TYPICAL SEWER INSTALLATION

NOTE:
SEE STANDARD SPECIFICATIONS FOR MINIMUM TRENCH WIDTHS

12" FOR FLEXIBLE
6" FOR RIGID

PIPE BARREL
D=Nominal Pipe Diameter

A.S.T.M. 2321 CLASS 1 (#57)

4" MIN. OR D/4 WHICH-EVER IS GREATER

City of Marysville
Division of Wastewater

Richard Felton, Wastewater Superintendent
12901 Beecher Gamble Road Phone 937-645-7350
Marysville, Ohio 43040 Fax 937-645-7345

Approved: 2/9/2016
Wastewater Superintendent

Date

Drawing No. SAS-01
NOTE:
IF ABS LATERAL IS USED, A CEMENTED CAP SHALL BE USED AS THE STOPPER.
NOTES:

1) RISER PIPE TO BE BEDDED SOLIDLY AGAINST ORIGINAL GROUND
2) 6" RISER PIPE TO BE INSTALLED FOR EACH WYE BRANCH WHERE THE COVER ON THE MAIN SEWER EXCEEDS 12'-0"
3) FOR ABS PIPE AT LEAST ONE COLLAR OR FITTING SHALL BE TOTALLY ENCASED WITH CONCRETE

City of Marysville
Division of Wastewater

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Approved: ____________________________ 2/9/2016
Wastewater Superintendent Date

SAS-03
Deep Socket Adapters shall be CPK Products, or approved equal.

Any level that may occur should be marked on Riser Pipe (4). Mark et 4" for insertion and et 5" to measure. The Deep Socket Elbow should be inserted 4" onto the Riser Pipe (4). Two lines.

Typical Deep Socket Riser for Sanitary Service Laterals

- Support Required
- Sound Bedding
- 45° Elbow
- 45° Insertion Mark
- 45° Elbow Bend
- 90° Trunk Main
- 4" Trunk Main
- 4" Insertion Mark
- Support Required
Deep Socket Adapter shall be CPK Products or approved equal.

Typical Deep Socket Adapter for the Riser on Sanitary Service Laterals.

Support Required
Sound Bedding

Tee-Wye & 45° Bend
2nd Gasket
4" Inspection Mark
8" Travel Mark

Sound Bedding Support Required
NOTE:
FOR USE ON STREET CROSSINGS AND LATERALS EXCEEDING 50' IN LENGTH TO LOTS OF 40' FRONTAGE OR LESS, OR WITH WRITTEN APPROVAL BY THE SANITARY ENGINEER.
MANHOLE CHANNEL

PRECAST OR CAST IN PLACE CLASS B CONCRETE

SECTION A-A

4:1 SLOPE

FLOW

PLAN

City of Marysville
Division of Wastewater

Richard Felton, Wastewater Superintendent
12901 Beecher Gamble Road Phone 937-645-7350
Marysville, Ohio 43040 Fax 937-645-7345

Approved: 2/2/2016
Wastewater Superintendent

Drawing No. SAS-07
TYPICAL TYPE "A" PRECAST CONCRETE MANHOLE

NOTES:

* 1) THESE FIGURES MAY BE ALTERED SLIGHTLY TO MEET EXISTING GROUND CONDITIONS, HOWEVER, SURFACE DRAINAGE SHOULD ALWAYS BE DIRECTED AWAY FROM THE MANHOLE

** 2) 30 BAR DIAMETER, 12" MINIMUM

3) REINFORCEMENT BASED ON METAL BARS, IF WELDED WIRE FABRIC IS USED AREA MAY BE REDUCED BY 1/3

<table>
<thead>
<tr>
<th>M.H. DEPTH</th>
<th>BASE SLAB REINFORCEMENT SQ. IN./FT. E.W.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0'-10'</td>
<td>0.17</td>
</tr>
<tr>
<td>10'-20'</td>
<td>0.22</td>
</tr>
<tr>
<td>20'-30'</td>
<td>0.27</td>
</tr>
<tr>
<td>30'-40'</td>
<td>0.32</td>
</tr>
<tr>
<td>40'-50'</td>
<td>0.36</td>
</tr>
<tr>
<td>50'-60'</td>
<td>0.32</td>
</tr>
</tbody>
</table>

City of Marysville
Division of Wastewater

Richard Felton, Wastewater Superintendent
12901 Beecher Gamble Road
Marysville, Ohio 43040
Phone 937-645-7350
Fax 937-645-7345

Approved: Wastewater Superintendent
Date 2/9/2016
NOTES:

