PLAINFIELD, INDIANA

TOWN STANDARDS

Town Standards Apply To Public Property & Private Property.

The Entire Set Of Full Size Town Standards Shall Be Attached To The Construction Drawings And Shall Be Considered Part Thereto.

DATE OF CURRENT ISSUANCE: 01/01/2019

DIRECTIONS FOR USE

1.) Details Prepared By Outside Sources Shall Not Be Included In The Construction Drawings When Said Details Cover Work Which Is Covered By Town Standards.

2.) Individual Town Standards That Do Not Apply May Be Crossed–Out By Design Engineer Through The Placement Of A Single Large X Over The 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.

3.) Details Prepared By Outside Sources Covering Work Which Is Not Covered By Town Standards Are The Sole Responsibility Of The Design Engineer And Shall Be Placed On Sheets Other Than The Town Standards Sheets.

4.) Failure To Properly Execute The Above Directions For Use Will Not Effect The Applicability Nor The Enforcement Of The Town Standards.

5.) Town Of Plainfield Shall Be Contacted When Required By Calling 317–839–3490.

INDEX

PLAINFIELD

GENERAL NOTES

1.) Contractor Shall Verify The Exact Location Of All Existing Utilities At Least 24 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 Town Of Plainfield And The Owner Of The Affected Utility.

2.) 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 Pavement. The Town Reserves The Right To Require Trenchless Construction For Crossing Of Existing Streets.

3.) All Benchmarks And Elevations Shall Be U.S.C. & G.S. Datum.

4.) Wherever Proprietary Equipment Is Specified, All Proposals For Substitution Shall Be Submitted In Writing To The Plainfield DPW And Shall Be Subject To The Findings Of The Plainfield DPW.

5.) Whenever A Non–Parallel Trench Opening Encroaches Within 5' Of An Existing Street Or Whenever Centerline Of Water Main Is Within 3' Of An Existing Street, Flowable Fill Shall Be Used For Trench Backfill.

6.) Except For Water Main Construction, Whenever A Non–Parallel Trench Opening Encroaches Within 5' Of A Proposed Street, Private Drive Or Sidewalk, Granular Backfill If Testing Confirms Compaction. #8 Crushed Stone, #8 Fractured Face Aggregate Or Flowable Fill Shall Be Used For Trench Backfill.

7.) For Water Main Parallel With Adjacent Pavement And Having A Centerline Of Pipe At Least 3' Behind Back–Of–Curb, Approved Backfill Material May Be Used For Trench Backfill. Whenever Centerline Of Water Main Encroaches Within 3' Of A Proposed Street, Private Drive Or Sidewalk, #8 Crushed Stone, #8 Fractured Face Aggregate, Or Flowable Fill Shall Be Used For Trench Backfill.

8.) Approved Excavated Material May Be Used For Backfill Outside Of Limits Specified Herein And Under Proposed Sidewalks Provided Sidewalks Are Constructed 6 Months After Backfilling Of Trench. In Order For Excavated Material To Be Approved For Backfill It Shall Be Free Of Organic Material, Rocks Larger Than 6 Inches, Frozen Material, Debris, Excessive Water, Or Other Unsuitable Material As Determined By Plainfield DPW.

9.) Black Foundry Sand Is NOT Approved For Use In The Town Of Plainfield.

10.) Whenever Granular Backfill Is Placed In A Trench, Contractor Shall Compact Material To A Minimum Of 95% Maximum Dry Density As Per AASHTO T99. The Contractor Shall Demonstrate That Compaction Is Achieved By Means Of In Place Density Tests Performed By An Independent Testing Firm. Testing Frequency Shall Be One Test Per Trench Or 1 Test Per 100 Linear Feet Of Trench, Whichever Is Greater.

11.) In Order To Mitigate The Impact Of Land Disturbing Activities On The Public, The Town Currently Allows Two Options. Option 1: Preparation, Implementation, & Maintenance Of A Lime Stabilization Plan For Building Area, Activity Area Adjacent To Building, Access Road(s), & Staging Area Utilizing A Minimum Of 4" Of CAB No. 53 Over A Minimum Of 8" Thickness Lime Subgrade Treatment. Option 2: Preparation, Implementation, & Maintenance Of A Sufficient Washbay Area. If Option 2 Is Deemed Insufficient At The Sole Discretion Of The Town Engineer, Option 1 Will Need To Be Implemented Prior To Any Other Construction Activity Proceeding At The Site.

12.) The Construction Of New Combined Sewers Within The Town Of Plainfield's Service Area Is Prohibited. New Construction That Is Tributary To An Existing Combined Sewer Shall Be Designed To Minimize Or Delay The Inflow Contribution To The Existing Combined Sewer. Where New Construction Is Served By Existing Combined Sewers, The Inflow/Clear Water Connection To The Existing Combined Sewer Shall Be Made Separate And Distinct From The Sanitary Waste Connection To Facilitate Disconnection Of The Former If A Separate Storm Sewer Subsequently Becomes Available.

REVISIONS		
Rev. No.	Description	Date

DAVID LAHEY — REGISTERED — No. PE19700063 — STATE OF INDIANA — PROFESSIONAL ENGINEER

RECOMMENDED FOR APPROVAL	DESIGN ENGINEER	01/01/2019 DATE
APPROVED	TOWN ENGINEER	01/01/2019 DATE
APPROVED	DIRECTOR OF TRANSPORTATION	01/01/2019 DATE

TOWN OF PLAINFIELD

DIRECTIONS FOR USE, GENERAL NOTES

SHEET 01 OF 25

GENERAL NOTES

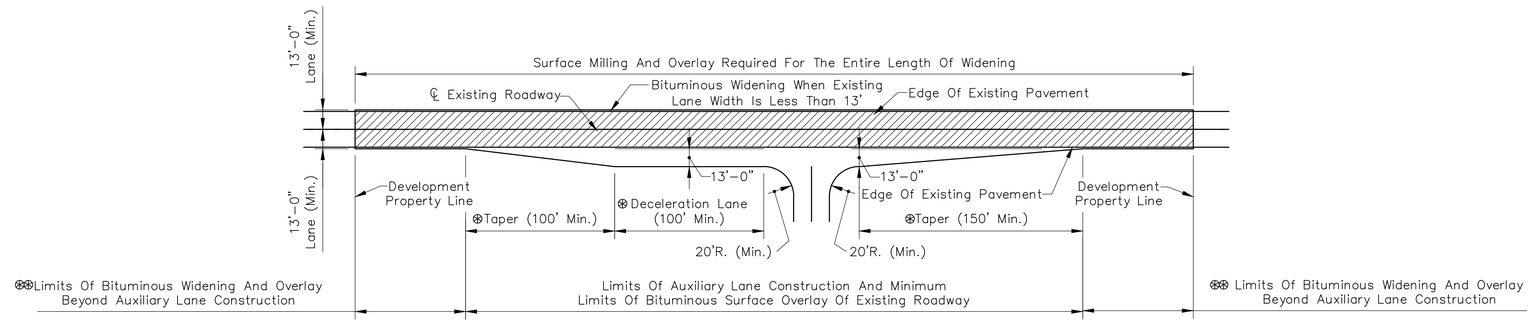
1.) The Right-Of-Way Widths, Pavement Widths, And Easement Widths Indicated On This Sheet Are Minimum Distances Required By The Town Of Plainfield. Greater Widths May Be Provided. The Contractor Shall Review The Plat And The Plans To Confirm The Various Widths Indicated On This Sheet And Shall Report Any Discrepancy To The Town Engineer Prior To Proceeding With Construction.

2.) The Location Of Proposed Utilities As Indicated Hereon Are Based Upon The Experience Of The Town Of Plainfield 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 Town Engineer And The Superintendent Of Public Works. Utilities Not Meeting These Requirements Shall Be Removed And And Replaced As Directed By The Town Engineer.

3.) Arterial Streets And Divided Arterial Streets Are To Be Coordinated With The Town Engineer And Shall Be In Accordance With The Minimum Design Standards Outlined By The Subdivision Control Ordinance.

4.) Local Residential Streets Require Only Stop Bars And Crosswalk Marking. Markings Shall Be Thermoplastic In Accordance With The Most Recent INDOT Standard Specification. Refer To Such Drawings Covering Pavement Markings, Street Signs, And Traffic Control Signs. A Plan Of Proposed Pavement Markings Shall Be Submitted To The Plainfield DPW For Approval. For Streets Requiring Resurfacing With Surface Overlay, Mill 8 Feet Wide Along Sides Of Street To A Depth Of 2". Overlay Terminations Shall Also Be Milled 2".

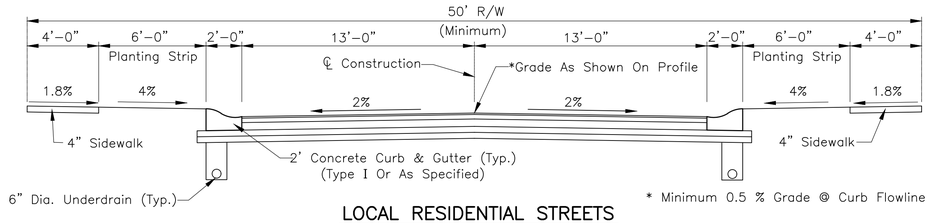
5.) Vertical Curves Of A Minimum Length Of 20 Feet Shall Be Provided At All Grade Changes in Accordance with The Town Of Plainfield Subdivision Control Ordinance. For Phased Development, The Vertical Curve Shall Be Constructed To The EVC.



NOTES:
⊛ Taper and Deceleration Lane Length Shall Be Designed Based Upon Design Speed Of Existing Roadway
⊛⊛ Bituminous Widening And Overlay Required When Development's Frontage Extends Beyond the Limits Of The Auxiliary Lane Construction

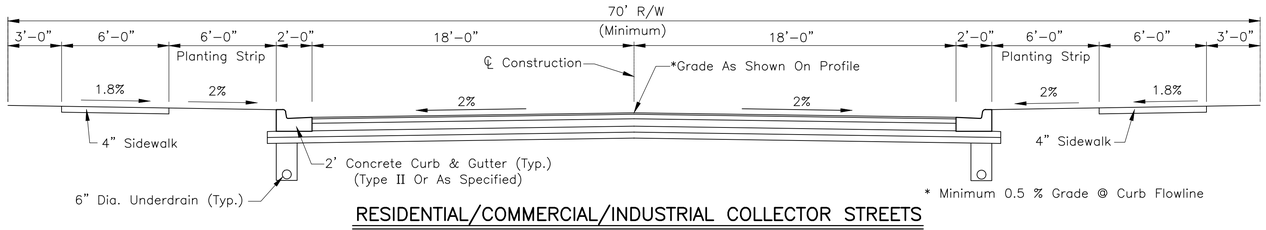
AUXILIARY LANE CONSTRUCTION

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



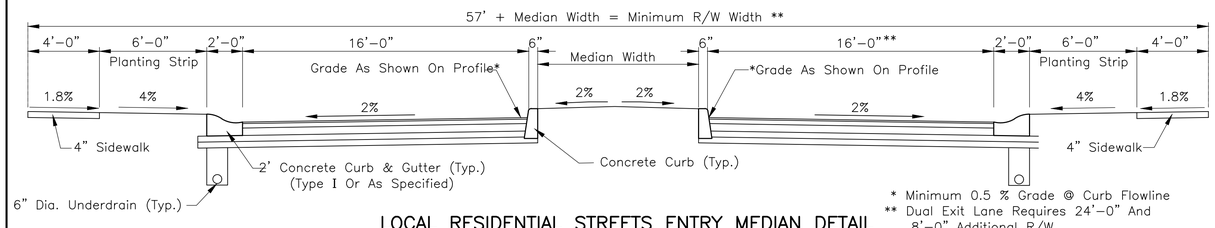
LOCAL RESIDENTIAL STREETS

Scale: ¼"=1'-0"



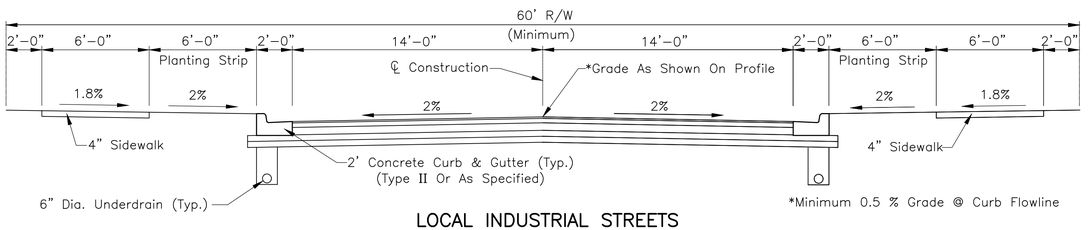
RESIDENTIAL/COMMERCIAL/INDUSTRIAL COLLECTOR STREETS

Scale: ¼"=1'-0"



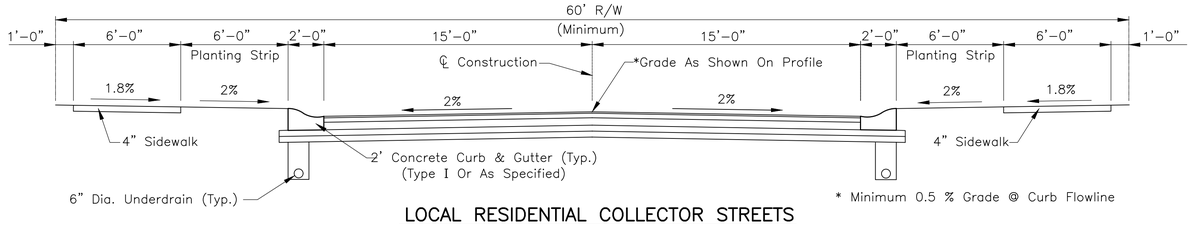
LOCAL RESIDENTIAL STREETS ENTRY MEDIAN DETAIL

Scale: ¼"=1'-0"



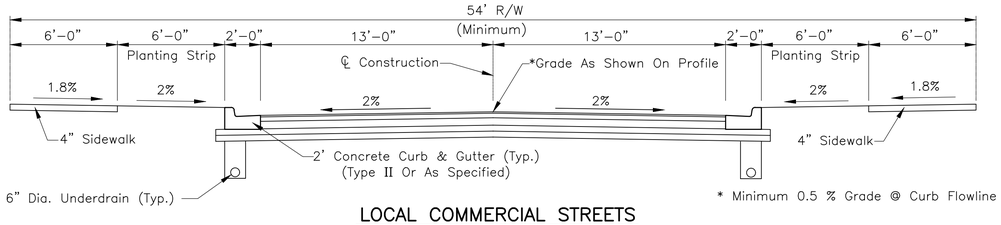
LOCAL INDUSTRIAL STREETS

Scale: ¼"=1'-0"



LOCAL RESIDENTIAL COLLECTOR STREETS

Scale: ¼"=1'-0"



LOCAL COMMERCIAL STREETS

Scale: ¼"=1'-0"

REVISIONS		
Rev. No.	Description	Date

DAVID LAHEY REGISTERED No. PE19700063 STATE OF INDIANA PROFESSIONAL ENGINEER

RECOMMENDED FOR APPROVAL	DESIGN ENGINEER	01/01/2019 DATE
APPROVED	TOWN ENGINEER	01/01/2019 DATE
APPROVED	DIRECTOR OF TRANSPORTATION	01/01/2019 DATE

TOWN OF PLAINFIELD

RIGHT-OF-WAY, UTILITY EASEMENT & UTILITY LOCATION GUIDELINES

SHEET 02 OF 25

PAVEMENT CONSTRUCTION

1.) Subbase And Subgrade Shall Be At Least 100 Percent Of The Maximum Dry Density In Accordance With AASHTO T99. Compaction Testing Shall Be At The Contractor's Expense And Shall Be Preformed By An Independent Laboratory. Test Results Shall Be Submitted To The Superintendent Of Public Works 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.

2.) For Local Residential Streets With Concrete Pavement, Four Inch Compacted Aggregate Base #53 Is Optional If Adequate Subgrade Is Present. Adequacy Of Subgrade Shall Be Determined Solely By The Town Based On A Contractor Performed Proof-Roll With A Fully Loaded Tri Axle Dump Truck.

3.) Hot Poured Joint Adhesive Shall Be Applied To Longitudinal Joints Constructed Between Two Adjacent HMA Surface And Intermediate Courses In Accordance With The Most Recent INDOT Standard Specifications.

Liquid Asphalt Sealant Shall Be Applied To Longitudinal Joints A Minimum Width Of 24 In., Centered On The Joint Line In Accordance With The Most Recent INDOT Standard Specifications.

4.) Wherever Rigid Pavement Is To Be Used, The Contractor Shall Submit A Detailed Paving Plan To The Town Engineer. 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.) Upon Approval Of The Mix Design By The Town Engineer, Chemical Modification Of Soils Per INDOT Standard Specifications Section 215, Shall Be Performed To A 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. Maximum Dry Densities Shall Be Determined In Accordance With AASHTO T99. The Mix Design Shall Be Determined In Accordance With INDOT Design Procedures For Soil Modification Or Stabilization. The Proposed Design And Construction Procedure Shall Be Submitted To The Town Engineer. Unsatisfactory Soil Modifications, As Determined By The Town Engineer, May Require An Increase In Depth Of The Aggregate Base Or Binder. Tensar TX160 Geogrid May Be Used In Lieu Of, Or In Conjunction With, The Chemical Modification Of Soils, As Directed By The Town Engineer. In Conjunction With The Usage Of Tensar TriAx Geogrid, A Modified Pavement Section May Be Provided By The Town Engineer.

CURB RAMP CONSTRUCTION

1.) All Curb Ramps Shall Meet The Requirements Of The Americans With Disabilities Act, The Most Recent INDOT Standard Specifications And The Town Of Plainfield's Most Recent Standards. Curb Swipes Required For Handicap Ramps Shall Be Provided With Initial Curb Construction.

2.) Minimum Width Of Curb Ramp Shall Be 4 Feet, Not Including Flares. Maximum Slope Of Ramps Shall Be 8.33% (12:1). Handicap Ramps Are To Be Located As Shown On The Plans, Or As Directed By The Town Engineer Or Superintendent Of Public Works.

3.) Type E Ramps Shall Be Provided At The Center Line Of The 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 Hospital, Medical Center Or Athletic Stadium Vicinities. The Use Of Details Contrary To Those Shown Hereon Shall Require The Prior Written Approval Of The Town Engineer.

4.) Surface Texture Of The Ramp Shall Be That Obtained By A Coarse Brooming Transverse To The Slope Of The Ramp.

5.) Ramps Shall Be Provided Where The Driveway Curb Extends Across The Sidewalk.

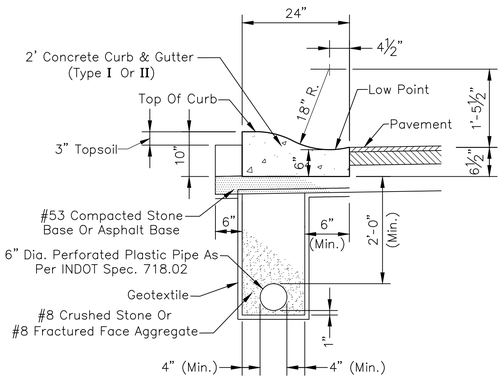
6.) Care Shall Be Taken To Assure A Uniform Grade On All Ramps With No Grade Breaks.

7.) 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.

8.) The Normal Gutter Line Profile Shall Be Maintained Through The Area Of The Ramp.

9.) 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.

10.) Slope Of Ramp May Be Warped When Field Conditions Warrant And When Approved By The Town Engineer Or Superintendent Of Public Works.

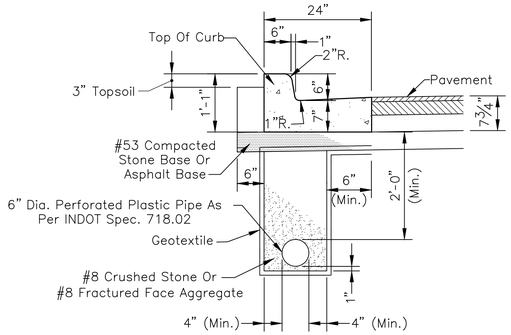


TYPE I

See Development Standards For Depressed Concrete Roll Curb If Desired At A Private Drive That Intersects A Public Road With Type I Curb.

2' CONCRETE ROLL CURB & GUTTER

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

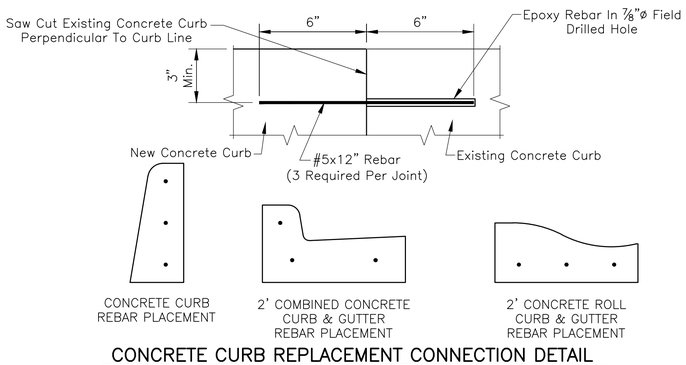


TYPE II

See Development Standards For Reinforced Concrete Gutter Which Is Required At All Private Drives That Intersect A Public Road With Type II Curb Or Similar.

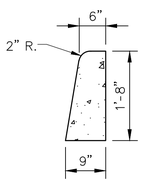
2' COMBINED CONCRETE CURB & GUTTER

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



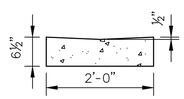
CONCRETE CURB REPLACEMENT CONNECTION DETAIL

Not To Scale



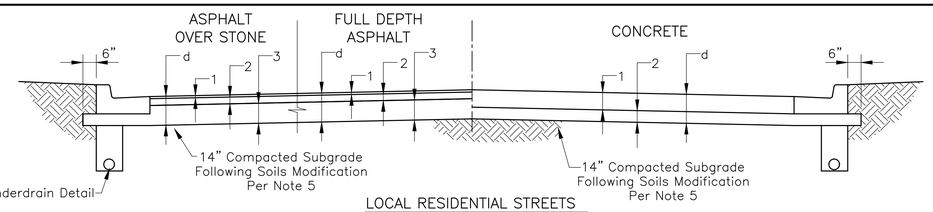
CONCRETE CURB DETAIL

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



SPECIAL CURB DETAIL

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



LOCAL RESIDENTIAL STREETS

d=11"
1. 165 lbs/sys, QC/QA-HMA, 2, 64, Surface, 9.5mm
2. 385 lbs/sys, QC/QA-HMA, 2, 64, Inter., 19.0mm
3. 6" Compacted Aggregate Base No. 53 (2 Lifts)

d=10"
1. 6", PCCP
2. 4" Compacted Aggregated Base No. 53 (See Note #2)

LOCAL RESIDENTIAL COLLECTOR AND LOCAL COMMERCIAL/INDUSTRIAL STREETS

d=12"
1. 220 lbs/sys, QC/QA-HMA, 2, 64, Surface, 12.5mm
2. 275 lbs/sys, QC/QA-HMA, 2, 64, Inter., 19.0mm over 385 lbs/sys, QC/QA-HMA, 2, 64, Base, 25.0mm
3. 4" Compacted Aggregate Base No. 53

d=10"
1. 220 lbs/sys, QC/QA-HMA, 2, 64, Surface, 12.5mm
2. 275 lbs/sys, QC/QA-HMA, 2, 64, Inter., 19.0mm
3. 275 lbs/sys, QC/QA-HMA, 2, 64, Base, 19.0mm Over 330 lbs/sys, QC/QA-HMA, 2, 64, Base, 25.0mm

d=11"
1. 7", PCCP
2. 4" Compacted Aggregated Base No. 53

RESIDENTIAL/COMMERCIAL/INDUSTRIAL COLLECTOR AND SECONDARY ARTERIAL STREETS

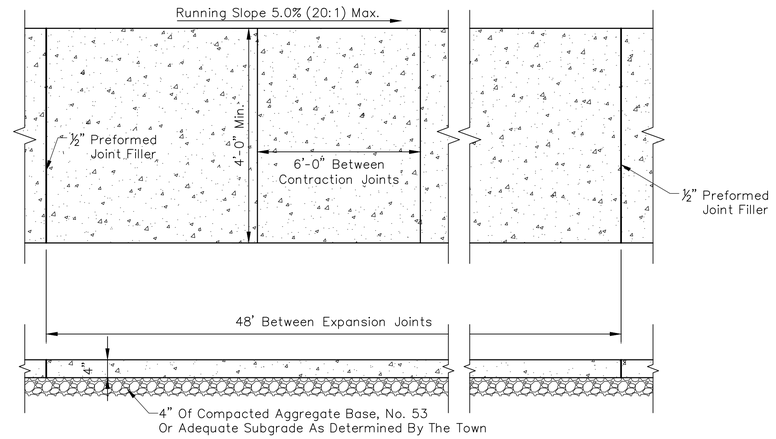
d=13"
1. 220 lbs/sys, QC/QA-HMA, 3, 70, Surface, 12.5mm
2. 275 lbs/sys, QC/QA-HMA, 3, 64, Inter., 19.0mm over 385 lbs/sys, QC/QA-HMA, 3, 64, Base, 25.0mm
3. 5" Compacted Aggregate Base No. 53

d=12"
1. 220 lbs/sys, QC/QA-HMA, 3, 70, Surface, 12.5mm
2. 330 lbs/sys, QC/QA-HMA, 3, 64, Inter., 19.0mm
3. 330 lbs/sys, QC/QA-HMA, 3, 64, Base, 25.0mm Over 440 lbs/sys, QC/QA-HMA, 3, 64, Base, 25.0mm

d=11½"
1. 7.5", PCCP
2. 4" Compacted Aggregated Base No. 53

PAVEMENT CONSTRUCTION

Not To Scale



TYPICAL SIDEWALK DETAIL

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

REVISIONS

Rev. No.	Description	Date

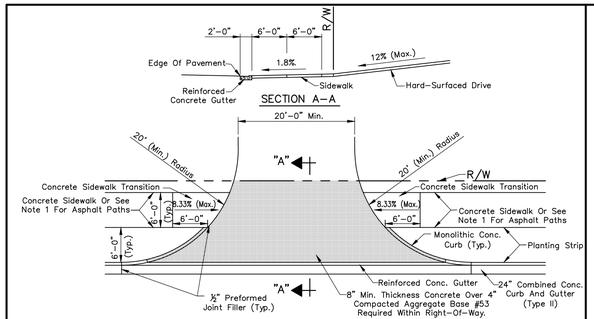
DAVID LAHEY
REGISTERED
No. PE19700063
STATE OF INDIANA
PROFESSIONAL ENGINEER

RECOMMENDED FOR APPROVAL — DESIGN ENGINEER — DATE 01/01/2019
APPROVED — TOWN ENGINEER — DATE 01/01/2019
APPROVED — DIRECTOR OF TRANSPORTATION — DATE 01/01/2019

TOWN OF PLAINFIELD

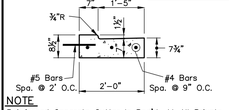
PAVEMENT, CURB & SIDEWALK DETAILS & NOTES

SHEET 03 OF 25



TYPICAL COMMERCIAL PRIVATE DRIVE

Scale: None



NOTE

Reinforced Concrete Gutter Is Req'd. At All Private Drives That Intersect A Public Road With Type II 24" Combined Concrete Curb And Gutter Or Similar.

REINFORCED CONCRETE GUTTER

Scale: None

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 (Increase Length Of Concrete Sidewalk Transition As Required To Meet The 8.33% (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 Crests, Nor 10% For Sags.

3.) Concrete Drives Require Control Joints At A Maximum Of Every 10 Feet Each Way.

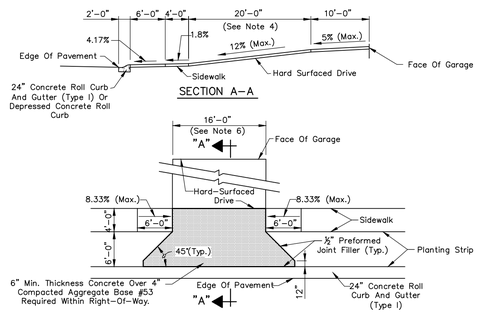
4.) Use Actual Setback As Shown On Plat And As Provided By The Town Of Plainfield Zoning Ordinance.

5.) Plainfield DPW May Approve Alternate Paving Materials Matching Suitable Mainline Pavement.

PRIVATE DRIVE CULVERT PIPE AND END SECTIONS

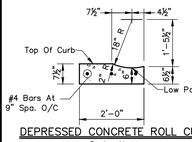
1.) Except With The Prior Written Approval Of The Town Engineer, Culvert Pipe, And End Sections For New Installations Shall Be Reinforced Concrete Pipe In Accordance With The Town Standards. Zinc Coated Or Aluminum Coated Corrugated Metal Pipe Culverts, Couplers, And End Sections In Accordance With The Most Recent INDOT Specification May Be Permitted For Replacement Culverts In Areas Where Reinforced Concrete Pipe Is Used By One-Third Or Less Of 3 Properties Upstream And Downstream Of The Subject Replacement On The Same Side Of The Subject Street.

DEVELOPMENT STANDARD - DETAIL DS-R01



TYPICAL RESIDENTIAL PRIVATE DRIVE

Scale: None



DEPRESSED CONCRETE ROLL CURB

Scale: None

1.) The Maximum Algebraic Difference In Grades For Any 10 Foot Interval Shall Not Exceed 8% For Crests, Nor 10% For Sags.

2.) Frontage Of Lots Shall Drain To Adjacent Streets Except With The Prior Approval Of Plainfield DPW.

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 Town Of Plainfield Zoning Ordinance.

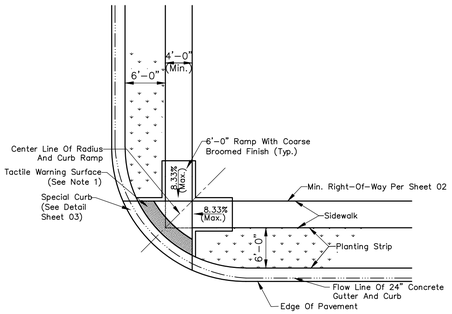
5.) Plainfield DPW May Approve Depressed Concrete Roll Curb And Alternate Paving Materials.

6.) A Minimum Width Of 16 Feet Is Required And A Maximum Width Of 24 Feet May Be Approved By The Plainfield DPW.

PRIVATE DRIVE CULVERT PIPE AND END SECTIONS

1.) Except With The Prior Written Approval Of The Town Engineer, Culvert Pipe, And End Sections For New Installations Shall Be Reinforced Concrete Pipe In Accordance With The Town Standards. Zinc Coated Or Aluminum Coated Corrugated Metal Pipe Culverts, Couplers, And End Sections In Accordance With The Most Recent INDOT Specification May Be Permitted For Replacement Culverts In Areas Where Reinforced Concrete Pipe Is Used By One-Third Or Less Of 3 Properties Upstream And Downstream Of The Subject Replacement On The Same Side Of The Subject Street.

DEVELOPMENT STANDARD - DETAIL DS-R02



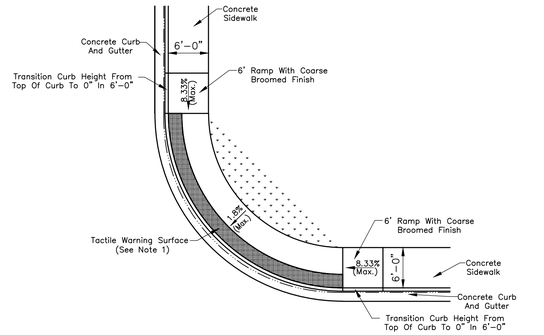
(See Curb Ramp Construction Notes On Sheet 3 Of Plainfield Standards)

CURB RAMP, TYPE E

Scale: None

NOTES:
1.) Tactile Warning Surface Shall Be Dark Brick Red Color And Shall Be Manufacture By ADA Solutions, INC., Or As Approved By Plainfield DPW.
2.) Transition Gutter Flowline To Midpoint Of Concrete Curb And Gutter At Curb Ramp.

DEVELOPMENT STANDARD - DETAIL DS-R03



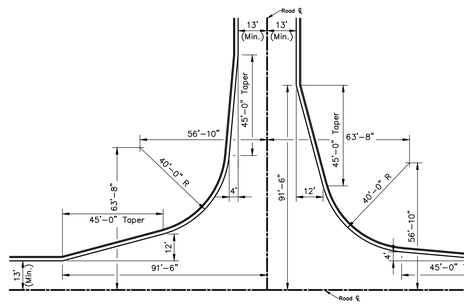
(See Curb Ramp Construction Notes On Sheet 3 Of Plainfield Standards)

CURB RAMP, TYPE F

Scale: None

NOTES:
1.) Tactile Warning Surface Shall Be Dark Brick Red Color And Shall Be Manufacture By ADA Solutions, INC., Or As Approved By Plainfield DPW.
2.) Transition Gutter Flowline To Midpoint Of Concrete Curb And Gutter At Curb Ramp.

