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<td>MDOT DESIGNATION</td>
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<td>YARD DRAIN (BEE HIVE) FRAME AND COVER</td>
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<td>WATER VALVE BOX ASSEMBLY IN PAVEMENT</td>
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<td>MONUMENT BOX ASSEMBLY</td>
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<td>ADA COMPLIANT</td>
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NOTES:
*Each cover shall have "Sanitary", "Storm", or "Water" cast in the surface, whichever is applicable. Sanitary sewer covers shall be gasketed in flood prone areas as shown on the plans or as directed by the PSAA. Frames and covers must have machined bearing surfaces.*
CUSTOM LOGO TO BE SPECIFIED BY PSAA

1 1/2" SHARP FACE GOTHIC TYP

(2) EPIC® PICKHOLES

2 3/16"

26" DIA

1 1/2"

SECTION

EPIC® DETAIL

1 1/2"

EJ PRODUCT #001040570

SPECIAL STRUCTURE COVER WATER
CUSTOM LOGO TO BE SPECIFIED BY PSAA

1 1/2"

(2) EPIC® PICKHOLES

1 1/2" SHARP FACE GOTHIC TYP

2 3/16"

26" DIA

1 1/2"

BOTTOM VIEW

SECTION

EPIC® DETAIL
CUSTOM LOGO TO BE SPECIFIED BY PSAA

1 1/2" SHARP FACE GOTHIC TYP

(2) EPIC® PICKHOLES

2 3/16" 26" DIA

1/4" DIA NEOPRENE GASKET

1 1/2" 25 1/8" DIA O.D. OF GASKET GROOVE

BOTTOM VIEW

GROOVE DETAIL

EPIC® DETAIL

SECTION

EJ PRODUCT #001040572
RAISE MANHOLE CASTING TO PROPOSED FINISHED STREET GRADE AFTER PLACEMENT OF LEVELING COURSE(S) AND PRIOR TO PLACING FINAL SURFACE COURSE.

MORTAR BED (TYP.)

POINTED SMOOTH OR FINE BRUSH FINISH

MDOT P–NC CONCRETE TO BE PLACED TO UNDISTURBED ROAD BASE.

8”–12” MIN

PAVEMENT TOP COURSE

CONCRETE BRICK OR 2” PRE–CAST CONCRETE ADJUSTMENT RING SET IN MORTAR—MIN.(1)—MAX.(3) COURSES

24”

PAVEMENT LEVELING COURSE

PAVEMENT BASE COURSE

NOTE:

1. IF MANHOLE WILL BE PLACED IN GRAVEL ROAD, CASTING TO BE SET 6” TO 8” BELOW ROADWAY GRADE. ALL CONSTRUCTION METHODS SHALL REMAIN AS SHOWN ABOVE.

2. P–NC CONCRETE MIXTURE SHALL CONTAIN 658 POUNDS PER CUBIC YARD (7 SACKS) OF CEMENT WHEN THE FORECASTED AIR TEMPERATURE IS ABOVE 59°F AND 752 POUNDS PER CUBIC YARD (8 SACKS) OF CONCRETE WHEN THE FORECASTED AIR TEMPERATURE IS 59°F OR LESS.
NOTES:
1. GAS VALVE BOXES TO BE ADJUSTED BY THE GAS COMPANY.
2. PLACE CENTER OF [MONUMENT] BOX OVER SURVEY IRON.
3. RAISE CASTING TO PROPOSED FINISH STREET GRADE AFTER PLACEMENT OF LEVELING COURSE(S) AND PRIOR TO PLACING FINAL SURFACE COURSE.
MDOT HMA MIX AS SPECIFIED BY PSAA (SEE NOTE 1)

EXISTING ASPHALT

EXISTING CONCRETE OR ROAD BASE

PEGGED STEEL PLATE

MANHOLE LOWERING DETAIL

MDOT HMA MIX AS SPECIFIED BY PSAA (SEE NOTE 1)

EXISTING ASPHALT

EXISTING CONCRETE OR ROAD BASE

PEGGED STEEL PLATE

VALVE/MONUMENT BOX

VALVE BOX/MONUMENT BOX LOWERING DETAIL
(SEE NOTE 3)

NOTES:
1. IF TRAFFIC IS TO BE MAINTAINED ON THE ROADWAY BEFORE OR AFTER THE COLD MILLING OPERATION, THE STRUCTURE SHALL BE LOWERED TO THE EXTENT THAT A MINIMUM OF THREE (3) INCHES ASPHALT MATERIAL MDOT HMA MIX AS SPECIFIED BY PSAA OR ENGINEER APPROVED EQUAL, REMAINS TO SUPPORT TRAFFIC.

2. IF THE ROADWAY BEING MILLED IS CLOSED TO TRAFFIC, THE STRUCTURE SHALL BE LOWERED SUCH THAT THE STEEL PLATE IS A MINIMUM OF FOUR (4) INCHES BELOW THE PROPOSED ROAD GRADE AND THE RESULTING VOID SHALL BE FILLED WITH MDOT HMA MIX AS SPECIFIED BY PSAA OR ENGINEER APPROVED EQUAL.

3. WHERE A MONUMENT IS TO BE LOWERED, THE CONTRACTOR SHALL GIVE THE ENGINEER A MINIMUM OF 48 HOURS WRITTEN NOTICE SO THAT THE MONUMENT CAN BE PROPERLY WITNESSED OR PROTECTED. FAILURE TO DO SO SHALL RESULT IN THE ENGINEER REPLACING SAID MONUMENT AT THE CONTRACTOR’S EXPENSE.
NOTE: PLATE MAY BE CIRCULAR, SQUARE OR RECTANGULAR

SECTION A – A

6” LARGER THAN STRUCTURE

1/4” MIN.

20” MIN.

8” MIN.

1/4” MIN. THICKNESS AND SUFFICIENT TO CARRY THE CONSTRUCTION LOAD.
24 FT. RESIDENTIAL STREET LOOKING NORTH OR EAST
28 FT. RESIDENTIAL STREET
LOOKING NORTH OR EAST

CITY OF ANN ARBOR
PUBLIC SERVICES
301 EAST HURON STREET
P.O. BOX 8647
ANN ARBOR, MI 48107-8647
734-794-6410
www.a2gov.org

UTILITY LOCATION PLAN (66' R.O.W. WITH 28' PAVEMENT)

SD-GU-10
PLAN

SECTION

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PUBLIC SERVICES
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ANN ARBOR, MI 48107-8647
734-794-6410
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SANITARY MANHOLE

NOTES:
1. ALL SANITARY MANHOLES SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C478 UNLESS APPROVED BY PSAA FOR SHALLOW APPLICATION.

2. ALL MANHOLES MUST HAVE ECCENTRIC CONES.

3. ALL SANITARY SEWER OPENINGS SHALL BE PRECAST WITH RUBBER BOOT CONNECTIONS CONFORMING TO ASTM C923.

4. ALL JOINTS SHALL CONFORM TO ASTM C443.

5. MINIMUM MANHOLE DIAMETER SHOWN IN TABLE 1 SHALL BE INCREASED AS NEEDED BASED ON NUMBER OF PIPES AND ANGLE BETWEEN PIPES WITH 12" MIN. BETWEEN OPENINGS.

6. NO OPENINGS SHALL BE MADE IN PRECAST UNITS WHICH WOULD LEAVE LESS THAN 18 INCHES OF UNDISTURBED CIRCUMFERENTIAL WALL LENGTH, OR WHICH WOULD REMOVE MORE THAN 40% OF THE CIRCUMFERENCE ALONG ANY HORIZONTAL PLANE.

<table>
<thead>
<tr>
<th>PIPE SIZE</th>
<th>MIN. DIA.</th>
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<tbody>
<tr>
<td>&lt;36&quot;</td>
<td>4'</td>
</tr>
<tr>
<td>36&quot;–42&quot;</td>
<td>5'</td>
</tr>
<tr>
<td>48&quot;–54&quot;</td>
<td>6'</td>
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NOTES:

A) RISERS SHALL BE INSTALLED WHERE THE SEWER IS MORE THAN 12 FEET BELOW THE ESTABLISHED GRADE OR FUTURE GRADE AND CARRIED TO BETWEEN 9 AND 10 FEET OF THE ESTABLISHED GRADE OR FUTURE GRADE, UNLESS OTHERWISE DETERMINED BY THE PSAA.

B) RISER OPENINGS SHALL BE CLOSED WITH A STOPPER, AS RECOMMENDED BY THE MANUFACTURER, TO MAKE A WATERTIGHT CLOSURE.

C) BUILDING LEADS SHALL CONFORM TO ARTICLE 2 (SANITARY), SECTION 1.I (SANITARY SERVICE LEADS) AND DEPTH REQUIREMENTS PER SECTION 1.G (DEPTH AND COVER) OF THAT ARTICLE.

D) EACH BUILDING LEAD SHALL BE CLOSED WITH A STOPPER, AS RECOMMENDED BY THE MANUFACTURER, TO MAKE A WATERTIGHT CLOSURE.

E) UNLESS OTHERWISE DETERMINED BY THE PSAA, PRIOR TO THE BACKFILLING OF A WYE, RISER, OR BUILDING LEAD, A 2-INCH x 2-INCH (MINIMUM CROSS SECTION) WOODEN MARKER SHALL BE PLACED AT A POINT IMMEDIATELY IN FRONT OF THE SERVICE CONNECTION TO 1 FOOT BELOW THE FINISH GROUND SURFACE. DO NOT REST THE MARKER ON ANY PORTION OF THE SERVICE CONNECTION OR STOPPER.
ASSUME BASEMENT WILL BE CONSTRUCTED

60' @ 2% = 1.2'

9'-2"

84"

12"

6"

6" @ 1% MIN.

0.83' FOR 8"x6" WYE

RISER HEIGHT (IF NECESSARY)

PROPOSED SANITARY SEWERS

FINISH GRADE

SEWER DEPTH = 11.2' (TYP.)

10' NOM.

25' SETBACK

33' (TYP.)

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SANITARY SEWER DEPTH

REV. NO. DATE DRAWN BY CHECKED BY

DR. ENG CH. ENG DRAWING NO.

SCALE N.T.S. DATE 12/8/2023

SD-SN-5
NOTES:

1. ALL D.I.P. PIPE, FITTINGS, AND HYDRANT BARREL TO BE POLYWRAPPED PER AWWA C105.

2. ALL HYDRANTS SHALL HAVE ONE 5" STORZ CONNECTION AND ONE 3 3/8" THREADED PUMPER CONNECTION.
MINIMUM STANDARDS

THE MDOT GRADE 3500 OR P–NC CONCRETE AT THE FITTING FACE SHALL EXTEND TO WITHIN 2" OF THE BELL AND SHALL EXTEND FROM THE FITTING FACE A MINIMUM OF 2' TO THE UNDISTURBED SOLID GROUND.