1) 30 BAR DIAMETER, 12" MINIMUM

2) REINFORCEMENT BASED ON METAT BARS, IF WELDED WIRE FABRIC IS USED AREA MAY BE REDUCED BY 1/3

<table>
<thead>
<tr>
<th>M. H. DEPTH</th>
<th>REINFORCEMENT SQ. IN./FT. E.W.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BASE SLAB</td>
</tr>
<tr>
<td>0'-10'</td>
<td>0.16</td>
</tr>
<tr>
<td>10'-20'</td>
<td>0.26</td>
</tr>
<tr>
<td>20'-30'</td>
<td>0.35</td>
</tr>
<tr>
<td>30'-40'</td>
<td>0.43</td>
</tr>
<tr>
<td>40'-50'</td>
<td>0.46</td>
</tr>
<tr>
<td>50'-60'</td>
<td>0.50</td>
</tr>
</tbody>
</table>
NOTES:

1) 30 BAR DIAMETER, 12" MINIMUM

2) REINFORCEMENT BASED ON METAL BARS, IF WELDED WIRE FABRIC IS USED AREA MAY BE REDUCED BY 1/3

<table>
<thead>
<tr>
<th>M.H. DEPTH</th>
<th>REINFORCEMENT SQ. IN./FT. E.W.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BASE SLAB</td>
</tr>
<tr>
<td>0' - 10'</td>
<td>0.014</td>
</tr>
<tr>
<td>10' - 20'</td>
<td>0.28</td>
</tr>
<tr>
<td>20' - 30'</td>
<td>0.40</td>
</tr>
<tr>
<td>30' - 40'</td>
<td>0.52</td>
</tr>
<tr>
<td>40' - 50'</td>
<td>0.55</td>
</tr>
<tr>
<td>50' - 60'</td>
<td>0.57</td>
</tr>
</tbody>
</table>

Same as Type "A" Precast Concrete M.H. Above Base

Provide Four Diagonal Bars Around Opening
Same Size As Slab Bars

Transition, Eccentric Cone or Flat Slab

12" Min. 16" Max.

4:1 Slope

1 1/2" Clear, Typical

Pipe

Pipe Barrel

Precast or Cast In Place Class "B" Concrete

12" Minimum (0'-40')
14" Minimum (40'-50')
16" Minimum (50'-60')

City of Marysville
Division of Wastewater

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Fax 937-645-7345

Approved:

Wastewater Superintendent

Date

2/9/2014

SAS-10
TYPICAL TYPE "D" PRECAST CONCRETE MANHOLE

NOTES:
1) REINFORCEMENT BASED ON METAL BARS. IF WELDED WIRE FABRIC IS USED, AREA MAY BE REDUCED BY 1/3.
2) SAME AS TYPE "A" PRECAST CONCRETE MANHOLE ABOVE BASE
3) BASE, PROVIDE MAXIMUM HEADROOM POSSIBLE

<table>
<thead>
<tr>
<th>M.H. DEPTH</th>
<th>REINFORCEMENT SQ. IN.</th>
<th>FT. E.W.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BASE SLAB</td>
<td>FLAT SLAB</td>
</tr>
<tr>
<td>0'-10'</td>
<td>0.14</td>
<td>0.12</td>
</tr>
<tr>
<td>11'-20'</td>
<td>0.31</td>
<td>0.30</td>
</tr>
<tr>
<td>21'-30'</td>
<td>0.46</td>
<td>0.49</td>
</tr>
<tr>
<td>31'-40'</td>
<td>0.62</td>
<td>0.67</td>
</tr>
<tr>
<td>41'-50'</td>
<td>0.66</td>
<td>0.85</td>
</tr>
<tr>
<td>51'-60'</td>
<td>0.64</td>
<td>1.04</td>
</tr>
</tbody>
</table>

City of Marysville
Division of Wastewater

Richard Felton, Wastewater Superintendent
12901 Beecher Gamble Road Phone 937-645-7350
Marysville, Ohio 43040 Fax 937-645-7345

Approved: Wastewater Superintendent Date 2/9/2016

Drawing No. SAS-11
# ALTERNATE BASE FOR PRECAST CONCRETE MANHOLE CAST IN PLACE, TYPE I

## NO SCALE

### PIPE SCHEDULE 8" TO 48" INCLUSIVE

<table>
<thead>
<tr>
<th>Depth of Fill to Top of Slab</th>
<th>Reinforcement</th>
<th>Top Slab</th>
<th>Side Walls</th>
<th>Bottom Slab</th>
</tr>
</thead>
<tbody>
<tr>
<td>0' - 10'</td>
<td>#505, E.W.</td>
<td>#5012, E.W., E.R.</td>
<td>#5012, E.W.</td>
<td></td>
</tr>
<tr>
<td>10' - 20'</td>
<td>#505, E.W.</td>
<td>#5012, E.W., E.R.</td>
<td>#505, E.W.</td>
<td></td>
</tr>
<tr>
<td>20' - 30'</td>
<td>#509, E.W.</td>
<td>#509, E.W., E.R.</td>
<td>#709, E.W.</td>
<td></td>
</tr>
<tr>
<td>30' - 40'</td>
<td>#509, E.W.</td>
<td>#508, E.W., E.R.</td>
<td>#705, E.W.</td>
<td></td>
</tr>
<tr>
<td>40' - 50'</td>
<td>#705, E.W.</td>
<td>#606, E.W., E.R.</td>
<td>#705, E.W.</td>
<td></td>
</tr>
<tr>
<td>50' - 60'</td>
<td>#706, E.W.</td>
<td>#606, E.W., E.R.</td>
<td>#706, E.W.</td>
<td></td>
</tr>
</tbody>
</table>

