

**SUBDIVISION AND ZONING REGULATIONS  
INDEX - ENGINEERING CONSTRUCTION STANDARDS**

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NOTE 1: THIS DETAIL IS VALID ONLY WHEN USED AS PRESENTED HERE, WITHOUT CHANGES, AND IN CONJUNCTION WITH ANY GENERAL NOTES AND/OR OTHER DETAILS WHICH MAY APPLY. ANY CHANGES TO THIS DETAIL SHALL FIRST BE SUBMITTED TO AND APPROVED BY THE SAFETY-SERVICE DIRECTOR.

NOTE 2: BEFORE ANY EXCAVATING, CALL THE FOLLOWING NUMBERS AT LEAST 48 HOURS IN ADVANCE: O.U.P.S. @ (800) 362-2764 AND O.A.G.P.U.P.S. @ (800) 925-0988.

**City of Orrville : Safety-Service Department**

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Steven M. Wheeler  
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**SUBDIVISION AND ZONING REGULATIONS  
ENGINEERING CONSTRUCTION STANDARDS  
INDEX - ENGINEERING  
CONSTRUCTION STANDARDS**

NO.	DATE	REVISION
1	4/1/09	Revise Drawing Numbers
2	3/20/15	Revise Sheet Number, Revise Index

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DLS	BLJ	03/15/07	NONE

**GN-1**

# GENERAL CONDITIONS

1. PLEASE NOTE THAT THE CITY OF ORRVILLE ENGINEERING CONSTRUCTION STANDARDS ARE CLARIFICATIONS OF, NOT REPLACEMENTS FOR, THE CITY OF ORRVILLE SUBDIVISION AND ZONING REGULATIONS AND THE CITY OF ORRVILLE STORM WATER REGULATIONS. ANY CONFLICTS BETWEEN THEM SHALL BE BROUGHT TO THE ATTENTION OF THE SAFETY-SERVICE DIRECTOR FOR RESOLUTION. ALL WORK AND MATERIALS FURNISHED FOR ROADWAY, STORMWATER, AND EROSION CONTROL IMPROVEMENTS SHALL BE IN ACCORDANCE WITH THE PLANS AND THE MOST CURRENT EDITIONS OF THE STATE OF OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS (CMS) AND STANDARD CONSTRUCTION DRAWINGS (SCD) AND THE CITY OF ORRVILLE SUBDIVISION AND ZONING REGULATIONS. ALL WORK AND MATERIALS FURNISHED FOR WATER, SANITARY SEWER, ELECTRIC, FIBER OPTIC AND STREET LIGHT IMPROVEMENTS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF CITY OF ORRVILLE DEPARTMENT OF PUBLIC UTILITIES AND THE APPLICABLE CITY OF ORRVILLE ENGINEERING CONSTRUCTION STANDARDS.
2. EXCESS EARTHEN FILL SHALL BE PROPERLY LEVELED AND GRADED PER PLANS. PAVEMENT SUBGRADE SHALL BE FINE GRADED AND COMPACTED IN ACCORDANCE WITH ODOT ITEM 203. BACKFILLING BEHIND CURBS SHALL BE PROPERLY LEVELED AND GRADED, PER PLANS, AND SHALL TAKE PLACE AS SOON AS THE 7 DAY DESIGN CONCRETE STRENGTH HAS BEEN REACHED OR PER APPROVAL OF THE SAFETY-SERVICE DIRECTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY INFRASTRUCTURE DAMAGE PRIOR TO ACCEPTANCE BY THE CITY OF ORRVILLE.
3. WHEN CONSTRUCTING ROADWAYS AND EMBANKMENTS, WITH THE EXCEPTION OF ROCK, USE MOISTURE AND DENSITY CONTROLS IN ACCORDANCE WITH ODOT ITEM 203.07. PRIOR TO THE PLACEMENT OF CONCRETE, CONDUCT SLUMP TESTS IN ACCORDANCE WITH ASTM C143 AND PREPARE TWO (2) CONCRETE TEST CYLINDERS FOR EACH 50 CUBIC YARDS PLACED ON ANY ONE DAY. CYLINDERS SHALL BE TESTED IN ACCORDANCE WITH ASTM C39. SUBMIT SOIL AND CONCRETE TEST RESULTS TO THE SAFETY-SERVICE DIRECTOR WITHIN SEVEN (7) DAYS AFTER THE TESTS HAVE BEEN COMPLETED.
4. LININGS OF ALL STORM SEWER PIPING AND STRUCTURES SHALL BE KEPT CLEAN AND FREE OF DEBRIS PRIOR TO AND DURING INSTALLATIONS. THE CONTRACTOR SHALL PROTECT FLOW LINES AND STRUCTURES FROM DEBRIS THROUGHOUT THE CONSTRUCTION PERIOD AND UNTIL FINAL APPROVAL IS GRANTED BY THE CITY OF ORRVILLE SAFETY-SERVICE DEPARTMENT.
5. WHERE GROUND COVER IS DISTURBED DURING THE CONSTRUCTION, THE CONTRACTOR SHALL INSTALL ALL NECESSARY EROSION CONTROL AND DRAINAGE CONTROL DEVICES IN ACCORDANCE WITH REGULATIONS OF THE CITY OF ORRVILLE AND/OR THE OHIO EPA. THESE DEVICES SHALL BE ROUTINELY MONITORED AND MAINTAINED BY THE CONTRACTOR THROUGHOUT THE CONSTRUCTION PERIOD AND UNTIL SATISFACTORY GROUND COVER HAS BEEN RE-ESTABLISHED. NO WORK SHALL BEGIN UNTIL ALL SUCH DEVICES ARE IN PLACE.
6. ALL DEVELOPMENTS INVOLVING UTILITY AND PUBLIC STREET IMPROVEMENTS SHALL HAVE DETAILED DESIGN DRAWINGS PREPARED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER. DRAWINGS SHALL BE SIGNED AND DATED BY THE PREPARING ENGINEER OR WILL NOT BE CONSIDERED VALID.
7. THE CITY OF ORRVILLE SUBDIVISION AND ZONING REGULATIONS, THE STORM WATER REGULATIONS AND THESE ENGINEERING CONSTRUCTION STANDARDS CONSTITUTE A MINIMUM DESIGN STANDARD. SPECIFIC PROJECTS MAY INVOLVE SPECIAL CIRCUMSTANCES WHICH REQUIRE MODIFICATION OF STANDARDS AND ADDITIONAL ENGINEERING. THE CONTRACTOR OR DEVELOPER SHALL BE RESPONSIBLE FOR ALL ADDITIONAL DESIGN AND FOR OBTAINING APPROVAL FROM THE SAFETY-SERVICE DIRECTOR.
8. SURVEY MONUMENTS SHALL BE FURNISHED AND PLACED WHERE INDICATED ON THE PLANS AND AS A MINIMUM SHALL BE PLACED AS REQUIRED TO DEFINE PROPOSED ROADWAY CENTERLINES USING DETAIL PV-14.
9. ANY PROPERTY CORNER MONUMENTS THAT ARE DISTURBED OR REMOVED SHALL BE REPLACED BY THE CONTRACTOR.
10. PAVEMENT MARKINGS WHICH ARE DAMAGED OR DESTROYED DURING CONSTRUCTION SHALL BE REPLACED BY THE CONTRACTOR IN ACCORDANCE WITH REQUIREMENTS OF THE CITY OF ORRVILLE SAFETY-SERVICE DEPARTMENT, ODOT CMS AND THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES REQUIREMENTS.

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Steven M. Wheeler  
 Safety-Service Director

### SUBDIVISION AND ZONING REGULATIONS ENGINEERING CONSTRUCTION STANDARDS

## GENERAL CONDITIONS

NO.	REVISION
1	4/1/09      Revise Notes 1. and 7.
2	3/20/15      Revise Sheet Number, Notes 1., 5. and 7.

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DRWN BY	APPRVD BY	ISSUE DATE	SCALE	
DLS	BLJ	03/15/07	NONE	

# STORM SEWER

**STORM PIPE:** THE MINIMUM SIZE STORM SEWER PIPE SHALL BE 12" DIAMETER. ALL STORM SEWER SHALL BE INSTALLED PER THE TYPICAL DETAILS. WHERE STORM AND SANITARY SEWERS CROSS, ALIGN JOINTS EQUIDISTANT FROM THE CROSS AND EXTEND PREMIUM, GASKETED JOINTS 10' IN EACH DIRECTION.

**STORM PIPE UNDER PAVEMENT:** THE FOLLOWING PIPE MATERIALS AND JOINTS ARE PERMITTED UNDER PAVEMENT, SIDEWALKS AND DRIVES:

MINIMUM DEPTH FOR ALL PIPE SHALL BE 1 FOOT FROM THE TOP OF PIPE TO THE TOP OF PAVEMENT FOR CONCRETE AND TO THE BOTTOM OF PAVEMENT FOR ASPHALT.

*FOR DEPTHS GREATER THAN 1 FOOT BELOW THE TOP OF PAVEMENT:*

- CIRCULAR REINFORCED CONCRETE PIPE - ODOT 706.02, ASTM C76, CLASS III MINIMUM, BASED ON THE LRFD FILL HEIGHT TABLES OF THE AMERICAN CONCRETE PIPE ASSOCIATION (ASSUME TYPE 3 BEDDING), W/ GASKETED JOINTS PER ASTM C443.
- ELLIPTICAL REINFORCED CONCRETE PIPE - ODOT 706.04, ASTM C507, W/GASKETED JOINTS PER ASTM C443.
- PVC SOLID WALL PIPE - ODOT 707.45, SDR 35 (12" AND 15" DIA.) OR ASTM F679 (18"-60" DIA.) W/GASKETED JOINTS PER ASTM D3212 .

*FOR DEPTHS GREATER THAN 1 FOOT BUT LESS THAN 3 FEET BELOW THE TOP OF PAVEMENT:*

- CORRUGATED POLYPROPYLENE SMOOTH LINED PIPE - ASTM F2736, ASTM F2764 AND AASHTO M330 WITH A PIPE STIFFNESS OF 46. GASKETED JOINTS PER ASTM F477 (12"-60" DIA.).

*FOR DEPTHS GREATER THAN 3 FEET BELOW THE TOP OF PAVEMENT:*

- CORRUGATED HDPE SMOOTH LINED PIPE - ODOT 707.33, ASTM F405 & F667, AND ASTM D2412 FOR STIFFNESS. GASKETED JOINTS PER ASTM D3212 (12"-60" DIA.).

**STORM PIPE OUTSIDE PAVEMENT:**

PIPE SHALL CONFORM TO THE SPECIFICATIONS FOR "STORM PIPE UNDER PAVEMENT" AS OUTLINED ABOVE WITH THE FOLLOWING EXCEPTION:

- CORRUGATED HDPE SMOOTH LINED PIPE (>1' BELOW GRADE) - ODOT 707.33, ASTM F405 & F667, AND ASTM D2412 FOR STIFFNESS. GASKETED JOINTS PER ASTM D3212 (12"-60" DIA.).

**MANHOLE PIPE CONNECTIONS:**

STORM SEWER PIPE CONNECTIONS TO MANHOLES SHALL BE MADE WITH ODOT CLASS QC1 CONCRETE COLLAR SEALS, A MIN. 6" THICK AROUND THE PIPE.

**DRIVE PIPE:**

REINFORCED CONCRETE PIPE (SEE "STORM PIPE UNDER PAVEMENT" ABOVE) UNDER DRIVES AT NON-CURBED ROADS. DRIVE PIPE SHALL BE A 12" DIAMETER PIPE (MINIMUM), OR AS APPROVED BY THE SAFETY-SERVICE DIRECTOR. COVER SHALL BE A MINIMUM OF 12", OR AS APPROVED BY THE SAFETY-SERVICE DIRECTOR.

**STORM LATERALS:**

STORM LATERAL PIPE SHALL SHALL BE 4" OR GREATER AND SHALL BE CORRUGATED HDPE SMOOTH LINED PIPE OR PVC SOLID WALL PIPE AS SPECIFIED ABOVE.

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NO.	DATE	REVISION
1	4/1/09	Revise Pipe Material Specs
2	3/20/15	Revise Sheet Number & Pipe Material Specs

**SUBDIVISION AND ZONING REGULATIONS  
ENGINEERING CONSTRUCTION STANDARDS  
GENERAL NOTES - STORM SEWER**

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**GN-3**

# MANHOLES (Storm)

## A. CONSTRUCTION:

1. ALL NEW MANHOLES SHALL BE 48" MINIMUM INSIDE DIAMETER, PRE-CAST CONCRETE CONFORMING TO ASTM C478. PRE-CAST BASES SHALL BE 6" MINIMUM.
2. NEW MANHOLES PLACED OVER EXISTING SEWER LINES, REFERRED TO AS "DOG-HOUSE" MANHOLES, SHALL HAVE CAST-IN-PLACE CONCRETE BASES WITH REINFORCEMENT; REBAR #4@12" O/C EACH WAY. BASES SHALL BE CONSTRUCTED WITH 4000 PSI CONCRETE WITH A MINIMUM THICKNESS OF 10".
3. MANHOLES WITH PRE-CAST CONCRETE BASES SHALL BE PLACED ON A COMPACTED GRAVEL BED OF NO. 57 AGGREGATE, HAVING A MINIMUM THICKNESS OF 3".
4. RUBBER O-RING GASKETS SHALL BE USED BETWEEN PRE-CAST MANHOLE SECTIONS, MEETING ASTM C443. APPLY MASTIC TAR STRIP BETWEEN SECTIONS.
5. THE CENTERLINE OF THE MANHOLE SHALL BE LOCATED OVER THE CENTERLINE OF THE MAIN SEWER, WHENEVER POSSIBLE.
6. MANHOLE STEPS MAY BE REINFORCED POLYPROPYLENE PLASTIC, ALUMINUM OR CAST IRON, 16" O/C MAXIMUM AND IN PROPER ALIGNMENT.
7. THE FRAMES SHALL BE SET EVEN AND FLUSH WITH THE INTERIOR WALLS OF THE MANHOLE.
8. GRADE ADJUSTMENT RINGS SHALL BE PRE-CAST CONCRETE ONLY AND CONFORMING TO ASTM C32. BRICK OR BLOCK MATERIALS ARE NOT PERMITTED. A MAXIMUM 12" OF ADJUSTMENT RINGS MAY BE USED.
9. ALL PIPING THROUGH MANHOLE WALLS SHALL BE SEALED WITH A CONCRETE (4000 PSI) COLLAR (MIN. OF 6" THICK) OR WITH CONSEAL CS-2100 (WATER PLUG) OR APPROVED EQUAL.

## B. CASTINGS:

1. APPROVED MANHOLE FRAMES AND LIDS ARE SHOWN IN THE TABLE:

MANHOLE USE TYPE	HT	EJIW		NEENAH	
		CASTING	LID	CASTING	LID
MANHOLE WITHIN R/W	9"	1450	SOLID CUSTOM LID SEE CITY OF ORRVILLE	R-1785	SOLID CUSTOM LID SEE CITY OF ORRVILLE
	4-5/8"	1690		R-1787	
MANHOLE IN YARD NOT IN PAVEMENT NOT IN R/W	9"	1048	LIGHT DUTY BOLT DOWN	R-1916-C	TYPE B BOLT DOWN
	7"	1045Z1		R-1916-F	

2. FRAMES SHALL BE SET LEVEL, EXCEPT SET TO GRADE WHEN WITHIN THE PAVEMENT. LIDS SHALL BE SO FITTED AND FINISHED SO AS TO PROVIDE A FIRM AND EVEN SEAT FOR ALL PORTIONS OF THE LID IN THE FRAME.
3. FRAMES AND LIDS SHALL BE FITTED, MATCHED AND MARKED PRIOR TO DELIVERY TO THE PROJECT.
4. THE FRAME SHALL BE SET ON A MASTIC STRIP AROUND ITS' PERIMETER AND MORTARED TO THE SEAT OF THE CONCRETE STRUCTURE.
5. ANY SUBSTITUTIONS OF EQUAL QUALITY AND DIMENSIONS SHALL FIRST BE APPROVED BY THE SAFETY-SERVICE DIRECTOR PRIOR TO PROCUREMENT.
6. ALL CASTINGS AND LIDS SHALL BE COATED WITH A WATERBASED BITUMINOUS COATING, OR EQUAL.
7. ALL CASTINGS AND LIDS SHALL MEET OR EXCEED ODOT H20 LOADING AND AASHTO M306 REQUIREMENTS.

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### SUBDIVISION AND ZONING REGULATIONS ENGINEERING CONSTRUCTION STANDARDS

## GENERAL NOTES - MANHOLES

NO.	DATE	REVISION
1	6/29/07	Manhole Frame & Lid Revisions
2	4/1/09	Change Safety-Service Director
3	3/20/15	Revise Sheet Number, Revise Manhole Frames & Lids

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# GN-4

# CATCH BASINS & INLETS

## A. CONSTRUCTION:

1. INLETS AND CATCH BASINS MAY BE CAST-IN-PLACE OR PRE-CAST CONCRETE. CAST-IN-PLACE CONCRETE SHALL BE 4000 PSI. REINFORCED PRE-CAST CONCRETE SHALL BE AS SPECIFIED.
2. MINIMUM WALL THICKNESS OF CAST-IN-PLACE INLETS AND BASINS SHALL BE 8". MINIMUM WALL THICKNESS OF PRE-CAST INLETS AND BASINS SHALL BE 6".
3. MINIMUM THICKNESS FOR BASES OF INLETS AND BASINS SHALL BE 6", CAST-IN-PLACE AND PRE-CAST.
4. CATCH BASINS & INLETS WITH PRE-CAST CONCRETE BASES SHALL BE PLACED ON A COMPACTED GRAVEL BED OF NO. 57 AGGREGATE, HAVING A MINIMUM THICKNESS OF 3".
5. BRICK AND CONCRETE BLOCK ARE NOT PERMITTED MATERIALS FOR THE CONSTRUCTION OR MODIFICATION OF INLETS AND CATCH BASINS.
6. FRAMES SHALL BE SET EVEN AND FLUSH WITH THE INTERIOR WALLS OF THE INLETS AND BASINS.
7. DOUBLE INLETS SHALL BE LOCATED AT ALL SAG VERTICAL CURVES. UNDERDRAINS SHALL DRAIN TO THE BACK OF THE INLET, OR AS DIRECTED BY THE SAFETY-SERVICE DIRECTOR.
8. INVERTS SHALL BE FORMED IN ALL INLET AND BASIN STRUCTURES TO PROVIDE POSITIVE FLOW. USE NON-SHRINK GROUT TO FORM INVERTS.
9. ALL PIPING THROUGH CATCH BASIN WALLS SHALL BE SEALED WITH A CONCRETE (4000 PSI) COLLAR (MIN. OF 6" THICK) OR WITH CONSEAL CS-2100 (WATER PLUG) OR APPROVED EQUAL.

## B. CASTINGS:

1. APPROVED FRAMES/GRATES FOR BASINS AND INLETS ARE SHOWN BELOW:

STRUCTURE TYPE	EJIW			NEENAH		
	FRAME	GRATE	BACK	FRAME	GRATE	CURB BOX
SINGLE INLET (MOD. NO. 3A CB)	7035	M6	T1	R-3246-CL	TYPE L	ADJUSTABLE
DOUBLE INLET (MOD. NO. 3 CB)	7036	M6	T1	R-3246-CL-2 RH R-3246-CL-2 LH	TYPE L	ADJUSTABLE
FLAT SINGLE INLET, 2'x3', IN PAVEMENT	5245	M6		R-3413	TYPE C	
2-2-A CATCH BASIN	5110	M3 (SINUSOIDAL)		R-4859	TYPE S	
2-2-B CATCH BASIN	5110	M3 (SINUSOIDAL)		R-4859	TYPE S	

2. ALL GRATES WITHIN THE PAVEMENT SHALL BE BICYCLE-SAFE AND SET CORRECTLY WITH THE DIRECTION OF WATER FLOW.
3. THE FRAME AND GRATE SHALL BE SO FITTED AND FINISHED AS TO PROVIDE A FIRM AND EVEN SEAT FOR ALL PORTIONS OF THE GRATE IN THE FRAME.
4. BASINS AND INLETS SHALL BE PLACED TRUE TO LINE AND GRADE, PER PLAN.
5. THE FRAMES AND GRATES SHALL BE FITTED, MATCHED AND MARKED PRIOR TO DELIVERY TO THE PROJECT.
6. ANY SUBSTITUTIONS OF EQUAL QUALITY AND DIMENSIONS SHALL FIRST BE APPROVED BY THE SAFETY-SERVICE DIRECTOR PRIOR TO PROCUREMENT.
7. ALL FRAMES AND GRATES SHALL BE COATED WITH A WATERBASED BITUMINOUS COATING, OR EQUAL.
8. ALL CASTINGS SHALL HAVE THE WORDS "DUMP NO WASTE" AND "DRAINS TO WATERWAY" ALONG WITH A FISH LOGO CAST INTO THE GRATE AND/OR CURB BOX.

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### SUBDIVISION AND ZONING REGULATIONS ENGINEERING CONSTRUCTION STANDARDS GENERAL NOTES CATCH BASINS & INLETS

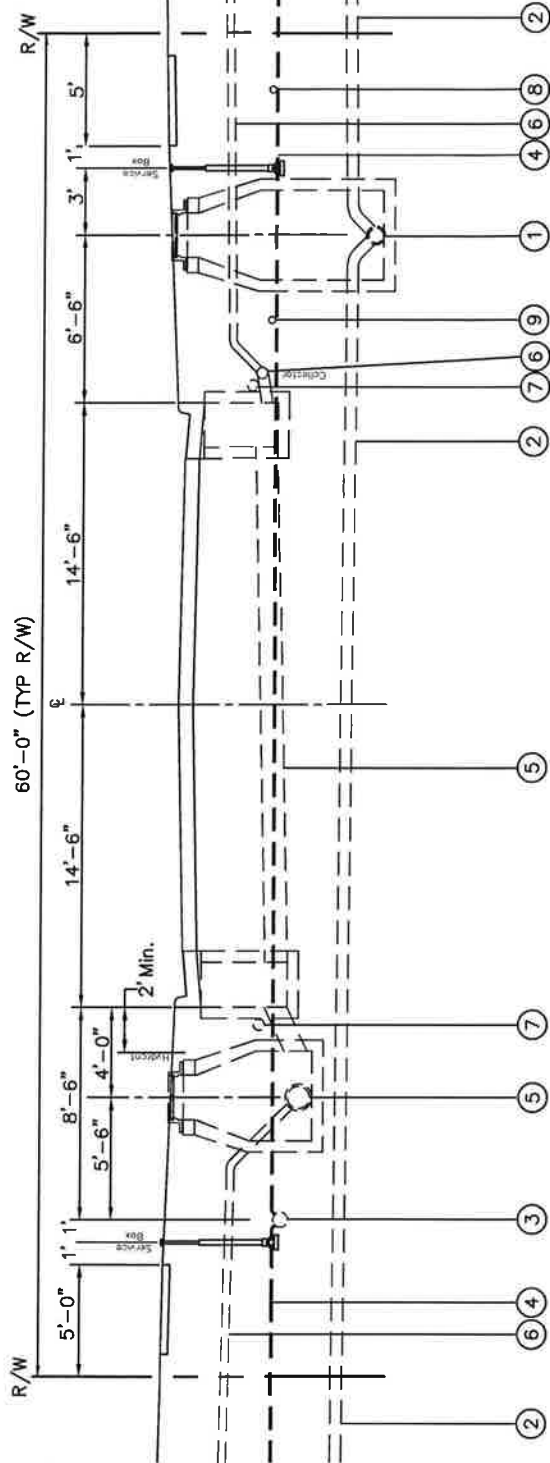
NO.	DATE	REVISION
1	4/1/09	Revise Frames/Grates
2	3/20/15	Revise Sheet Number & Frames/Grates

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# GN-5



**DESCRIPTION**

- ① \* SANITARY SEWER (8" MIN.)
- ② \* SANITARY LATERAL (6" MIN. @ 1.0%)
- ③ \* WATER MAIN (6" MIN.)
- ④ \* WATER SERVICE LINE (1" MIN.)
- ⑤ GN-3 STORM SEWER (12" MIN.)
- ⑥ ST-9 STORM LATERAL (4" MIN.)
- ⑦ PV-5 UNDERDRAIN (4" PERF.)
- ⑧ \* ELECTRICAL LINE
- ⑨ GAS LINE

**TYPICAL DEPTH**

- INV. 9'-0" MIN. BELOW CENTERLINE PAVEMENT
- INV. 8'-0" BELOW GRADE @ R/W LINE
- TOP 5'-0" GRADE (MIN.)
- TOP 4'-0" MIN. BELOW GRADE, 5'-0" MIN. W/BURIED ELECTRIC
- INV. 3'-0" MIN. BELOW TOP OF CURB
- INV. 3'-0" BELOW GRADE @ R/W LINE
- 3'-0" BELOW TOP OF CURB
- 5'-0" BELOW GRADE
- 3'-0" BELOW GRADE

**NOTES:**

1. COMPACTION OF TRENCHES IN THE RIGHT-OF-WAY IS REQUIRED ON ALL UTILITIES.
2. THIS DRAWING REPRESENTS TYPICAL UTILITY LOCATIONS FOR RESIDENTIAL STREETS (60' R/W). UTILITY LOCATIONS SHALL BE ADJUSTED FOR INDUSTRIAL STREETS, THOROUGHFARES, AND ARTERIES UP TO 80' R/W AS ESTABLISHED BY THE SAFETY-SERVICE DIRECTOR.
3. UTILITIES WITHIN THE 12' EASEMENT OUTSIDE THE RIGHT OF WAY SHALL BE LIMITED TO GAS, ELECTRIC AND TELECOMMUNICATIONS.

\* SEE DEPARTMENT OF PUBLIC UTILITIES WATER & SEWER PIPE STANDARDS.

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NOTE 2: BEFORE ANY EXCAVATING, CALL THE FOLLOWING NUMBERS AT LEAST 48 HOURS IN ADVANCE: O.U.P.S. @ (800) 362-2764 AND O.A.G.P.U.P.S. @ (800) 925-0988.

**City of Orrville : Safety-Service Department**  
 207 N. Main Street Orrville, Ohio 44667  
 Phone: (330) 684-5000 Fax: (330) 684-5023  
 Steven M. Wheeler  
 Safety-Service Director

NO.	DATE	REVISION
1	4/1/09	Add 12' Utility Easements
2	3/20/15	Revise Sheet Number & Item 7 - Underdrains

**SUBDIVISION AND ZONING REGULATIONS  
 ENGINEERING CONSTRUCTION STANDARDS  
 TYPICAL STREET UTILITY LOCATIONS**

CAD FILE		SHEET	
S:\_AutoCAD\By_County\Wayne.Col\Orrville\Construction Std\GN-06.dwg		GN-6	
DRWN BY	APPRVD BY	ISSUE DATE	SCALE
DLS	BLJ	03/15/07	NONE

# EROSION AND SEDIMENT CONTROL

GENERAL:

THESE GENERAL NOTES ARE INTENDED TO BE SUPPLEMENTAL TO SECTION 1163.07(j) OF THE CITY OF ORRVILLE SUBDIVISION REGULATIONS. ANY CONFLICTS BETWEEN THE FOREMENTIONED REGULATIONS AND THESE NOTES SHALL BE BROUGHT TO THE ATTENTION OF THE SAFETY-SERVICE DIRECTOR PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. THE SAFETY-SERVICE DIRECTOR SHALL RESOLVE ANY CONFLICTS AND NOTIFY THE CONTRACTOR OR DEVELOPER ACCORDINGLY.

STREET MAINTENANCE:

SEDIMENT CONTROL SHALL INCLUDE KEEPING STREETS CLEAN AND FREE OF SEDIMENT FROM CONSTRUCTION SITE RUNOFF AND MUD FROM CONSTRUCTION VEHICLES.

LAND DISTURBANCE (< 1 ACRE)

OPERATIONS SCHEDULE:

1. CONSTRUCT DIVERSION DITCHES, DIKES, SEDIMENT BASINS AND OTHER MEASURES FOR TRAPPING SEDIMENT AND VERIFY FUNCTIONALITY BEFORE UPSLOPE LAND DISTURBANCE OR OTHER GRADING ACTIVITIES.
2. CONSTRUCT TEMPORARY SEDIMENT BARRIERS, DITCH CHECKS, AND FILTER FABRIC FENCES AS CONSTRUCTION PROGRESSES IN ORDER TO INTERCEPT AND DETAIN SEDIMENT, REDUCE FLOW VELOCITIES, AND LIMIT RUNOFF FLOW FROM DISTURBED AREAS.
3. CONSTRUCT CATCH BASIN, INLET AND WATERWAY PROTECTION USING FILTER FABRIC FILTERS TO PREVENT SILTATION, DETAIN SEDIMENT, REDUCE FLOW VELOCITIES, AND LIMIT RUNOFF FLOW FROM DISTURBED AREAS.
4. CONSTRUCT SLOPE AND CHANNEL PROTECTION, PERFORM FINAL SEEDING AND MULCHING, AND OTHER PERMANENT EROSION CONTROL MEASURES AS GRADING AND CONSTRUCTION OPERATIONS ARE COMPLETED.

EROSION AND SEDIMENT CONTROL MEASURES:

1. BOTH TEMPORARY AND PERMANENT SEDIMENT AND EROSION CONTROL MEASURES SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THE CURRENT EDITION OF THE RAINWATER AND LAND DEVELOPMENT MANUAL AS PREPARED BY THE OHIO DEPARTMENT OF NATURAL RESOURCES.

LAND DISTURBANCE (> 1 ACRE)

STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

1. ANY CONSTRUCTION THAT DISTURBS MORE THAN ONE (1) ACRE OF LAND WILL REQUIRE COVERAGE UNDER THE OHIO EPA GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY. THIS WILL REQUIRE THE SUBMISSION OF A NOI APPLICATION TO OHIO EPA AND THE PREPARATION OF A SWPPP THAT MEETS THE REQUIREMENTS OF THE OHIO EPA CONSTRUCTION STORM WATER GENERAL PERMIT. THE SWPPP AND A SIGNED NOI APPLICATION MUST BE SUBMITTED TO THE SAFETY-SERVICE DEPARTMENT FOR ANY LAND DISTURBANCE GREATER THAN ONE (1) ACRE.

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Steven M. Wheeler  
Safety-Service Director

### SUBDIVISION AND ZONING REGULATIONS ENGINEERING CONSTRUCTION STANDARDS GENERAL NOTES EROSION CONTROL

NO.	DATE	REVISION
1	4/1/09	Revise Notes
2	3/20/15	Revise Sheet Number & Notes

CAD FILE

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SHEET

DRWN BY  
DLS

APPRVD BY  
BLJ

ISSUE DATE  
03/15/07

SCALE  
NONE

# ER-1

# EROSION AND SEDIMENT CONTROL, CONT'D.

**SEEDING:** THE CONTRACTOR SHALL UTILIZE HYDROSEEDING TECHNOLOGY FOR PERMANENT SEEDING AND THIS WORK MUST CONFORM TO THE FOLLOWING SPECIFICATIONS:

1. **Materials:**
  - a. Equipment shall have a built in agitation system and operating capacity sufficient to agitate, suspend and homogeneously mix a slurry containing not less than 20 kilos (44 lbs.) of organic mulching amendment plus fertilizer, chemical additives and solids for each 100 gallons of water.
  - b. Cellulose Fiber Mulch: Apply at a minimum rate of 1500 lbs./acre.
  - c. Fertilizers: Best 6-20-20 or Best 15-15-15 or approved equal applied at rate appropriate for product.
  - d. Organic tackifier shall be applied at rate of 70 lbs./acre.
  - e. Hydroseed seed mix shall be applied at the lbs./1000 sq.ft. designated in ODOT Item 659.
  
2. **Installation:**
  - a. Inspection of conditions: Examine related work including irrigation and grading of surface before proceeding with any work and notify the Safety-Service Director in writing on conditions which may prevent the proper execution of this work. Failure to report unsuitable conditions will require the contractor to rectify unacceptable work at no additional cost to the City.
  - b. Water all plant areas thoroughly to saturate upper layers of soil prior to the hydroseeding operation.
  - c. Allow the planting area soil surface to dry out for one day only prior to the hydroseeding application. Exercise care not to allow the soil surface to be overly saturated with water prior to the hydroseeding installation. At the same time the soil surface should not become too dry during this period. There should be some residual moisture within the first 1/4 inch of the soil surface.
  - d. Prior to starting the hydroseeding operation **notify the Safety-Service Director forty eight (48) hours in advance** to be present at start of hydroseeding.
  
3. **Application:**
  - a. Apply the hydroseeding in the form of a slurry consisting of organic soil amendments, commercial fertilizer, and any other chemicals that are called out. When hydraulically sprayed onto the soil, the mulch shall form a blotter-like material. Direct the spray operation so that this procedure will drill and mix the slurry components into the soil. The slurry spray must also penetrate the soil surface, thus ensuring maximum impregnation and coverage. The impregnation and mixing of the components will help in retaining moisture while stabilizing soil surface from superficial erosion.
  - b. Do not let the hydroseeding slurry components in the hydroseeding machine for more than two (2) hours because of possible seed destruction. If slurry components are left for more than two hours in the machine, add 50% more of the originally specified seed mix to any slurry mixture which has not been applied within the two hours after mixing. Add 75% more of the original seed mix to any slurry mixture which has not been applied eight (8) hours after mixing. All mixtures more than eight (8) hours old, must be disposed, off-site, at the contractor's expense.
  - c. Spray the area with a uniform visible coat, using the dark color of the cellulose fiber as a visual guide. The slurry shall be applied in a downward drilling motion via a fan stream nozzle. Insure that all of the slurry components enter and mix with the soil. Insure the uniformity of the hydroseed application. The hydraulic contractor shall be approved by the Engineer.
  - d. Exercise special care to prevent any of the slurry from being sprayed onto any hardscape areas including concrete walks, fences, walls, buildings, etc. Remove all slurry sprayed onto these surfaces at the contractor's expense.
  - e. Contractor shall save all seed and fertilizer tags and fiber mulch bags for the Safety-Service Director to verify compliance with the drawings and specifications.
  - f. The Safety-Service Director or city representative shall be present during the hydroseeding operation and has final determination if conditions are acceptable for hydroseed application.
  
4. **Maintenance:** Upon acceptance of hydroseeding operations, maintain all hydroseeding areas for a period of 90 calendar days as follows:
  - a. Germination stage irrigation: Approximately 25 hours after hydroseeding the planting areas, initiate the watering sequence. Leave the water on long enough to moisten the soil thoroughly to the depth of the slurry mulch taking care not to super saturate or wash away the slurry and seed. Perform frequent, light irrigation until the seed has germinated. Repair all seed washings and erosion.
  - b. Establishment stage irrigation: After germination, reduce each watering. The specific watering program shall be in accordance with ODOT Item 659.17.
  - c. Fertilization: Fertilize all hydroseed areas with an approved commercial fertilizer, 30 calendar days from the start of the maintenance period and continuing once every 60 calendar days until the completion of the 90 calendar day maintenance period.
  - d. Weeding: All concentrated developments of weed growth appearing in the seed mix planting areas during the maintenance period shall be removed at two (2) week intervals. The contractor may elect to remove such concentrations of weeds manually or by a City approved herbicide program.

