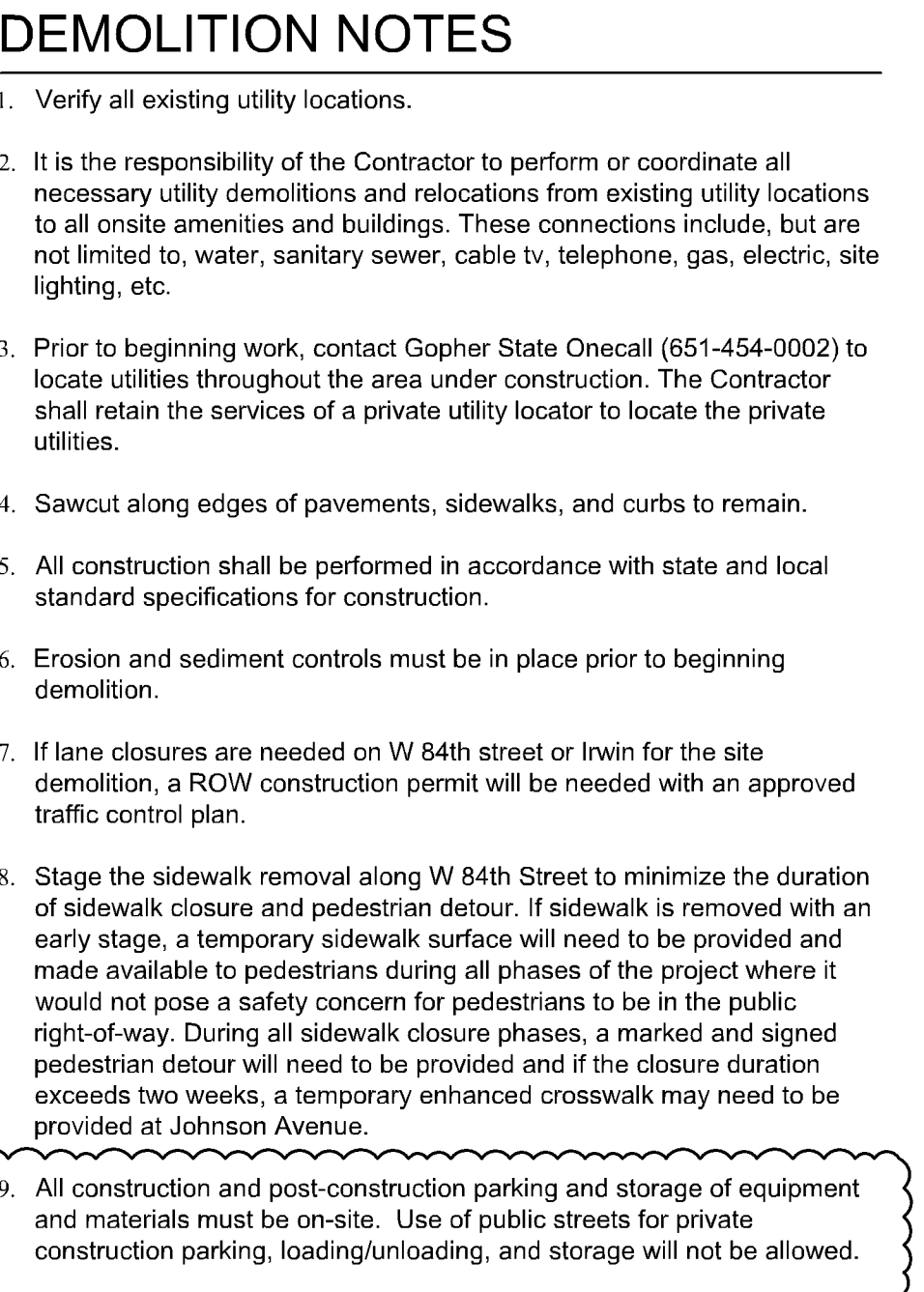
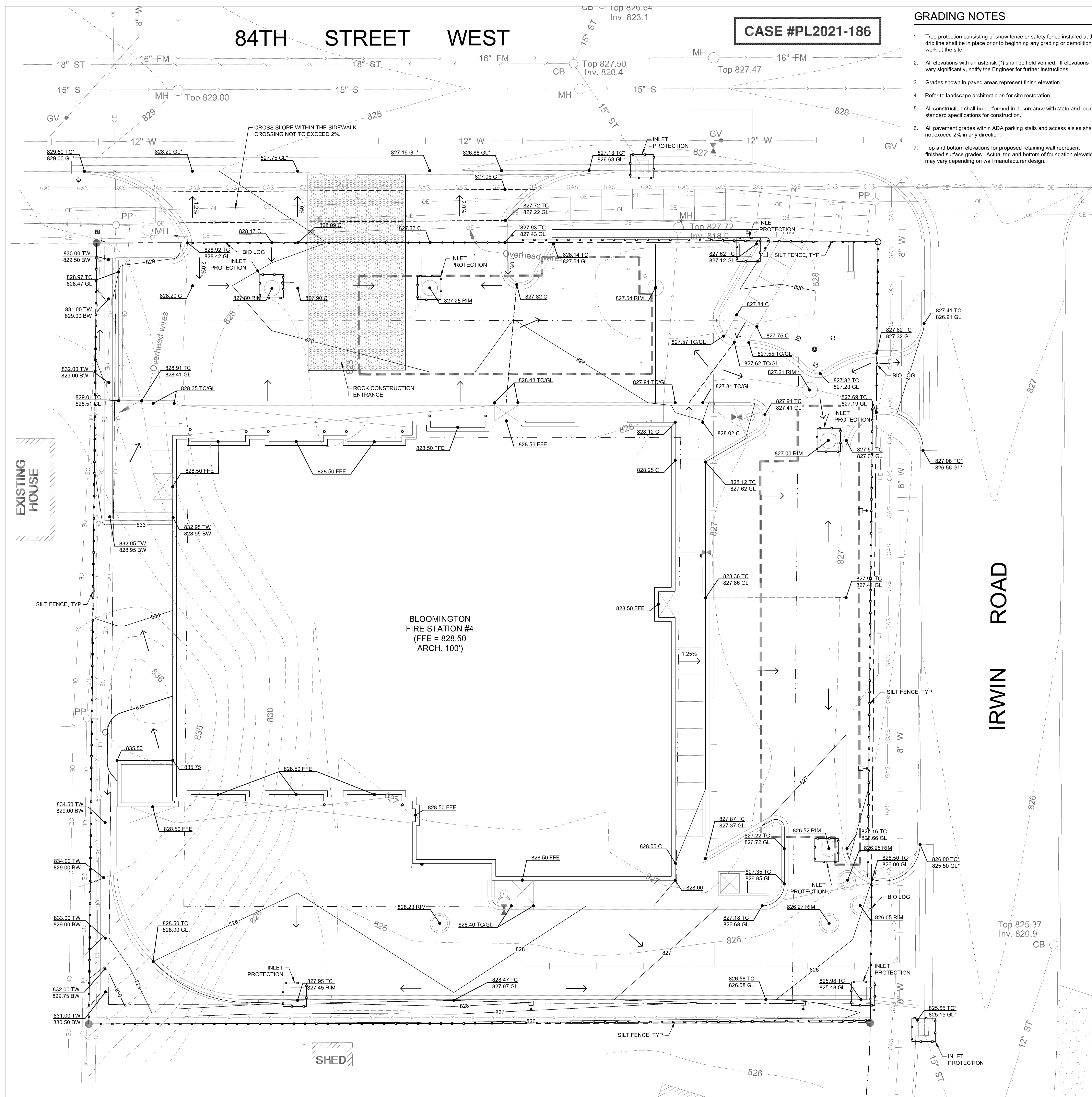






CASE #PL2021-186

GRADING NOTES

- Tree protection consisting of snow fence or safety fence installed at the drip line shall be in place prior to beginning any grading or demolition work at the site.
- All elevations with an asterisk (*) shall be field verified. If elevations vary significantly, notify the Engineer for further instructions.
- Grades shown in paved areas represent finish elevation.
- Refer to landscape architect plan for site restoration.
- All construction shall be performed in accordance with state and local standard specifications for construction.
- All pavement grades within ADA parking stalls and access aisles shall not exceed 2% in any direction.
- Top and bottom elevations for proposed retaining wall represent finished surface grades. Actual top and bottom of foundation elevations may vary depending on wall manufacturer design.

LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS - MAJOR INTERVAL
- PROPOSED CONTOURS - MINOR INTERVAL
- GRADE BREAK LINE
- GRADE SLOPE
- SILT FENCE
- BIO LOG
- RIP-RAP / ROCK CONST. ENTRANCE
(ADDITIONAL ENTRANCES TO BE DETERMINED BY CONTRACTOR, AS NEEDED.)
- EROSION CONTROL BLANKET
- INLET PROTECTION
- CONCRETE WASHOUT STATION
TO BE LOCATED BY CONTRACTOR, AS NECESSARY
- SPOT ABBREVIATIONS:
TC - TOP OF CURB
GL - GUTTER LINE
B - BITUMINOUS
C - CONCRETE
EO - EMERGENCY OVERFLOW
TW - TOP OF WALL
BW - BOTTOM OF WALL (F/G)
(*) - EXISTING TO BE VERIFIED

EROSION CONTROL NOTES

- Install temporary erosion control measures (inlet protection, silt fence, and rock construction entrances) prior to beginning any excavation or demolition work at the site.
- Erosion control measures shown on the erosion control plan are the absolute minimum. The contractor shall install temporary earth dikes, sediment traps or basins, additional siltation fencing, and/or disk the soil parallel to the contours as deemed necessary to further control erosion.
- All construction site entrances shall be surfaced with crushed rock across the entire width of the entrance and from the entrance to a point 50' into the construction zone.
- The toe of the silt fence shall be trenched in a minimum of 6". The trench backfill shall be compacted with a vibratory plate compactor.
- All grading operations shall be conducted in a manner to minimize the potential for site erosion. Sediment control practices must be established on all down gradient perimeters before any up gradient land disturbing activities begin.
- All exposed soil areas must be stabilized as soon as possible to limit soil erosion but in no case later than 7 days after the construction activity in that portion of the site has temporarily or permanently ceased. Temporary stockpiles without significant silt, clay or organic components (e.g., clean aggregate stockpiles, demolition concrete stockpiles, sand stockpiles) and the constructed base components of roads, parking lots and similar surfaces are exempt from this requirement.
- The normal wetted perimeter of any temporary or permanent drainage ditch or swale that drains water from any portion of the construction site, or diverts water around the site, must be stabilized within 200 lineal feet from the property edge, or from the point of discharge into any surface water. Stabilization of the last 200 lineal feet must be completed within 24 hours after connecting to a surface water. Stabilization of the remaining portions of any temporary or permanent ditches or swales must be complete within 7 days after connecting to a surface water and construction in that portion of the ditch has temporarily or permanently ceased.
- All storm sewer catch basins not needed for site drainage during construction shall be covered to prevent runoff from entering the storm sewer system. Catch basins necessary for site drainage during construction shall be provided with inlet protection.
- In areas where concentrated flows occur (such as swales and areas in front of storm catch basins and intakes) the erosion control facilities shall be backed by stabilization structure to protect those facilities from the concentrated flows.
- Inspect the construction site once every seven days during active construction and within 24 hours after a rainfall event greater than 0.5 inches in 24 hours.
- All BMPs must be repaired, replaced, or supplemented when they become nonfunctional or the sediment reaches 1/3 of the capacity of the BMP. These repairs must be made within 24 hours of discovery, or as soon as field conditions allow access.
- If sediment escapes the construction site, off-site accumulations of sediment must be removed in a manner and at a frequency sufficient to minimize off-site impacts.
- All soils tracked onto pavement shall be removed daily.
- All filtration areas must be inspected to ensure that no sediment from ongoing construction activity is reaching the filtration area and these areas are protected from compaction due to construction equipment driving across the filtration area.
- Temporary soil stockpiles must have silt fence or other effective sediment controls, and cannot be placed in surface waters, including stormwater conveyances such as curb and gutter systems, or conduits and ditches unless there is a bypass in place for the stormwater.
- Collected sediment, asphalt and concrete millings, floating debris, paper, plastic, fabric, construction and demolition debris and other wastes must be disposed of properly and must comply with MPCA disposal requirements.
- Oil, gasoline, paint and any hazardous substances must be properly stored, including secondary containment, to prevent spills, leaks or other discharge. Restricted access to storage areas must be provided to prevent vandalism. Storage and disposal of hazardous waste must be in compliance with MPCA regulations.
- External washing of trucks and other construction vehicles must be limited to a defined area of the site. Runoff must be contained and waste properly disposed of. No engine degreasing is allowed onsite.
- All liquid and solid wastes generated by concrete washout operations must be contained in a leak-proof containment facility or impermeable liner. A compacted clay liner that does not allow washout liquids to enter ground water is considered an impermeable liner. The liquid and solid wastes must not contact the ground, and there must not be runoff from the concrete washout operations or areas. Liquid and solid wastes must be disposed of properly and in compliance with MPCA regulations. A sign must be installed adjacent to each washout facility to inform concrete equipment operators to utilize the proper facilities.
- Upon completion of the project and stabilization of all graded areas, all temporary erosion control facilities (silt fences, hay bales, etc.) shall be removed from the site.

