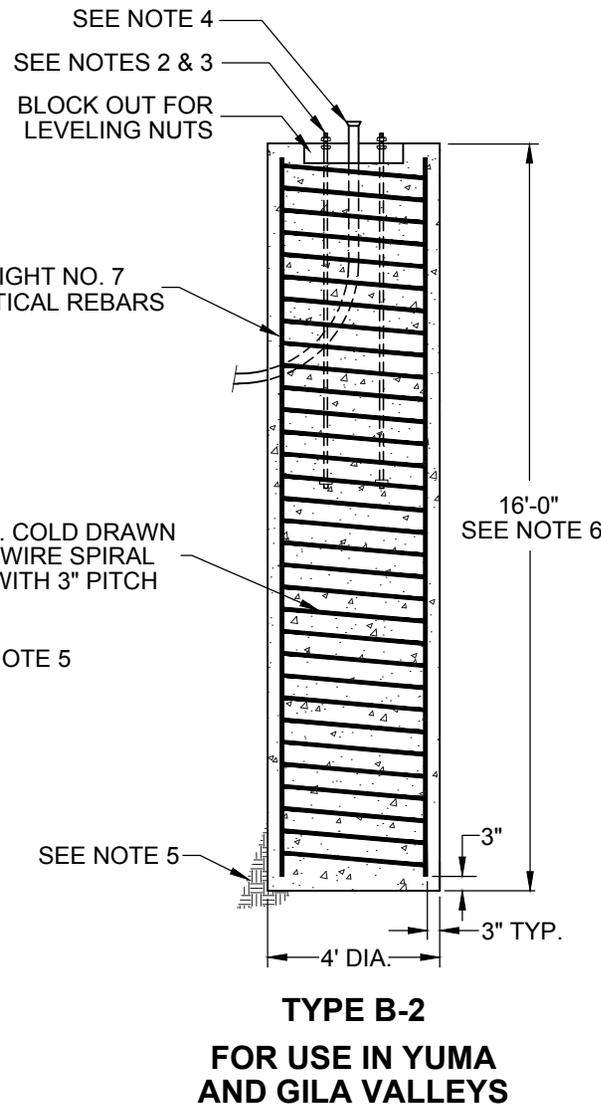
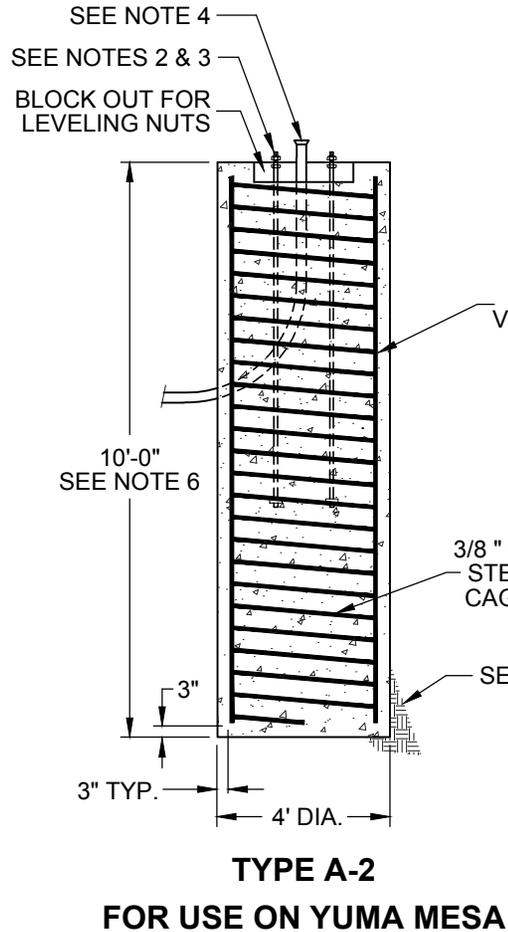
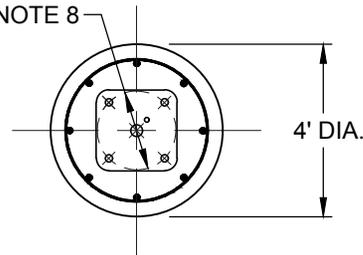
TYPE B-1
FOR USE IN YUMA AND GILA VALLEYS

NOTES

1. All materials and construction shall conform to the requirements of the project specifications and ADOT specifications.
2. See City of Yuma Standard No. 9-060 & 9-065. Each anchor bolt shall have four (4) hex nuts and (2) flat washers.
3. Anchor bolts shall project 4 1/2" above the foundation.
4. Conduit must project two inches (2") to four inches (4") above the foundation.
5. The foundation hole shall be augered and 4000 psi concrete poured against undisturbed, compacted earth.
6. Unstable soil may require deeper foundation. See ADOT Standard Specifications, Section 731-3.01.
7. See Standard 9-030 for pole grounding.
8. BOLT CIRCLE: 18"- Pole types J, K, Q, R, II 19"- Pole Type I.

STANDARD NO. 9-050
SIGNAL POLE FOUNDATIONS

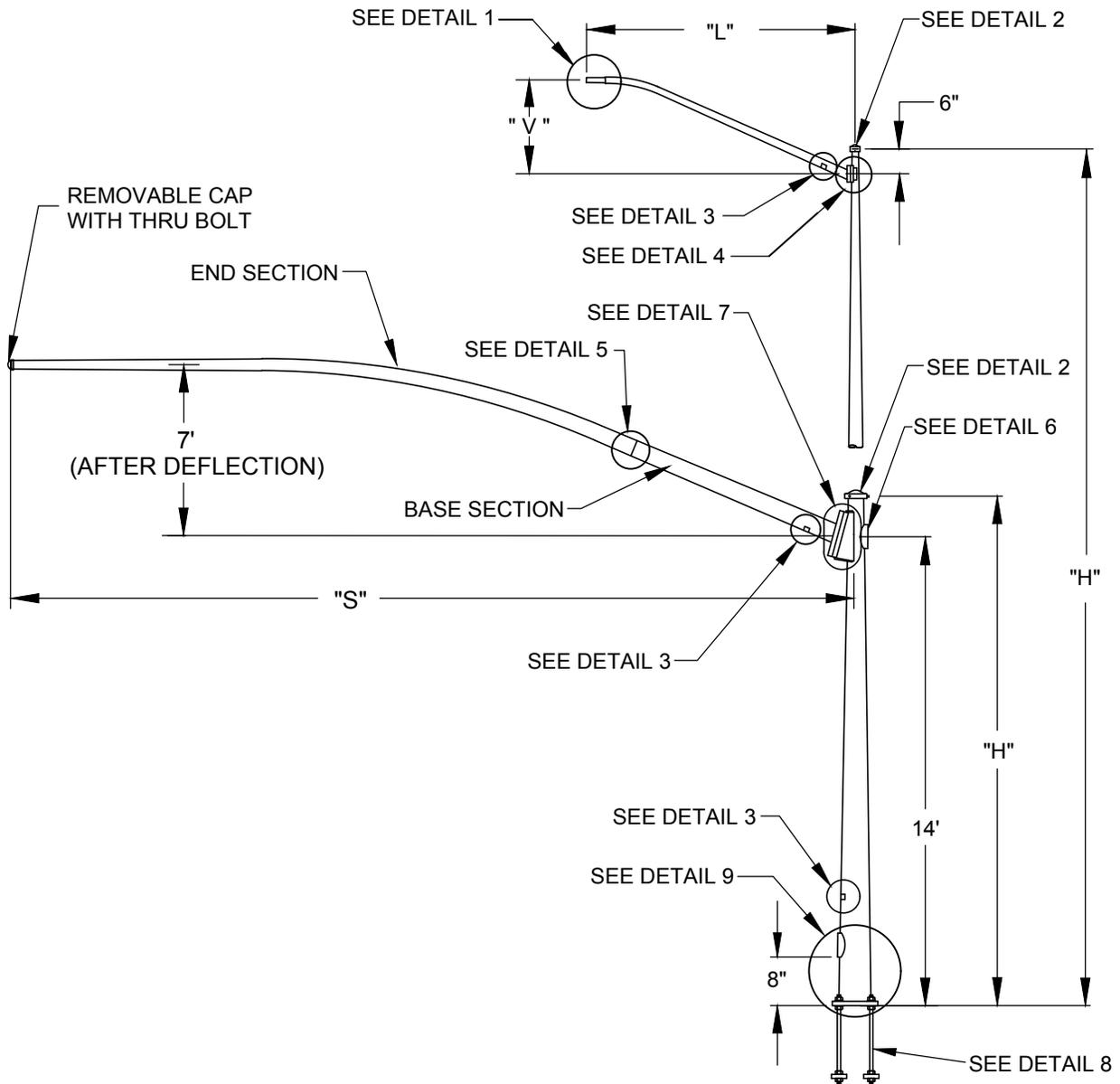
FOUNDATION PLAN
(TYPICAL)



NOTES

1. All materials and construction shall conform to the requirements of the project specifications and ADOT specifications.
2. See City of Yuma Standard No. 9-060 & 9-065. Each anchor bolt shall have four (4) hex nuts and (2) flat washers.
3. Anchor bolts shall project 4 1/2" above the foundation.
4. Conduit shall project two inches (2") to four inches (4") above the foundation.
5. The foundation hole shall be augered and 4000 psi concrete poured against undisturbed, compacted earth.
6. Unstable soil may require deeper foundation. See ADOT Standard Specifications, Section 731-3.01.
7. See Standard 9-030 for pole grounding.
8. BOLT CIRCLE: 22"- Pole types SP-1A, SP-1B, II

Issued: May 2019	Sheet 2 of 2
<p>CITY OF YUMA CONSTRUCTION STANDARD DETAIL DRAWINGS</p> <p>STANDARD NO. 9-050 SIGNAL POLE FOUNDATIONS</p>	



FOR THIS INFORMATION	SEE TABLE
LUMINAIRE ARM	1
POLE	2
SIGNAL ARM	3
MATERIAL DATA	4

Issued: May 2019

Sheet 1 of 4

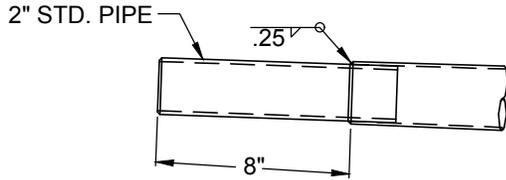
CITY OF YUMA
 CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 9-055
TYPE SP-1A AND SP-1B
TRAFFIC SIGNAL
POLE AND MAST ARM

TABLE 1: LUMINAIRE ARM DATA					
ARM SPAN "L" (FEET)	FIXED END DIA. (INCHES)	FREE END DIA. (INCHES)	GAUGE	LENGTH "L" (FEET)	RISE "V" (FEET)
6	3.31	2.40	11	6.00	2.00
8	3.61	2.40	11	8.00	2.50
10	3.93	2.40	11	10.00	3.33
12	4.23	2.40	11	12.00	4.25
15	4.65	2.40	11	15.00	4.75
18	5.10	2.40	11	18.00	5.75
20	5.90	3.00	7	20.00	5.75

TABLE 2: POLE DATA					
TYPE	LUMINAIRE ARM	POLE TUBE			
		HEIGHT (H) (FEET)	BASE DIA. (INCHES)	TOP DIA. (INCHES)	WALL THK. (INCHES)
SP-1A	N/A	21.00	16.50	13.56	0.281"
SP-1B	YES	30.00	16.50	12.30	0.281"

TABLE 3: SIGNAL ARM DATA					
ARM LENGTH "S"		LARGE END DIA. (INCHES)	SMALL END DIA. (INCHES)	THK. (INCHES)	SECTION LENGTH (FEET)
60'-0"	BASE	13.50	10.18	0.313	23.70
	END	11.00	5.49	0.239	39.32
65'-0"	BASE	13.50	10.18	0.313	23.70
	END	11.00	4.79	0.239	44.32
70'-0"	BASE	13.50	10.18	0.313	23.70
	END	11.00	4.09	0.239	49.32

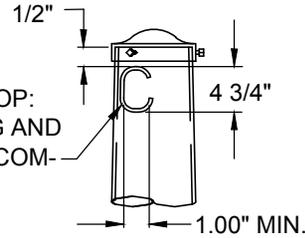
TABLE 4: MATERIAL DATA		
COMPONENT	DESIGNATION	DESIGN MIN. YIELD (KSI)
POLE SHAFT	ASTM A572	50
BASE PLATE	ASTM A572 GR.42	42
SIGNAL ARM TUBE (BASE)	ASTM A572	50
SIGNAL ARM TUBE (END)	ASTM A595 GR.A	48
SIGNAL ARM ATTACHMENT	ASTM A36	36
LUMINAIRE ARM TUBE	ASTM A595 GR.A	48
LUMINAIRE ARM ATTACHMENT	ASTM A36	36
ANCHOR BOLTS	ASTM F1554	55
NUTS	ASTM A563 GR.A	NA
WASHERS	ASTM F463	NA
GALVANIZING-ACCESSORIES	ASTM A153	NA
GALVANIZING-TUBES	ASTM A123	NA



ARMS WITH 2.40" FREE END DIA. HAVE REFORMED END 2.38" O.D. X 8" LONG

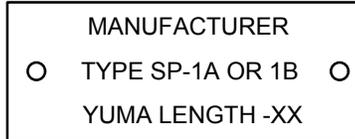
DETAIL 1 LUMINAIRE ARM END TENON

PROVIDED AT POLE TOP:
"C" HOOK FOR WIRING AND HANDLING (0.38" DIA. COMMERCIAL GRADE HOT ROLLED BAR)

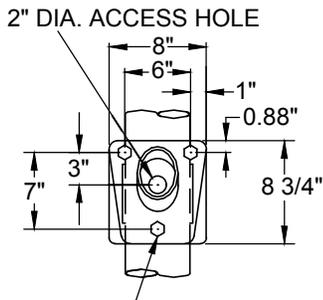


DETAIL 2 POLE TOP

1 1/2" X 3 1/4" ALUMINUM IDENTIFICATION TAG SECURED TO POLE SHAFT WITH TWO 1/8" RIVETS AT 6" UP FROM BASE OF ARM STAMPED AS SHOWN



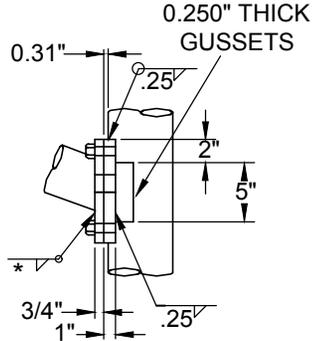
DETAIL 3 IDENTIFICATION TAG



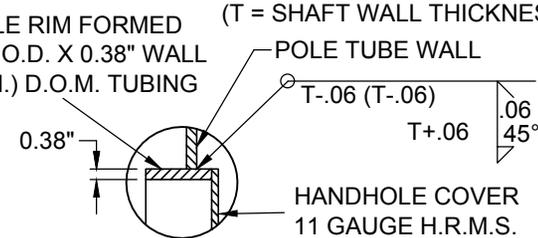
(3) 3/4"-10 UNC X 1 3/4" LONG HEX HEAD SCREWS

*LUMINAIRE ARM ATTACHMENT	
L = 6'-18'	WELD SIZE .19
L = 20'	WELD SIZE .25

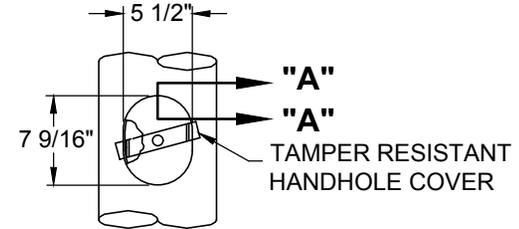
DETAIL 4 ARM ATTACHMENT



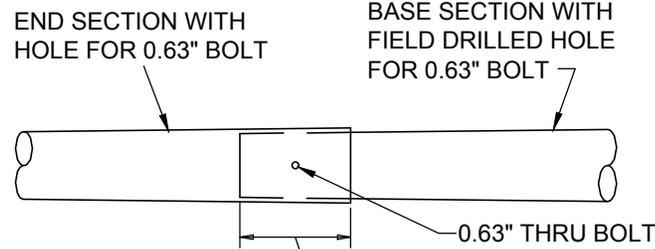
HANDHOLE RIM FORMED FROM 6.50" O.D. X 0.38" WALL (70 KSI MIN.) D.O.M. TUBING



SECTION "A - A"

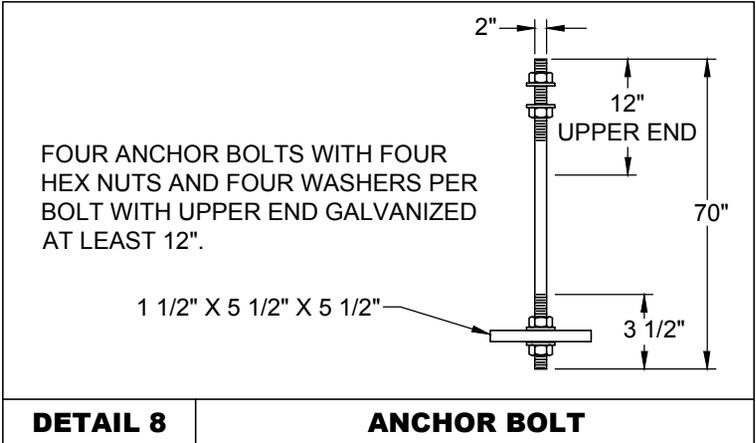
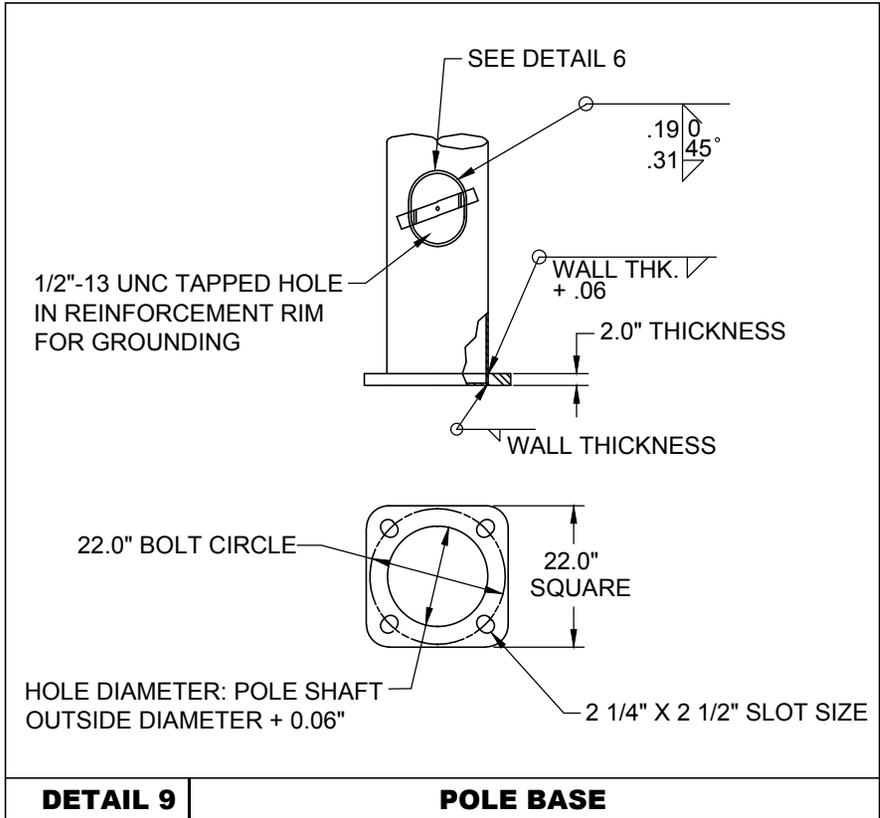
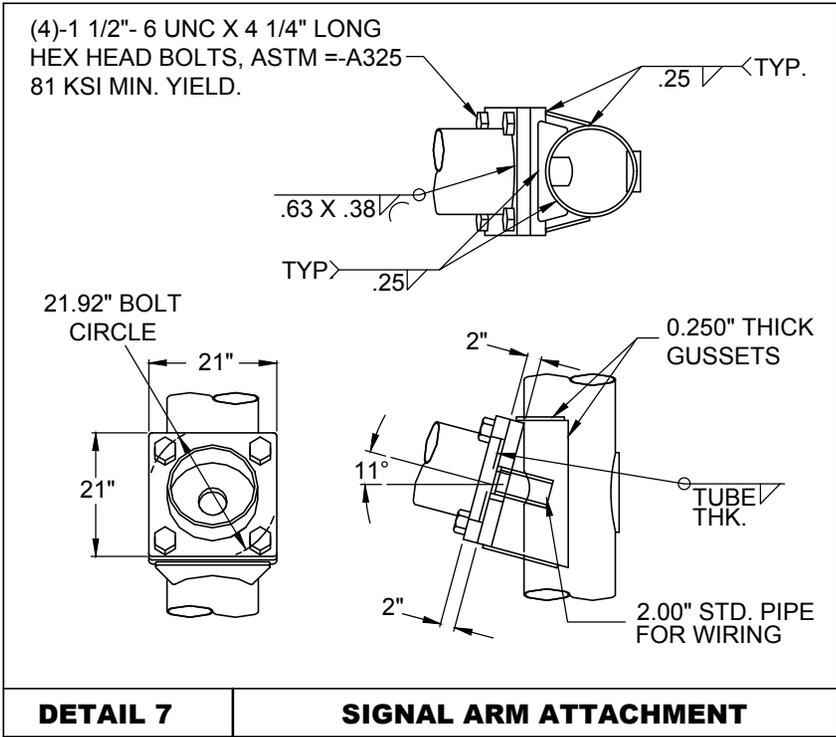


DETAIL 6 HANDHOLE

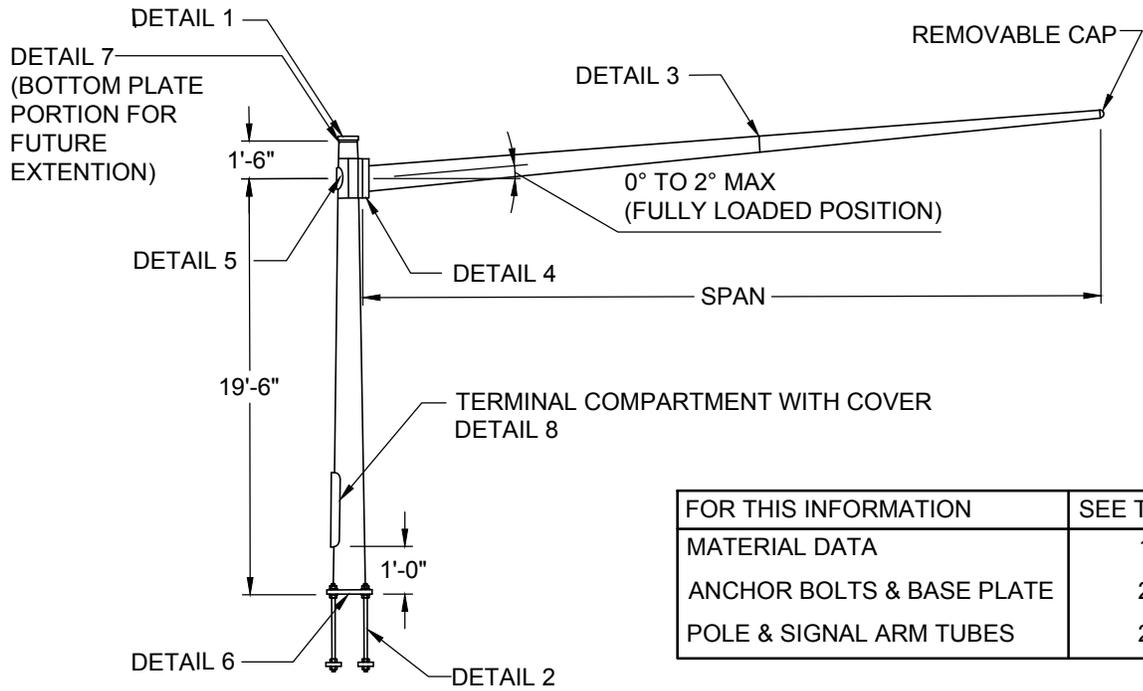


FIELD ASSEMBLED TO ACHIEVE A SNUG TIGHT JOINT (MIN. OVERLAP NOT LESS THAN 1.5 TIMES THE END I.D. OF THE END SECTION)

DETAIL 5 SIGNAL ARM SLIP JOINT

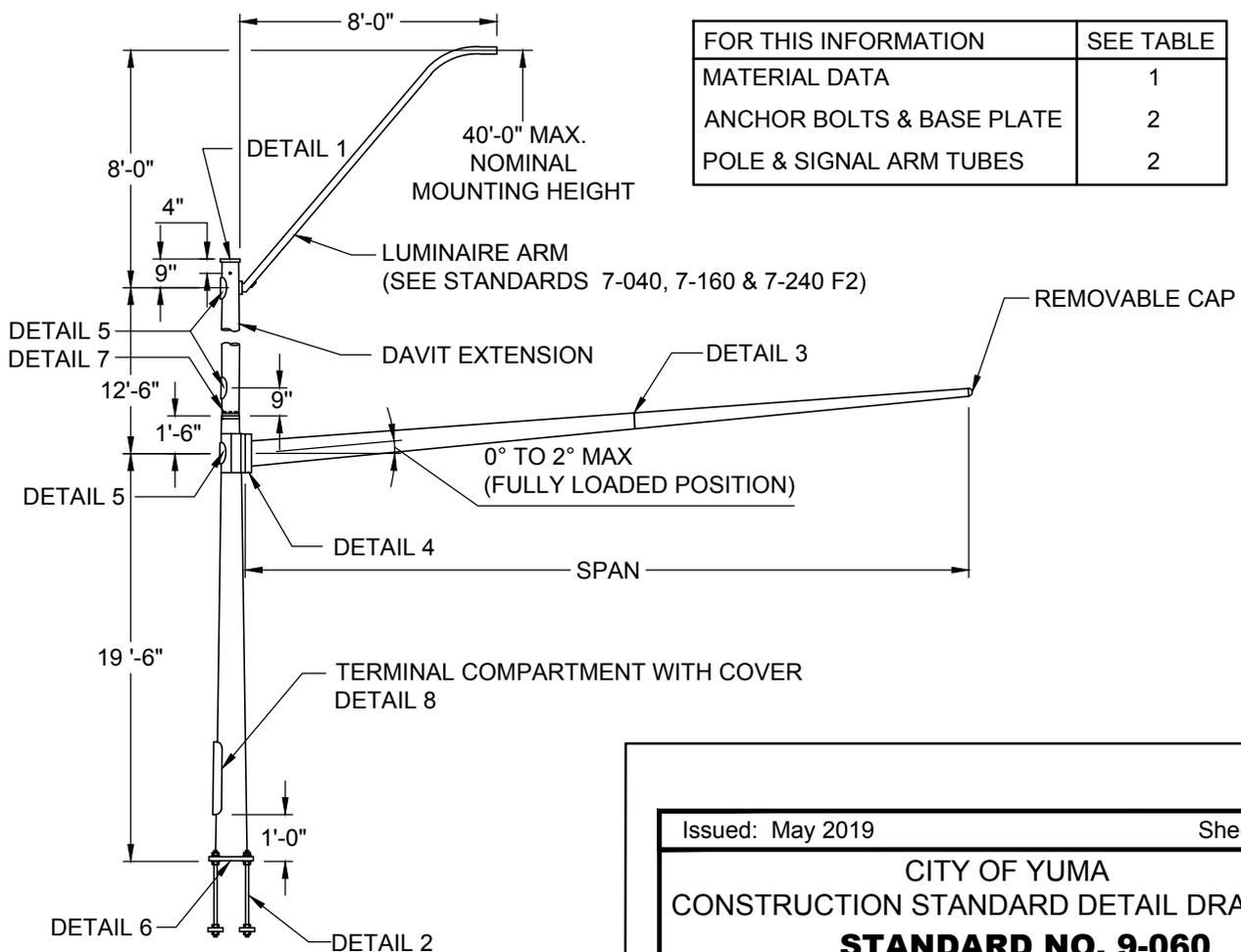


NOTE
1. This detail is only for
poles and arms not
installation



FOR THIS INFORMATION	SEE TABLE
MATERIAL DATA	1
ANCHOR BOLTS & BASE PLATE	2
POLE & SIGNAL ARM TUBES	2

TYPICAL POLE & MAST ARM



FOR THIS INFORMATION	SEE TABLE
MATERIAL DATA	1
ANCHOR BOLTS & BASE PLATE	2
POLE & SIGNAL ARM TUBES	2

TYPICAL POLE, MAST ARM, DAVIT EXTENSION & LUMINAIRE ARM

DESIGN CRITERIA:

2001 AASHTO standard specification for structural supports for highway signs, luminaires and traffic signals.

- 25 year design life/recurrence interval
- Fatigue category iii
- Truck-induced fatigue included (galloping not included)

WIND VELOCITY:

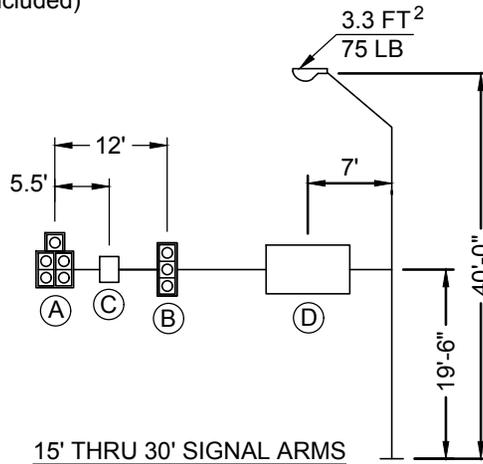
80 MPH ISOTACH.

MAXIMUM TRUCK-INDUCED FATIGUE:

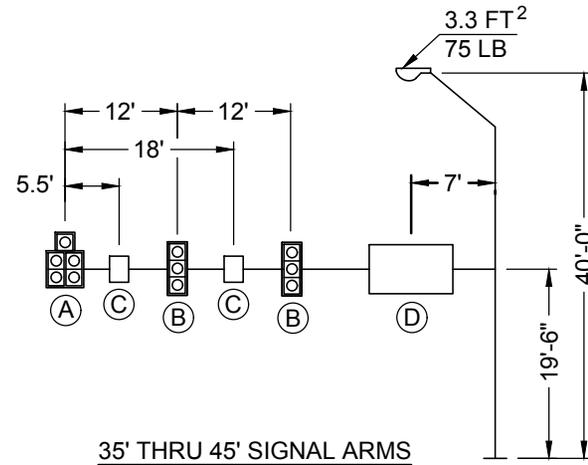
65 MPH

CAFL AT CRITICAL CONNECTIONS:

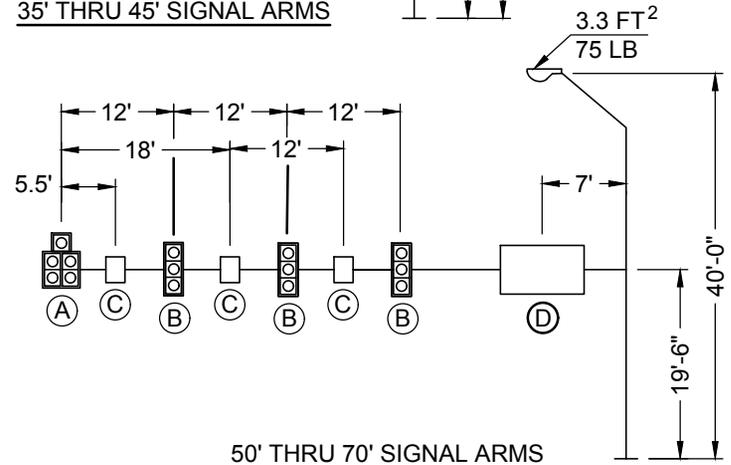
- Pole to base plate connection = e
- Arm to simplex plate connection = e
- Simplex gussets = et
- Pole wall at simplex gusset = e
- Pole shaft = b'



15' THRU 30' SIGNAL ARMS



35' THRU 45' SIGNAL ARMS



50' THRU 70' SIGNAL ARMS

DEVICE	DESCRIPTION	PROJ. AREA (FT ²)	WEIGHT (LBS)
(A) SIGNAL	12"-5 SEC. CLUSTER SIGNAL WITH BACKPLATES	16	80
(B) SIGNAL	12"-3 SEC. SIGNAL WITH BACKPLATES	9.75	50
(C) SIGN	30" X 36" SIGN	7.5	23
(D) SIGN	ILLUMINATED STREET NAME SIGN	18.6	120

LOADING INFORMATION

TABLE 1: MATERIAL DATA

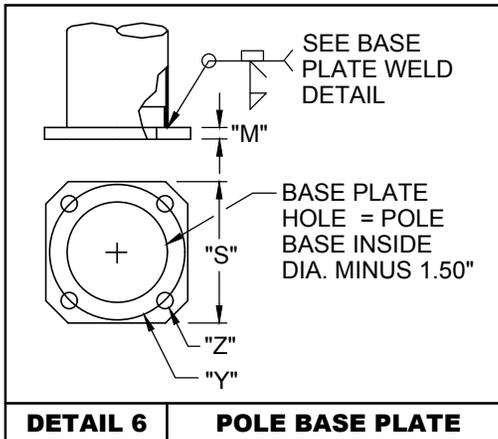
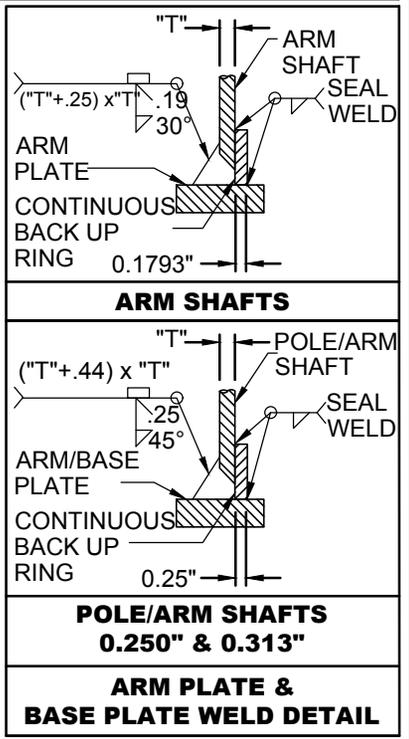
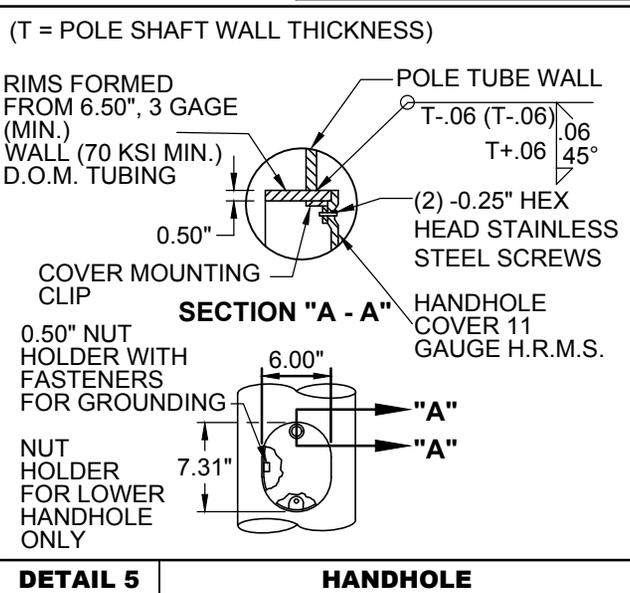
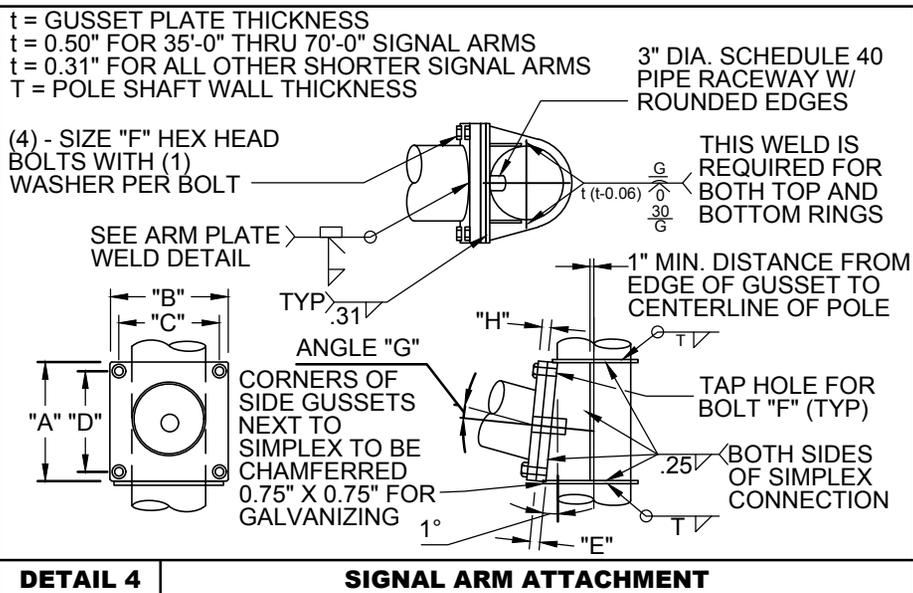
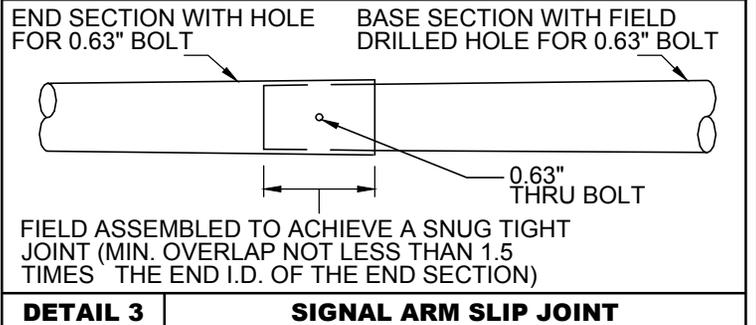
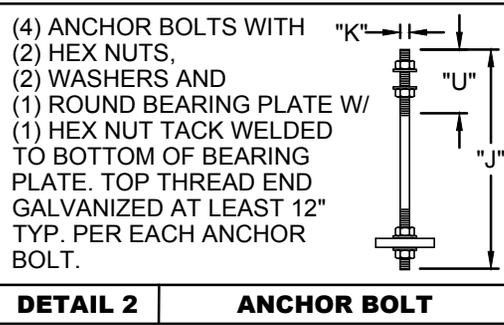
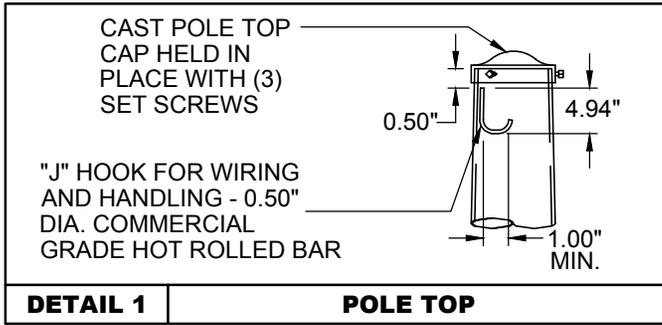
COMPONENT	DESIGNATION	MIN. YIELD (KSI)
POLE - 0.250" & 0.313" WALL	A572 GR. 65	65
ARM TUBE - 7 GA. & 0.250" WALL	A595 GR. A	55
BASE PLATE	A36	36
SIGNAL ARM ATTACHMENT	A36	36
SIGNAL ARM CONN. BOLTS	A325	-
ANCHOR BOLTS - 2.00" DIA.	A449	58
NUTS	ASTM A563 GR. C.O. OR DH	-
WASHERS	ASTM F436	-
GALVANIZING	A123 & A153	-

Issued: May 2019

Sheet 2 of 4

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 9-060
TYPE 1 AND TYPE 2
TRAFFIC SIGNAL
POLE AND MAST ARM



- NOTES**
1. Anchor bolts, davit extension attachment bolts, and mast arm attachment bolts shall be furnished with each pole.
 2. Luminaire arm attachment bolts shall be furnished with each davit extension.
 3. Angle "G" is the angle between the mast arm and the connection plate.