DEVELOPMENT STANDARD - DETAIL DS-R04



PUBLIC ROAD APPROACH/INDUSTRIAL TRUCK ENTRANCE

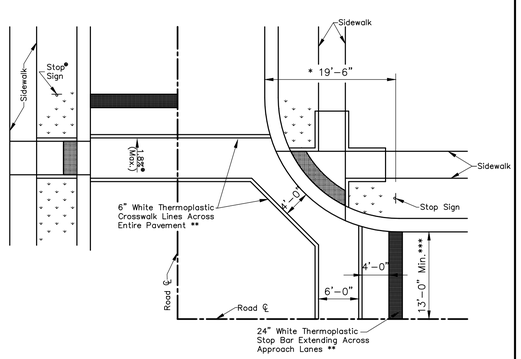
Scale: 1/32"=1'-0"

1.) Public Road Approaches And Commercial Private Drives Shall Accommodate Semi-Trailers And Other Large Vehicles Where Right-Turn Movements Are Expected.

2.) Design And Pavement Material Of Public Roads Shall Be Developed Per Sheet 02 And 03 Of The Town Standards. Design And Pavement Material Of Typical Commercial Private Drives Shall Be Per Development Standard DS-R01 On This Sheet.

3.) Minimum Recommended Dimensions Are Indicated. Approaches Should Be Adjusted For Angled Intersections, Functional Class Of Intersecting Routes, And Location Of Intersection.

DEVELOPMENT STANDARD - DETAIL DS-R05



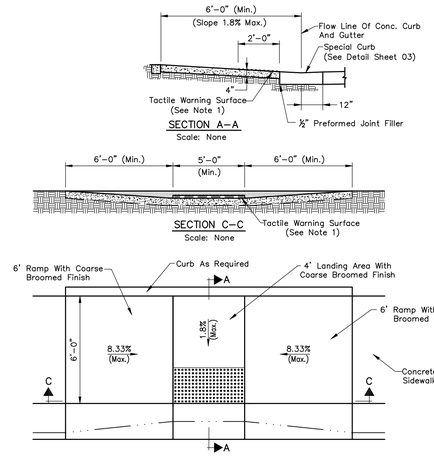
(See Curb Ramp Construction Notes On Sheet 3 Of Plainfield Standards)

PUBLIC ROAD APPROACH-RESIDENTIAL

Scale: None

* Distance To Be Adjusted For Acute Angle Intersections
** See General Note 4 On Sheet 2 For Thermoplastic Requirements
*** Unless Otherwise Approved By The Town Engineer
* 5.0% Max Cross Slope Is Allowed If Intersection Is Not Stop Or Yield Controlled

DEVELOPMENT STANDARD - DETAIL DS-R06



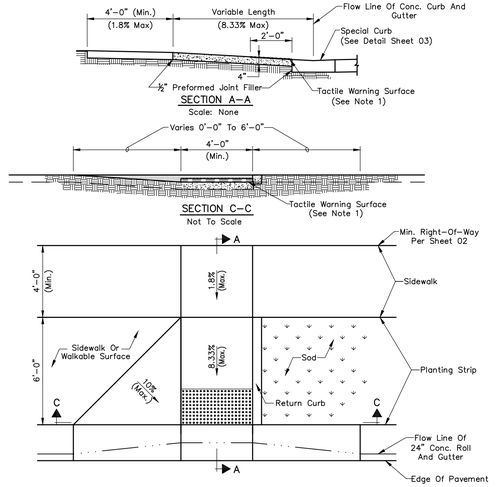
(See Curb Ramp Construction Notes On Sheet 3 Of Plainfield Standards)

CURB RAMP, TYPE K

Scale: None

NOTES:
1.) Tactile Warning Surface Shall Be Dark Brick Red Color And Shall Be Manufactured By ADA Solutions, INC., Or As Approved By Plainfield DPW.
2.) Transition Gutter Flowline To Midpoint Of Concrete Curb And Gutter At Curb Ramp.

DEVELOPMENT STANDARD - DETAIL DS-R07



(See Curb Ramp Construction Notes On Sheet 3 Of Plainfield Standards)

CURB RAMP, TYPE C

Scale: None

NOTES:
1.) Tactile Warning Surface Shall Be Dark Brick Red Color And Shall Be Manufactured By ADA Solutions, INC., Or As Approved By Plainfield DPW.
2.) Transition Gutter Flowline To Midpoint Of Concrete Curb And Gutter At Curb Ramp.

DEVELOPMENT STANDARD - DETAIL DS-R08

REVISIONS		
Rev. No.	Description	Date

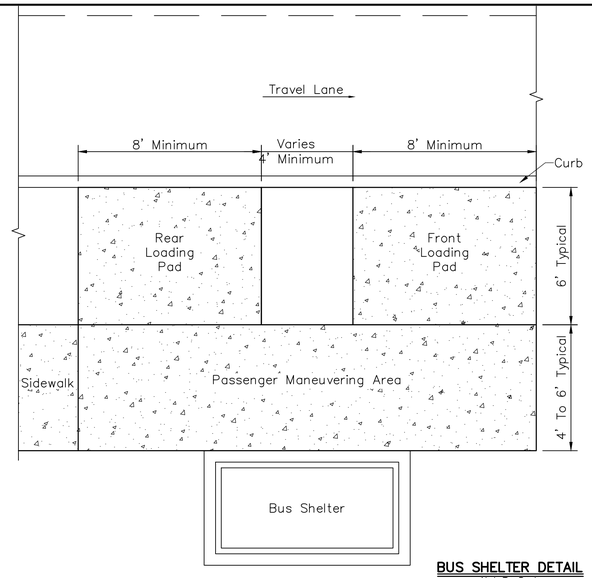
DAVID LAHEY REGISTERED No. PE19700063 STATE OF INDIANA PROFESSIONAL ENGINEER

RECOMMENDED FOR APPROVAL	DESIGN ENGINEER	01/01/2019	DATE
APPROVED	TOWN ENGINEER	01/01/2019	DATE
APPROVED	DIRECTOR OF TRANSPORTATION	01/01/2019	DATE

TOWN OF PLAINFIELD

ROADWAY (R)
DEVELOPMENT STANDARDS

SHEET 04 OF 25



BUS SHELTER DETAIL
Not To Scale

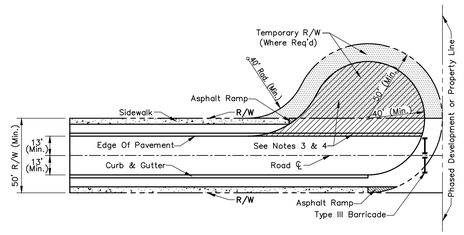
Bus Shelter Location And Pad Notes:

1. Shelters Shall Be Located A Minimum Of 100 Feet From Any Intersection Measured Mid-Radius From The Intersection Curb Subject To Town Review.
2. The Shelter Opening Shall Be Oriented Toward The Passenger Maneuvering Area.
3. Loading Pads And Passenger Maneuvering Area Shall Be 4 Inches Of Concrete On Top Of 4 Inches Of Compacted Aggregate Base, No. 53.
4. The Pad For The Bus Shelter Shall Be A Minimum Of 1 Foot Wider And 1 Foot Longer Than The Dimensions Of The Bus Shelter. The Pad Shall Be Engineered Per Manufacturer's Recommendations Based Upon The Sizing Of The Shelter.

Bus Shelter Notes:

1. Shelter And Wall Accessories Shall Be The Slimline Arched Model As Manufactured By Brasco International Or A Town Approved Equal. Shelters Shall Be Engineered By The Manufacturer To Meet Wind, Snow, And Seismic Loadings. Shelters May Vary In Size Between 4 Feet Wide By 8 Feet Long and 6 Feet Wide By 18 Feet Long Depending On The Amount Of Passengers Estimated At An Individual Stop.
2. Shelter Frame Shall Be Powder Coated Signal Gray (RAL 7004).
3. Shelter Roof Shall Be Shed Style With A Minimum 6 Inches Of Overhang Past The Opening, Acrylic, And Shall Be Signal White (RAL 9003).
4. Shelter Wall Panels Shall Be Glass. Shelter Wall Side Wall Panels Shall Include The Plainfield "P" Logo Ceramic Baked Into The Glass. An Advertisement Box May Be Included As One Of The Shelter Wall Panels.
5. Shelters Shall Be Provided With Wall Mount Benches On The Interior Of All Walls. Wall Mount Benches Shall Be Powder Coated Signal Gray (RAL 7004).
6. Shelters Shall Include A Solar Powered Lighting Package And Wall-Mounted Map Case.
7. A Signal White (RAL 9003) "Stop Name" Plate With Luminous Bright Red (RAL 3026) Lettering Shall Be Provided On The Front Of The Shelter.

DEVELOPMENT STANDARD - DETAIL DS-R09



TEMPORARY CUL-DE-SAC
Scale: None

1.) When Streets Are Temporarily Dead-End, A Temporary Cul-De-Sac Shall Be Constructed. Permanently Dead-End Streets Are Prohibited By The Subdivision Control Ordinance.

2.) Right-Of-Way And Back-Of-Curb Diameter Shall Be In Conformance With The Minimum Design Standards For Streets In The Subdivision Control Ordinance.

3.) For Residential Streets, Continue Proposed Pavement and Curb Through The Temporary Cul-De-Sac To The End Of Pavement. Concrete Roll Curb & Gutter Shall Be Used Through The Temporary Cul-De-Sac And Mainline Pavement Shall Be Used Beyond The Proposed Curb And Gutter.

4.) For Industrial Streets, Continue Proposed Pavement Through The Temporary Cul-De-Sac. Extending Concrete Roll Curb & Gutter Through The Temporary Cul-De-Sac Is Optional. 8" Of INDOT No. 2 Stone May Be Used Throughout The Temporary Cul-De-Sac.

5.) Typical Cross Slope To Be Maintained Through The Temporary Cul-De-Sac And Temporary Drainage Should Be Provided.

DEVELOPMENT STANDARD - DETAIL DS-R10

REVISIONS		
Rev. No.	Description	Date

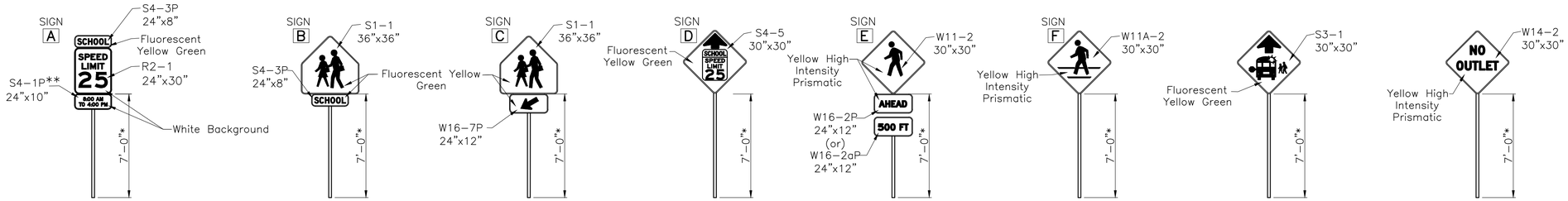
DAVID LAHEY REGISTERED No. PE19700063 STATE OF INDIANA PROFESSIONAL ENGINEER

RECOMMENDED FOR APPROVAL	DESIGN ENGINEER	01/01/2019 DATE
APPROVED	TOWN ENGINEER	01/01/2019 DATE
APPROVED	DIRECTOR OF TRANSPORTATION	01/01/2019 DATE

TOWN OF PLAINFIELD

BUS SHELTER DETAILS & MISCELLANEOUS DETAILS

SHEET 05 OF 25

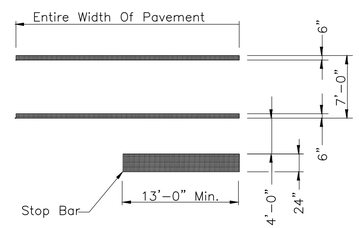


NOTES:

1.) * Mounting Height From Roadway Edge Of Pavement. (Typ. 2.)
2.) ** Confirm Times With Plainfield DPW
3.) All Black Lettering Is Scotchlite 7720 (Or Equal)

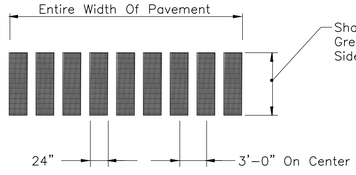
REGULATORY/WARNING SIGN DETAILS

Scale: 5/16" = 1'-0"



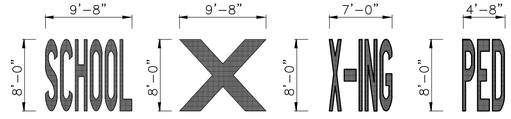
INTERSECTION CROSSWALK DETAIL

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



SPECIAL CROSSWALK DETAIL

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



PAVEMENT MARKING DETAIL

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

GENERAL NOTES:

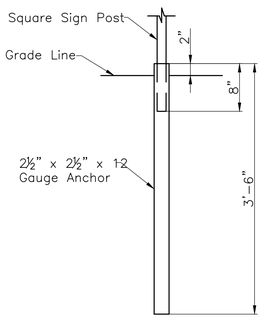
1.) All Regulatory Signs Shall Be High Intensity And In Accordance With The Indiana Manual On Uniform Traffic Control Devices, Most Recent Edition.
2.) All Pavement Markings Shall Be White Thermoplastic And Span Across Approach Lanes.
3.) Signs S3-1 & W14-2 To Be Installed When Required By The Town Of Plainfield.
4.) Where Pedestrian Cross Traffic Is Not Established, School Crossing Pavement Markings And Sign "C" May Be Omitted At The Discretion Of The Town Engineer.

All Bolts And Hardware Shall Be Aluminum Or Stainless Steel

TYPICAL REGULATORY/WARNING SIGN REQUIREMENTS

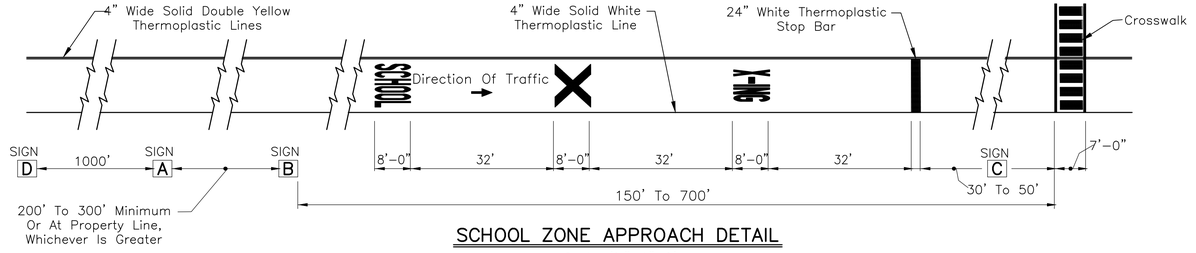
Scale: None

1.) Stop Sign (R1-1) Shall Be High Intensity And In Accordance With Most Recent Indiana Manual On Uniform Traffic Control Devices. Unless Otherwise Detailed On This Sheet, Other Regulatory Signs Shall Be A Minimum Of 18"x24".
2.) A Multi-Way Stop Intersection Requires An "ALL WAY" (R1-3P) Supplementary Sign 18" Wide By 6" Tall In Accordance With Said Manual.
3.) Streets Shall Be So Signed At Non-Signalized Intersections With Two Such Street Sign Assemblies Typically Required. Separate 12' Square Sign Post For Street Signs Permitted Only At Signalized Intersections.
4.) Street Signs Shall Be 9" Tall Extruded Aluminum (6063-T6) Green Background With White Letters.
5.) Regulatory Signs, Other Than Stop Signs, Shall Be Mounted On 12' - 2 ¼" x 2 ¼" x 12 Gauge Square Sign Posts. SUPR-LOK Cap Shall Be Model #97SQX. Regardless If Material For Posts Is Other Than As Shown Hereon, Mounting Height Shall Be 7'-0" From Roadway Edge Of Pavement
6.) SUPR-LOK Cross Shall Be Model #990X. For Non-Urban Intersections, Stop Sign To Be Placed A Minimum Of 6' From Cross-Street.
7.) For Urban Intersections See Handicap Ramp Detail On Sheet 4 Of The Town Standards.



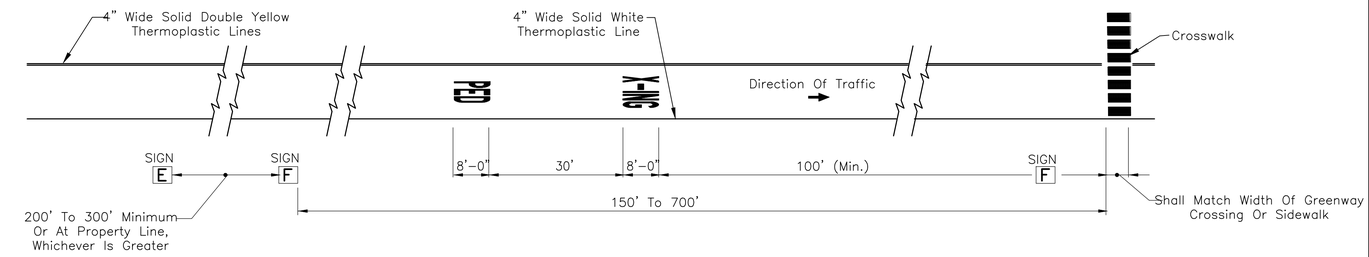
UNREINFORCED ANCHOR BASE

Scale: 1" =1'-0"



SCHOOL ZONE APPROACH DETAIL

Scale: 1/16"=1"-0'



PEDESTRIAN CROSSING APPROACH DETAIL – COLLECTOR OR ABOVE

Scale: 1/16"=1"-0'

REVISIONS		
Rev. No.	Description	Date

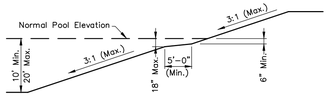
DAVID LAHEY REGISTERED No. PE19700063 STATE OF INDIANA PROFESSIONAL ENGINEER

RECOMMENDED FOR APPROVAL	DESIGN ENGINEER	01/01/2019 DATE
APPROVED	TOWN ENGINEER	01/01/2019 DATE
APPROVED	DIRECTOR OF TRANSPORTATION	01/01/2019 DATE

TOWN OF PLAINFIELD

MISCELLANEOUS DETAILS AND NOTES

SHEET 06 OF 25



TYPICAL DETENTION POND SECTION

Not To Scale

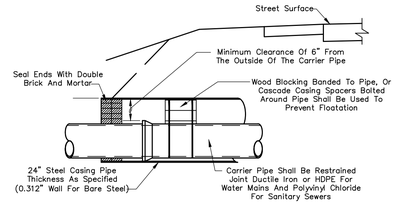
NOTES:

1.) Dry Bottom Basins Shall Be Subject To The Maximum Of 3:1 Slope Above The Basin Floor. The Longitudinal Slope Shall Be Subject To General Note 1 As Set Out On Sheet 09. The Transverse Grade Shall Be 2% Minimum.

2.) Emergency Overflow Facilities Such As A Weir Or Spillway Shall Be Provided For The Release Of Exceptional Storm Runoff Or In Emergency Conditions Should The Normal Discharge Devices Become Totally Or Partially Inoperative.

3.) Plainfield DPW May Approve Alternate Detention Pond/Basin Sections.

DEVELOPMENT STANDARD – DETAIL DS-G01



TYPICAL STREET CASING DETAIL FOR UP TO 12" CARRIERS

Not To Scale

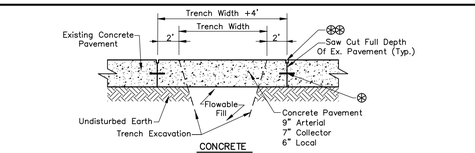
NOTES:

1.) Bored Or Jacked Crossings Require Intimate Knowledge Of Site Conditions; Therefore, Construction Is Subject To Certified Special Provisions Prepared By The Design Engineer.

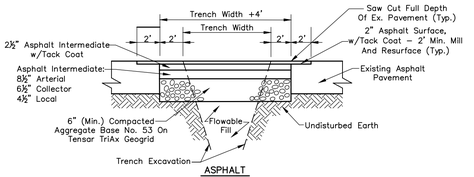
2.) Casings Depicted Hereon Do Not Necessarily Comply With INDOT Permit Requirements, But Are Intended To Be Used For Crossings Of Public Roads Under The Jurisdiction Of The Town Of Plainfield When Open Cut Of Such Roads Is Not Permitted.

3.) Refer To Appropriate Plainfield Standards For Carrier Pipe Requirements.

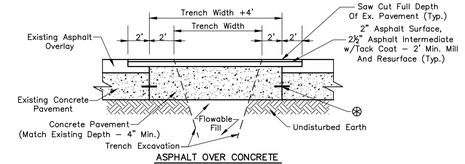
DEVELOPMENT STANDARD – DETAIL DS-G02



CONCRETE



ASPHALT



ASPHALT OVER CONCRETE

PAVEMENT RECONSTRUCTION DETAILS

Not To Scale

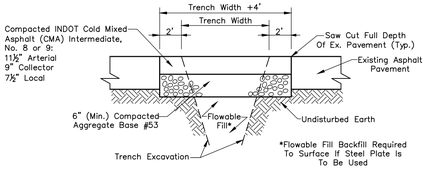
NOTES:

1.) All Concrete Shall Be Air Entrained, 6 Bag Per Cubic Yard With 4,000 PSI Minimum 28 Day Strength. Concrete Surface Shall Be Broom Finished Perpendicular To Traffic Flow.

(⊛) Refer To INDOT Standard Drawing E506-CCPP-01 For Dowel Bar Spacing and Diameter And E503-CCPJ-08 For Retrofit Tie Bar Spacing and Diameter.

(⊛⊛) Refer To INDOT Standard Drawing E503-CCPJ-03 For Joint Seal Details. Joint Seals Are Not Required If Concrete Pavement Is Overlaid.

DEVELOPMENT STANDARD – DETAIL DS-G03



TEMPORARY ASPHALT PATCH

TEMPORARY PAVEMENT PATCH DETAIL

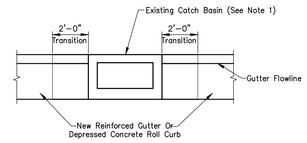
Not To Scale

NOTES:

1.) Steel Plate Required Over Trench To Open Roadway To Traffic. Pavement Reconstruction Or Temporary Asphalt Patch To Be Placed Within 48 Hours.

2.) Cold Mixed Asphalt (CMA) Shall Not Be Used When The Ambient Temperature Is Less Than 40°F. Use Flowable Fill To Surface.

DEVELOPMENT STANDARD – DETAIL DS-G04



EXISTING CATCH BASIN MODIFICATION

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

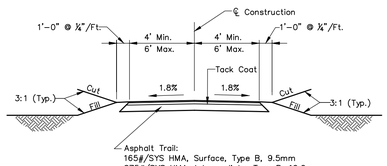
NOTES:

1.) Existing Catch Basin Within Limits Of New Approach That Can Not Be Relocated Due To Existing Gutter Flow, As Approved By Plainfield DPW.

2.) Provide Flat Cap And Cut Structure Height As Required To Accept Neenah R-3287-5, EJ 5425 Or US Foundry 4628-6132 BLTD.

3.) Contractor To Verify Existing Casting Size To Determine Replacement.

DEVELOPMENT STANDARD – DETAIL DS-G05



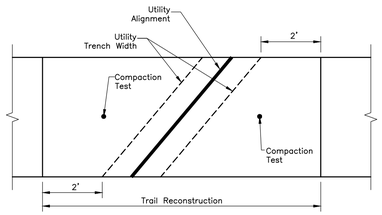
TYPICAL TRAIL CROSS SECTION

Not To Scale

NOTES:

1.) Cross Slope Shall Be 1.8% Maximum For Crowns, Transitions, And Superelevations.

DEVELOPMENT STANDARD – DETAIL DS-G06



EXISTING TRAIL RECONSTRUCTION

Not To Scale

NOTES:

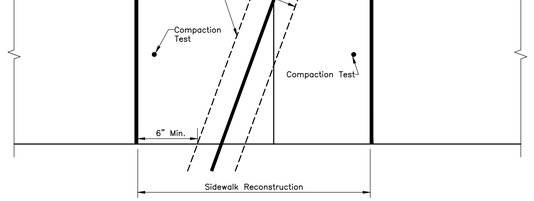
1.) Full Depth Saw-Cut 2 Feet On Either Side Of The Outer Limits Of The Utility Trench And Remove Pavement. Saw-Cut Should Be Made Perpendicular To The Trail's Centerline.

2.) Backfill Utility Trench With Flowable Fill Per Pavement Reconstruction Detail DS-G03.

3.) Aggregate Subbase Compaction Adjacent To The Utility Trench Shall Not Be Less Than 95% Of The Maximum Dry Density As Determined By AASHTO T99. One Compaction Test On Each Side Of The Utility Trench Shall Be Performed.

4.) Replace Asphalt Per Typical Trail Cross Section Detail DS-G06 Making Sure To Match Existing Grades.

DEVELOPMENT STANDARD – DETAIL DS-G07



EXISTING SIDEWALK RECONSTRUCTION

Not To Scale

NOTES:

1.) Full Depth Saw-Cut Nearest Contraction Joints Outside Of Utility Trench And Remove Existing Sidewalk.

2.) Backfill Utility Trench With Flowable Fill Per Pavement Reconstruction Detail DS-G03.

3.) Aggregate Subbase Compaction Adjacent To The Utility Trench Shall Not Be Less Than 95% Of The Maximum Dry Density As Determined By AASHTO T99. One Compaction Test On Each Side Of The Utility Trench Shall Be Performed.

4.) Replace Preformed Joint Filler If Removed During Sidewalk Removal.

5.) If Utility Alignment Follows The Sidewalk Joint Take Adjacent Sidewalk Panels Out.

6.) If Utility Trench Encroaches Within 6" Inches Of Contraction Joint Take Adjacent Sidewalk Panel Out.

7.) Replace Sidewalk Per Typical Sidewalk Detail On Sheet 03 Making Sure To Match Existing Grades.

DEVELOPMENT STANDARD – DETAIL DS-G08

REVISIONS		
Rev. No.	Description	Date

DAVID LAHEY REGISTERED No. PE19700063 STATE OF INDIANA PROFESSIONAL ENGINEER

RECOMMENDED FOR APPROVAL	DESIGN ENGINEER	01/01/2019 DATE
APPROVED	TOWN ENGINEER	01/01/2019 DATE
APPROVED	DIRECTOR OF TRANSPORTATION	01/01/2019 DATE

TOWN OF PLAINFIELD

GENERAL (G)
DEVELOPMENT STANDARDS

SHEET 07 OF 25

STORM SEWER REINFORCED CONCRETE PIPE

1.) Reinforced Concrete Pipe Shall Be Class **III**, **IV**, Or **V** As Specified In ASTM C76.

2.) Reinforced Elliptical Concrete Pipe Shall Be Class HE–**II** Or HE–**IV** As Specified In ASTM C507.

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 According To 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 Manufacture, 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 C443. 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 POLYVINYL CHLORIDE (PVC) PIPE

1.) Pipe Diameters Of 12 Inches Through 15 Inches Shall Meet Or Exceed All The Requirements Of ASTM D3034, And Shall Have A Minimum Cell Classification Of 12454. Reference Should Be Made To ASTM D1784 For A Summarization Of Cell Class Properties. Pipe Diameters Greater Than 15 Inches Shall Meet Or Exceed All Requirements Of ASTM F679, And Shall Have A Minimum Cell Classification Of 12454. PVC Ribbed Sewer Pipe Shall Meet Or Exceed All Requirements Of ASTM F794, And Shall Have A Minimum Cell Classification Of 12454.

2.) The Minimum Wall Thickness Of Pipe 10 Inches Through 15 Inches In Diameter Shall Conform To SDR–26, Type PSM, As Specified In ASTM D3034. The Minimum Wall Thickness For Pipe Diameters Greater Than 15 Inches Shall Conform To PS 46 As Specified In ASTM F679. PVC Pipe Shall Have A Minimum Pipe Stiffness Of 46 Pounds Per Square Inch For Each Diameter When Measured At Five Percent Deflection And Tested In Accordance With ASTM D2412.

3.) Pipe Joints Shall Have A Bell Wall, Gasket Groove, And Spigot Which Are Integral With The Pipe. The Assembly Of Joints Shall Be In Accordance With The Pipe Manufacturer's Recommendations And ASTM D3212. No Solvent Cement Joints Shall Be Allowed. Gasket Material Shall Be Constructed Of Styrene Butadiene Or Butyl Rubber And Meet The Requirements Of ASTM F477.

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

5.) Installation Shall Be In Accordance With Recommended Practice ASTM D2321.

STORM SEWER HIGH DENSITY POLYETHYLENE (HDPE) CORRUGATED PIPE

1.) Requirements For Test Methods, Dimensions, And Markings Are Those Found In AASHTO 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 D1248.

3.) Minimum Pipe Stiffness Values Shall Be In Accordance With AASHTO Specifications M–294.

4.) The HDPE Corrugated Pipe Shall Have An Integrally Formed Smooth Interior. Male And Female Pipe Ends Which Allow The Construction Of Overlapping Gasket Joints Shall Be Made In Conformance With ASTM D3212. Neoprene Gaskets Shall Meet ASTM F477.

5.) Installation Shall Be In Accordance With Recommended Practice ASTM D2321.

6.) HDPE Pipe Greater Than 36 Inches In Diameter Shall Not Be Allowed For Use In The Town Of Plainfield.

7.) HDPE 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. HDPE Pipe Greater Than 18 Inches In Diameter Shall Not Be Allowed For Use Within The Public Right–Of–Way In The Town Of Plainfield.

STORM SEWER CORRUGATED POLYPROPYLENE (PP) PIPE

1.) 12–inch through 60–inch Pipe Shall Be Smooth Interior And Annular Exterior Corrugated Polypropylene (PP) Pipe Meeting The Requirements Of ASTM F2764, ASTM F2881 or AASHTO M330 Type S (Double–Wall) Or D (Triple–Wall), For Respective Diameters.

2.) Material For Pipe And Fitting Production Shall Be An Impact Modified Copolymer Meeting The Material Requirements Of ASTM F2764, ASTM F2881 And AASHTO M330, For Respective Pipe Diameters.

3.) Watertight Joints Shall Be Bell–And–Spigot Meeting The Watertight Requirements Of ASTM D3212. Gaskets Shall Comply With The Requirements Of ASTM F477. Gaskets Shall Be Installed By The Pipe Manufacturer And Covered With A Removable Wrap To Ensure The Gasket Is Free From Debris. A Joint Lubricant Supplied By The Manufacturer Shall Be Used On The Gasket And Bell During Assembly.

4.) Fittings Shall Conform To ASTM F2764, ASTM F2881 Or AASHTO M330, With The Exception Of Meeting The Watertight Joint Performance Requirements Of ASTM D3212. Gasketed Bell And Spigot Connections Shall Utilize A Spun–on, Welded Or Integral Bell And Spigot With Gaskets Meeting ASTM F477.

4.) Each Pipe Section Shall Be Marked With Nominal Pipe Size, Class Size And Wall, Date of Manufacture, Trademark or Tradename and ASTM Specification

5.) Installation Shall Be In Accordance With ASTM D2321 And Manufacture's Recommended Installation Guidelines.

STORM SEWER GENERAL NOTES

1.) Storm Sewer Pipe Of Other Material Or Material Not Meeting These Specifications Shall Require The Prior Written Approval Of Plainfield DPW.

2.) The Contractor Shall Submit Information To The Town Engineer Showing Conformance With These Specifications Upon Request.

3.) As–Built Drawings Shall Be Submitted To Plainfield DPW.

4.) To Get Relief From The Town's Inlet And Manhole Requirements, A Structural Best Management Practice Or Isolation From The Town's System Is Required. The Town Standards For Bedding Of Pipe And Pipe Material For Storm Sewers Are Required Regardless.

5.) The Centerline Of Storm Water Quality Structures Shall Be Located As Required So As To Be Within 15' From Edge Of Pavement. Structure Cone Sections Shall Be Rotated Towards The Street.

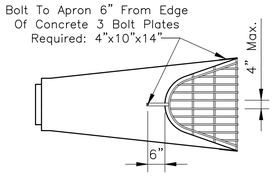
STORM SEWER DEFLECTION TESTING AND TELEVISING

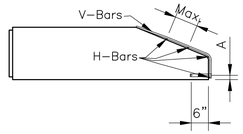
1.) Deflection Testing Is Required For All Mainline Flexible Pipe And Plainfield DPW Shall Be Given 24 Hour Written Notice Of Deflection Testing. An Allowable Deflection Of 5 Percent Inside Pipe Diameter Will Be Acceptable After All Backfilling Has Been In Place For 30 Days. A Nine–Point "Go–No–Go" Mandrel Shall Be Used For The Deflection Test. A Proving Ring Shall Be Provided For Each Mandrel. All Pipe Exceeding The Allowable Deflection Shall Be Televised To Determine The Extent Of Replacement Or Rerounding Required. The Reworked Section Shall Be Retested 30 Days After Completion. Contractor Shall Bear All Testing Costs. The "Go–No–Go" Mandrel Shall Be Manually Pulled Without The Use Of Mechanical Devices.

2.) Televising Is Required For All Pipe Installations. Plainfield DPW Shall Be Given 24 Hour Written Notice Of Televising. A Camera Equipped With Remote Control Devices To Adjust 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 Pipe. The Image Shall Be Clear Enough To Enable The Town Of Plainfield Representative 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, And An Audio Voice–Over Shall Be Made During The Inspection Identifying Problems. Contractor Shall Bear All Televising Costs.

3.) The Pipe Shall Be Thoroughly Cleaned Before Installing Camera And Commencing Televising.

4.) If Any Pipe And/Or Joint Is Found To Be Leaking In Such A Way As Soil Migration Is Likely In The Sole Judgment Of The Town, The Contractor Shall Repair That Portion Of The Work To The Satisfaction And Approval Of The Town Of Plainfield.