Larson Engineering, Inc.
3524 Labore Road
White Bear Lake, MN 55110
651.481.9120 (F) 651.481.9201
www.larsonengr.com

DESIGNED BY: J. LONG
CHECKED BY: J. LONG
DATE: 03/08/2022
SCALE: AS SHOWN

CITY OF BLOOMINGTON
MINNESOTA

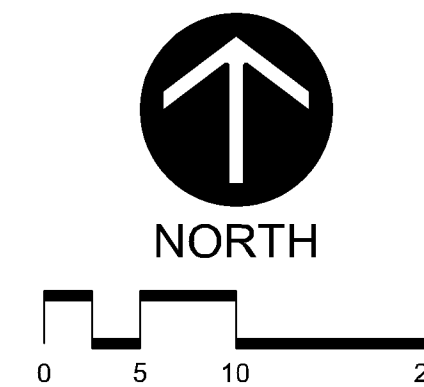
Bloomington Fire Station #4

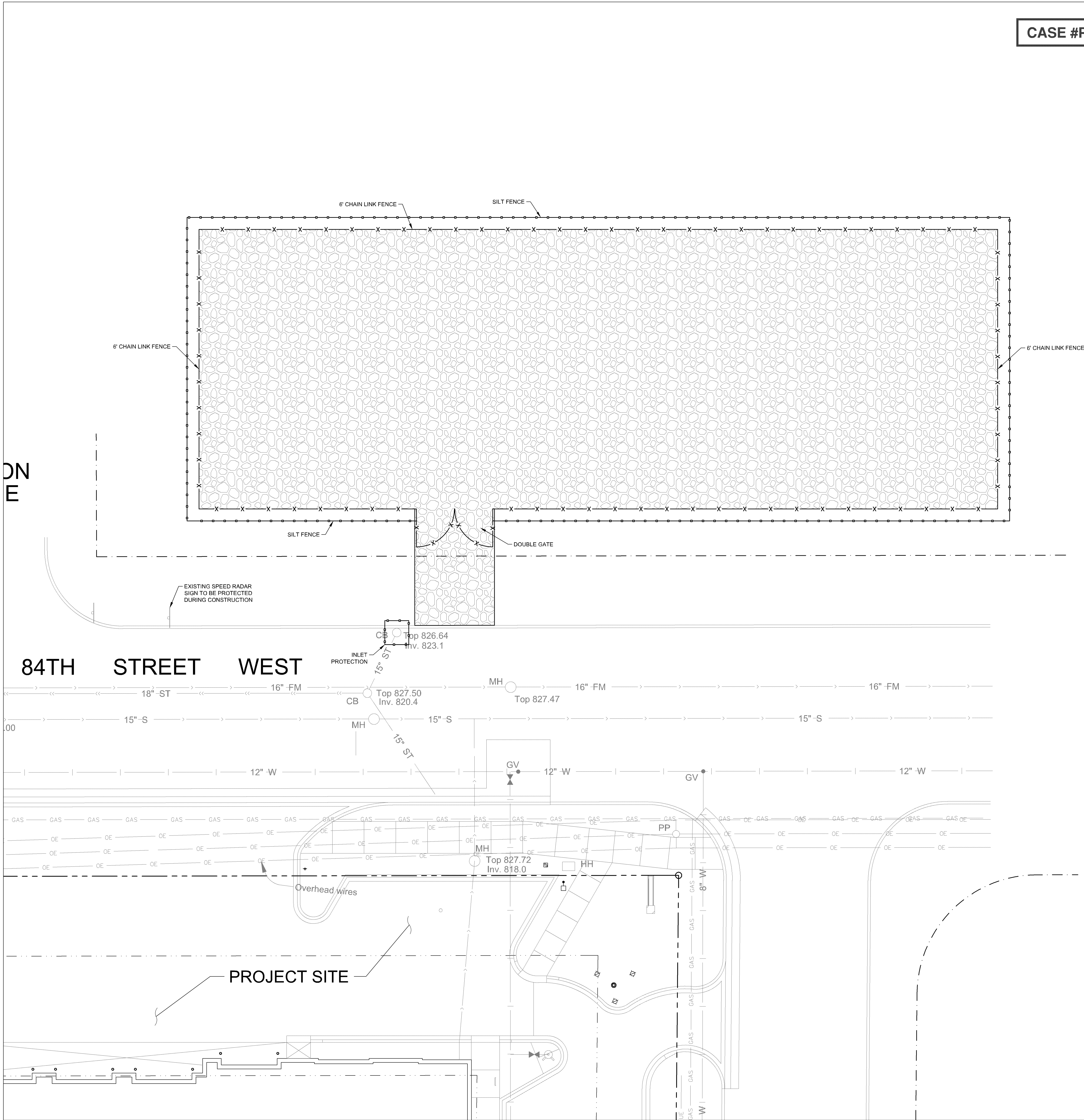
REVISIONS:
1/4/2022: Addendum #2
3/1/2022: PR-C-1

CNH NO.: 19116
DATE: 11/22/21
GRADING AND
EROSION CONTROL
PLAN

C300

ENGINEERING DIVISION
Approved By: Julie Long, PE
03/08/2022 3:34:13 PM





CASE #PL2021-186

- LEGEND**
- SILT FENCE
 - 6" AGGREGATE OVER GEOTEXTILE FABRIC
 - INLET PROTECTION

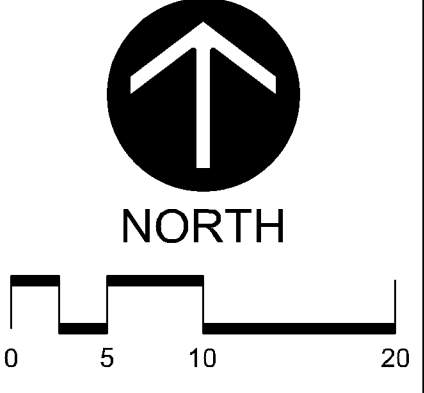
SITE RESTORATION NOTES

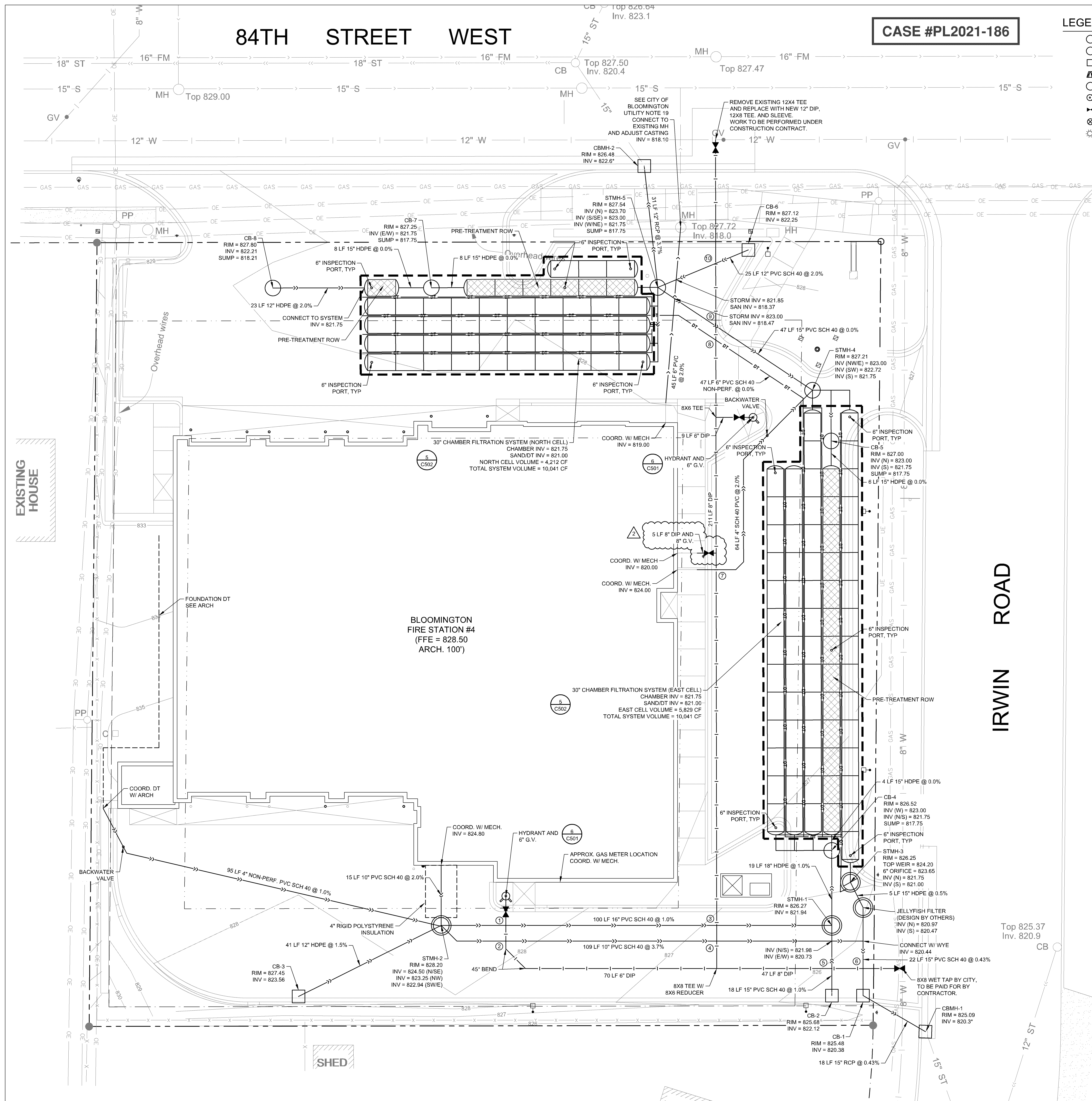
- At the completion of the project, aggregate and geotextile to be removed and disposed of by contractor.
- Entire disturbed area to be de-compacted to a minimum depth of 18".
- Restore all disturbed areas with 6" of good quality topsoil and seed.

EROSION CONTROL NOTES

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ENGINEERING DIVISION
Approved By: Julie Long, PE
03/08/2022 3:34:34 PM





CASE #PL2021-186

LEGEND

- STORM MANHOLE
- CATCH BASIN
- CURB INLET
- FLARED END
- SANITARY MANHOLE
- HYDRANT
- GATE VALVE & BOX
- WATER SHUTOFF
- LIGHT POLE
- CTV
- ELECTRIC OVERHEAD LINE
- ELECTRIC UNDERGROUND LINE
- FIBER OPTIC UNDERGROUND LINE
- NATURAL GAS UNDERGROUND LINE
- SANITARY SEWER PIPE
- STORM SEWER PIPE
- TELEPHONE UNDERGROUND LINE
- WATERMAIN PIPE
- DRAINTILE PIPE

UTILITY NOTES

- It is the responsibility of the contractor to perform or coordinate all necessary utility connections and relocations from existing utility locations to the proposed building, as well as to all onsite amenities. These connections include but are not limited to water, sanitary sewer, cable TV, telephone, gas, electric, site lighting, etc.
- All service connections shall be performed in accordance with state and local standard specifications for construction.
- The contractor shall verify the elevations at proposed connections to existing utilities prior to any demolition or excavation.
- The contractor shall notify all appropriate engineering departments and utility companies 72 hours prior to construction. All necessary precautions shall be made to avoid damage to existing utilities.
- Storm sewer requires testing in accordance with Minnesota plumbing code 4714.1109 where located within 10 feet of waterlines or the building.
- All RCP pipe shown on the plans shall be MNDOT class 3.
- See Project Specifications for bedding requirements.
- Pressure test and disinfect all new watermains in accordance with state and local requirements.