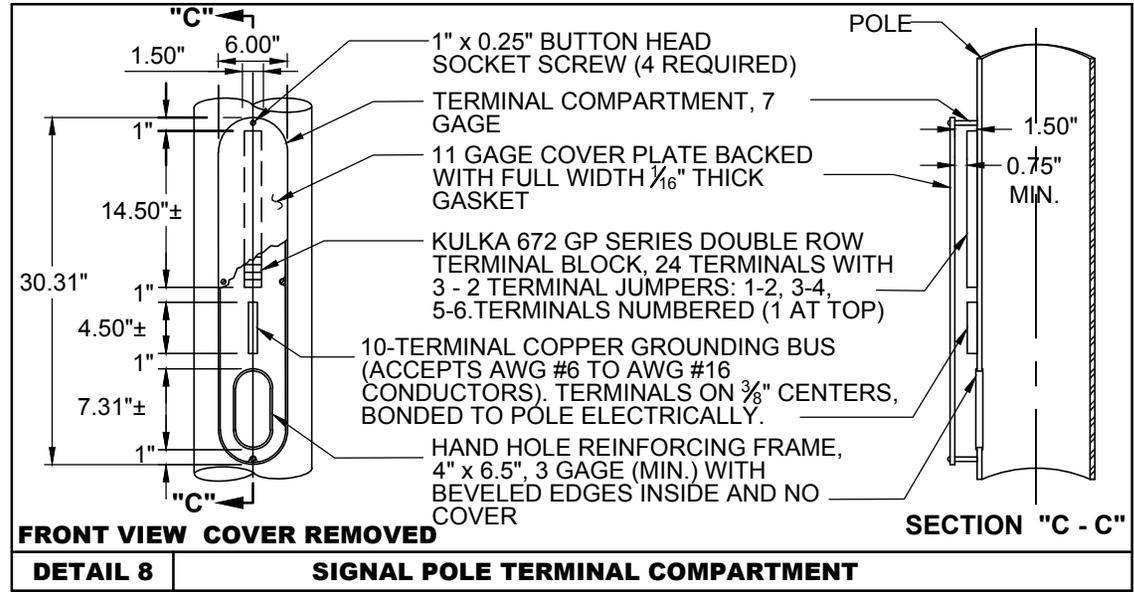
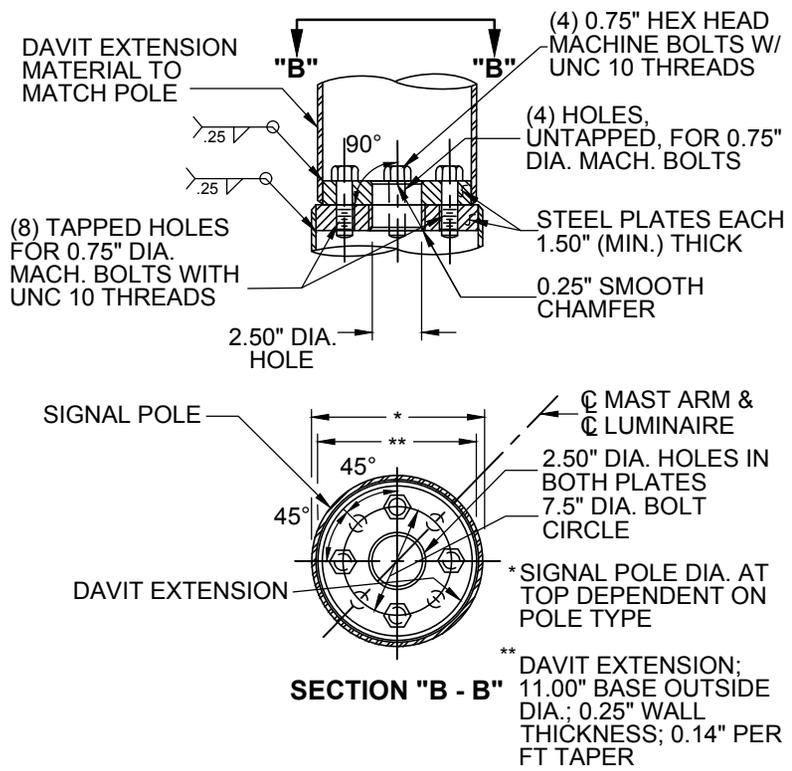
Issued: May 2019 Sheet 3 of 4

CITY OF YUMA
 CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 9-060
TYPE 1 AND TYPE 2
TRAFFIC SIGNAL
POLE AND MAST ARM

TABLE 2: POLE AND SIGNAL ARM DATA

POLE DATA	POLE SHAFT					POLE BASE PLATE				ANCHOR BOLT				ACCOMMODATES ARM LENGTHS (FT)
	POLE CLASS	BASE DIA. (IN)	TOP DIA. (IN)	MAX. LENGTH (FT)	GAGE OR THICK (IN)	SQUARE "S" (IN)	BOLT CIRCLE "Y" (IN)	THK "M" (IN)	HOLE "Z" (IN)	DIA. "K" (IN)	LENGTH "J" (IN)	BRG. PLT (DIA. X THK.)	THREAD LENGTH "U" (IN)	
	TYPE I	14.00	11.06	21.00	0.250	19.50	19.00	1.50	2.25	2.00	60.00	5" X 1"	8.00	
TYPE II	17.00	14.06	21.00	0.313	22.50	22.00	2.00	2.25	2.00	60.00	7" X 1"	8.00	UP TO 70	

SIGNAL ARM DATA	SIGNAL ARM TUBE				SIGNAL ARM ATTACHMENT DATA								
	ARM SPAN (FT)	FIXED END DIA. (IN)	FREE END DIA. (IN)	GAGE OR THICK (IN)	"A" (IN)	"B" (IN)	"C" (IN)	"D" (IN)	"E" (IN)	"H" (IN)	"F" (IN)	"G" (DEG)	
	15-30	10.00	7.90-5.80	7	23.75	23.75	20.00	20.00	2.25	1.75	1.50-6UNC X 4.25	0	
	35-45	12.00	7.10-5.70	0.25	23.75	23.75	20.00	20.00	2.25	2.00	1.50-6UNC X 4.50	1	
	50-55	16.00	9.00-8.30	0.25	23.75	23.75	20.00	20.00	2.25	2.00	1.50-6UNC X 4.50	2	
60-70	16.00	7.60-6.20	0.25	23.75	23.75	20.00	20.00	2.25	2.00	1.50-6UNC X 4.50	3		

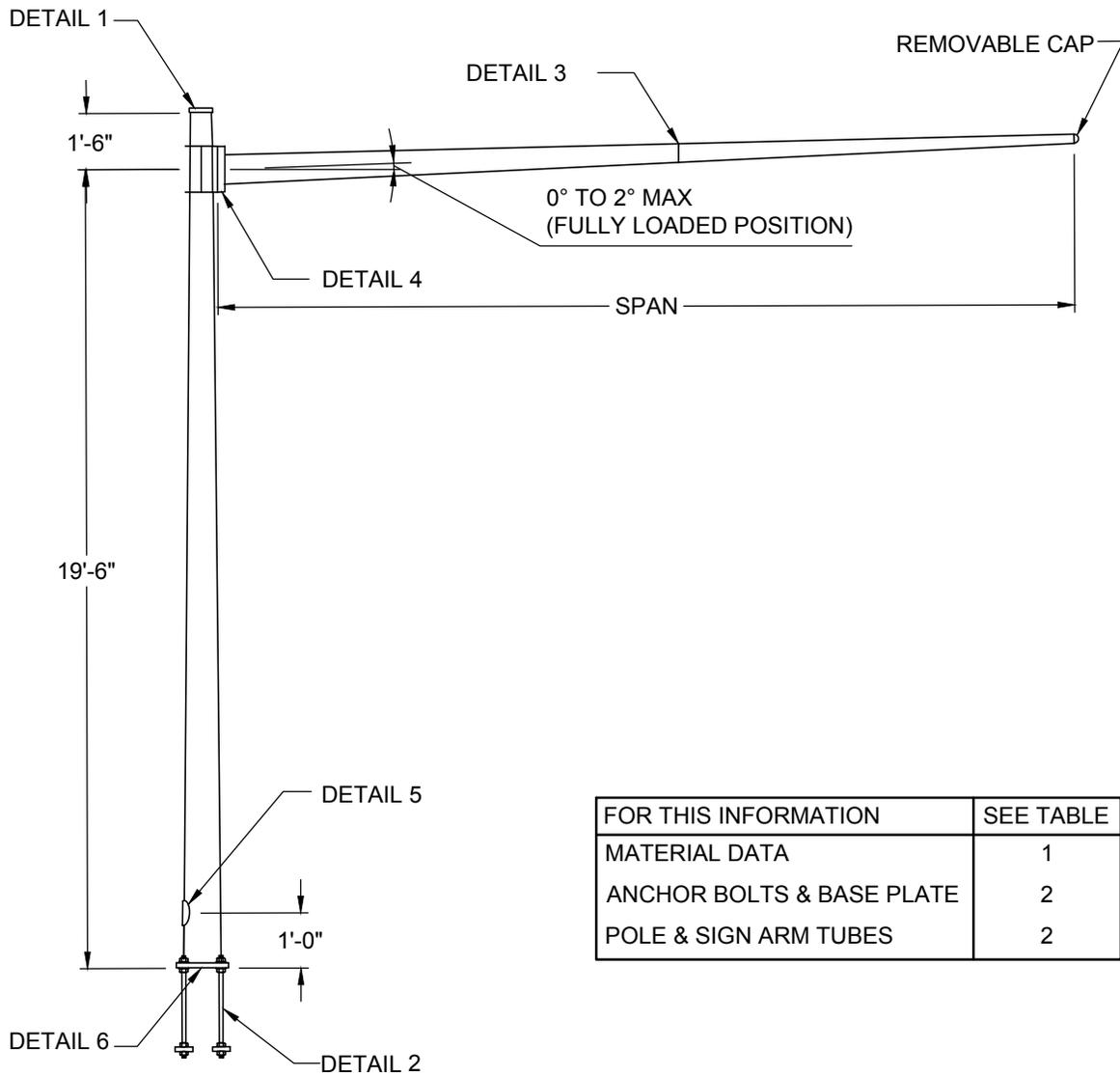


FOUNDATION REQUIRED	
SIGNAL ARM LENGTH	FOUNDATION TYPE CITY OF YUMA STANDARD 6-200
≤ 45	A-1 OR B-1
> 45	A-2 OR B-2

Issued: May 2019 Sheet 4 of 4

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 9-060
TYPE 1 AND TYPE 2
TRAFFIC SIGNAL
POLE AND MAST ARM

DETAIL 7 LIGHT DAVIT EXTENSION ATTACHMENT



FOR THIS INFORMATION	SEE TABLE
MATERIAL DATA	1
ANCHOR BOLTS & BASE PLATE	2
POLE & SIGN ARM TUBES	2

TYPICAL POLE (TYPE III)

Issued: May 2019

Sheet 1 of 4

CITY OF YUMA
 CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 9-065
TYPE III
TRAFFIC SIGN
POLE AND MAST ARM

DESIGN CRITERIA:

2001 AASHTO standard specification for structural supports for highway signs, luminaires and traffic signals.

- 25 year design life/recurrence interval
- Fatigue category iii
- Galloping & truck-induced fatigue included

WIND VELOCITY:

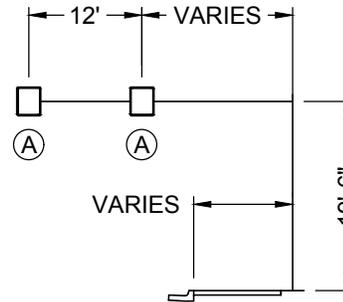
80 MPH ISOTACH.

MAXIMUM TRUCK-INDUCED FATIGUE:

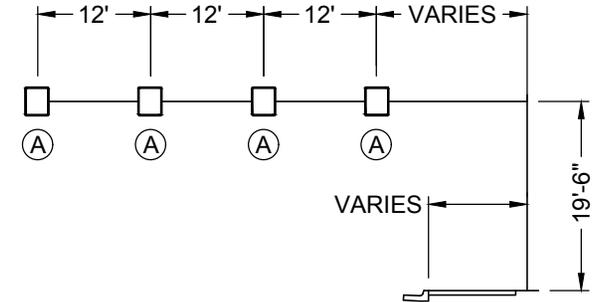
65 MPH

CAFL AT CRITICAL CONNECTIONS:

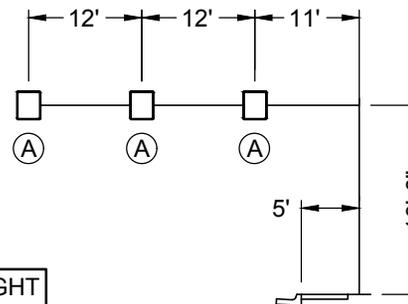
- Pole to base plate connection = d
- Arm to simplex plate connection = d
- Simplex gussets = et
- Pole wall at simplex gusset = e
- Pole shaft = b'



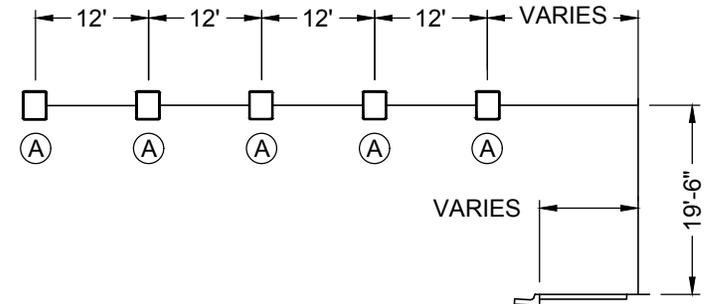
15' THRU 30' SIGN ARMS



40' THRU 55' SIGN ARMS



35' SIGN ARM



60' THRU 65' SIGN ARM

DEVICE	DESCRIPTION	PROJ. AREA (FT ²)	WEIGHT (LBS)
(A) SIGN	30" X 36" SIGN	7.5	23

LOADING INFORMATION

TABLE 1: MATERIAL DATA

COMPONENT	DESIGNATION	MIN. YIELD (KSI)
POLE - 0.250" WALL	A572 GR. 65	65
ARM TUBE - 7 GA. & 0.250" WALL	A595 GR. A	55
BASE PLATE	A36	36
SIGN ARM ATTACHMENT	A36	36
SIGN ARM CONN. BOLTS	A325	-
ANCHOR BOLTS - 1.50" DIA.	A449	58
NUTS	ASTM A563 GR. C.O. OR DH	-
WASHERS	ASTM F436	-
GALVANIZING	A123 & A153	-

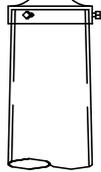
Issued: May 2019

Sheet 2 of 4

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 9-065
TYPE III
TRAFFIC SIGN
POLE AND MAST ARM

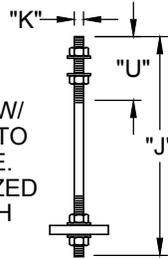
CAST POLE TOP
CAP HELD IN
PLACE WITH (3)
SET SCREWS



DETAIL 1

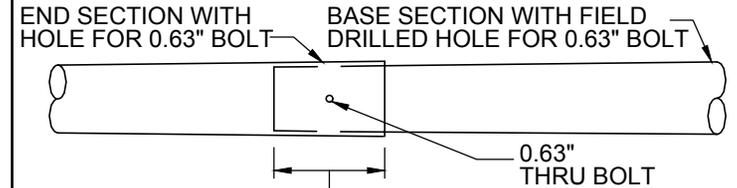
POLE TOP

(4) ANCHOR BOLTS WITH
(2) HEX NUTS,
(2) WASHERS AND
(1) ROUND BEARING PLATE W/
(1) HEX NUT TACK WELDED TO
BOTTOM OF BEARING PLATE.
TOP THREAD END GALVANIZED
AT LEAST 12" TYP. PER EACH
ANCHOR BOLT.



DETAIL 2

ANCHOR BOLT



FIELD ASSEMBLED TO ACHIEVE A SNUG TIGHT
JOINT (MIN. OVERLAP NOT LESS THAN 1.5
TIMES THE END I.D. OF THE END SECTION)

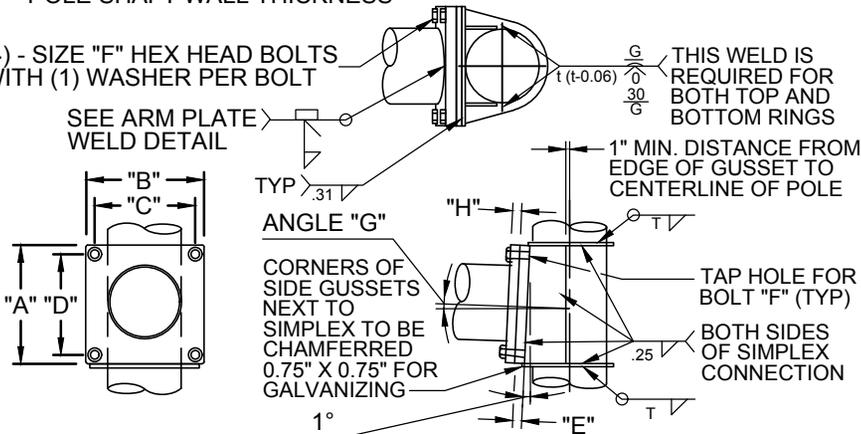
DETAIL 3

SIGN ARM SLIP JOINT

t = GUSSET PLATE THICKNESS
t = 0.50" FOR 40'-0" THRU 65'-0" SIGN ARMS
t = 0.31" FOR ALL OTHER SHORTER SIGN
ARMS
T = POLE SHAFT WALL THICKNESS

(4) - SIZE "F" HEX HEAD BOLTS
WITH (1) WASHER PER BOLT

SEE ARM PLATE
WELD DETAIL



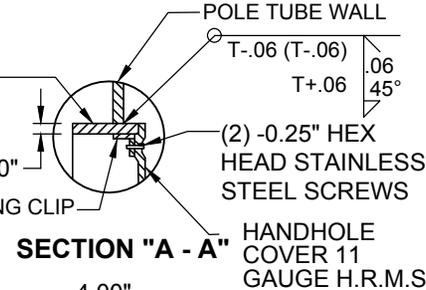
DETAIL 4

SIGN ARM ATTACHMENT

(T = POLE SHAFT WALL THICKNESS)

RIMS FORMED
FROM 6.50", 3
GAGE (MIN.)
WALL (70 KSI
MIN.)
D.O.M. TUBING

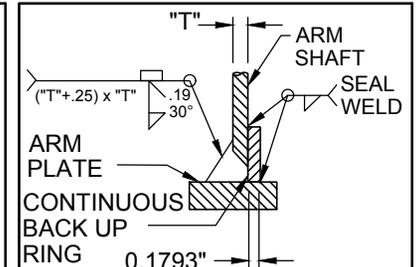
COVER MOUNTING CLIP



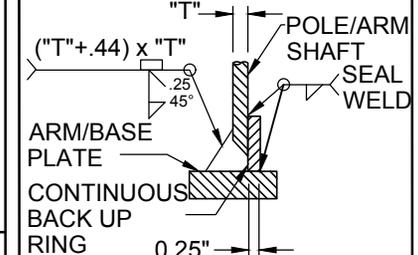
0.50" NUT
HOLDER WITH
FASTENERS
FOR GROUNDING

DETAIL 5

HANDHOLE

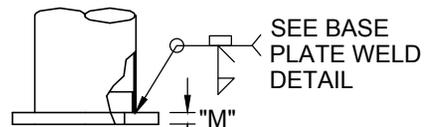


ARM SHAFTS



**POLE/ARM SHAFTS
0.250" & 0.313"**

**ARM PLATE &
BASE PLATE WELD DETAIL**



SEE BASE
PLATE WELD
DETAIL

BASE PLATE
HOLE = POLE
BASE INSIDE
DIA. MINUS 1.50"

DETAIL 6

POLE BASE PLATE

NOTE

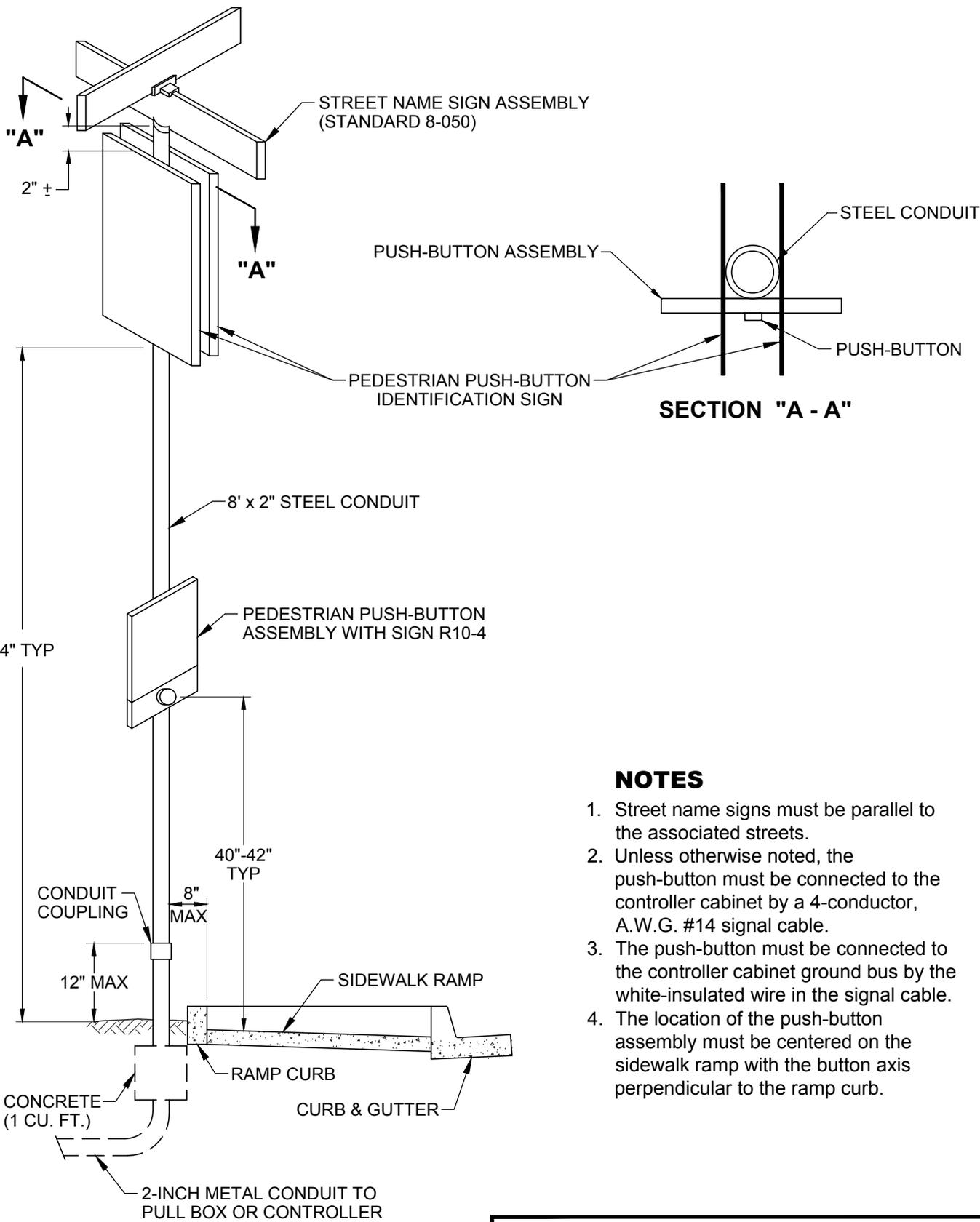
1. Anchor bolts and mast arm attachment bolts shall be furnished with each pole.
2. Angle "G" is the angle between the mast arm and the connection plate.

TABLE 2: POLE AND SIGN ARM DATA

POLE CLASS	POLE TUBE				POLE BASE PLATE				ANCHOR BOLT				SIGN ARM TUBE				SIGN ARM ATTACHMENT DATA							
	BASE DIA. (IN)	TOP DIA. (IN)	MAX. LENGTH (FT)	GAGE OR THICK (IN)	SQUARE "S" (IN)	BOLT CIRCLE "Y" (IN)	THK "M" (IN)	HOLE "Z" (IN)	DIA. "K" (IN)	LENGTH "J" (IN)	BRG. PLT (DIA. X THK.)	THREAD LENGTH "U" (IN)	FIXED END DIA. (IN)	FREE END DIA. (IN)	GAGE OR THICK (IN)	SPAN (FT)	"A" (IN)	"B" (IN)	"C" (IN)	"D" (IN)	"E" (IN)	"H" (IN)	"F" (IN)	"G" (DEG)
TYPE III	12.00	9.06	21.00	0.250	19.50	18.00	1.50	1.75	1.50	60.00	5" X 1"	8.00	10.00	7.90-5.80	7	15-30	19.75	19.75	16.00	16.00	2.25	1.50	1.50-6UNC X 4.00	0
TYPE III	12.00	9.06	21.00	0.250	19.50	18.00	1.50	1.75	1.50	60.00	5" X 1"	8.00	10.00	5.10	7	35	19.75	19.75	16.00	16.00	2.25	1.50	1.50-6UNC X 4.00	1
TYPE III	14.00	11.06	21.00	0.250	19.50	18.00	2.00	1.75	1.50	60.00	7" X 1"	8.00	12.00	6.40-4.30	0.25	40-55	19.75	19.75	16.00	16.00	2.25	1.50	1.50-6UNC X 4.00	2
TYPE III	14.00	11.06	21.00	0.250	19.50	18.00	2.00	1.75	1.50	60.00	7" X 1"	8.00	12.00	3.60-2.90	0.25	60-65	19.75	19.75	16.00	16.00	2.25	1.50	1.50-6UNC X 4.00	4

FOUNDATION REQUIRED	
SIGNAL ARM LENGTH	FOUNDATION TYPE CITY OF YUMA STANDARD 6-200
≤ 65	A-1 OR B-1

Issued: May 2019	Sheet 4 of 4
CITY OF YUMA CONSTRUCTION STANDARD DETAIL DRAWINGS STANDARD NO. 9-065 TYPE III TRAFFIC SIGN POLE AND MAST ARM	



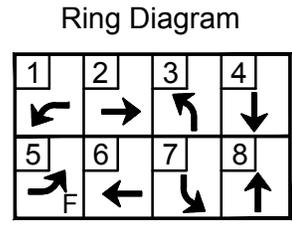
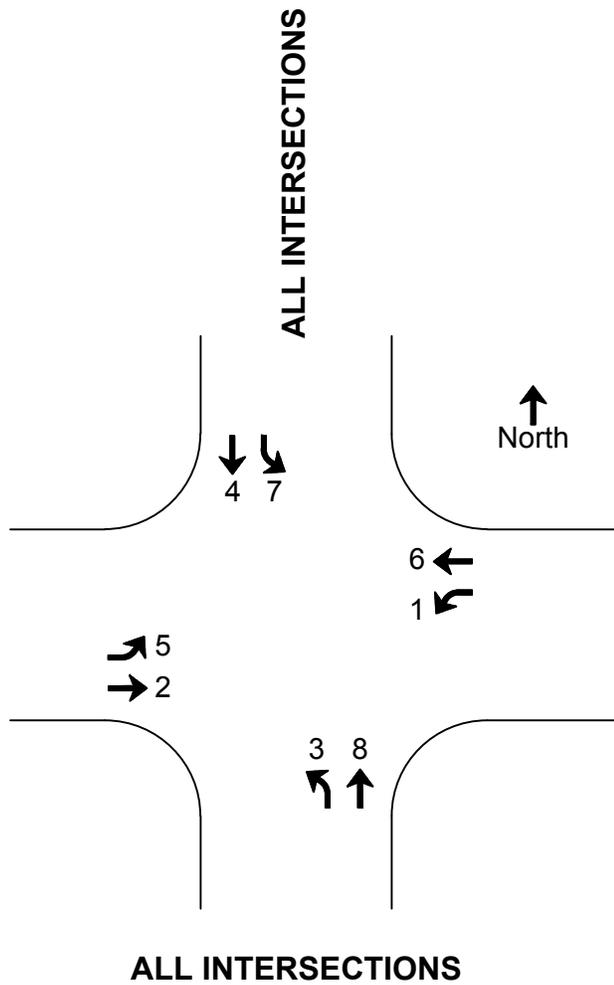
NOTES

1. Street name signs must be parallel to the associated streets.
2. Unless otherwise noted, the push-button must be connected to the controller cabinet by a 4-conductor, A.W.G. #14 signal cable.
3. The push-button must be connected to the controller cabinet ground bus by the white-insulated wire in the signal cable.
4. The location of the push-button assembly must be centered on the sidewalk ramp with the button axis perpendicular to the ramp curb.

Issued: May 2019

CITY OF YUMA
 CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 9-070
 PEDESTRIAN PUSH-BUTTON ON
 STREET NAME SIGN ASSEMBLY**

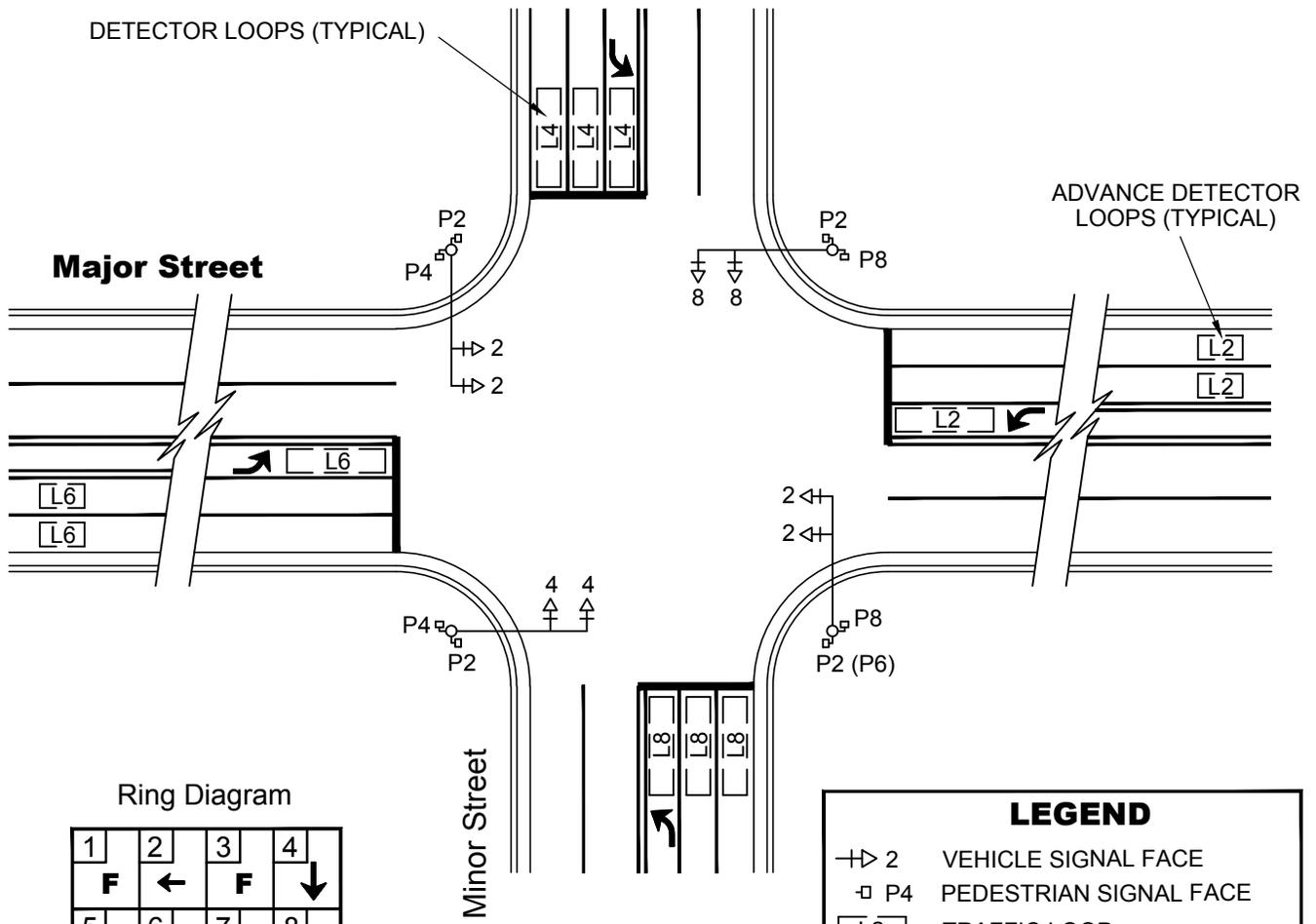


NOTES

1. Not all intersections will require all phases but the controller and cabinet must be wired to provide all phases.
2. "F" in ring diagrams indicate phase is not in use but is reserved for future use.

Issued: May 2019
<p>CITY OF YUMA CONSTRUCTION STANDARD DETAIL DRAWINGS STANDARD NO. 9-075 TRAFFIC SIGNAL PHASE ASSIGNMENTS</p>

INITIAL SETUP



Ring Diagram

1 F	2 ←	3 F	4 ↓
5 F	6 →	7 F	8 ↑

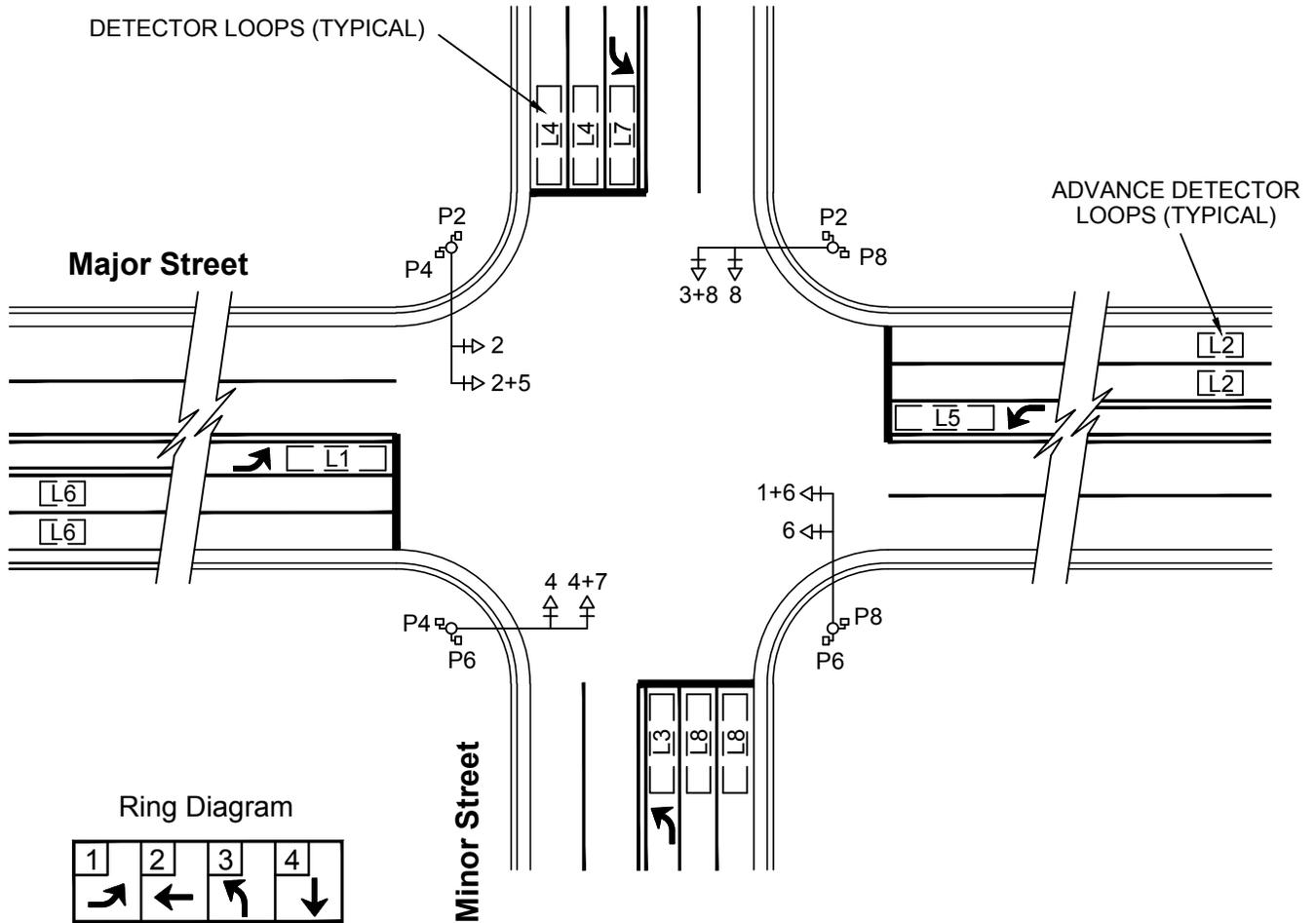
LEGEND

- 2 VEHICLE SIGNAL FACE
- P4 PEDESTRIAN SIGNAL FACE
- [L2] TRAFFIC LOOP

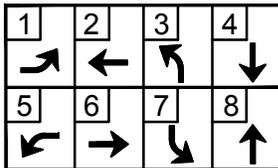
NUMBERS IN ALL OF THE ABOVE INDICATE ASSOCIATED TIMING FUNCTIONS.

**FOR 2 PHASE INTERSECTION
WITH ADVANCE DETECTION**

POTENTIAL FUTURE SETUP



Ring Diagram



LEGEND

- 2 VEHICLE SIGNAL FACE
- P4 PEDESTRIAN SIGNAL FACE
- [L2] TRAFFIC LOOP

NUMBERS IN ALL OF THE ABOVE INDICATE ASSOCIATED TIMING FUNCTIONS.

FOR 8 PHASE INTERSECTION WITH ADVANCE DETECTION

NOTE

1. Connect all loop and signal faces in normal quad-left configuration.

Issued: May 2019

Sheet 2 of 2

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 9-080
TRAFFIC SIGNAL SETUP DESIGN

SCH 40 PVC CONDUIT FOR SIGNAL & STREET LIGHT CIRCUITS (SEE PLANS)

TWO (MIN.) 3" SCH 40 PVC CONDUITS FOR SIGNAL CIRCUITS

SCH 40 PVC CONDUITS FOR DETECTOR CIRCUITS (SEE PLANS)

3" SCH 40 PVC CONDUIT FOR DETECTOR CIRCUITS

2" SCH 40 PVC CONDUIT FOR STREET LIGHTS

SCH 40 PVC CONDUITS FOR FIBER OPTIC INTERCONNECT CABLE (SEE PLANS)

2" SCH 40 PVC CONDUIT FOR FIBER OPTIC DROP CABLE

2½" SCH 40 PVC CONDUIT TO POWER SOURCE

ELECTRICAL SERVICE ENCLOSURE

CONTROLLER CABINET

PULL BOX LEGEND

-  NO. 5 PULL BOX
-  NO. 7 PULL BOX WITH EXTENSION
-  TYPE FO PULL BOX WITH EXTENSION

SAFETY NOTE

ALL WORKERS SHOULD BE MADE AWARE THAT LOOP WIRES/LEAD-IN CABLES (LOW VOLTAGE), PEDESTRIAN DETECTOR CABLES (LOW VOLTAGE) AND OPTICAL DETECTOR CABLES (LOW VOLTAGE) MAY SHARE THE SAME CONDUITS WITH 120V AC CIRCUITS.

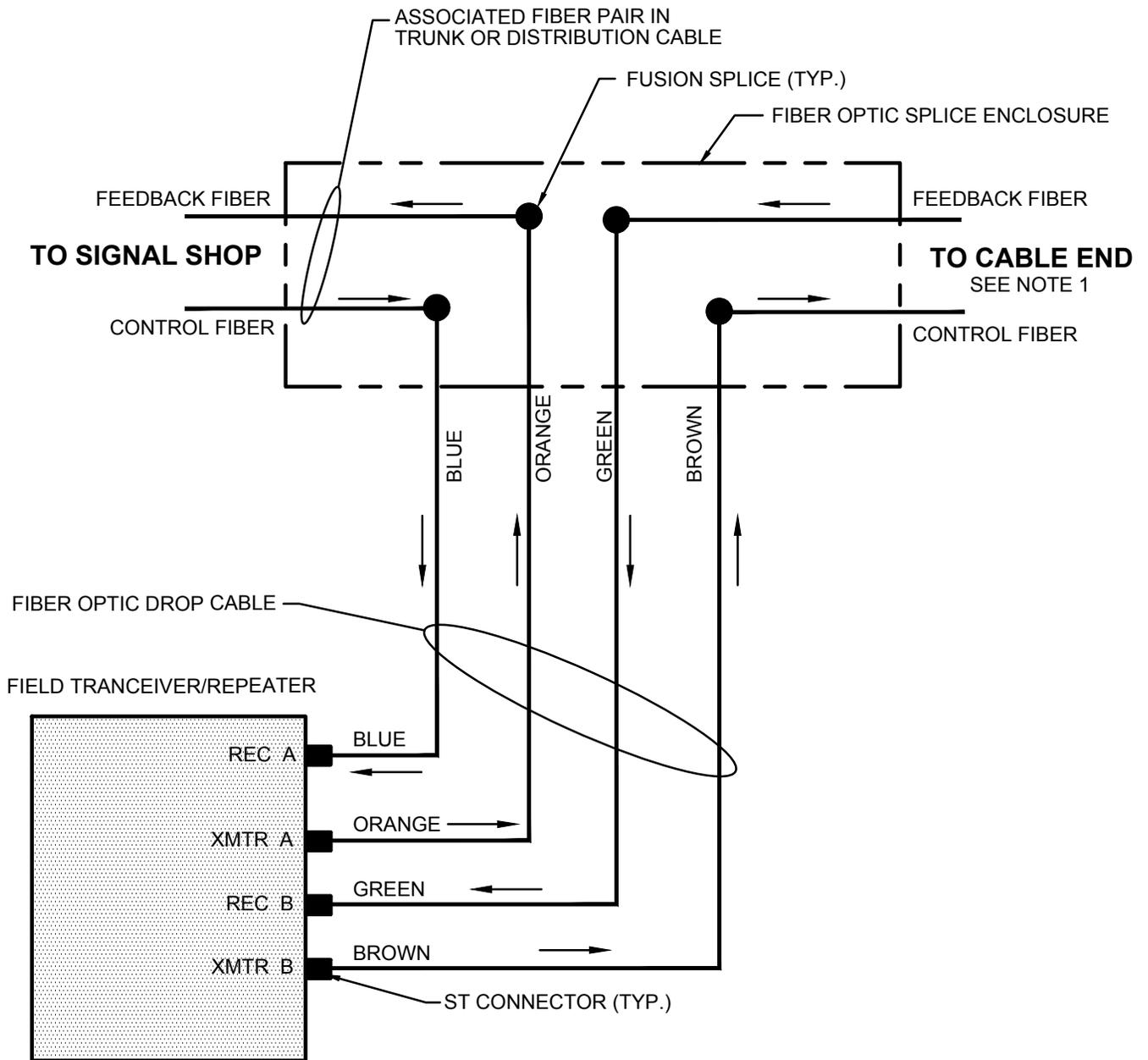
NOTES

1. Requirements shown are minimum. Use additional conduits as needed.
2. Conduit and pullbox layout is schematic. Adjust to fit site.
3. See Standard Detail 9-015 for cabinet foundation details.
4. Conduit sizes shown are minimum sizes.