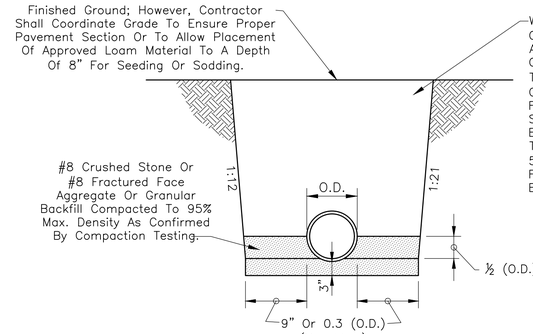
APRON SIZE	V–BAR SIZE (ø)	H–BAR SIZE (ø)	No. OF H–BARS	BOLT DIA.	"A" DIM
12	½	⅝	3	½	4
15	½	⅝	3	½	4 ½
18	½	⅝	4	½	4 ½
21	½	⅝	4	½	5
24	⅝	¾	4	½	5
27	⅝	¾	4	½	5 ½
30	⅝	¾	4	½	5 ½
36	¾	1	4	¾	8
42	¾	1	4	¾	8
48	¾	1	5	¾	8
54	¾	1 ½	5	¾	8
60	¾	1 ½	5	¾	8
66	¾	1 ½	5	¾	8
72	¾	1 ½	5	¾	9
84	¾	1 ½	5	¾	10
90	¾	1 ½	5	¾	10

NOTES:

1. Animal Guard Is Not Required For Culvert Crossings

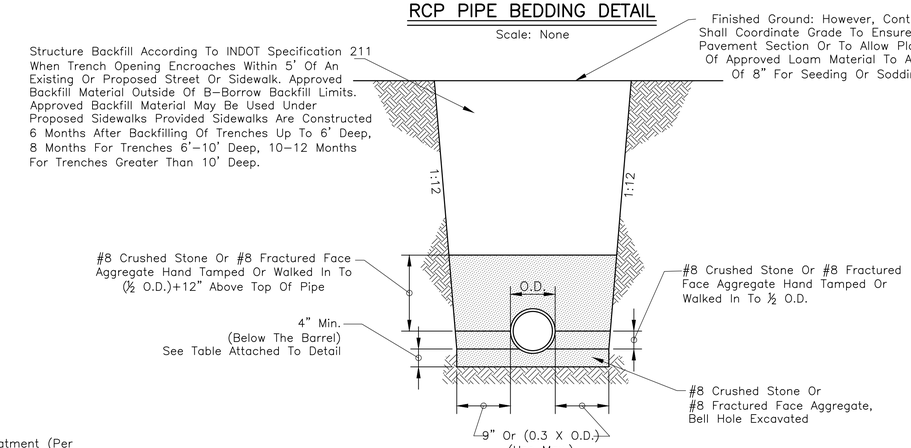
ANIMAL GUARD

Scale: None



RCP PIPE BEDDING DETAIL

Scale: None



Pipe Size	12" TO 15"	18" And Over
Bedding Below The Pipe Barrel	O.D./4 Min.=4"	O.D./4 Min.=8"

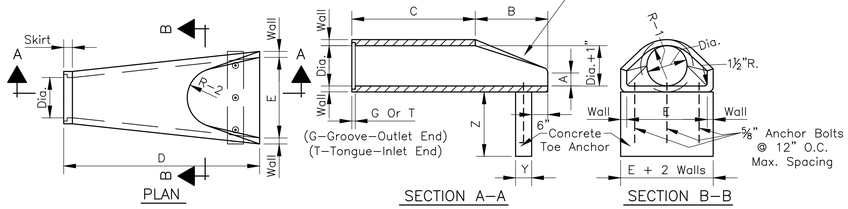
FLEXIBLE (PVC, PP OR HDPE) PIPE BEDDING DETAIL

Scale: None

NOTES:

1. Special Consideration Should Be Made For Shallow Depth Flexible Pipe Where Flotation Is A Possibility.
2. Anti–Flotation Measures Should Be Considered Per Manufacturers Recommendation.

End Section End Treatment (Per Animal Guard Detail) Involving Horizontal Minimum No. 12 Gauge Hot Dipped Galvanized Steel Tubes Of Suitable Diameter And Suitably Affixed To Sloping Portion Of The End Section Shall Be Provided



PLAN SECTION A–A SECTION B–B

DIA.	WALL	G or T	WT. SEC.	A	B	C	D	E	DIA.+1"	R–1	R–2	SKIRT	Y	Z
12	2	1 1/2	530	4	24	48 7/8	72 7/8	24	13	10 1/16	9	3 1/2	12	24
15	2 1/4	2	740	6	27	46	73	30	16	12 1/2	11	3 1/2	12	24
18	2 1/2	2 1/2	990	9	27	46	73	36	19	15 1/2	12	4	12	24
21	2 3/4	2 1/2	1280	9	35	38	73	42	22	16 1/8	13	4	12	36
24	3	2 1/2	1520	9 1/2	43 1/2	30	73 1/2	48	25	16 11/16	14	4 1/2	18	36
27	3 1/4	2 1/2	1930	10 1/2	48	25 1/2	73 1/2	54	28	17 3/4	14 1/2	4 1/2	12	36
30	3 1/2	3	2190	12	54	19 3/4	73 3/4	60	31	18 5/16	15	5	12	36
33	3 3/4	3 3/8	3150	13 1/2	58 1/2	39 1/4	97 3/4	66	34	23 3/4	17 1/2	5 1/2	18	36
36	4	3 1/2	4100	15	63	34 3/4	97 3/4	72	37	24 1/16	20	5 1/2	18	36
42	4 1/2	3 3/4	5380	21	63	35	98	78	43	27 1/4	22	5 1/2	24	36
48	5	4 1/4	6550	24	72	26	98	84	49	28 1/8	22	5 3/4	24	36
54	5 1/2	4 3/4	8040	27	65	35	100	90	55	32 7/8	24	6 1/4	30	36
60	6	5	8750	30	60	39	99	96	61	36 3/4	24	6 3/4	30	36
66	6 1/2	5 1/2	10630	24	78	21	99	102	67	35 11/16	24	7 1/4	30	36
72	7	6	12520	34	78	21	99	108	73	38 5/8	24	7 3/4	36	36
78	7 1/2	6 1/2	14430	24	78	21	99	114	79	41 15/16	24	8 1/2	36	36
84	8	7	16350	24	78	21	99	120	85	44 13/16	24	9	39	36

NOTES:

1. Precast Flared Reinforced Concrete Pipe End Sections Shall Be Used At Exposed Pipe Ends. Concrete Toe Anchors Shall Be Required. Plastic Pipe Shall Require A Full Length Section Of Reinforced Concrete Pipe Jointed By A Concrete Collar Prior To The Precast Concrete Pipe End Section.
2. Revetment Riprap In Accordance With The Most Recent INDOT Channel Design Guide Set On Geotextile In Accordance With The Most Recent INDOT Standard Specifications Shall Be Required At Inlet And Outlet Precast Flared Reinforced Concrete Pipe End Sections.
3. Pipe End Sections Shall Have Appropriately Designed Riprap Outlet Protection. Refer To Outlet Protection Detail On Sheet 18.

PRECAST CONCRETE PIPE END SECTION

Scale: None

REVISIONS		
Rev. No.	Description	Date

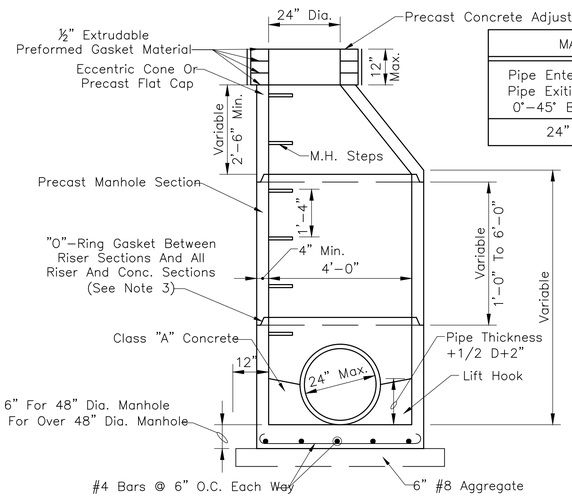
DAVID LAHEY REGISTERED No. PE19700063 STATE OF INDIANA PROFESSIONAL ENGINEER

RECOMMENDED FOR APPROVAL	DESIGN ENGINEER	01/01/2019 DATE
APPROVED	TOWN ENGINEER	01/01/2019 DATE
APPROVED	SUPERINTENDENT OF PUBLIC WORKS	1/1/2019 DATE

TOWN OF PLAINFIELD

STORM SEWER BEDDING DETAILS AND NOTES

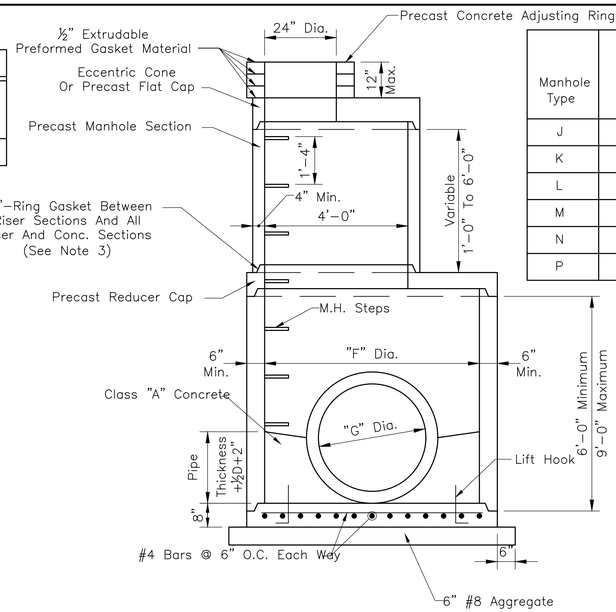
SHEET 08 OF 25



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

MANHOLE TYPE C

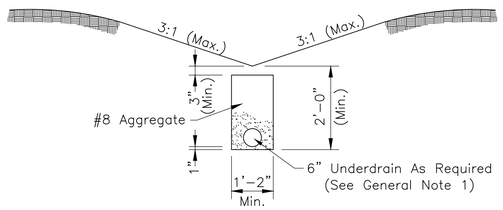
Scale: ½"=1'–0"



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"
P	84"	54"	42"

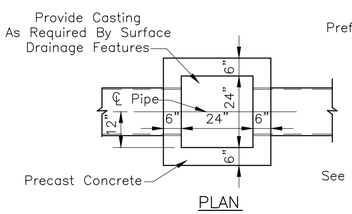
MANHOLES–TYPE J, K, L, M, N & P

Scale: ½"=1'–0"

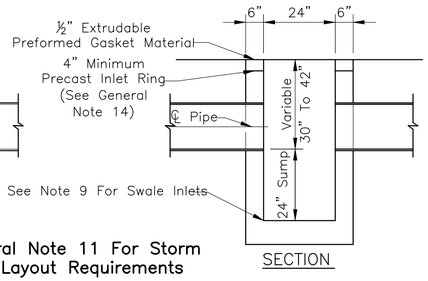


SWALE UNDERDRAIN DETAIL

Scale: ½"=1'–0"



PLAN

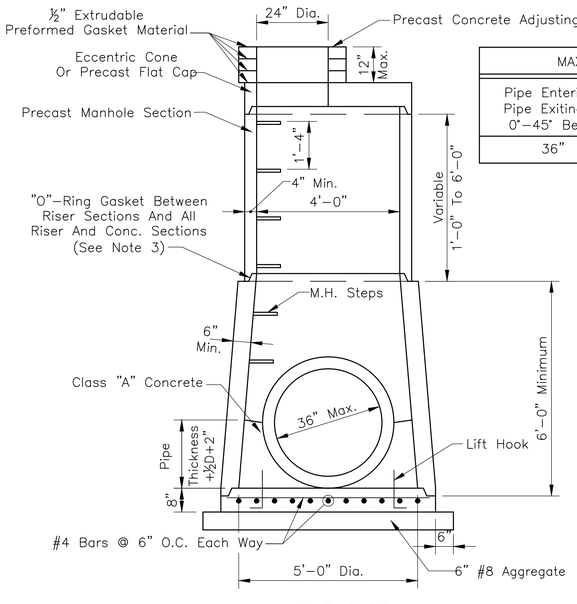


SECTION

See General Note 11 For Storm System Layout Requirements

CATCH BASIN, TYPE A

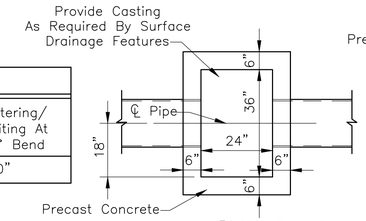
Scale: ½"=1'–0"



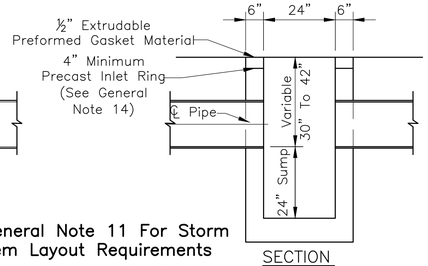
MAXIMUM PIPE SIZE	
Pipe Entering/ Pipe Exiting At 0°–45° Bend	Pipe Entering/ Pipe Exiting At 45°–90° Bend
36"	30"

MANHOLE TYPE H

Scale: ½"=1'–0"



PLAN

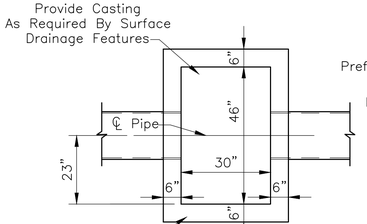


SECTION

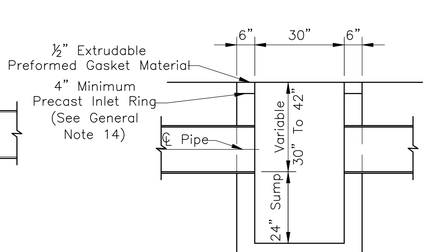
See General Note 11 For Storm System Layout Requirements

CATCH BASIN, TYPE B

Scale: ½"=1'–0"



PLAN



SECTION

See General Note 11 For Storm System Layout Requirements

CATCH BASIN, TYPE C

Scale: ½"=1'–0"

GENERAL NOTES

1.) Swales Shall Be Constructed With A Minimum 0.3 Percent Profile Grade Provided That A 6 Inch Diameter Underdrain Is Provided For Residential Swales And Commercial/Industrial Swales With Less Than A 0.5 Percent Profile Grade. See Detail On This Sheet.

2.) Type J, K, L, M, N, And P Manholes As Detailed Hereon 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.

3.) Manholes Shall Conform To ASTM C478. Joints Shall Conform To ASTM C443. The Use Of Cast–In–Place Concrete Structures Shall Require The Prior Written Approval Of The Town Engineer. Regardless Of The Type Of Casting Used, The Casting Shall Be Centered Over The Manhole Steps.

4.) Manhole Steps Shall Be Neenah R–1981–J, M.A. Industries PS 1–PF, Or As Approved By Plainfield DPW.

5.) For Drainage Of Roll Curb And Gutter, Type **I**, Provide As Per Development Standard Detail DS–D01 Or As Approved By Plainfield DPW.

6.) For Drainage Of Combined Curb And Gutter, Type **II**, Provide As Per Development Standard Detail DS–D02 Or As Approved By Plainfield DPW. For Additional Capacity As Directed By The Engineer, Provide As Per Development Standard Detail DS–D03 Or As Approved By Plainfield DPW. Manholes Shall NOT Directly Drain Type **II** Curb.

7.) For Drainage Of Open Pavement Areas Without Curbing At An Inlet, Provide As Per Development Standard Detail DS–D04 Or As Approved By Plainfield DPW.

8.) For Drainage Of Open Pavement Areas Without Curbing At A Manhole, Provide As Per Development Standard Detail DS–D05 Or As Approved By Plainfield DPW.

9.) Castings For Use On Inlets Or Manholes Which Drain Swales Or Dry Bottom Detention Basins Shall Be As Per Development Standard Detail DS–D06 Or As Approved By Plainfield DPW.

10.) Castings For Manholes Which Do Not Drain Surface Water Shall As Per Development Standard Detail DS–D07 Or As Approved By Plainfield DPW.

11.) Mainline Pipe Shall NOT Connect To Catch Basins. Catch Basin Connections Occur At A Manhole. Mainline Pipe Is Any Pipe Downstream Of A Single Set Of Two Catch Basins Or Any Pipe Larger Than Or Equal To 15 Inch Diameter. Pipe Less Than Or Equal To 15 Inch Diameter Which Drains One Swale Inlet May Be Connected To Catch Basins When The Invert Depth Of Such Catch Basin Is Not Greater Than Shown On The Catch Basin Detail. A 10'–15' Offset Is Required For Inlet Pipes Parallel To Mainline Pipe. It Is Noted That On Commercial Sites No Pipe Is Considered Mainline Pipe Until It Enters The Public R–O–W. Further, On Commercial Sites Precast Concrete Structures, As Detailed By Outside Sources, May Be Used Subject To The Providing Of A Suitable Transition So That Castings Prescribed For Use Within Plainfield Are Used, And Subject To Storm Sewer General Note 4 On Sheet 7.

12.) Catch Basins Require Back Plaster Inside And Out. Castings May Be Adjusted As Much As 1½" Using Cretex Penngrout Or As Approved By Plainfield DPW. Special Adjustment Up To 6" Using Precast Adjusting Ring With ½" Butyl Rubber Gasket May Be Used If Approved By Plainfield DPW.

13.) All Castings Shall Be Per Sheet No. 10 Of The Town Standards.

14.) All Inlets And Catch Basins Shall Have A Minimum Of 3" Allowed For Riser Rings Or Adjustment; Manholes Shall Have A Minimum Of 4".

15.) When A Structure Encroaches Within 5' Of A Roadway, Or At The Discretion Of Plainfield DPW, It Shall Be Backfilled With #8 Stone.

REVISIONS		
Rev. No.	Description	Date

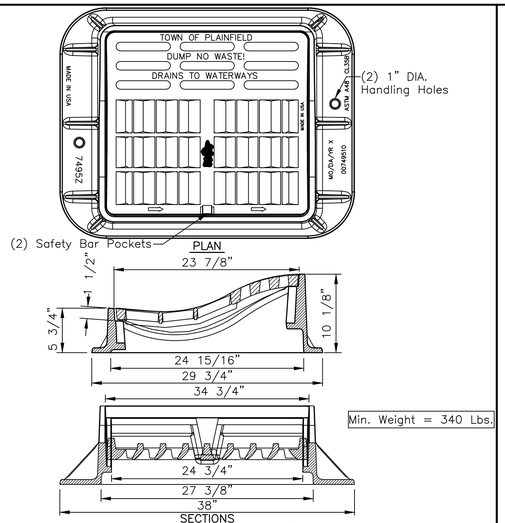
DAVID LAHEY — REGISTERED — No. PE19700063 — STATE OF INDIANA — PROFESSIONAL ENGINEER

RECOMMENDED FOR APPROVAL	DESIGN ENGINEER	01/01/2019 DATE
APPROVED	TOWN ENGINEER	01/01/2019 DATE
APPROVED	SUPERINTENDENT OF PUBLIC WORKS	1/1/2019 DATE

TOWN OF PLAINFIELD

STORM SEWER DETAILS AND NOTES

SHEET 09 OF 25

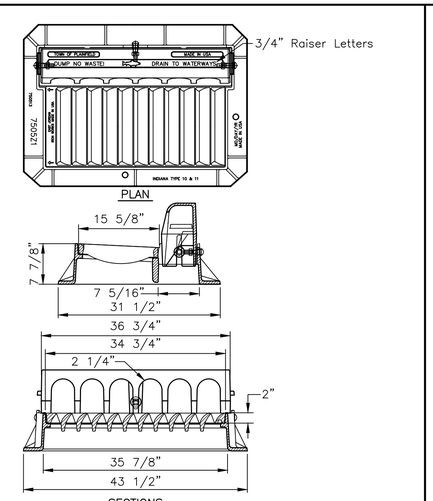


Min. Weight = 340 Lbs.

NEENAH R-3501-TR/TL
EJ 7495Z-M1/M2
OR US FOUNDRY 5254-6233R/L

Not To Scale

DEVELOPMENT STANDARD - DETAIL DS-D01

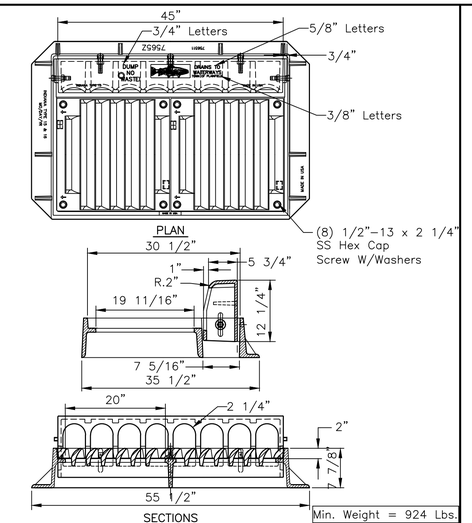


Min. Weight = 497 Lbs.

NEENAH R-3287-10V,
EJ 7505Z1/T4 AND M3,
OR US FOUNDRY 5239-6139

Not To Scale

DEVELOPMENT STANDARD - DETAIL DS-D02

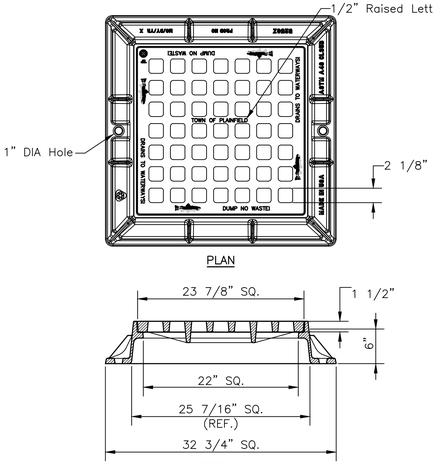


Min. Weight = 924 Lbs.

NEENAH R-3287-15V,
EJ 7565Z/T3 AND M2,
OR US FOUNDRY 5235-6132

Not To Scale

DEVELOPMENT STANDARD - DETAIL DS-D03

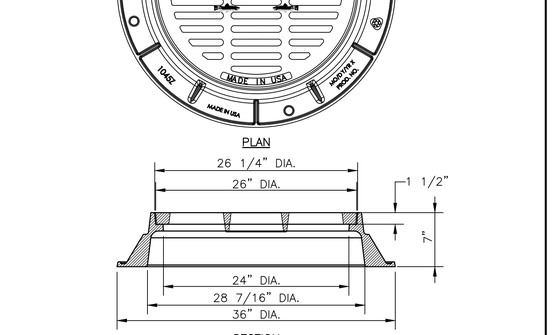


Min. Weight = 260 Lbs.

NEENAH R-3405-AH,
EJ 5250Z AND 5250M,
OR US FOUNDRY 4116-6027

Not To Scale

DEVELOPMENT STANDARD - DETAIL DS-D04

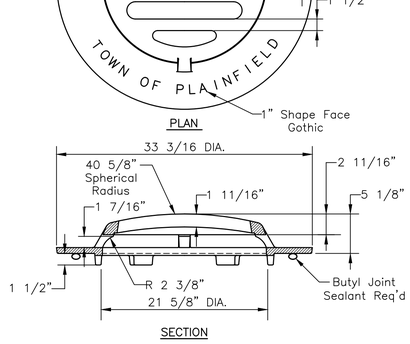


Min. Weight = 245 Lbs.

NEENAH R-2501-G,
EJ 1045Z2 AND 1040M2,
OR US FOUNDRY 755-5755

Not To Scale

DEVELOPMENT STANDARD - DETAIL DS-D05

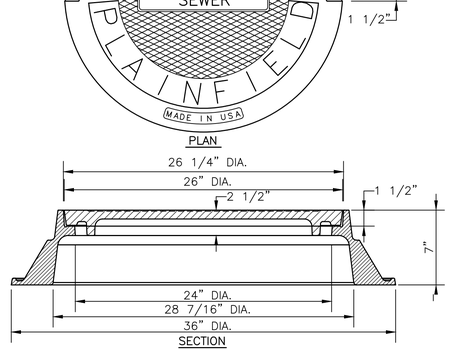


Min. Weight = 174 Lbs.

NEENAH R-4342,
EJ 6489N,
OR US FOUNDRY 5695

Not To Scale

DEVELOPMENT STANDARD - DETAIL DS-D06

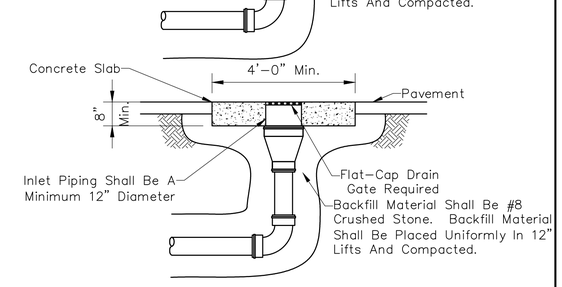


Min. Weight = 251 Lbs.

NEENAH R-1642,
EJ 1045Z2 AND 1040A,
OR US FOUNDRY 755-NC

Not To Scale

DEVELOPMENT STANDARD - DETAIL DS-D07



MINOR STORM CONNECTION

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

Notes:
1.) This Connection Is For Single Family Residential Properties Only And Is NOT To Be Used For Direct Connections From Downspouts.
2.) Drainage Piping Shall Be A Minimum 6" Diameter And Pipe Material Shall Meet Town Standards.
3.) Piping Shall Be Core-Drilled Into Existing Structure And Annular Space Must Be Grouted.
4.) Clean-Outs Shall Be Required At Angular Bends And Every 100' Thereafter.

DEVELOPMENT STANDARD - DETAIL DS-D08

REVISIONS		
Rev. No.	Description	Date

DAVID LAHEY REGISTERED No. PE19700063 STATE OF INDIANA PROFESSIONAL ENGINEER

RECOMMENDED FOR APPROVAL	DESIGN ENGINEER	01/01/2019 DATE
APPROVED	TOWN ENGINEER	01/01/2019 DATE
APPROVED	SUPERINTENDENT OF PUBLIC WORKS	1/1/2019 DATE

TOWN OF PLAINFIELD

STORM DRAINAGE (D)
DEVELOPMENT STANDARDS

SHEET 10 OF 25

WATER MAIN MATERIALS

1.) All Pipe Provided For Use In The Town Of Plainfield Water System Shall Be Of U.S. Production Manufactured By American, U.S. Pipe, Or Town Approved Equal. All Fittings Provided For Use In The Town Of Plainfield Water System Shall Be Of U.S. Production Manufactured By Clow, Tyler, American, Or As Approved By Plainfield DPW.

2.) Ductile Iron Pipe For Water Mains Shall Be Centrifugally Cast And Shall Conform To The Latest Revision Of ANSI A21.5 And AWWA C151. Ductile Iron Pipe With Push–On Or Mechanical Joints Shall Be Special Thickness Class 50. The Pipe Shall Be Provided With A Minimum Laying Length Of 18 Feet.

3.) Ductile Iron Fittings 3 Inches Through 48 Inches Shall Conform To The Latest Revision Of ANSI A21.10 And AWWA C110. Ductile Iron Compact Fittings 3 Inches Through 16 Inches Shall Conform To The Latest Revision Of ANSI A21.53 And AWWA C153. Fittings In, And Within 2 Feet Of, Structures Shall Be Flanged. All Other Fittings Shall Be Mechanical Joint Type.

4.) Ductile Iron Pipe Coatings Shall Conform To The Latest Revision Of ANSI A21.51, AWWA C151, ANSI A21.4, And AWWA C104. Interior Pipe Lining Shall Be Cementious Mortar With Asphaltic Seal Coat. Exterior Pipe Coating Shall Be Standard Asphaltic Coating, Except Exposed Piping Within Structures Shall Receive Shop Priming Compatible With Finish Coat.

5.) Mechanical Joints And Accessories Shall Conform To The Latest Revision Of ANSI A21.10 And AWWA C110. Rubber Gaskets Shall Be Vulcanized Synthetic Rubber And Shall Conform To The Latest Revision Of ANSI A21.11 And AWWA C111.

6.) Flanged Joints Shall Conform To The Latest Revision Of ANSI A21.15 And AWWA C115. Rubber Gaskets Shall Be Either Ring Or Full Face And Shall Be 1/8" Thick. Bolts And Nuts Shall Conform To ANSI B18.2.1 And ANSI B18.2.2.

7.) Push–On Joints Shall Conform To The Latest Revision Of ANSI A21.11 And AWWA C111. Rubber Gaskets Shall Be Vulcanized Synthetic Rubber And Shall Conform To The Latest Revision Of ANSI A21.11 And AWWA C111.

8.) Service Tubing To Customer Shall Be Copper Water Tube, Type K, Soft Temper For 3/4" Through 2" For Underground Service, Conforming To ASTM B88, ASTM B251, And AWWA C800. Pipe Shall Be Marked With The Manufacturer's Name Or Trademark And Mark Indicative Of The Type Of Pipe. Outside Diameter Of The Pipe And Minimum Weight Per Foot Of Pipe Shall Not Be Less Than Listed In ASTM B251, Table II.

9.) Gate Valves Shall Be In Accordance With AWWA C509 Having Fused Epoxy Coating Inside And Outside Assembled With S.S. Bolts And Shall Be American Flow Control Series 2500. Consult Plainfield DPW For Valves Larger Than 16 Inches. Valves Shall Pass A 300 PSI Factory Test. Valve Boxes Shall Be Furnished With Posi–Caps To Align Box Over Stem.

WATER MAIN PRESSURE AND LEAKAGE TESTING

1.) The Town Of Plainfield Shall Be Given 24 Hour Written Notice Of The Required Pressure And Leakage Test To Be Performed By The Contractor. The Pressure And Leakage Test Shall Be Performed In Accordance With The Basic Provisions Of AWWA C600. The Testing Procedure Shall Assume A 100 PSIG Working Pressure. The Test Pressure Shall Not Be Less Than 1.25 Times The Working Pressure At The Highest Point Along The Test Section But Not Less Than 1.5 Times The Assumed Working Pressure At The Point Of Testing. Test Pressure Shall Not Exceed Pipe Or Thrust Restraint Design Pressures Or Rated Pressure Of The Valves. The Test Pressure Shall Not Vary By More Than +5 PSI For The 2 Hour Test Duration.

2.) Valves Shall Not Be Operated In Either Direction At Differential Pressures Exceeding The Rated Valve Working Pressure.

3.) The Pressure And Leakage Test Shall Be Performed Following The General Form Of The Following:

A. Record Time And Line Pressure Prior To Start Of Test.

B. Pump Water Into New Main Until Pressure Reaches 150 PSIG, Stop Pumping When Pressure Reaches 150 PSIG, Record Time And Line Pressure.

C. Contractor Shall Remain At Site For One Hour. The Test Shall Be Voided If Any Adjustments Are Made To The Main, Test Equipment, Or Appurtenances. Tightening Of Fittings On Test Equipment Is Allowed. Following The One Hour Period, Record Time And Line Pressure.

D. Pump Water Into New Main From A Calibrated Container Of Water Until Pressure Reaches 150 PSIG, Stop Pumping When Pressure Reaches 150 PSIG, Record Time, Line Pressure, And Amount Of Water Pumped To The Nearest 1/100 Gallon. The Calibrated Container Shall Have Markings At 1/10 Gallon Increments.

E. Repeat Steps C And D One Additional Time.

4.) A Test Section Of Water Main Is Considered Satisfactory If It Meets The Following:

Main Size (Inches)	Allowable Leakage (Gal./Hr./1000 Ft.)
6	0.50
8	0.66
10	0.83
12	0.99
16	1.32

5.) If The Leakage From A Test Section Is Greater Than Permitted Under These Specifications, The Contractor Shall Locate And Repair The Defective Joints, Mains, And Appurtenances. The Pressure And Leakage Test Shall Then Be Repeated Until Satisfactory Results Are Obtained. All Labor And Materials Required To Meet The Requirements Of The Pressure And Leakage Test Shall Be At The Expense Of The Contractor.

WATER MAIN GENERAL NOTES

1.) Provide A Valve On All Runs And Branches Per The Connection Details On Sheet 12 Of The Plainfield Standards Even When Such Runs Or Branches Are Stubs For Future Extension.

2.) Storm Pipe Conflicts Require Special Attention In That Proposed Water Mains Shall Pass Over Proposed Mainline Storm Pipe. Such Situations May Require Upsizing Of Downstream Storm Pipes To Enable Flatter Slopes To The Point Of Conflict Such That 30 Inch Minimum Cover Is Maintained Over The Water Main. Vertical Water Main Fittings Shall Not Be Used. All Water Main Crossings Of Storm Pipe Shall Be Shown On Storm Sewer Profiles. When It Is Necessary To Decrease Water Main Cover To Less Than 54 Inches, Inlet Pipes That May Conflict With The Water Main Shall Be Laid At Such Slope To Pass Below The Water Main.

3.) Water Mains Shall Follow The Alignment Of The Road ℄ And Shall Remain 3½ Feet Behind The Back Of Curb On One Side Of The Street Without Alternating From Such Side.

4.) All Water Pipe Shall Be Installed In Accordance With AWWA C600 And With A Minimum Depth Of Cover Of 54 Inches, Except As Provided By General Note No. 2.