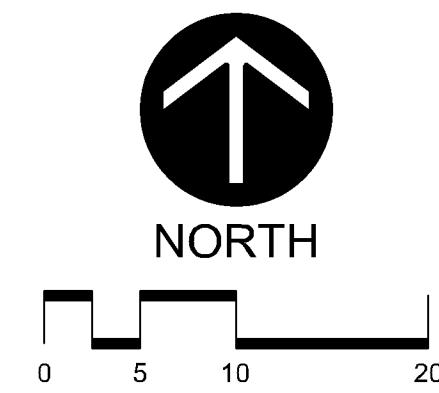
CITY OF BLOOMINGTON UTILITY NOTES

- Utility permits are required for connections to the public storm, sanitary, and water system. Contact Utilities (952-563-8777) for permit information.
- All components of the water system, up to the water meter or fire service equipment must utilize protective internal coatings meeting current ANSI/AWWA standards for cement mortar lining or special coatings. The use of unlined or uncoated pipe is not allowed.
- Provide a minimum of 8-feet and a maximum of 10-feet of cover over all water lines, valves, services, etc.
- Utility and mechanical contractors must coordinate the installation of all water and sewer service pipes into the building to accommodate city inspection and testing. For building permit water meter must be within 10' of entering building and within 4' of floor drain.
- Utility as-builts must be provided prior to issuance of Certificate of Occupancy.
- A minimum 10-foot horizontal separation and 18-inch vertical separation is required between watermain and sewers.
- Use Class 52 DIP water main for pipe 12-inches in diameter and smaller. A minimum 8 mil polywrap is required on all DIP. See current 2021 Construction specifications for zinc coated WM and V-Bio based poly encasement.
- Combination fire and domestic services must terminate with a thread on flange or an MJ to flange adapter.
- Install interior chimney seals on all sanitary sewer manholes.
- Use updated city standard details for driveways, utilities, erosion control, etc. found on the website at www.bloomingtonmn.gov/information-sheets-and-handouts-engineering-division.
- Sanitary sewer mainline, clean-outs, manholes, and services must be designed with adequate depth of cover or install high-density polystyrene insulation to prevent freezing.
- Use standard short cone manholes without steps.
- Utility permits are required for connections to the public storm, sanitary, and water system. Contact Utilities (952-563-8777) for permit information.
- Contractor shall obtain a Public Works permit for underground work within the right-of-way. Permit is required prior to removals or installation. Contact Utilities (952-563-4568) for permit information.
- Use schedule 40, SDR 26, or better for PVC sewer services.
- Utility and mechanical contractors must coordinate the installation of all water and sewer service pipes into the building to accommodate city inspection and testing.
- All components of the water system, up to the water meter or fire service equipment must utilize protective internal coatings meeting current ANSI/AWWA standards for cement mortar lining or special coatings. The use of unlined or uncoated pipe is not allowed.
- Taps of live water mains are done by City forces and paid for and coordinated with the Contractor.
- Video inspect 6" VCP sanitary sewer service with CCTV to verify adequate condition.

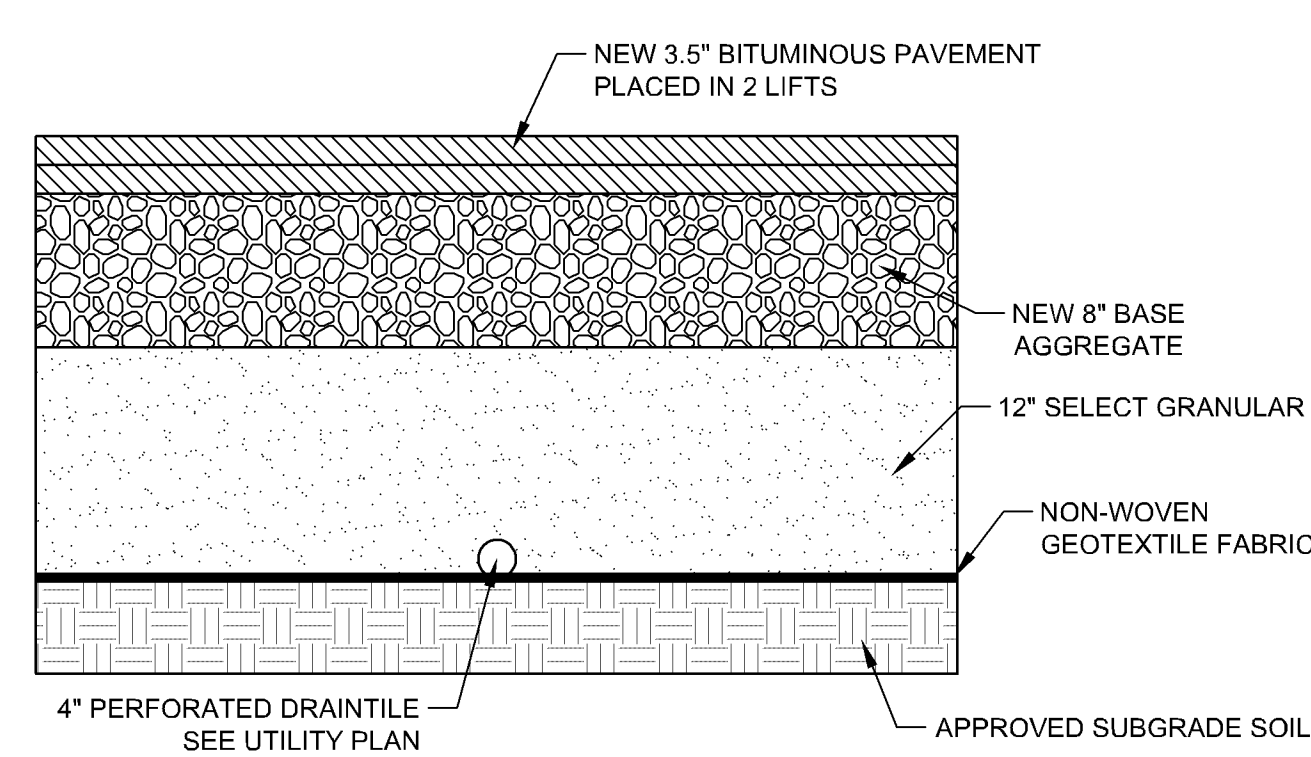
Crossing #	Top of Water Pipe Elev.¹	Crossing Utility Invert	Separation
①	820.25	822.78	2.53'
②	820.11	823.83	3.72'
③	818.91	822.24	3.33'
④	818.80	821.84	3.04'
⑤	817.94	822.05	4.11'
⑥	817.77	820.41	2.64'
⑦	819.81	823.90	4.09'
⑧	819.49	821.00	1.51'
⑨	819.51	823.00	3.49'
⑩	819.29	822.07	2.78'

¹Pipe cover assumed to be 8' below finished grade

ENGINEERING DIVISION
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03/08/2022 3:34:45 PM

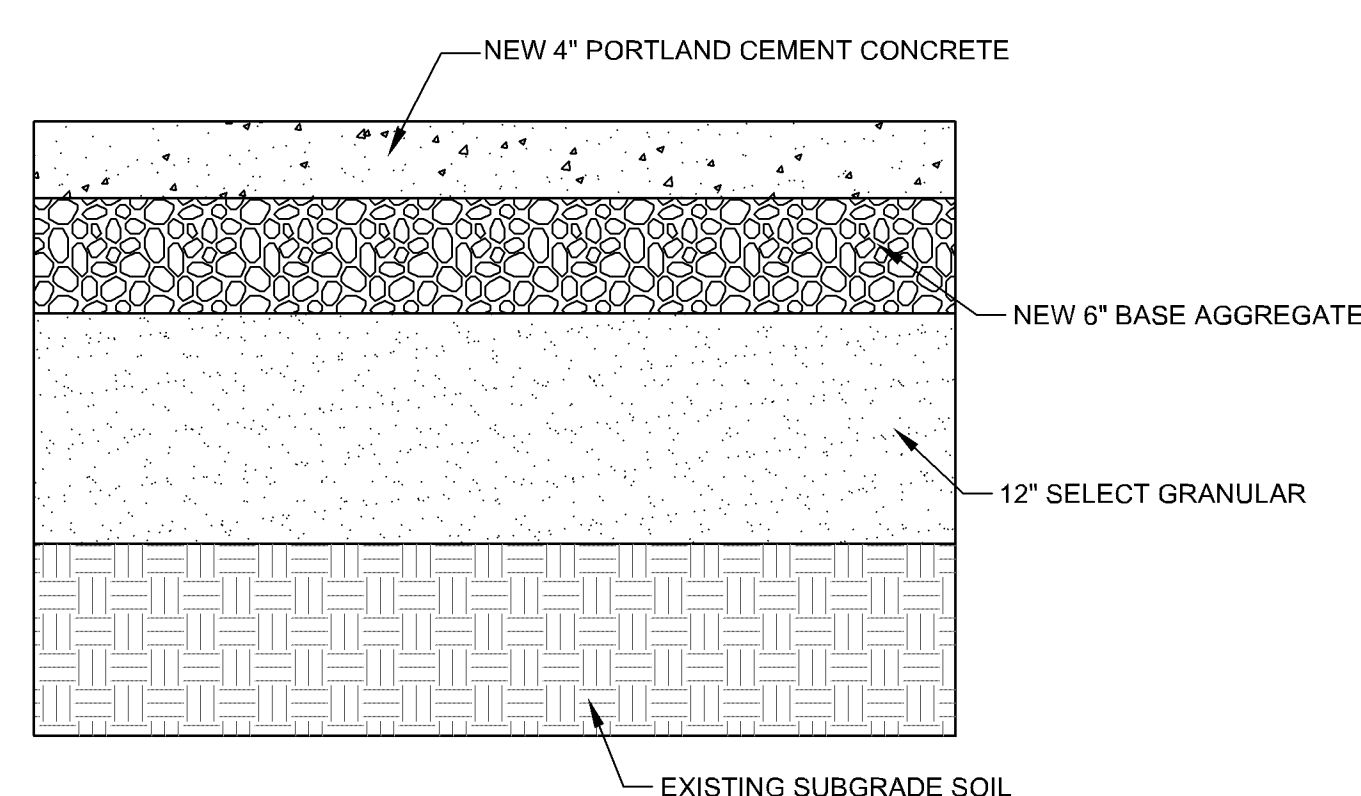


CASE #PL2021-186



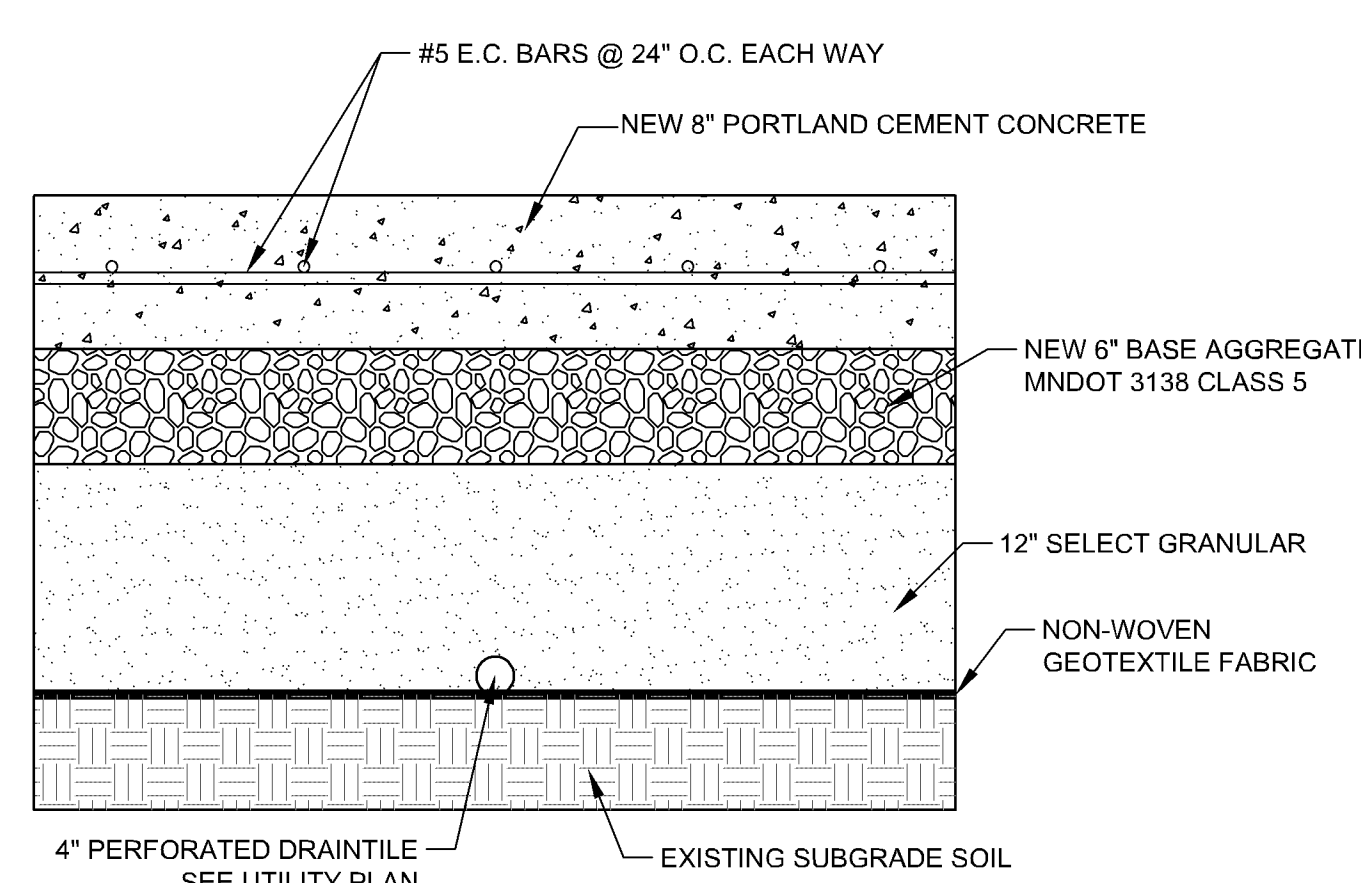
1 LIGHT-DUTY BITUMINOUS CONSTRUCTION DETAIL