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 9-085
CONDUIT AND PULL BOXES
AT CONTROLLER CABINET**



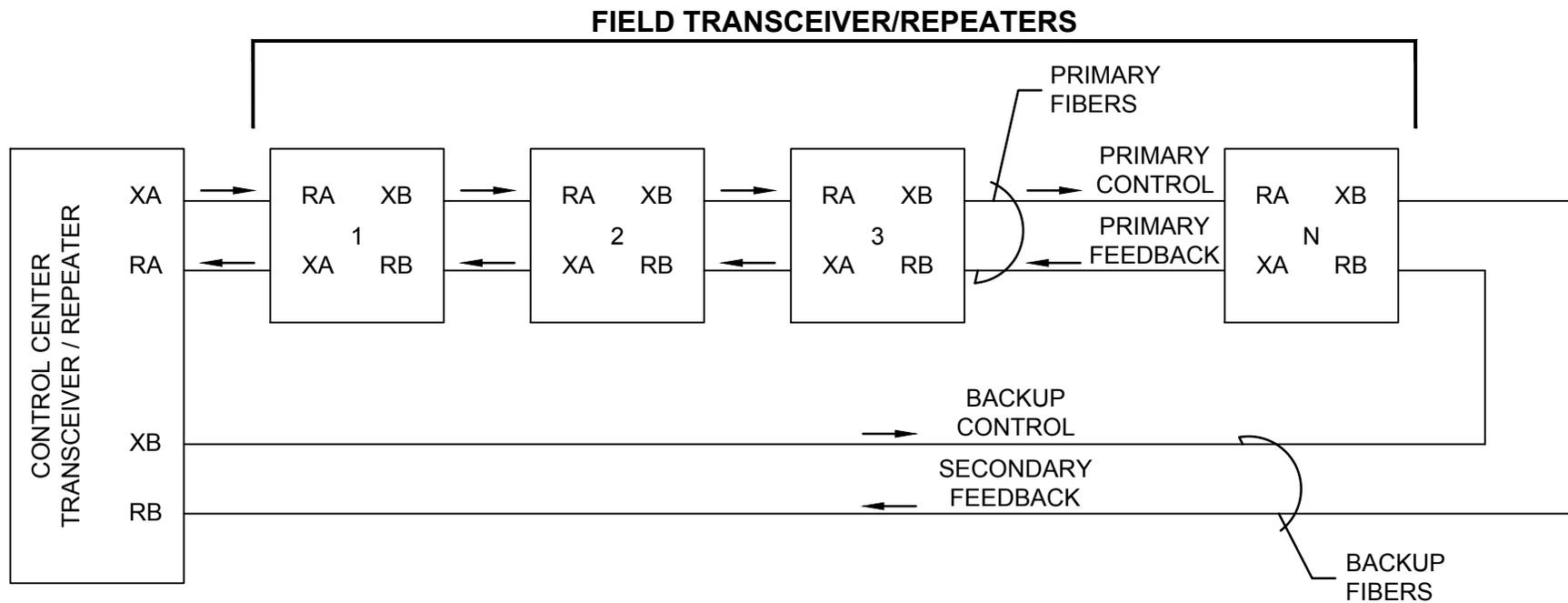
NOTE

1. For the last intersection on a fiber pair, the "To Cable End" fibers must be those of the back-up pair.

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 9-090
TRAFFIC SIGNAL FIBER OPTIC
CABLE CONNECTIONS



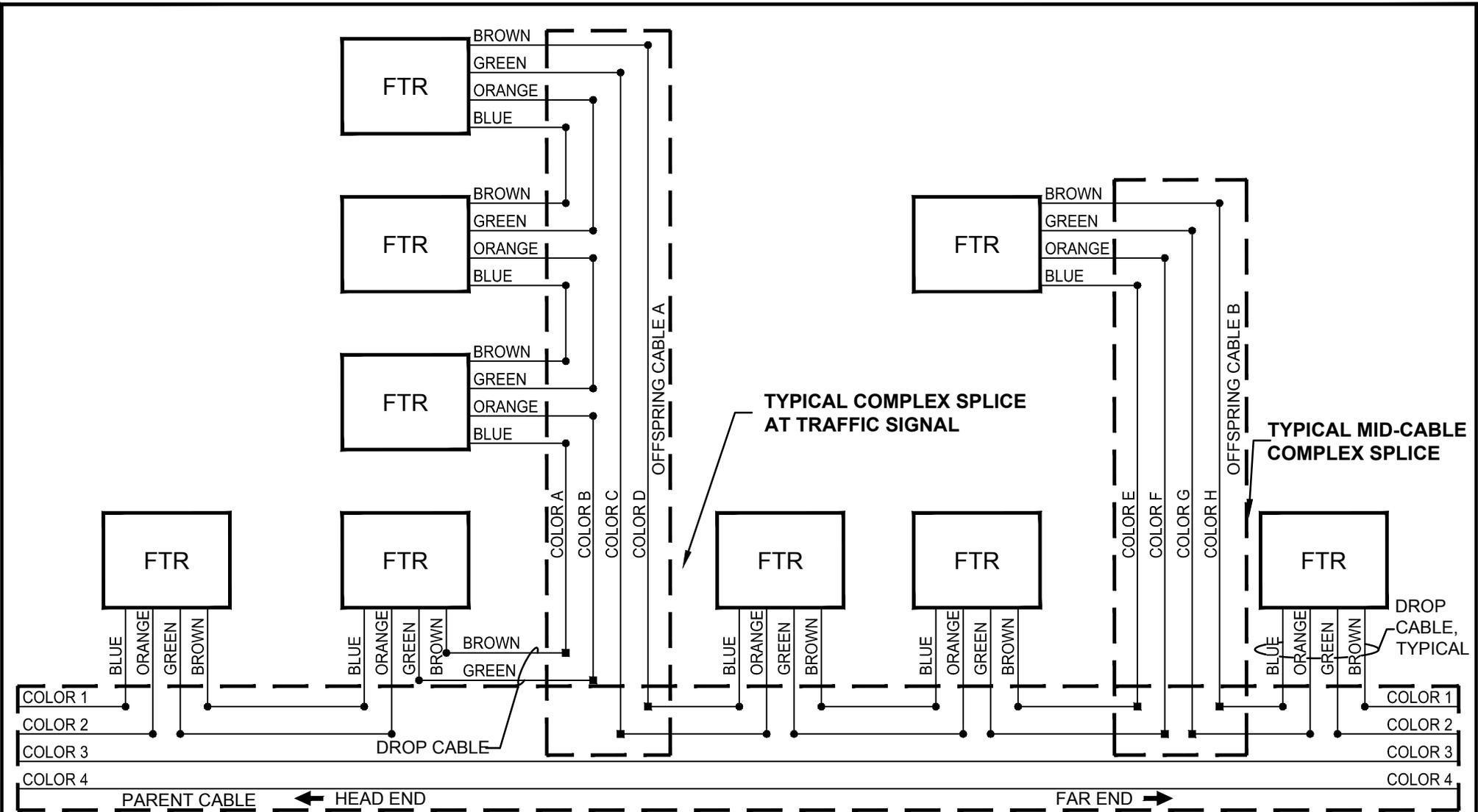
LEGEND

- N Last field transceiver/repeater on channel (max=15)
- RA Receive, primary
- RB Receive, secondary
- XA Transmit, primary
- XB Transmit, secondary

Issued: May 2019

CITY OF YUMA
 CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 9-095
SCHEMATIC TRAFFIC SIGNAL FIBER
OPTIC CHANNEL CONNECTIONS



NOTE

1. Cables may have additional unrelated fibers.

LEGEND

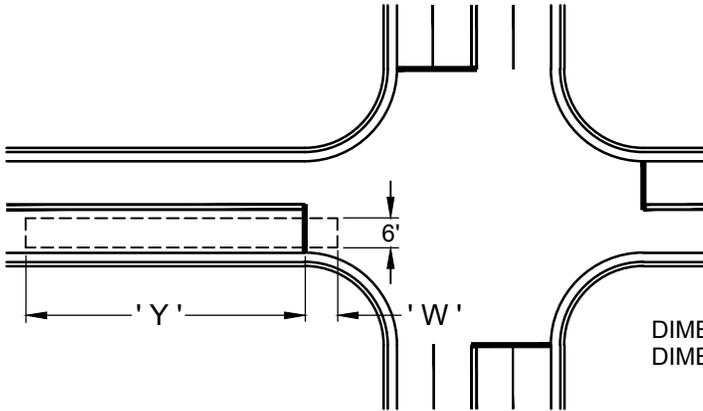
FTR FIELD TRANSCEIVER/REPEATER

Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 9-100
TYPICAL TRAFFIC SIGNAL
FIBER OPTIC CHANNEL
COMPLEX SPLICES

INTERSECTION DETECTION WITH PRESENCE LOOP



NOTE

1. All presence loops must be installed in the quadrupole configuration even though they are illustrated schematically as rectangles on the plans.

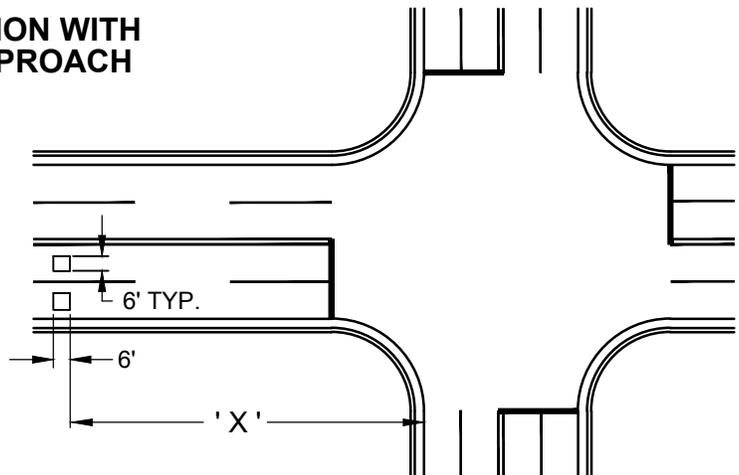
UNLESS OTHERWISE NOTED:

DIMENSION 'W' : AS SHOWN ON PLANS (TYPICALLY, 6')
 DIMENSION 'Y' : 50' UNLESS OTHERWISE SHOWN ON THE PLANS OR DIRECTED BY THE ENGINEER.

SYSTEM OR INTERSECTION DETECTION WITH PULSE LOOP ON INTERSECTION APPROACH

NOTES

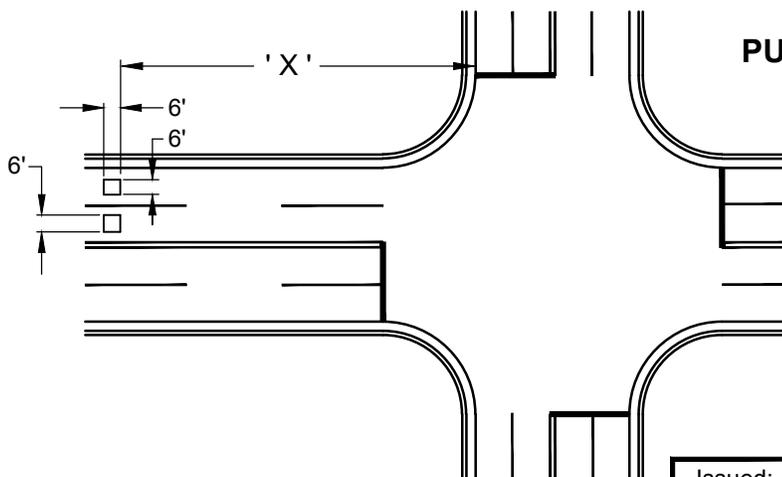
1. 'X' dimension as indicated on plans (measured from the edge of pavement).
2. A separate loop must be used for each lane to be detected.
3. Each loop must have three (3) turns of wire.



SYSTEM DETECTION WITH PULSE LOOP ON INTERSECTION EXIT

NOTES

1. 'X' dimension: 100' (50' minimum) or as detailed on plans (measured from edge of pavement).
2. A separate loop must be used for each lane to be detected.
3. Each loop must have three (3) turns of wire.



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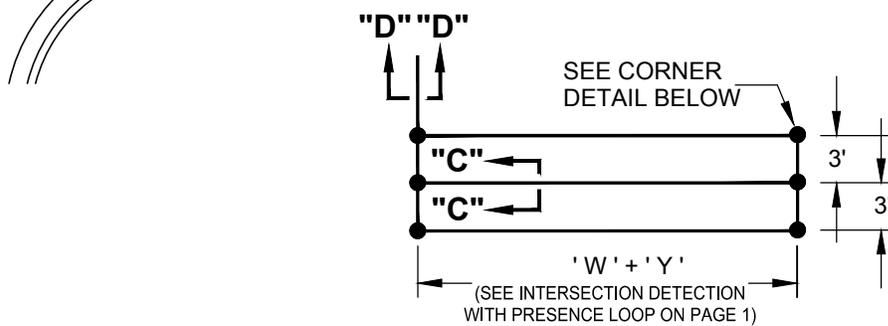
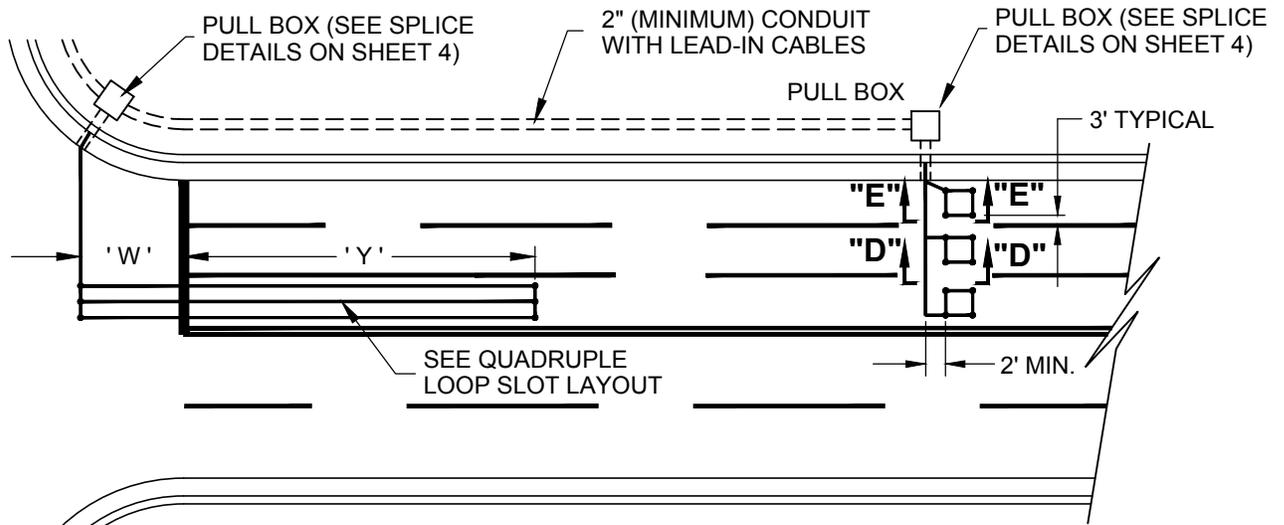
Sheet 1 of 5

CITY OF YUMA
 CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 9-105
 LOOP SYSTEM INSTALLATION**

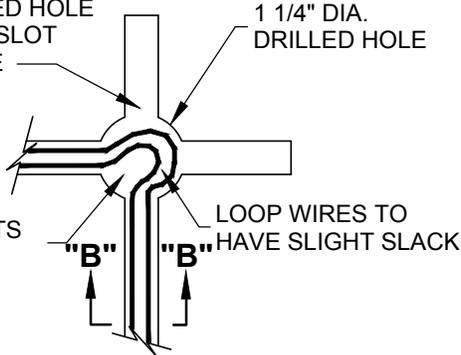
SEE SHEET 5 FOR GENERAL NOTES

GENERAL LOOP INSTALLATION LAYOUT

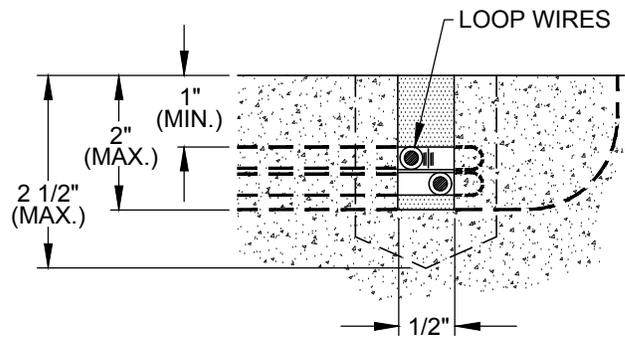


QUADRUPOLE SLOT LAYOUT

SAW-CUT SUFFICIENTLY BEYOND DRILLED HOLE TO YIELD FULL SLOT DEPTH AT HOLE



CORNER DETAIL



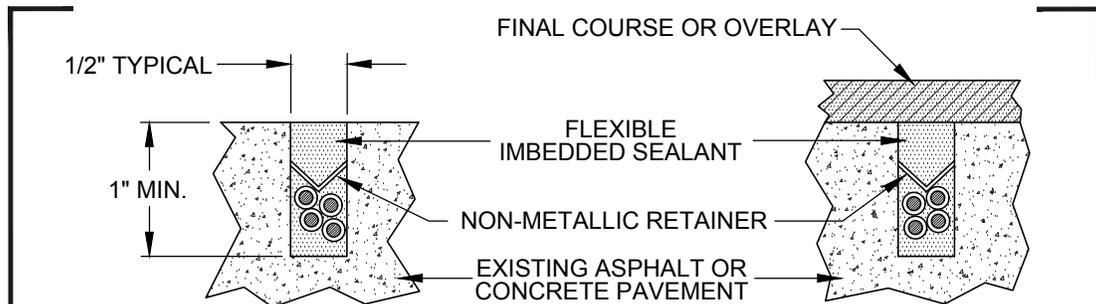
SECTION "B - B" CORNER SECTION

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Sheet 2 of 5

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

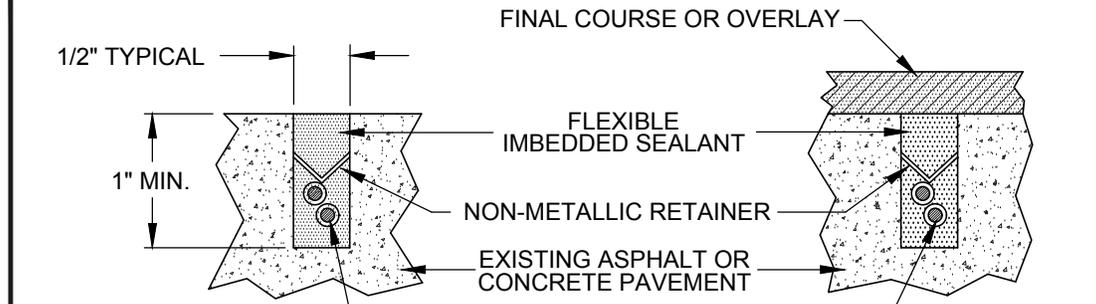
**STANDARD NO. 9-105
LOOP SYSTEM INSTALLATION**



SECTION "C - C"

TYPE 1 OR TYPE 2 LOOP WIRE INSTALLATION

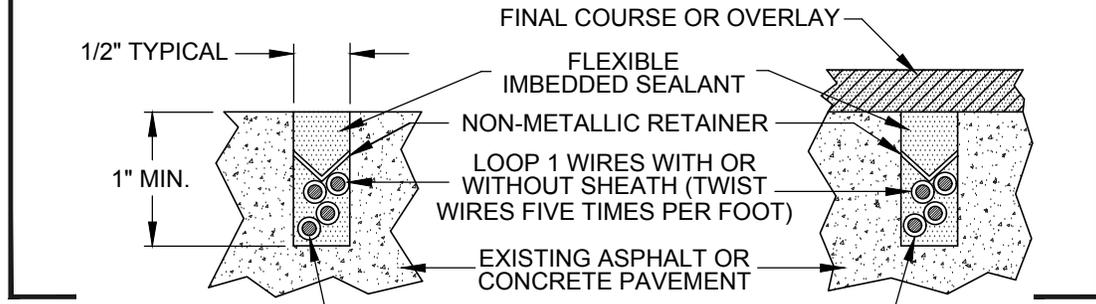
WORK DONE IN EXISTING PAVEMENT



SECTION "D - D"

TYPE 1 OR TYPE 2 LOOP WIRE INSTALLATION

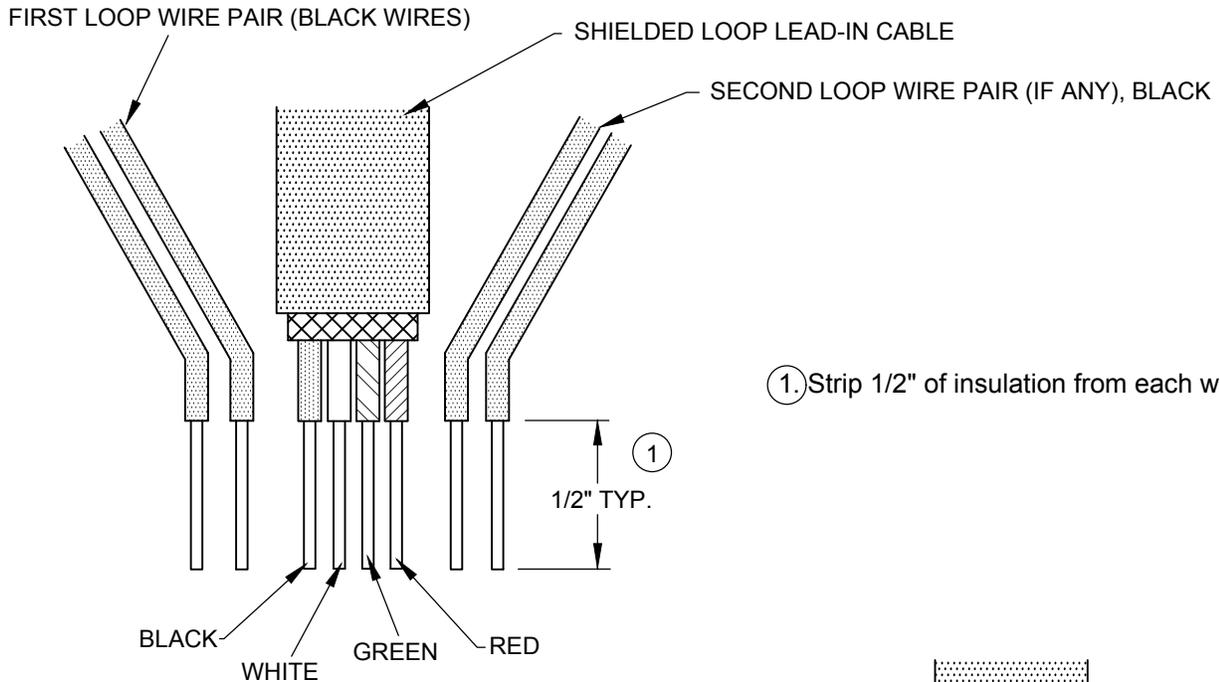
NEW ASPHALT PAVEMENT OR PAVEMENT TO BE RESURFACED



SECTION "E - E"

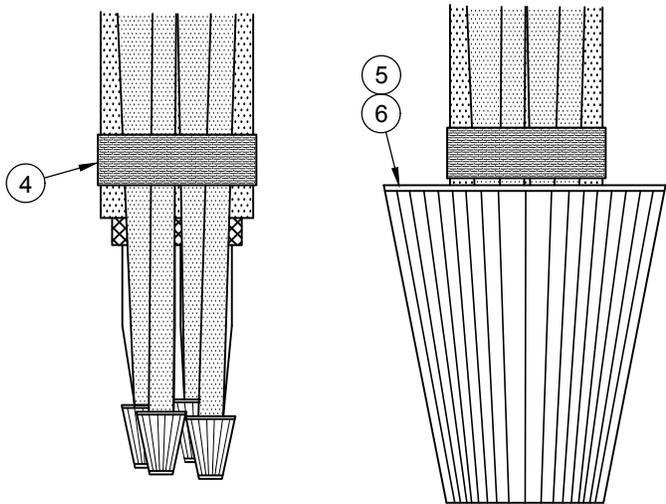
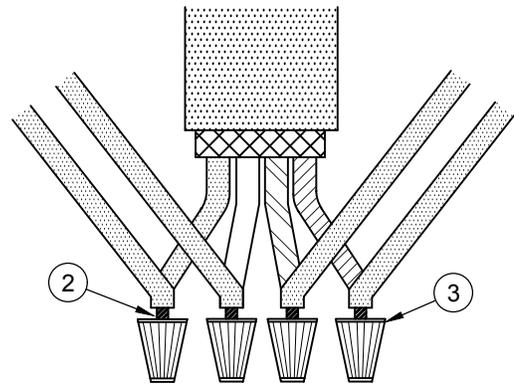
TYPE 1 OR TYPE 2 LOOP WIRE INSTALLATION

LOOP WIRE / LEAD-IN CABLE SPLICE DETAILS



① Strip 1/2" of insulation from each wire.

- ② Twist wires together and solder each pair of wires utilizing resin core solder.
- ③ Install wire nuts to each soldered splice.



- ④ Tie or tape wires and cables together and dress the leads close together.
- ⑤ Totally encapsulate splices in flexible imbedded sealant to form a watertight splice.
- ⑥ Allow sealant to harden before laying cable in pull box.

GENERAL NOTES

1. Except as otherwise noted, loop system installations shall conform to ADOT Standard Drawing T.S. 7-1.
2. Loops shall be centered in their lanes unless otherwise noted. When a lane is wider than normal to accommodate parking, the lane shall be taken as:
 - A. Eight feet (8') from the face of curb or edge of pavement when the parking is parallel to the curb or
 - B. Eighteen feet (18') from the face of curb or edge of pavement when angled parking is used.
3. To the extent practical, a single lead-in cable must service two (2) loops.
4. Two types of loop installations are described in this standard drawing: one for use in good pavement (Type 1) and one for use in weak or damaged pavement (Type 2). Type 1 installations utilize a simple insulated conductor to form the loop. Type 2 installations use the same insulated conductor that has been factory encased in a polyethylene sheath. Type 2 installations shall be used unless otherwise noted in each instance.
5. The loop wire shall not contain any splices. The loop/lead-in cable system shall be free of splices except for the splice between the loop wire and the lead-in cable.
6. For Type 1 loops: loops in adjacent lanes shall consist of loop wires having different colored insulation. No two loops entering the same pull box or cabinet from the same street leg may have the same color insulation unless there are more than four (4) such loops. The installation color scheme shall be: black (for the loop closest to the pull box or cabinet), then white, red and green.
7. The continuity of the lead-in cable shield shall be maintained and the shield must not be grounded.
8. Nonmetallic retainers shall be placed in the saw slot cut into the roadway at approximate 24" intervals in order to prevent the loop wires from floating to the surface in the sealant.
9. Seal the ends of any conduit with a suitable material in order to prevent any flexible embedded sealant from entering the conduit.
10. Loop wires shall be twisted together at the rate of five (5) turns per foot of loop wire in the sawn slot between the loop and the conduit, in the conduit and in the pull box.
11. A minimum of two feet (2') of slack shall be maintained in each lead-in cable and each pair of loop wires in the pull box.
12. In order to prevent the relative movement of loop wires in the pull box, the pair of loop wires for each loop must be clamped or taped to one another.
13. In Type 2 loop installations, the sheath must be removed from the loop wires at the conduit's entrance.
14. All loop slots shall be completely filled with a flexible imbedded loop sealant totally encasing the loop wires. Excess sealant shall be struck off and removed.
15. Conduit sizes shown are to be considered minimum sizes.

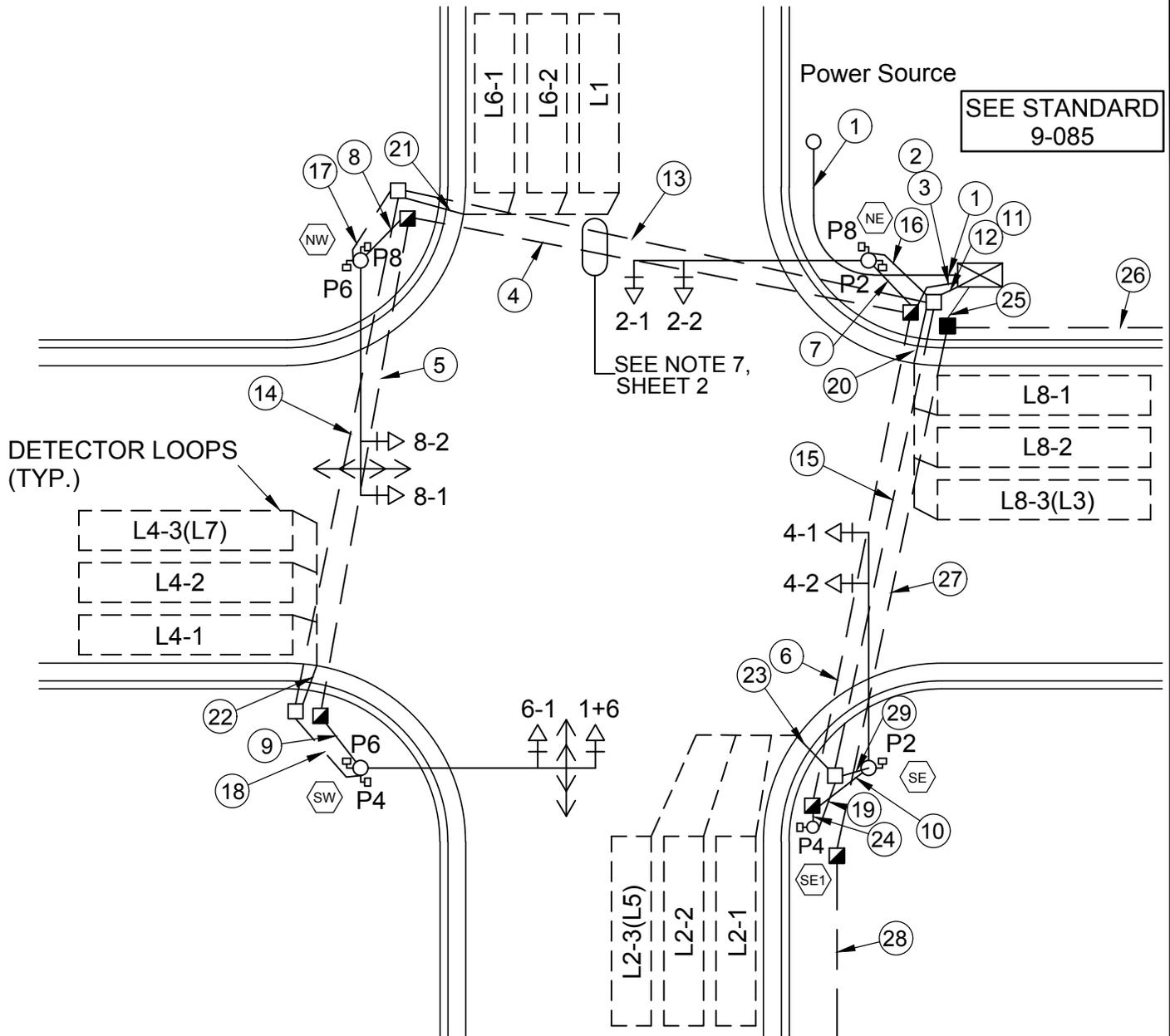
Issued: May 2019

Sheet 5 of 5

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 9-105
LOOP SYSTEM INSTALLATION

EXAMPLE INTERSECTION SCHEMATIC LAYOUT



SEE STANDARD
9-085

SEE NOTE 7,
SHEET 2

DETECTOR LOOPS
(TYP.)

LEGEND

- 8-2 3-SECTION VEHICLE SIGNAL FACE WITH PHASE NUMBER AND UNIQUE NUMBER.
- 1+6 5-SECTION VEHICLE SIGNAL FACE WITH BOTH PHASE NUMBERS.
- P4 PEDESTRIAN SIGNAL FACE WITH PHASE NUMBER
- ↔ PREEMPTION DETECTOR
- NUMBER 5 PULL BOX
- NUMBER 7 PULL BOX
- TYPE FO PULL BOX WITH EXTENSION
- ⬡ POLE OR POST IDENTIFIER
- ② CONDUIT IDENTIFIER
- L4-2 LOOP IDENTIFIER
- └─┬─┘ LOOP NUMBER ON PHASE ASSOCIATED PHASE
- (L5) FUTURE LOOP PHASE ASSOCIATION
- ⊠ CONTROLLER CABINET

NOTE

1. Sheet 2 for notes.
2. Sheet 3 for cable requirements.
3. Sheet 4 for conduit, cable and detector requirements.

Issued: May 2019

Sheet 1 of 4

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 9-110
EXAMPLE OF TRAFFIC SIGNAL
LAYOUT FOR CONDUIT, CABLE AND
ELECTRICAL CONNECTIONS DESIGN

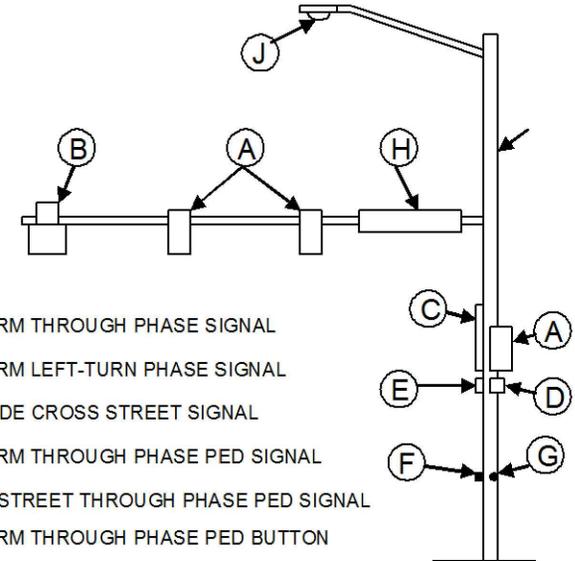
NOTES

1. When a signal pedestal is on the same corner as a signal pole or in the vicinity of a signal pole if not at a corner, the signal cable shall run from the controller to the terminal block in the signal pole and then to the signal pedestal. The terminal block in the signal pole shall be the main splice point for all signal cable on a corner or in a given vicinity.
2. Unless otherwise noted, there shall be two (2) cables from the controller serving each signal pole: one 20-conductor for the signals and one 4-conductor for the pedestrian push-buttons.
3. See Sheet 3 for cable requirements.
4. Loop lead-in cables, push-button cables, preemptor detector cables and fiber optic cables may share conduits.
5. Loop lead-in cables, push-button cables and preemptor detector cables shall NOT enter Type FO pull boxes.
6. Number 5 pull box for loop lead-in and push-button cables, and Number 7 pull box for signal circuits and fiber optic cables closest to controller cabinet must each have extensions.
7. A conduit run from the controller that serves two (2) corners shall have two (2) conduits for signal cables and two (2) conduits for detector lead-in and push-button cables.
8. This example shall be adapted to the specific intersection by the design engineer.

CABLE REQUIREMENTS

CONTROLLER-SIGNAL POLE CABLE, 20-CONDUCTOR				
Number	Conductor		Signals	Signal Color
	Insulation Color	Tracer		
1	Black		Spare	—
2	White		Vehicle Signals	Common
3	Red		Mast Arm Through Phase-A	Red
4	Green		Mast Arm Through Phase-A	Green
5	Orange		Mast Arm Through Phase-A	Yellow
6	Blue		Mast Arm Through Phase PED-D	Man
7	White	Black	Mast Arm Through Phase PED-D	Hand
8	Red	Black	Mast Arm End-B	Red Arrow
9	Green	Black	Mast Arm End-B	Green Arrow
10	Orange	Black	Mast Arm End-B	Yellow Arrow
11	Blue	Black	Cross Street Through Phase PED-E	Man
12	Black	White	Cross Street Through Phase PED-E	Hand
13	Red	White	Pole Side Cross Street-C	Red
14	Green	White	Pole Side Cross Street-C	Green
15	Blue	White	Pole Side Cross Street-C	Green Arrow
16	Black	Red	Pole Side Cross Street-C	Yellow Arrow
17	White	Red	Pedestrian Signals	Common
18	Orange	Red	Pole Side Cross Street-C	Yellow
19	Blue	Red	Spare	—
20	Red	Green	Spare	—

CABLE TERMINATION DEFINITIONS



- (A) MAST ARM THROUGH PHASE SIGNAL
- (B) MAST ARM LEFT-TURN PHASE SIGNAL
- (C) POLE SIDE CROSS STREET SIGNAL
- (D) MAST ARM THROUGH PHASE PED SIGNAL
- (E) CROSS STREET THROUGH PHASE PED SIGNAL
- (F) MAST ARM THROUGH PHASE PED BUTTON
- (G) CROSS STREET THROUGH PHASE PED BUTTON
- (H) INTERNALLY ILLUMINATED STREET NAME SIGN
- (J) STREET LIGHT

NOTE

- All cables must satisfy IMSA Specification 19-1.

CONTROLLER-SIGNAL POLE CABLE, 4-CONDUCTOR		
Conductor		
Number	Insulation Color	Function
1	Black	Spare
2	White	Common
3	Red	Ø4 or Ø8 Button
4	Green	Ø2 or Ø6 Button, if any

4-CONDUCTOR CABLE TO 3-SECTION SIGNAL FACE		
Conductor		
Number	Insulation Color	Function
1	Black	Yellow
2	White	Common
3	Red	Red
4	Green	Green

4-CONDUCTOR CABLE TO PEDESTRIAN SIGNAL		
Conductor		
Number	Insulation Color	Function
1	Black	Spare
2	White	Common
3	Red	Hand
4	Green	Man

7-CONDUCTOR CABLE TO MAST ARM END SIGNAL FACE			
Conductor			
Number	Insulation Color	Tracer	Function
1	Black		Yellow
2	White		Common
3	Red		Red
4	Green		Green
5	Orange		Yellow Arrow
6	Blue		Green Arrow
7	White	Black	Spare

4-CONDUCTOR CABLE TO PUSH-BUTTON		
Conductor		
Number	Insulation Color	Function
1	Black	Spare
2	White	Common
3	Red	Button
4	Green	Spare

Issued: May 2019

Sheet 3 of 4

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 9-110
**EXAMPLE OF TRAFFIC SIGNAL
LAYOUT FOR CONDUIT, CABLE AND
ELECTRICAL CONNECTIONS DESIGN**

CONDUITS AND ENCLOSED CABLES					
Conduit	Pole	Conduit		Size (inches)	Function
		Type	Schedule		
1		PVC	40	2.5	Power service
2		PVC	40	3	Signal cables (signals, street lights, ISNS)
3		PVC	40	3	Signal cables (signals, street lights, ISNS)
4		PVC	40	3	Signal cables (signals, street lights, ISNS) (SEE NOTE 2)
5		PVC	40	3	Signal cables (signals, street lights, ISNS)
6		PVC	40	3	Signal cables (signals, street lights, ISNS)
7		PVC	40	2	Signal cables (signals, street lights, ISNS)
8		PVC	40	2	Signal cables (signals, street lights, ISNS)
9		PVC	40	2	Signal cables (signals, street lights, ISNS)
10		PVC	40	2	Signal cables (signals, street lights, ISNS)
11		PVC	40	3	Loop lead-in cables, push-button cables, preemptor detector cables
12		PVC	40	3	Loop lead-in cables, push-button cables, preemptor detector cables
13		PVC	40	3	Loop lead-in cables, push-button cables, preemptor detector cables (SEE NOTE 2)
14		PVC	40	3	Loop lead-in cables, push-button cables, preemptor detector cables
15		PVC	40	2	Loop lead-in cables, push-button cables
16		PVC	40	2	Push-button cables
17		PVC	40	2	Push-button cables
18		PVC	40	2	Push-button cables, preemptor detector cables
19		PVC	40	2	Push-button cables
20		PVC	40	2	Loop wire
21		PVC	40	2	Loop wire
22		PVC	40	2	Loop wire
23		PVC	40	2	Loop wire
24		PVC	40	2	Signal cable
25		PVC	40	2	Fiber optic cable
26		PVC	40	2 or 3	Fiber optic cable
27		PVC	40	2 or 3	Fiber optic cable
28		PVC	40	2 or 3	Fiber optic cable
29		PVC	40	2	Preemptor detector cable
	NW				Signal cables (signals, street lights, ISNS), push-button cable, preemptor detector cables
	NE				Signal cables (signals, street lights, ISNS), push-button cable
	SW				Signal cables (signals, street lights, ISNS), push-button cable, preemptor detector cables
	SE				Signal cables (signals, street lights, ISNS)
	SE1				Signal cables (signals), push-button cable

LEGEND: PVC = polyvinylchloride, FO = fiber optic, ISNS = illuminated street name signs, 40 = Schedule 40 PVC Conduit

NOTES

1. Conduits with conductors with 90 volts or more must be separated from those with conductors with less than 90 volts by either:
 - 3 inches of concrete; or
 - 12 inches of well-tamped earth.
2. Two (2) conduits of the indicated sizes must be provided in runs ④ and ⑬.

