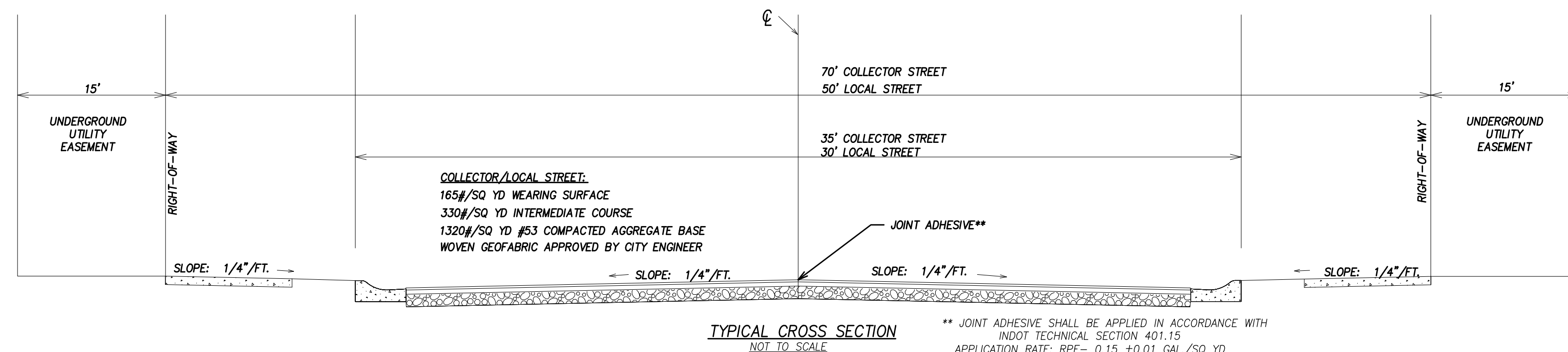
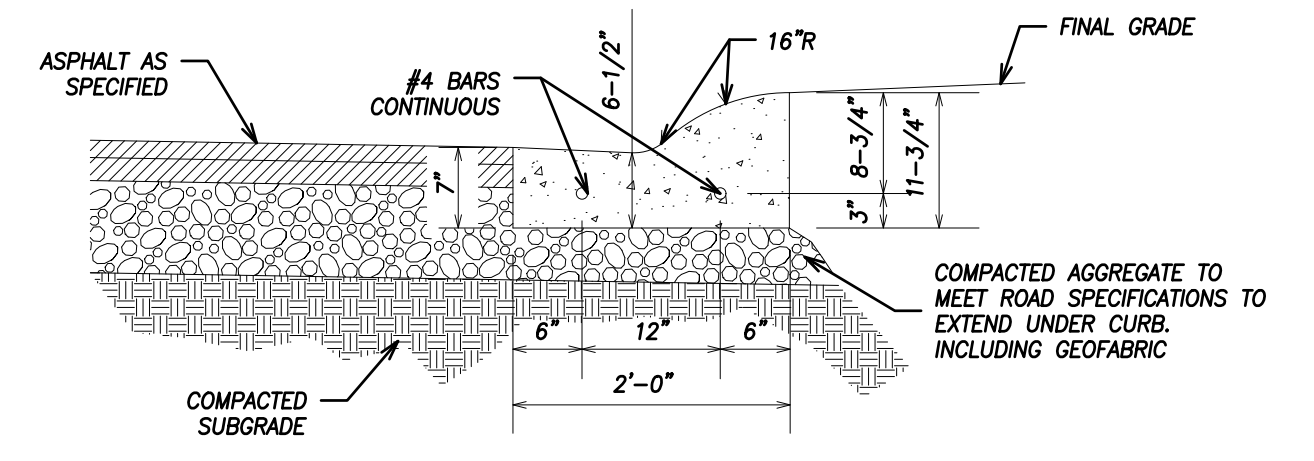


