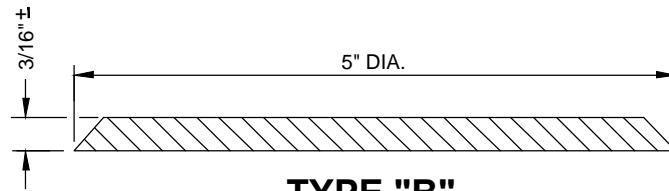


TYPE "A"
TO BE INSTALLED IN WET CONCRETE
DURING CONSTRUCTION

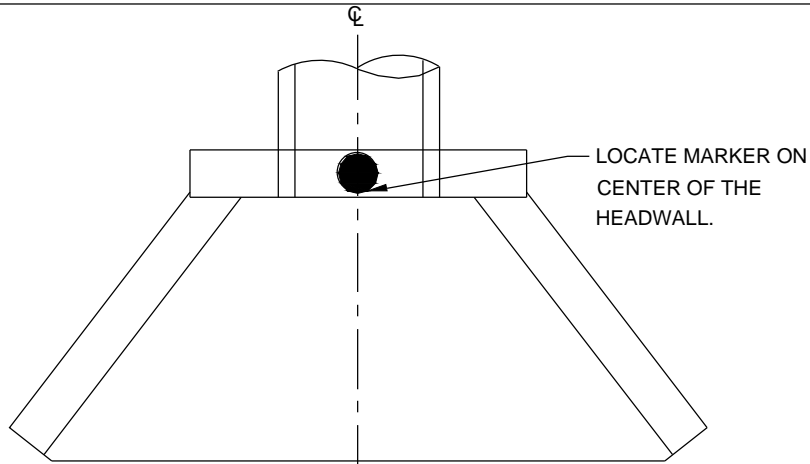


TYPE "B"
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ON EXISTING STRUCTURES



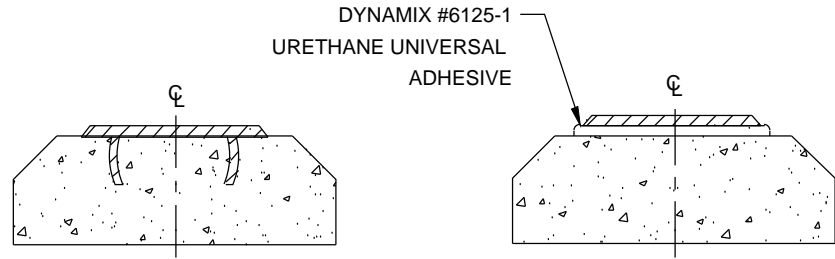
NOTES:

1. MATERIAL: CAST ALUMINUM.
2. THE TOTAL WIDTH OF INDIVIDUAL LETTERS TO BE SUCH THAT LETTERS AND WORDS ARE EQUALLY SPACED AND BALANCED.
3. LETTERS TO BE 1/2" IN HEIGHT. TYPE OF LETTERS TO BE SUBMITTED FOR APPROVAL.



PLAN VIEW

LOCATE MARKER ON CENTER OF THE HEADWALL.

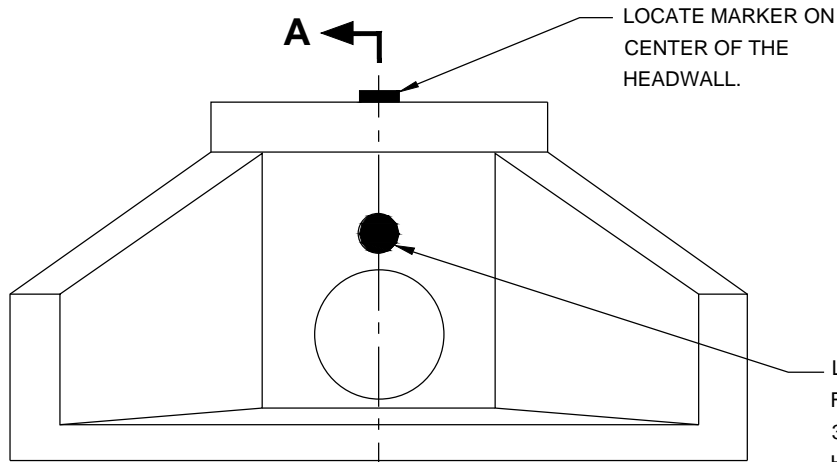


TYPE "A"

TO BE INSTALLED IN WET CONCRETE DURING CONSTRUCTION

TYPE "B"

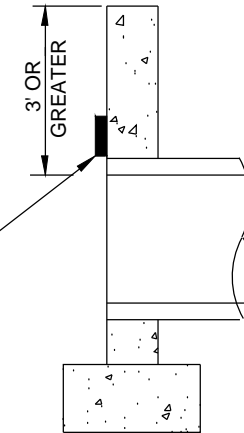
TO BE INSTALLED WITH ADHESIVE ON EXISTING STRUCTURES



SIDE VIEW

LOCATE MARKER ON CENTER OF THE HEADWALL.

LOCATE MARKER ON THE VERTICAL FACE OF HEADWALL WHEN FACE IS 3' OR GREATER. CENTER ON HEADWALL.



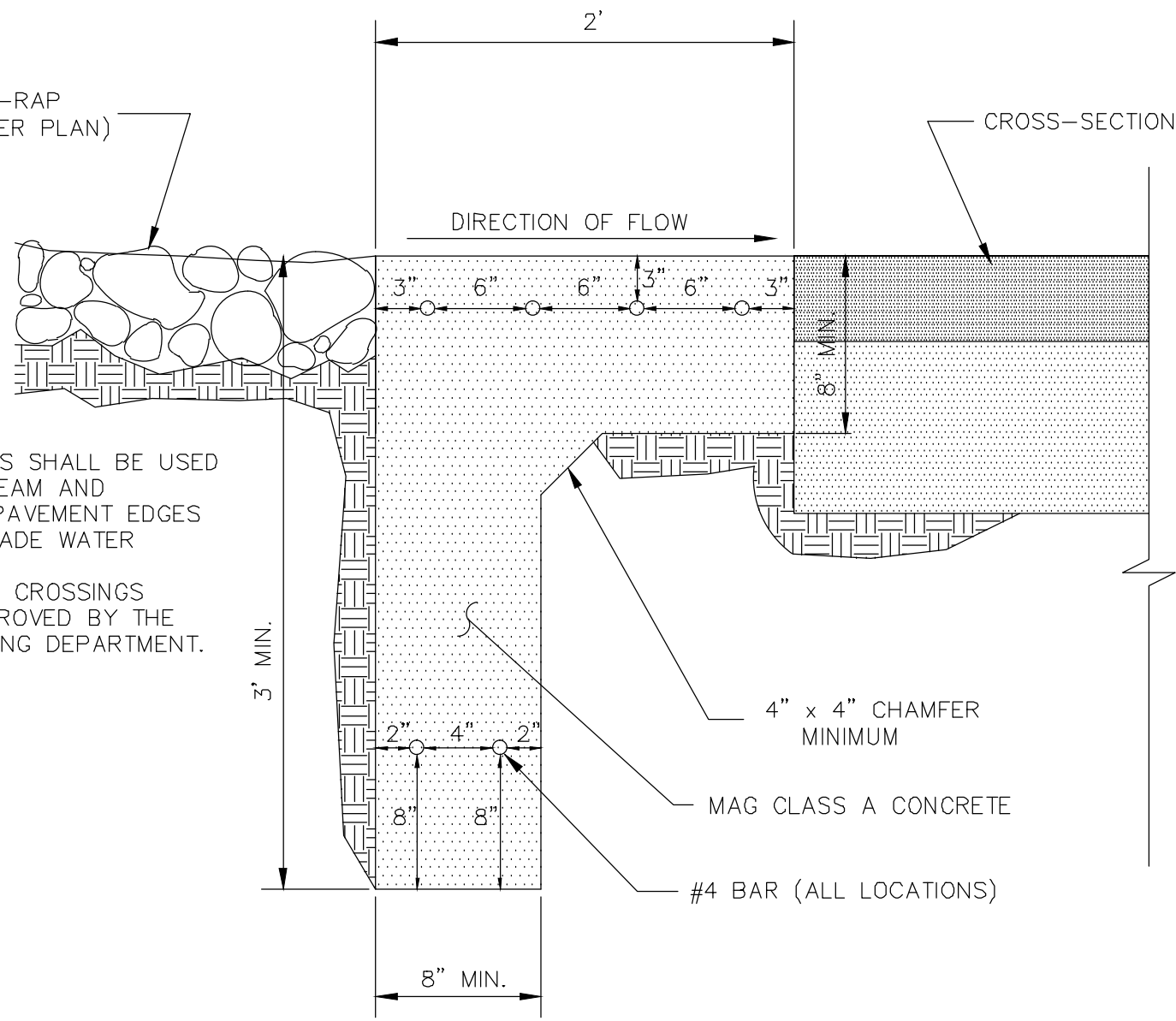
SECTION A-A

RIP-RAP
(D50 PER PLAN)

CROSS-SECTION PER PLANS

DIRECTION OF FLOW

NOTE:
CUT-OFF WALLS SHALL BE USED
AT THE UPSTREAM AND
DOWNSTREAM PAVEMENT EDGES
OF ALL AT-GRADE WATER
CROSSINGS.
ALL AT-GRADE CROSSINGS
SHALL BE APPROVED BY THE
CITY ENGINEERING DEPARTMENT.