- 14" SLAB
- 14" WALL

### PIPE SCHEDULE 54" TO 72" INCLUSIVE

<table>
<thead>
<tr>
<th>Depth of Fill to Top of Slab</th>
<th>Reinforcement</th>
<th>Top Slab</th>
<th>Side Walls</th>
<th>Bottom Slab</th>
</tr>
</thead>
<tbody>
<tr>
<td>0' - 10'</td>
<td>#506, E.W.</td>
<td>#5012, E.W., E.R.</td>
<td>#506, E.W.</td>
<td></td>
</tr>
<tr>
<td>10' - 20'</td>
<td>#506, E.W.</td>
<td>#506, E.W., E.R.</td>
<td>#506, E.W.</td>
<td></td>
</tr>
<tr>
<td>20' - 30'</td>
<td>#706, E.W.</td>
<td>#606, E.W., E.R.</td>
<td>#705, E.W.</td>
<td></td>
</tr>
<tr>
<td>30' - 40'</td>
<td>#706, E.W.</td>
<td>#606, E.W., E.R.</td>
<td>#705, E.W.</td>
<td></td>
</tr>
<tr>
<td>40' - 50'</td>
<td>#906, E.W.</td>
<td>#906, E.W., E.R.</td>
<td>#1006, E.W.</td>
<td></td>
</tr>
<tr>
<td>50' - 60'</td>
<td>#1006, E.W.</td>
<td>#1006, E.W., E.R.</td>
<td>#1106, E.W.</td>
<td></td>
</tr>
</tbody>
</table>

- 14" SLAB
- 14" WALL

---

City of Marysville  
Division of Wastewater

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12901 Beecher Gamble Road  
Marysville, Ohio 43040  
Phone 937-645-7350  
Fax 937-645-7345  
Drawing No. SAS-12

Wastewater Superintendent  
2/19/2014  
2/19/2014  
Date
ALTERNATE BASE FOR PRECAST CONCRETE MANHOLE

NO SCALE

<table>
<thead>
<tr>
<th>M. H. TYPE</th>
<th>DIA.</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>M. H. DEPTH</td>
<td>0'-40'</td>
<td>40'-50'</td>
</tr>
<tr>
<td>&quot;A&quot;</td>
<td>48&quot;</td>
<td>7&quot;</td>
</tr>
<tr>
<td>&quot;B&quot;</td>
<td>60&quot;</td>
<td>8&quot;</td>
</tr>
<tr>
<td>&quot;C&quot;</td>
<td>72&quot;</td>
<td>9&quot;</td>
</tr>
<tr>
<td>&quot;D&quot;</td>
<td>84&quot;</td>
<td>10&quot;</td>
</tr>
</tbody>
</table>

NOTE:
REINFORCEMENT BASED ON METAL BARS, IF WELDED WIRE FABRIC IS USED AREA MAY BE REDUCED BY 1/3.

| M. H. DEPTH | REINFORCEMENT
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;A&quot;</td>
<td>&quot;B&quot;</td>
</tr>
<tr>
<td>0'-10'</td>
<td>0.31</td>
</tr>
<tr>
<td>10'-20'</td>
<td>0.39</td>
</tr>
<tr>
<td>20'-30'</td>
<td>0.48</td>
</tr>
<tr>
<td>30'-40'</td>
<td>0.56</td>
</tr>
<tr>
<td>40'-50'</td>
<td>0.64</td>
</tr>
<tr>
<td>50'-60'</td>
<td>0.56</td>
</tr>
</tbody>
</table>

* IF THE BASE IS TO BE INSTALLED WITH THE BASE SLAB ATTACHED, PRECAUTIONS SHALL BE TAKEN TO PREVENT THE SEPARATION OF THE BASE SLAB FROM THE WALL.

City of Marysville
Division of Wastewater

Richard Felton, Wastewater Superintendent
12901 Beecher Gamble Road Phone 937-845-7350
Marysville, Ohio 43040 Fax 937-845-7345

Drawing No. SAS-14
NOTE:
DROP MANHOLES SHALL BE USED WHEN THE DIFFERENCE IN ELEVATION BETWEEN THE INVERT AND THE OUTLET EXCEEDS 2.0 FEET.

