

# MONTGOMERY COUNTY, INDIANA

## MONTGOMERY COUNTY STANDARDS

DIRECTIONS FOR USE

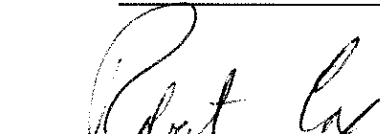
- 1.) The Entire Set Of Full Size Standards Shall Be Attached To The Construction Drawings And Shall Be Considered Part Thereto. Partial Set May Be Used For Small Projects When Approved By The Montgomery County Engineering Department.
- 2.) Details Prepared By Outside Sources Shall Not Be Included In The Construction Drawings When Said Details Cover Work Which Is Covered By The Montgomery County Standards.
- 3.) Individual Montgomery County Standards That Do Not Apply May Be Crossed-Out By By Design Engineer Through The Placement Of A Single Large X Over Detail. Minor Reference Notations May Be Placed Adjacent To Individual Standard Titles For Coordination. However, The Standards Themselves Shall Not Be Modified In Any Way.
- 4.) Details Prepared By Outside Sources Covering Work, Which Is Not Covered By The Montgomery County Standards, Are The Sole Responsibility Of The Design Engineer And Shall Be Placed On Sheets Other Than The Montgomery County Standards Sheets.

GENERAL NOTES

- 1.) Contractor Shall Verify The Exact Location Of All Existing Utilities At Least 48 Hours Prior To Any Construction Or Excavation. During Construction, All Utilities Shall Be Adequately Supported To Minimize Damage. The Contractor Shall Be Responsible For Repairing Or Replacing Damaged Utilities To The Satisfaction Of The Montgomery County Engineering Department And The Owner Of The Affected Utility.
- 2.) Two Full Sets Of Construction Drawings Shall Be Submitted To The Montgomery County Engineering Department For Review And Approval. One Complete Set Of As-Built/Record Drawings Shall Be Submitted In Electronic Format, In Addition To Two Complete Sets Of Record Drawings In Paper Format. Acceptable Forms Of Electronic Format Include Autocad-Releases 12, 13 & 14 Or Autocad Data Interchange, If Created From A Non-Autocad System. All Coordinate Data Shall Be U. S. Survey Feet. All Benchmarks And Elevations Shall Be From NAD 1983 (Conus) Datum.
- 3.) Wherever Proprietary Equipment Is Specified, All Proposals For Substitution Shall Be Submitted In Writing To The Montgomery County Engineering Department And Shall Be Subject To The Findings Of The Montgomery County Engineering Department.
- 4.) Installation Of Or Provisions For The Installation Of All Underground Utilities (Including Service Laterals) To Be Placed Under Pavement Areas Shall Be Established Prior To The Construction Of The Pavements.
- 5.) Contractor Shall Submit To The Montgomery County Engineering Department, For Approval, Detailed Drawings Of All Traffic Control Items. Drawings Shall Clearly Illustrate The Location Of Warning Signs, Size And Type Of Signs To Be Used, Location Of Flagmen, Location Of Illuminated Signs And/Or Barrels And Locations Of Barricades, When Applicable For Road Closures. No Work Within The Montgomery County Right-Of-Way Will Be Permitted Without Written Approval Of A Traffic Control Plan.
- 6.) These Are The Minimum Construction Standards Which Must Be Met Before Any Improvement, Road, Culvert Or Other Structure Is Accepted Into The County Maintenance System. These Standards May Be Modified From Time To Time As May Be Approved By The Board Of Commissioners. If Any Individual Or Entity Constructs Or Installs Any Structure Or Improvement In Any County Right-Of-Way That Does Not Meet The Minimum Specifications Of The Montgomery County Standards, The County Shall Have The Right To Remove Said Non-Conforming Structure Or Improvement And Replace It, If Necessary, At The Expense Of The Landowner. The Costs Incurred By The County May Be Taxed Against The Land-Owner's Real Estate Upon Which Said Improvement Is Located, And Collected By The County In The Same Manner That Real Estate Taxes Are Taxed And Collected.

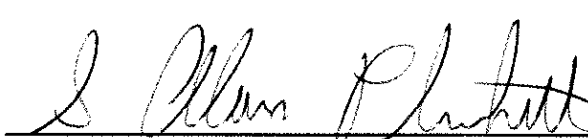
REVISION LOG						
SHEET NO.	SHEET DESCRIPTION	ISSUED	REVISED	REVISED	REVISED	REVISED
SHEET 1	DIRECTIONS FOR USE, GENERAL NOTES & REVISION LOG	12/05/00				
SHEET 2	RIGHT-OF-WAY, UTILITY EASEMENT & UTILITY LOCATION GUIDELINES	12/05/00				
SHEET 3	PAVEMENT, CURB & SIDEWALK DETAILS AND NOTES	12/05/00				
SHEET 4	MISCELLANEOUS DETAILS AND NOTES	12/05/00				
SHEET 5	STREET CUT DETAILS	12/05/00				
SHEET 6	STORM SEWER BEDDING DETAILS AND NOTES	12/05/00				
SHEET 7	STORM SEWER DETAILS AND NOTES	12/05/00				
SHEET 8	SCHOOL ZONE DETAILS AND RAILROAD CROSSING DETAILS	12/05/00				

MONTGOMERY COUNTY OFFICIALS




ROBERT COX

COUNTY COMMISSIONER



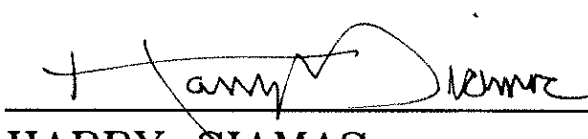
G. ALAN PLUNKETT

COUNTY COMMISSIONER



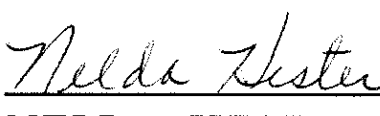
KEN COUDRET

COUNTY COMMISSIONER




HARRY SIAMAS

COUNTY ATTORNEY



NELDA HESTER

COUNTY AUDITOR



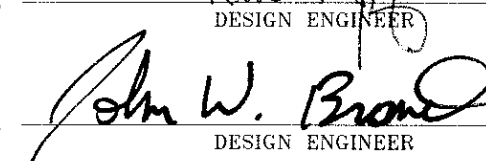
BRETT A. CATING

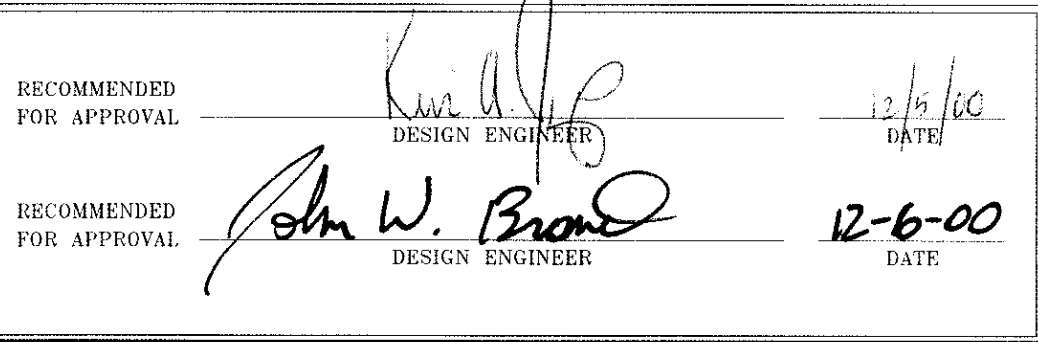
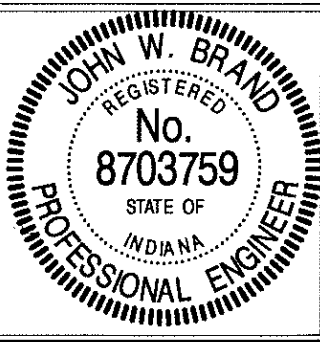
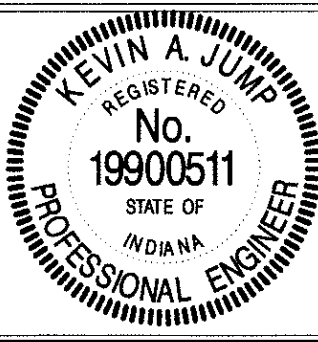
CONSTRUCTION MANAGER

1-800-382-5544  
HOLEY MOLEY SAYS CALL



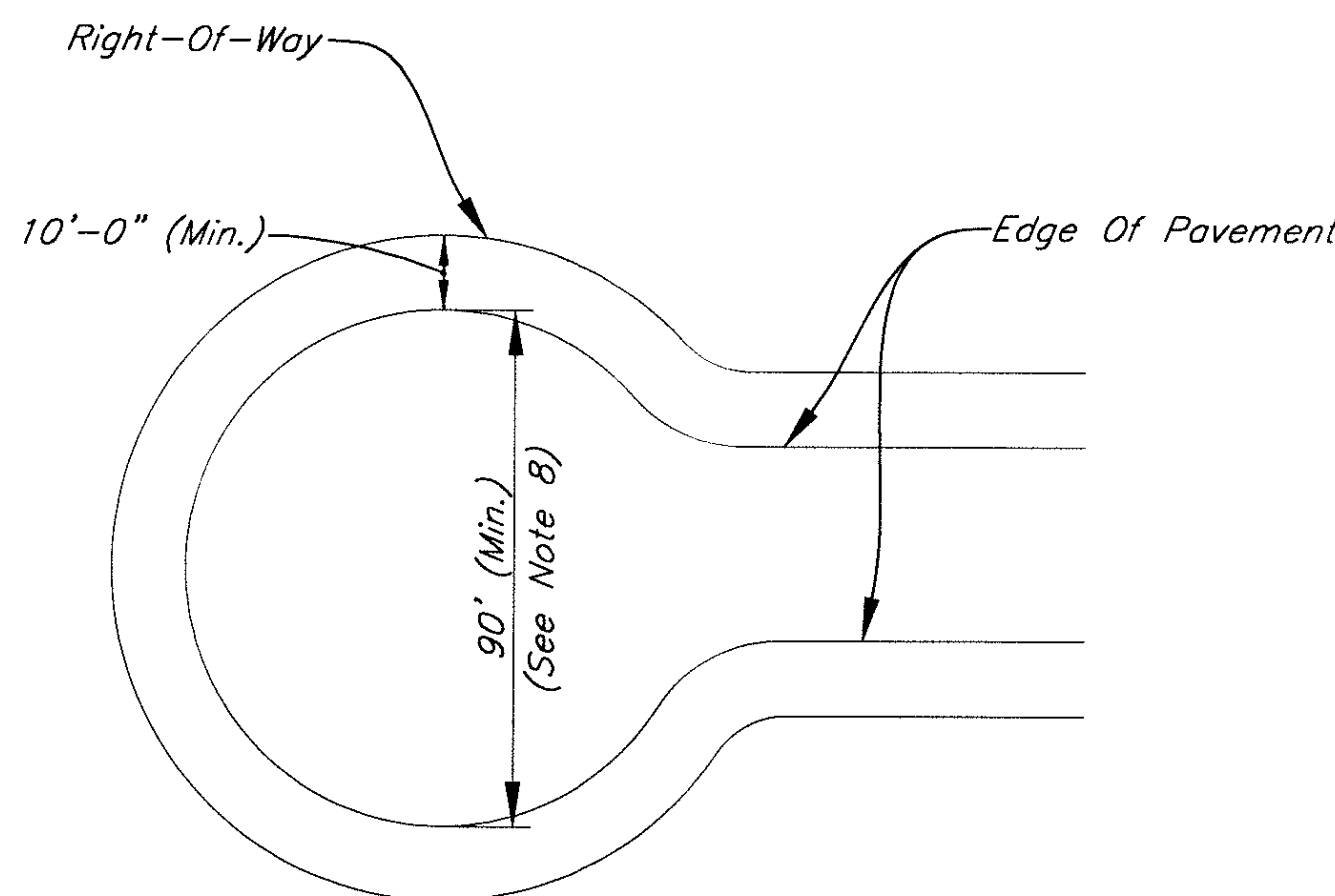
AT LEAST TWO FULL  
WORKING DAYS BEFORE  
YOU DIG

REVISIONS			DESIGN ENGINEER		DATE		MONTGOMERY COUNTY	SHEET
Rev. No.	Description	Date	RECOMMENDED FOR APPROVAL	DESIGN ENGINEER	12/9/00	DATE		
			RECOMMENDED FOR APPROVAL		12-6-00	DATE	DIRECTIONS FOR USE, GENERAL NOTES & REVISION LOG	1 OF 8

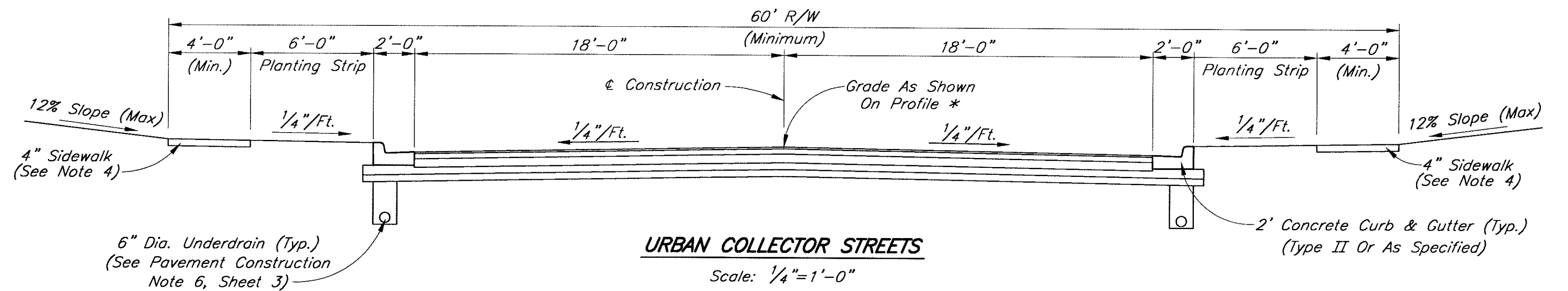


# GENERAL NOTES

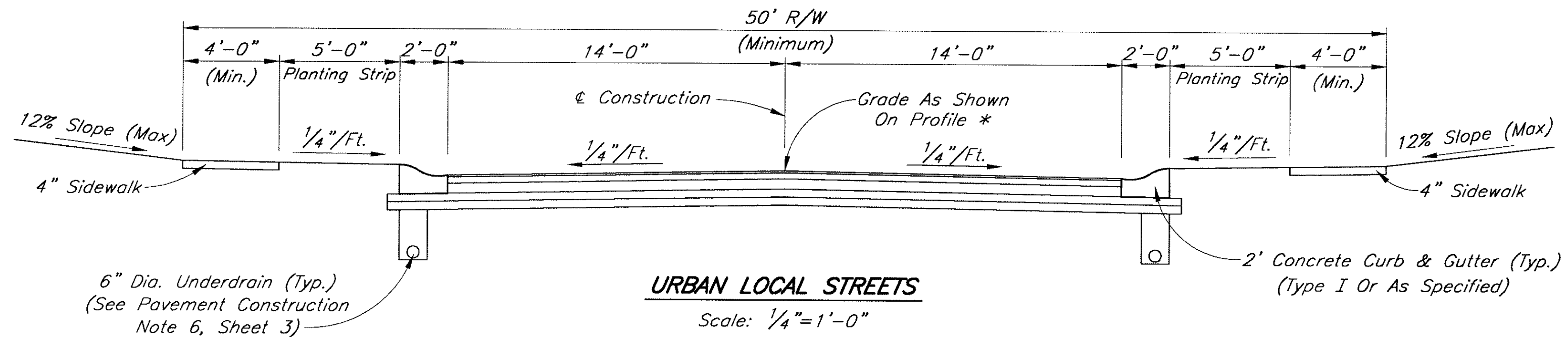
- 1.) The Right-Of-Way Widths, Pavement Widths And Easements Widths Indicated On This Sheet Are Minimum Distances Required By The Montgomery County Engineering Department. Greater Widths May Be Provided. The Contractor Shall Review The Plat And The Plans To Confirm The Various Widths Indicated On This Sheet And Shall Report Any Discrepancy To The Montgomery County Engineering Department Prior To Proceeding With Construction.
- 2.) The Location Of Proposed Utilities As Indicated Hereon Are Based Upon The Experience Of The Montgomery County Engineering Department And Are So Indicated To Ensure The Orderly Development Of The Land. Strict Adherence To The Indicated Location Is Required. Requests To Change The Location Of The Proposed Utilities Shall Be Submitted In Writing To The Montgomery County Engineering Department. Utilities Not Meeting These Requirements Shall Be Removed And Replaced As Directed By The Montgomery County Engineering Department.
- 3.) Primary Arterial Streets And Divided Arterial Streets Are To Be Coordinated With The Montgomery County Engineering Department.
- 4.) A Written Request For Variance May Be Submitted To The Montgomery County Engineering Department To Allow For The Deletion Of The 4 Foot Wide Sidewalk From Urban Collector Streets. The Sidewalks Shall Be Constructed Unless A Written Variance Is Issued By The Montgomery County Engineering Department.
- 5.) Where New Sidewalk Connects To Existing Sidewalk, The Width Of New Sidewalk Shall Match Width Of Existing Sidewalk Or Be A Minimum Of 4 Feet, Whichever Is Greater.
- 6.) A Written Request For Variance May Be Submitted To The Montgomery County Engineering Department To Allow For The Deletion Of The 6" Dia. Swale Underdrain From Rural Collector Roads And/Or Rural Local Roads. The Written Request For Variance Shall Be Accompanied With A Geotechnical Report, Which Supports The Omission Of Swale Underdrains. The 6" Dia. Swale Underdrain, As Shown On Sheet 7, Shall Be Constructed Unless A Written Variance Is Issued By The Montgomery County Engineering Department.
- 7.) Standard Pavement Markings Shall Be Placed In Streets/Roads, In Accordance With The Most Recent Indiana Manual On Uniform Traffic Control Devices. All Pavement Markings Shall Be Thermoplastic. 4" Wide Solid White Thermoplastic Lines Shall Be Placed To Denote Edge Of Pavement. 4" Wide Yellow, Either Solid Or Dashed, Thermoplastic Lines Shall Be Placed To Denote Separation Of Directional Traffic.
- 8.) 90' Minimum Pavement Width, Measured Either From Back-Of-Curb To Back-Of-Curb For Urban Areas Or From Edge Of Pavement To Edge Of Pavement For Rural Areas, Shall Be Constructed For All Cul-De-Sacs.
- 9.) When Right-Of-Way Conditions Do Not Warrant A 3:1 Swale Side Slope, A Written Request For Variance Shall Be Submitted To The Montgomery County Engineering Department For Design Approval.
- 10.) For A Rural Local Road With Guardrail, Use 3'-0" In Lieu Of 12" To Allow For Guardrail Installation In Accordance With Sheet 4.



