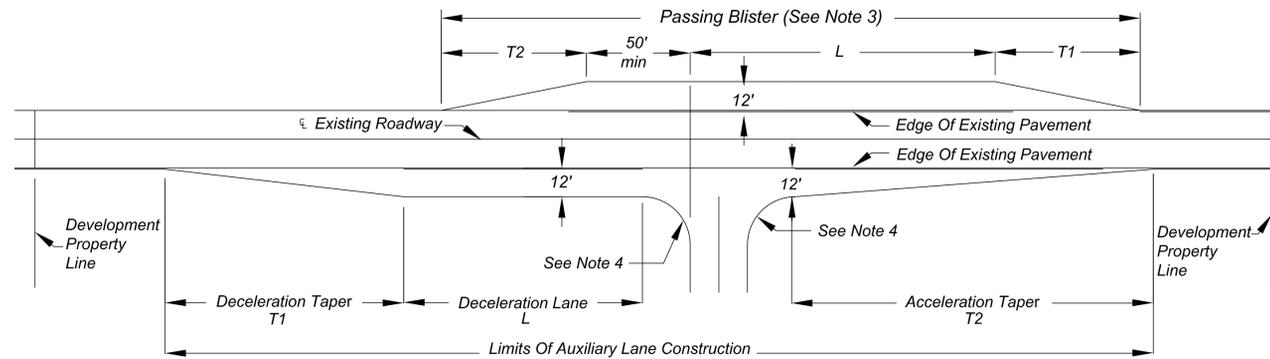


**GENERAL DEVELOPMENT NOTES**

- Both The Subdivision Developer And The Individual Lot Builder Are Responsible To Construct New Residential Lots In Accordance With The Details Established In The City Of Shelbyville Construction Standard Details, Latest Revision.
- An Erosion Control Plan Shall Be Submitted To The City Of Shelbyville. Such Plan Shall Require That A Minimum Of 4 Inches Topsoil Shall Be Placed And Graded Prior To Final Permanent Seeding.
- This Sheet Is NOT All Inclusive For The Unified Development Ordinance Regulations. All New Developments Shall Comply With The City Of Shelbyville Unified Development Ordinance.
- Monuments Shall Be Placed For The Purpose Of Accurately Denoting The Center Of Each Roadway. At A Minimum, Monuments Shall Be Placed At Points Of Tangency, Points Of Curvature, And Roadway Intersections.
- The External Boundary Of The Development / Subdivision Shall Be Monumented As Denoted On The Final Plat. Monuments Shall Be Placed At All Corner And Deflection Points Of The External Boundary. Two Markers Shall Be Placed At The Points Of Tangency At A Rounded Boundary Corner Or Arc.
- Each Individual Lot Corner And Internal Angle Point Shall Be Monumented. Two Markers Shall Be Placed At The Points Of Tangency At A Rounded Lot Corner Or Arc.
- All External Boundary And Individual Lot Monuments Shall Be Installed Within One Year Of Acceptance Of Final Plat. All Roadway Monuments Shall Be Installed Within Six (6) Months Of Placement Of Pavement Surface. All Monumentation Shall Be In Place Prior To The Acceptance Of The Public Improvements By The Board Of Public Works And Safety.
- A Land Surveyor, Registered In The State Of Indiana, Shall Attest To The Accuracy Of The Installed Monuments. Attestment Certifying All Monumentation Has Been Placed Shall Be Delivered As Soon As All Monumentation Has Been Placed. Attestment Must Be Received Prior To Release Of Surety / Bond. Certified Statements Of Attestment Shall Be Submitted To The Shelbyville Plan Commission.
- All Monuments Shall Be Constructed In Accordance With The Monument Details Shown On This Sheet.
- Monuments Which Are Damaged, Buried, Or Altered Shall Be Reset By Party Responsible For Damage/Alteration.



**ENTRANCE NOTES:**

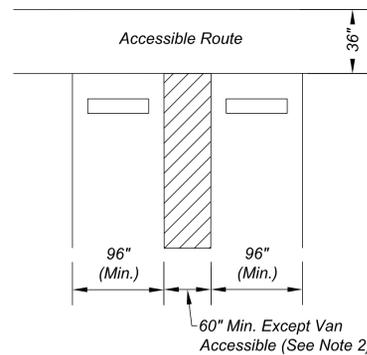
- Acceleration / Deceleration Lanes Shall Be Constructed For All New Development Entrances Which Connect To An Arterial Or Collector Roadway. Passing Blister(s) May Also Be Required By The City. The City Reserves The Right To Require A Traffic Study To Determine Traffic Impacts And Any Additional Roadway Improvements Necessary To Mitigate Adverse Impacts.
- The City Reserves The Right To Require Lane Widening, Surface Milling, Resurfacing, New Roadway Markings, And/Or Any Additional Improvements Deemed Necessary By The City On Existing Roads Adjacent To New Site Or Subdivision Entrances.
- The City May Require A Passing Blister At The Intersection Of A Site Or Subdivision Entrance. Passing Blisters Shall Be Designed In Accordance With The Most Recent Version Of The INDOT Design Manual.
- Minimum Corner Radius Shall Be In Accordance With Table 1, Item 6 On Sheet 2.
- All Above Surface Utilities, Structures, Plantings, Or Other Conflicts Within 12 Feet Of Roadway Improvements, Including Accel/Decel Lanes And Passing Blisters, Shall Be Removed Or Relocated Prior To Construction Of Roadway Improvements.
- Construction Plans Shall Include Centerline Profile And Cross Sections Of Existing Road Being Intersected By The Entrance.

**TABLE 6: MINIMUM AUXILIARY LANE DIMENSIONS**

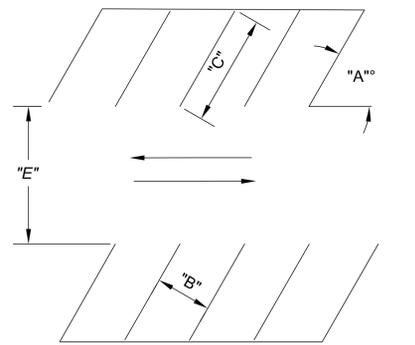
DESIGN SPEED (mph)	T1 (ft)	L (ft)	T2 (ft)
30 or Less	100	100	100
35	150	150	100
40	150	200	150
45	200	250	200
Greater Than 45	Refer To INDOT Standards. Shall Be Based On Design Speed.		

**MINIMUM SITE / SUBDIVISION ENTRANCE STANDARD**

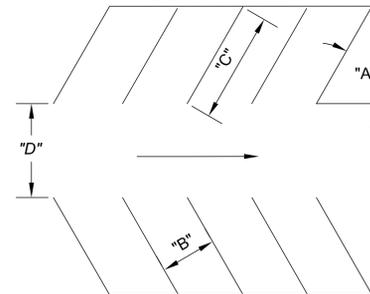
Scale: None



**ACCESSIBLE PARKING SPACE**  
Scale: None



**ANGLED PARKING WITH 2-WAY DRIVE**  
Scale: None



**ANGLED PARKING WITH 1-WAY DRIVE**  
Scale: None

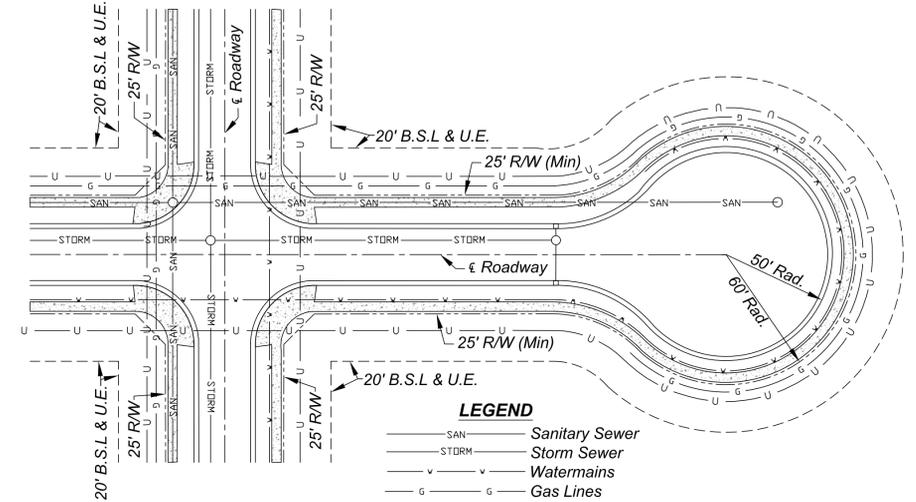
**TABLE 7: MINIMUM PARKING STANDARD DIMENSIONS**

ANGLE OF PARKING "A"	STALL WIDTH "B"	STALL LENGTH "C"	DRIVE WIDTH ONE-WAY "D"	DRIVE WIDTH TWO-WAY "E"
61° - 90°	9'	18'	18'	26'
46° - 60°	9'	18'	15'	24'
1° - 45°	9'	18'	12'	22'
PARALLEL	9'	22'	12'	22'

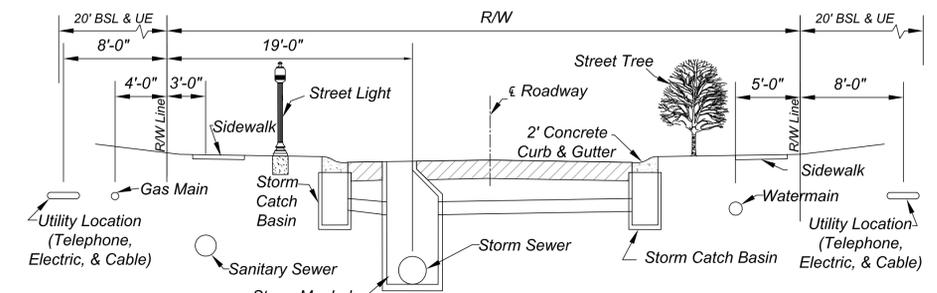
**PARKING STANDARDS:**

- For Purposes Of Measurements, Drives With Parking On One Side Only Shall Be Considered As One-Way Drives.
- Dimensions Shown For Parking Spaces Are Minimums.
- Pavement Sections For Parking Areas Shall Comply With The Standard Parking Lot Criteria Shown On Sheet 4 Of These Standards. Pavement Sections Shall Be Selected Based Upon Design Traffic Loading. A Modified Pavement Section May Be Required If Deemed Necessary By The City Engineer.