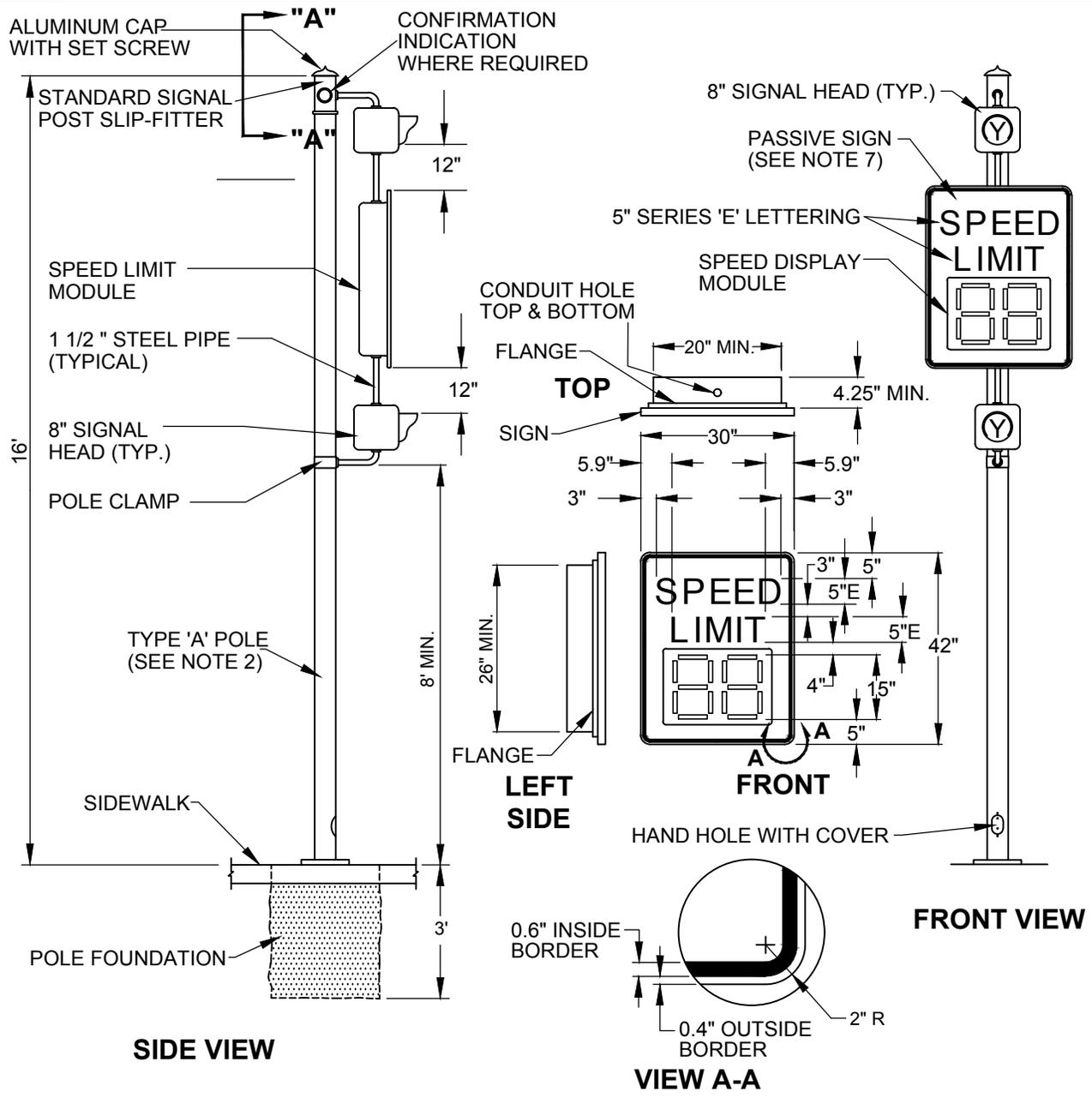
DETECTOR CONNECTION, ASSIGNMENT AND TIMING						
Input File I (Upper)		Loops* (2 max. per channel)	Assigned Phase	Assigned Sampling Detector	Timing	
Slot	Channel				Delay (seconds)	Extend (seconds)
1	1		1			
	2		1			
2	1		2	1		
	2		2	2		
3	1		3			
	2		3			
4	1		4			
	2		4			
5	1		5			
	2		5			
6	1		6	3		
	2		6	4		
7	1		7			
	2		7			
8	1		8			
	2		8			
9	1					
	2					
10	1					
	2					
11	1					
	2					
12	1					
	2					
13	1					
	2					
14	1					
	2					
15	1					
	2					
16	1		8			
	2		8E			

* Pulse (6' x 6') loops must be connected to separate channels for counting purposes.

DESIGN NOTES:						
1. See sheet 1 for intersection layout.						
2. See sheet 3 for cable requirements.						
3. EXCEL file formats available from City's Traffic Engineer.						
4. This example must be adapted to the specific intersection by the design engineer.						

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 9-110
EXAMPLE OF TRAFFIC SIGNAL LAYOUT FOR CONDUIT, CABLE AND ELECTRICAL CONNECTIONS DESIGN



NOTES

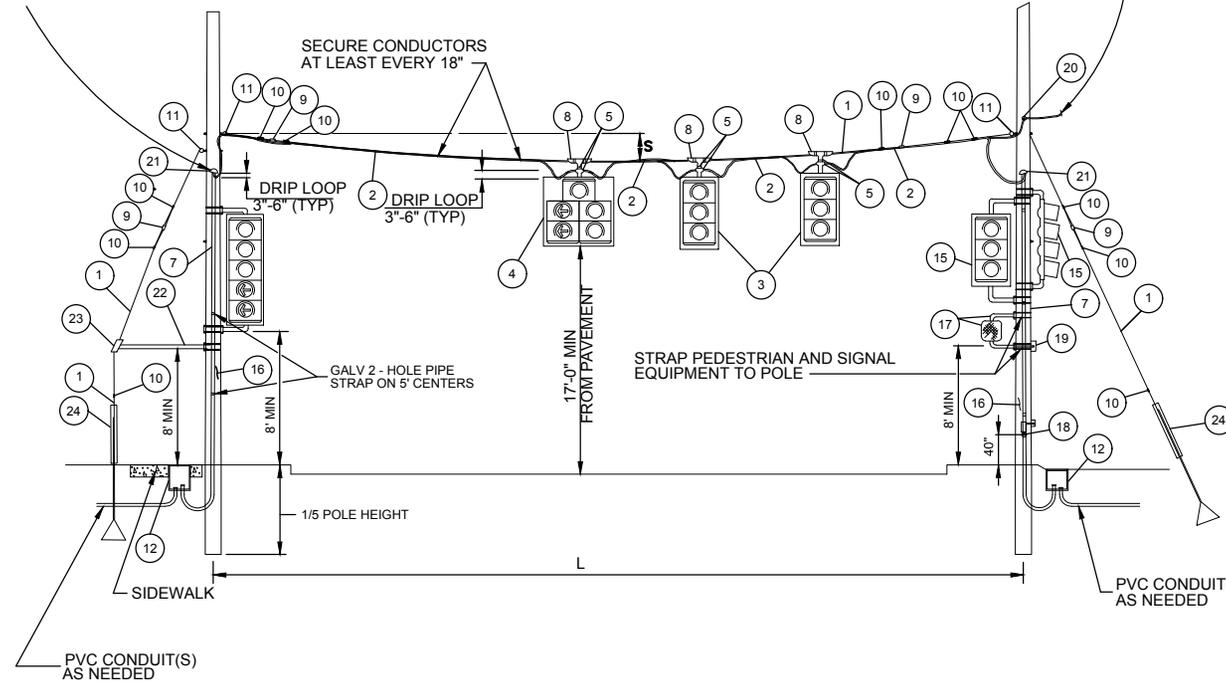
1. Pole and foundation shall conform to ADOT Standard Drawing T.S. 4-1.
2. Type "A" pole, 4" standard pipe (0.237" wall thickness).
3. Sign: 0.080" aluminum panel with Diamond Grade reflective sheeting ("Scotchlite" or approved equivalent).
4. Aim assembly as directed by City Traffic Engineer.
5. Grounding must conform to Standard 9-030.
6. See "Traffic Signal and Roadway Lighting Specifications", Section 14.
7. Passive sign legend and inside border: black. Background and outside border: white.
8. Confirmation Indication to be Pelco Model SM-0284 with a clear globe and a 67-watt traffic signal lamp having 5 filament supports, 7 a 2" light center length and an 8,000-hour rated life.
9. Numerals must be white LEDs

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 9-115
SPEED LIMIT BEACON ASSEMBLY**

2" WEATHER HEAD WITH INSULATOR LOCATED 12" MAX BELOW MESSENGER CABLE



NOTES

1. See section 20 of "traffic signal and roadway lighting specifications", especially articles 20.2 and 20.7.1.
2. See special conditions.
3. The number, type and placement of signal heads is subject to the approval of the engineer in each instance.
4. ADOT Type G signal heads may not be used.
5. No in-line splices are permitted.
6. Bond all electrical apparatus to #6 ground conductor.
7. The guy wire alignment plan must be submitted to the engineer prior to construction of temporary signals.
8. Messenger cable must have a sag of five percent of span or less ($s=0.05l$, maximum). The lowest point of any overhead portion of the temporary signal assembly must be at least 17 feet above the roadway. The contractor must check each day to insure that the minimum clearance is maintained and must take corrective measures as necessary.
9. Cables and conductors with nominal voltages of 24 volts or less may not be installed in the same conduits and raceways as cables and conductors with nominal voltages greater than 24 volts.
10. The contractor must furnish and install all required miscellaneous hardware.
11. The temporary signal assembly must conform to the requirements of the "manual on uniform traffic control devices".
12. This drawing shows the design concept for a typical temporary span. The contractor must adapt to match actual conditions.

ITEM	DESCRIPTION	ITEM	DESCRIPTION
1	3/8" DIA. 7-STRAND GALV. MESSENGER CABLE	12	GUY WIRE ANCHOR ASSEMBLY
2	SIGNAL CABLE IMSA SPEC. 19-1(#16 AWG SOLID), ONE (1) NO. 8 GROUNDED CONDUCTORS, OPTICOM CABLE SEE PLANS FOR OTHER CONDUCTORS AND CABLES IN WIRE BUNDLES	13	#7 PULL BOX INSTALLED
3	SIGNAL ASSEMBLY - PER SIGNAL PLAN SHEET	15	SIGNAL ASSEMBLY-PER SIGNAL PLAN SHEET
4	SIGNAL ASSEMBLY - PER SIGNAL PLAN SHEET	16	CLASS III WOOD POLE, 40 FEET
5	BALANCE ADJUSTER AND WIRE ENTRANCE	17	PED. SIGNAL AND BRACKET ASSEMBLY
7	RIGID METAL CONDUIT(S) AS NEEDED	18	PED. PUSH BUTTON
8	SPAN WIRE CLAMP AND UNIVERSAL BRACKET	19	CONDULET
9	PORCELAIN STRAIN INSULATORS	20	INSULATOR
10	3-BOLT CLAMP	21	2" WEATHER HEAD
11	EYE BOLT, EYELET, 2 SQUARE WASHERS AND 2-NUTS, GALV.	22	STEEL PIPE
		23	SIDEWALK GUY CLAMP
		24	GUY GUARD

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 9-120
TEMPORARY SPAN WIRE
TRAFFIC SIGNAL ASSEMBLY

MAIN DIRECTIONS

DIRECTION	COLOR
WB	BLUE
EB	GREEN
NB	RED
SB	YELLOW

LEFT TURN DIRECTIONS
(MAIN COLOR + WHITE)

DIRECTION	COLOR
WBLT	BLUE + WHITE
EBLT	GREEN + WHITE
NBLT	RED + WHITE
SBLT	YELLOW + WHITE

RIGHT TURN DIRECTIONS
(MAIN COLOR + BLACK)

DIRECTION	COLOR
WBRT	BLUE + BLACK
EBRT	GREEN + BLACK
NBRT	RED + BLACK
SBRT	YELLOW + BLACK

COLOR OF WIRE FOR
POWER / NEUTRALS / PUSHBUTTONS

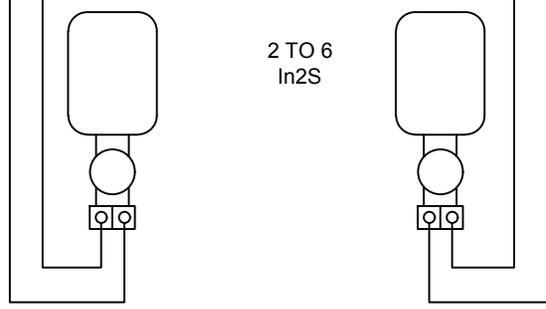
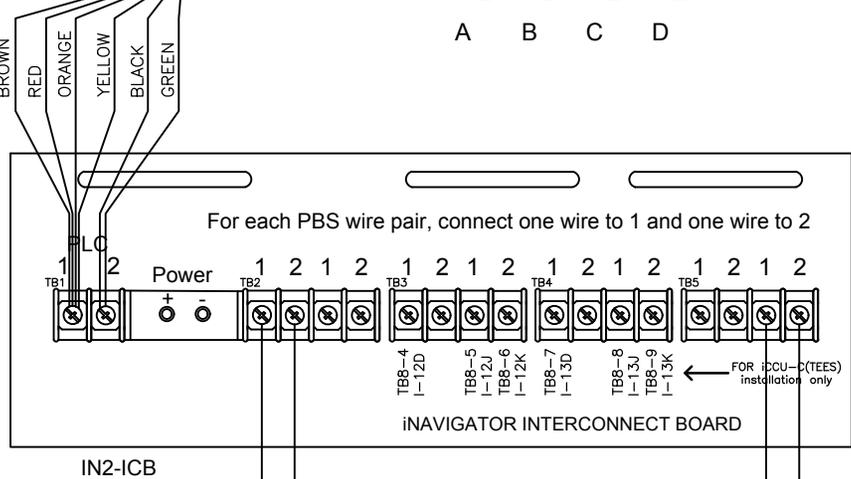
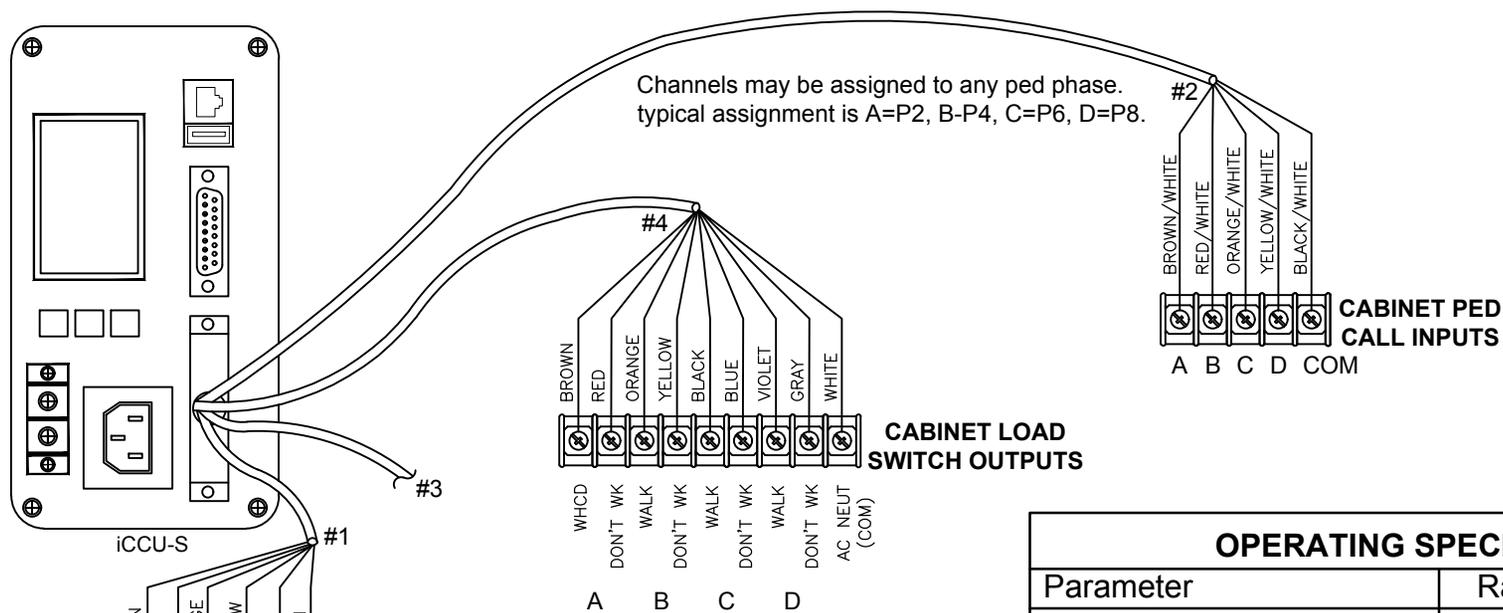
WIRE	COLOR
AC+ POWER	BLACK
AC- NEUTRAL	WHITE
24V PUSHBUTTON	ORANGE + DIRECTIONAL CABLE
PEDESTRIAN	VIOLET + DIRECTIONAL CABLE

NOTES

ALL TAPE SHALL BE: 3M SCOTCH 35 MODEL OR SUPER 33

WBLT = West bound left turn and shall be the phase for vehicles facing West and turning to South.
 EBLT = East bound left turn and shall be the phase for vehicles facing East and turning to North
 NBLT = North bound left turn and shall be the phase for vehicles facing North and turning to West.
 SBLT = South bound left turn and shall be the phase for vehicles facing South and turning to East.
 WBRT = West bound right turn shall be the phase for vehicles facing West and turning to North.
 EBRT = East bound right turn and shall be the phase for vehicles facing East and turning to South.
 NBRT = North bound right turn and shall be the phase for vehicles facing North and turning to East.
 SBRT = South bound right turn and shall be the phase for vehicles facing South and turning to West.

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CITY OF YUMA CONSTRUCTION STANDARD DETAIL DRAWINGS STANDARD NO. 9-125 TAPE COLOR CODES FOR TRAFFIC SIGNAL WIRING

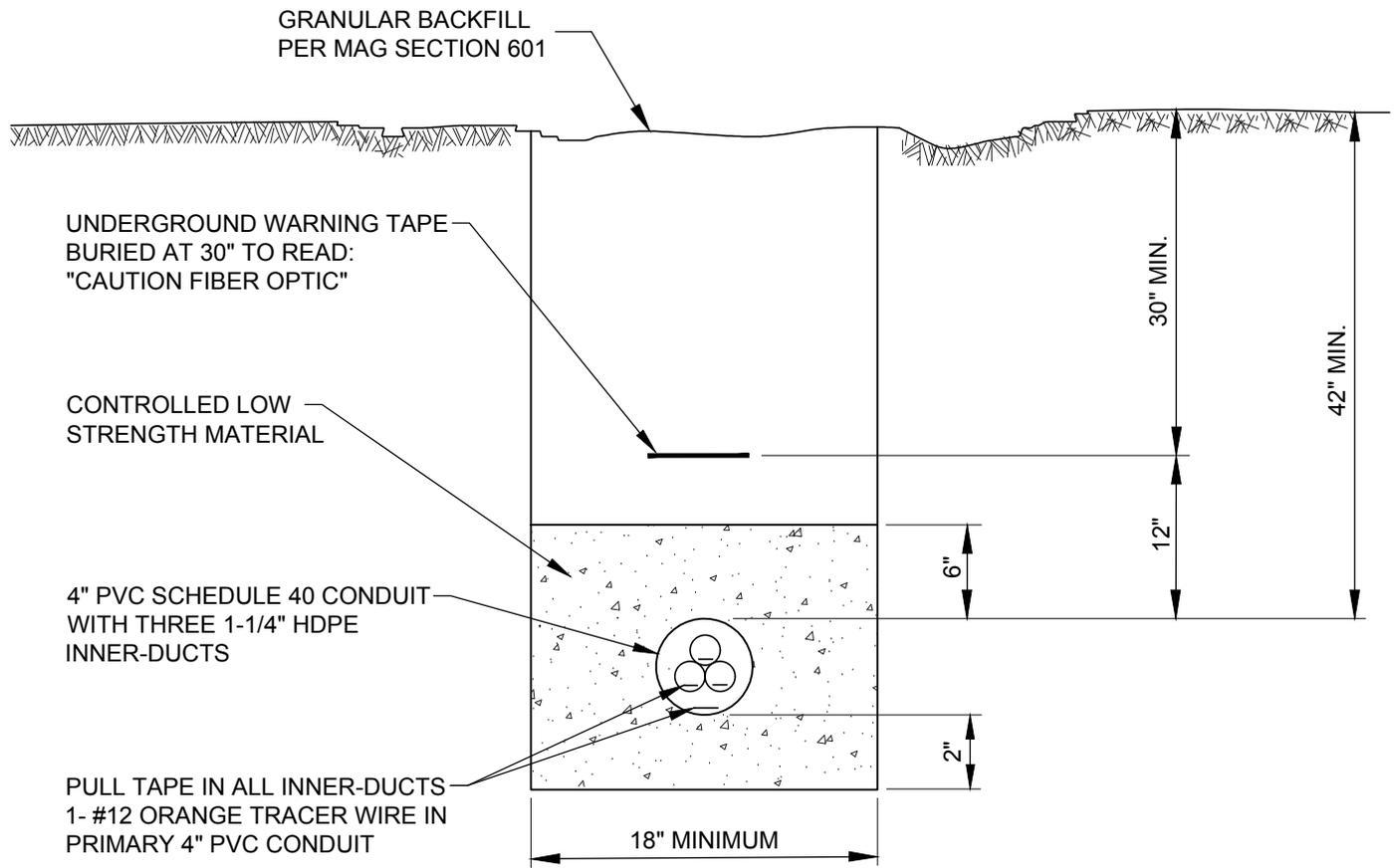


OPERATING SPECIFICATIONS	
Parameter	Rating
Operating Temperature Range	-34°C to +74°C (-30°F to +165°F)

DESIGN COMPLIANCE	
Test Type	Compliance
Functionality	MUTCD 2009 - 4E
Temperature and Humidity	NEMA TS 2*
Transient Voltage Protection	NEMA TS 2*
Transient Suppression	IEC 61000-4-4, IEC 61000-4-5*
Electronic Noise (Bluetooth Radio)	FCC TITLE 47, PART 15, CLASS A*
Mechanical Shock and Vibration	NEMA TS 2*
iN2 PBS Enclosure	NEMA 250 - TYPE 4X*
Electrical Reliability	NEMA TS 4

* Tested and certified by independent 3rd party

Issued: May 2019	Sheet 2 of 2
<p>CITY OF YUMA CONSTRUCTION STANDARD DETAIL DRAWINGS</p> <p>STANDARD NO. 9-130 INTELLIGENT CENTRAL CONTROL UNIT FOR SHELF MOUNT</p>	



INTERCONNECT TRENCH DETAIL

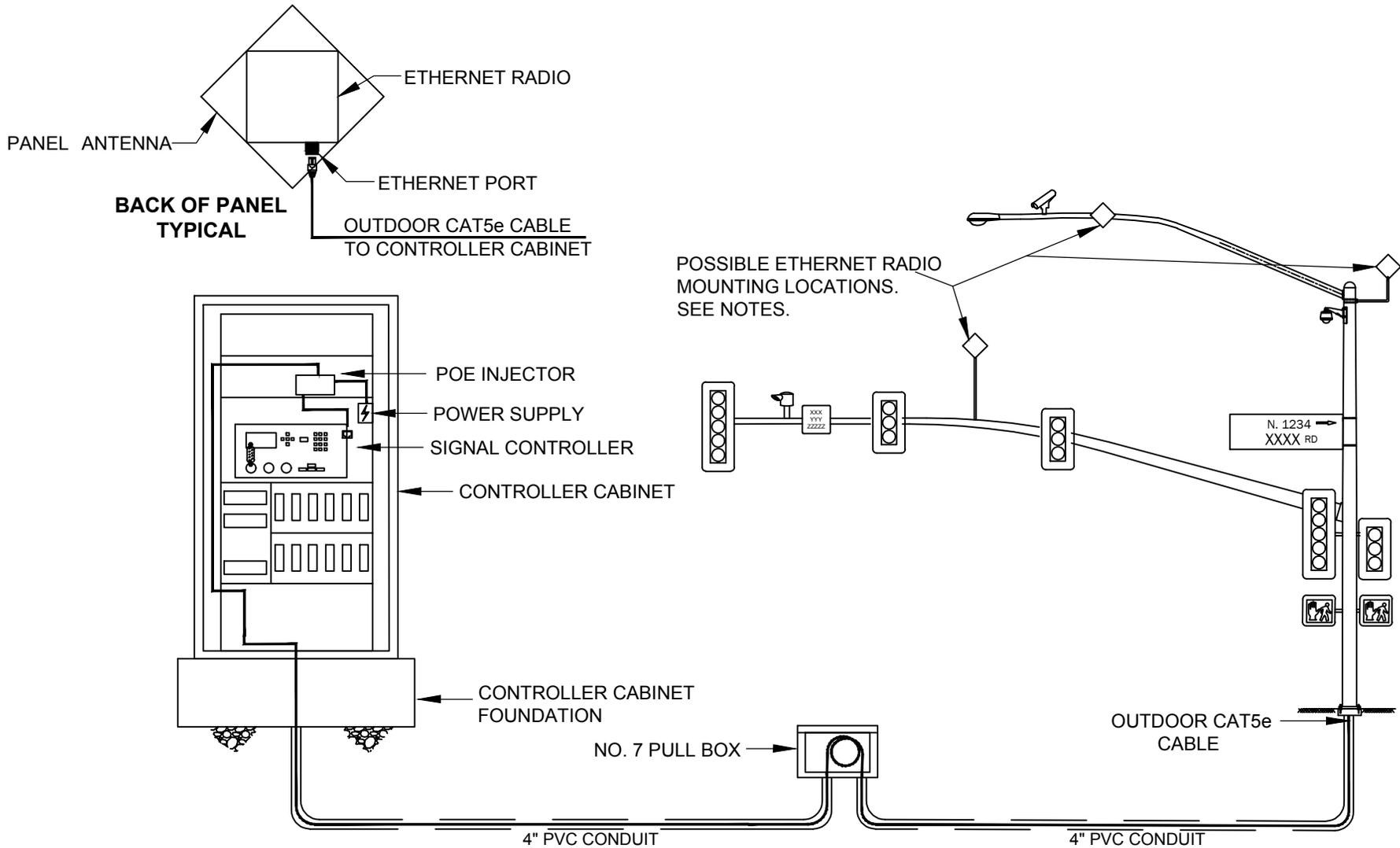
NOTES

1. Conduit contents are oriented assuming the section is facing in the direction of travel for the arterial street.
2. All spoil materials shall be removed offsite by the contractor.
3. Area shall be returned to existing grade.
4. Install 2500 lb pull tape in all inner-duct conduits. The pull tape shall be spliced in all pull boxes. There will be no splicing or tying of the pull tape between pull boxes.
5. Install #12 solid copper tracer wire with orange HMWPE coating in primary 4" conduit. All tracer wires shall be spliced together and bonded to ground rod in each pull box.
6. Controlled low strength material shall consist of one sack of portland cement per cubic yard of clean sand.

Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 9-135
IT/COMMUNICATIONS
TRENCH DETAIL



POSSIBLE ETHERNET RADIO MOUNTING LOCATIONS. SEE NOTES.

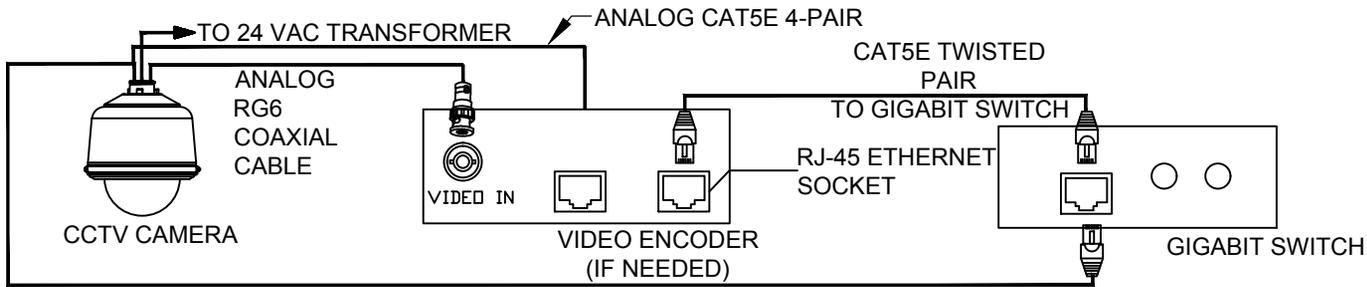
ETHERNET RADIO SCHEMATIC

NOTES

1. Panel antenna shall be mounted at location with best line-of-sight. Contact the City of Yuma for mounting location.
2. Contact the City of Yuma for mounting bracket information.
3. Orientation of the panel antenna is site specific. Contact the City of Yuma for details before installation.
4. Installation shall be according to manufacturer specifications.

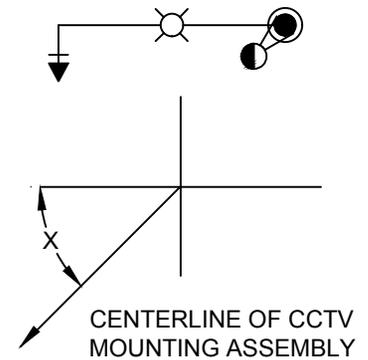
Issued: May 2019
 CITY OF YUMA
 CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 9-140
ETHERNET RADIO DETAIL

WIRING TYPICAL



IP CAT5E (SEE NOTE 5)

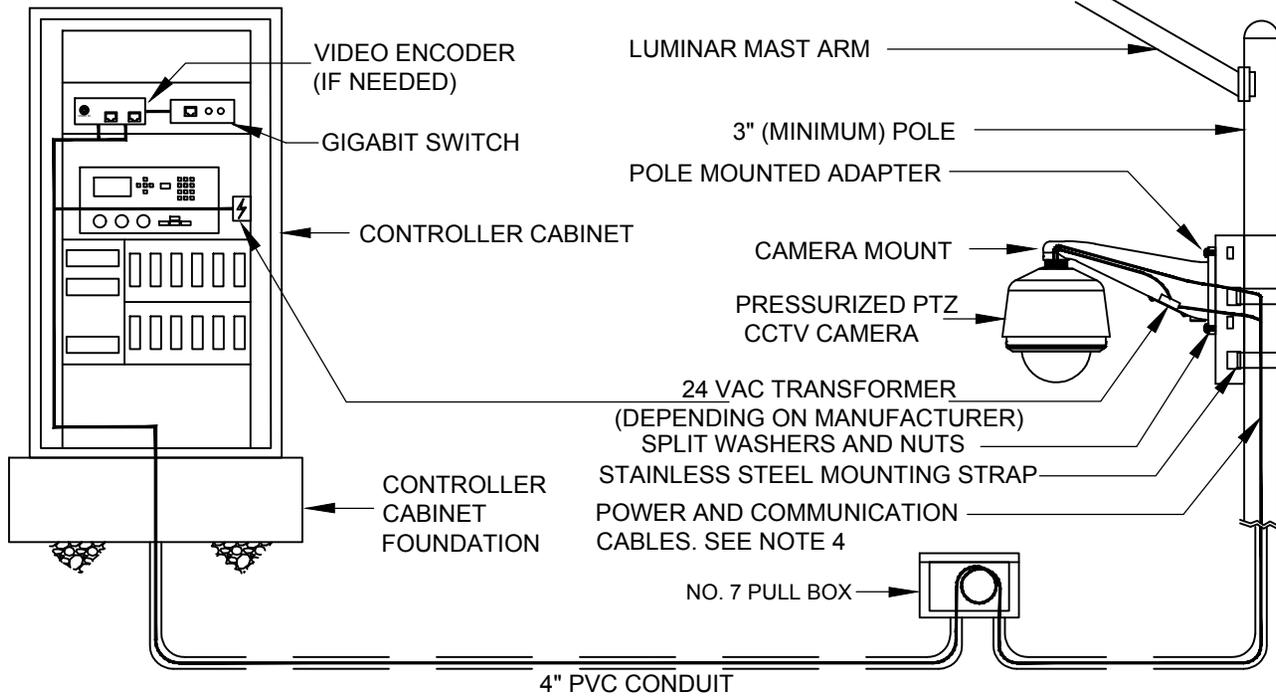
PLAN



X = THE ROTATION OF THE CCTV CAMERA SHALL BE ALIGNED TO THE POINT AT THE TRAFFIC SIGNAL POLE ON THE DIAGONALLY OPPOSITE CORNER. ALSO SEE NOTE 3.

NOTES

1. The CCTV composite cable shall be run unspliced from the CCTV to the video encoder installed in the cabinet.
2. Installation shall be according to manufacturer specifications.
3. Camera shall be mounted on the south side of the intersection. Contact the City of Yuma for specific location.
4. Contact the City of Yuma for approved CCTV camera and video encoder models and equipment.
5. If an IP CCTV camera is installed based on note 4, no video encoder is needed and the cat5 cable from the CCTV camera will connect to the gigabit switch.



CCTV SCHEMATIC

Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 9-145
CCTV CAMERA DETAIL**

VIDEO DETECTION SECIFICATIONS

Video detection system shall be Autoscope Vision.

This specification sets forth the minimum requirements for a video detection system that detects vehicles, bicycles, and motorcycles on a roadway by processing video images and that provides vehicle presence, traffic flow data, event alarms, and full-motion video for real-time traffic control and management systems.

System Hardware

The video detection system shall be comprised of two major hardware components: a video sensor and a communications interface panel. An optional wired input/output card shall be available for certain cabinet types. The video detection system shall include a video sensor that integrates a high-definition (HD) camera with an embedded processor for analyzing the video and performing detection. The processor shall support H.264 video compression for streaming output.

Communications Iterface Panel

The video detection system shall include an interface panel in the traffic panel that manages communications between the video sensors, the traffic management center, a maintenance technician, an the traffic cabinet itself. All communications to the vide sensor shall be broadband-over-power via the same three conductor cable that powers the unit. Coaxial cable shall not be required. The Wi-Fi access point shall operate simultaneously with the wired maintenance port and with the TMC connection.

Traffic Controller Connection

The communications interface panel shall provide one connection to communicate to the traffic controller through the cabinet. Power and communications for the video sensor shall be carried over a single three conductor cable. An Ethernet port shall be provided to connect to a remote Traffic Management Center (TMC). All communications to the video detection system through the TMC connection shall be to a single IP address. An 802.11g Wi-Fi access point shall allow wireless connection to the video detection system at the cabinet for setup and maintenance purposes.

System Software

The video detection system shall include management software for configuration, monitoring and data collection purposes. The real-time quad-view video stream shall be capable of displaying the overlay graphics for all four sensors simultaneously. The video detection system shall automatically collect and store traffic flow data in non-volatile memory for later retrieval and analysis. No additional hardware or software shall be necessary.

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 9-150
VIDEO DETECTION
SPECIFICATIONS

TAPER LENGTHS (L)															
feet															
Estimated 85th%-ile Speed (S) m.p.h.	Width of Transition (W)														
	feet														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
20	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
25	100	100	100	100	100	100	100	100	100	110	120	130	140	150	160
30	100	100	100	100	100	100	110	120	140	150	170	180	200	210	230
35	100	100	100	100	110	130	150	170	190	210	230	250	270	290	310
40	100	100	120	160	200	240	280	320	360	400	440	480	520	560	600
45	100	100	135	180	225	270	315	360	405	450	495	540	585	630	675
50	100	100	150	200	250	300	350	400	450	500	550	600	650	700	750
55	100	110	165	220	275	330	385	440	495	550	605	660	715	770	825
60	100	120	180	240	300	360	420	480	540	600	660	720	780	840	900
65	100	130	195	260	325	390	455	520	585	650	715	780	845	910	975
70	100	140	210	280	350	420	490	560	630	700	770	840	910	980	1050

Taper lengths computed based on the following formulas from the Manual on Uniform Traffic Control Devices (MUTCD).
Results rounded up.

L = 100 feet minimum

For speeds less than 40 m.p.h.: $L = WS^2/60$

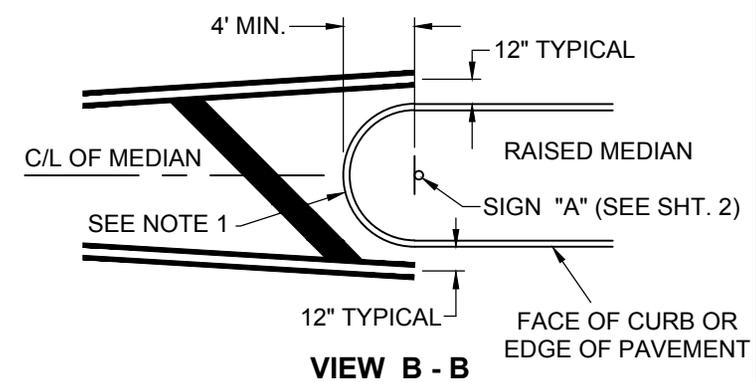
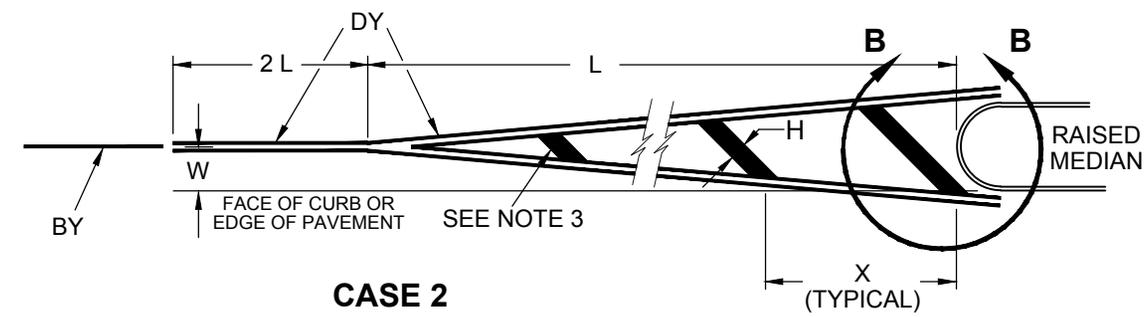
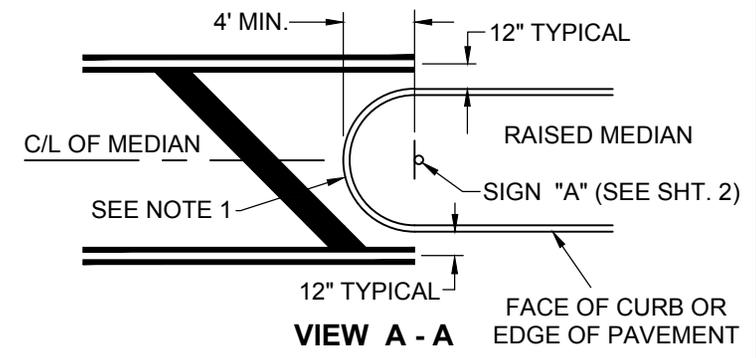
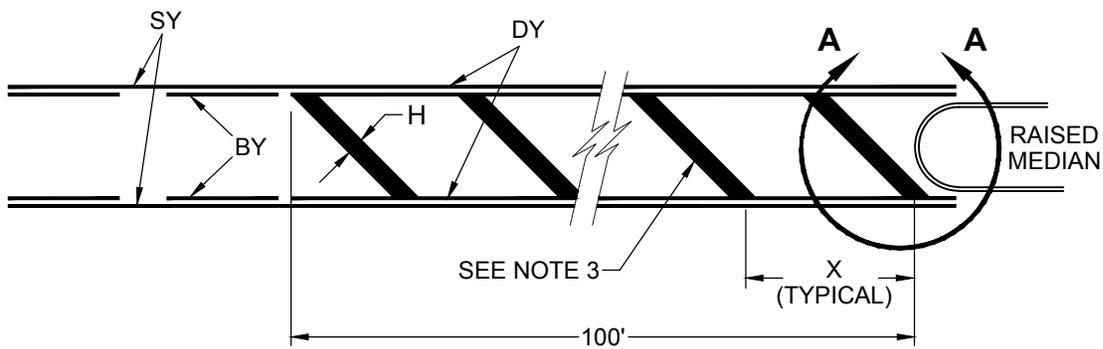
For speeds ≥ 40 m.p.h.: $L = WS$

NOTE

1. See MUTCD for taper applications for work zone/special event (temporary) traffic control.

Issued: May 2019
CITY OF YUMA CONSTRUCTION STANDARD DETAIL DRAWINGS STANDARD NO. 10-005 TAPER LENGTHS FOR PAVEMENT MARKINGS AND WORK ZONE/ SPECIAL EVENT TRAFFIC CONTROL

**CASE 1
2-WAY ROAD WITH 2-WAY LEFT TURN LANE**



**CASE 2
2-WAY ROAD WITHOUT 2-WAY LEFT TURN LANE**

LEGEND

W	WIDTH OF TRANSITION MEASURED IN FEET.	SY	SINGLE 6" SOLID YELLOW LINE
L	LENGTH OF TAPER MEASURED IN FEET (SEE STD. DTL. 10-005).	BY	SINGLE 6" BROKEN YELLOW LINE
S	85TH PERCENTILE SPEED (NOT SPEED LIMIT) OF APPROACHING TRAFFIC.	H	12" SOLID YELLOW DIAGONAL LINE (45°)
DY	DOUBLE 6" SOLID YELLOW LINES 4" APART	X	20' UNLESS OTHERWISE NOTED.