5.) Terminate Dead End Mains With A Mainline Valve Followed By A Fire Hydrant Assembly. For Cul–De–Sacs, Eliminate Hydrant Assembly Tee And Terminate With 6" Valve And Fire Hydrant. As Directed Or Approved By The Plainfield DPW, Terminate Temporary Dead End Mains With A #2 Eclipse Post Hydrant With Tamper–Proof Options And Provide #492 Tamper–Proof Wrench With A Brass Street Elbow, Brass Nipple, Mueller B20283 Ball Curb Valve With Box, And A Brass Nipple Tapped Into Restrained Cap. See Development Standard DS–W05.

6.) Unless Unavoidable As Determined By Plainfield DPW, Double Tees Shall Not Be Permitted. Utilize A Cross At Intersection Of Four Water Mains With Cross Sized To Match The Largest Pipe.

7.) See Development Standard DS–W01 For Water Main Abandonment Procedure.

WATER MAIN DISINFECTION, BACTERIOLOGICAL TESTING AND AS–BUILT DRAWINGS

1.) The Town Of Plainfield Shall Be Given 24 Hour Written Notice Of The Required Disinfection, Flushing And Testing Procedures To Be Performed By The Contractor. All Newly Installed Water Mains Shall Be Disinfected In Accordance With ANSI/AWWA C–651. Liquid Chlorine, High–Test Calcium Hypochlorite (70 Percent Chlorine), Or High–Test Sodium Hypochlorite (14.7 Percent Chlorine) May Be Used To Provide An Initial Minimum Concentration Of 25 mg/L Of Free Chlorine In All Newly Installed Mains.

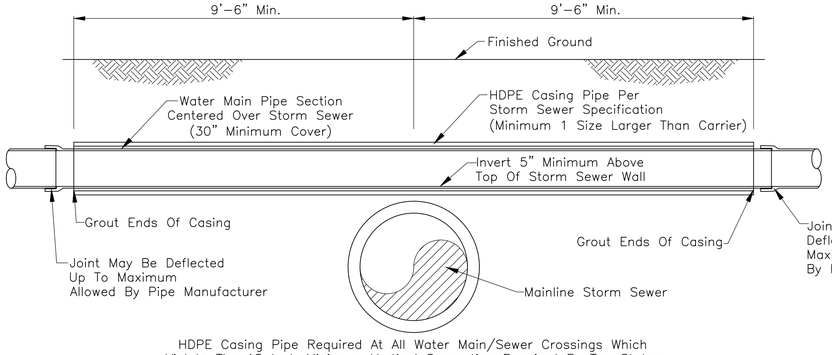
2.) A Minimum Concentration Of 10 mg/L Of Free Chlorine Shall Be Maintained In All Parts Of The Newly Installed Mains For 24 Hours Of Contact Time.

3.) Following The Initial 24 Hour Contact Time But Prior To 48 Hours Of Contact Time, All Treated Water Shall Be Properly Dechlorinated and Thoroughly Flushed From The Newly Laid Pipe At Its Extremity Until The Replacement Water Has A Chlorine Residual Of Less Than 1 mg/L.

4.) After Flushing, Water Samples Collected On Two Successive Days From The Treated Piping System, As Directed By The Town Of Plainfield, Shall Show Satisfactory Bacteriological Tests. Following Satisfactory Bacteriological Tests, Contractor Shall Submit 2 Copies Of The Results To Plainfield DPW And To IDEM Drinking Water Branch.

5.) The Taking Of Samples And The Testing Of Chlorine Residual Shall Be Carried Out By The Contractor At The Direction Of The Town Of Plainfield.

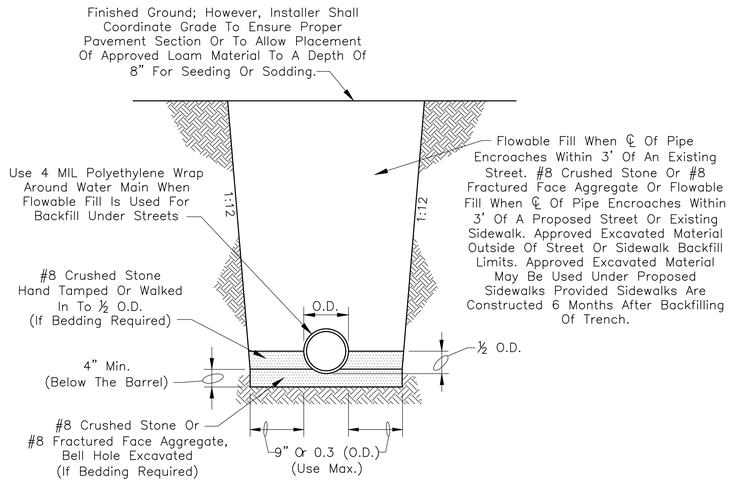
6.) As–Built Drawings Shall Be Submitted To Plainfield DPW.



HDPE Casing Pipe Required At All Water Main/Sewer Crossings Which Violate The 18 Inch Minimum Vertical Separation Required By Ten States Standards. Refer To Water Main General Notes.

SPECIAL STORM SEWER CONFLICT TREATMENT

Scale: None



D.I. PIPE BEDDING TABLE		
Pipe Size (in)	Bedding Depth Below Barrel (in)	Cubic Yards Of Bedding Per Foot Of Pipe (cys/ft)
4	4	0.038
6	4	0.053
8	4	0.070
10	4	0.088
12	4	0.108
14	4	0.131
16	5	0.164
18	5	0.191
20	6	0.230
24	7	0.306
30	8	0.432

Note: Bedding Is Still Required Where Pipe Requires Structural Backfill (Flowable, #8, Etc.)

Experience Of Plainfield DPW Has Been That Bedding Has Not Been Required For Nearly All Installations. However, Plainfield DPW May Direct That Bedding Is Required As Trench Conditions Dictate. Therefore, It Is Recommended That The Project Owner And The Project Contractor Come To Agreement On Payment Methods In The Event That Bedding Is Required. The DI PIPE BEDDING TABLE Is A Useful Tool For Such A Purpose.

DI PIPE BEDDING DETAIL

Scale: None

REVISIONS		
Rev. No.	Description	Date

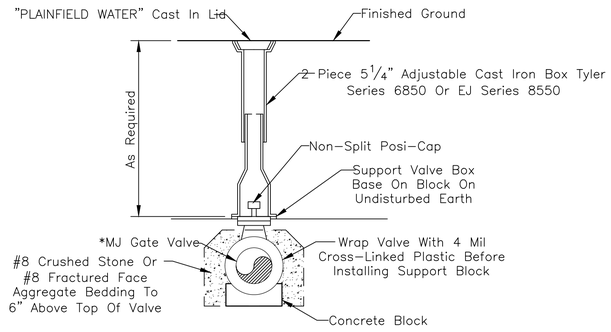
DAVID LAHEY — REGISTERED — No. PE19700063 — STATE OF INDIANA — PROFESSIONAL ENGINEER

RECOMMENDED FOR APPROVAL	DESIGN ENGINEER	01/01/2019 DATE
APPROVED	TOWN ENGINEER	01/01/2019 DATE
APPROVED	SUPERINTENDENT OF PUBLIC WORKS	1/1/2019 DATE

TOWN OF PLAINFIELD

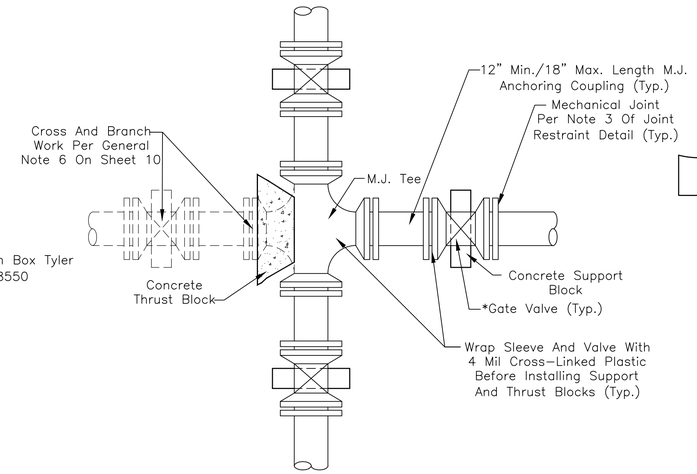
WATER MAIN BEDDING DETAILS AND NOTES

SHEET 11 OF 25



TYPICAL VALVE INSTALLATION DETAIL

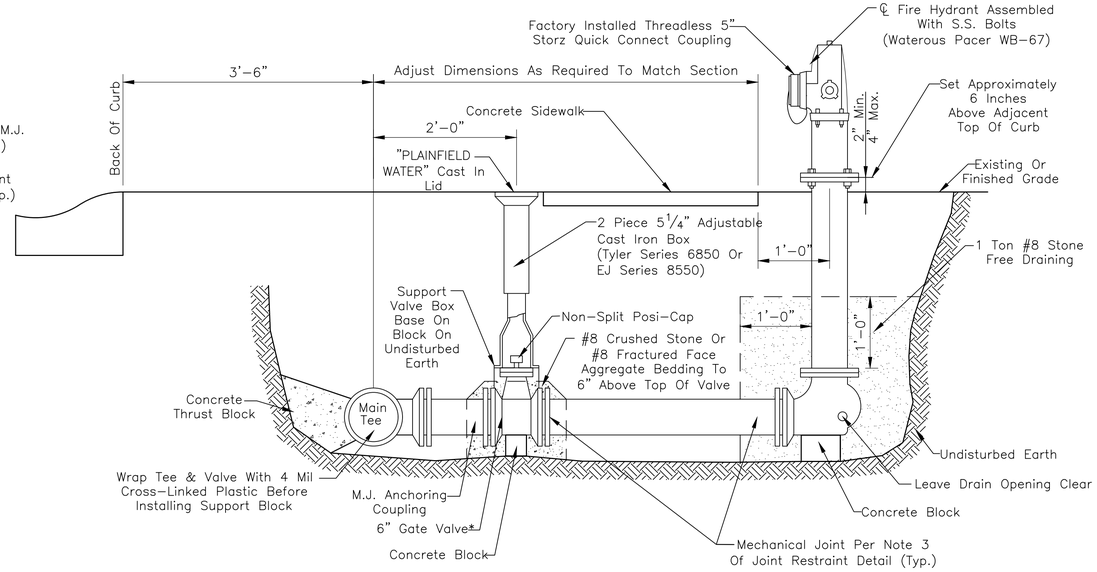
Scale: None



See Development Standard DS-W01 For Tapping Sleeve And Valve Connection, Cutting-In Sleeve And Tee Connection, And Procedures For Abandonment Of Water Mains.

STANDARD NEW WORK BRANCH CONNECTION

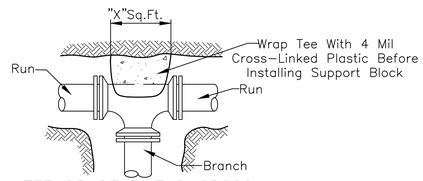
Scale: None



Note: Fire Hydrants Shall Be Painted Safety Yellow If Placed Behind Private Distribution Vault

TYPICAL HYDRANT INSTALLATION DETAIL

Scale: None



TEE OR DEAD-END CROSS

MINIMUM LENGTH OF RESTRAINED JOINT D.I. PIPE (WITHOUT POLY WRAP) EACH SIDE OF FITTING (FEET)				
PIPE SIZE	6"	8"	12"	16"
Tee Including Thrust Block (See Note 4)	15	20	28	36
Horizontal 90° OR Vertical 45° Down	15	20	28	36
Horizontal 45° OR Vertical 22½° Down	6	8	11	15
Horizontal 22½° Or Vertical 11¼° Down	3	4	6	7
Horizontal 11¼°	2	2	3	3
Dead End	27	35	50	65

NOTES:

1.) Length Of Restraint Measured From Centerline Of Fitting Requiring Restraint. Length Of Restraint For Vertical Bends Up Are Equal To That For Horizontal Bends.

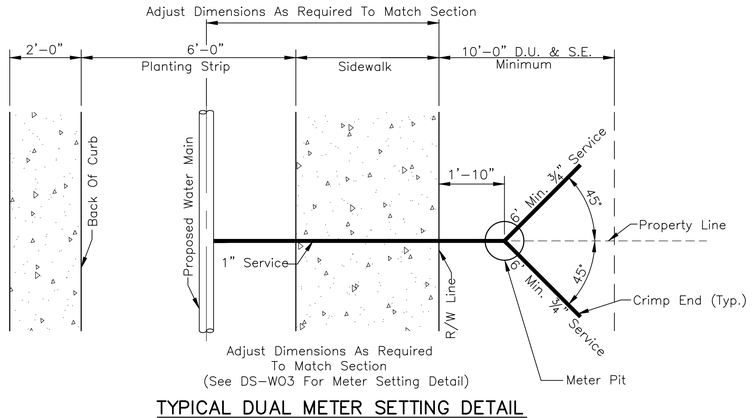
2.) Length Of Restraint Based Upon 4'-6" Cover, 150 PSI Pressure, And ASTM D2487 Soil Types CL, ML, SC, SM, SP, SW, GC, GM, GP, & GW. For Less Cover, Higher Pressure, Or ASTM D2487 Soil Types PT, OH, CH, MH, & OL, Consult Plainfield DPW.

3.) Restraint To Be Accomplished With Field-Lok Gasket As Manufactured By U.S. Pipe Or Fast-Grip Gaskets As Manufactured By American For Push-On Joints, Anchoring Coupling For Valves And Adjacent Tees, Romac Grip Ring For All Mechanical Joints, Or As Approved By Plainfield DPW. Romac Grip Ring May Be Deleted On The Runs Of Hydrant Tees Unless A Mainline Valve Is Within 18 Feet Of The Hydrant Tee Or Unless Hydrant Tee Is Within Another Fitting's Restraint Length. All Restraints Shall Be Of U.S. Production.

4.) Tees And Dead-End Crosses Require Concrete Thrust Blocks In Addition To Branch Restraint Length, "X" Area For Concrete Thrust Blocks Per Detail Shall Be As Follows; 2, 4, 6, And 10 Square Feet For 6, 8, 12, And 16 Inch Pipe, Respectively. Other Than Restraint Of MJ Fittings Adjacent To Tee, No Run Restraint Length Is Required.

JOINT RESTRAINT DETAIL

Scale: None



TYPICAL DUAL METER SETTING DETAIL

Scale: None

* All Gate Valves Shall Be American Flow Control Series 2500 Assembled With Factory Installed Stainless Steel Bolts & Bedded With #8 Crushed Stone Or #8 Fractured Face Aggregate Bedding To 6" Above Top Of Valve.

REVISIONS		
Rev. No.	Description	Date

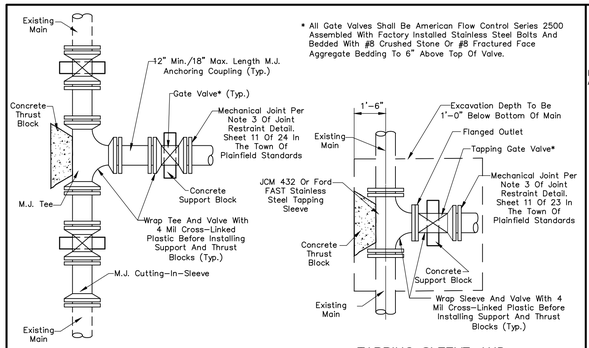
DAVID LAHEY REGISTERED No. PE19700063 STATE OF INDIANA PROFESSIONAL ENGINEER

RECOMMENDED FOR APPROVAL	DESIGN ENGINEER	01/01/2019 DATE
APPROVED	TOWN ENGINEER	01/01/2019 DATE
APPROVED	SUPERINTENDENT OF PUBLIC WORKS	1/1/2019 DATE

TOWN OF PLAINFIELD

WATER MAIN DETAILS & NOTES

SHEET 12 OF 25



* All Gate Valves Shall Be American Flow Control Series 2500 Assembled With Factory Installed Stainless Steel Bolts And Bedded With #8 Crushed Stone Or #8 Fractured Face Aggregate Bedding To 6" Above Top Of Valve.

CUTTING-IN-SLEEVE AND TEE CONNECTION

Not To Scale

TAPPING SLEEVE AND VALVE CONNECTION

Not To Scale

WATER MAIN MATERIALS

1.) All Pipe Provided For Use In The Town Of Plainfield Water System Shall Be Manufactured By American, Griffith, U.S. Pipe, Or As Approved By Plainfield DPW. All Fittings Provided For Use In The Town Of Plainfield Water System Shall Be Manufactured By Clow, Tyler, American, Or As Approved By Plainfield DPW.

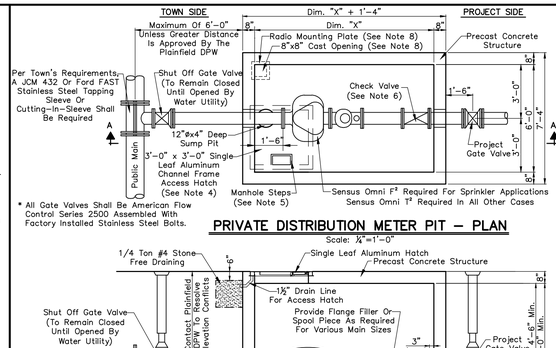
2.) Service Tubing To Customer Shall Be Copper Water Tube, Type K, Soft Temper For 3/4" Thru 2" For Underground Service, Conforming To ASTM B88, ASTM B251, And AWWA C800. Pipe Shall Be Marked With The Manufacturer's Name Or Trademark And Mark Indicative Of The Type Of Pipe, Outside Diameter Of The Pipe And Minimum Weight Per Foot Of Pipe Shall Not Be Less Than Listed In ASTM B251, Table II.

WATER MAIN ABANDONMENT PROCEDURES

1.) In Cases Where An Existing Main Line Is To Be Abandoned, The Abandonment Shall Include The Complete Removal Of The Tee & Replacement With Sleeve And Pipe As Required.

2.) In Cases Where An Existing Service Line Is To Be Abandoned, The Abandonment Shall Include The Complete Removal Of The Service Line To Corporation Stop & Placement Of A Brass Cap At The Stop.

DEVELOPMENT STANDARD – DETAIL DS-W01



* All Gate Valves Shall Be American Flow Control Series 2500 Assembled With Factory Installed Stainless Steel Bolts.

PRIVATE DISTRIBUTION METER PIT – PLAN

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

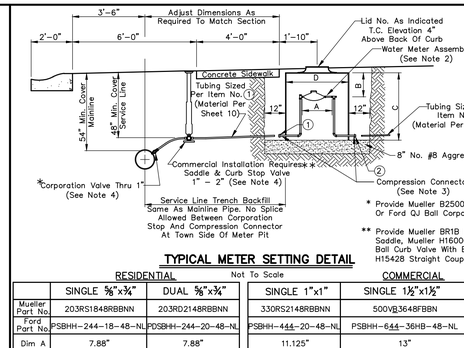
PRIVATE DISTRIBUTION METER PIT – SECTION "A-A"

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

	4" COMPOUND	6" COMPOUND	8" COMPOUND
Dim. "X"	8'-0"	8'-0"	10'-0"

1.) Provide Minimum #4 Rebars On 12" Centers, Each Way In Top, Bottom, And All Sides.
2.) All Labor And Materials To Be Provided By The Developer.
3.) Piping, Valves, Double Detector Check Valve Assembly, And Meter Shall Be Same Size Throughout. Other Than Dim. "X", Meter Pit Dimensions Shall Be Maintained For 4", 6", And 8" Mains.
4.) Access Hatch Shall Be On Meter Side Of Pit And Shall Be Bilco Model J-4AL With Drain Coupling Or As Approved By Plainfield DPW.
5.) Manhole Steps Shall Be Neenah R-1981-J, EJ No. 8512, M.A. Industries PS-1-PF, Or As Approved By Plainfield DPW.
6.) Check Valve Shall Be Bronze Seated And Shall Be Provided With Bolted Covers For Easy Access To The Discs. Valve Shall Be Outside Adjustable Weight And Lever As Mueller A-2600-6-01, Kennedy/Clow 1106LW, Or As Approved By The Plainfield DPW.
7.) Piping In And Within 2 Feet Of Meter Pit Shall Be Class 53 Flanged Ductile Iron Pipe. Transition To Class 50 At A Mechanical Joint.
8.) Provide 1/4"x12"x12" Steel Plate, Paint Plate With 5 Mils DFT Tnemec 74-ANSI No. 61 Gray Over 3 Mils DFT Tnemec 90-97 Primer. Center Plate Over 8"x8" Opening. Secure Plate With Four 1/4"ø 304 S.S. Anchor Bolts, Nuts, And Washers.

DEVELOPMENT STANDARD – DETAIL DS-W02



TYPICAL METER SETTING DETAIL

Not To Scale

	RESIDENTIAL		COMMERCIAL		
	SINGLE 5/8"x3/4"	DUAL 5/8"x3/4"	SINGLE 1"x1"	SINGLE 1½"x1½"	SINGLE 2"x2"
Mueller Part No.	203RS1848RBBNN	203RD2148RBBNN	330RS2148RBBNN	500VB3648FBBN	550VB3648FBBN
Ford Part No.	PSBHH-244-18-48-NL	PDSBHH-244-20-48-NL	PSBHH-444-20-48-NL	PSBHH-644-36HB-48-NL	PSBHH-744-36HB-48-NL
Dim A	7.88"	7.88"	11.125"	13"	17"
Dim B	7"	7"	7"	16.5"	16.5"
Dim C	48"	48"	48"	48"	48"
Dim D	18"	21"/20"	21"/20"	36"	36"
Lid No.	Ford A32-T	Ford A3-T	Ford A3-T	Ford MC36-T	Ford MC36-T
①	¾" Compression	1" Compression	1" Compression	2" Compression (See Note 4)	2" Compression
②	¾" Compression	¾" Compression	1" Compression	2" Compression (See Note 4)	2" Compression

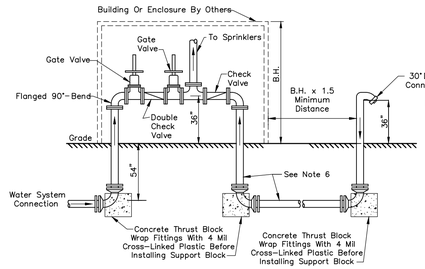
* Provide Mueller B25008 Ball Corporation Valve Or Ford QJ Ball Corporation Valve.

** Provide Mueller BR1B Bronze Service Saddle, Ford Saddle, Mueller H16000 Brass Nipple, Mueller B22028 Ball Curb Valve With Box Per Sheet 11, And Mueller H15428 Straight Coupling. (Level Tap)

METER SETTING NOTES:

1.) Residential Construction Requires The Use Of Dual Meter Installations Whenever Possible.
2.) Water Meter Assembly Shall Consist Of Sensus 5/8" x 3/4" Meter, Yoke Valve On The Supply Side Of The Meter, And Ames LF2000B Double Check Assembly On The Customer Side Of The Meter. Meters For Residential Use Provided By Town, All Other Meters, Regardless Of Use, Provided By User.
3.) The Contractor Shall Make All Tubing Connections Utilizing Mueller Or Ford Quick Compression Connectors.
4.) Tubing May Be Used 1½" Or 2" For Such 1½" Meter. Provide Reducing Fittings As Required.
5.) Residential Meters Require A Radio Read System. Commercial Meters And Radios Are Not Provided By The Town.
6.) See Development Standards For Private Distribution Meter Pit And Procedures For Abandonment Of Service Lines.
7.) Meter Lid Adjustment Shall Be Accomplished With Adjusting Rings Manufactured by Mueller Or Ford. The Maximum Adjustment Shall Be 4 Inches.

DEVELOPMENT STANDARD – DETAIL DS-W03



TYPICAL FREE STANDING SPRINKLER CONNECTION

Not To Scale

NOTES:

1.) The Connection Shall Be Within 150', As Measured On A Paved Roadway, Of A Fire Hydrant Supplied By The Public Water Main. The Connection And Hydrant Location Shall Be Such That From The Hydrant To A Fire Department Pumper, And From The Pumper To The Free Standing Sprinkler Connection, Access To Premises Will Not Be Blocked.
2.) Underground Pipe Shall Be Designed And Constructed As Required For An Underground Fire Main Using NFPA 24. Design Shall Allow For Water To Drain After Use.
3.) The Free Standing Sprinkler Connection Shall Be A 5" Threadless 45° Downward Connection.
4.) The Free Standing Sprinkler Connection Shall Be Painted Red, And Labeled "SPRINKLER CONNECTION" Or "STANDPIPE CONNECTION" With The Address Served Displayed.
5.) Where The Connection Is Subject To Vehicular Damage, The Connection Shall Be Protected. Protection Components Shall Not Be Closer Than 36" To The Connection And Shall Not Interfere With The Operation Of The Connection.
6.) Fire Department Connection (FDC) Pipe Diameter Shall Not Be Reduced At Any Point In The FDC Line From The Point Of Connection At The Base Of The Sprinkler/Standpipe Riser (BOR) To The Point Of Attachment Of The 5 Inch Storz Coupling.

DEVELOPMENT STANDARD – DETAIL DS-W04

TEMPORARY DEAD-END WATER MAIN TERMINATION DETAIL

Not To Scale

DEVELOPMENT STANDARD – DETAIL DS-W05

* All Gate Valves Shall Be American Flow Control Series 2500 Assembled With Factory Installed Stainless Steel Bolts.

FIRE PROTECTION METER VAULT – PLAN

Scale: 3/8" =1'-0"

FIRE PROTECTION METER VAULT – SECTION "A-A"

Scale: 3/8" =1'-0"

1.) All Labor And Materials including Meters And Radios To Be Provided By The Developer.
2.) Piping, Valves, Double Detector Check Valve Assembly, And Meter Shall Be Same Size Throughout. Meter Pit Dimensions Shall Be Maintained For 4", 6", And 8" Mains.
3.) Manhole Steps Shall Be Neenah R-1981-J, M.A. Industries PS-1-PF, Or As Approved By Plainfield DPW.
4.) Water Meter Assembly Shall Consist Of Sensus IPERL 5/8" x 3/4" Meter, Yoke Valve On The Supply Side Of The Meter And Ames LF 2000B Double Check Assembly On The Customer Side Of The Meter.
5.) Piping In And Within 2 Feet Of Meter Pit Shall Be Class 53 Flanged Ductile Iron Pipe. Transition To Class 50 At A Mechanical Joint.
6. Meter Lid Adjustment Shall Be Accomplished With Adjusting Rings Manufactured by Mueller Or Ford. The Maximum Adjustment Shall Be 4 Inches.

DEVELOPMENT STANDARD – DETAIL DS-W06

REVISIONS		
Rev. No.	Description	Date

DAVID LAHEY REGISTERED No. PE19700063 STATE OF INDIANA PROFESSIONAL ENGINEER

RECOMMENDED FOR APPROVAL	DESIGN ENGINEER	01/01/2019	DATE
APPROVED	TOWN ENGINEER	01/01/2019	DATE
APPROVED	SUPERINTENDENT OF PUBLIC WORKS	1/1/2019	DATE

TOWN OF PLAINFIELD

WATER (W)
DEVELOPMENT STANDARDS

SHEET 13 OF 25

SANITARY SEWER REINFORCED CONCRETE PIPE

1.) Reinforced Concrete Pipe For Use As Sanitary Sewers Shall Be Class III, IV, Or V As Specified By Design Engineer Per ASTM C76. Lift Holes Shall Not Be Permitted.

2.) Each Section Of Reinforced Concrete Pipe Shall Be Vacuum Tested By The Manufacturer Prior To Delivery To The Job Site. Only Pipe Sections Passing Vacuum Test Shall Be Marked As "Vacuum Tested". Vacuum Test Requirements Are As Follows:

A. Each Section Of Pipe Shall Tested By Bringing The Internal Pressure Within The Pipe To 3.5 PSIG Below Atmospheric Pressure And The Pressure Must Not Drop To Less Than 2.5 PSIG Below Atmospheric Pressure Within The Time Limitation As Determined By The Following:

$$T = \frac{0.022\ D^2 L}{2}$$

Where: T = Time In Seconds
D = Diameter Of Pipe In Inches
L = Length Of Pipe In Feet

B. Any Pipe Section Failing To Meet This Test Shall Not Be Permitted For Use As Sanitary Sewers In The Town Of Plainfield.

3.) Lateral Connections Shall Be Made With KOR-N-Tee, Inserta-Tee, Or Town Approved Equal.

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

5.) 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 C443. 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, Watertight Joint Under All Conditions Of Service.

SANITARY SEWER POLYVINYL CHLORIDE (PVC) PIPE

1.) PVC Pipe Diameters Of 4 Inches Through 15 Inches Shall Meet Or Exceed All Requirements Of ASTM D3034, And Shall Have A Minimum Cell Classification Of 12454. Reference Should Be Made To ASTM D1784 For A Summarization Of Cell Class Properties. PVC Pipe Diameters Greater Than 15 Inches Shall Meet Or Exceed All Requirements Of ASTM F679, And Shall Have A Minimum Cell Classification Of 12454.

2.) The Minimum Wall Thickness Of PVC Pipe 4 Inches Through 15 Inches In Diameter Shall Conform To SDR-35, Type PSM, As Specified In ASTM D3034 (See Note 5 For Fittings). The Minimum Wall Thickness For P.V.C. Pipe Greater Than 15 Inches Shall Conform To PS 46 As Specified In ASTM F679. P.V.C. Pipe Shall Have A Minimum Pipe Stiffness Of 46 Pounds Per Square Inch For Each Diameter When Measured At Five Percent Deflection And Tested In Accordance With ASTM D2412.

3.) PVC Open Profile Or Closed Profile Sewer Pipe Shall Meet Or Exceed All Requirements Of ASTM F794 Or ASTM F949, And Shall Have A Minimum Cell Classification Of 12454 And A Minimum Uniform Pipe Stiffness Of 50 Pounds Per Square Inch For Each Diameter When Measured At Five Percent Deflection And Tested In Accordance With ASTM D2412 (See Note 5 For Fittings).

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 D3212. Solvent Cement Joints Shall Not Be Allowed For Mainline Pipe.

5.) Pipe Fittings Shall Be SDR-26 Manufactured Fittings Made Of PVC Plastic Having A Cell Classification Of 12454 As Defined In ASTM D1784. Saddle Connections Shall Not Be Allowed For New Construction. Lateral Connections Shall Occur At SDR-26 Tee-Wyes.

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

7.) Installation Shall Be In Accordance With Recommended Practice ASTM D2321.

SANITARY SEWER LATERAL PIPE AND FITTINGS

1.) See Development Standards DS-S01, DS-S02, For Sanitary Sewer Lateral Requirements.

SANITARY SEWER GENERAL NOTES

1.) Sanitary Sewer Pipe Of Other Material Or Material Not Meeting These Specifications Shall Require The Prior Written Approval Of Plainfield DPW.

2.) The Contractor Shall Submit Information To The Town Engineer Showing Conformance With These Specifications Upon Request.

3.) As-Built Drawings Shall Be Submitted To Plainfield DPW.

SANITARY SEWER DEFLECTION TESTING AND TELEVISING

1.) Deflection Testing Is Required For All Mainline Flexible Pipe And Plainfield DPW Shall Be Given 24 Hour Written Notice Of Deflection Testing. An Allowable Deflection Of 5 Percent Inside 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. All Pipe Exceeding The Allowable Deflection Shall Be Televised To Determine The Extent Of Replacement Or Rerounding Required. The Reworked Section Shall Be Retested 30 Days After Completion. Contractor Shall Bear All Testing Costs. The "Go-No-Go" Mandrel Shall Be Manually Pulled Without The Use Of Mechanical Devices.

2.) Following Air And Mandrel Testing, Televising Is Required. Plainfield DPW Shall Be Given 24 Hour Written Notice Of Televising. A Camera Equipped With Remote Control Devices To Adjust 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 Pipe. The Image Shall Be Clear Enough To Enable The Town Of Plainfield Representative And Others Viewing The Monitor To Easily Evaluate The Interior Condition Of The Pipe. The Camera Shall Stamp The DVD With Manhole Number, Lateral Distance From Manhole, Linear Footage And Project Number, And An Audio Voice-Over Shall Be Made During The Inspection Identifying Problems. Contractor Shall Bear All Televising Costs.

3.) The Pipe Shall Be Thoroughly Cleaned Before Installing Camera And Commencing Televising.

4.) If Any Pipe And/Or Joint Is Found To Be Leaking, Regardless Of The Results Leakage Testing, In The Sole Judgement Of The Town, The Contractor Shall Repair That Portion Of The Work To The Satisfaction And Approval Of The Town Of Plainfield.

SANITARY SEWER LEAKAGE TESTING

1.) The Town Of Plainfield Shall Be Given 24 Hour Written Notice Of The Required Leakage Testing Procedure To Be Performed By The Contractor. Low Pressure Air Shall Be Slowly Introduced Into The Sealed Line Until The Internal Air Pressure Reaches 4 PSIG Plus The Groundwater Head Divided By 2.31 (Maximum Test Pressure Is 9 PSIG).

2.) At A Stable Internal Air Pressure Within 0.5 PSIG Of The Initial Internal Air Pressure, Timing Shall Commence With A Stopwatch Or Similar Device Of 99.8 Percent Accuracy. Timing Shall End When The Internal Air Pressure Drops 1 PSIG Below The Stable Internal Air Pressure.

3.) The Line Shall Be Accepted If The Time Shown In Table 1 For The Designated Pipe Size And Length Elapses Before The Air Pressure Drops 1 PSIG Below The Stable Internal Air Pressure At Which Time The Test Can Be Discontinued For The Accepted Line.