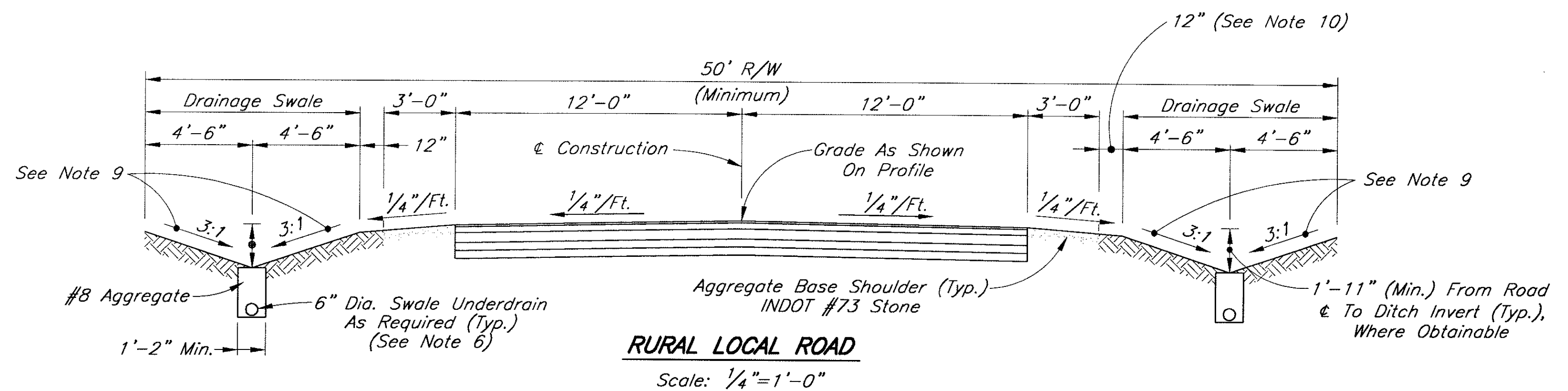
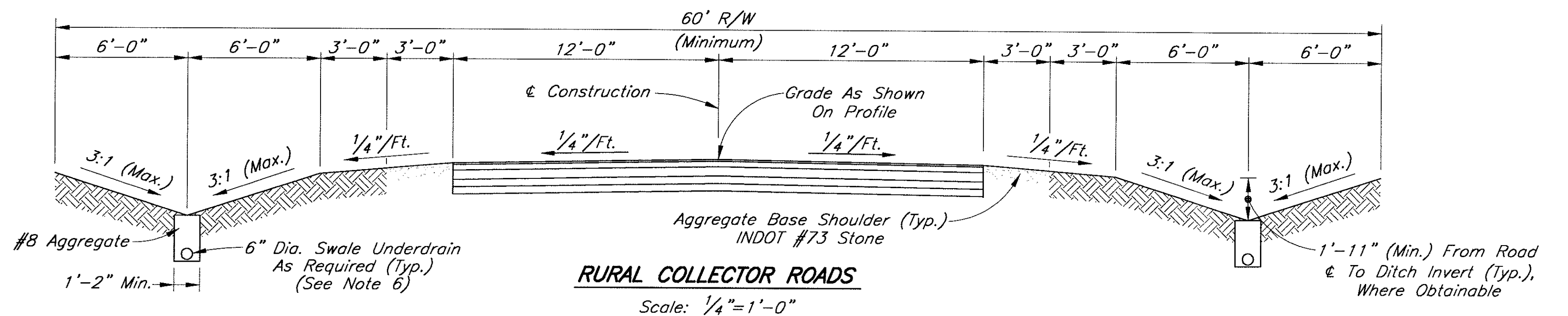
**CUL-DE-SAC**  
No Scale



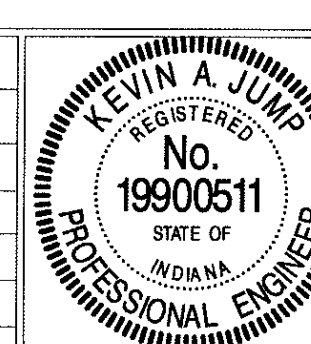
\* Minimum 0.5 % Grade @ Curb Flowline



\* Minimum 0.5 % Grade @ Curb Flowline



REVISIONS		
Rev. No.	Description	Date



RECOMMENDED FOR APPROVAL	DATE
DESIGN ENGINEER	12/5/00
APPROVED	DATE
MONTGOMERY COUNTY COMMISSIONER	12/5/00
APPROVED	DATE
MONTGOMERY COUNTY COMMISSIONER	12/5/00
APPROVED	DATE
MONTGOMERY COUNTY COMMISSIONER	12/5/00

**MONTGOMERY COUNTY**  
**RIGHT-OF-WAY,**  
**UTILITY EASEMENT & UTILITY**  
**LOCATION GUIDELINES**

**SHEET**  
**2**  
**OF**  
**8**

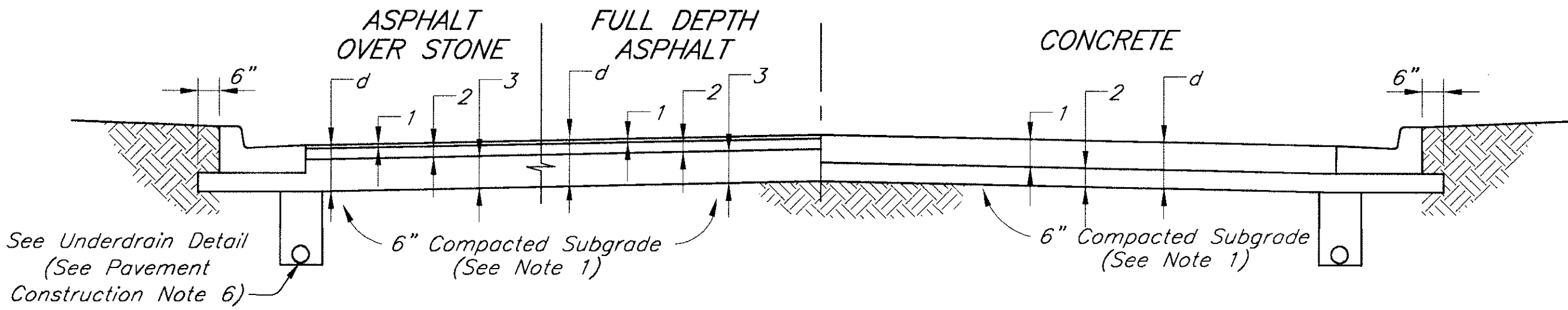


PAVEMENT CONSTRUCTION

- 1.) Subbase And Subgrade Shall Be Placed To At Least 100 Percent Of Maximum Dry Density, In Accordance With A.A.S.H.T.O. 199. Compaction Tests Shall Be At The Contractor's Expense And Shall Be Performed By An Independent Testing Laboratory. Test Results Shall Be Submitted To The Montgomery County Engineering Department Prior To Placing Any Material On The Subbase Or Subgrade. One In-Place Density Test Shall Be Completed For Each Lift For Every 400 Linear Feet Of Traffic Lanes.
- 2.) Place Prime Coat And Tack Coat In Accordance With The Most Recent INDOT Standard Specifications For Asphalt Pavement Sections.
- 3.) If Concrete Pavement Is To Be Used, The Contractor Shall Use Lime Modification Or Lime-Kiln Dust Modification To Aid Compaction Efforts Of The Subgrade Soil.
- 4.) Wherever Rigid Pavement Is To Be Used, The Contractor Shall Submit A Detailed Paving Plan To The Montgomery County Engineering Department. The Paving Plan Shall Show The Location And Type Of Jointing To Be Used In The Construction. The Location And Type Of Jointing Shall Meet The Requirements Of The Most Recent INDOT Standard Details.
- 5.) At The Discretion Of The Montgomery County Engineering Department, For Asphalt Pavement, The Contractor May Use Lime Modification To Aid Compaction Efforts Of The Subgrade Soil. Lime Modification And Lime-Kiln Dust Modification Shall Be In Accordance With The Current INDOT Special Provision 207-R-334 And 207-R-333, Respectively. Hydrated Lime Or Lime-Kiln Dust May Be Used To Modify The Soil To A Depth Of 16 Inches. Lime Modification Shall Be Performed Only With A Minimum Soil Temperature, Measured 4 Inches Below The Subgrade, Of 45 Degrees F, And With The Air Temperature Rising. Hydrated Lime Or Lime-Kiln Dust Shall Not Be Mixed With Frozen Soils Or With Soil Containing Frost. Following Soil Modification, Compaction Of The Lime Modified Mixture Shall Provide A Density Not Less Than 100% Of The Maximum Dry Density Within The Special Subgrade Treatment Zone Or 95% Of The Maximum Dry Density Below The Special Subgrade Treatment Zone. Maximum Dry Densities Shall Be Determined In Accordance With AASHTO 199. The Mix Design Shall Be Determined In Accordance With INDOT Laboratory Proposed Design Procedure. The Mix Design And Construction Procedure Shall Be Submitted To The Montgomery County Engineering Department Prior To Approval Of The Use Of Lime Modification Or Lime-Kiln Dust Modification.
- 6.) A Written Request For Variance May Be Submitted To The Montgomery County Engineering Department To Allow For The Deletion Of The 6" Dia. Perforated Pipe Underdrain. The Written Request For Variance Shall Be Accompanied With A Geotechnical Report, Which Supports The Omission Of Curb Underdrains. The 6" Dia. Curb Underdrain Shall Be Constructed Unless A Written Variance Is Issued By The Montgomery County Engineering Department.
- 7.) The Contractor Shall Notify The Montgomery County Engineering Department A Minimum Of 48 Hours Prior To Each Day's Placement Of Aggregate Base, Curb, Hot Mix Asphalt And Concrete.

HANDICAP RAMP CONSTRUCTION

- 1.) All Handicap Ramps Shall Meet The Requirements Of The American Disabilities Act, The Most Recent INDOT Standard Specifications, And Montgomery County's Most Recent Standards. Curb Swipes Required For Handicap Ramps Shall Be Provided At Time Of Initial Construction.
- 2.) Minimum Width Of Curb Ramp Shall Be 4 Feet, Not Including Flares. Maximum Slope Of Ramps Shall Be 12:1.
- 3.) Handicap Ramps Are To Be Located As Shown On The Plans Or As Directed By The Montgomery County Engineering Department.
- 4.) Type E Ramps Shall Be Provided At The Center Line Of Radius 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 County.
- 5.) Surface Texture Of The Ramp Shall Be That Obtained By A Coarse Brooming Transverse To The Slope Of The Ramp.
- 6.) Ramps Shall Be Provided Where The Driveway Curb Extends Across The Sidewalk.
- 7.) Care Shall Be Taken To Assure A Uniform Grade On All Ramps With No Breaks In Grade.
- 8.) 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.
- 9.) The Normal Gutter Line Profile Shall Be Maintained Through The Area Of The Ramp.
- 10.) 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.
- 11.) Crosswalk And Stop Line Marking, If Used, Shall Be So Located As To Stop Traffic Short Of Ramp Crossing.
- 12.) Slope Of Ramp May Be Warped When Field Conditions Warrant And When Approved By The Montgomery County Engineering Department.



LOCAL STREETS/ROADS (URBAN AND RURAL)

- d=13" 1 1/2" Surface #11 LV 3 1/2" Binder #8 Or 3 1/2" Base #5 8" Compacted Aggregate Base #53 (2 Lifts)
- d=9" 1 1/2" Surface #11 LV 3 1/2" Binder #8 4" Base #5D
- d=12" (See Note 3) 8" Concrete 4" Compacted Aggregate Base #53

COLLECTOR STREETS/ROADS (URBAN AND RURAL)

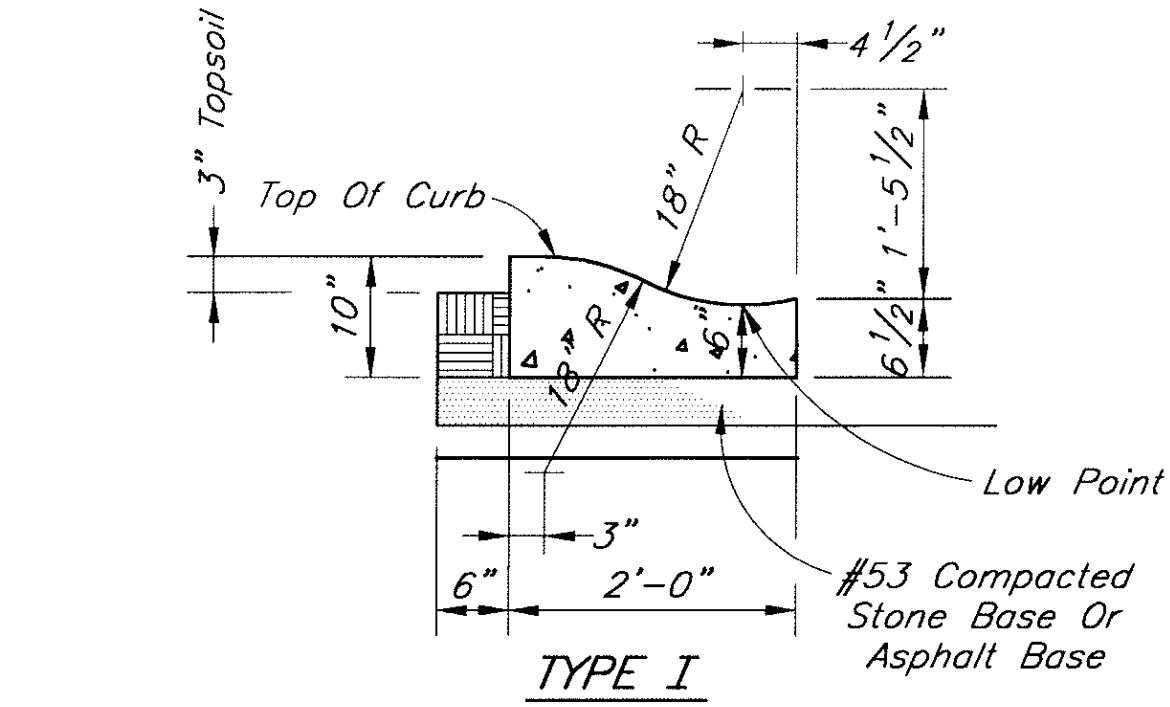
- d=16" 1 1/2" Surface #11 MV 2 1/2" Binder #8 Over 3" Base #5D 8" Compacted Aggregate Base #53 (2 Lifts)
- d=12" 1 1/2" Surface #11 MV 3 1/2" Binder #8 3" Base #5 Over 4" Base #5D
- d=14" (See Note 3) 8" Concrete 6" Compacted Aggregate Base #53

INDUSTRIAL AND ARTERIAL STREETS

The Asphalt Over Stone, Full Depth Asphalt And Concrete Pavement Sections Shall Be Designed Based Upon California Bearing Ratio (CBR) Tests Performed On The Subgrade Soils. Pavement Thickness Designs Shall Be Submitted To The Montgomery County Engineering Department For Approval.