THE DIMENSIONS OF THE THRUST BLOCK AT THE FACE OF THE UNDISTURBED SOLID GROUND SHALL BE AS SHOWN IN THE TABLE BELOW.

IF THERE ISN'T SUFFICIENT SPACE FOR THE INSTALLATION OF THE THRUST BLOCK WITHOUT INTERFERENCE WITH OTHER SERVICES, ANOTHER ARRANGEMENT SATISFACTORY TO THE ENGINEER SHALL BE USED.

<table>
<thead>
<tr>
<th>FITTINGS I.D.</th>
<th>PLUG TEE CROSS</th>
<th>BENDS</th>
<th>HYDRANT</th>
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<tbody>
<tr>
<td>INCHES</td>
<td>W</td>
<td>H</td>
<td>90°</td>
</tr>
<tr>
<td>4</td>
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FOR FITTING SIZES LARGER THAN 16", THRUST BLOCK DIMENSIONS SHALL BE AS SPECIFIED BY ENGINEER.

W = WIDTH IN FEET
H = HEIGHT IN FEET

NOTE:

THESE ARE MINIMUM STANDARDS. WHERE SOIL CONDITIONS DICATE, ADJUSTMENTS IN SIZE SHALL BE MADE AS DIRECTED BY THE PUBLIC SERVICES AREA ADMINISTRATOR.
NOTES:

1. PRECAST MANHOLE PER ASTM C-478.

2. REINFORCING IN WALLS TO BE ONE LAYER OF 2" X 8" W3/W2.9 WELDED WIRE MESH.
   CIRCUMFERENTIAL REINFORCEMENT = 0.18 SQ. IN./VERT. FT.

3. BASE SLAB TO BE REINFORCED WITH ONE LAYER OF #4 REBAR AT 12" C-C, E.W.
   AREA/STEEL = .20 SQ. IN./FT E.W.
NOTES:
1. ALL LIFT HOLES AND JOINTS SHALL BE MORTARED BOTH INSIDE AND OUTSIDE
2. ALL JOINTS SHALL BE MADE WATER TIGHT WITH RUBBER GASKET JOINTS
3. MANHOLE SECTIONS SHALL MEET ASTM C-478
4. CONE TO BE ECCENTRIC TYPE
5. FOR PIPE SIZES LARGE THAN 24", DIAMETER OF MANHOLE AS DIRECTED BY ENGINEER
NOTES:
1. ALL LIFT HOLES AND JOINTS SHALL BE MORTARED BOTH INSIDE AND OUTSIDE
2. ALL JOINTS SHALL BE MADE WATER TIGHT WITH RUBBER GASKET JOINTS
3. NO STEPS ARE PERMITTED
4. MANHOLE SECTIONS SHALL MEET ASTM C-478
5. CONE TO BE ECCENTRIC TYPE
MINIMUM ONE CASING SPACER WITHIN 1' OF EACH OF CASING, TYP

1' MAX 1' MAX 8' MAX SPACING
EA SIDE EA SIDE BETWEEN SPACERS, TYP

NOTES:

1. THE AREA BETWEEN THE CASING PIPE AND WATER MAIN SHALL BE LEFT OPEN EXCEPT FOR SOLID BRICK MASONRY BULKHEAD AT EACH END, AND MANUFACTURED SPACERS WHEN REQUIRED.

2. EACH JOINT OF CASING PIPE SHALL BE WELDED TOGETHER ALONG ENTIRE CIRCUMFERENCE OF PIPE.

3. MANUFACTURED SPACERS SHALL BE USED.

4. WOOD BLOCK SPACERS ARE NOT ALLOWED.

5. BORING SHALL BE AT 90 DEGREES TO ALL CROSSINGS UNLESS OTHERWISE APPROVED. THE BORING OF THE HOLE AND INSTALLATION OF THE CASING PIPE SHALL BE SIMULTANEOUS. BORE HOLE DIAMETER SHALL ESSENTIALLY BE THE SAME AS THE OUTSIDE DIAMETER OF THE CASING PIPE TO BE INSTALLED.

6. STEEL PIPE CASING SHALL BE SMOOTH STEEL PIPE FABRICATED IN SECTIONS IN ACCORDANCE WITH ASTM A53, TYPE E OR S, GRADE B OR ASTM A139, GRADE B. LENGTHS OF CASING PIPE SHALL BE AS LONG AS PRACTICAL FOR SITE CONDITIONS.

7. JOINTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM. JOINTS BETWEEN SECTIONS SHALL BE COMPLETELY WELDED TO THE PRECEDING SECTIONS. PRIOR TO WELDING JOINTS, THE CONTRACTOR SHALL ENSURE THAT BOTH ENDS OF THE CASING SECTIONS BEING WELDED ARE SQUARE.

8. STEEL PIPE CASING SIZE AND WALL THICKNESS SHALL BE AS SPECIFIED IN ARTICLE I OF THESE STANDARDS. VERIFY CASING SIZES PRIOR TO ORDERING AND SIZING CASING INSULATORS.

9. CASING SPACERS SHALL BE RESTRAINED—TYPE BOLTED SPACERS AND SHALL HAVE A MAXIMUM SPACING AS SHOWN, OR AS RECOMMENDED BY MANUFACTURER, WHICHEVER IS CLOSER.

10. REFER TO ARTICLE 1, XXVI CASING PIPE, FOR PIPE SIZES.
FOLD AND SECURE POLYETHYLENE ENCASEMENT AROUND PIPE WITH PLASTIC TIE STRAPS OR TAPE EVERY TWO (2) FEET (TYP).

12" MINIMUM OVERLAP (TYP)

2' (TYP)

WRAP PIPE WITH PLASTIC TIE STRAPS OR TAPE (TYP).

NOTE: FOLLOW ANSI/AWWA C105/A21.5 FOR CONSTRUCTION AND INSTALLATION METHODS. USE MODIFIED METHOD A

APPLIES TO: POLYETHYLENE WRAPPED D.I. WATERMAIN SEE PLANS FOR LOCATIONS

POLYETHYLENE ENCASEMENT (DRY INSTALLATION)

WRAP POLYETHYLENE ENCASEMENT PIPE COMPLETELY WITH PLASTIC TIE STRAPS OR TAPE EVERY TWO (2) FEET (TYP).

12" MINIMUM OVERLAP (TYP)

2' (TYP)

NOTE: FOLLOW ANSI/AWWA C105/A21.5 FOR CONSTRUCTION AND INSTALLATION METHODS. USE MODIFIED METHOD A

APPLIES TO: POLYETHYLENE WRAPPED D.I. WATERMAIN SEE PLANS FOR LOCATIONS

POLYETHYLENE ENCASEMENT (WET INSTALLATION)
NOTE:
1. CITY WILL MAINTAIN LEAD UNDER ROAD UP TO AND INCLUDING THE CUSTOMER SERVICE VALVE LOCATION.
2. FOR 13D SPRINKLER SYSTEMS, AS APPROVED BY PLANNING AND DEVELOPMENT SERVICES UNIT, A COMBINATION FIRE AND DOMESTIC LEAD IS PERMITTED.
1. TESTABLE BACK FLOW PREVENTER WITH DETECTOR FLOW METER (RPZ OR DOUBLE CHECK VALVE DEPENDING ON HAZARD LEVEL) – AS DETERMINED BY THE CITY

2. GATE VALVE

3. 3/4" METER

4. 3/4" THREADED PLUG

5. BALL VALVE

6. BALL VALVE WITH 5/8" MALE THREADED HOSE BIBB CONNECTION
1. Testable Back Flow Preventer with Detector Flow Meter (RPZ or Double Check Valve depending on Hazard Level) – as determined by the City

2. Gate Valve

3. 3/4” Meter

4. 3/4” Threaded Plug

5. Ball Valve

6. Ball Valve with 5/8” Male Threaded Hose Bibb Connection

7. Fire Pump

8. Jockey Pump

9. Pressure Gauge
**ELECTROMAGNETIC METER INSTALLATION**

**SERVICE LEAD**
Entrance with vertical offset only with approval of City. Entrance must be in the same room as meter.

**ISOLATION VALVES**
Are required before and after the meter.

**METER SIZE**

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**DISTANCE BETWEEN VALVE AND METER**
- Minimum 5X the diameter of the pipe coming into the meter and pipe size shall match meter size.
- Minimum 2X the diameter of the pipe exiting the meter and pipe size shall match meter size.