TABLE 1

SPECIFICATION TIME REQUIRED FOR A 1.0 PSIG PRESSURE DROP FOR SIZE AND LENGTH OF PIPE INDICATED FOR Q=0.0015

1 Pipe Diameter (In.)	2 Minimum Time (Min:Sec)	3 Length For Minimum Time (Ft.)	4 Time For Longer Length (Sec.)	Specification Time For Length (L) Shown (Min.:Sec.)							
				100 Ft.	150 Ft.	200 Ft.	250 Ft.	300 Ft.	350 Ft.	400 Ft.	450 Ft.
4	3:46	597	.380L	3:46	3:46	3:46	3:46	3:46	3:46	3:46	3:46
6	5:40	398	.854L	5:40	5:40	5:40	5:40	5:40	5:40	5:42	6:24
8	7:34	298	1.520L	7:34	7:34	7:34	7:34	7:36	8:52	10:08	11:24
10	9:26	239	2.374L	9:26	9:26	9:26	9:53	11:52	13:51	15:49	17:48
12	11:20	199	3.418L	11:20	11:20	11:24	14:15	17:05	19:56	22:47	25:38
15	14:10	159	5.342L	14:10	14:10	17:48	22:15	26:42	31:09	35:36	40:04
18	17:00	133	7.692L	17:00	19:13	25:38	32:03	38:27	44:52	51:16	57:41
21	19:50	114	10.470L	19:50	26:10	34:54	43:37	52:21	61:00	69:48	78:31
24	22:40	99	13.674L	22:47	34:11	45:34	56:58	68:22	79:46	91:10	102:33
27	25:30	88	17.306L	28:51	43:16	57:41	72:07	86:32	100:57	115:22	129:48
30	28:20	80	21.366L	35:37	53:25	71:13	89:02	106:50	124:38	142:26	160:15
33	31:10	72	25.852L	43:05	64:38	86:10	107:43	129:16	150:43	172:21	193:53
36	34:00	66	30.768L	51:17	76:55	102:34	128:12	153:50	179:29	205:07	230:46

NOTE:

For More Efficient Testing Of Long Test Sections And/Or Sections Of Larger Diameter Pipes, A Timed Pressure Drop Of 0.5 PSIG May Be Used In Lieu Of The 1.0 PSIG Timed Pressure Drop. If A 0.5 PSIG Pressure Drop Is Used, The Required Test Time Shall Be Exactly Half As Long As Those Shown Above.

SANITARY FORCE MAIN PRESSURE AND LEAKAGE TESTING

1.) The Town Of Plainfield Shall Be Given 24 Hour Written Notice Of The Required Pressure And Leakage Test To Be Performed By The Contractor. The Pressure And Leakage Test Shall Be Performed In Accordance With The Basic Provisions Of AWWA C600. All Force Mains Shall Be Given A Hydrostatic Test Of At Least 1.5 Times The Shutoff Head Of The Connected Pumps Or 150 PSI, Whichever is Lesser. Test Pressure Shall Not Exceed Pipe Restraint Design Pressures Or Rated Pressure Of The Valves. Loss Of Water Pressure During Test Shall Not Exceed 5 PSI In A 2 Hour Test Period.

2.) Valves Shall Not Be Operated In Either Direction At Differential Pressures Exceeding The Rated Valve Working Pressure.

3.) The Pressure And Leakage Test Shall Be Performed Following The General Form Of The Following:

A. Record Time And Line Pressure Prior To Start Of Test.

B. Pump Water Into New Force Main Until Pressure Reaches At Least 1.5 Times The Shutoff Head Of The Connected Pumps Or 150 PSIG, Stop Pumping And Record Time And Line Pressure.

C. Contractor Shall Remain At Site For One Hour. The Test Shall Be Voided If Any Adjustments Are Made To The Force Main, Test Equipment, Or Appurtenances. Tightening Of Fittings On Test Equipment Is Allowed. Following The One Hour Period, Record Time And Line Pressure.

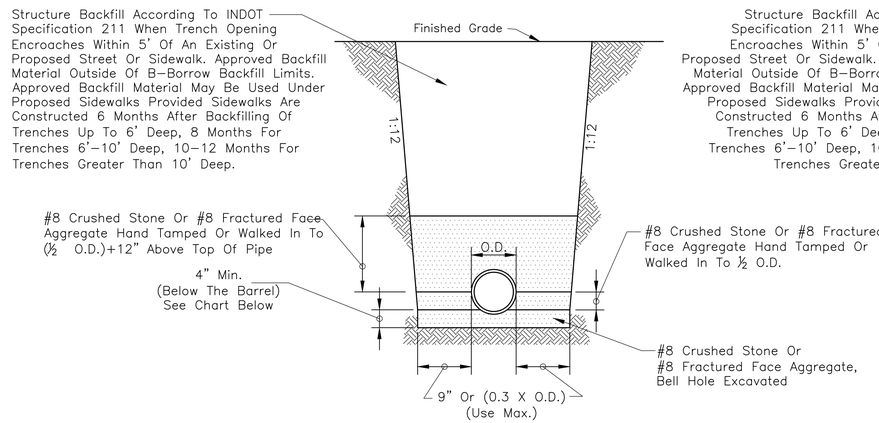
D. Pump Water Into New Force Main From A Calibrated Container Of Water Until Pressure Reaches 150 PSIG, Stop Pumping When Pressure Reaches 150 PSIG, Record Time, Line Pressure, And Amount Of Water Pumped To The Nearest 1/100 Gallon. The Calibrated Container Shall Have Markings At 1/10 Gallon Increments.

E. Repeat Steps C And D One Additional Time.

4.) A Test Section Of Force Main Is Considered Satisfactory If It Meets The Following:

Main Size (Inches)	Allowable Leakage (Gal./Hr./1000 Ft.)
4	0.33
6	0.50
8	0.66
10	0.83
12	0.99

5.) If The Leakage From A Test Section Is Greater Than Permitted Under These Specifications, The Contractor Shall Locate And Repair The Defective Joints, Mains, And Appurtenances. The Pressure And Leakage Test Shall Then Be Repeated Until Satisfactory Results Are Obtained. All Labor And Materials Required To Meet The Requirements Of The Pressure And Leakage Test Shall Be At The Expense Of The Contractor.

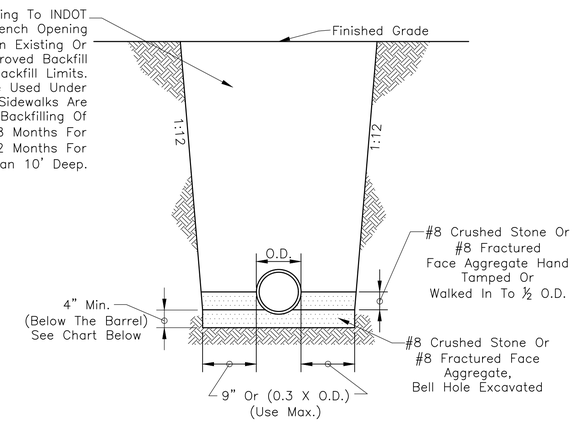


Pipe Size	8" To 15"	18" And Over
Bedding Below The Pipe Barrel	O.D./4 Min.=4"	O.D./4 Min.=8"

See Development Standard DS-S01 For Lateral Pipe Bedding

PVC PIPE BEDDING DETAIL

Scale: None



Pipe Size	8" To 15"	18" And Over
Bedding Below The Pipe Barrel	O.D./4 Min.=4"	O.D./4 Min.=8"

RCP BEDDING DETAIL

Scale: None

REVISIONS		
Rev. No.	Description	Date

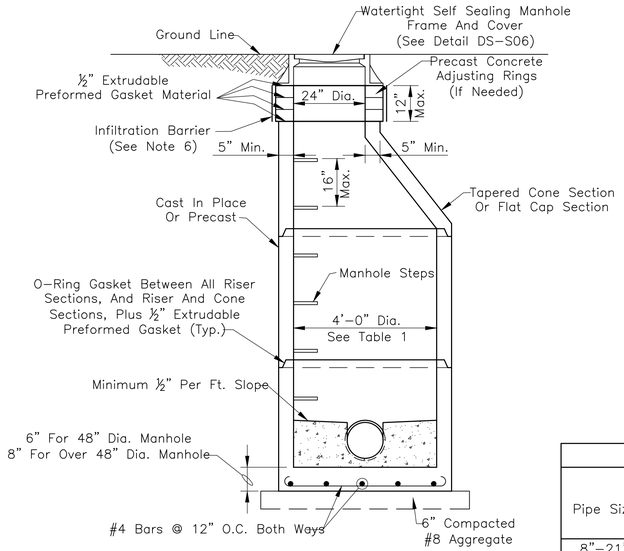
DAVID LAHEY REGISTERED No. PE19700063 STATE OF INDIANA PROFESSIONAL ENGINEER

RECOMMENDED FOR APPROVAL	DESIGN ENGINEER	01/01/2019	DATE
APPROVED	TOWN ENGINEER	01/01/2019	DATE
APPROVED	SUPERINTENDENT OF PUBLIC WORKS	1/1/2019	DATE

TOWN OF PLAINFIELD

SANITARY SEWER
BEDDING DETAILS AND NOTES

SHEET 14 OF 25



See Development Standard Detail DS-S03 For Existing Manhole Connection Detail

TYPICAL MANHOLE TYPE A

Scale: ½" = 1'-0"

MANHOLES

1.) Precast Concrete Manholes Shall Conform To ASTM C478, With Rubber Type Gaskets Equal To ASTM C443. Monolithic Cast In Place Manholes Shall Only Be Used With The Prior Written Approval Of The Town. The Base And First Riser Section Of The Precast Concrete Manhole Shall Be Integrally Cast As One Unit. Precast Concrete Cones Shall Be Of The Eccentric Cone Type. No "See Through" Lift Holes Shall Be Allowed On Precast Concrete Manholes 48 Inches In Diameter Or Less. In Addition To The Rubber Type Gaskets, All Joints Shall Receive A 1/2 Inch Diameter Non-Asphaltic Mastic (Kent-Seal Or As Approved By Plainfield DPW) Conforming To AASHTO M-198 And Federal Specifications SS-S-210A. Sewer Connection To Manhole Shall Be KOR-N-SEAL, A-LOK, Press-Seal, Or As Approved By Plainfield DPW.

2.) Where One Solid Riser Or Barrel Section Cannot Be Used, Final Adjustment In Elevation Of The Frame And Cover Shall Be Accomplished By The Use Of A 4 Inch Minimum Thickness Adjusting Ring As Detailed Herein To A Maximum Combined Thickness Of 12 Inches. Brick Or Block Shall NOT Be Used In The Construction Of A Manhole Or To Adjust The Elevation Of The Frame And Cover.

3.) Manhole Steps Shall Be Neenah No. R-1981-J, M.A. Industries No. PS 1-PF, Or As Approved By Plainfield DPW.

4) Manhole Frame And Cover Shall Be As Per Development Standards Detail DS-S06 Or Town Approved Equal.

5.) The Lowest Elevation To Receive Gravity Sanitary Service Must Be One Foot Above The Top Of Manhole Casting Elevation Of Either The First Upstream Or Downstream Manhole On The Public Sewer To Which Connection Is To Be Made. Those Portions Of The Building Not Meeting The Stated Gravity Sanitary Service Requirement Shall Be Provided With A Grinder Pump System Or Town Approved Equal Discharging To The Gravity Building Connection Outside Of The Public Right-Of-Way.

6.) Infiltration Barrier Shall Be 60 Mils Minimum EPDM Sealed With A 2 Inch Mastic Strip To Cone (Manhole) And To Top Of Casting Lip And Shall Be Infi-Shield Or Town Approved Equal.

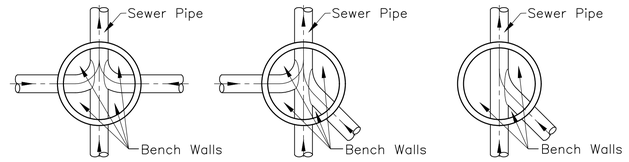
7.) Plainfield DPW May Approve Alternate Drop Connection If There Are Special Circumstances.

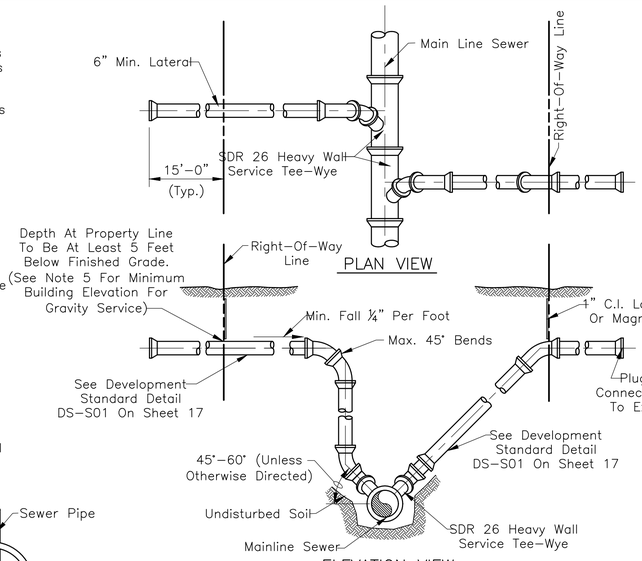
8.) Lateral Connection To A Manhole Is Prohibited.

9.) 10% Of All Sanitary Manholes Shall Be Vacuum Tested With Castings Per ASTM C1244 Following Full Installation. All Sanitary Manhole Sections Shall Be Vacuum Tested In The Shop Prior To Shipment. Dewatering Shall Continue In Order To Prevent Hydrostatic Pressures From Affecting The Test.

TABLE 1		
Pipe Size	Minimum Manhole Diameter	
	Pipe Entering/ Pipe Exiting At 0° To 45° Bend	Pipe Entering/ Pipe Exiting At 45° To 90° Bend
8"-21"	48"	48"
24"	48"	60"
27"-30"	60"	60"
33"-36"	60"*	72"

* 72" With A-Lock Connector

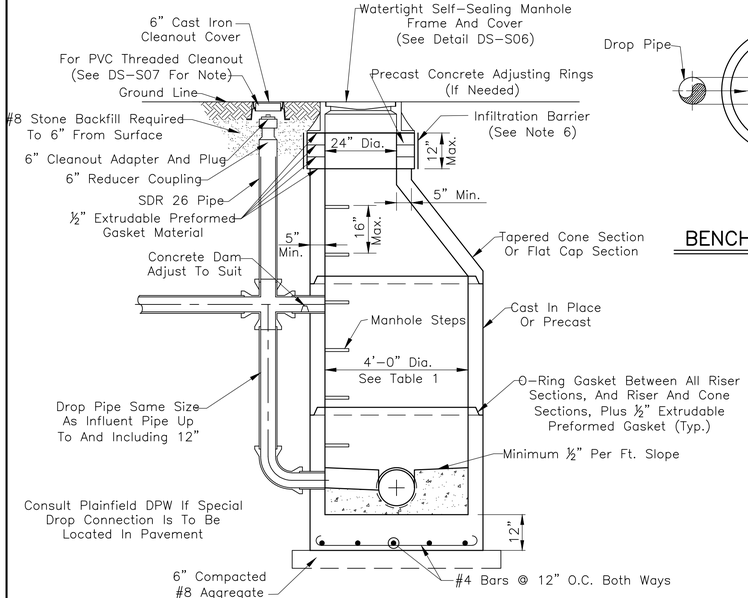




See Development Standards For Replacement/Abandonment Of Sanitary Sewer Laterals

SERVICE CONNECTION FOR DEEP SEWERS (15' DEEP AND OVER)

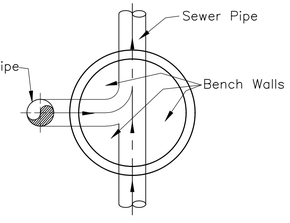
Not To Scale



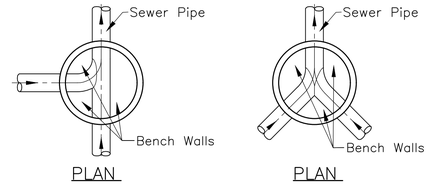
See Development Standards DS-S03 & DS-S05 On Sheet 17 For Connection To Existing Sanitary Manholes

SPECIAL DROP CONNECTION

Scale: ½" = 1'-0"
(For Use Outside Of Pavement Only)



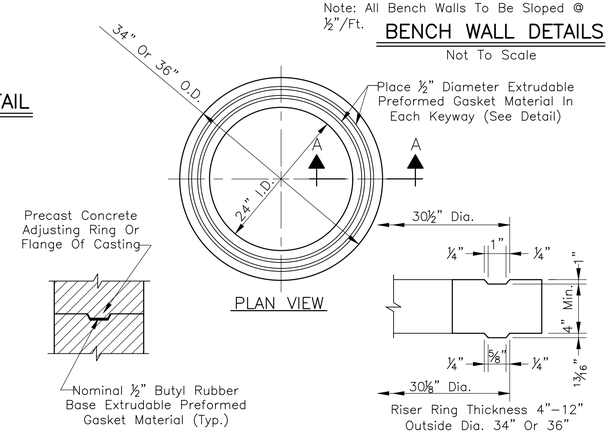
BENCH WALL DETAIL



Note: All Bench Walls To Be Sloped @ ½"/Ft.

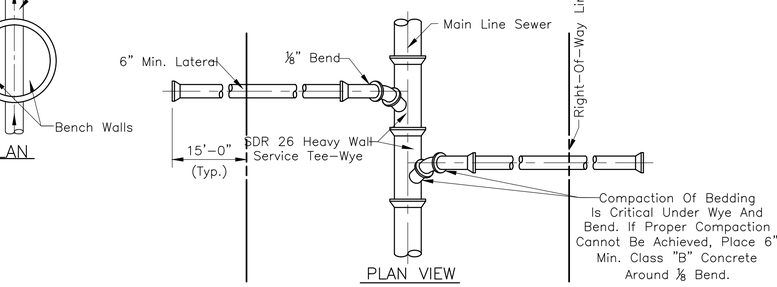
BENCH WALL DETAILS

Not To Scale



PRECAST CONCRETE ADJUSTING RING

Not To Scale



See Development Standards For Replacement/Abandonment Of Sanitary Sewer Laterals

SERVICE CONNECTION FOR SHALLOW SEWERS (LESS THAN 15' DEPTH)

Not To Scale

REVISIONS		
Rev. No.	Description	Date

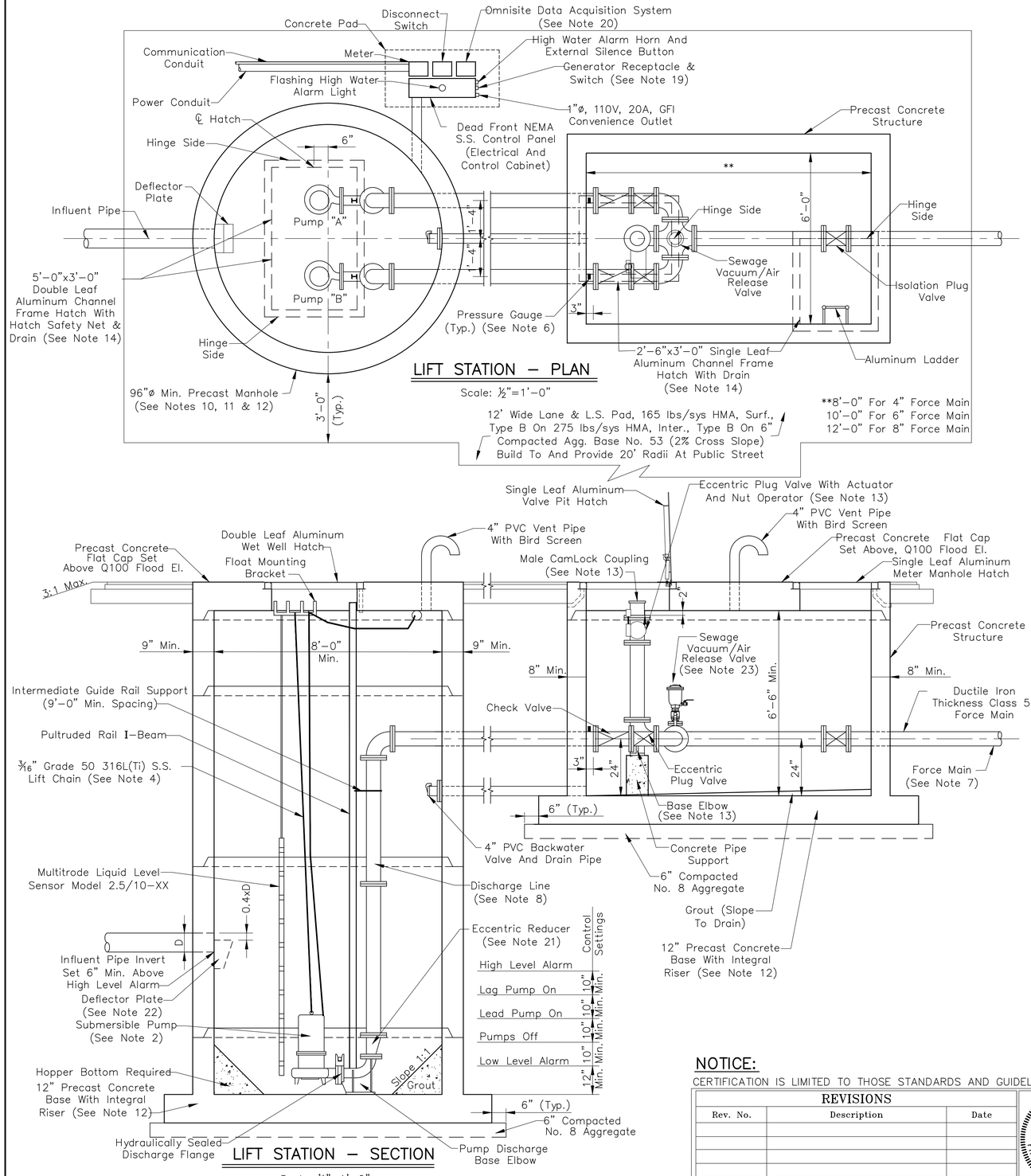
DAVID LAHEY REGISTERED No. PE19700063 STATE OF INDIANA PROFESSIONAL ENGINEER

RECOMMENDED FOR APPROVAL	DESIGN ENGINEER	01/01/2019 DATE
APPROVED	TOWN ENGINEER	01/01/2019 DATE
APPROVED	SUPERINTENDENT OF PUBLIC WORKS	1/1/2019 DATE

TOWN OF PLAINFIELD

SANITARY SEWER DETAILS AND NOTES

SHEET 15 OF 25



GENERAL NOTES:

1.) Actual Lift Station Dimensions, Control Settings, And Pump Selection To Be As Indicated By The Design Engineer's Certification Sheet.

2.) Pumps "A" And "B" Shall Be Identical, Centrifugal, Submersible, Solids Handling, Non-Clog Design Capable Of Handling 3 Inch Sphere Solids, Fibrous Material, Sludge, And Material Found In Typical Raw Sewage. Fit Replaceable Bronze Wear Ring To Volute. Pumps Shall Be Hydromatic, Flygt, Or Plainfield DPW Approved Equal. Manufacturer Shall Warrant The Pumps For One Year After Installation.

All Mating Surfaces Intended To Be Watertight Shall Be Machined And Fitted With Nitrile Rubber O-Rings With Sealing Complete When Metal To Metal Contact Is Made, Resulting In Controlled Compression Of O-Rings Without Specific Torque Limit. Fasteners Shall Be 316 S.S.

Mechanical Shaft Seal System Running In An Oil Reservoir Shall Have Separate, Constantly Lubricated Lapped Seal Faces. The Lower Seal Unit Between Media And Oil Reservoir Shall Consist Of One Stationary Seat And One Rotating Ring Held In Place By Its Own Spring. The Rotating Seat Ring And The Stationary Seat Ring Shall Be Made Of Tungsten-Carbide. The Lower Seal Shall Be Removable Without Disassembling The Seal Chamber. The Upper Seal Between Seal Chamber And Motor Shall Be Of The Same Design With Its Own Spring. Seals Shall Be Maintenance Free, But Shall Be Easily Inspectable.

Lower Seal Failure Alarm Shall Be Engaged By Seal Failure Sensor Provided In The Seal Chamber Which Senses Water Intrusion Through Lower Seal.

Over Temperature Alarm, And Pump Shut Down, Shall Be Engaged By Heat Sensor Attached To The Motor Windings. Motor Winding And Stator Lead Insulation Shall Be Class F With Maximum Temperature Capability Of 155° C Or Better. Housing Shall Be Filled With High Dielectric Oil. Air Filled Housing May Be Acceptable When Approved By Plainfield DPW. Pump And Motor Shall Be Designed To Operate Partially Or Fully Submerged In Pumped Media Without The Use Of Cooling Jackets.

Rail System Shall Enable The Easy Removal Of The Pump Without The Need For A Person To Enter The Wet Well. A Non-Corrosive FRP I-Beam Shall Be Provided For Each Pump. The Guide Rail Shall Be Supported At The Bottom By The Discharge Elbow, Aligned Perfectly Plumb And Securely Affixed To Access Frame. One Intermediate Guide Rail Support Is Required For Each 9' Of Guide Rail Length. Schedule 40 S.S. Guide Rails May Be Acceptable If Pump Is Approved By Plainfield DPW.

3.) Check Valve Shall Be Bronze Seated And Shall Be Provided With Bolted Covers For Easy Access To The Discs. Valve Shall Be Outside Adjustable Weight And Lever As Mueller A-2600-6-01, Kennedy/Clow 1106LW, Or As Approved By Plainfield DPW. The Valve Shall Be Furnished With Fusion Bonded Epoxy Coating Inside And Out In Accordance With AWWA C-550.

4.) Provide Sufficient Lift Chain, Float Mounting Cable, And Pump Power And Sensor Cable To Enable Non-Spliced Field Adjustment. Lift Chain Shall Have A Minimum Work Load Limit Of 1100 Pounds. Float Mounting Cable Shall Be Held In Place By Weight, Floats Shall Be Fastened To Cable With S.S. Clamps Near Each Float Location. Pump Power And Sensor Cable Shall Be Suitable For Submersible Pump Applications And This Shall Be So Indicated By A Code/Legend Permanently Embossed On The Cable.

5.) Plug Valve Shall Be An Eccentric Buna-N Rubber Faced Plug With Hand Lever Operation In-Line And Gear Operation On Bypass. Valve Shall Be Valmatic F-5800-R, Kennedy/Clow F-5412, Or As Approved By Plainfield DPW. The Valve Shall Be Furnished With Fusion Bonded Epoxy Coating Inside And Out In Accordance With AWWA C-550.

6.) Pressure Gauge Shall Be Trerice Model 450 LFB Or Plainfield DPW Approved Equal. Drill And Tap Run Of Pipe To Install Pressure Gauge.

7.) Piping Not Within 2 Feet Of Wet Well And Valve Pit Shall Be DI AWWA C151, HDPE AWWA C906, PVC ASTM D2241, PVC AWWA C900, Or Plainfield DPW Approved Equal. See Design Engineer's Certification Sheet For Pipe Class.

8.) Piping In And Within 2 Feet Of Wet Well And Valve Pit Shall Be Class 53 Flanged Ductile Iron Pipe And Shall Be Manufactured By Griffith, U.S. Pipe, Or As Approved By Plainfield DPW. All Fasteners Within Wet Well And Valve Vault Shall Be 316 S.S.

9.) Piping And Fittings In Wet Well And Valve Pit Shall Be Factory Primed Tnemec Series Purple Prime To A Dry Film Thickness Of 5.0 To 11.0 Mils And Shall Be Field Painted With Tnemec Series 69-Color To A Dry Film Thickness Of 5.0 To 6.0 Mils. Fittings Shall Be Manufactured By Clow, Tyler, Mueller, Or As Approved By Plainfield DPW.

10.) Damp Proof All Exterior Vertical Surfaces Which Are Backfilled Against With Bituminous Coating, Masterseal 614.

11.) Lift Station Manhole And Valve Pit Structures Shall Be Precast Concrete In Accordance With ASTM C478, With Rubber Gaskets Equal To Gasket Material Or Plainfield DPW Approved Equal. See Sanitary Sewer Details And Notes Sheet For Manhole Steps.

12.) Horizontal Projections From Precast Integral Base And Riser May Be Required To Enable The Weight Of The Vertical Soil Ring Above The Projection To Resist Buoyancy Forces. See Design Engineer's Certification Sheet.

13.) CamLock Coupling And Eccentric Plug Valve On Bypass Line Shall Be 4 Inch Diameter With Transition To Force Main Size Occurring With Concentric Reducer Placed On Top Of Base Elbow. Fix Operating Nut For Eccentric Plug In Vertical Position To Enable Wrench Operation From Surface. Layout Of All Valve Vault Fittings And Equipment To Be Based Upon Bypass Line Being Close To Hatch Opening, As Shown.

14.) Aluminum Hatches Shall Be Channel Frame Type Flygt Safe-Hatch. Leaf Shall Be ½ Inch Aluminum Diamond Plate Live Load Rated To 300 PSF. Channel Frame Shall Be ½ Inch Extruded Aluminum With A Mill Finish And Bituminous Coating On Exterior Surfaces. Hatch Shall Be Provided With Type 316 S.S. Hardware Throughout, Automatic Hold-Open Arm With Release Handle, Slam Lock With Removable Handle, 1-½ Inch Drain Coupling, Padlock Hasp, And USF Fabrication Fall-Through Protection Hatch Safety Net.

15.) Sewer Connection To Wet Well Shall Be KOR-N-SEAL, A-LOK, Press-Seal, Or Plainfield DPW Approved Equal.

16.) Force Main Penetrations Of Wet Well And Valve Pit Shall Be Made Watertight Through The Use Of Portland Cement Grout.

17.) Automatic Pump Control Panel Shall Include All Necessary Items And Appurtenances Which Might Normally Be Considered A Part Of A Complete System, Including But Not Limited To: Condensate Heater; Push To Test Button (External); Push To Silence Button (External); Alternator Selector Switch For Manual Designation Of Lead Pump; Time Delay Relay For Lag Pump Start; And Pump Run Time Hour Meters. System Shall Be Supplied By One Manufacturer, Shall Be Factory Assembled, Wired, Tested, And Shall Be Per Complete Electrical Drawings And Instructions. Major Components And Sub-Assemblies Shall Be Identified By Their Function With Laminated, Engraved, Bakelite Nameplates. System Shall Be Built In A Minimum 60"x36"x12" NEMA 4X S.S. Enclosure Suited For The Specified Horsepower And Voltage Of The Pumps. The Outer Door Of The Panel Shall Be A Hinged Dead Front With Provisions For Padlocking. Inside Shall Be A Separate Hinged Panel To Protect All Electrical Components, H-O-A Switches, Run Lights, Circuit Breakers, Etc., Mounted Such That Only The Faces Protrude Through Said Panel With No Wiring Fixed To Said Panel. The Manufacturer Shall Warrant The Control Center For One Year After Installation Covering 100% Parts And Labor.

Provide The Services Of A Factory Trained, Qualified Representative To Inspect, Adjust, Place The System In Trouble Free Operation, And Instruct Operating Personnel In The Proper Operation And Care Of The System.

All Major Components Of Control Center Shall Be American-Made And Available From Local Sources. Pump Manufacturer Shall Accept The Control Center In Writing To Ensure Unit Responsibility And Warranty.

Provide A Manual Transfer Type Disconnect Switch Housed In A Separate NEMA 4X S.S. Enclosure With External Operation Handle Capable Of Being Locked In The "ON" Normal Position Or The "ON" Secondary Position With A Middle "OFF" Position.

A Lightning Arrestor Shall Be Provided At The Phase Relay Block And Connected To Each Line Of The Incoming Side Of The Power Input Terminals. A Single Main Fusible/Breaker Disconnect Switch Of Adequate Size To Provide Power For Control, Operation, And Appurtenant Components Shall Be Provided. Provide A Circuit Breaker And Magnetic Starter With Each Leg Manual Reset Overload Protected For Each Pump. Starters Shall Have Auxiliary Contacts On 3ø Applications To Operate Both Pumps Simultaneously. Provide A Phase Monitor With Phase Fail Relay. Provide A Circuit Breaker And Transformer To Power The Control Panel With 1ø, 115 Volt Service For All Control Functions Including OMNISITE Data Acquisition System, Radio and Flowmeter. Provide A Green "Run" Light, And H-O-A Switch To Enable Field Connections.

Materials And Installation Of The Required Equipment Grounding Shall Be In Accordance With NEC Section 250-83(c). All Wiring Shall Have Not Less Than 600 Volt Insulation. Wiring And Buss Shall Be In Accordance With NEC, State, Local, And NEMA Standards. All Wiring Shall Be Color Coded. Minimum 4 Inch Diameter, Schedule 40 Conduit Shall Be Provided From Wet Well To Control Panel Enabling Pump Power And Sensor Cables, And Float Switch Cables To Be Easily Pulled. Seal Conduit At Control Panel To Prevent Sewer Gases From Entering. All Conduits, Fittings, Or Connections Shall Enter From The Bottom Of Enclosures.