Rev. No.	Description	Date
1	Entire Set	07/26/2011
2	References To New UDO, Added Monument Detail	01/10/2014



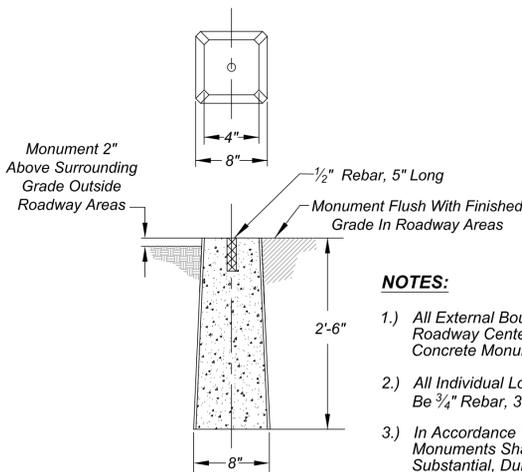
**TYPICAL UTILITY LOCATION PLAN**  
Scale: None



**TYPICAL UTILITY LOCATION SECTION**  
Scale: None

**UTILITY NOTES**

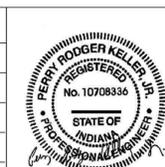
- Utility Layout Within The Right-Of-Way And Utility Easements Shall Be As Shown In The Typical Details On This Sheet. The Location Of Proposed Utilities Are So Indicated To Ensure The Orderly Development Of The Land. Requests To Change The Location Of The Proposed Utilities Shall Be Submitted In Writing To The City Engineer And Planning Commissioner. Utilities Not Meeting These Requirements Shall Be Removed And Replaced As Directed By The City Engineer And / Or Planning Commissioner At No Expense To The City.
- All Utility Street Cuts And Trenches Shall Be In Accordance With The City Standard Details Shown On Sheet 7.
- All Newly Installed Utilities Shall Be Placed Underground Except For Drops Or Laterals That Serve An Individual Structure Or Service.
- Telephone/Fiber, Electric, And Cable Shall Be Placed In Joint Trench. If Joint Trench Is Not Possible, Approval For Alternate Placement Must Be Granted By The City Engineer And Plan Commissioner In Writing.
- Abandoned Utility Infrastructure Shall Be Completely Removed After Activating Newly Constructed, Upgraded, Or Relocated Facilities. Underground Pipes/Conduits Shall Be Capped And Filled With Flowable Fill If Not Removed. Trenches Shall Be Properly Backfilled As Noted In The City Standards.
- Storm Sewers, Fiber, Telephone, Cable, And/Or Electric May Alternatively Be Placed In Public Easements Outside Of The Right-Of-Way To Facilitate Site Drainage And Overall Utility Layout. Utilities Other Than Storm Sewers Shall Not Be Placed In Drainage Swales.
- All Concrete, Asphalt, And Aggregate Materials Shall Be Produced And/Or Supplied From An INDOT Approved Source And Meet INDOT Specifications. Variance From INDOT Specifications May Only Be Done So When Directed By The City Engineer.
- Street Lights And Street Trees Shown Herein Are Conceptual Only And Based Upon The City Of Shelbyville Unified Development Ordinance. Street Lights And Street Trees Shall Be Located To Avoid Conflicts With All Utilities. Potential Damage To Utilities, Sidewalks, Curbs, Or Other Infrastructure Shall Be Considered When Selecting Street Tree Species. The City Reserves The Right To Remove Any Street Tree Or Street Light Placed Within The Right-Of-Way That Is Deemed By The City To Pose A Threat To Any Infrastructure Or Utility. The City Of Shelbyville Shall Not Be Liable For Replacement Or Compensation For Any Street Light Or Street Tree That Is Removed From The Right-Of-Way, Whether Or Not Such Street Light Or Street Tree Is In Compliance With The Unified Development Ordinance.
- City Is Not Responsible For Maintaining, Repairing, Or Replacing Non-Public Infrastructure Within Right-Of-Way. Non-Public Infrastructure Includes, But Is Not Limited To, The Following: Landscaping, Irrigation Systems, Pet Containment Systems, And/Or Fences.
- Any Work Within The Rights-Of-Way Or Public Easements Shall Obtain The Appropriate Permits From The Engineering Department. Failure To Obtain The Proper Permits As Required May Result In Penalties As Provided In City Ordinance 10.99. See General Note #2 on Sheet 1.



**MONUMENT DETAIL**  
Scale: None

**NOTES:**

- All External Boundary Monuments And Roadway Centerline Monuments Shall Be Concrete Monuments As Shown.
- All Individual Lot Corner Monuments Shall Be 3/4" Rebar, 30 Inches Long.
- In Accordance With Indiana Code, All Monuments Shall Be Capped With A Substantial, Durable Plastic Or Metal Cap Permanently Affixed Showing The Registered Land Surveyor's Identification Information.



CITY OF SHELBYVILLE  
**RIGHT-OF-WAY,  
SITE DEVELOPMENT  
STANDARDS**

SHEET  
3  
OF  
18

**PAVEMENT CONSTRUCTION**

**GENERAL NOTES**

- 1.) The Pavement Construction Details Shown On This Sheet Are Minimum Standards Required By The City Of Shelbyville. The City Engineer Or Street Commissioner May Require A Modified Pavement Design Based On Site Conditions Or Traffic Volumes. For All Arterials And Non-Residential Collectors, California Bearing Ratio (CBR) Tests Shall Be Performed To Verify Pavement Thickness Designs. CBR Tests Shall Be Submitted To The City Engineer And Street Commissioner As Part Of The Technical Review (TRC) Submittal.
- 2.) The Roadway Pavement Cross Section Shall Be Completed Within 60 Calendar Days From The Start Of The Subgrade Treatment. For Flexible Pavements, The Surface Asphalt Course May Be Placed More Than 60 Calendar Days After Subgrade Treatment, But Shall Be Placed Within Two Calendar Years Of Placement Of Asphalt Intermediate Course, Except When Approved Otherwise By The City Engineer And/Or Street Commissioner.
- 3.) All Concrete, Asphalt, And Aggregate Materials Shall Be Produced And/Or Supplied From An INDOT Approved Source And Meet INDOT Specifications. Variance From INDOT Specifications May Only Be Done So When Directed By The City Engineer.
- 4.) Pervious Pavements May Be Used In Parking Lots, Private Driveways, Private Local Streets, And Other Areas Not To Be Dedicated For City Rights-Of-Way Or Easements. Pervious Pavements Shall Be Designed And Constructed In Accordance With Current Industry Standards. Owner(s) Shall Be Responsible For All Maintenance Of Pervious Pavements.

**SUBBASE AND SUBGRADE REQUIREMENTS**

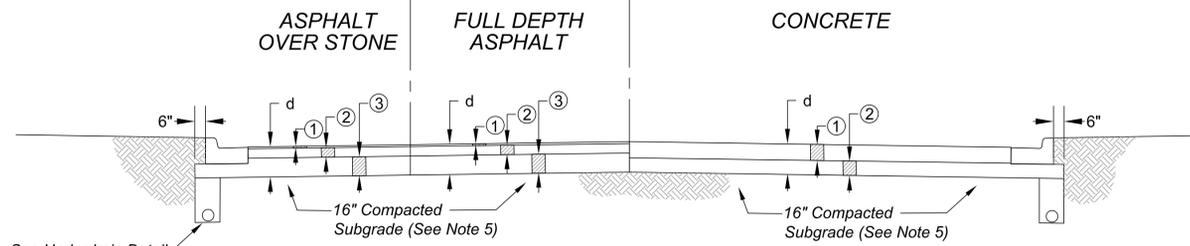
- 5.) Subbase And Subgrade Shall Be Compacted To At Least 100 Percent Of The Maximum Dry Density, At Optimum Moisture Content In Accordance With A.A.S.H.T.O. T99 To A Minimum Depth Of 16 Inches For All Local Streets And 24 Inches For All Collector And Arterial Streets. Compaction Tests Shall Be At The Contractor's Expense And Shall Be Performed By An Independent Laboratory. Test Results Shall Be Submitted To The Shelbyville City Engineer And Street Commissioner Prior To Placing Any Material On The Subbase Subgrade. One In-Place Density Test Shall Be Completed For Each Lift For Every 400 Linear Feet Of Traffic Lanes. One Lift Of Structural Fill Shall Not Be More Than 6 Inches In Thickness. At The Discretion Of The City Engineer Or The Street Commissioner, The Compaction Testing May Be Waived And The Adequacy Of Subbase And Subgrade Shall Be Determined Solely By Either The Shelbyville City Engineer Or Street Commissioner Based On A Contractor Performed Proof-Roll With A Fully Loaded Tri-Axle Dump Truck. The Type Of Compacted Crushed Aggregate Base Or Subbase Shall Be In Accordance With The Most Recent INDOT Standard Specifications For Aggregates (Section 904). Coarse Aggregate Shall Not Be Placed On Frozen Subbase Or Subgrade.
- 6.) Proof Roll Tests Shall Be Passed Prior To Placement Of Underdrains And First Lift Of Roadway Base Material. Proof Roll Tests Shall Not Be Conducted On Frozen Subgrade. The Temperature For The Previous 72 Hours Prior To The Proof Roll Test Shall Be Above 32°F. Subgrade Shall Be Free From Excess Moisture.
- 7.) Areas In Which Failures Occur During Proof Roll Test Are To Be Marked In The Field By The City Of Shelbyville. Failures Shall Be Corrected And Retested Until Passing Inspection.
- 8.) The City Engineer And/Or Street Commissioner May Require Additional Measures If Subgrade Or Subbase Is Determined To Be Inadequate. Contractor Shall Take Measures To Ensure Adequate Subgrade And Subbase As Directed By The City Engineer And/Or Street Commissioner. Additional Measures May Include, But Are Not Limited To, One Or More Of The Following:
  - a. Chemical Modification Of Subgrade Soils
  - b. Excavation Of Unsuited Material
  - c. Placement Of Tensar TX160 Geogrid
  - d. Additional Compaction
  - e. Increase In Depth Of Aggregate Base
  - f. Modification Of Pavement Section
- 9.) If Deemed Necessary By The City Engineer And/Or Street Commissioner, Chemical Modification Of The Subgrade Soils Shall Be Performed In Accordance With INDOT Standard Specifications Section 215, Most Recent Version. The Depth Of Chemical Modification Shall Be To Minimum Depth Of 14 Inches. Following Soil Modification, Compaction Shall Be Performed Until The Modified Layer Has A Density Not Less Than 100% Of The Maximum Dry Density, Or The Zone Below The Modified Layer Has A Density Not Less Than 95% Of The Maximum Dry Density, At Optimum Moisture Content. Maximum Dry Densities Shall Be Determined In Accordance With A.A.S.H.T.O. T99. The Mix Design Shall Be Determined In Accordance With INDOT Design Procedures For Soil Modification Or Stabilization. The Proposed Design And Construction Procedure For Modification Or Stabilization Shall Be Submitted To The City Engineer And Street Commissioner For Approval. If The City Engineer And/Or Street Commissioner Determine That The Soil Modification Is Unsatisfactory, Contractor Shall Take Additional Measures At The Direction Of The City Engineer And/Or Street Commissioner As Stated In Note 6 On This Sheet.
- 10.) Compaction And Testing For Aggregate Base Lifts Shall Meet The Requirements Set Forth For Subbase And Subgrade In Notes 5,6,7, And 8 On This Sheet.