**FLOOR**
24" max.

**CENTER LINE OF PIPE**
16" min max

**NOT TO SCALE**

**CITY OF ANN ARBOR**
**PUBLIC SERVICES**
301 EAST HURON STREET
P.O. BOX 8647
ANN ARBOR, MI 48107-8647
734-794-6410
www.a2gov.org
NOTES:
1. METER ASSEMBLY SHALL BE PROTECTED FROM FREEZING AND DAMAGE.
2. IF METER ASSEMBLY CANNOT BE SET ACCORDING TO REQUIREMENTS SET FORTH IN THIS DETAIL AND THE STANDARD SPECIFICATIONS, THEN A PLAN SHALL BE SUBMITTED TO THE CITY FOR APPROVAL PRIOR TO INSTALLATION.
3. 3/4" AND 1" WATER METERS SHALL BE INSTALLED WITH A METER HORN AS SHOWN. METER HORN TO BE PROVIDED BY THE CITY.
4. METER ASSEMBLY AND ISOLATION VALVES MUST BE EASILY ACCESSIBLE BY CITY STAFF AT ALL TIMES FOR MAINTENANCE. METERS CANNOT BE BOXED IN WITHOUT WRITTEN APPROVAL FROM THE CITY.
5. METER TRANSMITTING UNIT (MTU) TO BE MOUNTED WITHIN 15' OF THE WATER METER ASSEMBLY. THE MTU WILL BE MOUNTED BY CITY STAFF.
6. IF THE WATER SERVICE ENTERS THROUGH THE BASEMENT WALL, IT SHALL BE LOCATED AT LEAST 12" MIN. AND 36" MAX. ABOVE THE BASEMENT FLOOR.
7. IF A PRESSURE REDUCING VALVE (PRV) IS REQUIRED BY BUILDING CODE, OR DESIRED BY THE PROPERTY OWNER, IT SHALL BE INSTALLED WITH THE USE OF AN INLINE TANDEM RESETTER.
8. NO BENDS, FITTINGS, CONNECTIONS, OR CHANGES IN PIPE SIZE ARE PERMITTED ON THE SERVICE LINE FROM THE CORPORATION STOP TO THE METER OUTLET EXCEPT AS SHOWN.
NOTES:
1. PIPING ADJACENT TO THE METER SPACE MUST BE ON A HORIZONTAL PLANE.
2. METER SETTINGS ARE TO BE CONSTRUCTED BY THE CONSUMER.
3. MINIMUM DISTANCE FROM THE CENTERLINE OF PIPING ADJACENT TO METER SPACER IS TO BE 18" FROM ANY ENTRANCE OR OUTSIDE WALL.
4. METER SUPPORT AS REQUIRED (IE. QLUE).
5. A LOCKABLE BALL VALVE SHALL BE INSTALLED AFTER THE FIRE BRANCH AND AFTER ANY BY-PASS BRANCH AT VALVE.
6. METER ASSEMBLY SHALL BE PROTECTED FROM FREEZING AND DAMAGE.
7. IF METER ASSEMBLY CANNOT BE SET ACCORDING TO REQUIREMENTS SET FORTH IN THIS DETAIL AND THE STANDARD
   SPECIFICATIONS, THEN A PLAN SHALL BE SUBMITTED TO THE CITY FOR APPROVAL PRIOR TO INSTALLATION.
8. METER ASSEMBLY AND ISOLATION VALVES MUST BE EASILY ACCESSIBLE BY CITY STAFF AT ALL TIMES FOR
   MAINTENANCE. METERS CANNOT BE BOXED IN WITHOUT WRITTEN APPROVAL FROM THE CITY.
9. METER TRANSMITTING UNIT (MTU) TO BE MOUNTED WITHIN 15' OF THE WATER METER ASSEMBLY. THE MTU WILL BE
   MOUNTED BY CITY STAFF.
10. IF THE WATER SERVICE ENTERS THROUGH THE BASEMENT WALL, IT SHALL BE LOCATED AT LEAST 12" MIN. AND 36" MAX. ABOVE THE BASEMENT FLOOR.
11. NO BENDS, FITTINGS, CONNECTIONS, OR CHANGES IN PIPE SIZE ARE PERMITTED ON THE SERVICE LINE FROM THE
    CORPORATION STOP TO THE METER OUTLET EXCEPT AS SHOWN.
12. DISTANCE BETWEEN ANY FITTING AND METER SHALL BE MINIMUM 5X THE DIAMETER OF THE PIPE COMING INTO THE
    METER AND PIPE SIZE SHALL MATCH METER SIZE.
13. DISTANCE BETWEEN ANY FITTING AND METER SHALL BE MINIMUM 2X THE DIAMETER OF THE PIPE EXITING THE METER
    AND PIPE SIZE SHALL MATCH METER SIZE.
MIN. (1) - MAX. (3) BRICK OR 2" PRECAST CONC. ADJUSTMENT RING
COURSES FOR ADJUSTING CASTING TO FINISH GRADE

6" CONC. M.H. BLOCK WITH MORTAR JOINTS & FILLED VOIDS. OUTSIDE FACE SHALL RECEIVE 1/2" MORTAR COAT AND STRUCK SMOOTH.

CONCRETE BLOCK MANHOLE MAY BE USED FOR STORM SEWER ONLY WITH ENGINEER APPROVAL AND SHALL BE ECCENTRIC.

CASTING AS SPECIFIED
CASTING AND BRICK(S) POINTED WITH MORTAR
REDUCTION CONES AS NECESSARY
RUBBER O-RING GASKET JOINTS (TYP.)
M.H. SECTION JOINTS POINTED WITH MORTAR (TYP.)

1/2" GALVANIZED STEEL SLEEVE & CAP INSTALLED AT PIPE CROWN, FLUSH WITH OUTSIDE WALL, AND EXTENDING 3' INSIDE. CONTRACTOR SHALL SEAL UPON COMPLETION OF TESTING.

PRECAST CONC. MANHOLE SECTIONS. (6" THICKNESS)

DIAMETER AS SHOWN ON PLANS

MORTAR FILLET (TYP.)

MINIMUM 4" 21AA STONE BEDDING AND BACKFILL UNDER MANHOLE BASE

STRUCTURE DIA. + 18"

ALL STORM SEWER MANHOLES TO HAVE 2-FT SUMP

NOTE:
1. ALL STORM MANHOLES MAY BE PRECAST CONCRETE OR MANHOLE BLOCK.
2. ALL MANHOLES MUST HAVE ECCENTRIC CONES.
3. ALL MANHOLE SECTIONS SHALL BE REINFORCED PER ASTM-185.
4. ALL STORM SEWER OPENINGS SHALL BE PRECAST WITH RUBBER BOOT CONNECTIONS PER ASTM C-923.
5. 2' SUMP REQUIRED ON ALL DRAINAGE STRUCTURES.
6. IF A FLAT TOP IS REQUIRED, THEN IT SHALL BE REINFORCED IN BOTH DIRECTIONS TO MEET ASTM C-615.
INTEGRAL BASE OPTION

LEACHING BASE OPTION

DIA. = I.D. + (WALL) + (2X WALL THICKNESS)

6" THICK PRE CAST BASE (MDOT GRADE 4000 CONCRETE OR ENGINEER APPROVED EQUIVALENT.)

MORTAR FILLET (TYP.)

36" MIN.

ALL STORM SEWER MANHOLES TO HAVE 2-FT SUMP

12"

TRIAXIAL GEGRID & LAYER ENGINEER APPROVED GEOTEXTILE SEPARATOR FABRIC, PLACED ABOVE AND BELOW 6A STONE.

AGGREGATE, MDOT 6A. PAYMENT INCLUDED IN THE UNIT PRICE OF THE ITEM "LEACHING INLET" AND WILL NOT BE PAID FOR SEPARATELY.

UNCOMPACTED SOIL
NOTES:

1. FRONT EDGE OF INLET CASTING SHALL BE FLUSH WITH FRONT EDGE OF GUTTER (EDGE-OF-METAL)
NOTES:

1. MAY BE USED WITH SINGLE OUTLET PIPE AND SINGLE INLET PIPE.

2. FRONT EDGE OF INLET CASTING SHALL BE FLUSH WITH FRONT EDGE OF GUTTER (EDGE–OF–METAL)
CASTING AS SPECIFIED

MORTAR BED & FILLET
(TYP.)

MIN.(1)–MAX.(3) BRICK COURSES FOR ADJUSTING CASTING TO FINISH GRADE OR PRECAST ADJUSTMENT RINGS.

PRECAST MANHOLE SECTIONS

RUBBER GASKETED JOINT
PER ASTM C-443 (TYP.)

6" WRAPPED
EDGE DRAIN

MORTAR JOINT

OUTLET PIPE
AS SPECIFIED
MORTAR JOINT

PRECAST INTEGRAL BASE SHALL BE
MINIMUM 3000 PSI
REINFORCED CONCRETE
MIN. 4" 21AA STONE BEDDING AND BACKFILL UNDER BASE AND TO FIRST PIPE JOINT

8"

48" DIA.

4" 4" 24" 24"

NOTES:

1. FRONT EDGE OF INLET CASTING SHALL BE FLUSH WITH FRONT EDGE OF GUTTER (EDGE-OF-METAL)
MIN. (1) – MAX. (3) BRICK COURSES FOR ADJUSTING CASTING TO FINISH GRADE OR PRECAST ADJUSTMENT RINGS.

24” DIA.

18”–3 COURSE MIN. DRAW

36” DIA.

PRECAST MANHOLE SECTIONS, OR 6” MANHOLE BLOCK WITH MORTARED JOINTS & FILLED VOIDS—OUTSIDE FACE SHALL RECEIVE 1/2” MORTAR COAT AND STRUCK SMOOTH.

6” WRAPPED EDGE DRAIN

6” MIN.

24” SUMP

3”

8”

54” DIA.

NOTES:
1. MAY BE USED WITH SINGLE OUTLET PIPE AND SINGLE INLET PIPE.

2. FRONT EDGE OF INLET CASTING SHALL BE FLUSH WITH FRONT EDGE OF GUTTER (EDGE OF METAL)
NOTES:

1. MAY BE USED WITH ONLY SINGLE OUTLET PIPE, AND NO INLET PIPE

2. FRONT EDGE OF INLET CASTING SHALL BE FLUSH WITH FRONT EDGE OF GUTTER (EDGE-OF-METAL)
### Notes:
1. MAY BE USED WITH SINGLE OUTLET PIPE AND SINGLE INLET PIPE.
2. FRONT EDGE OF INLET CASTING SHALL BE FLUSH WITH FRONT EDGE OF GUTTER (EDGE-OF-METAL)
NOTES:

1. BARRIER CURB AND GUTTER ON ASPHALT STREETS SHALL CONFORM TO THIS DETAIL.
2. BARRIER CURB AND GUTTER ON CONCRETE STREETS SHALL CONFORM TO MDOT CURB AND GUTTER DETAIL F3.
NOTES:

1. FRONT EDGE OF INLET CASTINGS SHALL BE FLUSH WITH FRONT EDGE OF GUTTER (EDGE-OF-METAL).

2. THIS DETAIL SHALL BE USED FOR MOUNTABLE CURB AND GUTTER ON ASPHALT STREETS. SEE SD-CG-3 FOR MOUNTABLE CURB AND GUTTER ON CONCRETE STREETS.
NOTES:

1. FRONT EDGE OF INLET CASTINGS SHALL BE FLUSH WITH FRONT EDGE OF GUTTER (EDGE-OF-METAL).

2. THIS DETAIL SHALL BE USED FOR MOUNTABLE CURB AND GUTTER ON CONCRETE STREETS. SEE SD-CG-2 FOR MOUNTABLE CURB AND GUTTER ON ASPHALT STREETS.
1. MINIMUM REQUIREMENT FOR DRIVE APPROACH TO BE MDOT 3500 CONCRETE.

2. R (RADIUS) AND W1 (OPENING WIDTH) AND W2 (CURB CUT WIDTH) AS REQUIRED PER TABLE A, ARTICLE 6 OF CITY STANDARDS

3. IF GUTTER IS OVERLAI, GUTTER OF THE APPROACH SHALL BE AT SAME ELEVATION AS EXISTING CONCRETE GUTTER AND ASPHALT WEDGE SHALL BE PLACED IN THE APPROACH.
MODIFIED M DRIVE APPROACH FOR CONCRETE STREETS WITH BARRIER CURB

1. MINIMUM REQUIREMENT FOR DRIVE APPROACH TO BE MDOT 3500 CONCRETE.

2. R (RADIUS) AND W1 (OPENING WIDTH) AND W2 (CURB CUT WIDTH) AS REQUIRED PER TABLE A, ARTICLE 6 OF CITY STANDARDS.
1/2" EXPANSION JOINT

CONTRACTION JOINTS

A

W1

W2

MATCH EX B/C

FLOW LINE

EX. PAVEMENT

T = 6" FOR SINGLE FAMILY OR DUPLEX USES
T = 8" FOR OTHER USES

3/8" PER FOOT
(3% MIN. - 1.3% MAX.) SLOPE

1/4" PER FOOT (2%)
MAX.