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 Safety-Service Director

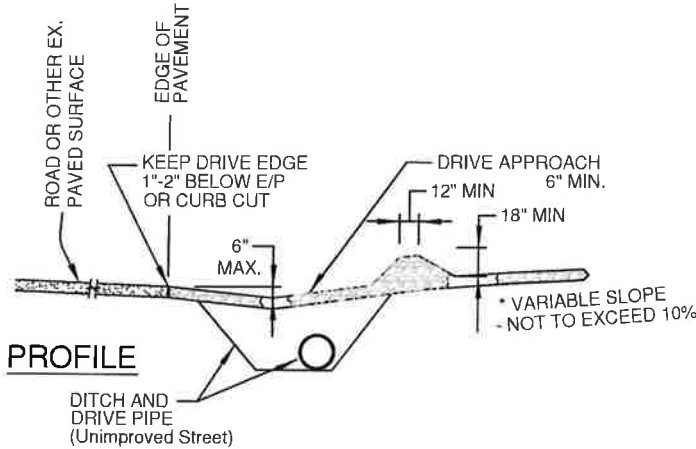
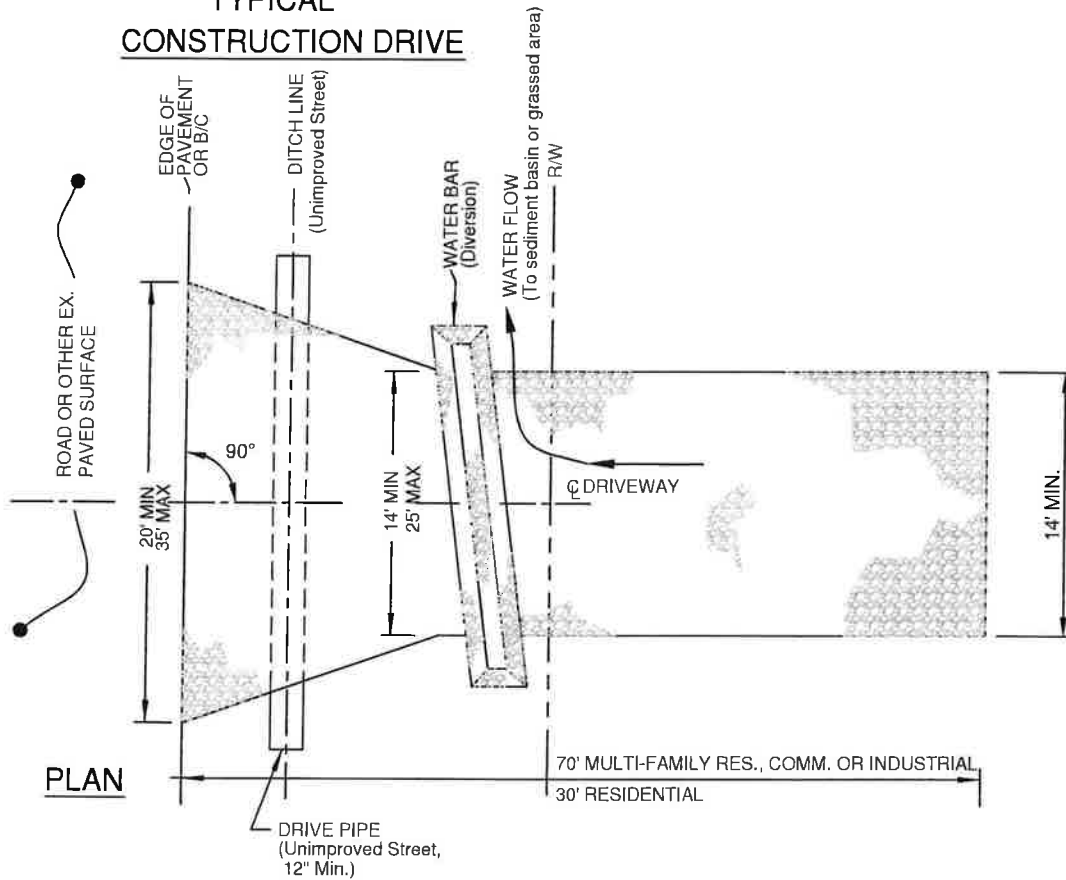
**SUBDIVISION AND ZONING REGULATIONS  
 ENGINEERING CONSTRUCTION STANDARDS  
 GENERAL NOTES  
 EROSION CONTROL**

NO.	DATE	REVISION
1	4/1/09	Revise Notes
2	3/20/15	Reinstate ER-1.1 Into Engineering Construction Standards

CAD FILE: M:\17004\ER-01_1.dwg		SHEET:	
DRWN BY: DLS	APPRVD BY: BLJ	ISSUE DATE: 03/15/07	SCALE: NONE
ER-1.1			



# TYPICAL CONSTRUCTION DRIVE



### NOTES:

1. Curb cuts and drive pipes shall be constructed prior to any construction activities taking place.
2. Temporary drives shall be coordinated with permanent drive construction. See drawing PV-6.0.
3. Stone for construction drives shall meet the gradation for ODOT Size No. 2 coarse aggregate. Minimum thickness shall be 6" for residential and 10" for non-residential sites.
4. A geotextile fabric shall be placed under the entire drive area prior to placing stone. Geotextile material shall meet ODOT Item 712.09 Type B requirements.
5. The construction drive shall be maintained by periodically adding stone as conditions demand.
6. Construction traffic shall be limited to the construction drive. Mud and stones which are spilled, dropped, washed or tracked onto public roads or other surfaces where sediment controls were not adequate, shall be removed immediately by scraping or sweeping.

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Steven M. Wheeler  
 Safety Service Director

### SUBDIVISION AND ZONING REGULATIONS ENGINEERING CONSTRUCTION STANDARDS CONSTRUCTION DRIVE DETAIL

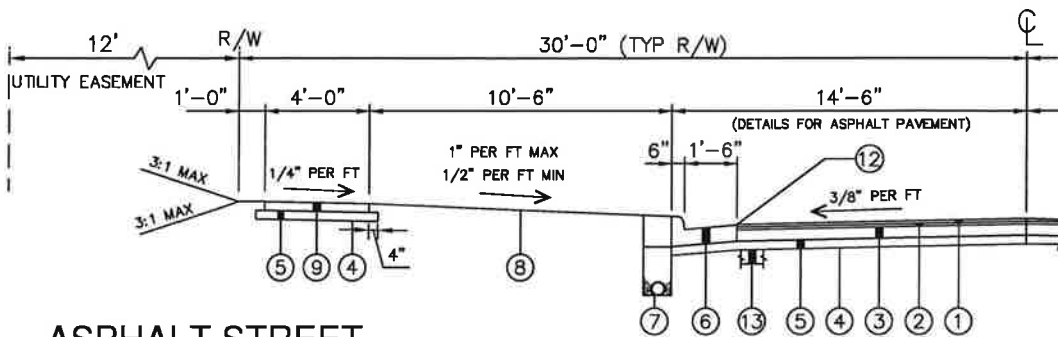
NO.	DATE	REVISION
1	4/1/09	Revise Drive Length and Width; Notes
2	3/20/15	Revise Sheet Number, Details and Dimensions

CAD FILE  
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DRWN BY	APPRVD BY	ISSUE DATE	SCALE
DLS	BLJ	03/15/07	NONE

SHEET

ER-2



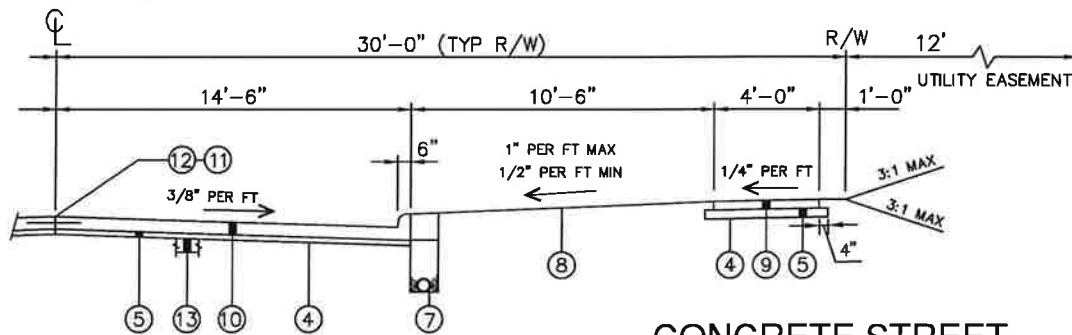
## ASPHALT STREET

### LEGEND

- |  |   |
|--|---|
| ① ITEM 441 1 1/4" ASPHALT CONCRETE SURFACE COURSE, TYPE 1, MEDIUM DUTY, PG64-22                  | ⑧ ITEM 659 SEEDING AND MULCHING (SEE SUBDIVISION REGULATIONS)                                 |
| ② ITEM 441 1 3/4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, MEDIUM DUTY, PG64-22             | ⑨ ITEM 608 4" CONCRETE SIDEWALK WITH BASE; 6" DRIVE APPROACH AND 6" SIDEWALK BEHIND APPROACH. |
| ③ ITEM 301 6" BITUMINOUS AGGREGATE BASE  | ⑩ ITEM 452 7" FIBER REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT WITH TYPE 2A INTEGRAL CURB   |
| ④ ITEM 204 * SUBGRADE COMPACTION AND PROOF ROLLING   | ⑪ ITEM 451.09 LONGITUDINAL BUTT OR SAWED JOINT W/30"x #5 EPOXY COATED TIE BAR (24" C/C)       |
| ⑤ SUBBASE:<br>ASPHALT 4" 304 LIMESTONE<br>CONCRETE 4" 304 LIMESTONE<br>SIDEWALK 3" 304 LIMESTONE | ⑫ ITEM 705.04 SAW CUT AND SEAL JOINT; LONGITUDINAL, TRANSVERSE AND CURB & GUTTER JOINTS       |
| ⑥ ITEM 609 24" COMBINATION CURB & GUTTER; TYPE 2 MODIFIED (SEE DETAIL PV-6.0)                    | ALTERNATE SUBGRADE PREP. (SEE NOTE 4 BELOW)   |
| ⑦ ITEM 605 4" UNDERDRAINS (SEE DETAIL PV-5)  | ⑬ ITEM 206 SOIL-CEMENT STABILIZATION FOR ASPHALT OR CONCRETE PAVEMENT                         |

\*WHERE GRANULAR FILL IS USED TO REPLACE SOFT SUBBASE AREAS, EXTEND CUT AND GRANULAR TO UNDERDRAIN.

- NOTES: 1. COMPACTION OF TRENCHES IN THE RIGHT-OF-WAY IS REQUIRED FOR ALL UTILITIES.  
 2. LIMESTONE SHALL BE USED FOR ALL AGGREGATE SUBBASE, FOR AGGREGATE IN ASPHALT CONCRETE SURFACE COURSE, AND FOR AGGREGATE IN CONCRETE.  
 3. BLAST FURNACE SLAG IS NOT PERMITTED IN PORTLAND CEMENT CONCRETE MIXES.  
 4. IF SOIL-CEMENT STABILIZATION IS USED FOR SUBGRADE STABILIZATION, THE DESIGN PAVEMENT BUILDUP SHALL BE BASED ON GEOTECHNICAL RECOMMENDATIONS.  
 5. CONCRETE PAVEMENT TRANSVERSE JOINTS (SEE PV-16.0) ARE REQUIRED EVERY 15 FT. ON CENTER AND AT RE-ENTRY CORNERS; SKEW JOINTS 3' FROM PERPENDICULAR WITH BACK OF CURB.  
 6. SEAL ALL PAVEMENT PENETRATIONS (MANHOLES, WATER VALVES, ETC.) PER ODOT 451.16/705.04.  
 7. FIBER REINFORCEMENT FOR PORTLAND CEMENT CONCRETE SHALL BE FORTA-FERRO OR APPROVED EQUAL APPLIED AT A DOSAGE RATE OF 4 LBS./CU.YD.



## CONCRETE STREET

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Steven M. Wheeler  
 Safety-Service Director

### SUBDIVISION AND ZONING REGULATIONS ENGINEERING CONSTRUCTION STANDARDS TYPICAL PAVING SECTION RESIDENTIAL

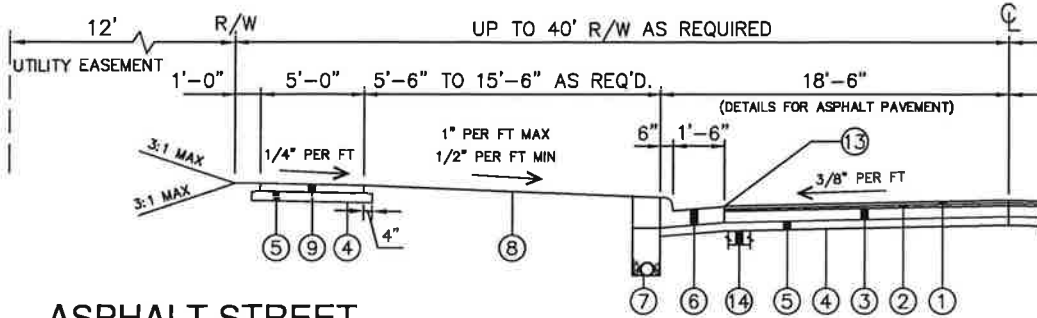
NO.	DATE	REVISION
1	6/29/07	Item 11 - Tie Bar Spacing Rev.
2	4/1/09	Revise Asphalt Buildup & Underdrain Size; Revise Note 2.; Remove Note 4.
3	3/20/15	Revise Sheet Number; Revise Asphalt and Concrete Buildup; Revise Notes 3. & 6. Add Note 7.

CAD FILE:  
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SHEET

DRWN BY: DLS  
 APPRVD BY: BLJ  
 ISSUE DATE: 03/15/07  
 SCALE: NONE

PV-1



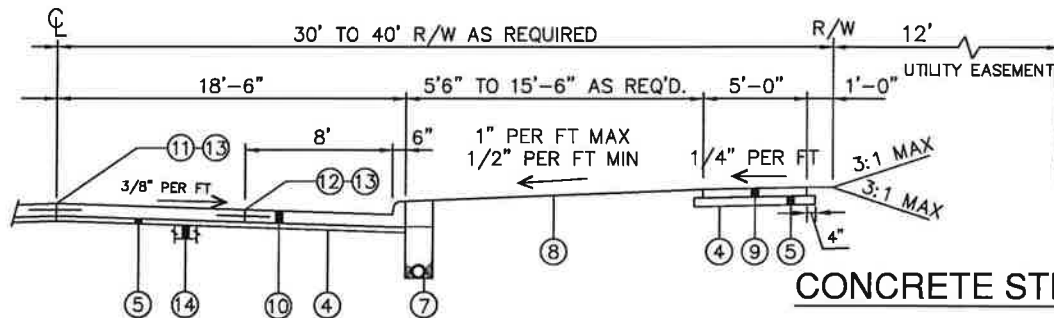
## ASPHALT STREET

### LEGEND

- |  |  |
|--|--|
| ① ITEM 442 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE A, PG64-22                               | ⑨ ITEM 608 4" CONCRETE SIDEWALK WITH BASE; 8" DRIVE APPROACH AND 8" SIDEWALK BEHIND APPROACH.  |
| ② ITEM 442 2" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE B, PG64-22                              | ⑩ ITEM 451 9" FIBER REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT WITH TYPE 2A INTEGRAL CURB  |
| ③ ITEM 301 8" BITUMINOUS AGGREGATE BASE  | ⑪ ITEM 451.09 LONGITUDINAL BUTT OR SAWED JOINT W/30"x #5 EPOXY COATED TIE BAR (24" C/C)  |
| ④ ITEM 204 * SUBGRADE COMPACTION AND PROOF ROLLING   | ⑫ ITEM 451.09 LONGITUDINAL SAWED JOINT W/30"x #5 EPOXY COATED TIE BAR (24" C/C)  |
| ⑤ SUBBASE:<br>ASPHALT 4" 304 LIMESTONE<br>CONCRETE 4" 304 LIMESTONE<br>SIDEWALK 3" 304 LIMESTONE | ⑬ ITEM 705.04 SAW CUT & SEAL JOINT; LONGITUDINAL, TRANSVERSE AND CURB & GUTTER JOINTS<br>ALTERNATE SUBGRADE PREP. (SEE NOTE 5 BELOW) |
| ⑥ ITEM 609 24" COMBINATION CURB & GUTTER; TYPE 2 MODIFIED (SEE DETAIL PV-6.0)                    | ⑭ ITEM 206 SOIL-CEMENT STABILIZATION FOR ASPHALT OR CONCRETE PAVEMENT  |
| ⑦ ITEM 605 4" UNDERDRAINS (SEE DETAIL PV-5.0)  |  |
| ⑧ ITEM 659 SEEDING AND MULCHING (SEE SUBDIVISION REGULATIONS)                                    |  |

\* WHERE GRANULAR FILL IS USED TO REPLACE SOFT SUBBASE AREAS, EXTEND CUT AND GRANULAR TO UNDERDRAIN.

- NOTES:
1. THE SAFETY-SERVICE DIRECTOR SHALL DETERMINE THE RIGHT OF WAY WIDTH FOR INDUSTRIAL STREETS, THOROUGHFARES AND ARTERIES.
  2. COMPACTION OF TRENCHES IN THE RIGHT-OF-WAY IS REQUIRED FOR ALL UTILITIES.
  3. LIMESTONE SHALL BE USED FOR ALL AGGREGATE SUBBASE, FOR AGGREGATE IN ASPHALT CONCRETE SURFACE COURSE AND FOR AGGREGATE IN CONCRETE.
  4. BLAST FURNACE SLAG IS NOT PERMITTED IN PORTLAND CEMENT CONCRETE MIXES.
  5. IF SOIL-CEMENT STABILIZATION IS USED FOR SUBGRADE STABILIZATION, THE DESIGN PAVEMENT BUILDUP SHALL BE BASED ON GEOTECHNICAL RECOMMENDATIONS.
  6. CONCRETE PAVEMENT TRANSVERSE JOINTS (SEE PV-16.0) ARE REQUIRED EVERY 15 FT. AND AT RE-ENTRY CORNERS; SKEW JOINTS 3' FROM PERPENDICULAR WITH BACK OF CURB.
  7. SEAL ALL PAVEMENT PENETRATIONS (MANHOLES, WATER VALVES, ETC.) PER ODOT 451.16/705.04.
  8. FIBER REINFORCEMENT FOR PORTLAND CEMENT CONCRETE SHALL BE FORTA-FERRO OR APPROVED EQUAL, APPLIED AT A RATE OF 4 LBS./CU.YD.



## CONCRETE STREET

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Steven M. Wheeler  
Safety-Service Director

NO.	DATE	REVISION
1	6/29/07	Item 11&12 - Tie Bar Spacing Rev
2	4/1/09	Revise Asphalt Buildup and Underdrain Size; Revise Note 3; Remove Note 5.
3	3/20/15	Revise Sheet Number, Legend & Notes.

### SUBDIVISION AND ZONING REGULATIONS ENGINEERING CONSTRUCTION STANDARDS TYPICAL PAVING SECTION - INDUSTRIAL STREETS, THOROUGHFARES, AND ARTERIES

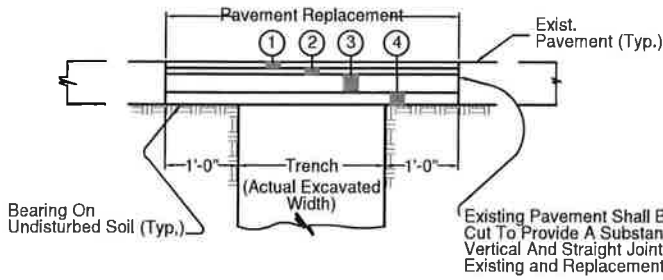
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DRWN BY: DLS	APPRVD BY: BLJ	ISSUE DATE: 03/15/07	SCALE: NONE
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SHEET

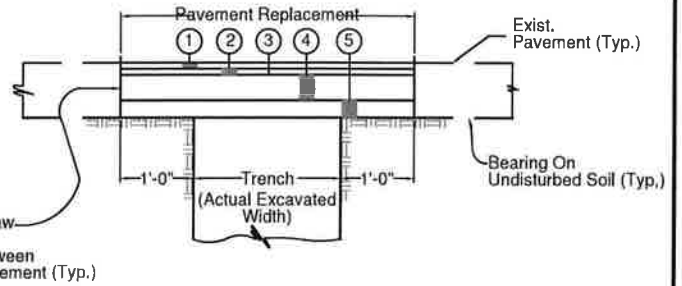
PV-2

**PAVEMENT REPLACEMENT OVER UTILITY TRENCH**



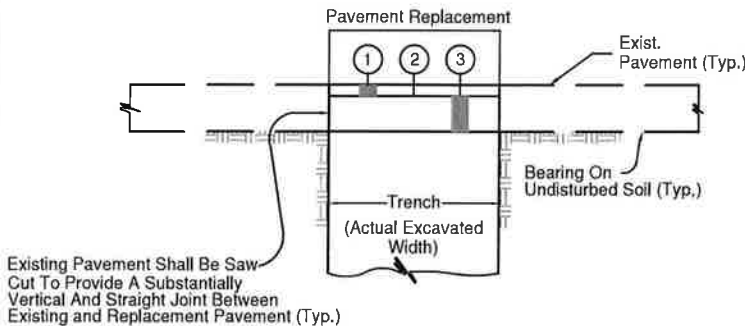
- ① 1/4" - Item 441 Asphalt Concrete Surface Course, Type 1, Medium Duty
- ② 1 3/4" - Item 441 Asphalt Concrete Intermediate Course, Type 2, Medium Duty
- ③ 6" - Item 301 Bituminous Aggregate Base (Placed In 2 Equal Layers)
- ④ 4" - Item 304 Aggregate Base (Limestone)

FULL DEPTH ASPHALT SURFACE  
N.T.S.



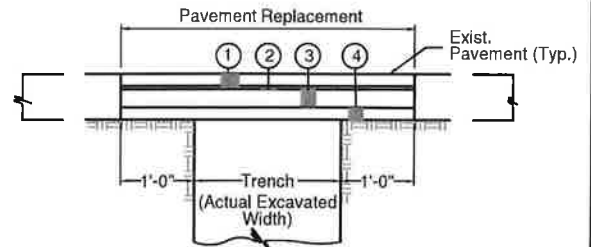
- ① 1/4" - Item 441 Asphalt Concrete Surface Course, Type 1, Medium Duty
- ② 1 3/4" - Item 441 Asphalt Concrete Intermediate Course, Type 2, Medium Duty
- ③ Item 407 Tack Coat (0.1 Gal. Bituminous Material Per Sq. Yd.)
- ④ 6" - Item 305 Portland Cement Concrete Base
- ⑤ 4" - Item 304 Aggregate Base (Limestone)

ASPHALT SURFACE ON CONCRETE OR BRICK BASE  
N.T.S.



- ① 3" - Item 441 Asphalt Concrete Surface Course, Type 1, Medium Duty
- ② Item 408 Prime Coat (0.5 Gal. Bituminous Material Per Sq. Yd.)
- ③ 6" - Item 304 Aggregate Base (Limestone)

CHIP & SEAL SURFACE ON AGGREGATE BASE  
N.T.S.



- ① Relaid or Replacement Bricks
- ② 1" - Item 703.6 Sand Cushion
- ③ 6" - Item 305 Portland Cement Concrete Base
- ④ 4" - Item 304 Aggregate Base (Limestone)

BRICK PAVEMENT  
N.T.S.

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Steven M. Wheeler  
Safety-Service Director

NO.	DATE	REVISION
1	4/1/09	Revise Chip & Seal Buildup, Add "Limestone" to Item 304 Aggregate Base
2	3/20/15	Revise Item Numbers for Asphalt Concrete

**SUBDIVISION AND ZONING REGULATIONS  
ENGINEERING CONSTRUCTION STANDARDS  
PAVEMENT REPLACEMENT DETAILS**

CAD FILE  
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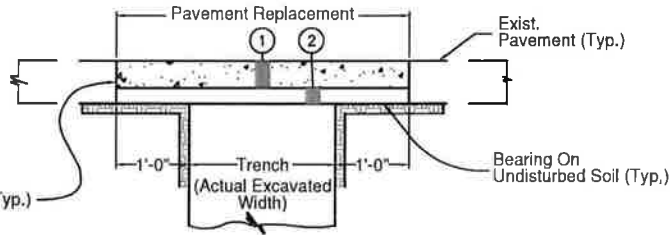
SHEET

DRWN BY DLS	APPRVD BY BLJ	ISSUE DATE 03/15/07	SCALE NONE
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**PV-3.0**

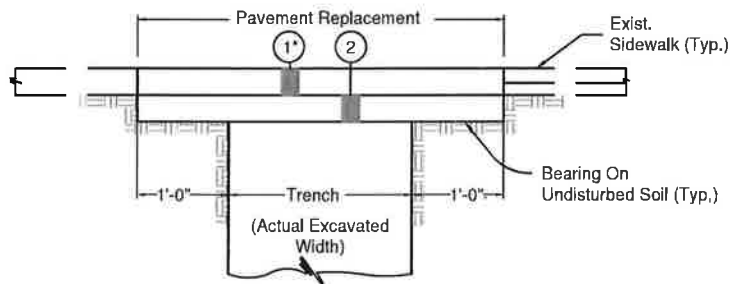
**PAVEMENT REPLACEMENT OVER UTILITY TRENCH, CONT'D**

Existing Pavement Shall Be Saw Cut To Provide A Substantially Vertical And Straight Joint Between Existing and Replacement Pavement (Typ.)



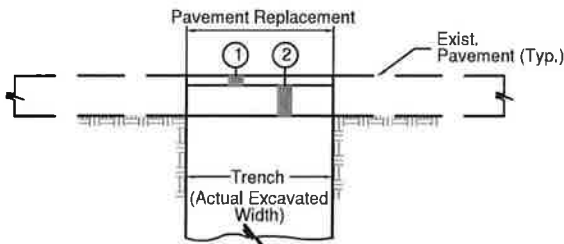
- ① 7" - Item 452 Non-Reinforced Portland Cement Concrete Pavement (Limestone Aggregate)
- ② 4" - Item 304 Aggregate Base (Limestone)

CONCRETE SURFACE  
N.T.S.



- ① 4" - Item 608 Concrete Walks (Limestone Aggregate)
- ② 3" - Item 304 Aggregate Base (Limestone)

SIDEWALKS  
N.T.S.



- ① 2" - Item 411 Stabilized Crushed Aggregate (Limestone, Slag, Gravel Or Cinders To Match Existing.)
- ② 4" - Item 304 Aggregate Base (Limestone)

CRUSHED AGGREGATE SURFACE  
N.T.S.

**NOTES: PAVEMENT REPLACEMENT OVER UTILITY TRENCHES:**

1. All Pavement And Sidewalk Replacement Details Shown Represent The Minimum Acceptable Repair. If Existing Surfaces Exceed These Details, Then Repaired Surfaces Shall Match The Existing.
2. All Joints Between Existing Curb Or Pavement And The Pavement Replacement Surface Shall Be Sealed With A Hot Applied Joint Sealer Conforming To O.D.O.T. 705.04.
3. The Integrity Of Concrete Pavements Will Be Compromised By Saw Cutting. Therefore, The Entire Panel Of Pavement Affected Must Be Replaced, Unless Otherwise Authorized By The Safety-Service Director Or Their Designee. If Damage Or Spalling Occurs During Construction On An Adjacent Panel, Saw Cutting And Replacement Of A Part Of The Adjacent Panel Will Also Be Required.
4. Pavement Replacement Shall Include Restoration or Replacement of All Damaged Pavement Markings.
5. Limestone Aggregate Shall Be Used In All Asphalt And Concrete Used For Pavement Replacement.
6. Refer to ST-11, UT-2 and UT-3 For Utility Trench Backfill Requirements.
7. These Notes Also Apply To PV-3.0.

NOTE 1: THIS DETAIL IS VALID ONLY WHEN USED AS PRESENTED HERE, WITHOUT CHANGES, AND IN CONJUNCTION WITH ANY GENERAL NOTES AND/OR OTHER DETAILS WHICH MAY APPLY. ANY CHANGES TO THIS DETAIL SHALL FIRST BE SUBMITTED TO AND APPROVED BY THE SAFETY-SERVICE DIRECTOR.

NOTE 2: BEFORE ANY EXCAVATING, CALL THE FOLLOWING NUMBERS AT LEAST 48 HOURS IN ADVANCE: O.U.P.S. @ (800) 362-2764 AND O.A.G.P.U.P.S. @ (800) 925-0988.

**City of Orrville : Safety-Service Department**

207 N. Main Street Orrville, Ohio 44667  
Phone: (330) 684-5000 Fax: (330) 684-5023

Steven M. Wheeler  
Safety-Service Director

**SUBDIVISION AND ZONING REGULATIONS  
ENGINEERING CONSTRUCTION STANDARDS  
PAVEMENT REPLACEMENT DETAILS**

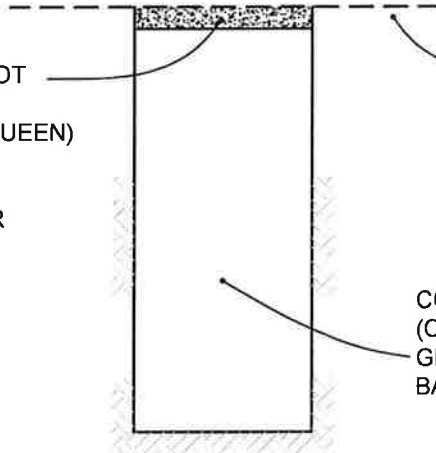
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DRWN BY DLS APPRVD BY BLJ ISSUE DATE 03/15/07 SCALE NONE

SHEET

**PV-3.1**

NO.	DATE	REVISION
1	7/03/07	Note 3. Revision
2	4/01/09	Add "Limestone" to Item 304 Aggregate Base
3	3/20/15	Revise Note 2.; Add Note 6. & 7.

2" 4000 PSI CONCRETE (ODOT ITEM 499.03) WITH AN ANTI-BONDING LAYER (VISQUEEN) OR COLD MIX ASPHALT, AS DIRECTED BY THE SAFETY-SERVICE DIRECTOR



EXISTING PAVEMENT

COMPACTED GRANULAR MATERIAL (ODOT 304) LIMESTONE, CRUSHED GRAVEL OR LOW STRENGTH MORTAR BACKFILL (ODOT 613, TYPE 1)

**NOTE 1:** TEMPORARY PAVEMENT PATCHES SHALL BE MAINTAINED IN A DRIVABLE CONDITION.

**NOTE 2:** TEMPORARY PAVEMENT PATCHES SHALL BE REPLACED WITH PERMANENT PAVEMENT RESTORATION AS SOON AS POSSIBLE.

**NOTE 3:** TEMPORARY CONCRETE SHALL USE NO. 8 STONE.

**NOTE 1:** THIS DETAIL IS VALID ONLY WHEN USED AS PRESENTED HERE, WITHOUT CHANGES, AND IN CONJUNCTION WITH ANY GENERAL NOTES AND/OR OTHER DETAILS WHICH MAY APPLY. ANY CHANGES TO THIS DETAIL SHALL FIRST BE SUBMITTED TO AND APPROVED BY THE SAFETY-SERVICE DIRECTOR.

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Safety-Service Director

NO.	DATE	REVISION
1	6/29/07	Compacted Granular Material Spec. Revised
2	4/01/09	Add Crushed Gravel to Granular Material
3	3/20/15	Revise Surface Course Spec.

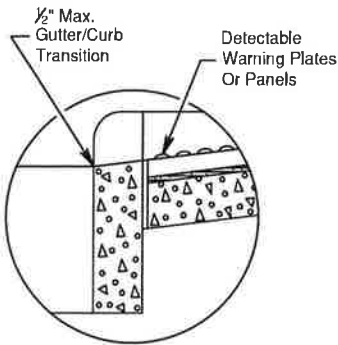
**SUBDIVISION AND ZONING REGULATIONS  
ENGINEERING CONSTRUCTION STANDARDS  
TEMPORARY PAVEMENT  
REPLACEMENT DETAIL**

CAD FILE  
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SHEET

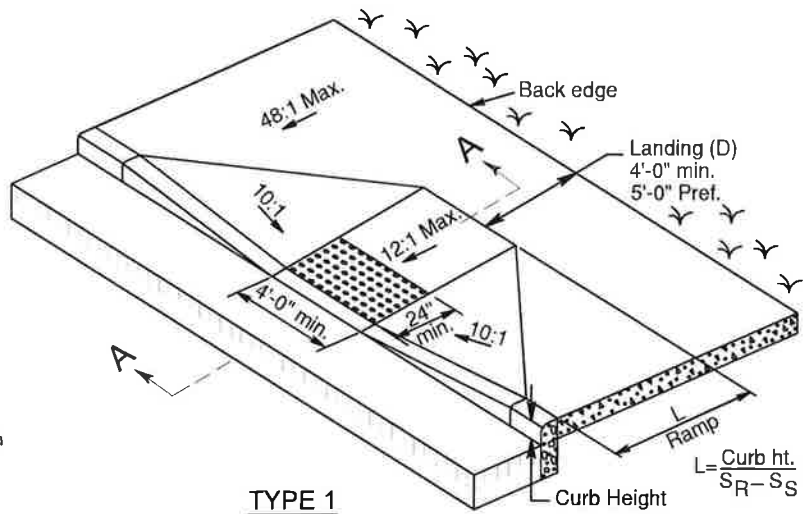
DRWN BY DLS	APPRVD BY BLJ	ISSUE DATE 03/15/07	SCALE NONE
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**PV-3.2**

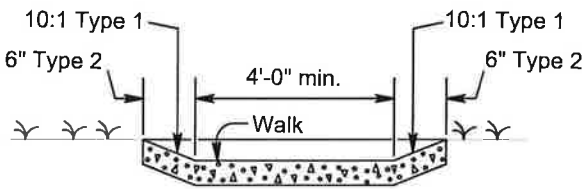


**DETAIL A**

Detectable Warnings (truncated domes) are to be installed in the location shown. Dimensions of the domes are 24" from the back of the curb by the width of the ramp.



**TYPE 1**



**SECTION D-D**

**TRUNCATED DOMES:** Install detectable warnings (truncated domes) for a distance of 24" from the back of the curb for the entire width of the ramp opening.

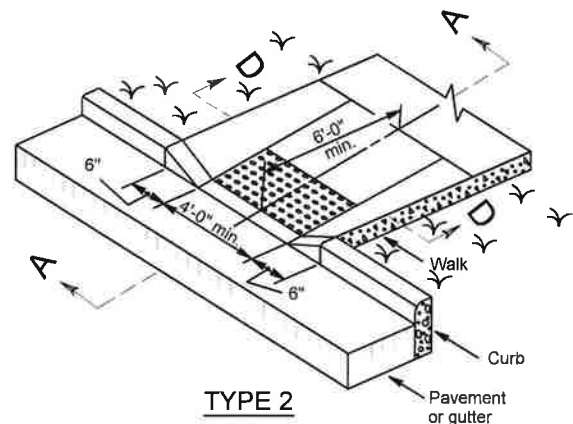
Panels will be laid on top of a 6" nonreinforced concrete base. Setting bed and joints to be mortared in accordance with manufacturer's instruction, or with a maximum 1/2" thick bed of latex modified cement mortar.

