

*RIGID PAVEMENT ONLY

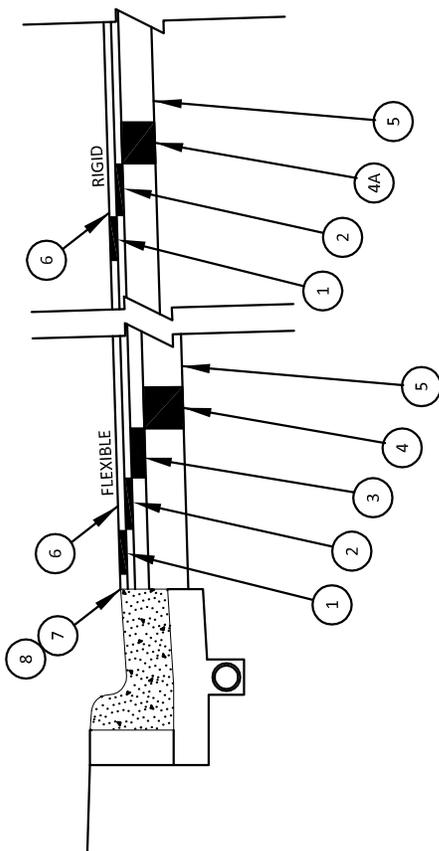
STANDARD CONCRETE COMBINED CURB AND GUTTER

NO. 57 AGGREGATE
4" PIPE UNDERDRAIN

SLOPE 1/4" PER FT.

PROFILE GRADE

EARTH



PAVEMENT SECTION

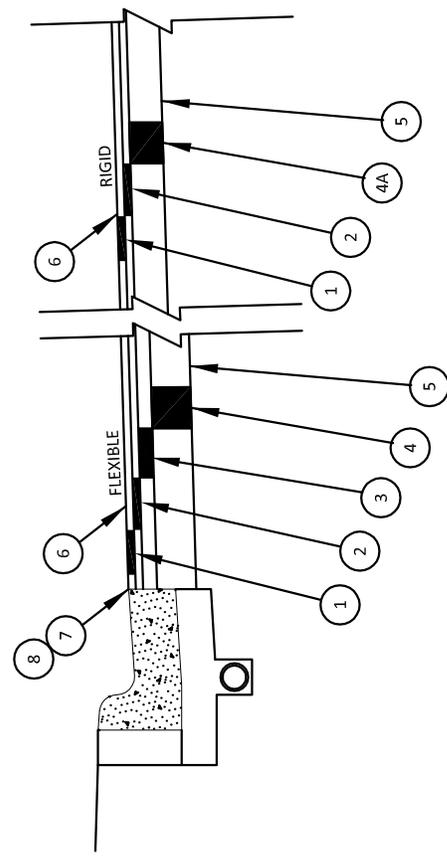
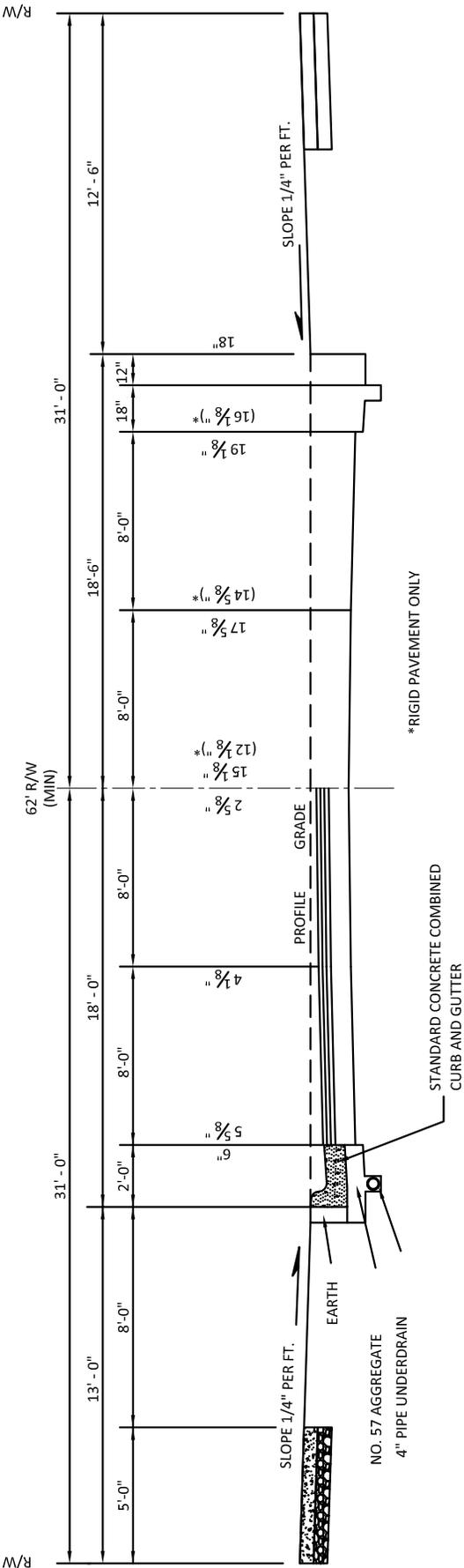
- 1 1 1/2" ASPHALT CONCRETE, ITEM 448 TYPE 1 (MEDIUM TRAFFIC) PG 64-22
- 2 2" ASPHALT CONCRETE, ITEM 448 TYPE 2 - INTERMEDIATE COURSE (MEDIUM TRAFFIC) PG 64-22
- 3 3" ASPHALT CONCRETE BASE, ITEM 301, PG 64-22
- 4 6" AGGREGATE BASE, ITEM 304
- 4A 6" PORTLAND CEMENT CONCRETE BASE, CLASS 'C', ITEM 305 OR RCC SUPPLEMENTAL SPEC 1523
- 5 SUBGRADE COMPACTION, ITEM 203
- 6 ASPHALT REJUVENATE PER SUPPLEMENTAL SPEC 1540
- 7 ITEM 407, TACK FACE OF CURB PRIOR TO PAVING
- 8 ITEM 423, CRACK SEAL EDGE JOINTS

PAVEMENT DETAIL



STANDARD DETAIL
28'-0 LOCAL
PAVEMENT SECTION

ROADWAY
RDWD-1.0
Rev. 03/01/2012



PAVEMENT SECTION

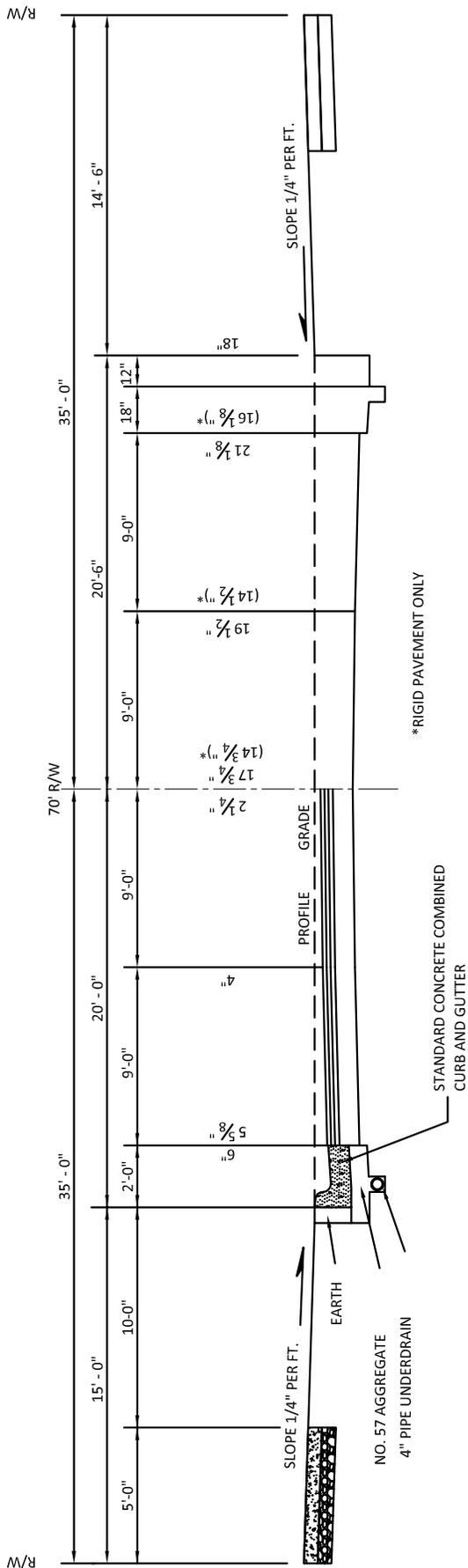
- 1 1 1/2" ASPHALT CONCRETE, ITEM 448 TYPE 1 (MEDIUM TRAFFIC) PG 64-22
- 2 2" ASPHALT CONCRETE, ITEM 448 TYPE 2 - INTERMEDIATE COURSE (MEDIUM TRAFFIC) PG 64-22
- 3 3" ASPHALT CONCRETE BASE, ITEM 301, PG 64-22
- 4 6" AGGREGATE BASE, ITEM 304
- 4A 6" PORTLAND CEMENT CONCRETE BASE, CLASS 'C', ITEM 305 OR RCC SUPPLEMENTAL SPEC 1523
- 5 SUBGRADE COMPACTION, ITEM 203
- 6 ASPHALT REJUVENATE PER SUPPLEMENTAL SPEC 1540
- 7 ITEM 407, TACK FACE OF CURB PRIOR TO PAVING
- 8 ITEM 423, CRACK SEAL EDGE JOINTS

PAVEMENT DETAIL



STANDARD DETAIL
32'-0 LOCAL
PAVEMENT SECTION

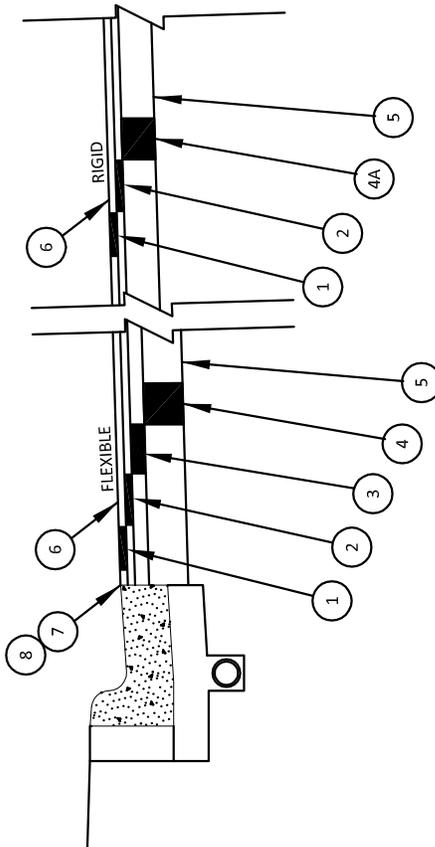
ROADWAY
RDWD-2.0
Rev. 03/01/2012



*RIGID PAVEMENT ONLY

STANDARD CONCRETE COMBINED CURB AND GUTTER

NO. 57 AGGREGATE
4" PIPE UNDERDRAIN



PAVEMENT SECTION

- 1 1 1/2" ASPHALT CONCRETE, ITEM 448 TYPE 1 (MEDIUM TRAFFIC) PG 64-22
- 2 2" ASPHALT CONCRETE, ITEM 448 TYPE 2 - INTERMEDIATE COURSE (MEDIUM TRAFFIC) PG 64-22
- 3 6" ASPHALT CONCRETE AGGREGATE BASE, ITEM 301, PG 64-22
- 4 6" AGGREGATE BASE, ITEM 304
- 4A 7" PORTLAND CEMENT CONCRETE BASE, CLASS 'C', ITEM 305 OR RCC SUPPLEMENTAL SPEC 1523
- 5 SUBGRADE COMPACTION, ITEM 203
- 6 ASPHALT REJUVENATE PER SUPPLEMENTAL SPEC 1540
- 7 ITEM 407, TACK FACE OF CURB PRIOR TO PAVING
- 8 ITEM 423, CRACK SEAL EDGE JOINTS

PAVEMENT DETAIL

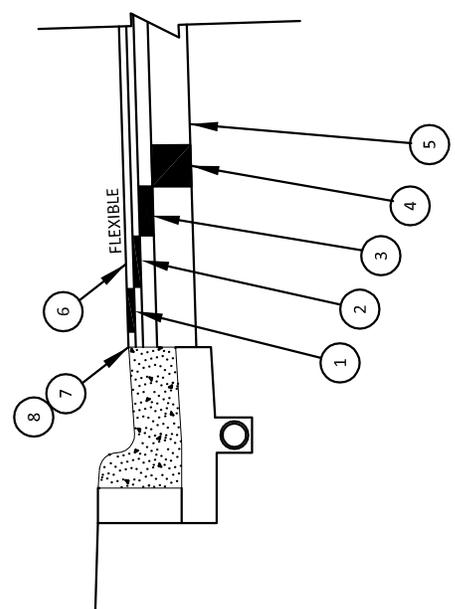
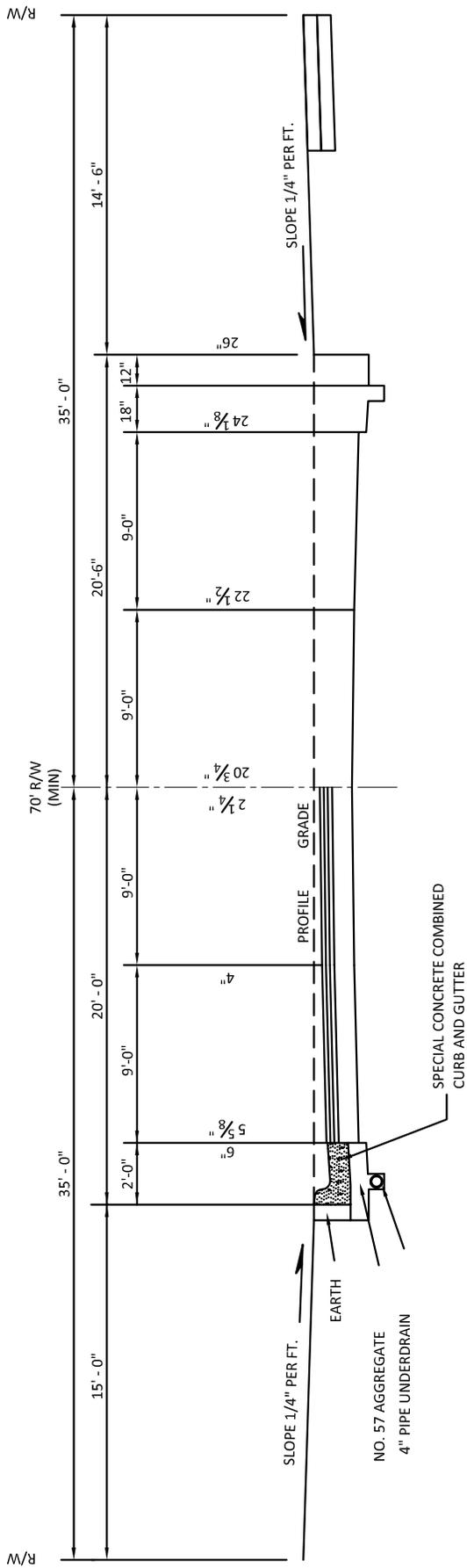


STANDARD DETAIL
36'-0 COLLECTOR
PAVEMENT SECTION

ROADWAY

RDWD-3.0

Rev. 03/01/2012



PAVEMENT SECTION

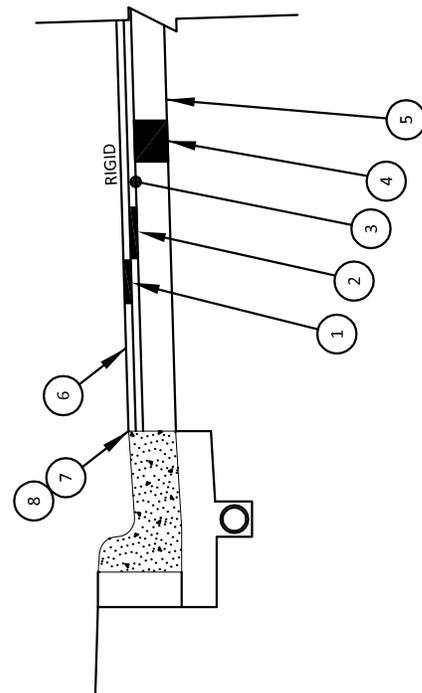
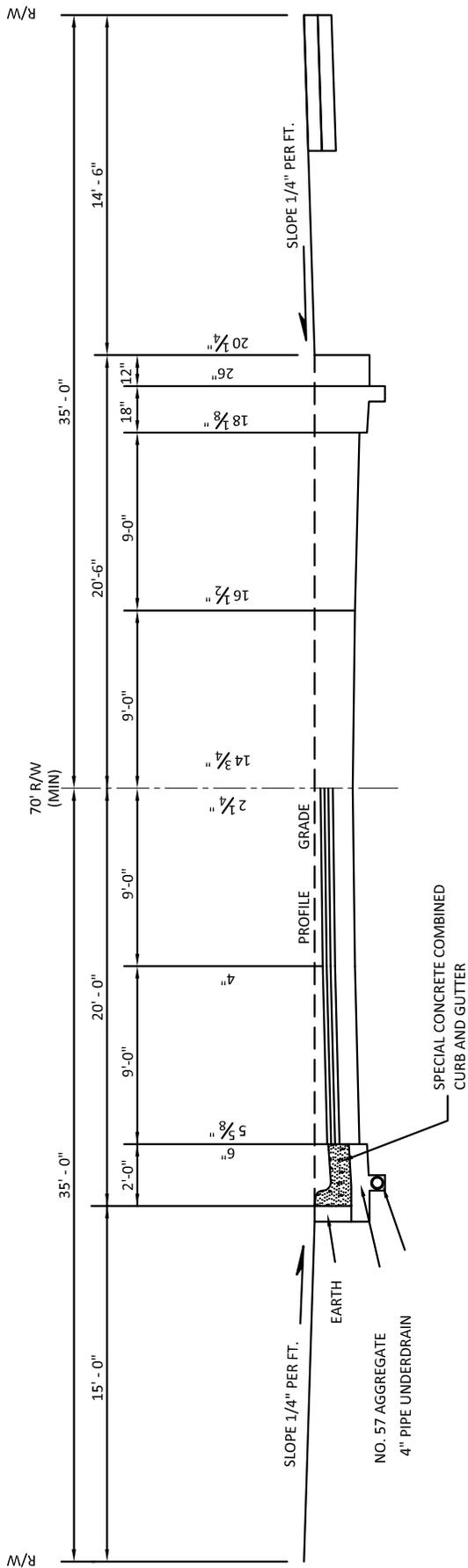
- 1 1 1/2" ASPHALT CONCRETE, ITEM 448 TYPE 1 H (HEAVY TRAFFIC) PG 70-22
- 2 2" ASPHALT CONCRETE, ITEM 448 TYPE 2 - INTERMEDIATE COURSE (HEAVY TRAFFIC) PG 64-22
- 3 6" ASPHALT CONCRETE AGGREGATE BASE, ITEM 301, PG 64-22
- 4 9" AGGREGATE BASE, ITEM 304
- 5 SUBGRADE COMPACTION, ITEM 203
- 6 ASPHALT REJUVENATE PER SUPPLEMENTAL SPEC 1540
- 7 ITEM 407, TACK FACE OF CURB PRIOR TO PAVING
- 8 ITEM 423, CRACK SEAL EDGE JOINTS

PAVEMENT DETAIL



STANDARD DETAIL
 36'-0 ARTERIAL/INDUSTRIAL
 FLEXIBLE PAVEMENT W/ CURBS

ROADWAY
 RDWD-4.0
 Rev. 03/01/2012



PAVEMENT SECTION

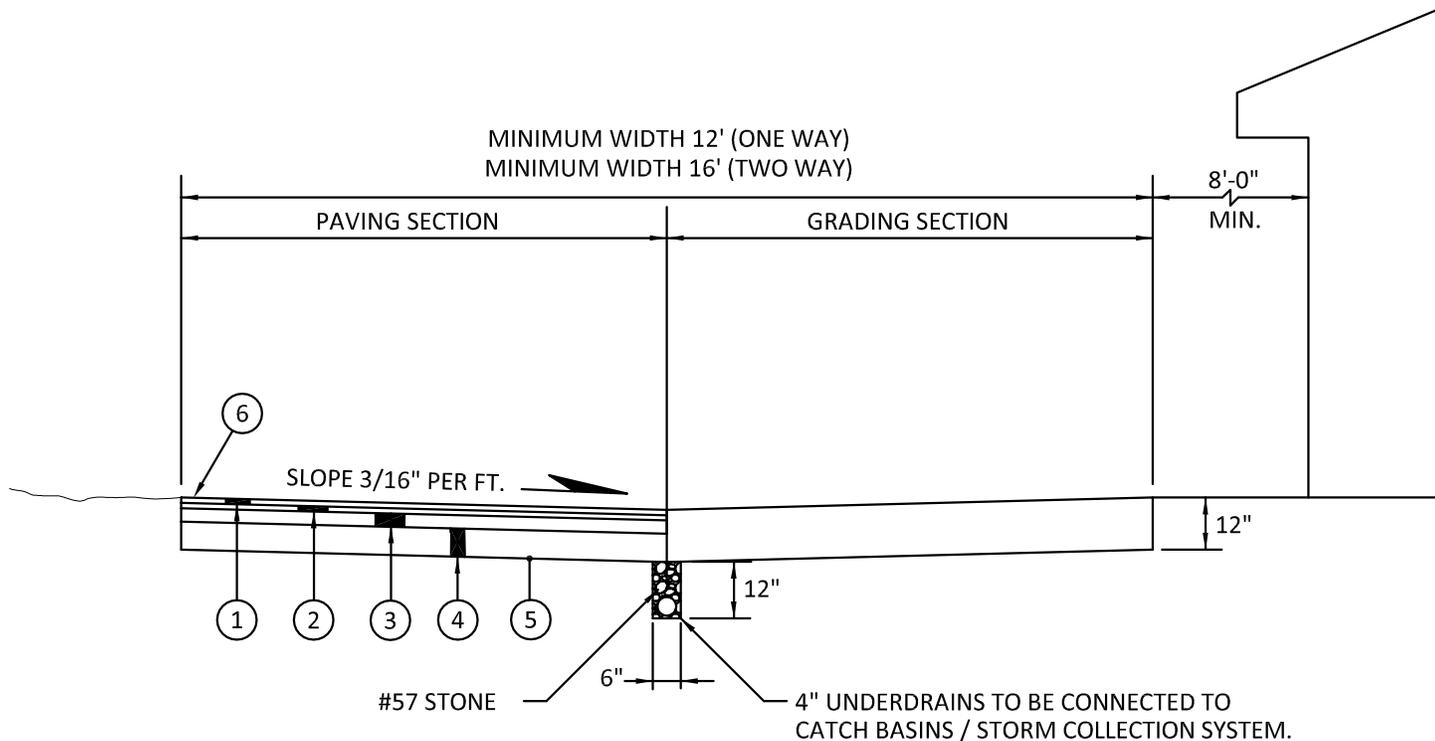
- 1 1 1/2" ASPHALT CONCRETE, ITEM 448 TYPE 1H (HEAVY TRAFFIC) PG 70-22
- 2 2" ASPHALT CONCRETE, ITEM 448 TYPE 2 - INTERMEDIATE COURSE (HEAVY TRAFFIC) PG 64-28
- 3 ITEM 407, TACK COAT, 0.10 GAL/SQ. YD.
- 4 9" PORTLAND CEMENT CONCRETE BASE, CLASS 'C', ITEM 305 OR RCC SUPPLEMENTAL SPEC 1523
- 5 SUBGRADE COMPACTION, ITEM 203
- 6 ASPHALT REJUVENATE PER SUPPLEMENTAL SPEC 1540
- 7 ITEM 407, TACK FACE OF CURB & RIGID BASE PRIOR TO PAVING
- 8 ITEM 423, CRACK SEAL EDGE JOINTS

PAVEMENT DETAIL



STANDARD DETAIL
 36'-0 ARTERIAL/INDUSTRIAL
 RIGID PAVEMENT W/ CURBS

ROADWAY
 RDWD-5.0
 Rev. 03/01/2012



ALLEY PAVEMENT SECTION

- ① 1 1/2" ASPHALT CONCRETE, ITEM 448 TYPE 1, (MEDIUM TRAFFIC) PG 64-22
- ② 2" ASPHALT CONCRETE, ITEM 448 TYPE 2, INTERMEDIATE COURSE (MEDIUM TRAFFIC) PG 64-22
- ③ 3" ASPHALT CONCRETE BASE, ITEM 301, PG64-22
- ④ 6" AGGREGATE BASE, ITEM 304
- ⑤ SUBGRADE COMPACTION, ITEM 203
- ⑥ ASPHALT REJUVENATE PER SUPPLEMENTAL SPEC 1540

NOTE:
MINIMUM PAVEMENT RADIUS AT CORNERS 20'-0"



DEPARTMENT OF ENGINEERING SERVICES

STANDARD DETAIL

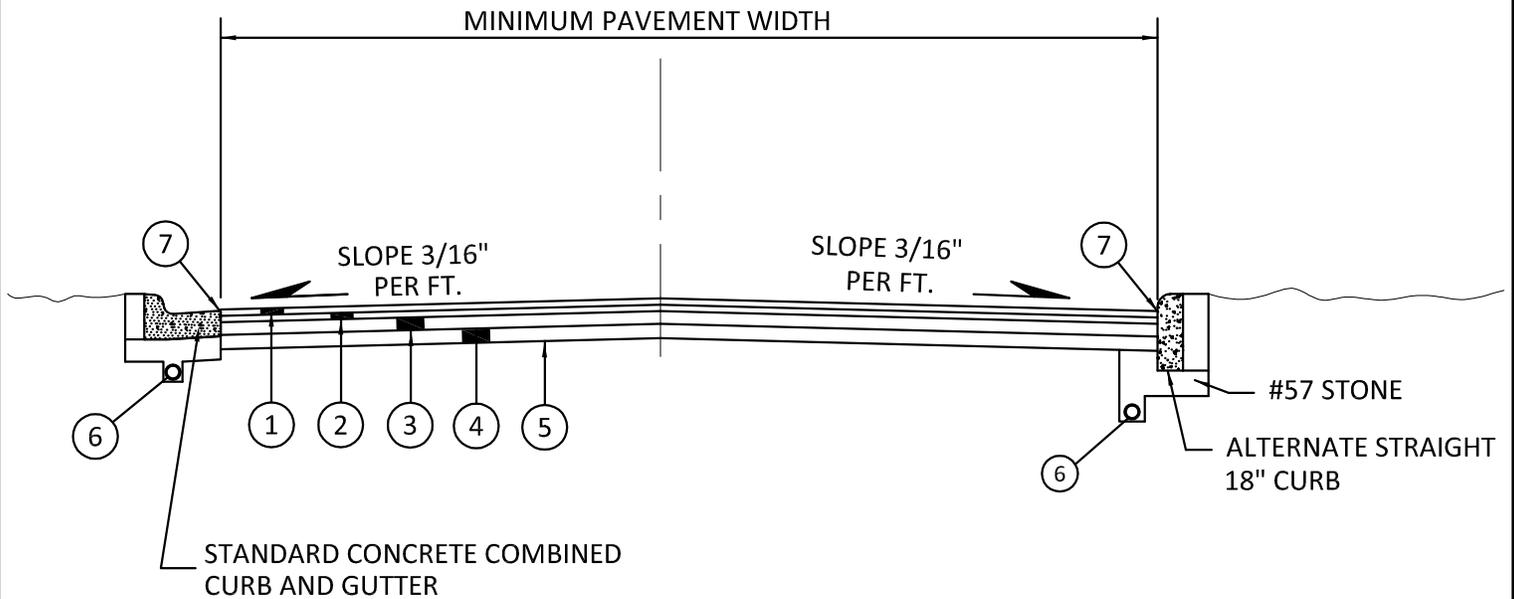
ALLEY PAVEMENT SECTION
(PUBLIC & PRIVATE)