1/2" EXPANSION JOINT

6" CLASS II GRANULAR MATERIAL
OR 21AA DENSE GRADED
AGGREGATE COMPACTED PER
CITY OF ANN ARBOR STANDARDS.
(PAID FOR AS SUBBASE, CIP)

NOTE:

1. MINIMUM REQUIREMENT FOR DRIVE APPROACH TO BE MDOT 3500 CONCRETE.

2. R (RADIUS) AND W1 (OPENING WIDTH) AND W2 (CURB CUT WIDTH) AS REQUIRED
PER TABLE A, ARTICLE 6 OF CITY STANDARDS

3. IF GUTTER IS OVERLAID, GUTTER OF THE APPROACH SHALL BE AT SAME ELEVATION AS
EXISTING CONCRETE GUTTER AND ASPHALT WEDGE SHALL BE PLACED IN THE APPROACH.
**CONTRACTION JOINT**

1. MAXIMUM SPACING BETWEEN ALL EXPANSION JOINTS SHALL BE 300'.
2. EXPANSION JOINTS SHALL BE PLACED IN SIDEWALKS AT THE EXTENSION OF ALL PROPERTY LINES.
3. EXPANSION JOINTS SHALL BE PLACED AT DRIVE APPROACH EDGES PER STANDARD DRIVE APPROACH DETAILS SD–DS–1 THROUGH SD–DS–3.
4. EXPANSION JOINTS SHALL BE PLACED AT SIDEWALK INTERSECTIONS AS SHOWN.
5. EXPANSION JOINTS SHALL BE PLACED IN CURB AND GUTTER AT PC AND PT OF INTERSECTION RADIUS.
6. WHEN SIDEWALK IS AGAINST THE BACK–OF–CURB, AN EXPANSION JOINT SHALL BE PROVIDED ALONG THE CURB.
7. CONTRACTION JOINT SPACING FOR CURB AND CURB SHALL BE 10' STANDARD AND 8' MINIMUM.
8. CONTRACTION JOINTS FOR SIDEWALKS SHALL BE PLACED AT ALL SLAB ENDS (5' TYPICAL, 3' MINIMUM TO 7' MAXIMUM).
9. DESIGN MAY UTILIZE TOOLED OR SAW–CUT CONTRACTION JOINT. PLANS MUST INDICATE SELECTION OF JOINT TYPE. PROJECT MUST HAVE EITHER JOINT TYPE, BUT NOT BOTH.
GENERAL NOTE:

SIDEWALKS IN THE DDA SHALL BE CONSTRUCTED PER DETAILS SD–DDA–1 THROUGH SD–DDA–8.

NOTES:

1. STANDARD SIDEWALK WIDTH SHALL BE 5’.
2. STANDARD SLAB LENGTH SHALL BE 5’.
3. MINIMUM SLAB LENGTH SHALL BE 3’ AND MAXIMUM 7’.
4. MINIMUM SIDEWALK THICKNESS (T1) SHALL BE 4’.
5. SIDEWALK THICKNESS (T1) SHALL BE INCREASED AT DRIVE APPROACHES TO 6” FOR SINGLE OR DUPLEX USES AND TO 8” FOR ALL OTHER USES.
6. MINIMUM BASE THICKNESS (T2) SHALL BE 4’.
7. MINIMUM BASE THICKNESS (T2) SHALL BE INCREASED TO 6” AT DRIVE APPROACHES.
8. NATIVE MATERIAL IS ACCEPTABLE FOR SIDEWALK REPLACEMENT IF BASE IS STABLE AND FREE OF ORGANIC OR DELETERIOUS MATERIALS.
10. IF SIDEWALKS ARE APPROVED TO MEANDER WITHIN THE RIGHT–OF–WAY TO PROTECT AND SAVE TREES, SLOPES, ETC., CURVES IN THE SIDEWALK SHALL HAVE A MINIMUM 5’ RADIUS, WITH A MINIMUM 3’ LAWN EXTENSION.
NOTES:

1. HOLE TO BE AUGERED. MINIMIZE DISTURBANCE OF IN-SITU SOILS DURING AUGERING.
2. CONTRACTOR TO PROVIDE PREFABRICATED ANCHOR BOLT BUILD-UP.
3. THE CITY WILL INSPECT THE AUGERED HOLE AND THE ANCHOR BOLT BUILD-UP AND PROVIDE WRITTEN APPROVAL PRIOR TO THE PLACEMENT OF CONCRETE.
4. NO WATER IS TO BE IN HOLE AT TIME OF CONCRETE PLACEMENT.
5. CONCRETE SHALL BE VIBRATED DURING PLACEMENT.
6. CONTRACTOR WILL PROVIDE NECESSARY CONDUIT FOR CONDUCTOR ENTRY.
7. COPPER CLAD GROUND ROD (1 REQUIRED) TO BE 5/8" DIA. X 8'-0".
8. CONDUIT TO EXTEND 1'-2" ABOVE BASE. CABLES TO EXTEND 6" OUTSIDE OF HAND HOLE.
9. GROUND CABLE SHALL BE #8 SOFT BARE COPPER WIRE WELDED TO GROUND ROD WITH 24" SLACK ABOVE FOUNDATION TOP. THE NEUTRAL AT THE POLE IS TO BE CONNECTED TO THIS GROUND CABLE.
NOTES:

1. HOLE TO BE AUGERED. MINIMIZE DISTURBANCE OF IN-SITU SOILS DURING AUGERING.

2. CONTRACTOR TO PROVIDE PREFABRICATED ANCHOR BOLT BUILD-UP.

3. THE CITY WILL INSPECT THE AUGERED HOLE AND THE ANCHOR BOLT BUILD-UP AND PROVIDE WRITTEN APPROVAL PRIOR TO THE PLACEMENT OF CONCRETE.

4. NO WATER IS TO BE IN HOLE AT TIME OF CONCRETE PLACEMENT.

5. CONCRETE SHALL BE VIBRATED DURING PLACEMENT.

6. CONTRACTOR WILL PROVIDE NECESSARY CONDUIT FOR CABLE ENTRY. THE CONDUIT WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THIS ITEM OF WORK.

* UNLESS OTHERWISE NOTED ON THE PLANS OR CONTRACT DOCUMENTS
NOTES:

1. THE CITY WILL INSPECT THE AUGERED HOLE AND ANCHOR BOLT BUILD-UP, AND PROVIDE WRITTEN APPROVAL PRIOR TO THE PLACEMENT OF CONCRETE.

2. CONTRACTOR WILL PROVIDE NECESSARY CONDUIT FOR CONDUCTOR ENTRY. THIS WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE COST OF THE POLE BASE.
COMMUNICATIONS HANDHOLE ASSEMBLY

COMMUNICATIONS HANDHOLE ASSEMBLY
COVER TO READ "TRAFFIC SIGNAL" OR "COMMUNICATIONS" AS APPLICABLE

(2) 17" X 30" X 18" HANDHOLES, STACKED

17" X 30" COVER

CONDUIT END BELLS TO BE INSTALLED BEFORE PULLING WIRES

3" SCHEDULE 80 PVC (OR AS SPECIFIED ON PLAN)

ELECTRICAL CONDUIT WITH PULL STRING AND TONE WIRE

6" PEASTONE AT BOTTOM

COMPACTED CLASS II SAND BACKFILL

INSTALLATION NOTE:

THE CONDUIT SHALL BE LOWERED TO A MINIMUM ENTRANCE DEPTH OF 36" BELOW TOP OF THE HANDLE OVER A DISTANCE OF 10 FT. ON EACH SIDE OF THE HANDHOLE ASSEMBLY

IF THE CONDUIT HAS TO ENTER THE HANDHOLE AT A DEPTH GREATER THAN 36" DEEP DUE TO CONFLICT, THEN 90 DEGREE SWEEPS SHALL BE PROVIDED."

BACKFILL CONDUIT AND HANDHOLE W/CLASS II SAND. IF PLACED IN GREENBELT, PLACE 4" OF TOP SOIL.
MAY REQUIRE UNDERCUTTING SUBGRADE TO
MAINTAIN MINIMUM DEPTH AND 2" BEDDING.
BACKFILL WITH MDOT, CL II GRANULAR MATERIAL
COMPACTED TO 95% MAXIMUM DENSITY. THIS
WORK SHALL BE INCLUDED IN COST OF CONDUIT
IF REQUIRED AND WILL NOT BE PAID FOR
SEPARATELY.
INSTALLATION NOTE:

THE CONDUIT SHALL BE LOWERED TO A MINIMUM ENTRANCE DEPTH OF 36” BELOW TOP OF THE HANDLE OVER A DISTANCE OF 10 FT. ON EACH SIDE OF THE HANDHOLE ASSEMBLY

IF THE CONDUIT HAS TO ENTER THE HANDBOLE AT A DEPTH GREATER THAN 36” DEEP DUE TO CONFLICT, THEN 90 DEGREE SWEEPS SHALL BE PROVIDED.”

BACKFILL CONDUIT AND HANDBOLE W/CLASS II SAND. IF PLACED IN GREENBELT, PLACE 4” OF TOP SOIL.
1. SIZE AND SHAPE OF INLET FILTER SHALL MATCH THE STRUCTURE.

2. WHERE CONDITIONS WARRANT, THE FILTER SHALL BE MADE WITH AN OIL-ABSORBENT FILTER WITH A WOVEN PILLOW INSERT.
*Biodegradable stakes are to be used to anchor matting to the ground. Minimum stake length shall be 6".

Provide erosion control matting on all disturbed areas to be permanently restored with grass and as directed by the engineer. See landscape plans for more details. Material shall be rapidly biodegradable. Use of plastic materials is specifically prohibited.
NOTE:

ADDITIONAL WIDTH AT CONNECTION TO EXISTING PAVEMENT SHALL BE AS NEEDED TO ACCOMMODATE VEHICLE TURNING.
NOTIFY THE CITY OF ANN ARBOR SOIL EROSION CONTROL OFFICE 48 HOURS PRIOR TO BEGINNING WORK ON THE PROJECT. PHONE: 734-794-6265.

