

SYMBOL LEGEND

- NEW 3" BITUMINOUS PAVEMENT OVER 8" BASE AGGREGATE SEE DETAIL 1/C5
- NEW 4.5" BITUMINOUS PAVEMENT OVER 10" BASE AGGREGATE SEE DETAIL 2/C5
- NEW 4" BITUMINOUS PAVEMENT OVER 10" BASE AGGREGATE, CLASS 5, OVER 20" SELECT GRANULAR BORROW SEE DETAIL 11/C5 AND NOTES 1 & 2
- NEW 4" CONCRETE PAVEMENT OVER 6" BASE AGGREGATE SEE DETAIL 3/C5
- NEW HEAVY-DUTY CONCRETE PAVEMENT OVER BASE AGGREGATE. SEE DETAIL 4/C5 FOR CONCRETE IN PUBLIC ROW SEE DETAILS 3/C7 & 5/C7
- SEE STRUCTURAL
- LIGHT POLE, SEE ARCHITECTURAL

WATERSHED WETLAND BUFFER NOTES

- PROPOSED WETLAND BUFFER AREA
- DELINEATED WETLAND (SEPTEMBER 2017)
- WETLAND BUFFER MONUMENT

REQUIRED BUFFER AREA WITHIN LOT 2 (25' WIDTH) = 5,267 SF

PROPOSED BUFFER AREA = 5,485 SF

CITY WETLAND BUFFER NOTES

- PROPOSED 10' WETLAND BUFFER AREA
- DELINEATED WETLAND (SEPTEMBER 2017)

GENERAL NOTES

1. ROAD SHALL BE PATCHED WITHIN NO MORE THAN 7 CALENDAR DAYS FROM THE REMOVAL OF THE BITUMINOUS PAVEMENT.
2. TRAFFIC CONTROL SIGNS WITH ADVANCED WARNING OF THE CLOSURE SHALL BE INSTALLED 5 DAYS PRIOR TO THE PLANNED CLOSURE.

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

Client: **TRFL, LLC**
 333 NORTH MAIN STREET, SUITE 110
 STILLWATER, MN 55082

Project Title: **TIMBER RIDGE APARTMENTS**
 4777 19TH STREET SW
 FOREST LAKE, MN 55025

I hereby certify that this plan, specifications or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the state of Minnesota.

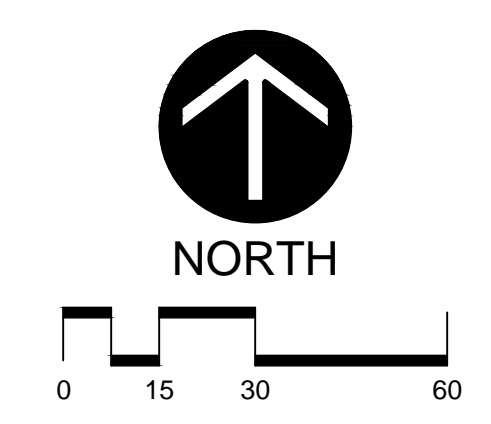
Matt Woodruff
 Matt Woodruff, P.E.
 Date: 10.10.17 Reg. No.: 41885

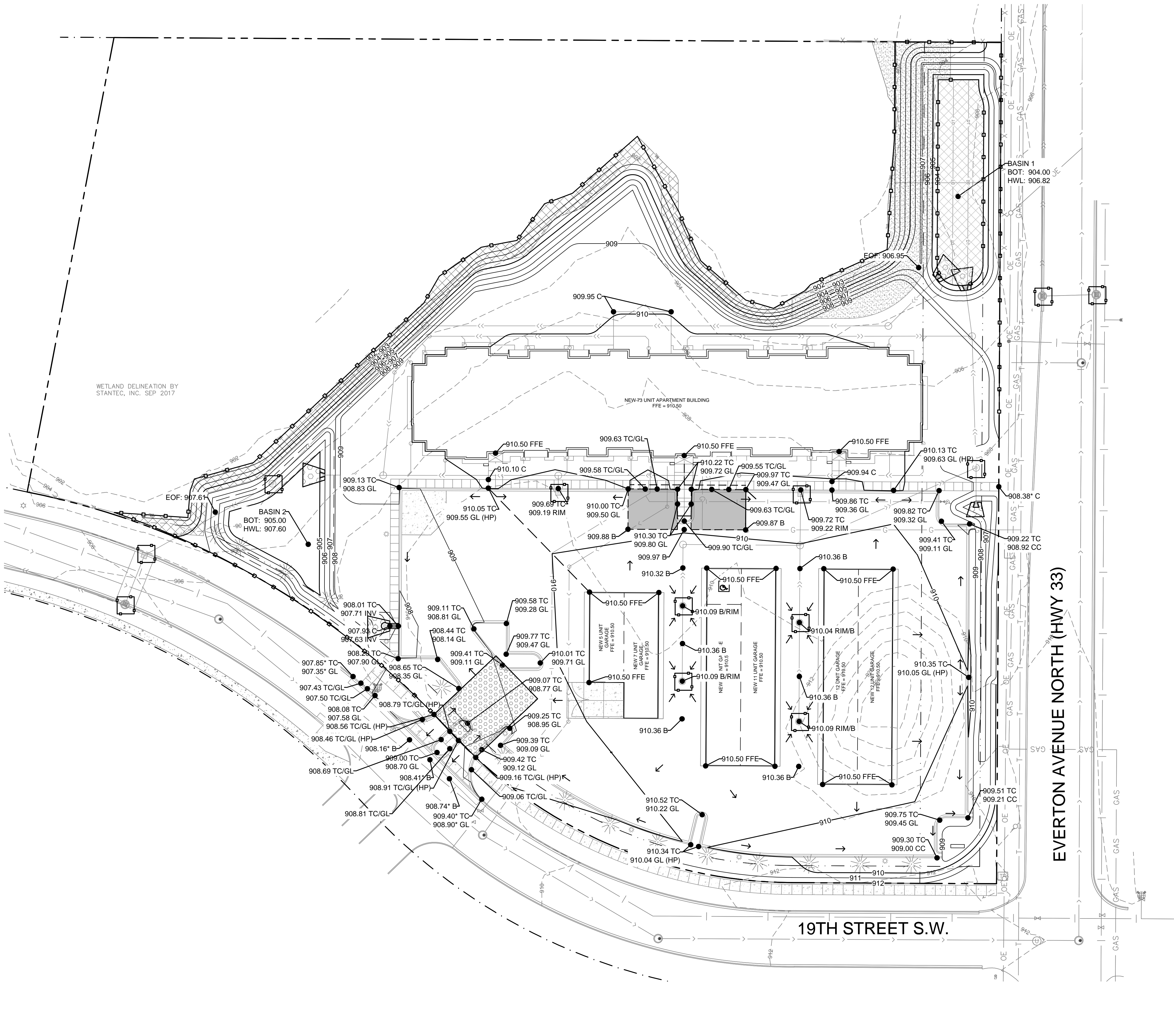
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| ▲ | 11.30.17 | City Submittal |
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| ▲ | 12.18.17 | City Comments |

Project #: 12176130
 Drawn By: NJN
 Checked By: MJW
 Issue Date: 10.10.17

Sheet Title: **PAVING AND DIMENSION PLAN**

C2





WETLAND DELINEATION BY STANTEC, INC. SEP. 2017

NEW 73 UNIT APARTMENT BUILDING
FFE = 910.50

BASIN 2
BOT: 905.00
HWL: 907.60

BASIN 1
BOT: 904.00
HWL: 906.82

NEW 6 UNIT GARAGE
FFE = 910.50

NEW 7 UNIT GARAGE
FFE = 910.50

NEW 11 UNIT GARAGE
FFE = 910.50

NEW 12 UNIT GARAGE
FFE = 910.50

NEW 12 UNIT GARAGE
FFE = 910.50

EVERTON AVENUE NORTH (HWY 33)

19TH STREET S.W.