ROADWAY

RDWD-6.0

Rev. 03/01/2012

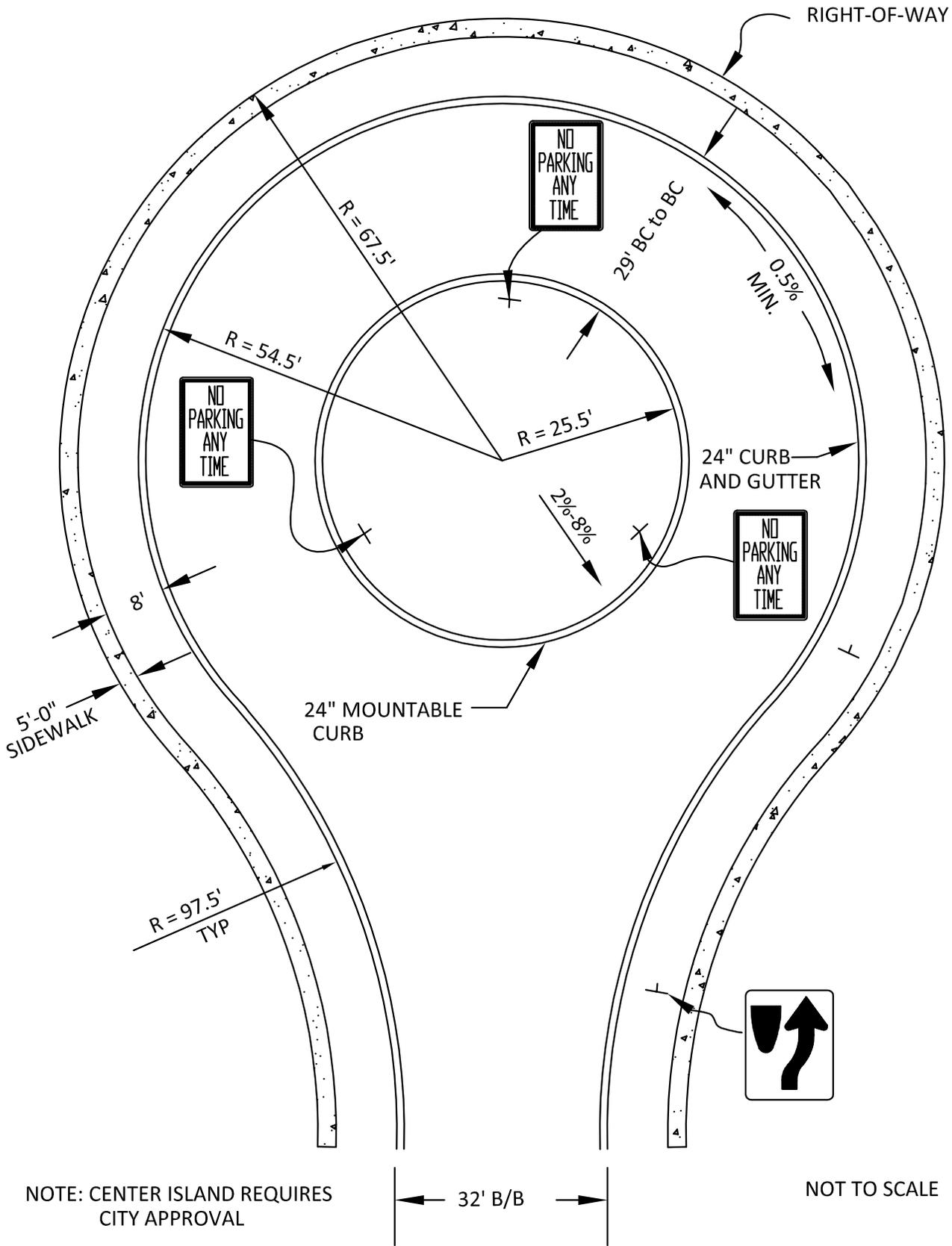
MINIMUM PAVEMENT WIDTH	
ONE WAY/NO PARKING	12'-0"
TWO WAY/NO PARKING	20'-0"
PARKING ON BOTH SIDES	28'-0"



PRIVATE ROAD PAVEMENT SECTION WITH CURB

- ① 1-1/2" ASPHALT CONCRETE, ITEM 448 TYPE 1 (MEDIUM TRAFFIC) PG 64-22
- ② 2" ASPHALT CONCRETE, ITEM 448 TYPE 2, INTERMEDIATE COURSE (MEDIUM TRAFFIC) PG 64-22
- ③ 3" ASPHALT CONCRETE BASE, ITEM 301 PG 64-22
- ④ 6" AGGREGATE BASE, ITEM 304
- ⑤ SUBGRADE COMPACTION, ITEM 203
- ⑥ 4" UNDERDRAIN TO BE CONNECTED TO STORM SEWER SYSTEM
- ⑦ ITEM 407 TACK FACE OF CURB PRIOR TO PAVEING

NOTE:
MINIMUM PAVEMENT RADIUS AT CORNERS 20'-0"



NOTE: CENTER ISLAND REQUIRES CITY APPROVAL

32' B/B

NOT TO SCALE



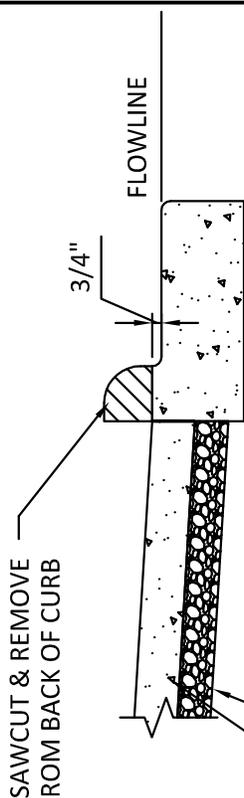
DEPARTMENT OF ENGINEERING SERVICES

STANDARD DETAIL
CUL-DE-SAC DETAIL

ROADWAY

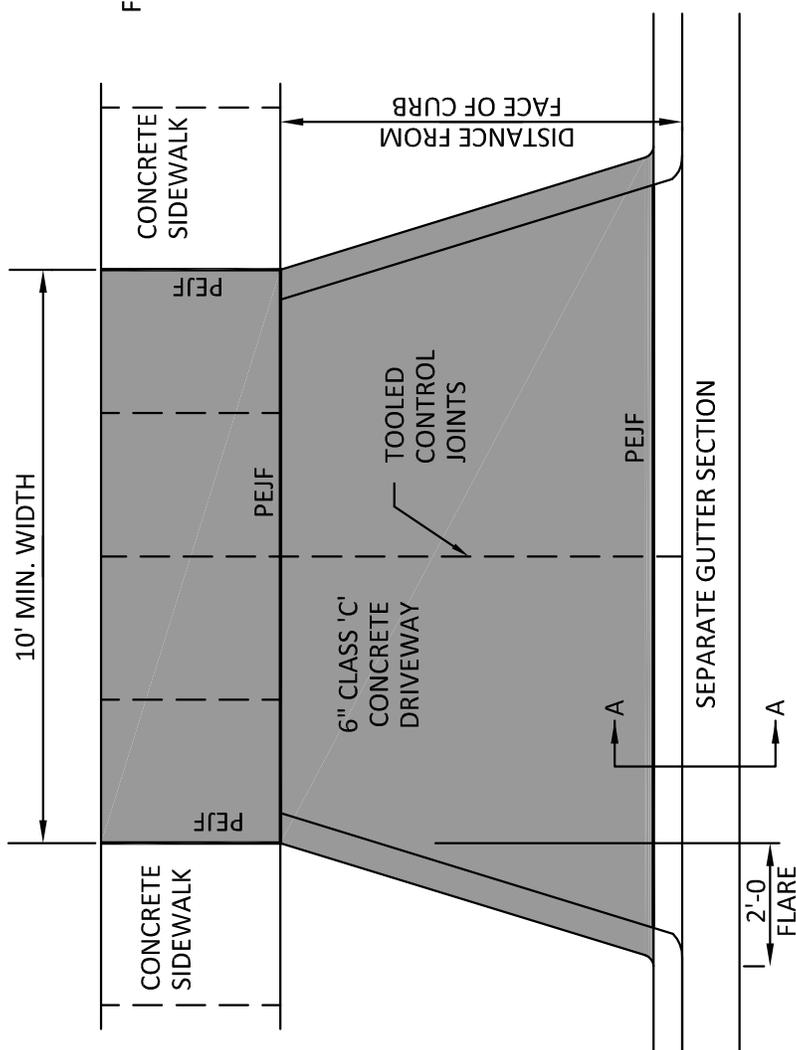
RDWD-8.0

Rev. 03/01/2012



SECTION A - A

NOT TO SCALE



CURB OR COMBINED, CURB AND GUTTER SHALL BE TAKEN OUT AND REPLACED WITH CONCRETE, SEPARATED FROM THE RAMP BY 1/2" PREMOLDED EXPANSION JOINT. WHEN LESS THAN 5' OF A CURB SECTION REMAINS AFTER THE CURB CUT IS LOCATED, IT SHALL ALSO BE REMOVED AND REPLACED.

FILLS, IF REQUIRED, SHALL BE OF EARTH, COMPACTED IN 2" LAYERS, OR OF ITEM 310, SUBBASE, COMPACTED IN LAYERS NOT EXCEEDING 4".

DRIVEWAYS AND SIDEWALKS SHALL BE CONSTRUCTED OF PLAIN PORTLAND CEMENT CONCRETE, ITEM 452, CLASS C, 5% TO 8% AIR ENTRAINED, CONTAINING 6 (SIX) BAGS OF CEMENT (CL.G, SECT.499) PER C.Y., AND 3" MAX. SLUMP (AS SHOWN IN DETAILS).

EXPANSION JOINTS SHALL BE PLACED TO FORM UTILITY STRIPS WHERE REQUIRED, AND WHEREVER NEW CONCRETE TOUCHES EXISTING CONSTRUCTION.

FORMS SHALL CONSIST OF WOOD 2" NOMINAL THICKNESS OR METAL OF EQUAL STRENGTH.

A STANDARD CURING COMPOUND, OPAQUE (WHITE TINTED), SHALL BE PROPERLY APPLIED IMMEDIATELY AFTER FINISH.

ITEM NUMBERS REFER TO STANDARD SPECIFICATIONS; DIVISION OF ENGINEERING AND CONSTRUCTION, COLUMBUS, OHIO, CURRENT EDITION, AND ALL WORK SHALL BE DONE IN ACCORDANCE WITH THESE SPECIFICATIONS.

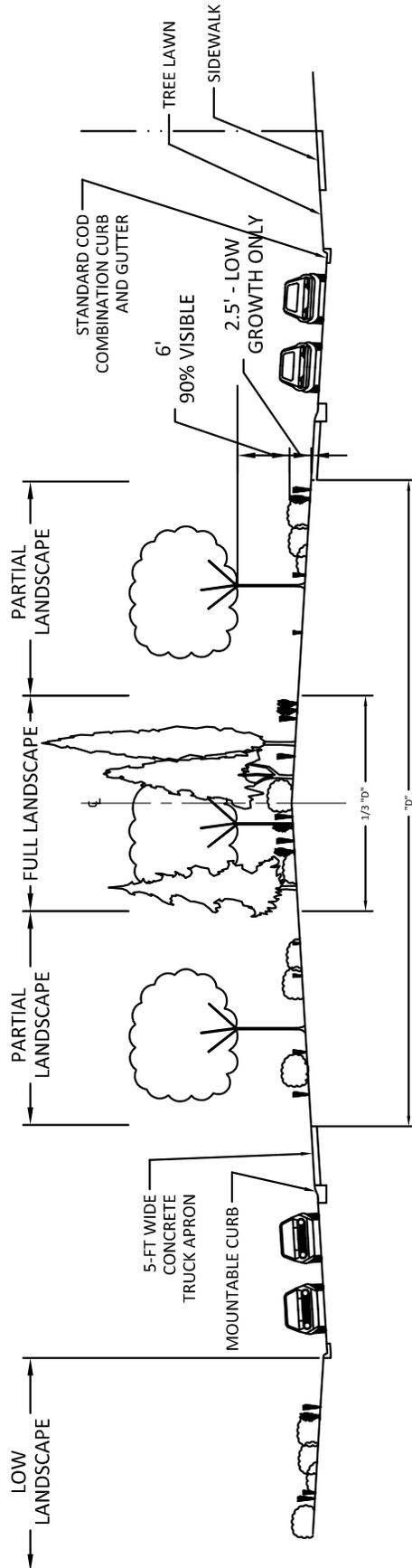
NOTIFY THE CITY WHEN FORMS WILL BE READY FOR INSPECTION, AT LEAST 24 HOURS BEFORE CONCRETE IS TO BE PLACED. IN NO CASE SHALL CONCRETE BE PLACED WITHOUT APPROVAL OF FORM WORK BY THE INSPECTOR.

NO CONCRETE SHALL BE PLACED UNTIL TEMPERATURE IS 35° F. MIN. CONCRETE SHALL BE PROTECTED IN ACCORDANCE WITH THE REQUIREMENTS OF ITEM 451.



STANDARD DETAIL
RESIDENTIAL DRIVE
CONCRETE APPROACH

ROADWAY
RDWD-9.0
Rev. 03/01/2012



STANDARD DETAIL
 ROUNDABOUT SIGHT DISTANCE/
 LANDSCAPING CROSS SECTION

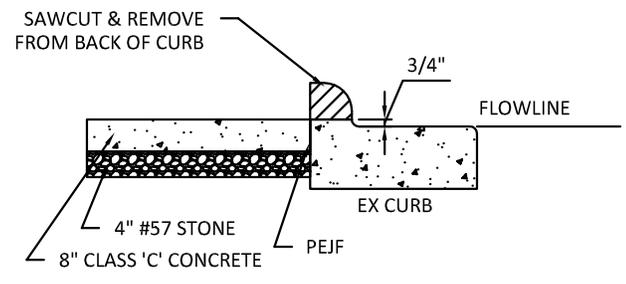
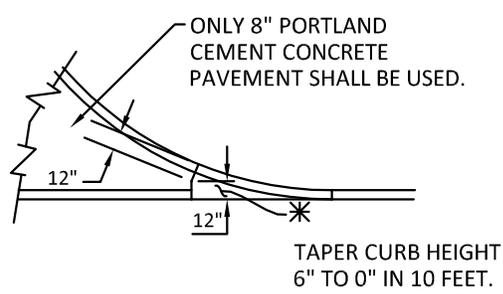
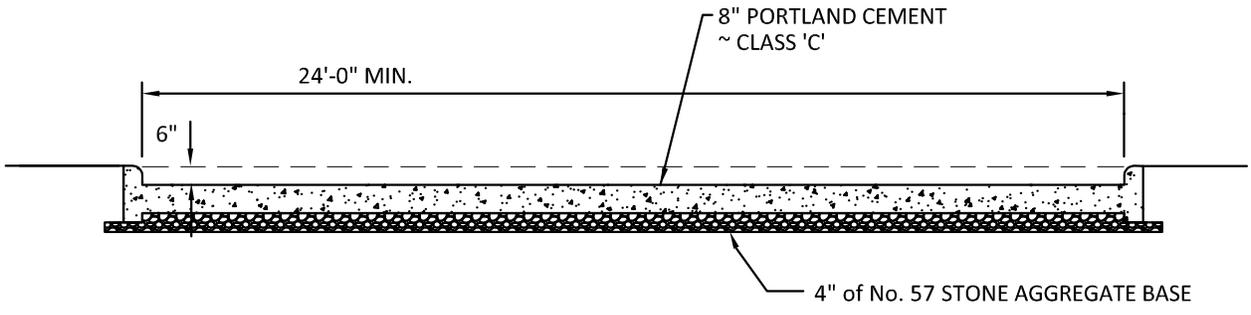
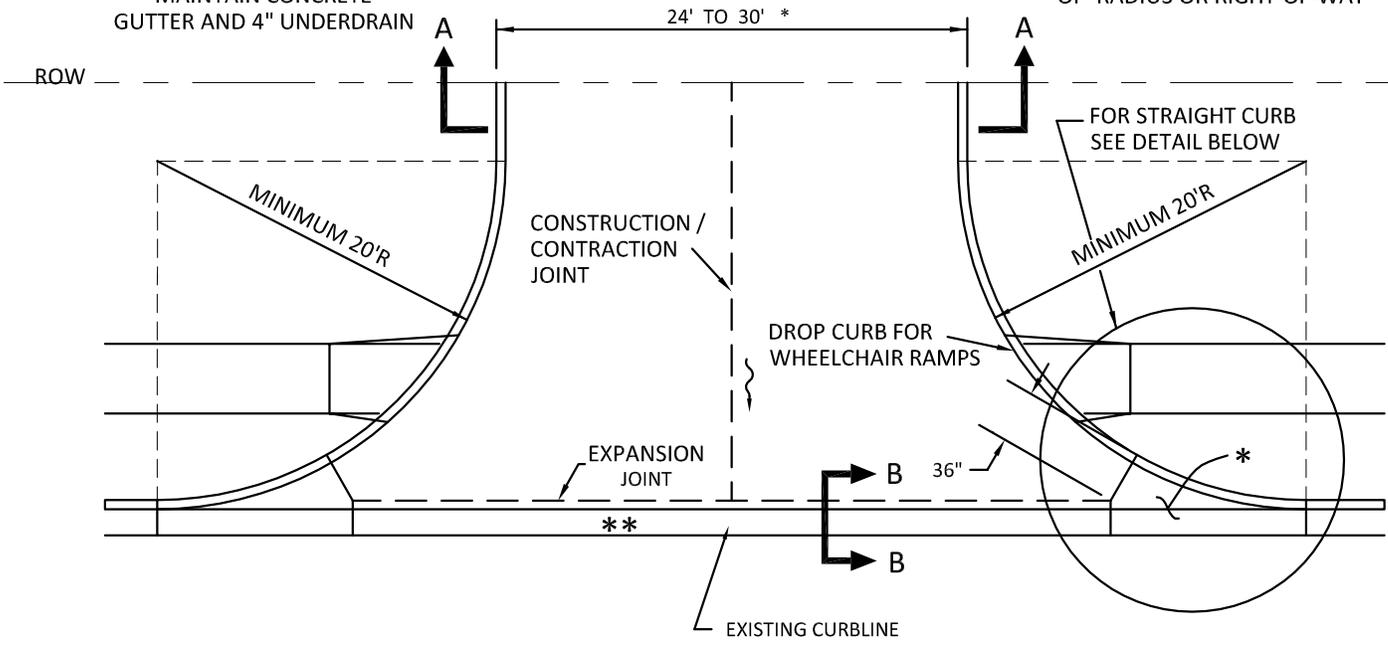
ROADWAY

RDWD-32.0

Rev. 003/01/2012

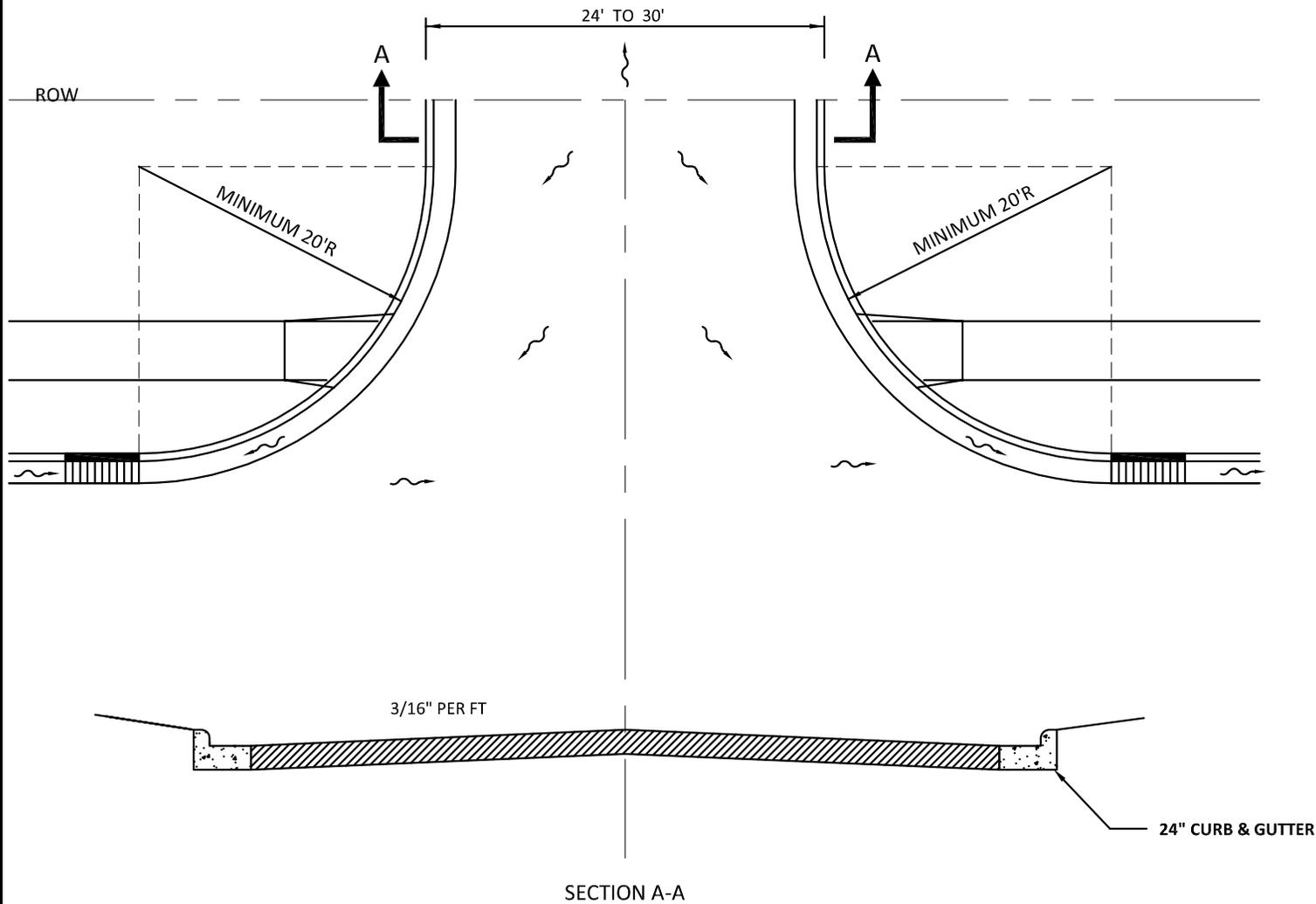
* PAVEMENT & CURB
POURED INTEGRAL
** MAINTAIN CONCRETE
GUTTER AND 4" UNDERDRAIN

DRIVEWAY SHALL BE EXTENDED
TO TO THE GREATER OF THE END
OF RADIUS OR RIGHT-OF-WAY



STANDARD DETAIL
NEW COMMERCIAL CONCRETE
DRIVEWAY APPROACH

ROADWAY
RDWD-10.0
Rev. 03/01/2012



SECTION A-A

PAVEMENT SECTION

NOTE: THIS SECTION APPROVED ONLY FOR MAIN COMMERCIAL CENTER ACCESS POINTS AT TRAFFIC SIGNAL OR SERVICING THE INTERNAL PRIVATE ROAD NETWORK

- 1.5" ITEM 448, TYPE 1- H
- 2" ITEM 448, TYPE 2 - H INTERMEDIATE
- 6" ITEM 301, ASPHALT CONCRETE BASE
- 6" ITEM 304, COMPACTED AGGREGATE BASE



DEPARTMENT OF ENGINEERING SERVICES

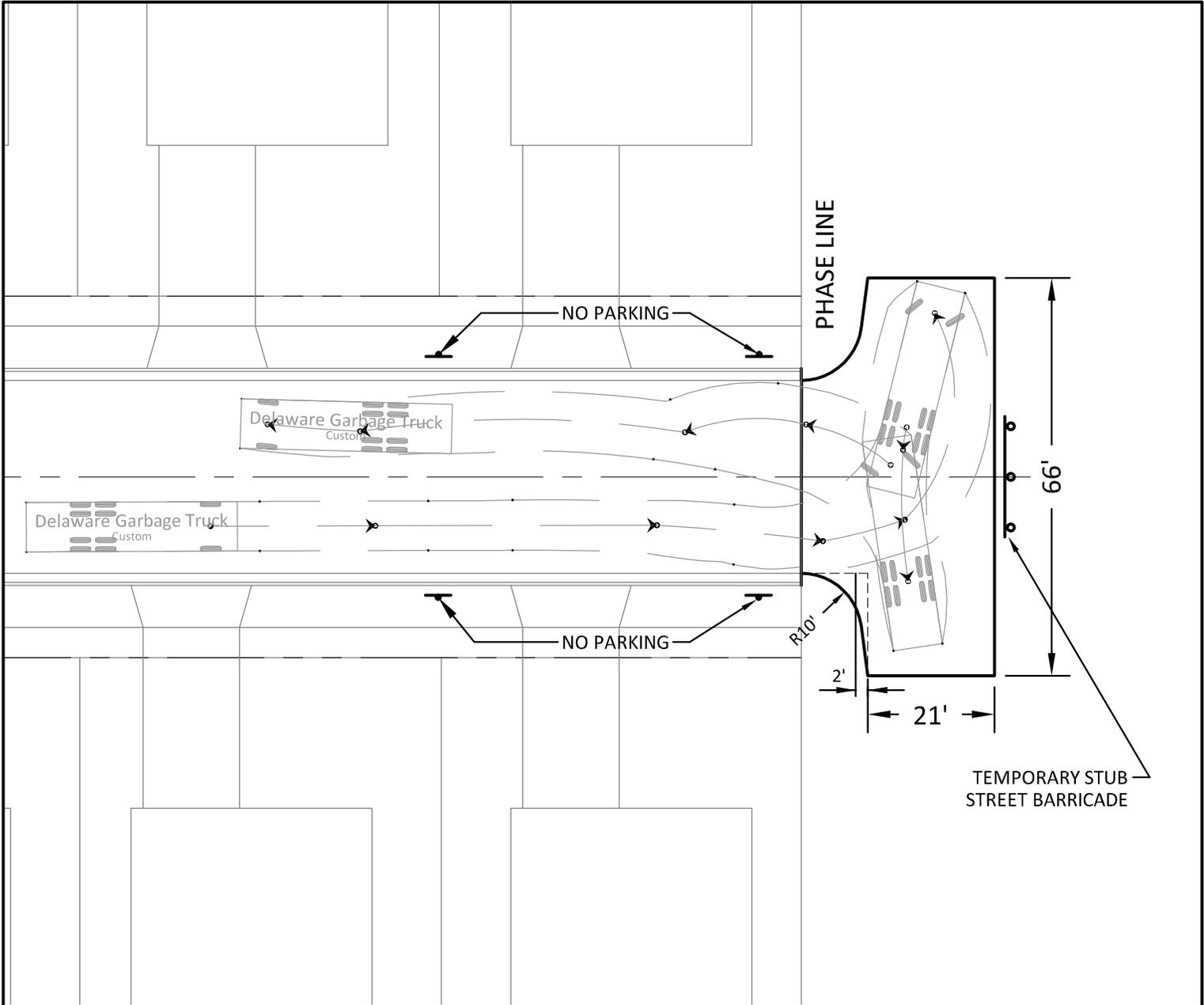
STANDARD DETAIL

**NEW COMMERCIAL ASPHALT DRIVE APPROACH
(SHOPPING CENTER ACCESS)**

ROADWAY

RDWD-11.0

Rev. 03/01/2012



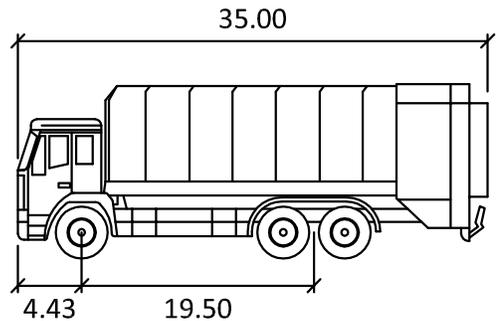
NOTES:

"T" TURNAROUNDS ARE TO BE USED ONLY DURING PHASES OF A PROJECT. THE DEVELOPER MUST CONTROL THE ADJACENT PROPERTY WHERE THE TURNAROUND IS TO BE CONSTRUCTED, OR ACQUIRE AN EASEMENT.