<table>
<thead>
<tr>
<th>D1</th>
<th>D2 (MIN.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6''</td>
<td>6''</td>
</tr>
<tr>
<td>8''</td>
<td>6''</td>
</tr>
<tr>
<td>10''</td>
<td>6''</td>
</tr>
<tr>
<td>12''</td>
<td>8''</td>
</tr>
<tr>
<td>15''</td>
<td>8''</td>
</tr>
<tr>
<td>18''</td>
<td>10''</td>
</tr>
<tr>
<td>21''</td>
<td>10''</td>
</tr>
<tr>
<td>24''</td>
<td>12''</td>
</tr>
<tr>
<td>27''</td>
<td>15''</td>
</tr>
<tr>
<td>30''</td>
<td>18''</td>
</tr>
</tbody>
</table>

Flexible Pipe Connections Not Required

Granular Bedding

Edge of Excavation

Class "B" Concrete

City of Marysville
Division of Wastewater

Richard Felton, Wastewater Superintendent
12901 Beecher Gamble Road Phone 937-645-7350
Marysville, Ohio 43040 Fax 937-645-7345

Drawing No. SAS-15
TYPICAL FORCE MAIN CONNECTION TO MANHOLE

NO SCALE

WALL CASTING

45° BEND (MJ-PE)

Pipe 1.5

STANDARD

NOT TO SCALE

WALL CASTING

45° BEND (MJ-PE)

Pipe 1.5

DROP

5' MIN.

BLIND FLANGE

WYE (MJ-MJ-F)

90° BEND (MJ)

CLASS "B" CONCRETE

City of Marysville
Division of Wastewater

Richard Felton, Wastewater Superintendent
12901 Beecher Gamble Road
Marysville, Ohio 43040
Phone 937-645-7350
Fax 937-645-7345

Drawing No. SAS-16

Approved: \[Signature\] Wastewater Superintendent
2/4/2016 Date
TYPICAL WATERTIGHT MANHOLE CASTING

NO SCALE

WATERTIGHT MANHOLE FRAME AND BOLTED LID.

CONSTRUCT CLASS "B" CONCRETE SLAB ANCHOR REINFORCED WITH 3 RINGS OF NO. 4 BARS LAPPED 10".

PROVIDE CONCRETE TO TOP OF PRECAST SECTION OR AS PER "MANHOLE VENT" DETAIL AS APPLICABLE.

PRECAST CONCRETE SECTION

25.5" W

9" W

24" W

1/16" STAINLESS STEEL MESH SCREEN

2" SCH. 40 GALVANIZED PIPE WATERTIGHT FRAME AND COVER

CLASS "B" CONCRETE

VENT

City of Marysville
Division of Wastewater

12901 Beecher Gamble Road
Marysville, Ohio 43040

Richard Felton, Wastewater Superintendent
Phone 937-645-7350
Fax 937-645-7345

Approved: 
Wastewater Superintendent

Date 2/9/2016

Drawing No. SAS-17
**TYPICAL MANHOLE MARKING**

---

**NO SCALE**

---

**EXTERIOR DESIGN:** The marker post must be triangular in shape with each side at least 3" wide. A 2½" wide decal shall fit on each side of the marker. Decals shall be placed on all three flat sides to ensure that a warning message can be seen from any direction.

**FLEXIBLE STYLE:** The marker shall be flexible and rebound if hit by an automobile. The marker shall withstand a minimum of five vehicle impacts at 45mph.

**WEATHERING STABILITY:** The marking post shall not significantly fade or become brittle when exposed to ultraviolet light for a minimum of ten years. The marking post shall be temperature stable from -40° to +150°.

**SOIL ANCHOR:** Soil anchors shall be galvanized steel, 13" long (min.) and have puch tabs which lock into the triangular post when inserted in the anchor. Anchors are to be installed flush with the ground surface.

**ACCEPTABLE MANUFACTURERS:** Repnet Triview with soil anchor or approved equal.

**DECAL:** Details shall be approved by the engineer prior to installation.

---

**City of Marysville**
Division of Wastewater

---

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Marysville, Ohio 43040
Phone 937-645-7350
Fax 937-645-7345

---

Approved: 2/7/2016
Wastewater Superintendent

---

Drawing No. SAS-18
NOTES:

1. Manhole seal shall be wrapseal, manufactured by Canusa-Cps. or approved equal.

2. Manhole joint seal shall be installed on all barrel joints or as directed.

3. Internal manhole chimney seal shall consist of a flexible rubber sleeve.

4. Interlocking extension and stainless steel expansion bands as manufactured by Crestex specialty products or approved equal.

BY THE ENGINEER:

City of Marysville
Division of Wastewater

Wastewater Superintendent
Date
2/14/2011

Each Joint
1/2 in. min. typer. for
Manhole Joint (typer.)