LEGEND

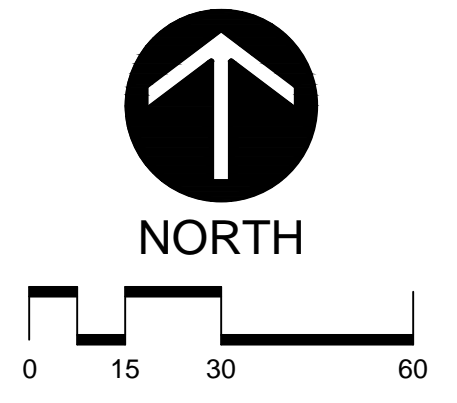
- 950 --- EXISTING CONTOURS
- 950 --- PROPOSED CONTOURS - MAJOR INTERVAL
- 949 --- PROPOSED CONTOURS - MINOR INTERVAL
- GRADE BREAK LINE
- GRADE SLOPE
- ← 2.0% ←
- 950.00 TC
949.50 GL
- SPOT ABBREVIATIONS:
TC - TOP OF CURB
GL - GUTTER LINE
B - BITUMINOUS
C - CONCRETE
FFE - FINISH FLOOR ELEVATION
CC - CURB CUT
HP - HIGH POINT
(*) - EXISTING TO BE VERIFIED
- SILT FENCE
- RIP-RAP / ROCK CONST. ENTRANCE
- INLET PROTECTION
- CONCRETE WASHOUT STATION
LOCATE DURING CONSTRUCTION
- ACCESSIBLE PARKING STALLS & ACCESS AISLES
(SHALL NOT EXCEED 2% IN ANY DIRECTION)
- ACCESSIBLE ROUTE
- FILTRATION BASIN, SEE DETAIL 13/C5

GRADING NOTES

1. Tree protection consisting of orange plastic snow fence shall be in place prior to beginning any grading at the site.
2. All elevations with an asterisk (*) shall be field verified. If elevations vary significantly, notify the Engineer for further instructions.
3. Grades shown in paved areas represent finish elevation.
4. Restore all disturbed areas with 4" of good quality topsoil and sod.
5. All construction shall be performed in accordance with state and local standard specifications for construction.
6. Pavement grades within ADA parking stalls and access aisles shall not exceed 2.0% in any direction.

EROSION CONTROL NOTES

1. Responsible party for maintaining erosion & sediment control measures:
Lumber One, Avon Inc.
101 2nd Street NW
Avon, MN 56310
Steve Salzi
(320) 980-4852
2. See Sheet C6 for Erosion Control Notes.



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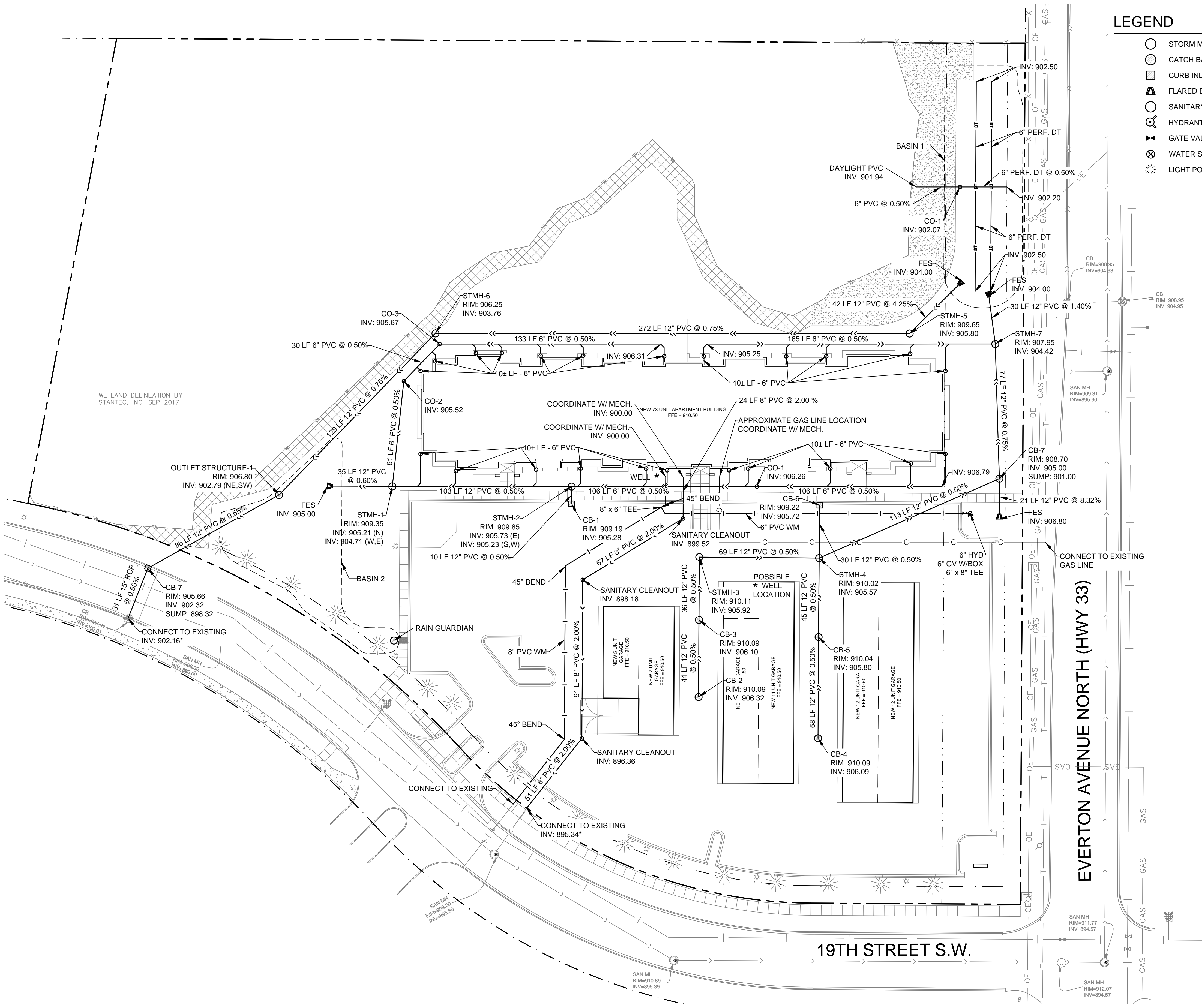
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Sheet Title:
GRADING AND EROSION CONTROL PLAN