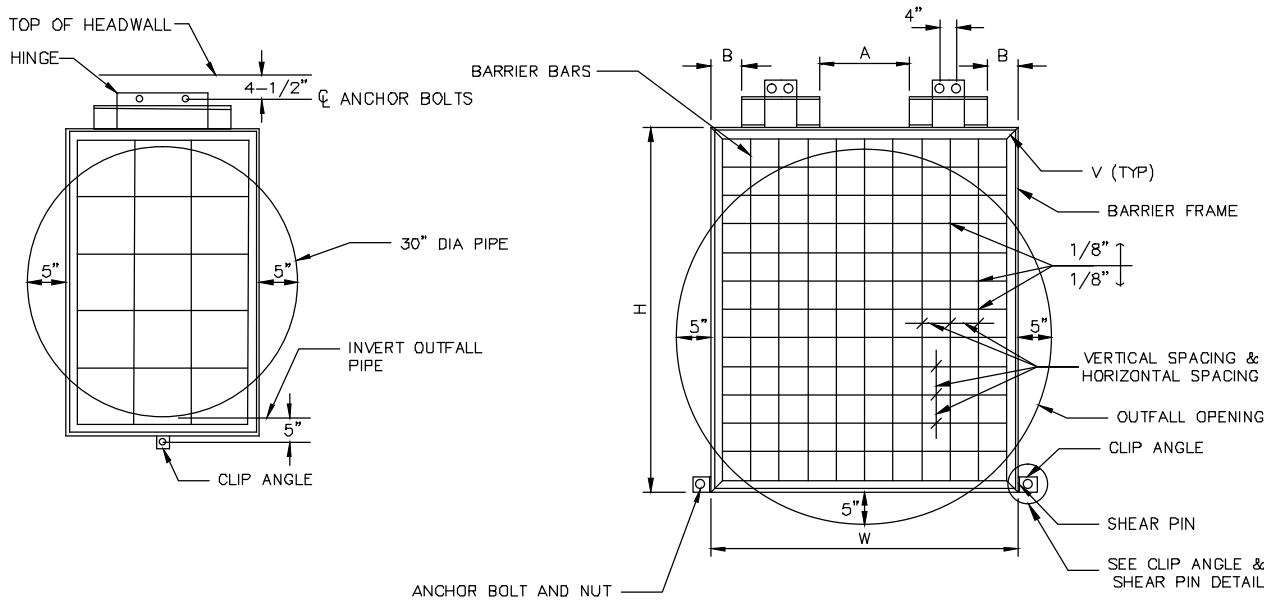
3' MIN.

8" MIN.

4" x 4" CHAMFER
MINIMUM

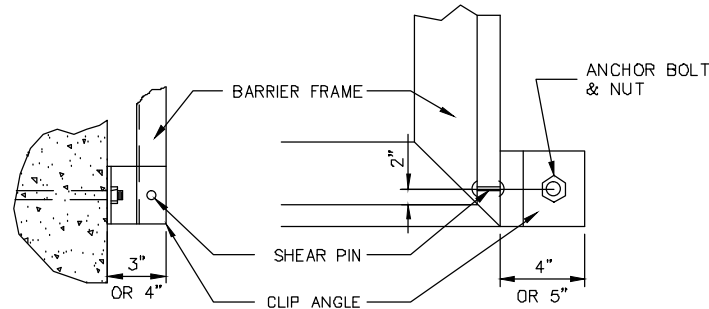
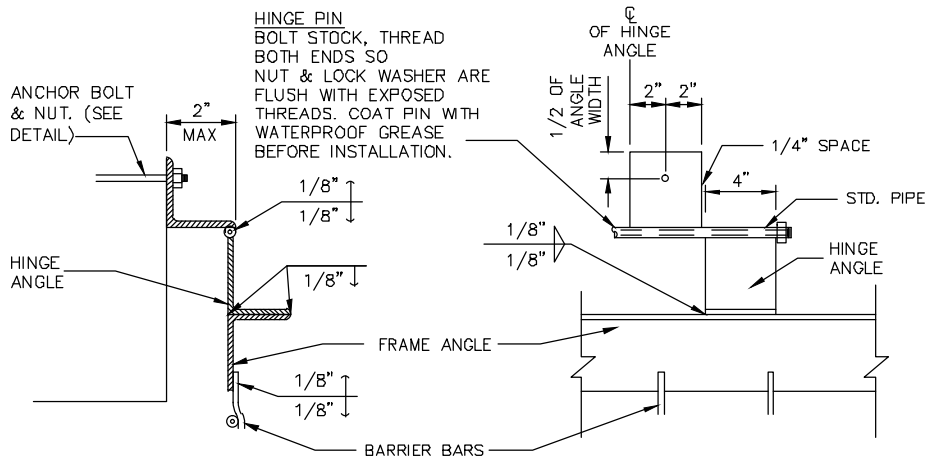
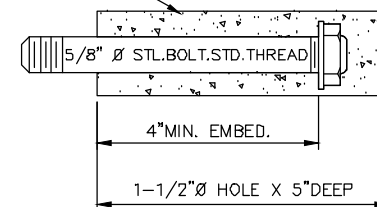
MAG CLASS A CONCRETE

#4 BAR (ALL LOCATIONS)



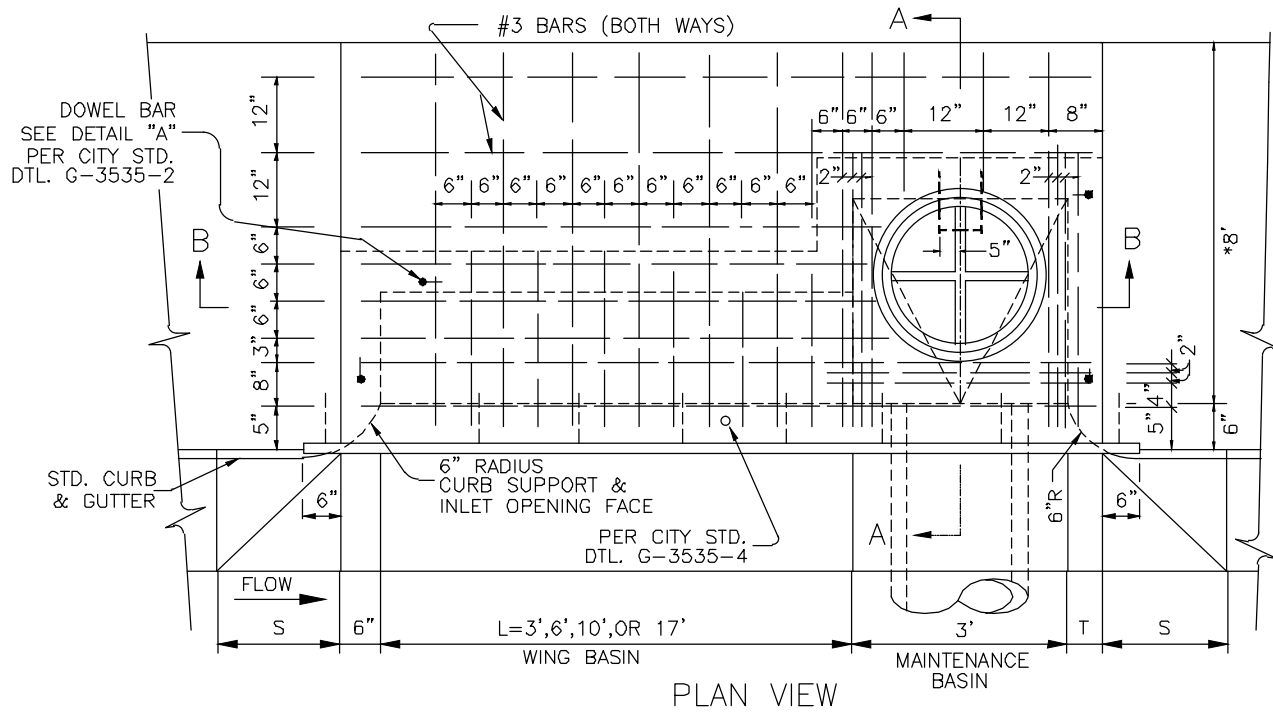
1. ALL SHEAR PIN ANGLES SHALL FIT SNUGLY AND TRULY FACE TO FACE. COVER WITH WATERPROOF GREASE PRIOR TO INSTALLATION OF PIN.
2. GALVANIZE ALL FERROUS PARTS AFTER FABRICATION.
3. THE SHEAR PIN HOLES IN THE ANGLE SHALL BE DRILLED FOR A TIGHT FIT OF THE SHEAR PINS.
4. FRAME AND HINGE ANGLES SHALL HAVE THE OUTSTANDING LEGS OUT FOR OUTLETS.
5. ALL ANCHOR BOLTS SHALL BE 5/8" Ø ANCHOR BOLTS EMBEDDED 4" (MIN.) INTO EPOXY GROUT.
6. ALL SHEAR PINS ARE TO BE PEENED BOTH ENDS AFTER INSTALLATION.
7. SHEAR PIN MATERIAL SHALL BE COMMERCIALY PURE ALUMINUM WIRE.
8. SEE BARRIER SPECIFICATION SCHEDULE, DET. G-3531-2 FOR VARIABLE DIMENSIONS.
9. COVER ALL MOVABLE CONTACT SURFACE WITH A COAT OF WATERPROOF GREASE PRIOR TO INSTALLATION.
10. ALL BARRIER BARS TO BE 1/2" PLAIN.