PROPER GRADING AND DRAINAGE SWALE SHALL BE PROVIDED TO DIRECT STORM WATER TO STORM SEWER COLLECTION SYSTEM.

TEMPORARY PAVEMENT SECTION

- 6" ITEM 301 - ASPHALT CONCRETE BASE
- 6" ITEM 304 - COMPACTED AGGREGATE BASE



Delaware Refuse Truck

- Width : 8.20
- Track : 8.20
- Lock to Lock Time : 6.0
- Steering Angle : 40.8



DEPARTMENT OF ENGINEERING SERVICES

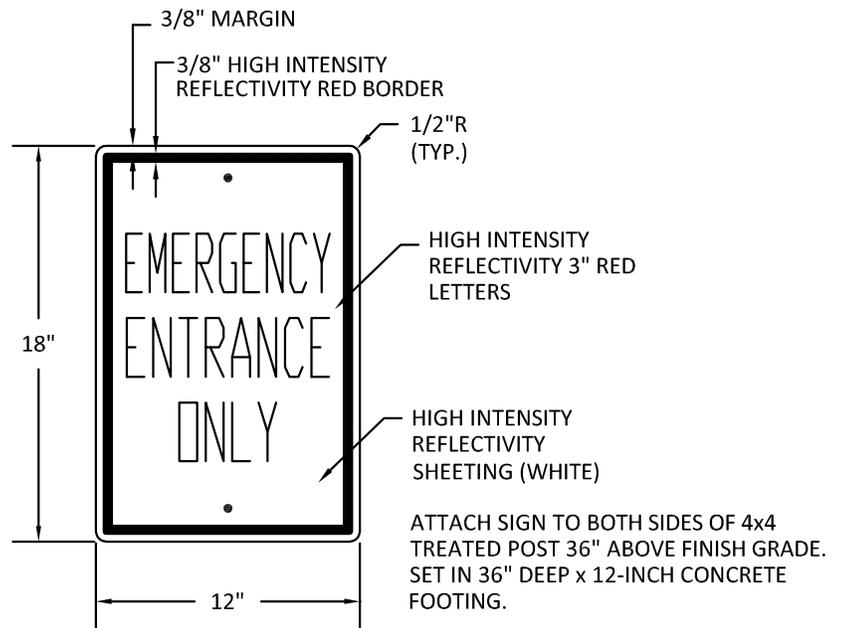
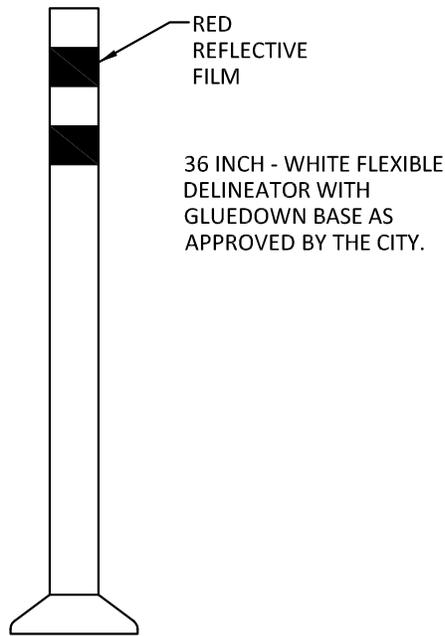
STANDARD DETAIL

**TEMPORARY "T" TYPE
TURN-AROUND**

ROADWAY

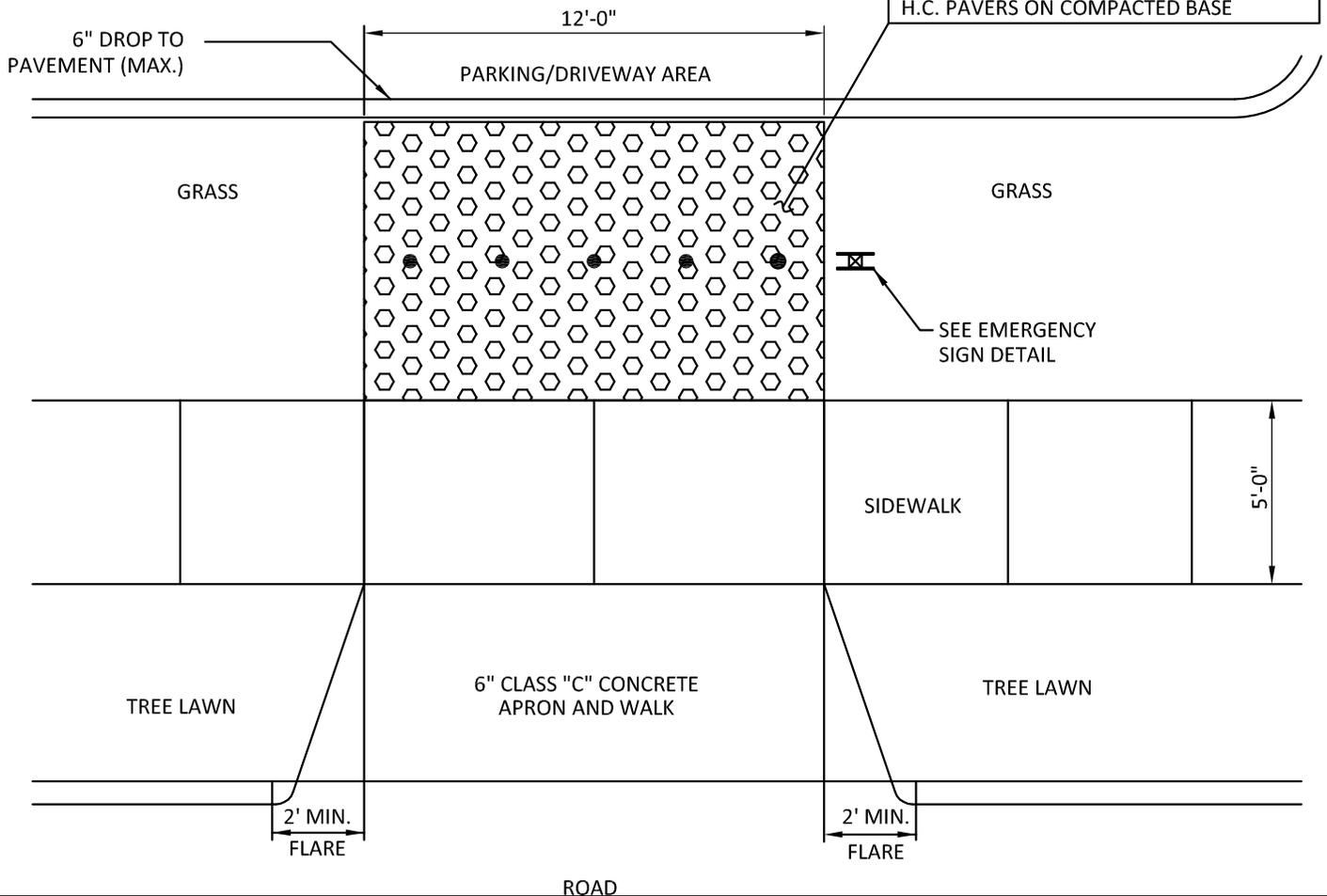
RDWD-12.0

Rev. 11/10/2012



EMERGENCY SIGN DETAIL

SURFACE OPTIONS
6" CONCRETE W/4" GRAVEL BASE
4" ASPHALT W/6" 301 BASE
SOLID PAVERS ON COMPACTED BASE
H.C. PAVERS ON COMPACTED BASE



DEPARTMENT OF ENGINEERING SERVICES

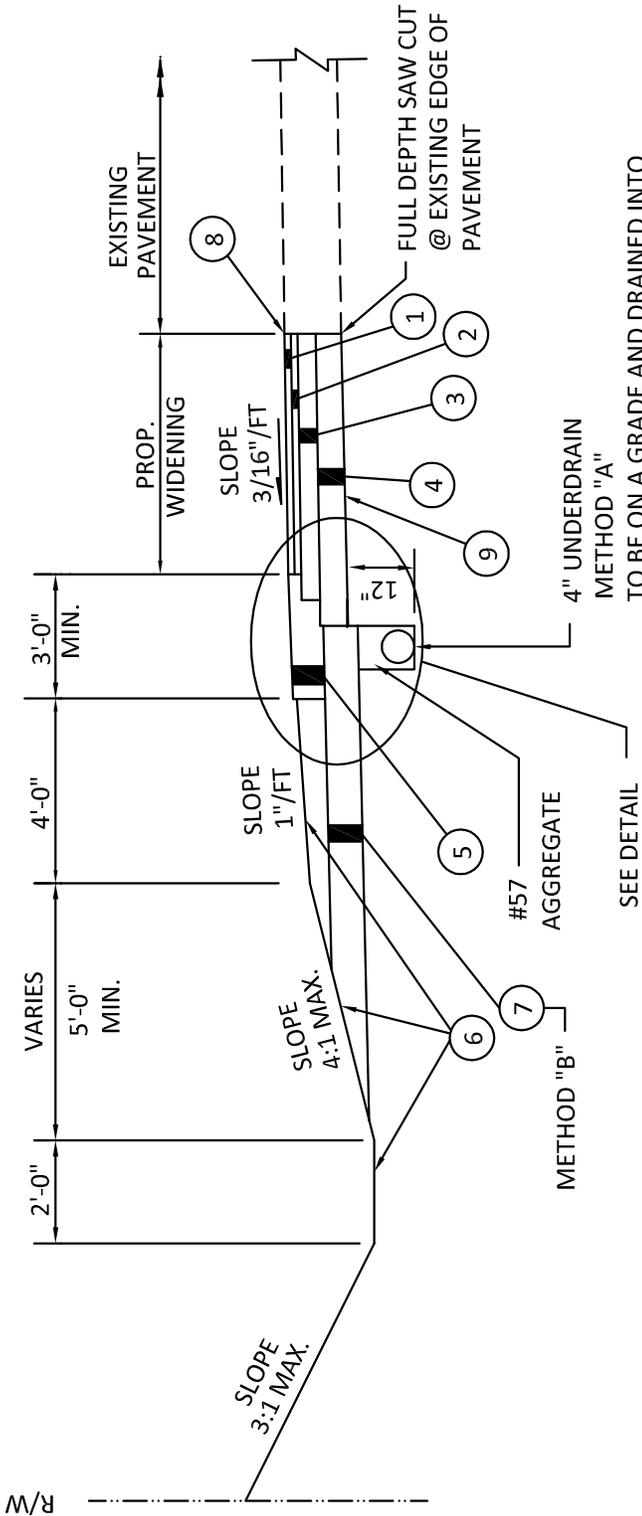
STANDARD DETAIL

EMERGENCY INGRESS/EGRESS ACCESS POINT

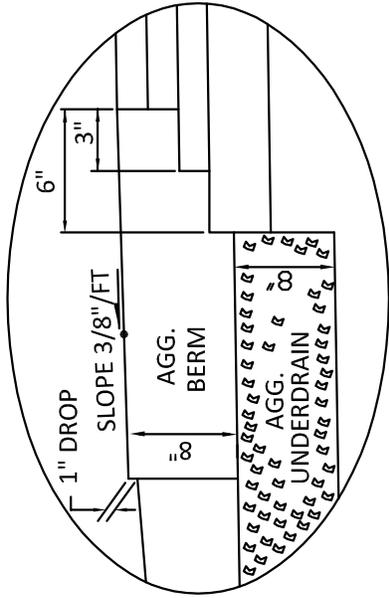
ROADWAY

RDWD-13.0

Rev. 03/01/2012



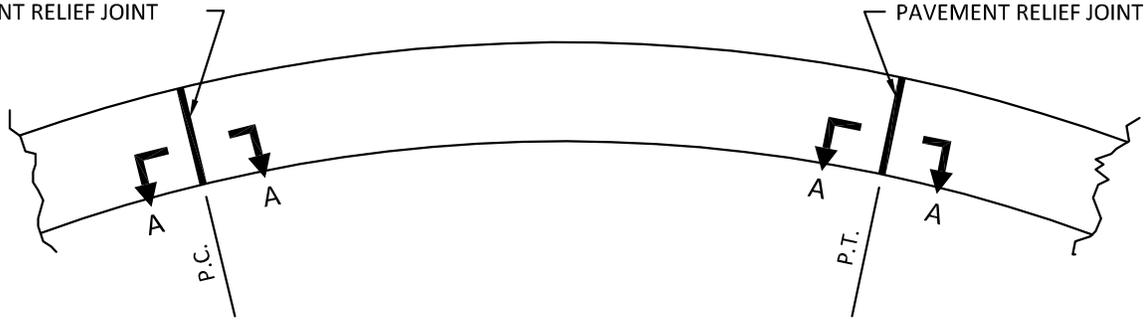
- 1 1 1/2" ASPHALT CONCRETE, ITEM 448
 - 2 2" ASPHALT CONCRETE, ITEM 448
 - 3 3" TO 6" ASPHALT CONCRETE BASE, ITEM 301 (BASED ON ROADWAY CLASSIFICATION)
 - 4 6" AGGREGATE BASE, ITEM 304
 - 5 8" AGGREGATE BERM, ITEM 304
 - 6 SEEDING AND MULCHING, ITEM 623
 - 7 8" AGGREGATE UNDERDRAIN, ITEM 605 (SPACED EVERY 50')
 - 8 JOINT SEAL, ITEM 413.
 - 9 SUBGRADE COMPACTION, ITEM 203
- 4" UNDERDRAIN METHOD "A"
TO BE ON A GRADE AND DRAINED INTO DITCH OR STORM SEWER SYSTEM.
- METHOD "A" TO BE USED WHEN POSSIBLE.
METHOD "B" AS ALTERNATE.



STANDARD DETAIL
**WIDENING OF EXISTING PAVEMENT
 WITH BERM**

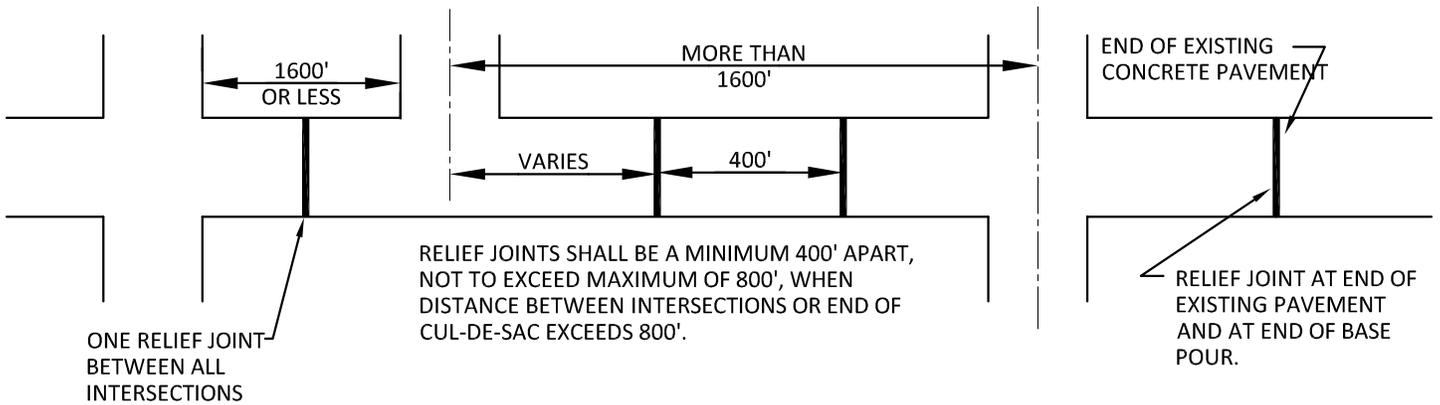
ROADWAY
RDWD-14.0
 Rev. 03/01/2012

PAVEMENT RELIEF JOINT

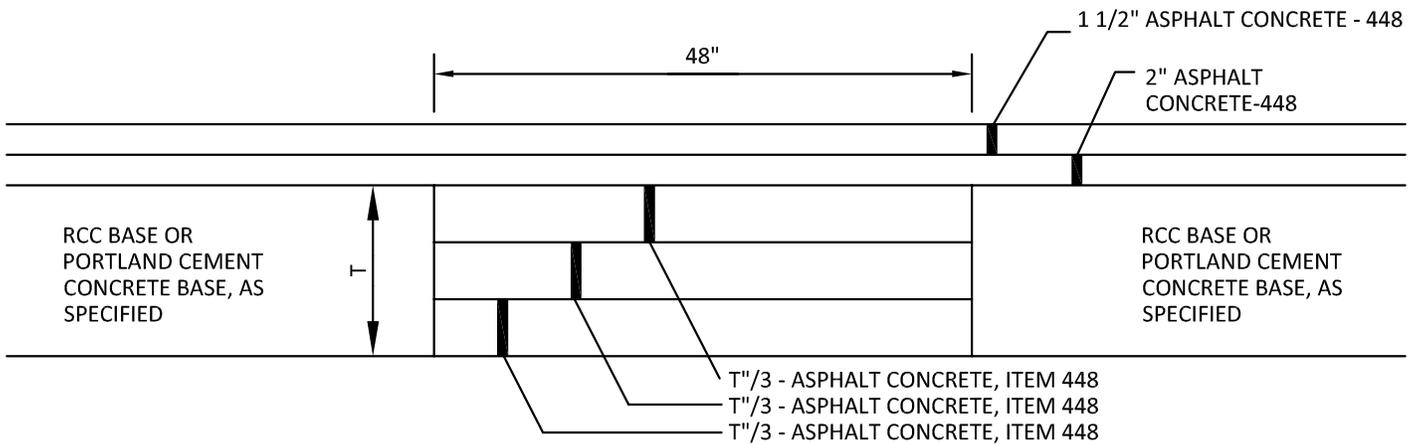


PAVEMENT RELIEF JOINT

RELIEF JOINT DETAIL FOR PAVEMENT SECTIONS WITH C/L RADII TO 500' AND DELTAS (Δ) GREATER THAN 50°



TYPICAL LOCATION PLAN



SECTION A-A
FOR CONCRETE BASE PAVEMENT

NOTE: 2" PREFORMED EXPANSION MATERIAL SHALL BE PLACED AT ALL RELIEF JOINTS IN THE CONCRETE CURB.



DEPARTMENT OF ENGINEERING SERVICES

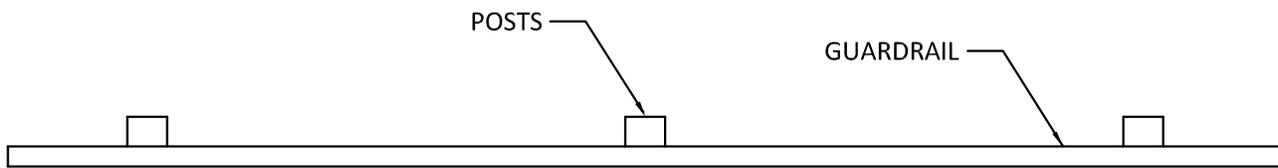
STANDARD DETAIL

RIGID PAVEMENT RELIEF JOINT

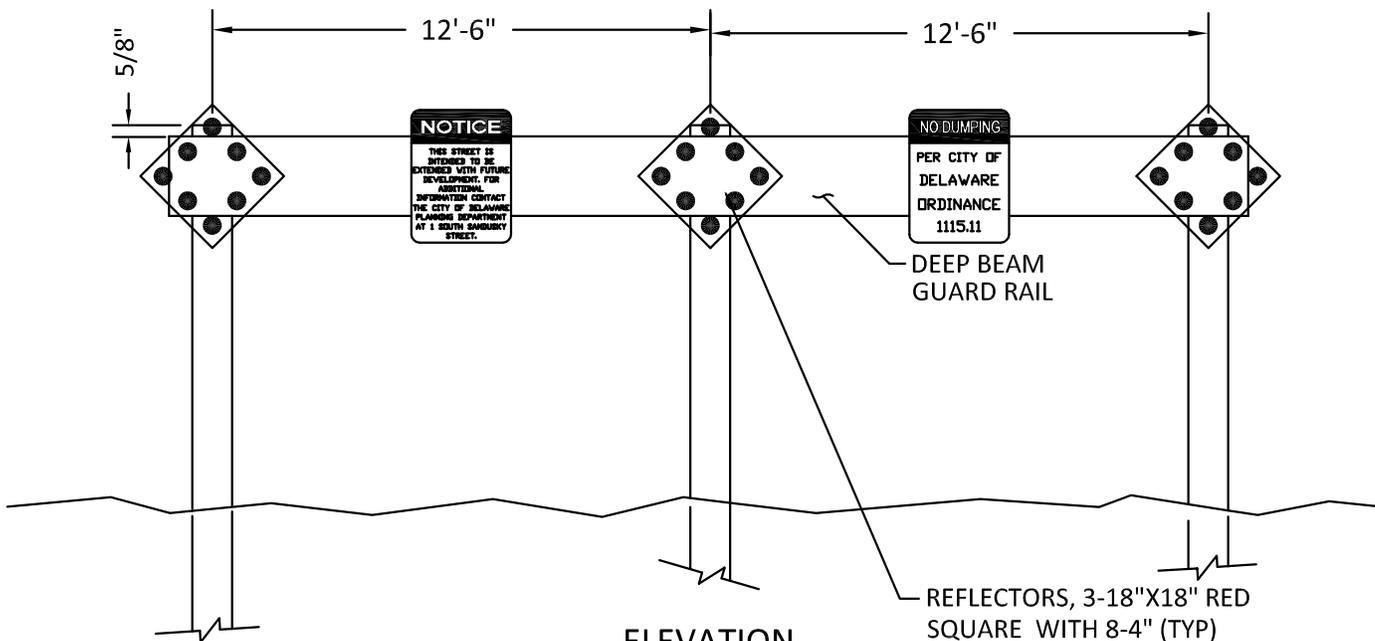
ROADWAY

RDWD-15.0

Rev. 01/31/2008

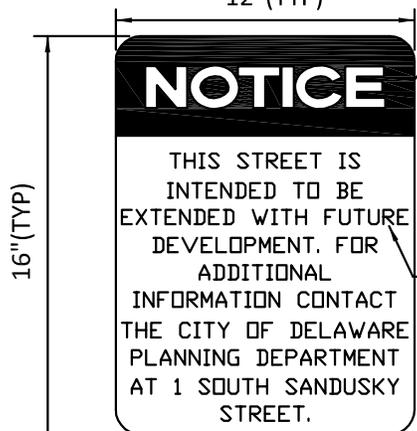


PLAN VIEW



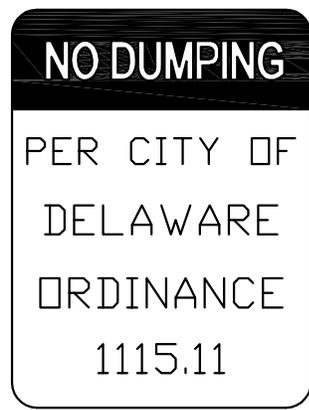
ELEVATION

REFLECTORS, 3-18"X18" RED SQUARE WITH 8-4" (TYP) REFLECTORS OR SOLID RED PRISMATIC FILM

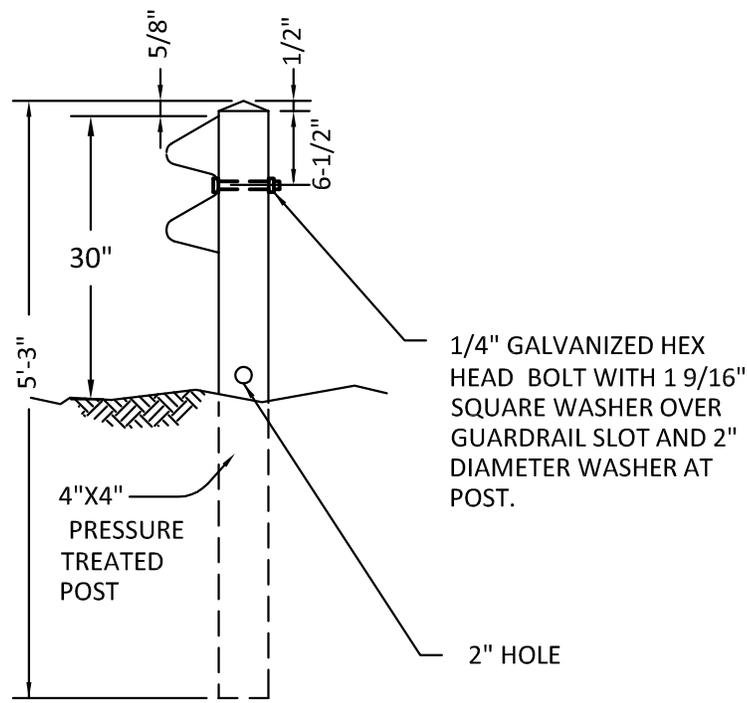


WHITE LETTERING ON RED (TYP.)

RED LETTERING ON WHITE (TYP.)



SIGNS



1/4" GALVANIZED HEX HEAD BOLT WITH 1 9/16" SQUARE WASHER OVER GUARDRAIL SLOT AND 2" DIAMETER WASHER AT POST.