**FLEXIBLE PAVEMENT REQUIREMENTS**

- 11.) Specifications For Asphalt Paving Operations, Placement Methods, And Weather Limitations Shall Conform To The Most Current INDOT Specifications Sections 402. The Contractor Shall Be Responsible For All Aspects Of Process Control Of The Mixtures Insuring They Meet All Other Requirements Of The INDOT Standard Specifications. All Test Data Shall Be Submitted To The City Engineer And Street Commissioner For Review.
- 12.) Tack Coat Shall Be Placed In Accordance With The Most Recent INDOT Standard Specifications For Asphalt Pavements.
- 13.) Roadways Which Have Exposed Milled Areas Shall Place And Compact Temporary Asphalt Pavement, Cold Mix Or Hot Mix, At The Milled Joints To Smooth The Transition Between The Milled Surface And Unmilled Surface.

**RIGID PAVEMENT REQUIREMENTS**

- 14.) Specifications For Portland Cement Concrete Pavement (PCCP) Paving Operations, Placement Methods, And Weather Limitations Shall Conform To The Most Current INDOT Specifications Section 502. The Contractor Shall Be Responsible For All Aspects Of Process Control Of The Mixtures Insuring They Meet All Other Requirements Of The INDOT Standard Specifications. All Test Data Shall Be Submitted To The City Engineer And Street Commissioner For Review.
- 15.) All PCCP Pavement Shall Be Cured With An Approved White Pigmented Liquid Membrane Forming Compound In Accordance With INDOT Standard Specifications 501.20 and 504, Most Recent Version.
- 16.) For Cold-Weather Concrete Placement, Contractor Shall Comply With Provisions Of ACI 306R For Protection From Physical Damage Or Reduced Strength. For Hot-Weather Concrete Placement, Contractor Shall Comply With Provisions Of ACI 305R For Protection From Physical Damage Or Reduced Strength, As Associated With Rapid Moisture Loss.
- 17.) Wherever Rigid Pavement Is To Be Used, The Contractor Shall Submit A Detailed Paving Plan To The City Engineer And/Or Street Commissioner For Approval. The Paving Plan Shall Show The Location And Type Of Jointing (Construction, Contraction, And Expansion Joints) To Be Used In The Construction. The Location And Type Of Jointing Shall Meet The Requirements Of The Most Recent INDOT Standard Details And Specifications.
- 18.) For Local Residential Streets And Parking Lots With Concrete Pavement, 4 Inch Compacted INDOT No.8 Aggregate Base May Be Waived By The City Engineer And/Or Street Commissioner If Adequate Subgrade Is Present. Adequacy Of Subgrade Shall Be Determined Solely By The City Engineer And/Or Street Commissioner Based On A Contractor Performed Proof-Roll With A Fully Loaded Tri-Axle Dump Truck.



See Underdrain Detail This Sheet

**ASPHALT OVER STONE**

- $d = 13 \frac{1}{2}"$
- 1) 1 1/2" HMA Surface Type A (165 #/SY)
  - 2) 4" HMA Intermediate Type A (440 #/SY)
  - 3) 8" Compacted INDOT No. 53 Crushed Aggregate Base (2 Lifts)

**LOCAL RESIDENTIAL STREETS**

**FULL DEPTH ASPHALT**

- $d = 9 \frac{1}{2}"$
- 1) 1 1/2" HMA Surface Type A (165 #/SY)
  - 2) 3" HMA Intermediate Type A (330 #/SY)
  - 3) 5" HMA Base Type A (550 #/SY)

**CONCRETE**

- $d = 10"$
- 1) 6" Concrete Pavement
  - 2) 4" Compacted INDOT No.8 Crushed Aggregate Base

**RESIDENTIAL COLLECTOR AND NON-RESIDENTIAL LOCAL STREETS**

**ASPHALT OVER STONE**

- $d = 16 \frac{1}{2}"$
- 1) 1 1/2" HMA Surface Type B (165 #/SY)
  - 2) 3" HMA Intermediate Type B (330 #/SY) Over 4" HMA Base Type B (440 #/SY)
  - 3) 8" Compacted INDOT No. 53 Crushed Aggregate Base (2 Lifts)

**FULL DEPTH ASPHALT**

- $d = 12"$
- 1) 1 1/2" HMA Surface Type B (165 #/SY)
  - 2) 3" HMA Intermediate Type B (330 #/SY)
  - 3) 3 1/2" HMA Base Type B (385 #/SY) Over 4" HMA Base Type B (440 #/SY)

**CONCRETE**

- $d = 11"$
- 1) 7" Concrete Pavement
  - 2) 4" Compacted INDOT No. 8 Crushed Aggregate Base

**NON-RESIDENTIAL COLLECTOR AND ARTERIAL STREETS**

**ASPHALT OVER STONE**

- $d = 17 \frac{1}{2}"$
- 1) 1 1/2" HMA Surface Type C (165 #/SY)
  - 2) 3" HMA Intermediate Type C (330 #/SY) Over 5" HMA Base Type C (550 #/SY)
  - 3) 8" Compacted INDOT No. 53 Crushed Aggregate Base (2 Lifts)

**FULL DEPTH ASPHALT**

- $d = 13"$
- 1) 1 1/2" HMA Surface Type C (165 #/SY)
  - 2) 3" HMA Intermediate Type C (330 #/SY)
  - 3) 4" HMA Base Type C (440 #/SY) Over 4 1/2" HMA Base Type C (495 #/SY)

**CONCRETE**

- $d = 12"$
- 1) 8" Concrete Pavement
  - 2) 4" Compacted INDOT No. 8 Crushed Aggregate Base

**INDUSTRIAL STREETS**  
To Be Determined By The City Based Upon Traffic Volume, Street Design Speed, And Soil Conditions

**RURAL STREETS**  
To Be Determined By The City Based Upon Traffic Volume, Street Design Speed, And Soil Conditions

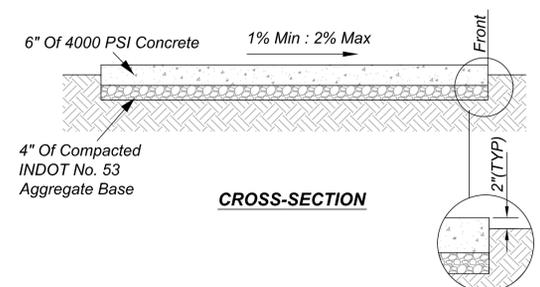
**PARKING LOTS**

Design Professional Shall Design Pavement Sections For Parking Lots Based On Site Subgrade Conditions, Use, And Expected Loading. Parking Lot Pavement Design Shall Be Subject To Approval By The City Engineer. At Minimum, Parking Lot Pavement Sections Shall Meet The Following Criteria:

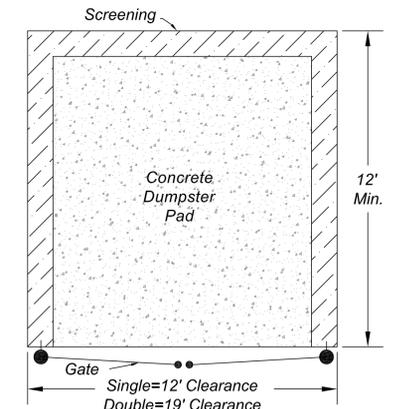
- |   |  |
|---|--|
| LIGHT (General Car & Light Truck Parking):  | Minimum Pavement Structural Number (SN) Of 2.5 |
| MEDIUM (Access Roads & Drives, Store Frontage, Fuel/Service Stations):            | Same Criteria As Local Residential Streets     |
| HEAVY (Truck Loading Areas, Heavy Truck Parking, Warehouse And Industrial Areas): | Same Criteria As Arterial Streets              |

**PAVEMENT CONSTRUCTION**

Scale: None



**CROSS-SECTION**



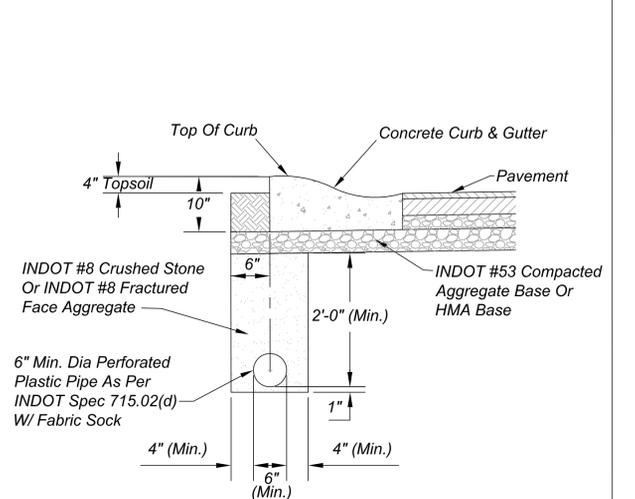
**PLAN**

**NOTES:**

- 1.) Screening Shall Meet All Requirements Set Forth In The Unified Development Ordinance.
- 2.) Concrete Pad Shall Be Reinforced With 6x6w/wf Or #5 Bars @ 18" O.C. If Deemed Necessary By The City Engineer.