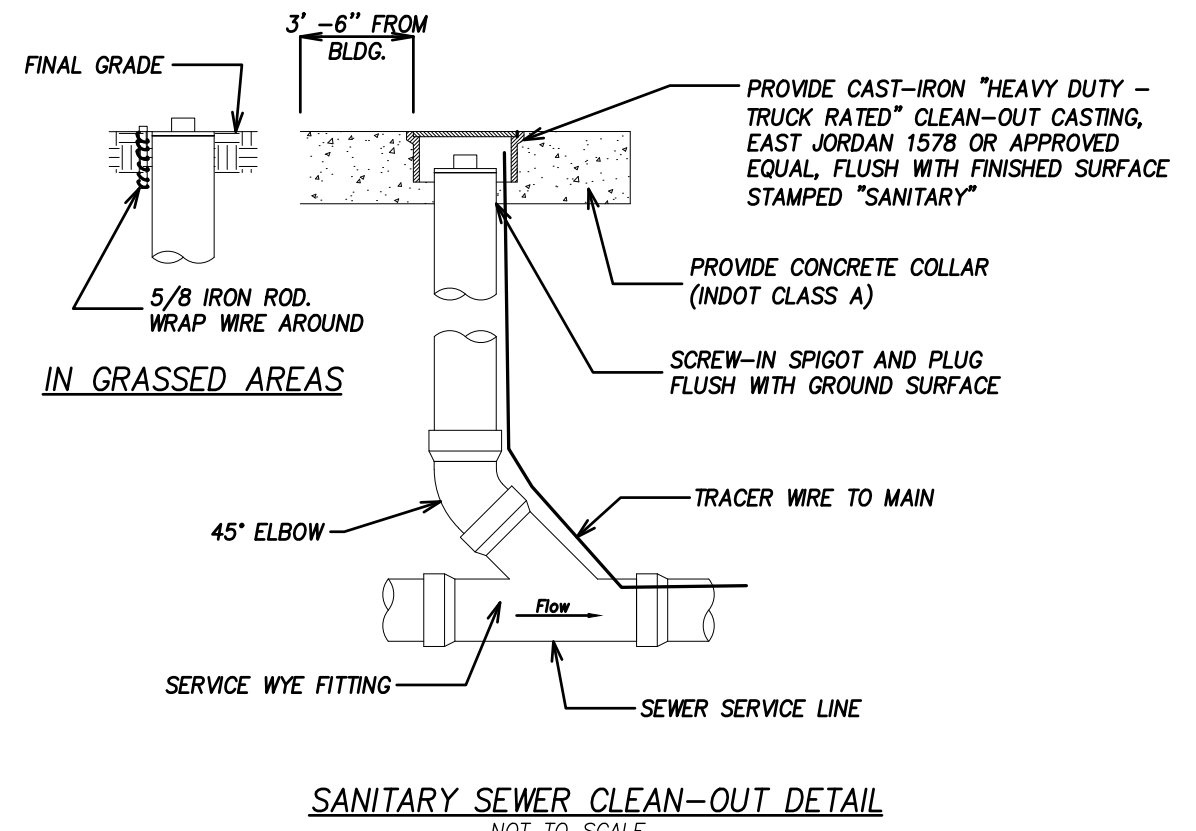
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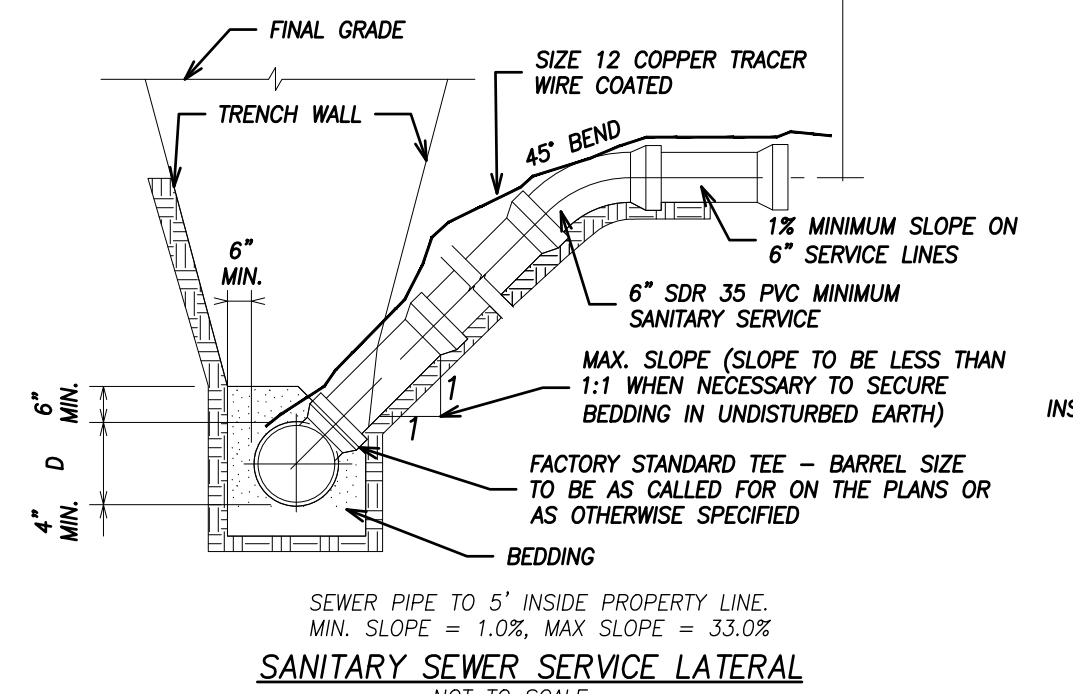
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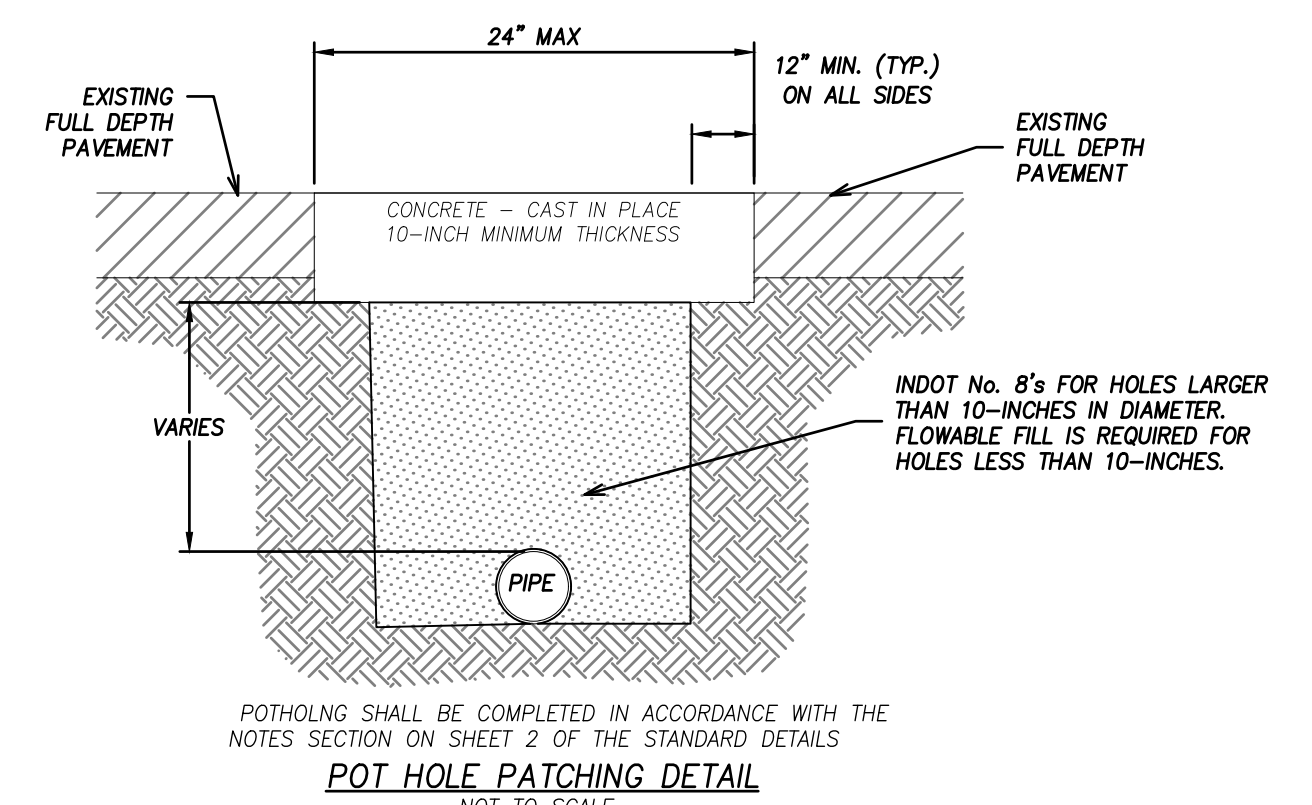
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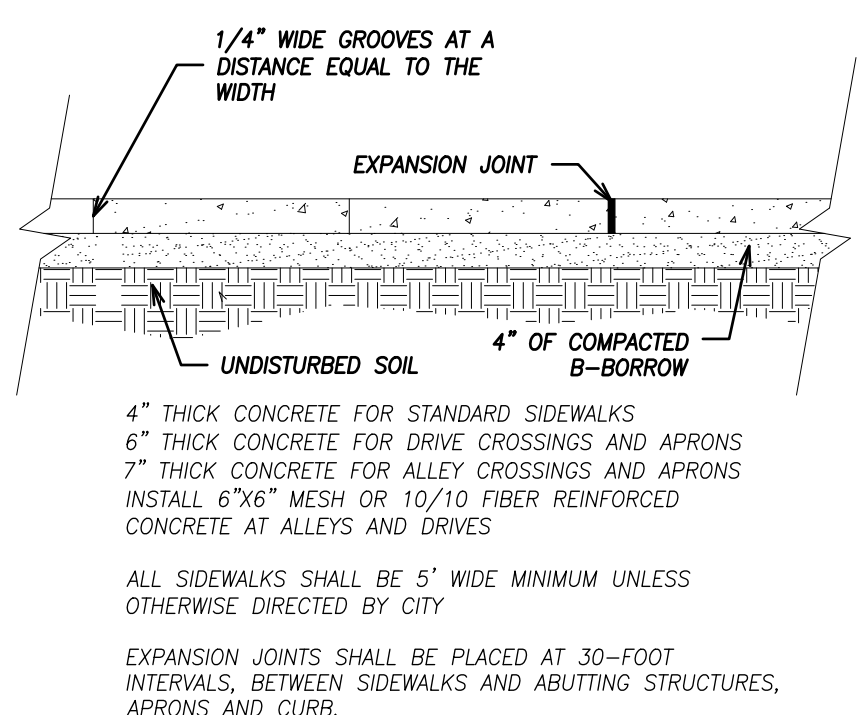
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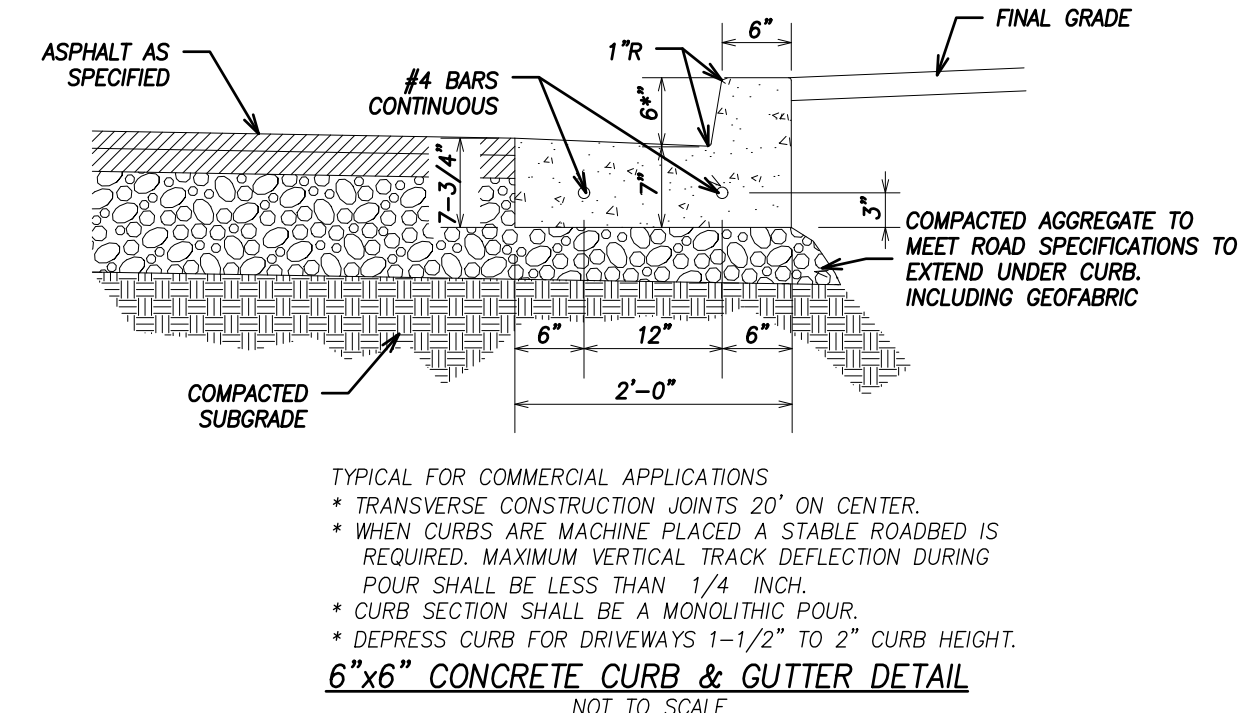