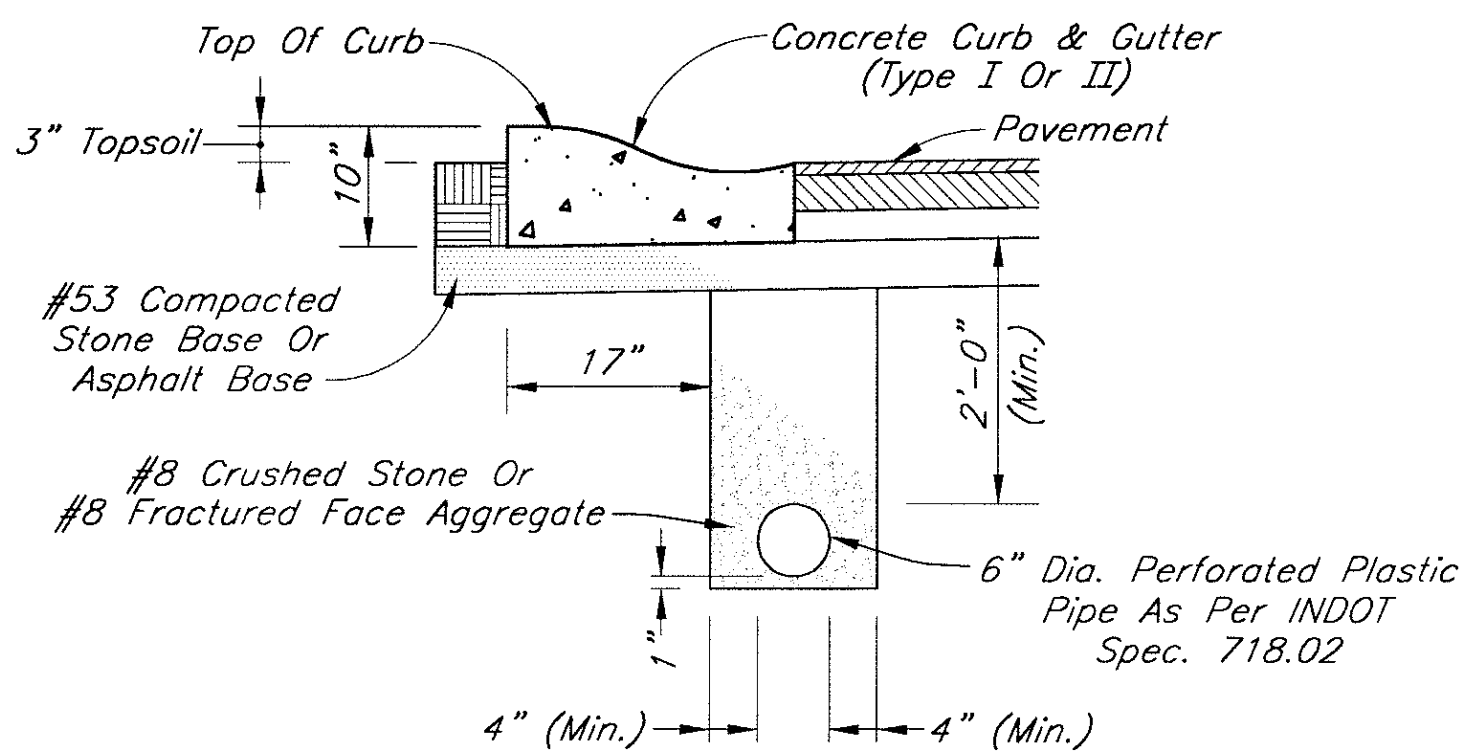
PAVEMENT CONSTRUCTION

Scale: None



2' CONCRETE ROLL CURB & GUTTER

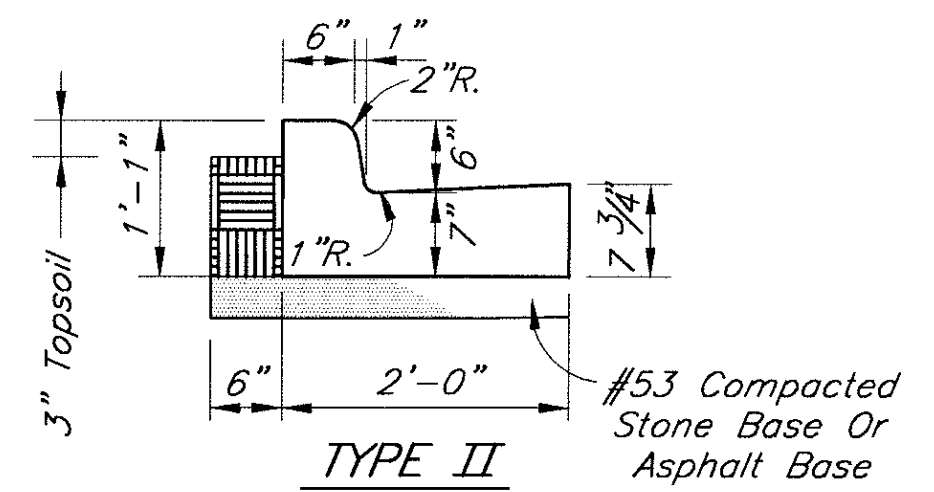
Scale: 3/4" = 1'-0"



UNDERDRAIN DETAIL

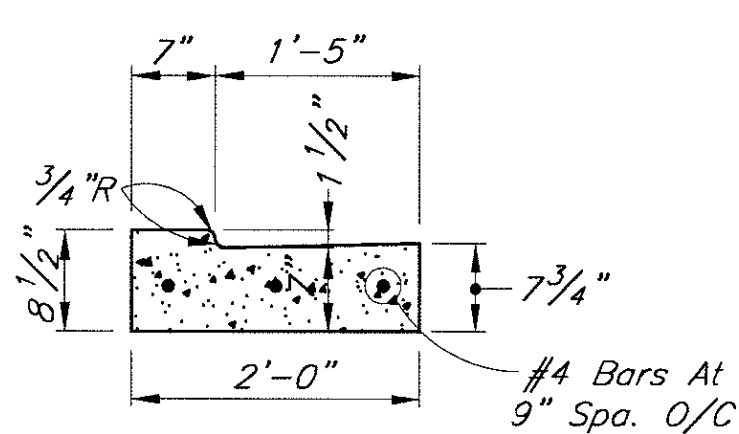
Scale: 3/4" = 1'-0"

(See Pavement Construction Note 6)



2' COMBINED CONCRETE CURB & GUTTER

Scale: 3/4" = 1'-0"

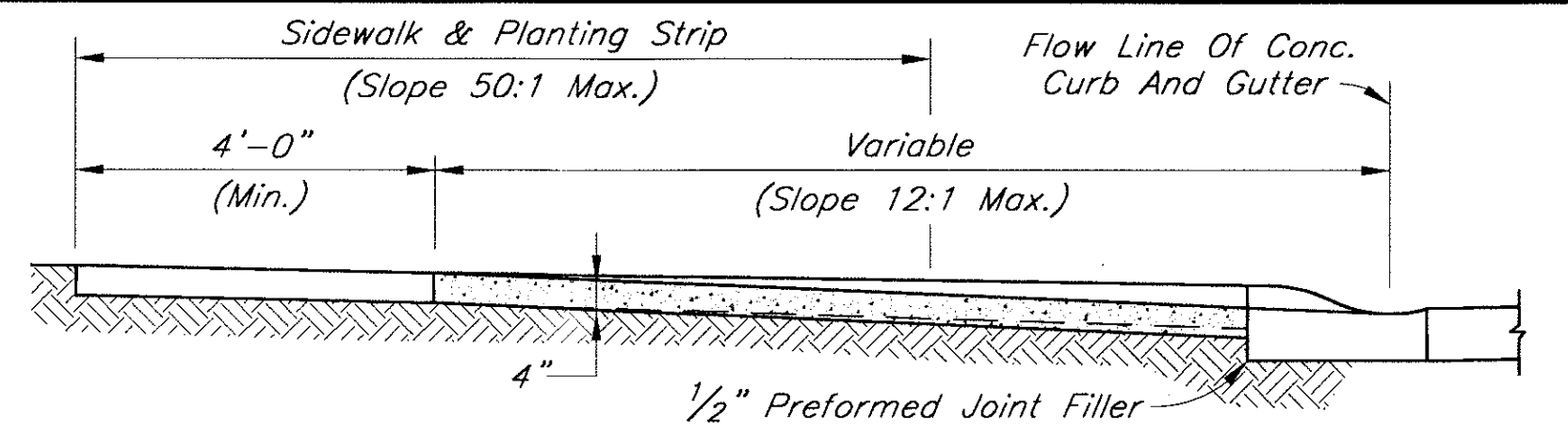


NOTE:

Reinforced Concrete Gutter Is Required At All Private Drives That Intersect An Urban Public Road With Type II 2' Combined Concrete Curb And Gutter Or Similar.

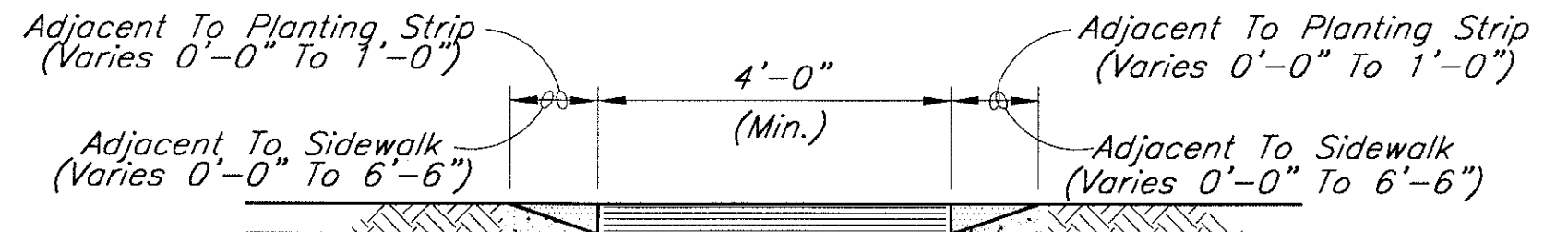
REINFORCED CONCRETE GUTTER

Scale: 3/4" = 1'-0"



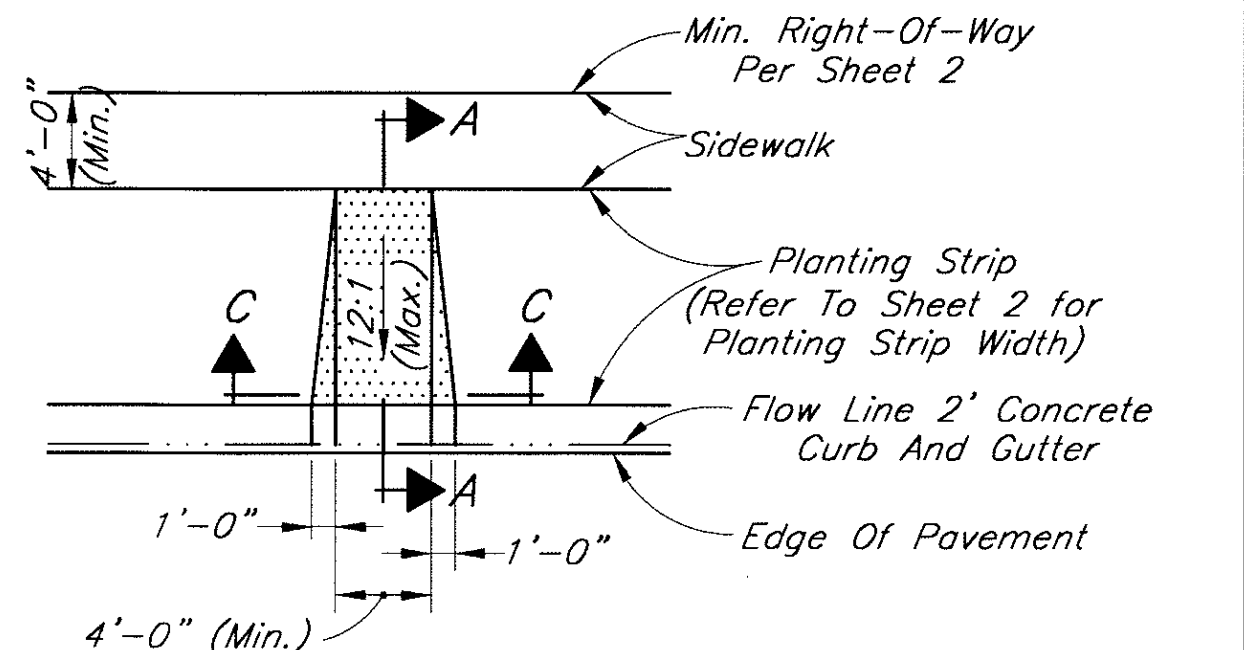
SECTION A-A

Scale: 1/2" = 1'-0"



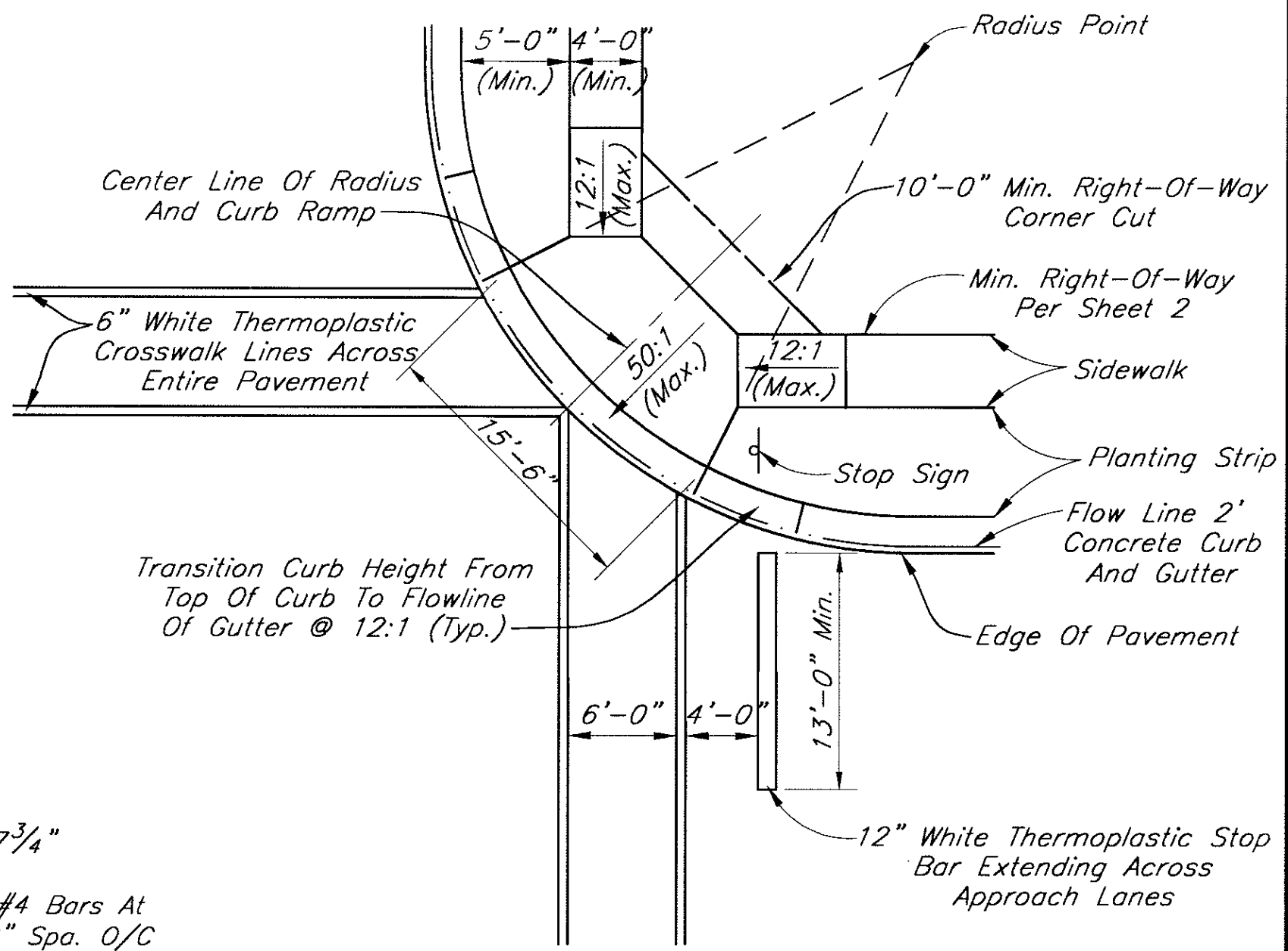
SECTION C-C

Scale: 1/2" = 1'-0"



CURB RAMP, TYPE C

Scale: 1/8" = 1'-0"

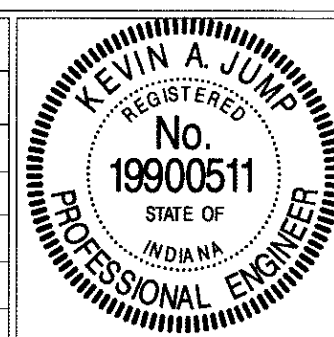


CURB RAMP, TYPE E (WITH TYPICAL PAVEMENT MARKINGS)

Scale: 1/8" = 1'-0"