1. THE CONTRACTOR SHALL IMPLEMENT AND MAINTAIN THE SOIL EROSION CONTROL MEASURES AS SHOWN ON THE PLANS AND AS DIRECTED BY THE ENGINEER AT ALL TIMES DURING CONSTRUCTION. ANY MODIFICATIONS OR ADDITIONS TO THE SOIL EROSION CONTROL MEASURES DUE TO CONSTRUCTION OR CHANGED CONDITIONS SHALL BE AS DIRECTED AND APPROVED BY THE ENGINEER.


3. DAILY, OR AFTER ANY STORM EVENT, INSPECTIONS OF EROSION CONTROL MEASURES SHALL BE MADE BY THE CONTRACTOR. PERIODIC INSPECTIONS MAY BE MADE BY THE ENGINEER TO DETERMINE THE EFFECTIVENESS OF EROSION AND SEDIMENTATION CONTROL MEASURES. ANY NECESSARY CORRECTIONS SHALL BE MADE WITHOUT DELAY, AND WITHOUT ADDITIONAL COST TO THE CITY OF ANN ARBOR.

4. EROSION AND SEDIMENTATION FROM WORK ON THE SITE SHALL BE CONTAINED ON THE SITE AND NOT BE ALLOWED TO COLLECT ON ANY OFF-SITE AREAS, ROADWAYS OR WATERWAYS.

5. ALL MUD/SOIL TRACKED ONTO ROADWAYS FROM THE SITE DUE TO CONSTRUCTION, SHALL BE PROMPTLY REMOVED BY THE CONTRACTOR. IF SO ORDERED, THE CONTRACTOR SHALL PROVIDE AND OPERATE A VACUUM-TYPE STREET Sweeper, AT NO ADDITIONAL COST TO THE CITY OF ANN ARBOR.

6. RESTORATION OF ALL DISTURBED AREAS, INCLUDING PLACEMENT OF TOPSOIL, SEED, FERTILIZER AND MULCH AND/OR SOD SHALL BE PERFORMED WITHIN FIVE (5) DAYS OF THE COMPLETION OF FINAL GRADING EXCEPT WHERE TEMPORARY SEEDING OR AN ANCHORED MULCH BLANKET ARE SET FORTH AS TEMPORARY MEASURES PER THE APPROVED SEQUENCE OF SOIL EROSION MEASURES.

7. CONSTRUCTION OPERATIONS SHALL BE SCHEDULED AND PERFORMED SO THAT PREVENTATIVE SOIL EROSION CONTROL MEASURES ARE IN PLACE PRIOR TO EXCAVATION IN CRITICAL AREAS AND TEMPORARY STABILIZATION MEASURES ARE IN PLACE IMMEDIATELY FOLLOWING BACKFILLING OPERATIONS.

8. SPECIAL PRECAUTIONS WILL BE TAKEN IN THE USE OF CONSTRUCTION EQUIPMENT TO PREVENT SITUATIONS THAT PROMOTE EROSION.

9. PROPER DUST CONTROL SHALL BE MAINTAINED DURING CONSTRUCTION BY USE OF WATER TRUCKS AND/OR DUST PALLIATIVE AS REQUIRED.

10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL TEMPORARY SOIL EROSION CONTROL MEASURES AND REMOVAL OF SOME MEASURES UPON AUTHORIZED COMPLETION OF THE PROJECT. FINAL COMPLETION OF PROJECT WILL NOT BE AUTHORIZED UNTIL ALL SITE WORK AND UTILITY CONSTRUCTION IS COMPLETE AND ALL SOILS ARE STABILIZED.

11. THE CONTRACTOR SHALL NOT GRADE INTO ADJACENT PROPERTIES. SILT AND PROTECTIVE FENCE SHALL BE INSTALLED AND MAINTAINED TO PREVENT GRADING, EROSION AND SEDIMENTATION INTO THE ADJACENT PROPERTIES.

12. TREE PROTECTION FENCING MUST REMAIN INTACT UNTIL RESTORATION OF THE SITE IS COMPLETE.
SEQUENCE OF EROSION CONTROL MEASURES:

1. The contractor is to submit to the engineer, a sequence of construction with respect to the soil erosion control measures for review, comment and approval. This schedule is to include inspection and repair of all temporary erosion control measures daily and within 24 hours of a storm event.

SAMPLE SOIL EROSION AND SEDIMENTATION CONTROL INSTALLATION MINIMUM REQUIREMENTS:

1.1. Install silt fence, tree protection fencing, mud mats, inlet filters on existing drainage features, and all other temporary soil erosion controls, prior to any clearing or earth moving operation.

1.2. Strip and stockpile topsoil. Stabilize stockpile as required.

1.3. Install water mains, storm and sanitary sewers, and other enclosed drainage features. New inlet filters shall be installed immediately following installation of new drainage inlets.

1.4. Perform machine grading operations and construct pavements (mainline, sidewalks, drives, etc.).

1.5. Continually maintain erosion and sedimentation control measures, as required to allow drainage and sediment removal. Remove any accumulated sediment immediately.

1.6. Complete all fine grading.

1.7. Install temporary seed during construction in accordance with Article B of the city’s public works design and construction standards. During months unfavorable to seeding, an anchored mulch blanket shall be installed per SD-SESC-4.

1.8. Refer to landscape planting plans for permanent site stabilization.

1.9. Clean out storm sewer systems.

1.10. Remedy any noted defects to the satisfaction of the city of Ann Arbor’s soil erosion and sedimentation control official.

1.11. All temp. soil erosion control measures must be removed, with engineers approval, prior to final inspection.

Note: This sequence is for information only. It is intended to show the sequence of construction with respect to the soil erosion and sedimentation control measures. The contractor is responsible for submitting their own detailed construction sequence and schedule to the engineer for review, comment, and approval. The approved sequence of soil erosion measures must be included on the approved construction plans.
DO NOT PRUNE TERMINAL LEADER OR BRANCH TIPS.

PRUNE AWAY DEAD OR BROKEN BRANCHES ONLY.

REMOVE ALL LABELS, TACs, TREE WRAP, TAPE OR STRING FROM TREE TRUNK AND CROWN.

PRUNE OFF SUCKERS.

EXCAVATE HOLE TO TWO TO THREE TIMES THE WIDTH OF ROOTBALL.

BREAK UP (SCARIFY) SIDES OF PLANTING HOLE.

COMPACT SOIL AT BOTTOM OF HOLE TO CREATE A TREE PEDESTAL AS SHOWN.

BEFORE SETTING TREE IN HOLE, EXPOSE THE TRUNK FLARE BY REMOVING BURLAP AROUND TRUNK AND PULLING BACK SOIL.

SET AND CENTER ROOTBALL SO THAT TRUNK FLARE IS LEVEL TO GRADE OR VERY SLIGHTLY HIGHER IN CLAY SOIL.

WITHOUT DISTURBING DEVELOPED ROOTS, FOLD DOWN AND REMOVE ONE-THIRD TO ONE-HALF OF BURLAP TO EXPOSE ROOTBALL.

REMOVE AND DISPOSE OF ALL NON-BiodeGRADABLE MATERIALS, CUTTING AWAY WIRE BASKET TO 10" DEPTH.

BACKFILL HOLE WITH EXCAVATED SOIL, TAMp DOWN SOIL TO REMOVE AIR POCKETs, AND FIRMLY SET TREE. DO NOT AMEND SOIL UNLESS PLANTING IN SEVERELY DISTURBED SOIL.

PLACE DOUBLE-SHREDDED HARDWOOD MULCH 2'--3' DEEP LEAVING A 3' RADIUS CIRCLE OF BARE SOIL AROUND TRUNK OF TREE.

DO NOT STAKE TREE UNLESS PERMITTED PER DETAIL SD-L-2.

NO UTILITIES SHALL BE PERMITTED IN OR UNDER THE PLANTING HOLE EXCEPT WHERE TREE TUNNELING IS PERMITTED PER SD-L-4.
TREE STAKING IS ONLY PERMITTED UNDER ONE OR MORE OF THE FOLLOWING CIRCUMSTANCES:

1) IN HEAVY CLAY SOIL
2) IN WINDY CONDITIONS
3) 3" OR GREATER DIAMETER TREE TRUNK
4) TREE WITH LARGE CROWN

IF STAKING IS NEEDED DUE TO THESE CONDITIONS:

- STAKE WITH 2 x 2 HARDWOOD STAKES, OR APPROVED EQUAL, DRIVEN 6"--8" OUTSIDE OF ROOTBALL.
- LOOSELY STAKE TREE TRUNK TO ALLOW FOR TRUNK FLEXING.
- STAKE TREES JUST BELOW FIRST BRANCH WITH 2"--3" WIDE BELT--LIKE NYLON OR PLASTIC STRAPS (2 PER TREE ON OPPOSITE SIDES OF TREE).
- CONNECT STRAPS FROM TREE TO STAKE HORIZONTALLY.
- DO NOT USE ROPE OR WIRE THROUGH A HOSE.
- REMOVE ALL STAKING MATERIALS AFTER 1 YEAR.
CRITICAL ROOT ZONE (IN FEET OF RADIUS) = 12 x D.B.H. (IN INCHES)

RING FENCE AROUND EXISTING TREE

VARIES

6' STEEL T-POSTS OR 2x2 WOOD STAKES

SET 4' HIGH ORANGE VINYL CONSTRUCTION FENCE AT DRIP LINE OR EDGE OF CRITICAL ROOT ZONE, WHICHEVER IS GREATER.

NO EQUIPMENT, GRADING, OR COMPACTION IN CRITICAL ROOT ZONE.

PRESERVE GRADE
NOTE: IN ALL CASES, THE OPEN CUT BORE PIT SHALL BE LOCATED 1' BEYOND THE CRITICAL ROOT ZONE (SEE SD-L-3)
SAW CUT PAVEMENT, FULL DEPTH, AT REMOVAL LIMITS (TYP.)

SURFACE RESTORATION AS SPECIFIED
SEE SD–TD–3

1.0' TYP.

MDOT CLASS II GRANULAR MATERIAL COMPACTED TO 95% OF THE MATERIAL'S MAXIMUM DRY DENSITY OR RESTORE WITH ENGINEER APPROVED NATIVE BACKFILL COMPACTED TO 90% MAX. DRY DENSITY.

PIPE BEDDING PER CITY OF ANN ARBOR STANDARDS, ARTICLE 10. BEDDING 4" MIN. EACH SIDE AT PIPE BELL.

MINIMUM TRENCH WIDTH PER CITY OF ANN ARBOR STANDARDS, ARTICLE 10. BEDDING TO EXTEND 6" MIN. EACH SIDE OF PIPE BARREL.

NOTES:

1. ALL TRENCH EXCAVATION, BEDDING, BACKFILLING, AND SURFACE RESTORATION SHALL COMPLY WITH CITY OF ANN ARBOR STANDARDS, ARTICLE 10.