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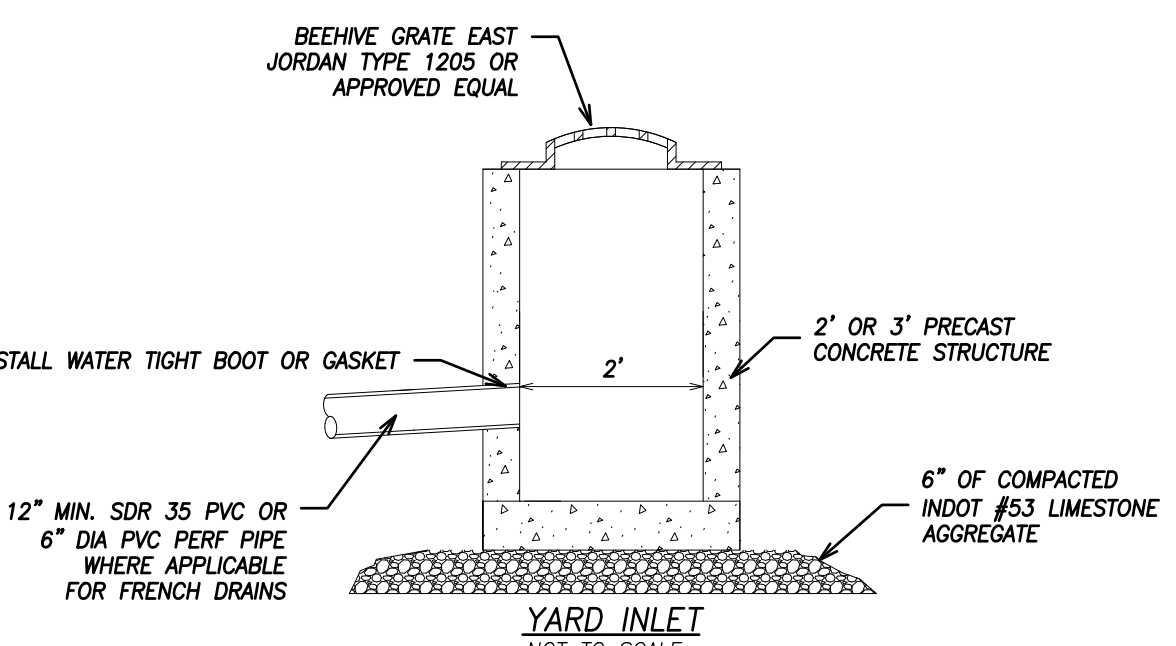
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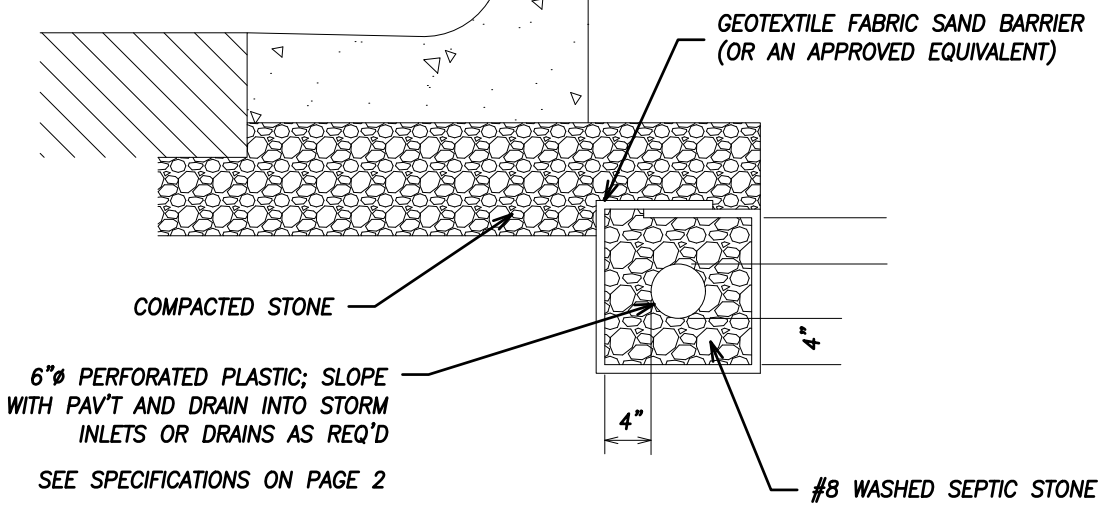
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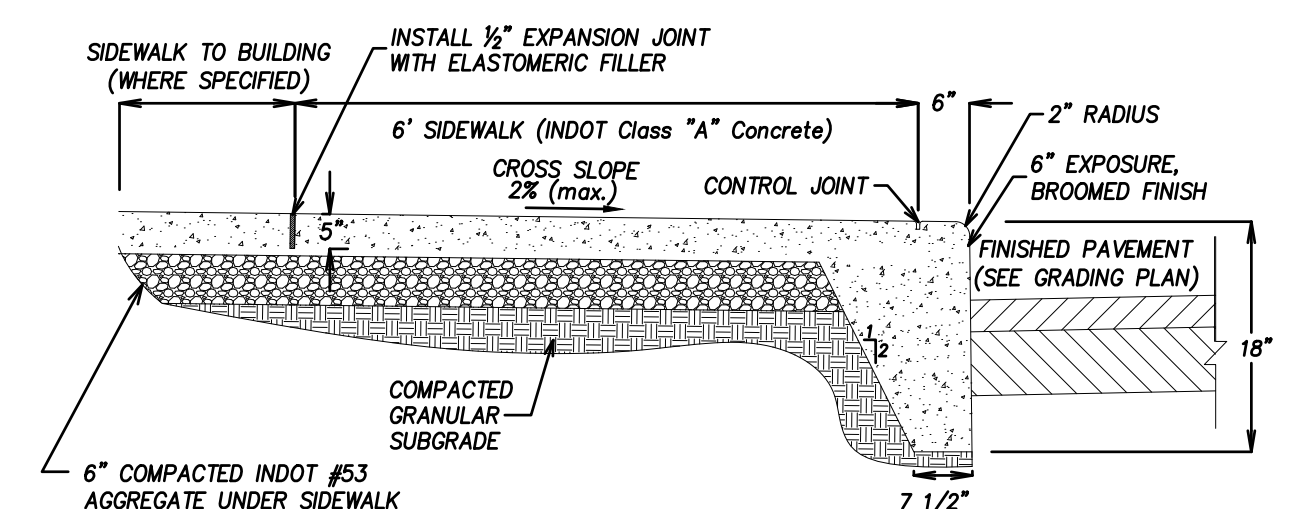
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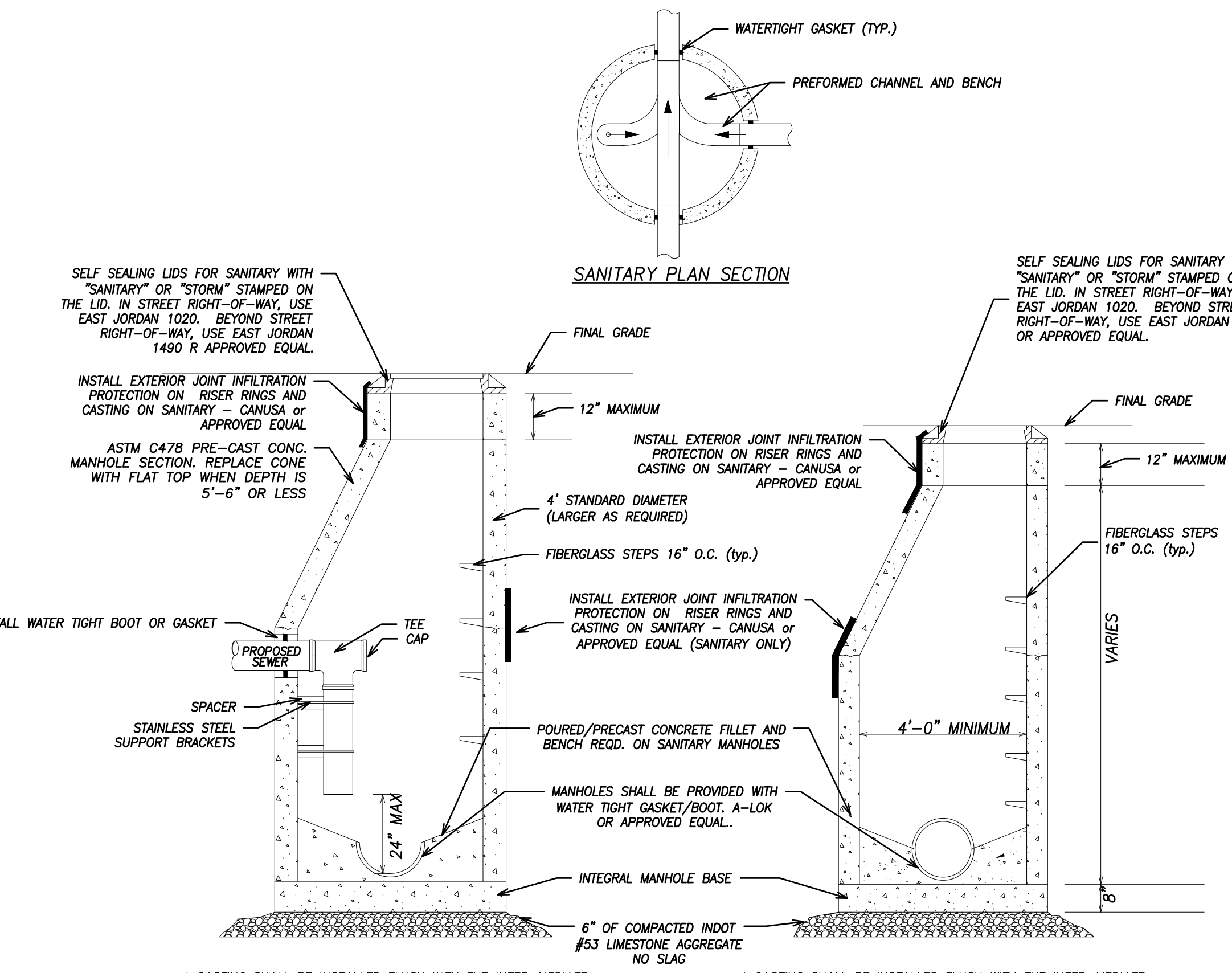