FILL WITH EPOXY GROUT ALL AROUND.



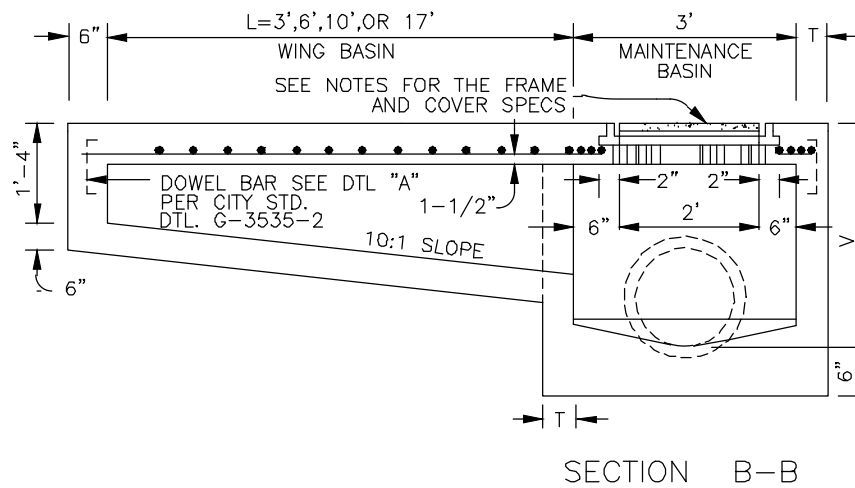
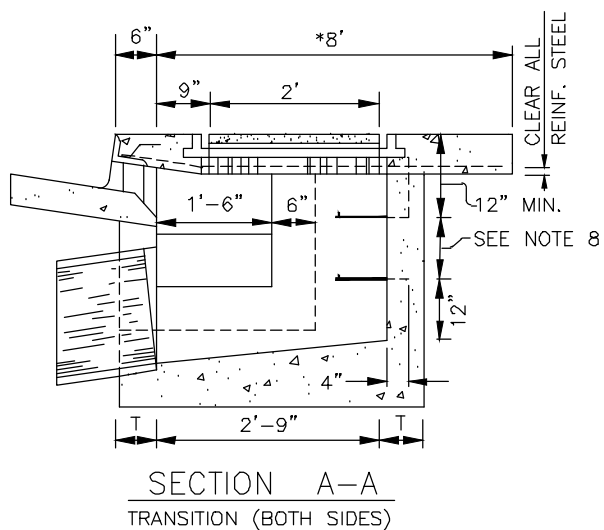
SIZE OF OUTFALL CONDUIT	FRAME ANGLES	SHEAR PIN CLIP ANGLES	SHEAR PINS	ANCHOR BOLTS	HINGE PINS	HINGE ANGLE	HINGE STANDARD PIPE	*NO. OF EQUAL BARRIER BAR SPACES (HORIZ.)	NO. OF EQUAL BARRIER BAR SPACES (VERT.)	H (OUT TO OUT FRAME ANGLES)	W * (OUT TO OUT FRAME ANGLES)	A	B
30"	2x2x1/4	4x4x1/4	1-1/8 ϕ	5/8 ϕ	1/2" ϕ	2x2x1/4	3/4"	3	5	34"	20"	SINGLE HINGE CENTERED	
36"	2x2x1/4	4x4x1/4	1-1/8 ϕ	5/8 ϕ	3/4 ϕ	2-1/2X 2-1/2X1/4	1"	4	6	40"	26"	SINGLE HINGE CENTERED	
42"	2x2x1/4	4x4x1/4	2-1/8 ϕ	5/8 ϕ	1/2" ϕ	2x2x1/4	3/4"	5	6	42"	32"	2 HINGES	
48"	3x3x7/16	5x3x1/4	2-1/8 ϕ	5/8 ϕ	3/4" ϕ	2-1/2x1/4	1"	5	7	47"	38"	3"	1"
54"	3x3x7/16	5x3x1/4	2-1/8 ϕ	5/8 ϕ	3/4" ϕ	2x2x1/4	1"	6	8	54"	44"	5"	3"
60"	3x3x7/16	5x3x1/4	2-1/8 ϕ	5/8 ϕ	3/4" ϕ	2x2x1/4	1"	7	9	60"	50"	9"	4"
66"	3x3x7/16	5x3x1/4	2-1/8 ϕ	5/8 ϕ	3/4" ϕ	2x2x1/4	1"	8	10	66"	56"	11"	6"
72"	4x4x5/8	5x3x1/4	2-3/16 ϕ	5/8 ϕ	1" ϕ	3x3x3/8	1-1/4"	9	11	73"	62"	15"	7"
78"	4x4x5/8	5x3x1/4	2-3/16 ϕ	5/8 ϕ	1" ϕ	3x3x3/8	1-1/4"	10	11	79"	68"	17"	9"
84"	4x4x5/8	5x3x1/4	2-3/16 ϕ	5/8 ϕ	1" ϕ	3x3x3/8	1-1/4"	11	13	86"	74"	21"	10"
90"	4x4x5/8	5x3x1/4	2-3/16 ϕ	5/8 ϕ	1" ϕ	3x3x3/8	1-1/4"	12	13	92"	80"	23"	12"
96"	4x4x5/8	5x3x1/4	2-3/16 ϕ	5/8 ϕ	1" ϕ	3x3x3/8	1-1/4"	12	14	98"	86"	29"	12"

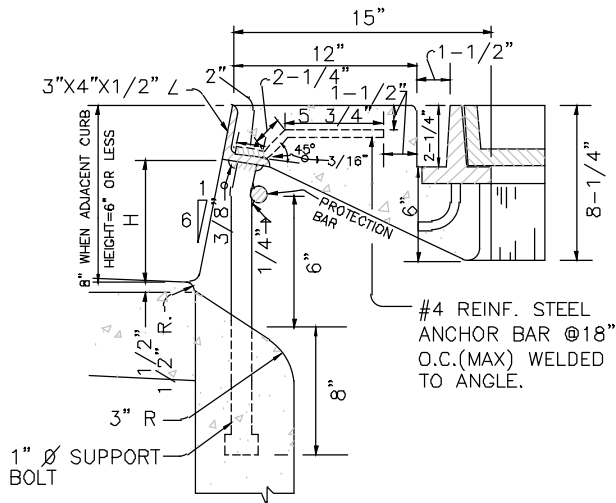
*NOTE: ADJUST THESE VALUES FOR SKEWED CONDUITS. PROVIDE 5" MAXIMUM OPENING AT EACH SIDE AND BETWEEN BARS.