C3



LEGEND

- STORM MANHOLE
- CATCH BASIN
- CURB INLET
- ▲ FLARED END
- SANITARY MANHOLE
- ⊕ HYDRANT
- ⊗ GATE VALVE & BOX
- ⊗ WATER SHUTOFF
- ☀ LIGHT POLE
- CTV
- OE
- UE
- FO
- CABLE UNDERGROUND LINE
- 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. Utility connections (sanitary sewer, watermain, and storm sewer) may require a permit from the City.
- 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 4715.2820 where located within 10 feet of waterlines or the building.
- HDPE storm sewer piping and fittings must meet materials and installation standards per Minnesota plumbing code 4715.0420.6C(4) and 4715.0540.C including ASTM D3212 joint pressure test and ASTM C2321 installation practices. The City requires RCP pipe within the public right-of-way.
- All RCP pipe shown on the plans shall be MN/DOT class 5.
- Maintain a minimum of 7 1/2' of cover over all water lines and sanitary sewer lines. Install water lines 18" above sanitary sewers, where the sanitary sewer crosses over the water line, install sewer piping of materials equal to watermain standards for 9 feet on both sides and maintain 18" of separation.
- Where 7 1/2' of cover is not provided over sanitary sewer and water lines, install 2" rigid polystyrene insulation (MN/DOT 3760) with a thermal resistance of at least 5 and a compressive strength of at least 25 psi. Insulation shall be 8" wide, centered over pipe with 6" sand cushion between pipe and insulation. Where depth is less than 5', use 4" of insulation.
- All watermain piping shall be class 52 ductile iron pipe unless noted otherwise.
- See Project Specifications for bedding requirements.
- Pressure test and disinfect all new watermains in accordance with state and local requirements.
- Sanitary sewer piping shall be PVC, SDR-35 for depths less than 12', PVC SDR-26 for depths between 12' and 26', and class 52 D.I.P. for depths of 26' or more.