HANDICAP RAMP CONSTRUCTION

REVISIONS		
Rev. No.	Description	Date



RECOMMENDED FOR APPROVAL	DATE
DESIGN ENGINEER	12/5/00
APPROVED	DATE
12/5/00	DATE
12/5/00	DATE
12/5/00	DATE

MONTGOMERY COUNTY	SHEET
PAVEMENT, CURB & SIDEWALK DETAILS AND NOTES	3 OF 8







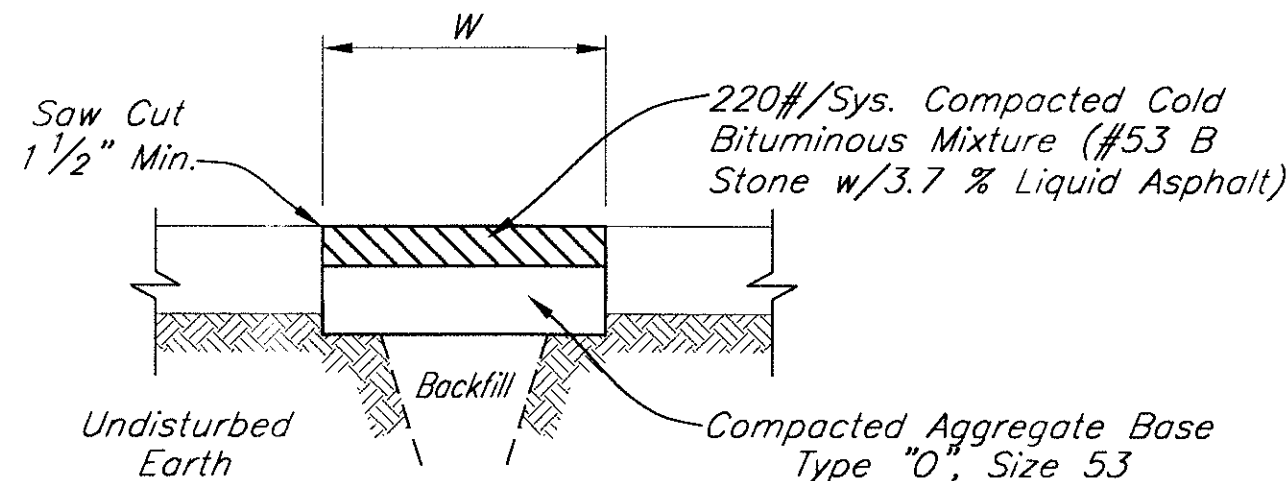
GENERAL NOTES

- 1.) Trench Backfill Within Streets, Alleys Or Sidewalks Shall Be Type I Or Type II As Shown.
- 2.) Type II Backfill May Be Used If The Trench Has Adequate Space To Allow Entrance Of Proper Equipment And Materials Achieve The Required 95% Compaction.
- 3.) The Montgomery County Engineering Department Shall Have The Authority To Require Type I Trench Backfill When, In His Opinion, Minimum Compaction Cannot Be Obtained.
- 4.) The Contractor Shall Notify The Montgomery County Engineering Department At Least 24 Hours Prior To Beginning Backfill Of Excavation. If The Permanent Patch Placement Is To Be A Separate Operation, The Contractor Shall Also Notify The Montgomery County Engineering Department 24 Hours Prior To Placement Of Patch.
- 5.) The Contractor Shall Be Responsible For Maintaining And Repairing Any And All Open Cuts Permitted Within Montgomery County For A Period Of One Year Upon Final Acceptance By The County.
- 6.) Trench Backfill And Pavement Restoration Shall Be Conducted In A Prompt Manner.

REQUIRED CASING PIPE SIZE AND THICKNESS		
CARRIER PIPE O.D. (Inches)	CASING PIPE	
	I.D. (Inches)	THICKNESS (Inches)
≤ 4"	6"	0.25"
> 4" ≤ 6"	8"	0.25"
> 6" ≤ 10"	12"	0.25"
> 10" ≤ 12"	18"	0.25"
> 12" ≤ 20"	24"	0.312"
> 20"	Consult The Montgomery Engineering Department	

PAVEMENT RESTORATION TABLE	
UTILITY DEPTH RANGE (FEET)	MAXIMUM TRENCH WIDTH AT FINISHED GRADE, W (FEET)
0 To 5	I. D. +5
5 To 8	I. D. +8
8 To 10	I. D. +10
10 To 12	I. D. +12
12 To 14	I. D. +14
14 To 16	I. D. +16
16 To 18	I. D. +18
18 To 20	I. D. +20

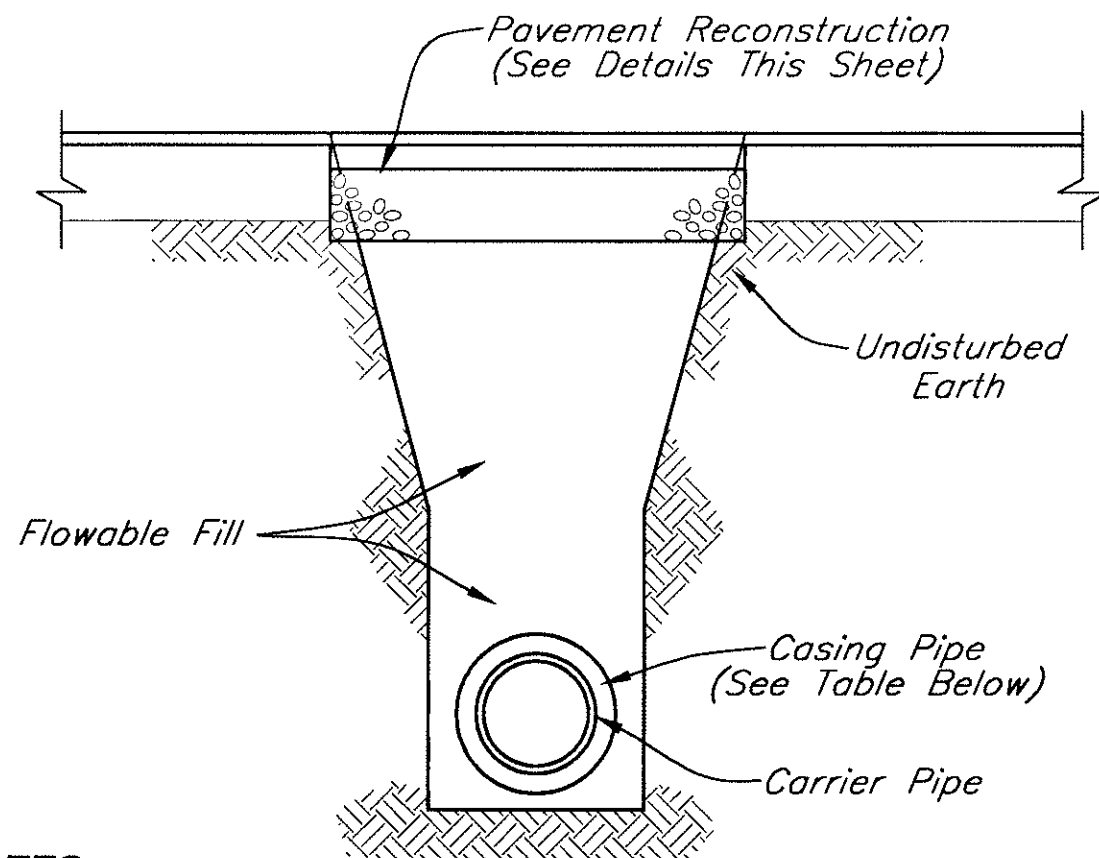
I.D. = Casing Pipe Inside Diameter



NOTES

1. Saw Cuts Shall Provide A Vertical, Neat And Uniform Edge.
2. All Materials Shall Comply With Specifications As Required By The Montgomery County Engineering Department.
3. The Contractor Shall Seek Direction From The Montgomery County Engineering Department As To The Required Thickness Of The Compacted Aggregate Base.
4. Temporary Repair Patch Is Required When Restoration Work Occurs Between November 15 And April 15.

FOR TEMPORARY REPAIR PATCH

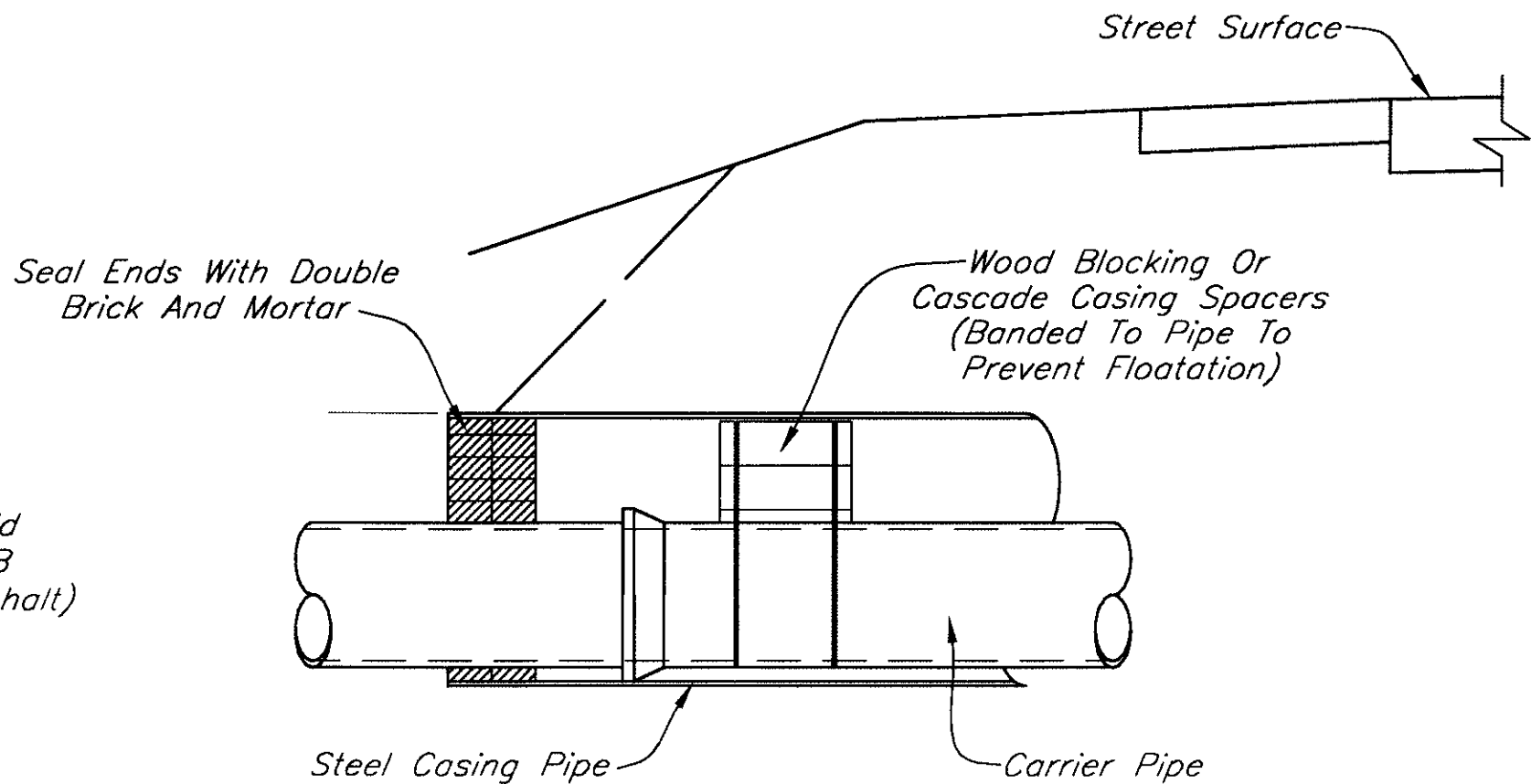


NOTES

1. Trench Spoil Is To Be Removed From The Work Site And Disposed Of Out Of The Right-Of-Way.
2. Flowable Fill Is To Be Poured Into The Trench To Serve As Backfill, To The Dimensions And Specifications Listed In This Detail.
3. The Flowable Fill Mix Design Shall Have Been Previously Reviewed And Approved By The Montgomery County Engineering Department.
4. The Compressive Strength Of The Flowable Fill Shall Not Be Less Than 50 PSI Nor Greater Than 100 PSI At 28 Days.
5. When Type I Trench Backfill Is Used, The Existing Paved Surface Is Not Required To Be Over-Cut 2 Feet Minimum Each Side. Provide A Vertical, Neat Saw-Cut Edge.
6. Flowable Fill Shall Be Mixed And Placed As Specified In The Latest Standard INDOT Specifications, Section 213.

TRENCH BACKFILL - TYPE I  
FLOWABLE FILL DETAIL

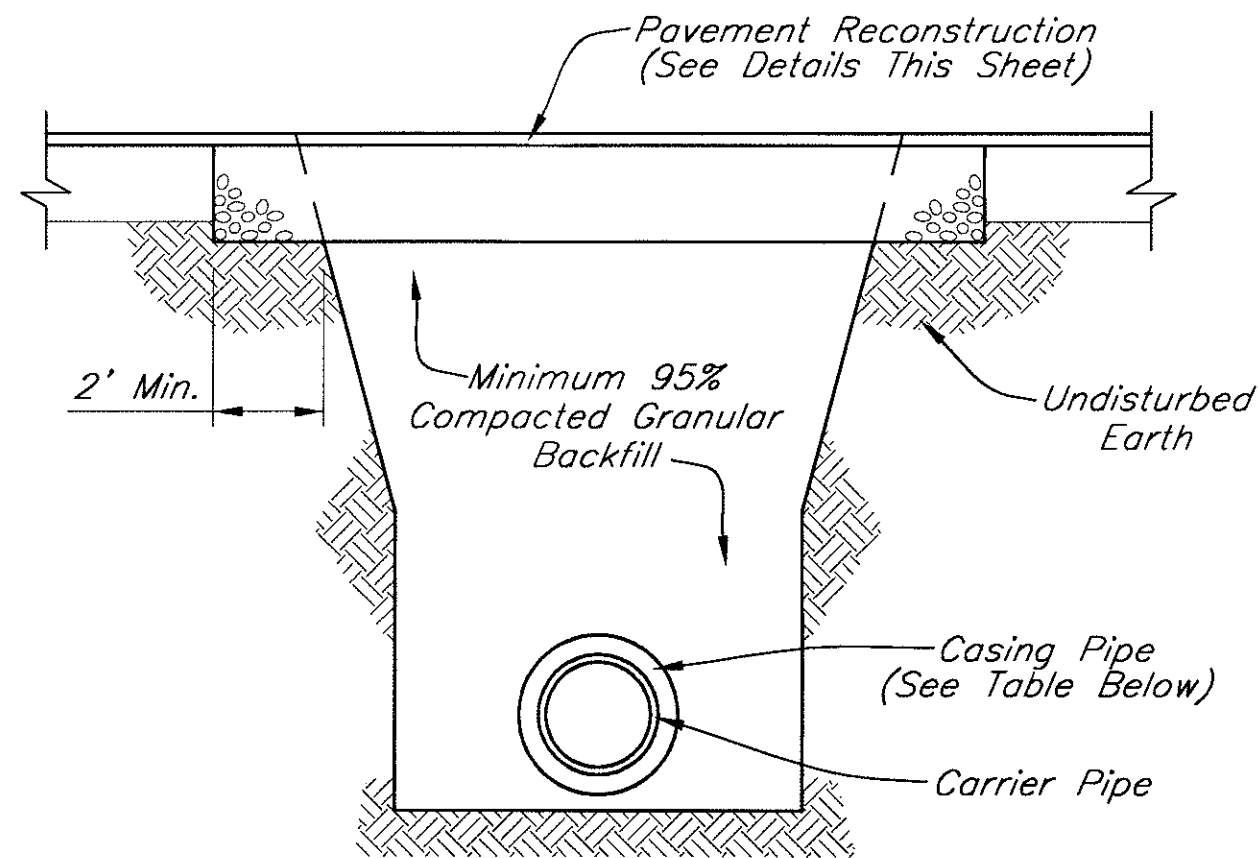
Scale: None



TYPICAL STREET CASING DETAIL

Scale: None

- 1.) Bored Or Jacked Crossings Require Intimate Knowledge Of Site Conditions; Therefore, Construction Is Subject To Certified Special Provisions Prepared By The Design Engineer.
- 2.) Casings Depicted Hereon Do Not Necessarily Comply With INDOT Permit Requirements, But Are Intended To Be Used For Crossings Of Public Roads Under The Jurisdiction Of Montgomery County When Open Cut Of Such Roads Is Not Permitted.

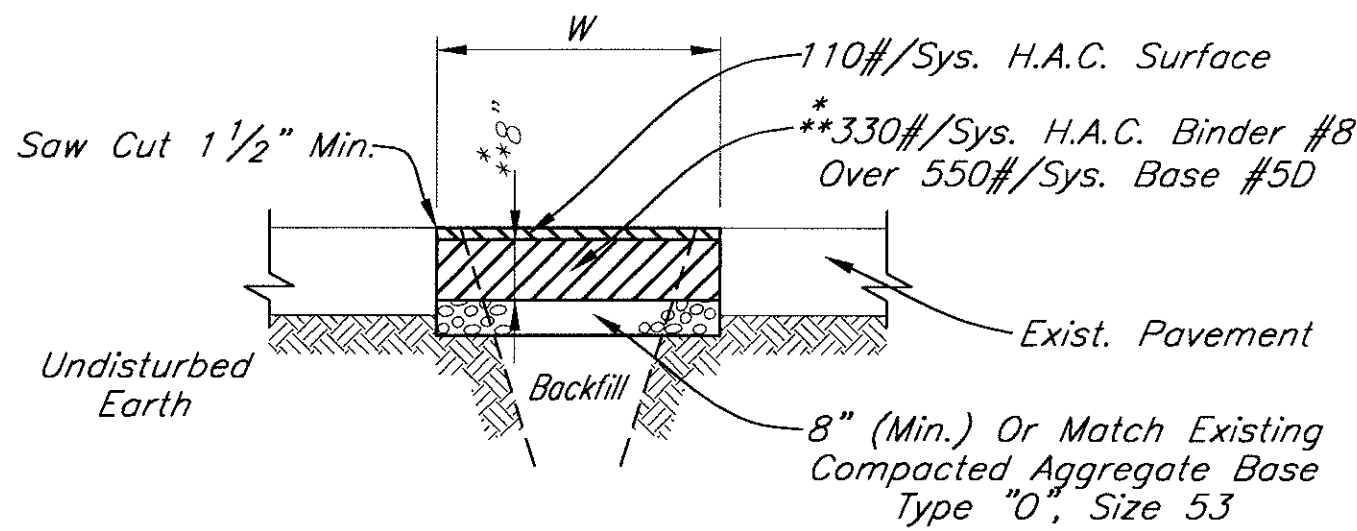


NOTES

1. Saw Cut Existing Pavement Saw So That Cut Provides A Vertical, Neat And Uniform Edge.
2. Trench Spoil Is To Be Removed From The Work Site And Disposed Of Out Of The Right-Of-Way.
3. Contractor Shall Place Backfill In 6 Inch Loose Lifts. Each Lift Shall Be Compacted To 95% Of Maximum Dry Density.