Sump Level Rise To Lead Pump Run Float Causes Lead Pump To Operate. Lead Pump Operating And Sump Level Falling To Pumps Off Float Causes Lead Pump To Shut Off. Lead Pump Operating And Sump Level Rising To Lag Pump Run Float Causes Lag Pump To Operate. Lag Pump Operating And Sump Level Falling To Pumps Off Float Causes Both Pumps To Shut Off. Sump Level Rise To High Level Alarm Causes High Level Alarm To Operate. Sump Level Fall To Low Level Alarm Causes Low Level Alarm To Operate. An Alternating Relay Shall Be Provided To Cause Pumps To Alternate Whenever Pumps Off Float Is De-Energized. If One Pump Fails For Any Reason, The Remaining Pump Shall Operate Upon Sump Level Rise To Lag Pump Run Float. An Hour Meter Shall Be Provided For Each Pump To Record The Elapsed Operating Time Of Each Pump.

18.) Four Manuals Shall Be Presented To The Owner Which Shall Include The Following Minimum Information: 1) Operation Instructions; 2) Maintenance Instructions; 3) Recommended Spare Parts List; 4) Lubrication Schedule; 5) Structural Diagrams; 6) As-Built Wiring Diagrams; And 7) Bill Of Materials.

19.) Generator Receptacles To Be Crouse-Hinds Arktite AR1042 100amp Receptacle Or Crouse-Hinds Arktite AR2041 200amp Receptacle With Factory Sealed Switch For Receipt Of The Town Of Plainfield's Portable Generator Set.

20.) Provide OMNISITE XR 50 Data Acquisition System For Duplex Pump Stations And OMNISITE Crystal Ball Data Acquisition System For Triplex Pump Stations That Incorporates; 1 Spare Input/Output, 1 Input For Flowmeter, 5 Outputs To Control Being Lead Remote On, Lead Remote Off, Lag Remote On, Lag Remote Off, Remote Alarm Acknowledge, 10 Inputs From Control Being Hatch(es) Open Alarm, Panel(s) Open Alarm, Pump "A" On, Pump "B" On, Pump "A" Fail, Pump "B" Fail, Phase Fail Alarm, Power Fail Alarm, High Water Alarm, And Pump(s) Seal Failure. Remote Lead Pump Override And Remote Lag Pump Override.

21.) Eccentric Reducer To Be Installed As Required For Force Main Size. Consult Plainfield DPW If Force Main Piping Is Greater Than 6 Inch Diameter.

22.) ¼" Stainless Steel Deflector Plate Required On All Influent Pipes. As Supplied by Mooresville Welding or DPW Approved Equal.

23.) Air/Vacuum Release Valve Shall Be An ARI D-025P Combination Air Valve For Wastewater And Shall Be Sized By The Design Engineer According To The Volume Of Main And Maximum Force Main Operating Pressure. The Pipe Nipples And Gate Valve For The Air/Vacuum Release Valve Shall Be Stainless Steel.

NOTICE:

CERTIFICATION IS LIMITED TO THOSE STANDARDS AND GUIDELINES PER THIS SHEET. CONSTRUCTION IS SUBJECT TO CONSTRUCTION DRAWINGS, SHOP DRAWINGS, AND DESIGN ENGINEER'S CERTIFICATION SHEET.

REVISIONS		
Rev. No.	Description	Date

DAVID LAHEY REGISTERED No. PE19700063 STATE OF INDIANA PROFESSIONAL ENGINEER

RECOMMENDED FOR APPROVAL	DESIGN ENGINEER	01/01/2019 DATE
APPROVED	TOWN ENGINEER	01/01/2019 DATE
APPROVED	SUPERINTENDENT OF PUBLIC WORKS	1/1/2019 DATE

TOWN OF PLAINFIELD

SANITARY SEWER
LIFT STATION STANDARDS
& GUIDELINES

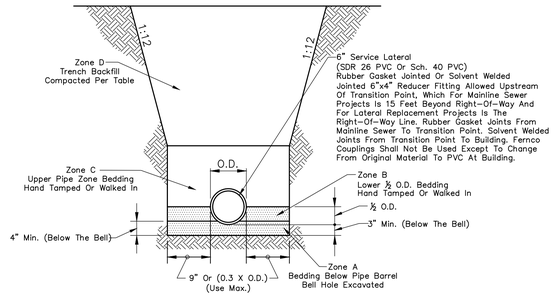
SHEET 16 OF 25

PVC LATERAL PIPE BEDDING & BACKFILL TABLE**

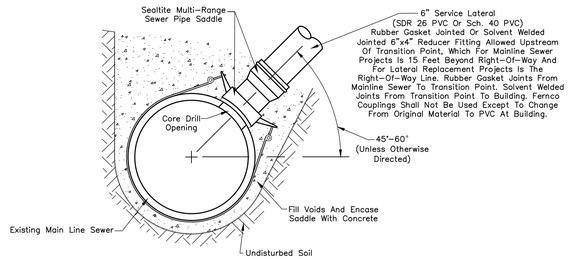
Bedding/Backfill Zone As Indicated On Detail	Back Of Curb To Back Of Curb	Planting Strip Or Existing Sidewalk	Private Property For Repair/Replace	Future Sidewalk Under 6 Month Rule*	Private Property Under 6 Month Rule*
Zone D Trench Backfill Compacted Per Table	Flowable Fill Or Same As Zone 'B'	Flowable Fill Or Same As Zone 'B'	Approved Excavated Material @ 85% Standard Proctor	Approved Excavated Material @ 85% Standard Proctor	Approved Excavated Material @ 85% Standard Proctor
Zone C Upper Pipe Zone Bedding Hand Tamped Or Walked In	Flowable Fill Or Same As Zone 'B'	Flowable Fill Or Same As Zone 'B'	"B"–Borrow Or Well–Graded Sand	#8 Crushed Stone Or #8 Fractured Face Aggregate	#8 Crushed Stone Or #8 Fractured Face Aggregate
Zone B Lower 1/2 O.D. Bedding Hand Tamped Or Walked In	#8 Crushed Stone Or #8 Fractured Face Aggregate	#8 Crushed Stone Or #8 Fractured Face Aggregate	"B"–Borrow Or Well–Graded Sand	#8 Crushed Stone Or #8 Fractured Face Aggregate	#8 Crushed Stone Or #8 Fractured Face Aggregate
Zone A Bedding Below Pipe Barrel Bell Hole Excavated	#8 Crushed Stone Or #8 Fractured Face Aggregate	#8 Crushed Stone Or #8 Fractured Face Aggregate	"B"–Borrow Or Well–Graded Sand	#8 Crushed Stone Or #8 Fractured Face Aggregate	#8 Crushed Stone Or #8 Fractured Face Aggregate

*Approved Excavated Material May Be Used Under Proposed Sidewalks Provided Sidewalks Are Constructed 6 Months After Backfilling Of Trench And As Such Any Additional Lateral Pipe Built On Private Property Under Initial Sewer Construction Shall Be In Accordance With "Private Property Under 6 Month Rule" Column.

**The PVC Lateral Pipe Bedding And Backfill Table Is Intended To Show Minimum Material Requirements. Flowable Fill May Be Used For Any Zone C, Or Zone D Work. "B"–Borrow May Be Used Whenever Excavated Material Is Required By Table. #8 Crushed Stone Or #8 Fractured Face Aggregate May Be Used Whenever "B"–Borrow Is Required By Table.



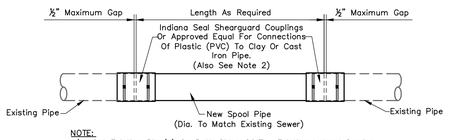
PVC LATERAL PIPE BEDDING DETAIL
Not To Scale



NOTE:
1.) Sewer Pipe Saddle Shall Be General Engineering Company Sealtite Type "U" For Laterals Connecting To Existing Mainline Sanitary Sewer With A 6.275" OD To 30.00" OD.

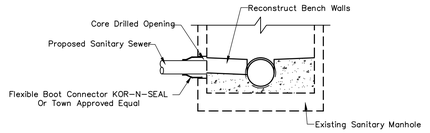
2.) Sewer Pipe Saddle Shall Be General Engineering Company Sealtite Type "C" For Laterals Connecting To Existing Mainline Sanitary Sewer Over 30.00" OD.

SANITARY LATERAL SADDLE TAP
Not To Scale

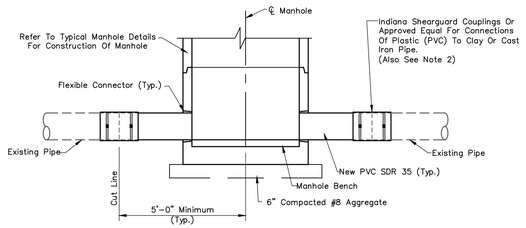


NOTE:
1.) Cut Existing Pipe(s) On Both Sides Of The Existing Lateral Service. Remove Existing Fitting(s) And Pipe(s) Section And Install New Spool Pipe As Detailed Above.
2.) Where New PVC Pipe Is Being Connected To Existing PVC Pipe A Ductile Iron Repair Sleeve With Romac Grip Rings Shall Be Used.

EXISTING SANITARY LATERAL ABANDONMENT
Not To Scale



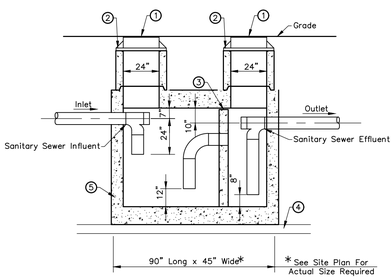
EXISTING MANHOLE CONNECTION DETAIL
Not To Scale



NOTE:
1.) Cut Existing Pipe(s) On The Side Of The Proposed Manhole. Remove Existing Pipe(s) Section And Install Manhole Base. Proceed With Typical Connections And Manhole Construction.
2.) Where New PVC Pipe Is Being Connected To Existing PVC Pipe A Ductile Iron Repair Sleeve With Romac Grip Rings Shall Be Used.

SPECIAL MANHOLE CONNECTION DETAIL
Not To Scale

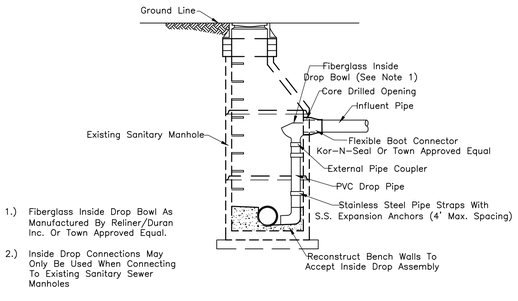
NOTES:
1. Cast Iron Manhole Frame And Cover Neenah R–6462–FH Or Approved Equal
2. 24" Diameter Concrete Pipe Riser
3. Precast Concrete Baffle
4. 6" Of #8 Compacted Aggregate
5. Precast Concrete Structure Designed For H–20 Loading. (Must Be Approved By The Authority Having Jurisdiction)



Grease Interceptor Subject To Sanitary Sewer Manhole Construction Requirements Including Vacuum Testing

GREASE INTERCEPTOR DETAIL
Not To Scale

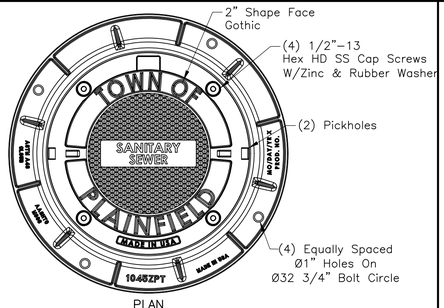
DEVELOPMENT STANDARD – DETAIL DS–S01 | DEVELOPMENT STANDARD – DETAIL DS–S02 | DEVELOPMENT STANDARD – DETAIL DS–S03 | DEVELOPMENT STANDARD – DETAIL DS–S04



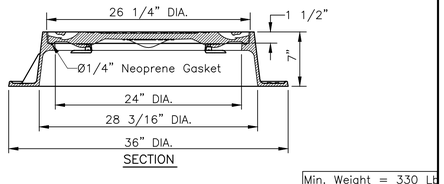
1.) Fiberglass Inside Drop Bowl As Manufactured By Reliner/Duran Inc. Or Town Approved Equal.

2.) Inside Drop Connections May Only Be Used When Connecting To Existing Sanitary Sewer Manholes

INSIDE DROP ASSEMBLY CONNECTION DETAIL
Not To Scale



PLAN

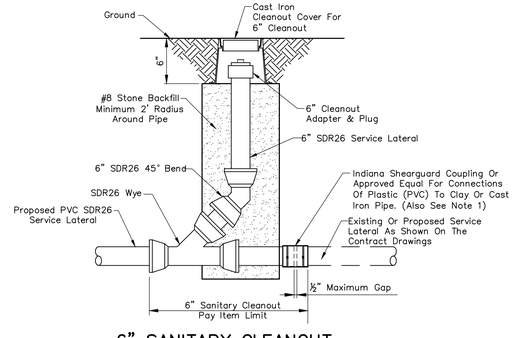


SECTION

Min. Weight = 330 Lb

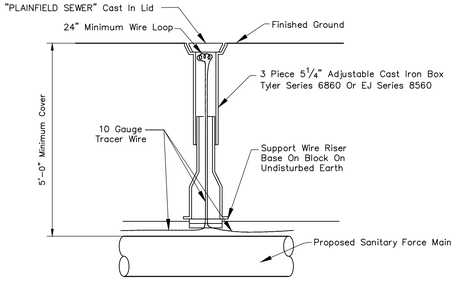
NEENAH R–1916–F OR EJ 1045ZPT AND 1040APT
Not To Scale

NOTE:
1.) Where New PVC Pipe Is Being Connected To Existing PVC Pipe A Ductile Iron Repair Sleeve With Romac Grip Rings Shall Be Used.



6" SANITARY CLEANOUT
Scale: None

NOTE:
1.) The Tracer Wire Shall Be 10 Gauge, Direct Bury, Solid Copper Wire With A Minimum 35 Mil. Polyethylene Insulation
2.) 2" to 6" Of Separation Is Recommended Between Force Main And Wire
3.) Tracer Wire Risers Shall Be Placed At A 400' Max Spacing Interval
4.) Install Tracer Wire As A Single Continuous Wire. Splicing Of Wire, If Necessary, Shall Be Done In Such A Way To Produce An Electrically And Mechanically Sound Joint.



TRACER WIRE RISER DETAIL
Scale: None

DEVELOPMENT STANDARD – DETAIL DS–S05 | DEVELOPMENT STANDARD – DETAIL DS–S06 | DEVELOPMENT STANDARD – DETAIL DS–S07 | DEVELOPMENT STANDARD – DETAIL DS–S08

REVISIONS		
Rev. No.	Description	Date

DAVID LAHEY REGISTERED No. PE19700063 STATE OF INDIANA PROFESSIONAL ENGINEER

RECOMMENDED FOR APPROVAL	DESIGN ENGINEER	01/01/2019 DATE
APPROVED	TOWN ENGINEER	01/01/2019 DATE
APPROVED	SUPERINTENDENT OF PUBLIC WORKS	1/1/2019 DATE

TOWN OF PLAINFIELD

SANITARY SEWER (S)
DEVELOPMENT STANDARDS

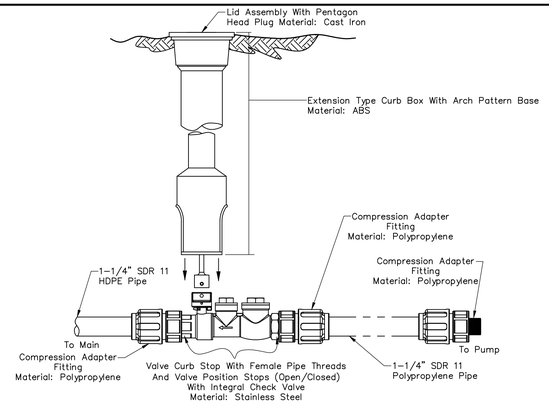
SHEET 17 OF 25

LOW PRESSURE SEWER DESIGN:

1. Calculations Shall Be Developed For LPS System Design Including The Following:
   a. Topographical Map
   b. Soil Conditions
   c. Frost Depth
   d. Water Table
   e. Applicable Codes
   f. Discharge Location
   g. Lot Layout
   h. Total Number Of Lots
   i. Dwelling Types
   j. Use And Flow Factors
   k. Area Development Sequence And Timetable
2. Grinder Pumps Shall Be Sized Based Upon Recommended Flow In GPD And Must Consider The Following:
   a. Wet Well And Discharge Piping Must Be Protected From Freezing
   b. Model And Basin Size Must Be Appropriate For Incoming Peak Flows
   c. Appropriate Alarm Devices Must Be Used
3. Grinder Pumps Shall Be Owned By The Property Owner, Not The Town Of Plainfield.
4. Power For Grinder Pumps Shall Be Provide By Property Owner.
5. Pipe Shall Be Either PVC SDR 21 Or HDPE DR 11.
6. Air/Vacuum Valves Shall Be Installed At All System High Points And Significant Changes In Grade.
7. Air Release Valves Shall Be Installed At Intervals Of 2,000 Feet On All Horizontal Runs That Lack A Clearly Defined High Point.
8. Air Release Valves Shall Be Installed At The Beginning Of Each Downward Leg In The System That Exhibits A 30-Foot Or More Drop.
9. Cleanout And Flushing Stations Shall Be Incorporated Into The Pipe Layout. Cleanouts Shall Be Installed At The Terminal End Of Each Main, At Every 1,000 Feet On Straight Runs Of Pipe, And Whenever Two Or More Mains Come Together And Feed Into Another Main.
10. A Pipe Schedule And Zone Analysis Shall Be Developed To Ensure The Design Conforms With A Criteria Of Flow Velocity Greater Than Or Equal To 2.0 Feet Per Second And Total Design Head Of Less Than Or Equal To 185 Feet.

LOW PRESSURE SEWER DESIGN
Scale: None

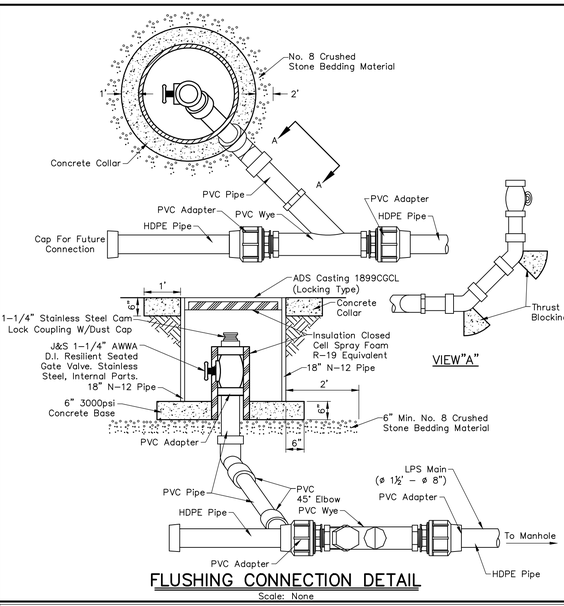
DEVELOPMENT STANDARD – DETAIL DS-S09



NOTE:
1. SS Curb Stop/Check Valve And Fittings Are Provided Separately.
2. To Assemble, Apply A Double Layer Of Teflon Tape, And A Layer Of Pipe Dope To The Threads On Plastic Fittings And Install Per The Manufacturer's Instructions.
3. Assembly Is To Be Pressure Tested.
4. Assembly Is To Be Used With SDR11 HDPE Pipe.

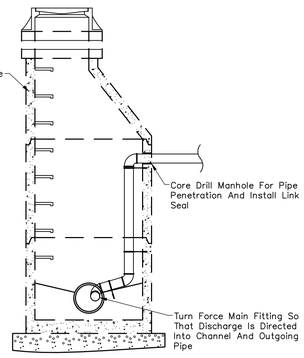
STAINLESS STEEL LATERAL KIT
1-1/4" SDR 11 HDPE PIPE
Scale: None

DEVELOPMENT STANDARD – DETAIL DS-S10



FLUSHING CONNECTION DETAIL
Scale: None

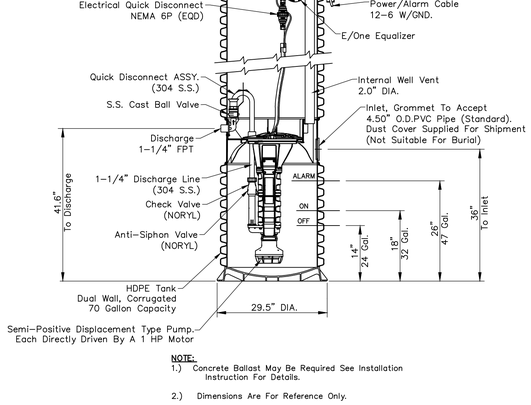
DEVELOPMENT STANDARD – DETAIL DS-S11



NOTE:
1.) Force Main As Specified To Be Anchored To Wall Opposite Steps With Corrosion Resistant Anchors.
2.) Discharge From Force Main Shall Be Installed Over Or Directed To The Flow Line Of The Manhole With Appropriate Fittings Depending On The Orientation On The Force Main Penetration With The Flow Line.
3.) Discharge Shall Not Be Directed Onto The Bench Wall!
4.) Tracer Wire Shall Be Installed Per Tracer Wire Riser Detail on Sheet 13.

SANITARY MANHOLE CONNECTION DETAIL
Scale: None

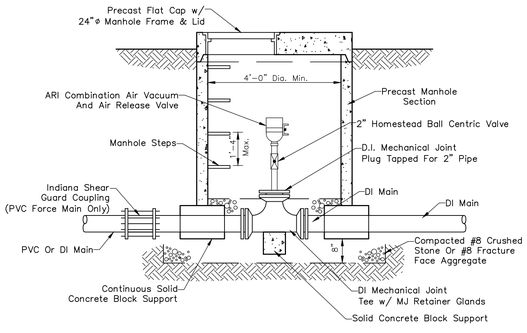
DEVELOPMENT STANDARD – DETAIL DS-S12



NOTE:
1.) Concrete Ballast May Be Required See Installation Instruction For Details.
2.) Dimensions Are For Reference Only.

GRINDER PUMP STATION DETAIL
Scale: None

DEVELOPMENT STANDARD – DETAIL DS-S13



AIR/VACUUM RELEASE VALVE & STRUCTURE
Scale: None

DEVELOPMENT STANDARD – DETAIL DS-S14

REVISIONS		
Rev. No.	Description	Date

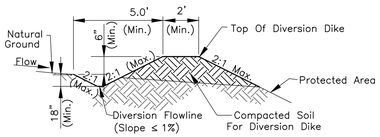
DAVID LAHEY REGISTERED No. PE19700063 STATE OF INDIANA PROFESSIONAL ENGINEER

RECOMMENDED FOR APPROVAL	DESIGN ENGINEER	01/01/2019	DATE
APPROVED	TOWN ENGINEER	01/01/2019	DATE
APPROVED	SUPERINTENDENT OF PUBLIC WORKS	1/1/2019	DATE

TOWN OF PLAINFIELD

SANITARY SEWER (S) DEVELOPMENT STANDARDS

SHEET 18 OF 25



Notes:

Installation:
Lay Out The Diversion By Setting Grade And Alignment To Fit Site Needs And Topography, Maintaining A Stable, Positive Channel Grade Towards The Outlet.

Remove And Properly Dispose Of Brush, Trees, And Other Debris From The Foundation Area.

Construct The Diversion To Dimensions And Grades Shown In The Construction Plans.

Construct The Diversion Ridge In Six To Eight–Inch Lifts. Compact Each Lift By Driving Wheels Of Construction Equipment Along The Ridge. Overfill And Compact The Ridge To Design Height Plus 10 Percent To Allow For Settlement.

Stabilize Outlets Prior To Or During Construction Of The Diversion, Diverting Sediment–Laden Storm Water Flow To A Temporary Sediment Trap Or A Temporary Dry Sediment Basin.

Maintenance:
Inspect Within 24 Hours Of Each Rain Event And At Least Once Every Seven Calendar Days.

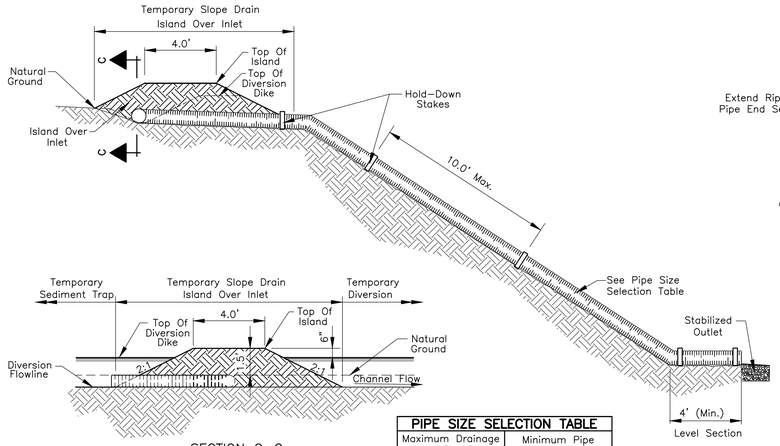
Remove Sediment From Channel To Maintain Positive Grade.

Check Outlets And Make Necessary Repairs Immediately.

Adjust Ridge Height To Prevent Overtopping.

TEMPORARY DIVERSION

Not To Scale



SECTION C–C

PIPE SIZE SELECTION TABLE	
Maximum Drainage Area Per Pipe	Minimum Pipe Diameter
0.50 acre	8 In.
0.75 acre	10 In.
1.00 acre	12 In.
>1.00 acre	Individually Designed

NOTES:

Installation:
Place Temporary Slope Drains On Undisturbed Soil Or Well Compacted Fill. Set The Slope Drain Inlet At The Bottom Of The Diversion Channels. Connect The Pipe To The Inlet Section.

Construct The Diversion Ridge By Placing Fill Over The Pipe In 6 Inch Lifts. Compact Each Lift By Hand Tamping Under And Around The Inlet, And Along The Pipe.

Make The Top Of The Fill 6 Inches Higher Than The Adjoining Diversion.

Make All Pipe Connections Watertight And Secure So That Joints Will Not Separate In Use.

Anchor The Pipe To The Face Of The Slope With Stakes Spaced No More Than 10 Feet Apart. Extend The Pipe Beyond The Toe Of Slope To A Stable Grade. Protect The Outlet From Erosion.

Grade The Diversion Channel At The Top Of The Slope Toward The Temporary Slope Drain (Slope <2%).

Stabilize All Disturbed Areas Following Installation.

Maintenance:
Inspect Weekly And Following Each Storm Event. (Remove Sediment From The Channel And Reinforce The Ridge As Needed.)

Check The Inlet For Sediment Or Trash Accumulation.

Check The Fill Over The Pipe For Settlement, Cracking, Or Piping Holes; Repair Immediately.

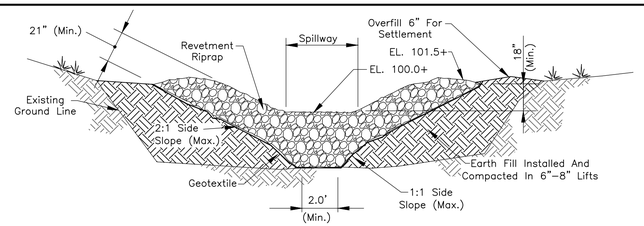
Check For Holes Where The Pipe Emerges Form The Dike; Repair Immediately.

Check The Conduit For Evidence Of Leaks Or Inadequate Anchoring; Repair Immediately.

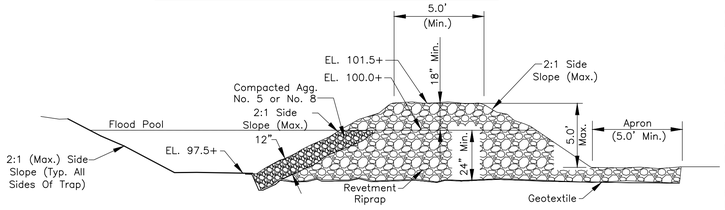
Check The Outlet For Erosion Or Sedimentation; Clean & Repair Or Extend If Necessary.

TEMPORARY SLOPE DRAIN

Not To Scale



EARTH EMBANKMENT AND STONE OUTLET SECTION



CROSS SECTION VIEW OF THE STONE OUTLET SECTION

Notes:

The Spillway Width Varies With The Drainage Area Contributing To The Temporary Sediment Trap:

Drainage Area (acres)	Width (ft.)
1	4
2	6
3	8
4	10
5	12

The Length And Width Of The Basin Are As Shown On The Erosion Control Plan (Maximum Drainage Area Is 5 Acres).

See The Indiana Storm Water Quality Manual For Additional Information.

Installation:
Clear, Grub, And Strip All Vegetation And Root Mat From The Embankment Area.

Create Embankment Using Material Free Of Roots, Rocks, Brush, And Debris. Overfill The Embankment 6 Inches To Allow For Settling.

Excavate A Trapezoidal Stone Outlet Section From The Compacted Embankment (Section A–A).

Install Geotextile And Place Specified Stone To The Lines And Grades Shown.

Stabilize The Embankment And Other Disturbed Areas With Seed And Mulch Or Another Suitable Erosion Resistant Cover

Maintenance:
Inspect Traps Weekly And Following Each Storm Event And Immediately Repair. Check Embankment For Any Erosion And Piping Holes And Repair.

Remove Sediment When It Has Accumulated To One Half The Design Depth. Check Pool Area Side Slopes For Erosion And Repair.

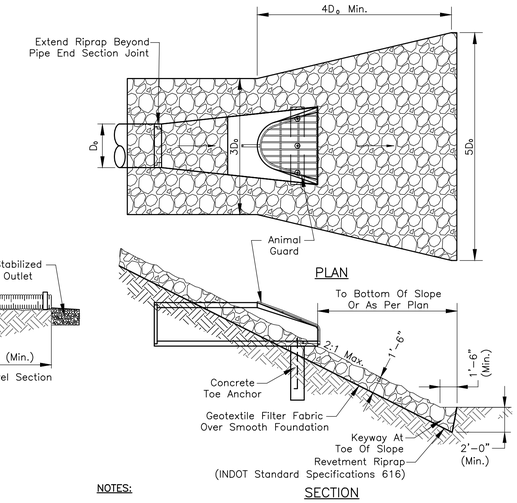
Replace Spillway Gravel Facing If Clogged.

Inspect Vegetation And Reseed Again, If Necessary.

Check The Spillway Depth Periodically To Ensure A Minimum 18 Inch Depth From The Lowest Point Of The Settled Embankment To Highest Point Of The Spillway Crest. Fill Any Low Areas To Maintain The Design Elevation.

TEMPORARY SEDIMENT TRAP

Not To Scale



SECTION

NOTES:

Installation:
Excavate Only Deep Enough For Both Filter And Riprap. Compact Any Fill Material to The Density Of The Surrounding Undisturbed Soil.

Cut A Keyway In Stable Material At The Base Of The Slope to Reinforce The Toe; Keyway Depth Should Be $1\frac{1}{2}$ Times The Design Thickness Of The Riprap And Should Extend A Horizontal Distance Equal To The Design Thickness.

Place Geotextile Fabric On The Smoothed Foundation, Overlapping The Edges 12 Inches Min. Secure With Anchor Pins Spaced Every 3 Feet Along The Overlap.

Immediately After Installing The Filter, Add The Riprap To Full Thickness In One Operation. Do Not Dump Through Chutes Or Use Any Method That Causes Segregation Of Rock Sizes Or That Will Dislodge Or Damage The Underlying Filter Material.

If Fabric Is Damaged, Remove The Riprap And Repair By Adding Another Layer Of Fabric, Overlapping The Damaged Area By 12 Inches.

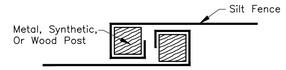
Place Smaller Rock In Voids To Form A Dense, Uniform, Well Graded Mass. Blend The Rock Surface Smoothly With The Surrounding Area To Eliminate Protrusions Or Over–Falls.

Inspect Periodically For Displaced Rock Material, Slumping, And Erosion At Edges, Especially Downstream Or Downslope.

Maintenance:
Inspect Periodically For Displaced rock Material, Slumping And Erosion At Edges, Especially Downstream Or Downslope.

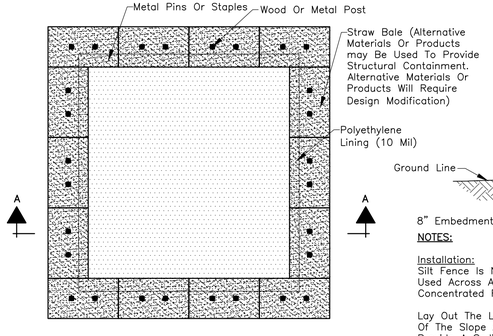
PRECAST CONCRETE END SECTION W/ RIP RAP

Not To Scale

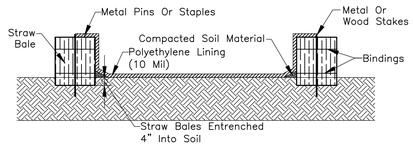


SILT FENCE JOINT DETAIL

Not To Scale



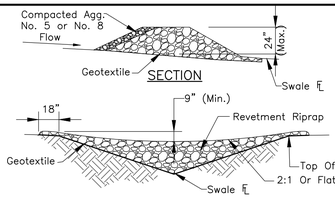
PLAN



SECTION A–A

CONCRETE WASHOUT

Not To Scale



ELEVATION

NOTES:

Installation:
Excavate A Cutoff Trench Into The Swale Banks And Extend It A Minimum Of 18 Inches Beyond The Top Of Bank. Place The Rock In The Cutoff Trench And Channel to The Limits And Dimensions Shown.

Extend The Rock At Least 18 Inches Beyond The Top Of Bank To Keep Overflow Water From Undercutting The Dam As It Re–Enters The Channel.

Space Dams So That The Upstream Dam Toe Elevation And The Overflow Weir Of The Downstream Dam Top Elevation Are The Same.
(A 1% Swale Slope Would Equal 200' Spacing)

Stabilize The Channel Above The Uppermost Dam. Erosion Resistant Lining Shall Extend At Least 6" Below Lowest Dam.