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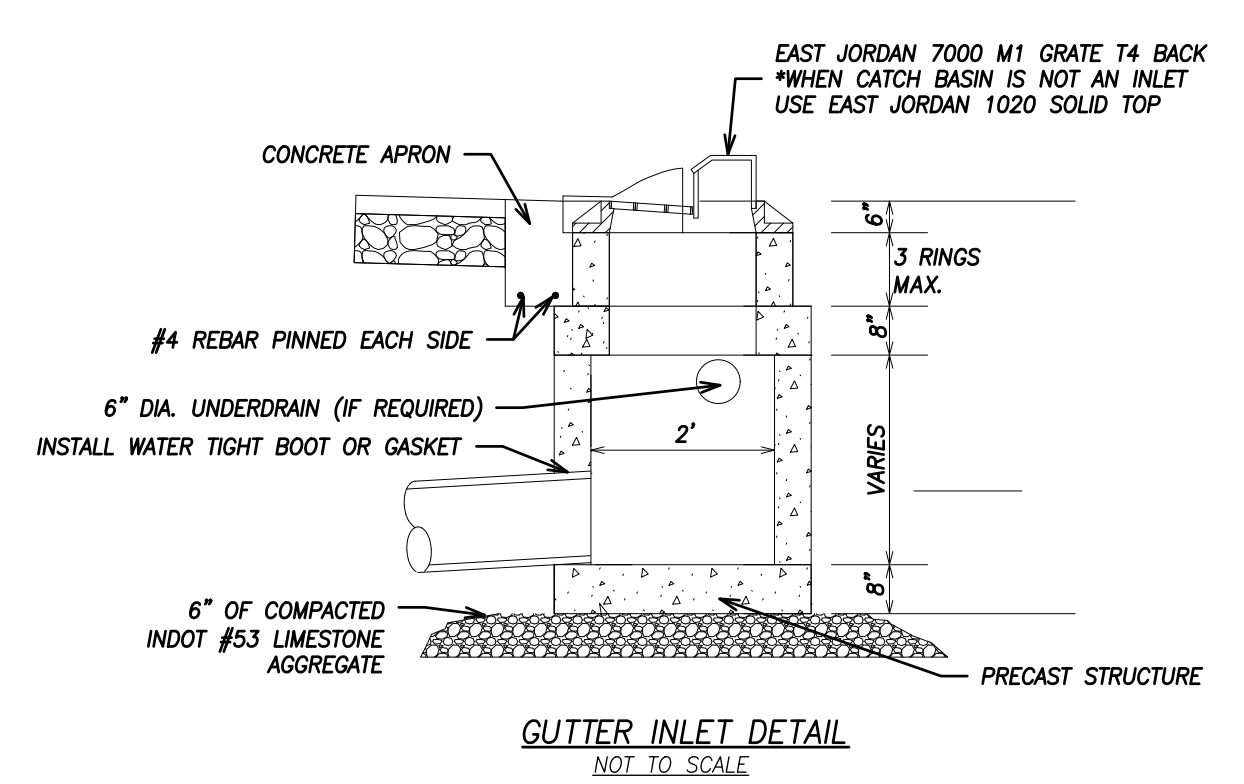
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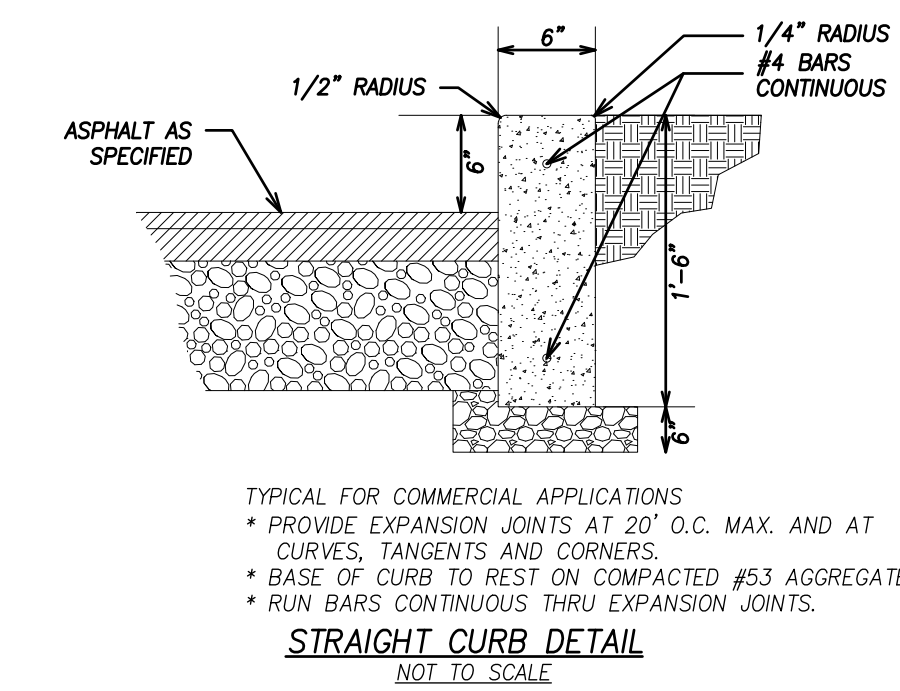
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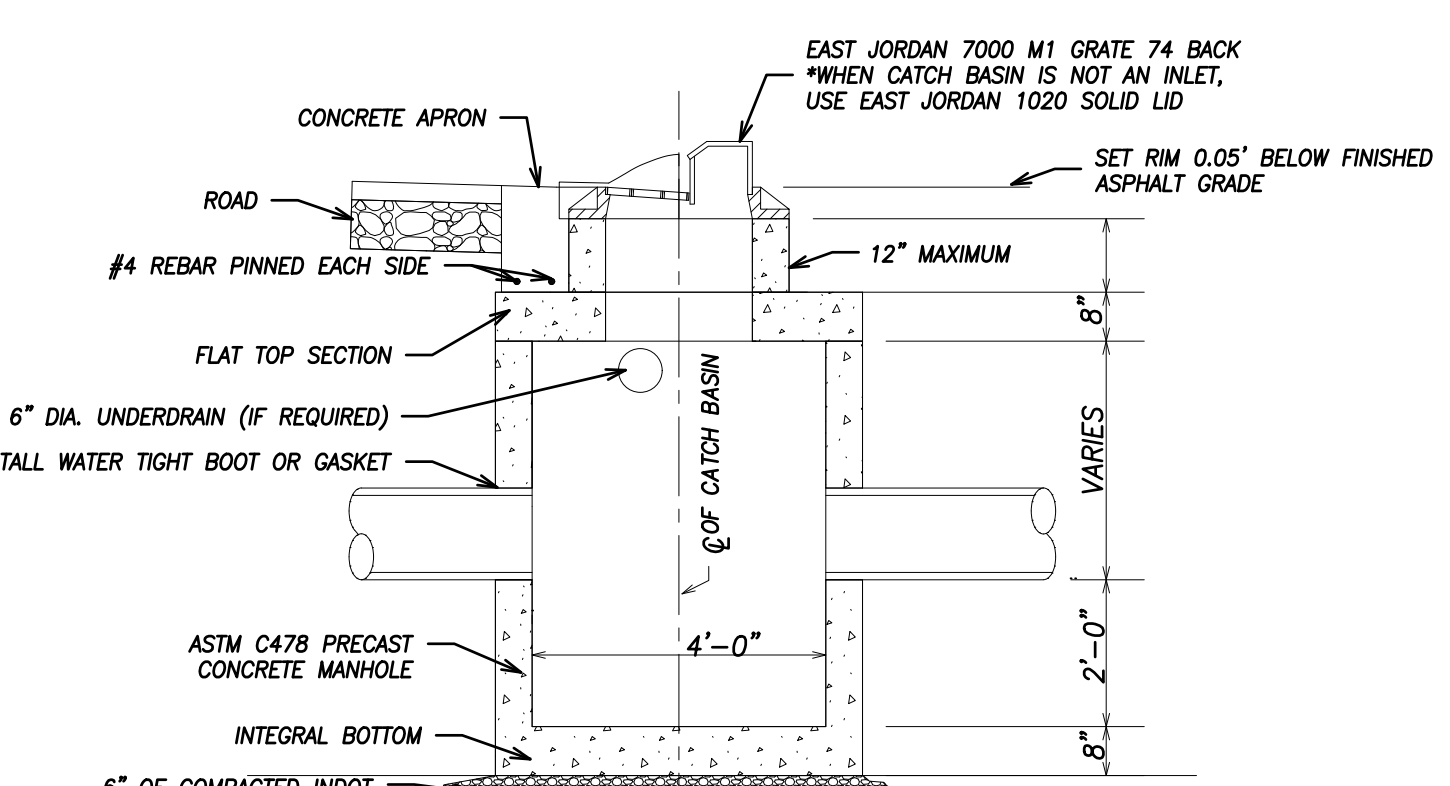