1
C500



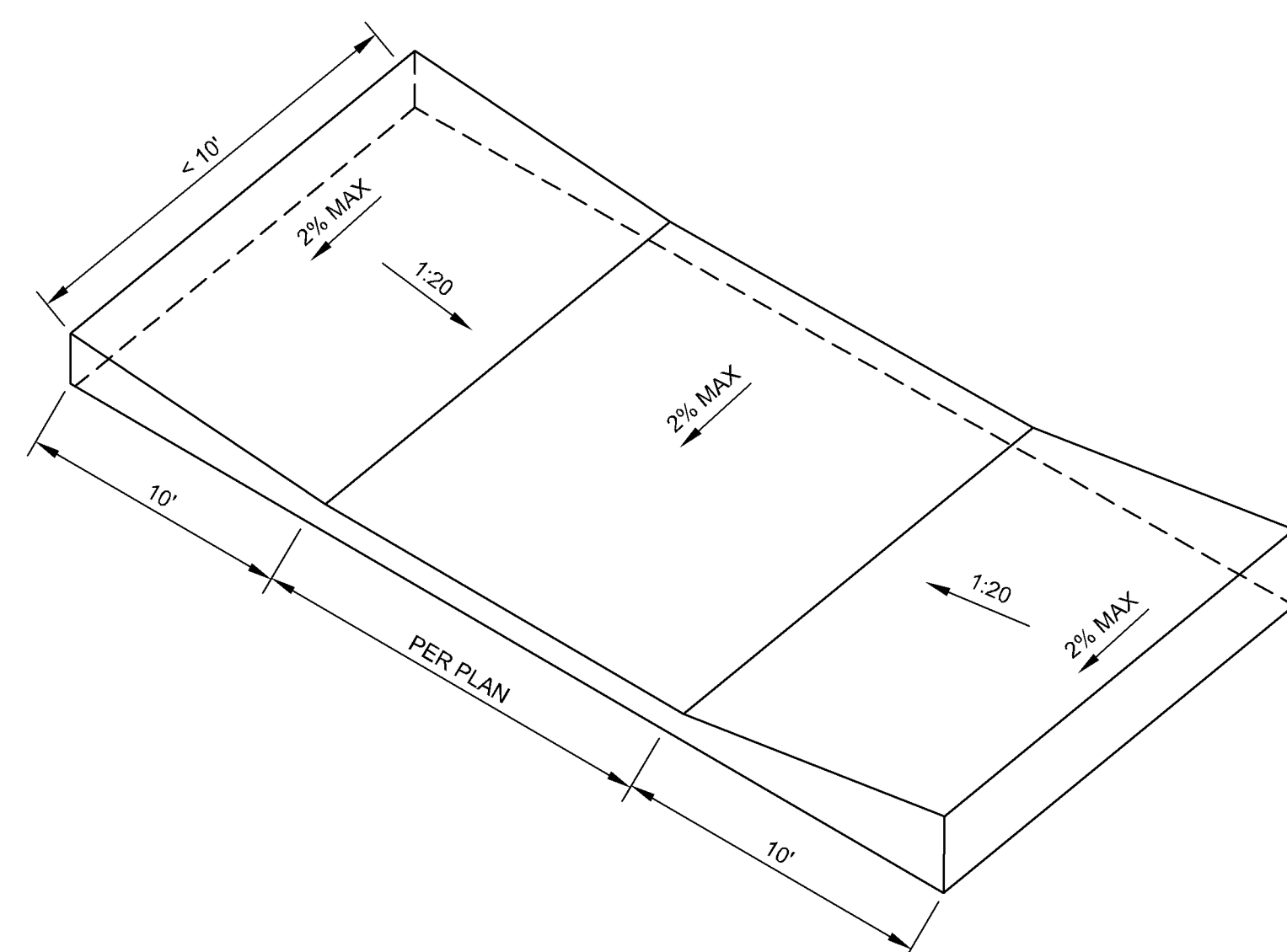
2 CONCRETE SIDEWALK CONSTRUCTION DETAIL

2
C500



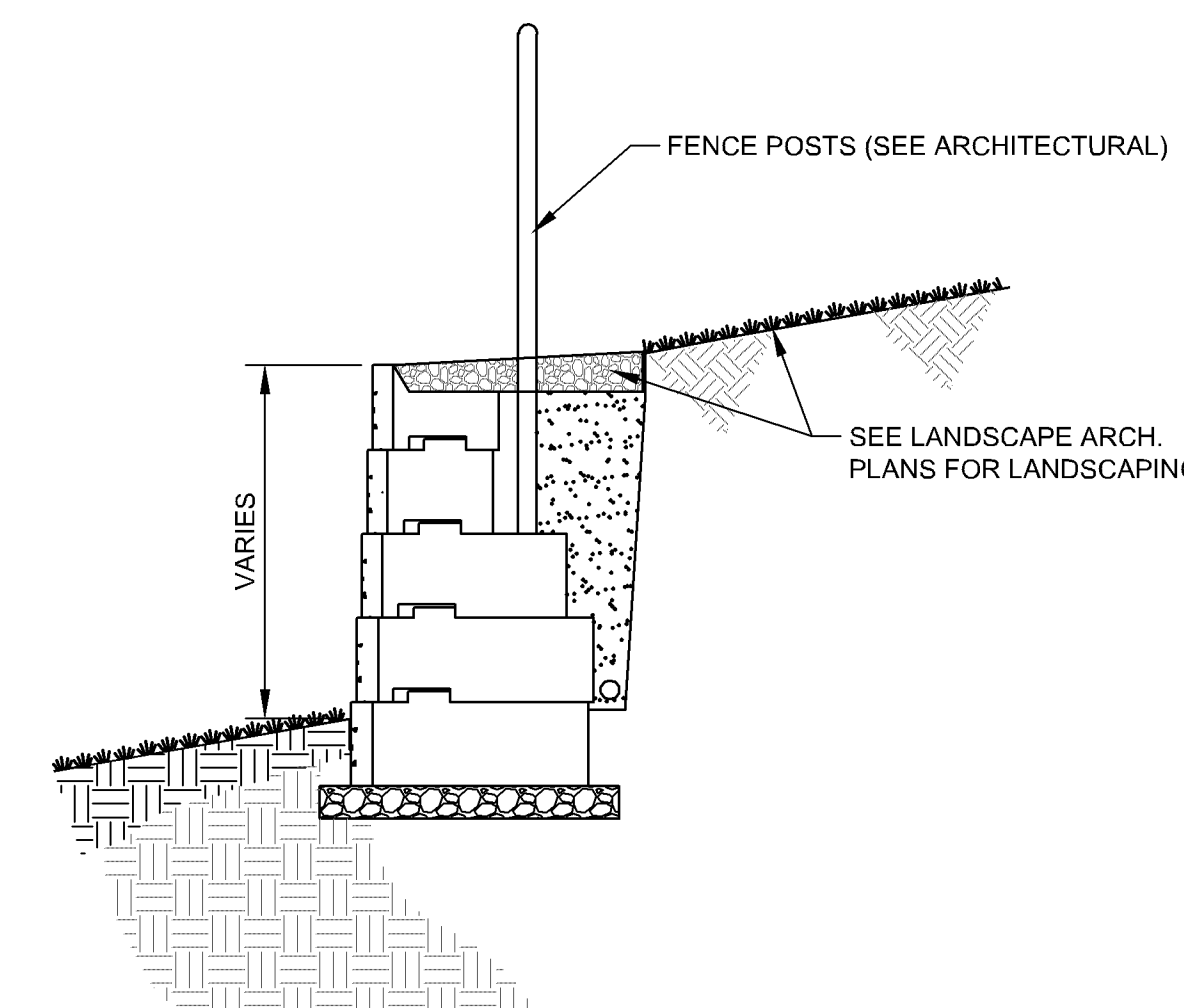
3 HEAVY-DUTY CONCRETE PAVEMENT SECTION

3
C500



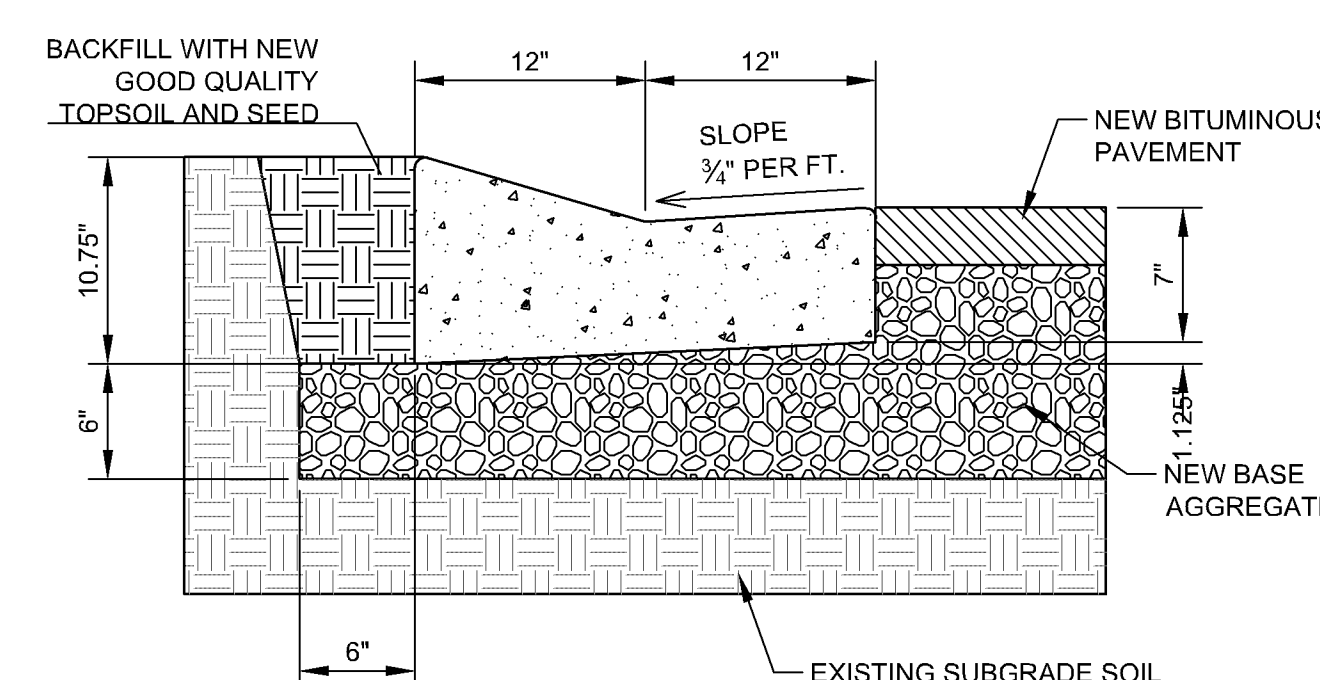
4 ACCESSIBLE RAMP DETAIL

4
C500



5 RETAINING WALL DETAIL

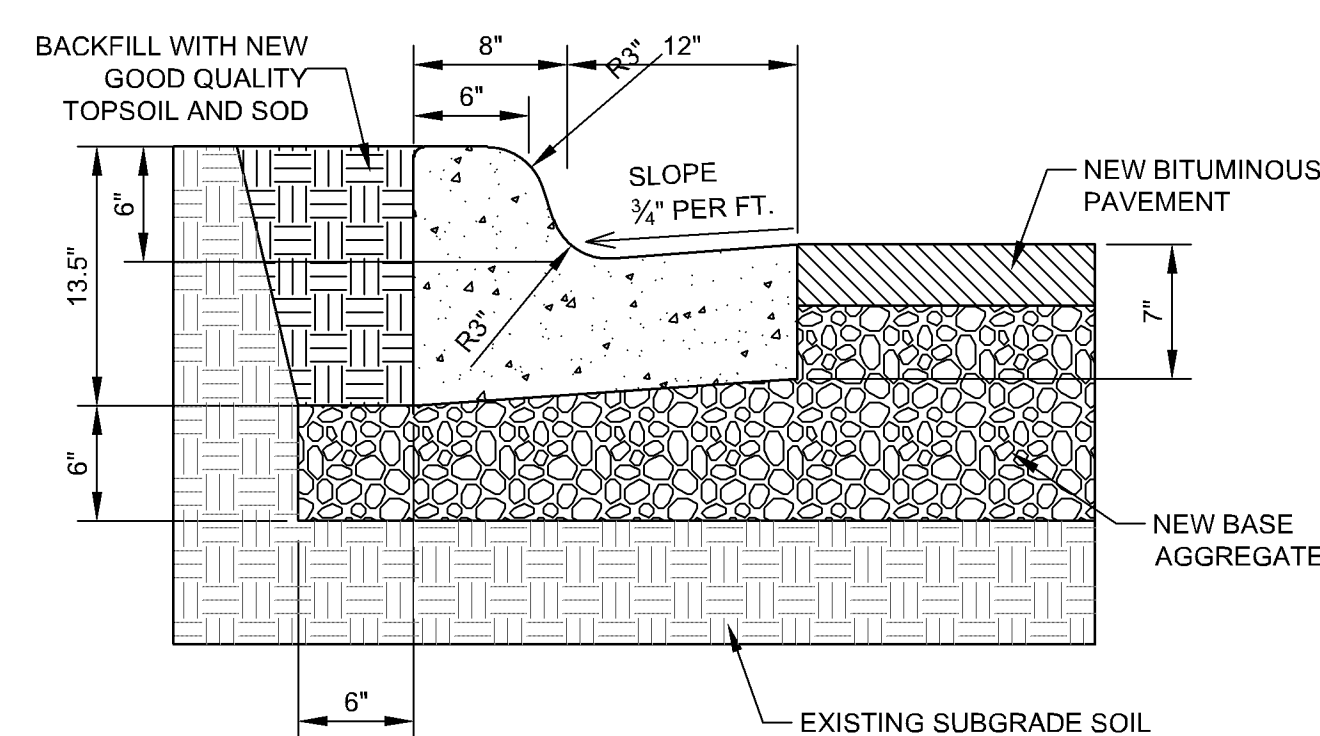
5
C500



NOTE: TIP CURB OUT WHERE REQUIRED FOR PROPER DRAINAGE.

6 SURMOUNTABLE CURB & GUTTER DETAIL

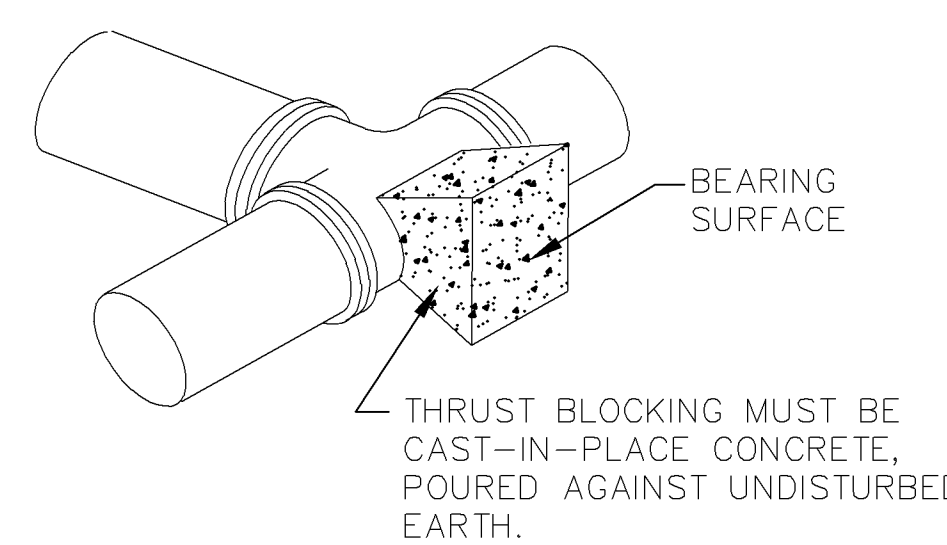
6
C500



NOTE: TIP CURB OUT WHERE REQUIRED FOR PROPER DRAINAGE.

7 B612 CONCRETE CURB & GUTTER DETAIL

7
C500



PIPE SIZE	BEARING AREA
6"	2.25 SF
8"	4 SF

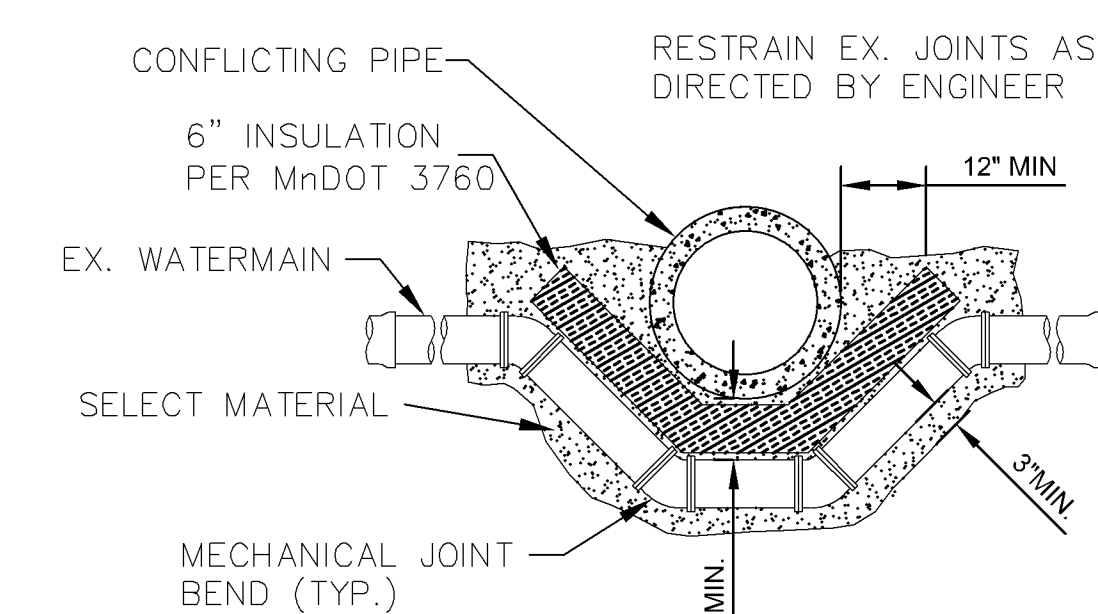
NOTES:

- THRUST BLOCKS TO BE USED FOR BENDS 22 1/2' AND OVER, INCLUDING HYDRANTS AND HYDRANT TEES.
- THRUST BLOCKS ARE REQUIRED REGARDLESS OF ANY OTHER RESTRAINT METHODS USED ON WATERMAIN LESS THAN 12" IN DIA.