2" HOLE

WOOD POST

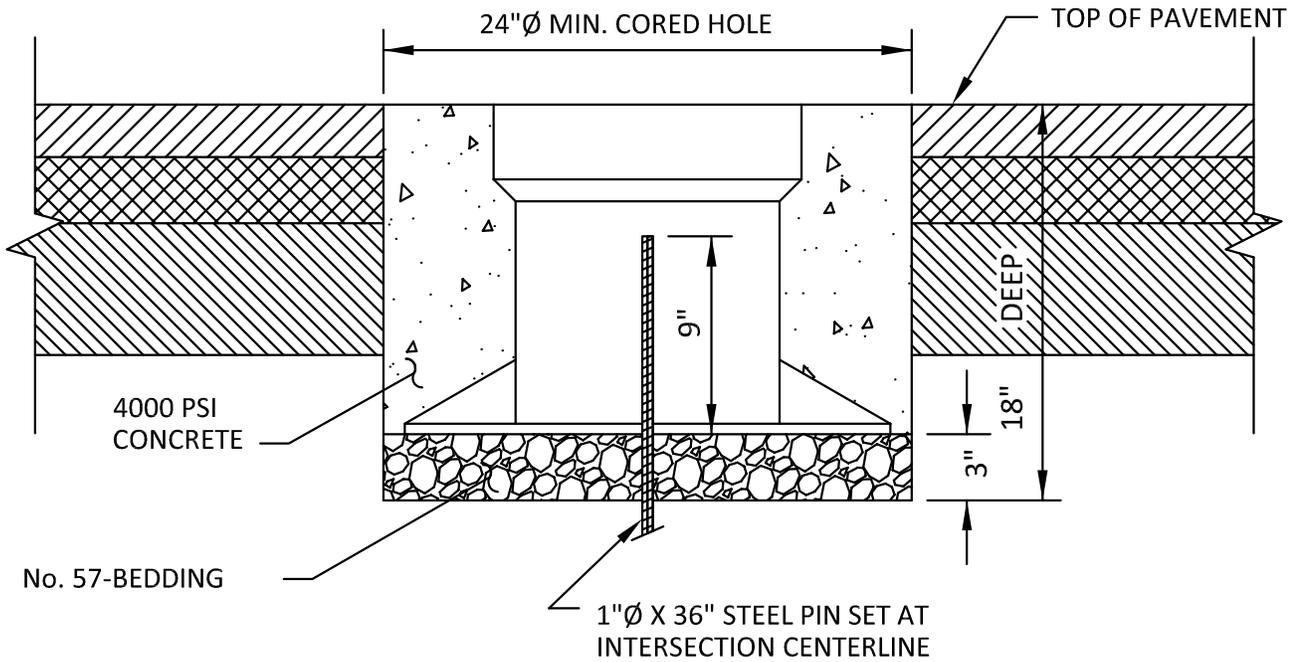


STANDARD DETAIL
TEMPORARY STUB STREET
BARRICADE

ROADWAY
RDWD-16.0
Rev. 03/01/2012

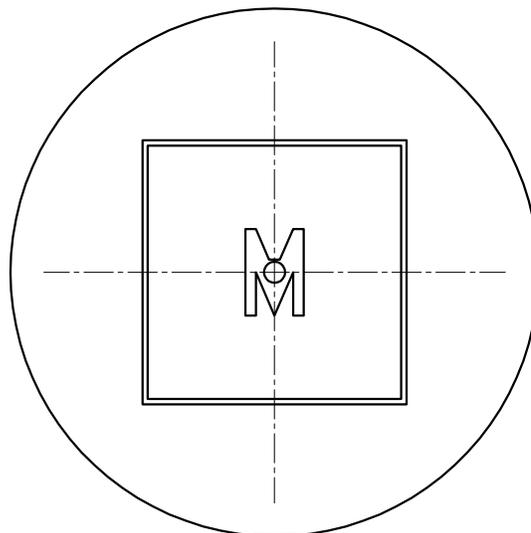
MONUMENT BOX INSTALLATION

NEENAH R-1968 TYPE 36-B OR
EAST JORDAN IRON WORKS 8371



SECTION

NOTE: PIN TO BE SET BY REGISTERED SURVEYOR, AND MEASURED IN X,Y,Z STATE PLANE COORDINATES



PLAN



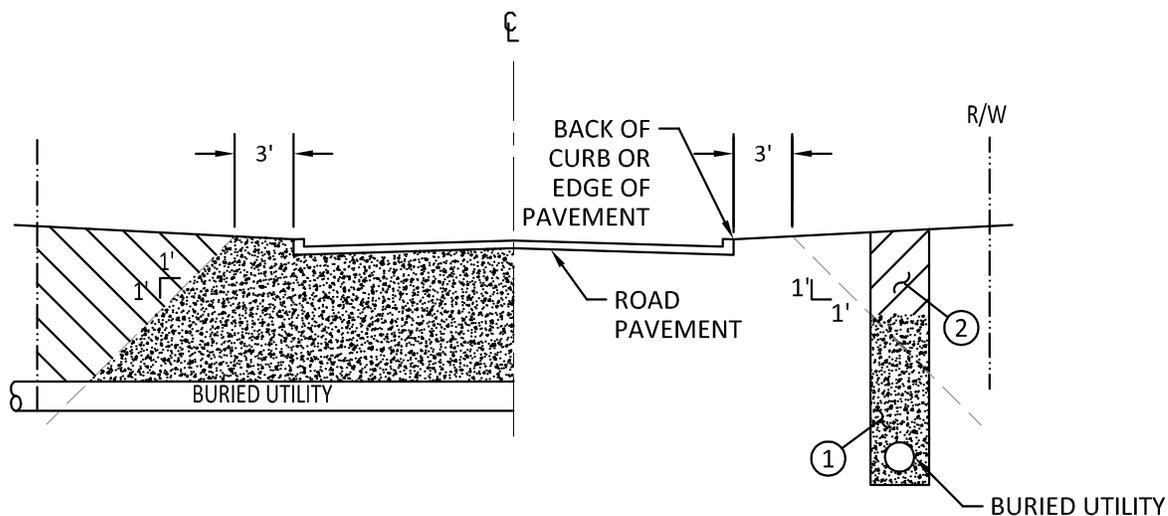
DEPARTMENT OF ENGINEERING SERVICES

STANDARD DETAIL
MONUMENT BOX
INSTALLATION

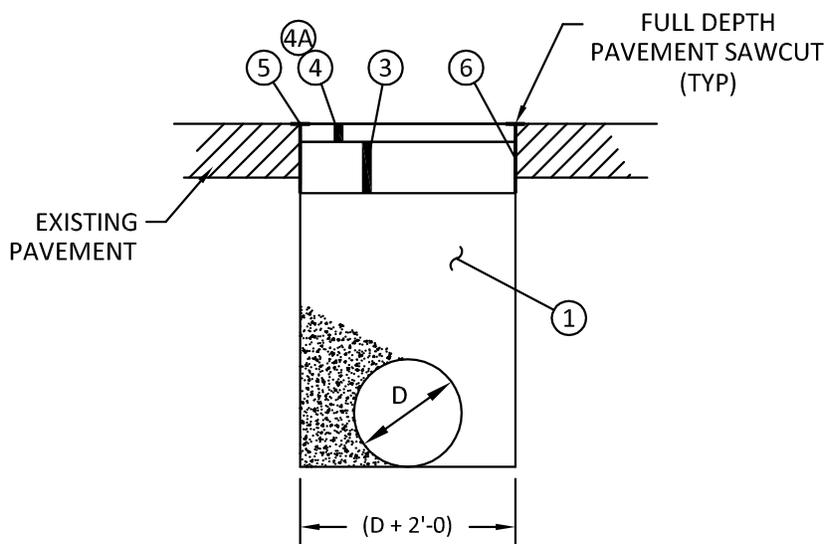
ROADWAY

RDWD-17.0

Rev. 03/01/2012



UTILITY TRENCHES WITHIN PAVEMENT INFLUENCE



ASPHALT PAVEMENT REPAIR

- ① ITEM 912, COMPACTED GRANULAR MATERIAL TO 100%
- ② ITEM 911, COMPACTED BACKFILL TO 98%
- ③ ITEM 301, ASPHALT CONCRETE BASE (7.5" MIN)
- ④ ITEM 448, TYPE 1 (MEDIUM TRAFFIC) PG 64-22, ASPHALT CONCRETE WEARING COURSE (1.5")
- ④A ITEM 448 TYPE 1H (HEAVY TRAFFIC) PG 70-22, ASPHALT CONCRETE WEARING COURSE (1.5")
- ⑤ ITEM 423, CRACK SEAL (HOT APPLIED)
- ⑥ ITEM 407, TACK COAT

1. EXCAVATIONS WITHIN THE PUBLIC STREET PAVEMENT REQUIRE A FULL-DEPTH PAVEMENT SAW CUT THAT EXTENDS THROUGH THE ENTIRE ASPHALT AND/OR CONCRETE PAVEMENT SECTION, AND AROUND THE ENTIRE PERIMETER OF THE EXCAVATED AREA.
2. BACKFILL WITHIN A PAVED AREA OR WITHIN THE INFLUENCE OF THE PAVEMENT SHALL BE PERFORMED IN ACCORDANCE WITH ITEM 912, COMPACTED GRANULAR MATERIAL (ITEM 304), TO BE INSTALLED AT 100% OPTIMUM COMPACTION. COMPACTION EQUIPMENT SHALL BE WALK BEHIND OR SELF-PROPELLED CAPABLE OF GENERATING A MINIMAL 3,500 LB COMPACTION FORCE.
3. EXCAVATIONS OUTSIDE OF PAVEMENT LIMITS BUT WITHIN THE INFLUENCE OF THE ROADWAY ARE TO BE BACKFILLED PER ITEM 911 COMPACTED BACKFILL USING COMPACTED NATIVE MATERIAL PLACED AT 98% OF OPTIMUM COMPACTION WITH USE OF MECHANICAL COMPACTION EQUIPMENT.
4. BACKFILL PLACED OUTSIDE OF THE ROADWAY INFLUENCE IS TO BE INSTALLED PER ITEM 911 COMPACTED BACKFILL, AT 98% OF OPTIMUM COMPACTION WITH NATURAL MATERIAL FROM SITE.
5. EXCAVATIONS THAT UNDERMINES THE CURB OR PAVEMENT EDGES, REQUIRE THE USE OF FPDF (FLOWABLE CONTROLLED DENSITY FILL) AS DIRECTED BY THE CITY. CURB AND UNDERDRAINS DISTURBED BY EXCAVATION ARE TO BE REPAIRED AS DIRECTED.
6. EXCAVATIONS WHICH ARE TOO NARROW FOR THE USE OF MECHANICAL COMPACTION EQUIPMENT MAY BE FILLED WITH FPDF UPON CITY APPROVAL. WHEN FPDF IS USED, PAVEMENT SHALL NOT BE PLACED UNTIL ALL BLEED WATER HAS EVAPORATED OR OTHERWISE BEEN REMOVED FROM THE SURFACE.
7. ALL PUBLIC STREETS REQUIRE A 9-INCH MINIMUM DEPTH ASPHALT PAVEMENT REPAIR, OR ACTUAL PAVEMENT THICKNESS, WHICHEVER IS GREATER. THE EDGES OF PAVEMENT REPAIRS SHALL BE TACKED PER ITEM 407 AND SEALED PER ITEM 423 CRACK SEAL.
8. WHERE CONCRETE PAVEMENT IS REQUIRED, PAVEMENT REPAIRS SHALL BE PROTECTED UNTIL CONCRETE REACHES THE MINIMAL REQUIRED DESIGN STRENGTH. TYPE MS CONCRETE MAY BE UTILIZED WHERE ACCESS TO TRAFFIC MUST BE RESTORED WITHIN 24-HOURS.
9. SIDEWALKS, GRASS AREAS AND TREES ARE TO BE PROTECTED FROM EQUIPMENT AND MATERIALS. DAMAGED AREAS ARE TO BE REPAIRED OR REPLACED BY CONTRACTOR AS REQUIRED BY CITY.
10. OPEN EXCAVATIONS IN ANY STREET MUST BE PROTECTED WITH STEEL PLATES HELD IN PLACE WITH PINS OR ASPHALT MATERIAL AND MARKED WITH AN ORANGE CONE OR BARREL AT THE EDGE OF PLATE. THE PUBLIC WORKS DEPARTMENT (740/203-1814) MUST BE NOTIFIED OF ALL PLATE LOCATION INSTALLATIONS AND REMOVALS.
11. ALL LANE/ROAD CLOSURES REQUIRE THE SUBMISSION OF A MAINTENANCE OF TRAFFIC APPLICATION WITH PROPOSED DETOUR DETAILS SUBMITTED FOR APPROVAL. DETOURS UTILIZING STATE OR COUNTY ROADS OUTSIDE THE CITY LIMITS REQUIRE THE APPROVAL OF THOSE JURISDICTIONS AS WELL.
12. WORK IN THE RIGHT-OF-WAY REQUIRING A TRAVEL LANE(S) TO BE BLOCKED MUST HAVE APPROPRIATE ADVANCE WARNING SIGNAGE, CONES, BARRELS AND FLAGGERS IN PLACE AT ALL TIMES. THE CONTRACTOR IS RESPONSIBLE FOR FURNISHING, ERECTING, MAINTAINING AND REMOVING ALL TRAFFIC CONTROL DEVICES TO MEET THE MINIMUM STANDARDS SET FORTH IN THE MUTCD CURRENT EDITION, AND MUST BE IN PLACE PRIOR TO COMMENCING ANY WORK.
13. PUBLIC STREETS SHALL BE KEPT SWEEPED CLEAN OF LOOSE DIRT, STONE AND MUD AT ALL TIMES.
14. ADVANCE NOTIFICATION TO O.U.P.S. AND ALL PRIVATE UTILITY OWNERS IS THE RESPONSIBILITY OF THE CONTRACTOR.
15. ALL WORK MUST BE INSPECTED BY THE CITY INCLUDING SIDEWALK, DRIVEWAY & CURB FORMS, UTILITY TAPS, TRENCH BACKFILL AND ASPHALT ROAD REPAIRS. INSPECTIONS CAN BE ARRANGED BY CONTACTING THE DEPARTMENT OF ENGINEERING SERVICES AT 740.203.1700 NO LESS THAN 24-HOURS IN ADVANCE OF THE WORK.



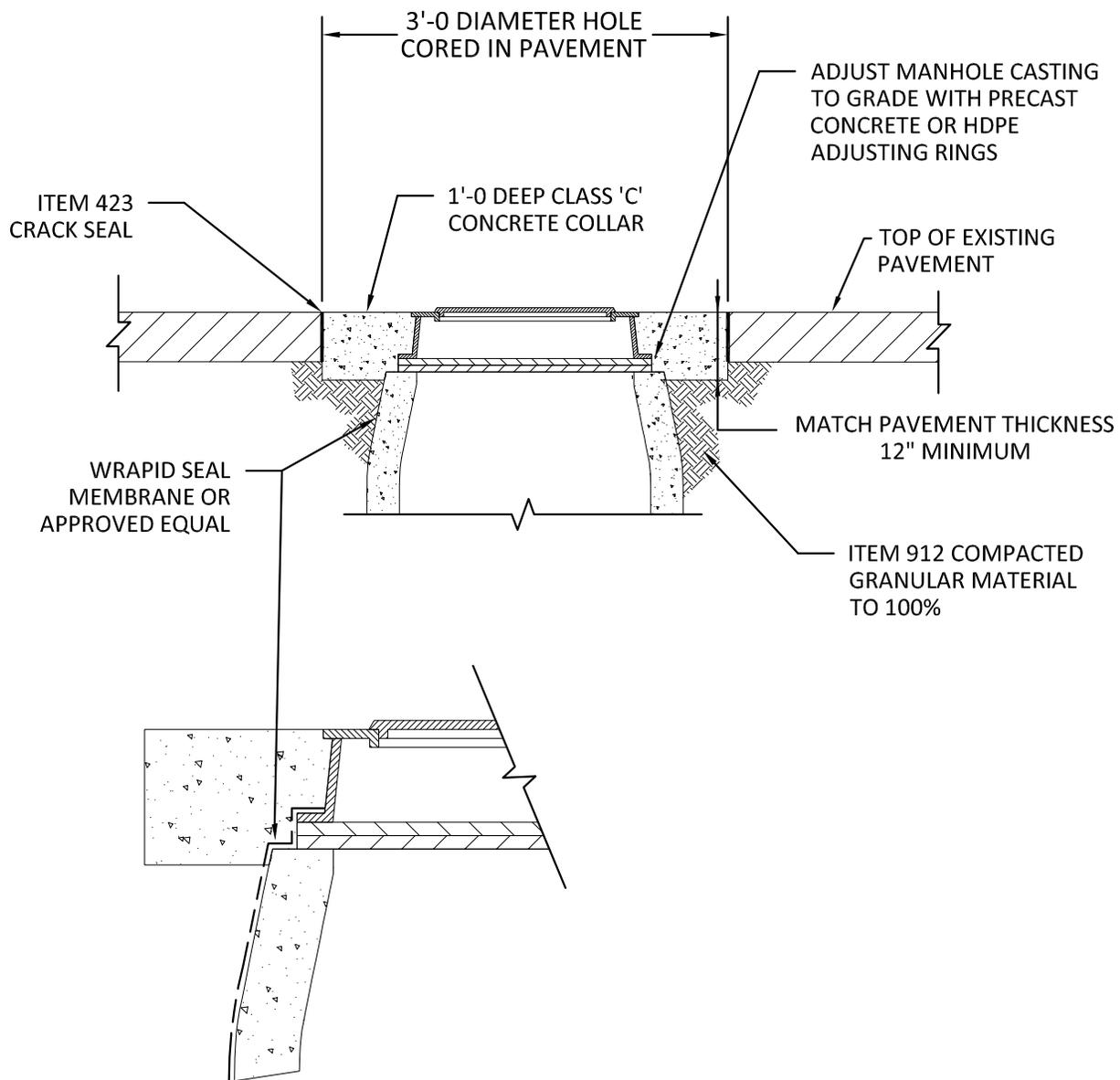
DEPARTMENT OF ENGINEERING SERVICES

STANDARD DETAIL
**STANDARD PAVEMENT
 REPAIR NOTES**

ROADWAY

RDWD-18.2

Rev. 03/01/2012

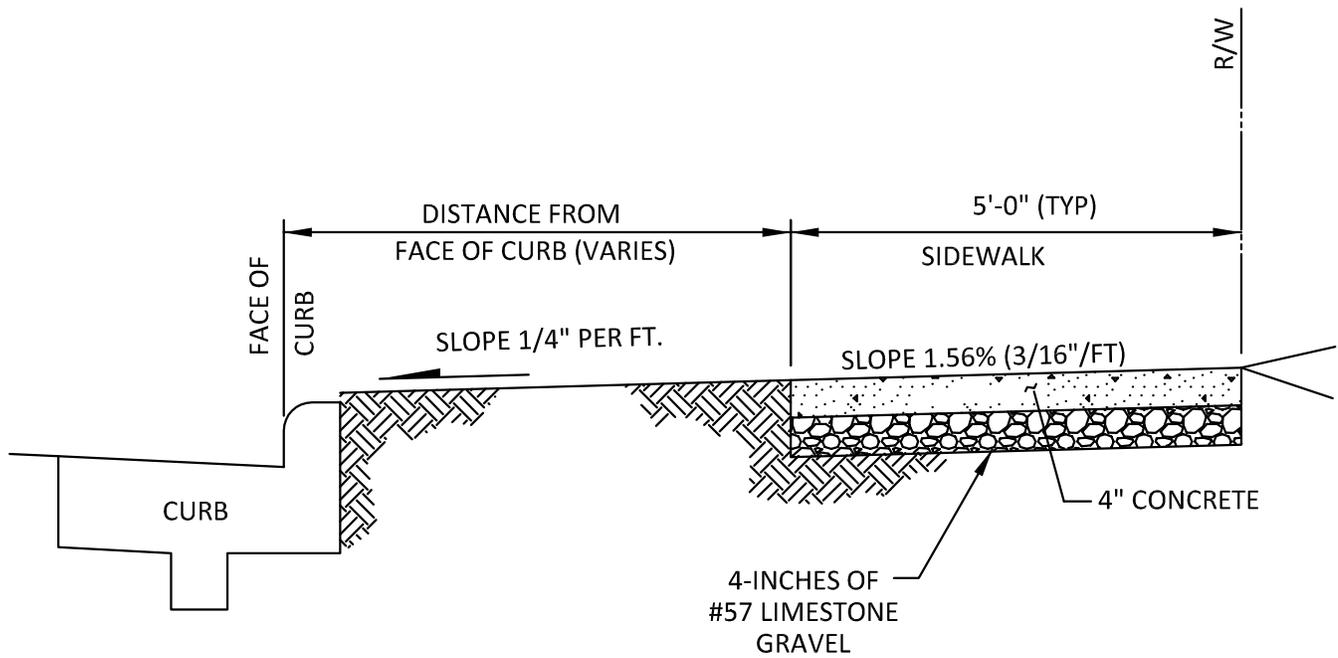


WHEN MANHOLES ARE BEING RAISED OR LOWERED MORE THAN 9 INCHES, THEY SHALL BE RECONSTRUCTED TO GRADE.

RECONSTRUCTION SHALL CONSIST OF THE CAREFUL REMOVAL AND CLEANING OF EXISTING CASTINGS; THE REMOVAL OF EXISTING WALLS DOWN TO THE SPRING LINE OR BELOW AS NECESSARY FOR MANHOLES AND RECONSTRUCTION TO THE NEW GRADES, CONFORMING AS NEARLY AS PRACTICABLE TO THE EXISTING DIMENSIONS AND TYPE OF CONSTRUCTION, USING THE SALVAGED CASTINGS AS DIRECTED BY THE CITY.

ADJUSTMENT TO GRADE SHALL BE ACCOMPLISHED BY ONE OF THE FOLLOWING METHODS:

1. CAREFULLY REMOVE AND CLEAN THE EXISTING FRAME; ADJUST THE HEIGHT OF SUPPORTING WALLS AS NECESSARY; AND RESET THE EXISTING FRAME IN A BED OF MORTAR OR CONCRETE.
2. CAREFULLY REMOVE THE EXISTING COVER OR GRATE AND FURNISH AND INSTALL PRECAST CONCRETE OR HDPE ADJUSTING RINGS IN ACCORDANCE WITH THE PLAN DETAILS. 9-INCHES IS THE MAXIMUM ALLOWABLE HEIGHT OF STACKED ADJUSTING RINGS.



SIDEWALKS SHALL BE CONSTRUCTED PER CMS ITEM 608 WITH CONCRETE CLASS C, ITEM 499 WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4,000 PSI AND SHALL CONTAIN 6% ±2% ENTRAINED AIR, AND A 3-INCH MAXIMUM SLUMP.

WHERE THE SIDEWALK CROSSES RESIDENTIAL DRIVEWAYS THE CONCRETE SHALL BE 6-INCHES DEEP AND 8-INCHES DEEP AT COMMERCIAL DRIVEWAYS. LENGTH AND SLOPE OF DRIVEWAY RAMP ARE VARIABLE ACCORDING TO THE DISTANCE OF THE SIDEWALK FROM THE CURB, SEE STANDARD DRAWING RDWD 12. CLASS MS (MEDIUM SET) CONCRETE MAY BE SPECIFIED FOR WORK IN DRIVEWAY AREAS WHERE ACCESS IS TO BE RESTORED WITHIN 24 HOURS.

ALL CONCRETE SHALL BE PLACED IN ONE COURSE, AND HAVE A BROOM FINISH WITH 1/4-INCH RADIUS EDGE TOOLED JOINTS AND EDGES.

EXPANSION JOINT MATERIAL SHALL BE PLACED WHEREVER NEW CONCRETE WALK ABUTS A DRIVEWAY APPROACH, AROUND STRUCTURES, AGAINST THE BACK OF CURB, AND AT MAXIMUM TRANSVERSE INTERVALS OF 30-FEET.

SIDEWALK SECTIONS TO BE REPAIRED MUST BE SAWCUT FULL-DEPTH AT THE NEAREST JOINTS AND REMOVED.

WATER AND GAS VALVES BOXES IN THE SIDEWALK AREA SHALL BE ADJUSTED TO PROPER GRADE BY THE OWNER.

ROOF DRAINS SHALL BE EXTENDED UNDER THE SIDEWALK AND THROUGH THE CURB.

FORMS SHALL BE MADE OF LUMBER 2-INCH NOMINAL THICKNESS OR RIGID METAL.

IMMEDIATELY AFTER FINISHING, CONCRETE SHALL BE PROTECTED WITH A WHITE-TINTED CURING COMPOUND.

NOTIFY THE ENGINEERING OFFICE WHEN FORMS WILL BE READY FOR INSPECTION, AT LEAST 24 HOURS BEFORE CONCRETE IS TO BE PLACED. IN NO CASE MAY CONCRETE BE PLACED WITHOUT APPROVAL OF FORM WORK BY THE INSPECTOR.

NO CONCRETE SHALL BE PLACED UNTIL THE AMBIENT TEMPERATURE IS 35 DEGREES F MINIMUM AND RISING. CONCRETE SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 451.061 OF ITEM 451.