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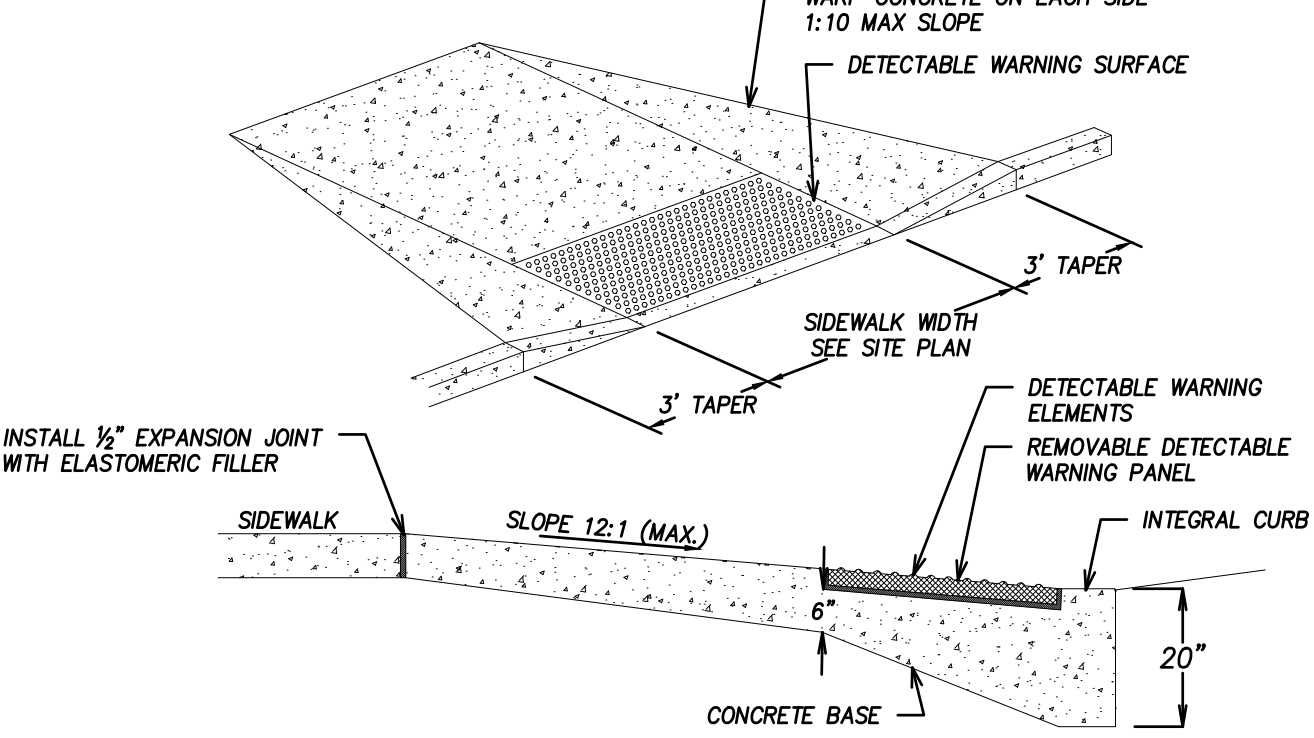
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STRAIGHT CURB DETAIL
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CATCH BASIN DETAIL
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TYPICAL ADA DETECTABLE WARNING SURFACES DETAIL
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REVISED OCTOBER 24, 2025