- RESTRAINT METHODS ON WATERMAIN LARGER THAN 12" SHALL BE MEGALUGS, LOCKING GASKETS OR OTHER APPROVED EQUAL. THE LENGTH OF RESTRAINT SHALL BE AS COMPUTED BY DIPRA.

310 — STANDARD THRUST BLOCK
310 - Thrust Bk (Std).dwg 6/2015

10 THRUST BLOCK DETAIL

10
C500

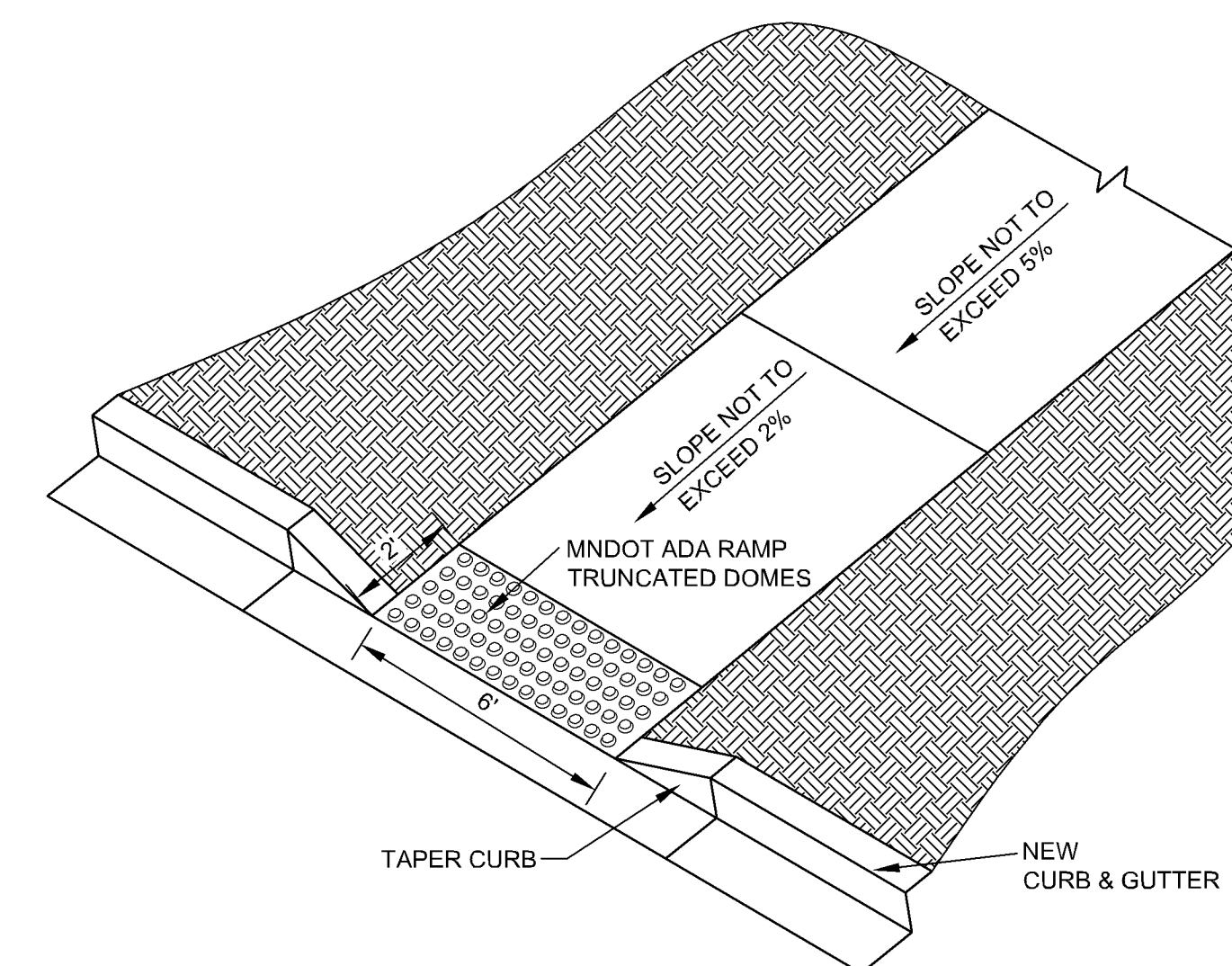


- ALL JOINTS SHALL BE RESTRAINED WITH EBAA IRON MEGALUG, STAR D-SLIDE, SIGMA ONE-LOK SLIDE OR APPROVED EQUAL.
- NO WATERMAIN SHALL BE RODDED UNDER ANY CIRCUMSTANCE.
- ALL EXPOSED WATERMAIN SHALL BE WRAPPED WITH POLYETHYLENE IN ACCORDANCE WITH AWWA C-105.
- INSULATION AND FOUNDATION MATERIAL SHALL EXTEND IN BOTH DIRECTIONS A MIN. OF 3' BEYOND THE STORM SEWER & WATERMAIN.
- MECHANICAL JOINT OFFSET MAY BE USED IF AMOUNT OF OFFSET IS 18" OR LESS.
- CONDUCTIVITY ACROSS JOINTS IS REQUIRED.
- INSTALL INSULATION WITH OVERLAPPING JOINTS.
- LENGTH OF JOINT RESTRAINT TO CONFORM TO DIPRA REQUIREMENTS. CONCRETE ANCHOR BLOCKS MAY BE REQUIRED AT VERTICAL BENDS.