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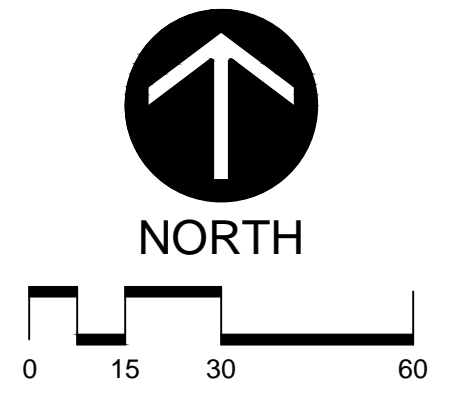
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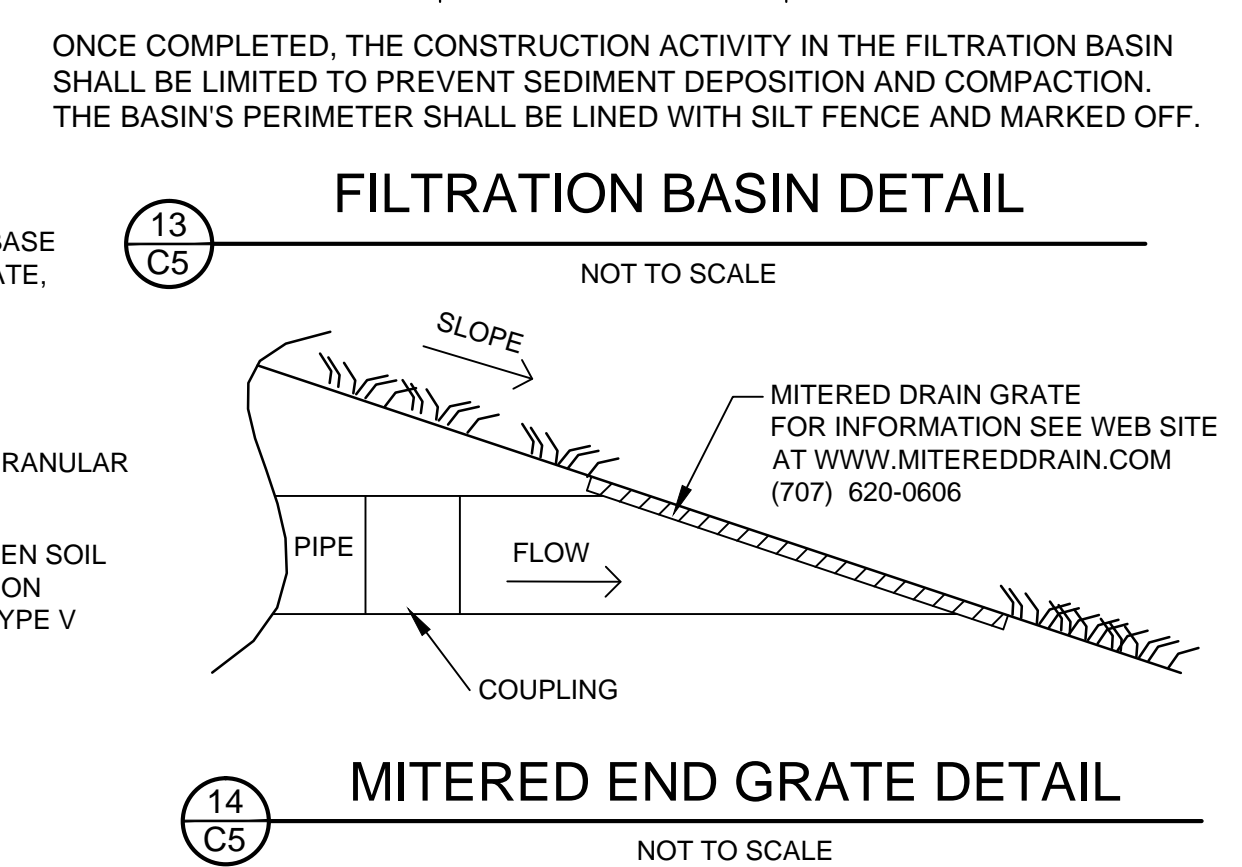
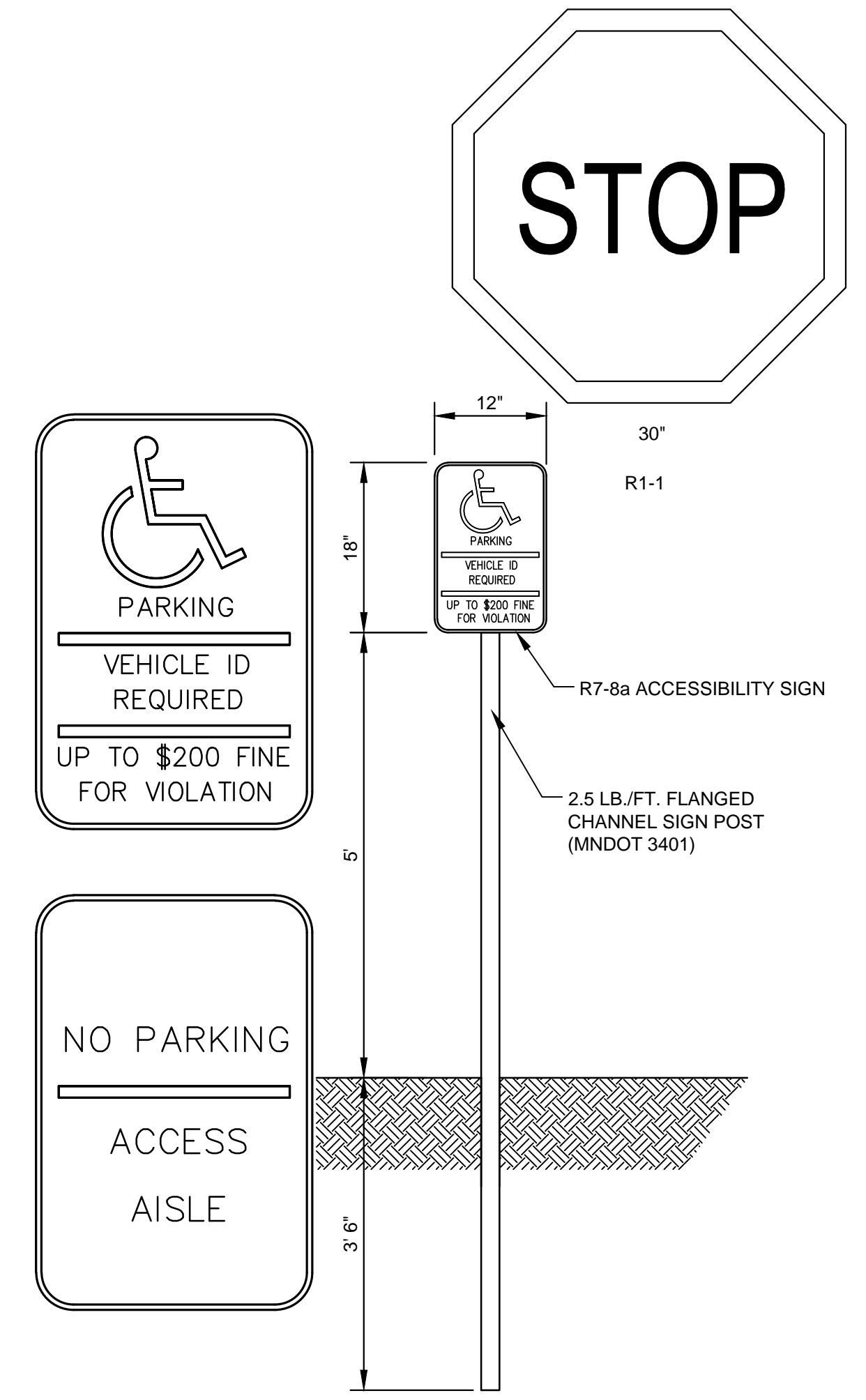
