B. TYPICAL DETAILS FOR SEWER CONSTRUCTION

Dwg. 1 – 48” Dia. Concrete Manhole Detail
Dwg. 2 – 60” Dia. Concrete Manhole Detail
Dwg. 3 – 72” Dia. Concrete Manhole Detail – 42” Pipe
Dwg. 4 – Splash Invert Detail
Dwg. 5 – Inside Manhole Drop Connection
Dwg. 6 – Inside Manhole Drop Connection
Dwg. 7 – Outside Drop Manhole Detail
Dwg. 8 – Trench Section Detail in Local Roadway Shoulder or Travel area
Dwg. 9 – Trench Section Detail in Unimproved Areas
Dwg. 10 – Service Connection Detail
Dwg. 11 – Typical Service Connection Detail – Deep Sewer
Dwg. 12 – Service Sewer Detail
Dwg. 13 – Service Sewer for New or Existing Building (inside trap)
Dwg. 14 – Typical Concrete Encasement
Dwg. 15 – Trench Check and Pipe Anchor Block Detail
Dwg. 16 – Standard Blocking and Anchoring Methods for Sewage Force Main
Dwg. 17 – Pavement Replacement Detail
Dwg. 18 – Typical Grinder Pump Installation
Dwg. 19 – Grinder Pump House Connection to Pressure Sewer Main
Dwg. 20 – Grinder Pump House Connection to Gravity Sewer
Dwg. 21 – Air Relief Valve Vault Detail
SECTIONAL PLAN

3/4" DIA. S.S. ANCHOR BOLTS
(2 TYPICAL)
CASTING TO SIT ON
MASTIC BED "KENT SEAL"
OR EQUAL AND GROUT
OUTSIDE AS SHOWN

1/2" COAT OF
CEMENT MORTAR
CONCRETE BRICK MASONRY
WATERPROOF OUTSIDE
OF MANHOLE WITH
THOROSEAL OR SIMILAR
MATERIAL
MASTIC JOINT MATERIAL
"KENT" SEAL OR EQUAL
TWO CONTINUOUS BEADS
MANHOLE STEPS POLYPROP.
PLASTIC COATED
(ASTM D-2146 TYPE II CR.49108)
3/8" GRADE 40 DEFORMED STL. BAR
(ASTM A-615)

28 3/4"DIA.

6" MAX.

27" DIA.
CLEAR

29" MIN. DIA

(16" MAX.)

5"

48" DIA.

5"

3000 PSI CONCRETE
MONOBASE

NOTE: FORMED CHANNEL
DEPTH EQUAL TO PIPE DIAMETER

6" THICK CRUSHED
STONE BEDDING
( AASHTO #57 )

MANHOLE TO PIPE
FLEXIBLE BOOT
W/STAINLESS STL. STRAPS
OR APPROVED FLEXIBLE COUPLING

EXCEPT AS NOTED, ALL MANHOLE
FRAMES AND COVERS SHALL BE
EAST JORDAN OR EQUAL.
WATER TIGHT MANHOLES DESIGNATED
AS "W.T." ON THE DRAWINGS SHALL
BE FURNISHED W/ MACHINED GROOVE
TO RECEIVE AN O RING SEAL.

SECTION A-A
48"DIA CONCRETE MANHOLE DETAIL
( FOR SEWERS THRU 24"DIA. )
NO SCALE
"A-LOK" FLEXIBLE CONNECTOR
(OR APPROVED EQUAL)

3/4" DIA. S.S. ANCHOR
BOLTS (2 TYPICAL)

1" MASTIC JOINT
MATERIAL "KENT SEAL"
OR APPROVED EQUAL
TWO CONTINUOUS BEADS

MANHOLE STEPS POLYPROP.
PLASTIC COATED
ASTM D-2146 TYPE II CR.49108)
3/8" GRADE 40 DEFORMED STL. BAR
ASTM A-615)

SECTION A-A

60" DIA CONCRETE MANHOLE DETAIL

( FOR SEWERS 27" THRU 36" DIA. )
NOTE
SEE MANHOLE DETAIL
FOR MATERIALS, ETC.

SECTIONAL PLAN

SECTIONAL PLAN

SECTION A-A

SECTION B-B

SPASH INVERT DETAIL

NO SCALE
NOTE: THE CONSTRUCTION OF AN INSIDE DROP MANHOLE IS ONLY PERMITTED WITH PRIOR APPROVAL OF THE AUTHORITY.

INSIDE MANHOLE DROP CONNECTION

NO SCALE
EXISTING GRADE

EXISTING MANHOLE

CORE DRILL MANHOLE AND FILL VOID WITH NON-SHRINK GROUT

* FERNCO COUPLING

CRUSHED STONE BEDDING

* P.V.C. SEWER

* P.V.C. TEE

STRAPS AT TEE ELBOW AND ON 4' CENTERS WITH 1/2" # EXPANSION TYPE S.S. CINCH BOLTS & S.S. ANCHORS

* 90° BEND RESTING ON RE-FORMED CHANNEL & TURNED IN DIRECTION OF EXIST. SEWER FLOW

* EXIST. SEWER

1/8" THICK STAINLESS STL. STRAP

5/8" Ø HOLE

SECTION

NOTE: THE CONSTRUCTION OF AN INSIDE DROP MANHOLE IS ONLY PERMITTED WITH PRIOR APPROVAL OF THE AUTHORITY.