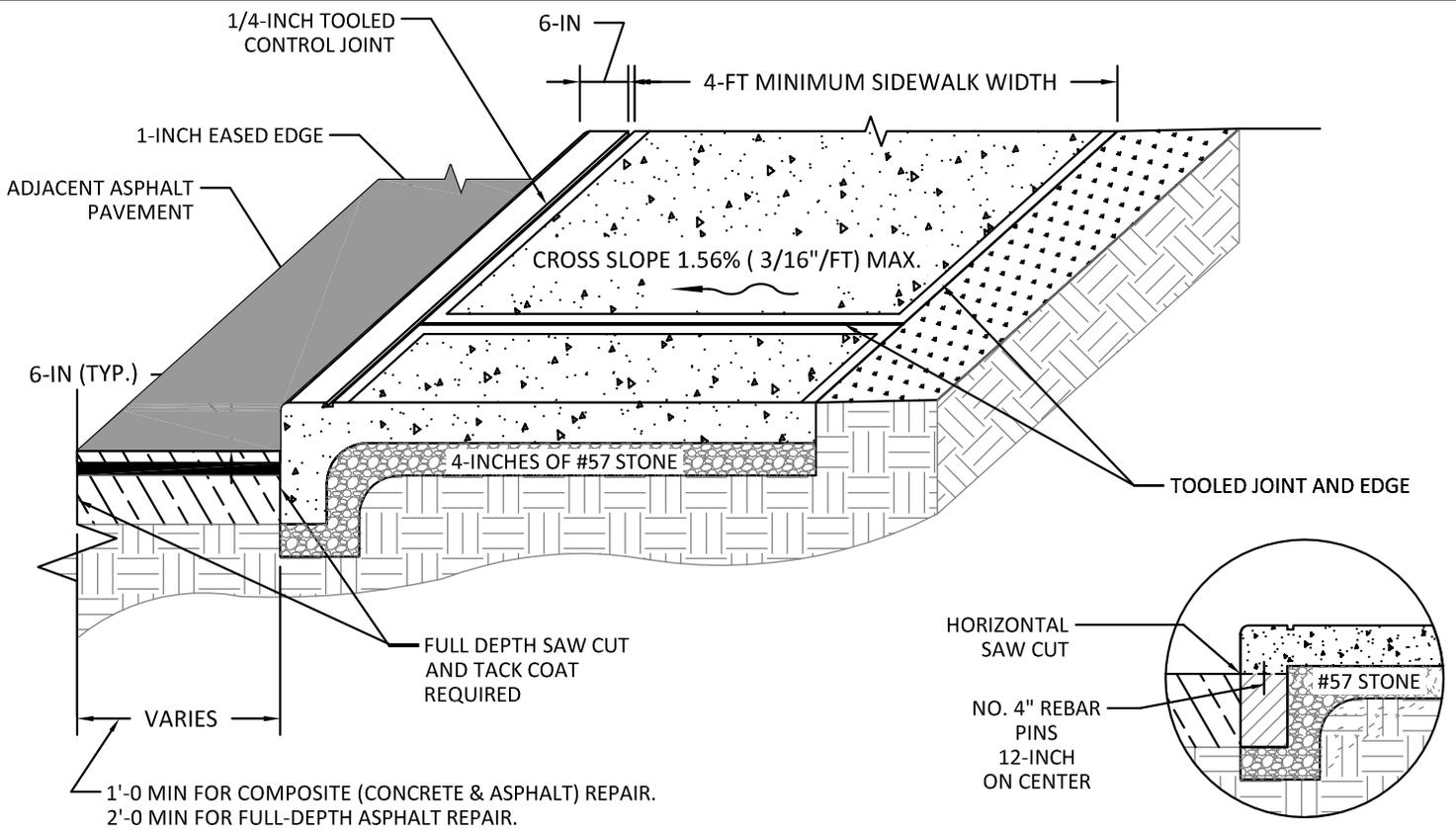
DEPARTMENT OF ENGINEERING SERVICES

STANDARD DETAIL
**STANDARD SIDEWALKS
 SPECIFICATIONS**

ROADWAY

RDWD-19.1

Rev. 03/01/2012



ISOLATED REPAIR DETAIL

NOTES:

1. FOR PAVEMENT REMOVAL, THE CITY SHALL SAWCUT EXISTING PAVEMENT AND THE CONTRACTOR SHALL REMOVE CURB, PAVEMENT, AND SIDEWALK. ASPHALT REPAIR (9" MIN OR PAVEMENT THICKNESS) SHALL BE COMPLETED BY CITY. CONCRETE BASE SHALL BE CONSTRUCTED BY CONTRACTOR.
2. FOR ISOLATED SIDEWALK/CURB REPAIRS, THE CURB MAY BE SAWCUT FLUSH WITH PAVEMENT BY THE CONTRACTOR WITH NEW CURB/WALK DOWELED TO REMAINING CURB PER DETAIL. (NO PAVEMENT REMOVAL REQUIRED).
3. SIDEWALKS SHALL BE CONSTRUCTED PER CMS ITEM 608 WITH CONCRETE CLASS C, ITEM 499 WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4,000 PSI AND SHALL CONTAIN 6% ±2% ENTRAINED AIR, AND A 3-INCH MAXIMUM SLUMP.
4. WHERE DRIVEWAYS CROSS THE SIDEWALK THE CONCRETE SHALL BE 6-INCHES DEEP FOR RESIDENTIAL OR 8-INCHES FOR COMMERCIAL. LENGTH AND SLOPE OF DRIVEWAY RAMPS ARE VARIABLE. SEE STANDARD DRAWING RDWD 12. CLASS MS (MEDIUM SET) CONCRETE MAY BE SPECIFIED FOR WORK IN DRIVEWAY AREAS WHERE ACCESS IS TO BE RESTORED WITHIN 24 HOURS.
5. ALL CONCRETE SHALL BE PLACED IN ONE COURSE, AND HAVE A BROOM FINISH WITH 1/4-INCH RADIUS EDGE TOOLED JOINTS AND EDGES.
6. EXPANSION JOINT MATERIAL SHALL BE PLACED WHEREVER NEW CONCRETE WALK ABUTS A DRIVEWAY APPROACH, AROUND STRUCTURES, AGAINST THE BACK OF CURB, AND AT MAXIMUM TRANSVERSE INTERVALS OF 30-FEET.
7. SIDEWALK SECTIONS TO BE REPAIRED MUST BE SAWCUT FULL-DEPTH AT THE NEAREST JOINTS AND REMOVED.
8. WATER AND GAS VALVES BOXES IN THE SIDEWALK AREA SHALL BE ADJUSTED TO PROPER GRADE BY OWNER OF UTILITY.
9. FORMS SHALL BE MADE OF LUMBER 2-INCH NOMINAL THICKNESS OR RIGID METAL.
10. IMMEDIATELY AFTER FINISHING, CONCRETE SHALL BE PROTECTED WITH A WHITE-TINTED CURING COMPOUND.
11. NOTIFY THE ENGINEERING OFFICE WHEN FORMS WILL BE READY FOR INSPECTION, AT LEAST 24 HOURS BEFORE CONCRETE IS TO BE PLACED. IN NO CASE MAY CONCRETE BE PLACED WITHOUT APPROVAL OF FORM WORK BY THE INSPECTOR.
12. NO CONCRETE SHALL BE PLACED UNTIL THE AMBIENT TEMPERATURE IS 35 DEGREES F MINIMUM AND RISING. CONCRETE SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 451.061 OF ITEM 451.



DEPARTMENT OF ENGINEERING SERVICES

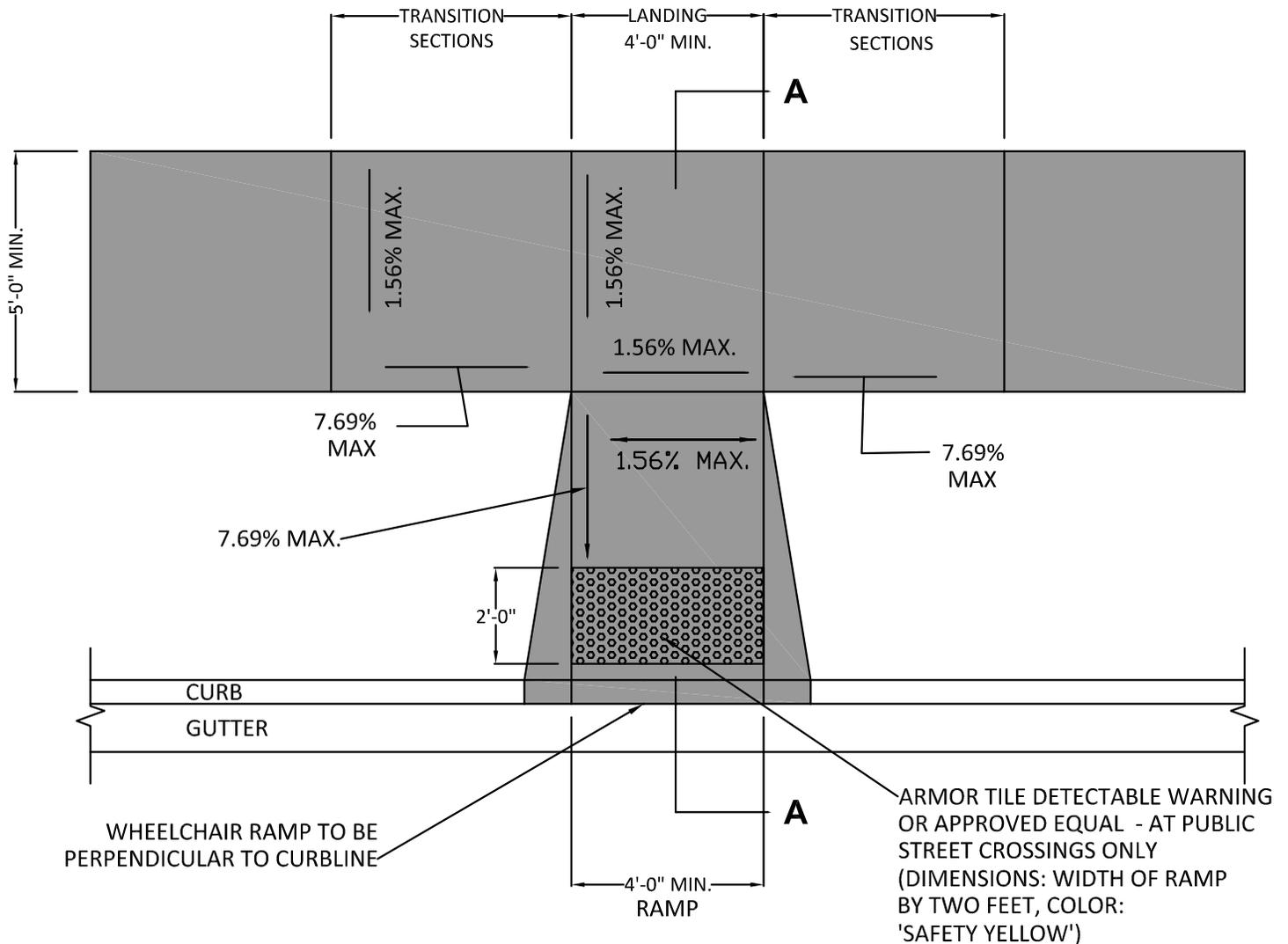
STANDARD DETAIL
INTEGRAL CURB & WALK
 FOR REHABILITATION AREAS

ROADWAY

RDWD-19.2

Rev. 03/01/2012

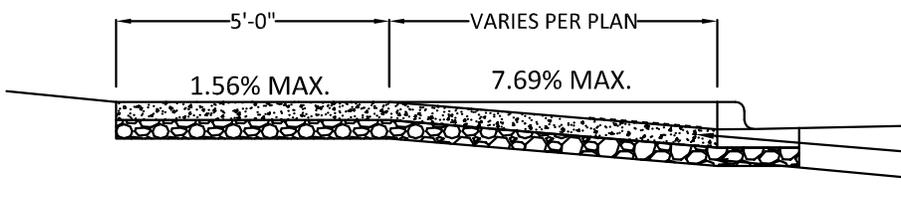
ADA COMPLIANT WHEELCHAIR RAMP LOCATION PER APPROVED PLAN



WHEELCHAIR RAMP TO BE PERPENDICULAR TO CURBLINE

ARMOR TILE DETECTABLE WARNING OR APPROVED EQUAL - AT PUBLIC STREET CROSSINGS ONLY (DIMENSIONS: WIDTH OF RAMP BY TWO FEET, COLOR: 'SAFETY YELLOW')

%	IN/FT	SLOPE
1.56	$\frac{3}{16}$ "/FT	1:64
2.08	$\frac{1}{4}$ "/FT	1:48
5.00	0.6"/FT	1:20
7.69	0.92"/FT	1:13



CROSS SECTION A-A



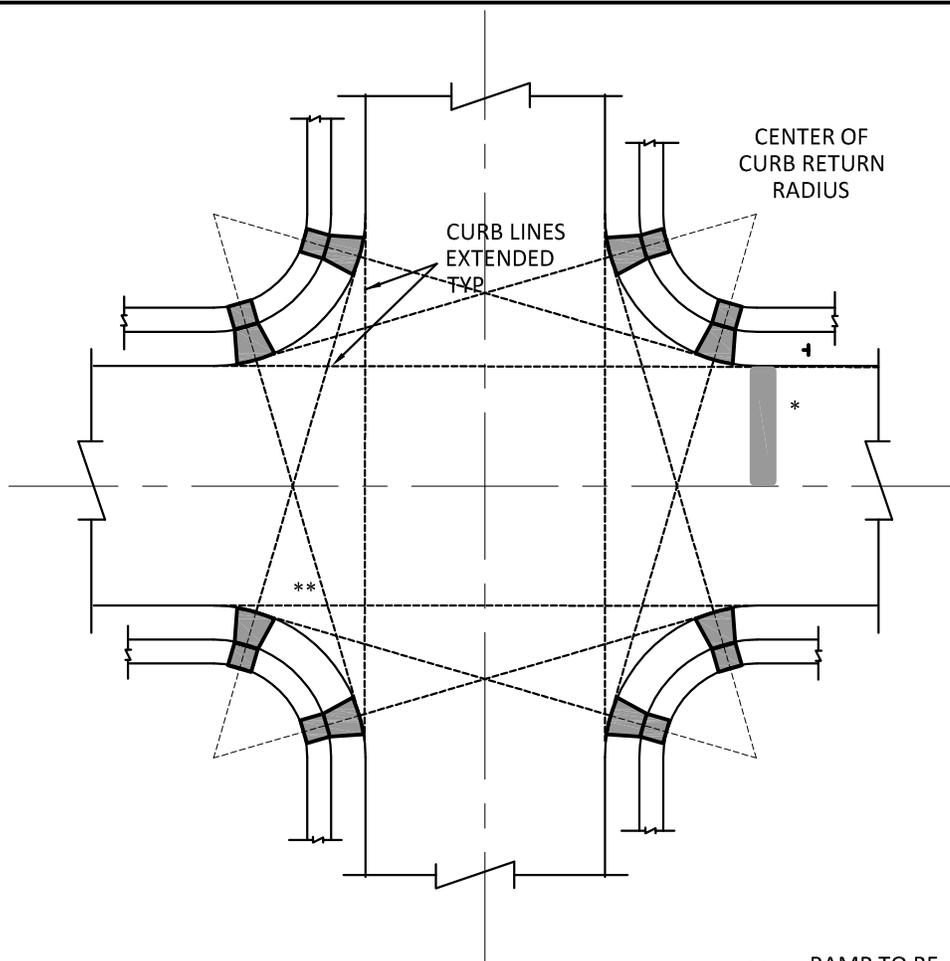
DEPARTMENT OF ENGINEERING SERVICES

STANDARD DETAIL
ADA COMPLIANT
WHEELCHAIR RAMP

ROADWAY

RDWD-19.4

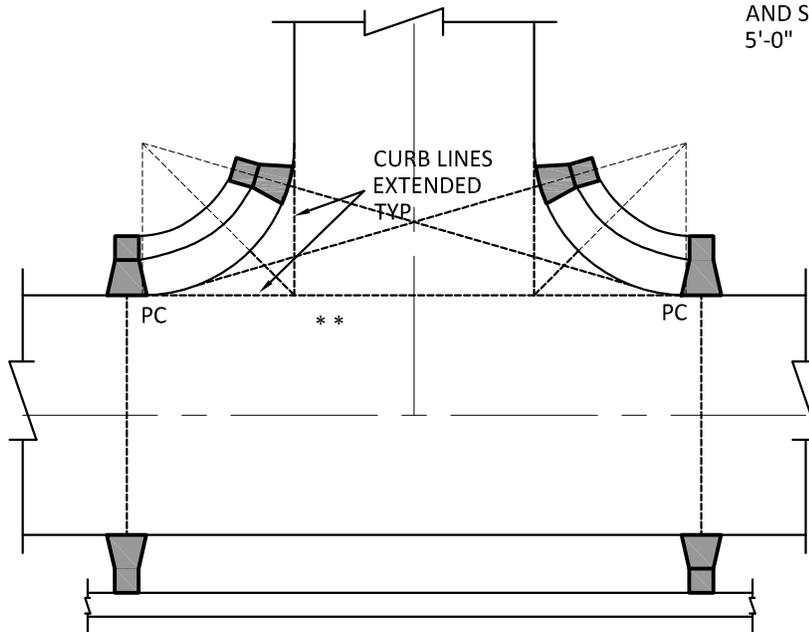
03/01/2012



FOUR WAY INTERSECTION

** RAMP TO BE PERPENDICULAR TO RADIAL CURB LINE TYP.

* STOP BAR IS 2'-0" FROM CROSSWALK AND STOP SIGN 5'-0"



"T" INTERSECTION



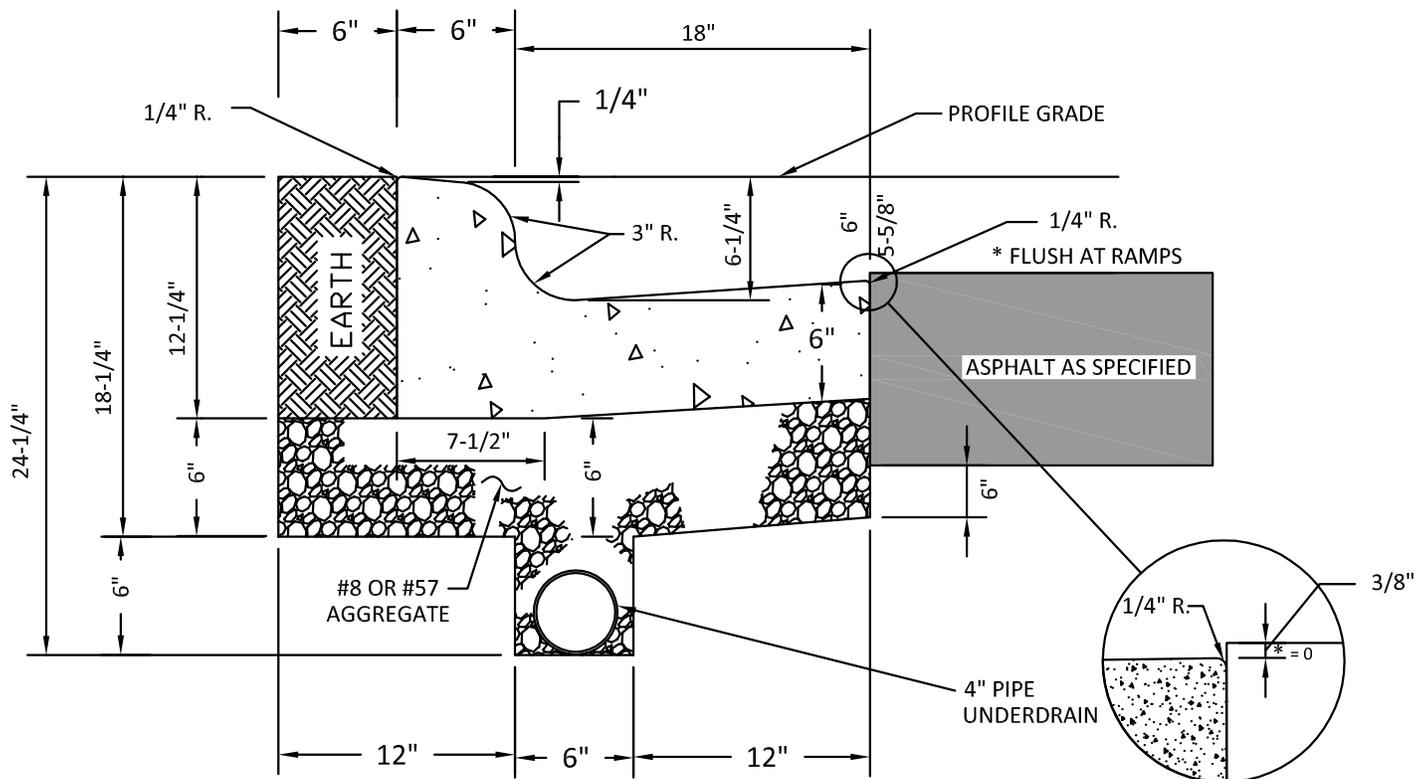
DEPARTMENT OF ENGINEERING SERVICES

STANDARD DETAIL
CURB RAMP LOCATIONS

ROADWAY

RDWD-19.5

03/01/2012



* THE PAVEMENT SHALL BE FLUSH AT THE GUTTER IN FRONT OF CURB RAMPS. CURB RAMPS SHALL BE BUILT AS COC STANDARD DRAWING 2319

1.26 C.F. CONCRETE PER L.F.

IF THE SUBGRADE IS MORE THAN 7" BELOW THE BOTTOM OF THE CURB, THE UNDERDRAIN SHALL BE ADJUSTED TO KEEP THE TOP OF THE UNDERDRAIN AT LEAST 2" BELOW THE SUBGRADE.

SUBGRADE COMPACTION SHALL BE COMPLETED BEFORE UNDERDRAIN INSTALLATION.

NOTE: WHEN CURB AND GUTTER INLET IS INSTALLED, THE TOP OF THE BONNET SHALL BE THE SAME AS THE TOP OF CURB ELEVATION. THE EDGE OF PAVEMENT SHALL BE $\frac{3}{8}$ " HIGHER THAN THE GRATE WHEREVER THEY MEET/TOUCH.

FOR REPLACEMENT WORK, THE CURB SHALL BE REMOVED AT AN EXISTING JOINT OR NO CLOSER THAN 5 FEET FROM AN EXISTING JOINT.

$\frac{1}{2}$ " EXPANSION MATERIAL WILL BE INSTALLED BEHIND THE CURB WHEN A CONCRETE WALK, DRIVE, OR OTHER ITEM IS ADJOINING IT.



DEPARTMENT OF ENGINEERING SERVICES

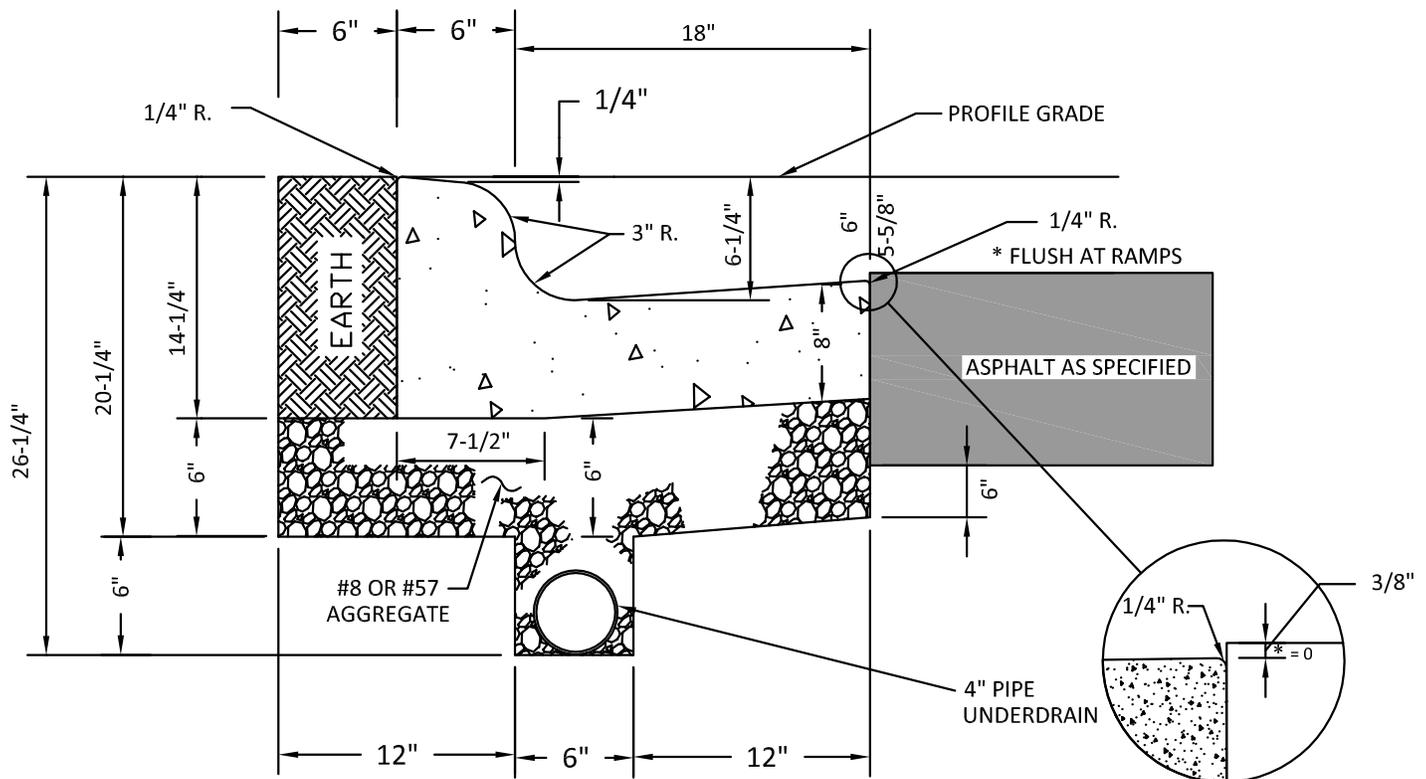
STANDARD DETAIL

STANDARD CONCRETE COMBINED
CURB & GUTTER, ITEM 609

ROADWAY

RDWD-20.0

Rev. 03/01/2012



* THE PAVEMENT SHALL BE FLUSH AT THE GUTTER IN FRONT OF CURB RAMPS. CURB RAMPS SHALL BE BUILT AS COC STANDARD DRAWING 2319

1.59 C.F. CONCRETE PER L.F.

IF THE SUBGRADE IS MORE THAN 7" BELOW THE BOTTOM OF THE CURB, THE UNDERDRAIN SHALL BE ADJUSTED TO KEEP THE TOP OF THE UNDERDRAIN AT LEAST 2" BELOW THE SUBGRADE.

SUBGRADE COMPACTION SHALL BE COMPLETED BEFORE UNDERDRAIN INSTALLATION.

NOTE: WHEN CURB AND GUTTER INLET IS INSTALLED, THE TOP OF THE BONNET SHALL BE THE SAME AS THE TOP OF CURB ELEVATION. THE EDGE OF PAVEMENT SHALL BE $\frac{3}{8}$ " HIGHER THAN THE GRATE WHEREVER THEY MEET/TOUCH.

FOR REPLACEMENT WORK, THE CURB SHALL BE REMOVED AT AN EXISTING JOINT OR NO CLOSER THAN 5 FEET FROM AN EXISTING JOINT.

$\frac{1}{2}$ " EXPANSION MATERIAL WILL BE INSTALLED BEHIND THE CURB WHEN A CONCRETE WALK, DRIVE, OR OTHER ITEM IS ADJOINING IT.



DEPARTMENT OF ENGINEERING SERVICES

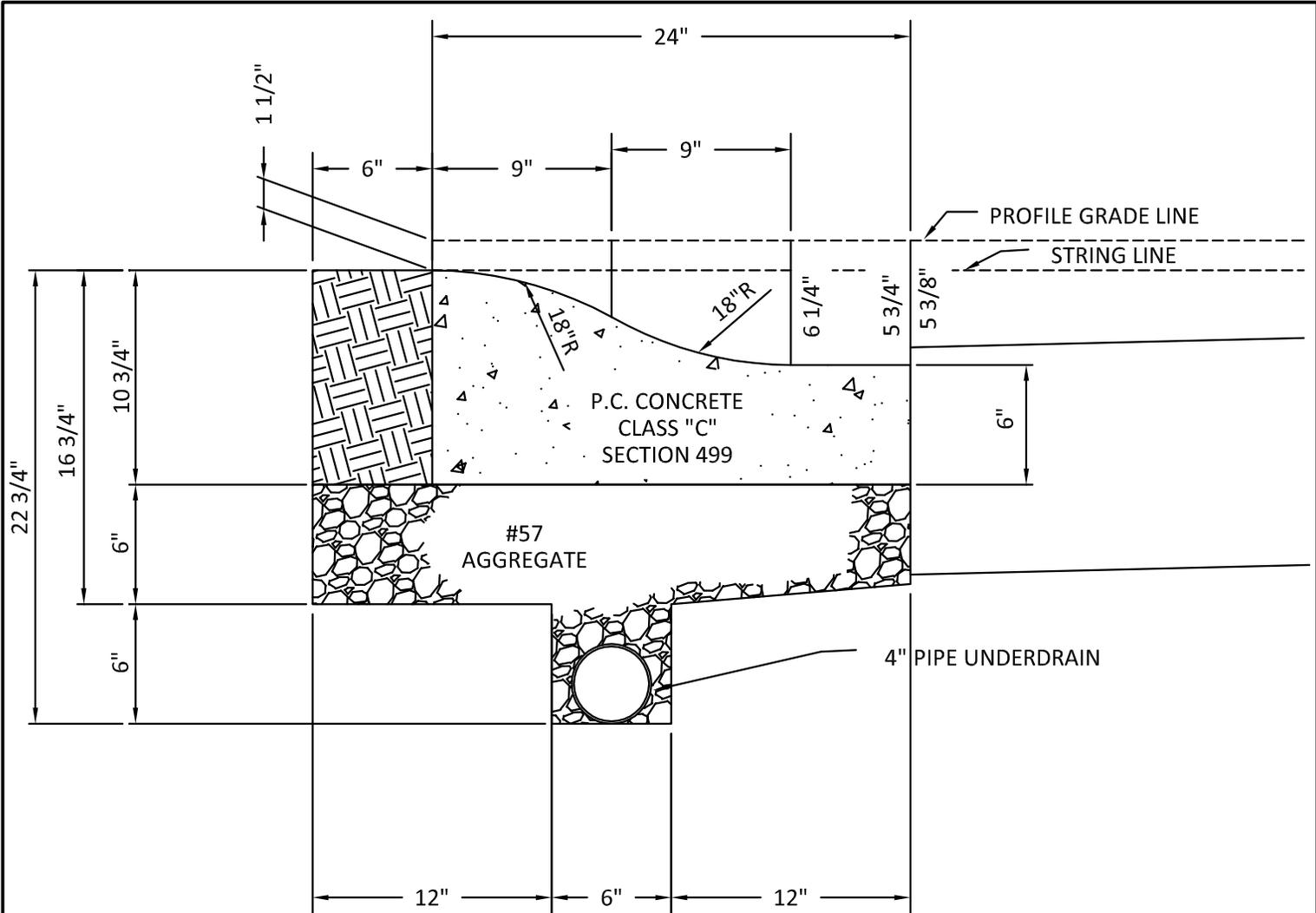
STANDARD DETAIL

SPECIAL 8" CONCRETE COMBINED
CURB & GUTTER, ITEM 609

ROADWAY

RDWD-21.0

Rev. 03/01/2012



THE PAVEMENT SHALL BE FLUSH AT THE GUTTER IN FRONT OF CURB RAMPS. CURB RAMPS SHALL BE BUILT AS COC STANDARD DRAWING 2319

1.33 C.F. CONCRETE PER L.F.

IF THE SUBGRADE IS MORE THAN 7" BELOW THE BOTTOM OF THE CURB, THE UNDERDRAIN SHALL BE ADJUSTED TO KEEP THE TOP OF THE UNDERDRAIN AT LEAST 2" BELOW THE SUBGRADE.