316 — WM ALTERATION 1
316 - WM ALTERATION 1.DWG 5/2017

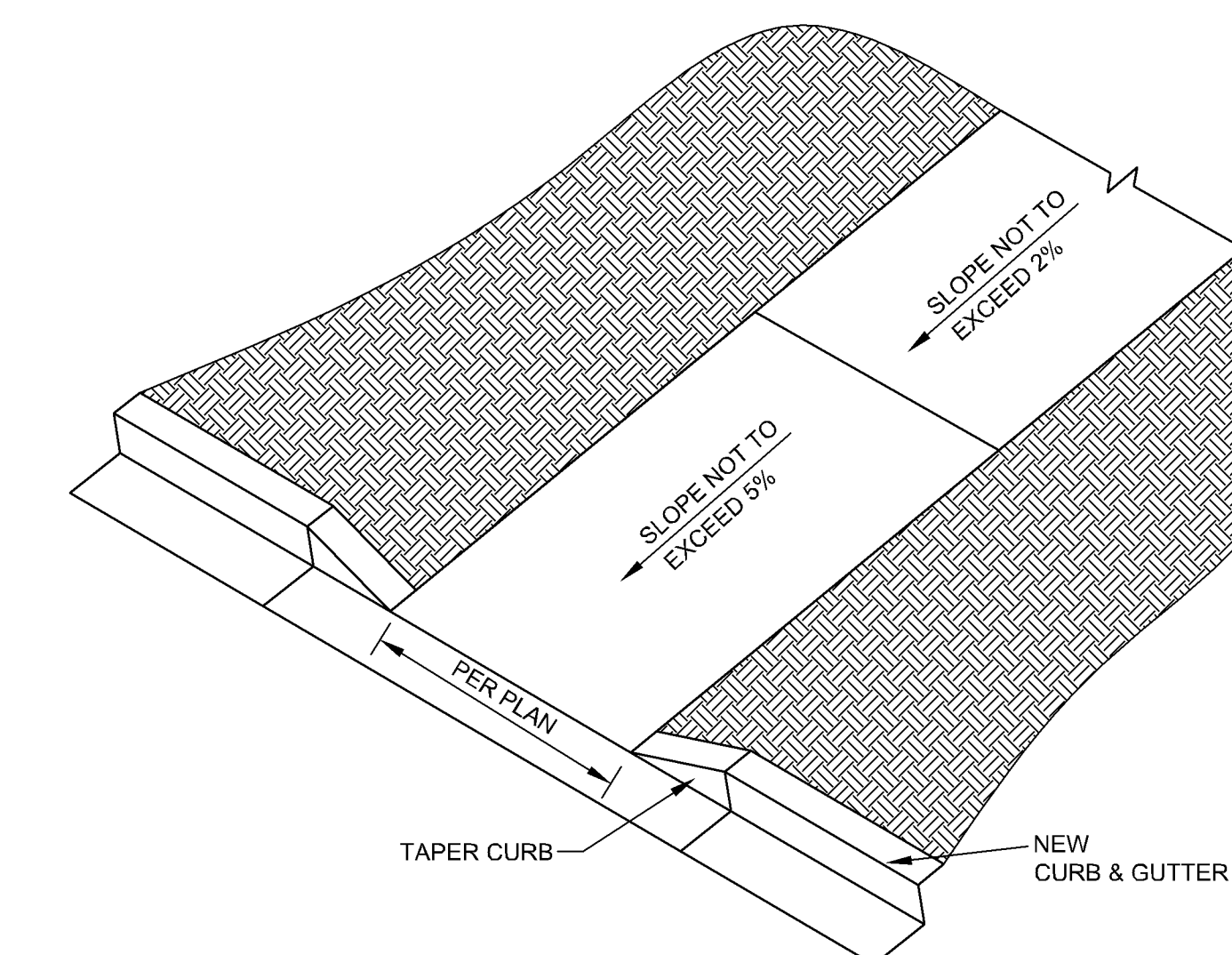
9 WATERMAIN/SEWER CROSSING DETAIL

9
C500



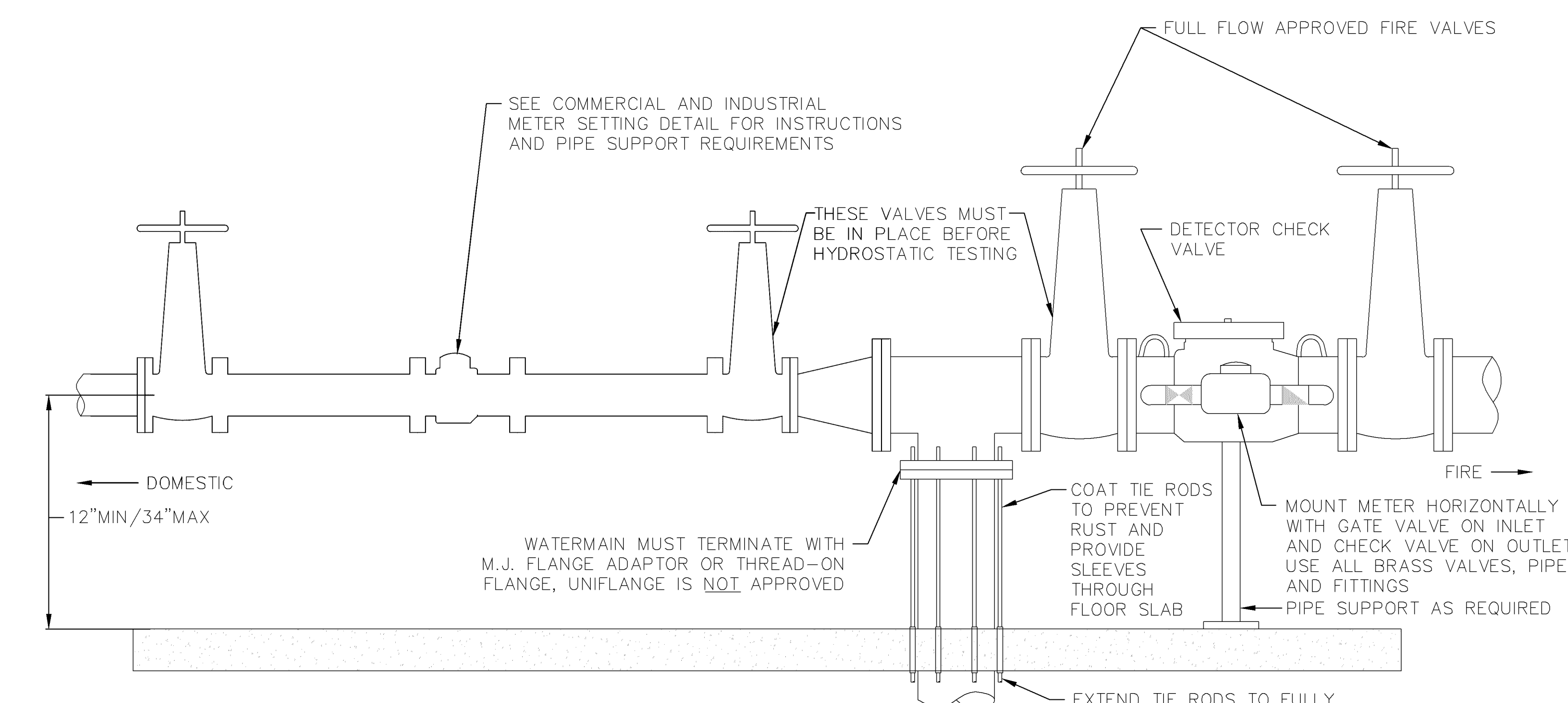
9 ACCESSIBLE RAMP DETAIL WITH TRUNCATED DOMES

9
C500



12 ACCESSIBLE RAMP DETAIL

12
C500

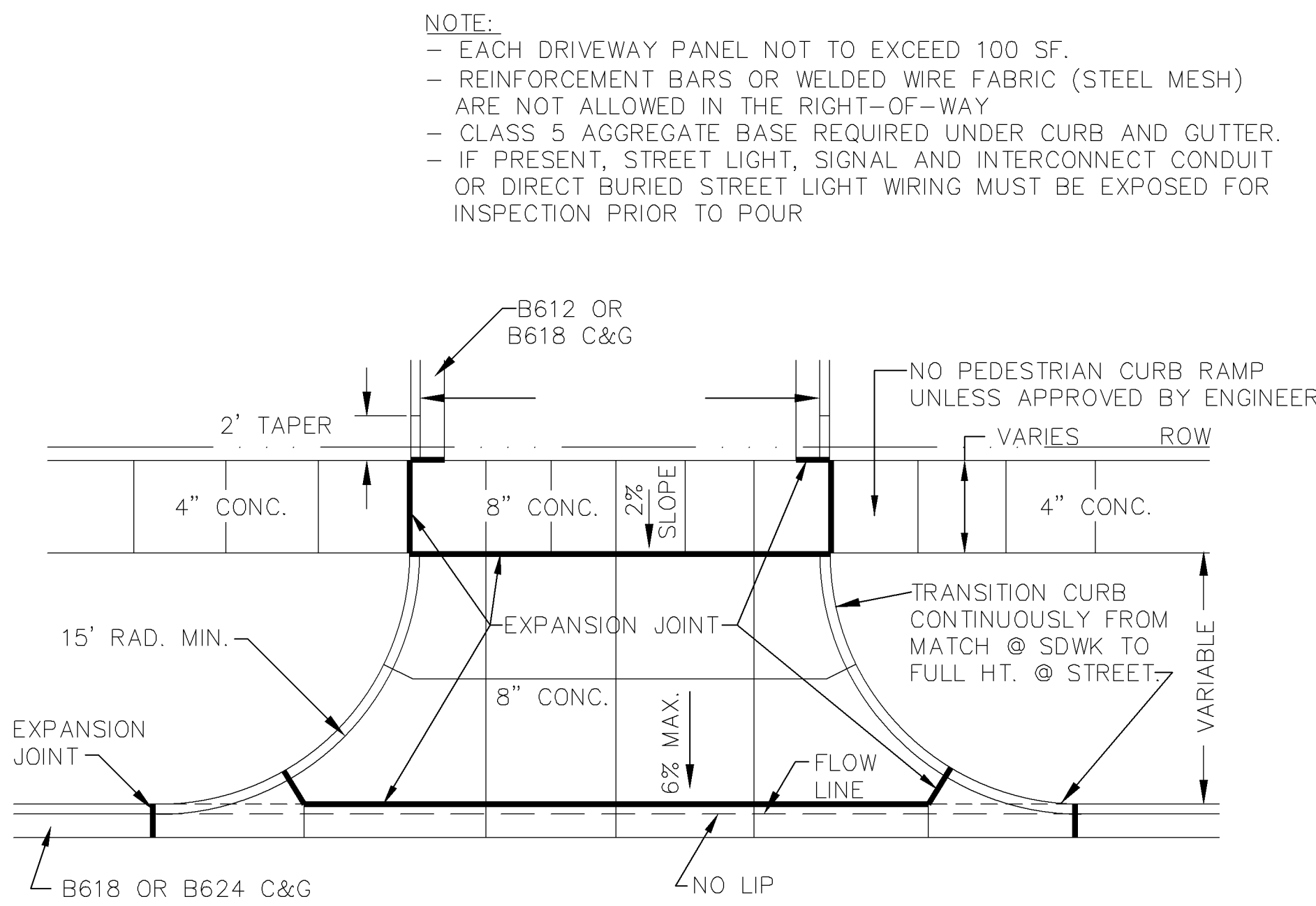


NOTE: ALL PIPE AND FITTINGS LARGER THAN 2 INCHES IN DIAM. AND UPSTREAM OF WATER METERS SHALL BE EPOXY OR CEMENT MORTAR LINED IN ACCORDANCE WITH AWWA C104 OR AWWA C116