Panels shall be laid such that joints are level with adjoining joints so as to provide a smooth transition from panel to panel and from panel to concrete surface. The surface of any two adjacent units should not differ by more than 1/8" in height.

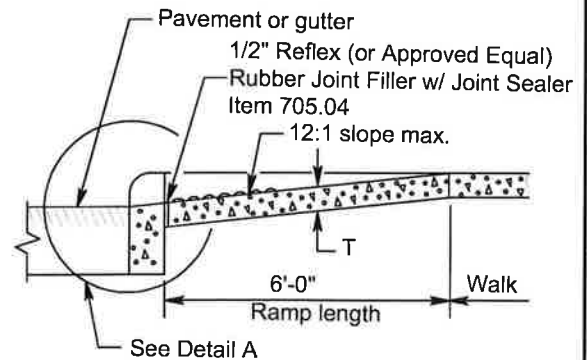
Detectable warning plates shall be East Jordan Iron Works Product #00700541 or approved equal. Installation of warning plates shall be in accordance with the manufacturer's written instructions. Lettering on the warning plates shall be oriented in the same direction on each 2'x2' casting.

Refer to ODOT SCD BP-7.1 and BP-7.2 for additional notes regarding curb ramps and detectable warnings.

Handicap Ramps Must Be ADA Compliant.



**TYPE 2**



**SECTION A-A**

T= 6" MIN. FOR RESIDENTIAL STREETS  
T= 8" MIN. FOR COMMERCIAL/HIGH TRAFFIC STREETS

**NOTE 1:** THIS DETAIL IS VALID ONLY WHEN USED AS PRESENTED HERE, WITHOUT CHANGES, AND IN CONJUNCTION WITH ANY GENERAL NOTES AND/OR OTHER DETAILS WHICH MAY APPLY. ANY CHANGES TO THIS DETAIL SHALL FIRST BE SUBMITTED TO AND APPROVED BY THE SAFETY-SERVICE DIRECTOR.

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Steven M. Wheeler  
Safety-Service Director

**SUBDIVISION AND ZONING REGULATIONS  
ENGINEERING CONSTRUCTION STANDARDS  
CURB RAMP DETAILS**

CAD FILE

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SHEET

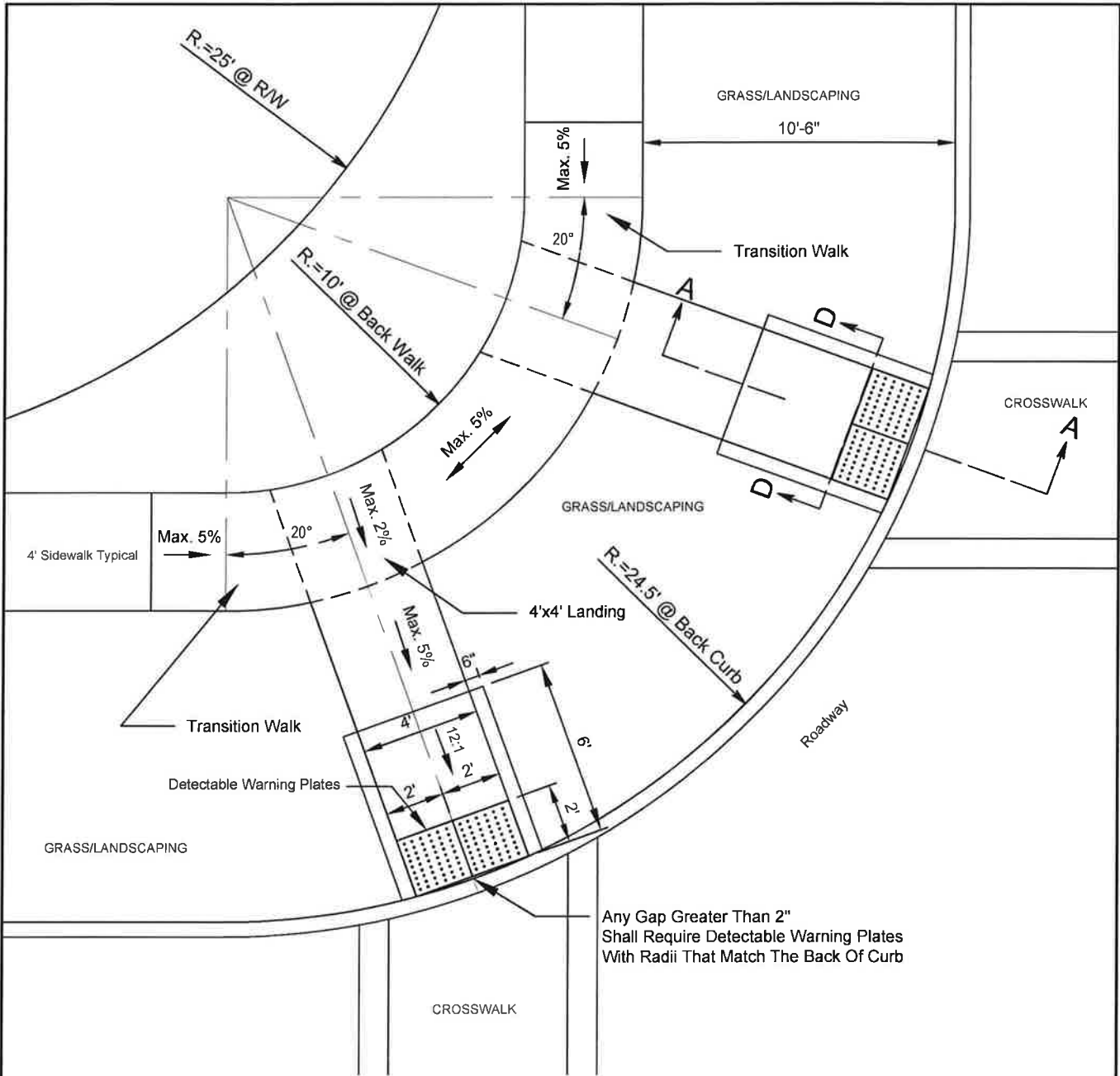
**PV-4.0**

DRWN BY  
DLS

APPRVD BY  
BLJ

ISSUE DATE  
03/15/07

SCALE  
NONE



**TYPICAL DETAIL FOR NEW RESIDENTIAL INTERSECTIONS**

**NOTES:**

1. SEE PV-4.0 FOR SECTIONS A-A & D-D.
2. SEE PV-4.0 FOR DETECTABLE WARNING PLATE DETAILS.
3. HANDICAP RAMPS MUST BE ADA COMPLIANT.

NOTE 1: THIS DETAIL IS VALID ONLY WHEN USED AS PRESENTED HERE, WITHOUT CHANGES, AND IN CONJUNCTION WITH ANY GENERAL NOTES AND/OR OTHER DETAILS WHICH MAY APPLY. ANY CHANGES TO THIS DETAIL SHALL FIRST BE SUBMITTED TO AND APPROVED BY THE SAFETY-SERVICE DIRECTOR.

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Steven M. Wheeler  
Safety-Service Director

NO.	DATE	REVISION
1	4/1/09	Revise Curb Ramp Layout

**SUBDIVISION AND ZONING REGULATIONS  
ENGINEERING CONSTRUCTION STANDARDS  
RESIDENTIAL CURB RAMP DETAILS**

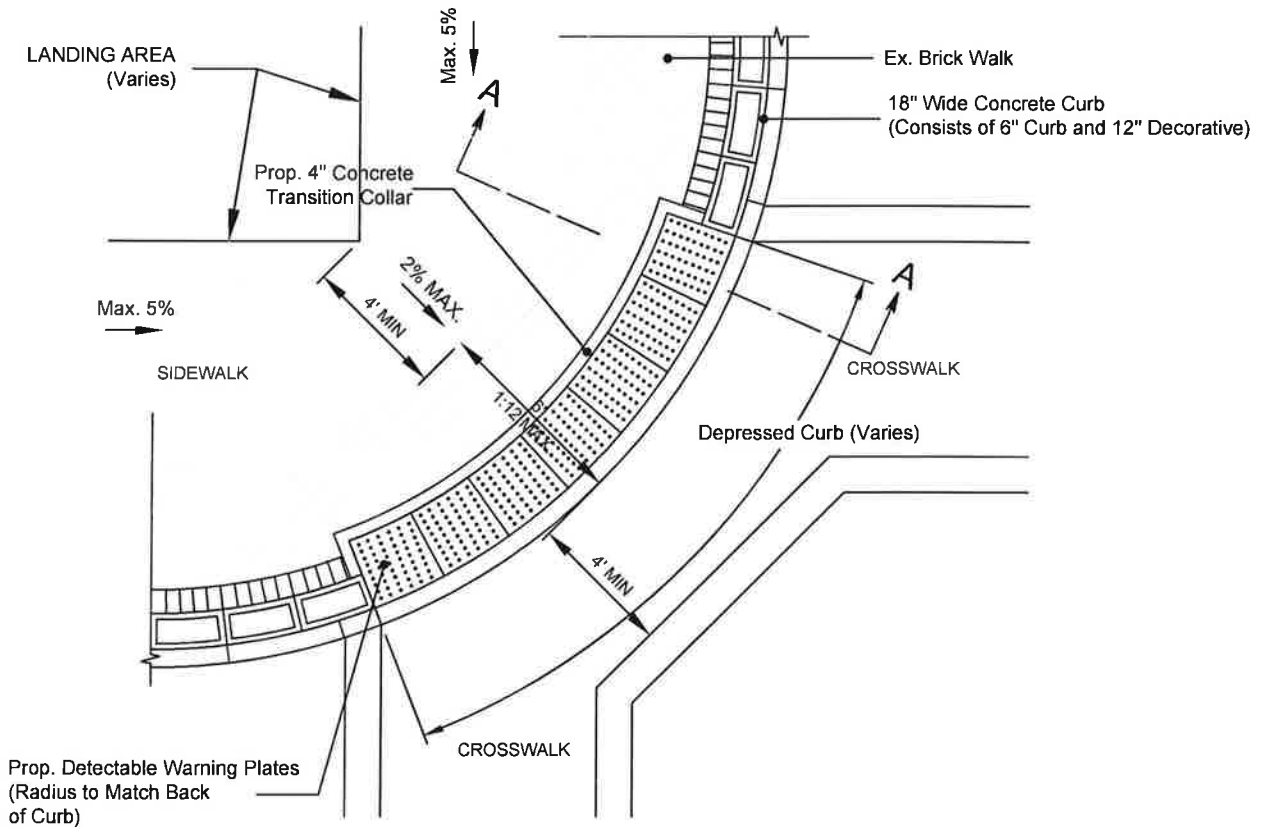
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SHEET

DRWN BY	APPRVD BY	ISSUE DATE	SCALE
DLS	BLJ	03/15/07	NONE

**PV-4.1**





**TYPICAL DETAIL FOR EXISTING DOWNTOWN INTERSECTIONS**

**NOTES:**

1. SEE PV-4.0 FOR SECTION A-A.
2. SEE PV-4.0 FOR DETECTABLE WARNING PLATE DETAILS.
3. HANDICAP RAMPS MUST BE ADA COMPLIANT.

NOTE 1: THIS DETAIL IS VALID ONLY WHEN USED AS PRESENTED HERE, WITHOUT CHANGES, AND IN CONJUNCTION WITH ANY GENERAL NOTES AND/OR OTHER DETAILS WHICH MAY APPLY. ANY CHANGES TO THIS DETAIL SHALL FIRST BE SUBMITTED TO AND APPROVED BY THE SAFETY-SERVICE DIRECTOR.

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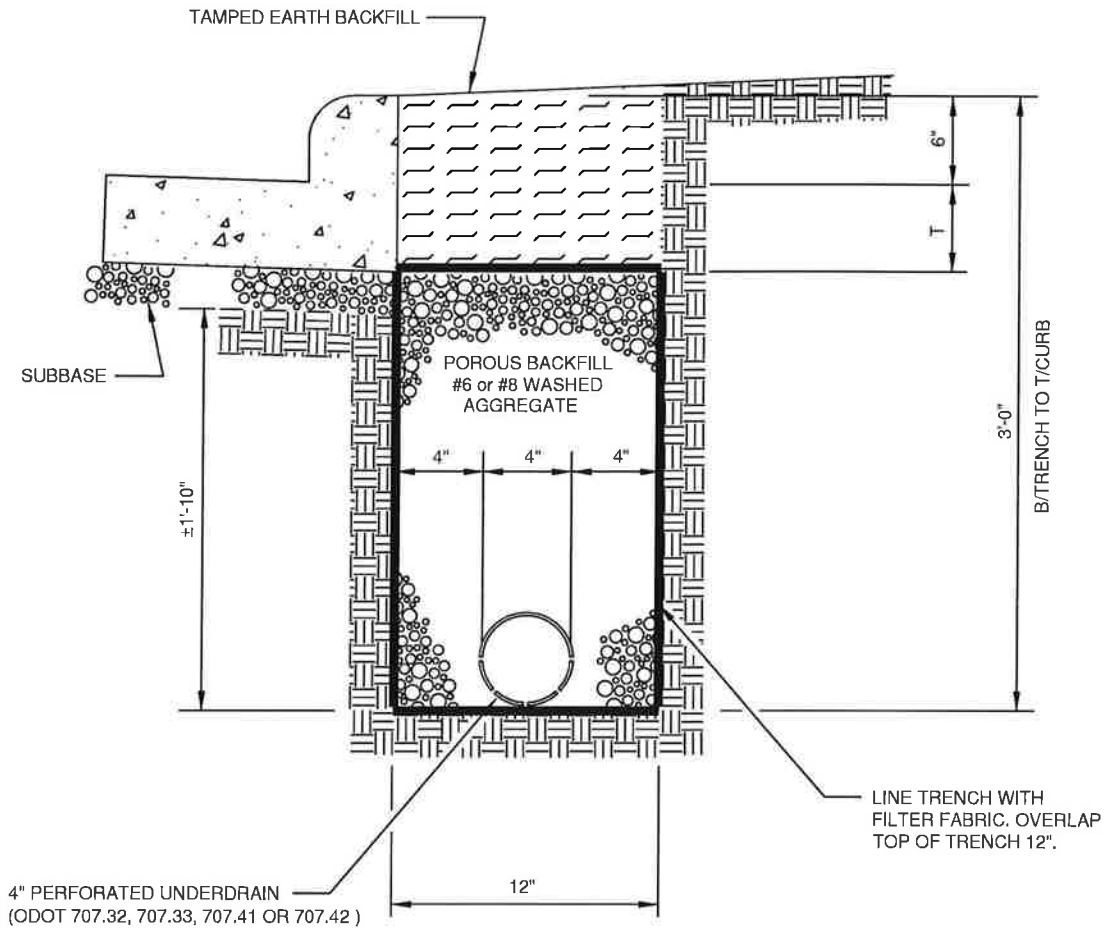
Fax: (330) 684-5023

Steven M. Wheeler  
Safety-Service Director

NO.	DATE	REVISION
1	4/1/09	Added Downtown Curb Ramp Detail

**SUBDIVISION AND ZONING REGULATIONS  
ENGINEERING CONSTRUCTION STANDARDS  
DOWNTOWN CURB RAMP DETAILS**

CAD FILE				SHEET
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DRWN BY:	APPRVD BY:	ISSUE DATE:	SCALE:	PV-4.2
DLS	BLJ	03/15/07	NONE	



## STANDARD UNDERDRAIN

### NOTES:

1. UNDERDRAINS ARE REQUIRED FOR ALL STREET CONSTRUCTION, UNLESS APPROVED OTHERWISE, OR MODIFIED, BY THE SAFETY-SERVICE DIRECTOR.
2. UNDERDRAIN PIPING OR TUBING SHALL BE INSTALLED TRUE TO LINE AND GRADE AS SHOWN ON THE PLANS.
3. THE TRENCH SHALL BE LINED WITH ODOT 712.09 TYPE A FILTER FABRIC.  
*ALTERNATE:* INSTALL 4" PERFORATED UNDERDRAIN WITH FACTORY INSTALLED "DRAIN-SLEEVE" FILTER SOCK OR APPROVED EQUAL.
4. SEE ST-8.0 & ST-9.0 FOR ADDITIONAL UNDERDRAIN DETAILS.
5. NO TRENCHING ("DITCH WITCH" SHALL NOT BE USED). COMPACT BOTTOM OF DITCH BEFORE PIPE IS INSTALLED.

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Orville, Ohio 44667

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Steven M. Wheeler  
Safety-Service Director

### SUBDIVISION AND ZONING REGULATIONS ENGINEERING CONSTRUCTION STANDARDS

### UNDERDRAIN DETAIL

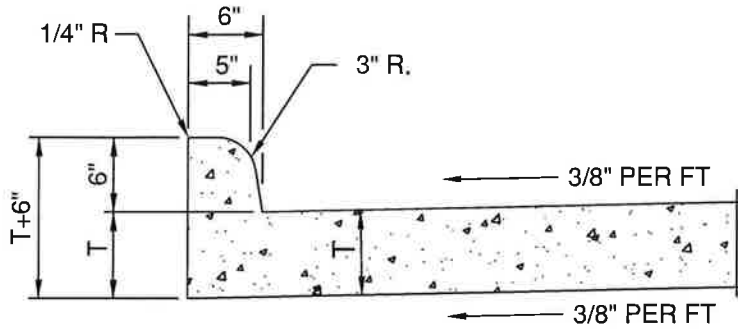
NO.	DATE	REVISION
1	4/1/09	Revise Underdrain Size
2	3/20/15	Revise Sheet Number, Filter Fabric Labels and Note 3.

CAD FILE:  
S:\\_AutoCAD\By\_County\Wayne.Co\Orville\Construction Std\FV-05.dwg

SHEET:

DRWN BY: DLS	APPRVD BY: BLJ	ISSUE DATE: 03/15/07	SCALE: NONE
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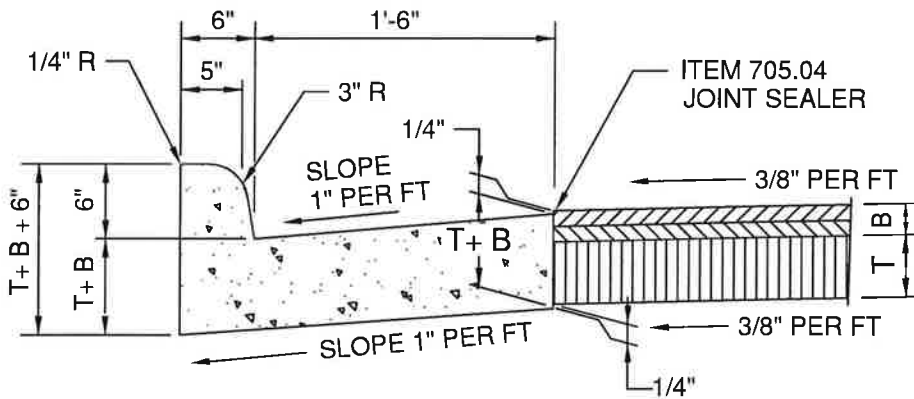
PV-5



## TYPE 2-A CURB & GUTTER INTEGRAL WITH CONCRETE PAVEMENT

T = 7" MIN FOR RESIDENTIAL STREETS

T = 9" MIN FOR INDUSTRIAL STREETS, THOROUGHFARES, AND ARTERIES



## MODIFIED TYPE 2 CURB & GUTTER FOR ASPHALT PAVEMENT

T = 6" MIN BASE FOR RESIDENTIAL STREETS

T = 8" MIN BASE FOR INDUSTRIAL STREETS, THOROUGHFARES, AND ARTERIES

B = 3" FOR RESIDENTIAL STREETS

B = 3 1/2" FOR INDUSTRIAL STREETS, THOROUGHFARES, AND ARTERIES

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**City of Orrville : Safety-Service Department**

207 N. Main Street      Orrville, Ohio 44667  
Phone: (330) 684-5000      Fax: (330) 684-5023

Steven M. Wheeler  
Safety-Service Director

NO.	DATE	REVISION
1	4/1/09	Change Safety-Service Director

**SUBDIVISION AND ZONING REGULATIONS  
ENGINEERING CONSTRUCTION STANDARDS**

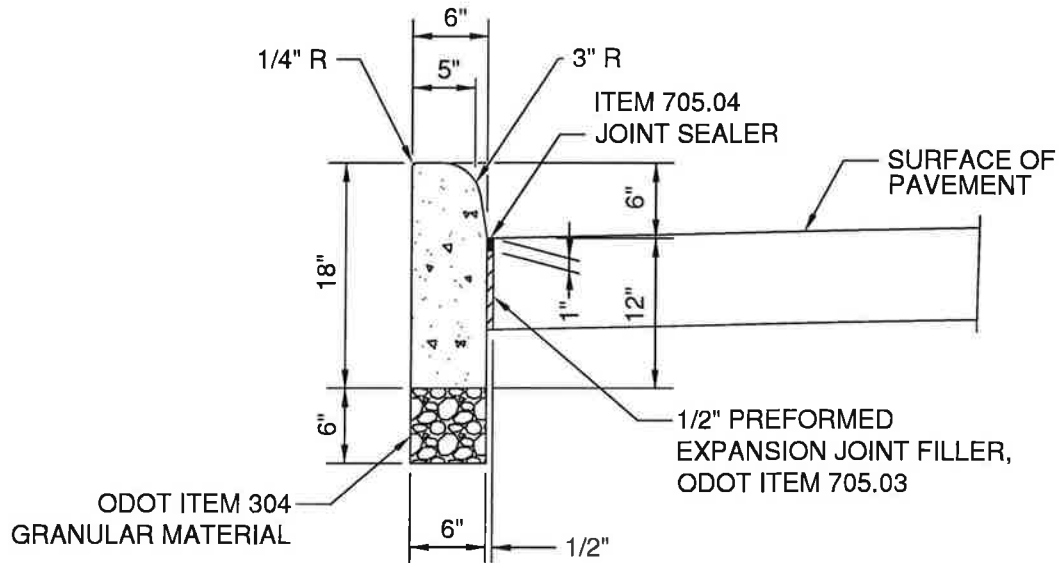
**CURB & GUTTER DETAILS**

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SHEET

DRWN BY DLS	APPRVD BY BLJ	ISSUE DATE 03/15/07	SCALE NONE
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PV-6.0



**ODOT TYPE 6 CURB**

**NOTES:**

1. PREFORMED EXPANSION JOINT FILLER IS NOT REQUIRED WHERE CURB IS ADJACENT TO ASPHALT PAVEMENT.

**NOTE 1:** THIS DETAIL IS VALID ONLY WHEN USED AS PRESENTED HERE, WITHOUT CHANGES, AND IN CONJUNCTION WITH ANY GENERAL NOTES AND/OR OTHER DETAILS WHICH MAY APPLY. ANY CHANGES TO THIS DETAIL SHALL FIRST BE SUBMITTED TO AND APPROVED BY THE SAFETY-SERVICE DIRECTOR.

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Steven M. Wheeler  
 Safety-Service Director

**SUBDIVISION AND ZONING REGULATIONS  
 ENGINEERING CONSTRUCTION STANDARDS**

**TYPE 6 CURB DETAIL**

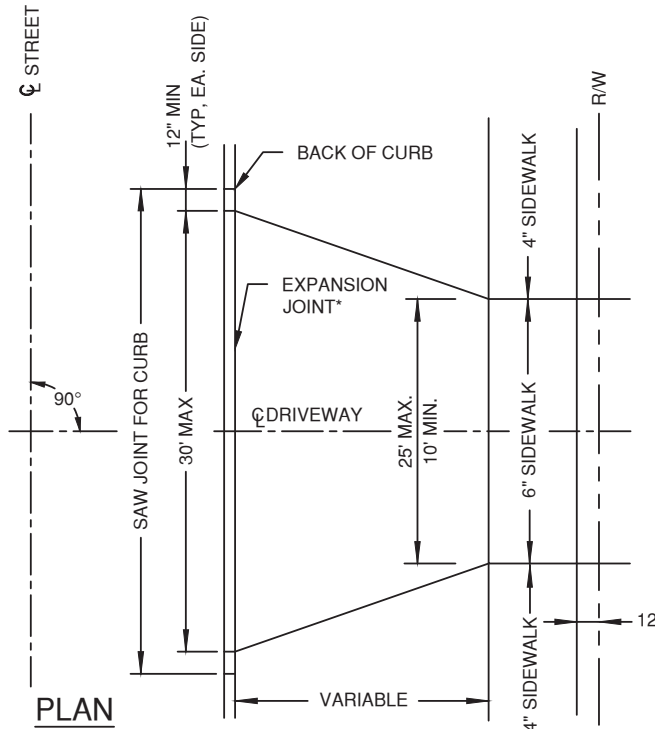
NO.	DATE	REVISION
1	3/20/15	Add This Detail To Engineering Construction Standards

CAD FILE:  
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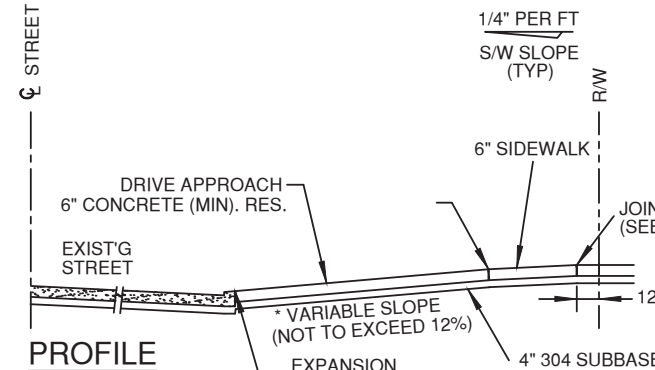
SHEET:  
**PV-6.1**

DRWN BY	APPRVD BY	ISSUE DATE	SCALE
DLS	SMW	12/15/14	NONE

## DRIVE APPROACH ON IMPROVED STREET

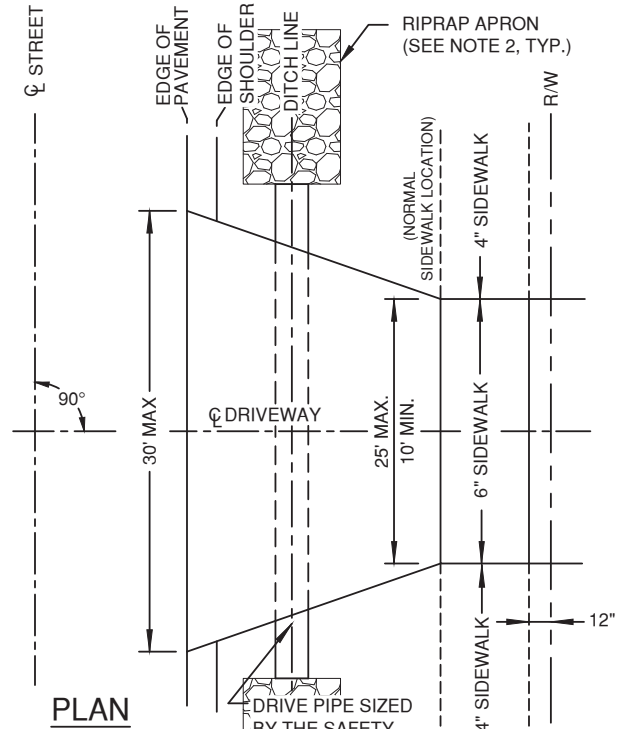


PLAN

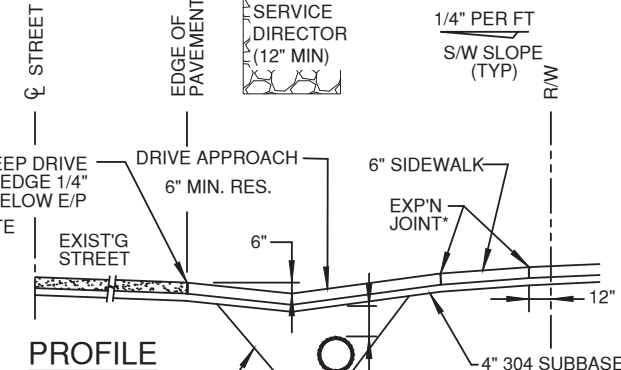


PROFILE

## DRIVE APPROACH ON UNIMPROVED STREET



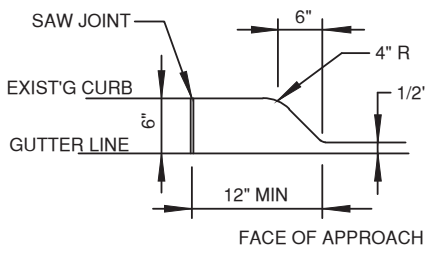
PLAN



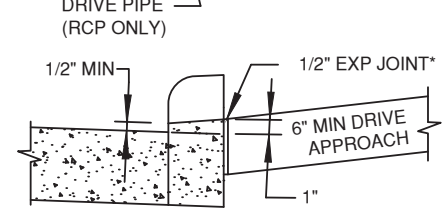
PROFILE

**NOTES:**

- CUT EXIST. CURB USING A HORIZONTAL SAW WITH NEAT LINES CONFORMING TO THESE DETAILS (CURB CUT PERMIT REQUIRED). IF EXIST. CURB IS IN POOR CONDITION, CONTACT ENGINEERING DEPT. FOR REPLACEMENT/REMOVAL GUIDANCE.
- INSTALL 4"Wx6"Lx12"THICK ODOT ITEM 601 RCP, TYPE D AT THE INLET AND OUTLET OF DRIVE PIPE.
- IF THE DRIVE APPROACH IS POURED AT THE SAME TIME AS THE PRIVATE CONC. DRIVE, INSTALL A CONTRACTION JOINT (PV-16.0). IF THE DRIVE APPROACH WILL ABUT AN ASPHALT PRIVATE DRIVE, SEAL THE JOINT WITH HOT APPLIED JOINT SEALER, ODOT ITEM 705.04.



FACE OF APPROACH



CURB CUT DETAILS

\* EXPANSION JOINTS SHALL BE 1/2" PREFORMED JOINT FILLER, ITEM 705.03 W/ JOINT SEALER, ITEM 705.04

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Steven M. Wheeler  
 Safety-Service Director

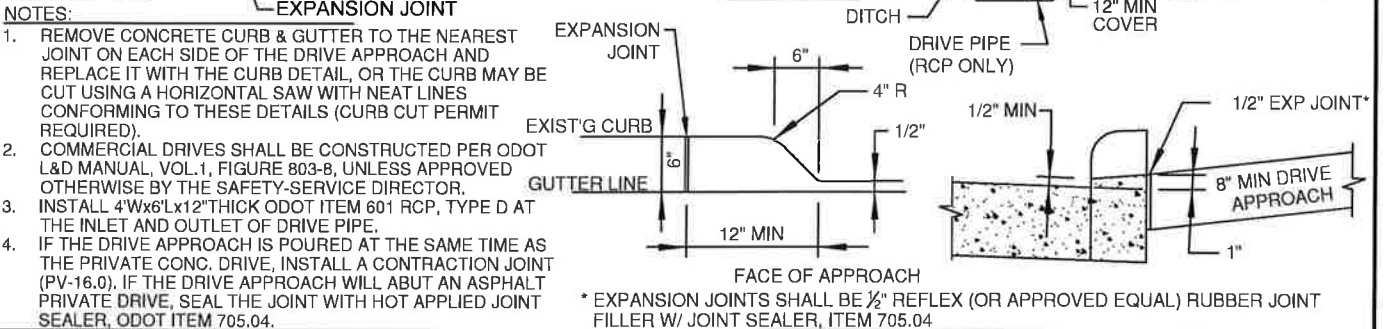
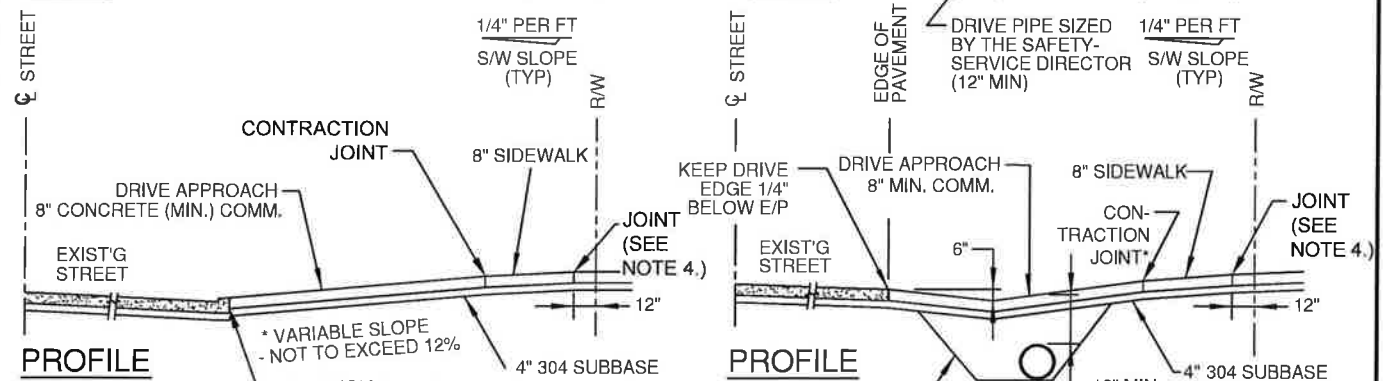
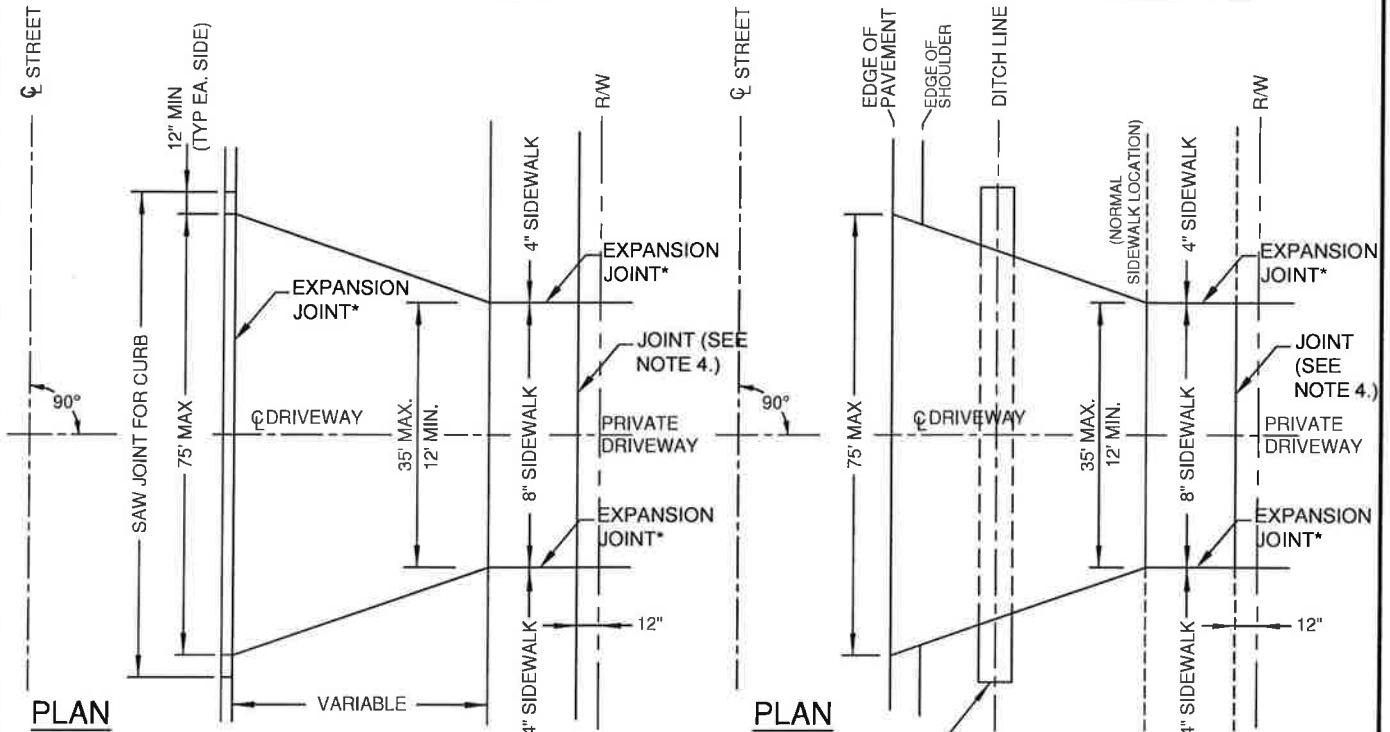
NO.	DATE	REVISION
1	4/1/09	Revise Drive Pipe Material; Create Separate Residential Drive Approach
2	3/20/15	Revise Dimensions, Add Joints, Revise Joint Material and Add Note 3.
3	10/24/23	Revise Note 1, Add Graphic for Note 2, and Add Curb Cut Detail Callout.