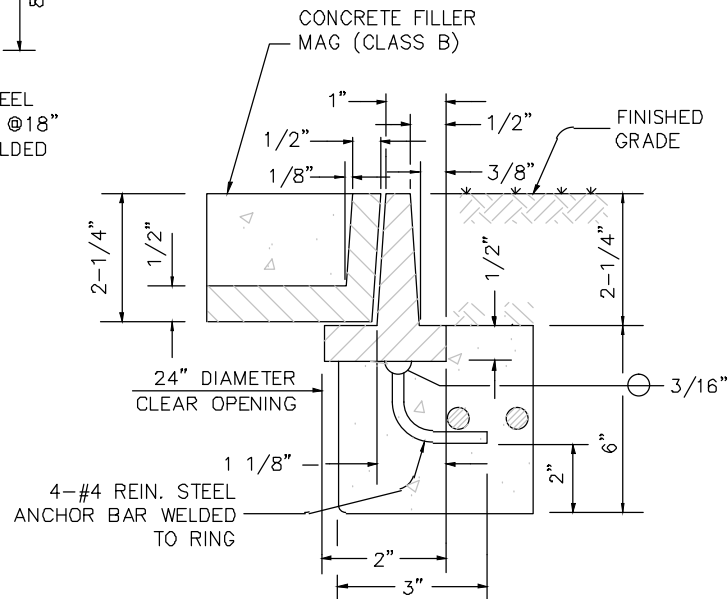
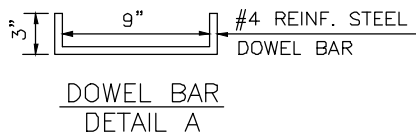
NOTES

1. FOR CONSTRUCTION NOTES, TABLES AND ADDITIONAL DETAILS SEE CITY STD DTL. G-3535-2.

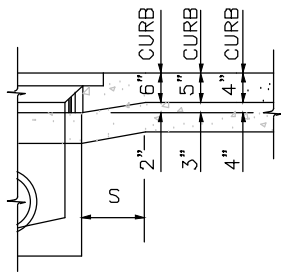




INLET CURB OPENING



CATCH BASIN LID WITHIN LANDSCAPE



DEPRESSED GUTTER

TABLE A

CATCH BASIN WALL THICKNESS
T = 6" IF V = 4' OR LESS
T = 8" IF V = 4' TO 8'
(IF V EXCEEDS 8', SPECIAL DESIGN IS REQUIRED.)
L = 0' UNLESS SPECIFIED ON THE PLANS
V = 3'-6" MIN. WHEN L = 0', 3', OR 6'
V = 4' MIN. WHEN L = 10' OR 17'

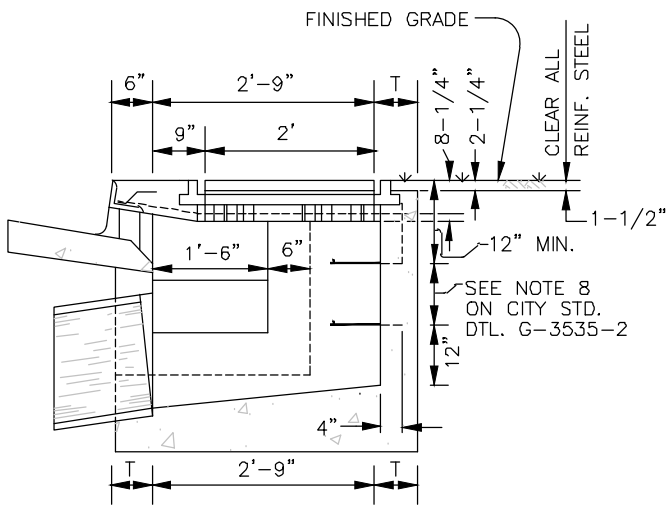
*5' IN LOCATIONS WHERE 5' SIDEWALK IS ALLOWED

NOTES

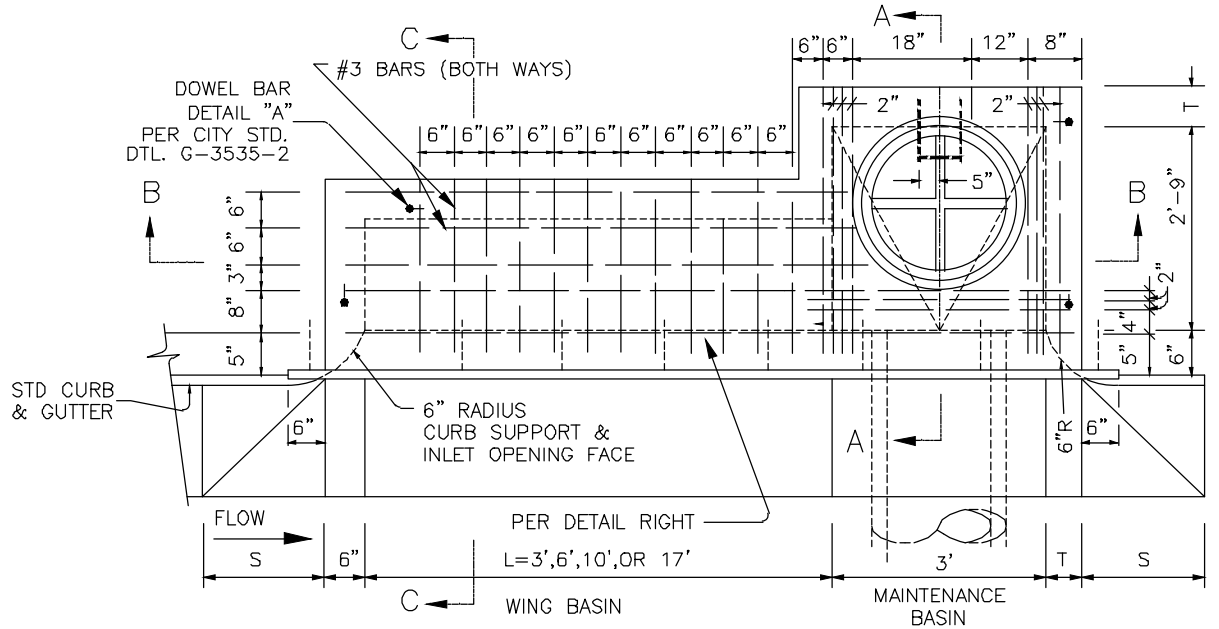
1. TYPES ARE DESIGNATED AS FOLLOWS:
'M'.. NO WING; 'M-1'.. ONE WING;
'M-2'.. TWO WINGS.
2. ALL CONCRETE SHALL BE CLASS 'A'.
3. ALL REINFORCING STEEL SHALL BE DEFORMED BARS AND SHALL CONFORM TO ASTM SPECIFICATION 615.
4. CONNECTOR PIPES SHALL BE PLACED IN THE APPROPRIATE WALL OF THE MAINTENANCE BASIN.
5. FLOOR OF BASIN SHALL BE TROWELLED TO A HARD, SMOOTH SURFACE AND SHALL SLOPE FROM ALL DIRECTIONS TO OUTLET.
6. CONSTRUCTION DRAINS SHALL BE INSTALLED IN ALL INLETS BUILT WITH PAVING PROJECTS.
7. LOCATE WING BASIN ON UPSTREAM SIDE OF MAINTENANCE BASIN FOR TYPE M-1. WING BASINS FOR TYPE M-2 SHALL BE BOTH SIDES OF MAINTENANCE BASIN.
8. STEPS (MAG DTL. 428 POLYPROPYLENE)- V=3' (INCL.), PLACE ONE STEP 12" ABOVE THE FLOOR OF THE BASIN. V OVER 3', PLACE STEPS AT 12" INTERVALS FROM THE FLOOR OF THE BASIN WITH THE TOP STEP AT 12" (MIN.) BELOW THE TOP OF THE GRATE.
9. ACCESS FRAME AND COVER PER MAG STD DTL. 536-2