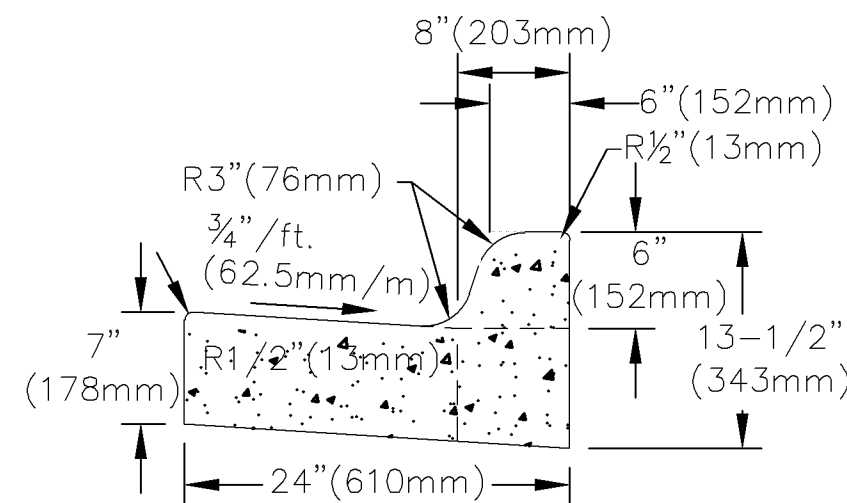
318 — FIRE-DOMESTIC SERV
318 - FIRE-DOMESTIC SERV.DWG 9/2016