TRENCH BACKFILL - TYPE II  
GRANULAR FILL DETAIL

Scale: None



\* If Existing Pavement Is Thicker Than 8", An Additional Lift Of Base #5 Is To Be Used To Match The Existing Pavement Thickness.

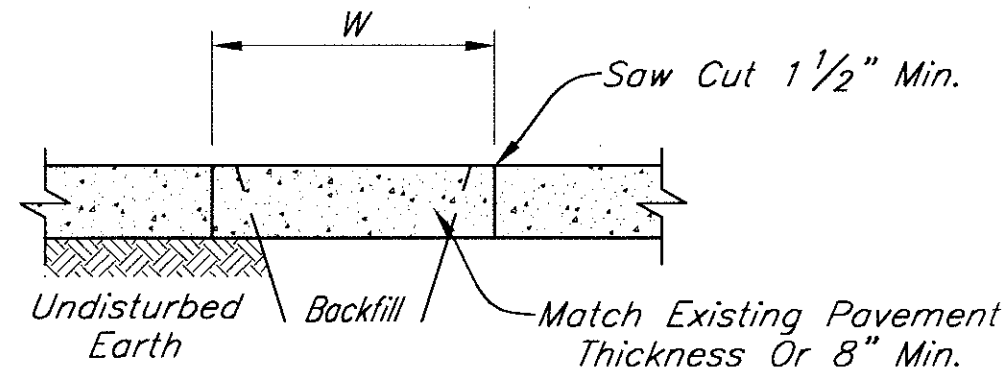
\*\* For Collector, Arterial And Industrial Streets, Contractor Shall Increase Asphalt Base #5 Thickness To Obtain A Total Pavement Thickness Of 10".

NOTES

1. Saw Cuts Shall Provide A Vertical, Neat And Uniform Edge.
2. All Materials Shall Comply With Specifications As Required By The Montgomery County Engineering Department.
3. The Existing Vertical Edge Of Pavement Is To Be Tack Coated Prior To The Laying Of New Asphalt. Tack Coat Is To Be Applied As Specified In The Latest Standard INDOT Specifications, Sections 406 And 902.
4. The New Surface Pavement Grade Shall Match The Existing Surface Pavement Grade.
5. A 2 (Two) Inch Wide Band Of Crack Sealant Is To Be Applied Along The Joint Between The Existing And New Asphalt Surface. Sealant Is To Be Applied In Accordance With INDOT Specifications, Section 305.
6. Refer To Pavement Restoration Table For W.

BITUMINOUS PATCH

Scale: None



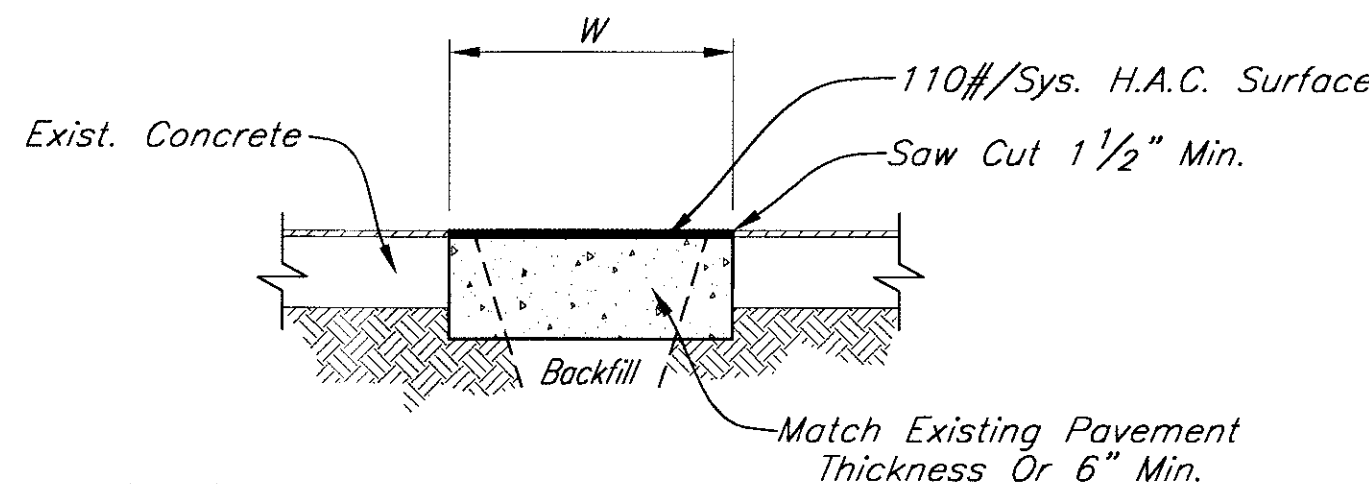
NOTES

1. Saw Cuts Shall Provide A Vertical, Neat And Uniform Edge.
2. All Materials Shall Comply With Specifications As Required By The Montgomery County Engineering Department.
3. Surface Of Repair Shall Be Broom Finish At Right Angles To Traffic Flow.
4. All Concrete Shall Be Air Entrained (5%±1%)—6 Bags Per Cubic Yard, Minimum 4000 PSI Compressive Strength Concrete.
5. Contractor Shall Contact The Montgomery County Engineering Department To Determine If Anchors Are Required On Existing Concrete Pavement Repairs.
6. Refer To Pavement Restoration Table For W.

CONCRETE PATCH

Scale: None

FOR CUTS WITHIN CONCRETE STREETS



NOTES

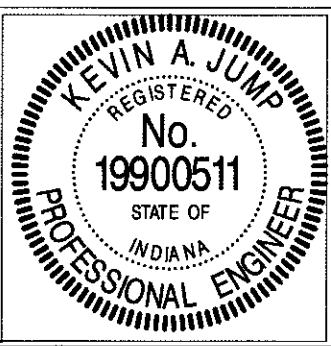
1. Saw Cuts Shall Provide A Vertical, Neat And Uniform Edge.
2. All Materials Shall Comply With Specifications As Required By The Montgomery County Engineering Department.
3. Concrete Surface Shall Be Broom Finish At Right Angles To Traffic Flow.
4. All Concrete Shall Be Air Entrained (5%±1%)—6 Bags Per Cubic Yard Minimum 4000 PSI Compressive Strength Concrete.
5. Contractor Shall Contact The Montgomery County Engineering Department To Determine If Anchors Are Required On Existing Concrete Pavement Repairs.
6. The Concrete Pavement And The Existing Vertical Edge Of Pavement Are To Be Tack Coated Prior To The Laying Of New Asphalt. Tack Coat Is To Be Applied As Specified In The Latest Standard INDOT Specifications, Sections 406 And 902.
7. The New Surface Pavement Grade Shall Match The Existing Surface Pavement Grade.
8. A 2 (Two) Inch Wide Band Of Crack Sealant Is To Be Applied Along The Joint Between The Existing And New Asphalt Surface. Sealant Is To Be Applied In Accordance With INDOT Specifications, Section 305.
9. Refer To Pavement Restoration Table For W.

CONCRETE W/BITUMINOUS SURFACE PATCH

Scale: None

FOR CUTS WITHIN BITUMINOUS STREETS

REVISIONS		
Rev. No.	Description	Date



RECOMMENDED FOR APPROVAL	DESIGN ENGINEER	12/2/00
APPROVED	MONTGOMERY COUNTY COMMISSIONER	12/5/00
APPROVED	MONTGOMERY COUNTY COMMISSIONER	12-5-00
APPROVED	MONTGOMERY COUNTY COMMISSIONER	12/5/00

MONTGOMERY COUNTY

STREET CUT DETAILS

SHEET

5

OF

8

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

- 1.) Requirements For Test Methods, Dimensions And Markings Are Those Found In A.A.S.H.T.O. Specifications M-252 And M-294.
- 2.) 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.
- 3.) Minimum Pipe Stiffness Values Shall Be In Accordance With A.A.S.H.T.O. Specifications M-294.
- 4.) The H.D.P.E. Corrugated Pipe Shall Have An Integrally Formed Smooth Interior.
- 5.) Male And Female Pipe Ends Which Allow The Construction Of Overlapping, Gasket Joints, Shall Be Made In Conformance With ASTM D-3212. Neoprene Gaskets Shall Meet ASTM F-477.
- 6.) Installation Shall Be In Accordance With ASTM Recommended Practice D-2321.
- 7.) H.D.P.E. Pipe Less Than 12 Inches In Diameter Or Greater Than 18 Inches In Diameter Shall Not Be Allowed For Use In The Montgomery County, Without Written Approval From The Montgomery County Engineering Department.
- 8.) H.D.P.E. Pipe 12 Inches Through 18 Inches In Diameter May Be Used Within The Public Right-Of-Way Subject To The Bedding Requirements For Flexible Pipe.

STORM SEWER H.D.P.E. PIPE TELEVISING

- 1.) Closed Circuit Television Inspection Shall Be Performed On All Flexible Pipe Installed Within The Montgomery County For The Purposes Of Conveying Storm Water.
- 2.) The Montgomery County Engineering Department Shall Be Given A 48 Hour Written Notice Of The Required Televising Procedure To Be Performed By The Contractor. A Camera Equipped With Remote Control Devices To Adjust The Light Intensity And 1,000 Linear Feet Of Sewer Cable Shall Be Provided. The Camera Shall Transmit A Continuous Image To The Television Monitor As It Is Being Pulled Through The Pipe. The Image Shall Be Clear Enough To Enable The Montgomery County Engineering Department And Others Viewing The Monitor To Easily Evaluate The Interior Condition Of The Pipe. The Camera Shall Stamp The Video Tape With Linear Footage And Project Number. An Audio Voice-Over Shall Be Made During The Inspection Identifying Any Problems.
- 3.) The Pipe Shall Be Thoroughly Cleaned Before The Camera Is Installed And Televising Is Commenced.
- 4.) If Any Pipe And/Or Joint Is Found To Be Faulty, The Contractor Shall Repair That Portion Of The Work To The Satisfaction And Approval Of The Montgomery County Engineering Department.
- 5.) The VHS Tape Of The Entire Sewer Line And Reproduction Map Indicating The Pipe Segment Numbers Of All The Pipe That Has Been Televised, Shall Be Submitted To The Montgomery County Engineering Department For Their Records. The Contractor Shall Submit VHS Tape(s) Within 30 Days Of Successful Completion Of All Testing And Within 30 Days Of Successful Completion Of All Testing Requirements.

STORM SEWER H.D.P.E. DEFLECTION TESTING

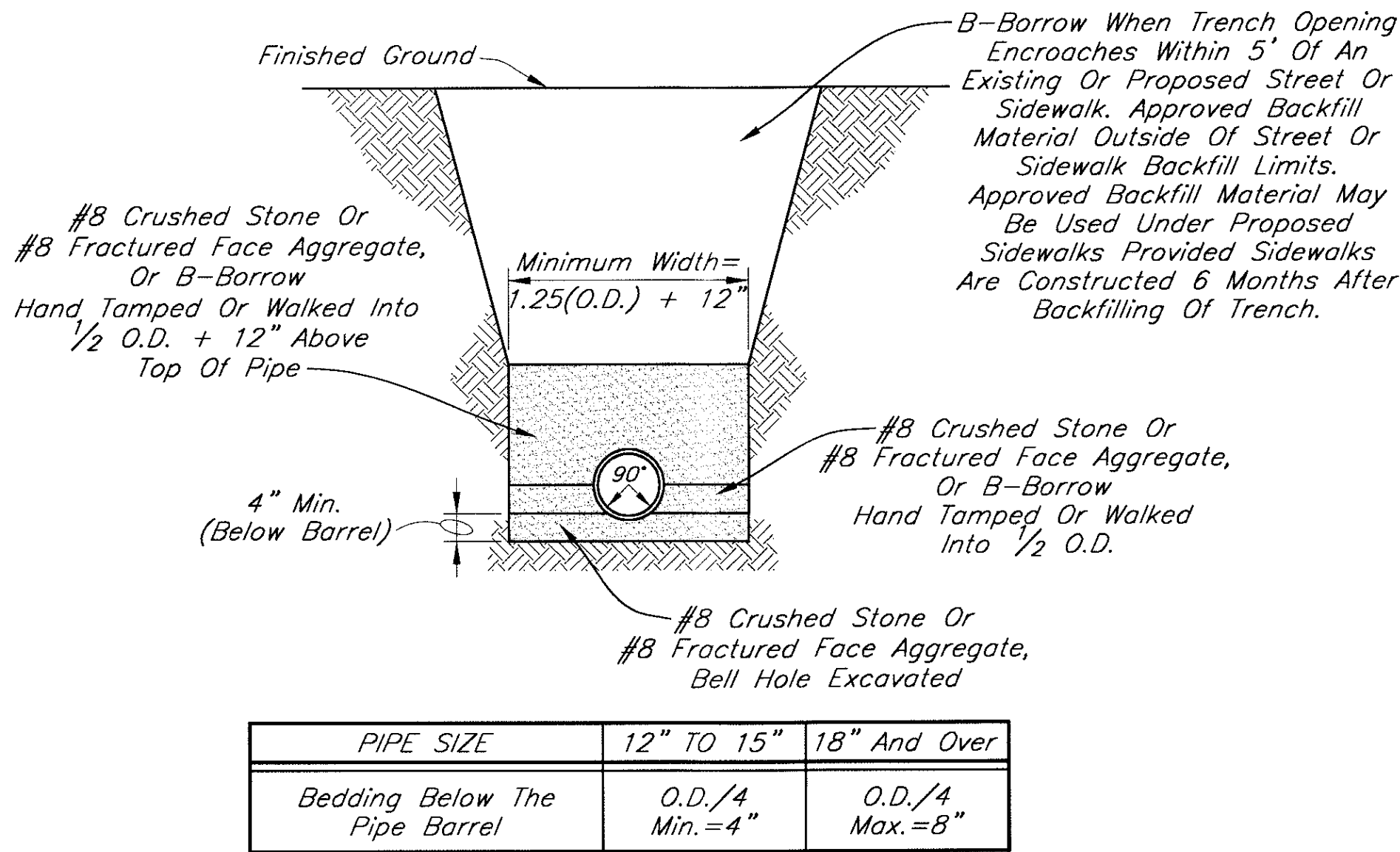
- 1.) The Montgomery County Engineering Department Shall Be Given A 48 Hour Written Notice Of The Required Deflection Testing Procedure To Be Performed By The Contractor. An In-Place Deflection Test Shall Be Performed On All Flexible Storm Sewer Pipe Installed Within Montgomery County With Manholes At End Of The Pipe Run. Deflection Testing Shall Not Be Required For Pipe Runs With Inlets Or Catch Basins On One End Of The Pipe Run. An Allowable Deflection Of 5 Percent Internal Pipe Diameter Will Be Acceptable After All Backfilling Has Been In Place For 30 Days. A Nine-Point, "Go-No-Go" Mandrel Shall Be Used For The Deflection Test. A Proving Ring Shall Be Provided For Each Mandrel.
- 2.) All Pipe Exceeding The Allowable Deflection Shall Be Replaced Or Rerounded. The Replaced Or Rerounded Section Shall Be Retested 30 Days After Replacement Or Rerounding. The Contractor Shall Bear All Costs For Testing And Testing Equipment. The "Go-No-Go" Mandrel Shall Be Manually Pulled Without The Use Of Any Winching Or Other Mechanical Device.

STORM SEWER REINFORCED CONCRETE PIPE

- 1.) Reinforced Concrete Pipe Shall Be Class III, IV, Or V As Specified In ASTM C-76.
- | DEPTH OF FILL OVER PIPE     | CLASS |
|-----------------------------|-------|
| 2 Feet Or Less              | V     |
| Between 2 Feet And 10 Feet  | III   |
| Between 10 Feet And 16 Feet | IV    |
| 16 Feet 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  |
|---------------------------|--------|
| 3 Feet Or Less            | HE-IV  |
| Between 3 Feet And 8 Feet | HE-III |
- 3.) Lift Holes Are Not Allowed For Pipe 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 In Accordance With The Most Recent INDOT Standard Specifications.
- 4.) Fittings And Specialties Shall Be In Accordance With The Specifications For The Type Of Pipe Being Used.
- 5.) Each Pipe Section Shall Be Marked With Date Of Manufacturer, Size And Class Of Pipe, Specification Designation, Manufacturer And Plant Identification.
- 6.) 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.