Seal wraps tightly around
Expansion bands
Stainless steel

Extension sleeve
Rubber sleeve
Manhole frame
Manhole

Chimney seal
Adjustment rings

Detail (see std. manhole as required)
DOME ALTERTATES

SECTION A

4.4 DIAMETER

8" DIAMETER

6.4 DIAMETER

STEPS

OF ADJUSTING TO GRADE

METHODS

SURFACE SECTION A

PLAN ADJUSTING

LESS THAN 12"

DONE PROVIDE RINGS 4", 6", AND 8"

MANHOLE STEPS

POLYPERSHENT STEPS

ON CENTER UNO.

NOTE: M4 STEPS AT 16"
TYPICAL CONCRETE ENCASEMENT

NO SCALE

NOTE: THE ENCASEMENT LIMITS SHALL BE DETERMINED AT THE TIME OF CONSTRUCTION SUCH THAT THE ENCASEMENT TERMINATES AT A SEWER PIPE JOINT. THE JOINT SHALL BE FREE OF ENCASEMENT SO THAT IT CAN ACT AS A FLEXIBLE JOINT.

REINFORCED CONCRETE ENCASEMENT

City of Marysville
Division of Wastewater

Richard Felton, Wastewater Superintendent
12901 Beecher Gamble Road Phone 937-645-7350
Marysville, Ohio 43040 Fax 937-645-7345

Approved: 2/9/2016
Wastewater Superintendent Date

SAS-22
WATERLINE CROSSINGS

EXISTING GRADE

WATER LINE

UNDISTURBED EARTH

REPLACEMENT SECTION

COMPACTED GRANULAR BACKFILL

PROPOSED SANITARY SEWER

City of Marysville
Division of Wastewater

Richard Felton, Wastewater Superintendent
12901 Beecher Gamble Road
Marysville, Ohio 43040
Phone 937-645-7350
Fax 937-645-7345

Approved: [Signature]
Wastewater Superintendent
2/9/2016

Drawing No.
SAS-24
Backfilling of pavement repair and/or heaved/shrinking shall be done by the contractor or permittee in accordance with GCMS.

These patches with the same as in service. Patches made using approved materials and disposal of the original patch material shall be removed and disposed of by the City. The contractor is responsible for maintaining the original portion of the pavement.

When DOT 613 (LSW1) is used as a backfill, no pavement shall be placed until the bleed water has evaporated, drained, or removed from the surface.

Procedures used for pavement removal and replacement shall not cause spalling or cracking to the original pavement.

The scope of work shall consist of pavement removal, necessary excavation, and pavement replacement.

City of Marysville

General Notes

Pavement and Utility Cut Repair Standards

Streets and Storm Water

Public Service Department

City of Marysville
set forth in Note B. This work shall be performed as soon as asphalt is available.

Note E: The cold mix is to be replaced with Item 481 Type I asphalt, which is to be heat-welded to the existing asphalt. Conditions and inches of HPM cold mix.

Note F: Cold mix shall be HCM cold mix or other cold mix approved by the City of Marysville.

Note G: Cold mix shall be HCM cold mix or other cold mix approved by the City of Marysville.

Note H: For Type I and Type II pavement repair, the Item 481 Type I or cold mix shall be extended for 6 inches beyond each side of the curb. All new asphalt shall be removed and replaced with ODOT 481 Type I asphalt and is to be heat-welded as soon as asphalt is available.

Note I: Any cold mix that was placed as a temporary repair shall be removed and replaced with ODOT 481 Type I asphalt. Joining shall be done in accordance with ODOT 499. When a trench exceeds 100 feet in length, the repair shall include placing the full lane width to a depth of 2 inches. Heat-rolled sections shall conform to City of Marysville Supplementary Specification 1541.

Note J: Any cold mix that was placed as a temporary repair shall be removed and replaced with ODOT 481 Type I asphalt. Joining shall be done in accordance with ODOT 499. When a trench exceeds 100 feet in length, the repair shall include placing the full lane width to a depth of 2 inches. Heat-rolled sections shall conform to City of Marysville Supplementary Specification 1541.

General Notes (Cont.)

Pavement and Utility Cut Repair Standards

Streets and Storm Water
Public Service Department
City of Marysville
Specifications:

NOTE 1: Item numbers on the following standard parts shall be crossed out.

NOTE 2: The method of installation may vary depending on the specific application.

NOTE 3: Repairs to brick streets shall be made in accordance with the City's specifications.

NOTE 4: All partial bricks shall be sawn. Further, no brick will be permitted to be used as a repair.

NOTE 5: Repairs to brick streets shall be made in accordance with the City's specifications.

NOTE 6: Repairs to brick streets shall be made in accordance with the City's specifications.

NOTE 7: All partial bricks shall be sawn. Further, no brick will be permitted to be used as a repair.

Method of Installation:

1. Bricks removed from a repair area shall be stored in a safe place by the contractor for reuse. The contractor will be responsible for replacing any bricks that are stolen or damaged, in addition to the cost to the City.