## SUBDIVISION AND ZONING REGULATIONS ENGINEERING CONSTRUCTION STANDARDS RESIDENTIAL DRIVE APPROACH DETAILS

CAD FILE: C:\Users\lawilson\Documents\Engineering Standards_CAD\IPV-07_0.dwg				SHEET:
DRWN BY: DLS	APPRVD BY: BLJ	ISSUE DATE: 03/15/07	SCALE: NONE	PV-7.0

## DRIVE APPROACH ON IMPROVED STREET

## DRIVE APPROACH ON UNIMPROVED STREET



- NOTES:**
1. REMOVE CONCRETE CURB & GUTTER TO THE NEAREST JOINT ON EACH SIDE OF THE DRIVE APPROACH AND REPLACE IT WITH THE CURB DETAIL, OR THE CURB MAY BE CUT USING A HORIZONTAL SAW WITH NEAT LINES CONFORMING TO THESE DETAILS (CURB CUT PERMIT REQUIRED).
  2. COMMERCIAL DRIVES SHALL BE CONSTRUCTED PER ODOT L&D MANUAL, VOL.1, FIGURE 803-8, UNLESS APPROVED OTHERWISE BY THE SAFETY-SERVICE DIRECTOR.
  3. INSTALL 4"Wx6"Lx12" THICK ODOT ITEM 601 RCP, TYPE D AT THE INLET AND OUTLET OF DRIVE PIPE.
  4. IF THE DRIVE APPROACH IS POURED AT THE SAME TIME AS THE PRIVATE CONC. DRIVE, INSTALL A CONTRACTION JOINT (PV-16.0). IF THE DRIVE APPROACH WILL ABUT AN ASPHALT PRIVATE DRIVE, SEAL THE JOINT WITH HOT APPLIED JOINT SEALER, ODOT ITEM 705.04.

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**City of Orrville : Safety-Service Department**  
 207 N. Main Street Orrville, Ohio 44667  
 Phone: (330) 684-5000 Fax: (330) 684-5023  
 Steven M. Wheeler  
 Safety-Service Director

NO.	DATE	REVISION
1	4/1/09	Revise Drive Pipe Material; Create Separate Commercial Drive Approach
2	3/20/15	Revise Dimensions, Add Joints, Revise Joint Material And Add Note 3.

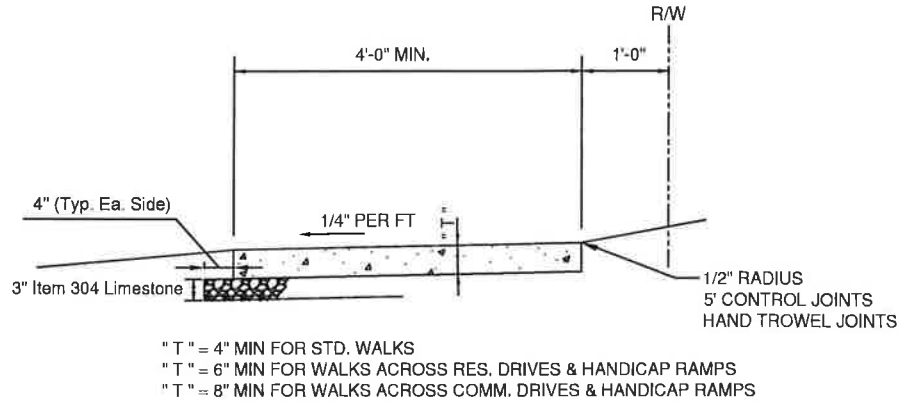
**SUBDIVISION AND ZONING REGULATIONS  
ENGINEERING CONSTRUCTION STANDARDS**

**COMMERCIAL AND INDUSTRIAL  
DRIVE APPROACH DETAILS**

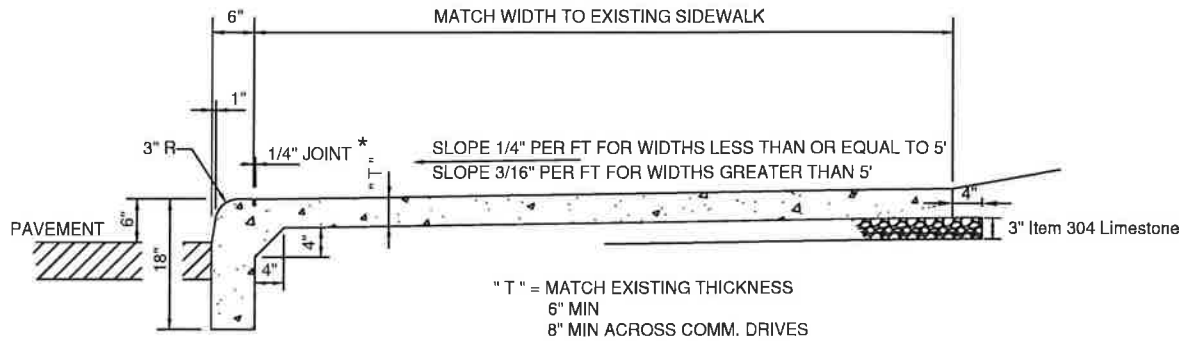
CAD FILE: S:\\_AutoCAD\By\_CountyWayne.Col\Orrville\Construction Std\IPV-07\_1.dwg SHEET

DRWN BY: DLS	APPRVD BY: BLJ	ISSUE DATE: 03/15/07	SCALE: NONE
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**PV-7.1**



### STANDARD SIDEWALK RESIDENTIAL/COMMERCIAL



### REPLACEMENT MONOLITHIC SIDEWALK/CURB

**NOTES:**

1. INSPECTION REQUIRED BEFORE SIDEWALKS ARE POURED.
2. PRIOR TO SIDEWALK CONSTRUCTION, EXCAVATE ( OR CONSTRUCT FILL MATERIAL) TO FINAL SIDEWALK GRADE. THEN EXCAVATE MATERIAL TO A DEPTH OF "T" + 3". OVER EXCAVATE ANY REMAINING ORGANICS OR ORGANIC SOIL. PLACE BASE MATERIAL AS SPECIFIED HEREIN AND CONSTRUCT SIDEWALK. AFTER CONCRETE HAS CURED, BACKFILL WITH EXCAVATED MATERIAL AGAINST EACH SIDE OF THE SIDEWALK. BACKFILL SHALL BE FREE OF STONES LARGER THAN 2", REFUSE, OR ORGANIC MATERIAL.
3. ALL CONCRETE SHALL BE 4000 PSI (ODOT ITEM 499.03).
4. CONTINUOUS SECTIONS OF CONCRETE SIDEWALK SHALL BE ISOLATED (EXPANSION JOINT) INTO 55 FOOT SECTIONS OR AT PROPERTY LINES, WHICHEVER IS LESS. EXPANSION JOINTS SHALL BE CONSTRUCTED WITH 1/2" REFLEX (OR APPROVED EQUAL) RUBBER JOINT FILLER. HOT APPLIED JOINT SEALER (ODOT ITEM 705.04) SHALL BE PLACED ON TOP OF THE JOINT FILLER FOR A DEPTH OF 1/2". EXPANSION JOINTS SHALL ALSO BE USED WHERE CONCRETE SIDEWALK ABUTS CONCRETE CURBS, STRUCTURES, POLES, HYDRANTS AND BUILDINGS.

NOTE 1: THIS DETAIL IS VALID ONLY WHEN USED AS PRESENTED HERE, WITHOUT CHANGES, AND IN CONJUNCTION WITH ANY GENERAL NOTES AND/OR OTHER DETAILS WHICH MAY APPLY. ANY CHANGES TO THIS DETAIL SHALL FIRST BE SUBMITTED TO AND APPROVED BY THE SAFETY-SERVICE DIRECTOR.

NOTE 2: BEFORE ANY EXCAVATING, CALL THE FOLLOWING NUMBERS AT LEAST 48 HOURS IN ADVANCE: O.U.P.S. @ (800) 362-2764 AND O.A.G.P.U.P.S. @ (800) 925-0988.

**City of Orrville : Safety-Service Department**

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Steven M. Wheeler  
 Safety-Service Director

**SUBDIVISION AND ZONING REGULATIONS  
 ENGINEERING CONSTRUCTION STANDARDS**

**SIDEWALK DETAILS**

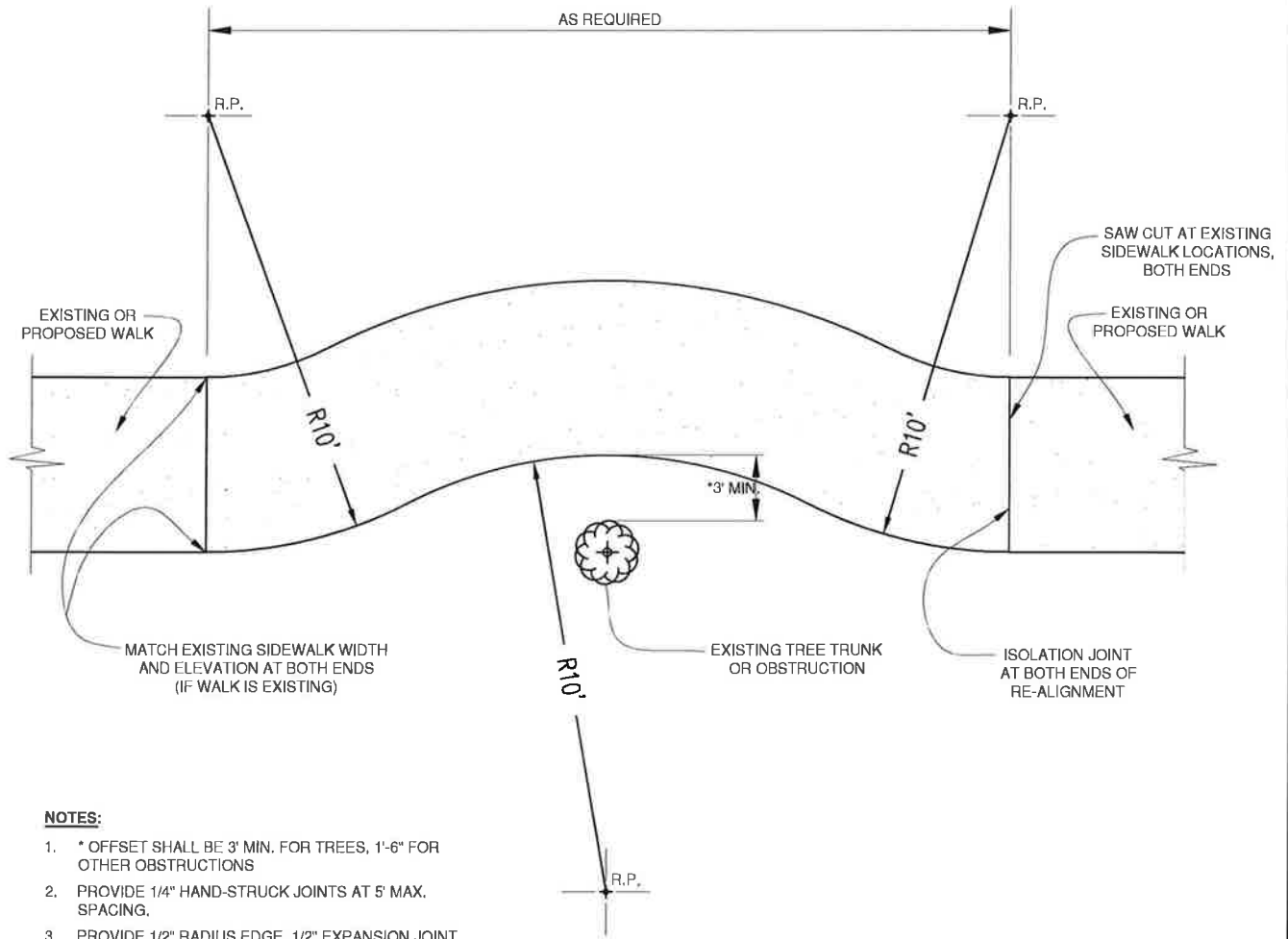
NO.	DATE	REVISION
1	4/1/09	Revise Base Material, Concrete Thickness
2	3/20/15	Revise Sheet Number, Note 2., Dimensions; Add Notes 3. & 4.

CAD FILE  
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SHEET

DRWN BY	APPRVD BY	ISSUE DATE	SCALE
DLS	BLJ	03/15/07	NONE

**PV-8**



**NOTES:**

1. \* OFFSET SHALL BE 3' MIN. FOR TREES, 1'-6" FOR OTHER OBSTRUCTIONS
2. PROVIDE 1/4" HAND-STRUCK JOINTS AT 5' MAX. SPACING.
3. PROVIDE 1/2" RADIUS EDGE, 1/2" EXPANSION JOINT W/ PREFORMED JOINT FILLER (ODOT ITEM 705.03) AND HOT APPLIED JOINT SEALER (ODOT ITEM 705.04) AT ALL ISOLATION JOINTS.
4. THE USE OF THIS DETAIL MUST BE REVIEWED AND APPROVED BY THE SAFETY-SERVICE DIRECTOR FOR EACH OBSTRUCTION OR APPLICATION.

**NOTE 1:** THIS DETAIL IS VALID ONLY WHEN USED AS PRESENTED HERE, WITHOUT CHANGES, AND IN CONJUNCTION WITH ANY GENERAL NOTES AND/OR OTHER DETAILS WHICH MAY APPLY. ANY CHANGES TO THIS DETAIL SHALL FIRST BE SUBMITTED TO AND APPROVED BY THE SAFETY-SERVICE DIRECTOR.

**NOTE 2:** BEFORE ANY EXCAVATING, CALL THE FOLLOWING NUMBERS AT LEAST 48 HOURS IN ADVANCE: O.U.P.S. @ (800) 362-2764 AND O.A.G.P.U.P.S. @ (800) 925-0988.

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Steven M. Wheeler  
 Safety-Service Director

**SUBDIVISION AND ZONING REGULATIONS  
 ENGINEERING CONSTRUCTION STANDARDS  
 SIDEWALK RE-ALIGNMENT DETAIL**

NO.	DATE	REVISION
1	4/1/09	Change Safety-Service Director
2	3/20/15	Revise Sheet Number & Note 3.

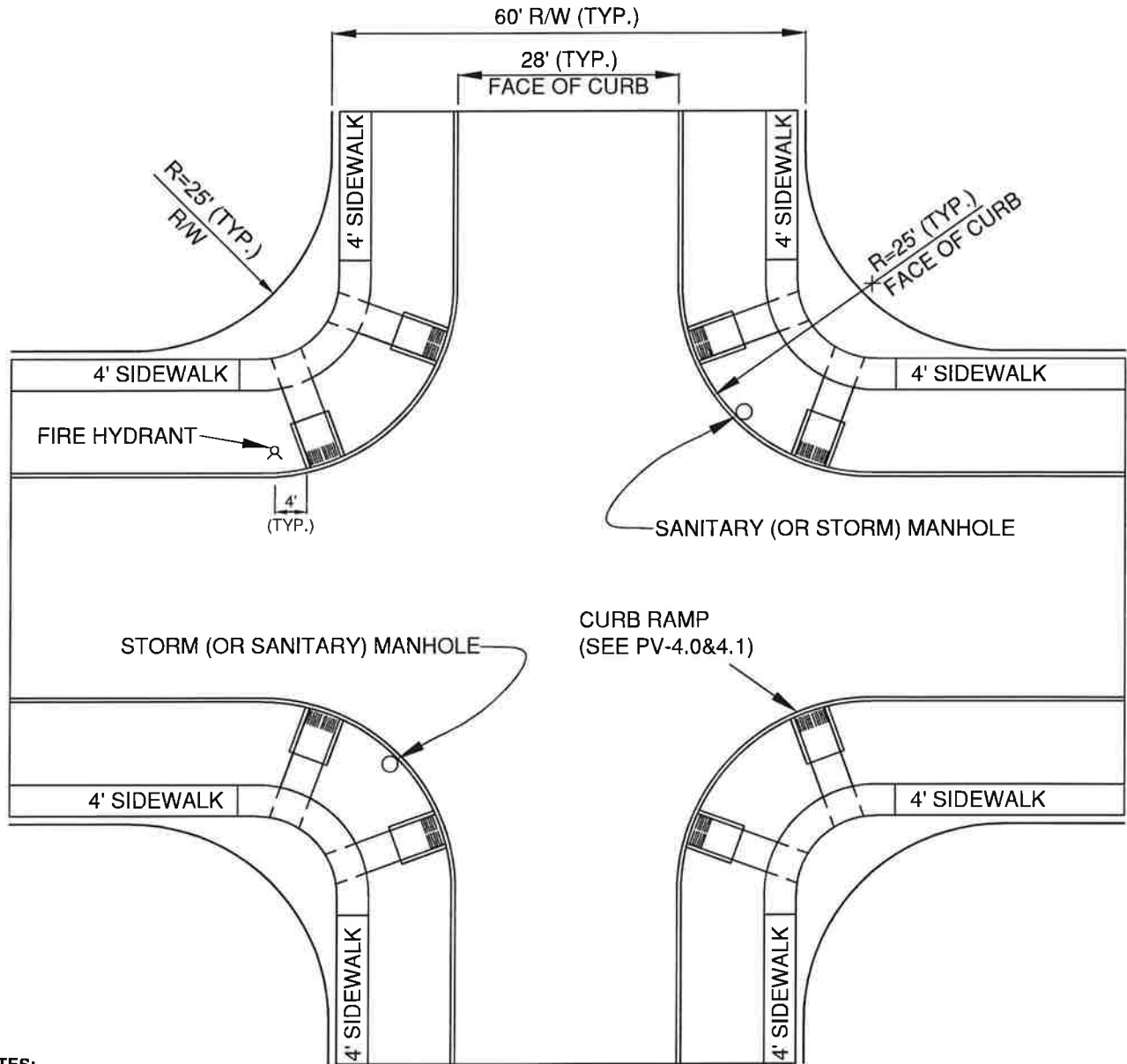
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SHEET

DRWN BY	APPRVD BY	ISSUE DATE	SCALE
DLS	BLJ	03/15/07	NONE

**PV-9**





**NOTES:**

1. THIS DRAWING REPRESENTS MINIMUM DIMENSIONS FOR RESIDENTIAL STREETS (60' R/W). CURB RADII, STREET WIDTH, AND SIDEWALK WIDTH SHALL BE INCREASED FOR INDUSTRIAL STREETS, THOROUGHFARES OR ARTERIES UP TO 80' R/W AS ESTABLISHED BY THE SAFETY-SERVICE DIRECTOR.
2. SEE DETAIL PV-1, TYPICAL PAVING SECTION RESIDENTIAL, FOR ADDITIONAL DIMENSIONS.

NOTE 1: THIS DETAIL IS VALID ONLY WHEN USED AS PRESENTED HERE, WITHOUT CHANGES, AND IN CONJUNCTION WITH ANY GENERAL NOTES AND/OR OTHER DETAILS WHICH MAY APPLY. ANY CHANGES TO THIS DETAIL SHALL FIRST BE SUBMITTED TO AND APPROVED BY THE SAFETY-SERVICE DIRECTOR.

NOTE 2: BEFORE ANY EXCAVATING, CALL THE FOLLOWING NUMBERS AT LEAST 48 HOURS IN ADVANCE: O.U.P.S. @ (800) 362-2764 AND O.A.G.P.U.P.S. @ (800) 925-0988.

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Steven M. Wheeler  
 Safety-Service Director

**SUBDIVISION AND ZONING REGULATIONS  
 ENGINEERING CONSTRUCTION STANDARDS  
 RESIDENTIAL INTERSECTION DETAIL**

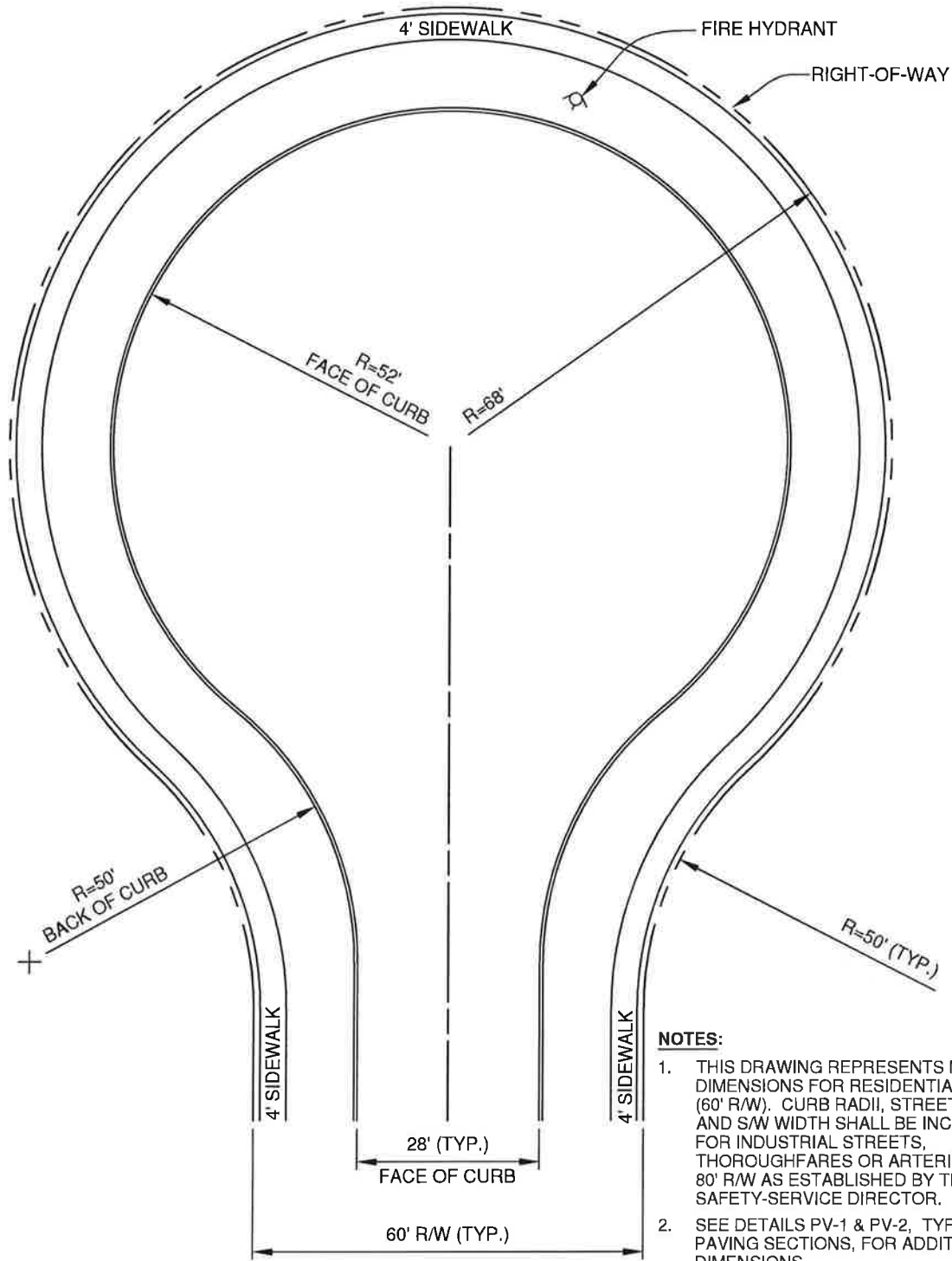
NO.	DATE	REVISION
1	4/1/09	Revise Curb Ramp Layout
2	3/20/15	Revise Sheet Number, Note 1., and Labeling For Face of Curb

CAD FILE  
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SHEET

DRWN BY	APPRVD BY	ISSUE DATE	SCALE
DLS	BLJ	03/15/07	NONE

**PV-10**



NOTE 1: THIS DETAIL IS VALID ONLY WHEN USED AS PRESENTED HERE, WITHOUT CHANGES, AND IN CONJUNCTION WITH ANY GENERAL NOTES AND/OR OTHER DETAILS WHICH MAY APPLY. ANY CHANGES TO THIS DETAIL SHALL FIRST BE SUBMITTED TO AND APPROVED BY THE SAFETY-SERVICE DIRECTOR.

NOTE 2: BEFORE ANY EXCAVATING, CALL THE FOLLOWING NUMBERS AT LEAST 48 HOURS IN ADVANCE: O.U.P.S. @ (800) 362-2764 AND O.A.G.P.U.P.S. @ (800) 925-0988.

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Steven M. Wheeler  
Safety-Service Director

**SUBDIVISION AND ZONING REGULATIONS  
ENGINEERING CONSTRUCTION STANDARDS  
RESIDENTIAL CUL-DE-SAC DETAIL**

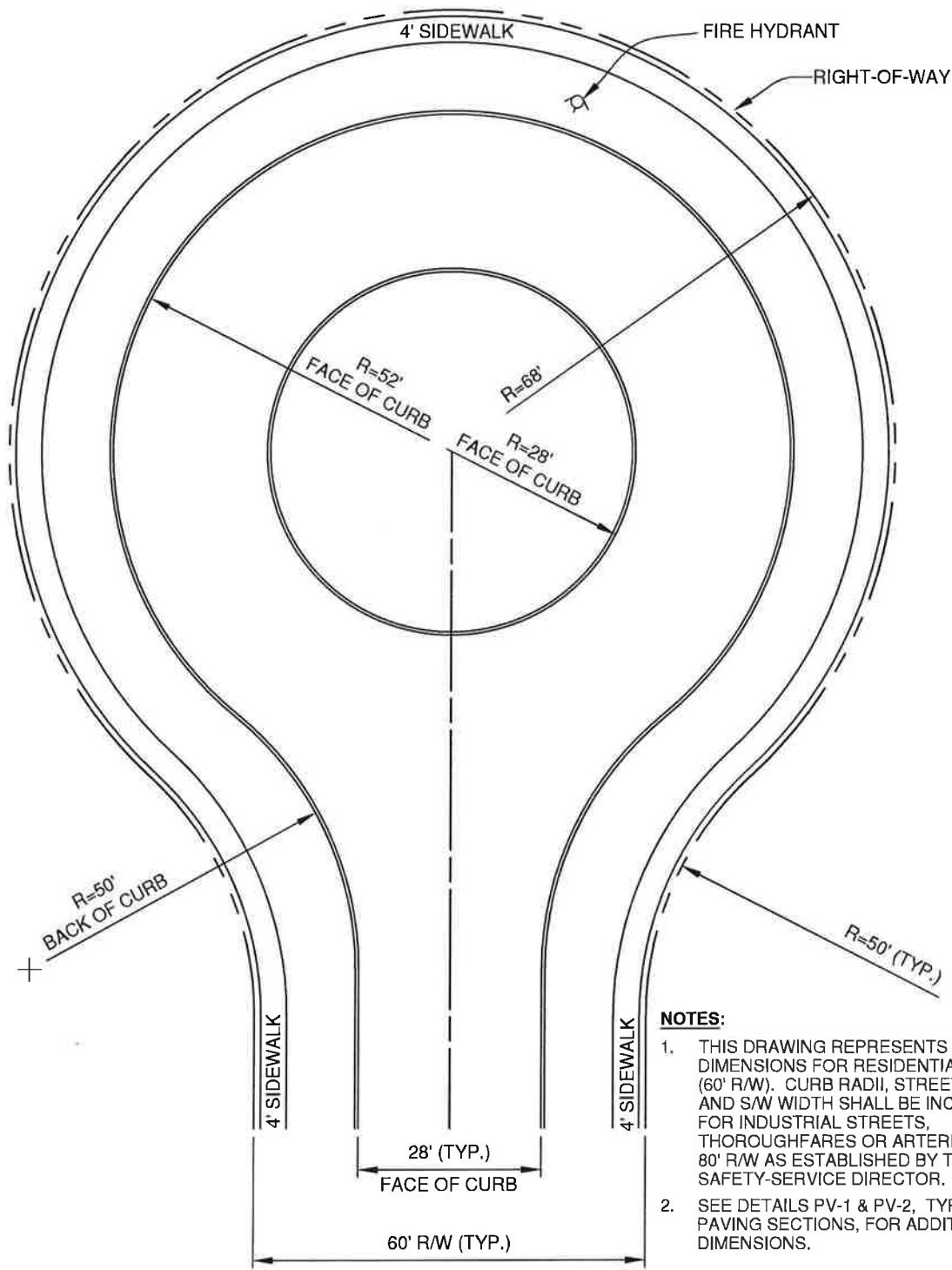
NO.	DATE	REVISION
1	4/1/09	Revise R/W Radius
2	3/20/15	Revise Notes 1. & 2. and Face of Curb Labeling

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DRWN BY DLS	APPRVD BY BLJ	ISSUE DATE: 03/15/07	SCALE NONE
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**PV-11.0**



- NOTES:**
1. THIS DRAWING REPRESENTS MINIMUM DIMENSIONS FOR RESIDENTIAL STREETS (60' R/W). CURB RADIUS, STREET WIDTH, AND S/W WIDTH SHALL BE INCREASED FOR INDUSTRIAL STREETS, THOROUGHFARES OR ARTERIES UP TO 80' R/W AS ESTABLISHED BY THE SAFETY-SERVICE DIRECTOR.
  2. SEE DETAILS PV-1 & PV-2, TYPICAL PAVING SECTIONS, FOR ADDITIONAL DIMENSIONS.

**NOTE 1:** THIS DETAIL IS VALID ONLY WHEN USED AS PRESENTED HERE, WITHOUT CHANGES, AND IN CONJUNCTION WITH ANY GENERAL NOTES AND/OR OTHER DETAILS WHICH MAY APPLY. ANY CHANGES TO THIS DETAIL SHALL FIRST BE SUBMITTED TO AND APPROVED BY THE SAFETY-SERVICE DIRECTOR.

**NOTE 2:** BEFORE ANY EXCAVATING, CALL THE FOLLOWING NUMBERS AT LEAST 48 HOURS IN ADVANCE: O.U.P.S. @ (800) 362-2764 AND O.A.G.P.U.P.S. @ (800) 925-0988.

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 Steven M. Wheeler  
 Safety-Service Director

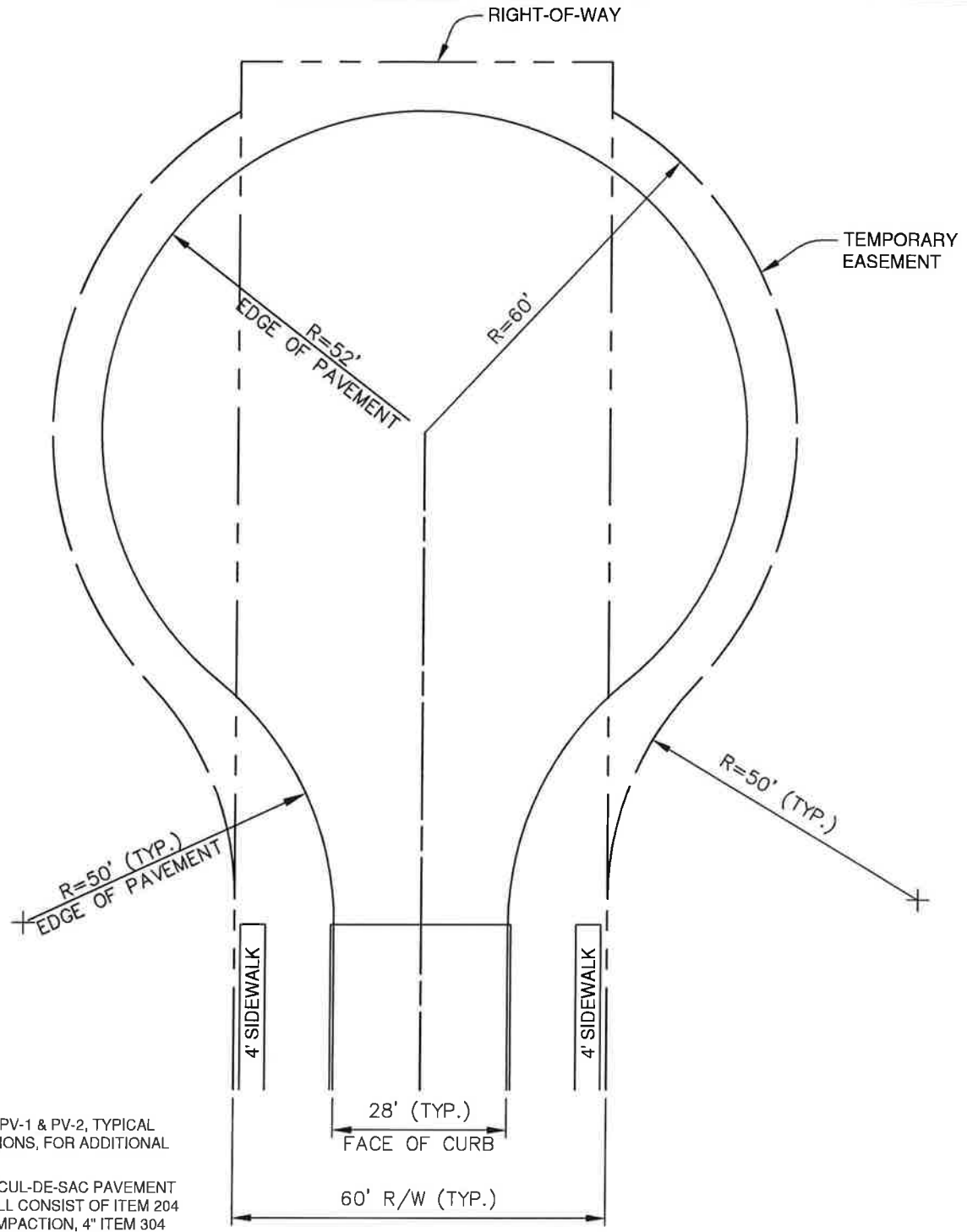
NO.	DATE	REVISION
1	4/1/09	Revise R/W & Pavement Radius
2	3/20/15	Revise Notes 1.&2. and Face of Curb Labeling

**SUBDIVISION AND ZONING REGULATIONS  
 ENGINEERING CONSTRUCTION STANDARDS  
 RESIDENTIAL CUL-DE-SAC DETAIL  
 WITH ISLAND**

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DRWN BY DLS	APPRVD BY BLJ	ISSUE DATE 03/15/07	SCALE NONE
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SHEET  
**PV-11.1**



**NOTES:**

1. SEE DETAILS PV-1 & PV-2, TYPICAL PAVING SECTIONS, FOR ADDITIONAL DIMENSIONS.
2. TEMPORARY CUL-DE-SAC PAVEMENT BUILDUP SHALL CONSIST OF ITEM 204 SUBBASE COMPACTION, 4" ITEM 304 AGGREGATE BASE, AND 6" ITEM 301 BITUMINOUS AGGREGATE BASE. (NO CURB AND GUTTER)

**NOTE 1:** THIS DETAIL IS VALID ONLY WHEN USED AS PRESENTED HERE, WITHOUT CHANGES, AND IN CONJUNCTION WITH ANY GENERAL NOTES AND/OR OTHER DETAILS WHICH MAY APPLY. ANY CHANGES TO THIS DETAIL SHALL FIRST BE SUBMITTED TO AND APPROVED BY THE SAFETY-SERVICE DIRECTOR.