NOTES

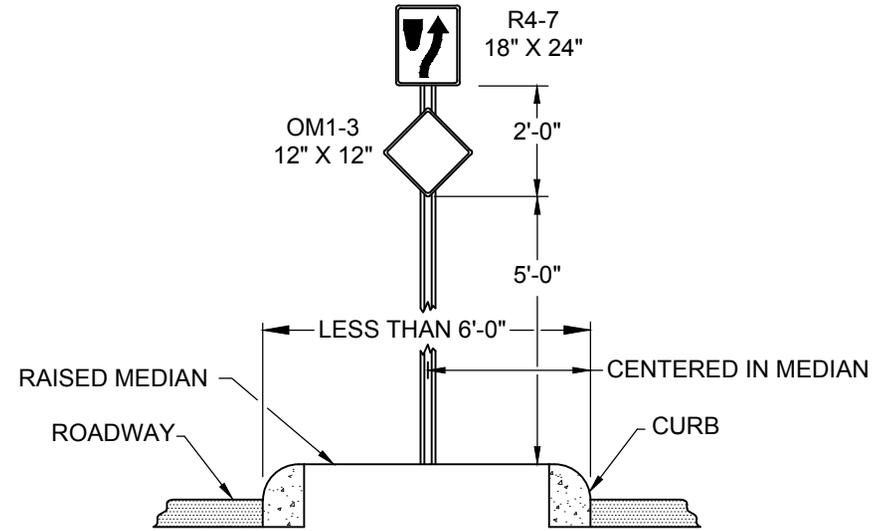
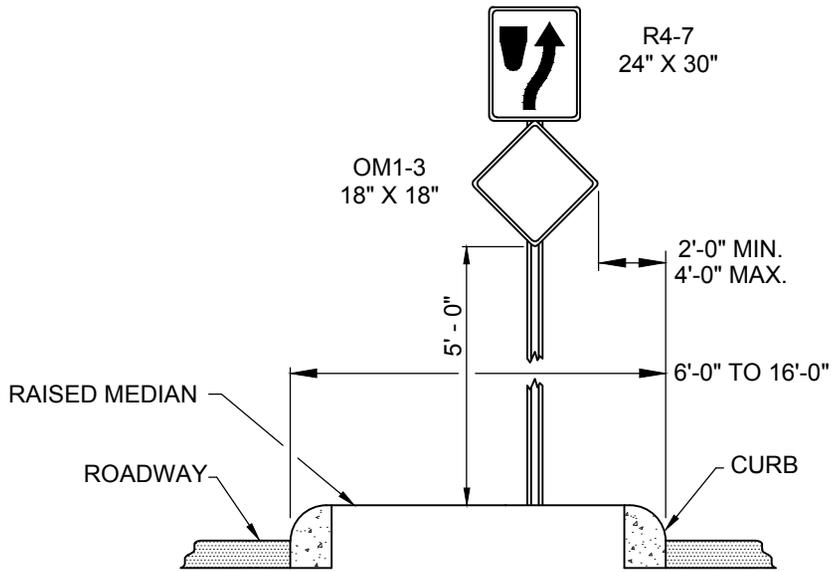
1. Paint or treat curb face with yellow reflective material on rounded portion.
2. The signs and markings shown are intended for the beginning of a median. Signs and markings shall not be used at median breaks unless roadway alignment shall attract a vehicle to the left.
3. Install crosshatch lines in divergence at interval 'x' but not when space between divergence markings is less than five (5) feet.

Issued: May 2019 Sheet 1 of 2

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 10-010
APPROACH END TREATMENT
FOR MEDIANS**

PLACEMENT OF SIGN "A"



NOTE

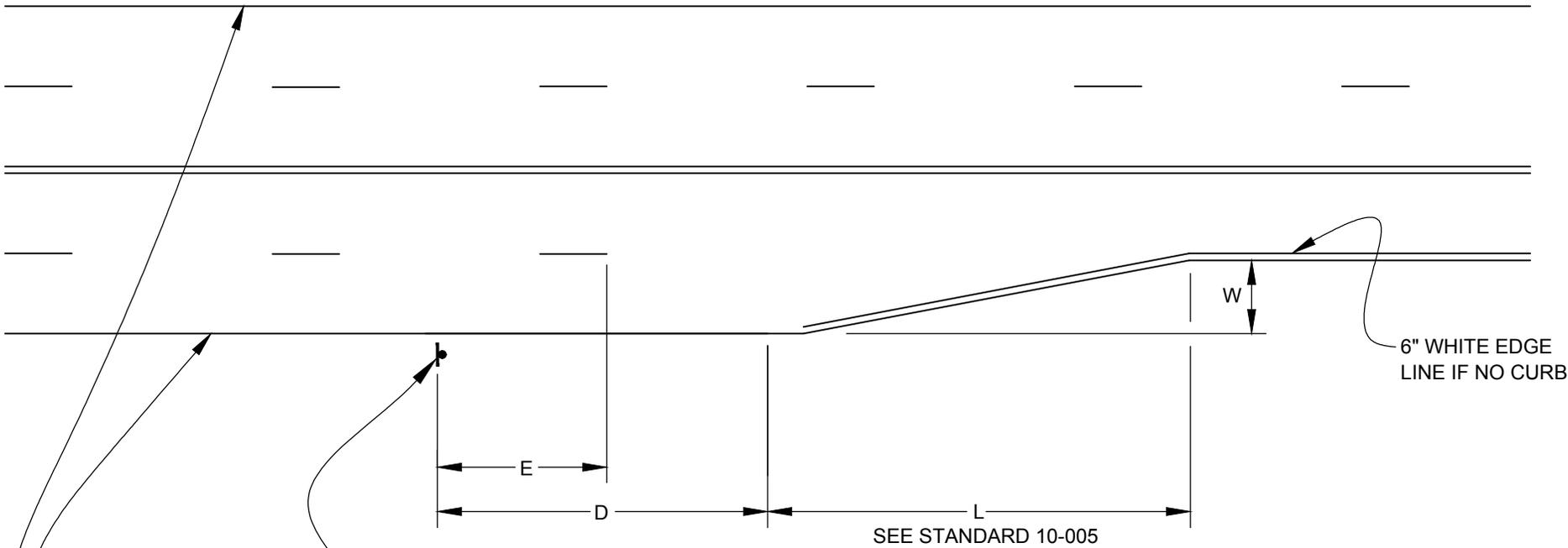
1. Refer to Standard Detail 8-020 for post material specifications, installation and approved assembly.

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Sheet 2 of 2

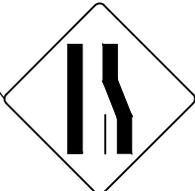
CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 10-010
APPROACH END TREATMENT
FOR MEDIANS



6" WHITE EDGE LINE IF NO CURB

EDGE OF PAVEMENT



W4-2
36"X36"

SEE STANDARD 10-005

85%-ile Approach Speed (MPH)	D (FEET)	E* (FEET)
<=30	200	30-70
>30, <50	300	55-95
=>50	400	80-120

* DESIGN FOR MID-POINT

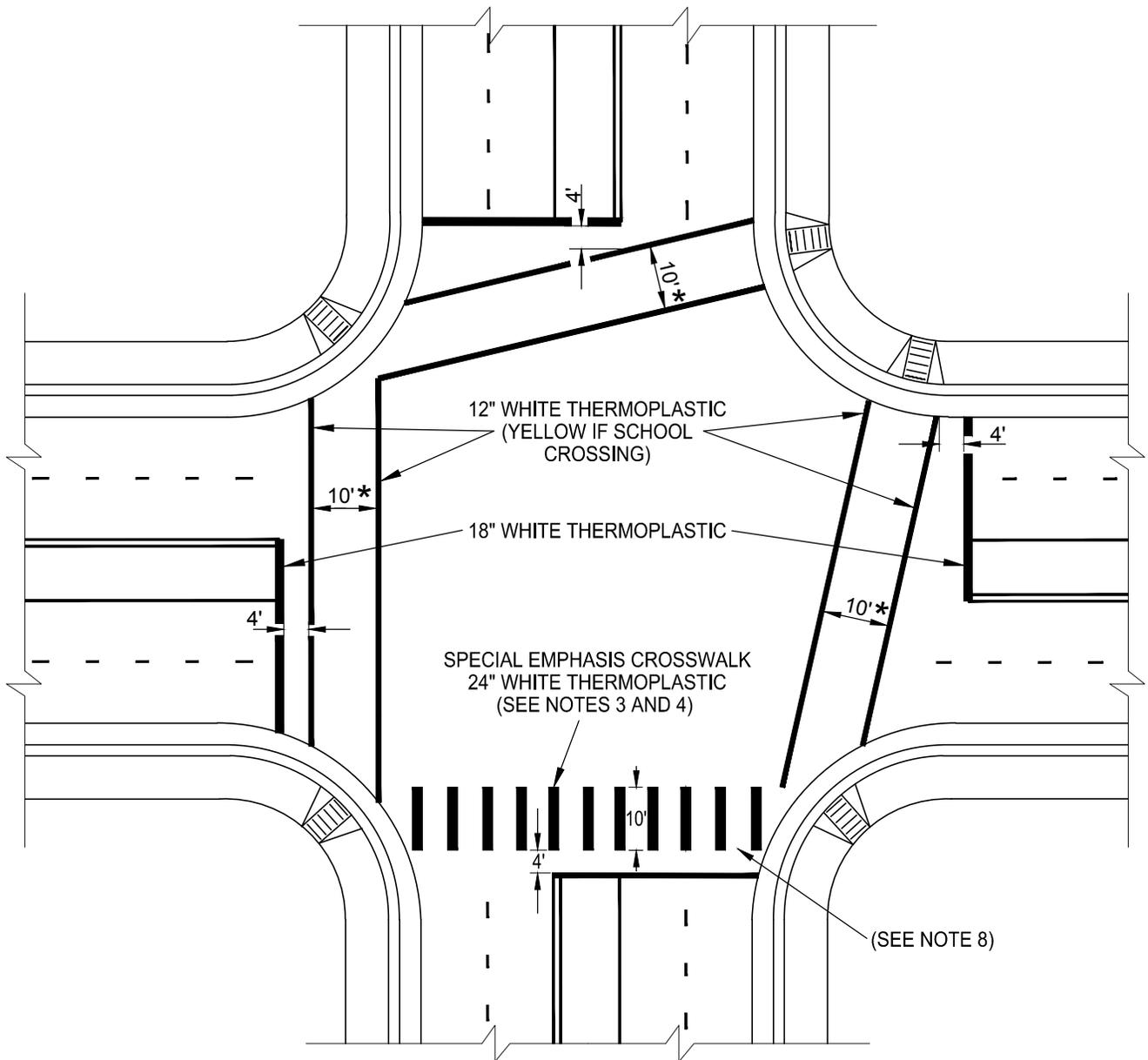
NOTE

- 1. Sign W9-1 is not required.

Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 10-015
LANE DROP SIGNING
AND MARKING**



NOTES

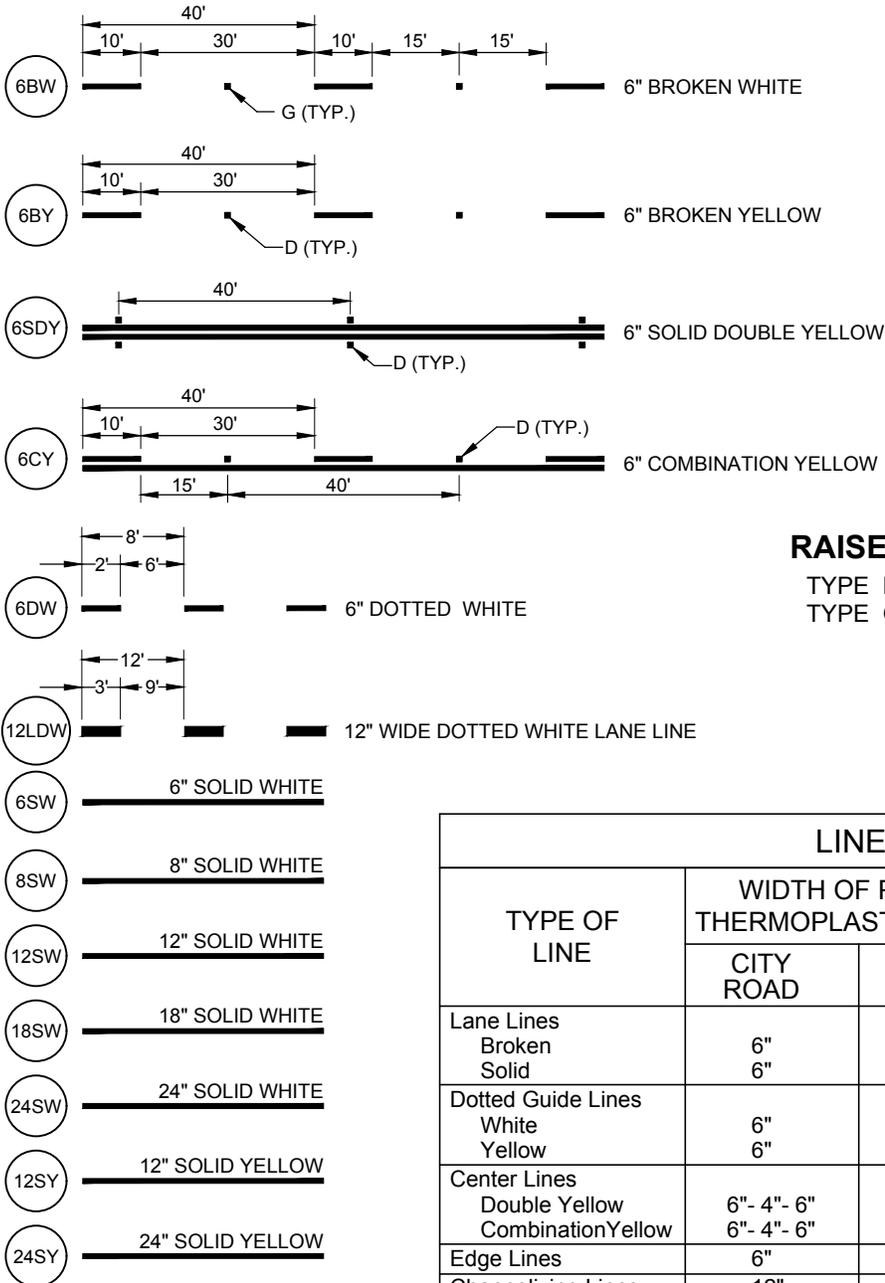
1. Thermoplastic pavement markings shall be 90 mils thick (minimum) and meet all ADOT specifications.
2. The markings must contain 30% to 40% (by weight) reflective glass inter-mixed beads. An additional 10lbs of glass beads must be evenly applied to the surface of the molten material per 100 sq. ft. of line.
3. Special emphasis crosswalks to be used only as directed by the City Traffic Engineer.
4. Special emphasis crosswalk lines to be centered on lane lanes and centers of lanes.
5. Crosswalks will generally not be used at unsignalized intersections except for designated school crossings and other locations approved by the City Traffic Engineer.
6. See standard 10-025.

* CENTER TO CENTER OF MARKINGS.

7. For school crossing signing and marking, refer to ADOT guide: ADOT Traffic Safety for School Area Guidelines.
8. Spacing between crosswalk bars shall be a maximum of 60 inches and shall avoid wheel paths.

Issued: May 2019
CITY OF YUMA CONSTRUCTION STANDARD DETAIL DRAWINGS STANDARD NO. 10-020 INTERSECTION PAVEMENT MARKINGS

PAINTED OR THERMOPLASTIC LINES



RAISED PAVEMENT MARKER TYPES

TYPE D YELLOW, TWO-WAY (REFLECTIVE)
TYPE G CLEAR (REFLECTIVE)

LINE USES				
TYPE OF LINE	WIDTH OF PAINT OR THERMOPLASTIC (INCHES)		SYMBOL	
	CITY ROAD	ADOT ROAD	CITY ROAD	ADOT ROAD
Lane Lines Broken Solid	6" 6"	6" 12"	6SW 6BW	6BW 12SW or WWL
Dotted Guide Lines White Yellow	6" 6"	4" 4"	6DW 6DY	4DW 4DY
Center Lines Double Yellow Combination Yellow	6"- 4"- 6" 6"- 4"- 6"	6"- 4"- 6" 6"- 4"- 6"	6SDY 6CY	6SDY 6CY
Edge Lines	6"	6"	6SW	6SW
Channelizing Lines	12"	12"	12SW	12SW
Gore Lines	12"	12"	12SW	12SW
Crosswalk Lines	12"	12"	12SW	12SW
Stop Bars	18"	18"	SB	SB
Chevron & Slash Lines White Yellow	12" 12"	12" 12"	CHW CHY	CHW CHY
Pavement Legends Arrow				
1 Head	---	---	1AR	1AR
2 Head	---	---	2AR	2AR
3 Head	---	---	3AR	3AR

NOTES

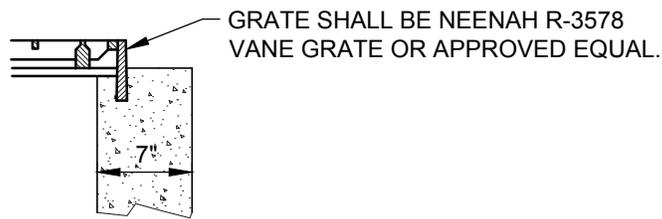
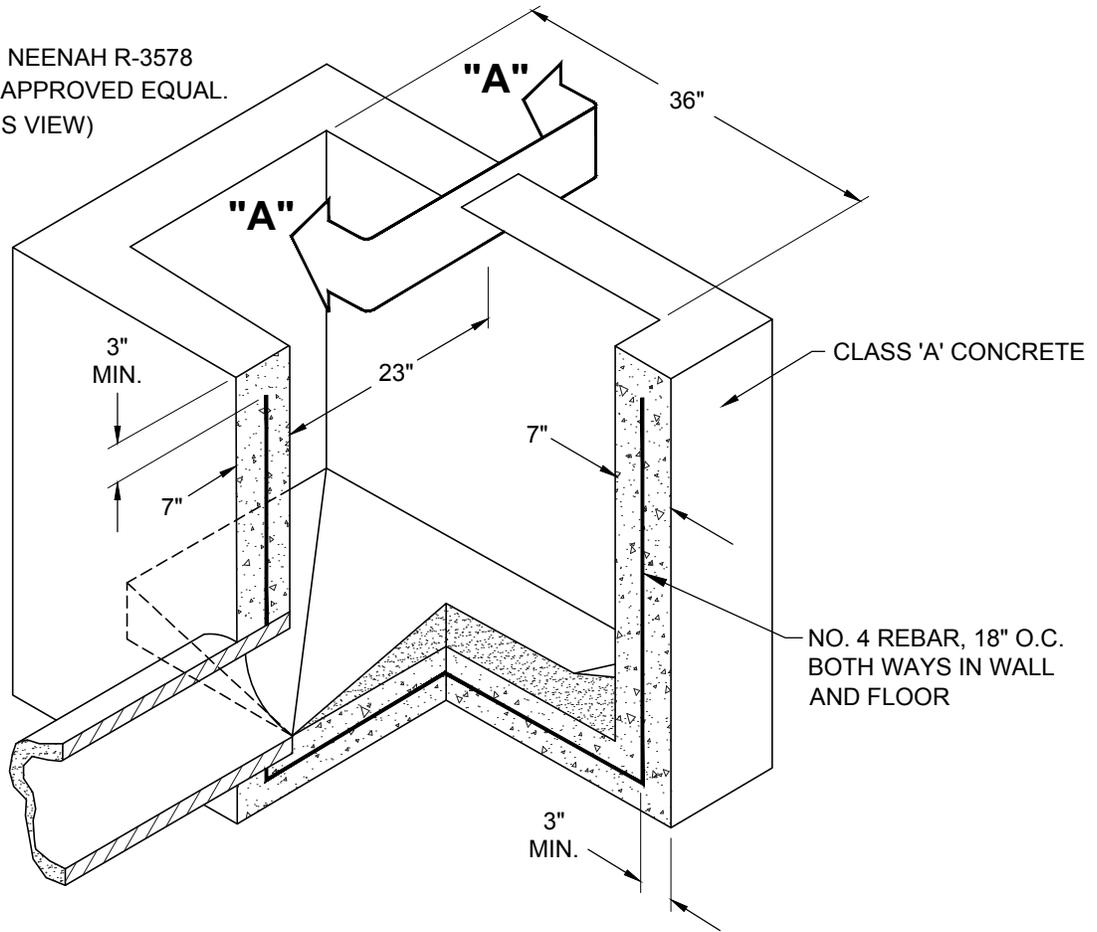
1. See Arizona Department of Transportation Drawing M-19 for raised pavement marker design.
2. Double lines must be 4" (nominal) apart, regardless of material.
3. Longitudinal lines must be painted or thermoplastic unless otherwise noted.
4. Transverse, chevron and slash lines must be thermoplastic unless otherwise noted.

Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 10-025
PAVEMENT MARKING
DEFINITIONS**

GRATE SHALL BE NEENAH R-3578
VANE GRATE OR APPROVED EQUAL.
(REMOVED IN THIS VIEW)

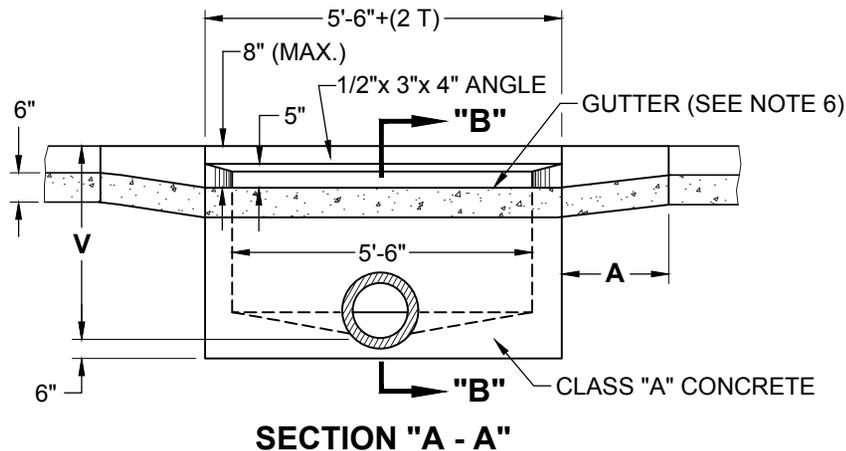
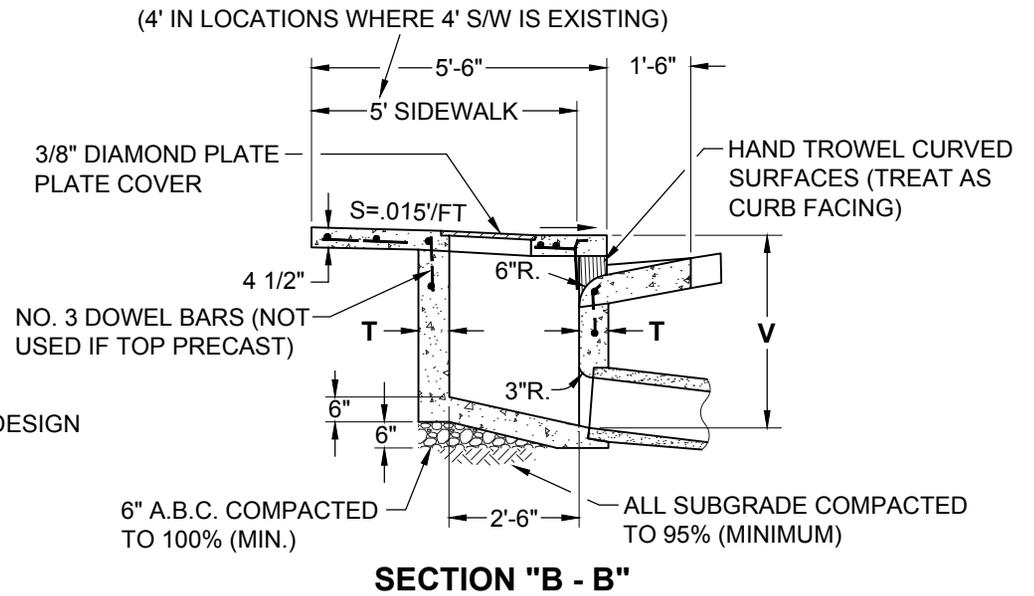
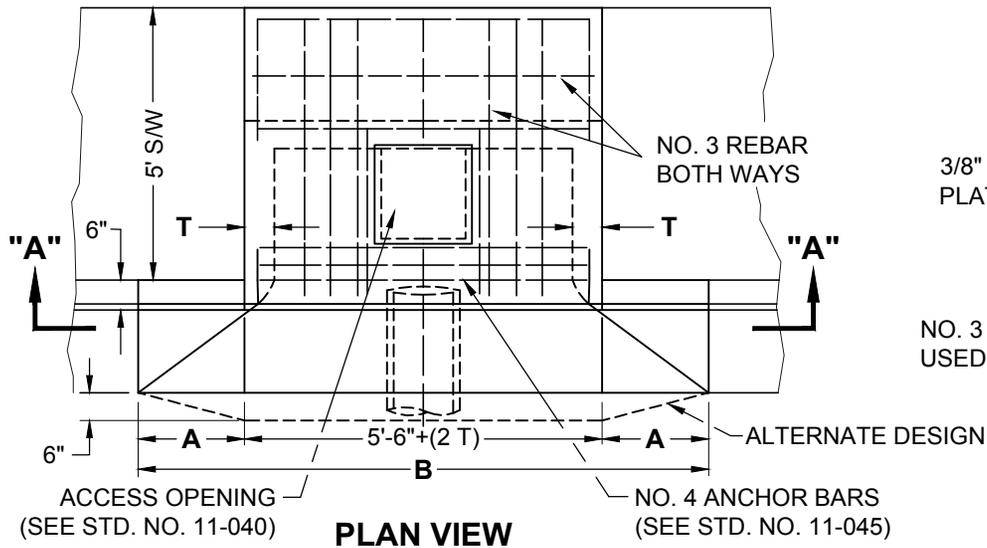


SECTION "A - A"

NOTES

1. Pipes may enter or leave any wall. Bottom of box shall be sloped to outlet pipe from all directions and trowelled to a hard smooth surface.
2. Connection pipes may be placed in any position around the walls provided the position is consistent with the plan.
3. Outlet pipe shall be trimmed to final shape and length before concrete is poured.
4. All structural steel and castings to be painted one shop coat and two field coats of *INDUSTRION* OSHA safety green (or approved equal).
5. Provide no. 4 rebar, 18" o.c. both ways in wall and floor.

Issued: May 2019
<p>CITY OF YUMA CONSTRUCTION STANDARD DETAIL DRAWINGS</p> <p>STANDARD NO. 11-005 TYPE A CATCH BASIN FOR USE WITHOUT CURB & GUTTER</p>



NOTES

1. The entire catch basin cover may be pre-cast or poured in place.
2. Connection pipes may be placed in any position around the walls provided the position is consistent with the plan.
3. Outlet pipe shall be trimmed to final shape and length before concrete is poured.
4. Floor of basin shall be trowelled to a hard smooth surface and shall slope from all directions towards outlet.
5. All structural steel and castings to be painted one shop coat and two field coats *INDUSTRION* OSHA safety green (or approved equal).
6. Gutter shall not be depressed from a straight line grade to create a bump.
7. See std. detail no. 11-040 for details common to all curb opening basins.

DIMENSIONS

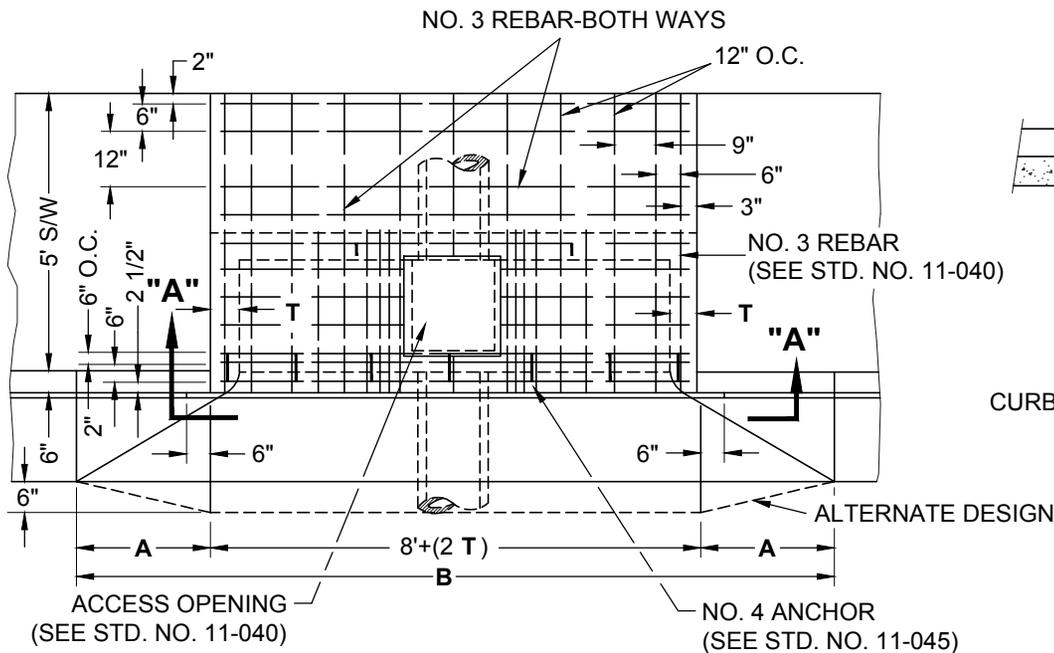
CURB	A	B
4"	3'-3"	13'
6"	1'-9"	10'
7"	1'	8'-9"

T = 6" IF V = 4' OR LESS.
 T = 8" IF V IS BETWEEN 4' AND 8'.
 T = 10" IF V IS 8' OR MORE (IF V EXCEEDS 10' A SPECIAL DESIGN IS REQUIRED)
 V = 3'-6" UNLESS OTHERWISE NOTED.

Issued: May 2019

CITY OF YUMA
 CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 11-010
TYPE B CATCH BASIN
5' TO 6' CURB OPENING WITH ACCESS



PLAN VIEW

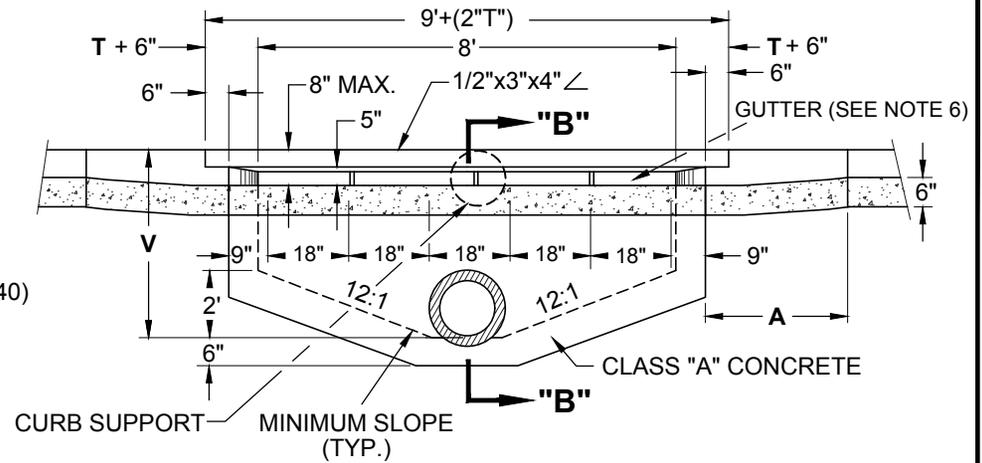
DIMENSIONS

CURB	A	B
4"	3'-3"	15'-6"
6"	1'-9"	12'-6"
7"	1'	11'

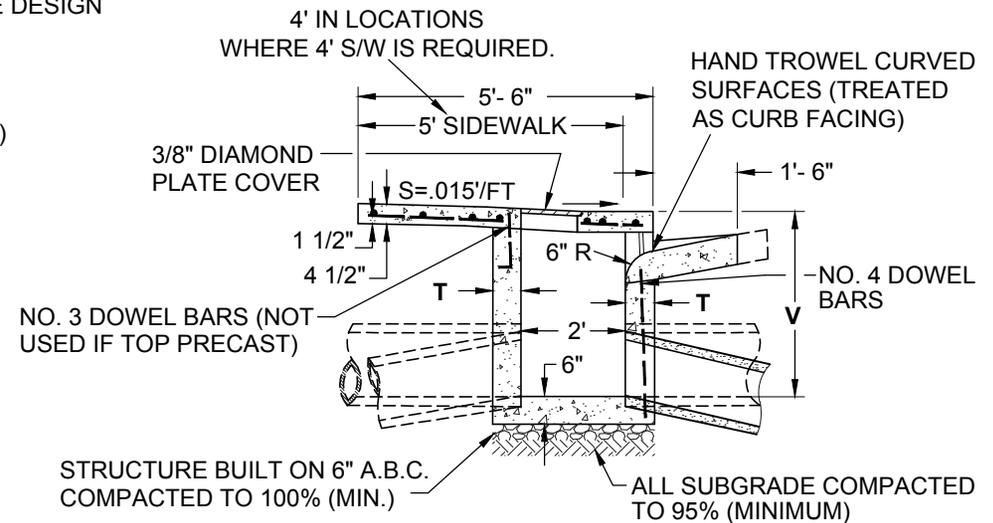
T = 6" IF V = 4' OR LESS.
 T = 8" IF V IS BETWEEN 4' AND 8'.
 T = 10" IF V IS 8' OR MORE (IF V EXCEEDS 10' A SPECIAL DESIGN IS REQUIRED)
 V = 4'-0" UNLESS OTHERWISE NOTED.

NOTES

1. The entire catch basin cover may be pre-cast or poured in place.
2. Connection pipes may be placed in any position around the walls provided the position is consistent with the plan.
3. Outlet pipe shall be trimmed to final shape and length before concrete is poured.
4. Floor of basin shall be trowelled to a hard smooth surface and shall slope from all directions towards outlet.
5. All structural steel and castings to be painted one shop coat and two field coats of *INDUSTRION* OSHA safety green (or approved equal).
6. Gutter shall not be depressed from a straight line grade.
7. See standard no. 11-045 for details common to all curb opening basins.



SECTION "A - A"



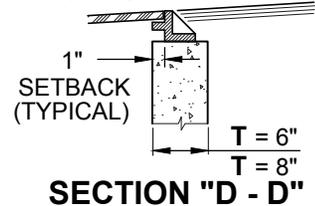
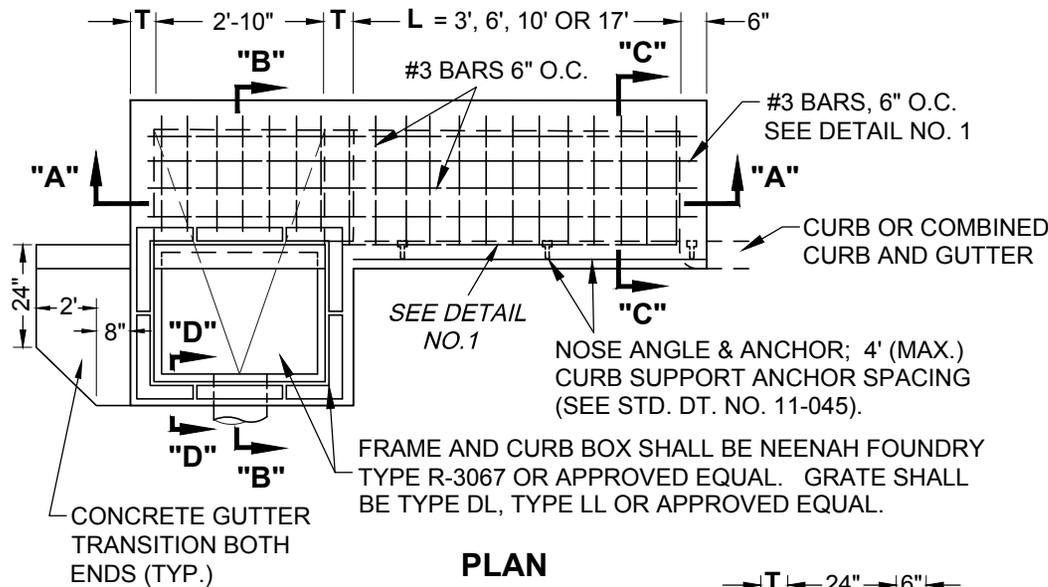
SECTION "B - B"

Issued: May 2019

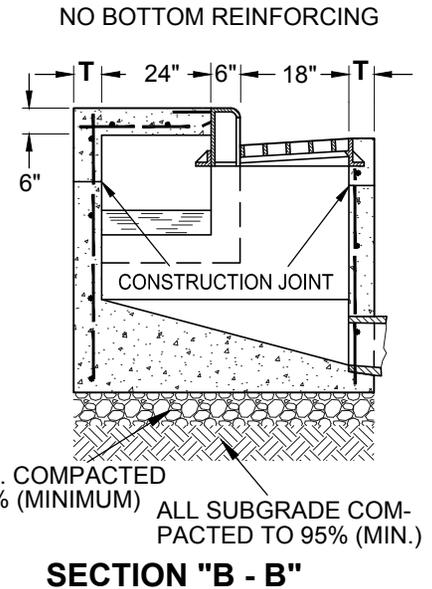
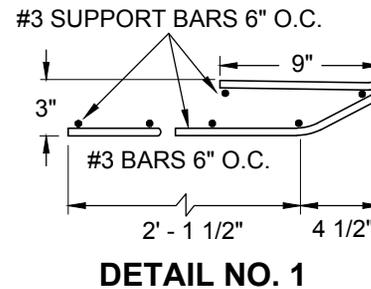
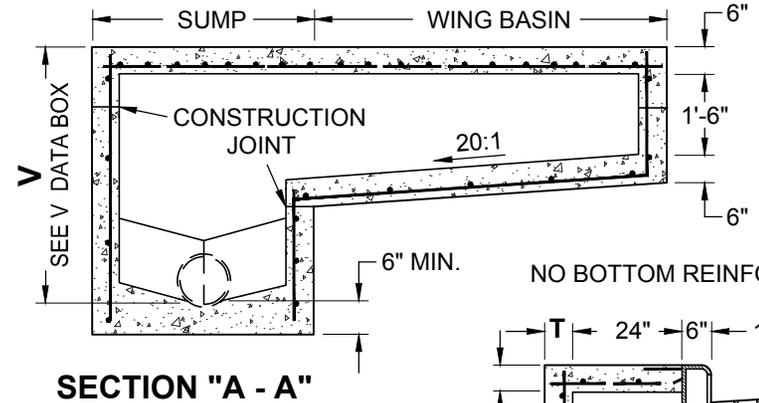
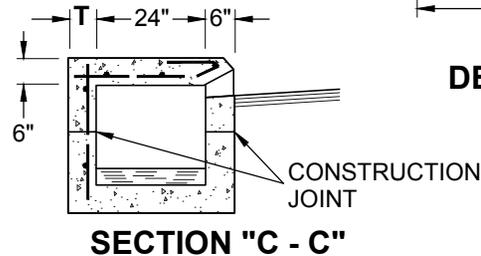
CITY OF YUMA
 CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 11-015
TYPE C CATCH BASIN
8' CURB OPENING WITH ACCESS

NOTE: REINFORCING BARS SHOWN ARE FOR ROOF SLAB ONLY. SEE SECTIONS AND NOTE NO. 5 FOR OTHER REINFORCING REQUIREMENTS.



PLAN



NOTES

1. Single catch basin with sump and wing basin upstream (illustrated).
2. Double catch basin sump with symmetrical wing basins each side.
3. Pipes can be placed in any wall except wall under wing basin.
4. Sump floor shall have a wood trowel finish and a minimum slope of 4:1 in all directions towards outlet pipe.
5. All reinforcing bars shall be #4, 18" O.C. both ways and 1 1/2" clear to inside of walls and outside of wing basin floor except as shown.
6. All concrete shall be Class A per MAG Section 725.
7. Construction joints shall be placed to meet field conditions.
8. $T = 6"$ when V is less than 8' and 8" when greater than 8', see section "D-D".
9. Gutter shall not be depressed from a straight line grade to create a bump.
10. All structural steel and castings to be painted one shop coat and two field coats of *INDUSTRION* OSHA safety green paint or approved equal.
11. See Standard no. 11-045 for details common to all curb opening basins.

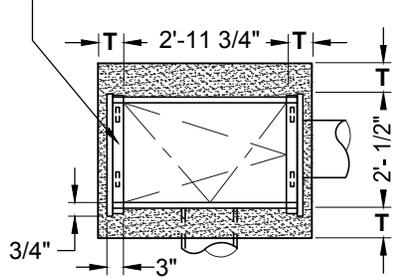
$V = 3'-3"$ MIN. WHEN $L = 3'$
 $V = 3'-5"$ MIN. WHEN $L = 6'$
 $V = 3'-7"$ MIN. WHEN $L = 10'$
 $V = 4'-0"$ MIN. WHEN $L = 17'$
 V DOUBLES FOR SYMMETRICAL WINGS.