2. Bricks supplied by the contractor shall be approved by the City before they are placed.

3. Saw cutting: All partial bricks shall be sawn. Further, no brick will be permitted to be used as a repair.

4. The perimeter edges of the existing base material shall be cut back 3/4". This restriction shall also apply to the joint formed between the existing base material and the repair area, where the laws and conditions so provide a flush finish. This may require more than one saw cut to achieve the desired result.

5. The maximum width of a brick mortared joint shall be 1 1/2". This restriction shall also apply to the joint formed between the existing base material and the repair area, where the laws and conditions so provide a flush finish. This may require more than one saw cut to achieve the desired result.

6. Mortaring of joints: All joints shall be mortared with a 20% mix of dry mixture, as specified on page 7.

7. All allowable base materials shall be determined by the trench size and applicable for small fills.

Marshall CEMS:

Marshall CEMS shall consist of 3 inches of item 447 TFC and asphalt concrete.

Exception: The minimum shall consist of 3 inches of item 447 TFC and asphalt concrete.

Or if large excavations, as specified on page 7:

NOTE: For large excavations, the proposed arrangement may vary depending on the specific application.
1. Match existing pavement thickness. However, minimum of 9 on all street cuts.

NOTE: Backfill for all types shall meet the requirements shown in Type I above.

Concrete Repair

Type A

Alley Repair

Type V

Brick Street Repair

Type III

Standard Procedure Asphalt Repair with Heat-Welded Surface (see note 8)

Type I

Slow Cure Emulsion Coated with Minimum 0.5" over Existing Pavement

See note 4.) Heat-Welded 1" to be Heat Welded.

Minimum Depth: Z-

Heat Welded Asphalt Surface

See Supplier's Specification 1st. 40 MIL minimum for heat welded.

Neat Street Edge and Item 40 Tack Coat.

Minimum Depth: Z-

Heat Welded Asphalt Surface
REQUIREMENTS
STEEL PLATE

<table>
<thead>
<tr>
<th>SIZE OF PLATE</th>
<th>THICKNESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 INCH</td>
<td>3/4 INCH</td>
</tr>
<tr>
<td>1/2 INCH</td>
<td>4 FT X 8 FT</td>
</tr>
<tr>
<td>4 FT X 4 FT</td>
<td></td>
</tr>
</tbody>
</table>

MINIMUM THICKNESS OF STEEL PLATES:

NOTE: ALL STEEL PLATES MUST HAVE THE FOLLOWING INFORMATION CLEARLY AND LEGIBLY ETCHEDED INTO THEIR TOP SURFACE:

OWNERS NAME
1. CONTRACTOR PHONE NUMBER
2. A 24 HR EMERGENCY CONTACT PHONE NUMBER

THIS DRAWING ONLY APPLIES TO BITUMINOUS ASPHALT SURFACED STREETS:

12 IN (MIN) OVERLAP

EDGE OF VOID TO EDGE OF REQUIRED (ALL SIDES) FROM EXISTING PAVEMENT.

RECESS IN PAVEMENT (MATCH SIZE) TO BE FLUSH WITH THE TOP OF EXISTING PAVEMENT.

EXCAVATION OF STREETF

CURB AREA

CURB AREA

THICKNESS OF PLATE AS PER TABLE BELOW

OWNERS NAME
24 HOUR EMERGENCY CONTACT PHONE NUMBER
# CONCRETE REACTION BACKING DETAIL

## NO SCALE

<table>
<thead>
<tr>
<th>SIZE OF PIPE</th>
<th>DEGREE OF BEND</th>
<th>RUN</th>
<th>BRANCH</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>11.25°</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6&quot;</td>
<td>L&quot;</td>
<td>D&quot;</td>
<td>L&quot;</td>
</tr>
<tr>
<td>6&quot;</td>
<td>18</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>8&quot;</td>
<td>14</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>12&quot;</td>
<td>14</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>16&quot;</td>
<td>18</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>20&quot;</td>
<td>25</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>24&quot;</td>
<td>21</td>
<td>24</td>
<td></td>
</tr>
</tbody>
</table>

|              | 22.5°         |     |        |
| 6"           | L" | D" | L" | D" | L" | D" | L" | D" |
| 6"           | 16 | 8  |     |     |     |     |     |     |
| 8"           | 14 | 8  |     |     |     |     |     |     |
| 12"          | 14 | 12 |     |     |     |     |     |     |
| 16"          | 18 | 16 |     |     |     |     |     |     |
| 20"          | 25 | 20 |     |     |     |     |     |     |
| 24"          | 21 | 24 |     |     |     |     |     |     |