**NOTE 2:** BEFORE ANY EXCAVATING, CALL THE FOLLOWING NUMBERS AT LEAST 48 HOURS IN ADVANCE: O.U.P.S. @ (800) 362-2764 AND O.A.G.P.U.P.S. @ (800) 925-0988.

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Steven M. Wheeler  
 Safety-Service Director

NO.	DATE	REVISION
1	4/1/09	Change Safety-Service Director
2	3/20/15	Revise Sheet Number, Dimensions and Note 1.

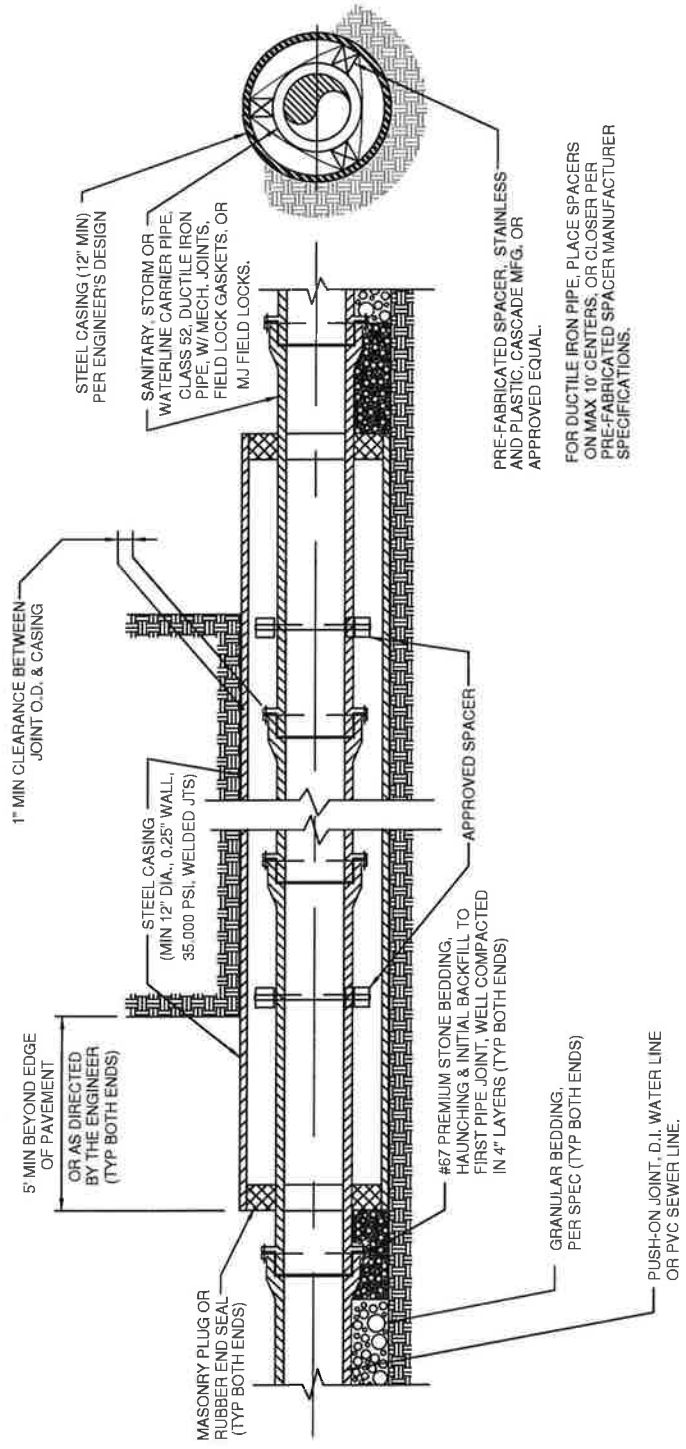
**SUBDIVISION AND ZONING REGULATIONS  
 ENGINEERING CONSTRUCTION STANDARDS  
 TEMPORARY TURN-AROUND**

CAD FILE:  
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SHEET

DRWN BY: DLS	APPRVD BY: BLJ	ISSUE DATE: 03/15/07	SCALE: NONE
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**PV-12**



**NOTES:**

1. OTHER UTILITIES, SUCH AS GAS, ELECTRIC, TELEPHONE, CABLE TV, ECT. SHALL USE A CARRIER PIPE MATERIAL APPROVED BY THE SAFETY-SERVICE DIRECTOR.
2. SHOP DRAWING SHALL BE SUBMITTED 60 DAYS PRIOR TO ANY ROAD BORING PROJECT. SHOP DRAWINGS SHALL BE APPROVED BY THE SAFETY-SERVICE DIRECTOR PRIOR TO THE COMMENCEMENT OF WORK.

**NOTE 1:** THIS DETAIL IS VALID ONLY WHEN USED AS PRESENTED HERE, WITHOUT CHANGES, AND IN CONJUNCTION WITH ANY GENERAL NOTES AND/OR OTHER DETAILS WHICH MAY APPLY. ANY CHANGES TO THIS DETAIL SHALL FIRST BE SUBMITTED TO AND APPROVED BY THE SAFETY-SERVICE DIRECTOR.

**NOTE 2:** BEFORE ANY EXCAVATING, CALL THE FOLLOWING NUMBERS AT LEAST 48 HOURS IN ADVANCE: O.U.P.S. @ (800) 362-2764 AND O.A.G.P.U.P.S. @ (800) 925-0988.

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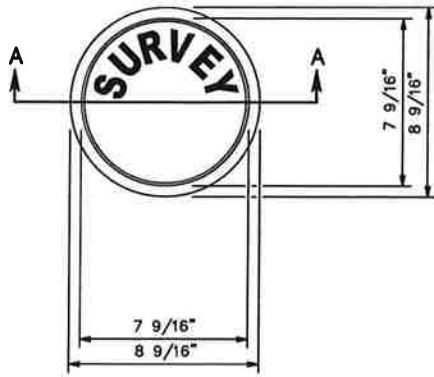
Steven M. Wheeler  
 Safety-Service Director

NO.	DATE	REVISION
1	4/1/09	Revise Carrier Pipe Material
2	3/20/15	Revise Sheet Number and Spelling in Carrier Pipe Label

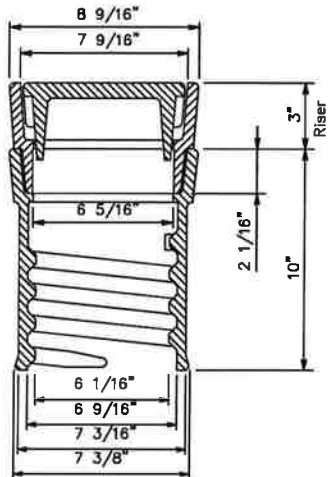
**SUBDIVISION AND ZONING REGULATIONS  
 ENGINEERING CONSTRUCTION STANDARDS  
 ROAD BORE DETAIL**

CAD FILE S:\_AutoCAD\By_County\Wayne.Co\Orrville\Construction Std\PV-13.dwg		SHEET	
DRWN BY DLS	APPRVD BY BLJ	ISSUE DATE 03/15/07	SCALE NONE

**PV-13**



TOP VIEW

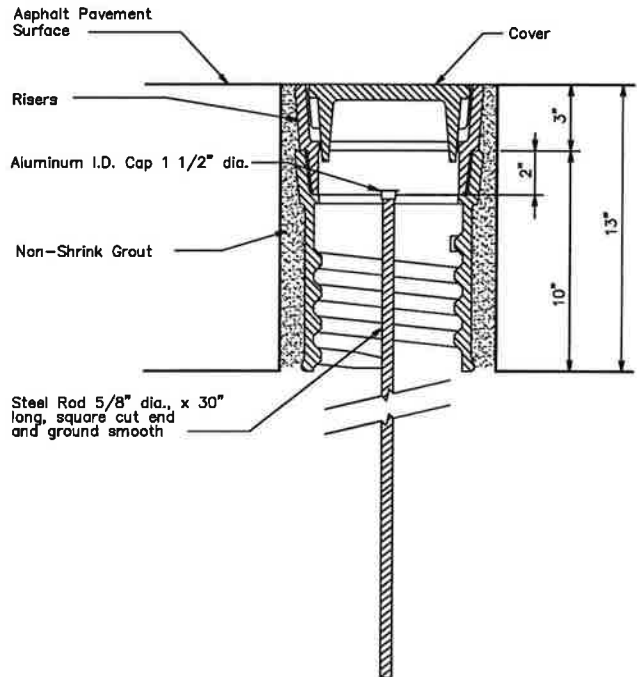


SECTION A-A

**NOTE:**

ACCEPTABLE MANUFACTURERS AND PRODUCTS ARE:

1. EAST JORDAN IRON WORKS, INC.  
P.O. BOX 439-301  
EAST JORDAN, MI. 49727  
8550 WITH ADJUSTABLE RISERS AND LID WITH  
"SURVEY" ON TOP.
2. ALTERNATE PRODUCTS MAY BE SUBMITTED FOR  
APPROVAL.



SIDE VIEW

**INSTALLATION:**

1. CORE OPENING IN PAVEMENT.
2. REMOVE DEBRIS AND PREPARE PAVEMENT FOR GROUT PER MANUFACTURERS INSTRUCTIONS.
3. COAT PAVEMENT OPENING AND EXTERIOR OF CASTING WITH GROUT.
4. INSTALL CASTING AND FINISH FLUSH WITH EXISTING PAVEMENT.
5. ANNULAR SPACE BETWEEN CASTING AND PAVEMENT TO BE FILLED WITH NON-SHRINK GROUT PER O.D.O.T. 705.20.
6. RISER SHALL NOT BE USED WITH CONCRETE PAVEMENT.
7. CRACK SEAL WHEN COMPLETE.

NOTE 1: THIS DETAIL IS VALID ONLY WHEN USED AS PRESENTED HERE, WITHOUT CHANGES, AND IN CONJUNCTION WITH ANY GENERAL NOTES AND/OR OTHER DETAILS WHICH MAY APPLY. ANY CHANGES TO THIS DETAIL SHALL FIRST BE SUBMITTED TO AND APPROVED BY THE SAFETY-SERVICE DIRECTOR.

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Steven M. Wheeler  
Safety-Service Director

**SUBDIVISION AND ZONING REGULATIONS  
ENGINEERING CONSTRUCTION STANDARDS**

**MONUMENT BOX DETAIL**

NO.	DATE	REVISION
1	4/1/09	Change Safety-Service Director
2	3/20/15	Revise Sheet Number & Note 1.

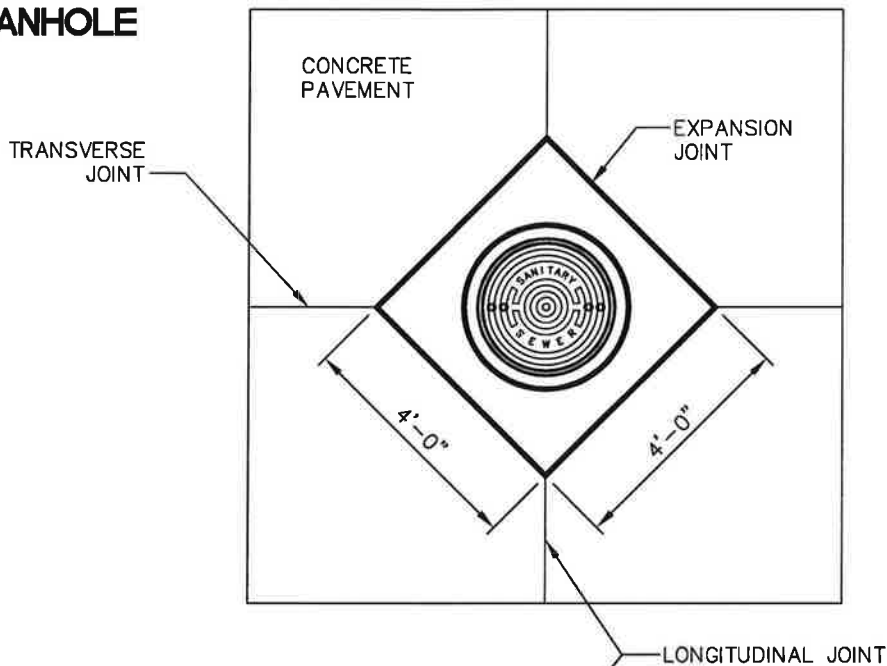
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SHEET

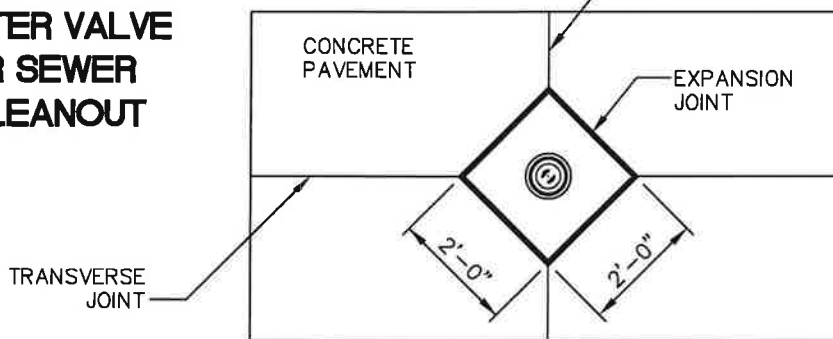
DRWN BY	APPRVD BY	ISSUE DATE	SCALE
DLS	BLJ	03/15/07	NONE

**PV-14**

# MANHOLE



# WATER VALVE OR SEWER CLEANOUT



**NOTES:**

1. MANHOLE BOXOUT REQUIRED FOR ALL MANHOLES (STORM, SANITARY OR UTILITY), WATER VALVES, AND CLEANOUTS LOCATED IN THE STREET.
2. EXPANSION JOINTS SHALL BE 1/2" WIDE WITH REFLEX (OR APPROVED EQUAL) RUBBER JOINT FILLER UNDER 1/2" OF HOT APPLIED JOINT SEALANT (ODOT ITEM 705.04). DOWELS ARE NOT REQUIRED FOR EXPANSION JOINTS SHOWN ON THIS DETAIL.
3. SEE DEPARTMENT OF PUBLIC UTILITIES WATER AND SEWER PIPE STANDARDS FOR WATER VALVE AND SANITARY SEWER MANHOLE AND CLEANOUT DETAILS.
4. BOXOUTS ARE REQUIRED WHENEVER A MANHOLE, WATER VALVE OR CLEANOUT IS REPAIRED IN AN EXISTING PAVEMENT.
5. SUBMIT BOXOUT DESIGN TO SAFETY-SERVICE DIRECTOR IF NO JOINT LINES ARE PRESENT.

NOTE 1: THIS DETAIL IS VALID ONLY WHEN USED AS PRESENTED HERE, WITHOUT CHANGES, AND IN CONJUNCTION WITH ANY GENERAL NOTES AND/OR OTHER DETAILS WHICH MAY APPLY. ANY CHANGES TO THIS DETAIL SHALL FIRST BE SUBMITTED TO AND APPROVED BY THE SAFETY-SERVICE DIRECTOR.

NOTE 2: BEFORE ANY EXCAVATING, CALL THE FOLLOWING NUMBERS AT LEAST 48 HOURS IN ADVANCE: O.U.P.S. @ (800) 362-2764 AND O.A.G.P.U.P.S. @ (800) 925-0988.

**City of Orrville : Safety-Service Department**

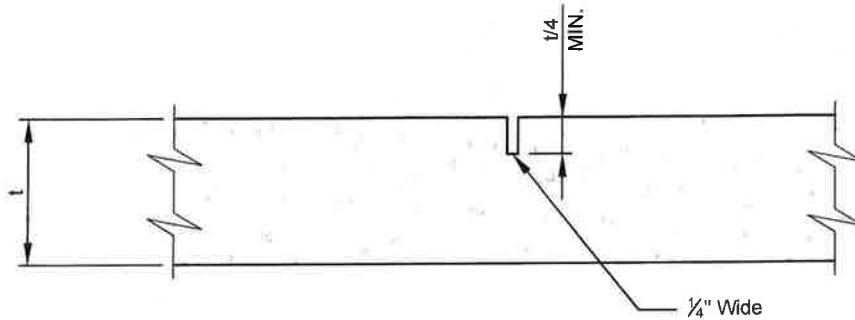
207 N. Main Street Orrville, Ohio 44667  
 Phone: (330) 684-5000 Fax: (330) 684-5023

Steven M. Wheeler  
 Safety-Service Director

**SUBDIVISION AND ZONING REGULATIONS  
 ENGINEERING CONSTRUCTION STANDARDS  
 MANHOLE AND  
 WATER VALVE BOXOUT**

NO.	DATE	REVISION
1	6/29/07	Revision To Note 2.
2	4/1/09	Change Safety-Service Director
3	3/20/15	Revise Sheet Number & Note 2.

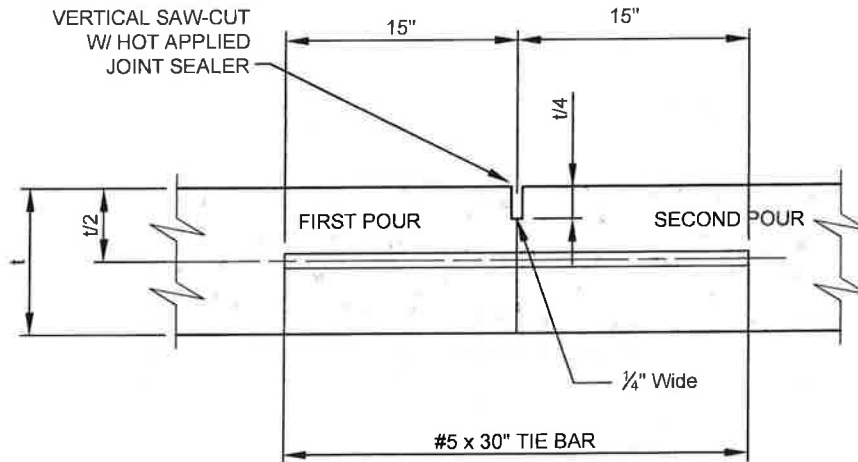
CAD FILE S:\_AutoCAD\By_County\Wayne_Co\Orrville\Construction Std\IPV-15.dwg				SHEET
DRWN BY: DLS	APPRD BY: BLJ	ISSUE DATE: 03/15/07	SCALE: NONE	PV-15



### TRANSVERSE CONTRACTION JOINT

**NOTES:**

1. HOT APPLIED JOINT SEALER SHALL MEET ODOT ITEM 705.04.
2. ALL TRANSVERSE JOINTS (SEE PV-1 AND PV-2) SHALL BE CONSTRUCTED AS CONTRACTION JOINTS EXCEPT AS APPROVED BY THE SAFETY-SERVICE DIRECTOR.
3. TIE BARS FOR LONGITUDINAL JOINTS SHALL BE INSTALLED PERPENDICULAR TO JOINT AND SHALL BE EPOXY COATED.



### LONGITUDINAL BUTT JOINT

NOTE 1: THIS DETAIL IS VALID ONLY WHEN USED AS PRESENTED HERE, WITHOUT CHANGES, AND IN CONJUNCTION WITH ANY GENERAL NOTES AND/OR OTHER DETAILS WHICH MAY APPLY. ANY CHANGES TO THIS DETAIL SHALL FIRST BE SUBMITTED TO AND APPROVED BY THE SAFETY-SERVICE DIRECTOR.

NOTE 2: BEFORE ANY EXCAVATING, CALL THE FOLLOWING NUMBERS AT LEAST 48 HOURS IN ADVANCE: O.U.P.S. @ (800) 362-2764 AND O.A.G.P.U.P.S. @ (800) 925-0988.

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Fax: (330) 684-5023

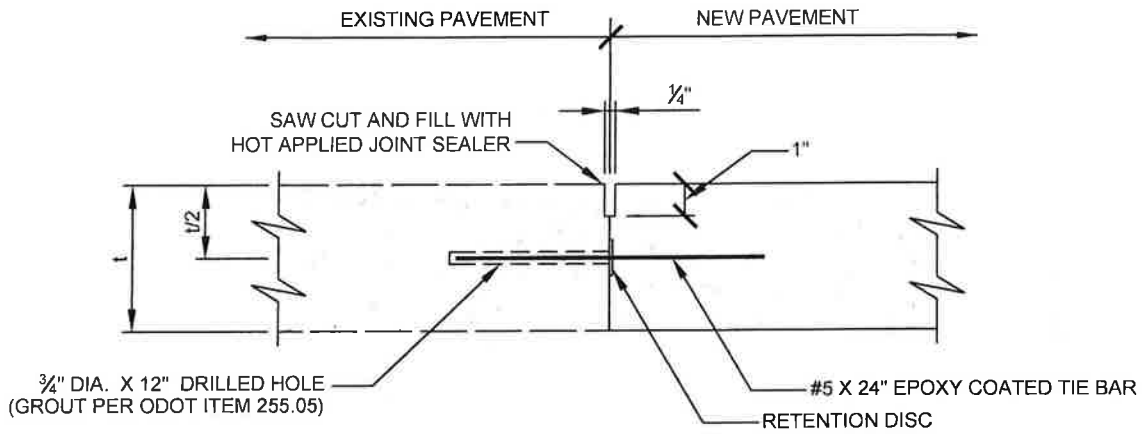
Steven M. Wheeler  
Safety-Service Director

NO.	DATE	REVISION
1	6/29/07	Rev. To Note 1. & Reconst. Joint; Add Note 4.
2	4/1/09	Deleted Reconstruction Joint, Added Longitudinal Butt Joint
3	3/20/15	Revise Note 3. and Longitudinal Butt Joint Detail

**SUBDIVISION AND ZONING REGULATIONS  
ENGINEERING CONSTRUCTION STANDARDS  
CONCRETE PAVEMENT JOINTS**

CAD FILE S:\_AutoCAD\By_County\Wayne.Col\Orrville\Construction Std\PV-16_0.dwg				SHEET
DRWN BY DLS	APPRVD BY BLJ	ISSUE DATE 03/15/07	SCALE NONE	<b>PV-16.0</b>

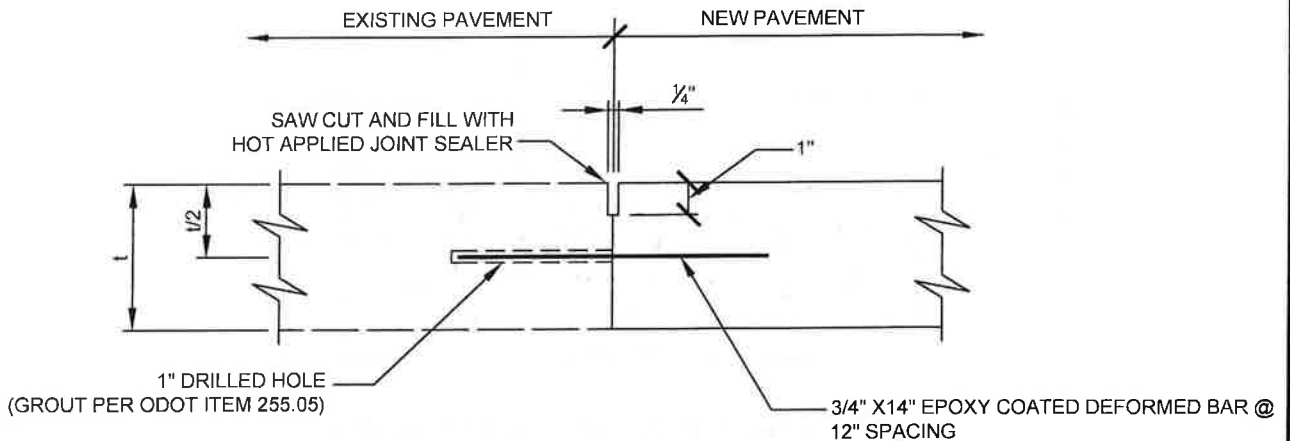




### LONGITUDINAL RECONSTRUCTION JOINT

**RECONSTRUCTION JOINT NOTES:**

1. ALL DEFORMED BARS SHALL BE INSTALLED PERPENDICULAR TO JOINT @ 24" SPACING, UNLESS OTHERWISE SHOWN.
2. HOT APPLIED JOINT SEALER SHALL MEET ODOT ITEM 705.04.
3. FOR REPLACEMENT PANELS GREATER THAN 6 FEET LONG IN THE DIRECTION OF TRAVEL, PROVIDE A TYPE Y TRANSVERSE CONTRACTION JOINT PER ODOT SCD BP-2.5 AT THE END OF THE PANEL. TYPE Y JOINTS SHALL UTILIZE 1" SMOOTH DOWEL BARS @ 24" SPACING.



### TRANSVERSE RECONSTRUCTION JOINT

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Fax: (330) 684-5023

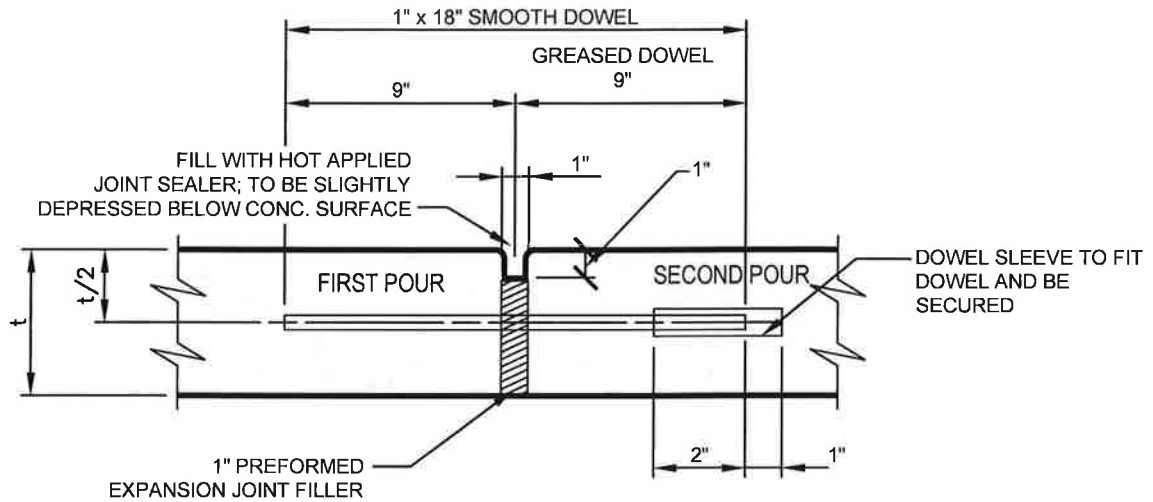
Steven M. Wheeler  
Safety-Service Director

**SUBDIVISION AND ZONING REGULATIONS  
ENGINEERING CONSTRUCTION STANDARDS**

**CONCRETE PAVEMENT JOINTS**

NO.	DATE	REVISION			
1	6/29/07	Revisions to Notes 1. and 4.	4	3/1/16	Revise Note 3.
2	4/1/09	Deleted Longitudinal Butt and Expansion Joints, Added Recon. & Transition Joint			
3	3/20/15	Revise Transverse Joint & Add Longitudinal Joint			

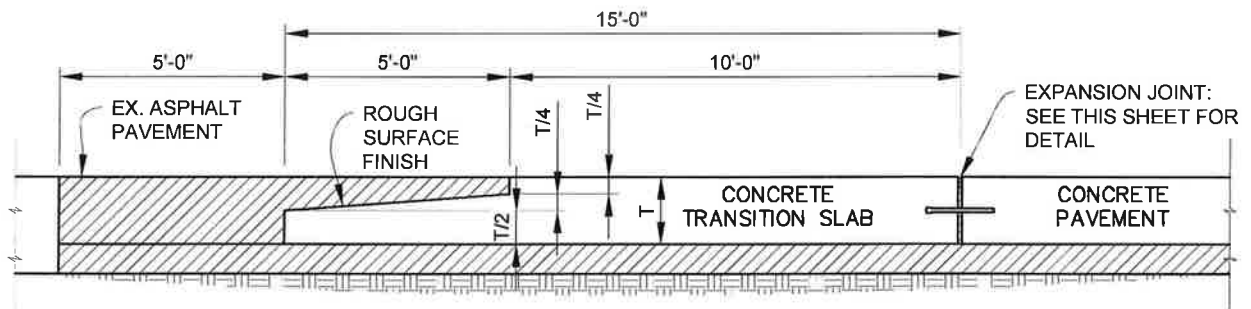
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S:\_AutoCAD\By_County\Wayne.Col\Orrville\Construction Std\IPV-16_1.dwg				PV-16.1
DRWN BY	APPRVD BY	ISSUE DATE	SCALE	
DLS	BLJ	03/15/07	NONE	



### TRANSVERSE EXPANSION JOINT

**NOTES:**

1. ALL DOWEL BARS SHALL BE INSTALLED PERPENDICULAR TO JOINT @ 12" SPACING.
2. HOT APPLIED JOINT SEALER SHALL MEET ODOT ITEM 705.04.
3. PREFORMED EXPANSION JOINT FILLERS SHALL MEET ODOT ITEM 705.03.



### THICKENED CONCRETE EDGE TRANSITION

NOTE 1: THIS DETAIL IS VALID ONLY WHEN USED AS PRESENTED HERE, WITHOUT CHANGES, AND IN CONJUNCTION WITH ANY GENERAL NOTES AND/OR OTHER DETAILS WHICH MAY APPLY. ANY CHANGES TO THIS DETAIL SHALL FIRST BE SUBMITTED TO AND APPROVED BY THE SAFETY-SERVICE DIRECTOR.

NOTE 2: BEFORE ANY EXCAVATING, CALL THE FOLLOWING NUMBERS AT LEAST 48 HOURS IN ADVANCE: O.U.P.S. @ (800) 362-2764 AND O.A.G.P.U.P.S. @ (800) 925-0988.

**City of Orrville : Safety-Service Department**

207 N. Main Street Orrville, Ohio 44667  
 Phone: (330) 684-5000 Fax: (330) 684-5023

Steven M. Wheeler  
 Safety-Service Director

**SUBDIVISION AND ZONING REGULATIONS  
 ENGINEERING CONSTRUCTION STANDARDS**

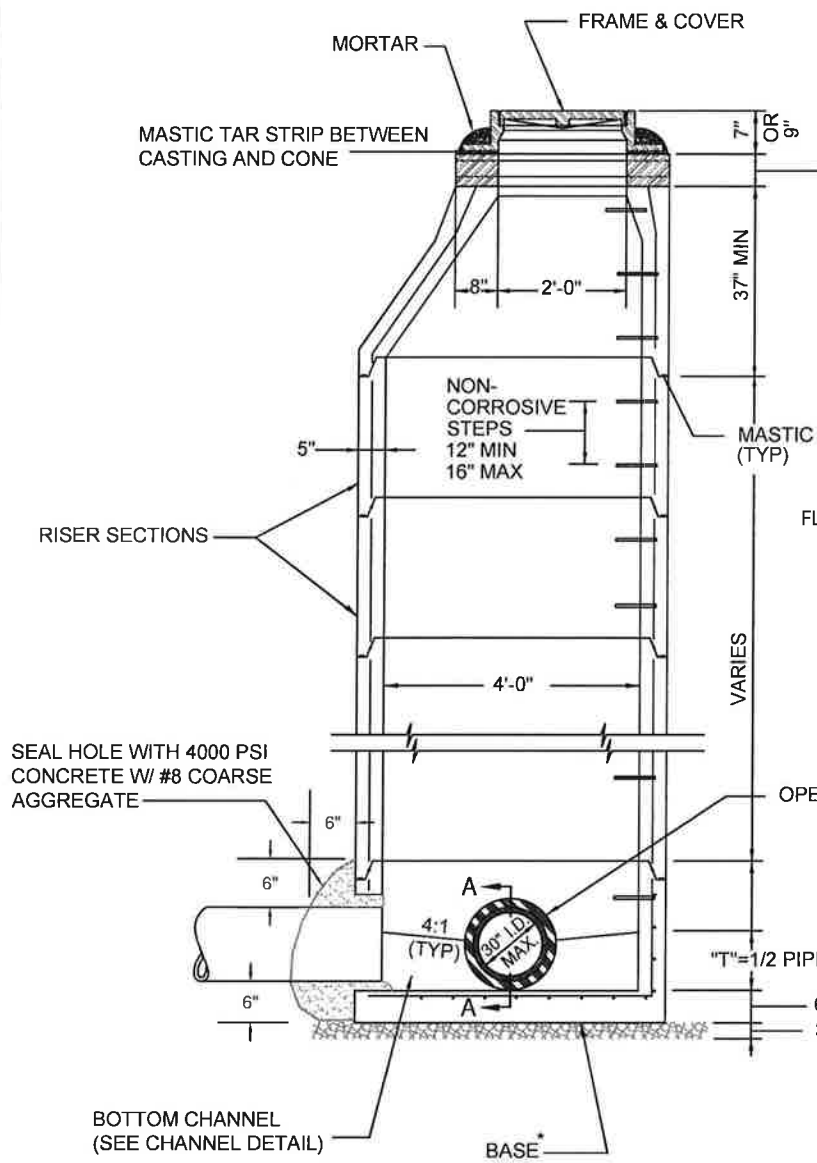
**CONCRETE PAVEMENT JOINTS**

NO.	DATE	REVISION
1	4/1/09	Added Expansion Joint
2	3/20/15	Revise Expansion Joint & Add Thickened Concrete Edge Transition Detail

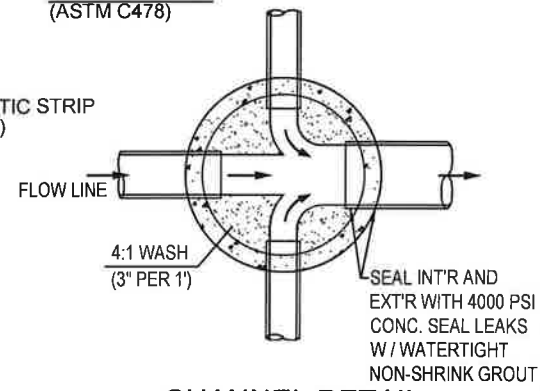
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SHEET:  
**PV-16.2**

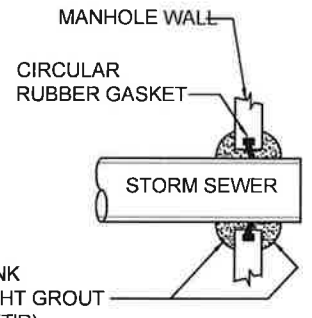
DRWN BY	APPRVD BY	ISSUE DATE	SCALE
DLS	BLJ	03/15/07	NONE



3" MIN., 12" MAX.,  
ADJUST ELEVATION  
WITH 10" CONCRETE  
GRADE RINGS AND  
THE REMAINING 2"  
WITH INFRA-RISER  
RINGS - BRICK IS  
NOT PERMITTED  
(ASTM C478)



**CHANNEL DETAIL**  
(TYPICAL)



**SECTION "A-A"**  
ALTERNATE  
FOR PVC PIPE, OR  
HDPE PIPE WITH  
PRE-FAB, SMOOTH  
MH ENTRY PIECE

**\* 48" PRECAST BASE  
(FOR 30" AND SMALLER PIPE)**

**NOTES:**

1. OPENINGS IN EXISTING MANHOLES, TO RECEIVE NEW SEWERS, SHALL BE CORED.
2. CHANNEL BOTTOM SHALL BE POURED IN THE FIELD USING 4000 PSI CONCRETE WITH NO.8 LIMESTONE AGGREGATE.
3. SEE GN-4 FOR MANHOLE FRAME AND COVER.
4. EXCAVATION DIMENSIONS SHALL BE A MINIMUM OF 2 FT. BEYOND THE OUTER WALL OF THE BASIN TO ALLOW FOR ADEQUATE COMPACTION AROUND THE BASIN. BACKFILL AROUND BASINS SHALL BE COMPACTED 304 AGGREGATE OR 613 LOW STRENGTH MORTAR BACKFILL, TYPE 1, AS DIRECTED BY THE SAFETY-SERVICE DIRECTOR.