INSIDE MANHOLE DROP CONNECTION

NO SCALE
OUTLET PIPE
MANHOLE STEPS

FORMED
CHANNEL

INLET PIPE

CONCRETE ENCASEMENT

NOTE: SEE MANHOLE DETAIL C-07
FOR DETAILS NOT SHOWN

SECTIONAL PLAN

3000 PSI
CONCRETE ENCASEMENT

6" MIN. COVER TYP.

VARES
(SEE NOTE BELOW)
FORMED CHANNEL
TROUGH DEPTH = PIPE DIA.

SLOPED TABLE
SEWER LINE

WYE FITTING

45° BEND

90° BEND OR DOUBLE 45° BEND

MONOBASE
CLASS "A" CONCRETE

6" THICK CRUSHED STONE BEDDING
(AASHTO #57)

NOTE: THE CONNECTION OF AN INSIDE DROP MANHOLE IS ONLY PERMITTED WITH PRIOR APPROVAL OF THE AUTHORITY

SECTION A-A
OUTSIDE DROP MANHOLE DETAIL
NO SCALE
TRENCH SECTION DETAIL IN LOCAL ROADWAY SHOULDER OR TRAVEL AREA

NO SCALE

Hatch Mott MacDonald
FRANKLIN TOWNSHIP MUNICIPAL SANITARY AUTHORITY

DWG. No. 8
FINAL RESTORATION TO BE COMPLETED IN ACCORDANCE WITH SEEDING RESTORATION TABLE. CONTRACTOR TO SUPPLY CLEAN TOPSOIL IF NONE IS AVAILABLE

EXISTING GRADE

DETECTABLE UNDERGROUND WARNING TAPE

SUPPORTED TRENCH WALL

EXCAVATED BACKFILL MATERIAL COMPACTED IN 6" LAYERS WITH VIBRATORY COMPACTION

6" MIN. UNDER PIPE BARREL

8" MAX. NOM. 8" MAX.

PIPE DIA.

AASHTO No. 57 COARSE AGGREGATE

SEWER LINE

Pipe Zone

VARIES

6" MIN.

SLOPED TRENCH WALL

TRENCH SECTION DETAIL IN UNIMPROVED AREAS

NO SCALE
TREATED 4"x4" O.S.H.A. SAFETY GREEN MARKER STAKE TO REMAIN UNTIL LATERAL CONNECTION IS MADE

FOR FUTURE CONNECTION PLUG AT THIS POINT

PROPERTY LINE

6"PIPE
6"-45° PVC BEND
PVC WYE BRANCH
MAIN SEWER

NOTE:
PROVIDE DETECTABLE UNDERGROUND WARNING TAPE ABOVE LATERAL.

PLAN

TREATED 4"x4"x8'(MIN.) STARTING AT THE DEPTH OF THE CAPPED LATERAL.
O.S.H.A. SAFETY GREEN MARKER STAKE TO REMAIN UNTIL LATERAL CONNECTION IS MADE

NOTE: MINIMUM SLOPE 1/4" PER FOOT.
1/8" PER FOOT WITH PRIOR APPROVAL FROM FTMSA.

SECTION

6"PIPE MATERIAL TO BE PVC, SDR 35, ASTM D-3034

SERVICE CONNECTION DETAIL

NO SCALE
TREATED 4"x4"x8'(MIN.) STARTING AT THE DEPTH OF THE CAPPED LATERAL. OSHA SAFETY GREEN MARKER STAKE TO REMAIN UNTIL LATERAL CONNECTION IS MADE

TO PROPERTY LINE

FOR FUTURE CONNECTION PLUG AT THIS POINT

90° ELBOW L.R. OR DOUBLE 45° BENDS

6" PIPE

45° CURVE S.R.

6" MIN. ENCASEMENT

3000 PSI CONCRETE STANDARD PIPE ENCASEMENT ALONG MAIN SEWER FOR A 2' LENGTH

"Y" BRANCH

TYPICAL SERVICE CONNECTION DETAIL – DEEP SEWER

NO SCALE
ACCEPTABLE PIPE GRADES: SDR 35 OR ASTM 3034, SCH 40 PVC MAY BE USED WITH PRIOR APPROVAL FROM AUTHORITY

CAST IRON VENTED CAP

CAST IRON VALVE BOX COVER WITH FERNCO CPLG. EAST JORDAN NO. 6800 COVER MARKED "SEWER" FLUSH WITH GRADE

CAST IRON CAP

6" PVC * CLEAN OUT

6" PVC INSPECTION STACK *

6" X 6" X 6" TEE

SEWER MAIN

6" SEWER TO PROPERTY LINE

6" PVC

CAST IRON CAP

6"X6" ENLARGER

6"X6" TEE WYE

NOTE: PROVIDE DETECTABLE UNDERGROUND WARNING TAPE ABOVE LATERAL.