**CONCRETE DUMPSTER PAD DETAIL**

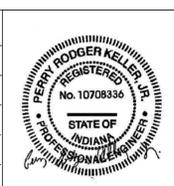
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**UNDERDRAIN DETAIL**

Scale: None

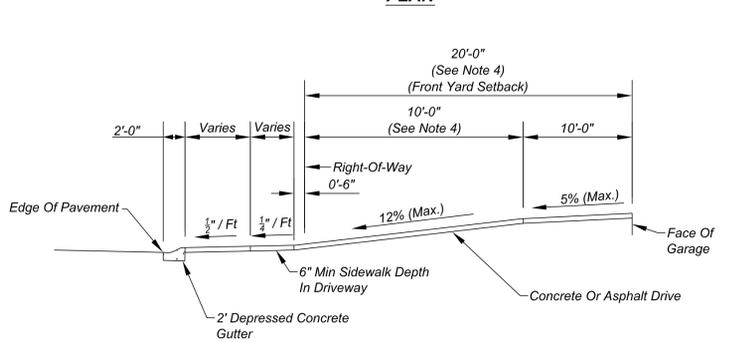
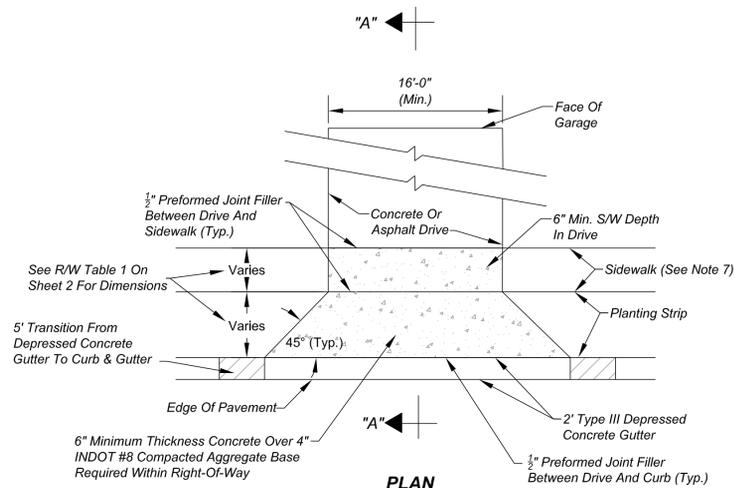
Rev. No.	Description	Date
1	Entire Set	07/26/2011
2	References To New UDO, Revised Underdrain Detail, Added Rural Section	01/10/2014



CITY OF SHELBYVILLE

PAVEMENT DETAILS AND NOTES

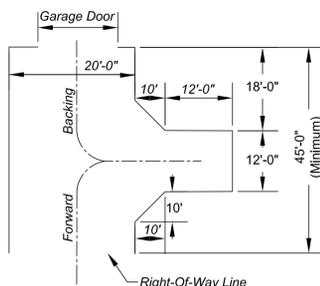
SHEET  
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18



**TYPICAL SUBDIVISION RESIDENTIAL PRIVATE DRIVE**  
Scale: None

**RESIDENTIAL DRIVES NOTES**

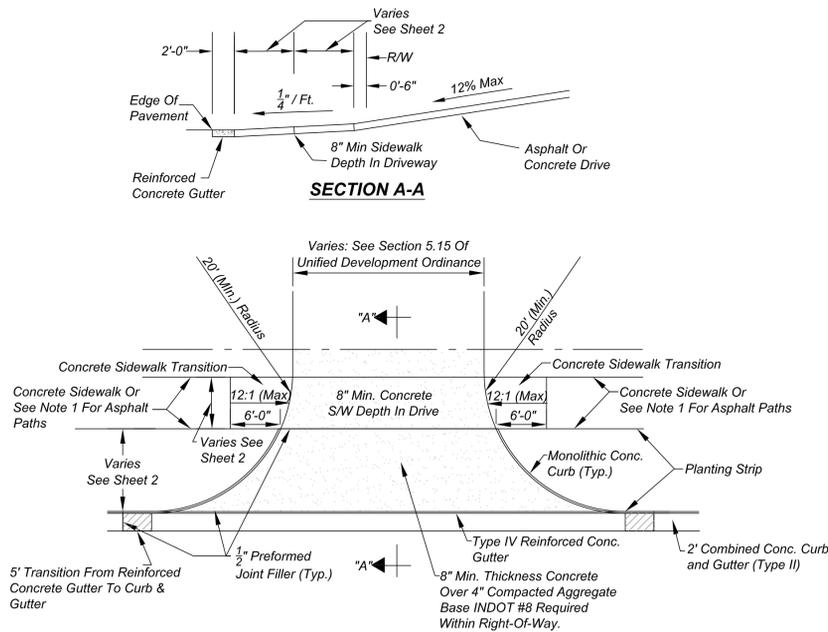
- 1.) The Maximum Algebraic Difference In Grades For Any 10 Foot Interval Shall Not Exceed 8% For Crest Vertical Curves, Nor 10% For Sag Vertical Curves.
- 2.) Frontage Of All Lots Shall Drain To Adjacent Streets Unless Otherwise Approved By The City Engineer.
- 3.) Concrete Drives Require Control Joints At A Maximum Of Every 10 Feet Each Way.
- 4.) Use Actual Setback As Shown On Plat And As Provided By The City Of Shelbyville Unified Development Ordinance.
- 5.) When A Private Drive Requires A Pipe To Ensure Proper Storm Drainage, The Pipe Shall Be Designed By A Registered Engineer Or Land Surveyor. The Pipe Shall Have End Sections At Both The Upstream And Downstream Ends. The Ends Of The Pipe Shall Extend A Minimum Of 4 Feet Beyond The Limits Of The Drive Surface. Minimum Pipe Size Shall Be 12 Inches.
- 6.) Concrete Drive Approaches Shall Be Constructed In Accordance With Sections 502 And 504 Of The Most Recent Version Of The Indiana Department Of Transportation Standard Specifications.
- 7.) Refer To Sheet 2 For Required Width Of Concrete Sidewalk.
- 8.) Drives Shall Provide Positive Drainage Toward The Roadway. Slope Between The Curb And Sidewalk Shall Be Between 0.6% And 4%. Slope Along Sidewalk Shall Not Exceed 2% Per ADA Requirements. Slope Behind The Sidewalk Shall Be Between 1% And 12%.
- 9.) For Additional Driveway Specifications, See Sections 5.12 Through 5.15 Of The City Of Shelbyville Unified Development Ordinance.
- 10.) All Construction Within Public Right-Of-Ways Shall Comply With The Most Recent Version Of The Requirements Of The Americans With Disabilities Act (ADA). Construction Shall Meet The Standards Set Forth In The Current ADA Accessibility Guidelines (ADAAG) And Public Right-Of-Ways Guidelines (PROWAG).



**PRIVATE DRIVE TURN AROUND:**

- 1.) Any Residential Lot That Fronts Onto A Road Classified As Either A Collector Or An Arterial Roadway Shall Have A Private Drive Turn Around.
- 2.) See The Typical Subdivision Private Drive Detail On This Sheet For Additional Drive Requirements.

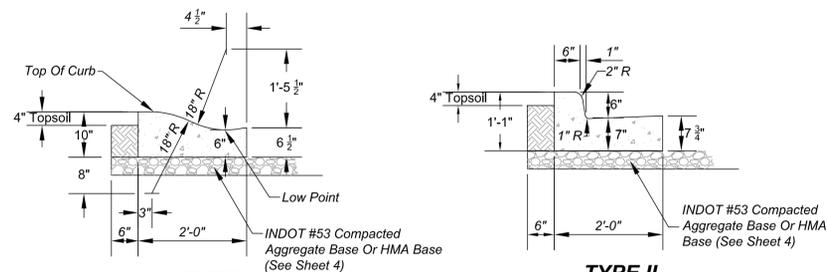
**STRAIGHT IN - BACK OUT PRIVATE DRIVE TURN-AROUND**  
Scale: None



**TYPICAL COMMERCIAL PRIVATE DRIVE**  
Scale: None

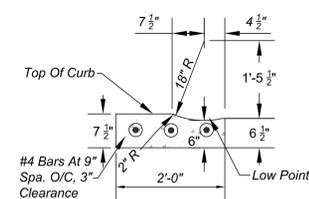
**COMMERCIAL PRIVATE DRIVE NOTES**

- 1.) Asphalt Path Terminations Within The Public Right-Of-Way At Commercial Drives, Private Drives, Or Approaches Shall Be Accomplished With A 6' Minimum Length Of Concrete Sidewalk Transition (Increased Length Of Concrete Sidewalk Transition As Required To Meet The 12:1 Maximum Slope Requirement) So That The Asphalt Path Meets The Concrete Sidewalk Transition At A Neat Line Perpendicular To The Path Alignment.
- 2.) The Maximum Algebraic Difference In Grades For Any 10 Foot Interval Shall Not Exceed 8% For Crest Vertical Curves Nor 10% For Sag Vertical Curves.
- 3.) Concrete Drives Require Control Joints At A Maximum Of Every 10 Feet Each Way.
- 4.) Use Actual Setback As Shown On Plat And As Provided By The City Of Shelbyville Unified Development Ordinance.
- 5.) When A Private Drive Requires A Pipe To Ensure Proper Storm Drainage, The Pipe Shall Be Designed By A Registered Engineer Or Land Surveyor. The Pipe Shall Have End Sections At Both The Upstream And Downstream Ends. The Ends Of The Pipe Shall Extend A Minimum Of 4 Feet Beyond The Limits Of The Drive Surface. Minimum Pipe Size Shall Be 12 Inches.
- 6.) Concrete Drive Approaches Shall Be Constructed In Accordance With Sections 502 And 504 Of The Most Recent Version Of The Indiana Department Of Transportation Standard Specifications.
- 7.) Drives Shall Provide Positive Drainage Toward The Roadway. Slope Between The Curb And Sidewalk Shall Be Between 0.6% And 4%. Slope Along Sidewalk Shall Not Exceed 2% Per ADA Requirements. Slope Behind The Sidewalk Shall Be Between 1% And 12%.
- 8.) For Additional Driveway Specifications, See Sections 5.12 Through 5.15 Of The City Of Shelbyville Unified Development Ordinance.
- 10.) All Construction Within Public Right-Of-Ways Shall Comply With The Most Recent Version Of The Requirements Of The Americans With Disabilities Act (ADA). Construction Shall Meet The Standards Set Forth In The Current ADA Accessibility Guidelines (ADAAG) And Public Right-Of-Ways Guidelines (PROWAG).