NOTE 1: THIS DETAIL IS VALID ONLY WHEN USED AS PRESENTED HERE, WITHOUT CHANGES, AND IN CONJUNCTION WITH ANY GENERAL NOTES AND/OR OTHER DETAILS WHICH MAY APPLY. ANY CHANGES TO THIS DETAIL SHALL FIRST BE SUBMITTED TO AND APPROVED BY THE SAFETY-SERVICE DIRECTOR.

NOTE 2: BEFORE ANY EXCAVATING, CALL THE FOLLOWING NUMBERS AT LEAST 48 HOURS IN ADVANCE: O.U.P.S. @ (800) 362-2764 AND O.A.G.P.U.P.S. @ (800) 925-0988.

**City of Orrville : Safety-Service Department**  
207 N. Market Street Orrville, Ohio 44667  
Phone: (330) 684-5000 Fax: (330) 684-5023  
Steven M. Wheeler  
Safety-Service Director

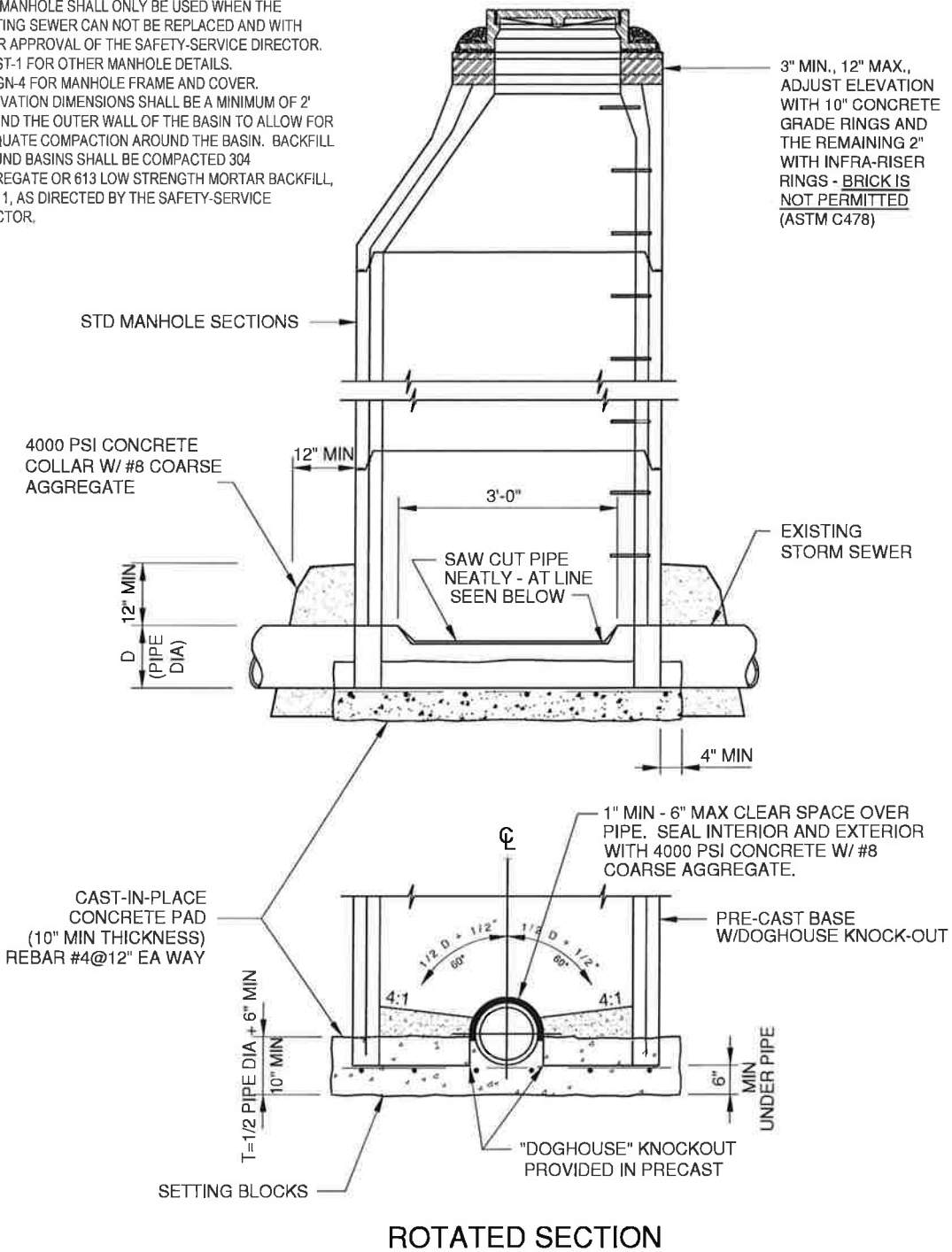
NO.	DATE	REVISION
1	4/1/09	Delete Alternate PVC Pipe Connection
2	3/20/15	Revise Sheet Number & Labels; Add Notes & Section A-A Detail

**SUBDIVISION AND ZONING REGULATIONS  
ENGINEERING CONSTRUCTION STANDARDS  
STANDARD STORM MANHOLE**

CAD FILE		SHEET	
S:\_AutoCAD\By_County\Wayne.Col\Orrville\Construction Sld\ST-01.dwg		ST-1	
DRWN BY	APPRVD BY	ISSUE DATE	SCALE
DLS	BLJ	03/15/07	NONE

NOTES:

1. THIS MANHOLE SHALL ONLY BE USED WHEN THE EXISTING SEWER CAN NOT BE REPLACED AND WITH PRIOR APPROVAL OF THE SAFETY-SERVICE DIRECTOR.
2. SEE ST-1 FOR OTHER MANHOLE DETAILS.
3. SEE GN-4 FOR MANHOLE FRAME AND COVER.
4. EXCAVATION DIMENSIONS SHALL BE A MINIMUM OF 2' BEYOND THE OUTER WALL OF THE BASIN TO ALLOW FOR ADEQUATE COMPACTION AROUND THE BASIN. BACKFILL AROUND BASINS SHALL BE COMPACTED 304 AGGREGATE OR 613 LOW STRENGTH MORTAR BACKFILL, TYPE 1, AS DIRECTED BY THE SAFETY-SERVICE DIRECTOR.



NOTE 1: THIS DETAIL IS VALID ONLY WHEN USED AS PRESENTED HERE, WITHOUT CHANGES, AND IN CONJUNCTION WITH ANY GENERAL NOTES AND/OR OTHER DETAILS WHICH MAY APPLY. ANY CHANGES TO THIS DETAIL SHALL FIRST BE SUBMITTED TO AND APPROVED BY THE SAFETY-SERVICE DIRECTOR.

NOTE 2: BEFORE ANY EXCAVATING, CALL THE FOLLOWING NUMBERS AT LEAST 48 HOURS IN ADVANCE: O.U.P.S. @ (800) 362-2764 AND O.A.G.P.U.P.S. @ (800) 925-0988.

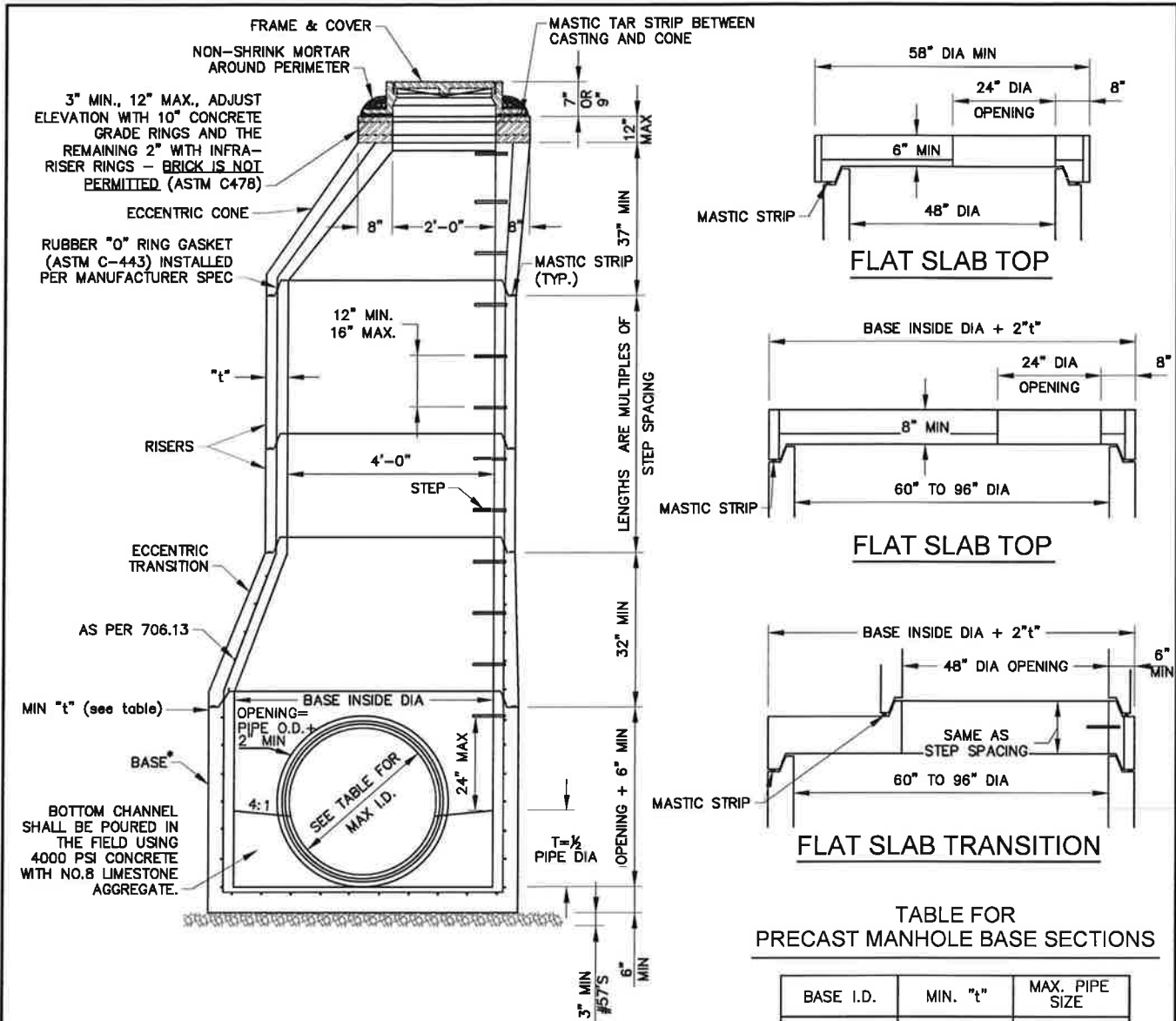
City of Orrville : Safety-Service Department  
 207 N. Main Street Orrville, Ohio 44667  
 Phone: (330) 684-5000 Fax: (330) 684-5023  
 Steven M. Wheeler  
 Safety-Service Director

NO.	DATE	REVISION
1	4/1/09	Revise Sheet Number
2	3/20/15	Revise Sheet Number & MH Detail; Add Note 4. And Grade Ring Note

**SUBDIVISION AND ZONING REGULATIONS  
 ENGINEERING CONSTRUCTION STANDARDS  
 DOGHOUSE STORM MANHOLE**

CAD FILE: S:\\_AutoCAD\By\_County\Wayne.Col\Orrville\Construction Sld\ST-02.dwg SHEET: ST-2

DRWN BY: DLS	APPRVD BY: BLJ	ISSUE DATE: 03/15/07	SCALE: NONE
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**\* 60" TO 96" PRECAST BASE**  
 (SEE TABLE FOR MAXIMUM PIPE SIZES)

**NOTES:**

1. SEE ST-1 FOR ADDITIONAL DETAILS NOT SHOWN.
2. SEE GN-4 FOR FRAME AND COVER.
3. EXCAVATION DIMENSIONS SHALL BE A MINIMUM OF 2 FT. BEYOND THE OUTER WALL OF THE BASIN TO ALLOW FOR ADEQUATE COMPACTION AROUND THE BASIN. BACKFILL AROUND BASINS SHALL BE COMPACTED 304 AGGREGATE OR 613 LOW STRENGTH MORTAR BACKFILL, TYPE 1, AS DIRECTED BY THE SAFETY-SERVICE DIRECTOR.

**TABLE FOR PRECAST MANHOLE BASE SECTIONS**

BASE I.D.	MIN. "t"	MAX. PIPE SIZE
60"	5"	36"
72"	6"	48"
84"	7"	54"
90"	7 1/2"	60"
96"	8"	60"

**NOTE 1:** THIS DETAIL IS VALID ONLY WHEN USED AS PRESENTED HERE, WITHOUT CHANGES, AND IN CONJUNCTION WITH ANY GENERAL NOTES AND/OR OTHER DETAILS WHICH MAY APPLY. ANY CHANGES TO THIS DETAIL SHALL FIRST BE SUBMITTED TO AND APPROVED BY THE SAFETY-SERVICE DIRECTOR.

**NOTE 2:** BEFORE ANY EXCAVATING, CALL THE FOLLOWING NUMBERS AT LEAST 48 HOURS IN ADVANCE: O.U.P.S. @ (800) 362-2764 AND O.A.G.P.U.P.S. @ (800) 925-0988.

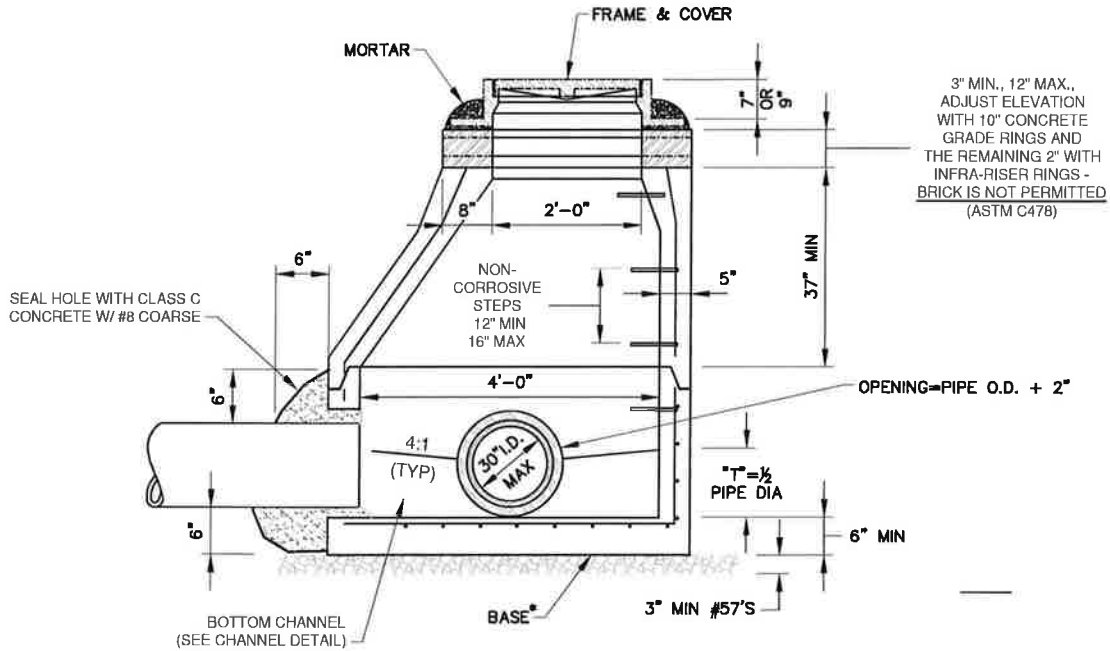
**City of Orrville : Safety-Service Department**  
 207 N. Main Street Orrville, Ohio 44667  
 Phone: (330) 684-5000 Fax: (330) 684-5023  
 Steven M. Wheeler  
 Safety-Service Director

NO.	DATE	REVISION
1	4/1/09	Revise Sheet Number
2	3/20/15	Revise Sheet Number, Manhole Labels & Added Note 3.

**SUBDIVISION AND ZONING REGULATIONS  
 ENGINEERING CONSTRUCTION STANDARDS  
 LARGE DIAMETER  
 STORM MANHOLE**

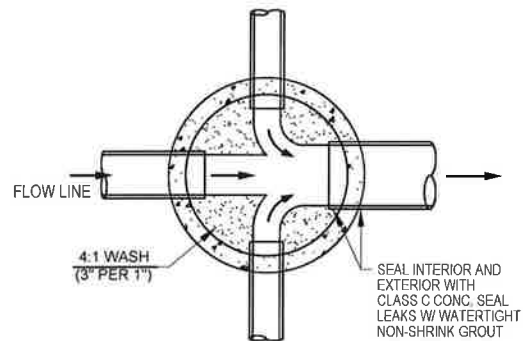
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DRWN BY: DLS	APPRVD BY: BLJ	ISSUE DATE: 03/15/07	SCALE: NONE
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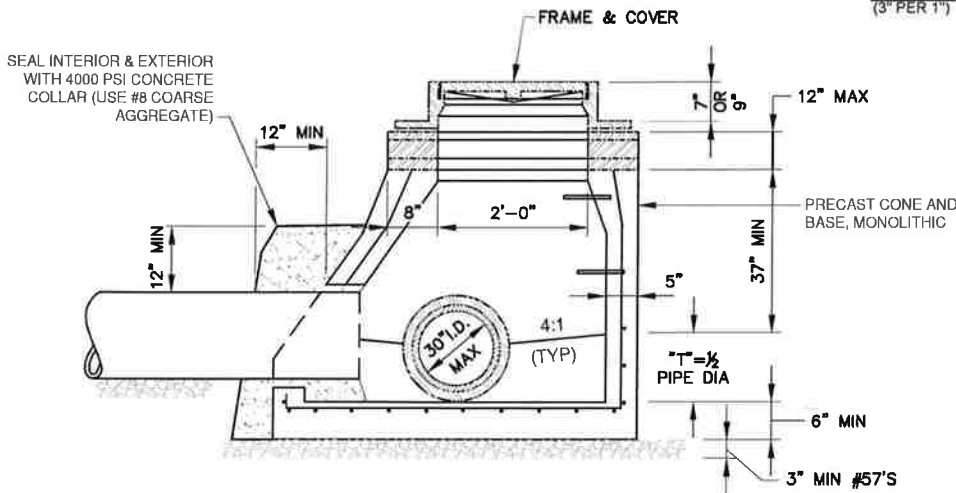


3" MIN., 12" MAX.,  
ADJUST ELEVATION  
WITH 10" CONCRETE  
GRADE RINGS AND  
THE REMAINING 2" WITH  
INFRA-RISER RINGS -  
BRICK IS NOT PERMITTED  
(ASTM C478)

**\* 48" PRECAST BASE  
(FOR 30" AND SMALLER PIPE)**



**CHANNEL DETAIL  
(TYPICAL)**



- NOTES:**
1. OPENINGS IN EXISTING MANHOLES, TO RECEIVE NEW SEWERS, SHALL BE CORED.
  2. CHANNEL BOTTOM SHALL BE POURED IN THE FIELD USING 4000 PSI CONCRETE WITH NO. 8 LIMESTONE AGGREGATE.
  3. SEE GN-4 FOR MANHOLE FRAME AND COVER.
  4. EXCAVATION DIMENSIONS SHALL BE A MINIMUM OF 2 FT. BEYOND THE OUTER WALL OF THE BASIN TO ALLOW FOR ADEQUATE COMPACTION AROUND THE BASIN. BACKFILL AROUND BASINS SHALL BE COMPACTED 304 AGGREGATE OR 613 LOW STRENGTH MORTAR BACKFILL, TYPE 1, AS DIRECTED BY THE SAFETY-SERVICE DIRECTOR.

**NOTE 1:** THIS DETAIL IS VALID ONLY WHEN USED AS PRESENTED HERE, WITHOUT CHANGES, AND IN CONJUNCTION WITH ANY GENERAL NOTES AND/OR OTHER DETAILS WHICH MAY APPLY. ANY CHANGES TO THIS DETAIL SHALL FIRST BE SUBMITTED TO AND APPROVED BY THE SAFETY-SERVICE DIRECTOR.

**NOTE 2:** BEFORE ANY EXCAVATING, CALL THE FOLLOWING NUMBERS AT LEAST 48 HOURS IN ADVANCE: O.U.P.S. @ (800) 362-2764 AND O.A.G.P.U.P.S. @ (800) 925-0988.

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Steven M. Wheeler  
Safety-Service Director

**SUBDIVISION AND ZONING REGULATIONS  
ENGINEERING CONSTRUCTION STANDARDS  
SHALLOW STORM MANHOLE**

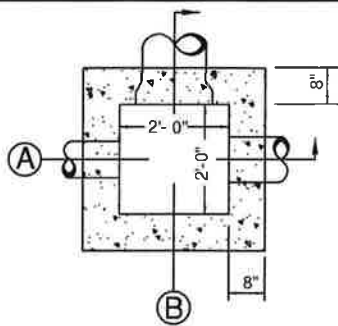
NO.	DATE	REVISION
1	4/1/09	Revise Sheet Number
2	3/20/15	Revise Sheet Number, Manhole Labels & Added Note 4.

CAD FILE  
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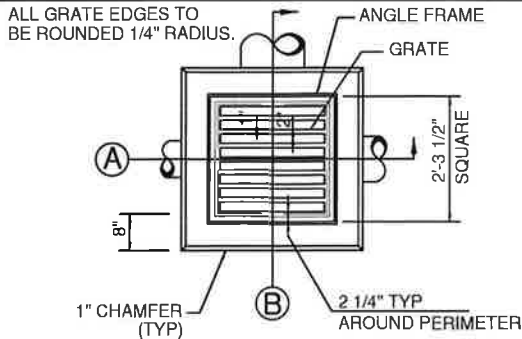
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DRWN BY	APPRVD BY	ISSUE DATE	SCALE
DLS	BLJ	03/15/07	NONE

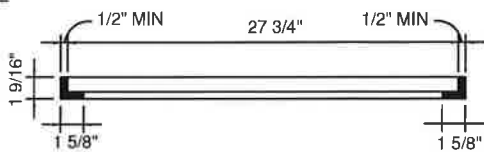
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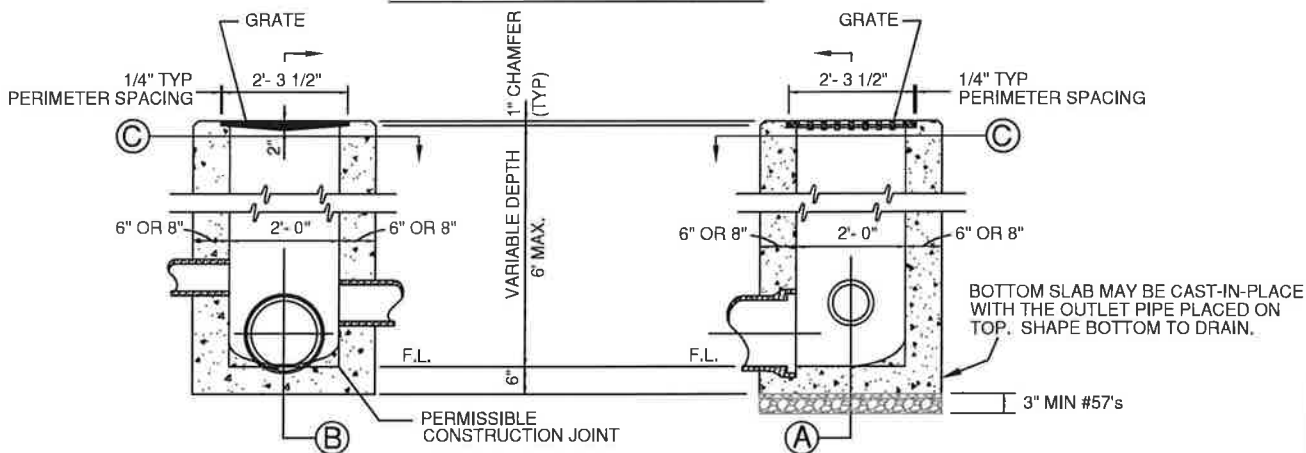
SECTION C



PLAN



SECTION THROUGH ANGLE FRAME



SECTION A

SECTION B

**NOTES:**

- LOCATION AND ELEVATION, when given on the plans, shall be the top center of the grate for catch basins.
- BRICK OR CONCRETE BLOCK **will not be permitted** for use to build, alter, modify, adjust or repair any catch basin, inlet, manhole, junction box or any other such structure.
- CAST-IN-PLACE CONCRETE WALLS shall have a nominal thickness of 8". Bottom slab shall have a nominal thickness of 6".
- PRE-CAST CONCRETE WALLS and bottom slab shall have a nominal thickness of 6" and be reinforced sufficiently to permit shipping and handling without damage to the structure. Lifting hooks shall be cast into the catch basin to permit shipping and handling. Lifting hooks shall be removed after catch basin installation. The lifting holes shall be plugged watertight with nonshrink grout.
- CATCH BASINS that have a depth greater than 42" shall be constructed in sections. Each section shall not exceed 42" in depth.
- PIPES: This detail shall be used for pipe sizes up to 18" dia. For pipe sizes larger than 18" dia., use the ODOT standard construction drawings to determine the appropriate ODOT standard catch basin. However, in no case shall there be less than 2" between the outside of the pipe and the inside wall of the catch basin.

- shall there be less than 2" between the outside of the pipe and the inside wall of the catch basin.
- CONCRETE, cast-in-place, shall be ODOT Class QC1. All pre-cast concrete shall meet current ODOT requirements; 6% (±2%) air void content in the hardened concrete and be marked with the catch basin number.
- OPENINGS for any pipe shall be OD + 4" when fabricated or field cut. All field cut openings shall be mechanically cored. The use of saw-cutting, hammering or other impact devices is prohibited.
- ADJUSTMENT RINGS OR COLLARS used to modify the main structure, when necessary, shall be precast concrete, 2" minimum thickness and shall be doweled and grouted to its base. Dowels shall be 1/2" diameter bars (#4 rebar) on 12" centers around the perimeter; 6" in from any corner and 3" in from the outside edges. Core drill and embed 6" into the main structure and into 1/2 the thickness of the added piece.
- PIPE CONNECTIONS to catch basins shall be sealed using 4000 psi concrete with #8 coarse aggregate. Concrete collars shall be 6" thick minimum around the pipe.
- FRAME AND GRATE: See GN-5.
- EXCAVATION DIMENSIONS: See ST-1, Note 4.

NOTE 1: THIS DETAIL IS VALID ONLY WHEN USED AS PRESENTED HERE, WITHOUT CHANGES, AND IN CONJUNCTION WITH ANY GENERAL NOTES AND/OR OTHER DETAILS WHICH MAY APPLY. ANY CHANGES TO THIS DETAIL SHALL FIRST BE SUBMITTED TO AND APPROVED BY THE SAFETY-SERVICE DIRECTOR.

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**City of Orrville : Safety-Service Department**  
 207 N. Main Street Orrville, Ohio 44667  
 Phone: (330) 684-5000 Fax: (330) 684-5023  
 Steven M. Wheeler  
 Safety-Service Director

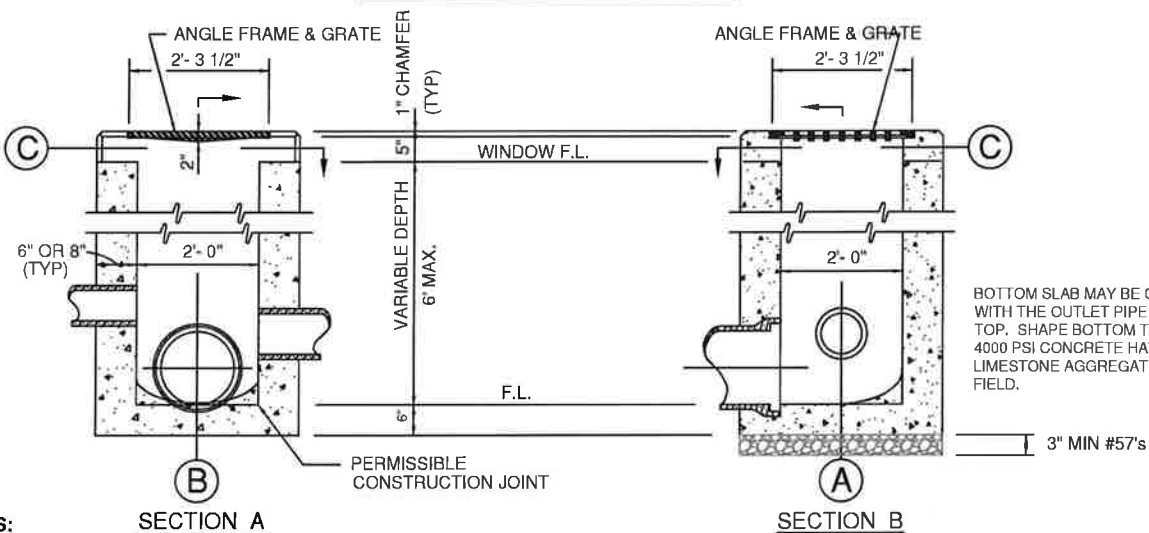
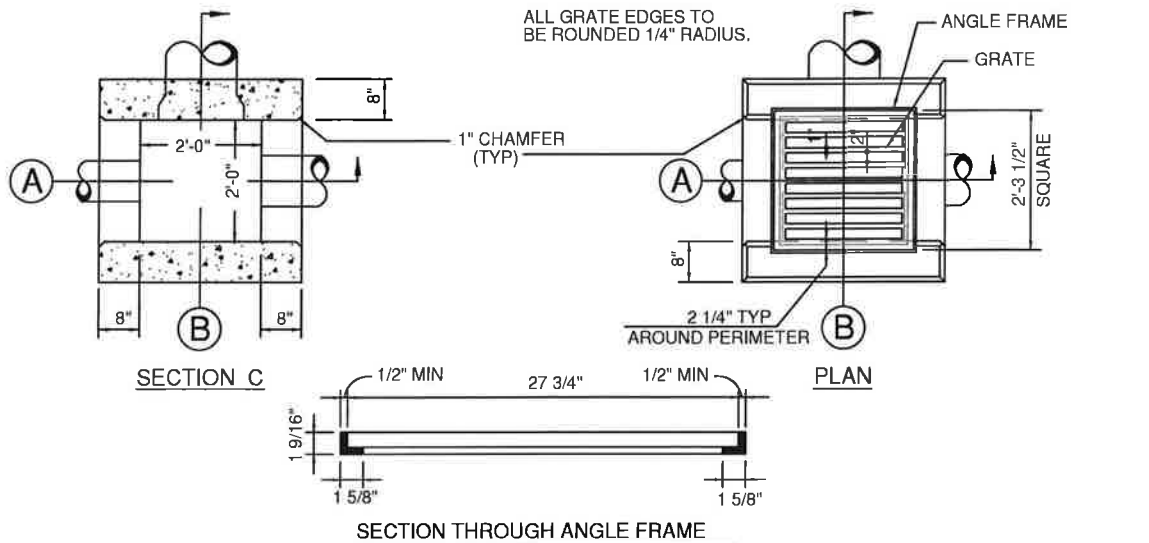
NO.	DATE	REVISION
1	4/1/09	Revise Sheet Number, Notes; Added Angle Frame
2	3/20/15	Revise Sheet Number & Notes

**SUBDIVISION AND ZONING REGULATIONS  
 ENGINEERING CONSTRUCTION STANDARDS**

**CATCH BASIN 2-2B**

CAD FILE: S:\\_AutoCAD\By\_County\Wayne.Col\Orrville\Construction Slg\ST-05.dwg SHEET

DRWN BY DLS	APPRVD BY BLJ	ISSUE DATE 03/15/07	SCALE NONE	ST-5



**NOTES:**

LOCATION AND ELEVATION, when given on the plans, shall be the top center of the grate for catch basins. When side openings are provided, elevation shall be the flow line of the side inlet.

BRICK OR CONCRETE BLOCK will not be permitted for use to build, alter, modify, adjust or repair any catch basin, inlet, manhole, junction box or any other such structure.

CAST-IN-PLACE CONCRETE WALLS shall have a nominal thickness of 8". Bottom slab shall have a nominal thickness of 6".

PRE-CAST CONCRETE WALLS and bottom slab shall have a nominal thickness of 6" and be reinforced sufficiently to permit shipping and handling without damage to the structure. Lifting hooks shall be cast into the catch basin to permit shipping and handling. Lifting hooks shall be removed after catch basin installation. The lifting holes shall be plugged watertight with nonshrink grout.

CATCH BASINS that have a depth greater than 42" shall be constructed in sections. Each section shall not exceed 42" in depth.

PIPES: This detail shall be used for pipe sizes up to 18" dia. For pipe sizes larger than 18" dia., use the ODOT standard construction drawings to determine the appropriate ODOT standard catch basin. However, in no case shall there be less than 2" between the outside of the pipe and the inside wall of the catch basin.

FRAME AND GRATE: See GN-5.

CONCRETE, cast-in-place, shall be ODOT Class QC1. All pre-cast concrete shall meet current ODOT requirements; have 6% (±2%) air void content in the hardened concrete and be marked with the catch basin number.