SUBGRADE COMPACTION SHALL BE COMPLETED BEFORE UNDERDRAIN INSTALLATION.

NOTE: WHEN CURB AND GUTTER INLET IS INSTALLED, THE TOP OF THE BONNET SHALL BE THE SAME AS THE TOP OF CURB ELEVATION. THE EDGE OF PAVEMENT SHALL BE $\frac{3}{8}$ " HIGHER THAN THE GRATE WHEREVER THEY MEET/TOUCH.

FOR REPLACEMENT WORK, THE CURB SHALL BE REMOVED AT AN EXISTING JOINT OR NO CLOSER THAN 5 FEET FROM AN EXISTING JOINT.

$\frac{1}{2}$ " EXPANSION MATERIAL WILL BE INSTALLED BEHIND THE CURB WHEN A CONCRETE WALK, DRIVE, OR OTHER ITEM IS ADJOINING IT.



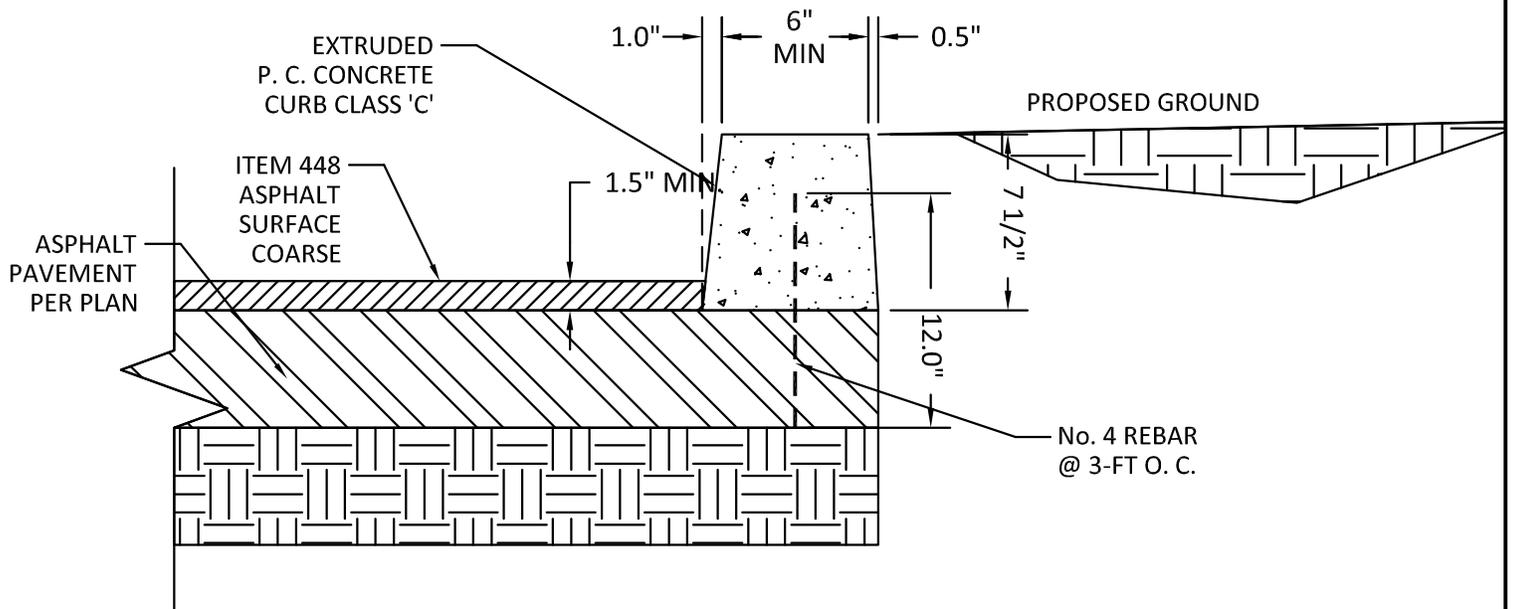
DEPARTMENT OF ENGINEERING SERVICES

STANDARD DETAIL
**CONCRETE
MOUNTABLE CURB**

ROADWAY

RDWD-23.0

Rev. 03/01/2012



NOTES:

EXTRUDED CURBING IS PERMITTED IN PRIVATE COMMERCIAL PARKING LOTS AND CONDOMINIUM/APARTMENT SITES ONLY. IN NO INSTANCE WILL IT BE PERMITTED ON PUBLIC ROADWAYS.

EXTRUDED CURBING IS NOT PERMITTED AGAINST ANY MAIN TRAVEL DRIVEWAYS.

EXTRUDED CURBING IS PERMITTED ALONG THE PERIMETER OF PARKING LOTS, AT THE END OF PARKING STALLS WHERE PAVEMENT IS ABUTTING LAWN AREAS, AND AROUND LANDSCAPE ISLAND IN PARKING LOTS.

THE CURB SHALL BE 7.5-INCHES IN HEIGHT AND SHALL BE PINNED WITH 12-INCH NO. 4 REBAR 3-FT O. C.

THE TOP COURSE OF ASPHALT SHALL BE PLACED AFTER PLACEMENT OF THE CURB TO AID IN ANCHORING THE CURB.

A 6-INCH REVEAL IS REQUIRED.



DEPARTMENT OF ENGINEERING SERVICES

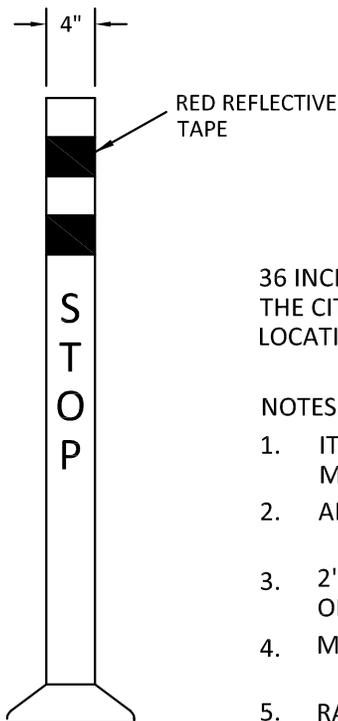
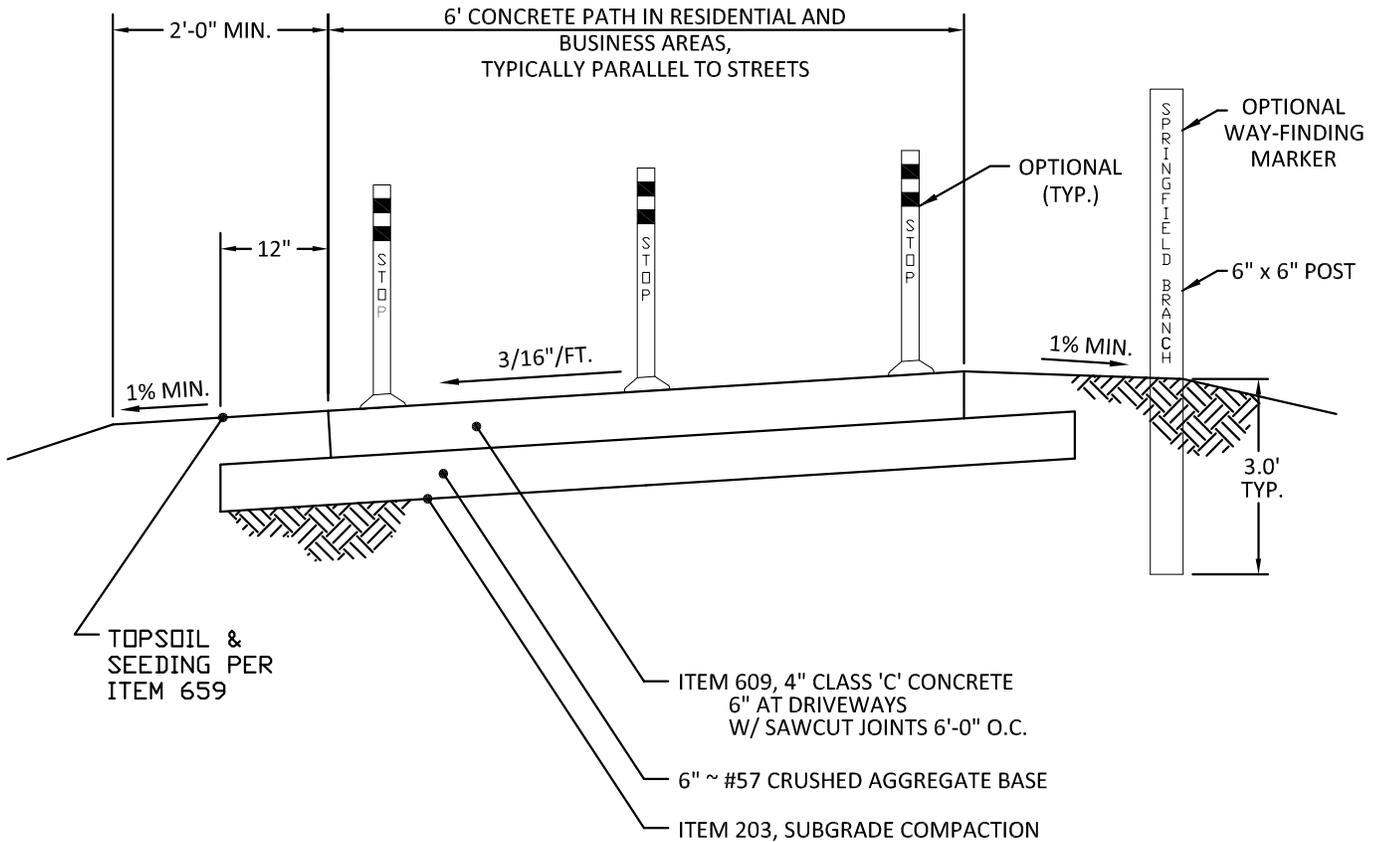
STANDARD DETAIL

EXTRUDED CONCRETE CURB

ROADWAY

RDWD-24.0

Rev. 03/01/2012



PROFILE GRADES

MINIMUM: 0.6%

MAXIMUM: 8.0%

PREFERRED MAXIMUM: 5.0%

36 INCH - WHITE FLEXIBLE DELINEATOR WITH GLUEDOWN BASE AS APPROVED BY THE CITY. RED STOP LETTERING ON MARKER FACING PATH ONLY. SEE NOTE 6 FOR LOCATION.

NOTES:

1. ITEM NUMBERS REFER TO THE CITY OF COLUMBUS CONSTRUCTION AND MATERIAL SPECIFICATIONS.
2. ALL DISTURBED AREAS SHALL BE SEEDED, MULCHED AND FERTILIZED PER ITEM 659.
3. 2'-0" GRADED SECTION TO EACH SIDE OF PAVEMENT SHALL BE CLEAR OF OBSTRUCTIONS.
4. MINIMUM VERTICAL CLEARANCE TO OBSTRUCTIONS SHALL BE 8'-6".
5. RAMPS SHALL BE ADA COMPLIANT AND SHALL BE CONSTRUCTED AT ALL ROAD CROSSINGS.
6. FLEXIBLE DELINEATORS SHALL BE PLACED AT ROAD INTERSECTIONS 1'-0" FROM INTERSECTING SIDEWALK OR 12'-0" FROM EDGE OF PAVEMENT OR BACK OF CURB WHERE THERE ARE NO SIDEWALKS AS DIRECTED BY THE CITY. SEE STANDARD BIKE PATH BOLLARD DETAIL.



DEPARTMENT OF ENGINEERING SERVICES

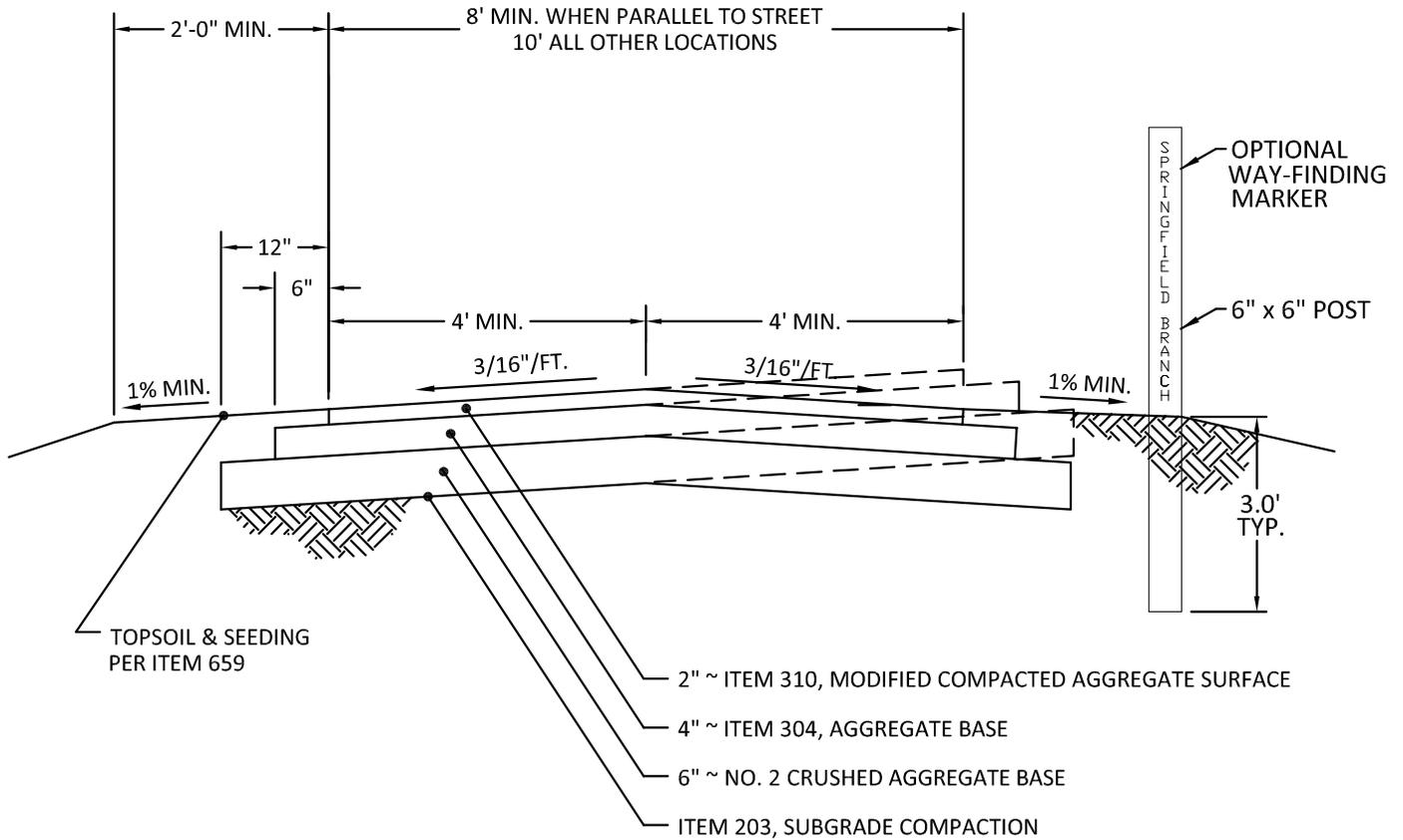
STANDARD DETAIL

BIKE PATH
CONCRETE PAVEMENT SECTION

ROADWAY

RDWD-26.0

Rev. 03/01/2012



PROFILE GRADES
 MINIMUM: 0.6%
 MAXIMUM: 8.0%
 PREFERRED MAXIMUM: 5.0%

NOTES:

1. ITEM NUMBERS REFER TO THE CITY OF COLUMBUS CONSTRUCTION AND MATERIAL SPECIFICATIONS.
2. ALL DISTURBED AREAS SHALL BE SEEDED, MULCHED AND FERTILIZED PER ITEM 659.
3. 2'-0" GRADED SECTION TO EACH SIDE OF PAVEMENT SHALL BE CLEAR OF OBSTRUCTIONS.
4. MINIMUM VERTICAL CLEARANCE TO OBSTRUCTIONS SHALL BE 8'-6".
5. RAMPS SHALL BE ADA COMPLIANT AND SHALL BE CONSTRUCTED AT ALL ROAD CROSSINGS.
6. FIXED OR REMOVABLE BOLLARDS SHALL BE PLACED AT ROAD INTERSECTIONS 1'-0" FROM INTERSECTING SIDEWALK OR 12'-0" FROM EDGE OF PAVEMENT OR BACK OF CURB WHERE THERE ARE NO SIDEWALKS AS DIRECTED BY THE CITY. SEE STANDARD BIKE PATH BOLLARD DETAIL.



DEPARTMENT OF ENGINEERING SERVICES

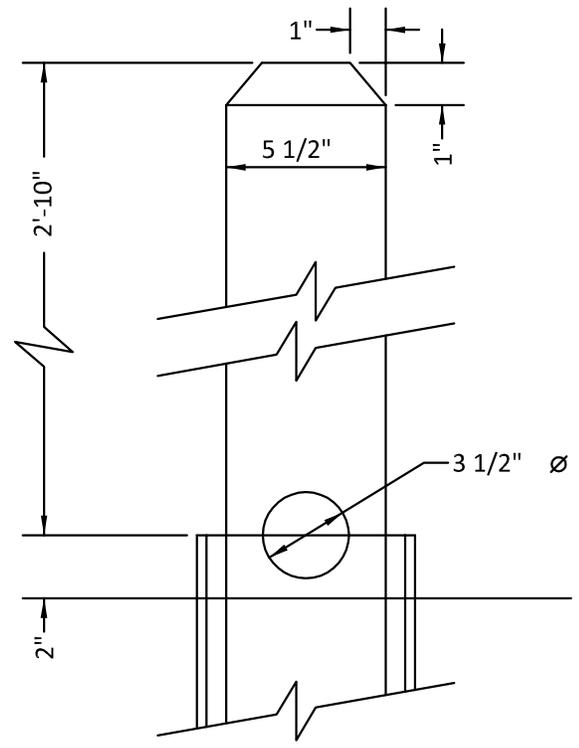
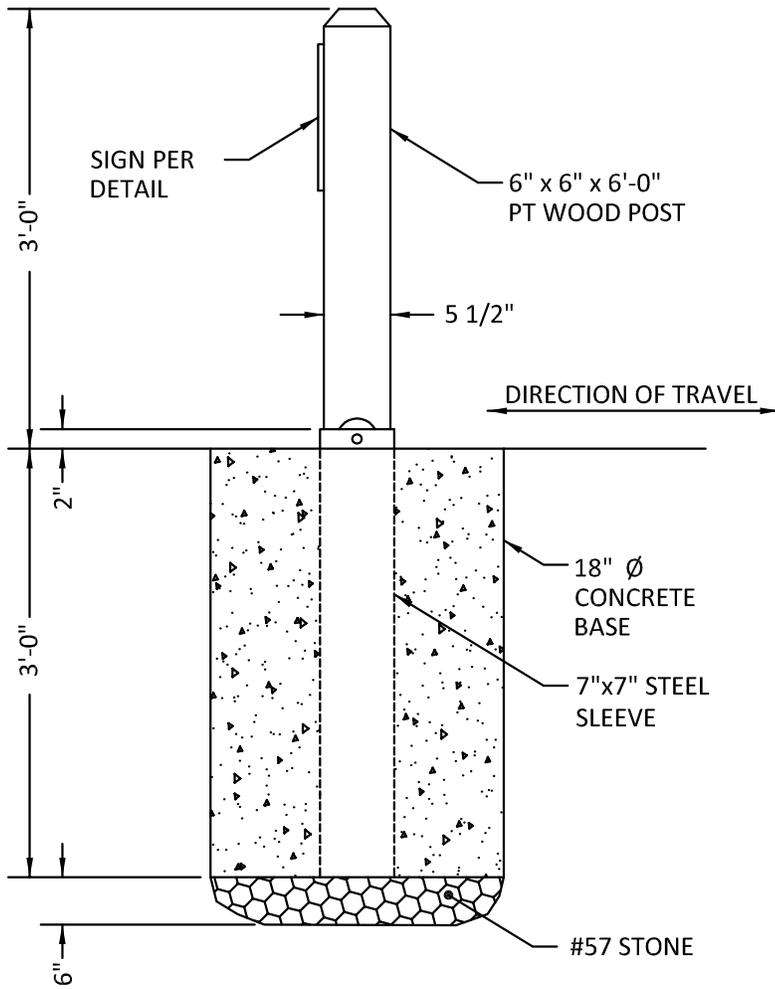
STANDARD DETAIL

RECREATIONAL PATH
 COMPACTED AGGREGATE SECTION

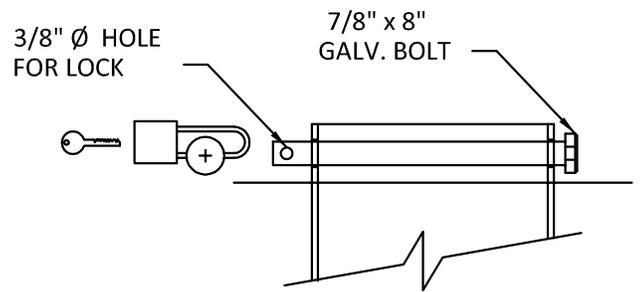
ROADWAY

RDWD-27.0

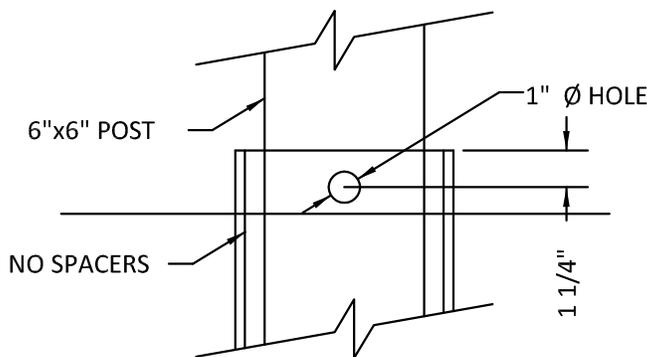
Rev. 03/01/2012



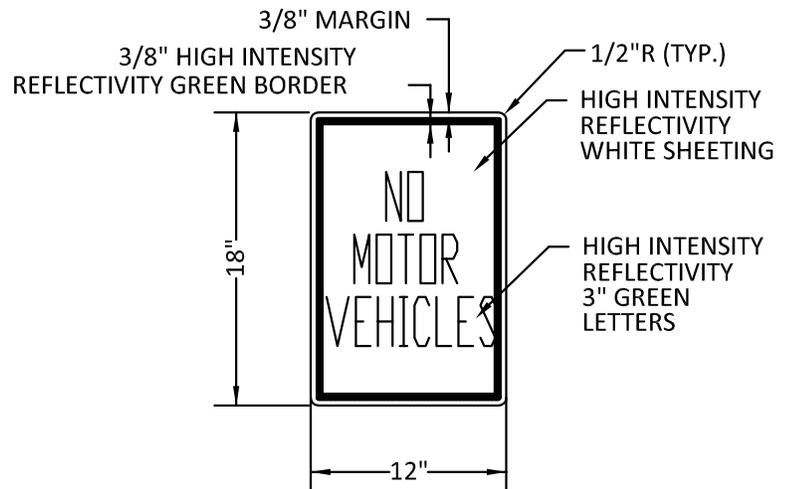
POST DETAIL



OPTIONAL REMOVABLE BOLT/LOCK



STEEL TUBE DETAIL



ATTACH SIGN TO BOLLARD
WITH 2 ~ 3" LAG BOLTS

SIGN DETAIL



DEPARTMENT OF ENGINEERING SERVICES

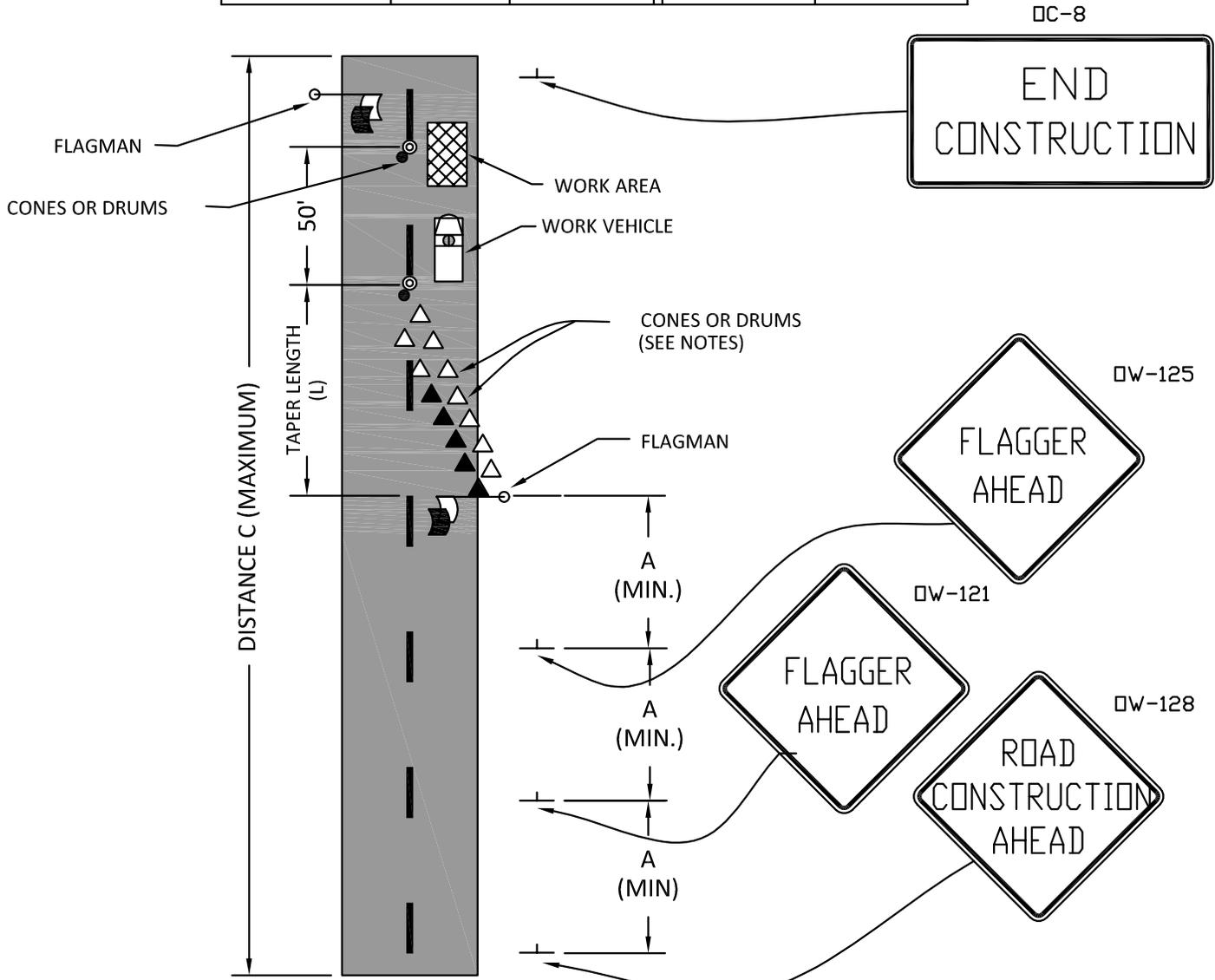
STANDARD DETAIL
REMOVABLE / BREAK-AWAY
BOLLARD DETAIL

ROADWAY

RDWD - 28.0

Rev. 08/12/2010

TAPER LENGTHS (L)				
MINIMUM NUMBER OF CONES, DRUMS, OR BARRICADES (C, D, or B) REQUIRED				
POSTED SPEED MPH	(L) 10 FT. LANE	NO. OF C, D OR B	(L) 12 FT. LANE	NO. OF C, D OR B
25	100	4	125	5
35	200	8	250	9
45	450	11	540	13
55	550	11	660	13
65	650	11	780	13



NOTES:

- USE THE SAME WARNING SIGNS ON THE OPPOSITE APPROACH.
- SPACE THE CONES OR DRUMS AT 50'-0" MAX.