2. TRENCH DETAILS SHOW TYPE OF BACKFILL AND TRENCHING REQUIREMENTS ONLY.

3. ALL TRENCHING TO CONFORM TO ALL APPLICABLE M.I.O.S.H.A. AND CITY STANDARDS.

4. PIPE BEDDING THICKNESS UNDER CONCRETE PIPE 66" OR LARGER SHALL BE INCREASED TO 6".

5. SEE SD–TD–2 FOR SANITARY BEDDING AREA DETAIL. SEE SD–TD–4 FOR EDGE DRAIN BEDDING AND BACKFILL.

6. SURFACE RESTORATION SHALL NOT BE INCLUDED IN THE UNIT PRICE FOR PIPE AND WILL BE PAID FOR SEPARATELY.

7. NOT TO BE USED FOR SANITARY SEWER OR EDGE DRAIN.
NOTES:

1. ALL TRENCH EXCAVATION, BEDDING, BACKFILLING, AND SURFACE RESTORATION SHALL COMPLY WITH CITY OF ANN ARBOR STANDARDS, ARTICLE 10.

2. TRENCH DETAILS SHOW TYPE OF BACKFILL AND TRENCHING REQUIREMENTS ONLY.

3. ALL TRENCHING TO CONFORM TO ALL APPLICABLE M.I.O.S.H.A. AND CITY STANDARDS.

4. PIPE BEDDING THICKNESS UNDER CONCRETE PIPE 66" OR LARGER SHALL BE INCREASED TO 6".

5. SEE SD–TD–4 FOR EDGE DRAIN BEDDING AND BACKFILL DETAILS.

6. SURFACE RESTORATION SHALL NOT BE INCLUDED IN THE UNIT PRICE FOR PIPE AND WILL BE PAID FOR SEPARATELY.
BITUMINOUS PAVEMENT RESTORATION

SAWCUT PAVEMENT, FULL DEPTH, AT REMOVAL LIMITS (TYP.)

AGGREGATE BASE AS SPECIFIED, MATCH EXISTING OR 8 INCH WHICH IS GREATER, COMPACTED TO 98% OF THE MATERIAL'S MAXIMUM DRY DENSITY.

1.0' TYP.

HMA PAVEMENT AS SPECIFIED

SUBBASE OR SUBGRADE AS SPECIFIED (TYP)

GRAVEL ROAD / PARKING

MDOT CLASS 23A DENSE GRADED AGGREGATE (MIN. 8") COMPACTED TO 98% OF THE MATERIAL'S MAXIMUM DRY DENSITY.

1.0' MIN.

SUBBASE OR SUBGRADE AS SPECIFIED (TYP)

CONCRETE PAVEMENT

MDOT GRADE 3500 CONCRETE TO MATCH EXISTING THICKNESS (MIN. 8")

SAWCUT (TYP.)

LIMIT OF PAVEMENT PATCH 5.0' MIN.

EPOXY COATED REBAR

AGGREGATE BASE AS SPECIFIED, MATCH EXISTING OR 8 INCH WHICH IS GREATER, COMPACTED TO 98% OF THE MATERIAL'S MAXIMUM DRY DENSITY.

1.0' MIN.

SUBBASE OR SUBGRADE AS SPECIFIED (TYP)

DRILL 1 3/8" DIAMETER HOLE INTO EXISTING CONCRETE PAVEMENT AND GROUT-IN-PLACE #9 x 1'-6" LONG EPOXY COATED REBAR.

UTILITY TRENCH SURFACE RESTORATION

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REV. NO. DATE DRAWN BY CHECKED BY

SCALE N.T.S. DATE 12/8/2023 SD-TD-3.1
CONCRETE PAVEMENT WITH BITUMINOUS OVERLAY

MDOT GRADE 3500 CONCRETE TO MATCH EXISTING THICKNESS (MIN. 8")

LIMIT OF PAVEMENT PATCH

HMA PAVEMENT AS SPECIFIED.

SAWCUT (TYP.)

EPOXY COATED REBAR

AGGREGATE BASE AS SPECIFIED, MATCH EXISTING OR 8 INCH WHICH IS GREATER, COMPACTED TO 98% OF THE MATERIAL'S MAXIMUM DRY DENSITY.

SUBBASE OR SUBGRADE AS SPECIFIED (TYP)

1.0’ MIN.

1.0’ MIN.

1.0’ MIN.

SIDEWALK OR DRIVE APPROACH

MDOT GRADE 3500 CONCRETE AS SPECIFIED. THICKNESS AND WIDTH TO MATCH REQUIREMENTS OF CITY STANDARDS FOR SIDEWALKS OR DRIVE APPROACHES, WHICHEVER IS APPLICABLE.

SUBBASE OR SUBGRADE AS SPECIFIED (TYP)

TURF

4” MINIMUM TOPSOIL AND SEED OR SOD AS SPECIFIED, PER CITY OF ANN ARBOR STANDARDS.

NOTE:
PIPE TO BE BEDDED PER TD-1 OR 2
NOTES:

1. IN AREAS WHERE EDGE DRAIN CANNOT BE INSTALLED IN ACCORDANCE WITH THE DETAIL, THE EDGE DRAIN SHALL BE INSTALLED AT THE DEPTH AS INDICATED ON THE PLANS, OR AS DIRECTED BY ENGINEER. IN NO CASE SHALL THE EDGE DRAIN BE INSTALLED AT A GRADE LESS THAN 0.50% OR AT A DEPTH OF LESS THAN 2' BELOW TOP OF PROPOSED PAVEMENT.

2. FOR PAVEMENT BASE AND SUBBASE THICKNESS, SEE TYPICAL PAVEMENT CROSS-SECTION(S)

3. TRENCH DETAILS SHOW TYPE OF BACKFILL AND SURFACE RESTORATION ONLY

4. ALL TRENCHING TO CONFORM TO ALL APPLICABLE M.I.O.S.H.A. STANDARDS

5. EDGE DRAINS SHALL BE CONNECTED TO A DRAINAGE STRUCTURE AND WILL EXTEND A MINIMUM OF 100 FEET UPSLOPE FROM THE STRUCTURE.

6. ADDITIONAL LENGTHS OF EDGE DRAIN MAY BE REQUIRED BY THE ENGINEER BASED ON EXISTING SITE CONDITIONS, INCLUDING CONDITION OF THE SUBGRADE.
6" DIAMETER STEEL PIPE BOLLARDS FILLED WITH CONCRETE AND PAINTED YELLOW. EXTEND 4 FEET ABOVE TOP OF SLAB AND 3 FEET BELOW.

8" CONCRETE BLOCK OR CAST-IN PLACE CONCRETE WALLS, OR APPROVED ALTERNATE MATERIAL.

8" POURED CONCRETE SLAB OVER 8" 21AA DENSE GRADED AGGREGATE.

12" X 42" POURED CONCRETE TRENCH FOUNDATION (SEE DETAIL).

#5 DOWEL W/4" HOOK EXTEND 18" ABOVE AND BELOW TOP OF FOOTING @ 24" O.C.

#4 STIRRUP W/ 15" OVERLAP IF IN TWO PIECES.

CONCRETE BRICK SUPPORT.

TRENCH FOUNDATION DETAIL.

NOTE: SEE SD-SW-6 FOR GENERAL NOTES.

LIMESTONE (OR CONCRETE) WALL CAP (TYP).

18" X 42" POURED CONC (TYP).

18" LAP LENGTH REQUIRED FOR #5 REBAR AT CORNERS.

11.0' MIN. CLEARANCE AT NARROWEST POINT IN ENCLOSURE AS MEASURED FROM EDGE OF BOLLARD.

EXPANSION JOINT.

6" DIAMETER STEEL PIPE BOLLARDS FILLED WITH CONCRETE AND PAINTED YELLOW (TYP.)

8" POURED CONCRETE SLAB EXTENSION, PITCH TO DRAIN AWAY FROM ENCLOSURE @ MIN 1% SLOPE.

GATE SWING ANGLE, MIN 120' FROM CLOSED POSITION.

2% SLOPE MAX.

6 YD TRASH/RECYCLE RECEPTACLE.

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SINGLE BIN ENCLOSURE

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DR. ENG CH. ENG DRAWING NO.

SCALE N.T.S. DATE 12/8/2023

SD-SW-1
6" DIAMETER STEEL PIPE BOLLARDS FILLED WITH CONCRETE AND PAINTED YELLOW. EXTEND 4 FEET ABOVE TOP OF SLAB AND 3 FEET BELOW.

8" Poured concrete slab over 8" 21AA dense graded aggregate.

8" Concrete block or cast-in place concrete walls, or approved alternate material.

12" x 42" Poured concrete trench foundation (See detail SD-SW-1).

GATE SWING ANGLE, MIN 120° FROM CLOSED POSITION.

NOTE: SEE SD-SW-6 FOR GENERAL NOTES.

LIMESTONE (OR CONCRETE) WALL CAP (TYP).

18" x 42" Poured Conc (TYP).

18" Lap length required for #5 Rebar at corners.

22.0' Min. clearance at narrowest point in enclosure as measured from edge of bollard.

Expansion joint.

6" Diameter steel pipe bollards filled with concrete and painted yellow (TYP.).

CONTRACTION JOINT.

8" Poured concrete slab extension. Pitch to drain away from enclosure @ min 1% slope.

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SD-SW-2
DIRECT ACCESS
(PREFERRED)

UNACCEPTABLE

 INDIRECT ACCESS

OPTIONAL ANGLED DIRECT ACCESS
(ACEPTABLE WITH APPROVAL)

STANDARD BIN ENCLOSURE LAYOUTS

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MINIMUM OF 15'-0" VERTICAL CLEARANCE IS REQUIRED ALONG ENTIRE SOLID WASTE COLLECTION ROUTE.
1. MAINTAIN A CLEAR SPACE DIRECTLY IN FRONT OF THE SOLID WASTE ENCLOSURE. THE CLEAR SPACE SHALL BE A MINIMUM OF FIFTY (50) FEET LONG BY THE WIDTH OF THE INSIDE DIMENSION (I.D.) OF THE ENCLOSURE WALLS PLUS FOUR (4) FEET ON EACH SIDE. A MINIMUM VERTICAL CLEARANCE OF AT LEAST TWENTY-FIVE (25) FEET MUST BE PROVIDED ABOVE THIS AREA.

2. INGRESS AND EGRESS ROUTES MUST BE DEVELOPED BASED ON SOLID WASTE SWEEP PATH REQUIREMENTS PER SD-SW-4. A MINIMUM HORIZONTAL CLEARANCE OF FOUR (4) FEET FROM THE EDGE OF THE SWEEP PATH AND A MINIMUM VERTICAL CLEARANCE OF AT LEAST FIFTEEN (15) FEET MUST BE PROVIDED ALONG THE ENTIRE SOLID WASTE COLLECTION ROUTE.