OPENINGS for any pipe shall be OD+2" when fabricated or field cut. All field cut openings shall be mechanically cored. The use of saw-cutting, hammering or other impact devices is prohibited.

ADJUSTMENT RINGS OR COLLARS used to modify the main structure, when necessary, shall be precast concrete, 2" minimum thickness and shall be doweled and grouted to its base. Dowels shall be 1/2" diameter bars (#4 rebar) on 12" centers around the perimeter; 6" in from any corner and 3" in from the outside edges. Core drill and embed 6" into the main structure and into 1/2 the thickness of the added piece.

PIPE CONNECTIONS to catch basins shall be sealed using 4000 psi concrete with #8 coarse aggregate. Concrete collars shall be 6" thick minimum around the pipe.

2-2-A SIDE INLETS shall be placed 4"-6" below normal elevations of the median or ditch flow line. Then, this elevation shall return to the normal flow line at a distance of 10' out from each side of the basin.

SIDE INLETS shall be provided on both sides of the No. 2-2-A catch basin in sags and on upstream side only where the ditch has a continuous down grade past the catch basin.

EXCAVATION LIMITS: See ST-1, Note 4.

NOTE 1: THIS DETAIL IS VALID ONLY WHEN USED AS PRESENTED HERE, WITHOUT CHANGES, AND IN CONJUNCTION WITH ANY GENERAL NOTES AND/OR OTHER DETAILS WHICH MAY APPLY. ANY CHANGES TO THIS DETAIL SHALL FIRST BE SUBMITTED TO AND APPROVED BY THE SAFETY-SERVICE DIRECTOR.

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Steven M. Wheeler  
Safety-Service Director

**SUBDIVISION AND ZONING REGULATIONS  
ENGINEERING CONSTRUCTION STANDARDS**

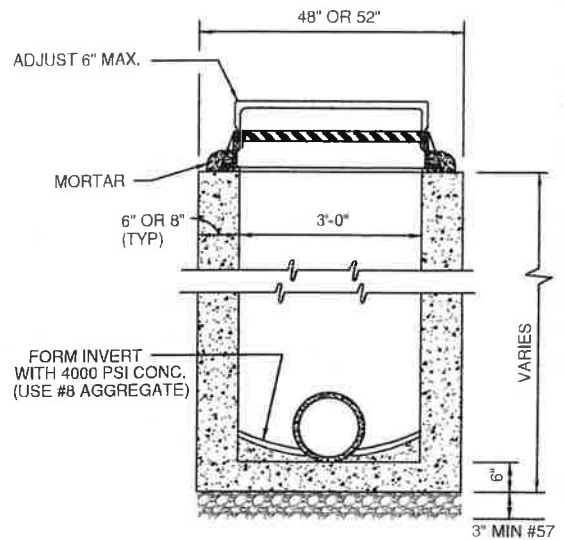
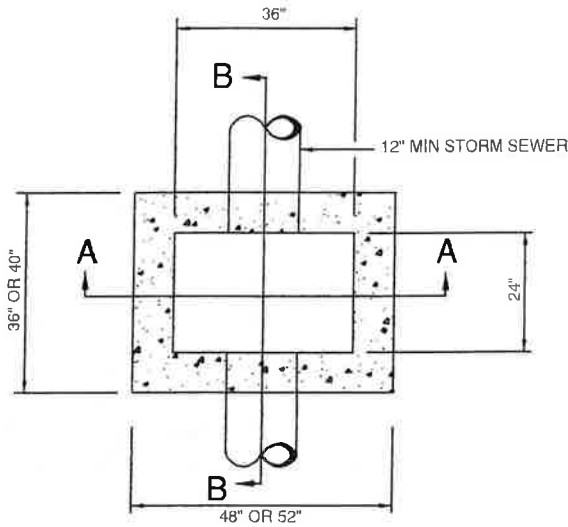
**CATCH BASIN 2-2A**

NO.	DATE	REVISION
1	4/1/09	Revise Sheet Number, Notes
2	3/20/15	Revise Sheet Number & Notes

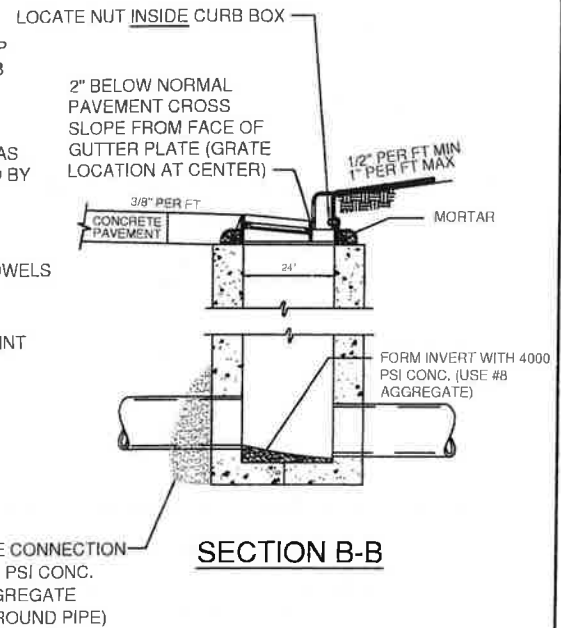
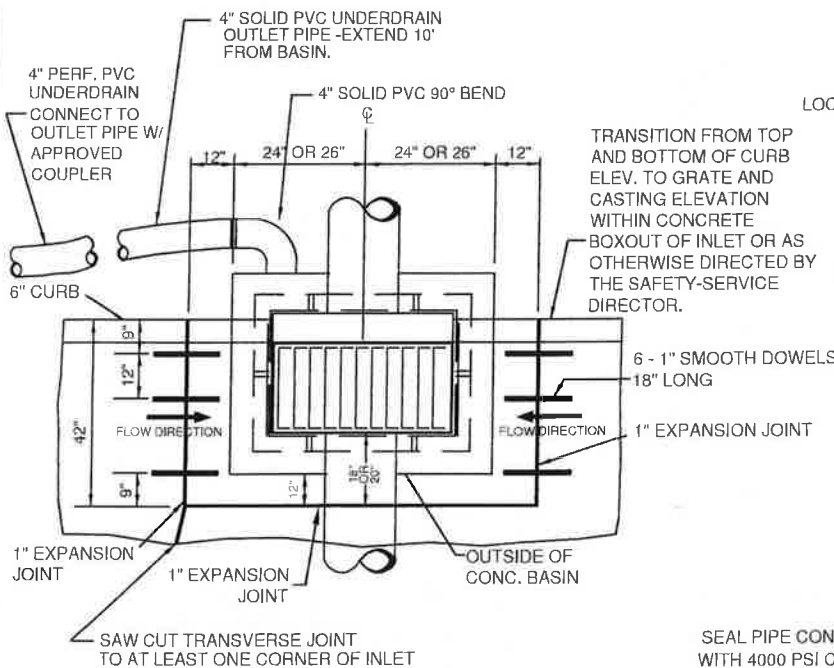
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DRWN BY	APPRVD BY	ISSUE DATE	SCALE	ST-6
DLS	BLJ	03/15/07	NONE	







**SECTION A-A**



**SECTION B-B**

**NOTES:**

**PLAN**

1. THIS DETAIL SHOWS CONCRETE PAVEMENT. SEE DETAIL ST-7.0 FOR ASPHALT PAVEMENT DETAILS.
2. EXCAVATION DIMENSIONS SHALL BE A MINIMUM OF 2' BEYOND THE OUTER WALL OF THE BASIN TO ALLOW FOR ADEQUATE COMPACTION AROUND THE BASIN. BACKFILL AROUND BASINS SHALL BE COMPACTED 304 AGGREGATE; OR 613 - LOW STRENGTH MORTAR BACKFILL, TYPE 1, AS DIRECTED BY THE SAFETY-SERVICE DIRECTOR.
3. WHERE A CURB INLET FALLS WITHIN A DROP CURB (DRIVEWAYS), RELOCATE THE CURB INLET OUTSIDE THE DROP CURB AREA.
4. SEE PV-16.2 FOR EXPANSION JOINT DETAIL.
5. SEE ST-5 FOR CAST-IN-PLACE OR PRECAST WALL THICKNESS REQUIREMENTS.
6. SEE ODOT STANDARD DRAWING CB-2.2 FOR ADDITIONAL DETAILS NOT SHOWN.
7. SEE GN-5 FOR INLET FRAME AND COVER.
8. USE THIS STANDARD FOR CURB INLET REPLACEMENT IN CONCRETE PAVEMENT.
9. PIPE OPENINGS SHALL BE O.D. + 4".

**NOTE 1:** THIS DETAIL IS VALID ONLY WHEN USED AS PRESENTED HERE, WITHOUT CHANGES, AND IN CONJUNCTION WITH ANY GENERAL NOTES AND/OR OTHER DETAILS WHICH MAY APPLY. ANY CHANGES TO THIS DETAIL SHALL FIRST BE SUBMITTED TO AND APPROVED BY THE SAFETY-SERVICE DIRECTOR.

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**City of Orrville : Safety-Service Department**

207 N. Main Street      Orrville, Ohio 44667

Phone: (330) 684-5000

Fax: (330) 684-5023

Steven M. Wheeler  
Safety-Service Director

**SUBDIVISION AND ZONING REGULATIONS  
ENGINEERING CONSTRUCTION STANDARDS  
SINGLE CURB INLET  
(CONCRETE PAVEMENT)**

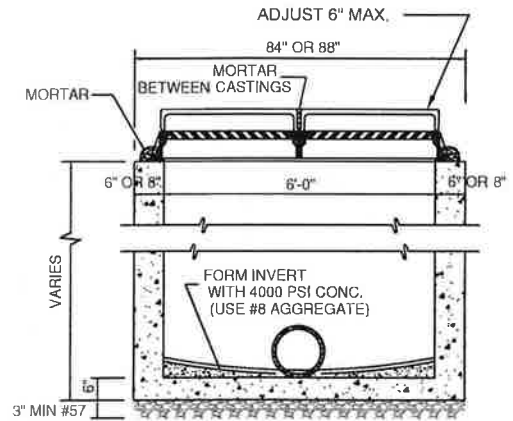
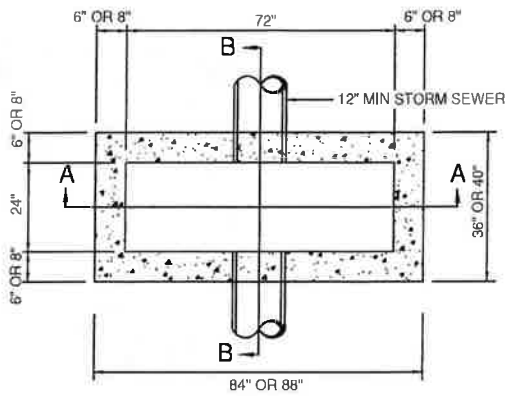
NO.	DATE	REVISION
1	6/26/07	Revision To Dowel Specs.
1	4/1/09	Revise Sheet Number, Notes, Underdrain Size, Frame Height Adjustment
2	3/20/15	Revise Notes
3	3/01/16	Revise Dowel Requirements
4	5/02/16	Revise Joint Requirements

CAD FILE  
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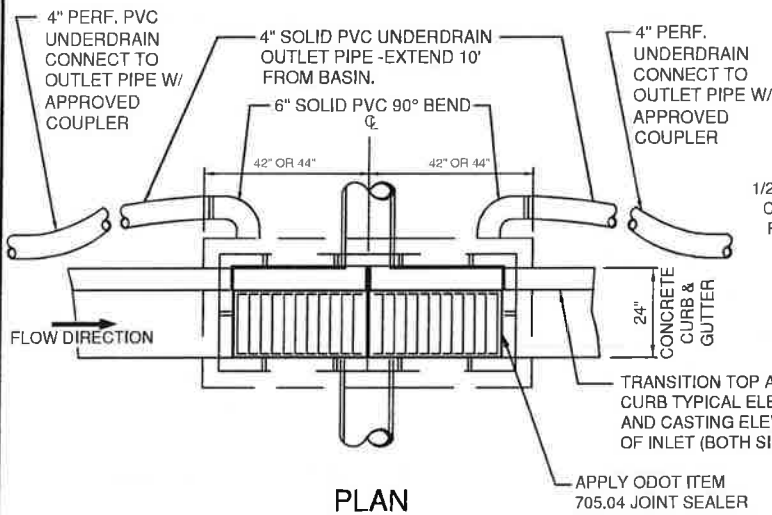
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DRWN BY	APPRVD BY	ISSUE DATE	SCALE
DLS	BLJ	03/15/07	NONE

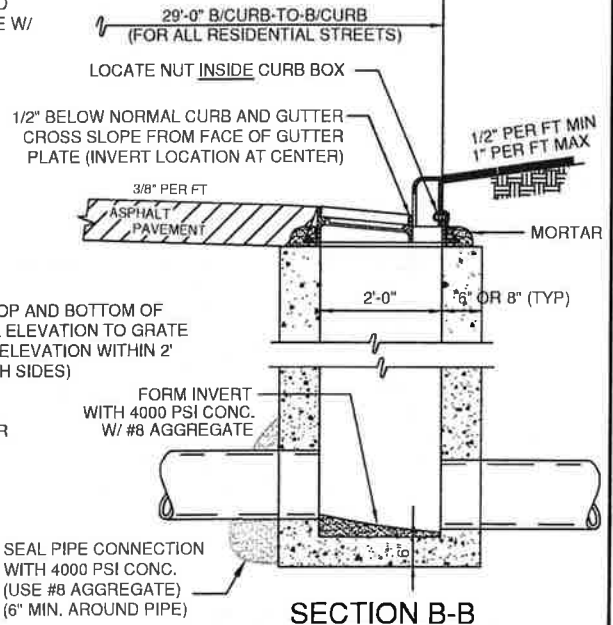
**ST-7.1**



SECTION A-A



PLAN



SECTION B-B

NOTES:

1. THIS DETAIL SHOWS ASPHALT PAVEMENT. SEE DETAIL ST-8.1 FOR CONCRETE PAVEMENT DETAILS.
2. EXCAVATION DIMENSIONS SHALL BE A MINIMUM OF 2' BEYOND THE OUTER WALL OF THE OUTER WALL OF THE BASIN TO ALLOW FOR ADEQUATE COMPACTION AROUND THE BASIN. BACKFILL AROUND BASINS SHALL BE COMPACTED 304 AGGREGATE OR 613 - LOW STRENGTH MORTAR BACKFILL, TYPE 1, AS DIRECTED BY THE SAFETY-SERVICE DIRECTOR.
3. WHERE A CURB INLET FALLS WITHIN A DROP CURB (DRIVEWAYS), RELOCATE THE CURB INLET OUTSIDE THE DROP CURB AREA.
5. DOUBLE CURB INLETS SHALL BE USED IN ALL SAG CURVES.
6. SEE ST-5 FOR CAST-IN-PLACE OR PRECAST WALL THICKNESS REQUIREMENTS.
7. SEE ODOT STANDARD DRAWING CB-2.1 FOR ADDITIONAL DETAILS NOT SHOWN.
8. SEE GN-5 FOR INLET FRAME AND COVER.
9. PIPE OPENINGS SHALL BE O.D. + 4".

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NOTE 2: BEFORE ANY EXCAVATING, CALL THE FOLLOWING NUMBERS AT LEAST 48 HOURS IN ADVANCE: O.U.P.S. @ (800) 362-2764 AND O.A.G.P.U.P.S. @ (800) 925-0988.

City of Orrville : Safety-Service Department

207 N. Main Street Orrville, Ohio 44667

Phone: (330) 684-5000

Fax: (330) 684-5023

Steven M. Wheeler  
Safety-Service Director

SUBDIVISION AND ZONING REGULATIONS  
ENGINEERING CONSTRUCTION STANDARDS  
DOUBLE CURB INLET  
(ASPHALT PAVEMENT)

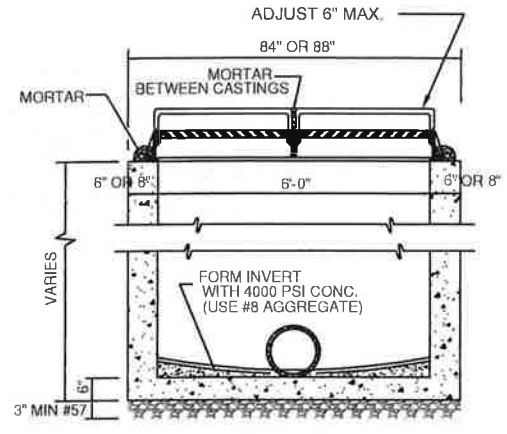
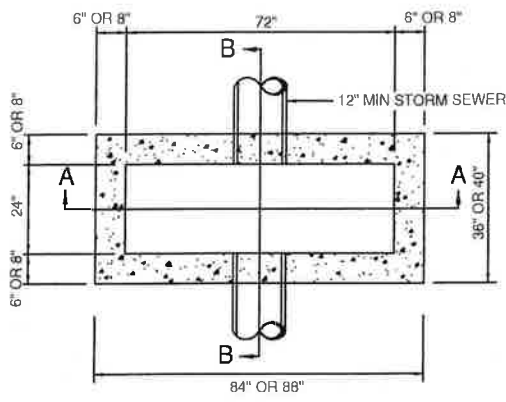
NO.	DATE	REVISION
1	4/1/09	Revise Sheet Number, Notes, Underdrain Size, Frame Height Adjustment
2	3/20/15	Revise Notes

CAD FILE  
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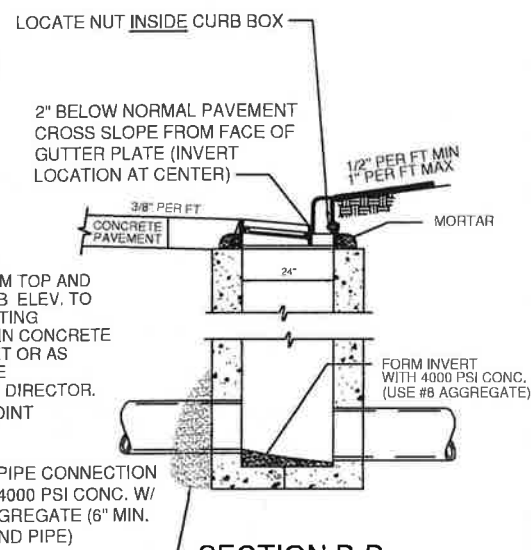
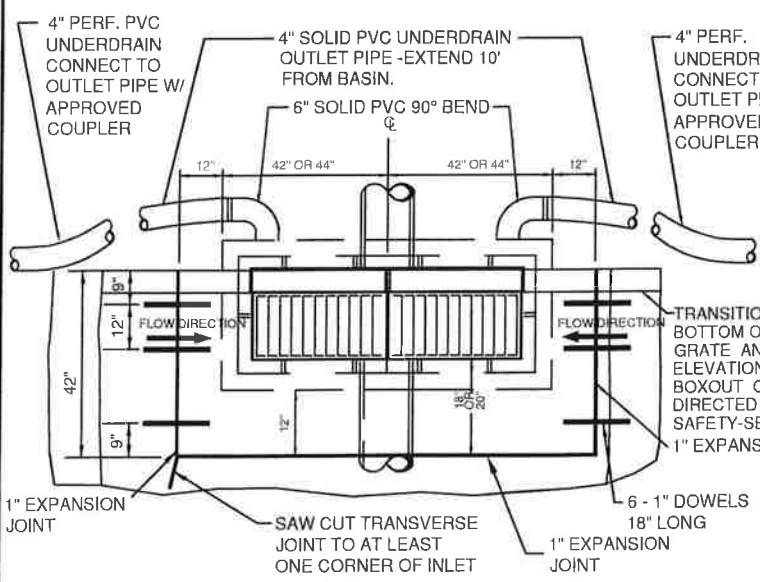
SHEET

DRWN BY	APPRVD BY	ISSUE DATE	SCALE
DLS	BLJ	03/15/07	NONE

ST-8.0



SECTION A-A



SECTION B-B

PLAN

NOTES:

1. THIS DETAIL SHOWS CONCRETE PAVEMENT. SEE DETAIL ST-8.0 FOR ASPHALT PAVEMENT DETAILS.
2. EXCAVATION DIMENSIONS SHALL BE A MINIMUM OF 2' BEYOND THE OUTER WALL OF THE BASIN TO ALLOW FOR ADEQUATE COMPACTION AROUND THE BASIN. BACKFILL AROUND BASINS SHALL BE COMPACTED 304 AGGREGATE OR 613 - LOW STRENGTH MORTAR BACKFILL, TYPE 1, AS DIRECTED BY THE SAFETY-SERVICE DIRECTOR.
3. WHERE A CURB INLET FALLS WITHIN A DROP CURB (DRIVEWAYS), RELOCATE THE CURB INLET OUTSIDE THE DROP CURB AREA.
4. SEE PV-16.2 FOR EXPANSION JOINT DETAIL.
5. USE DOUBLE CURB INLETS IN ALL SAG CURVES.
6. SEE ST-5 FOR CAST-IN-PLACE OR PRECAST WALL THICKNESS REQUIREMENTS.
7. SEE ODOT STANDARD DRAWING CB-2.1 FOR ADDITIONAL DETAILS NOT SHOWN.
8. SEE GN-5 FOR INLET FRAME AND COVER.
9. PIPE OPENING SHALL BE O.D. + 4".

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 Steven M. Wheeler  
 Safety-Service Director

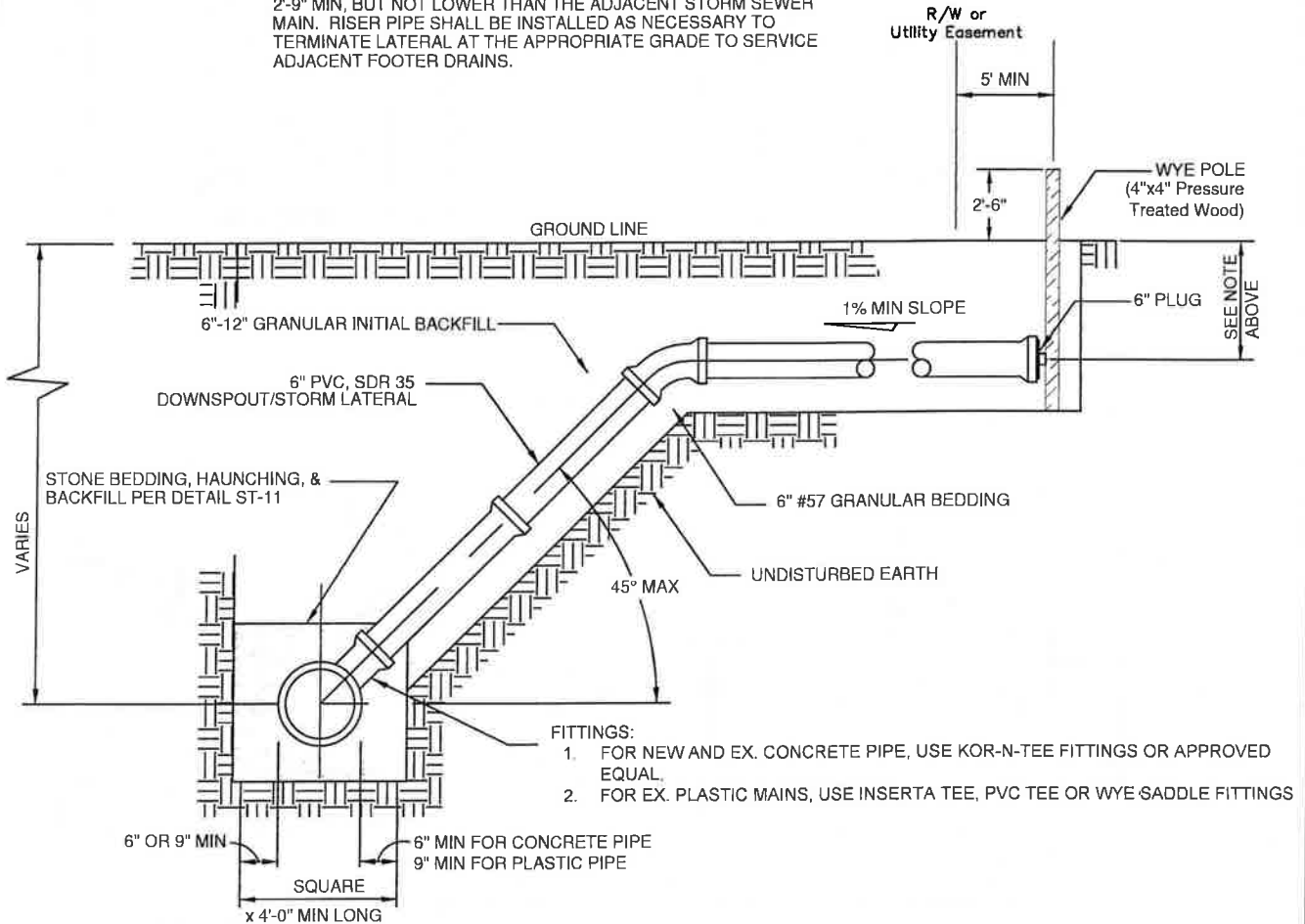
NO.	DATE	REVISION
1	6/29/07	Revision To Dowell Specs.
2	4/1/09	Revise Sheet Number, Notes, Underdrain Size, Frame Height Adjustment
3	3/20/15	Revise Notes
4	3/01/16	Revise Dowel Requirements
5	5/02/16	Revise Joint Requirements

**SUBDIVISION AND ZONING REGULATIONS  
 ENGINEERING CONSTRUCTION STANDARDS  
 DOUBLE CURB INLET  
 (CONCRETE PAVEMENT)**

CAD FILE		SHEET	
S:\_AutoCAD\By_County\Wayne.Co\Orrville\Construction Std\ST-08_1.DWG		ST-8.1	
DRWN BY	APPRVD BY	ISSUE DATE	SCALE
DLS	BLJ	03/15/07	NONE

**LATERAL TERMINATION:**

LATERAL SHALL TERMINATE 5' OUTSIDE THE RIGHT-OF-WAY LINE OR UTILITY EASEMENT WHICHEVER IS GREATER, UNLESS SHOWN OTHERWISE ON THE DRAWINGS. TERMINATION DEPTH SHALL BE 2'-9" MIN, BUT NOT LOWER THAN THE ADJACENT STORM SEWER MAIN. RISER PIPE SHALL BE INSTALLED AS NECESSARY TO TERMINATE LATERAL AT THE APPROPRIATE GRADE TO SERVICE ADJACENT FOOTER DRAINS.



- FITTINGS:**
1. FOR NEW AND EX. CONCRETE PIPE, USE KOR-N-TEE FITTINGS OR APPROVED EQUAL.
  2. FOR EX. PLASTIC MAINS, USE INSERTA TEE, PVC TEE OR WYE SADDLE FITTINGS

**NOTE:**  
HOLES IN EXISTING MAINS FOR INSTALLATION OF TEES OR SADDLES SHALL BE CORE DRILLED USING HOLESAWS OR CORING MACHINES TO ENSURE A CLEAN, ROUND, SMOOTH HOLE.

**NOTE 1:** THIS DETAIL IS VALID ONLY WHEN USED AS PRESENTED HERE, WITHOUT CHANGES, AND IN CONJUNCTION WITH ANY GENERAL NOTES AND/OR OTHER DETAILS WHICH MAY APPLY. ANY CHANGES TO THIS DETAIL SHALL FIRST BE SUBMITTED TO AND APPROVED BY THE SAFETY-SERVICE DIRECTOR.

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Steven M. Wheeler  
Safety-Service Director

**SUBDIVISION AND ZONING REGULATIONS  
ENGINEERING CONSTRUCTION STANDARDS  
STORM LATERAL DETAIL**

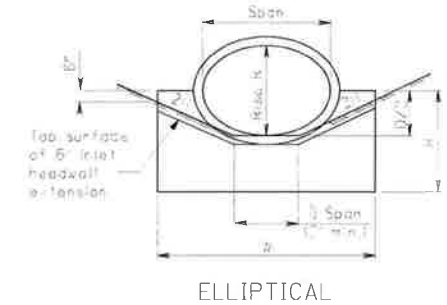
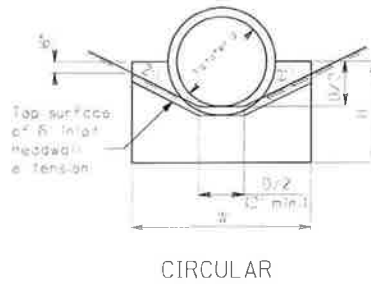
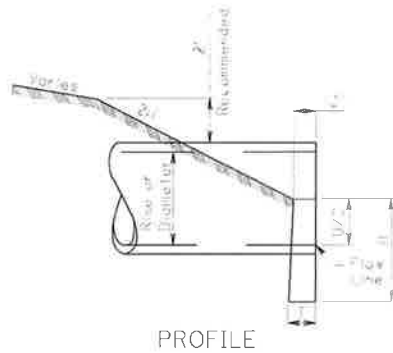
NO.	DATE	REVISION
1	6/29/07	Added Fittings Note
2	4/1/09	Revise Sheet Number, Notes
3	3/20/15	Revise Sheet Number

CAD FILE  
S:\\_AutoCAD\By\_County\Wayne.Col\Orrville\Construction Std\ST-09.dwg

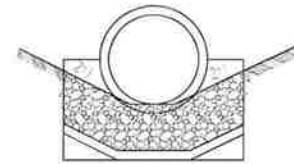
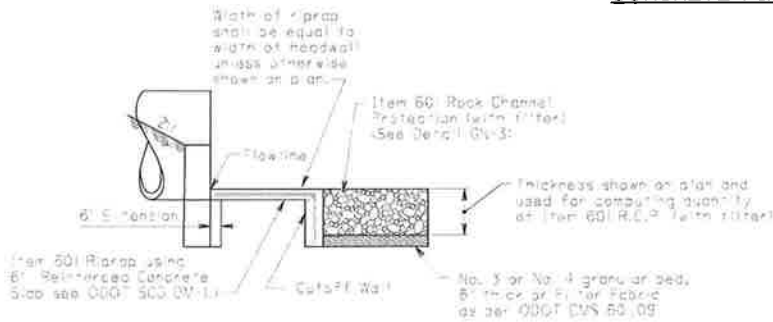
SHEET

DRWN BY	APPRVD BY	ISSUE DATE	SCALE
DLS	BLJ	03/15/07	NONE

**ST-9**



**CONCRETE PIPE**



Width of riprap and rock channel protection shall be equal to the width of headwall unless otherwise shown on the plans. (Minimum width 4'-0")

**OUTLET CHANNEL PROTECTION DETAIL**

**CAST IN PLACE HEADWALL FOR CONCRETE PIPE**

CIRCULAR					ELLIPTICAL					
D	W	H	T	Conc. Cu. yds.	Span	Rise	W	H	T	Conc. Cu. yds.
12	2'-0"	3'-0"	0"	0.20	25	4	3'-0"	3'-0"	0"	0.29
15	2'-6"	3'-0"	0"	0.25	30	4	3'-0"	3'-0"	0"	0.35
18	3'-0"	3'-0"	0"	0.31	34	4	3'-0"	3'-0"	0"	0.38
21	3'-6"	3'-0"	0"	0.37	38	4	3'-0"	3'-0"	0"	0.44
24	4'-0"	3'-0"	0"	0.43	42	4	3'-0"	3'-0"	0"	0.50
27	4'-6"	3'-0"	0"	0.49	46	4	3'-0"	3'-0"	0"	0.56
30	5'-0"	3'-0"	0"	0.56	49	4	3'-0"	3'-0"	0"	0.62
32	5'-6"	3'-0"	0"	0.62	53	4	3'-0"	3'-0"	0"	0.68
36	6'-0"	3'-0"	0"	0.69	60	3	8'-0"	4'-0"	0"	0.82
38	6'-6"	3'-0"	0"	0.77	64	3	8'-0"	4'-0"	0"	0.90
42	7'-0"	3'-0"	0"	0.84	70	3	8'-0"	4'-0"	0"	0.98
48	8'-0"	3'-0"	0"	1.05	78	3	8'-0"	4'-0"	0"	1.18
54	9'-0"	3'-0"	0"	1.31	87	3	8'-0"	4'-0"	0"	1.47
60	10'-0"	3'-0"	0"	1.63	98	3	8'-0"	4'-0"	0"	1.84
66	11'-0"	3'-0"	0"	2.02	106	3	8'-0"	4'-0"	0"	2.29
72	12'-0"	3'-0"	0"	2.47	115	3	8'-0"	4'-0"	0"	2.81
78	13'-0"	3'-0"	0"	3.07	125	3	8'-0"	4'-0"	0"	3.40
84	14'-0"	3'-0"	0"	3.75	136	3	8'-0"	4'-0"	0"	4.04
90	15'-0"	3'-0"	0"	4.51	148	3	8'-0"	4'-0"	0"	4.74
96	16'-0"	3'-0"	0"	5.34	162	3	8'-0"	4'-0"	0"	5.50
102	17'-0"	3'-0"	0"	6.25	177	3	8'-0"	4'-0"	0"	6.42
108	18'-0"	3'-0"	0"	7.24	194	3	8'-0"	4'-0"	0"	7.50
114	19'-0"	3'-0"	0"	8.31	212	3	8'-0"	4'-0"	0"	8.75
120	20'-0"	3'-0"	0"	9.45	232	3	8'-0"	4'-0"	0"	10.18
126	21'-0"	3'-0"	0"	10.67	254	3	8'-0"	4'-0"	0"	11.78
132	22'-0"	3'-0"	0"	11.97	278	3	8'-0"	4'-0"	0"	13.55
144	24'-0"	3'-0"	0"	15.20	336	3	8'-0"	4'-0"	0"	18.00

**NOTES**

- GENERAL: PROVIDE A RIPRAP REINFORCED CONCRETE SLAB ACCORDING TO SCD DM-1.1 IF THE PIPE IS DERESSED OR IT IS SPECIFIED IN THE PLANS.
- THIS DRAWING IS FOR CAST IN PLACE HALF-HEIGHT CONCRETE HEADWALLS. PRECAST HALF-HEIGHT HEADWALLS ARE ONLY APPROVED FOR ROUND CONDUITS WITH A MAXIMUM CONDUIT DIAMETER OF 78".
- CAST IN PLACE CONCRETE HEADWALLS MUST BE CONSTRUCTED IN ACCORDANCE WITH ODOT ITEM 602 WHILE PRECAST CONCRETE HEADWALLS MUST BE CONSTRUCTED IN ACCORDANCE WITH ODOT ITEM 611.
- CONCRETE: USE 4000 PSI COMPRESSIVE STRENGTH CONCRETE FOR HEADWALLS.
- CONCRETE QUANTITIES ARE BASED ON HEADWALLS WITHOUT THE 6" EXTENSION UNDER THE CHANNEL PROTECTION.
- ROCK CHANNEL PROTECTION: INSTALL TYPE A, B OR C ROCK OR STONE, W/FILTER FABRIC, IN ACCORDANCE WITH ODOT ITEM 601. SIZE, THICKNESS AND LENGTH SHALL BE DETERMINED USING FIGURE 1107-1 "ROCK CHANNEL PROTECTION AT CULVERT AND STORM SEWER OUTLETS", ODOT LOCATION AND DESIGN MANUAL, VOLUME 2 - DRAINAGE DESIGN OR AS APPROVED BY THE SAFETY-SERVICE DIRECTOR. ROCK CHANNEL PROTECTION SHALL BE INSTALLED IMMEDIATELY AFTER THE INSTALLATION OF THE PERTINENT STORM STRUCTURE OR HEADWALL.
- HEADWALLS FOR PLASTIC PIPE: USE ODOT SCD HW-2.1. APPROVAL OF THE SAFETY-SERVICE DIRECTOR IS REQUIRED FOR ANY PIPE ANCHORING SYSTEM THAT IS DIFFERENT FROM THAT SHOWN ON ODOT SCD HW-2.1.