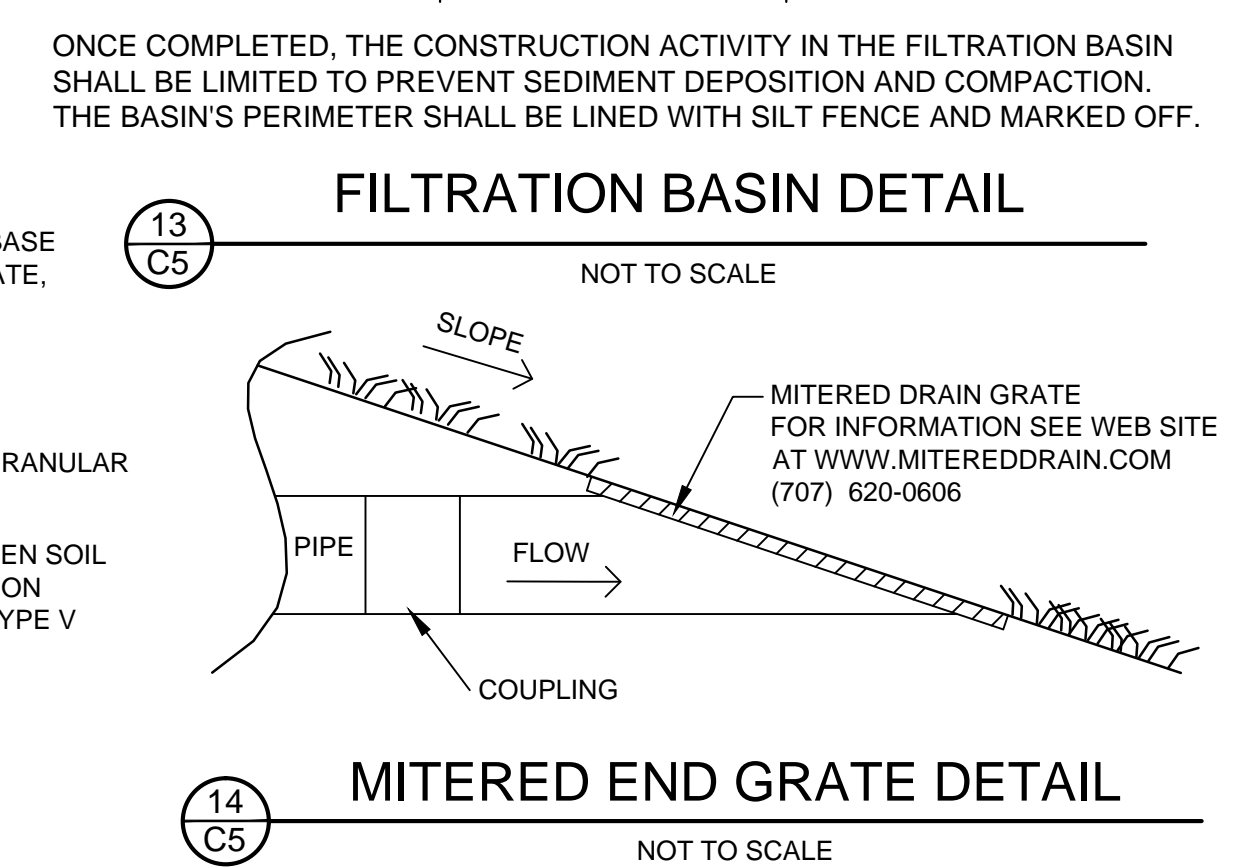
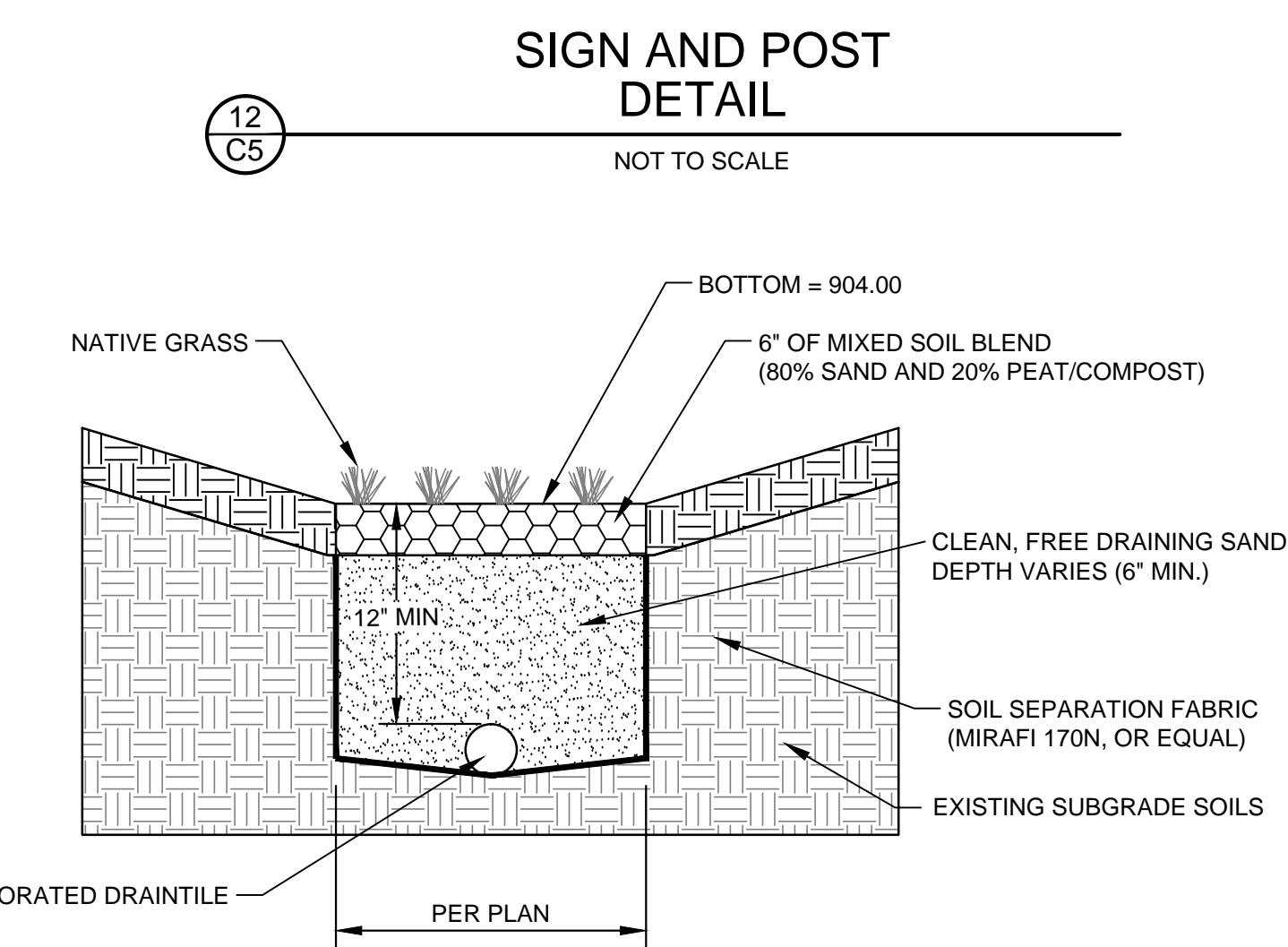
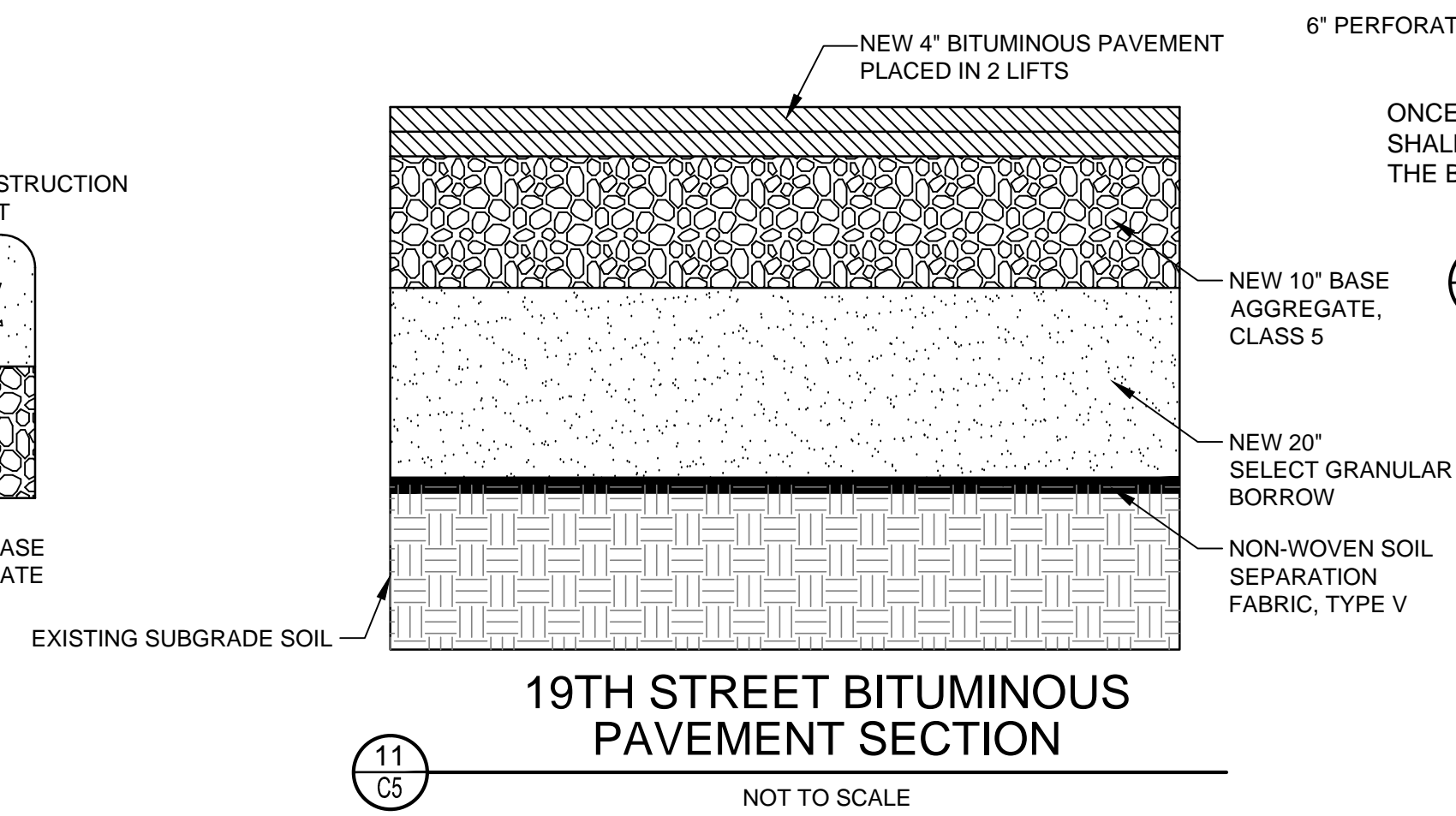