Maintenance:
Inspect Check Dams And The Channel After Each Storm Event, And Repair Any Damage Immediately. If Significant Erosion Occurs Between Dams, Install A Riprap Liner In That Portion Of The Channel.

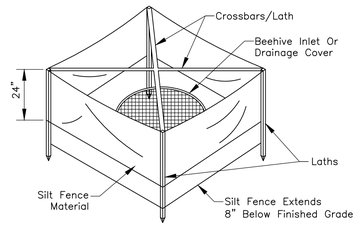
Remove Sediment Accumulated Behind Each Dam As Needed To Maintain Channel Capacity, To Allow Drainage Through The Dam, And To Prevent Large Flows From Displacing Sediment.

Add Aggregate To The Dams As Needed To Maintain Design Height And Cross Section.

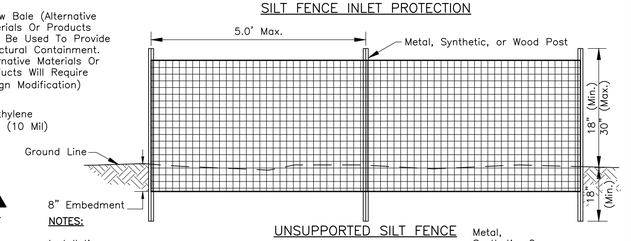
When The Dams Are No Longer Needed, Remove The Aggregate And Stabilize Channel Using An Erosion Resistant Lining, If Necessary.

ROCK CHECK DAM

Not To Scale



SILT FENCE INLET PROTECTION



UNSUPPORTED SILT FENCE

NOTES:

Installation:
Silt Fence Is Not Recommended For Use As A Diversion And Should Not Be Used Across A Stream, Channel, Ditch, Swale, Or Anywhere That Concentrated Flow Is Anticipated.

Lay Out The Location Of The Fence So That It Is Parallel To The Contour Of The Slope And At Least 10 Feet Beyond The Toe Of The Slope To Provide A Sediment Storage Area. Turn The Ends Of The Fence Up Slope Such That The Point Of Contact Between The Ground And The Bottom Of The Fence End Terminates At A Higher Elevation Than The Top Of The Fence At Its Lowest Point

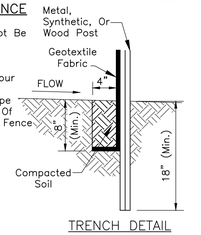
Along The Entire Fence Line, Dig An 8 Inch Deep Flat Bottomed Or V–Shaped Trench. Place Fence According To Manufacturer's Recommendations.

Maintenance:
Inspect The Silt Fence Weekly And After Each Storm Event.

If Fence Fabric Tears, Starts To Decompose, Or In Any Way Becomes Ineffective, Replace The Affected Portion Immediately.

Remove Deposited Sediment When It Reaches Half The Height Of The Fence At Its Lowest Point Or Is Causing The Fabric To Bulge. Take Care To Avoid Undermining The Fence During Clean Out.

After The Contributing Drainage Area Has Been Stabilized, Remove The Fence And Sediment Deposits, Bring The Disturbed Area To Grade, And Stabilize.



TRENCH DETAIL

SILT FENCE (SEDIMENT FENCE)

Not To Scale

REVISIONS		
Rev. No.	Description	Date

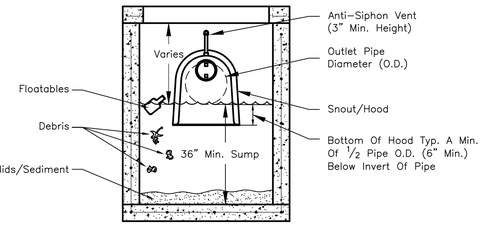
DAVID LAHEY — REGISTERED — No. PE19700063 — STATE OF INDIANA — PROFESSIONAL ENGINEER

RECOMMENDED FOR APPROVAL	DESIGN ENGINEER	01/01/2019 DATE
APPROVED	TOWN ENGINEER	01/01/2019 DATE
APPROVED	MS4 OPERATOR	1/1/19 DATE

TOWN OF PLAINFIELD

EROSION CONTROL MEASURES

SHEET 19 OF 25



NOTES:

Installation:

Snout/Hood Is Installed Over The Outlet Pipe Of A Catch Basin Or Stormwater Structure To Reduce Floatable Trash And Debris, Free Oils, And Other Solids From Stormwater Discharges.

Snout/Hood Shall Be Centered And Anchored Over The Outlet Pipe And Must Cover The Pipe O.D. To Ensure Proper Installation.

Structure Shall Be Sumped To Manufacture's Recommended Depth. Minimum Sump Depth Is Typically 2.5 To 3 Times The I.D. Of The Outlet Pipe Size (Minimum Of 36").

Snout/Hood Shall Be Equipped With An Anti-Siphon Vent.

Maximum Flow And Velocity Shall NOT Exceed Manufacture's Recommendation.

Maintenance:

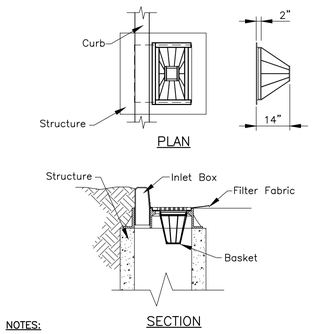
Sediment Depth And Surface Pollutants In The Sump Shall Be Measured Monthly And After Each Rain Event Of 1/2" or More.

The Sump Shall Be Emptied At Least Yearly And When The Sump Is Half Full, Or Six Inches Of Floatable Pollutants Accumulate On The Surface.

The Snout/Hood Shall Be Inspected Yearly And The Anti-Siphon Vent Shall Be Flushed To Ensure It Is Clear.

SNOUT/HOOD OIL WATER DEBRIS SEPERATOR

Not To Scale



NOTES:

Installation:
Install Basket Curb Inlet Protection As Soon As Inlet Boxes Are Installed (New Development) Or Prior To Land Disturbing Activities (Existing Development).

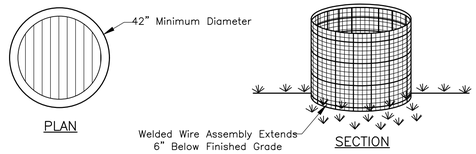
If Necessary, Adapt Basket Dimensions To Fit Inlet Box Dimensions.

Remove The Grate And Install The Frame Into The Grate Opening. Cut And Install Geotextile Fabric According To The Manufacturer's Recommendations. Replace The Grate.

Maintenance:
Inspect Daily And After Each Storm And Remove Sediment. Replace Or Clean Geotextile Fabric As Needed. Remove Tracked On Sediment From The Street (But Not By Flushing With Water) To Reduce The Sediment Load On This Curb Inlet Practice.

BASKET CURB INLET PROTECTION

Not To Scale



NOTES:

Installation:
6" x 6" Welded Wire Mesh Shall Be Formed Of 10Ga. Steel Conforming To ASTM A-185.

Geotextile Shall Be Wrapped Three Inches Over The Top Member Of The 6" x 6" Welded Wire Mesh And Shall Be Secured With Fastening Rings Through Both Geotextile Layers And Close Around A Steel Member At Six Inches On Center. Fastening Rings Shall Be Constructed Of Wire Conforming To ASTM A-641, A-809, A-370, And A-938.

Geotextile Shall Be Secured To The Sides Of Welded Wire Mesh With Fastening Rings At A Spacing Of One Per Square Foot Except For The Bottom 2-Inches Which Shall Extend Past The Welded Wire And Be Left Unsecured For Entrenchment.

Welded Wire Assembly Shall Be Formed Into A Minimum 42" Diameter Circle With a 3" Minimum Overlap On The Ends Secured By Wire Or Zip Ties.

Welded Wire Assembly Shall Then Be Placed In A 6" Deep Trench And Backfilled And Compacted Over The Geotextile Flap.

Maintenance:
Inspect The Welded Wire Inlet Protector Weekly And After Each Rainfall Event.

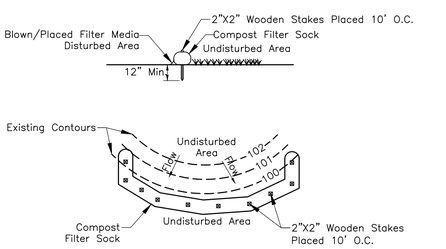
If Geotextile Tears, Start To Decompose, Or In Any Way Becomes Ineffective, Replace The Affected Portion Immediately.

Remove The Deposited Sediment When It Reaches Half The Height Of The Structure At Its Lowest Point Or Is Causing The Structure To Shift. Take Care To Avoid Undermining The Structure During Clean Out.

After The Contributing Drainage Area Has Been Stabilized, Remove The Structure And Sediment Deposits, Bring The Disturbed Area To Grade, And Stabilize.

WELDED WIRE INLET PROTECTION

Not To Scale



NOTES:

Installation:
Filter Sock Should Maintain Solid Contact With The Soil And Be Installed In A Manner That Minimizes Gaps Between The Bottom Of The Sock And The Underlying Substrate.

Filter Socks Should Be Installed Parallel To The Contour With Both Ends Of The Sock Extended Upslope At A 45 Degree Angle To The Rest Of The Sock.

Socks Placed On Earthen Slopes Should Be Staked In The Center Of The Sock Or Immediately Downslope Of The Sock At The Interval Recommended By The Manufacturer. Socks Installed On Paved Surfaces Shall Have Concrete Blocks Placed Immediately Downslope Of The Sock At An Interval Recommended By The Manufacturer.

Maintenance:
Traffic Shall Not Be Permitted To Cross Filter Socks.

Inspect The Structure Weekly And After Each Rainfall Event. Damaged Socks Shall Be Repaired According To The Manufacturer's Specifications Or Replaced Within 24 Hours Of Inspection.

Remove Deposited Sediment When It Reaches Half The Height Of The Filter Sock At Its Lowest Point.

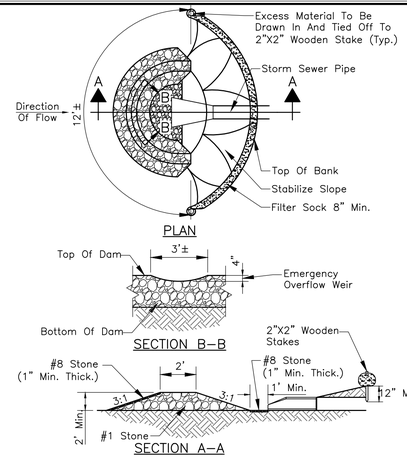
Take Care To Avoid Undermining The Filter Sock During Clean Out.

After The Contributing Drainage Area Has Been Stabilized, Remove And Properly Dispose Of Any Unstable Sediment And Construction Material, And Stabilize.

FILTER SOCK

Not To Scale

DEVELOPMENT STANDARD - DETAIL DS-E01



NOTES:

Installation:
Foundation Shall Be Laid On Geotextile Fabric.

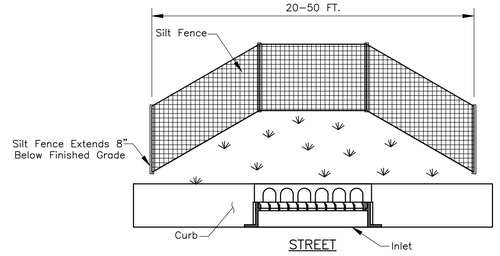
Maintenance:
Inspect The Structure Weekly And After Each Rainfall Event.

After The Contributing Drainage Area Has Been Stabilized, Remove And Properly Dispose Of Any Unstable Sediment And Construction Material, And Stabilize.

ROCK DONUT

Not To Scale

DEVELOPMENT STANDARD - DETAIL DS-E02



NOTES:

Installation:
Silt Fence Is Not Recommended For Use As A Diversion And Should Not Be Used Across A Stream, Channel, Ditch, Swale, Or Anywhere That Concentrated Flow Is Anticipated.

Along The Entire Fence Line, Dig An 8-Inch Deep Flat Bottomed Or V-Shaped Trench. Place Fence According To Manufacturer's Recommendations.

Maintenance:
Inspect The Silt Fence Weekly And After Each ½" Rainfall Event.

If Fence Fabric Tears, Starts To Decompose, Or In Any Way Becomes Ineffective, Replace The Affected Portion Immediately.

Remove Deposited Sediment When It Reaches Half The Height Of The Fence At Its Lowest Point Or Is Causing The Fabric To Bulge.

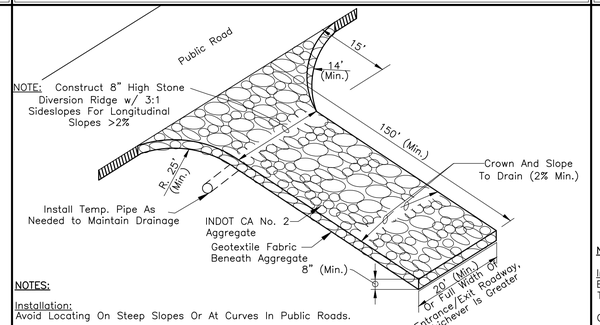
Take Care To Avoid Undermining The Fence During Clean Out.

After The Contributing Drainage Area Has Been Stabilized, Remove The Fence And Sediment Deposits, Bring The Disturbed Area To Grade, And Stabilize.

SILT FENCE BEHIND CURB

Not To Scale

DEVELOPMENT STANDARD - DETAIL DS-E03



NOTES:

Installation:
Avoid Locating On Steep Slopes Or At Curves In Public Roads.

Remove All Vegetation And Other Objectionable Material From The Foundation Area, And Grade The Foundation And Crown For Positive Drainage.

If Longitudinal Slope Is In Excess Of 2%, Construct A Water Bar (Ridge) About 15 Feet From The Entrance To Divert Runoff Away Form The Road (See Detail Above).

Install Pipe Under The Pad (If Needed) To Maintain Proper Public Road Drainage.

If Wet Conditions Are Anticipated, Place Geotextile Fabric On The Graded Foundation To Improve Stability.

Place Aggregate To Dimensions And Grade Shown On The Erosion Control Plan, Leaving The Surface Smooth And Sloped For Drainage.

Divert All Surface Runoff And Drainage From The Stone Pad To A Sediment Trap Or Basin.

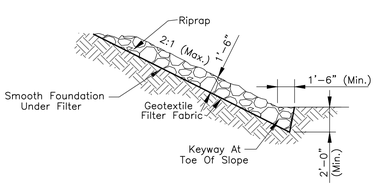
Maintenance:
Inspect Daily And After Each Storm Event Or Heavy Use.

Reshape Pad And Topdress As Needed For Drainage And Runoff Control.
Immediately Remove Mud And Sediment Tracked Or Washed Onto Public Roads By Brushing Or Sweeping. Flushing Should Only Be Used If The Water Is Conveyed Into A Sediment Trap Or Basin.

TEMPORARY GRAVEL CONSTRUCTION ENTRANCE

Not To Scale

DEVELOPMENT STANDARD - DETAIL DS-E04



NOTES:

Installation:
Excavate Only Deep Enough For Both Filter And Riprap. Compact Any Fill Material To The Density Of The Surrounding Undisturbed Soil.

Cut A Keyway In Stable Material At The Base Of The Slope To Reinforce The Toe. Keyway Depth Should Be 1 ½ Times The Design Thickness Of The Riprap, And Should Extend A Horizontal Distance Equal To The Design Thickness.

Place Geotextile Fabric On The Smoothed Foundation, Overlapping The Edges 12 Inches Minimum. Secure With Anchor Pins Spaced Every 3 Feet Along The Overlap.

Immediately After Installing The Filter, Add The Riprap To Full Thickness In One Operation. Do Not Dump Through Chutes Or Use Any Method That Causes Segregation Of Rock Sizes, Or That Will Dislodge Or Damage The Underlying Filter Material.

If Fabric Is Damaged, Remove The Riprap And Repair By Adding Another Layer Of Fabric, Overlapping The Damaged Area By 12 Inches.

Place Smaller Aggregate In Voids To Form A Dense, Uniform, Well Graded Mass. Blend The Riprap Surface Smoothly With The Surrounding Area To Eliminate Protrusions Or Over Falls.

Maintenance:
Inspect Periodically For Displaced Aggregate Material, Slumping And Erosion At Edges, Especially Downstream Or Downslope.

RIPRAP

Not To Scale

DEVELOPMENT STANDARD - DETAIL DS-E05

DEVELOPMENT STANDARD - DETAIL DS-E06

DEVELOPMENT STANDARD - DETAIL DS-E07

DEVELOPMENT STANDARD - DETAIL DS-E08

REVISIONS		
Rev. No.	Description	Date

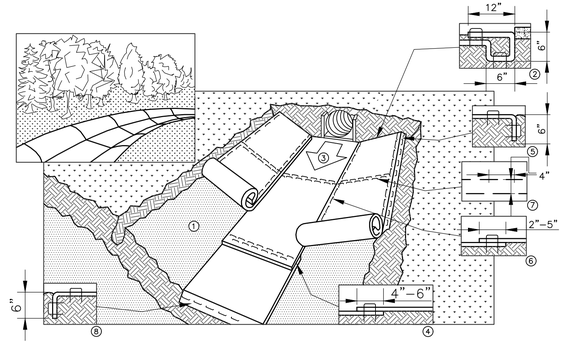
DAVID LAHEY
REGISTERED
No.
PE19700063
STATE OF
INDIANA
PROFESSIONAL ENGINEER

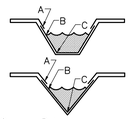
RECOMMENDED FOR APPROVAL	DESIGN ENGINEER	01/01/2019 DATE
APPROVED	TOWN ENGINEER	01/01/2019 DATE
APPROVED	MS4 OPERATOR	1/1/19 DATE

TOWN OF PLAINFIELD

EROSION CONTROL (E)
DEVELOPMENT STANDARDS

SHEET
20
OF
25





Critical Points
A. Overlaps And Seams
B. Projected Water Line
C. Channel Bottom/Side Slope Vertices

① Prepare Soil Before Installing Blankets, Including Any Necessary Application Of Lime, Fertilizer, Or Seed.

② Begin At The Top Of The Channel By Anchoring The Blanket In A 6 Inch Deep By 6 Inch Wide Trench With Approximately 12 Inches Of Blanket Extended Beyond The Upslope Portion Of The Trench. Anchor The Blanket With A Row Of Staples/Stakes Approximately 12 Inches Apart In The Bottom Of The Trench. Backfill And Compact The Trench After Stapling. Apply Seed To Compacted Soil And Fold Remaining 12 Inch Portion Of Blanket Back Over Seed And Compacted Soil. Secure Blanket Over Compacted Soil With A Row Of Staples/Stakes Spaced Approximately 12 Inches Apart Across The Width Of The Blanket.

③ Roll Center Blanket In Direction Of Water Flow In Bottom Of Channel. Blankets Will Unroll With Appropriate Side Against The Soil Surface. All Blankets Must Be Securely Fastened To Soil Surface By Placing Staples/Stakes In Appropriate Locations As Shown In The Staple Pattern Guide. When Using Optional Dot System, Staples/Stakes Should Be Placed Through Each Of The Colored Dots Corresponding To The Appropriate Staple Pattern.

④ Place Consecutive Blankets End Over End (Shingle Style) With A 4–6 Inch Overlap. Use A Double Row Of Staples Staggered 4 Inches Apart And 4 Inches On Center To Secure Blankets.

⑤ Full Length Edge Of Blankets At Top Of Side Slopes Must Be Anchored With A Row Of Staples/Stakes Approximately 12 Inches Apart In A 6 Inch Deep By 6 Inch Wide Trench. Backfill And Compact The Trench After Stapling.

⑥ Adjacent Blankets Must Be Overlapped Approximately 2–5 Inches, (Depending On Blanket Type) And Stapled. To Ensure Proper Seam Alignment, Place The Edge Of The Overlapping Blanket (Blanket Being Installed On Top) Even With The Colored Seam Stitch On The Blanket Being Overlapped.

⑦ In High Flow Channel Applications, A Staple Check Slot Is Recommended At 30–40 Foot Intervals. Use A Double Row Of Staples Staggered 4 Inches Apart And 4 Inches On Center Over Entire Width Of The Channel.

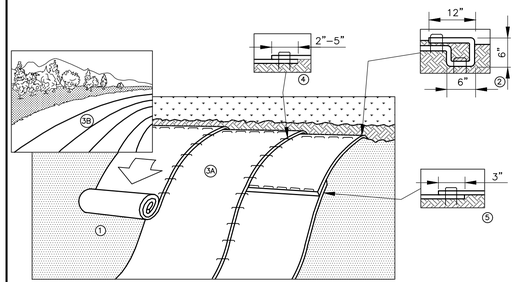
⑧ The Terminal End Of The Blankets Must Be Anchored With A Row Of Staples/Stakes Approximately 12 Inches Apart In A 6 Inch Deep By 6 Inch Wide Trench. Backfill And Compact The Trench After Stapling.

NOTE:
* Horizontal Staple Spacing Should Be Altered If Necessary To Allow Staples To Secure The Critical Points Along The Channel Surface.

** In Loose Soil Conditions, The Use Of Staple Or Stake Lengths Greater Than 6 Inches May Be Necessary To Properly Anchor The Blankets.

EROSION CONTROL BLANKET – FLOWLINE APPLICATION

Not To Scale



① Prepare Soil Before Installing Blankets, Including Any Necessary Application Of Lime, Fertilizer, And Seed.

② Begin At The Top Of The Slope By Anchoring The Blanket In A 6 Inch Deep By 6 Inch Wide Trench With Approximately 12 Inches Of Blanket Extended Beyond The Upslope Portion Of The Trench. Anchor The Blanket With A Row Of Staples/Stakes Approximately 12 Inches Apart In The Bottom Of The Trench. Backfill And Compact The Trench After Stapling. Apply Seed To Compacted Soil And Fold Remaining 12 Inch Portion Of Blanket Back Over Seed And Compacted Soil. Secure Blanket Over Compacted Soil With A Row Of Staples/Stakes Spaced Approximately 12 Inches Apart Across The Width Of The Blanket.

③ Roll The Blankets (A.) Down Or (B.) Horizontally Across The Slope. Blankets Will Unroll With Appropriate Side Against The Soil Surface. All Blankets Must Be Securely Fastened To Soil Surface By Placing Staples/Stakes In Appropriate Locations As Shown In The Staple Pattern Guide. When Using Optional Dot System, Staples/Stakes Should Be Placed Through Each Of The Colored Dots Corresponding To The Appropriate Staple Pattern.

④ The Edges Of Parallel Blankets Must Be Stapled With Approximately 2–5 Inches Overlap Depending On Blanket Type. To Ensure Proper Seam Alignment, Place The Edge Of The Overlapping Blanket (Blanket Being Installed On Top) Even With The Colored Seam Stitch On The

⑤ Previously Installed Blanket.

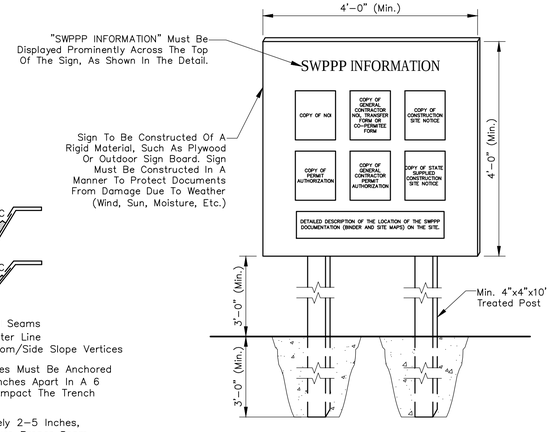
Consecutive Blankets Spliced Down The Slope Must Be Placed End Over End (Shingle Style) With An Approximate 3 Inch Overlap. Staple Through Overlapped Area, Approximately 12 Inches Apart Across Entire Blanket Width.

Overlap The Blankets With The Direction Of The Flow Of The Water

NOTE:
* In Loose Soil Conditions, The Use Of Staple Or Stake Lengths Greater Than 6 Inches May Be Necessary To Properly Secure The Blankets.

EROSION CONTROL BLANKET – SLOPE APPLICATION

Not To Scale



SWPPP INFORMATION SIGN

Not To Scale

NOTES:
1.) The SWPPP Information Sign Must Be Located Near The Construction Entrance Of This Site, Such That It Is Accessible And Viewable By The General Public, But Not Obstructing Views As To Cause A Safety Hazard.

2.) All Posted Documents Must Be Maintained In A Clearly Readable Condition At All Times Throughout Construction And Until The Notice–Of–Termination (NOT) Is Filed For The Permit.

3.) Contractor Shall Post Other Storm Water And/Or Erosion And Sediment Control Related Permits On The Sign As Required.

4.) Sign Shall Be Located Outside Of Public Right–Of–Way And Easements Unless Approved By The Plainfield MS4 Operator.

EROSION CONTROL NOTES

GENERAL:
Take Measures To Control Erosion And Sedimentation To Assure That Sediment Is Not Transported From The Site By Storm Events. Practices Such As Silt Traps Or Filters Shall Be Installed Prior To Land Disturbing Activities. New Drainage Swales Shall Be Seeded And/Or Sodded, Or Other Protective Practices Applied, Immediately Following Construction. All Practices Shall Be Maintained To Remove Sediment From Runoff Leaving The Site As Long As Unstabilized Soil Conditions Exist.

After Land Disturbing Activities Cease And The Soil Is Stabilized, Temporary Erosion Control Measures May Be Eliminated If Their Purpose Has Been Fulfilled. Any Disturbed Soil Resulting From Removal Of Such Practices Shall Be Stabilized By Approved Methods.

Dispose Properly All Waste And Unused Building Materials Including, But Not Limited To, Garbage, Debris, Cleaning Wastes, Water, Toxic Materials, And Hazardous Substances. Do Not Allow Substances To Be Carried By Runoff Into A Receiving Channel Or Storm Sewer System.

Clean Public Or Private Roadways Daily And After Major Storms Using Acceptable Methods To Remove Any Accumulated Sediment. The Developer's Contractors Are Responsible For Supervision Of The Construction Activity Within The Development And Shall Take All Necessary Actions To Remove Sediment From The Streets.

For Construction Sequence, Maintenance, And Other Soil Erosion Requirements, See Specifications For Site Clearing, Slope Protection, Erosion Control, Landscaping, And Seeding.

Erosion And Sediment Control Practices Must Adhere To, Or Exceed Those Shown On The Erosion Control Plan, (And Rule 5 327 IAC 15–5) And Shall Be In Accordance With The Indiana Storm Water Quality Manual, Indiana Department Of Environmental Management.

SURFACE STABILIZATION:
Cut Slopes Which Are To Be Topsoiled Should Be Scarified To A Minimum Depth Of 4 Inches Prior To Placement Of Topsoil. Install Erosion Control Blankets On All Slopes Of 3 (Horizontal) To 1 (Vertical).

Stabilize All Disturbed Ground Left Inactive For Fifteen Or More Days By Seeding, Sodding, Mulching, Or By Other Equivalent Erosion Control Practices. See The Landscape Plan For Permanent Ground Cover Requirements Adjacent To The Building And Parking Areas.

TEMPORARY GRAVEL CONSTRUCTION ENTRANCE/EXIT PAD:
Construct The Temporary Gravel Drive Using 6 Inches INDOT CA No. 2 Stone Over A Stable Foundation. Geotextile Fabric May Be Used Under Wet Conditions Or For Soils Within A High Seasonal Water Table To Provide Greater Bearing Strength. Grade For Positive Drainage.

Inspect The Entrance Pad Area Weekly And After Storm Events Or Heavy Use. Reshape The Pad As Needed For Drainage And Runoff Control. Top Dress Pad With Clean Stone.

SODDING:
Do Not Install Sod On Hot, Dry Soil, Frozen Soil, Compacted Clay, Loose Sand Or Gravel, Or Pesticide Treated Soil. Ideal Sodding Time Is May 1–June 1, Or September 1–October 20, Although It Can Be Installed As Early As March 15, If Available And Temperatures Are Above 32° F, Or June 1–September 1 If Irrigated.

Install Sod After Other Erosion Control Practices Have Been Completed. Break Up Compacted Soils Sufficiently To Create A Favorable Rooting Depth Of 6–8 Inches, Using A Chisel Plow, Disk, Harrow, Or Rake.

Apply Topsoil If The Site Is Otherwise Unsuitable For Establishing Vegetation. Shape, Smooth, And Firm The Soil Surface.

Have The Soil In The Sod Bed Tested To Determine Its pH And Nutrient Level. If The pH Is Too Acidic For The Grass Sod To Be Installed, Apply Lime According To Test Results Or At The Rate Recommended By The Sod Supplier.

Fertilize As Recommended By The Soil Test. If Testing Was Not Done, Consider Applying 400–600 Lbs./Acre Of 12–12–12 Analysis Fertilizer, Or Equivalent Fertilizer, As Recommended By The Soil Test. Work The Fertilizer Into The Soil To 2–4 Inches Deep.

TREE CONSERVATION/PROTECTION:
Protect Trees From Construction Equipment By Fencing Off An Area Equivalent To The Tree's Crown With Temporary Construction Safety Fence. If A Fence Cannot Be Erected, Cushion The Rooting Area With 6 Inches Of Wood Chips, Or Wood Or Brick Paths.

Create Traffic Patterns Such As To Keep Soil Compaction To A Minimum. Store Supplies And Equipment Away From Protected Tree Areas. Aerate Soil Where Compaction Has Been Excessive.

When Clearing Areas Adjacent To Protected Trees, Use Equipment Such As A Brush Cutter Or Rotary Ax, Or Cut By Hand. Where Root Areas Must Be Graded, Cut Large Roots Instead Of Tearing Them With Equipment.

Minimize Changes In The Drainage Pattern. Avoid Putting Fill Over The Root System.

Prune Low Hanging Limbs That Could Otherwise Be Broken Off By Equipment.

Repair Wounds Simply By Removing Damaged Bark And Wood Tissue (Do Not Use Tree Paint).

EROSION CONTROL BLANKETS:
Use Machine Produced Mat Of Straw Fiber Matrix Or Curled Wood Excelsior Of 80 Percent, 6 Inch Or Longer Fiber Length.

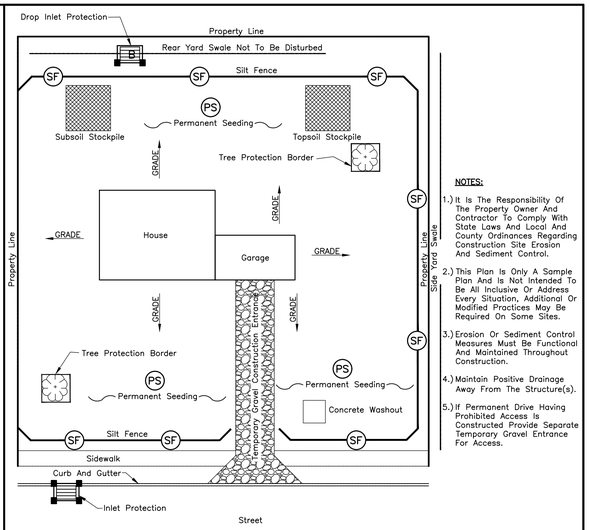
Evenly Distribute Fibers Over Entire Area Of Blanket To Provide Consistent Thickness.

Provide Blanket With Top Side Covered With Biodegradable Extruded Plastic Mesh.

Treat Blankets To Impart Smolder Resistance Without Use Of Chemical Additives.

Provide "Curlex Blankets" By American Excelsior Company, Or "S150" By North American Green, Or Accepted Substitute.

EROSION CONTROL BLANKET STAPLES:
Use Minimum 0.091 Inch Diameter Steel Wire "U" Shape With Legs 6 Inches In Length With 1 Inch Crown.



NOTES:
1.) It Is The Responsibility Of The Property Owner And Contractor To Comply With State Laws And Local And County Ordinances Regarding Construction Site Erosion And Sediment Control.

2.) This Plan Is Only A Sample Plan And Is Not Intended To Be All Inclusive Or Address Every Situation, Additional Or Modified Practices May Be Required On Some Sites.

3.) Erosion Or Sediment Control Measures Must Be Functional And Maintained Throughout Construction.

4.) Maintain Positive Drainage Away From The Structure(s).

5.) If Permanent Drive Having Prohibited Access Is Constructed Provide Separate Temporary Gravel Entrance For Access.

SAMPLE EROSION CONTROL SITE PLAN

Not To Scale
(For Construction Of Typical Single Family Dwellings.)

DEVELOPMENT STANDARD – DETAIL DS–E09

SEEDING:
The Following Table Is For General Seeding Information Only. Consult The Indiana Storm Water Quality Manual For Recommendations Relating To Steep Banks And Cuts, High Maintenance Areas, And Channels And Areas Of Concentrated Flow.

SEEDS:
40 Percent Kentucky Bluegrass
40 Percent Creeping Red Fescue
20 Percent Annual Rye Grass

FERTILIZER:
Commercial Fertilizer (12–12–12)

STRAW:
Clean And Free Of Weed Seeds

Spread Fertilizer Uniformly Over Finish Graded Surfaces At A Rate Of 20 Pounds Per 1,000 Square Feet. Thoroughly Disk, Harrow, Or Rake Fertilizer Into Soil To Depth Not Less Than 2 Inches.

Distribute Seed Mix Same Day As Fertilizer Is Applied. Spread Evenly At A Rate Of 3 Pounds Per 1,000 Square Feet. Rake Lightly And Compact Areas With 100 Pound Roller.