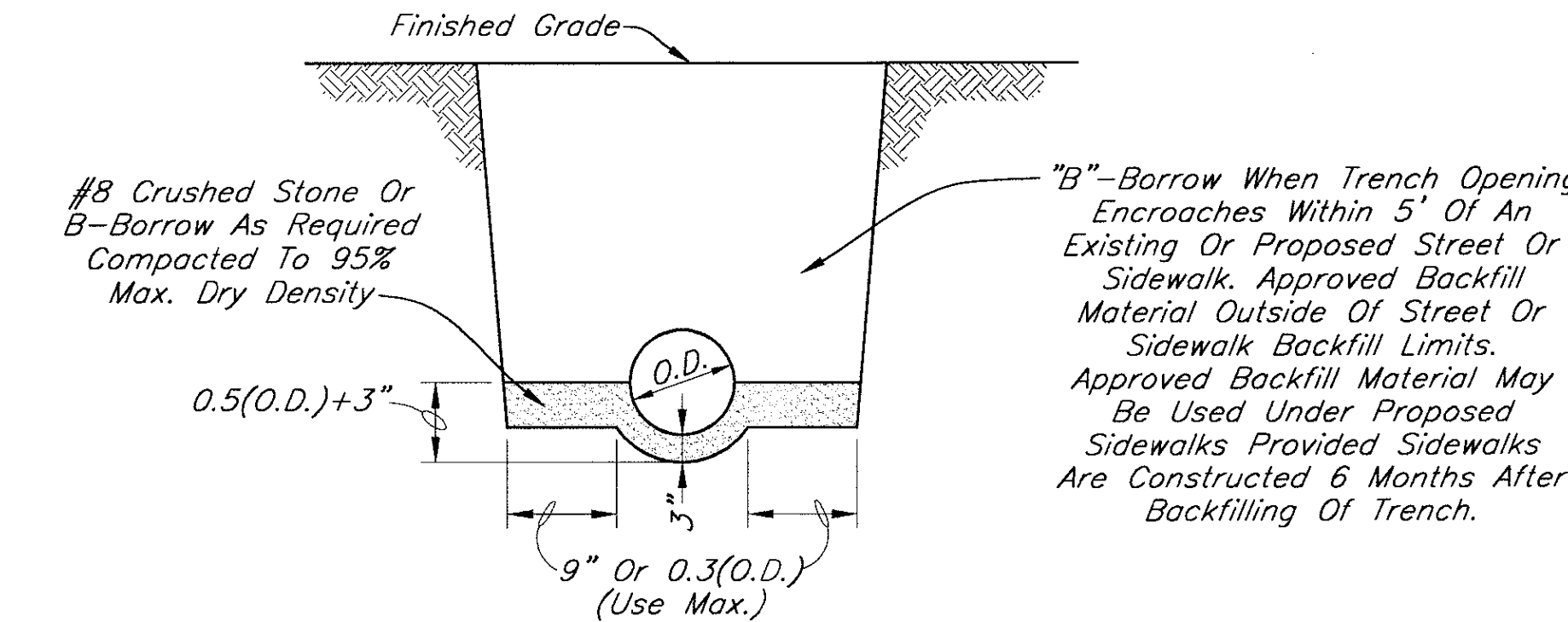
STORM SEWER GENERAL NOTES

- 1.) Storm Sewer Pipe Of Other Material Or Material Not Meeting These Specifications Shall Require The Prior Written Approval Of The Montgomery County Engineering Department.
- 2.) The Contractor Shall Submit Information To The Montgomery County Engineering Department Showing Conformance With These Specifications Upon Request.
- 3.) Contractor Shall Allow The Montgomery County Engineering Department The Opportunity To Inspect The Installation Of The Pipe And Bedding Material Prior To Proceeding With Backfilling An Open Trench. The Montgomery County Engineering Department Shall Be Given 48 Hours Notice Of The Contractor's Intent To Install Storm Sewer Piping And Structures.
- 4.) The Smallest Permissible Storm Sewer Pipe Diameter Is 12 Inches.
- 5.) Drawings And Calculations For Runoff, Retention And Discharge Rates Shall Be Provided To The Montgomery County Building Administrator And The Montgomery County Engineering Department For Drainage Review By The Montgomery County Drainage Board. Drawings And Calculations Shall Be Certified By Either A Registered Professional Engineer Or A Registered Land Surveyor.
- 6.) All Projects With Storm Sewer Systems Must Be Approved By The Montgomery County Drainage Board, As Indicated By Signature.
- 7.) As-Built Drawings Shall Be Submitted To The Montgomery County Engineering Department For Their Records, In Both Paper And Electronic Format. An Acceptable Form Of Electronic Format Is Autocad-Release 14. Contractor Shall Submit As-Built Drawings Within 30 Days Of Successful Completion Of All Testing Requirements.
- 8.) Prior To Construction, Detailed Erosion Control Drawings Shall Be Submitted To The Montgomery County Engineering Department. Said Drawings Shall Clearly Illustrate The Location Of All Erosion Control Measures. Erosion Control Measures Shall Be Used To Protect Natural Waterways And Storm Sewer Collection Systems From Sediment And Foreign Debris. No Work Permitted Without Written Approval Of An Erosion Control Plan.



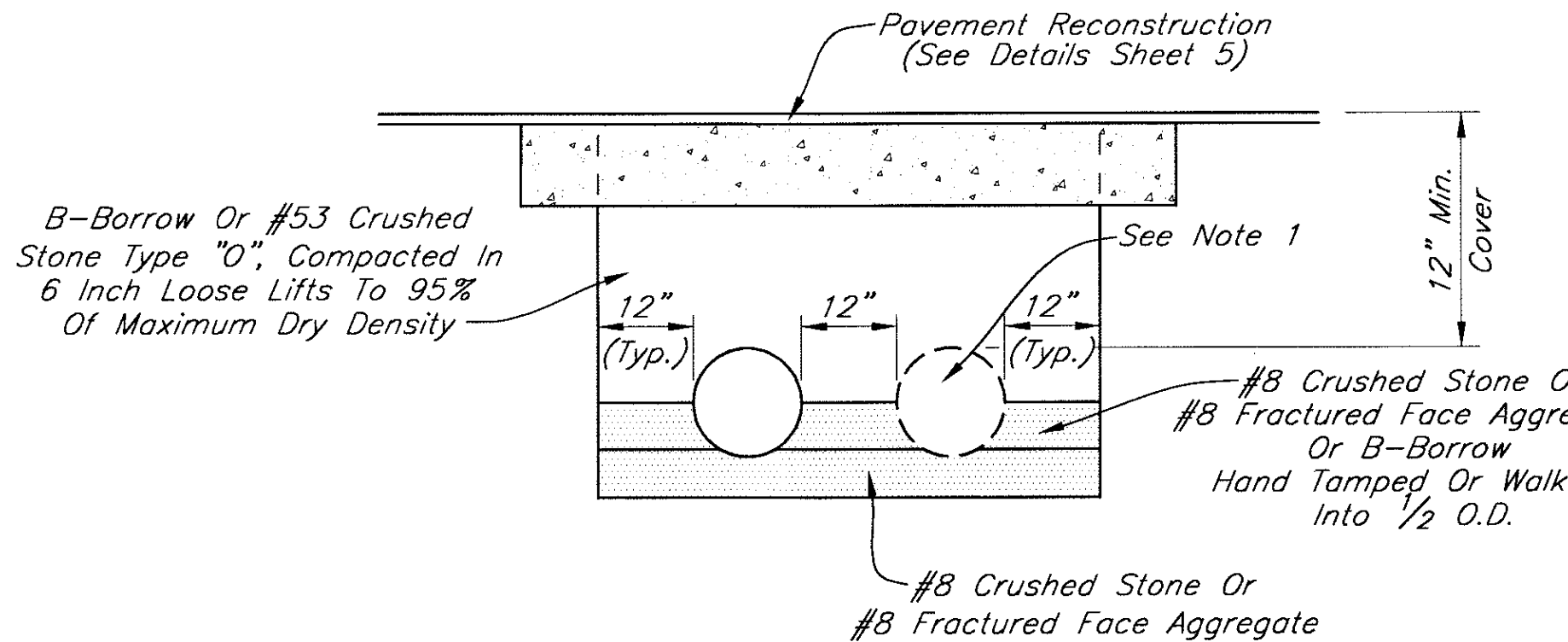
FLEXIBLE (HDPE) PIPE BEDDING DETAIL

Scale: None



RCP PIPE BEDDING DETAIL

Scale: None



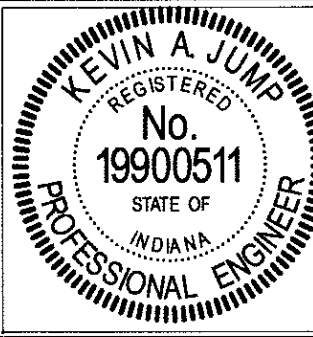
NOTES

1. A Second Storm Culvert Pipe Shall Be Installed, When Required By The Montgomery County Engineering Department.
2. Storm Culvert Pipe Shall Be RCP Or CMP-16 Gauge, Or As Directed By The Montgomery County Engineering Department.
3. For Storm Culvert Pipe Sizes (I.D.) Larger Than 12", Consult The Montgomery County Engineering Department.

SHALLOW STORM CULVERT PIPE DETAIL

Scale: None

REVISIONS		
Rev. No.	Description	Date



RECOMMENDED FOR APPROVAL	DATE
APPROVED	DATE
APPROVED	DATE
APPROVED	DATE

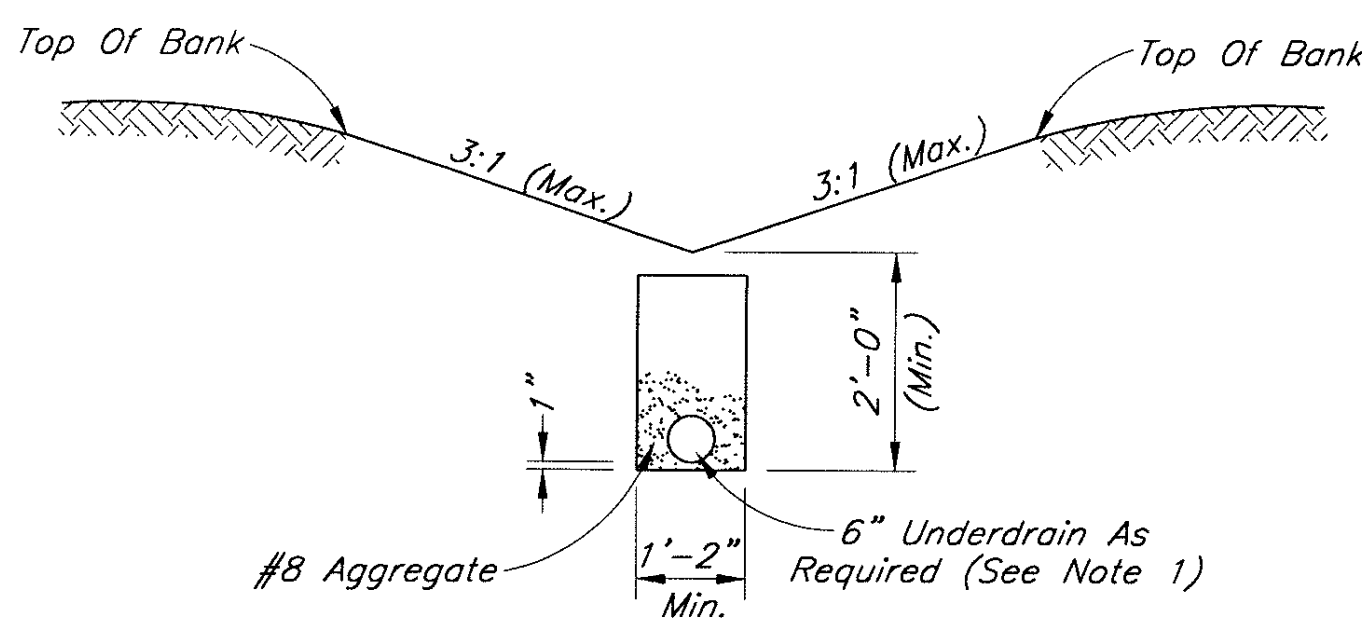
MONTGOMERY COUNTY	SHEET
STORM SEWER BEDDING DETAILS AND NOTES	6 OF 8



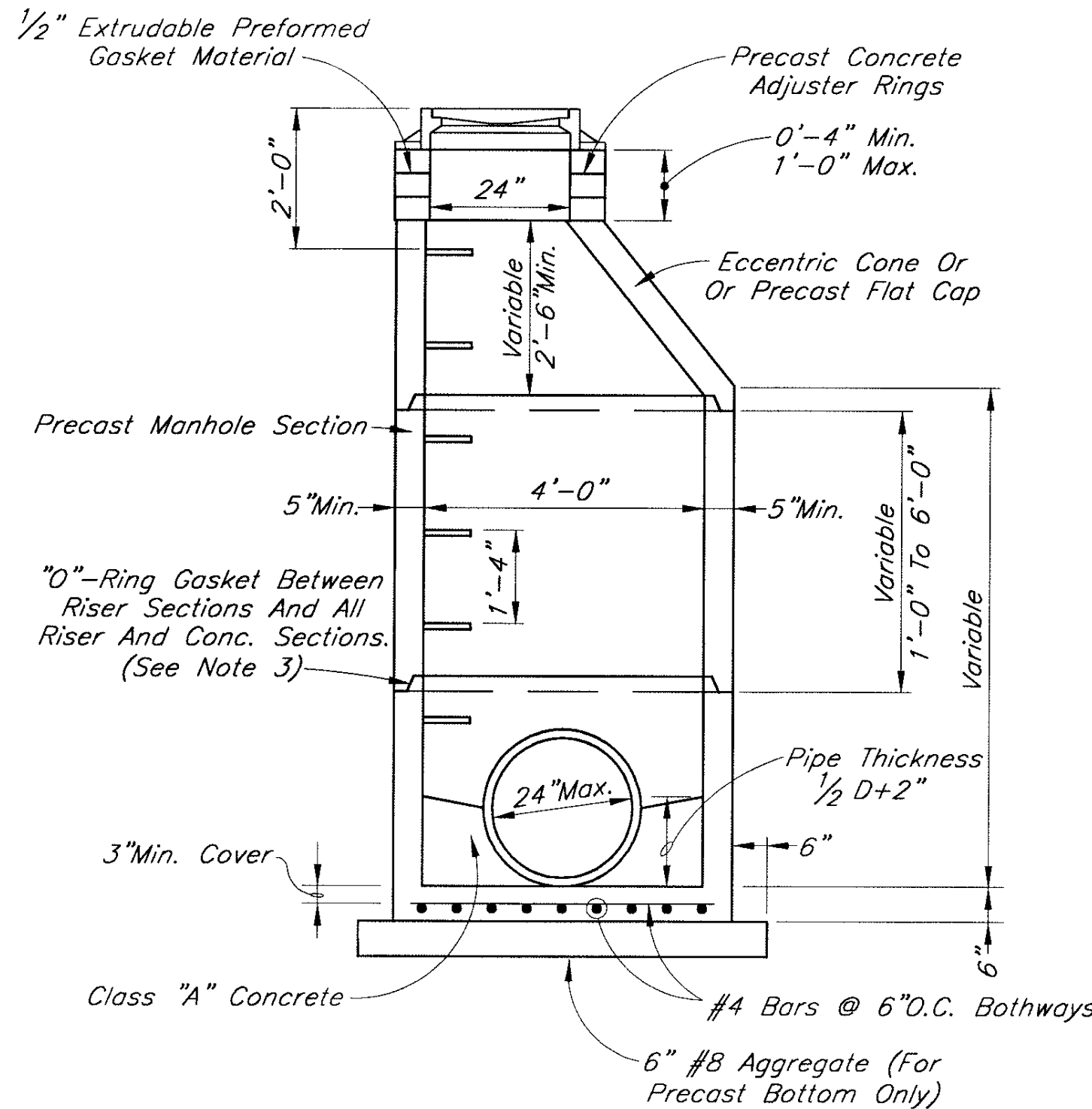
# **GENERAL NOTES**

- Construction Of Drainage Swales Shall Comply With The Detail Shown On This Sheet And Shall Only Be Permitted When Complying With The Following Criteria:
 