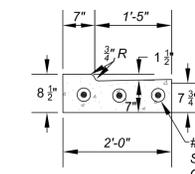


**TYPE I 2' CONCRETE ROLL CURB & GUTTER (RESIDENTIAL STREETS ONLY)**  
Scale: None

**TYPE II 2' COMBINED CONCRETE CURB & GUTTER**  
Scale: None



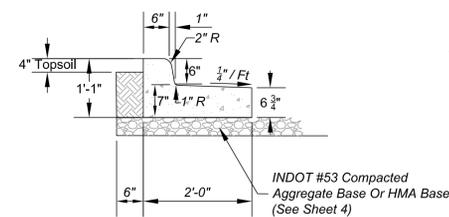
**TYPE III 2' DEPRESSED REINFORCED CONCRETE GUTTER**  
Scale: None



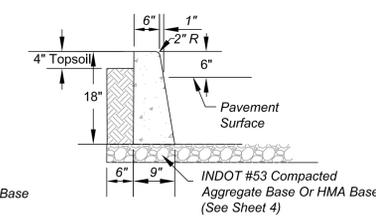
**TYPE IV 2' TRUNCATED REINFORCED CONCRETE GUTTER**  
Scale: None

**TYPE III 2' DEPRESSED REINFORCED CONCRETE GUTTER**  
Scale: None

**TYPE IV 2' TRUNCATED REINFORCED CONCRETE GUTTER**  
Scale: None



**TYPE II 2' MODIFIED COMBINED CONCRETE CURB & REVERSE GUTTER**  
Scale: None



**TYPE V 18" BOX CURB WITH 6" FACE**  
Scale: None

**CURB & GUTTER CONSTRUCTION NOTES**

- 1.) Removal And Replacement Of Existing Curb Shall Begin And End At The Nearest Joint.
- 2.) At The Point Where A Curb Ends, A 5 Ft. Transition Taper Down To Edge Of Pavement Grade Shall Be Constructed.
- 3.) Concrete Curbs Shall Be Constructed In Accordance With The Most Recent Version Of INDOT Standard Specifications Section 605. Control Joints Shall Be Spaced Maximum 10 Ft. Apart. Saw Cuts Or Tooled Joints Shall Be Vertical And Neat.
- 4.) For Cold-Weather Concrete Placement, Contractor Shall Comply With Provisions Of ACI 306R For Protection From Physical Damage Or Reduced Strength. For Hot-Weather Concrete Placement, Contractor Shall Comply With Provisions Of ACI 305R For Protection From Physical Damage Or Reduced Strength, As Associated With Rapid Moisture Loss.
- 5.) If Any Curb With Lettering Showing The Location Of A Utility Service Line (S,W,G, Etc.) Is Removed, Such Lettering Shall Be Placed In The New Curb At The Same Location As The Corresponding Utility Service Line. See Note 6 On Sheet 13.
- 6.) All Construction Within Public Right-Of-Ways Shall Comply With The Most Recent Version Of The Requirements Of The Americans With Disabilities Act (ADA). Construction Shall Meet The Standards Set Forth In The Current ADA Accessibility Guidelines (ADAAG) And Public Right-Of-Ways Guidelines (PROWAG).

Rev. No.	Description	Date
1	Entire Set	07/26/2011
2	ADA Compliance Notes, References To New UDO	01/10/2014



CITY OF SHELBYVILLE  
**CURB AND DRIVEWAY  
DETAILS AND NOTES**

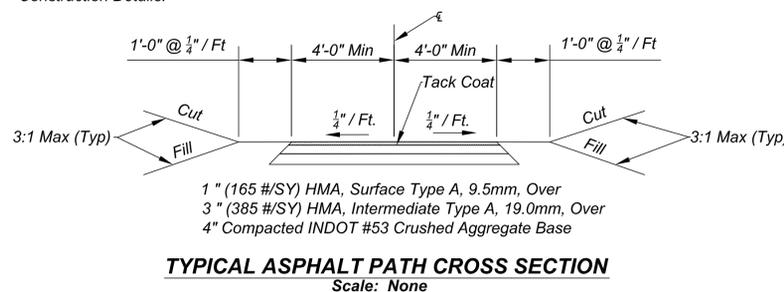
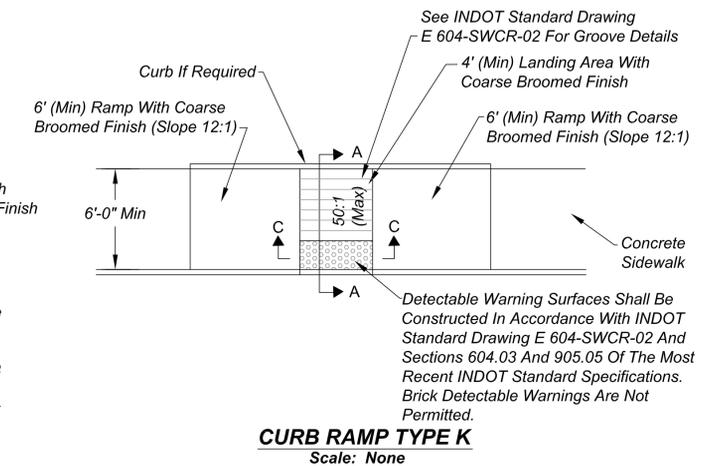
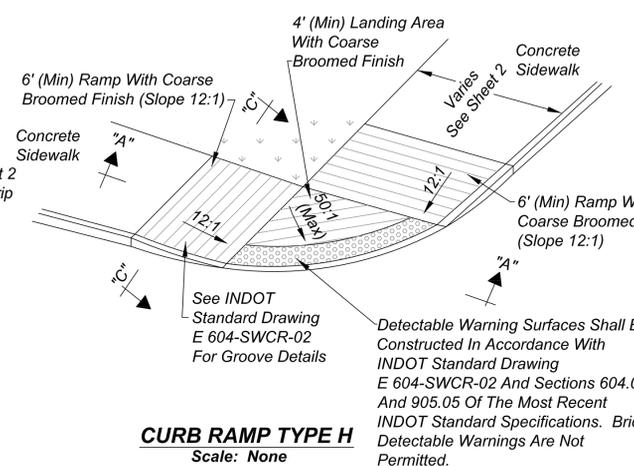
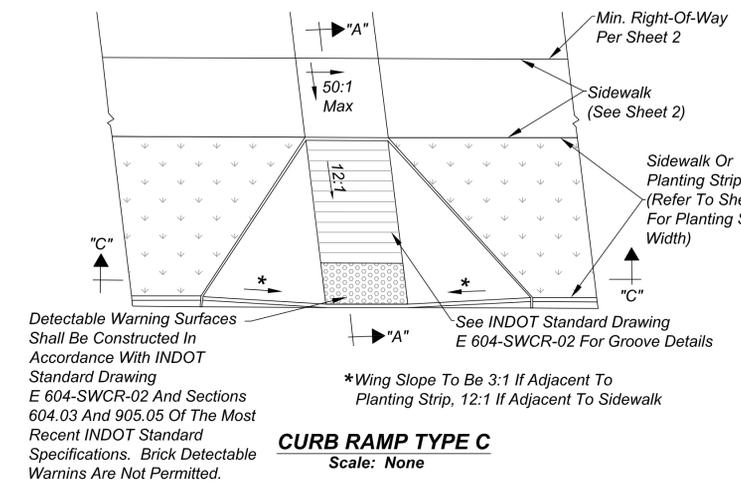
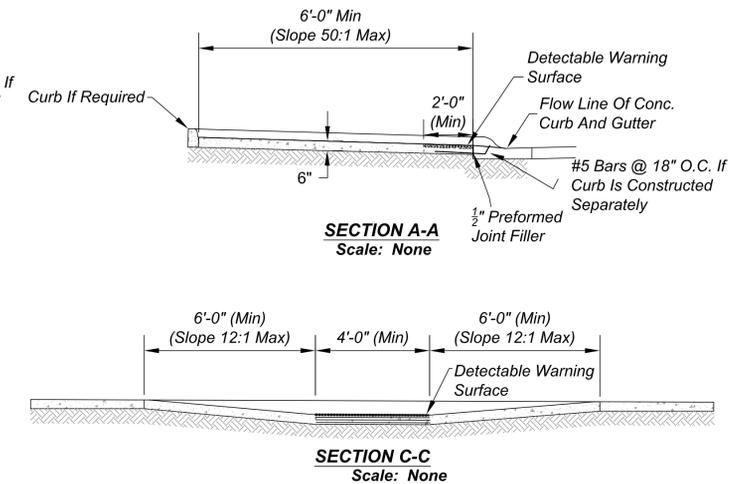
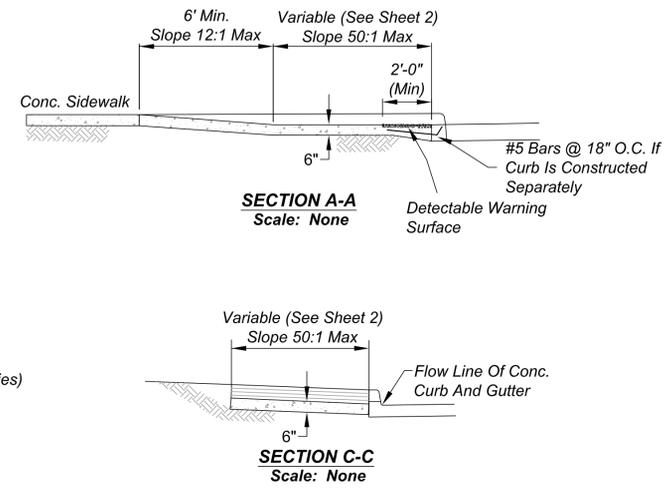
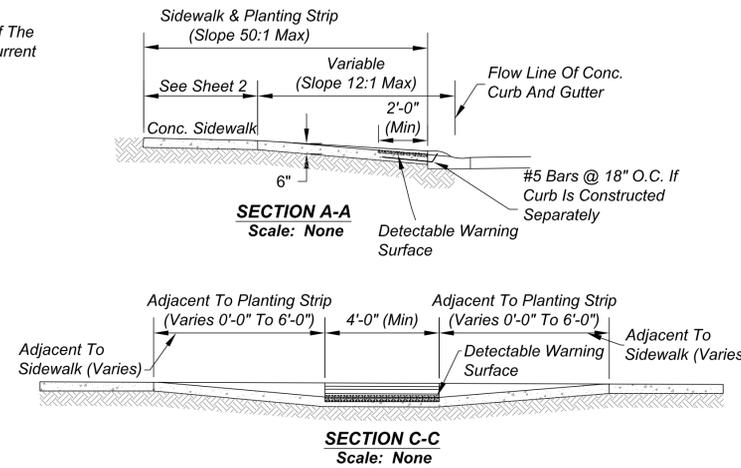
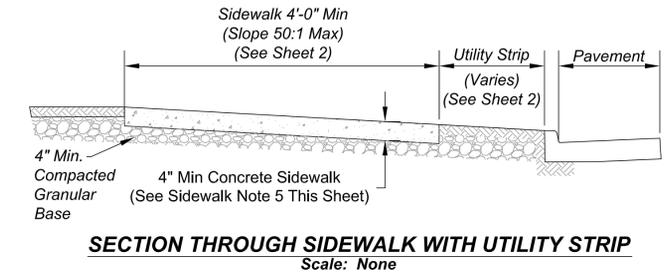
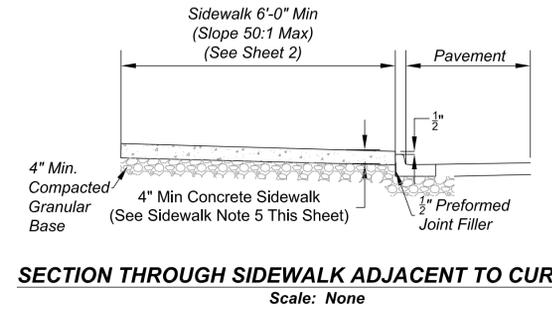
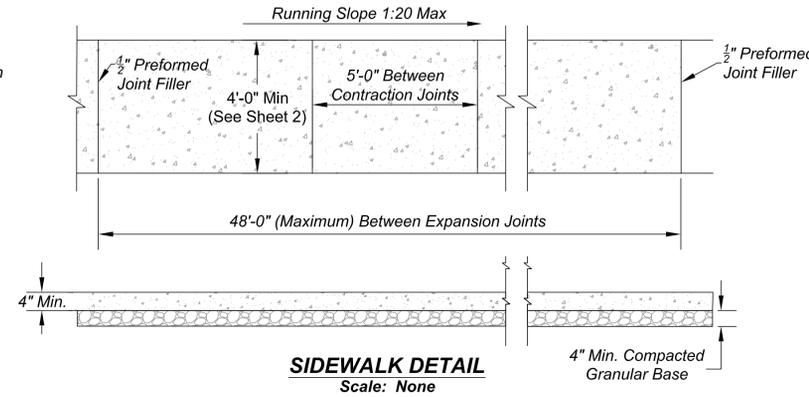
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**SIDEWALK CONSTRUCTION**