3. PROVIDE TEN (10) FEET MINIMUM HORIZONTAL CLEARANCE FROM SOLID WASTE ENCLOSURE TO MAJOR ELECTRICAL EQUIPMENT, ABOVE GROUND UTILITY SERVICES, AND EDGE OF OVERHEAD OBSTRUCTIONS SUCH AS TREE BRANCHES, BALCONIES, AND OVERHANGS.

4. IF FORWARD ACCESS TO THE PUBLIC STREET IS NOT AVAILABLE FOR THE SOLID WASTE VEHICLE, THE SITE DEVELOPMENT LAYOUT MUST ACCOMMODATE A TURN-AROUND LOCATION MEETING REQUIREMENTS WITHIN SOLID WASTE REFERENCE SPECIFIC TURN-AROUND DETAIL (SD-SW-5) AND ACCEPTABLE TO THE PSAA.

5. FOR SITES THAT CANNOT ACCOMMODATE A TURN-AROUND, THE FOLLOWING ADDITIONAL REQUIREMENTS MUST BE MET:

5.1. SOLID WASTE VEHICLES MUST BE ABLE TO SERVICE DUMPSTERS WITHOUT IMPEADING THE PUBLIC STREET OR SIDEWALK.

5.2. THE COLLECTION LOCATION SHALL BE CLEARLY DELINEATED AND NOT HAVE A SLOPE GREATER THAN 2% IN ANY DIRECTION.

5.3. BOLLARDS OR ADEQUATE CLEAR SPACE MUST BE PROVIDED BEHIND THE LIFT POINT SO THE DUMPSTERS ARE NOT PUSHED INTO ANY BUILDING OR ACCESS ROUTE.

5.4. ALL SWEEP-PATH CLEARANCE AND VERTICAL CLEARANCE REQUIREMENTS PREVIOUSLY IDENTIFIED SHALL BE PROVIDED.

5.5. SOLID WASTE VEHICLE BACK-UP DISTANCES MUST BE LESS THAN 30’ ALONG SERVICING ROUTE.

6. GATES ON BIN ENCLOSURES SHALL OPEN A MINIMUM OF 120 DEGREES FROM THE CLOSED POSITION. THE GATES SHALL NOT IMPEDE ON THE REQUIRED BIN ENCLOSURE OPENING WIDTH, SHALL NOT BLOCK ADJACENT PARKING SPOTS, AND NOT BE IMPEDED BY ADJACENT CURBS OR LANDSCAPING.

7. GATES SHALL BE DESIGNED TO BE FREE STANDING WITHOUT CENTER POLE DESIGN. IF CENTER POLE DESIGN IS NECESSARY, 12 INCHES SHALL BE ADDED TO THE MINIMUM INTERIOR WIDTH OF THE ENCLOSURE.

8. GATE DESIGN SHALL INCLUDE A RELIABLE MEANS TO SECURE THE DOOR IN BOTH THE OPEN AND CLOSED POSITIONS.
9. THE PROPERTY OWNER SHALL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF NO PARKING SIGNS ALONG THE SOLID WASTE INGRESS/EGRESS ROUTE TO ENSURE THE ROUTE REMAINS FREE OF VEHICLES.

10. REFER TO ASSOCIATED STANDARD DETAILS SD–SW–1 AND SD–SW–2 FOR REQUIREMENTS ON SINGLE AND DOUBLE WIDE SOLID WASTE BIN ENCLOSURE LAYOUT AND DESIGN CRITERIA. THE CITY SHALL HAVE THE ABILITY TO MODIFY OR INTERPRET THESE DETAILS AS NECESSARY TO ACCOMMODATE THE CITY OR CITY CONTRACTOR’S NEEDS FOR SOLID WASTE PICK-UP.

11. SOLID WASTE EQUIPMENT ACCESS ROADS AND SERVICE AREA SURFACES SHALL BE DESIGNED AND MAINTAINED TO SUPPORT THE IMPOSED LOADS OF COLLECTION VEHICLES WEIGHING UP TO 66,000 LBS GROSS VEHICLE WEIGHT (GVW) AND SHALL BE PROVIDED WITH AN APPROVED SURFACE SO AS TO PROVIDE ALL WEATHER DRIVING CAPABILITIES. PROPERTY OWNER SHALL BE RESPONSIBLE FOR ALL SNOW AND ICE REMOVAL REQUIRED FOR SAFE ACCESS.

12. FOR SITES THAT CANNOT ACCOMMODATE A STANDARD DUMPSTER ENCLOSURE, THE DUMPSTERS MAY BE ROLLED OUT OF A BUILDING OR ALTERNATE ENCLOSURE BY THE PROPERTY OWNER TO AN APPROVED COLLECTION LOCATION.

13. SOLID WASTE COLLECTION LOCATIONS MUST BE LOCATED WITHIN THE BOUNDARIES OF THE PROPERTY UNLESS AN APPROPRIATE EASEMENT IS OBTAINED.
NOTES:

1. ALL WORK TO BE DONE UNDER CURRENT FEDERAL POSTAL SERVICE SPECIFICATIONS.

2. FOR PERMANENT MAILBOX RELOCATION, POST TO BE NEW 4" X 4" POST, OR RESTORE ORIGINAL POST TO AS GOOD OR BETTER THAN ORIGINAL CONDITION.

3. FOR TEMPORARY MAILBOX RELOCATION, THE USE OF EXISTING POST WILL BE PERMITTED.

4. FOR NEWSPAPER TUBE RELOCATION THE USE OF EXISTING POST WILL BE PERMITTED.
NOTE:
ELEVATION TO BE ESTABLISHED FROM
USGS DATUM, AND SHALL BE VERIFIED
BY THE CITY OF ANN ARBOR.
NOTE:
DIMENSIONS MAY VARY.

WORK THIS DRAWING WITH THE NOTES AND REFERENCE CHART ON THE CHAIN LINK FENCE DETAIL, SD M-4.
NOTE:
STANDARD GUARDRAIL CONSTRUCTION TO
BE IN ACCORDANCE WITH MDOT BEAM
GUARDRAIL TYPE B REQUIREMENTS
NOTES:
1. REFER TO SITE PLAN FOR PROJECT SPECIFIC TYPES & LIMITS OF SURFACE MATERIALS.
NOTES: ALL EXPANSION JOINTS SHALL BE SEALED IN THE DDA AREA.
LIGHT BROOM FINISH

CONCRETE, GRADE 3500 OR PN-C AS SPECIFIED BY ENGINEER WITH FIBER MESH REINFORCEMENT WHERE SPECIFIED

CLASS II GRANULAR MATERIAL OR 21AA DENSE GRADED AGGREGATE COMPACTED PER CITY OF ANN ARBOR STANDARDS

NATIVE MATERIAL IS ACCEPTABLE FOR SIDEWALK REPLACEMENT IF BASE IS STABLE AND FREE OF ORGANIC OR DELETERIOUS MATERIALS

6" TYPICAL

8" AT INTERSECTIONS, BUMP OUTS, AND DRIVE APPROACHES

4" TYPICAL

6" AT INTERSECTIONS, BUMP OUTS, AND DRIVE APPROACHES

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DDA CONCRETE SIDEWALK

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SD-DDA-3
NOTE:
1) DOWELS TO BE 1/2" DIA., EPOXY COATED STEEL @ O.C., LENGTH AS INDICATED, CENTERED IN CONCRETE SIDEWALK
2) ALL EXPANSION JOINTS TO BE SEALED
NOTE:
1) PROVIDE MOCK-UP OF BRICK TO ESTABLISH ACTUAL SIZE AVOIDING SLIVERS. APPROVED BY ENGINEER
2) ALL PAVERS RATED FOR HEAVY DUTY VEHICULAR TRAFFIC
3) SUBMIT JOINT FILL MATERIAL FOR APPROVAL
4) DEPTH OF AGGREGATE BED FOR STORM WATER MAY BE DEEPER THAN SHOWN BASED ON PROJECT NEEDS
EXISTING CURB
EXPANSION JOINT, TYP.
CONSTRUCTION JOINT
6" CONCRETE SIDEWALK
18" DOWEL
6" CONCRETE SIDEWALK

NOTE:
1) DOWELS TO BE 1/2" DIA., EPOXY COATED STEEL @ O.C., LENGTH AS INDICATED, CENTERED IN CONCRETE SIDEWALK
2) ALL EXPANSION JOINTS TO BE SEALED
3) SUBMIT JOINT FILL MATERIAL FOR APPROVAL
4) DEPTH OF AGGREGATE BED FOR STORM WATER MAY BE DEEPER THAN SHOWN BASED ON PROJECT NEEDS

PAVER THICKNESS VARIES
MDOT 29A, SETTING BED AGGREGATE
MDOT 6AA, AGGREGATE BASE, PLACED AND COMPACTED IN TWO LIFTS
GEOTEXTILE FABRIC
SUBGRADE
EXISTING CURB
8" DOWEL
LIMIT OF WORK

VARIES, (TYPICALLY 12"-24")
CONSTRUCTION JOINT
18" DOWEL
6" CONCRETE SIDEWALK

NOTE:
1) DOWELS TO BE 5/8" DIA., EPOXY COATED STEEL @ O.C., LENGTH AS INDICATED, CENTERED IN CONCRETE SIDEWALK
2) ALL EXPANSION JOINTS TO BE SEALED
3) SUBMIT JOINT FILL MATERIAL FOR APPROVAL
4) DEPTH OF AGGREGATE BED FOR STORM WATER MAY BE DEEPER THAN SHOWN BASED ON PROJECT NEEDS
NOTE:
REFER TO GRADING PLANS FOR PROPOSED WALK AND TOP OF PROPOSED CURBS.

PLANTING EDGE, TYP.
FORMED FACE, RUB FINISH
(FRONT, BACK & TOP)
1/2 RADIUS, TYP.
EXPANSION JOINT, TYP.

1'-6" RADIUS, TYP.

2" SHREDDED BARK MULCH
6" TYP.

PAVER, THICKNESS VARIES
MDOT 29A, SETTING BED AGGREGATE
MDOT 6AA, AGGREGATE
BASE, PLACED AND
COMPACTED IN TWO LIFTS

#4 REBAR CONTINUOUS
TOP AND BOTTOM

PLANTING SOIL, TYP.; COMPACT TO 70-80% PROCTOR

SUBGRADE
COMPACTED MDOT 21AA AGGREGATE,
OR AS APPROVED BY ENGINEER

GEOTEXTILE FABRIC

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DDA PAVER SECTION 5 - POROUS
PAVERS AT PLANTER

REV. NO. DATE DRAWN BY CHECKED BY

SD-DDA-8

DDA PAVER SECTION 5 - POROUS
PAVERS AT PLANTER

DR. ENG CH. ENG DRAWING NO.