Issued: May 2019

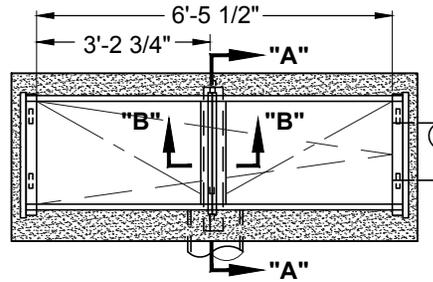
CITY OF YUMA
 CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 11-020
 TYPE D CATCH BASIN**

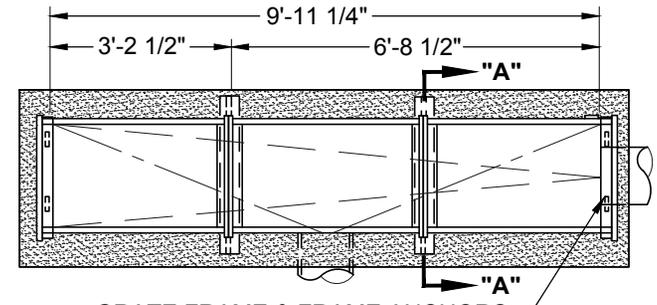
GRATE FRAME AND FRAME ANCHORS



SINGLE CATCH BASIN PLAN

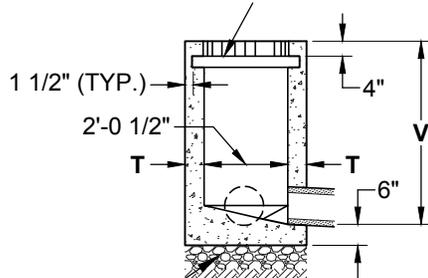


DOUBLE CATCH BASIN PLAN

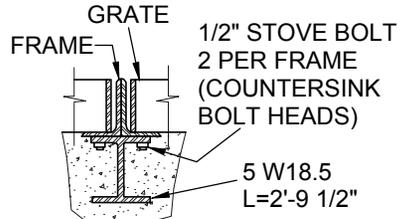


GRATE FRAME & FRAME ANCHORS
TRIPLE CATCH BASIN PLAN

GRATE SUPPORT FOR DOUBLE & TRIPLE ONLY SEE **SECT. "B - B"**

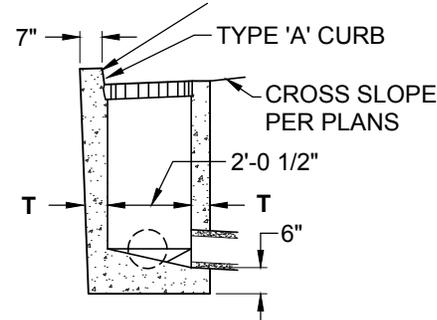


SECTION "A - A"

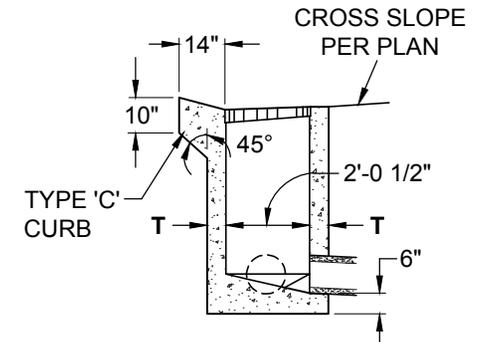


SECTION "B - B"

INSIDE OF GRATE FRAME TO BE FLUSH WITH CURB FACE



TYPE E CATCH BASIN IN VERTICAL CURB & GUTTER



TYPE E CATCH BASIN IN ROLL CURB & GUTTER

NOTES

1. All concrete shall be Class A per MAG Section 725.
2. Connector pipes may be placed in any wall as per plan.
3. Floor of basin shall be trowelled to a hard smooth surface and shall slope from all directions towards outlet pipe.
4. Connector pipe shall be trimmed to final shape and length before concrete is poured.
5. Plans should specify grate and invert elevations.
6. The Type E catch basin may be prefabricated providing that a shop drawing is approved by the city engineer prior to fabrication.
7. The frame and grate shall be Neenah R-3076, R-3077 or approved equal.
8. Gutter shall not be depressed from a straight line grade to create bump.
9. Catch basins shall contain #4 rebar 18" c to c in walls and floors.
10. All structural steel and castings shall be painted one shop coat and two field coats of *INDUSTRION* OSHA safety green paint or approved equal.

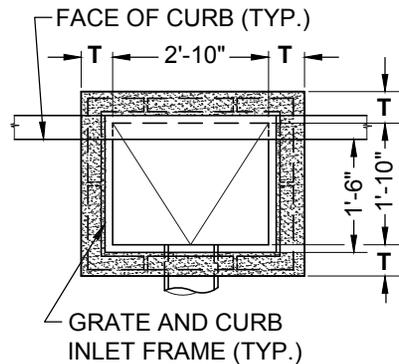
CATCH BASIN WALL THICKNESS

- T = 6" IF V IS 4' OR LESS
- T = 8" IF V IS 4' TO 8' (IF V EXCEEDS 8' A SPECIAL DESIGN IS REQUIRED)
- V = 3'-0" UNLESS OTHERWISE NOTED

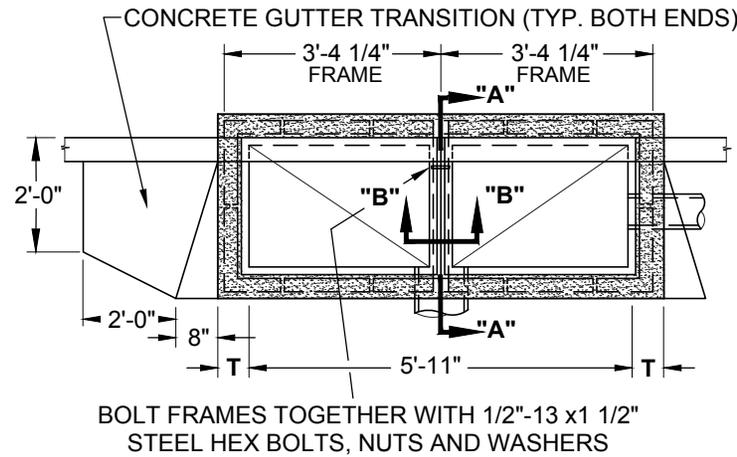
Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

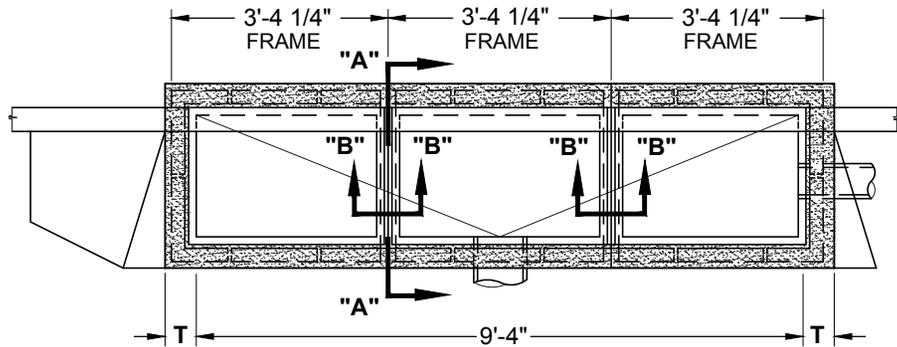
STANDARD NO. 11-025
TYPE E CATCH BASIN
SINGLE, DOUBLE OR TRIPLE GRATE



SINGLE CATCH BASIN PLAN

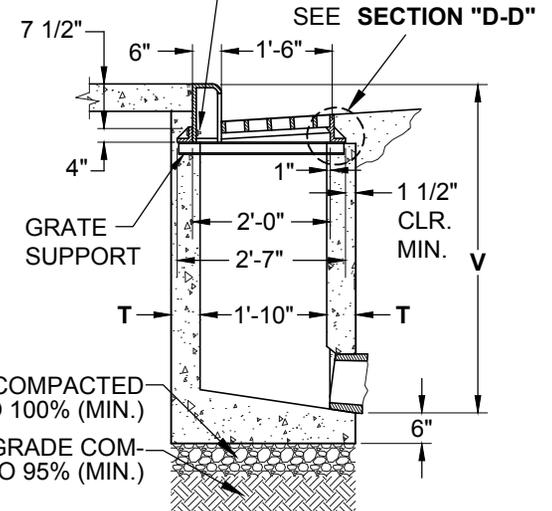


DOUBLE CATCH BASIN PLAN

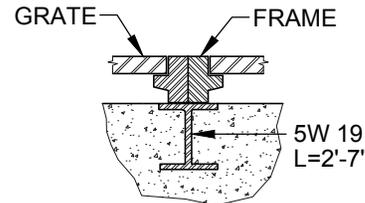


TRIPLE CATCH BASIN PLAN

BOLT CURB BOX TO FRAME WITH TWO 1/2"-13 x 2 1/2" LG. STEEL HEX HD. BOLTS, NUTS, AND WASHERS



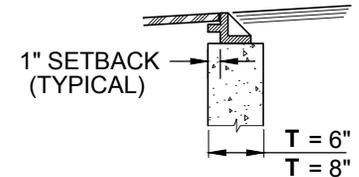
SECTION "A - A"



SECTION "B - B"

CATCH BASIN WALL THICKNESS

- T = 6" IF V IS LESS THAN 8'
- T = 8" IF V IS GREATER THAN 8'



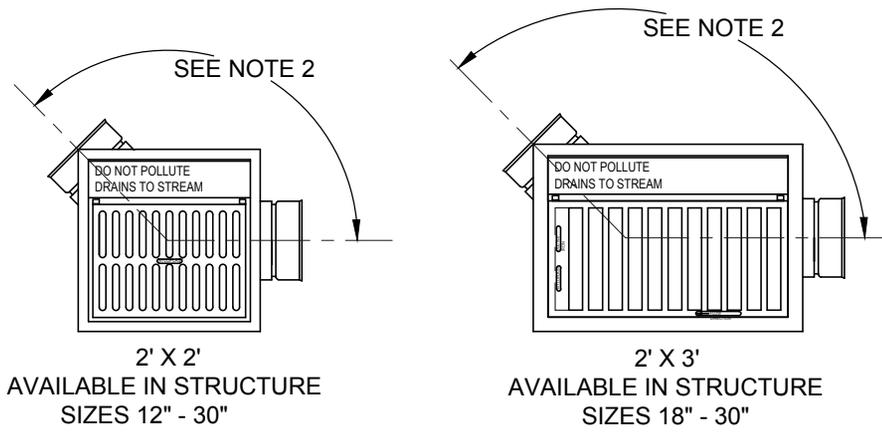
SECTION "D - D"

NOTES

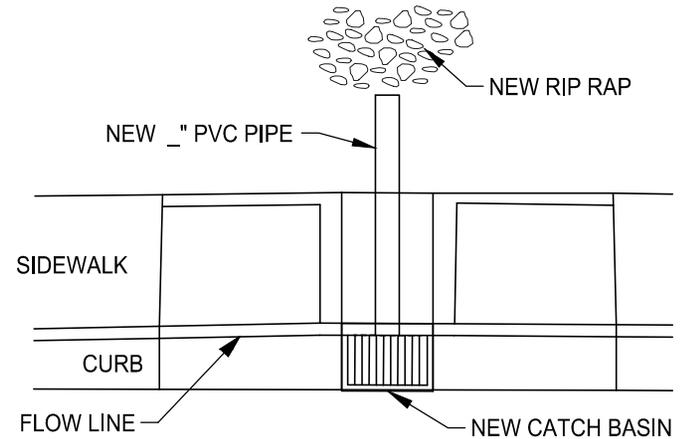
1. All concrete shall be Class A per MAG Section 725.
2. Connector pipes may be placed in any wall as per plan.
3. Floor of basin shall be trowelled to a hard surface and shall slope from all directions to outlet pipe.
4. Connector pipe shall be trimmed to the final shape and length before the concrete is poured.
5. The single frame & curb box shall be a Neenah Type R-3067 or approved equal. The double and triple frame and curb box shall be a Neenah Type R-3295-A, R-3295-B or approved equal. The grates shall be Type DL, LL, or approved equal.
6. Gutter shall not be depressed from a straight line grade to create bump.
7. Catch basins shall contain #4 Rebar placed 18" c to c in walls & floors.
8. All structural steel and castings to be painted one shop coat and two field coats of *INDUSTRION* OSHA safety green (or approved equal).

Issued: May 2019

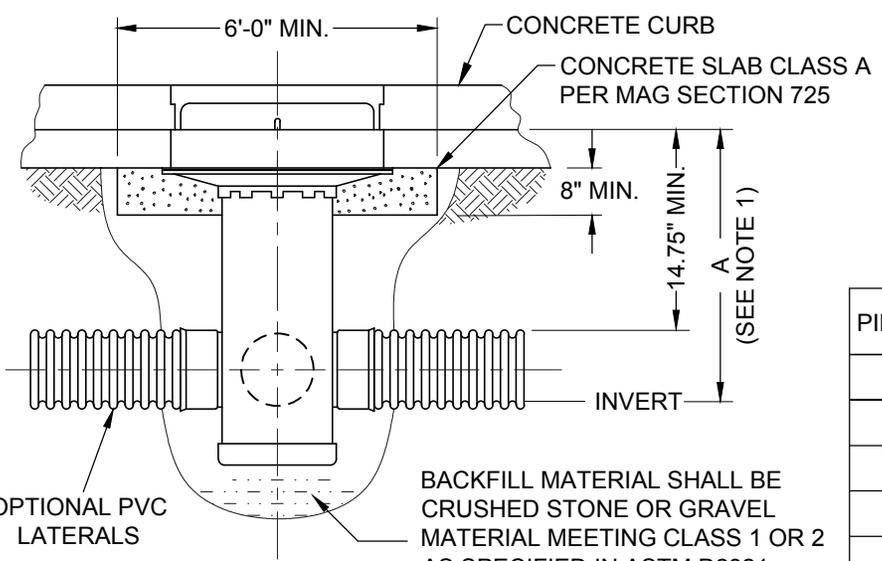
CITY OF YUMA
 CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 11-030
TYPE F CATCH BASIN
CURB OPENING WITH
SINGLE, DOUBLE OR TRIPLE GRATE



AVAILABLE IN STRUCTURE SIZES



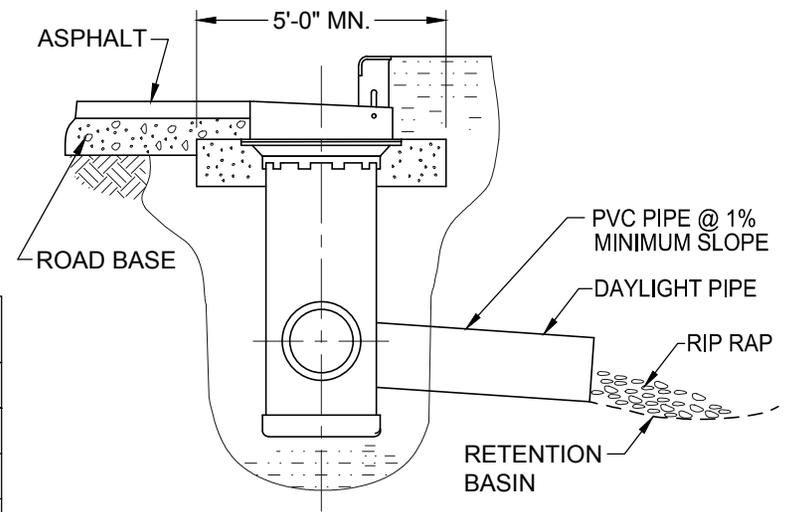
PLAN VIEW



FRONT VIEW

BACKFILL MATERIAL SHALL BE CRUSHED STONE OR GRAVEL MATERIAL MEETING CLASS 1 OR 2 AS SPECIFIED IN ASTM D2321 BACKFILL MATERIAL SHALL BE PLACED UNIFORMLY IN 12" LIFTS AND COMPACTED

PIPE SIZE	A (ADS N-12 PIPE)
4"	20.00"
6"	22.00"
8"	24.00"
10"	26.00"
12"	29.00"
15"	32.00"
18"	35.00"
24"	42.00"
30"	48.00"



SIDE VIEW

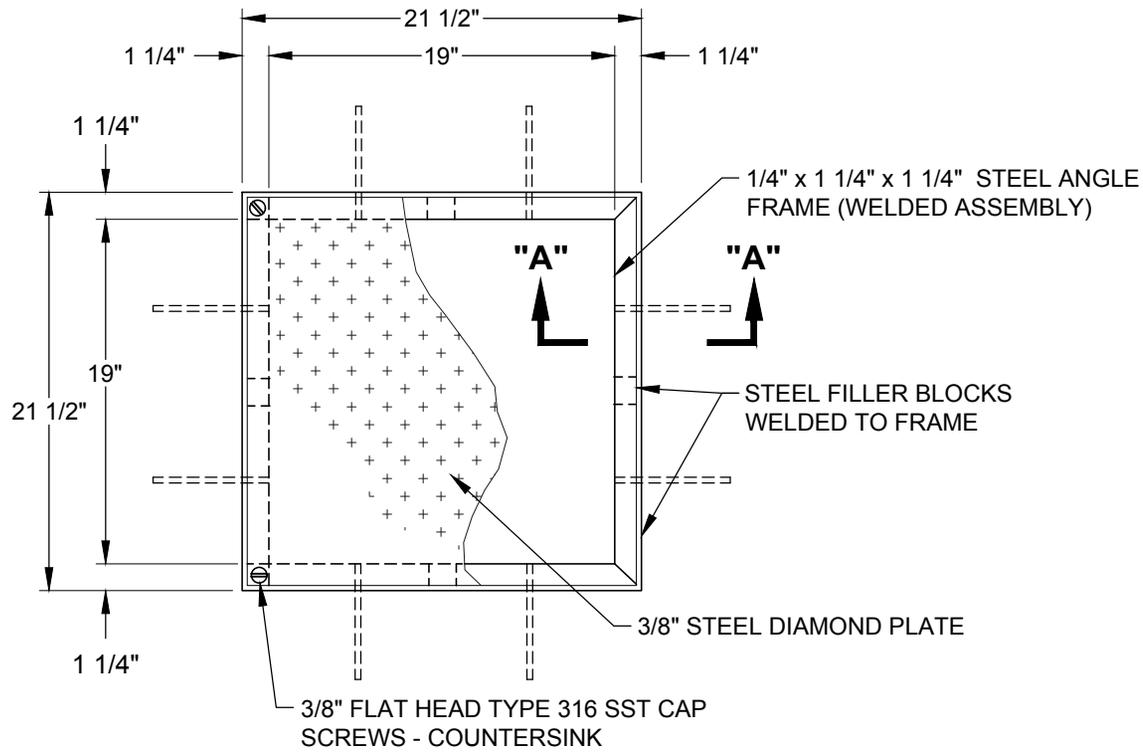
NOTES

1. Maximum recommended overall height 10'.
2. Adapters can be mounted at any angle 0° to 359°.
3. Use Nyloplast or approved equal

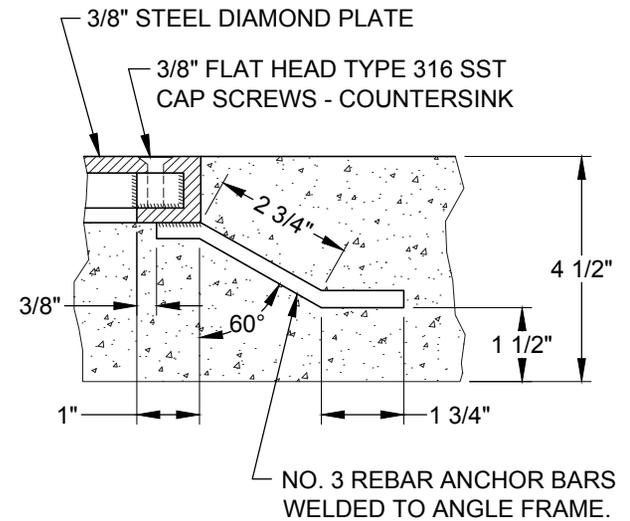
Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 11-035
CATCH BASIN WITH
HDPE STRUCTURE**



PLAN VIEW



SECTION "A - A"

APPLIES TO:

TYPE B CATCH BASIN (STD. DT. NO. 11-010)
 TYPE C CATCH BASIN (STD. DT. NO. 11-015)

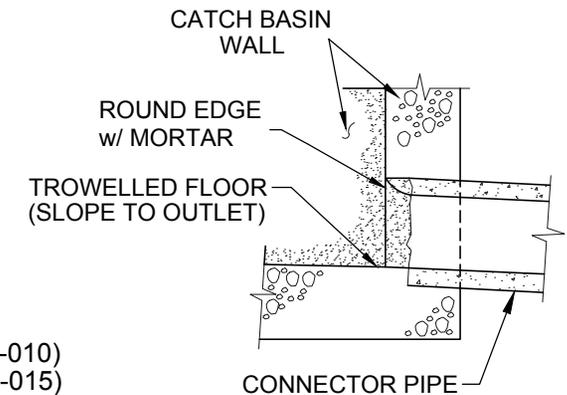
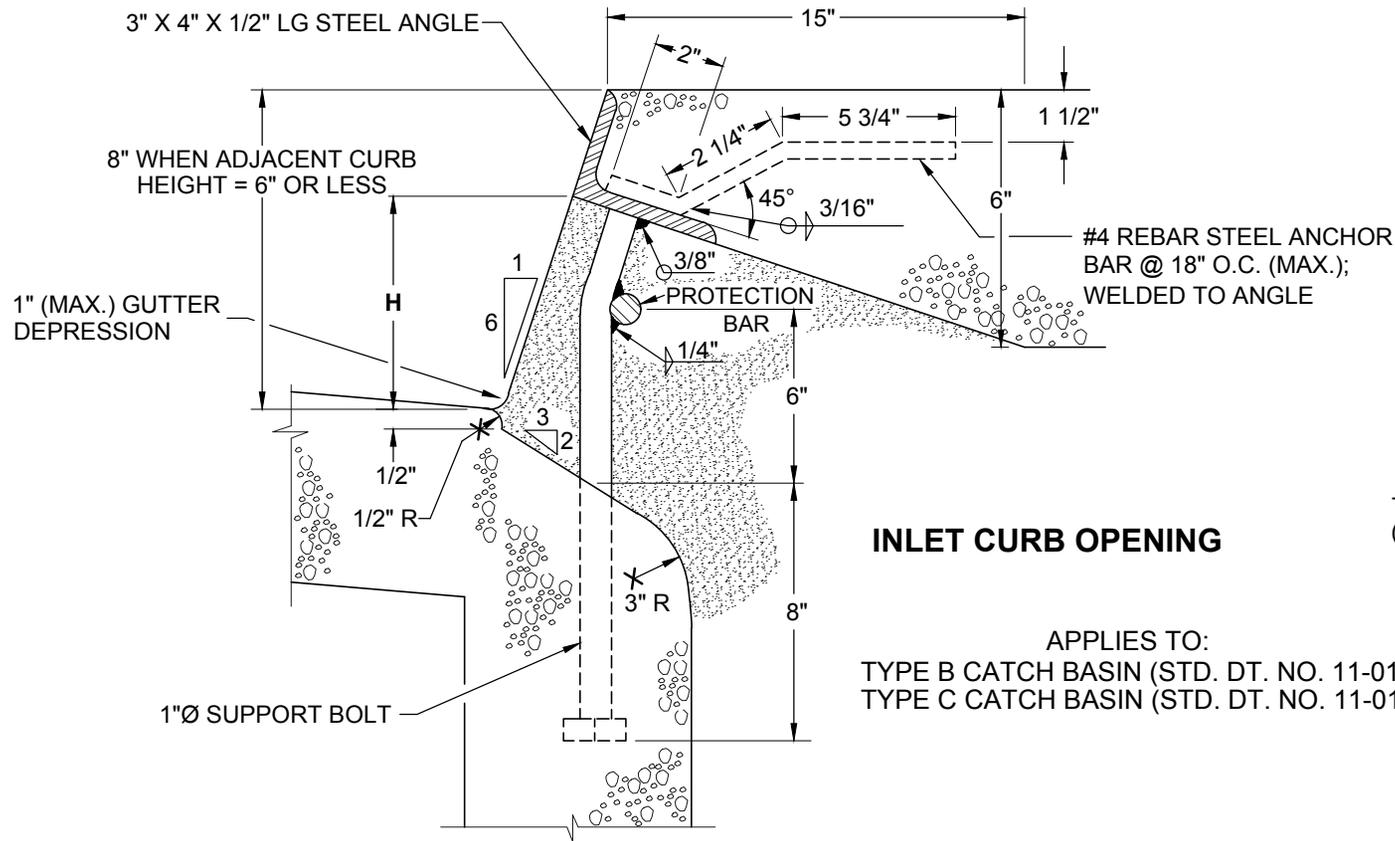
NOTE

1. All structural steel and castings to be painted one shop coat and two field coats of *INDUSTRION* OSHA safety green (or approved equal).

Issued: May 2019

CITY OF YUMA
 CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 11-040
COVER FOR ACCESS OPENING
TYPE B AND C CATCH BASINS



PIPE ENTRY DETAIL

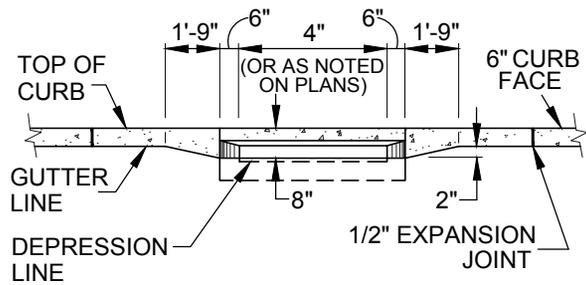
NOTES

1. Unless otherwise specified, curb opening height **H** shall be 5".
2. When curb opening height **H** exceeds 6" install 1"Ø steel protection bars. The protection bars shall extend the full length of the curb opening and shall be embedded a minimum of 3" at each end.
3. Install additional bars at 3 1/2" clear spacing above first bar when opening exceeds 13".
4. When curb opening length exceeds 6" install 1"Ø steel support bolts spaced no more than 4" o.c.
5. All structural steel and castings to be painted one shop coat and two field coats of *INDUSTRON* OSHA safety green (or approved equal).
6. All metal units shall be fabricated from structural steel except as noted. Structural steel shall be in accordance with ASTM A-36.
7. Welding shall be in accordance with standard welding specifications.
8. Connector pipe shall be trimmed to the final shape and length before the concrete is poured.

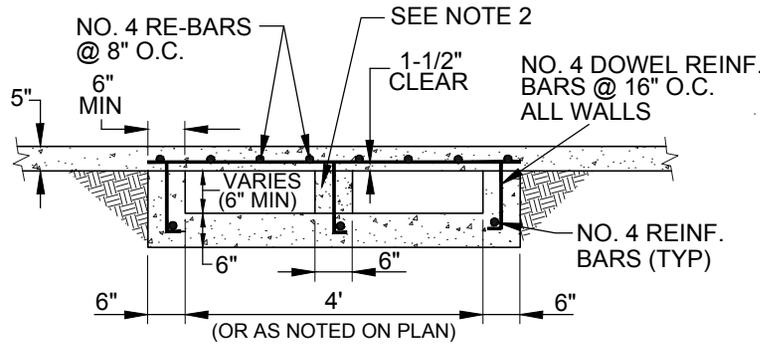
Issued: May 2019

CITY OF YUMA
 CONSTRUCTION STANDARD DETAIL DRAWINGS

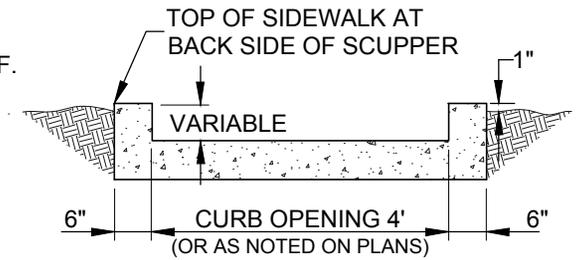
STANDARD NO. 11-045
CURB OPENING INLET AND
PIPE ENTRY DETAIL



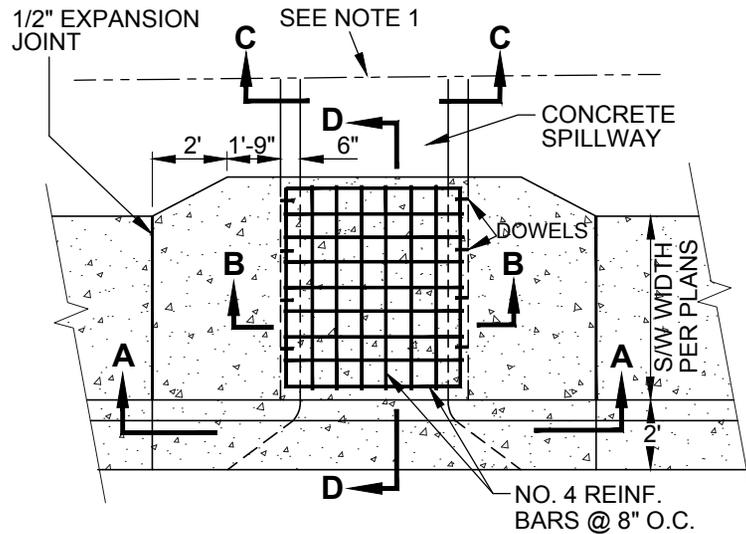
SECTION A-A



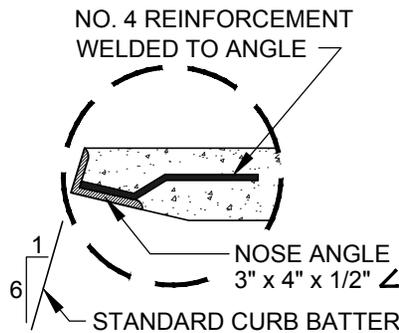
SECTION B-B



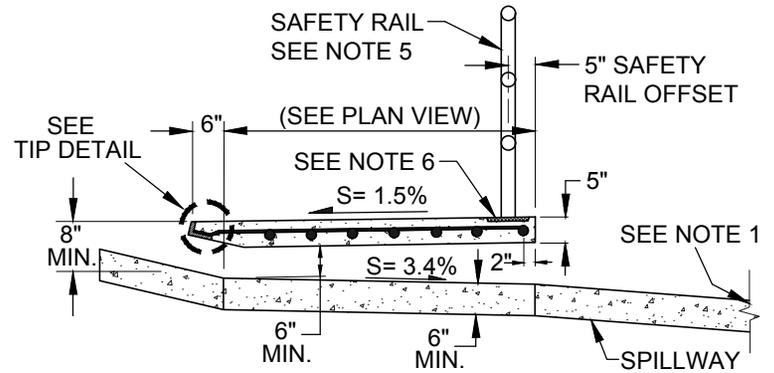
SECTION C-C SPILLWAY



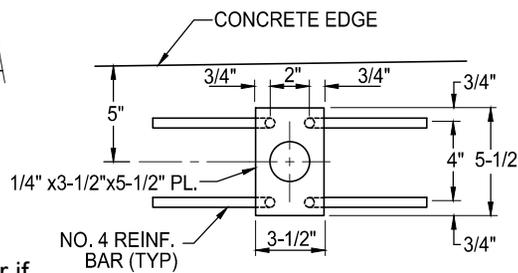
SCUPPER PLAN VIEW



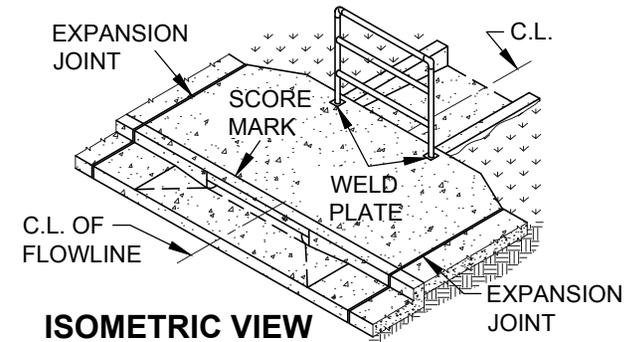
TIP DETAIL



SECTION D-D



WELD PLATE



ISOMETRIC VIEW

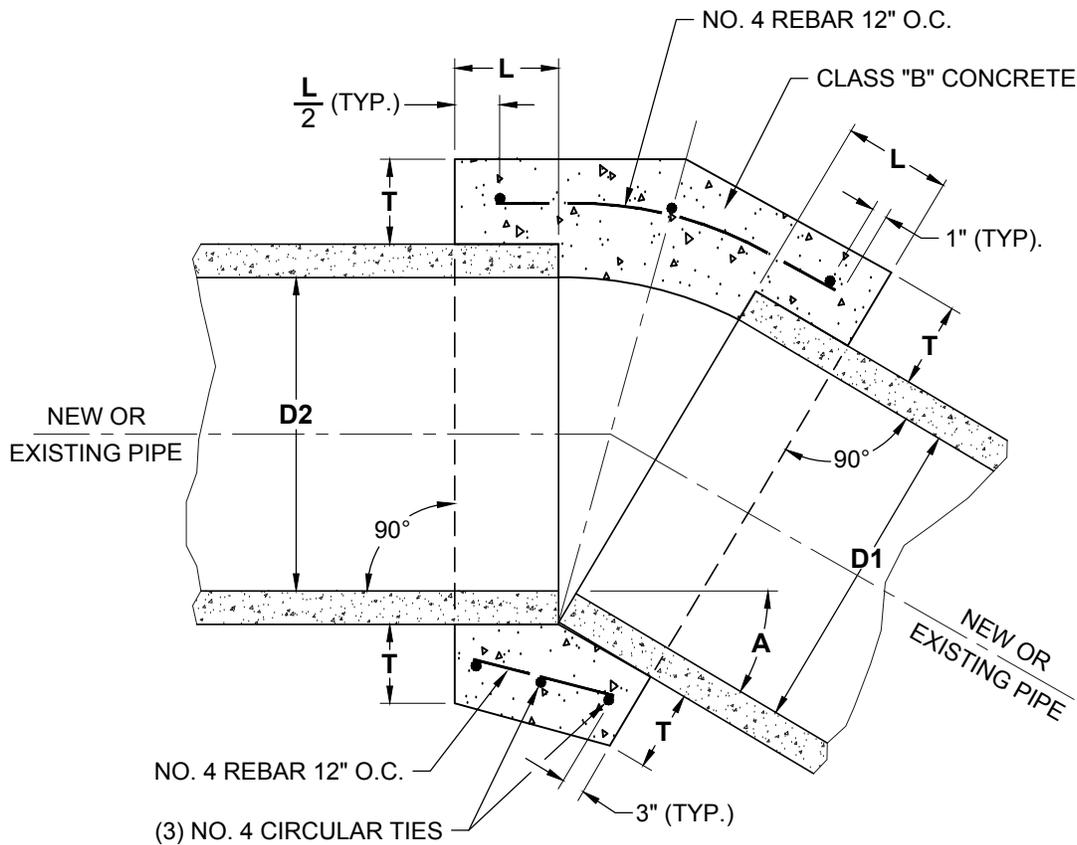
NOTES

1. Transition to spillway/channel as per approved plans.
2. A center wall shall be installed in scuppers wider than 4' or if more than 1 scupper is built in series.
3. Expansion joint material shall comply with MAG Section 729.
4. Concrete for the scupper shall be Class A per Section 725. Concrete for the spillway shall be Class A or Class B.
5. Concrete scupper to be used with City Engineer's approval only.
6. Safety rail shall be continuous between the spillway exterior walls.
7. Use weld plates for safety rail anchors located in the 5" thick concrete.

Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 11-050
CONCRETE SCUPPER**



A = ANGLE OF DEFLECTION

TABLE

D	L	T
12"	1.0'	4"
18"	1.0'	5"
24"	1.0'	6"
36"	1.5'	8"
48"	1.5'	10"
57"	1.5'	10"
60"	1.75'	11"
66"	1.75'	11"

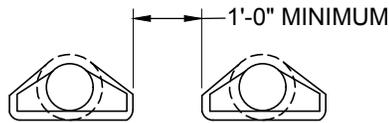
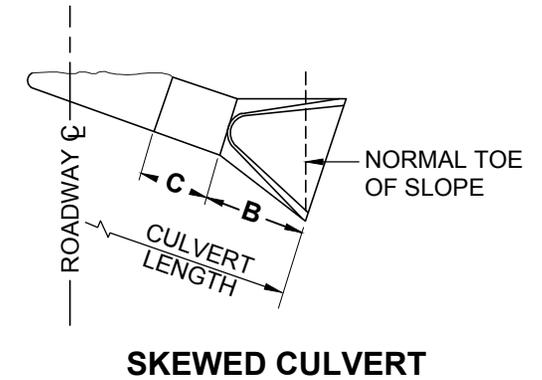
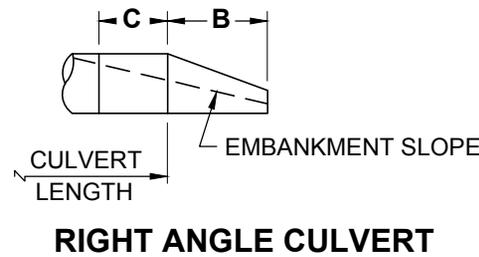
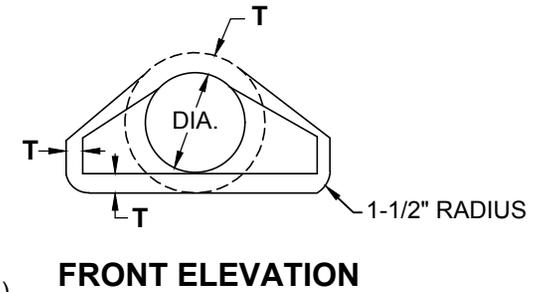
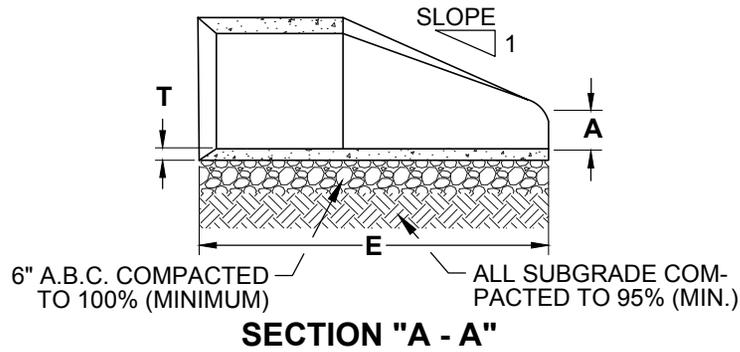
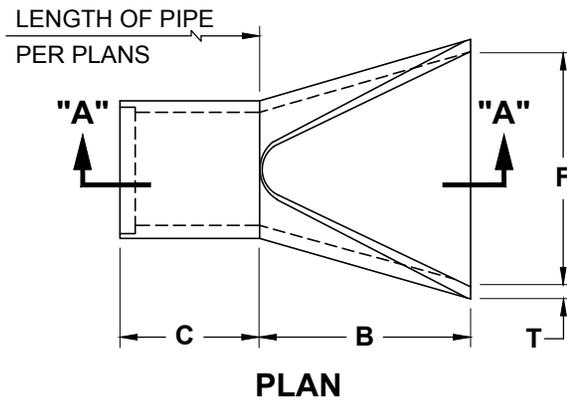
NOTES

1. A concrete collar is required where pipes of different diameters or materials are joined, or where the changes in alignment or grade exceed what is allowed for ordinary joints.
2. Where pipes of different diameters are joined with a concrete collar, dimensions L and T should be those of the larger pipe.
3. For pipe sizes not listed use next size larger.
4. Omit reinforcing on pipe sizes 24" and smaller.
5. Where reinforcing is required the diameter of the circular ties shall be outside diameter + T.
6. Field closures of pipes of the same diameter and without changes in grade or alignment, shall be made with a concrete collar.
7. Concrete pipe collars shall only be used with the approval of the City Engineer.