TABLE B

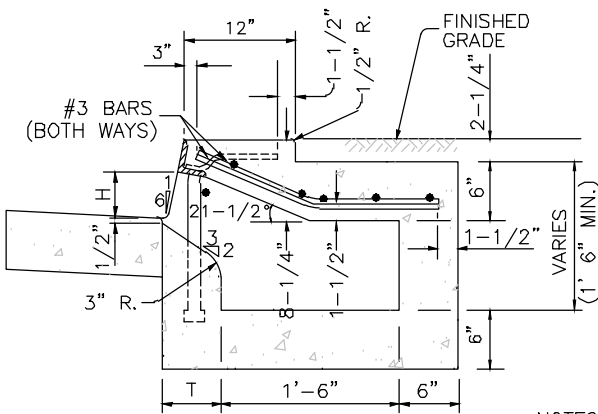
GUTTER TRANSITION	
CURB HEIGHT (H)	DIM 'S'
4"	3'-3"
5"	2'-6"
6"	1'-9"



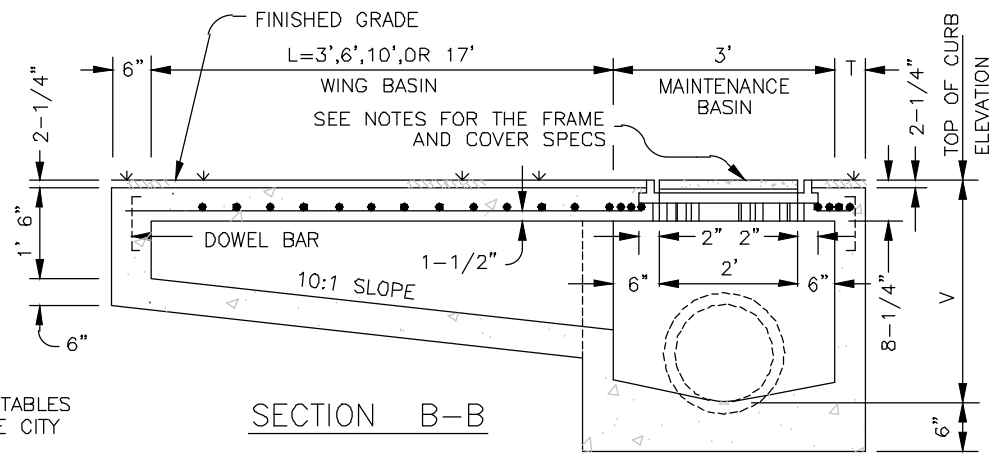
SECTION A-A



PLAN VIEW



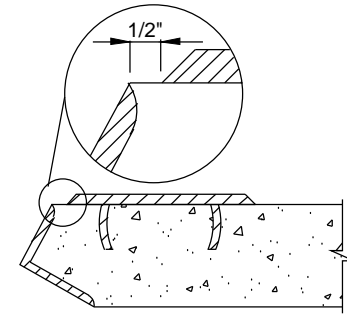
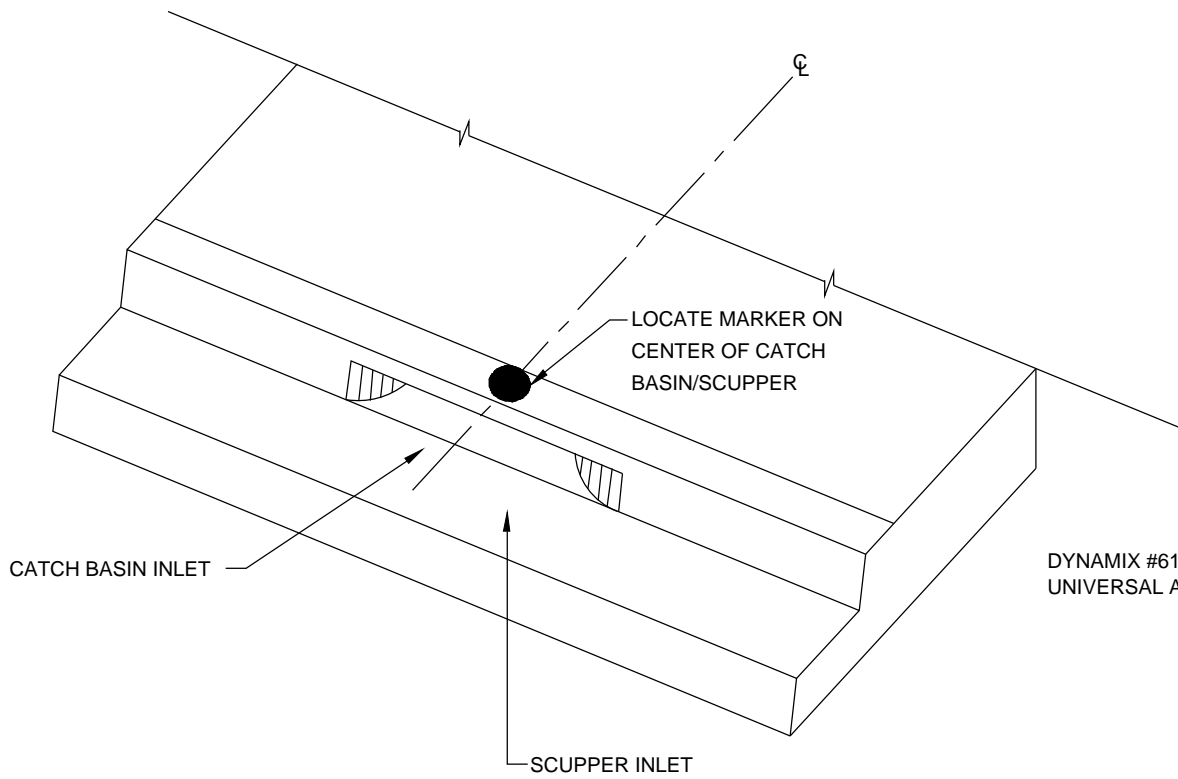
SECTION C-C



SECTION B-B

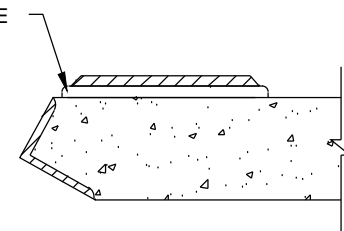
NOTES:

1. FOR CONSTRUCTION NOTES, TABLES AND ADDITIONAL DETAILS SEE CITY STD. DTL. G-3535-2.
2. SEE G-3535-2 FOR FRAME & COVER IN LANDSCAPE INFORMATION.