TYPE OF ROADWAY	DISTANCES	
	A	C
URBAN	200 FT	0.5 MI
RURAL	500 FT	1.0 MI



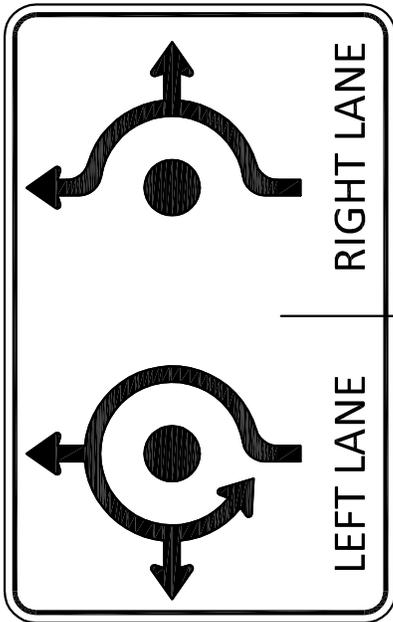
STANDARD DETAIL
 MAINTENANCE OF TRAFFIC FOR
 STATIONARY OPERATION IN ONE LANE

ROADWAY
 RDWD-29.0
 Rev. 03/01/2012

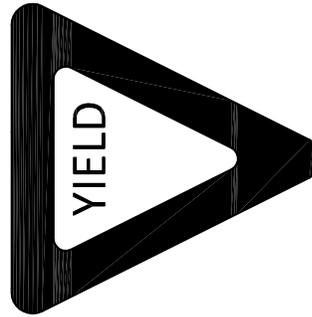


ROUNDABOUT
AHEAD

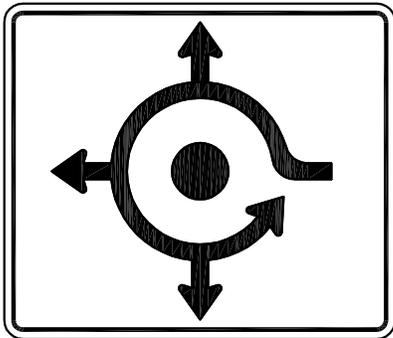
20
MPH



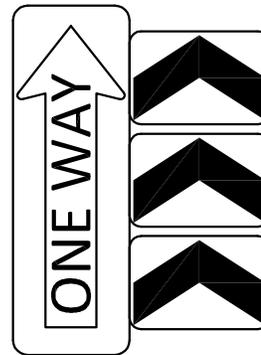
DUAL LANE ROUNDABOUT

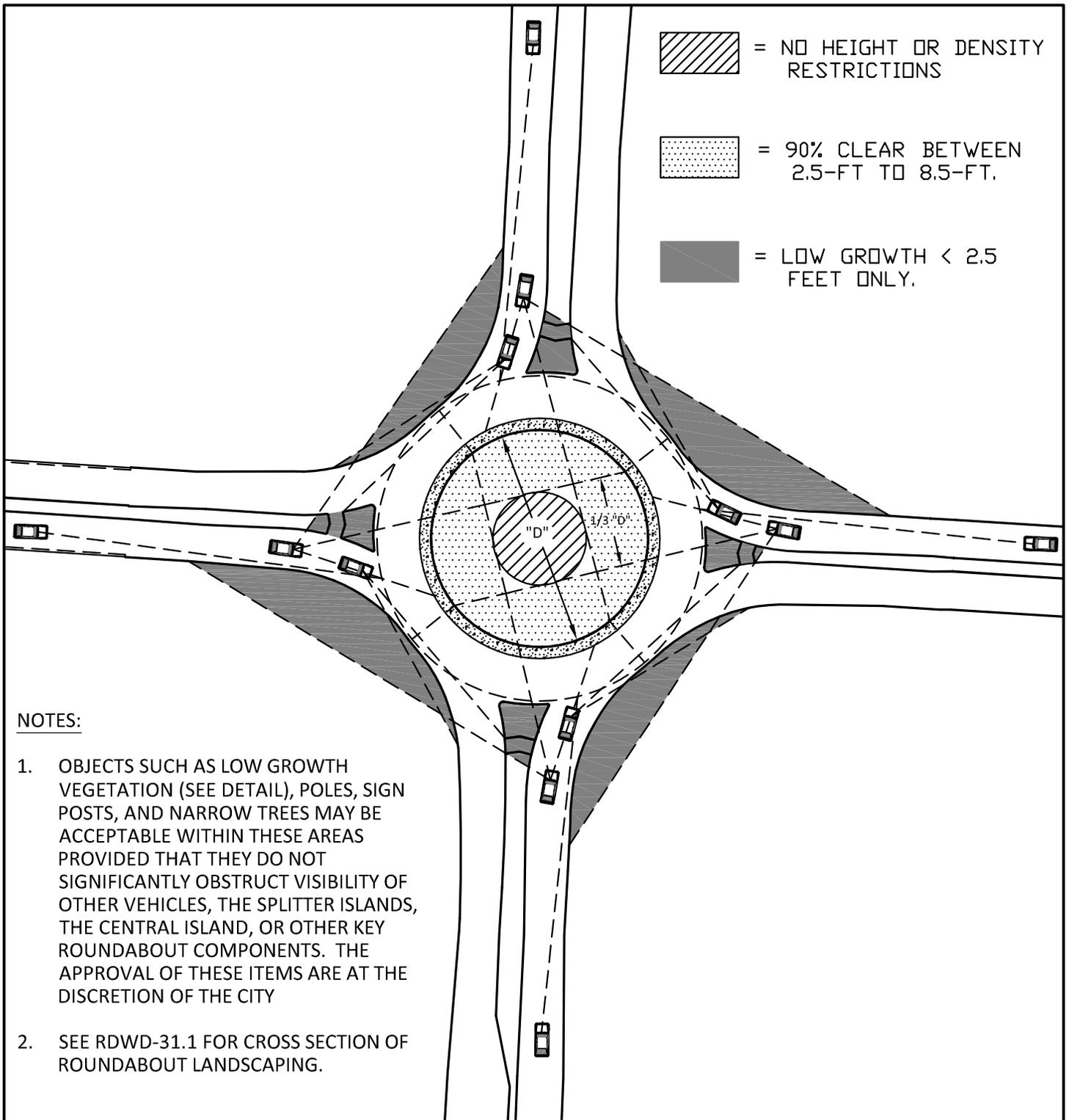


TO ALL
TRAFFIC



SINGLE LANE ROUNDABOUT





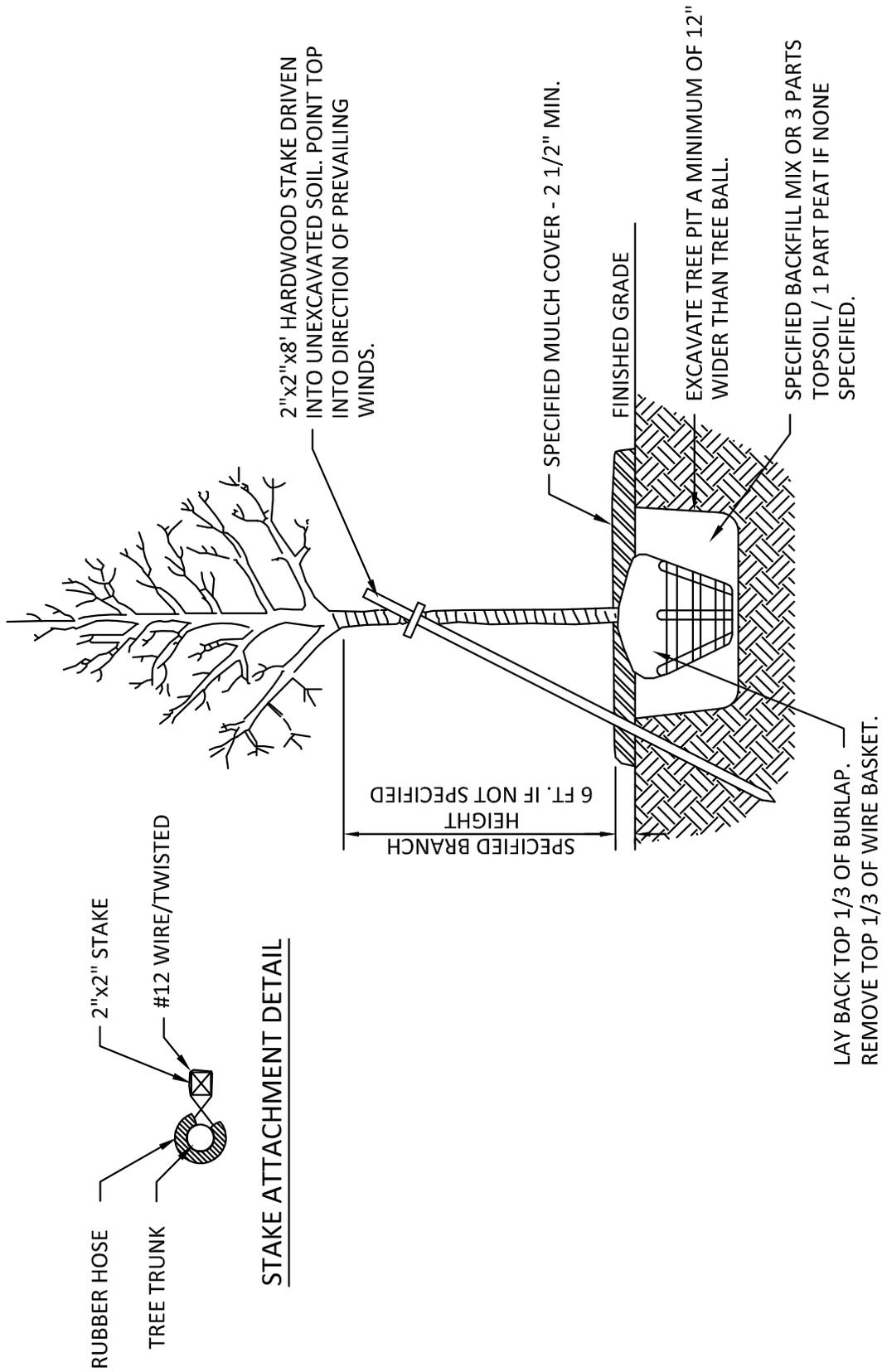
NOTES:

1. OBJECTS SUCH AS LOW GROWTH VEGETATION (SEE DETAIL), POLES, SIGN POSTS, AND NARROW TREES MAY BE ACCEPTABLE WITHIN THESE AREAS PROVIDED THAT THEY DO NOT SIGNIFICANTLY OBSTRUCT VISIBILITY OF OTHER VEHICLES, THE SPLITTER ISLANDS, THE CENTRAL ISLAND, OR OTHER KEY ROUNDABOUT COMPONENTS. THE APPROVAL OF THESE ITEMS ARE AT THE DISCRETION OF THE CITY
2. SEE RDWD-31.1 FOR CROSS SECTION OF ROUNDABOUT LANDSCAPING.
3. RECORDED RIGHT-OF-WAY FOR THE ROUNDABOUT AND A MAINTENANCE AGREEMENT WITH THE CITY FOR THE LANDSCAPING IS REQUIRED.
4. ALL DESIGNERS MUST SUBMIT A SIGHT DISTANCE/LANDSCAPING EXHIBIT SIMILAR TO THIS EXAMPLE. THIS EXHIBIT MUST BE DESIGNED PER FHWA'S "ROUNDABOUTS: AN INFORMATIONAL GUIDE", SECTIONS 6.3.9 AND 6.3.10.



STANDARD DETAIL
**ROUNDABOUT SIGHT DISTANCE/
 LANDSCAPING EXHIBIT**

ROADWAY
RDWD-31.0
Rev. 03/01/2012



STANDARD DETAIL
STREET TREE DETAILS

ROADWAY
RDWD-33.1
Rev. 03/01/2012

TREE PLANTING INSTRUCTIONS
CITY OF DELAWARE, OHIO

I SITE PREPARATION

- A. DIG PLANTING HOLE NO DEEPER THAN DEPTH OF ROOT BALL, LEAVING BOTTOM OF HOLE FIRM.
- B. DIG HOLE WIDTH AT LEAST ONE FOOT LARGER THAT THE DIAMETER OF THE ROOT BALL.

II PLANTING

- A. REMOVE THE TOP THIRD OF THE WIRE SHIPPING BASKETS, ALL PLASTIC COVERS, SHIPPING COLLARS, AND NYLON ROPES. REMOVE TOP OF BURLAP BY PULLING AWAY BURLAP FROM TOP OF ROOT BALL AND TUCK INTO HOLE. NO PLASTIC BURLAP PERMITTED. UNTANGLE BRANCHES.
- B. ROLL OR LIFT TREE INTO HOLE BY MOVING THE ROOT BALL, NOT BY LIFTING THE TRUNK.
- C. PLUMB TREE UPRIGHT IN CENTER OF PLANTING HOLE.
- D. TREE SHALL BE PLANTED SO THAT THE TOP OF THE ROOT BALL IS NO MORE THAN THREE INCHES ABOVE EXISTING GRADE. NEVER PLANT DEEPER THAN THE GRADE.
- E. IF EXCAVATED SOIL CONTAINS MORE THAN 30% CRUSHED STONE OR OTHER DEBRIS, BACKFILL WITH CLEAN TOPSOIL.
- F. WATER THOROUGHLY DURING AND AFTER BACKFILLING, USING THE FOLLOWING METHOD:
 - (1) BACKFILL THE HOLE 1/3 TO 1/2 FULL;
 - (2) APPLY WATER UNTIL THE SOIL IS THOROUGHLY SETTLED AROUND ROOT BALL, ALLOWING NO AIR POCKETS TO REMAIN;
 - (3) COMPLETE BACKFILLING TO FINISHED GRADE;
 - (4) APPLY MULCH;
 - (5) THOROUGHLY SOAK WITH WATER.

III MULCHING

- A. MULCH THREE INCHES DEEP OVER THE ROOT BALL AND HOLE.
- B. LEAVE THREE INCH CIRCLE OF BARE SOIL AROUND TRUNK.
- C. SPREAD MULCH TO AN EVEN DEPTH AROUND TREE; DO NOT PYRAMID SOIL OR MULCH AROUND TRUNK.



DEPARTMENT OF ENGINEERING SERVICES

STANDARD DETAIL
STREET TREE PLANTING
NOTES

ROADWAY

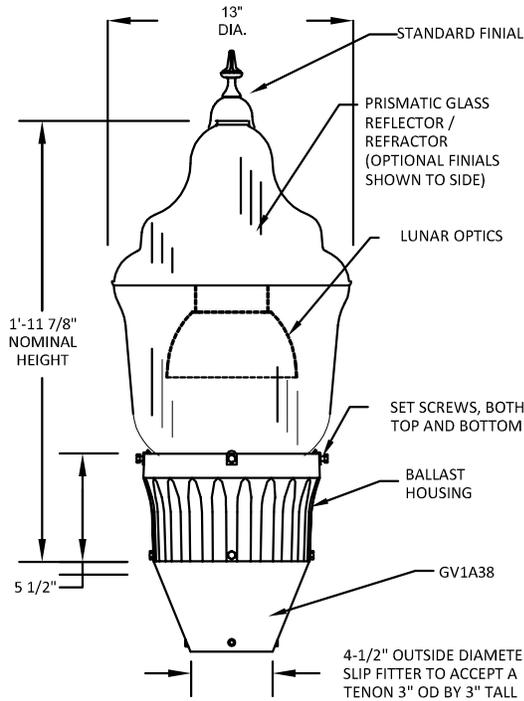
RDWD-33.2

Rev. 03/01/2012

GRANVILLE[®] SERIES LUMINAIRE

LEAF STYLE CASTING with LUNAR OPTICS[™]

MAXIMUM WEIGHT - 47 lbs.
 MAXIMUM EFFECTIVE PROJECTED AREA - 1.26 sq. ft.



EXAMPLE:

GV100HP



BALLAST TYPE
(MOGUL BASE)
100HP = 100W HPS

ORDERING INFORMATION

12

VOLTAGE
12 = 120 VOLT

F

LEAF STYLE
CASTING FOR
USE WITH 3"
DIA. TENON

A

HOUSING
FINISH COLOR:
A = AS
SPECIFIED

3

OPTICAL TYPE:
3 = IES TYPE III
DISTRIBUTION

R

TRIM
R = RIBS & BANDS

S

FINIAL
S = STANDARD

G

TRIM AND FINIAL FINISH
COLOR
G = GOLD

OPTIONS
P - PROTECTIVE STARTER

ACCESSORIES
DTLPR12A - PHOTOCONTROL FOR 120 VOLT, LOCATED IN ACCESS COVER. FIELD INSTALLED. NOT UL LISTED
GVIA738 - COUPLING TO ADAPT THE LUMINAIRE TO FIT A 3-INCH LIGHT POLE TENON

COLOR
Y539A - DELAWARE GREEN

Specifications

GENERAL DESCRIPTION

The luminaire consists of three main components, a ballast housing, a reflector with socket, and a prismatic glass optical assembly.

OPTICAL ASSEMBLY

The optical assembly is a precisely molded thermal resistant borosilicate glass reflector and refractor with or without a decorative finial. The upper portion of this system incorporates a series of reflecting prisms that redirect over 50% of the upward light in to the controlling refractor while allowing a soft upright component to define the traditional acorn shape of the luminaire. Two decorative aluminum top covers are available. The lower portion uses precisely molded refracting prisms to control the distribution of light to maximize utilization, uniformity, and luminaire spacing. Three unique optical assemblies are available, designed for IES type III, IV, and V lighting distributions.

BALLAST HOUSING

The ballast housing contains the ballast and other electrical components. The housing is cast of aluminum alloy with a fluted concave contour designed to flow gracefully from a 7" diameter decorative post capital and replicate the fluted pattern of a decorative post shaft. The ballast housing is secured by four hex head 1/4-20 set screws. Four uniquely designed stainless steel spring clips enclosed in a clear polyvinyl chloride sleeve and adjusted by hex head 1/4-20 bolts securely cradle the optical assembly.

BALLAST

(Refer to Ballast Data Sheet for specific operating characteristics)
 35 - 100 watt 120 volt High Pressure Sodium (HPS) ballasts are High Power Factor Reactor type. All other HPS ballasts are High Power Factor Autotransformer type.
 175 watt Metal Halide (MH) ballasts are Peak Lead Autotransformer type. 70 and 100 watt MH units are available only with (120V, 208V, 240V, 277V) multitap High Power Factor High Reactance type ballast.
 All Mercury Vapor (MV) ballasts are High Power Factor Constant Wattage Autotransformer (CWA) type.

REFLECTOR / SOCKET ASSEMBLY

The reflector/socket assembly is designed to position the specified light source at the light center of the refractor.

INSTALLATION

Refer to the instruction manual provided with each luminaire as to the specific method of wiring and mounting the luminaire.

FINISH

The housing is finished with polyester powder paint applied after a seven stage pretreatment process to insure maximum durability.

UL LISTING

The luminaire is UL listed as suitable for wet locations at a maximum 40 degree C ambient temperature.



DEPARTMENT OF ENGINEERING SERVICES

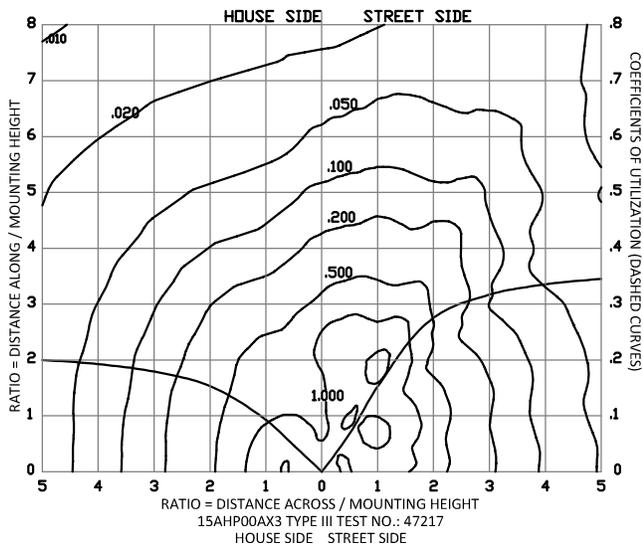
STANDARD DETAIL

RESIDENTIAL STREET LIGHT HEAD

ROADWAY

RDWD 34.1

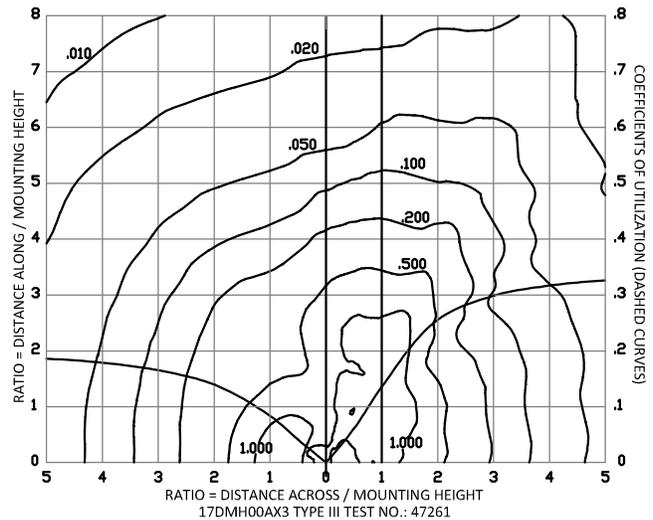
Rev. 03/01/2012



**TYPICAL PHOTOMETRIC DATA
(ISOFOOTCANDLE CHARTS AND
COEFFICIENT OF UTILIZATION
CURVES)**

Isofootcandle data is based on a 15 foot mounting height. To determine values for mounting heights other than 15 feet, multiply the values for mounting heights following factors:

10' - 2.25	12' - 1.56	14' - 1.15
16' - 0.88	18' - 0.69	20' - 0.56
22' - 0.46	24' - 0.39	



An **acuity** Brands Company
214 OAKWOOD AVENUE
NEWARK, OHIO 43055



DEPARTMENT OF ENGINEERING SERVICES

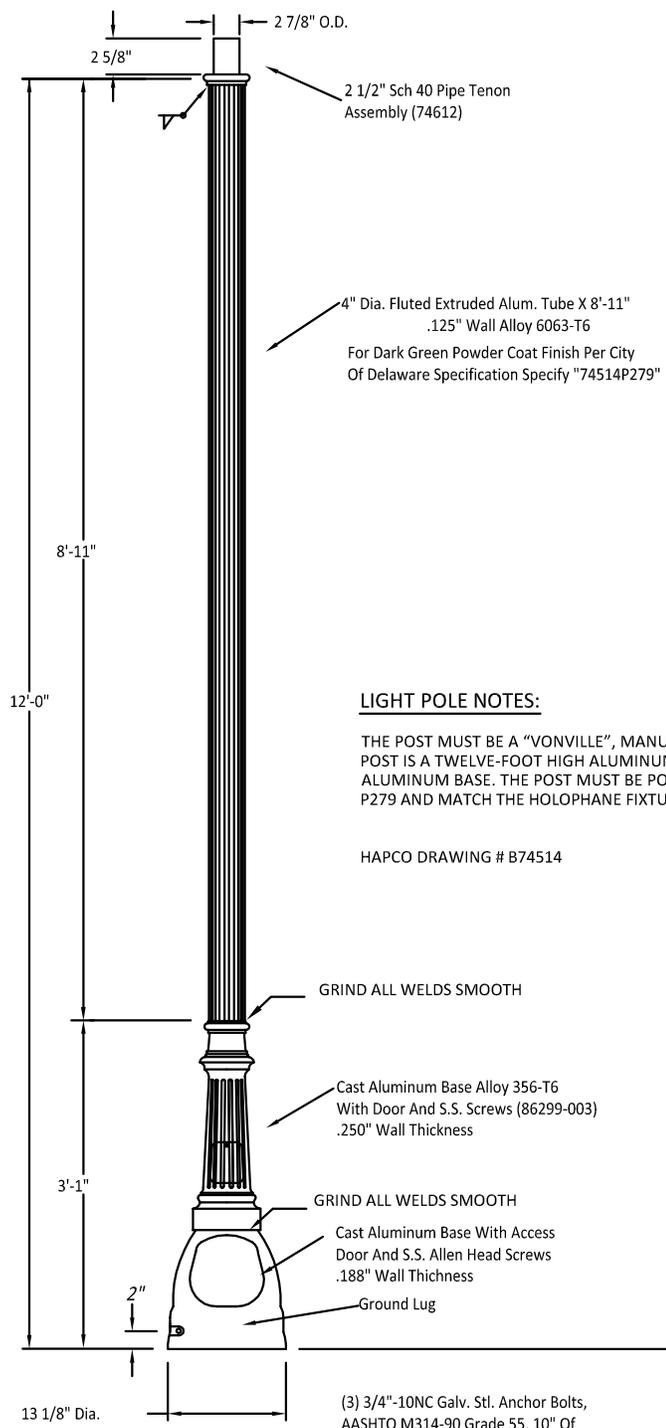
STANDARD DETAIL

**ISOLUX FOR RESIDENTIAL STREET
LIGHTS**

ROADWAY

RDWD 34.2

Rev. 03/01/2012

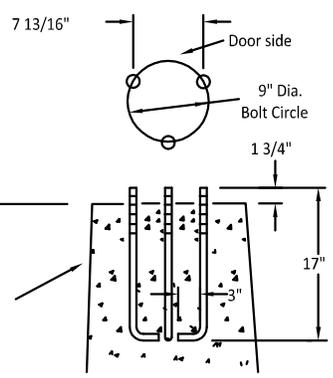


hapco
Abingdon, Va.