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 11-055
CONCRETE PIPE COLLAR**



PIPE DIA.	APPROX. WEIGHT	DIMENSIONS - INCHES						APPROX. SLOPE
		T	A	B	C	E	F	
24"	1520LBS	3"	9-1/2"	43-1/2"	30"	73-1/2"	48"	3"
27"	1930LBS	3-1/4"	10-1/2"	49-1/2"	24"	73-1/2"	54"	3"
30"	2190LBS	3-1/2"	12"	54"	19-3/4"	73-3/4"	60"	3"
36"	4100LBS	4"	15"	63"	34-3/4"	97-3/4"	72"	3"
42"	5380LBS	4-1/2"	21"	63"	35"	98"	78"	3"
48"	6550LBS	5"	24"	72"	26"	98"	84"	3"
54"	8240LBS	5-1/2"	27"	65"	33-1/4"	98-1/4"	90"	2-1/2"

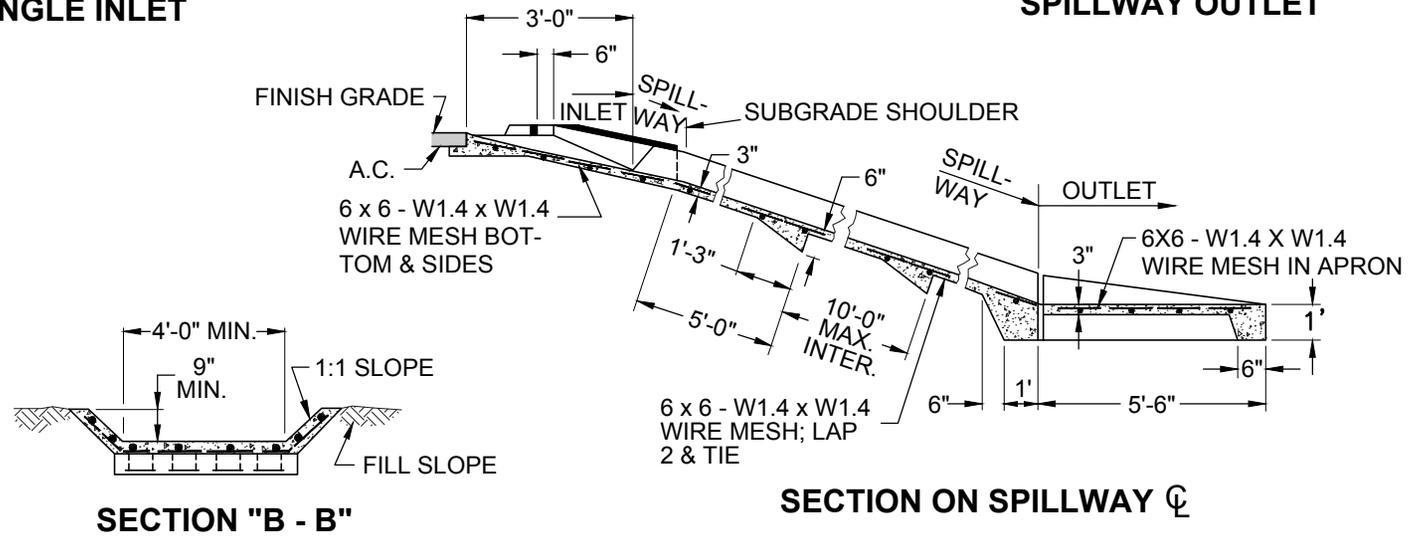
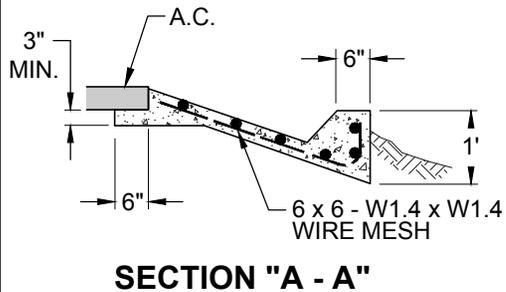
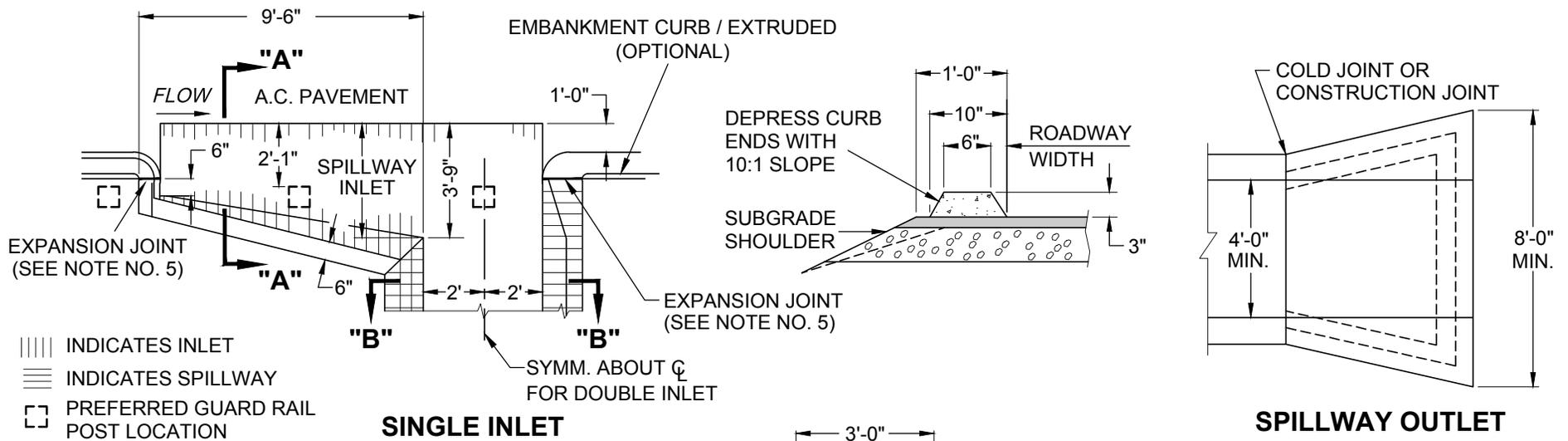
NOTES

1. Design of end section shall conform to standards for reinforced concrete pipe.
2. End section joint conformation shall match the pipe joints.
3. Embankment slope shall be warped to match slope of end section.
4. Culvert length is as shown on plans.
5. Required grates with spacing no less than 4" vertically aligned.

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CITY OF YUMA
 CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 11-060
 REINFORCED CONCRETE PIPE
 END SECTION**



NOTES

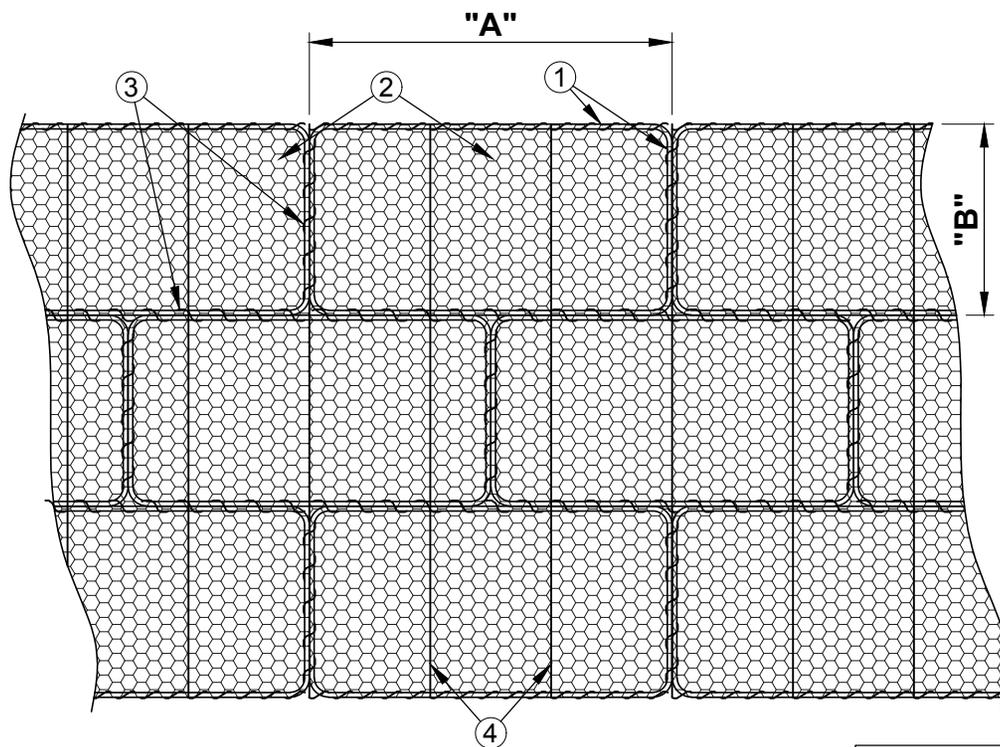
1. Where rock is encountered the outlet may be omitted with the approval of the city engineer.
2. All portions of the spillway shall be trowel finished.
3. Concrete for spillway inlet, spillway and outlet shall be Class B per MAG Section 725.
4. When the outlet is used, the wire mesh shall extend through the joint into the outlet in lieu of bending into the key.
5. Expansion joint material shall comply with MAG Section 729, and shall be installed in accordance with MAG Section 340.

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

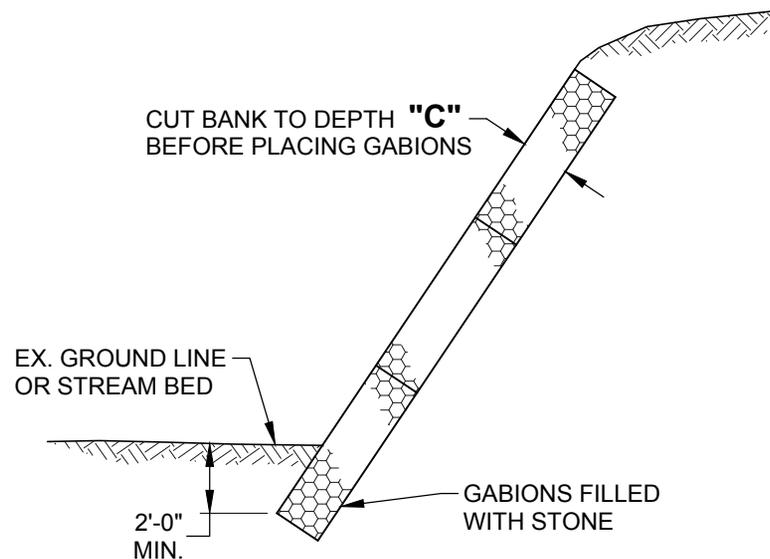
**STANDARD NO. 11-065
SPILLWAY INLET AND OUTLET**

TYPICAL GABIONS



PLAN

- ① HEAVY GAUGE FRAME WIRE.
- ② HEAVY GAUGE TRIPLE-TWIST HEXAGONAL MESH (OR EQUAL) FASTENED TO FRAME WIRE.
- ③ CONTINUOUS HEAVY GAUGE WIRE WRAPPED AROUND FRAMES TO FASTEN GABIONS TO EACH OTHER.
- ④ PARTITIONS TO PREVENT SHIFTING, NORMALLY ONE PER 3' LENGTH. INSTALLED AT FACTORY.



ELEVATION

NOMINAL SIZE COMBINATIONS

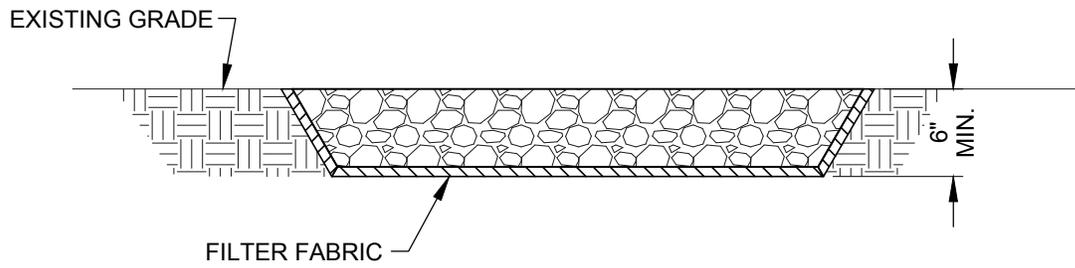
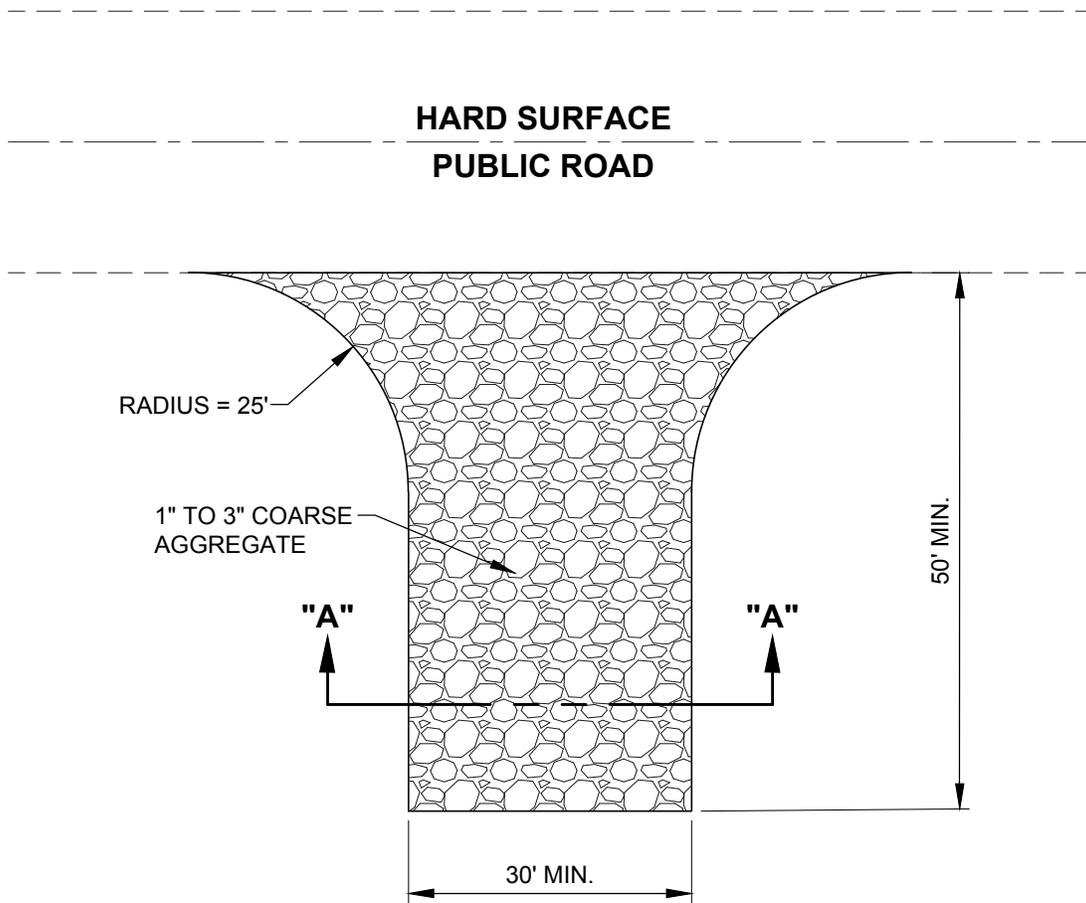
LENGTH "A"	WIDTH "B"	DEPTH "C"
6'	3'	1' 1.5' 3'
9'	3'	1' 1.5' 3'
12'	3'	1' 1.5' 3'

Other sizes available from manufacturer.

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 11-070
EROSION PROTECTION, GABIONS



SECTION "A - A"

Issued: May 2019

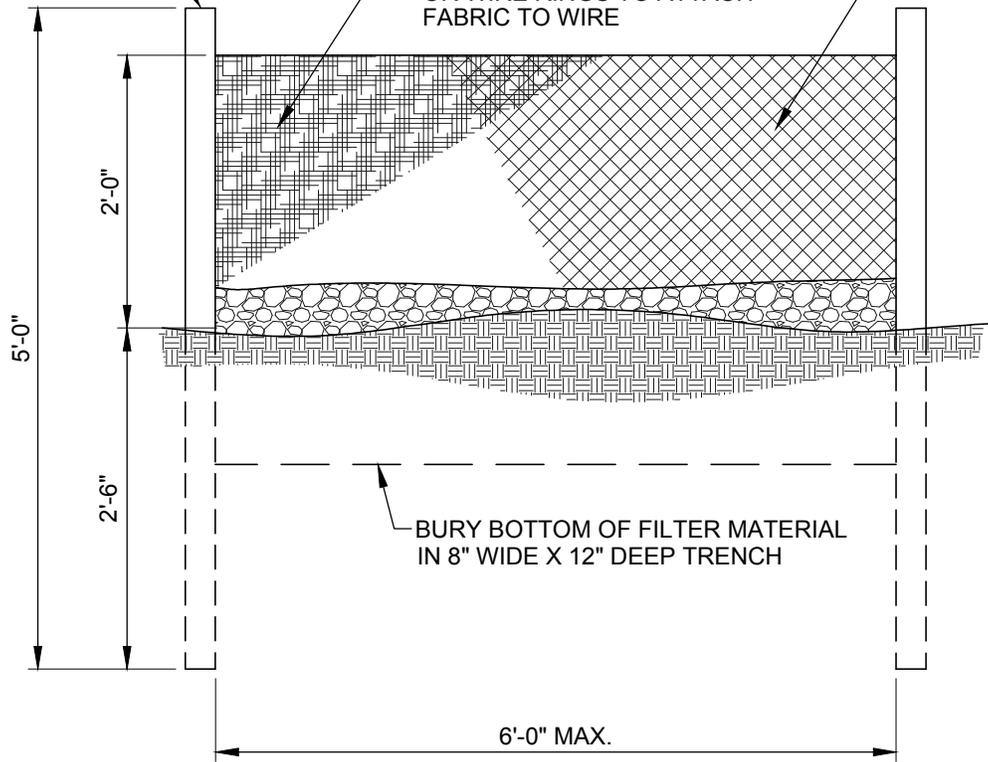
CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 11-075
STABILIZED CONSTRUCTION
EXIT/ENTRANCE

2" X 4" WOOD POSTS,
STEEL POSTS, OR
EQUIVALENT

FILTER FABRIC MATERIAL
60' LONG ROLLS. USE STAPLES
OR WIRE RINGS TO ATTACH
FABRIC TO WIRE

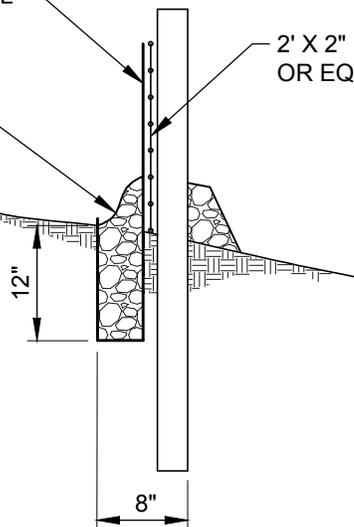
2' X 2" 14 GA. WIRE
FABRIC OR EQUIV.



FILTER FABRIC MATERIAL
OR EQUIVALENT

2' X 2" 14 GA. WIRE FABRIC
OR EQUIVALENT

PROVIDE 3/4" - 1 1/2" WASHED
GRAVEL BACKFILL IN TRENCH
& ON BOTH SIDES OF FILTER
FABRIC ON THE SURFACE



SYMBOL

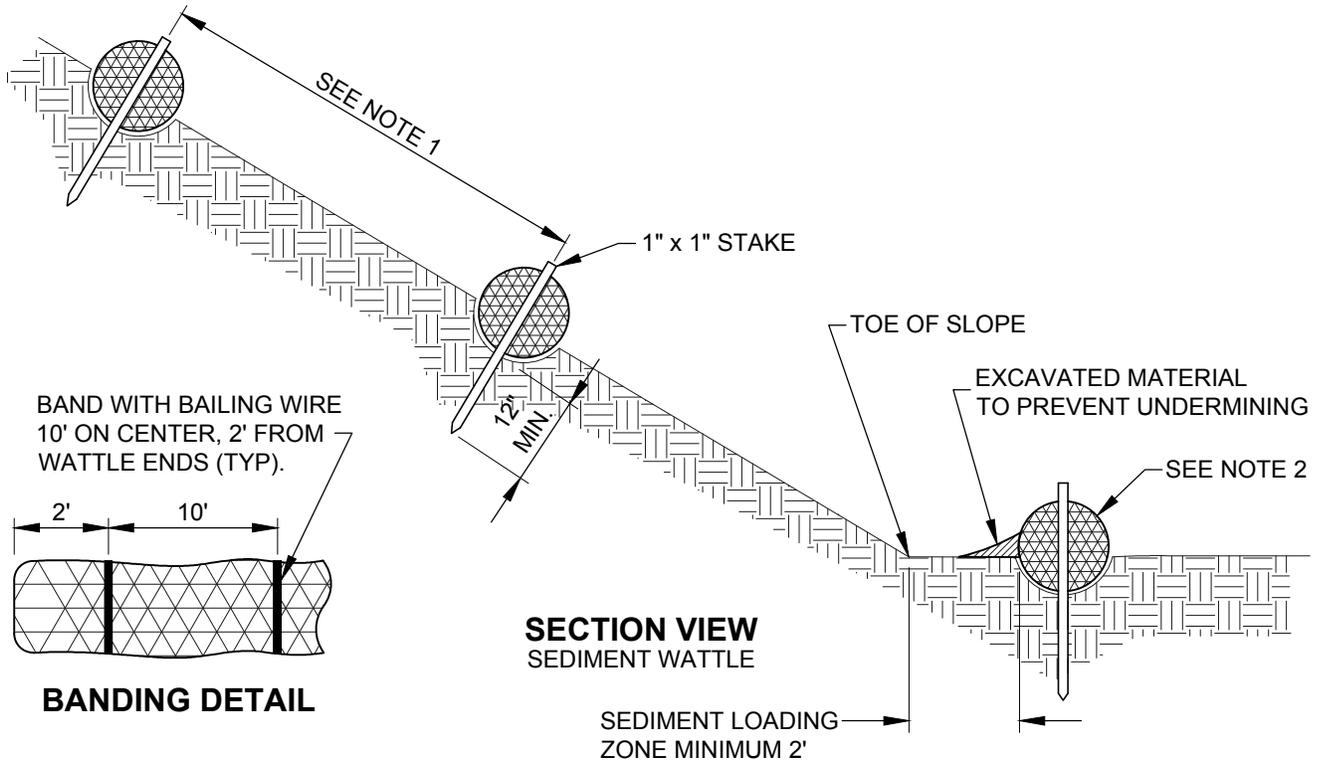
S.F.



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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

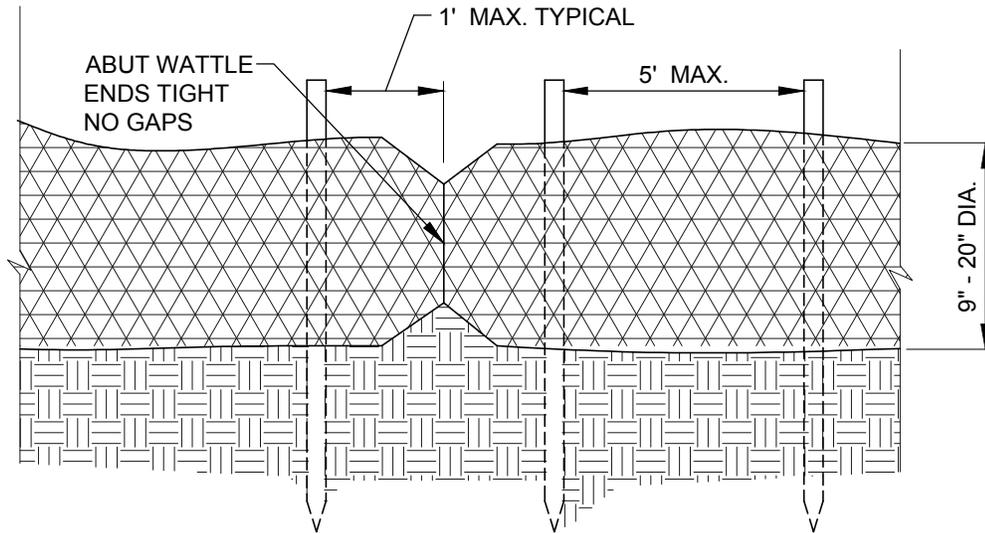
STANDARD NO. 11-080
SILT FENCE



BANDING DETAIL

**SECTION VIEW
SEDIMENT WATTLE**

SEDIMENT LOADING
ZONE MINIMUM 2'



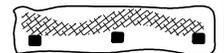
SEDIMENT WATTLE CONNECTION

NOTES

1. Slope Ratio	Spacing Interval
2:1	10'
3:1	20'
4:1	30'
5:1	40'

2. Bottom wattle to be 20" min. diameter.
Silt fence may be used in place of
bottom wattle.

SYMBOL
SL-1 & SL-2

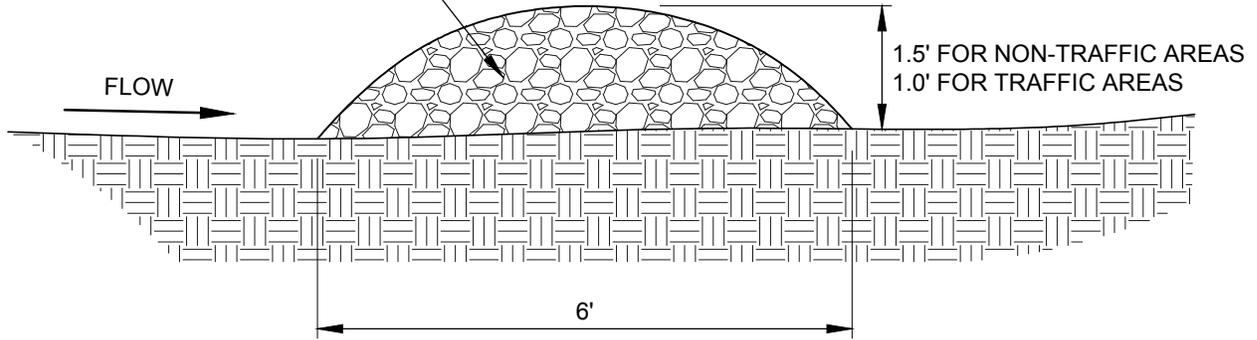


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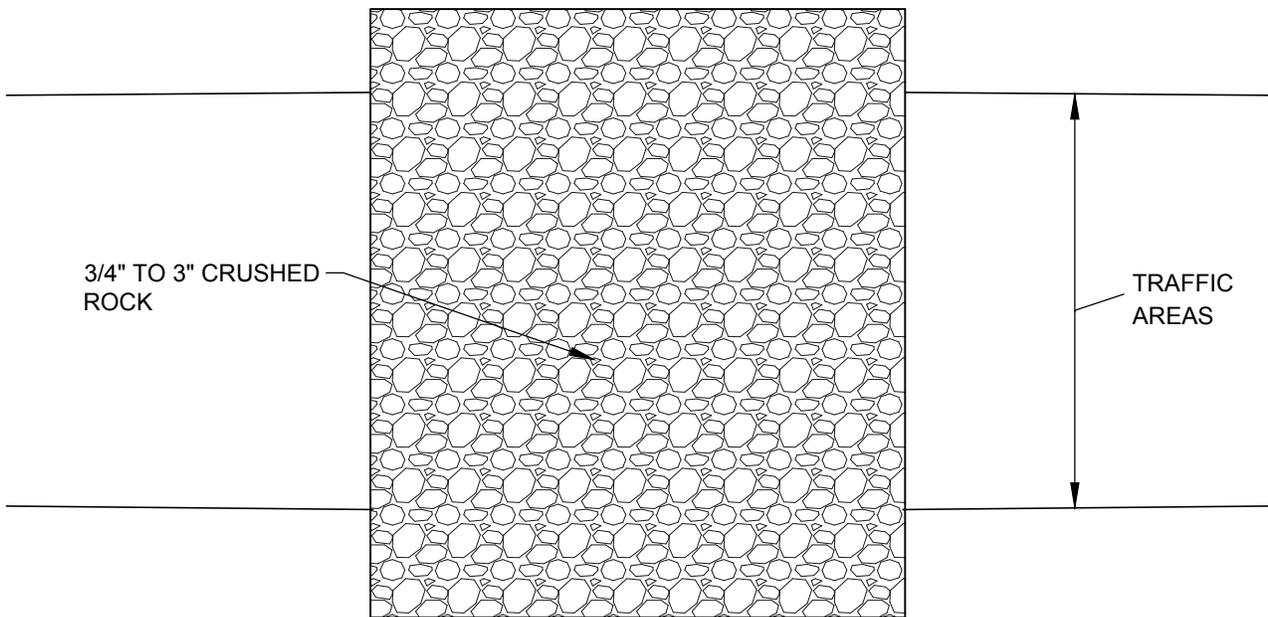
CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 11-085
SEDIMENT WATTLE**

3" TO 5" ROCK
(FOR CONCENTRATED FLOW)
3/4" TO 3" CRUSHED ROCK
(FOR SHEET FLOW)



SECTIONAL ELEVATION



WOVEN WIRE SHEATHING
(POULTRY NETTING) IN AREAS
OF CONCENTRATED FLOW TO
KEEP ROCK IN PLACE. THE
WIRE SHOULD BE GALVANIZED
20 GAUGE WITH 1" DIAMETER
HEXAGONAL MESH.

PLAN VIEW

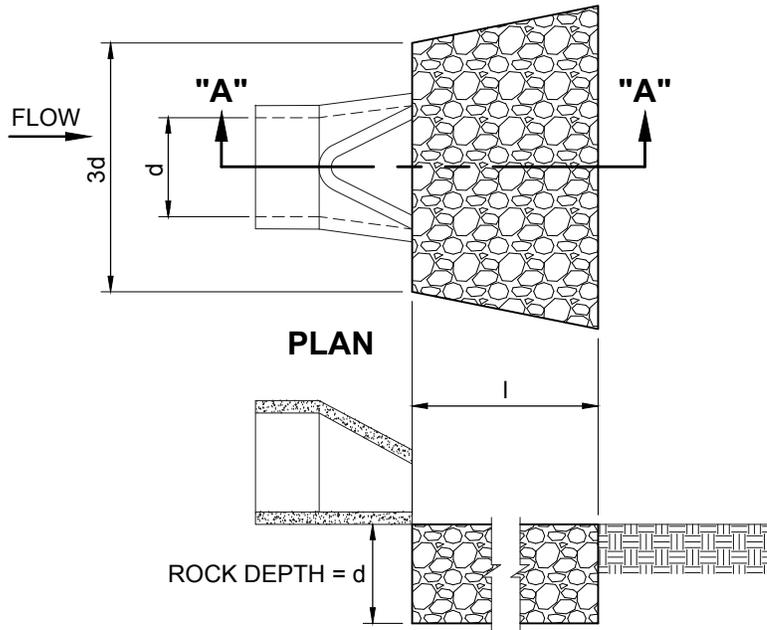
SYMBOL
GFB



Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 11-090
GRAVEL FILTER BERM

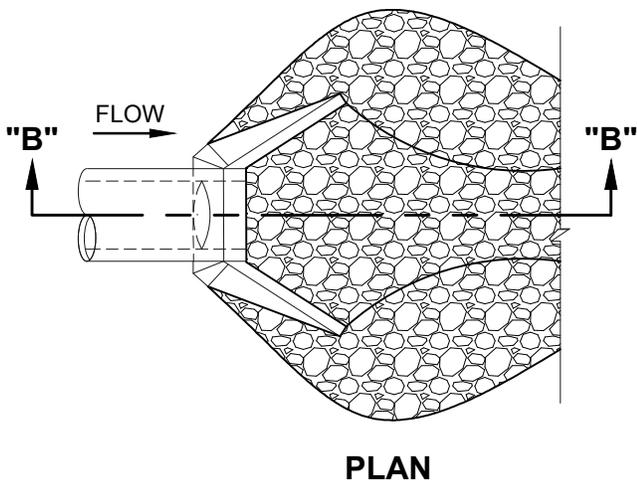


I = LENGTH OF APRON
d = INSIDE PIPE DIAMETER

PLAN

SECTION "A - A"

PIPE OUTLET TO FLAT AREA WITH NO DEFINED CHANNEL



PLAN

SECTION "B - B"

PIPE OUTLET TO WELL-DEFINED CHANNEL

NOTES

1. Apron lining may be rip-rap, grouted rip-rap, or concrete.
2. Whereas technical design procedures exist for determining I, it is recommended to use the following table for temporary rock outlet protection.

PIPE SIZE INCH	AVERAGE ROCK DIA INCH	I FEET
12	6	12
15	10	18
18	12	21
21	15	25
24	15	30

3. d = 1.5 times the maximum stone diameter but not less than 6 inches.

PIPE OUTLET CONDITIONS

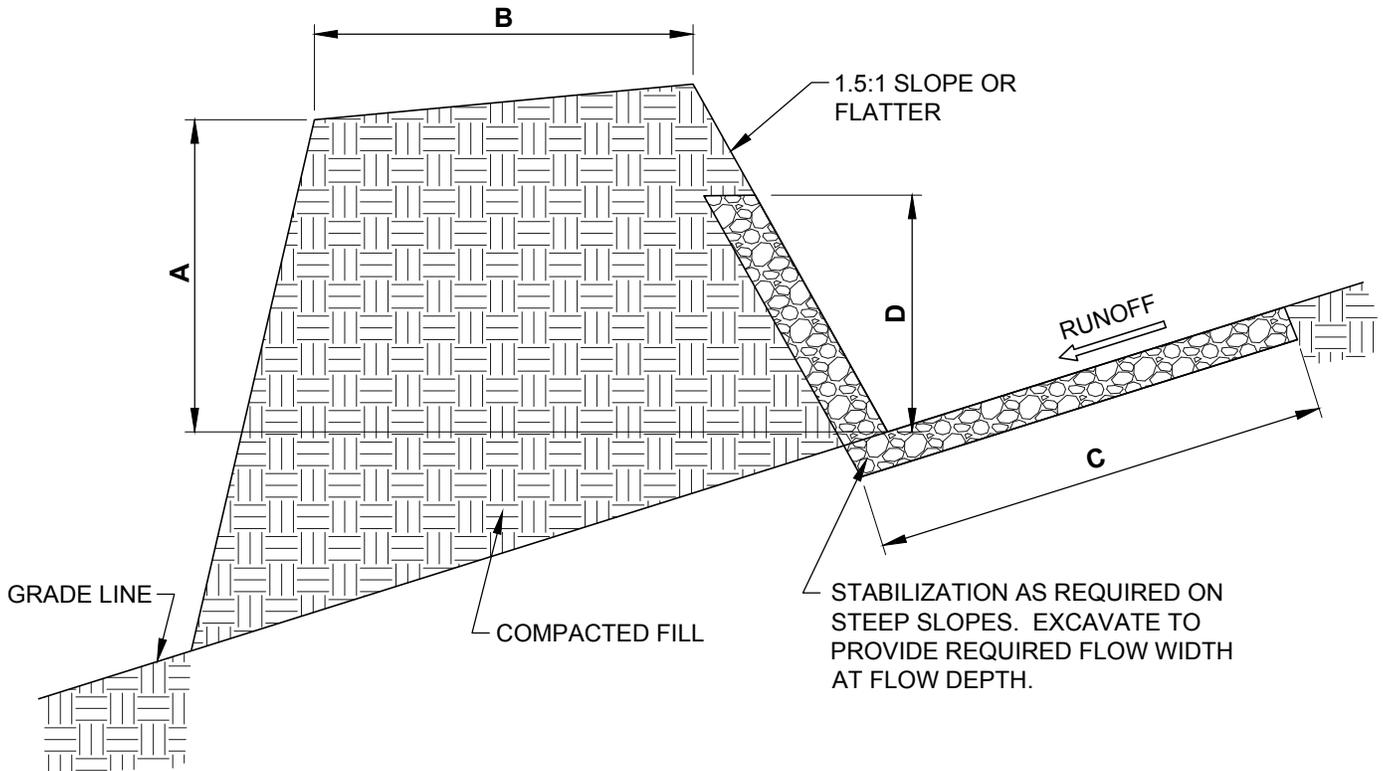
SYMBOL



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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 11-095
PIPE OUTLET PROTECTION



RECOMMENDED STANDARDS

REQUIREMENTS BASED ON UPSTREAM DRAINAGE AREA		
	DIKE 1 (5 ACRES OR LESS)	DIKE 2 (5 TO 10 ACRES)
A-DIKE HEIGHT	18"	36"
B-DIKE WIDTH	24"	36"
C-FLOW WIDTH	4'	6'
D-FLOW DEPTH	8"	15"

NOTES

1. All dikes shall be compacted by earth moving equipment.
2. All dikes shall have positive drainage downstream.
3. Top width may be wider and side slopes may be flatter if desired to facilitate crossing by construction traffic.
4. Stone, recycled concrete or equivalent shall be applied in a layer at least 8 inches thick and be pressed into the soil top with construction equipment.

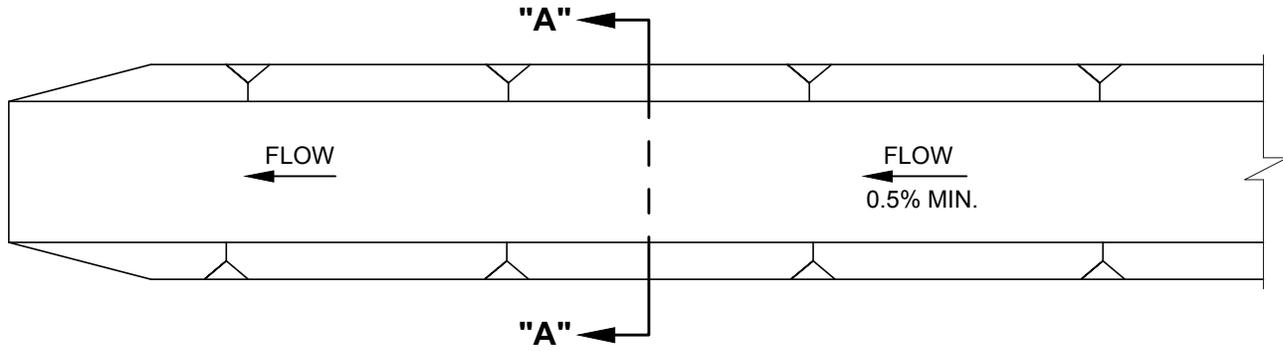
SYMBOL

TDD

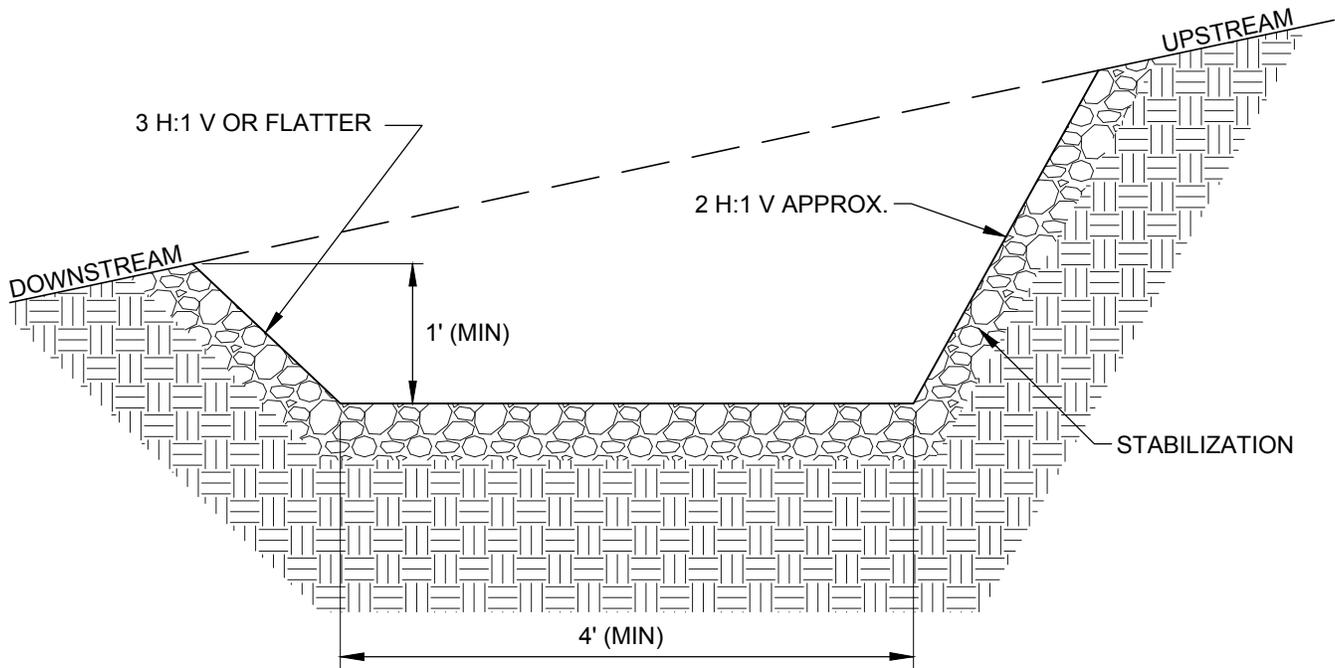
Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 11-100
TEMPORARY DIVERSION DIKE**



PLAN VIEW



SECTION "A - A"

CHANNEL GRADE %	DRAINAGE AREA < 5 ACRES	DRAINAGE AREA 5-10 ACRES
0.5-1.0	4" RIP-RAP	4" RIP-RAP
1.1-2.0	6" RIP-RAP	6" RIP-RAP
2.1-3.0	8" RIP-RAP	6-12" RIP-RAP
3.1-5.0	8-12" RIP-RAP	PER PLANS

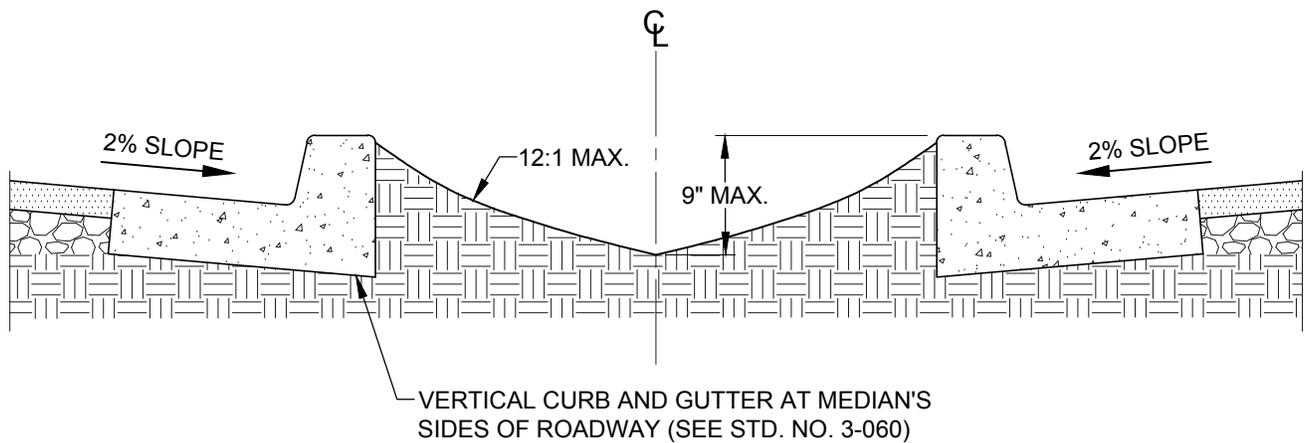
SYMBOL



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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

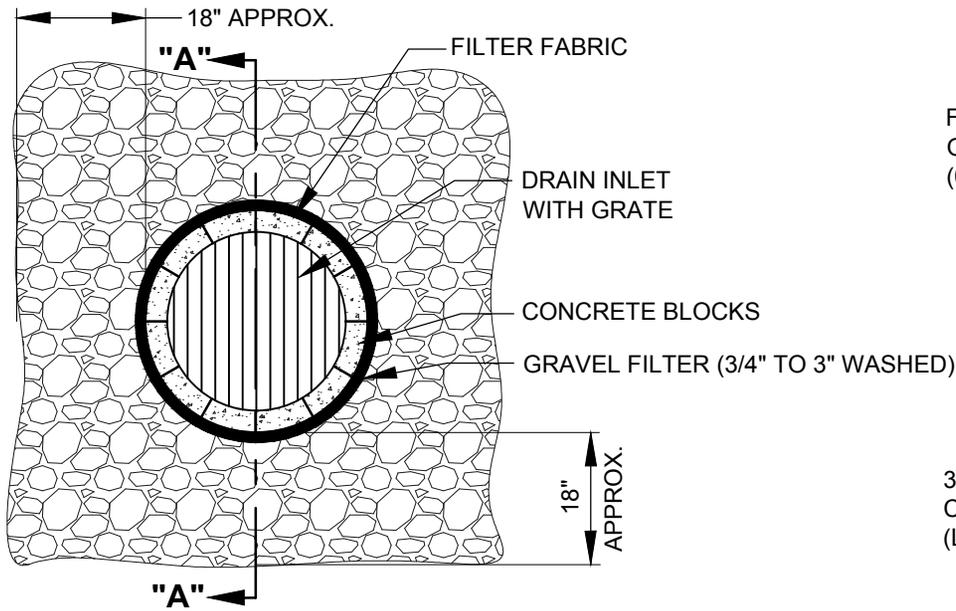
**STANDARD NO. 11-105
TEMPORARY DRAINAGE SWALE**



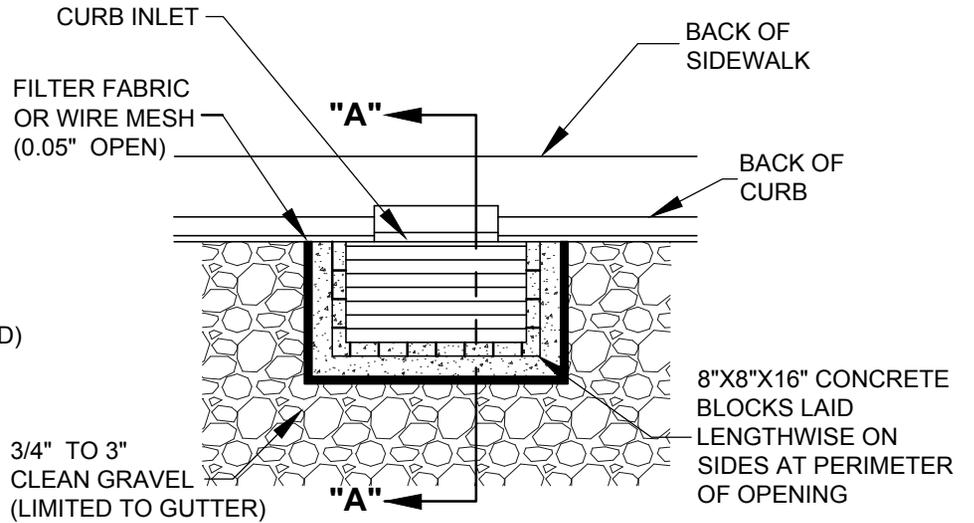
NOTES

1. Minimum width for a landscaped median is (8) feet.
2. All concrete shall be Class B.
3. Provide curb cuts with appropriate longitudinal grade for roadway drainage.
4. Provide vertical curb per standard 3-075 on other side of roadway.
5. Median shall not be compacted.