Cover Areas With Straw Evenly Spread At A Rate Of 2 Tons Per Acre Immediately After Seeding. Water Areas With Fine Spray. Do Not Flood Or Create Washes. Protect Seeded Areas From Erosion.

Continue Watering Of These Areas On A Daily Basis For The Remainder Of The Construction Period.

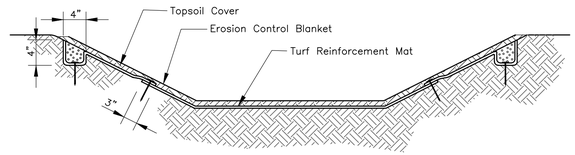
Hold Sloped Areas Steeper Than 2 (Horizontal) To 1 (Vertical) With Wire Mesh Or Stakes And Wire.

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
	Temporary Seeding Dates											
Wheat Or Rye												
Oats												
Annual Rye Grass												
	Permanent Seeding Dates											
Non–Irrigated*												
Irrigated												
Dormant Seeding**												

Irrigation Required
* Seeding Dates May Be Extended 5 Days If Mulch Applied And Planted Late Summer
** Increase Seeding Rate By 50%

NOTES:
If Construction Activities Take Place During The Months Of November Through February, Use Dormant Seeding Practices In Place Of Temporary And Permanent Seeding Practices.

See Chapter 7 Of The Indiana Storm Water Quality Manual, For Additional Seeding Recommendations.



Extend Turf Reinforcement Mat To Accommodate Maximum Designed Flow Depth

NOTES:

Installation:
Select The Type Of Mat Recommended For The Site Conditions (Slope, Channel, Flow Velocity) And Problem To Be Addressed.

Install Any Practices Needed To Control Erosion And Runoff, Such As Temporary Or Permanent Diversions, Slope Drains, Sediment Basins/Traps, Silt Fence Or Straw Bale Dams.

Grade The Site As Specified.

Install The Mat According To Manufacturer's Specifications.

Backfill Topsoil To A Depth Equal To The Thickness Of The Mat.

Seed The Area After The Mat Has Been Installed And Backfilled With Soil.

Mulch The Area, Or Use Erosion Control Blankets To Stabilize The Surface.

Maintenance:
Until The Surface Is Stabilized, Inspect Weekly And After Each Storm Event For Erosion Exposing The Mat.

If A Specific Area Shows Erosion, Add Soil And Restabilize.

TURF REINFORCEMENT MAT

Not To Scale

REVISIONS		
Rev. No.	Description	Date

DAVID LAHEY REGISTERED No. PE19700063 STATE OF INDIANA PROFESSIONAL ENGINEER

RECOMMENDED FOR APPROVAL	DESIGN ENGINEER	01/01/2019 DATE
APPROVED	TOWN ENGINEER	01/01/2019 DATE
APPROVED	MS4 OPERATOR	1/1/19 DATE

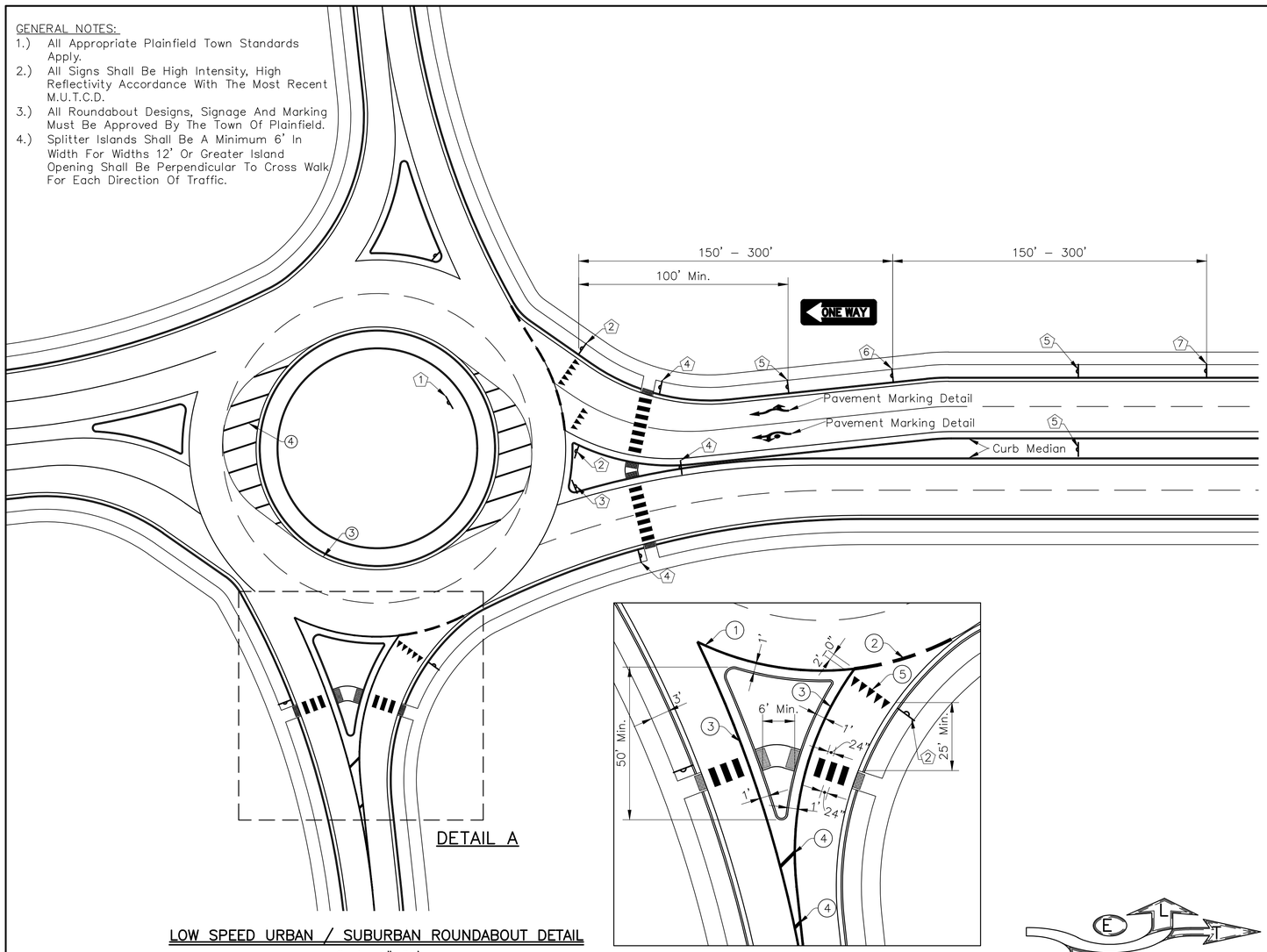
TOWN OF PLAINFIELD

EROSION CONTROL MEASURES

SHEET 21 OF 25

GENERAL NOTES:

1.) All Appropriate Plainfield Town Standards Apply.
2.) All Signs Shall Be High Intensity, High Reflectivity Accordance With The Most Recent M.U.T.C.D.
3.) All Roundabout Designs, Signage And Marking Must Be Approved By The Town Of Plainfield.
4.) Splitter Islands Shall Be A Minimum 6' In Width For Widths 12' Or Greater Island Opening Shall Be Perpendicular To Cross Walk For Each Direction Of Traffic.



LOW SPEED URBAN / SUBURBAN ROUNDABOUT DETAIL

Scale: 1"=30'

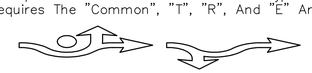
DETAIL A

Scale: 1"=20'

COMPONENT KEY

The Labeled Areas Above Correspond To The Portions Needed For Each Type Of Roundabout Traffic Arrow.

For Example: The Roundabout Traffic Arrow Type Tre Requires The "Common", "T", "R", And "E" Areas.



TYPE LTE TYPE TR

MARKING DETAILS

R1–2

R6–1R & R6–4a

SIGN ASSEMBLY

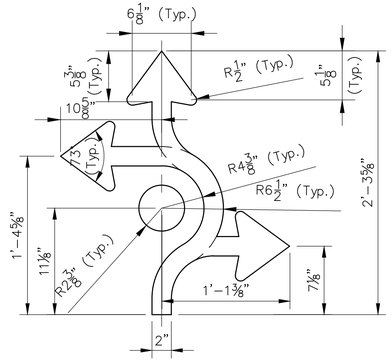
W3–2A

W13–1

SIGN ASSEMBLY

RTA LTE

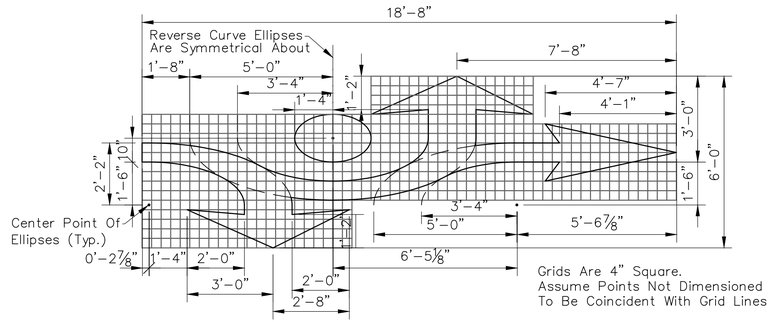
RTA TR



DETAIL

SIGN DETAILS

See Post Detail On Sheet 5



PAVEMENT MARKING DETAILS

DETAIL B

LEGEND

1. Line, Solid White, 8"
2. Line, Broken White, 8"
3. Line, Solid Yellow, 8"
4. Crosshatch 45°, Solid Yellow, 12" (20' Spacing)
5. Shark Tooth Yield Triangle 2'W x3'H

Sign

REVISIONS		
Rev. No.	Description	Date

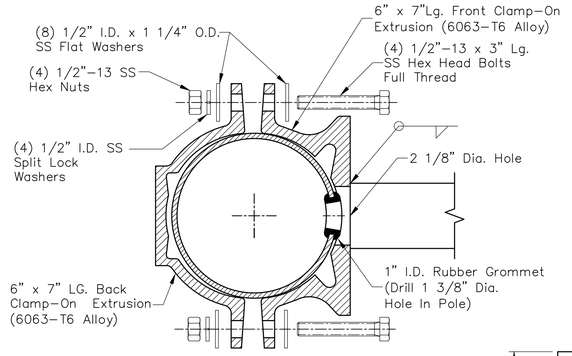
DAVID LAHEY REGISTERED No. PE19700063 STATE OF INDIANA PROFESSIONAL ENGINEER

RECOMMENDED FOR APPROVAL	DESIGN ENGINEER	01/01/2019 DATE
APPROVED	TOWN ENGINEER	01/01/2019 DATE
APPROVED	DIRECTOR OF TRANSPORTATION	01/01/2019 DATE

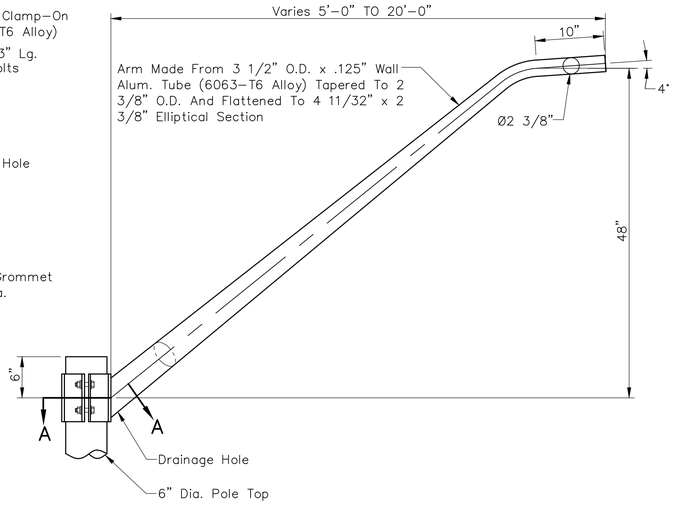
TOWN OF PLAINFIELD

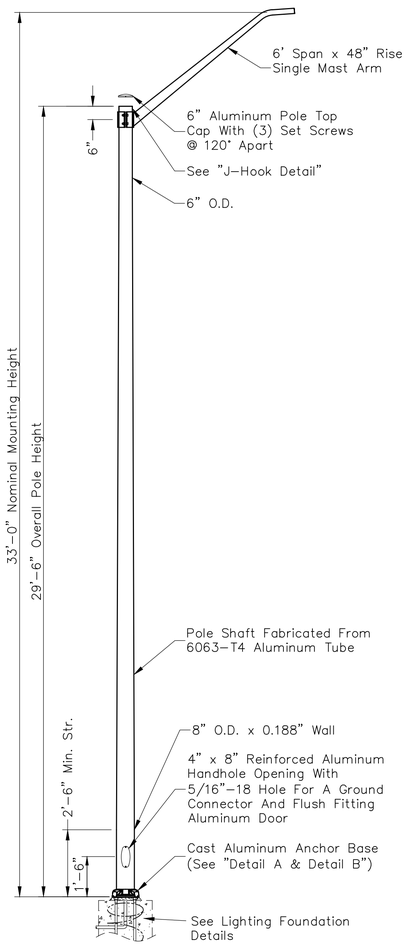
LOW SPEED URBAN / SUBURBAN ROUNDABOUT DETAIL

SHEET 22 OF 25



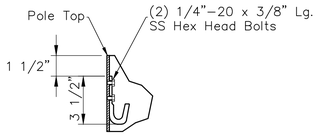
SECTION A-A



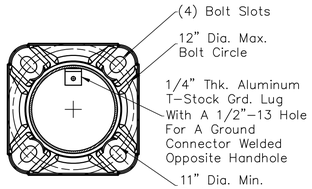


TYPICAL LIGHT POLE DETAILS

Not To Scale

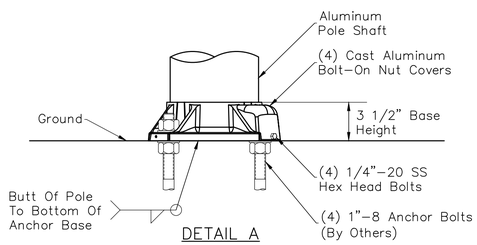


J-HOOK MOUNTING DETAIL



Note: Nut Covers Not Shown

DETAIL B



DETAIL A

Lighting Component Notes:

1. Ornamental Light Poles Shall Be Manufactured By Valmont Electrical MFG. Co.
2. Standard Light Poles Shall Meet INDOT Design Standards
3. Pole Shafts Shall Be 16-Sharp Flute Tapered. Base Diameter, Top Diameter, Shaft Length, And Gauge Thickness, 19 Ft. Maximum Vertical Clearance From Top Of Pavement To Bottom Of All Signal Heads.
4. Base Coat Shall Be Hot Dipped Galvanized To ASTM:A123.
5. Finish Shall Be TGIC Or Urethane Polyester Powder.
6. Ornamental Light Pole Color Shall Be Woodland Green (Color Code: RAL 6228).
7. Structural Design Is To Be Completed By The Contractor Under The Direct Supervision Of An Experienced Professional Engineer Registered In The State Of Indiana. The Successful Bidder Is To Provide Shop Drawings, Which Bear, For All Structural Components The Professional Seal And Signature Of The Engineer Responsible For The Structural Design.
8. Prior To Fabrication, Shop Drawings For All Lighting Components Shall Be Submitted To The Engineer For Approval.
9. Evolve Roadway Scalable Fixture Shall Be The Following:ERS1 Or ERS2 And 4000K Color Temperature. Luminaire Head Shall Be Finished To Match Pole.
10. Technical Specification, Photometric Plan, And Visual File Shall Be Submitted To The Town Of Plainfield For Review Prior To Installation.

Helical Foundation Notes

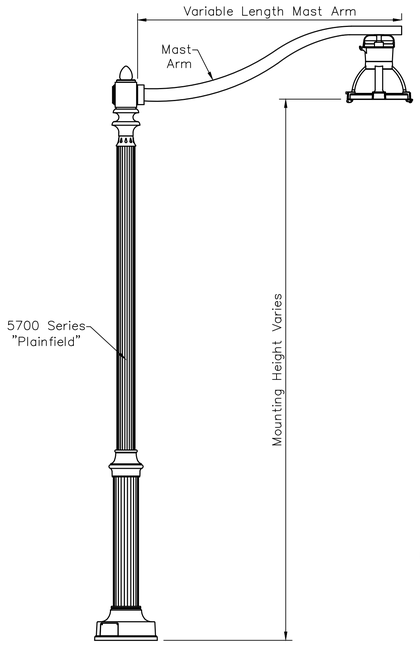
1. Finish: Hot Dip Galvanize Per ASTM-A153 (Latest Revision).
2. Baseplate To Be Perpendicular To Shaft Axis (±1°) And Hole Centerline Concentric (±.188) To Shaft Axis.
3. All Material Is To Be New, Unused And Mill Traceable Meeting The Following Specifications:
   Baseplate: ASTM A36-(Latest Revision) Structural Steel (Conform To AASHTO Tech. Bul. #270).

   Shaft: ASTM A252-(Latest Revision) Grade 2, Steel Pipe Piles. Alternate Material: ASTM A53-(Latest Revision) Type E Or S, Grade B, Steel Pipe Or ASTM A500-(Latest Revision) Grade B, Structural Steel Tubing.

   Helix: ASTM A635-(Latest Revision) 3/8" Thick Hot Rolled Steel Plate Or Coil.

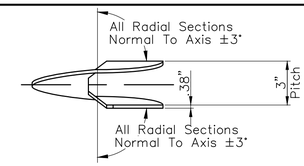
   Pilot Point: ASTM A575-(Latest Revision) 1-1/4" Diameter Hot Rolled Steel Bar. Bolts: Carriage Bolts Per ANSI B-18.5, SAE J429 Grade-5.

   Nuts: Heavy Hex Nuts Per ASTM A194 Grade 2H Or ASTM A563 Grade DH, Meeting The Supplementary Requirements Of ASTM A563; 1-8UNC-2B Per ANSI B18.2.2.

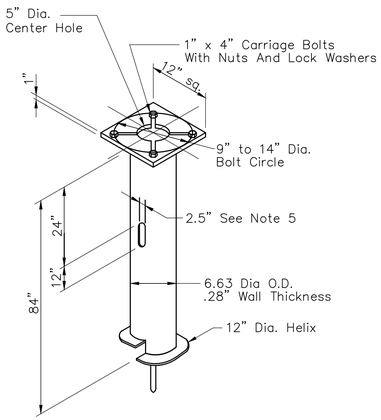


ORNAMENTAL LIGHT POLE

Not To Scale

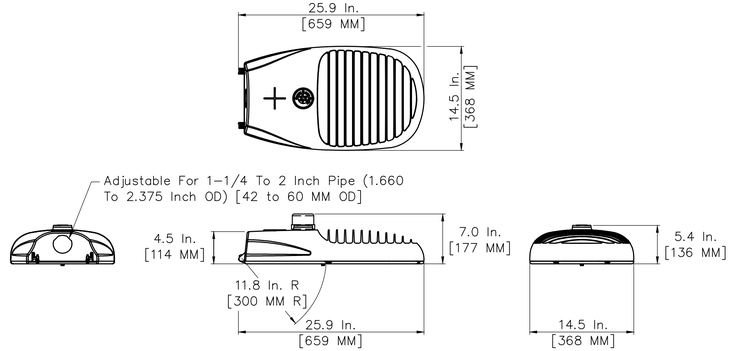


Helix Must Be Formed By Matching Metal Die
(Side View Of True Helical Form)



LIGHTING FOUNDATION DETAILS

Not To Scale



EVOLVE ROADWAY SCALABLE LED LIGHT FIXTURE DETAIL

Not To Scale

REVISIONS		
Rev. No.	Description	Date

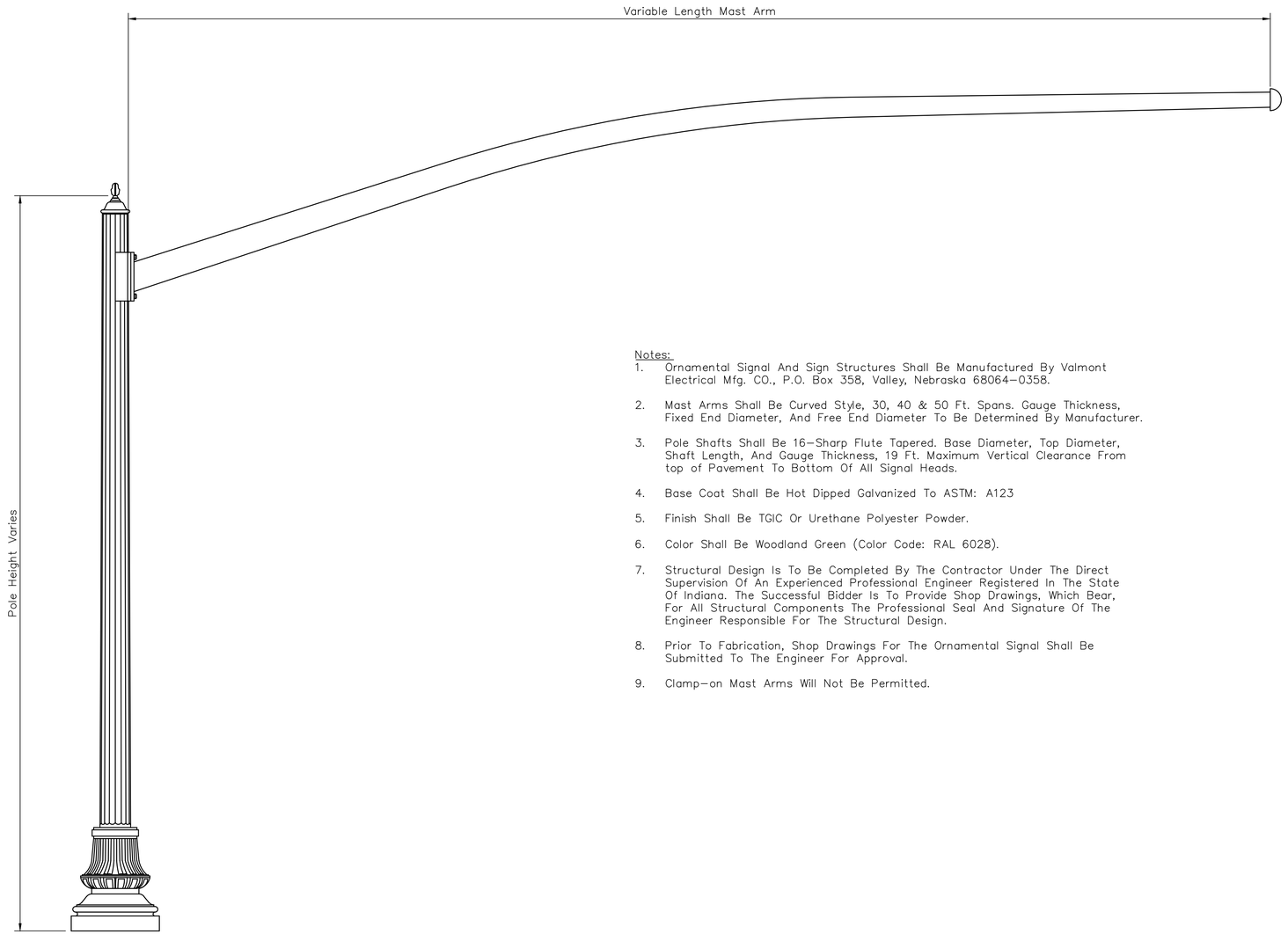
DAVID LAKEY REGISTERED No. PE19700063 STATE OF INDIANA PROFESSIONAL ENGINEER

RECOMMENDED FOR APPROVAL	DESIGN ENGINEER	01/01/2019 DATE
APPROVED	TOWN ENGINEER	01/01/2019 DATE
APPROVED	DIRECTOR OF TRANSPORTATION	01/01/2019 DATE

TOWN OF PLAINFIELD

STREET LIGHTING DETAILS
APPLICABLE TO COLLECTORS & ARTERIALS

SHEET 23 OF 25



Notes:

1. Ornamental Signal And Sign Structures Shall Be Manufactured By Valmont Electrical Mfg. CO., P.O. Box 358, Valley, Nebraska 68064–0358.
2. Mast Arms Shall Be Curved Style, 30, 40 & 50 Ft. Spans. Gauge Thickness, Fixed End Diameter, And Free End Diameter To Be Determined By Manufacturer.
3. Pole Shafts Shall Be 16–Sharp Flute Tapered. Base Diameter, Top Diameter, Shaft Length, And Gauge Thickness, 19 Ft. Maximum Vertical Clearance From top of Pavement To Bottom Of All Signal Heads.
4. Base Coat Shall Be Hot Dipped Galvanized To ASTM: A123
5. Finish Shall Be TGIC Or Urethane Polyester Powder.
6. Color Shall Be Woodland Green (Color Code: RAL 6028).
7. Structural Design Is To Be Completed By The Contractor Under The Direct Supervision Of An Experienced Professional Engineer Registered In The State Of Indiana. The Successful Bidder Is To Provide Shop Drawings, Which Bear, For All Structural Components The Professional Seal And Signature Of The Engineer Responsible For The Structural Design.
8. Prior To Fabrication, Shop Drawings For The Ornamental Signal Shall Be Submitted To The Engineer For Approval.
9. Clamp–on Mast Arms Will Not Be Permitted.

DECORATIVE TRAFFIC SIGNAL POLE

Not To Scale

REVISIONS		
Rev. No.	Description	Date

DAVID LAHEY REGISTERED No. PE19700063 STATE OF INDIANA PROFESSIONAL ENGINEER

RECOMMENDED FOR APPROVAL	DESIGN ENGINEER	01/01/2019 DATE
APPROVED	TOWN ENGINEER	01/01/2019 DATE
APPROVED	DIRECTOR OF TRANSPORTATION	01/01/2019 DATE

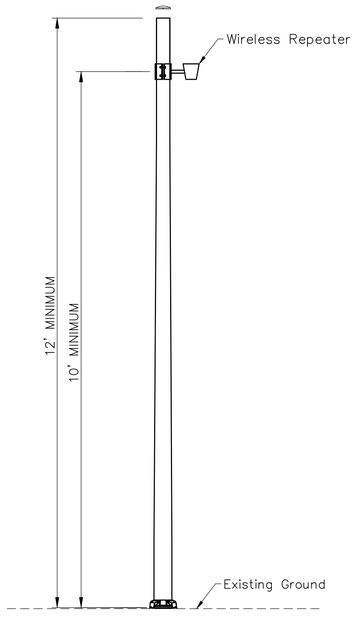
TOWN OF PLAINFIELD

TRAFFIC SIGNAL DETAILS APPLICABLE TO COLLECTORS & ARTERIALS

SHEET 24 OF 25

LEGEND

- 1-way, 3 Section (12" Red, 12" Abmer, 12" Green) Signal Indication (Polycarbonate Only) W/ Back Plate
- T5-2 Cabinet On Type "P-1" Foundation
- Steel Strain Pole And Foundation, 30 Ft
- 2" Conduit
- Proposed Handhole
- Span Mount Junction Box
- Span Mounted Sign
- Wireless Receiver Processor
- Accessible Pedestrian Signal Module And Push Button W/R10-3E Sign And Countdown Pedestrian Signal Head
- Wireless Vehicle Magnetometer Detector
- Service Point
- 2" Conduit, W/Tracer Wire, For CAT6 And/Or Fiber

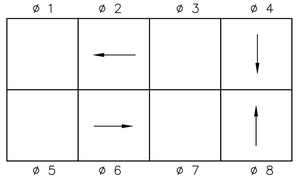


TYPICAL REPEATER POLE MOUNT DETAILS

Not To Scale

Notes:

1. The wireless vehicle detection system shall be sensys.
2. Back Detection Shall Be Used For All Approaches ≥35 MPH In Accordance With The Indiana Design Manual And In Locations Approved By The Engineer.
3. Wireless Repeaters Not Designated On The Plans For Mounting On Steel Strain Poles Shall Be Mounted To An Aluminum Pole At Locations Approved By The Engineer.
4. The Pole Shall Be In Accordance With ASTM C 241 For Seamless Aluminum Alloy, Schedule 40, 6061-T6. The Outside Diameter Of The Pole Shall Be ½", Have A Unit Weight Of Approximately 3.7 LBS./Ft, And Have A Spun Finish.
5. A Pole Cap Shall Be Supplied For The Top Of The Pole. The Pole Cap Shall Be Spun Aluminum In Accordance With ASTM B 209, Alloy 1100-0.
6. All Hardware For Connection Of Repeater To The Pole Shall Be Stainless Steel.
7. The Pole Shall Be Installed Plum On An INDOT Type A Foundation.
8. Prior To Fabrication, Shop Drawings Shall Be Submitted To The Engineer For Approval.
9. Color Shall Be Woodland Green (Color Code: RAL 6028).

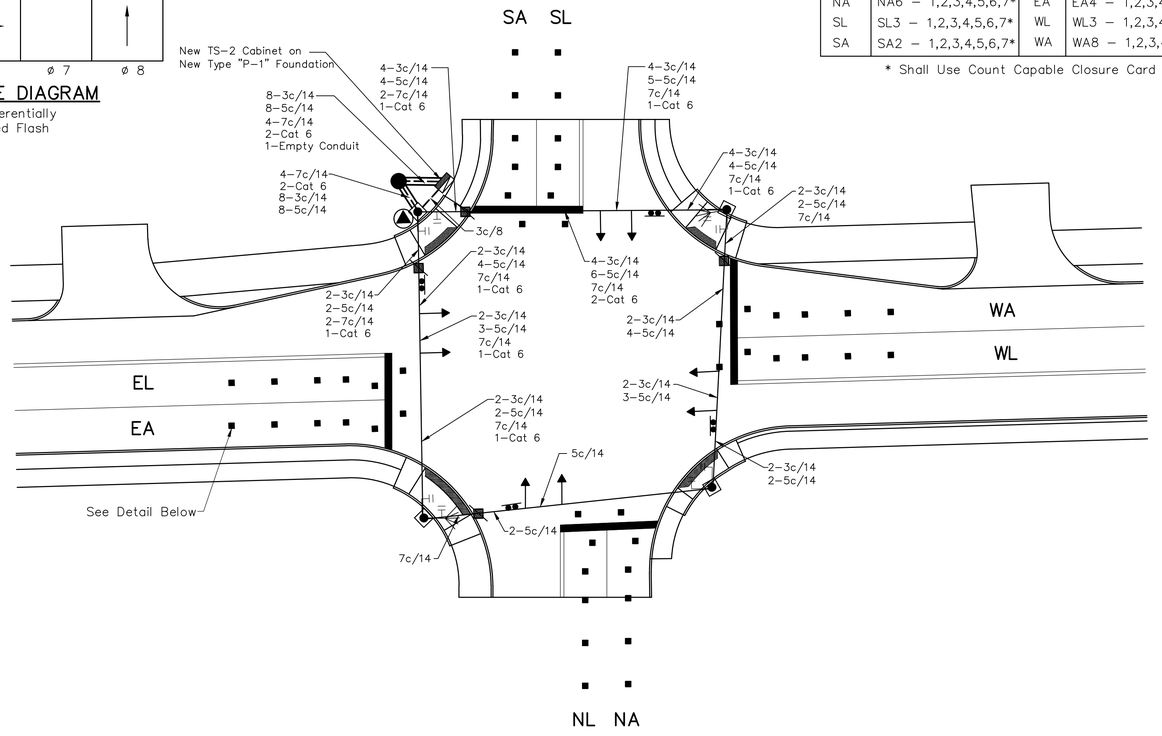


PHASE DIAGRAM

No Preferentially
All Red Flash

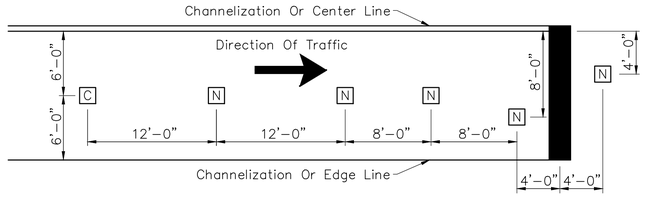
DETECTOR TAG TABLE			
LANE	TAG NUMBER	LANE	TAG NUMBER
NL	NL1 – 1,2,3,4,5,6,7*	EL	EL3 – 1,2,3,4,5,6,7*
NA	NA6 – 1,2,3,4,5,6,7*	EA	EA4 – 1,2,3,4,5,6,7*
SL	SL3 – 1,2,3,4,5,6,7*	WL	WL3 – 1,2,3,4,5,6,7*
SA	SA2 – 1,2,3,4,5,6,7*	WA	WA8 – 1,2,3,4,5,6,7*

* Shall Use Count Capable Closure Card



SIGNALIZATION DETAILS

Not To Scale



WIRELESS VEHICLE DETECTOR DETAILS

Not To Scale

Notes:

1. Type N Sensors Detect Only Vehicle Presence.
2. Type C Sensors Detect Vehicle Presence And Provide Vehicle Counts.
3. There Should Be At Lest ¼" And No More Than ½" Of Clearance Between The Top Of The Sensor And The Top Of The Pavement.

REVISIONS		
Rev. No.	Description	Date

DAVID LAHEY — REGISTERED — No. PE19700063 — STATE OF INDIANA — PROFESSIONAL ENGINEER

RECOMMENDED FOR APPROVAL	DESIGN ENGINEER	01/01/2019 DATE
APPROVED	TOWN ENGINEER	01/01/2019 DATE
APPROVED	DIRECTOR OF TRANSPORTATION	01/01/2019 DATE

TOWN OF PLAINFIELD

WIRELESS DETECTION DETAILS

SHEET 25 OF 25