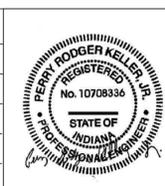
- Care Shall Be Taken To Assure A Uniform Grade On All Ramps With No Grade Breaks.
- 1/2" Prefomed Joint Filler Shall Be Incorporated At A Maximum Spacing Of 48 Feet Of Walk And When Abutting Concrete Curbs, Structures, Walls, Or Other Fixed Objects.
- Surface Texture Shall Be Obtained By A Coarse Brooming, Transverse To The Profile Of The Sidewalk.
- Distance Between Contraction Joints Shall Be Consistent Between Driveways.
- All Concrete Sidewalks Shall Be 4" Thick, Except At Residential Drive Crossings Where The Minimum Thickness Shall Be 6". At Commercial Drives, The Concrete Sidewalk Thickness Shall Be 8".
- Concrete Sidewalks Shall Be Constructed In Accordance With The Latest Version Of INDOT Specifications Section 604. Sawcuts Or Tooled Joints Shall Be Uniform, Vertical, And Neat.
- A Minimum Of 4" Thick Compacted Granular Base Or 4" Pea Gravel Bed Shall Be Placed Prior To The Construction Of The Sidewalk.
- Sidewalk Longitudinal Grade Shall Be Within ± 1% Of The Adjacent Roadway's Longitudinal Grade Except At Curb Ramps.
- For Cold-Weather Concrete Placement, Contractor Shall Comply With Provisions Of ACI 306R For Protection From Physical Damage Or Reduced Strength. For Hot-Weather Concrete Placement, Contractor Shall Comply With Provisions Of ACI 305R For Protection From Physical Damage Or Reduced Strength, As Associated With Rapid Moisture Loss.
- All Sidewalks Within Public Right-Of-Ways Shall Comply With The Most Recent Requirements Of The Americans With Disabilities Act (ADA). Sidewalks Shall Meet The Standards Set Forth In The Current ADA Accessibility Guidelines (ADAAG) And Public Right-Of-Ways Guidelines (PROWAG).

**ADA SIDEWALK CURB RAMP CONSTRUCTION**

- All ADA Sidewalk Curb Ramps Shall Comply With The Most Recent Requirements Of The Americans With Disabilities Act (ADA). ADA Ramps Shall Meet The Requirements Set Forth In The Current ADA Accessibility Guidelines (ADAAG) And Public Right-Of-Ways Guidelines (PROWAG). All Ramps Shall Comply With The Most Recent INDOT Standard Specifications And The City Of Shelbyville's Most Recent Standards. Curb Swipes Required For Curb Ramps Shall Be Provided At Time Of Initial Construction.
- Minimum Width Of Curb Ramp Shall Be 4 Feet Or Match Sidewalk Width, Whichever Is Greater, Not Including Flares. Maximum Vertical Slope Of Ramps Shall Be 12:1. Maximum Horizontal Slope Shall Be 50:1.
- ADA Curb Ramps Shall Be Located As Shown On The Plans Or As Directed By The City Engineer Or Street Commissioner.
- Type C Ramps Shall Be Provided Adjacent To Each Point Of Tangency At All Corners Of Every Street Intersection Where There Is An Existing Or Proposed Sidewalk And Curb. In Case Of "T"-Intersection, A Type C Ramp Shall Be Provided Adjacent To Each Corner Ramp. Type C Ramps Also Shall Be Provided At Walk Locations At Mid-Block In Vicinity Of Hospitals, Medical Centers Or Athletic Stadiums. The Use Of Details Contrary To Those Shown Hereon Shall Require The Prior Written Approval Of The City.
- Ramps Shall Direct Pedestrians Perpendicularly Across Roadway To Another Ramp.
- Surface Texture Of The Ramp Shall Be That Obtained By A Coarse Brooming Transverse To The Slope Of The Ramp.
- Ramps Shall Be Provided On Both Sides Of A Driveway Whenever A Curbed Driveway Crosses A Sidewalk.
- Care Shall Be Taken To Assure A Uniform Grade On All Ramps With No Breaks In Grade.
- Drainage Structures Shall Not Be Placed In Line With The Ramps Except Where Existing Drainage Structures Are Being Utilized In The New Construction. Location Of The Ramps Shall Take Precedence Over Location Of Drainage Structures.
- The Normal Gutter Line Profile Shall Be Maintained Through The Area Of The Ramp.
- The Expansion Joint For The Ramp Shall Be A Maximum 1/2" Wide. The Top Of The Joint Filler For All Ramp Types Shall Be Flush With Adjacent Concrete.
- Crosswalk And Stop Line Marking, When Used, Shall Be So Located As To Stop Traffic Short Of Ramp Crossing.
- Slope Of Ramp May Be Warped Only When Field Conditions Warrant And When Approved By The City Engineer Or Street Commissioner.
- Sidewalk Ramps Shall Not Be Constructed Within Any Portion Of A Driveway.
- Items On This Sheet Shall Be Constructed In Accordance With Sections 604 And 605 Of The Most Current Indiana Department Of Transportation Standard Specifications.
- Refer to INDOT Standard Drawings For Alternate Sidewalk Curb Ramp Configurations And Construction Details.



REVISIONS		
Rev. No.	Description	Date
1	Entire Set	07/26/2011
2	ADA Compliance Notes, Revised Asphalt Path X-Sec	01/10/2014



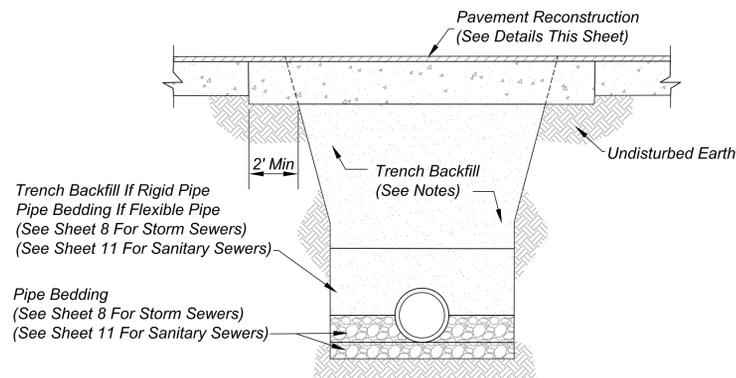
CITY OF SHELBYVILLE

**SIDEWALK AND ADA RAMPS  
DETAILS AND NOTES**

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**GENERAL NOTES:**

- 1.) The Contractor Shall Notify The City Of Shelbyville At Least 24 Hours Prior To Beginning Backfill Or Excavation. If The Permanent Patch Placement Is To Be A Separate Operation, The Contractor Shall Also Notify The City Of Shelbyville 24 Hours Prior To Placement Of Patch.
- 2.) The Contractor Shall Be Responsible For Maintaining And Repairing Any And All Open Cuts Permitted Within The City Of Shelbyville Right-Of-Way For A Period Of One Year Upon Final Acceptance By The City.
- 3.) Saw Cut Existing Pavement So That Cut Provides A Square, Vertical, Neat And Uniform Edge. Jagged Or Irregular Saw Cuts Are Not Permitted And Shall Be Repaired By The Contractor At No Cost To The City.
- 4.) All Materials Shall Comply With Specifications As Required By The Shelbyville Department Of Engineering.
- 5.) The New Surface Pavement Grade Shall Match The Existing Surface Pavement Grade For All Street Cuts.
- 6.) Trench Backfill And Pavement Restoration Shall Be Conducted In An Expedient Manner.
- 7.) Prior to Conducting Any Work Within The City Of Shelbyville Right-Of-Way, Contractor Shall Secure A Right-Of-Way Permit From The City Of Shelbyville Engineering Department. See General Note 2 On Sheet 1.

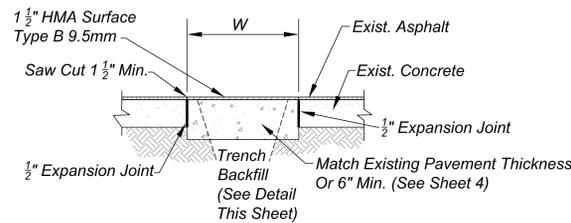


**TRENCH BACKFILL DETAIL**

Scale: None

**NOTES:**

- 1.) Trench Spoils Shall Be Removed From The Work Site And Disposed Of Out Of The Right-Of-Way.
- 2.) Whenever A Trench Opening Encroaches Within 5 Ft. Of An Existing Collector Or Arterial Street, Flowable Fill Shall Be Used For Trench Backfill.
- 3.) Whenever A Trench Opening Encroaches Within 5 Ft. Of A Proposed Collector Or Arterial Street, Flowable Fill Or Granular Backfill Shall Be Used For Trench Backfill.
- 4.) Whenever A Trench Opening Encroaches Within 5 Ft. Of An Existing Or Proposed Local Street, Alley, Private Drive, Or Sidewalk; Flowable Fill Or Granular Backfill Shall Be Used For Trench Backfill.
- 5.) Approved Excavated Material May Be Used For Backfill Outside Of Limits Specified Herein. Excavated Material Shall Be Free Of Organic Material, Rocks Larger Than 6 Inches, Frozen Material, Debris, Excessive Water, Or Other Unsuitable Material As Determined By The City Of Shelbyville.
- 6.) The City Engineer And/Or Street Commissioner Reserve The Right To Require Flowable Backfill When They Deem Necessary.
- 7.) Flowable Fill, When Used, Shall Be Mixed And Placed As Specified In The Latest INDOT Standard Specifications, Section 213.
- 8.) The Compressive Strength Of The Flowable Fill Shall Not Be Less Than 50 PSI Nor Greater Than 100 PSI At 28 Days.
- 9.) Whenever Granular Backfill Is Placed In A Trench, Contractor Shall Place And Compact Material In Lifts Not To Exceed 6 Inches In Thickness. Contractor Shall Compact Material To A Minimum Of 95% Maximum Dry Density, At Optimum Moisture Content, As Per AASHTO T99. The City Reserves The Right To Require Compaction Testing At Its Discretion By An Independent Testing Firm At The Contractor's Expense.