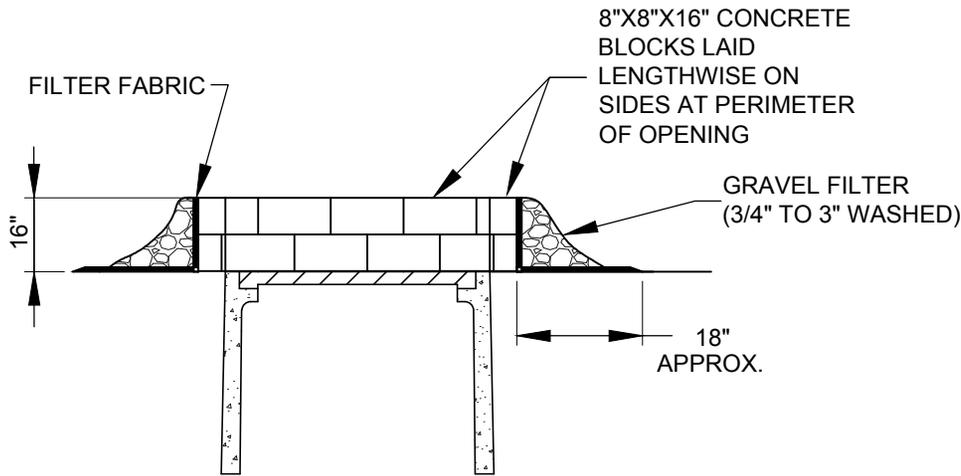
<p>Issued: May 2019</p>
<p>CITY OF YUMA CONSTRUCTION STANDARD DETAIL DRAWINGS</p> <p>STANDARD NO. 11-110 CONCAVE MEDIAN</p>



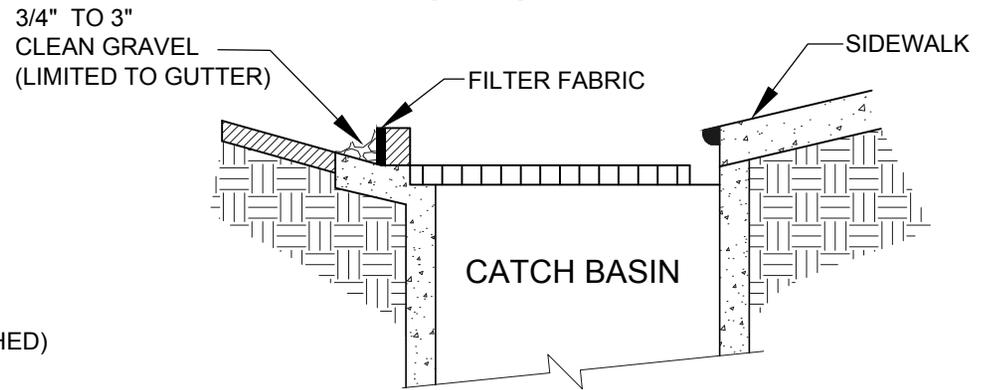
**PLAN
STORM DRAIN INLET**



**PLAN
CATCH BASIN CURB INLET**



SECTION "A - A"



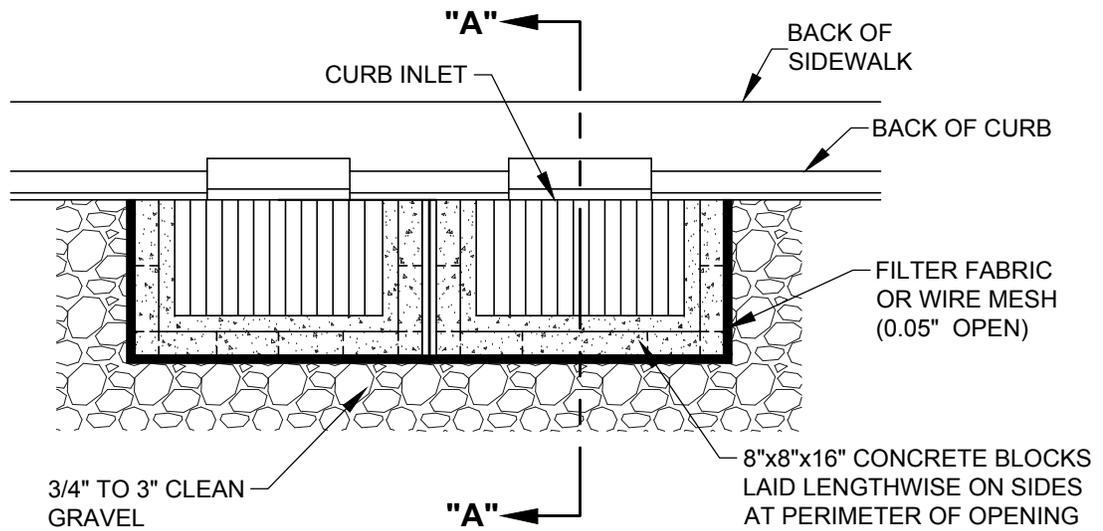
SECTION "A - A"

Issued: May 2019

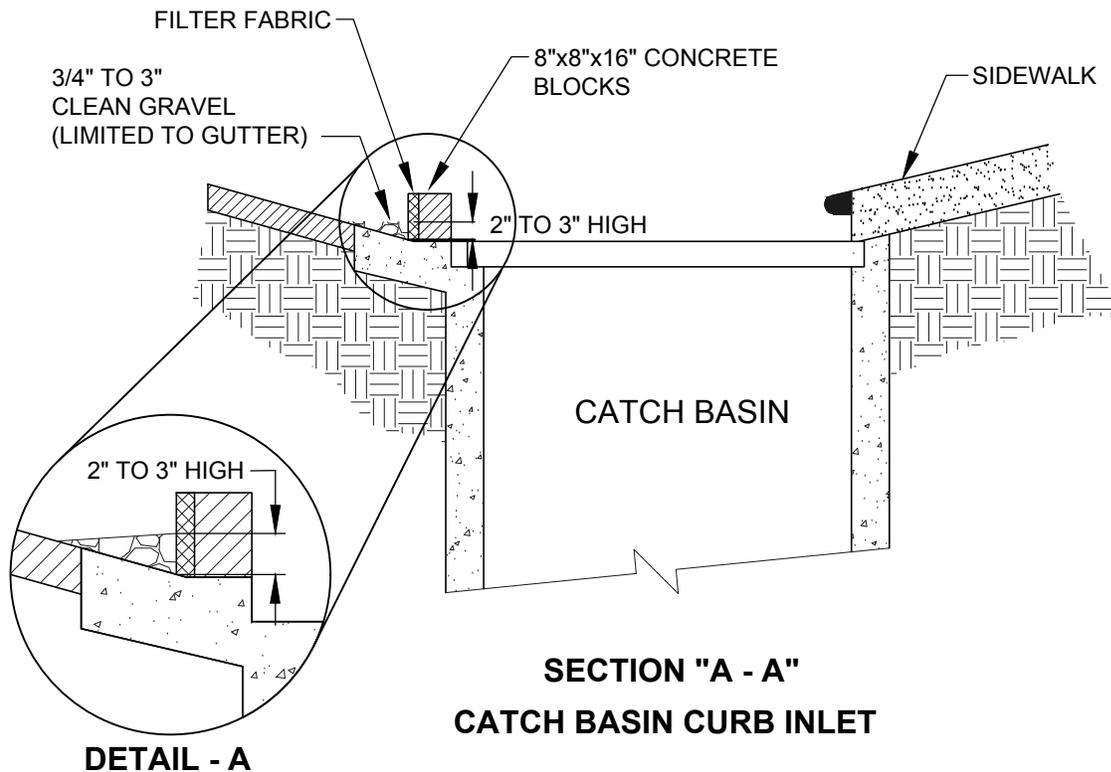
Sheet 1 of 2

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 11-115
INLET PROTECTION**



**PLAN
INLET PROTECTION**



NOTE

1. Special caution should be exercised when installing inlet protection on publicly traveled streets or in developed areas.

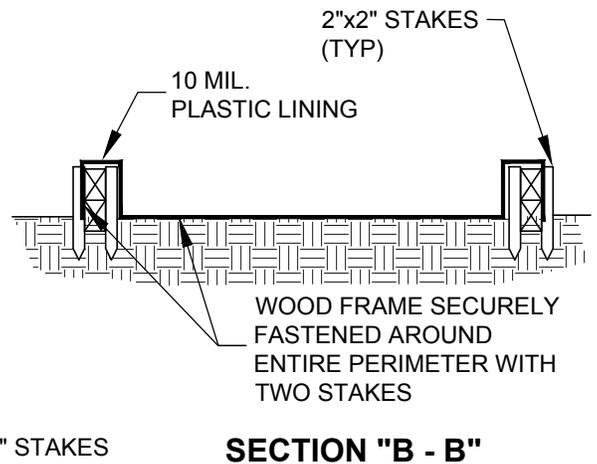
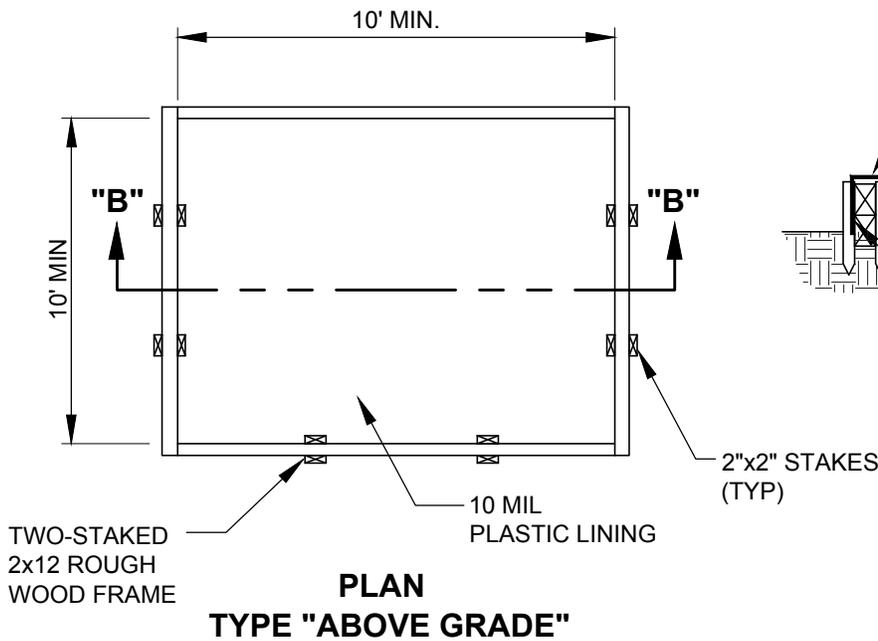
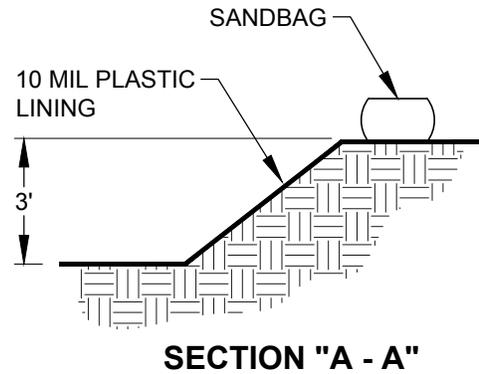
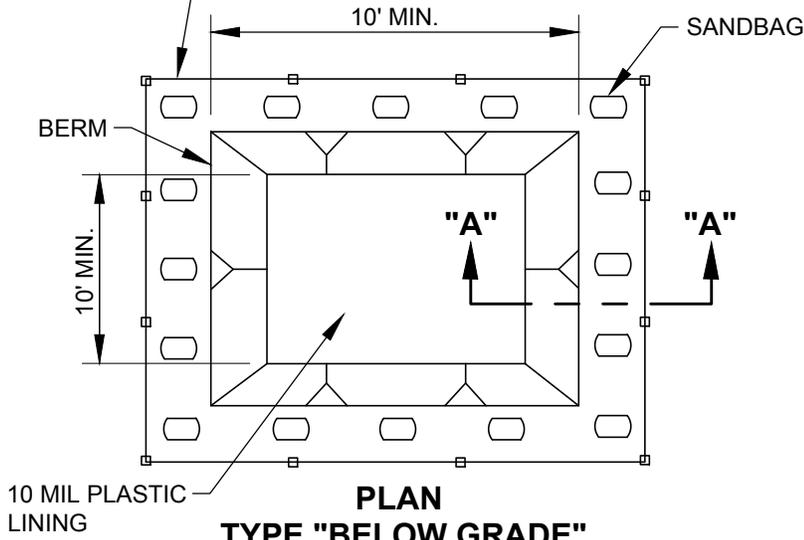
Issued: May 2019

Sheet 2 of 2

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 11-115
INLET PROTECTION**

LATH & FLAGGING
ON ALL SIDES



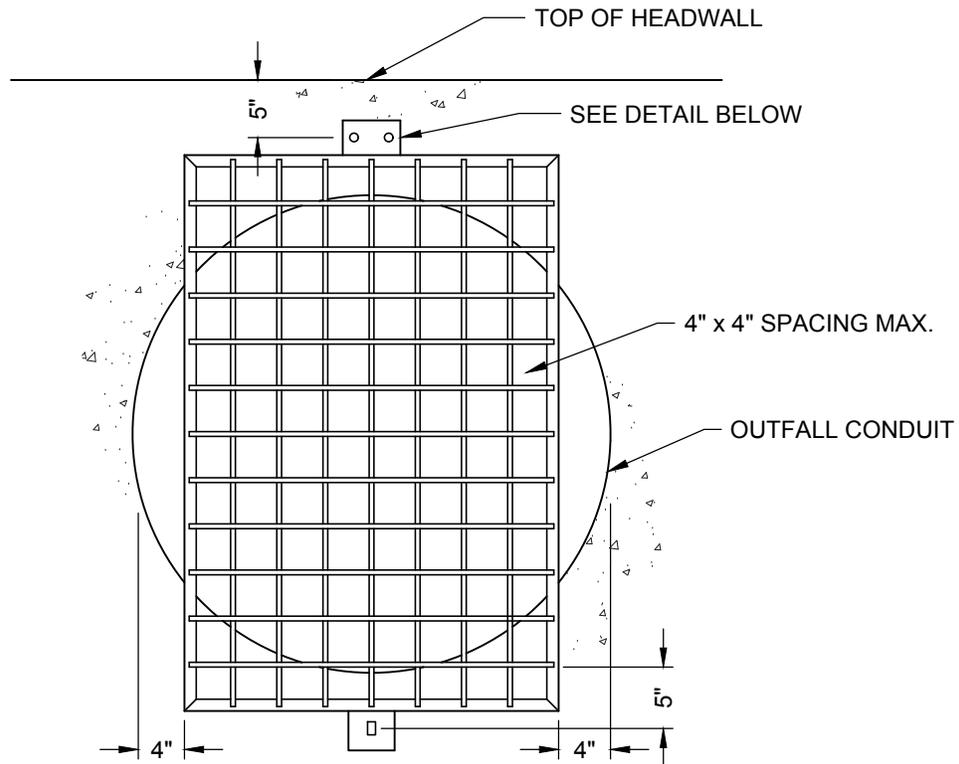
NOTES

1. Actual layout determined in field.
2. The concrete washout sign shall be installed within 30 ft. of the temporary concrete washout facility.
3. Grade underneath liner shall be clear of debris and large rocks.

Issued: May 2019

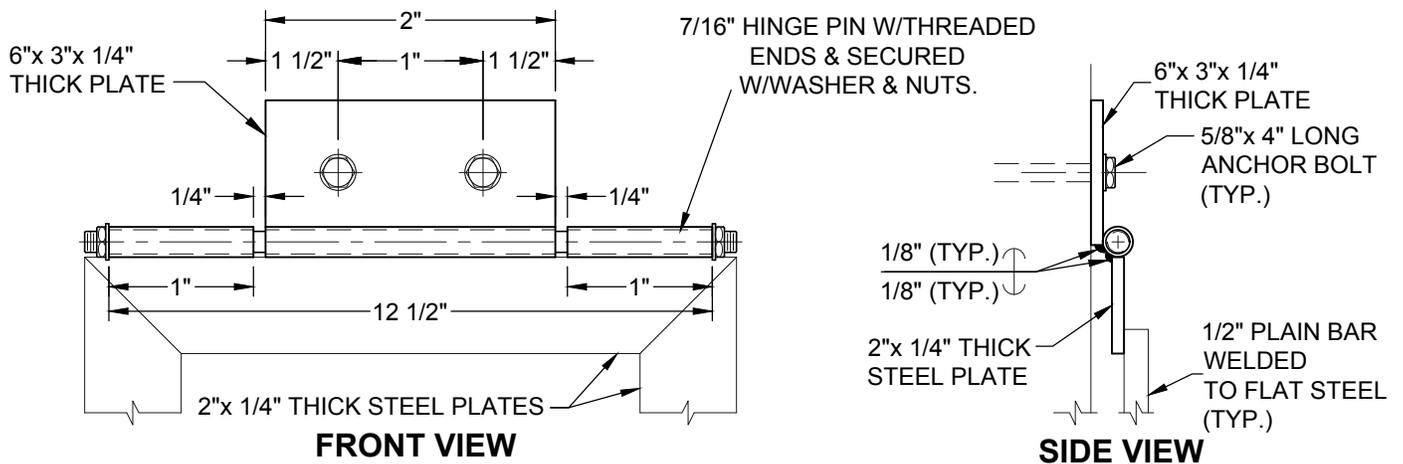
CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 11-120
CONCRETE WASHOUT AREA**



NOTES

1. All anchor bolts shall be 5/8" dia. embedded (4" min) into epoxy grout.
2. All barrier bars to be 1/2" plain.
3. Conduits 42" and larger require two hinges.
4. All parts shall be painted with rust inhibitive paint.



HINGE DETAIL

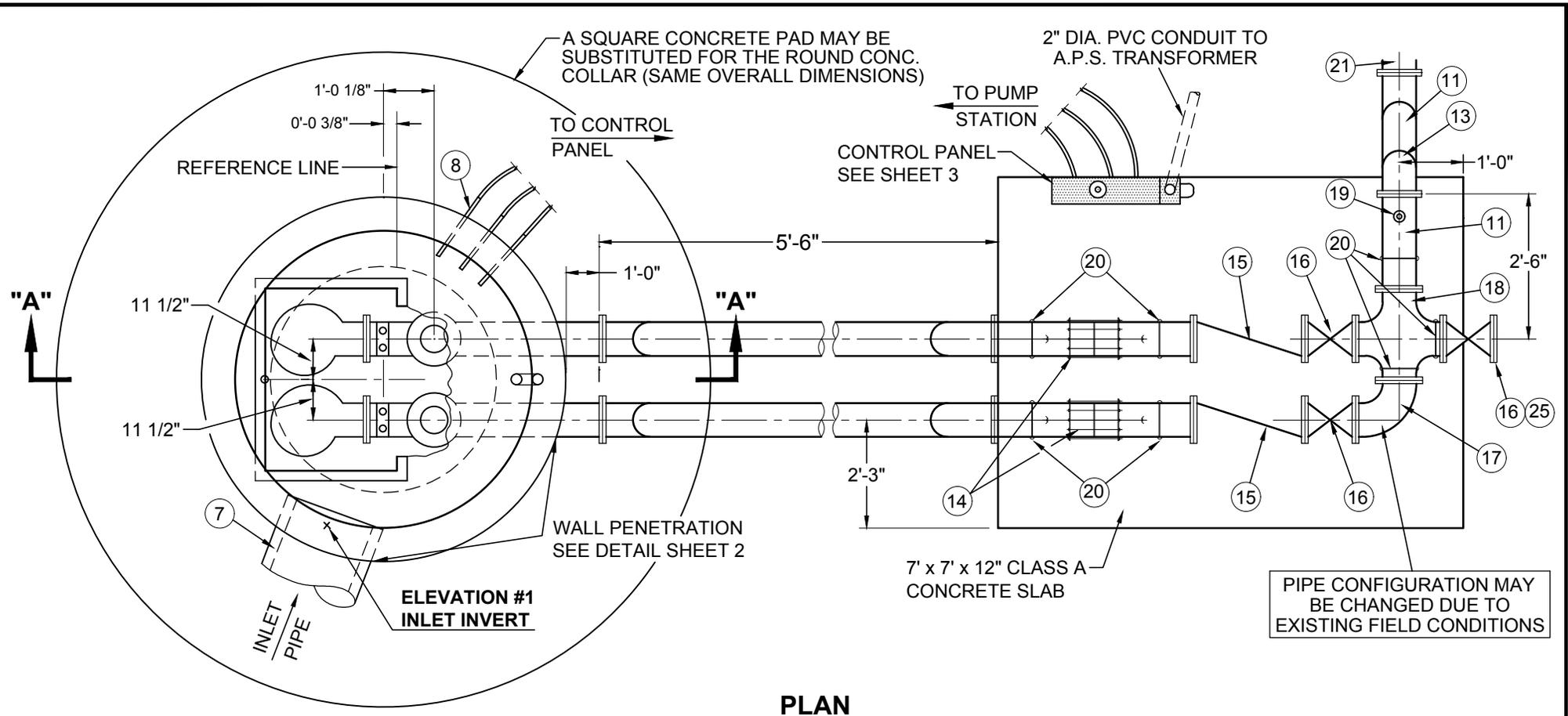
NOTE

1. All dimensions are minimum dimensions, adjust for larger conduit sizes.

Issued: May 2019

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 11-125
STORM DRAIN SAFETY GRATE**



PLAN

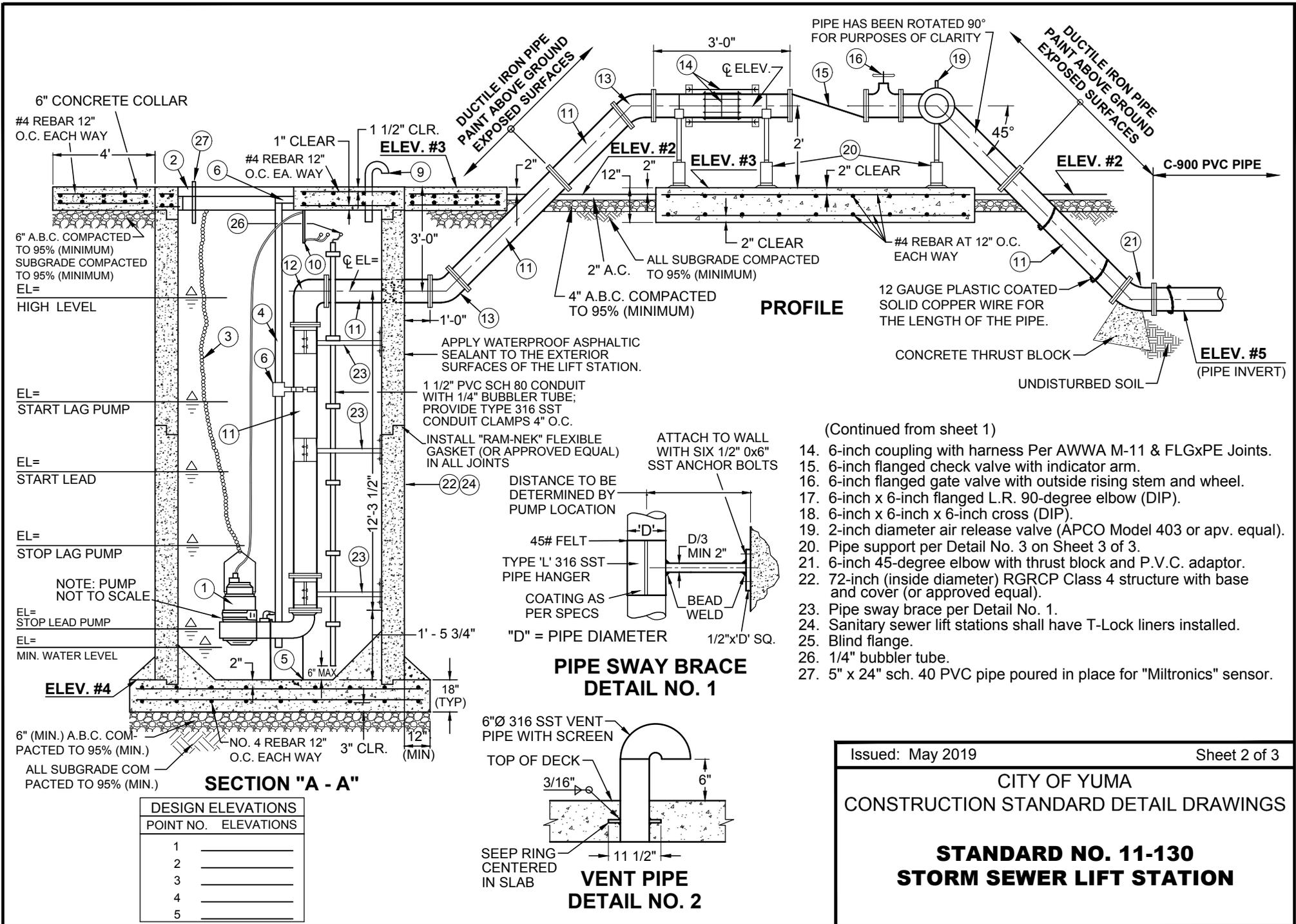
MATERIAL LIST FOR LIFT STATION

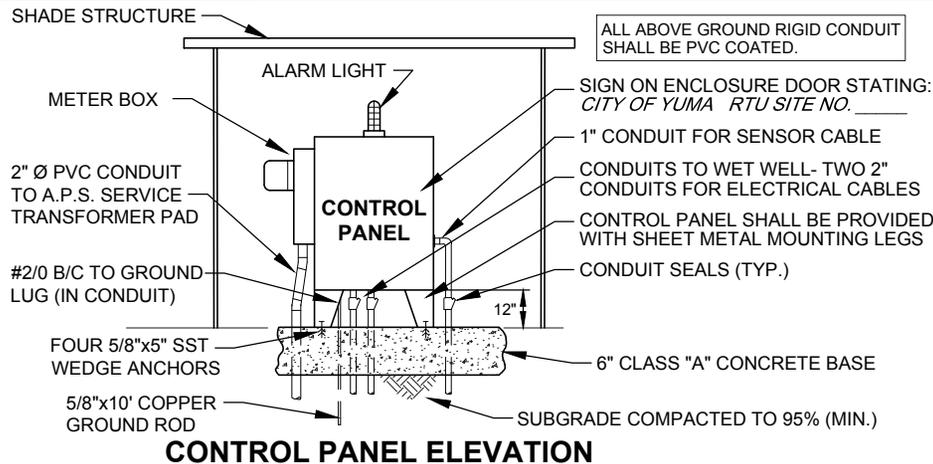
1. ___ GPM FLYGT Submersible pump, ___ H.P., 480V, 3Ø, 60 HZ with Mix-Flush valve.
 2. Aluminum hatch cover 48"x36" clear opening embedded in concrete cover.
 3. Lifting cable attachment per pump manufacturer (316 SST).
 4. Intermediate guide bar per pump manufacturer (316 SST).
 5. Pump anchor bolts per manufacturer (316 SST).
 6. Guide bar brackets per pump manufacturer (316 SST).
 7. Inlet pipe with shut-off valve.
 8. Electric conduits - size per manufacturers recommendation.
 9. 6-inch vent pipe per Detail No. 2 on Sheet 2 of 3 (316 SST).
 10. U-shaped cable hanger made from 1/2" 316 SST pipe (incl. straps).
 11. 6-inch Flanged Spool (DIP).
 12. 6-inch flanged 90-degree EI (DIP-long radius).
 13. 6-inch flanged 45-degree bend (DIP).
- (Continued on sheet 2)

NOTES:

1. Contractor shall use epoxy coated and lined ductile iron pipe and fittings. Pipe shall be flanged and meet all contract specifications.
2. All hardware, nuts, bolts, washers inside vault shall be Type 316 Stainless Steel.

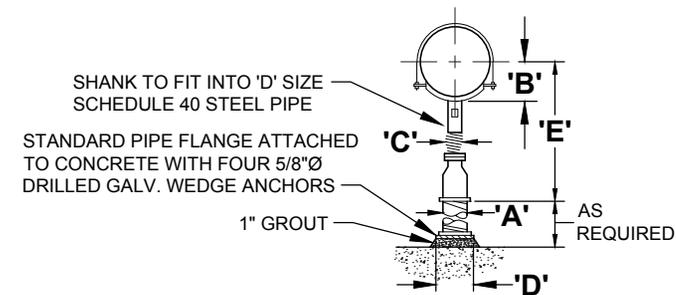
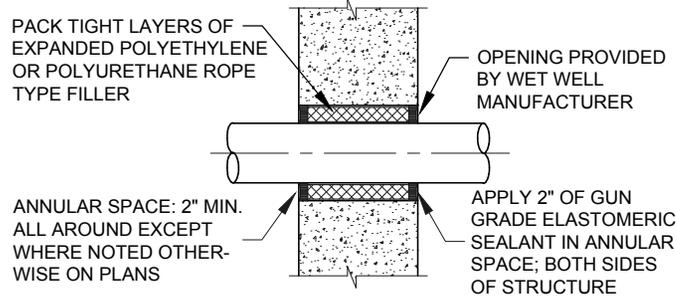
Issued: May 2019	Sheet 1 of 3
<p>CITY OF YUMA CONSTRUCTION STANDARD DETAIL DRAWINGS</p> <p>STANDARD NO. 11-130 STORM SEWER LIFT STATION</p>	





STORM SEWER LIFT STATION RTU COMPONENTS

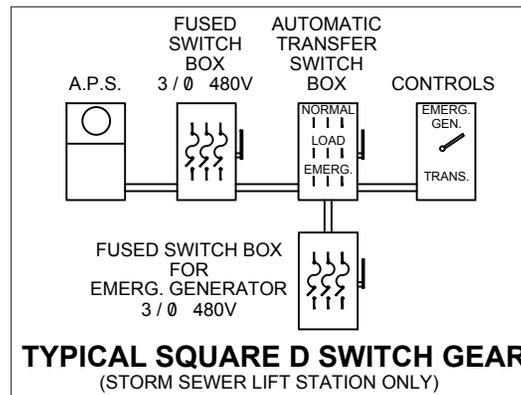
- Allen Bradley, IntelliCENTER with DeviceNet.
 - 1ea 4 Slot Rack: 1746-A4
 - 1ea Power Supply: 1746-P2
 - 1ea Processor Unit: 1747-L532 Ser: E
 - 1ea Device Net: 1747 SDN
 - 1ea Analog Input: 1746-NI8
 - 1ea Device Net Starter Aux.: 100 DNY 42 R
- Hoffman A-604810LP outdoor rated enclosure or approved equal
- Surge suppresser:
 - 1ea "Poly Phaser IS-50NX-C2" series or approved equal
 - 1ea Lightning ground protection grid
- All electrical components shall be of a type/manufacture that is supported locally (Allen-Bradley, Cutler-Hammer or approved equal.
- Antenna support:
 - Antenna must be attached in a firm and fixed position with 'line of sight' between antennas. The City's repeater is located atop the elevated water storage tank adjacent to the Yuma Civic & Convention Center.
 - Power supply: 120VAC with double AC circuit breaker
- Documentation:
 - Three sets of wiring diagrams for the lift station and RTU; three sets of Operation and Maintenance manuals.
- Monitoring and functions to be provided::
 - Pump #1 and Pump #2:
 - Hand, Off, Auto, Thermal Overloads, MAG/Starter Confirm Energized, Loss of Electrical Power (APS), Generator On, Generator Failure, High Level & Low Level Float and AMP Meters for each pump.
 - Analog functions (Pump #1 and Pump #2):
 - L1, L2, L3, Flow Meter, APS / Generator voltage, Ultra Sonic Level (4-20ma)



NUMBER REQUIRED	SUPPORTED PIPE SIZE	'A'	'B'	'C'	'D'	'E'	
						MIN.	MAX.
SIX	6"	3"	5 7/8"	2.5"	11 3/4"	10 3/4"	14 1/2"

NOTES

- Provide a 1" water service, a min. 3/4" water meter and R.P. backflow preventer (Standard No. 5-130).
- Provide access for large service vehicles.
- Switched lighting shall be installed.
- An appropriate shade structure shall be constructed over the control panel.
- W.P.C.F. SCADA/RTU connections required when pump stations are to be used for sanitary sewer.
- Provide 120VAC GFI protected convenience outlet.
- Provide "Generex" diesel (or approved equal) emergency generator.
- Pump controller shall be "Miltronics Hydro Ranger" in conjunction with "Allen Bradley SLC-500".
- Seal all conduit coming from lift station to junction boxes/control panels with duct seal to prevent the migration of gas.
- Adjacent properties shall determine the placement of access gates to the site. Gates shall be double swing and have a minimum width of 20'.
- All valves and check valves shall be installed above ground.
- All hardware and bracing inside the lift station shall be manufactured of Type 316 SST.
- Lift stations equipped with pumps 20HP or less at the inlet shall be supplied with SST strainer baskets to ride on SST guides. A "winch type" swingline hoist shall be installed to facilitate basket removal.
- A soils report prepared by a registered geotechnical engineer shall be submitted to the City Engineer prior to the construction of the lift station. This report shall be used to design the wetwell structure including recommendations for protection from corrosive soils and anchoring if constructed in high ground water conditions.
- The control panel shall contain a properly sized automatic transfer switch for the emergency generator.



ELECTRICAL UTILITY CO.
 ARIZONA PUBLIC SERVICE
 6700 E. 30th Street
 YUMA, ARIZONA 85365

Issued: May 2019

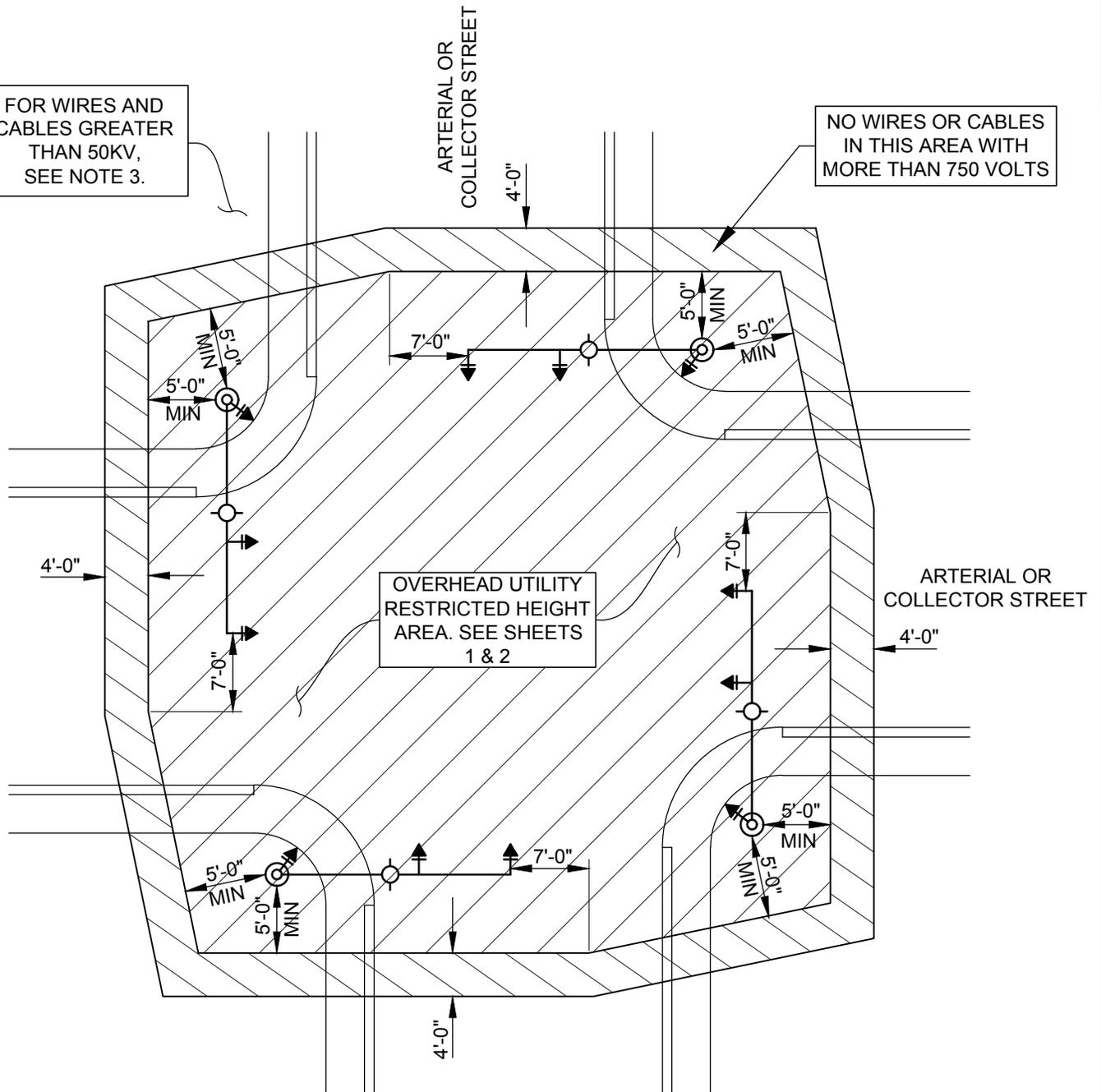
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CITY OF YUMA
 CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 11-130
STORM SEWER LIFT STATION

FOR WIRES AND CABLES GREATER THAN 50KV, SEE NOTE 3.

NO WIRES OR CABLES IN THIS AREA WITH MORE THAN 750 VOLTS



PLAN VIEW

NOTES

1. This standard applies to all signalized intersections regardless of the roadway classifications and to unsignalized intersections of:
 - expressways with expressways
 - expressways with arterials
 - expressways with collectors
 - arterials with arterials
 - arterials with collectors
 - collectors with collectors
2. See city's *TRANSPORTATION MASTER PLAN*, current edition, for roadway classifications.
3. Increase clearances 0.4 inch per KV for all voltages in excess of 50KV.

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<p>CITY OF YUMA CONSTRUCTION STANDARD DETAIL DRAWINGS STANDARD NO. 12-010 OVERHEAD WIRE AND CABLE CLEARANCE AT SIGNIFICANT INTERSECTIONS</p>	