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 Steven M. Wheeler  
 Safety-Service Director

NO.	DATE	REVISION
1	4/1/09	Revise Sheet Number
2	3/20/15	Revise Sheet Number & Notes

**SUBDIVISION AND ZONING REGULATIONS  
 ENGINEERING CONSTRUCTION STANDARDS  
 STANDARD HALF-HEIGHT  
 HEAD AND END WALLS**

CAD FILE: S:\\_AutoCAD\By\_County\Wayne.Co\Orrville\Construction Std\ST-10.dwg SHEET: **ST-10**

DRWN BY: DLS APPRVD BY: BLJ ISSUE DATE: 03/15/07 SCALE: NONE

**PVC PLASTIC PIPE  
TYPICAL TRENCH SECTION  
BEDDING AND BACKFILL**

**FINAL BACKFILL:**

UNDER OR WITHIN 2' OF PAVEMENT, DRIVEWAYS OR SIDEWALKS - COMPACTED ODOT 304 GRANULAR MATERIAL (ASTM D2321, CLASS 1 BACKFILL).  
NOT UNDER PAVEMENT - COMPACTED SUITABLE EXCAVATED MATERIAL CONTAINING NO ROCKS, REFUSE OR ORGANIC MATERIAL, (ASTM D2321, CLASS 1 THRU 3 BACKFILL).

**INITIAL BACKFILL:**

COMPACTED ODOT 304 GRANULAR MATERIAL (LIMESTONE OR CRUSHED GRAVEL ONLY) ODOT 703.01, (ASTM D2321, CLASS 1 MATERIAL) OR ODOT 613 LOW STRENGTH MORTAR BACKFILL, TYPE 1.

**HAUNCHING:**

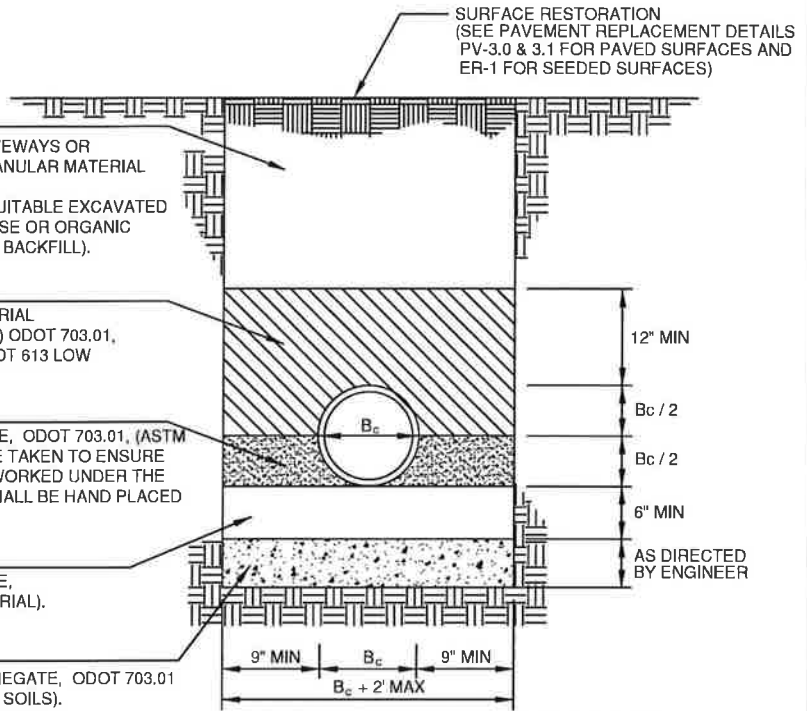
COMPACTED NO. 8 OR NO. 67 AGGREGATE, ODOT 703.01, (ASTM D2321, CLASS I MATERIAL) CARE MUST BE TAKEN TO ENSURE THAT SUFFICIENT MATERIAL HAS BEEN WORKED UNDER THE PIPE TO PREVENT VOIDS, HAUNCHING SHALL BE HAND PLACED & TAMPED IF DIRECTED.

**GRANULAR BEDDING:**

COMPACTED NO. 8 OR NO. 67 AGGREGATE, ODOT 703.01, (ASTM D2321, CLASS I MATERIAL).

**FOUNDATION AGGREGATE:**

COMPACTED NO.1 & NO.2 COARSE AGGREGATE, ODOT 703.01 (AS REQUIRED TO REPLACE UNSUITABLE SOILS).



**CONCRETE PIPE  
TYPICAL TRENCH SECTION  
BEDDING AND BACKFILLING**

**FINAL BACKFILL:**

UNDER OR WITHIN 2' OF PAVEMENT, DRIVEWAY OR SIDEWALK - COMPACTED ODOT 304 GRANULAR MATERIAL  
NOT UNDER PAVEMENT - COMPACTED SUITABLE EXCAVATED MATERIAL CONTAINING NO ROCKS, REFUSE OR ORGANIC MATERIAL.

**INITIAL BACKFILL:**

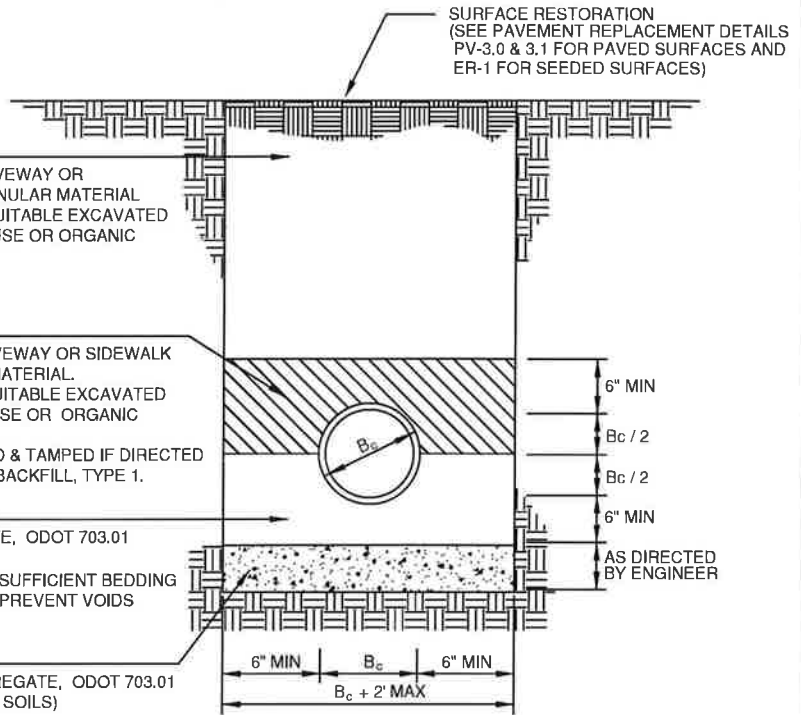
UNDER OR WITHIN 2' OF PAVEMENT, DRIVEWAY OR SIDEWALK COMPACTED 304 OR NO. 67 GRANULAR MATERIAL.  
NOT UNDER PAVEMENT - COMPACTED SUITABLE EXCAVATED MATERIAL CONTAINING NO ROCKS, REFUSE OR ORGANIC MATERIAL.  
INITIAL BACKFILL SHALL BE HAND PLACED & TAMPED IF DIRECTED OR ODOT 613, LOW STRENGTH MORTAR BACKFILL, TYPE 1.

**GRANULAR BEDDING:**

COMPACTED NO. 8 OR NO. 67 AGGREGATE, ODOT 703.01 (ASTM C12, BEDDING CLASS B)  
CARE MUST BE TAKEN TO ENSURE THAT SUFFICIENT BEDDING HAS BEEN WORKED UNDER THE PIPE TO PREVENT VOIDS

**FOUNDATION AGGREGATE:**

COMPACTED NO.1 & NO.2 COARSE AGGREGATE, ODOT 703.01 (AS REQUIRED TO REPLACE UNSUITABLE SOILS)



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Fax: (330) 684-5023

Steven M. Wheeler  
Safety-Service Director

NO.	DATE	REVISION
1	6/29/07	Compacted Granular Material Spec. Revised
2	4/01/09	Revise Sheet Number, Concrete Pipe Trench Detail; Delete Plastic Pipe Trench Detail
3	3/20/15	Revise Sheet Number, Delete Concrete Pipe Trench Details, Add Plastic and Concrete Pipe Trench Details

**SUBDIVISION AND ZONING REGULATIONS  
ENGINEERING CONSTRUCTION STANDARDS  
STORM SEWER TRENCH DETAILS**

CAD FILE  
S:\\_AutoCAD\By\_CountyWayne.Co\Orrville\Construction Std\ST-11.dwg

SHEET

DRWN BY DLS	APPRVD BY BLJ	ISSUE DATE 03/15/07	SCALE NONE
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**ST-11**

# TRAFFIC NOTES

**A. GENERAL:**

1. THESE CONDITIONS SHALL GENERALLY APPLY TO ALL TRAFFIC CONTROL DEVICES, SIGNS, PAVEMENT MARKINGS AND MATERIALS.

**B. TRAFFIC CONTROL SIGNS:**

1. ALL STOP SIGNS, YIELD SIGNS, AND OTHER TRAFFIC CONTROL SIGNS SHALL CONFORM TO OHIO DEPARTMENT OF TRANSPORTATION SPECIFICATIONS, AND THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.

**C. STREET SIGNS:**

1. ALL STREET SIGNS SHALL CONFORM TO CITY OF ORRVILLE SPECIFICATIONS AND ITEM 630, OHIO DEPARTMENT OF TRANSPORTATION, CONSTRUCTION AND MATERIAL SPECIFICATIONS FOR TYPE, SIZE, MATERIALS, LETTERING AND SUPPORTS.

**D. TRAFFIC SIGNALS:**

1. ALL TRAFFIC SIGNALS SHALL CONFORM TO CITY OF ORRVILLE SPECIFICATIONS AND ITEMS 632 AND 633, OHIO DEPARTMENT OF TRANSPORTATION, CONSTRUCTION AND MATERIAL SPECIFICATIONS FOR TRAFFIC SIGNAL EQUIPMENT AND CONTROLLERS. CONTACT MAINTENANCE DEPT. FOR CURRENT SPECIFICATIONS.

**E. PAVEMENT MARKING:**

1. ALL PAVEMENT MARKINGS SHALL CONFORM TO CITY OF ORRVILLE SPECIFICATIONS AND ITEM 642, OHIO DEPARTMENT OF TRANSPORTATION, CONSTRUCTION AND MATERIAL SPECIFICATIONS FOR TRAFFIC PAINT.

**F. SUBMITTALS:**

1. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR TRAFFIC CONTROL SIGNS, STREET SIGNS, AND TRAFFIC SIGNALS TO THE SAFETY-SERVICE DIRECTOR FOR REVIEW AND APPROVAL PRIOR TO THE MANUFACTURE OF SAID ITEMS.

NOTE 1: THIS DETAIL IS VALID ONLY WHEN USED AS PRESENTED HERE, WITHOUT CHANGES, AND IN CONJUNCTION WITH ANY GENERAL NOTES AND/OR OTHER DETAILS WHICH MAY APPLY. ANY CHANGES TO THIS DETAIL SHALL FIRST BE SUBMITTED TO AND APPROVED BY THE SAFETY-SERVICE DIRECTOR.

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Steven M. Wheeler  
 Safety-Service Director

**SUBDIVISION AND ZONING REGULATIONS  
 ENGINEERING CONSTRUCTION STANDARDS**

**GENERAL NOTES - TRAFFIC**

NO.	DATE	REVISION
1	4/1/09	Add Submittals
2	3/20/15	Revise Sheet Number

CAD FILE: S:\\_AutoCAD\By\_County\Wayne,Co\Orrville\Construction Std\TR-01.dwg

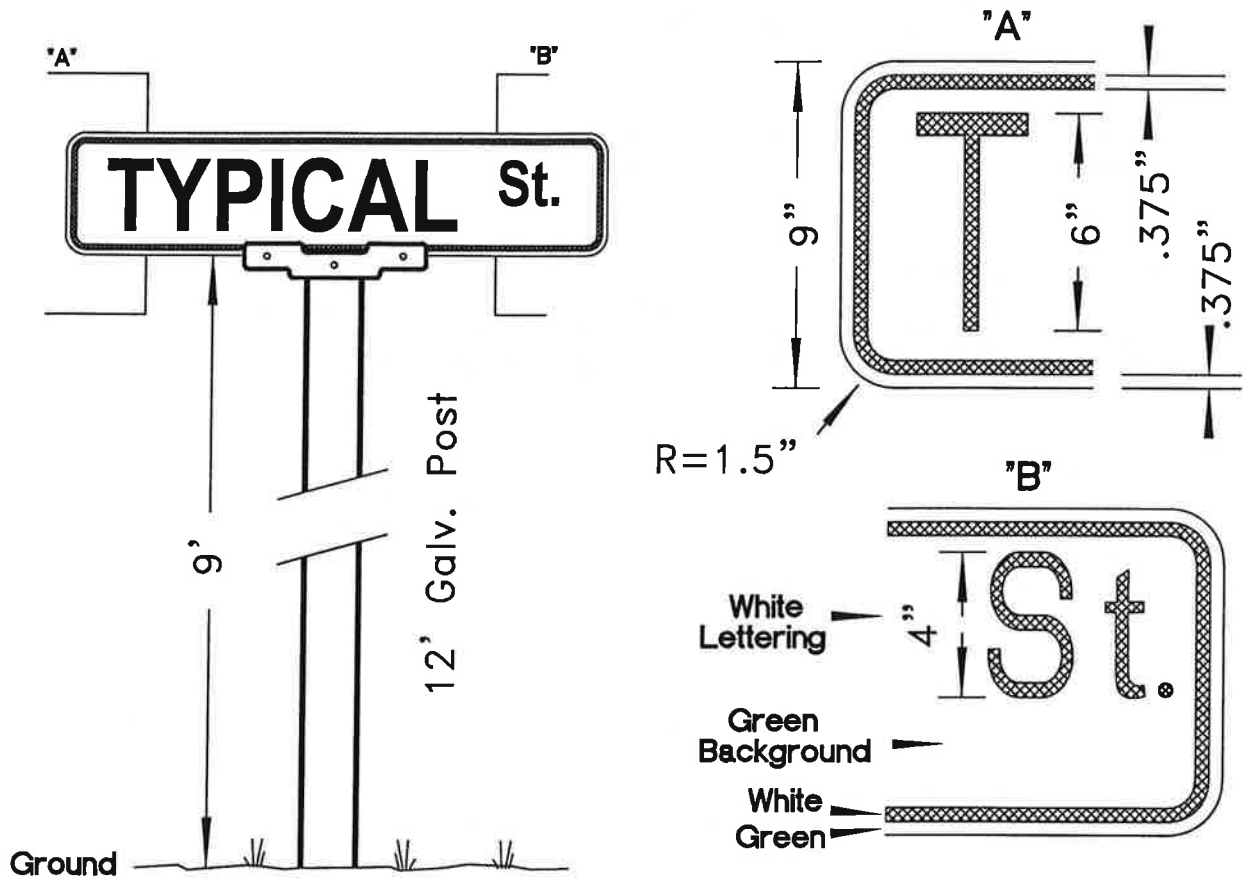
SHEET

DRWN BY	APPRVD BY	ISSUE DATE	SCALE
DLS	BLJ	03/15/07	NONE

TR-1



# SIGN SPECIFICATIONS



- 1) All street signs shall be Type 4 High Intensity Prismatic (HIP)
- 2) .080 aluminum blank; (non-extruded.)
- 3) 9" Width X Length (as needed)
- 4) 1.5 in. blank radius
- 5) .375 in. outer border stripe (green stripe)
- 6) .375 in. inner border stripe (white stripe)
- 7) S/N "TYPICAL" lettering is 6 in. HWYB font and all upper case letters with narrow kerning, centered top to bottom. See "A" above.
- 8) "St." lettering is 4 in. HWYB font with the letter "S" in upper case and the Letter "t" in lower case. "St." is also narrow kerning. "St." is located in the upper right side. See "B" above.
- 9) The words "TYPICAL St." and the period should be centered between the inner border left to right.

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Fax: (330) 684-5023

Becky L. Jewell  
Safety-Service Director

NO.	DATE	REVISION
1	3/20/15	Add TR-2.0 To Engineering Construction Standards
2	2/10/16	Delete Items 10. and 11.

**SUBDIVISION AND ZONING REGULATIONS  
ENGINEERING CONSTRUCTION STANDARDS  
STREET SIGN DETAILS**

CAD FILE:

S:\\_AutoCAD\By\_County\Wayne.Co\Orrville\Construction Std\TR-02\_0.dwg

SHEET:

TR-2.0

DRWN BY:  
DLS

APPRVD BY:  
BLJ

ISSUE DATE:  
1/8/07

SCALE:  
NONE

## Stop Signs

- 1) All stop signs shall be Type 4 High Intensity Prismatic (HIP)
- 2) 30 in. octagon .080 Aluminum blank.
- 3) The stop sign shall conform to ATTASA standards from the Standard Highway Signs Manual and the Manual on Uniform Traffic Control Devices, Millennium Edition.

## Other Signs

- 1) All Other Signs shall be Type 4 High Intensity Prismatic (HIP)
- 2) Snow Ban signs shall conform to the City of Orrville Snow Ban Specifications.
  - a) .080 Aluminum blank
  - b) 1.5 in. radius corners
  - c) Overall size 18 in. wide x 24 in. long
  - d) The outer white borders are .375 in. width
  - e) The wording "EMERGENCY SNOW BAN" is HWYC font at 2.5 in. size, default kerning and upper case. The wording is white with the background red.
  - f) The wording "NO PARKING" is HWYB font 2.5 size, default kerning and upper case. The wording is red with the background white.
  - g) The wording "WHEN SNOW EXCEEDS 3 IN." is HWYB font 1.625 size, default kerning and upper case. The wording is red with the background white.
  - h) The lower block, which is white, is 8.5 in. high x 16 in. wide. This gives a three sided red border on the lower part of the sign of 5/8".
- 3) No specialty signage consisting of material such as fiberglass, wood, plastic or other composition material shall be installed on City of Orrville right of way without prior written approval from the Safety-Service Director.

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**NOTE 2:** BEFORE ANY EXCAVATING, CALL THE FOLLOWING NUMBERS AT LEAST 48 HOURS IN ADVANCE: O.U.P.S. @ (800) 362-2764 AND O.A.G.P.U.P.S. @ (800) 925-0988.

### City of Orrville : Safety-Service Department

207 N. Main Street    Orrville, Ohio 44667  
 Phone: (330) 684-5000    Fax: (330) 684-5023

**Becky L. Jewell**  
 Safety-Service Director

NO.	DATE	REVISION
1	3/20/15	Add TR-2.1 To Engineering Construction Standards
2	2/10/16	Delete Items 2. & 3., "Stop Signs" and Items 1., 2.c. & 2.d., "Other Signs"

### SUBDIVISION AND ZONING REGULATIONS ENGINEERING CONSTRUCTION STANDARDS MISCELLANEOUS SIGN SPECIFICATIONS

CAD FILE:  
 S:\\_AutoCAD\By\_County\Wayne.Co\Orrville\Construction Std\TR-02\_1.dwg

DRWN BY: DLS	APPRVD BY: BLJ	ISSUE DATE: 1/8/07	SCALE: NONE
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SHEET:

# TR-2.1

## Street Name Post and Attaching Hardware

- 1) All Street Name signs shall be installed on a single 12 in. slot SABI 109-22 or equivalent S/N bracket (Non Extruded and set screw only.)
- 2) No clustering of street names on a single street name post.
- 3) See TR-2.3 for street name post specifications.
- 4) No street name signage will be allowed on top of Stop signs or their posts.
- 5) The sign shall be installed with a Pelco Sign-Brac Formed Tube. The use of multiple mounting assemblies shall be used when sizing of the sign requires more than one.
- 6) No ground mounted street name post shall be located on the same corner as a stop sign post. The use of two dead men (minimum of  $\frac{5}{16}$  in. x 18 in. rods) opposing each other shall be welded within 12 in. to the lower end of the post. This will help support and minimize the post from rotating in the ground. The required height above and below grade has not changed from the prior listing.

## Stop Sign Post and Attaching Hardware

- 1) See TR-2.3 for stop sign post specifications.
- 2) All stop signs shall be installed according to the Manual on Uniform Traffic Control Devices Millennium Edition for URBAN areas.

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Becky L. Jewell  
 Safety-Service Director

NO.	DATE	REVISION
1	3/20/15	Add TR-2.2 To Engineering Construction Standards

### SUBDIVISION AND ZONING REGULATIONS ENGINEERING CONSTRUCTION STANDARDS TRAFFIC SIGN POST SPECIFICATIONS

CAD FILE  
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SHEET

DRWN BY	APPRVD BY	ISSUE DATE	SCALE
DLS	BLJ	1/8/07	NONE

# TR-2.2

## U Channel Posts

- 1) All U Channel posts shall be galvanized and punched full length.
- 2) Post installed shall be of the breakaway style.
- 3) The Lap Splice break away system, with bolts shall be the style installed.
- 4) The base posts shall be 3# and 4 ft. in length (3 ft. below grade), and installed per manufacturer's specifications.
- 5) The upper posts shall be 3# and the length shall be determined by the sign.
- 6) All signs shall be installed on the U Channel posts by a minimum of two 3/8" x 2-1/2" 18-8 stainless steel bolts, 3/8" 304 stainless steel nuts with nylon inserts, stainless steel washers between the sign face and the bolt head and stainless steel washers between the nut and sign post.
- 7) All signs other than Street Names shall be installed according to the Manual on the Uniform Traffic Control Devices, Millennium Edition for URBAN areas.

## Sign Posts in Streetscape Areas

- 1) All posts other than stop sign posts in the Streetscape area shall be installed with the sign post style Tapco V-Loc system for concrete. Manufacturer wedges shall be used.
- 2) All signs including ground mounted street name signs and stop signs shall be mounted on U channel posts as specified above. All signs on existing round posts shall be mounted on the post with stainless steel bands with flared leg, threaded center hole brackets as per Tapco's 35-8 or approved equal. The banding shall be installed securely so the sign cannot be moved on the post.
- 3) All street name signs mounted on street lampposts shall be mounted over the sidewalk area of the lamppost. No street name signs shall hang over the curbside area of the lamppost where moving or turning vehicles can damage the signs.

## Misc. Posts

- 1) All removed u-channel posts shall be reinstalled with an "approved" lap splice breakaway galvanized post system, regardless of reusing the existing posts. No double post, bolted together or other means will be accepted without written manufacturer approval as a breakaway system.
- 2) If a sign is removed and reinstalled or replaced on a non-breakaway post then Item 1) above shall be followed and an approved lap spliced breakaway post shall be used.
- 3) All parking restriction signs shall have directional arrows on them.

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Becky L. Jewell  
Safety-Service Director

NO.	DATE	REVISION
1	3/20/15	Add TR-2.3 To Engineering Construction Standards

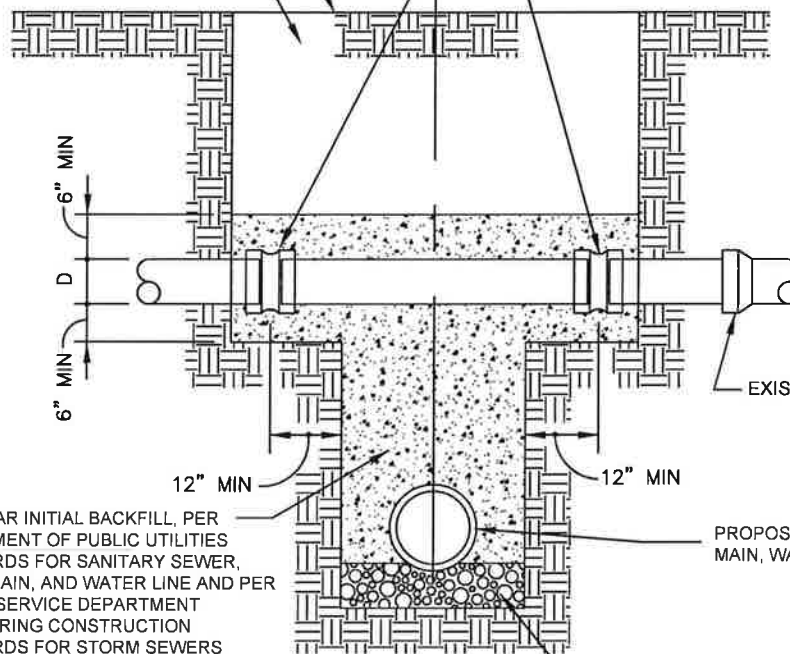
## SUBDIVISION AND ZONING REGULATIONS ENGINEERING CONSTRUCTION STANDARDS TRAFFIC SIGN POST SPECIFICATIONS

CAD FILE				SHEET
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DRWN BY	APPRVD BY	ISSUE DATE	SCALE	
DLS	BLJ	1/8/07	NONE	

SURFACE RESTORATION  
(SEE PAVEMENT REPLACEMENT DETAILS  
PV-3.0 & 3.1 FOR PAVED SURFACES AND  
ER-1 FOR SEEDED SURFACES)

SUITABLE BACKFILL MATERIAL  
(SEE ST-11)

FERNCO "STRONG BACK" RC SERIES  
COUPLING WITH STAINLESS STEEL  
BANDS (27" DIAMETER STORM SEWER  
OR LESS), OR ASTM C877 EXTERNAL  
SEALING BANDS FOR NONCIRCULAR  
CONCRETE PIPE



GRANULAR INITIAL BACKFILL, PER  
DEPARTMENT OF PUBLIC UTILITIES  
STANDARDS FOR SANITARY SEWER,  
FORCE MAIN, AND WATER LINE AND PER  
SAFETY-SERVICE DEPARTMENT  
ENGINEERING CONSTRUCTION  
STANDARDS FOR STORM SEWERS

PROPOSED SANITARY SEWER, FORCE  
MAIN, WATER LINE, OR STORM SEWER

BEDDING, PER DEPARTMENT OF PUBLIC  
UTILITIES STANDARDS FOR SANITARY  
SEWER, FORCE MAIN, AND WATER LINE  
AND PER SAFETY-SERVICE DEPARTMENT  
ENGINEERING CONSTRUCTION  
STANDARDS FOR STORM SEWERS

## TYPICAL TILE REPLACEMENT DETAIL

NOTE 1: THIS DETAIL IS VALID ONLY WHEN USED AS PRESENTED HERE, WITHOUT CHANGES, AND IN CONJUNCTION WITH ANY GENERAL NOTES AND/OR OTHER DETAILS WHICH MAY APPLY. ANY CHANGES TO THIS DETAIL SHALL FIRST BE SUBMITTED TO AND APPROVED BY THE SAFETY-SERVICE DIRECTOR.

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Steven M. Wheeler  
Safety-Service Director

**SUBDIVISION AND ZONING REGULATIONS  
ENGINEERING CONSTRUCTION STANDARDS**

**TILE REPAIR**

NO.	DATE	REVISION
1	4/1/09	Revise Notes
2	3/20/15	Revise Sheet Number & Notes

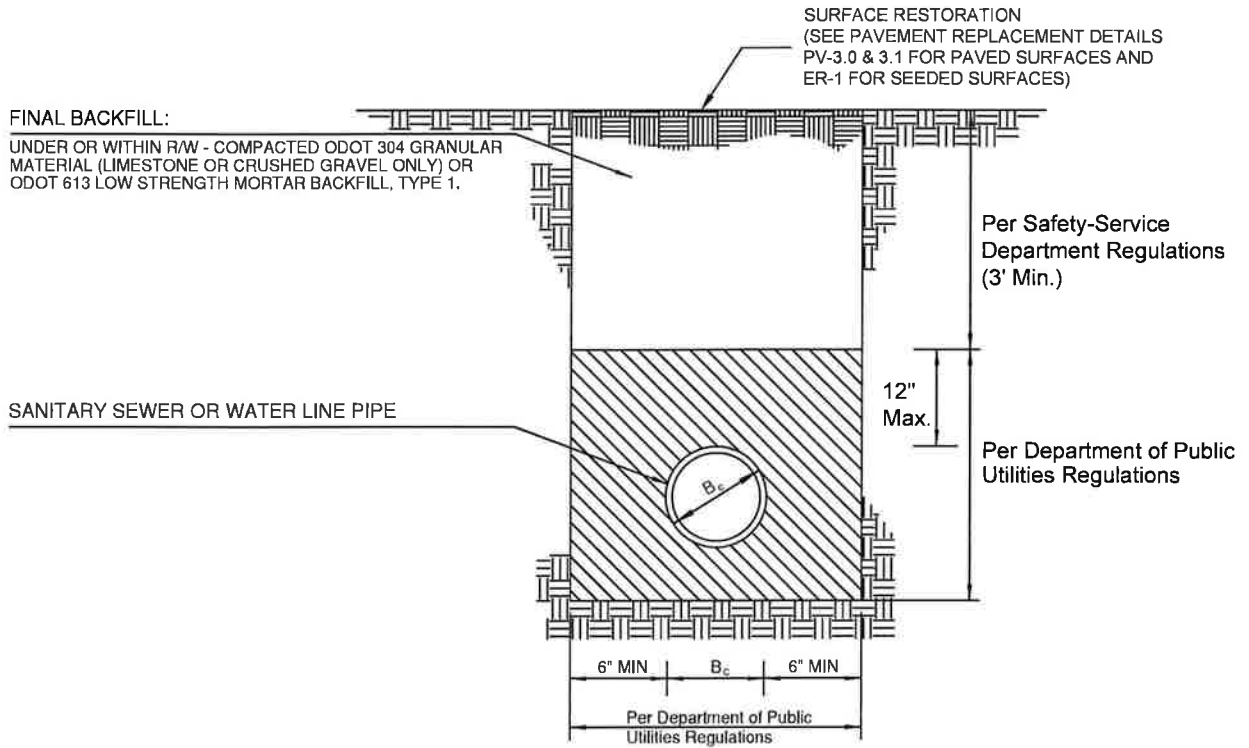
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DRWN BY: DLS	APPRVD BY: BLJ	ISSUE DATE: 03/15/07	SCALE: NONE
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**UT-1**

**TYPICAL TRENCH SECTION  
BEDDING AND BACKFILL**



**NOTE 1:** THIS DETAIL IS VALID ONLY WHEN USED AS PRESENTED HERE, WITHOUT CHANGES, AND IN CONJUNCTION WITH ANY GENERAL NOTES AND/OR OTHER DETAILS WHICH MAY APPLY. ANY CHANGES TO THIS DETAIL SHALL FIRST BE SUBMITTED TO AND APPROVED BY THE SAFETY-SERVICE DIRECTOR.

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Steven M. Wheeler  
Safety-Service Director

NO.	DATE	REVISION
1	6/29/07	Compacted Granular Material Spec. Revised
2	4/1/09	Revise Notes
3	3/20/15	Revise Sheet Number & Notes

**SUBDIVISION AND ZONING REGULATIONS  
ENGINEERING CONSTRUCTION STANDARDS  
DEPARTMENT OF PUBLIC UTILITIES  
TRENCH DETAILS**

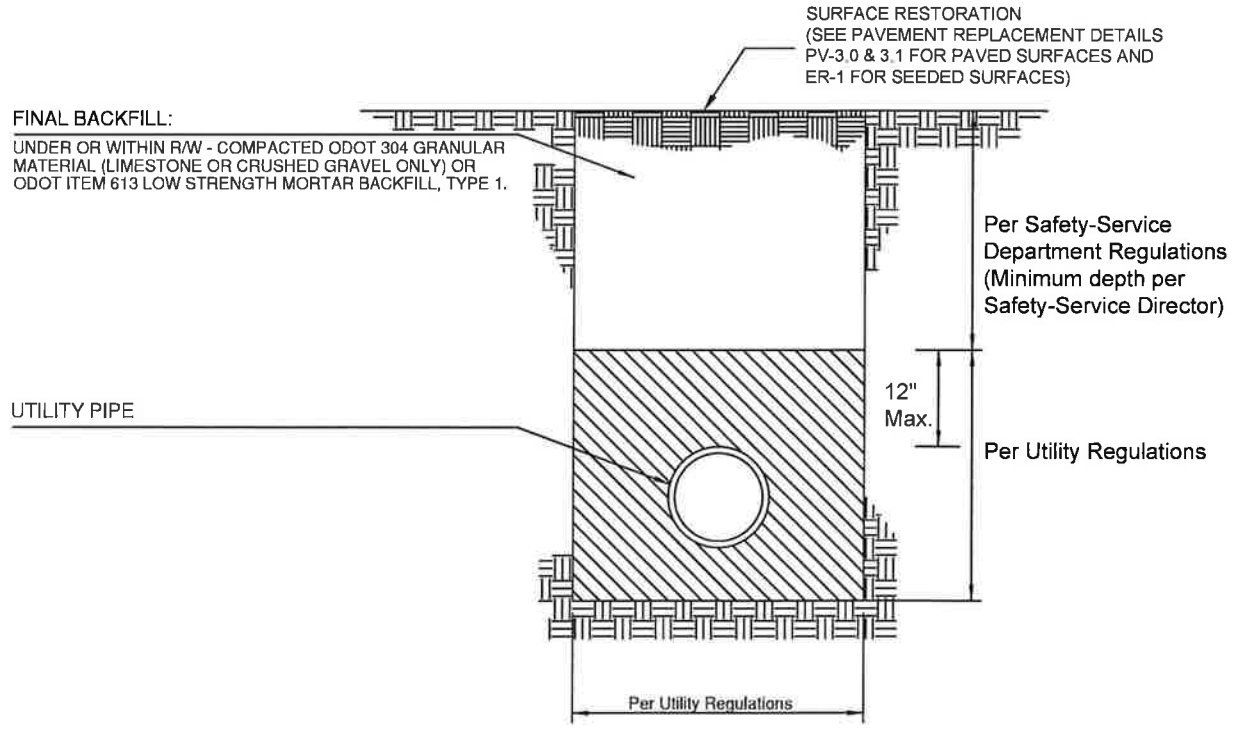
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SHEET

DRWN BY: DLS	APPRVD BY: BLJ	ISSUE DATE: 03/15/07	SCALE: NONE
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**UT-2**

**TYPICAL TRENCH SECTION  
BEDDING AND BACKFILL**



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NO.	DATE	REVISION
1	6/29/07	Compacted Granular Material Spec. Revised
2	4/1/09	Revise Notes
3	3/20/15	Revise Sheet Number & Notes

**SUBDIVISION AND ZONING REGULATIONS  
ENGINEERING CONSTRUCTION STANDARDS  
MISCELLANEOUS UTILITY TRENCH  
DETAILS**

CAD FILE		SHEET	
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DRWN BY DLS	APPRVD BY BLJ	ISSUE DATE 03/15/07	SCALE NONE