|              | 45°           |     |        |
| 6"           | L" | D" | L" | D" | L" | D" | L" | D" |
| 6"           | 16 | 12 |     |     |     |     |     |     |
| 8"           | 14 | 12 |     |     |     |     |     |     |
| 12"          | 14 | 12 |     |     |     |     |     |     |
| 16"          | 18 | 16 |     |     |     |     |     |     |
| 20"          | 25 | 20 |     |     |     |     |     |     |
| 24"          | 21 | 24 |     |     |     |     |     |     |

|              | 90°           |     |        |
| 6"           | L" | D" | L" | D" | L" | D" | L" | D" |
| 6"           | 16 | 12 |     |     |     |     |     |     |
| 8"           | 14 | 12 |     |     |     |     |     |     |
| 12"          | 14 | 12 |     |     |     |     |     |     |
| 16"          | 18 | 16 |     |     |     |     |     |     |
| 20"          | 25 | 20 |     |     |     |     |     |     |
| 24"          | 21 | 24 |     |     |     |     |     |     |

**NOTE:** STEEL WILL BE USED AS REQUIRED BY THE ENGINEER. CONCRETE SHALL BE 4000 PSI

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**BENDS LESS THAN 90°**

**90° BENDS**

**TEES**

**SECTION AA**

---

**City of Marysville**

Division of Wastewater

Richard Felton, Wastewater Superintendent

12901 Beecher Gamble Road

Marysville, Ohio 43040

Phone 937-645-7350

Fax 937-645-7345

Drawing No. SAS-25

---

Approved: [Signature]

Wastewater Superintendent

Date: 2/9/2016
# Backing for Vertical Bends

---

**No Scale**

## Degree of Bend

<table>
<thead>
<tr>
<th>Size of Pipe</th>
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<th></th>
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<td>63</td>
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<td>10.2</td>
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<td>34</td>
<td>19.9</td>
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<tr>
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<td>74</td>
<td>69</td>
<td>180.5</td>
<td>88</td>
<td>84</td>
<td>84</td>
</tr>
</tbody>
</table>

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**City of Marysville**  
**Division of Wastewater**

---

Richard Fellon, Wastewater Superintendent  
12901 Beecher Gamble Road  
Marysville, Ohio 43040  
Phone 937-645-7350  
Fax 937-645-7345  
Drawing No. SAS-26

---

Approved:  
Wastewater Superintendent  
Date: 29/4/16
NOTES:

1) THE AIR RELEASE VALVE SHALL BE AN AUTOMATIC SEWAGE AIR VALVE WITH A 2" INLET & BACK FLUSHING ACCESSORIES AS MANUFACTURED BY ARD SERIES OR EQUAL. (Rev 3-Aug-10)

2) WHERE VACUUM VALVES ARE SPECIFIED, THE VALVE SHALL BE AN AUTOMATIC SEWAGE VACUUM WITH 2" INLET & BACK FLUSHING ACCESSORIES AS MANUFACTURED BY CRISPIN (MODEL SL-20) OR EQUAL.

COMBINATION AIR RELEASE & VACUUM VALVE MOUNTING (HOSE BIBB & VALVE NOT SHOWN)

NOT TO SCALE

City of Marysville
Division of Wastewater

Richard Felton, Wastewater Superintendent
12901 Beecher Gamble Road  Phone  937-645-7350
Marysville, Ohio 43040  Fax  937-645-7345

Drawing No. SAS-27

Approved: [Signature] Wastewater Superintendent  2/9/2016
TAPPING DETAIL FOR CLAY PIPE

- SS BAND CLAMP, TWO REQUIRED ONE ON EACH SIDE OF OPENING
- SILICONE FLEXIBLE SEALANT
- 6" A.B.S. TAPPING SADDLE (TEE OR WYE)
- HOLE IN PIPE SHALL BE SAW CUT OR DRILLED
- 3" CONCRETE ENCASEMENT
- CLAY PIPE

City of Marysville
Division of Wastewater

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Marysville, Ohio 43040
Phone 937-645-7350
Fax 937-645-7345

Drawing No. SAS-28

Approved: __________________________
Wastewater Superintendent
Date: __________________________

2/9/16

mari
sville
6" LATERAL BORING AND JACKING

NOTE: 1) WITH ANY OTHER APPROVED SEWER PIPE, A STEEL CASING PIPE MUST BE USED

UNDISTURBED GROUND

2.00% SLOPE MIN.

6" PIPE

SOLVENT WELD JOINTS

City of Marysville
Division of Wastewater

Richard Felton, Wastewater Superintendent
12901 Beecher Gamble Road Phone 937-645-7350
Marysville, Ohio 43040 Fax 937-645-7345

Approved: Wastewater Superintendent

Date

Drawing No.
SAS-30
PLATEN LID W/CITY OF MARYSVILLE LOGO

3/4" HIGH LETTERS

(2) CONCEALED PICK HOLES PER NF-42303

MARYSVILLE SANITARY SEWER

LID SHALL BE NEENAH R-1762 OR EAST JORDAN IRONWORKS 1661 FRAME AND COVER WITH SELF SEALING GASKET.