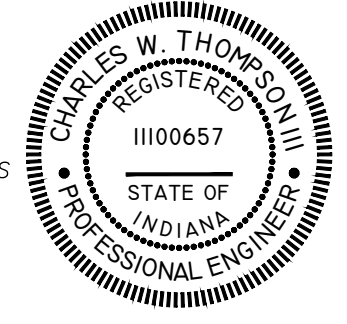
CITY OF PORTAGE, INDIANA
STANDARD DETAILS
PAGE 1 OF 2

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APPROVED BY THE PORTAGE SANITARY BOARD
NOVEMBER 13, 2025

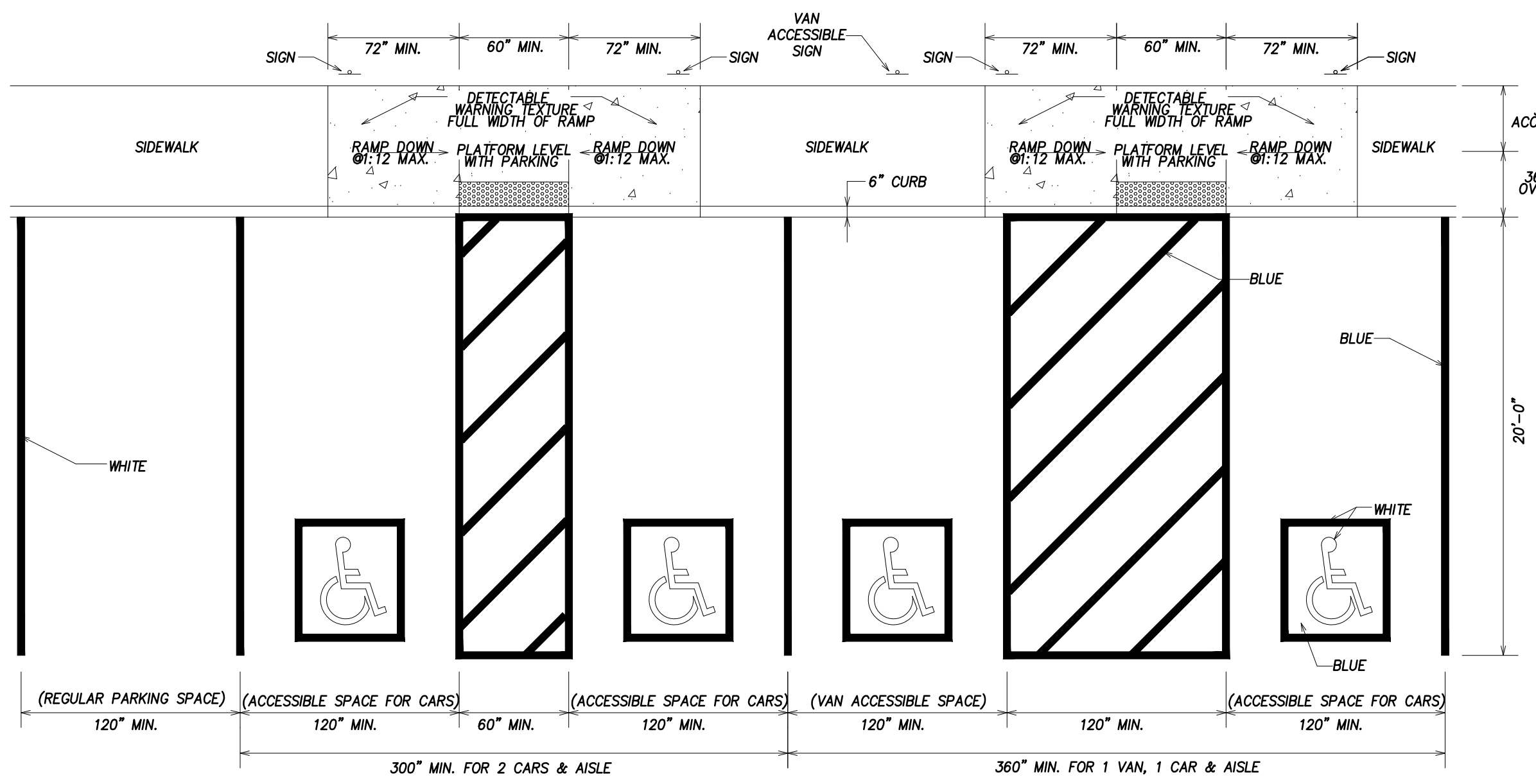
APPROVED BY THE PORTAGE STORMWATER MANAGEMENT BOARD
NOVEMBER 13, 2025

APPROVED BY THE PORTAGE BOARD OF PUBLIC WORKS AND SAFETY
OCTOBER 28, 2025

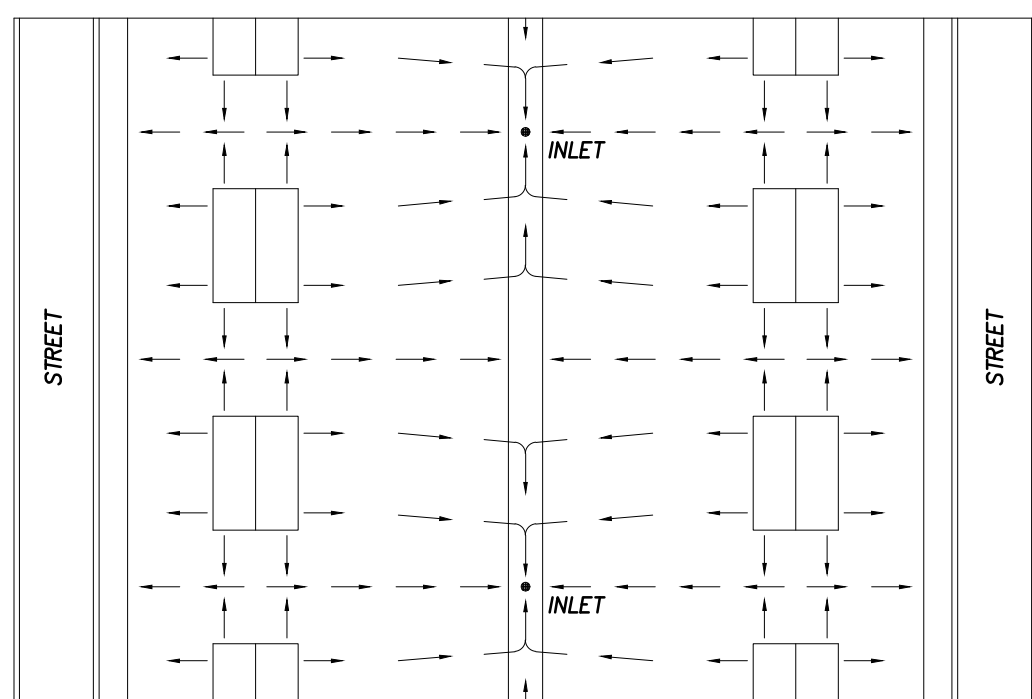


Charles W. Thompson

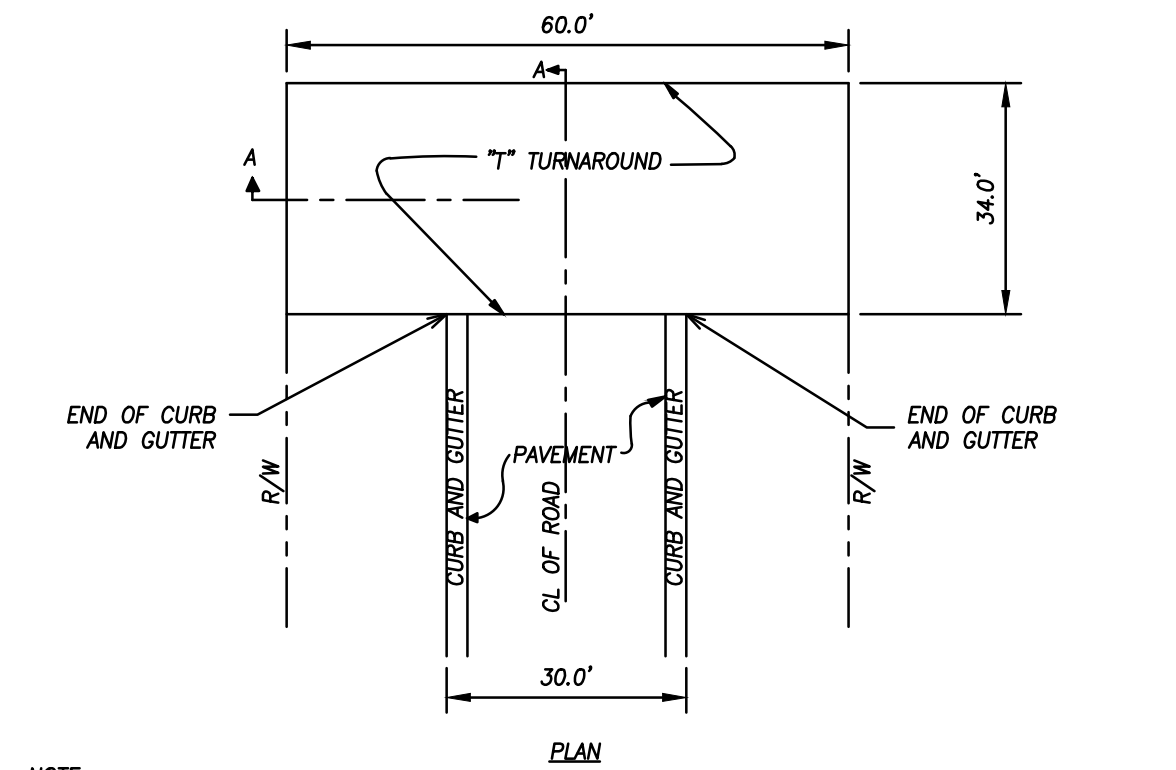




48" MINIMUM TO THE BOTTOM OF THE SIGN
 SIGN TO BE INSTALLED AS CLOSE TO THE CENTER OF THE PARKING SPACE AS POSSIBLE
TYPICAL DETAIL FOR ACCESSIBLE PARKING SPACES
 NOT TO SCALE



GRADING PLAN
 NOT TO SCALE

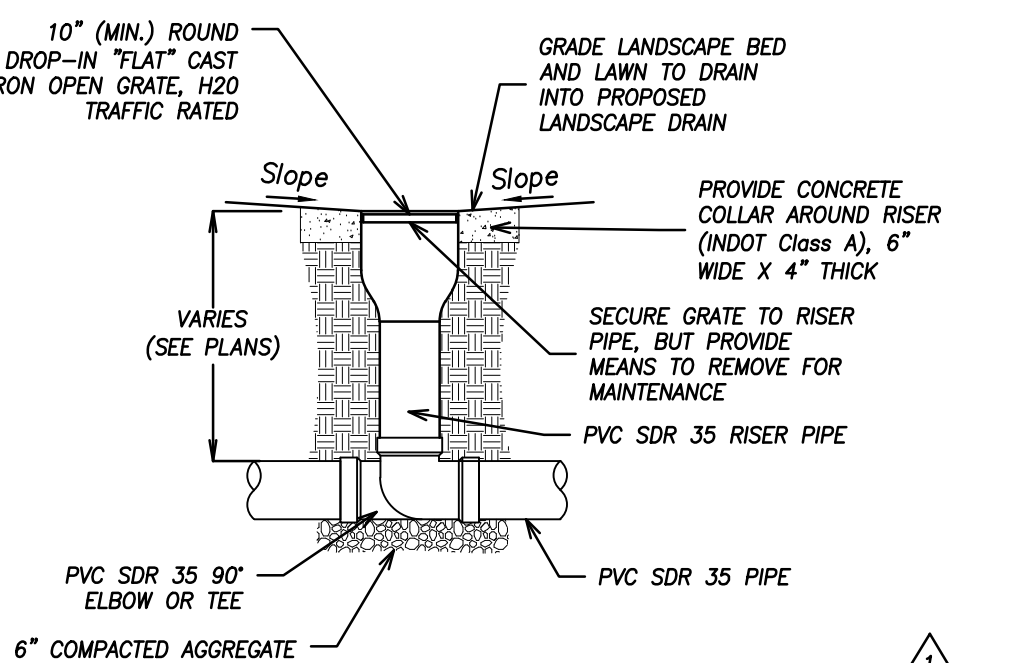


NOTE:
 1. T TURNAROUND PAVEMENT THICKNESS IS TO BE IDENTICAL TO ADJACENT PAVEMENT.
 2. T TURNAROUNDS ARE TO BE PROVIDED FOR TEMPORARY USE ONLY AND MUST BE APPROVED BY THE ENGINEER.
 3. NO INLETS SHALL BE PROVIDED IN THE 'HAMMER HEAD' AREA.
 4. PROFILE GRADE SHALL MATCH ROADWAY PROFILES AS SHOWN BELOW.