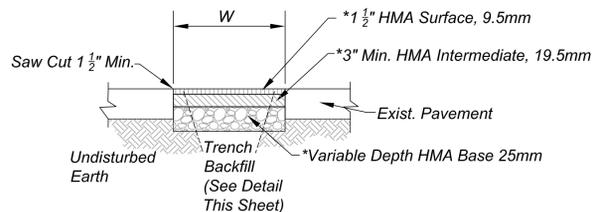


**NOTES:**

- 1.) Specifications For Portland Cement Concrete Pavement (PCCP) Paving Operations, Placement Methods, And Weather Limitations Shall Conform To The Most Current INDOT Specifications Section 502. The Contractor Shall Be Responsible For All Aspects Of Process Control Of The Mixtures Insuring They Meet All Other Requirements Of The INDOT Standard Specifications. All Test Data Shall Be Submitted To The City Engineer And Street Commissioner For Review When Required.
- 2.) For Cold-Weather Concrete Placement, Contractor Shall Comply With Provisions Of ACI 306R For Protection From Physical Damage Or Reduced Strength. For Hot-Weather Concrete Placement, Contractor Shall Comply With Provisions Of ACI 305R For Protection From Physical Damage Or Reduced Strength, As Associated With Rapid Moisture Loss.
- 3.) Contractor Shall Contact The Shelbyville Department Of Engineering To Determine If Anchors Or Dowels Are Required On Existing Concrete Pavement Repairs.
- 4.) A 1/2" Expansion Joint Shall Be Placed Against Existing Concrete On Both Sides Of Trench. Joint Shall Be Sealed With Crack Sealant (See Note 7).
- 5.) The Concrete Pavement And The Existing Vertical Edge Of Pavement Shall Be Tack Coated Prior To The Placement Of New Asphalt. Tack Coat Shall Be Applied In Accordance With The Most Recent INDOT Standard Specifications.
- 6.) The New Surface Pavement Grade Shall Match The Existing Surface Pavement Grade.
- 7.) A 2 Inch Wide Band Of Crack Sealant Shall Be Applied Along The Joint Between The Existing And New Asphalt Surface. Sealant Shall Be Applied In Accordance With The Most Recent INDOT Standard Specifications, Section 408.

**CONCRETE WITH BITUMINOUS SURFACE PATCH STREET CUT DETAIL**

Scale: None



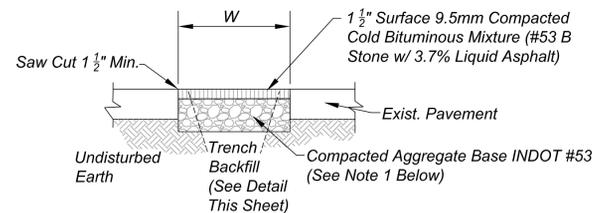
\*See Note 1 Below

**NOTES:**

- 1.) HMA Type (A,B, or C) And Thickness Of HMA Base Layer Shall Be In Accordance With The Pavement Construction Details On Sheet 4 Based On Street Classification.
- 2.) The Existing Vertical Edge Of Pavement Shall Be Tack Coated Prior To The Placement Of New Asphalt. Tack Coat Shall Be Applied In Accordance With The Most Recent INDOT Standard Specifications.
- 3.) The New Surface Pavement Grade Shall Match The Existing Surface Pavement Grade.
- 4.) A 2 Inch Wide Band Of Crack Sealant Shall Be Applied Along The Joint Between The Existing And New Asphalt Surface. Sealant Shall Be Applied In Accordance With The Most Recent INDOT Standard Specifications, Section 408.

**BITUMINOUS PATCH STREET CUT DETAIL**

Scale: None

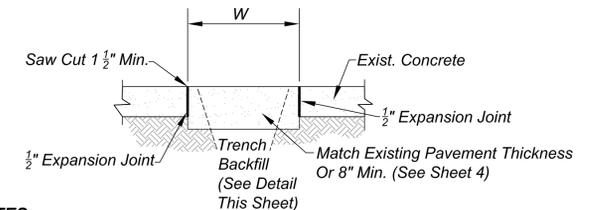


**NOTES:**

- 1.) The Contractor Shall Reference Shelbyville Standard Cross-Section (Sheet 4) As To The Required Thickness Of The Compacted Aggregate Base.
- 2.) Temporary Repair Patch Is Required When Restoration Work Occurs Between November 15 And April 15, Or When Temperature Is Less Than 40 Degrees Fahrenheit.
- 3.) Contractor Shall Be Responsible For Maintenance And Repair Of Temporary Patch Until Permanent Patch Is Installed.

**TEMPORARY REPAIR PATCH STREET CUT DETAIL**

Scale: None



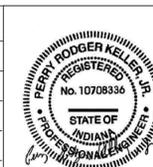
**NOTES**

- 1.) Surface Of Repair Shall Be Broom Finished At Right Angles To Traffic Flow.
- 2.) Specifications For Portland Cement Concrete Pavement (PCCP) Paving Operations, Placement Methods, And Weather Limitations Shall Conform To The Most Current INDOT Specifications Section 502. The Contractor Shall Be Responsible For All Aspects Of Process Control Of The Mixtures Insuring They Meet All Other Requirements Of The INDOT Standard Specifications. All Test Data Shall Be Submitted To The City Engineer And Street Commissioner For Review When Required.
- 3.) For Cold-Weather Concrete Placement, Contractor Shall Comply With Provisions Of ACI 306R For Protection From Physical Damage Or Reduced Strength. For Hot-Weather Concrete Placement, Contractor Shall Comply With Provisions Of ACI 305R For Protection From Physical Damage Or Reduced Strength, As Associated With Rapid Moisture Loss.
- 4.) Contractor Shall Contact The Shelbyville Department Of Engineering To Determine If Anchors Or Dowels Are Required On Existing Concrete Pavement Repairs.
- 5.) A 1/2" Expansion Joint Shall Be Placed Against Existing Concrete On Both Sides Of Trench. Joints Shall Be Sealed With Concrete Joint Sealant In Accordance With INDOT Standard Specifications, Sections 503 And 906.

**CONCRETE PATCH STREET CUT DETAIL (FOR CUTS WITHIN CONCRETE STREETS)**

Scale: None

REVISIONS		
Rev. No.	Description	Date
1	Entire Set	07/26/2011
2	Revised Trench Backfill Detail	01/10/2014



CITY OF SHELBYVILLE  
**TRENCH BACKFILL AND STREET CUT DETAILS AND NOTES**

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**REINFORCED CONCRETE PIPE:**

1.) Reinforced Concrete Pipe (RCP) Shall Be Class III, IV, or V As Specified In ASTM C-76.

DEPTH OF FILL OVER PIPE	CLASS
Between 2 Ft. And 10 Ft.	III
Between 10 Ft. And 16 Ft.	IV
16 Ft. Or Greater	V

2.) Reinforced Elliptical Concrete Pipe Shall Be Class HE-III Or HE-IV As Specified In ASTM C-507

DEPTH OF FILL OVER PIPE	CLASS
Between 2 Ft. And 10 Ft.	HE-III
10 Ft. And Greater	HE-IV

3.) All RCP Storm Sewer Pipe Shall Have A Minimum Of 2 Feet Of Cover Under Pavement And A Minimum 1.5 Feet Of Cover Outside Of Pavement, As Measured From The Top Of The Outside Of The Pipe To The Finished Grade.

4.) Lift Holes Are Not Allowed For Pipes Less Than 24 Inches In Diameter. A Maximum Of Two Lift Holes Are Allowed For Pipe 24 Inches In Diameter Or Larger. Lift Holes Shall Be Repaired According To The Most Recent INDOT Specifications.

5.) Fittings And Specialties Shall Be In Accordance With The Specifications For The Type Of Pipe Being Used.

6.) Each Pipe Section Shall Be Marked With Date Of Manufacture, Size And Class Of Pipe, Specification Designation, Manufacturer And Plant Identification.

7.) Pipe Shall Be Furnished With A Bell Or Groove On One End Of A Unit Of Pipe And A Spigot Or Tongue On The Adjacent End Of The Adjoining Pipe. All Joints Shall Have A Groove On The Spigot For Placement Of A Rubber "O"- Ring Or Profile Gasket In Accordance With ASTM C 443. The Gasket Shall Be A Continuous Ring Which Fits Snugly Into The Annular Space Between The Overlapping Surfaces Of The Assembled Pipe Joint To Form A Flexible Soil-Tight Seal.

8.) Pipe Size And Classification Shall Be Called Out In Plan And Profile Of Construction Drawings.

9.) Storm Sewer Pipe Shall Have A Minimum Horizontal Separation Of 10 Feet From Sanitary Sewer Pipe Or Water Main Pipe. All Pipe Crossings Shall Have A Minimum Vertical Separation Of 1.5 Feet. Dimensions Are Measured From The Outside Of Pipe To Outside Of Pipe.

**STORM SEWER POLYVINYL CHLORIDE (P.V.C.) SEWER PIPE:**

1.) PVC Pipe Greater Than 24 Inches In Diameter May Only Be Used When Approved By The City Engineer Or MS4 Operator.

2.) Pipe Diameters Of 12 Inches And 15 Inches Shall Meet Or Exceed All The Requirements Of ASTM D-3034, And Shall Have A Minimum Cell Classification Of 12454. Reference Should Be Made To ASTM D-1784 For A Summarization Of Cell Class Properties. Pipe Diameters Greater Than 15 Inches Shall Meet Or Exceed All Requirements Of ASTM F-679, And Shall Have A Minimum Cell Classification of 12454.