11 FIRE DOMESTIC SERVICE DETAIL

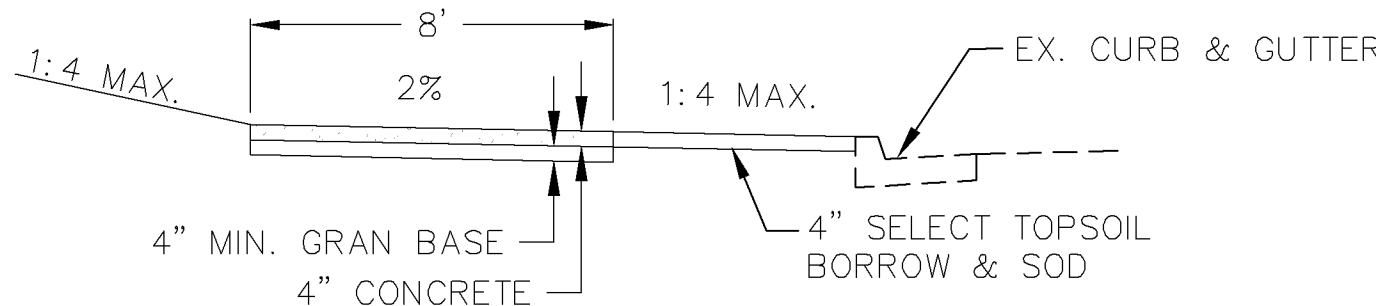
11
C500



1 C501 NOT TO SCALE

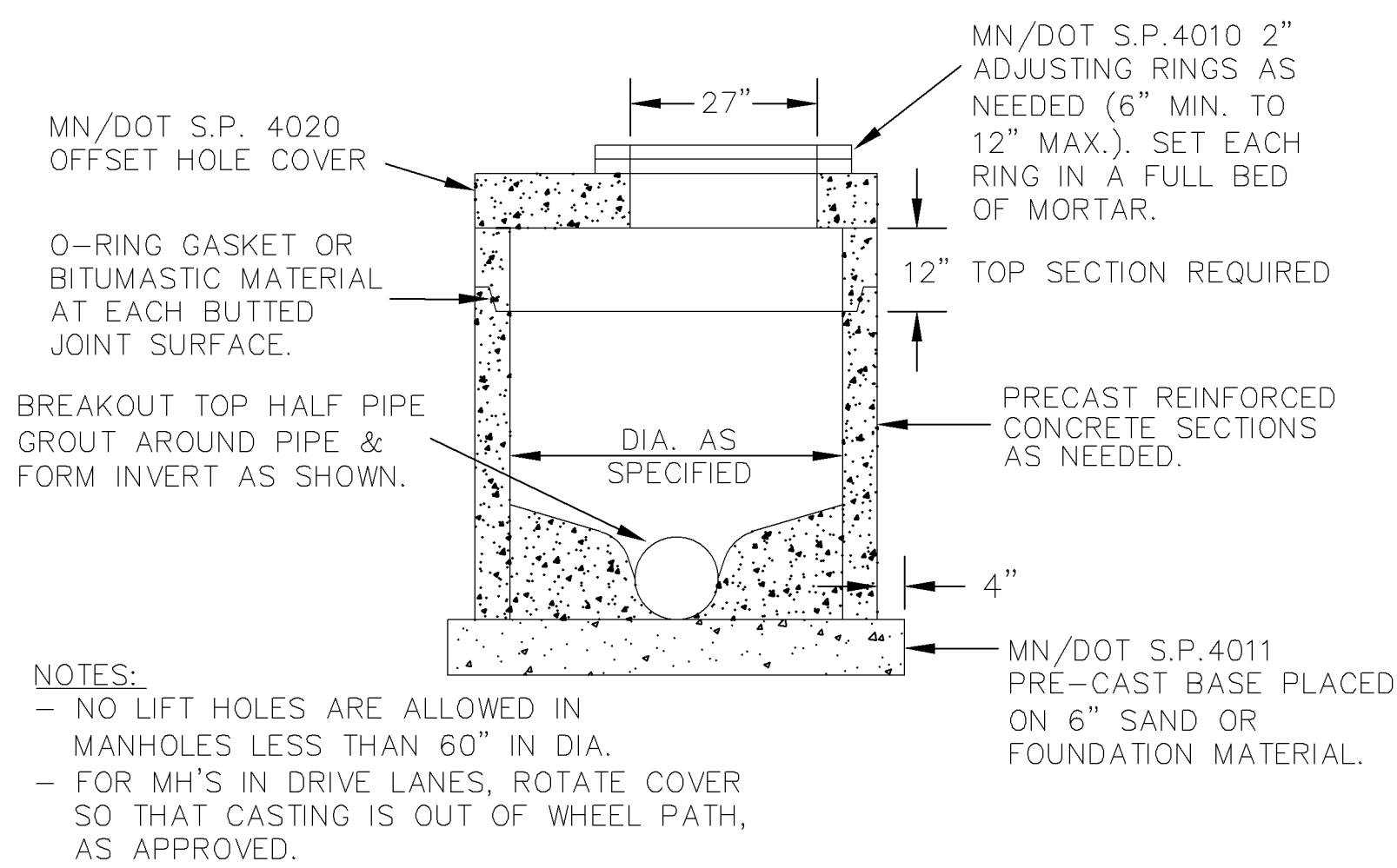


2 C501 NOT TO SCALE

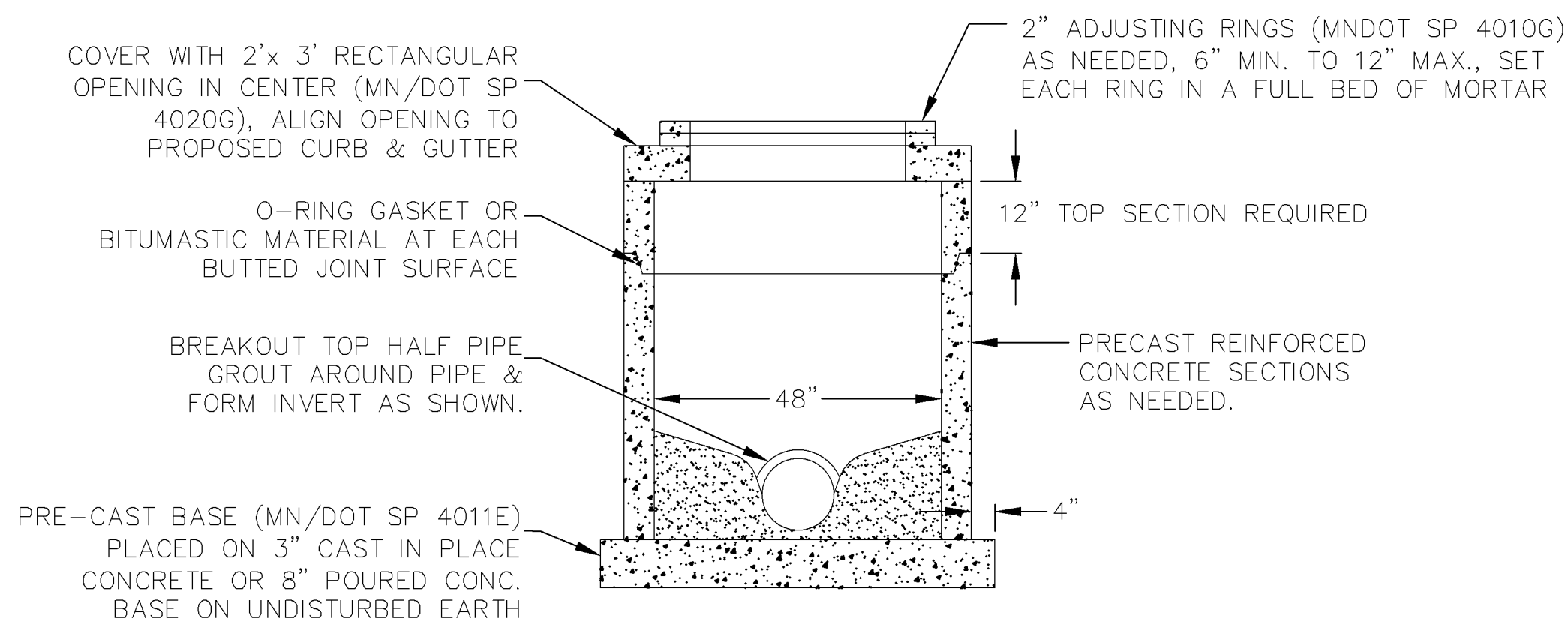


120 - TYPICAL SIDEWALK INSTALLATION
120 - Typ Conc. Walk.dwg 9/2016

3 C501 NOT TO SCALE

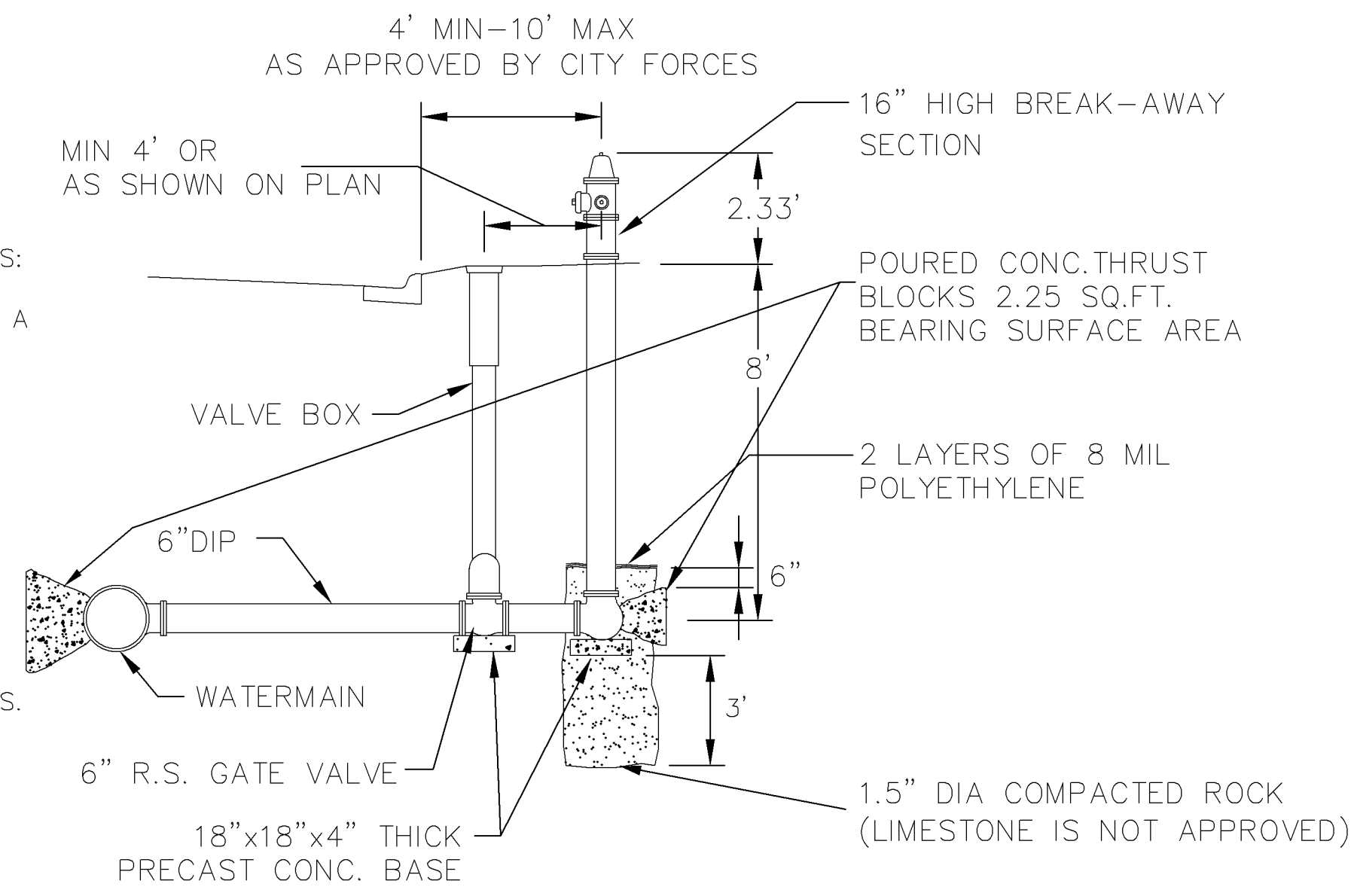


4 C501 NOT TO SCALE



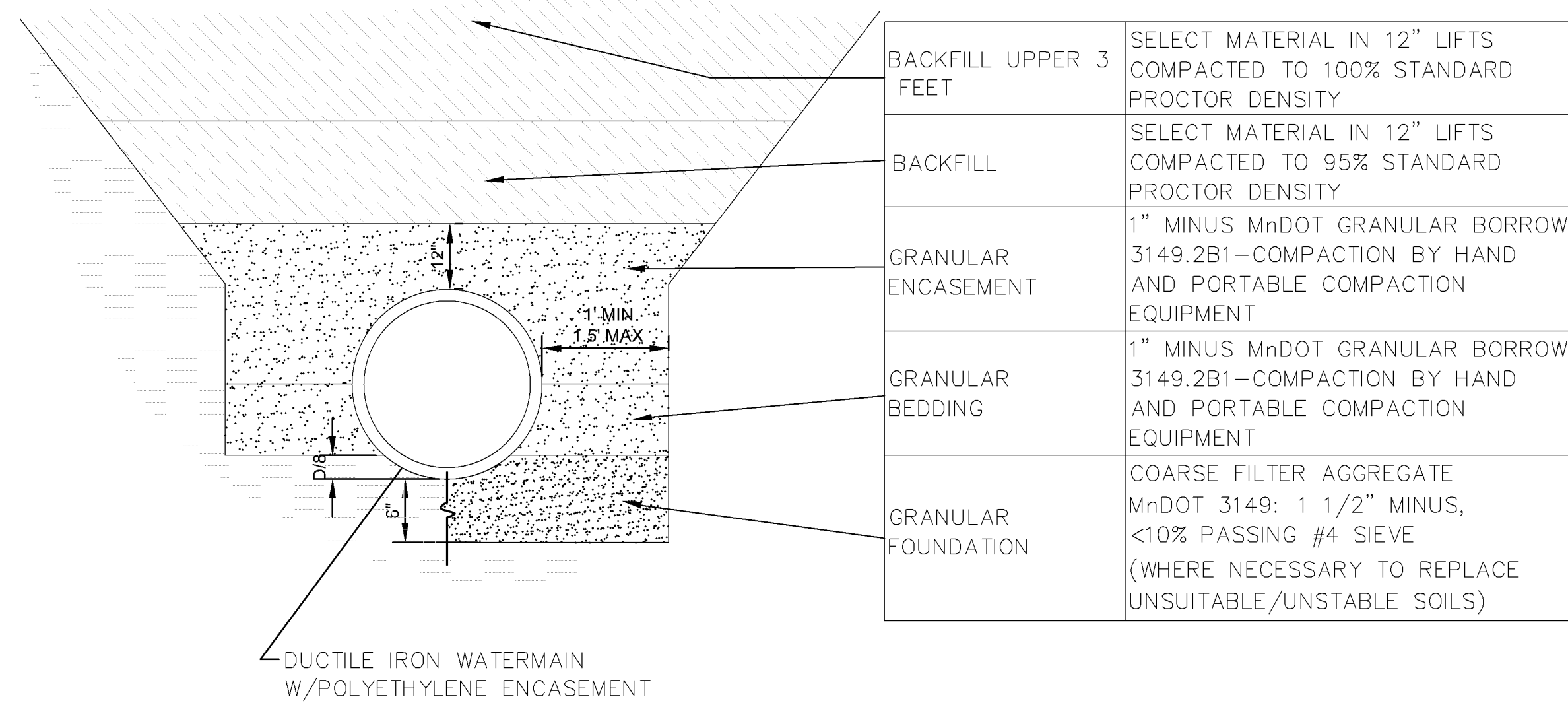
5 C501 NOT TO SCALE

- HYDRANT TO BE:
 - WATEROUS PACER CLASSIC.
 - MUELLER SUPERCENTURION 250 MODEL A-423.
 - OR APPROVED EQUAL.
- EQUIP WITH THREE HOSE NOZZLES/CONNECTIONS AS FOLLOWS:
 - ONE - FACTORY INSTALLED 5 INCH STORZ-TYPE, QUARTER TURN PUMPER NOZZLE/CONNECTOR, INCLUDING A MANUFACTURER SUPPLIED AND INSTALLED ANODIZED ALUMINUM NOZZLE CAP WITH A 1.5 INCH PENTAGON NUT AND NO ROCKER LUG.
 - TWO - 2.5 INCH HOSE NOZZLES/CONNECTIONS (WITH NATIONAL STANDARD THREADS) AND STANDARD NOZZLE CAPS WITH 1.5 INCH PENTAGON NUTS, AND NO ROCKER LUGS.
- USE SS NUTS AND BOLTS AS APPROVED BY THE ENGINEER.
- ALL EXPOSED WATERMAIN SHALL BE WRAPPED WITH POLYETHYLENE IN ACCORDANCE WITH AWWA C-105.
- BARREL TO BE BRIGHT RED.
- ALL VALVES TO OPEN COUNTER-CLOCKWISE.
- SEE TYPICAL VALVE INSTALLATION DETAIL FOR VALVE DETAILS.
- WATEROUS PACER CLASSIC HYDRANTS SHALL INCLUDE INSTALLATION OF THE MANUFACTURERS MOST CURRENT ANTI-CHATTER BRASS UPPER VALVE WASHER.



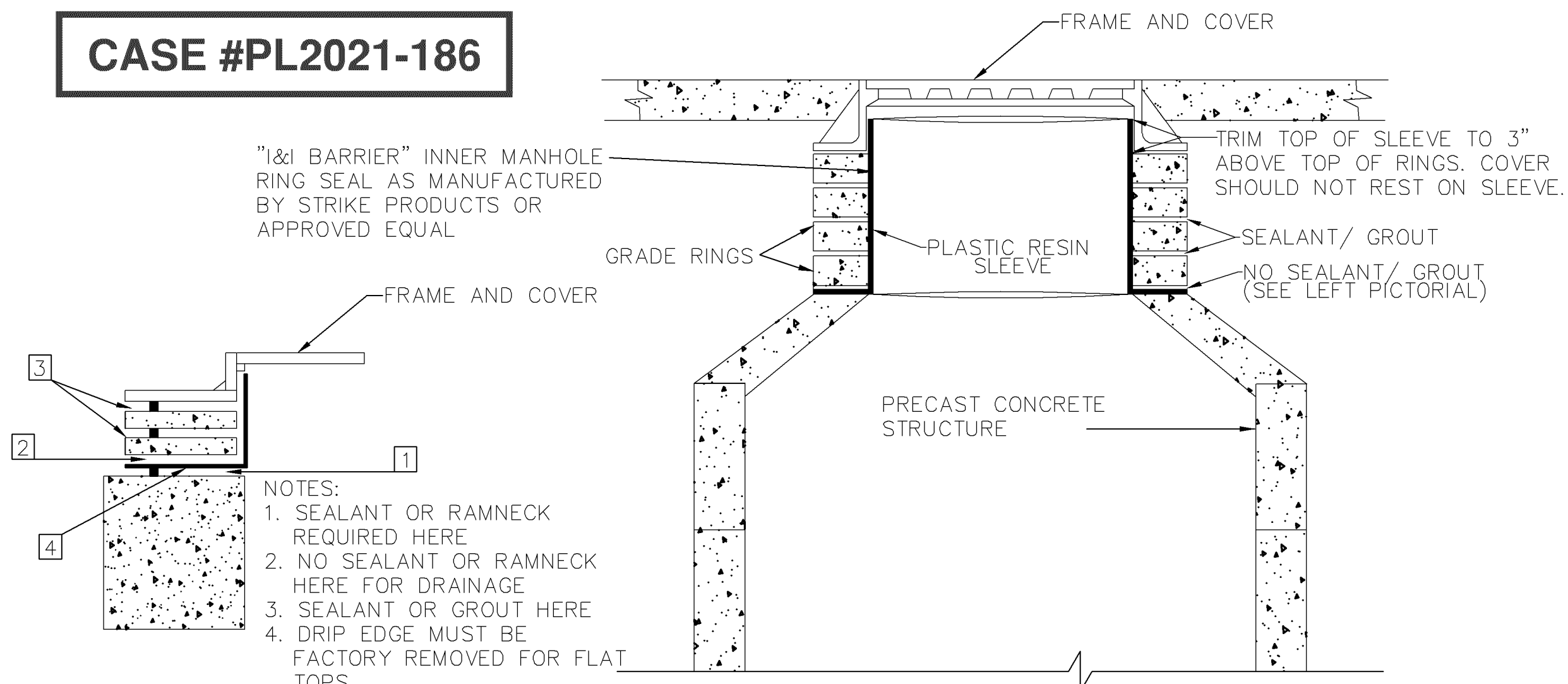
300 - TYPICAL HYDRANT INSTALLATION
300 - Hyd Install.dwg 6/2015

6 C501 NOT TO SCALE



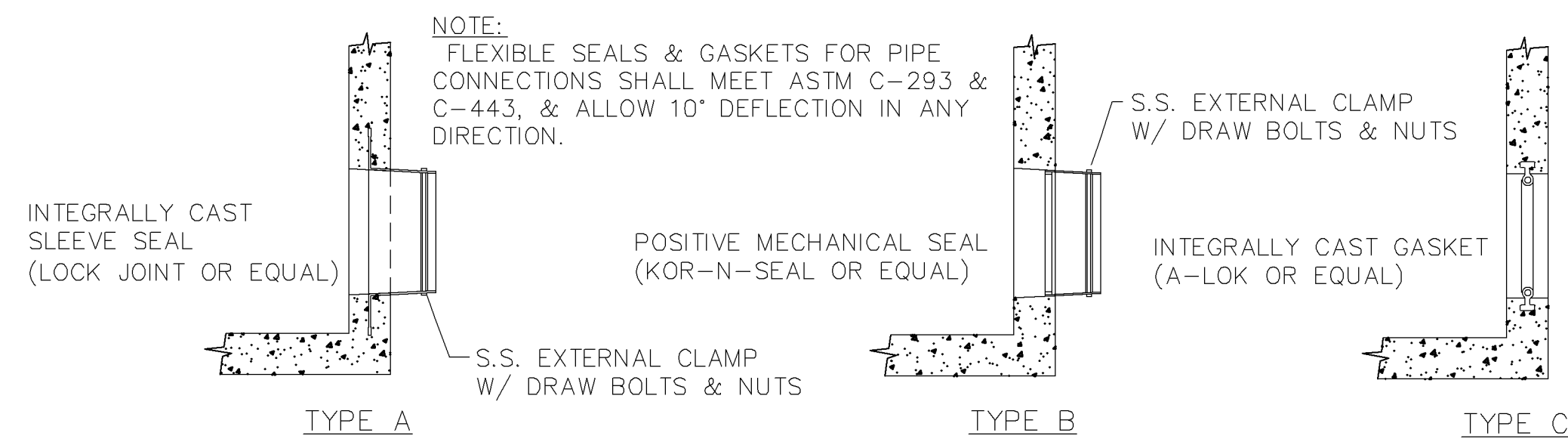
7 C501 NOT TO SCALE

CASE #PL2021-186



404 - INTERNAL CHIMNEY SEAL
404 - Internal Chimney Seal.dwg 6/2015

8 C501 NOT TO SCALE



9 C501 NOT TO SCALE