TEMPORARY "T" TURNAROUND
 NOT TO SCALE



GREASE INTERCEPTOR (1000 GAL)
 NOT TO SCALE



TYPICAL LANDSCAPE DRAIN DETAIL
 NOT TO SCALE

Section 1: Sanitary Sewers

- 1.1 General
 1. The design and installation of sanitary sewer systems shall be in accordance with the Recommended Standards for Wastewater Facilities (10 State Standards), Indiana Department of Environmental Management construction permit, Indiana Administrative Code (327 IAC 3) and the Portage Water Reclamation Department Standard Details.
- 1.2 Materials
 1. Gravity Sewers
 a. Gravity sewers 15" diameter or less shall be rigid bell and spigot, SDR 35 PVC manufactured in accordance with ASTM D3034, Standard Specifications for PVC Sewer Pipe Fittings. Sanitary Sewers installed deeper than 12 feet shall be SDR 26 PVC. Gravity sewers greater than 15" diameter shall be manufactured in accordance with ASTM F679-95, T-1.
 2. Force Mains
 a. Force mains shall be ductile iron, Pressure Class 250 or greater and manufactured in accordance with ANSI/AWWA C151 Ductile Iron Pipe, Centrifugally Cast, for Water and Other Liquids. Fittings shall be ductile iron and be mechanically restrained.
 3. Manholes
 a. Manholes shall be constructed of pre-cast concrete sections in accordance with ASTM C478, Standard Specification for Pre-cast Reinforced Concrete Manhole Sections.
 b. Manholes shall have a minimum diameter of 48-inches.
 c. Manholes shall have integral bench and channels.
 d. Manholes shall have water tight (gasketed or booted) pipe connections.
- 1.3 Installation
 1. Gravity Sewers
 a. Gravity sewers shall have a minimum cover of at least 48-inches measured from the top of the pipe to the proposed finish grade.
 b. Gravity sewers shall be designed and constructed, when flowing full, with slopes that result in average flow velocities of not less than two (2) feet per second. Oversized sewers shall not be approved to justify using decreased slopes.
 c. Anchors shall be placed where necessary to protect against damage from impact and erosion.
 d. Continuous and uniform bedding shall be provided in the trench along the entire length of the pipe. Pipe shall not be installed deeper than one (1) foot below the static water level. Dewatering shall be required for soils with higher static water levels. Bedding and back fill shall be per the attached pipe bedding detail.
 2. Force Mains
 a. Force mains shall be installed in accordance with AWWA standard C600 Installation of Ductile Iron Water Mains and Their Appurtenances.
 b. Air relief valves or other air/vacuum relief devices shall be installed at every intermediate apex point where air may accumulate in the force main.
 c. Force mains shall be restrained. Restraint shall be designed by a licensed professional engineer. Pipe restraints shall be mechanical.
 3. Manholes
 a. Inlet or outlet pipes shall be joined to the manhole with a gasketed, flexible watertight connection.
 b. Manhole covers shall be watertight with concealed pick holes and marked "SANITARY".
 c. Manholes shall not be located more than 300 feet apart.
 d. Manholes shall be placed in the street.
 e. Manholes shall be placed at all end points of sanitary sewers, changes in pipe sizes and changes in pipe alignments.
 f. A drop pipe shall be provided for a sewer entering a manhole at an elevation of 24-inches or more above the manhole invert.
 4. Service Laterals
 a. Service laterals shall be at least 6-inches in diameter.
 b. Clean-outs shall be placed at the house foundation and at intervals not exceeding 150 feet.
 c. Tracer wires shall be attached to the service.
 d. Connections to an existing sanitary sewer manhole shall be core-drilled. The connection shall be made using a watertight flexible connection.
 e. New construction requires that factory tees are installed for service connections during construction of the mainline sewer.

1.4 Deflection and Leakage Testing

1. Gravity Sewers
 a. A deflection test shall be performed on each flexible pipe following the elapse of thirty (30) days after the placement of the final back fill.
 i. No pipe shall exceed a deflection of five percent (5%) or greater.
 ii. The diameter of the rigid ball or mandrel used for a deflection test shall be no less than 95% of the base inside diameter of the pipe to be tested. The test shall not be performed with the aid of a mechanical pulling device and shall be witnessed by a City Representative.
 b. All gravity pipe shall be tested using either a hydrostatic test or low pressure air test.
 i. Hydrostatic tests shall be performed with a minimum of two (2) feet of positive head. The rate of exfiltration shall not exceed 200 gallons per inch of pipe diameter per linear mile per day.
 ii. Air tests shall conform to ASTM F1417, Standard Test Method for Installation Acceptance of Plastic Gravity Sewer Lines Using Low Pressure Air.
2. Force Mains
 a. Force mains shall be pressure and leak tested in accordance with AWWA standard C600, AWWA Standard for Installation of Ductile-Iron Water Mains and Their Appurtenances.
3. Manholes
 a. Manholes shall be air tested in accordance with ASTM C1244, Standard Test Method for Concrete Sewer Manholes by the Negative Air Pressure (Vacuum) Test.
4. A designated Portage Utility Service Department employee shall witness all leakage and deflection tests. At least 24 hours notice shall be required. Video tapes or digital video files shall be submitted to the Portage Utility Service Department and Portage Field Forces for review and approval.
- 1.5 Separation of Sanitary Sewers from Water Mains
 1. Sanitary sewers shall not be located within ten (10) feet of any existing or proposed water mains, when measured horizontally from the outside edge of the sanitary sewer to the outside edge of any existing and proposed water mains.
 2. If the sanitary sewers and water mains must cross, the sanitary sewers and water mains must be separated by a minimum of 18-inches as measured vertically from the outside edge of the sanitary sewer to the outside edge of the water main for a distance of at least ten (10) feet.
 3. No manhole shall be placed within eight (8) feet of a water main as measured from the outside edge of the manhole to the outside edge of the water main.

Section 2: Storm Sewers

- 2.1 General
 Drainage systems shall be designed to conform to the guidelines set forth in Stormwater Technical Guide.
- 2.2 Materials
 1. Storm sewer pipe placed within the influence of the road (45° angle from the back of curb).
 a. Reinforced concrete manufactured in accordance with ASTM C-76.
 2. Alternate storm sewer pipe when not placed under pavement or curbs.
 a. Reinforced concrete manufactured in accordance with ASTM C-76.
 b. High Density Polyethylene (HDPE) manufactured in accordance with AASHTO M294 type S with an elastomeric rubber seal meeting ASTM F477.
 c. Other materials approved by the City Engineer.
3. Manholes
 a. Manholes shall be constructed of pre-cast concrete sections in accordance with ASTM C478, Standard Specification for Pre-cast Reinforced Concrete Manhole Sections. Manhole lids shall be stamped "STORM". Manhole to pipe connections shall be gasketed.
- 2.3 Installation
 1. Continuous and uniform bedding shall be provided in the trench along the entire length of the pipe. Pipe shall not be installed deeper than one (1) foot below the static water level. Dewatering shall be required for soils with higher static water levels. Hand dig bell holes.
 2. The pipe shall be installed per the attached detail.
 3. The minimum diameter of storm sewers shall be 12-inches.
 4. Storm sewers shall be designed and constructed, when flowing full, with slopes that result in average flow velocities of not less than two (2) feet per second.
- 2.4 Lot Drainage
 1. Lots shall be sloped as to drain surface water away from the house and into common swales and to the rear yard drains.
 2. Lots shall be graded to comply with IRC R401.3 - grade away from the foundation walls and shall fall a minimum of 6-inches within the first 10-feet.
 3. Developer shall install rear yard drains and final grade, vegetate and protect the rear yard drainage easements prior to the final acceptance of the infrastructure by the City of Portage Board of Public Works and Safety.
 4. Rear yard inlets shall be spaced so that every lot has direct access to an inlet.
- 2.5 Erosion Control
 1. Erosion control measures shall conform to the Indiana Stormwater Quality Manual and the Indiana Construction Stormwater General Permit (CSGP). Areas where over 1 acre of land is disturbed, must complete a Storm Water Pollution Prevention Plan. The plan must be inspected by developer throughout construction.
 2. Land alterations, including grading, which strip the land of vegetation, shall be accomplished in a manner that minimizes erosion or the addition of sediments to natural and manmade drainage ways. This will reduce the impact on adjacent properties and water quality of receiving water. Whenever feasible, natural vegetation shall be retained, protected and supplemented.
 3. Sediment controls should be installed whenever runoff from disturbed portions of the parcel will leave the parcel. Sediment controls may include vegetative buffer strips, filter barriers, sediment basins, debris basins or silt traps.
 4. Any flow from a disturbed parcel should pass through a filter barrier or sediment basin before entering a storm drain inlet.
 5. Gravel construction entrances are to be installed prior to the beginning construction. Access to the project is restricted to this drive.