TYPE OF DEVELOPMENT	DITCH GRADE WITH UNDERDRAIN, %	DITCH GRADE WITHOUT UNDERDRAIN, %
Residential	0.3 to 0.99	1.0 and Greater
Commercial/Industrial	0.5 to 0.99	1.0 and Greater
- Type J, K, L, M And N Manholes As Detailed Herein Require A Certain Minimum Depth. In Cases Where The Depth Of The Storm Sewer Is Not Sufficient To Meet The Minimum Depth As Required By The Detail, "F" Diameter Manhole Section May Be Used Throughout The Depth Of The Manhole.
- Manholes Shall Conform To ASTM C-478. Joints Shall Conform To ASTM C-443. The Use Of Cast-In-Place Concrete Structures Shall Require The Prior Written Approval Of The Montgomery County Engineering Department. Regardless Of The Type Of Casting Used, The Casting Shall Be Centered Over The Manhole Steps.
- Manholes Shall Be Installed At Distances Not Greater Than 400 Feet. Inlets Or Catch Basins Shall Be Installed At Distances Not Greater Than 400 Feet.
- Manhole Steps Shall Be Neenah R-1981-J, East Jordan No. 8512, M.A. Industries PS 1-PF, Or As Approved By The Montgomery County Engineering Department.
- Castings Which Drain Roll Curb And Gutter, Type I Curbing Shall Be Neenah R-3501-TR Or R-3501-TL, East Jordan No. 7495M1 Or 7495M2 Or As Approved By The Montgomery County Engineering Department. Catch Basin Type A Or Inlet Type A Required. Manholes Shall Not Be Used To Drain Type I Curbing Type I Inlet/Catch Basin Castings Shall Not Be Located In Front Of Private Drives.
- Castings Which Drain Combined Curb And Gutter, Type II Curbing Shall Be Neenah R-3246-F, East Jordan No. 7030 With M2 Crate And Type T1 Back Or As Approved By The Montgomery County Engineering Department. Catch Basin Type B Or Inlet Type B Required. Manholes Shall Not Be Used To Drain Type II Curbing.
- Castings For Inlets Which Drain Open Pavement Areas Without Curbing Shall Be Neenah R-3405, East Jordan No. 5250 Or As Approved By The Montgomery County Engineering Department.
- Castings For Manholes Which Drain Open Pavement Areas Without Curbing Shall Be Neenah R-1772-C, East Jordan No. 1022-2 Or As Approved By The Montgomery County Engineering Department.
- Castings For Use On Inlets Or Manholes Which Drain Swales Or Dry Bottom Detention Basins Shall Be Neenah R-4342, East Jordan No. 6489 Or As Approved By The Montgomery County Engineering Department.
- Castings For Manholes Which Do Not Drain Surface Water Shall Be Neenah R-1772-C, East Jordan No. 1022-2 Or As Approved By The Montgomery County Engineering Department. All Covers Shall Be Stamped "STORM SEWER" With 2" Raised Letters.
- Manholes Which Connect Catch Basins/Inlets And Mainline Sewer Shall, As A Minimum, Be Located At Each Street Intersection.
- Mainline Pipe Shall Not Connect To Catch Basins Or Inlets. Catch Basins Are Required And Shall Only Be Used Immediately Upstream Of Mainline Manhole Connections. Connections To Mainline Pipe Shall Occur At A Manhole. Mainline Pipe Is Pipe Downstream Of A Single Set Of Inlets/Catch Basins Or Any Pipe Larger Than Or Equal To 15-Inch Diameter Which Drains One Swale Inlet. Pipe Which Drains A Swale Inlet May Be Connected To Inlets When The Invert Depth Is Not Greater Than That Shown On Inlet Detail.
- The Contractor Shall Remove Soils Under A Precast Bottom, Which In Its Natural State, Have Good Bearing Strength And Which Have Had Its Characteristics Adversely Changed By The Contractor's Operations And Replace With 6 Inches Of #2 Stone.
- For Type C Manholes, The Base And First Riser Section Of The Precast Concrete Manhole Shall Be Integrally Cast As One Complete Unit.

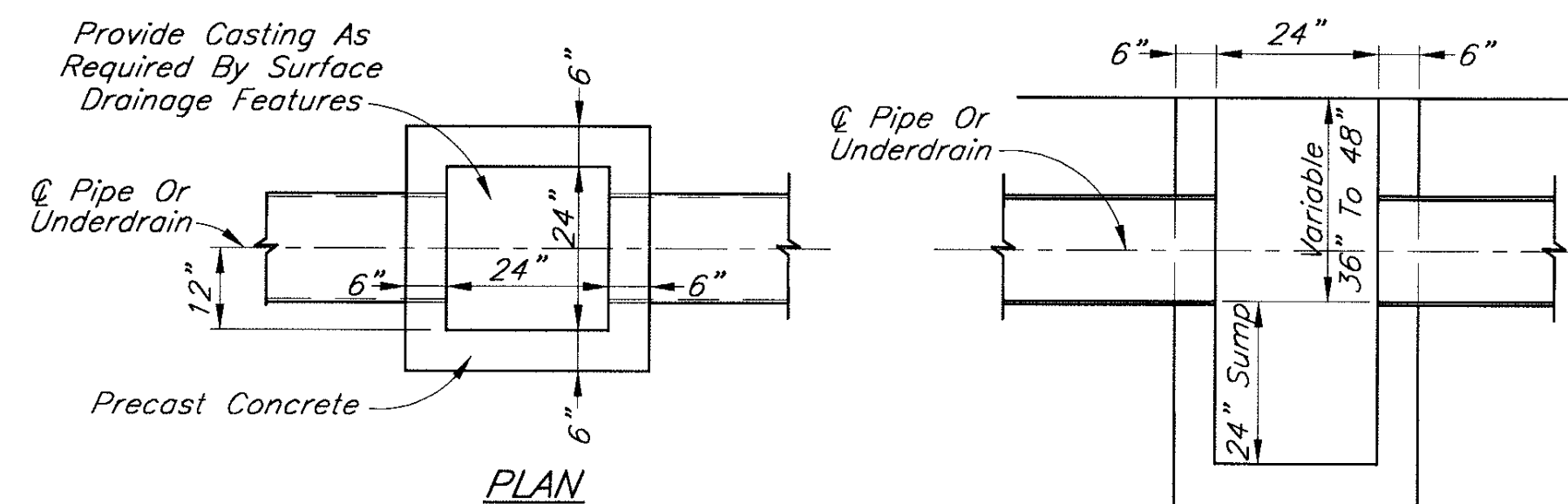


**SWALE UNDERDRAIN DETAIL**  
Scale: 1/2"=1'-0"

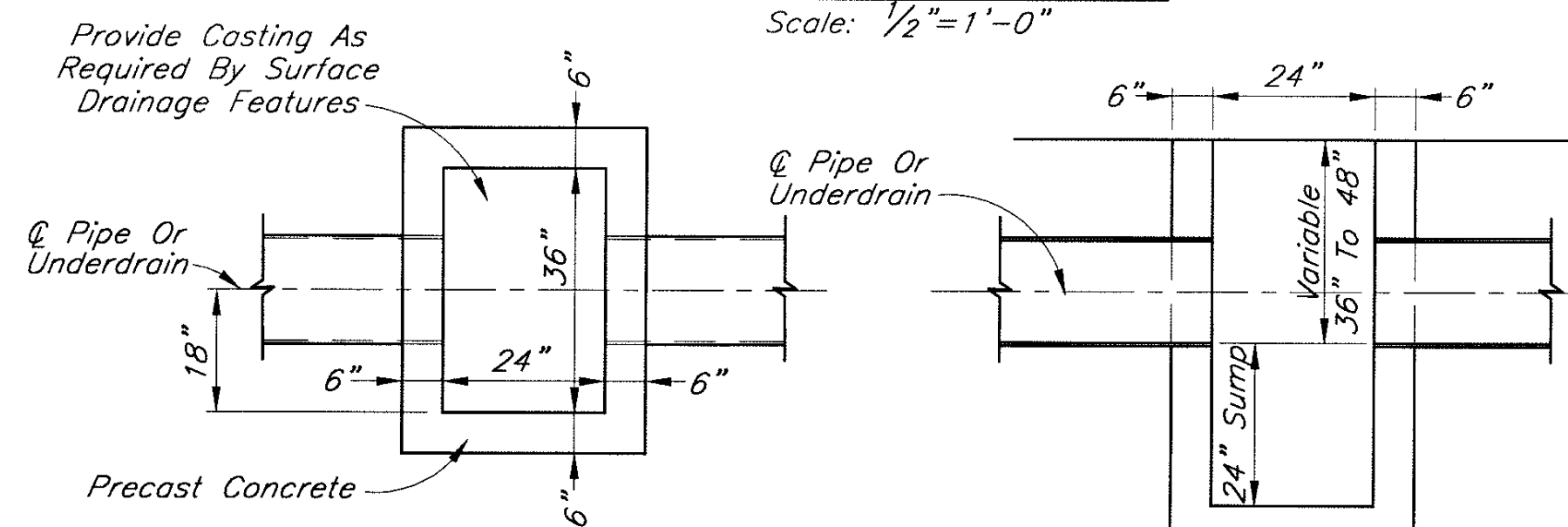


MAXIMUM PIPE SIZE	
Pipe Entering / Pipe Exiting At 0°-45° Bend	Pipe Entering / Pipe Exiting At 45°-90° Bend
24"	21"

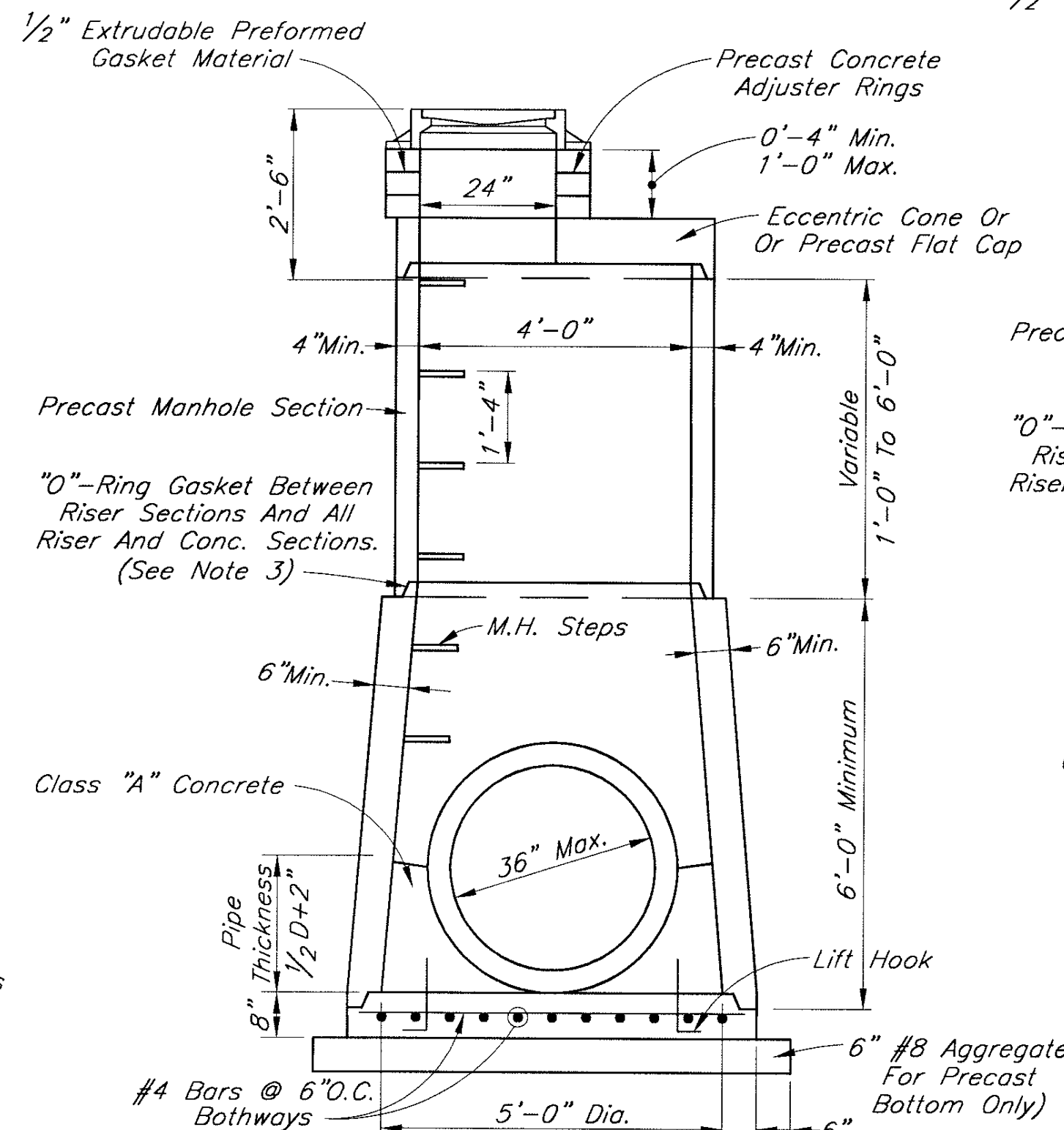
**MANHOLE TYPE C**  
Scale: 1/2"=1'-0"



**CATCH BASIN, TYPE A**  
Scale: 1/2"=1'-0"

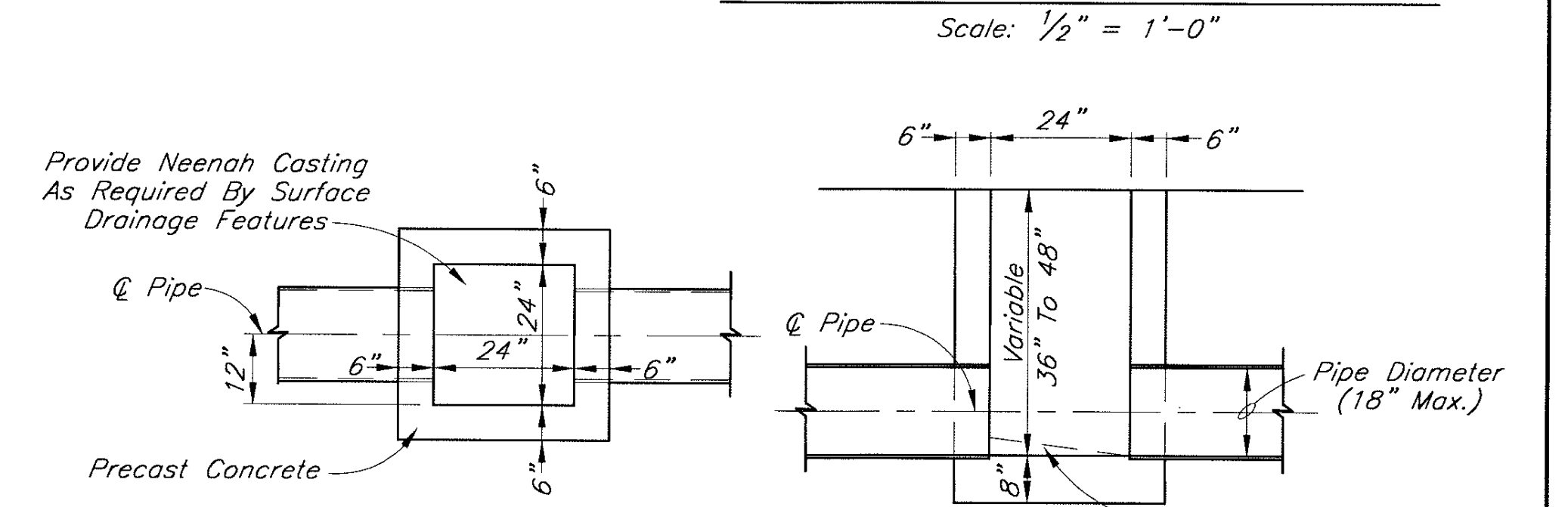


**CATCH BASIN, TYPE B**  
Scale: 1/2"=1'-0"

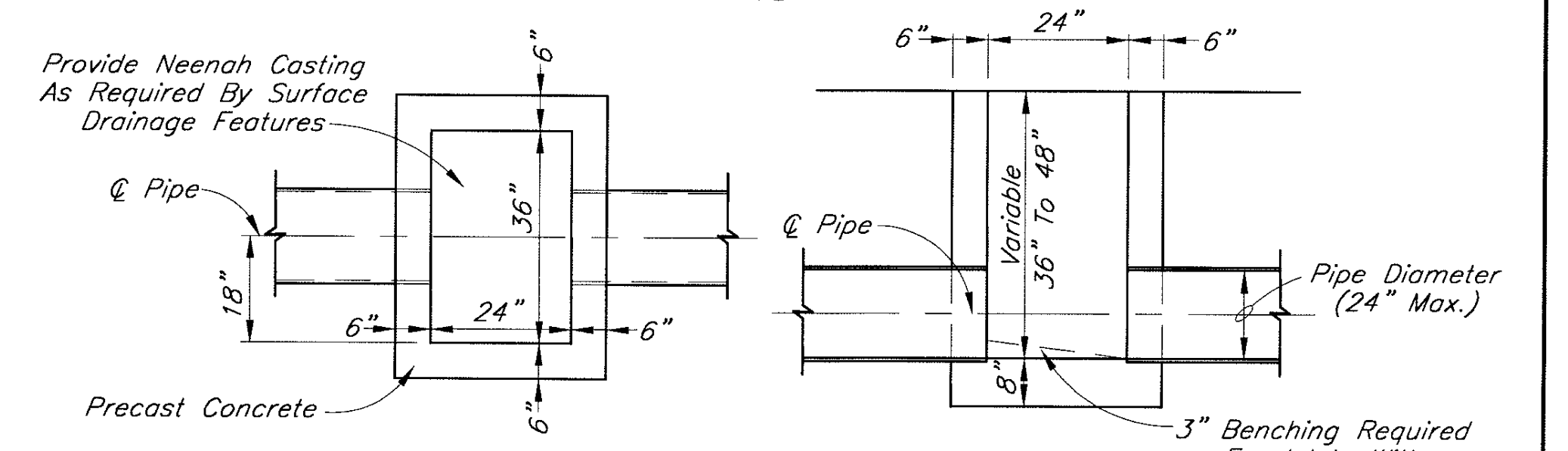


MAXIMUM PIPE SIZE	
Pipe Entering / Pipe Exiting At 0°-45° Bend	Pipe Entering / Pipe Exiting At 45°-90° Bend
36"	30"