SCALE N.T.S. DATE 12/8/2023

SD-DDA-8
NOTE:
TO BE USED FOR REPLACEMENT OF EXISTING SLATE OR CONCRETE CURB WITH NO EXISTING GUTTER PAN
BICYCLE HOOP NOTES:
1. TO BE USED ONLY FOR DDA CONCRETE SIDEWALK SURFACES
2. LOCATE AND GROUP BICYCLE HOOPS IN THE AMENITY ZONE
3. BIKE HOOPS TO BE MINIMUM OF 2'-10" FROM FACE OF CURB
   WHEN PERPENDICULAR TO CURB, AND 2'-0" WHEN PARALLEL
4. REFER TO ANN ARBOR DOWNTOWN STREET DESIGN MANUAL
   FOR ADDITIONAL LAYOUT GUIDELINES
5. POWDER-COATED GALVANIZED STEEL, BLACK

BICYCLE HOOP:
STEEL PIPE 2" O.D. SET PLUMB.
$rac{1}{2}$" x 4" STAINLESS STEEL TAMPER
PROOF ANCHOR BOLT WITH WASHER
REFER TO "DDA CONCRETE SIDEWALK"
DETAIL
SURFACE MOUNT UNIT -
3$rac{1}{2}$" x 6" STAINLESS (OR GALVANIZED
POWDER COATED) PLATE
NOTES:

1. CONTRACTOR TO EXCAVATE ENTIRE PLANTING AREA. EXISTING SOIL MATERIAL TO BE DISPOSED OF OFF-SITE AT NO ADDITIONAL COST TO OWNER.

2. RAISED PLANTER MAY INTEGRATE A PLANTER BOX WALL PER ANN ARBOR DOWNTOWN STREET DESIGN MANUAL, ON SIDEWALK SIDE. IN SUCH CASES, WALL WIDTH SHALL BE 12"-16" AND WALL HEIGHT SHALL BE 15"-22".

3. LENGTH OF PLANTER WITH CURB MAY VARY; MUST MEET SOIL VOLUME REQUIREMENTS IN ANN ARBOR DOWNTOWN STREET DESIGN MANUAL FOR TREE PLANTING.

4. NO UTILITIES SHALL BE PERMITTED IN THE RAISED PLANTER AMENITY ZONE. SEE DDA SIDEWALK CROSS SECTION FOR COMMUNICATIONS OR ELECTRICAL CONDUIT ALLOWABLE LOCATION.

MINIMUM WIDTH 36" FOR TREE PLANTING, 30" FOR SHRUB AND FLOWER BEDS

LANDSCAPE PLANTINGS

2" MULCH

PLANTER CURB

EXPANSION JOINT, TYP.

CONCRETE PAVEMENT

WRAP UNDERDRAIN AGGREGATE w/ GEOTEXTILE FABRIC (OVERLAP 12")

PROVIDE A PLANTING SOIL MIX OF SANDY LOAM TO LOAMY SAND.

MIX ONE PART OF SPHAGNUM PEAT MOSS PER EVERY ONE PART SANDY TOPSOIL.

6" DIA. PERFORATED HDPE UNDERDRAIN:
1) SLOPE AT MIN. OF 0.5% TOWARDS OUTFALL
2) INCREASE DEPTH OF UNDERDRAIN AGGREGATE AS NEEDED TO ACCOMMODATE PIPE SLOPE
3) CONNECT UNDERDRAIN TO INLET OR INLET JUNCTION CHAMBER
4) FINAL LOCATION AS DIRECTED BY ENGINEER
5) IN NO CASE SHALL UNDERDRAIN BE INSTALLED AT A DEPTH OF LESS THAN 3.25' BELOW TOP OF PAVEMENT

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DDA RAISED PLANTER WITH CURB

REV. NO. DATE DRAWN BY CHECKED BY

SD-DDA-11

DR. ENG CH. ENG DRAWING NO.

SCALE N.T.S. DATE 12/8/2023
TREE GRATE
CONSTRUCTION JOINT
6" CONCRETE SIDEWALK
EXISTING CURB
EXPANSION JOINT, TYP.
4" SAND SUBBASE COURSE
DEEPROOT UB12-2 ROOT BARRIER, TYP.; INSTALL FOUR PER TREE, EQUALLY SPACE AT CONCRETE EDGE RESTRAINT
MDOT CLASS II GRANULAR MATERIAL
PLANTING SOIL, TYP.; COMPACT TO 70-80% PROCTOR
SUBGRADE
ROOT BALL STABILIZER (BEYOND)
GEOTEXTILE FABRIC
LIMIT OF WORK
4" SAND SUBBASE COURSE
DEEPROOT UB12-2 ROOT BARRIER, TYP.; INSTALL FOUR PER TREE, EQUALLY SPACE AT CONCRETE EDGE RESTRAINT

NOTE:
1. CONTRACTOR TO EXCAVATE ENTIRE PLANTING AREA. EXISTING SOIL MATERIAL TO BE DISPOSED OF OFF-SITE AT NO ADDITIONAL COST TO OWNER
2. DO NOT PRUNE TERMINAL LEADER OR BRANCH TIPS. PRUNE AWAY DEAD AND BROKEN BRANCHES ONLY
3. REMOVE TOP % TO % BURLAP, TWINE, ROPE, OVAL WIRE BASKET. EXPOSE THE TRUCK FLARE BY PULLING BACK SOIL AND FOLDING BACK BURLAP
4. REMOVE TEMPORARY WATER BAGS FOLLOWING END OF WARRANTY PERIOD AND DURING WINTER
5. DOWELS TO BE % DIA., EPOXY COATED STEEL @ O.C., LENGTH AS INDICATED, CENTERED IN CONCRETE SIDEWALK
6. PLANTING SOIL TO EXTEND TO THE LIMITS OF THE TREE GRATE, FULL DEPTH
7. ALL EXPANSION JOINTS TO BE SEALED
8. 2" OF MULCH ON TOP OF ROOT BALL. AVOID PLACING MULCH AGAINST TREE TRUNK

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DDA TREE PIT WITH GRATE

SD-DDA-12

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DDA TREE PIT WITH GRATE

SD-DDA-12
SOLID GRATING 8'-0" PREFERRED, 5'-0" MINIMUM

4'-0" MIN. TYP.

3'-0" PERMITTED UNDER CONSTRAINED CONDITIONS

OPENING AT TOP OF GRATE TYP.

CENTER OPENING EXPANSION LINES SUPPORT RIB, TYP.

1'-6"

CENTRAL OPENINGS OF EXPANDABLE TREE GRATES MAY HAVE A MIN. WIDTH OF 1'-0"

NOTES:
1. GRATE TO MEET ADA REQUIREMENTS
2. GRADE TO BE RATED FOR LIGHT VEHICULAR TRAFFIC
3. OVERALL DIMENSIONS FOR GRATE OPENING TO BE 30 SQUARE FEET, MINIMUM
**Tree Grate at Pavers**

1. **Angle Stock Perimeter Frame**
   - TYP. ½" x 2" x 2" TAB W/ ⅛" Hole for ½" Concrete Anchor. Install per MFR. INST. Anchor provided by installer.

2. **Angle Stock Perimeter Frame**
   - SIZED TO COORDINATE WITH GRATE THICKNESS.

**Tree Grate at Concrete Pavement**

1. **Angle Stock Perimeter Frame**
   - SIZED TO COORDINATE WITH GRATE THICKNESS.

**Notes:**
- Use "S" Standard Installation Type where adjacent to pavers.
- TYP. #3 Rebar Embedment Anchor 6" TYP. OVER ALL LENGTH.
1. FOR HARDSCAPE BETWEEN TREE PITS, PLACE STRUCTURAL SOIL AND EXTEND AS REQUIRED TO MEET SOIL VOLUME REQUIREMENT IN ANN ARBOR DOWNTOWN STREET DESIGN MANUAL

2. OPTIONALLY, GRATES MAY BE EXTENDED BETWEEN TREE PITS AND PLACED OVER PLANT MIX PER DDA VEGETATED SWALE AND RAIN GARDEN DETAIL

REFER TO DDA TREE GRATE SECTION
If no outfall available to inlet or inlet junction chamber, provide scupper or gap in curb to outlet stormwater to street.

Grade may be flush with walk or up to 6" below walk grade.

Storage depth shall be 6" minimum and 18" maximum.

Maximum 3:1 side slopes, (typ.)

Vegetation, soil, and drainage details to be designed on a project by project basis.

No utilities shall be permitted under planting area. See detail "DDA Sidewalk Cross Section" detail for typical placement.

Planter curb per DDA raised planter detail. Modify for stormwater inlets and drainage on a project by project basis.

Refer to DDA concrete sidewalk detail.
NOTES:

1. HOLE TO BE AUGERED. MINIMIZE DISTURBANCE OF IN-SITU SOILS DURING AUGERING
2. CONTRACTOR TO PROVIDE PREFABRICATED ANCHOR BOLT BUILD-UP
3. THE CITY WILL INSPECT THE AUGERED HOLE AND THE ANCHOR BOLT BUILD-UP AND PROVIDE WRITTEN APPROVAL PRIOR TO THE PLACEMENT OF CONCRETE
4. NO WATER IS TO BE IN HOLE AT TIME OF CONCRETE PLACEMENT
5. CONCRETE SHALL BE VIBRATED DURING PLACEMENT
6. EXCESSIVE HOLE SIZE CREATED DURING AUGERING OF FOUNDATION SHALL BE FLO-FILLED TO 3' FROM FINISH GRADE
7. CONTRACTOR WILL PROVIDE NECESSARY CONDUIT FOR ENTRY. PAID FOR AT THE CONTRACT UNIT PRICE FOR 2" CONDUIT
8. COPPER CLAD GROUND ROD (1 REQUIRED) TO BE 5/8" DIA. x 8'-0"
9. CONDUIT TO EXTEND 1-2" ABOVE BASE. CABLES TO EXTEND 6" OUTSIDE OF HANDHOLE
10. SHIMS TO BE 1/2" MIN. PER D.E. SPEC
11. GROUND CABLE SHALL BE #6 SOFT BARE COPPER WIRE WELDED TO GROUND ROD WITH 24" SLACK ABOVE FOUNDATION TOP; THE NEUTRAL AT THE POLE IS TO BE CONNECTED TO THIS GROUND CABLE

*UNLESS OTHERWISE NOTED ON THE PLANS OR CONTRACT DOCUMENT