Section 3: Roadways

- 3.1 General
 1. All asphalt materials shall be manufactured in an INDOT certified HMA plant in accordance with ITM 583. All materials and construction shall comply with the latest edition of the INDOT Standard Specifications.
 2. Developers and Contractors are directed to the City of Portage Municipal Code for roadway design criteria.
 3. Subgrade
 a. The pavement subgrade shall consist of undisturbed in-situ soils which are adequately drained, contain no sort of yielding soils, have not been distorted by the movement of heavy equipment and contain no improperly filled holes or trenches.
 b. The subgrade shall be compacted to 95% dry density and shall be roll tested using a fully loaded tri-axel or semi-trailer. The City Engineer shall approve the subgrade prior to the installation of the subbase.
 4. Subbase
 a. Shall be Indiana #53 compacted aggregate.
 b. Subbase being placed on nongranular subgrade shall be placed on a geofabric material approved by the City Engineer prior to its placement.
 c. The subbase shall be roll tested using a fully loaded tri-axel or semi-trailer. The City Engineer shall approve the subgrade prior to the installation of the subbase.
 d. In lieu of placing the standard pavement section, soil tests may be taken by an approved Geotechnical Engineer and pavement sections may be designed specifically for that location. The Geotechnical Engineer shall certify the pavement design and certify that it was installed to his requirements prior to acceptance by the City of Portage Board of Public Works and Safety.
 5. Asphalt Pavements
 a. Shall be of the thickness specified in the Standard Details.
 b. Shall not be placed on frozen subbase.
 c. Asphalt binder shall not be placed when the temperature is expected to be below 32 degrees.
 d. Asphalt surface shall not be placed when the temperature is expected to be below 45 degrees.
 e. Tack coat shall be placed if the binder course has been driven on.
 6. Binder Course
 a. Binder course shall be placed level with the rim of the casting. Prior to placement of surface course an adjusting ring shall be placed to raise structure to final grade.
 7. Chemically Stabilized Roads
 a. Are only allowed if authorized by the City Engineer. Chemically stabilized roads should be installed to City Standards without a reduction in aggregate asphalt thickness.
 8. Perforated Under Drain
 a. Shall be installed as shown on detail "SECTION UNDER DRAIN"
 b. Under Drain shall be installed 50' on both sides of an inlet in a road sag.
 c. Ends shall be cored into catch basin or inlet. The other end shall be capped.
 d. Drains shall be installed with geotextiles as shown.
 e. Curb Drains are required for all curbed roads including stabilized roads.

Section 4: Governing Specifications

- 4.1 General
 1. Unless otherwise provided by specifications of a specific project, the latest revision of the following documents shall apply to all work performed and material specified for use in all improvements:
 a. Indiana Department of Transportation Standard Specifications that is the current revision at time of construction.
 b. City of Portage Municipal Code
 c. City of Portage Ordinance 92-5 - Drainage Ordinance
 d. Great Lakes - Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers
 e. 327 IAC - Article - Wastewater Treatment Facilities; Issuance of Permits; Construction and Permit Requirements
 f. American Water Works Association
 g. American Society of Testing and Materials
 h. Indiana Storm Water Quality Manual
 i. ADAAG - Americans with Disabilities Act (ADA) Accessibility Guidelines
 j. PROWAG - Public Rights-of-Way Accessibility Guidelines

Section 5: Lighting

- 5.1 General Requirements
 1. The design and installation of lighting systems shall be in accordance using AASHTO's Informational Guide to Roadway Lighting. All installation of all lighting system appurtenances shall be in accordance with Section 807 of the INDOT Standard Specifications Manual. Lighting plans shall be approved by the Board of Works and shall be warranted for 2 years. In addition, the design shall meet the following criteria:
 a. Foundations shall meet the requirements of the Indiana Department of Transportation (INDOT), be certified by an Indiana Licensed professional engineer, be made of reinforced concrete and include grounding.
 b. Wires are to be placed in conduit in 1" minimum conduit and be installed at a minimum of 2 feet deep.
 c. Grounding wire shall be placed in conduit in the foundation.
 d. All wires shall be minimum #4 XHHW
 e. Lighting services shall be either INDOT Type I or Type II depending on application. Type I services shall be installed in a "G" type cabinet with pedestal, cast base and INDOT foundation. Type II services shall be installed in an "M" type cabinet and mounted on an INDOT foundation. The cabinet shall be sized to account for future expansion of the lighting system.
 f. Street light handholes shall be placed as needed. Castings shall be marked appropriately.
 g. Photoeye control shall be placed atop the street light pole closest to the lighting control cabinet, not in the cabinet itself. Spare wire shall be installed between control panel and photo eye.
 h. The lighting service disconnect shall be installed at the NIPSCO transformer location.
 i. Street light poles shall be 30-feet in height and shall be made of aluminum. Wood poles acceptable where approved by Public Works.
 j. Poles shall be leveled and plumb with leveling nuts.
 k. Design plans shall be submitted to the Department of Planning and Community Development for approval. Installation shall not take place prior to approval.
 l. As-built drawings are to be provided after placement.
 m. NIPSCO shall be contacted to determine the cost per year of the fixture.
 n. Staggered locations are preferred. Spacing shall be as consistent as possible while making arrangements for drive cuts.
- Street Lighting to meet NIPSCO specification or a City approved NIPSCO replacement model.
 Luminaires shall be LED and meet the NIPSCO and City of Portage approved manufacturer's list on sheet.

Street Light Luminaire brackets shall be 26" to 25" depending on application. Brackets shall be an aluminum alloy. Brackets shall be Class D for 6' to 8' length rating assuming 80 mph winds increased by 1.25 gust factor. City of Portage requires at least a 6' or 8' bracket on most streets. Bracket shall be in accordance with NIPSCO typical models and specifications.

Cabinets shall be INDOT type M or G as indicated.

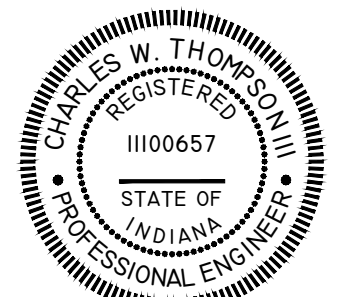
Referenced Typical Indiana Department of Transportation Details - Current Revision - <https://www.in.gov/dot/div/contracts/standards/drawings/>

Standard Drawing:

No. E 807-LTWR-01	- Lighting Wiring Details
No. E 807-LTWR-02	- Lighting Wiring Details
No. E 807-LTWR-03	- Lighting Wiring Details
No. E 807-LTSP-03	- Light Service Point Details
No. E 807-LTSP-04	- Light Service Point Details
No. E 805-SCGF-02	- Controller Cabinet Foundation Type M
No. E 805-SCGF-03	- Signal Pedestal Foundation Type A
No. E 805-SCGF-04	- Signal Handhole, Type I Concrete
No. E 805-SCGF-06	- Signal Handhole, Type II Polymer Concrete

Section 6: Pot Holing

- 6.1 General
 1. Pot holing is defined as exposing and verifying the location of existing utilities at locations as directed.
 2. All utilities must be located prior to making pavement cuts. The City of Portage must be notified 48 hours before start of work.
 3. All excavations for utility locates, unless otherwise approved by the City of Portage, shall be made by the pot holing method using vac-trucks. All pot holing locates shall meet the following requirements:
 a. Locate pot holes shall not be placed within the wheel track of a travel lanes.
 b. All locate pot holes in the pavement section shall be cored with a circular coring saw with a maximum diameter of twenty four (24") inches, otherwise, asphalt or concrete pavement cut repairs apply. The plug shall be carefully removed without causing damage.
 c. Excavations for pot holes shall be backfilled with INDOT No. 8's in accordance with INDOT 211.03.1 C or flowable fill is required for hole less than 10 inches in diameter.
 d. Native material removed shall not be used to backfill the pot hole.
 e. Initial locate pot holes may be temporarily repaired, meeting all applicable safety requirements for no more than thirty (30) days unless additional time is authorized by the City in writing.



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REVISED OCTOBER 24, 2025

CITY OF PORTAGE, INDIANA
 STANDARD DETAILS
 PAGE 2 OF 2

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