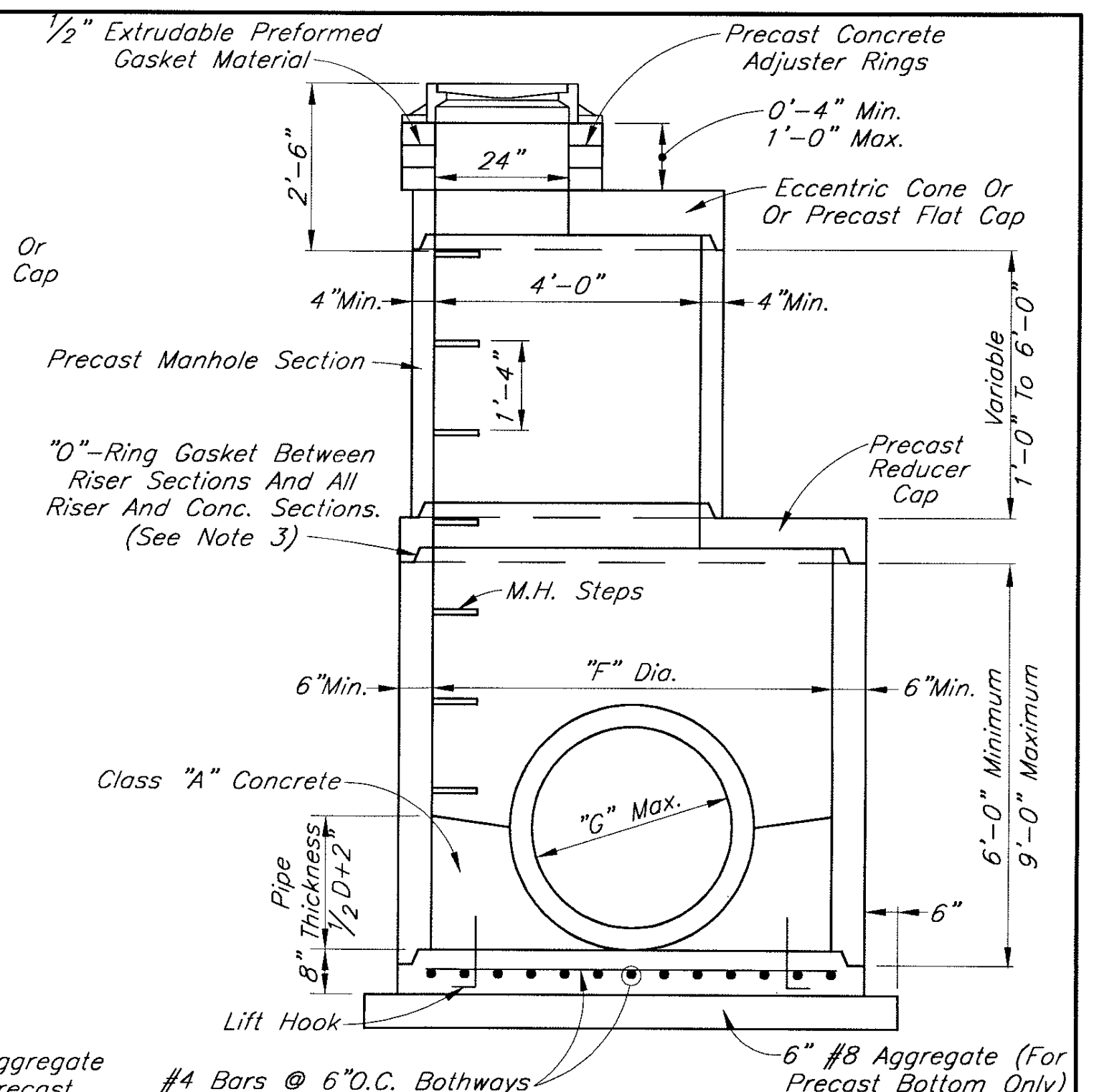
**MANHOLE TYPE H**  
Scale: 1/2"=1'-0"



**INLET, TYPE A**  
Scale: 1/2"=1'-0"



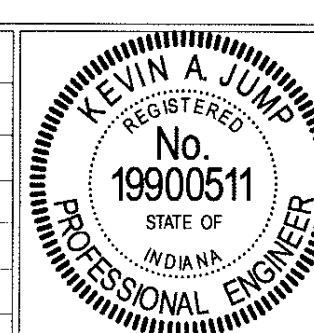
**INLET, TYPE B**  
Scale: 1/2"=1'-0"



Manhole Type	Manhole Diameter "F"	MAXIMUM PIPE SIZE "G"	
		Pipe Entering / Pipe Exiting At 0°-45° Bend	Pipe Entering / Pipe Exiting At 45°-90° Bend
J	60"	36"	33"
K	72"	48"	36"
L	96"	54"	48"
M	102"	72"	66"
N	108"	84"	72"

**MANHOLES- TYPE J, K, L, M & N**  
Scale: 1/2"=1'-0"

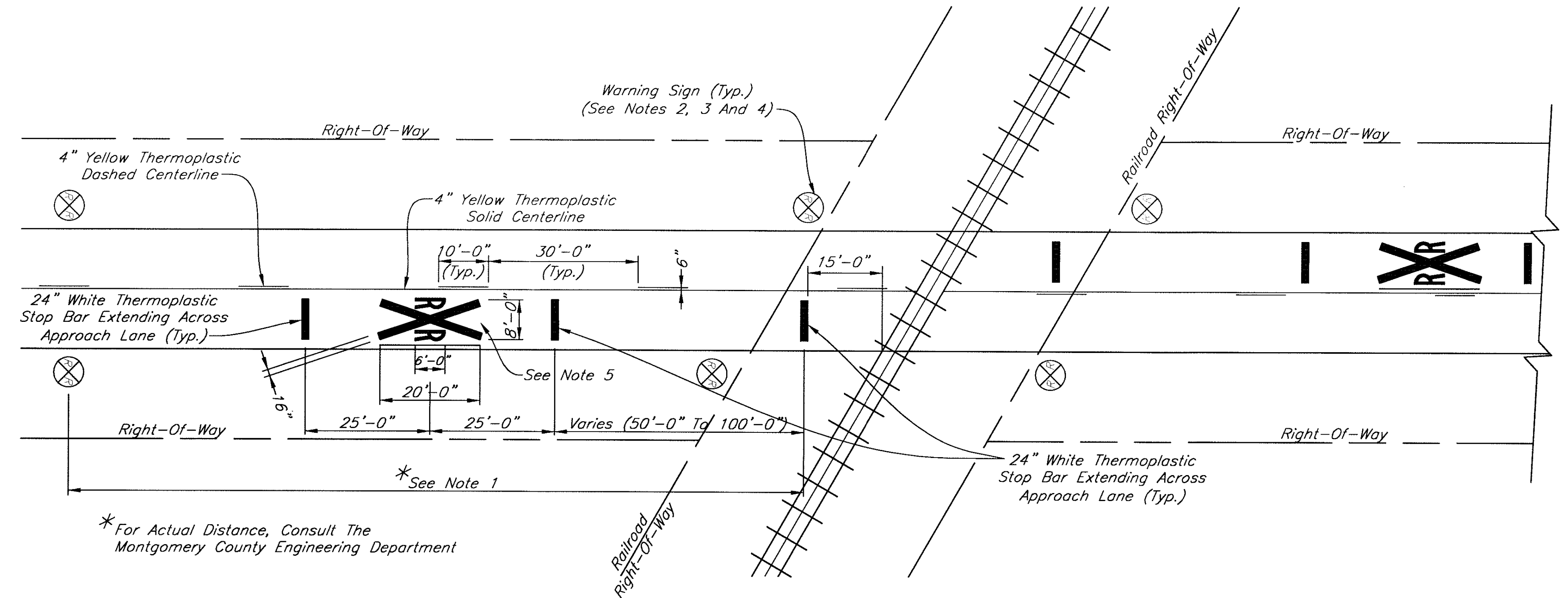
REVISIONS		
Rev. No.	Description	Date



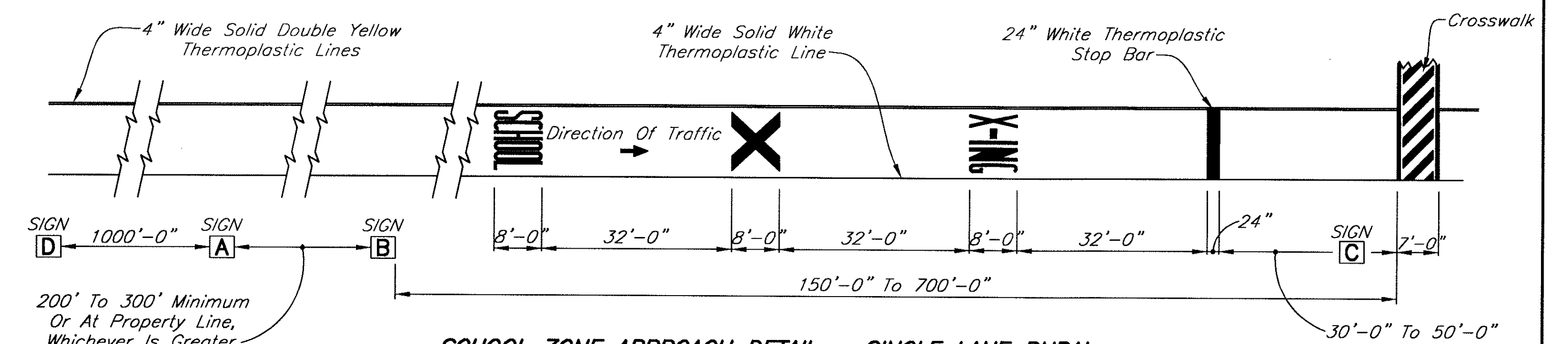
RECOMMENDED FOR APPROVAL	DESIGN ENGINEER	12/1/00
APPROVED	MONTGOMERY COUNTY COMMISSIONER	12/1/00
APPROVED	MONTGOMERY COUNTY COMMISSIONER	12/5/00
APPROVED	MONTGOMERY COUNTY COMMISSIONER	12/5/00

MONTGOMERY COUNTY		SHEET 7 OF 8
STORM SEWER DETAILS AND NOTES		

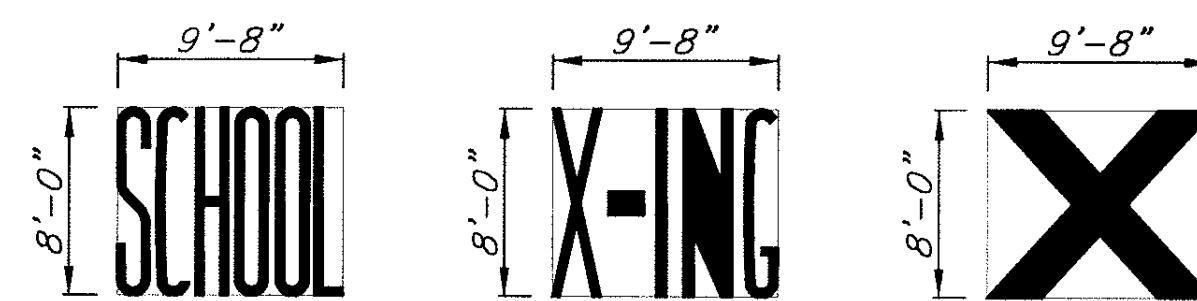
- 1.) Distance, \*, Shall Be 750 Feet In Rural Areas And 250 Feet In Urban Areas, Or As Directed By The Montgomery County Engineering Department.
- 2.) Warning Signs Shall Be High Intensity And In Accordance With The Most Recent Indiana Manual On Uniform Traffic Control Devices. Said Sign Shall Be A Minimum Of 30" In Diameter.
- 3.) Warning Signs Shall Be Mounted On A 12' Or 14' U-Channel Posts (2 Pounds/Foot).
- 4.) Contractor Shall Supply And Install All Posts, Signs, Bolts And Hardware. All Bolts And Hardware Shall Be Aluminum Or Stainless Steel.
- 5.) Contractor Shall Stencil RxR Symbols In Accordance With Standard Alphabet For Highway Markings.
- 6.) For Railroad Crossing (Crossbuck) Sign, Illumination At Grade Crossing, And Other Warning Signs And/OR Pavement Markings, Consult The Appropriate Railroad Authority.
- 7.) Any Work Conducted Within The Railroad Right-Of-Way Shall Be Conducted Only With The Approval Of The Affected Railroad Company.



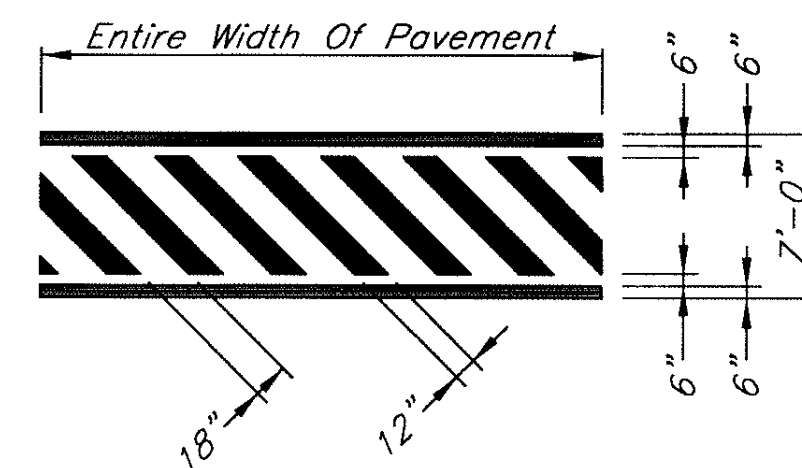
Scale:  $\frac{1}{16}" = 1'-0"$



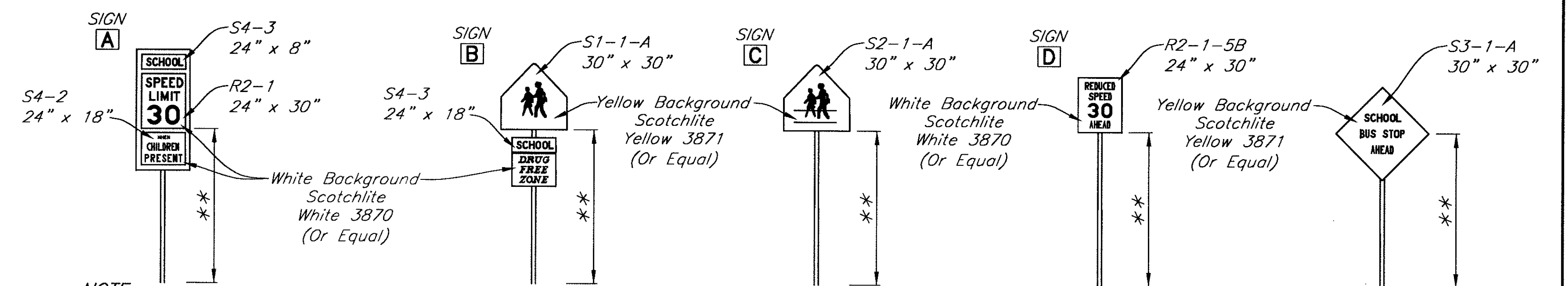
Scale:  $\frac{1}{16}'' = 1'-0''$



Scale:  $\frac{1}{8}" = 1'-0"$



Scale:  $\frac{1}{8}" = 1'-0"$



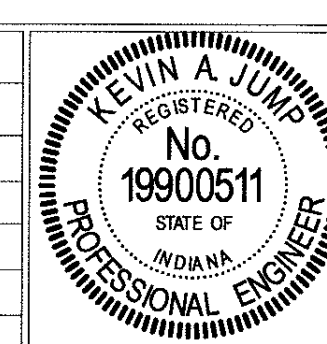
**\*\* 7'-0" Mounting Height From Bottom  
Of Sign To Roadway Edge Of Pavement.  
(Typical)**

*All Black Lettering Is Scotchlite 7720  
(Or Equal)*

Scale:  $\frac{1}{4}" = 1'-0"$

- 1.) *All Regulatory Signs Shall Be High Intensity And In Accordance With The Indiana Manual On Uniform Traffic Control Devices, Most Recent Edition.*
- 2.) *All Pavement Markings Shall Be White Thermoplastic And Span Across Approach Lanes.*
- 3.) *Sign S3-1-A Is To Be Installed When Required By The Montgomery County Engineering Department.*
- 4.) *Where Pedestrian Cross Traffic Is Not Established, School Crossing Pavement Markings And Sign C May Be Omitted, At The Discretion Of The Montgomery County Engineering Department.*

REVISIONS		
Rev. No.	Description	Date



RECOMMENDED FOR APPROVAL	<i>[Signature]</i> DESIGN ENGINEER	12/5/00 DATE
APPROVED	MONTGOMERY COUNTY COMMISSIONER	12/5/00 DATE
APPROVED	MONTGOMERY COUNTY COMMISSIONER	12-5-00 DATE
APPROVED	MONTGOMERY COUNTY COMMISSIONER	12/5/00 DATE

# MONTGOMERY COUNTY

## SCHOOL ZONE DETAILS AND RAILROAD CROSSING DETAILS

SHEET  
8  
OF  
8