(3) STACKING LUGS EQUALLY SPACED 120° APART

CONFFAI FD PICK HOLE DETAIL

City of Marysville
Division of Wastewater

Richard Felton, Wastewater Superintendent
12901 Beecher Gamble Road Phone 937-645-7350
Marysville, Ohio 43040 Fax 937-645-7345

Approved: 2/9/2016
Wastewater Superintendent

2/9/2016
Date

SAS-32
PRECAST CONCRETE INSPECTION MANHOLE
(WITHIN PAVEMENT LIMITS)
NOT TO SCALE

City of Marysville
Division of Wastewater

Richard Felton, Wastewater Superintendent
12901 Beecher Gamble Road
Marysville, Ohio 43040
Phone 937-645-7350
Fax 937-645-7345

1 of 2

Approved: Wastewater Superintendent

6/19/17 Date
PLASTIC INSPECTION MANHOLE
(OUTSIDE PAVEMENT LIMITS)

NOTE:
NYLOPLAST 24 IN BASIN WITH THROUGH
CHANNEL FOR SANITARY SEWER CLEANOUT,
OR EQUAL

5/16-18 X 1 3/8" LONG HEX BOLT
ZINC GOLD STEEL, 2 PLACES

24" SOLID COVER
3/4" WIDE X 3/16" THICK
NEOPRENE / EPDM / SBR
STRIP SEAL W/ ADHESIVE BACK
MUST BE REQUESTED AND FIELD INSTALLED.

24" COVER FRAME

24" DIAM BASIN RISER
NEEDED TO REACH ENGINEER
SPECIFIED DEPTH

FIELD GLUE JOINT

4" - 6" SPGOT (SEELD CONNECTIONS AVAILABLE)

SUMP TO BE FILLED WITH
CONCRETE BY CONTRACTOR

VIEW A-A
ROTATED 90° CLOCKWISE WITH
BASIN SECTIONED TO SHOW DETAIL OF
THROUGH CHANNEL

A

BASIN BODY TOP VIEW
WITHOUT FRAME & GRATE

A

NOT TO SCALE

City of Marysville
Division of Wastewater

Richard Felton, Wastewater Superintendent
12901 Beacher Gamble Road
Marysville, Ohio 43040
Phone 937-645-7350
Fax 937-645-7345

Drawing No.
SAS-33

2 of 2

Approved:
Wastewater Superintendent

Date
BACKFILL & PAVEMENT REPLACEMENT

DEPTH OF PAVEMENT & BASE MATERIAL

12'

VALUES

LOW STRENGTH MORTAR OR
COMPACTED GRANULAR BACKFILL

#57 STONE - SEE DRAWING # 1

City of Marysville
Division of Wastewater

Richard Felton, Wastewater Superintendent
12901 Beecher Gamble Road Phone 937-645-7350
Marysville, Ohio 43040 Fax 937-645-7345

Approving Authority

Wastewater Superintendent

Date

Drawing No.

SAS-34
PUMP STATION BUILDING AND EQUIPMENT LAYOUT

1. Cutting lines shall be purely and according to electrical specification.

2. Panel covers - where provided shall meet and exceed NEMA N2300 with NEMA UI302 rated cable connector (code length 2") 3/4" minimum. Should comply with UL and NEMA standards.

3. The proposed construction shall conform to the requirements of Chapters 19-61, 820 and the "Electrical Code" and shall be in accordance with OSHA and/or other applicable local codes as required.

4. All installation of plumbing equipment and systems shall comply with OSHA (Chapter 82) and the Plumbing Code (OPC).

5. Electrical equipment shall be installed in accordance with its nameplate and approved equipment. All electrical equipment shall comply with OSHA and/or other applicable local codes as required.

6. A list of materials and equipment shall be furnished to the City of Marysville.

City of Marysville
Division of Wastewater

Richard Felton, Wastewater Superintendent
12901 Beecher Gamble Road Phone 937-645-7350
Marysville, Ohio 43040 Fax 937-645-7345

Approved: Wastewater Superintendent
2/9/2016 Date

SAS-38
Typical Street Section

Compacted Granular Backfill ODOT Item 304
Compacted to 98% Max. Density +/- 2%
Optimum Moisture. Stone to be placed in
12" lifts or less

Outside of the Influence of the Street, Backfill
Shall be Natural Material Free of Stones Greater Than 6",
Organics, Debris, Rubbish, or Frozen Material. Soil Shall be
Compacted to 95% Maximum Dry Laboratory Weight at
2% +/- of Optimum Moisture.

Sanitary Sewer Easement

Pipe Bedding to be
ODOT #57 Stone

Sanitary Sewer Location
(Depth Varies)

R/W

5'

10'