LIGHT POLE NOTES:

THE POST MUST BE A "VONVILLE", MANUFACTURED BY HAPCO, MODEL B74514. THE POST IS A TWELVE-FOOT HIGH ALUMINUM TUBE, FOUR INCH FLUTED WITH A CAST ALUMINUM BASE. THE POST MUST BE POWDER COATED FINISH DELAWARE GREEN P279 AND MATCH THE HOLOPHANE FIXTURE.

HAPCO DRAWING # B74514



- (3) 3/4"-10NC Galv. Stl. Anchor Bolts, AASHTO M314-90 Grade 55, 10" Of Threaded End Galv. Per ASTM A153.
- (3) 3/4"-10NC Galv. Stl. Hex. Nuts
- (3) 3/4" Galv. Stl. Lockwashers
- (3) 3/4" Galv. Stl. Flatwashers

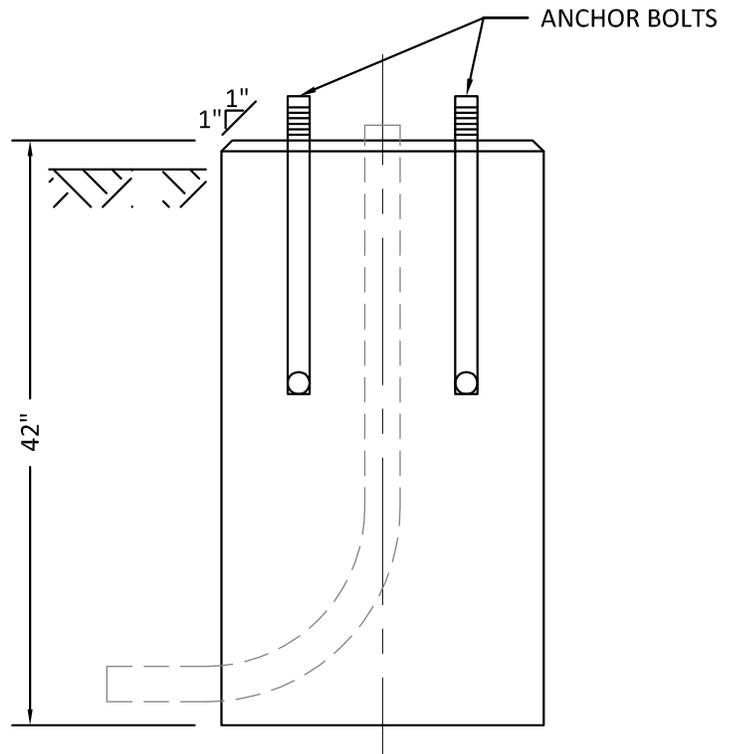


STANDARD DETAIL
LIGHT POLE FOR RESIDENTIAL STREET LIGHTS

ROADWAY
RDWD 34.3
Rev. 03/01/2012

FOUNDATIONS SHALL BE:

- 42" DEEP
- 18" DIAMETER
- TOP OF FOUNDATION TO BE 18" ROUND WITH 1" TOOLED CHAMFERED EDGE
- FOUNDATION TOP IS TO BE 4" ABOVE CURB ELEVATION.



POLE SUPPORT

THE LIGHT POLE MUST BE ANCHORED TO A ROUND 18" BY 42" CONCRETE FOOTING, USING THE THREE GALVANIZED ANCHOR BOLTS PROVIDED WITH THE POLE, PER THE ANCHOR BOLT DIAMETER AND SPACING SPECIFIED BY THE POLE MANUFACTURER

THE CONTRACTOR SHALL INSTALL STREET LIGHTS AT THE LOCATIONS SHOWN ON THESE PLANS, INCLUDING ALL CABLE AND DISCONNECTS AND PROVIDE A COMPLETE, OPERATING LIGHTING SYSTEM, THAT COMPLIES WITH CITY OF DELAWARE SPECIFICATIONS.

THE STREET LIGHTING SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT CITY OF COLUMBUS (COC) CONSTRUCTION AND MATERIAL SPECIFICATIONS (CMS), SECTION 1000 TITLED STREET LIGHTING, INCLUDING ALL SUPPLEMENTS THERETO, IN FORCE ON THE DATE OF THE CONTRACT. THE COC CMS SHALL GOVERN ALL MATERIALS AND WORKMANSHIP INVOLVED IN THE IMPROVEMENTS SHOWN ON THESE PLANS, EXCEPT AS SUCH SPECIFICATION ARE MODIFIED BY THE FOLLOWING OR BY THE SPECIFICATIONS DETAILS SET FORTH HEREIN. THE TESTING REFERRED TO IN SECTION 1000.18 SHALL BE REQUIRED UNDER THIS CONTRACT.

THE PLAN DETAILS SHALL BE CONSIDERED SUPPLEMENTAL TO (MIS) DIVISION OF ELECTRICITY MATERIAL AND INSTALLATION SPECIFICATIONS

ALL LIGHT POLES SHALL BE MOUNTED WITH THE CENTER OF THE POLE 2.5 FEET BACK FROM THE BACK OF CURB, OR IN A LOCATION APPROVED BY THE CITY.

MAINTAIN A MINIMUM OF 3'-0 HORIZONTAL AND 1'-0 VERTICAL CLEARANCE FROM ALL WATER AND SEWER LINES.

NO SPLICES SHALL BE MADE IN CIRCUIT CABLES, EXCEPT AT NOTED LOCATIONS. SPLICES CAN BE MADE IN PULL BOXES ONLY WHERE CIRCUIT CROSSES STREET TO A LIGHT POLE.

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH THE POWER UTILITY FOR THE LOCATION OF THE CONTROL CENTER AND POWER FEED FOR THE CONTROL CENTER. ALL COST ASSOCIATED WITH MAKING THE CONNECTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE COST OF THE WORK SHALL BE INCLUDED IN THE VARIOUS ITEMS BID.

CONDUIT INSTALLED UNDER DRIVEWAYS SHALL BE PUSHED FROM A MINIMUM DISTANCE OF ONE (1) FOOT BEYOND PAVEMENT EDGES.

CONDUIT LOCATION MAY BE DEFLECTED AND LIGHT POLE FOUNDATION MAY BE RELOCATED AROUND OBSTACLES OR UTILITIES AS APPROVED BY THE CITY.

ALL TRENCHES SHALL BE BACKFILLED WITH SUITABLE NATIVE MATERIAL TO WITHIN NINETY-EIGHT (98) PERCENT OF THE MAXIMUM DRY DENSITY.

POWER SERVICE

THE CONTRACTOR SHALL FURNISH AND INSTALL ALL EQUIPMENT NECESSARY TO COMPLETE ELECTRICAL SERVICE TO THE ROADWAY FACILITIES. THE CONTRACTOR SHALL ALSO MAKE NECESSARY ARRANGEMENTS WITH THE SUPPLYING AGENCY FOR CONNECTIONS TO ESTABLISH ELECTRICAL SERVICE.



DEPARTMENT OF ENGINEERING SERVICES

STANDARD DETAIL

LIGHT POLE FOUNDATION FOR
RESIDENTIAL STREET LIGHTS

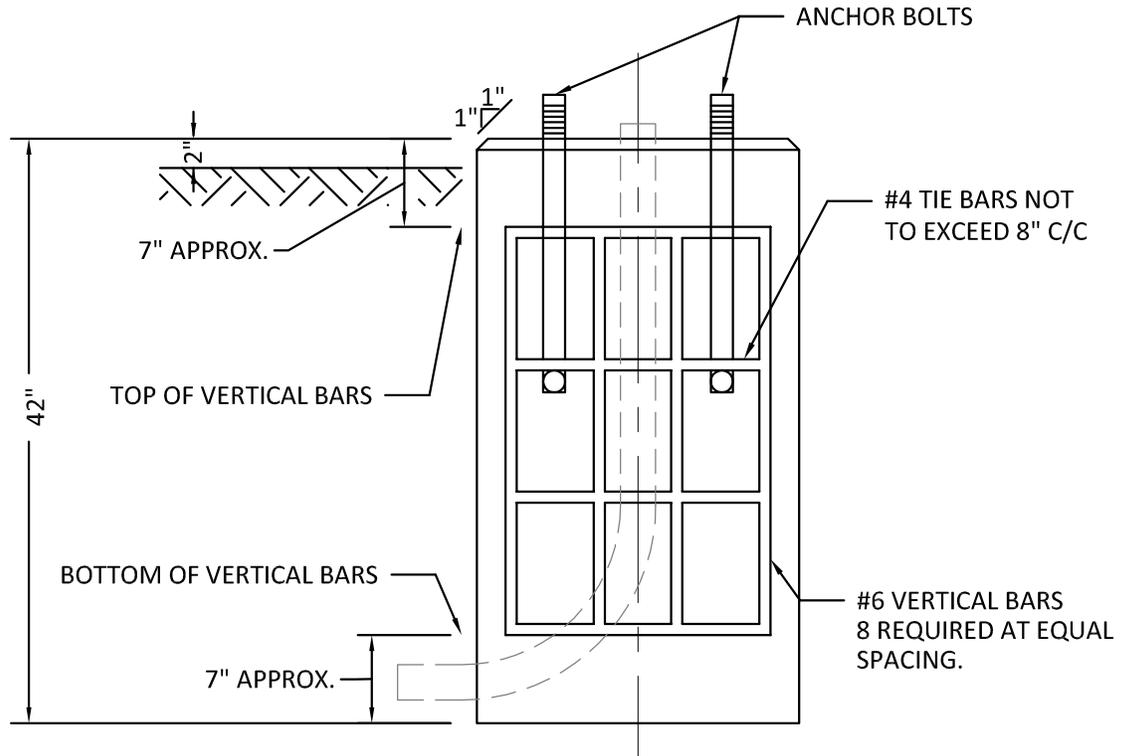
ROADWAY

RDWD 34.4

Rev. 09/12/2012

FOUNDATIONS SHALL BE:

- 42" DEEP
- 24" DIAMETER
- REINFORCED WITH #6 REBAR WITH #4 TIE BARS AS PER PLAN DETAIL
- TOP OF FOUNDATION TO BE 24" ROUND WITH 1" TOOLED CHAMFERED EDGE
- FOUNDATION TOP IS TO BE 4" ABOVE CURB ELEVATION.



POLE SUPPORT

THE LIGHT POLE MUST BE ANCHORED TO A ROUND 24" BY 42" CONCRETE FOOTING, USING THE THREE GALVANIZED ANCHOR BOLTS PROVIDED WITH THE POLE, PER THE ANCHOR BOLT DIAMETER AND SPACING SPECIFIED BY THE POLE MANUFACTURER

THE CONTRACTOR SHALL INSTALL STREET LIGHTS AT THE LOCATIONS SHOWN ON THESE PLANS, INCLUDING ALL CABLE AND DISCONNECTS AND PROVIDE A COMPLETE, OPERATING LIGHTING SYSTEM, THAT COMPLIES WITH CITY OF DELAWARE SPECIFICATIONS.

THE STREET LIGHTING SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT CITY OF COLUMBUS (COC) CONSTRUCTION AND MATERIAL SPECIFICATIONS (CMS), SECTION 1000 TITLED STREET LIGHTING, INCLUDING ALL SUPPLEMENTS THERETO, IN FORCE ON THE DATE OF THE CONTRACT. THE COC CMS SHALL GOVERN ALL MATERIALS AND WORKMANSHIP INVOLVED IN THE IMPROVEMENTS SHOWN ON THESE PLANS, EXCEPT AS SUCH SPECIFICATION ARE MODIFIED BY THE FOLLOWING OR BY THE SPECIFICATIONS DETAILS SET FORTH HEREIN. THE TESTING REFERRED TO IN SECTION 1000.18 SHALL BE REQUIRED UNDER THIS CONTRACT.

THE PLAN DETAILS SHALL BE CONSIDERED SUPPLEMENTAL TO (MIS) DIVISION OF ELECTRICITY MATERIAL AND INSTALLATION SPECIFICATIONS

ALL LIGHT POLES SHALL BE MOUNTED WITH THE CENTER OF THE POLE 2.5 FEET BACK FROM THE BACK OF CURB, OR IN A LOCATION APPROVED BY THE CITY.

MAINTAIN A MINIMUM OF 3'-0 HORIZONTAL AND 1'-0 VERTICAL CLEARANCE FROM ALL WATER AND SEWER LINES.

NO SPLICES SHALL BE MADE IN CIRCUIT CABLES, EXCEPT AT NOTED LOCATIONS. SPLICES CAN BE MADE IN PULL BOXES ONLY WHERE CIRCUIT CROSSES STREET TO A LIGHT POLE.

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH THE POWER UTILITY FOR THE LOCATION OF THE CONTROL CENTER AND POWER FEED FOR THE CONTROL CENTER. ALL COST ASSOCIATED WITH MAKING THE CONNECTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE COST OF THE WORK SHALL BE INCLUDED IN THE VARIOUS ITEMS BID.

CONDUIT INSTALLED UNDER DRIVEWAYS SHALL BE PUSHED FROM A MINIMUM DISTANCE OF ONE (1) FOOT BEYOND PAVEMENT EDGES.

CONDUIT LOCATION MAY BE DEFLECTED AND LIGHT POLE FOUNDATION MAY BE RELOCATED AROUND OBSTACLES OR UTILITIES AS APPROVED BY THE CITY.

ALL TRENCHES SHALL BE BACKFILLED WITH SUITABLE NATIVE MATERIAL TO WITHIN NINETY-EIGHT (98) PERCENT OF THE MAXIMUM DRY DENSITY.

POWER SERVICE

THE CONTRACTOR SHALL FURNISH AND INSTALL ALL EQUIPMENT NECESSARY TO COMPLETE ELECTRICAL SERVICE TO THE ROADWAY FACILITIES. THE CONTRACTOR SHALL ALSO MAKE NECESSARY ARRANGEMENTS WITH THE SUPPLYING AGENCY FOR CONNECTIONS TO ESTABLISH ELECTRICAL SERVICE.



DEPARTMENT OF ENGINEERING SERVICES

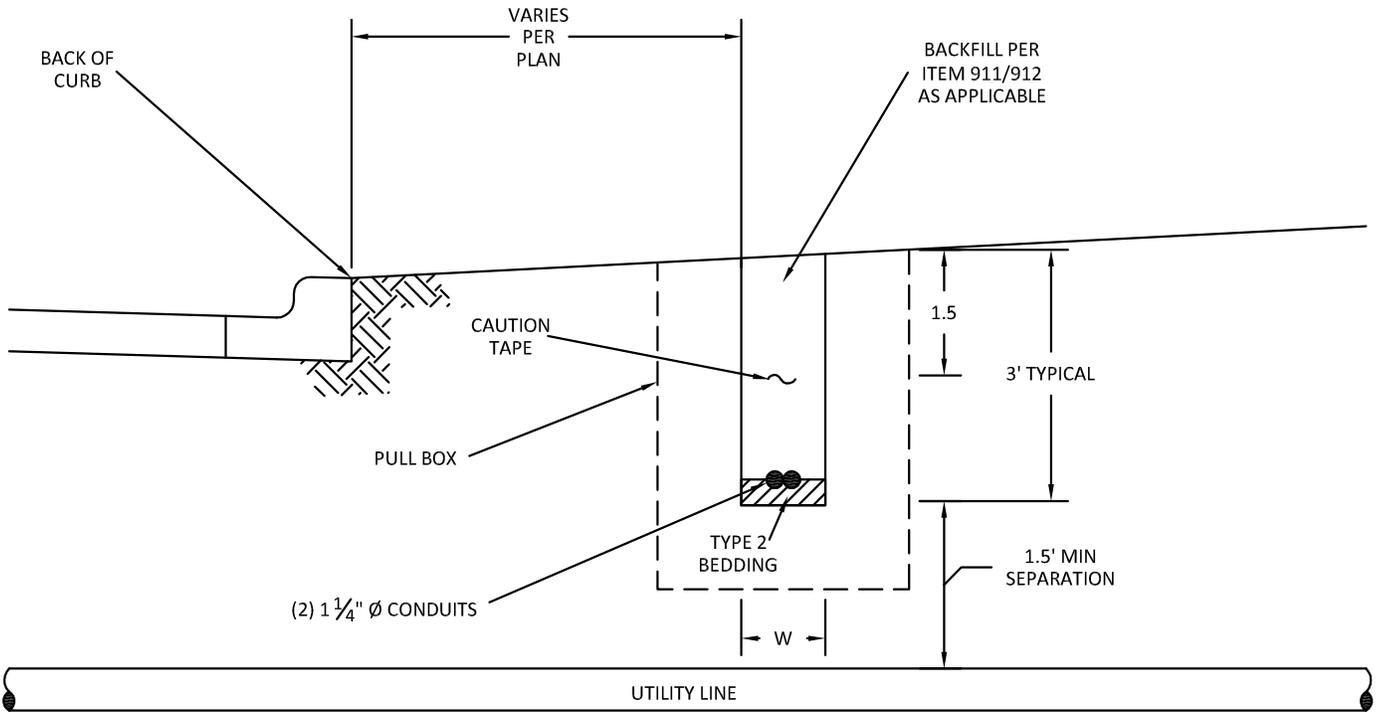
STANDARD DETAIL

LIGHT POLE FOUNDATION FOR
COLLECTOR STREET LIGHTS

ROADWAY

RDWD 34.5

Rev. 09/12/2012



NOTE: TRENCH WIDTH 'W' MUST BE WIDE ENOUGH TO ACCOMMODATE AVAILABLE BACKFILL COMPACTION EQUIPMENT TO MEET COMPACTION REQUIREMENTS.



DEPARTMENT OF ENGINEERING SERVICES

STANDARD DETAIL
FIBER OPTIC CONDUIT
INSTALLATION DETAIL

ROADWAY

RDWD 35.1

Rev. 03/01/2012

FIBER OPTIC CONSTRUCTION STANDARDS

AERIAL INSTALLATION

1. FOR AERIAL CONSTRUCTION, INCORPORATE A SLACK LOOP EVERY 500-FT, AND AT LOGICAL LOCATIONS TO SPLICE OFF THE MAIN FIBER LINE AS DETERMINED BY THE DEPARTMENT OF ENGINEERING SERVICES AND THE DEPARTMENT OF INFORMATION TECHNOLOGIES .
2. VENDOR MUST INSTALL RISER U-GUARDS WHEN ASCENDING OR DESCENDING FROM A SUPPORT POLE.

SUBSURFACE - FOR SUBSURFACE CONSTRUCTION, THE CONDUIT SHALL BE:

1. TWO, 1-1/4 INCH (MINIMUM) SDR 11 HDPE CONDUITS.
2. CONDUITS ARE TO BE ORANGE ,AND ORANGE WITH A BLACK STRIPE
3. PULL-BOX TO BE 48 X 30 X 36 POLYMER CONCRETE BOX W/20K METAL OR METAL CLAD LID, BOLT DOWN
4. SHOP DRAWINGS OF PULL-BOX AND LID TO BE APPROVED BY DEPARTMENT OF ENGINEERING SERVICES PRIOR TO INSTALLATION
5. PULL-BOX SPACING OF NO MORE THAN 400 FEET BETWEEN BOXES, AND WHERE SPECIFIED AT LOGICAL PLACES TO SPLICE INTO THE FIBER.
6. TRACE WIRE MUST BE USED THROUGHOUT SYSTEM AND IS TO BE PLACED IN THE SOLID ORANGE CONDUIT
7. IF TRENCHING, PLASTIC CAUTION TAPE IS TO BE PLACED OVER THE CONDUIT AT A DEPTH OF 18 INCHES. NEWLY INSTALLED PULL-BOXES MUST BE MARKED WITH 4 X 4 WYE POLES PAINTED ORANGE AT THE TOP - TO REMAIN UNTIL FIBER IS INSTALLED (WITH TRACER WIRE)
8. CONCRETE ENCASE CONDUIT AT ALL ROAD CROSSINGS TO THE TOP OF SUBGRADE
9. MINIMUM VERTICAL SEPARATION SHALL BE 1.5 FEET BETWEEN FIBER CONDUIT AND ALL OTHER UTILITIES

ALL PROJECTS:

1. CONTRACTOR SHALL PROVIDE RECORD DRAWINGS IN THE FORMAT SPECIFIED BY THE CITY OF DELAWARE GIS DEPARTMENT WHEN CONSTRUCTION IS COMPLETE, AND ACCEPTED.

FIBER

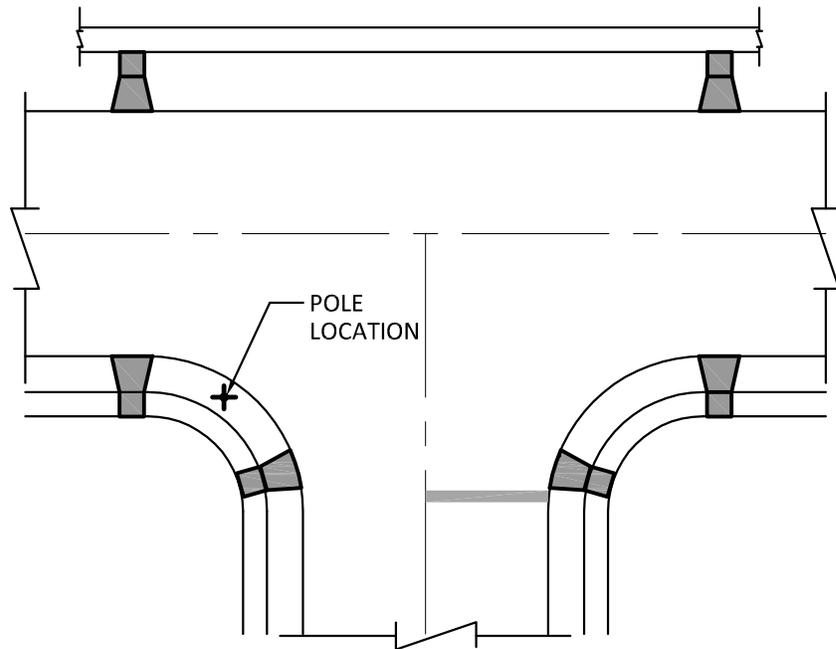
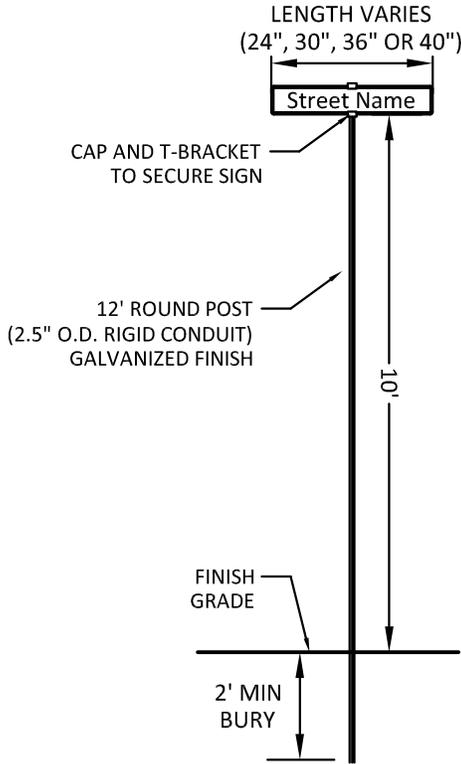
1. FIBER TO BE INSTALLED IS 144 STRAND FIBER OPTIC CABLE.
2. ALL SPLICING MUST BE COLOR CODED BETWEEN DIFFERENT CABLES. I.E., RED TUBE FIBERS MUST BE SPLICED TO RED TUBE FIBERS, ETC.
3. ALL CONTRACTORS THAT ARE TO INSTALL FIBER LINE THAT ARE TO BE APPROVED BY THE CITY.



STANDARD DETAIL
FIBER OPTIC CONDUIT
INSTALLATION DETAIL NOTES

ROADWAY
RDWD 35.2
Rev. 03/01/2012

1/2" WHITE BORDER



SIGN PLACEMENT

- SIGNS SHALL BE TWO SIDED MADE ON 8" ALUMINUM BLADES WITH RADIUS CORNERS AND STANDARD LENGTHS OF 24", 30", 36" OR 40"
- FOR STREETS WITH POSTED SPEED LIMITS AT 25 MPH OR LESS, LETTERING SHALL INCLUDE UPPER CASE LETTERS AT 4" AND LOWER CASE AT 3". FOR STREETS WITH POSTED SPEED LIMITS GREATER THAN 25 MPH, LETTERING SHALL BE 6" FOR UPPER CASE 4.5" FOR LOWER CASE.
- STREET NAME SIGNS SHALL BE COVERED ON BOTH SIDES WITH BLUE PRISMATIC SHEETING (3M SCOTCHLITE FILM - #3875 BLUE), MEETING THE RETROREFLECTIVITY REQUIREMENTS OF THE OMUTC SECTION 2A.07
- SIGN LETTERING SHALL BE OF WHITE PRISMATIC SHEETING, MEETING THE RETROREFLECTIVITY REQUIREMENTS OF THE OMUTCD 2A.07
- LETTERING SHALL BE MADE IN THE FHWA STANDARD APPROVED "CLEARVIEW FONT"
- SIGNS SHALL INCLUDE A WHITE 1/2-INCH WHITE BORDER AT THE EDGE OF THE SIGN MADE OF WHITE PRISMATIC SHEETING.
- SIGN POSTS SHALL BE MADE OF 2.5" OUTSIDE DIAMETER GALVANIZED ROUND CONDUIT, WITH A MINIMUM BURY DEPTH OF 24-INCHES AND MINIMUM CLEARANCE FROM GRADE TO BOTTOM OF SIGN OF 10'-0
- SIGNS SHALL BE SECURED TO POLE WITH A GALVANIZED CAP AND TEE BRACKETS
- SIGN POLES SHALL BE INSTALLED ON THE LEFT SIDE OF THE STREET, OPPOSITE FROM THE STOP SIGN WITHIN THE TREE LAWN RADIUS AREA, AND WITH THE EDGE OF THE SIGN 2'-0 FROM THE BACK OF CURB
- ALL STREET SIGNS SHALL BE INSTALLED AS REQUIRED IN ADVANCE OF OPENING ANY STREET TO PUBLIC ACCESS



DEPARTMENT OF ENGINEERING SERVICES

STANDARD DETAIL
STREET SIGN DETAIL

ROADWAY

RDWD 36.0

Rev. 09/20/2012