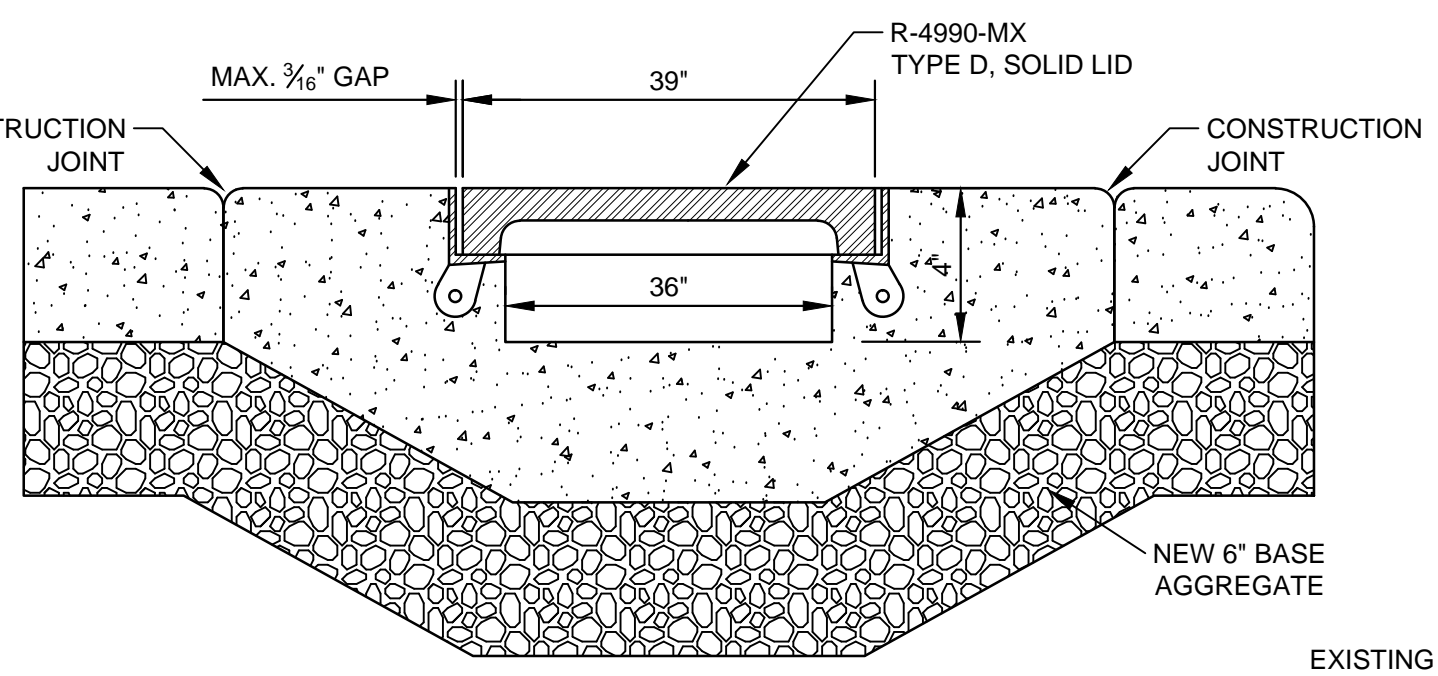
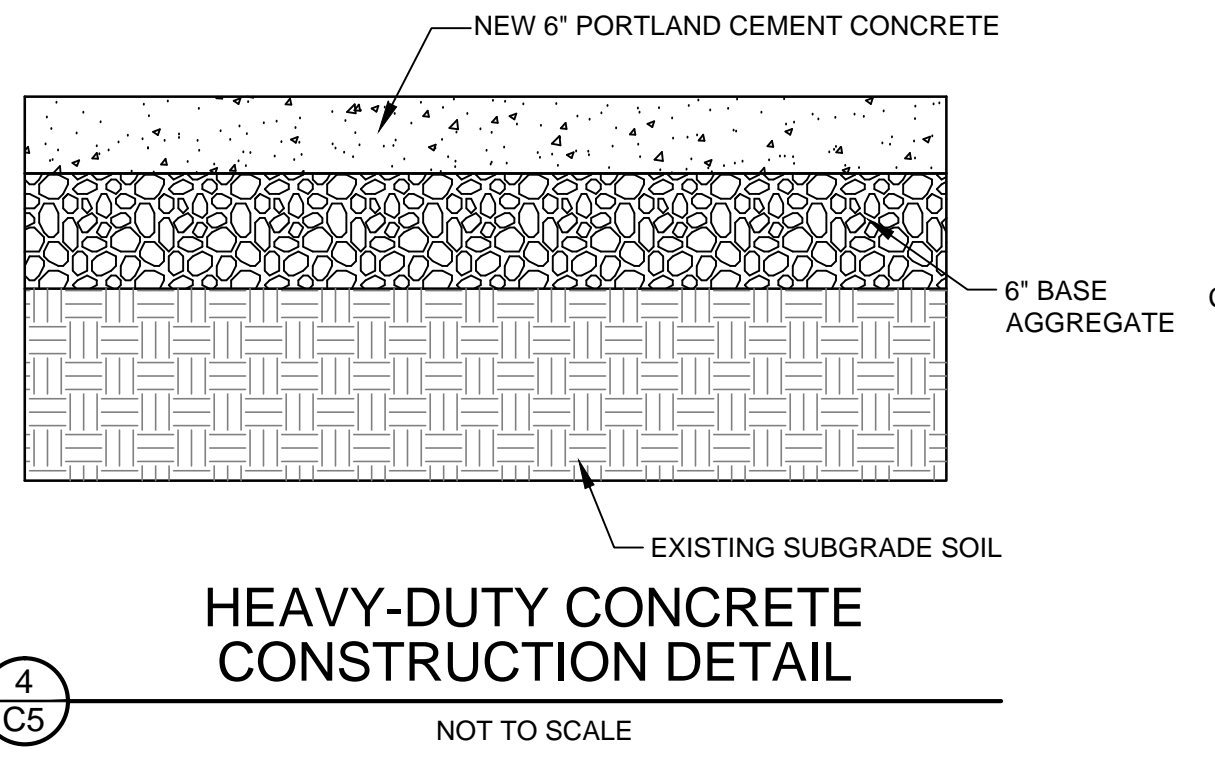
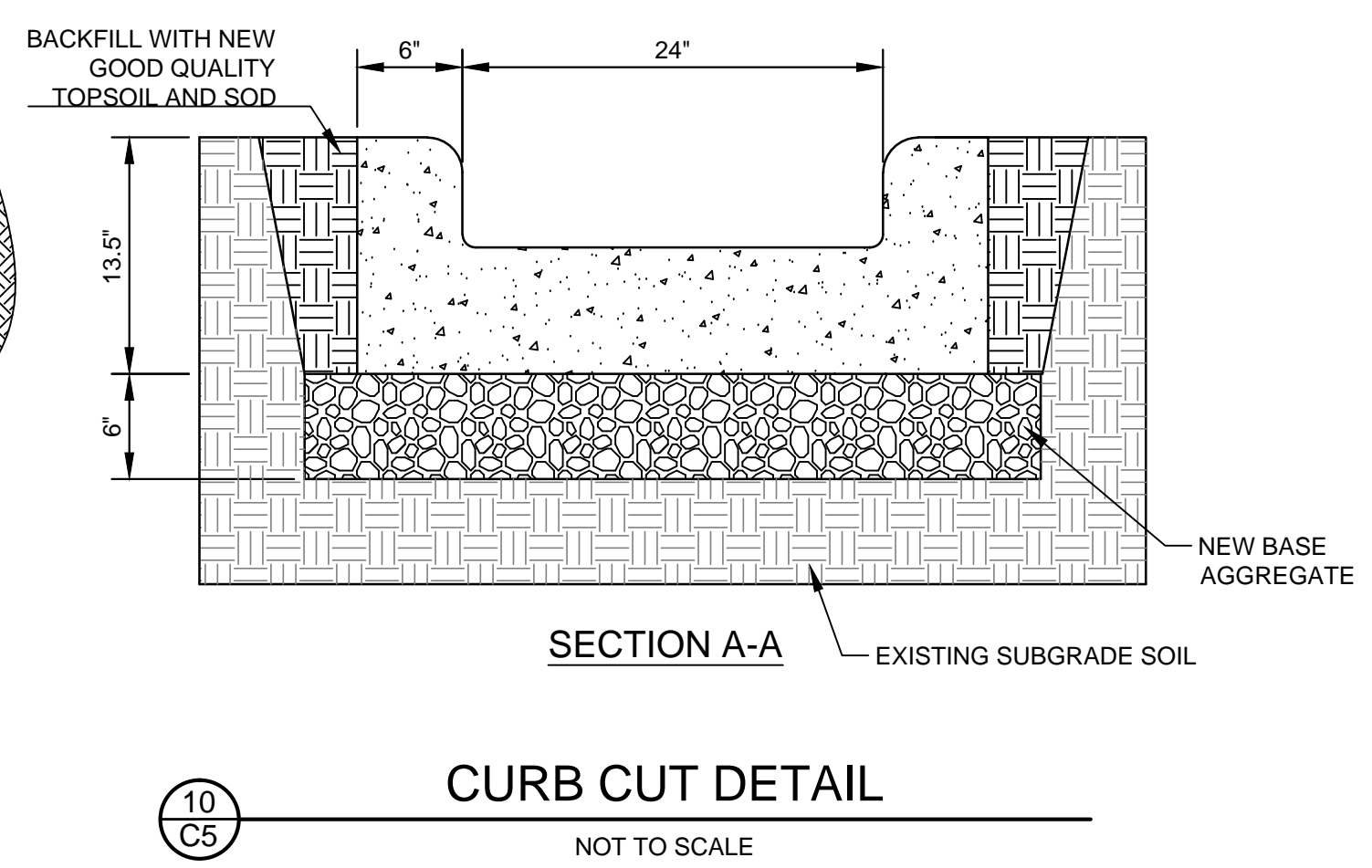