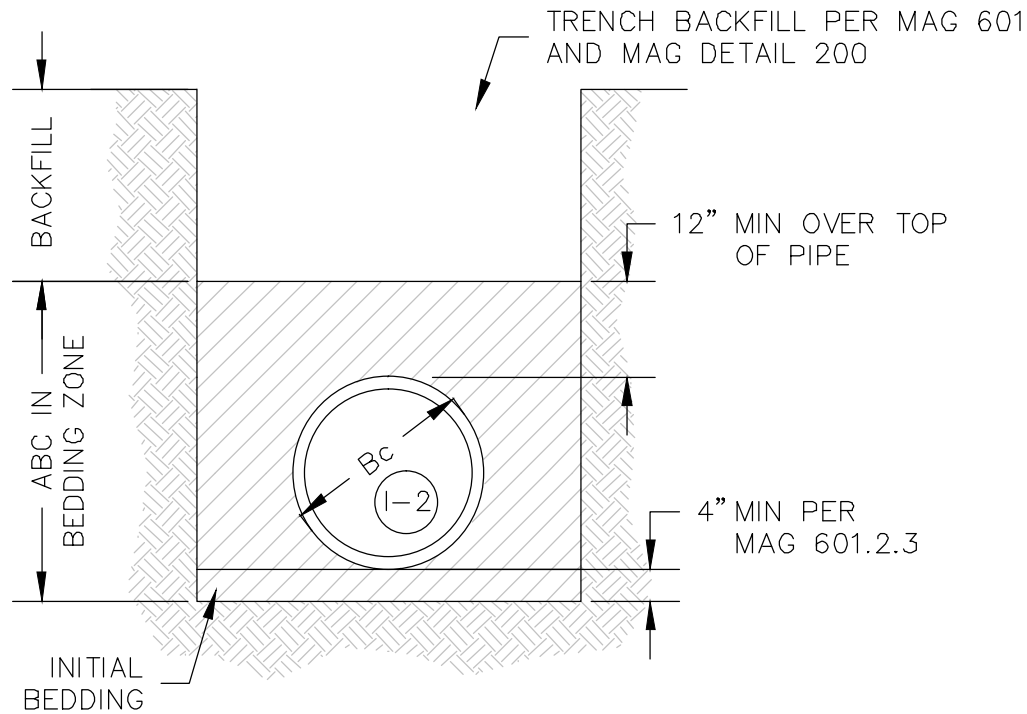


TYPE "A"
TO BE INSTALLED IN WET CONCRETE DURING CONSTRUCTION

DYNAMIX #6125-1 URETHANE UNIVERSAL ADHESIVE



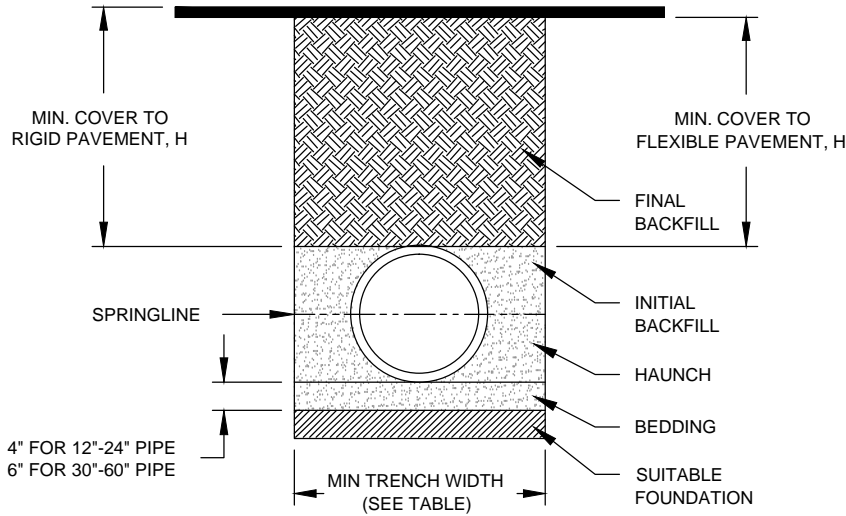
TYPE "B"
TO BE INSTALLED WITH ADHESIVE ON EXISTING STRUCTURES



NOTES:

1. FOR USE WITH CORRUGATED HDPE PIPE WHICH SHALL CONFORM WITH MAG 618. HDPE PIPE SHALL NOT EXCEED 48" IN DIAMETER.
2. ALL ABC BEDDING MATERIAL TO BE IN ACCORDANCE WITH MAG 603.4.6, WITH MINIMUM THICKNESS PER THIS DETAIL.
3. NO BEDDING IS TO BE CONSIDERED TO BE A PART OF THE ROADWAY STRUCTURAL SECTION.
4. CONTRACTOR SHALL TAKE PRECAUTIONS TO AVOID PIPE MOVEMENT WHEN PLACING BEDDING.
5. THIS DETAIL IS NOT TO SUPERSEDE MORE STRINGENT MANUFACTURER REQUIREMENTS.
- 6.
7. COMPACTION TESTS SHALL BE DONE ON BOTH SIDES OF THE PIPE. THE MINIMUM NUMBER OF TESTS TO BE PROVIDED IS ONCE PER ROADWAY TRAVEL LANE, AT INTERVALS, OR FOR THE DAY'S WORK IF IT IS LESS THAN 100'.
8. PIPES 18" TO 24" WILL BE MANDREL-TESTED FOR 5% MAXIMUM DEFLECTION PER ASTM F-894.
9. TRENCH EXCAVATION PER MAG 603.2.

TRENCH INSTALLATION DETAIL



NOTES:

1. ALL PIPE SYSTEMS SHALL BE INSTALLED PER MAG SECTION 618.

TABLE 1, RECOMMENDED MINIMUM TRENCH WIDTHS

PIPE DIAM.	MIN. TRENCH WIDTH
12" (300mm)	30" (762mm)
15" (375mm)	34" (864mm)
18" (450mm)	39" (991mm)
24" (600mm)	48" (1219mm)
30" (750mm)	56" (1422mm)
36" (900mm)	64" (1626mm)
42" (1050mm)	72" (1829mm)
48" (1200mm)	80" (2032mm)
60" (1500mm)	96" (2438mm)

TABLE 2, MINIMUM RECOMMENDED COVER BASED ON VEHICLE LOADING CONDITIONS

PIPE DIAM.	SURFACE LIVE LOADING CONDITION	
	H-25	HEAVY CONSTRUCTION (75T AXLE LOAD) *
12" - 48" (300mm - 1200mm)	12" (305mm)	48" (1219mm)
60" (1500mm)	24" (610mm)	60" (1524mm)

* VEHICLES IN EXCESS OF 75T MAY REQUIRE ADDITIONAL COVER

TABLE 3, MAXIMUM COVER FOR ADS HP STORM PIPE, ft

PIPE DIA	CLASS I	CLASS II			CLASS III		CLASS IV
	COMPACTED	95%	90%	85%	95%	90%	95%
12" (300mm)	41 (12.5m)	28 (8.5m)	21 (6.4m)	16 (4.9m)	20 (6.1m)	16 (4.9m)	16 (4.9m)
15" (375mm)	42 (12.8m)	29 (8.8m)	21 (6.4m)	16 (4.9m)	21 (6.4m)	16 (4.9m)	16 (4.9m)
18" (450mm)	44 (13.4m)	30 (9.1m)	21 (6.4m)	16 (4.9m)	22 (6.7m)	17 (5.2m)	16 (4.9m)
24" (600mm)	37 (11.3m)	26 (7.9m)	18 (5.5m)	14 (4.3m)	19 (5.8m)	14 (4.3m)	14 (4.3m)
30" (750mm)	39 (11.9m)	27 (8.2m)	19 (5.8m)	14 (4.3m)	19 (5.8m)	15 (4.6m)	14 (4.3m)
36" (900mm)	28 (8.5m)	20 (6.1m)	14 (4.3m)	10 (3.0m)	14 (4.3m)	11 (3.4m)	10 (3.0m)
42" (1050mm)	30 (9.1m)	21 (6.4m)	14 (4.3m)	10 (3.0m)	15 (4.6m)	11 (3.4m)	10 (3.0m)
48" (1200mm)	29 (8.8m)	20 (6.1m)	14 (4.3m)	9 (2.7m)	14 (4.3m)	10 (3.0m)	10 (3.0m)
60" (1500mm)	29 (8.8m)	20 (6.1m)	14 (4.3m)	9 (2.7m)	14 (4.3m)	10 (3.0m)	9 (2.7m)

FILL HEIGHT TABLE GENERATED USING AASHTO SECTION 12, LOAD RESISTANCE FACTOR DESIGN (LRFD) PROCEDURE WITH THE FOLLOWING ASSUMPTIONS:
NO HYDROSTATIC PRESSURE

HP STORM TRENCH INSTALLATION DETAIL (ALTERNATE)

TABLE 1, RECOMMENDED MINIMUM TRENCH WIDTHS

PIPE DIAM.	MIN. TRENCH WIDTH
12" (300mm)	30" (762mm)
15" (375mm)	34" (864mm)
18" (450mm)	39" (991mm)
24" (600mm)	48" (1219mm)
30" (750mm)	56" (1422mm)
36" (900mm)	64" (1626mm)
42" (1050mm)	72" (1829mm)
48" (1200mm)	80" (2032mm)
60" (1500mm)	96" (2438mm)

NOTES:

1. ALL PIPE SYSTEMS SHALL BE INSTALLED PER MAG SECTION 618.

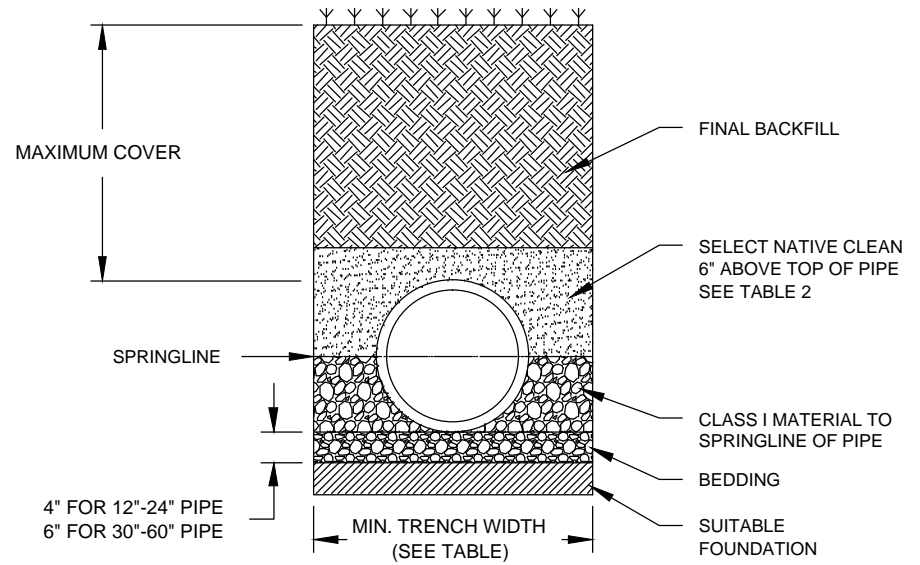


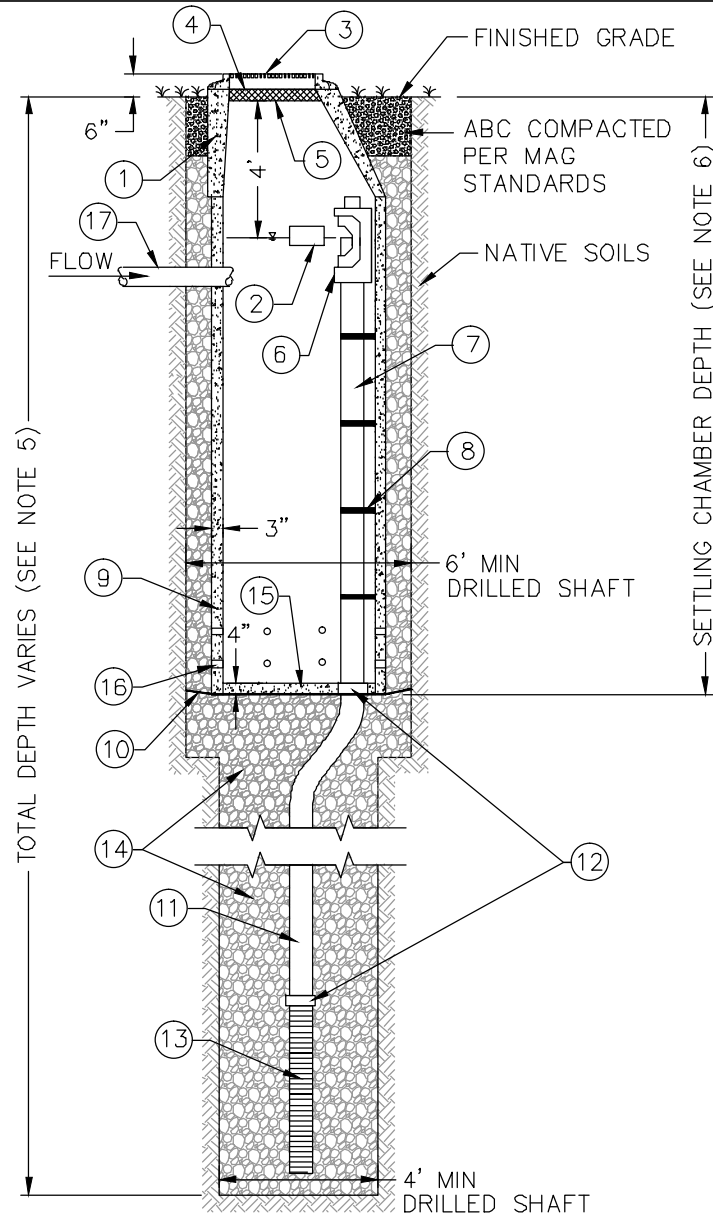
TABLE 2, MAXIMUM COVER FOR ADS HP STORM PIPE, ALTERNATE INSTALLATION, ft ($\gamma \leq 120$)

PIPE DIAM.	SELECT NATIVE CLEAN MATERIAL CLASSIFICATION		
	CLASS II	CLASS III	CLASS IV
12" (300mm)	17 (5.2m)	14 (4.3m)	11 (3.4m)
15" (375mm)	17 (5.2m)	14 (4.3m)	10 (3.0m)
18" (450mm)	16 (4.9m)	13 (4.0m)	10 (3.0m)
24" (600mm)	14 (4.3m)	12 (3.7m)	9 (2.7m)
30" (750mm)	13 (4.0m)	12 (3.7m)	8 (2.4m)
36" (900mm)	11 (3.4m)	11 (3.4m)	7 (2.1m)
42" (1050mm)	11 (3.4m)	11 (3.4m)	7 (2.1m)
48" (1200mm)	11 (3.4m)	10 (3.0m)	6 (1.8m)
60" (1500mm)	11 (3.4m)	10 (3.0m)	6 (1.8m)

FILL HEIGHT TABLE GENERATED ASSUMING DRY CONDITIONS, OUTSIDE OF WATER TABLE. FOR INSTALLATION WITHIN THE WATER TABLE, CONTACT APPLICATIONS ENGINEERING.

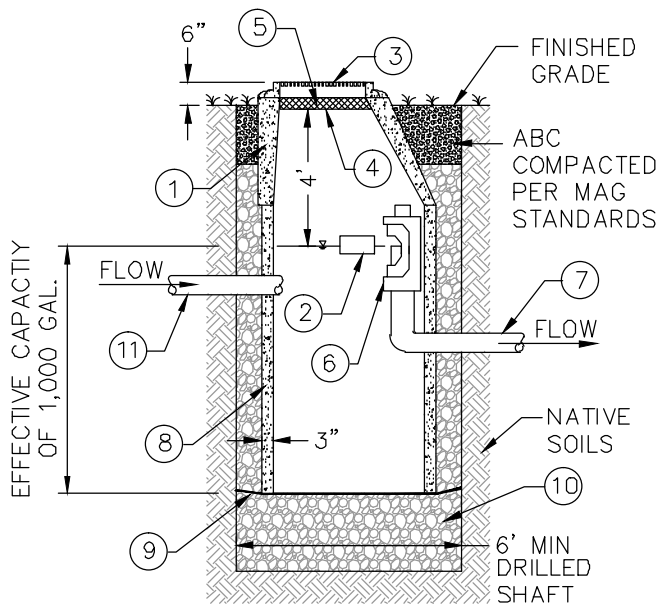
SPECIFICATIONS:

1. MODIFIED MANHOLE CONE.
2. HYDROPHOBIC PETROCHEMICAL SPONGE. MIN 128 oz. CAPACITY.
3. MINIMUM 30" DIA. BOLTED RING AND GRATE. FOR USE IN RETENTION BASIN BOTTOM ONLY (TOP OF GRATE RAISED TO 6" ABOVE BASIN BOTTOM). OR MINIMUM 30" DIA. BOLTED C.I. RING AND COVER WITH RAISED LETTERS "STORM WATER ONLY". FOR USE OUTSIDE OF RETENTION BASIN BOTTOM (TOP SHALL BE FLUSH WITH ADJACENT FINISHED GRADE).
4. FABRIC SEAL - 100X U.V. RESISTANT GEOTEXTILE - TO BE REMOVED BY OWNER AT PROJECT COMPLETION. FOR USE WITH GRATE ONLY.
5. DEBRIS BASKET - 6" X 30" DIA. 10 GA. FLATTENED EXPANDED STEEL SCREEN. FUSION BONDED EPOXY COATED. FOR USE WITH GRATE ONLY.
6. DEBRIS SCREEN - ANTI SIPHON (ROLLED 13 GAGE BY 0.265" MAXIMUM SWO FLATTENED EXPANDED STEEL. GALVANIZED OR FUSION BONDED EPOXY COATED.
7. 8" DIA. SCHEDULE 40 PVC OVERFLOW PIPE.
8. SUPPORT BRACKET (TYP.) GALVANIZED OR FUSION BONDED EPOXY COATED STEEL MIN. 3/8".
9. PRECAST CONCRETE LINER, 4000 PSI - 48" ID, 54" OD.
10. GEOFABRIC 100 mil MIN., 300 lb. MIN. T.S.
11. 6" - 12" DIA. SCH. 40 PVC INJECTION PIPE. NO PERFORATIONS.
12. COUPLER (MDI CAULDER, TRI-A, OR EQUAL).
13. INJECTION SCREEN - SCH. 40 PVC 0.120" SLOTTED WELL SCREEN WITH 23 SLOTS PER ROW/FT. 6" - 12" DIA. OVERALL LENGTH = 96" WITH COUPLER.
14. 3/8" TO 1-1/2" WASHED ROCK.
15. 4" THICK CONCRETE BASE FOR USE WITH THE PARKING LOT DRAINAGE DRYWELL ONLY.
16. 1" DIA. PERFORATIONS - 8 PER LINEAR FOOT FOR BOTTOM 3 FEET OF CHAMBER. APPLIES TO THE PARKING LOT DRAINAGE DRYWELL USE ONLY.
17. OPTIONAL INFLOW PIPE OR PRE-TREATMENT CONNECTOR PIPE - MIN. 4" DIA. SCH. 40 PIPE.