CLENOUTS TO BE INSTALLED AFTER TRAP, AT ANY CHANGE OF DIRECTION AND EVERY 100' THEREAFTER AS REQUIRED

NOTE: CALL THE (724) 327-1950 FOR SERVICE SEWER INSPECTION BY FTMSA PRIOR TO BACKFILLING ALL PIPE TO BE BEDDED AND SURROUNDED BY FIRMLY PACKED AASHTO 57 CRUSHED AGGREGATE WITH A 6" MINIMUM BEDDING UNDER THE PIPE AND A 6" MINIMUM OVER TOP SPECIFICATIONS ARE ON A SEPERATE SHEET.

* CAST IRON OR CONCRETE ENCASED IF STACK IS SUBJECT TO VEHICLE TRAFFIC

** 1/8"/FT. MINIMUM SLOPE WITH PRIOR APPROVAL FROM FTMSA

*** VENT SHALL BE AT LEAST 10' AWAY FROM ANY DOOR, OPENABLE WINDOW OR OTHER AIR INTAKE OPENING IF POSSIBLE

SERVICE SEWER DETAIL
N.T.S.

FRANKLIN TOWNSHIP MUNICIPAL SANITARY AUTHORITY

Hatch Mott MacDonald
SERVICE SEWER FOR NEW OR EXISTING BUILDING (INSIDE TRAP)
TYPICAL CONCRETE ENCASEMENT

NO SCALE
NOTE:
ANCHORS SHALL BE SPACED ALONG SEWER AS FOLLOWS
GRADE 20% TO 35% — 36 FEET CTR TO CTR
GRADE 35% TO 50% — 24 FEET CTR TO CTR
GRADE 50% AND OVER — 16 FEET CTR TO CTR

TRENCH CHECK AND PIPE ANCHOR BLOCK DETAIL

FRANKLIN TOWNSHIP MUNICIPAL SANITARY AUTHORITY
* FIGURES BASED ON 150 PSI MAX. WORKING PRESSURE AND 2,000 PSI SOIL BEARING LOAD.

<table>
<thead>
<tr>
<th>PIPE SIZE</th>
<th>AREA OF BLOCK IN SQ. FT. *</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>90° BENDS</td>
</tr>
<tr>
<td>≤4&quot;</td>
<td>1.5</td>
</tr>
<tr>
<td>6&quot;</td>
<td>4.0</td>
</tr>
<tr>
<td>8&quot;</td>
<td>7.0</td>
</tr>
<tr>
<td>12&quot;</td>
<td>16.2</td>
</tr>
</tbody>
</table>

STANDARD BLOCKING DETAIL

RODS BENT AROUND PIPE AND ANCHORED IN CONCRETE

SEE TABLE FOR VOLUME OF CONCRETE AND ANCHOR RODS REQUIRED

3,000 PSI CONC.

<table>
<thead>
<tr>
<th>PIPE SIZE</th>
<th>VOLUME IN CU. FT. *</th>
<th>RODS REQUIRED</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>45° BENDS</td>
<td>22 1/2° BENDS</td>
</tr>
<tr>
<td>≤4&quot;</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>6&quot;</td>
<td>37</td>
<td>19</td>
</tr>
<tr>
<td>8&quot;</td>
<td>54</td>
<td>27</td>
</tr>
<tr>
<td>12&quot;</td>
<td>122</td>
<td>62</td>
</tr>
</tbody>
</table>

NOTE:
ALL BLOCKS HAVING LENGTH OF 3' OR MORE TO BE REINFORCED W/4 BARS AT 6" - PLACED 3' FROM TOP OF BLOCK

STANDARD ANCHORING DETAIL

STANDARD BLOCKING AND ANCHORING METHODS FOR SEWAGE FORCE MAIN

NO SCALE
MIN. 2" ID-2A WEARING COURSE, PENNDOT 408, SECT. 409 OR MATCH EXISTING CONDITIONS IF GREATER.

EXISTING SURFACE

USE JOINT SEALER ON THE VERTICAL FACE OF THE EXIST. PAVEMENT WHERE THE NEW PAVEMENT ABUTS EXISTING PAVEMENT.

SEAL SEAM WITH JOINT SEALER WHEN REPAIR IS COMPLETE

MIN. 4" AGGREGATE BITUMINOUS BASE COURSE, PENNDOT 408, SECT 409 OR MATCH EXISTING CONDITIONS IF GREATER

EXIST BASE COURSE

TRENCH WIDTH

BEARING ON UNDISTURBED MATERIAL

NEW PAVEMENT WIDTH VARIES

SEE PENNDOT & MURRYSVILLE SPECIFICATIONS FOR BASE AND PAVEMENT REPLACEMENT

PAVEMENT REPLACEMENT DETAIL

NO SCALE
NOTE:
1. PROVIDE DETECTABLE UNDERGROUND WARNING TAPE ABOVE 1 1/2" PRESSURE PIPE
2. SEE FTMSA WRITTEN SPECS.

SECTION
TYPICAL GRINDER PUMP INSTALLATION
NO SCALE
GRINDER PUMP HOUSE CONNECTION TO GRAVITY SEWER
NOT TO SCALE