3.) P.V.C. Pipe Shall Conform To The Following Specifications Based On Pipe Diameter And Depth Of Cover:

PIPE DIAMETER	DEPTH OF FILL OVER PIPE	PIPE SPECS	ASTM STANDARD
6" - 15"	Less Than 15 Feet	SDR-35 Type PSM	D-3034
6" - 15"	15 Feet Or Greater	SDR-26 Type PSM	D-3034
18" or Greater	Less Than 15 Feet	PS 46	F-679
18" or Greater	15 Feet Or Greater	PS 115	F-679

P.V.C. SDR-35 And PS-46 Pipe Shall Have A Minimum Pipe Stiffness Of 46 Pounds Per Square Inch For Each Diameter When Measured At 5% Deflection And Tested In Accordance With ASTM D-2412. P.V.C. SDR-26 And PS-115 Pipe Shall Have A Minimum Pipe Stiffness Of 115 Pounds Per Square Inch For Each Diameter When Measured At 5% Deflection And Tested In Accordance With ASTM D-2412.

4.) Pipe Joints Shall Have A Bell Wall, Gasket Groove And Spigot Which Is Integral With The Pipe. The Assembly Of Joints Shall Be In Accordance With Pipe Manufacturer's Recommendations And ASTM D-3212. No Solvent Cement Joints Shall Be Allowed.

5.) Gasket Material Shall Meet Or Exceed All Requirements Of ASTM D3212-07, Standard Specification For Joints For Drain And Sewer Plastic Pipes Using Flexible Elastometric Seals.

6.) Each Pipe Section Shall Be Marked With Name Of Manufacturer, Trademark Or Tradename, Nominal Pipe Size, Production/Extrusion Code, Material And Cell Class Designation And ASTM Number.

7.) Installation Shall Be In Accordance With ASTM Recommended Practice D-2321.

8.) All PVC Storm Sewer Pipe Shall Have A Minimum Of 2 Feet Of Cover Under Pavement And A Minimum 1.5 Feet Of Cover Outside Of Pavement, As Measured From The Top Of The Outside Of The Pipe To The Finished Grade.

**STORM SEWER HIGH DENSITY POLYETHYLENE (H.D.P.E.) CORRUGATED PIPE:**

1.) HDPE Pipe May Only Be Used When Approved By The City Engineer Or MS4 Operator. HDPE Pipe Shall Not Be Used Within The Public Right-Of-Way.

2.) HDPE Pipe Greater Than 24 Inches In Diameter Shall Not Be Allowed For Use In The City Of Shelbyville.

3.) Requirements For Test Methods, Dimensions And Marking Shall Meet The Requirements Of A.A.S.H.T.O. Specifications M-252 And M-294.

4.) Pipe And Fittings Shall Be Made Of Polyethylene Compounds Which Meet Or Exceed The Requirements Of Type III, Category 4 Or 5, Grade P33 Or P34, Class C Per ASTM D-1248 With The Applicable Requirements Defined In ASTM D-1248.

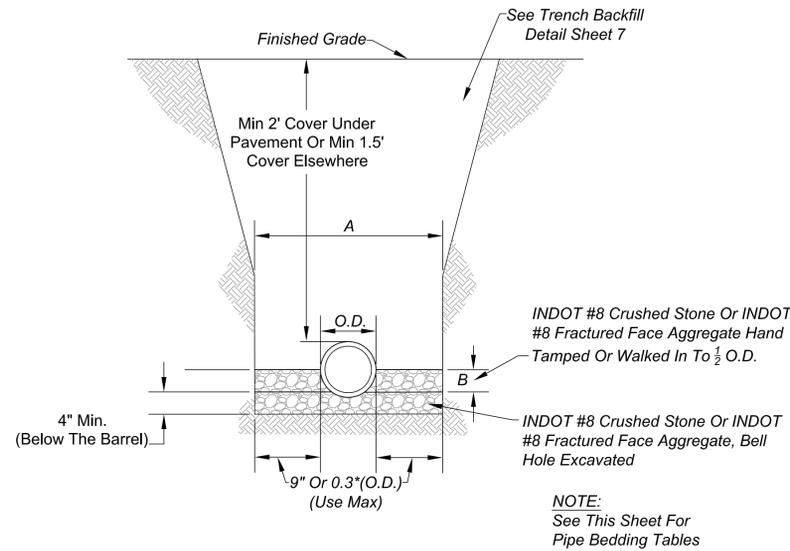
5.) Minimum Pipe Stiffness Values Shall Be In Accordance With A.A.S.H.T.O. Specifications M-294.

6.) H.D.P.E. Corrugated Pipe Shall Have An Integrally Formed Smooth Interior.

7.) Male And Female Pipe Ends Which Allow The Construction Of Overlapping, Gasketed Joints Shall Be In Conformance With ASTM D-3212. Neoprene Gaskets Shall Meet ASTM F-477.

8.) Installation Shall Be In Accordance With ASTM Recommended Practice D-2321.

9.) All HDPE Storm Sewer Pipe Shall Have A Minimum Of 3 Feet Of Cover Under Pavement And A Minimum 2.5 Feet Of Cover Outside Of Pavement, As Measured From The Top Of The Outside Of The Pipe To The Finished Grade.



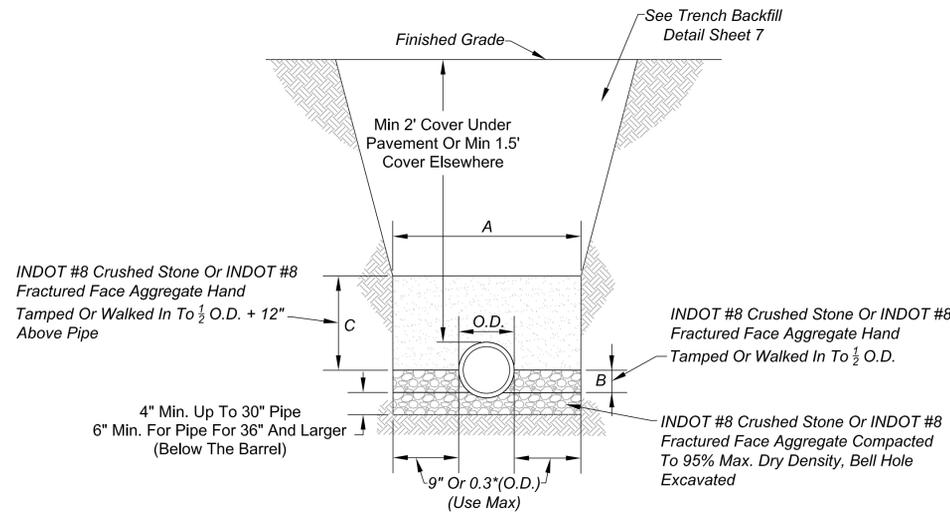
**RCP PIPE BEDDING DETAIL**  
Scale: None

**TABLE 10: RCP PIPE BEDDING TABLE**

Pipe Size Nominal (in)	Pipe Size O.D. (in)	A (in)	B (in)	Cubic Yards Of Bedding Per Foot Of Pipe (Cys/Ft)
12	16.0	34.0	8.00	0.079
15	19.5	37.5	9.75	0.094
18	23.0	41.0	11.50	0.110
21	26.5	44.5	13.25	0.127
24	30.0	48.0	15.00	0.144
27	33.5	53.6	16.75	0.173
30	37.0	59.2	18.50	0.204
36	44.0	70.4	22.00	0.275
42	51.0	81.6	25.50	0.356
48	58.0	92.8	29.00	0.448
54	65.0	104.0	32.50	0.550
60	72.0	115.2	36.00	0.662

**STORM SEWER GENERAL NOTES:**

- Storm Sewer Pipe Of Other Material Or Material Not Meeting These Specifications Shall Require The Prior Written Approval Of The City Engineer.
- Upon Request, The Contractor Shall Submit Information To The City Engineer Illustrating Conformance With These Specifications.
- The Smallest Permissible Storm Sewer Pipe Diameter Is 12 Inches.
- The City Of Shelbyville Stormwater Technical Standards Manual Shall Be Referenced For Stormwater Design.
- Prior To Earthwork, Pipe Construction, Or Other Activity That May Affect Or Alter Stormwater Runoff, The Downstream Receiving End Of Stormwater Shall Be Secured And Stabilized To Accommodate All Upstream Runoff, Including Offsite. This Includes, But Not Limited To, Downstream Ditch Improvements, Culvert Improvements, Or Constructing Positive Outlet For Retention Facility.
- All Culverts Or Ends Of Storm Pipe That Do Not Connect Directly To A Structure Shall Require Precast Flared Reinforced Concrete End Sections. Concrete Toe Anchors Shall Be Required. Revetment Rip-Rap Shall Be Required In Accordance With The Most Recent INDOT Channel Design Guide And INDOT Specifications. Revetment Rip-Rap Shall Be Placed Over Geotextile In Accordance With The Most Recent INDOT Standard Specifications. See Precast Concrete Pipe End Section Detail On Sheet 9.
- Pre-Fabricated Galvanized Debris Guard Shall Be Installed On All End Sections. See Debris Guard Detail Sheet 9.
- As-Built Record Drawings Shall Be Submitted To The City Plan Commission Office. See General Note 11 On Page 1 For As-Built Requirements.



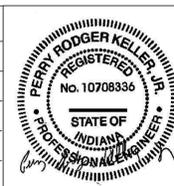
**FLEXIBLE (PVC OR HDPE) PIPE BEDDING DETAIL**  
Scale: None

**TABLE 11: FLEXIBLE (PVC OR HDPE) PIPE BEDDING TABLE**

Pipe Size Nominal (in)	Pipe Size O.D. (in)	A (in)	B (in)	C (in)	Cubic Yards Of Bedding Per Foot Of Pipe (Cys/Ft)
6*	6.3	24.3	3.14	15.14	0.131
8*	8.4	26.4	4.20	16.20	0.151
10*	10.5	28.5	5.25	17.25	0.172
12	12.5	30.5	6.25	18.25	0.192
15	15.3	33.3	7.65	19.65	0.221
18	18.7	36.7	9.35	21.35	0.257
21	22.1	40.1	11.03	23.03	0.294
24	24.8	42.8	12.40	24.40	0.325
27	28.0	46.0	13.98	25.98	0.362
30	32.0	51.2	16.00	28.00	0.425
36	38.3	61.3	19.15	31.15	0.560
42	44.5	71.2	22.25	34.25	0.708
48	50.8	81.3	25.40	37.40	0.875

\* Sanitary Sewer Only

Rev. No.	Description	Date
1	Entire Set	07/26/2011



CITY OF SHELBYVILLE  
**STORM SEWER BEDDING AND PIPE DETAILS AND NOTES**

SHEET  
8  
OF  
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