NOTES:

1. STD. DRYWELLS SHALL BE LOCATED NO CLOSER THAN 20' TO THE NEAREST OUTFALL THAT CONVEYS STORMWATER FROM PAVED AREAS.
2. A PERCOLATION TEST SHALL BE PERFORMED ON THE DRYWELL TO VERIFY THAT DESIGN PERCOLATION RATES HAVE BEEN ACHIEVED. A COPY OF THE REPORT SHALL BE SUBMITTED TO THE CITY PRIOR TO FINAL APPROVAL OF THE GRADING AND DRAINAGE AND DRYWELL CONSTRUCTION FOR THE PROJECT. TEST WATER SHALL BE POTABLE WATER ONLY PER ORDINANCE.
3. DRYWELLS WITH BORE LOGS THAT INDICATE GREATER THAN 10 FEET OF PERMEABLE SOIL HAS BEEN PENETRATED AS DETERMINED BY A GEOTECHNICAL ENGINEER SHALL NOT REQUIRE A PERCOLATION TEST.
4. DRYWELL AS-BUILT DRAWINGS SHALL PROVIDE THE ADEQ REGISTRATION NUMBER, LATITUDE AND LONGITUDE, AND ANNUAL DRYWELL INSPECTION REPORT FOR EACH DRYWELL CONSTRUCTED ON A PROJECT
5. THE TOTAL DEPTH OF A DRYWELL SHALL BE 75' OR UNTIL 10' OF PERMEABLE SOIL IS PENETRATED.
6. THE DEPTH OF THE SETTLING CHAMBER SHALL BE A MINIMUM OF 18'. GREATER DEPTHS MAY BE REQUIRED BY THE CITY ENGINEERING DEPARTMENT.

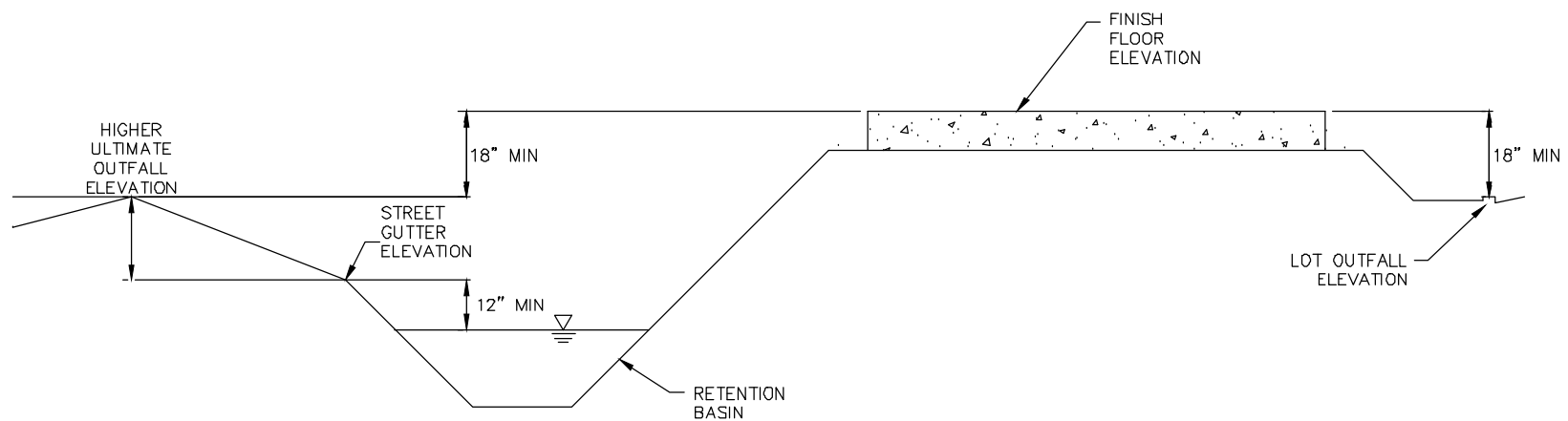
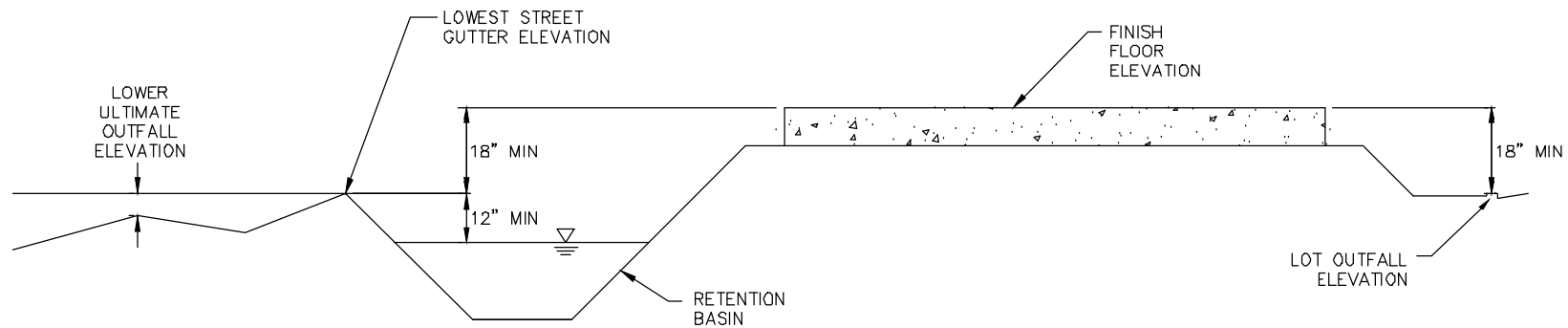


NOTES:

1. DRYWELL PRE-TREATMENT CHAMBERS SHALL BE USED TO IN RETENTION BASINS THAT COLLECT DRAINAGE DIRECTLY FROM PARKING LOTS OR OTHER AREAS THAT GENERATE HIGH LEVELS OF OILS, SANDS, AND DEBRIS.
2. DRYWELL PRE-TREATMENT CHAMBERS SHALL BE USED IN CONJUNCTION WITH A STANDARD DRYWELL WITH THE MODIFICATIONS AS INDICATED ON THE STANDARD DRYWELL DETAIL.

SPECIFICATIONS:

1. MODIFIED MANHOLE CONE.
2. HYDROPHOBIC PETROCHEMICAL SPONGE. MIN 128 oz. CAPACITY.
3. MINIMUM 30" DIA. BOLTED RING AND GRATE. FOR USE IN RETENTION BASIN BOTTOM ONLY.
4. FABRIC SEAL - 100X U.V. RESISTANT GEOTEXTILE - TO BE REMOVED BY OWNER AT PROJECT COMPLETION.
5. DEBRIS BASKET - 6" X 30" DIA. 10 GA. FLATTENED EXPANDED STEEL SCREEN. FUSION BONDED EPOXY COATED.
6. DEBRIS SCREEN - ANTI SIPHON (ROLLED 13 GAGE BY 0.265" MAXIMUM SWO FLATTENED EXPANDED STEEL. GALVANIZED OR FUSION BONDED EPOXY COATED.
7. 8" DIA. SCHEDULE 40 PVC CONNECTOR PIPE WITH FLOW REGULATOR. SEE NOTE 1. 10-FOOT MINIMUM.
8. PRECAST CONCRETE LINER, 4000 PSI - 48" ID, 54" OD.
9. GEOFABRIC 100 mil MIN., 300 lb. MIN. T.S.
10. 3/8" TO 1-1/2" WASHED ROCK.
11. INFLOW PIPE - MINIMUM 4" DIA. SCH. 40 PIPE.



SILT CONTROL BARRIER
(IF NEEDED FOR
RUN-ON CONTROL)

REAR LOT LINE

SILT FENCE
(TYP)

SIDE LOT LINE

SIDE LOT LINE

DIRECTION OF
RUNOFF



STUCCO
WASHOUT

DIRECTION OF
RUNOFF



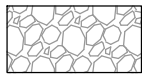
R/W

CURB LINE

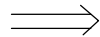
LOT LINE



SILT CONTROL
BARRIER



GRAVEL
ENTRANCE



DIRECTION OF SURFACE
WATER RUNOFF