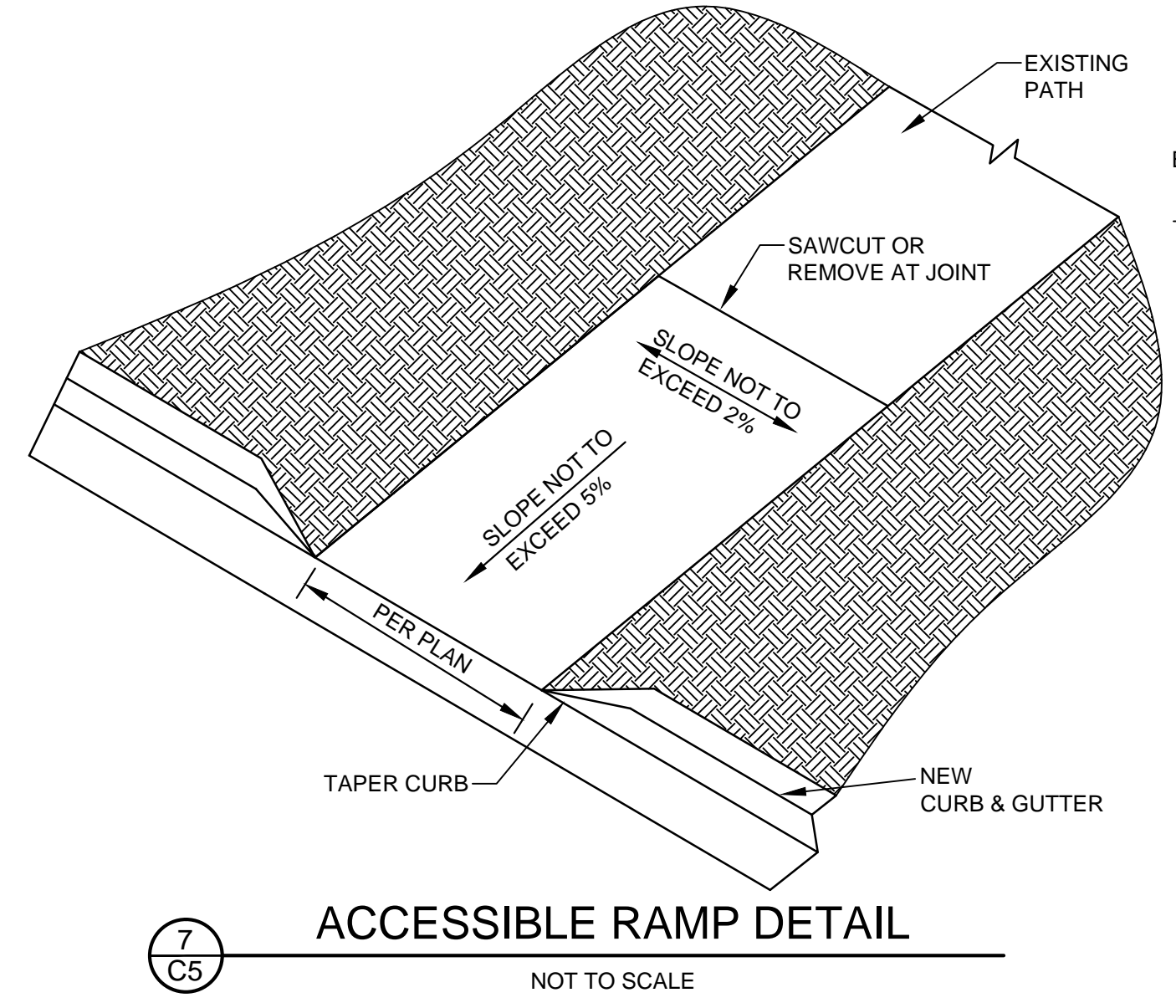
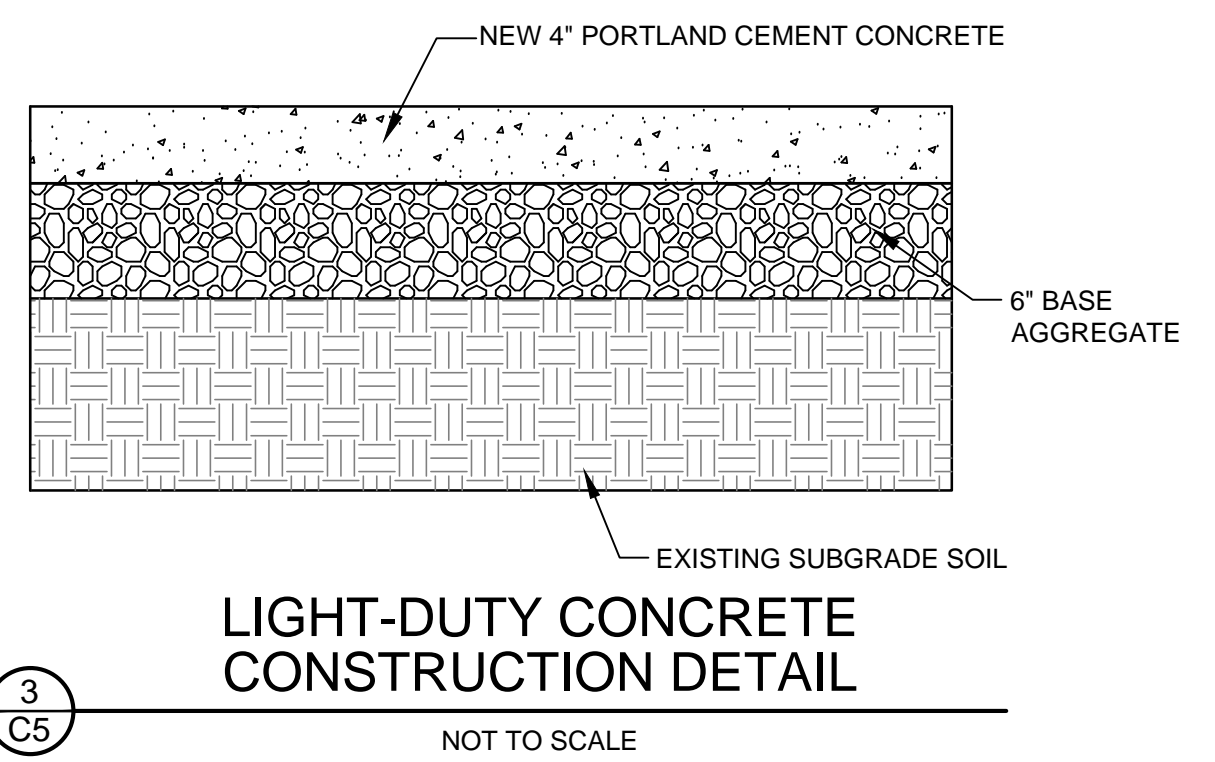
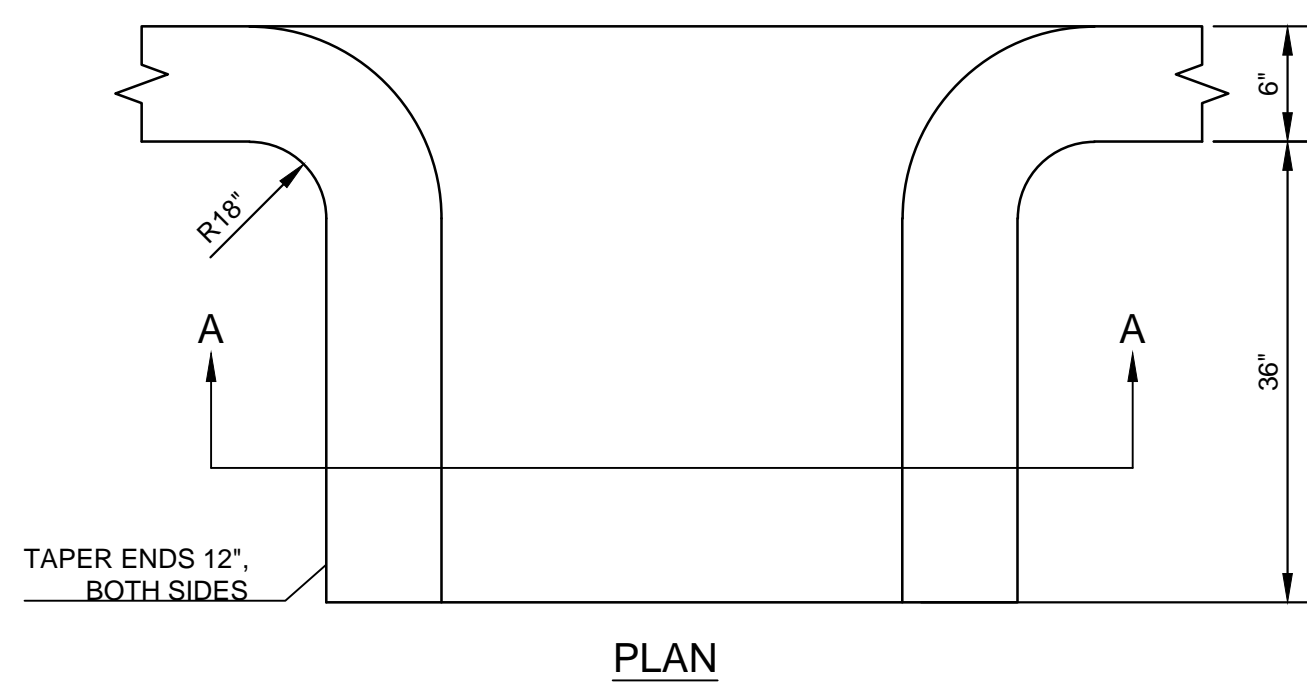
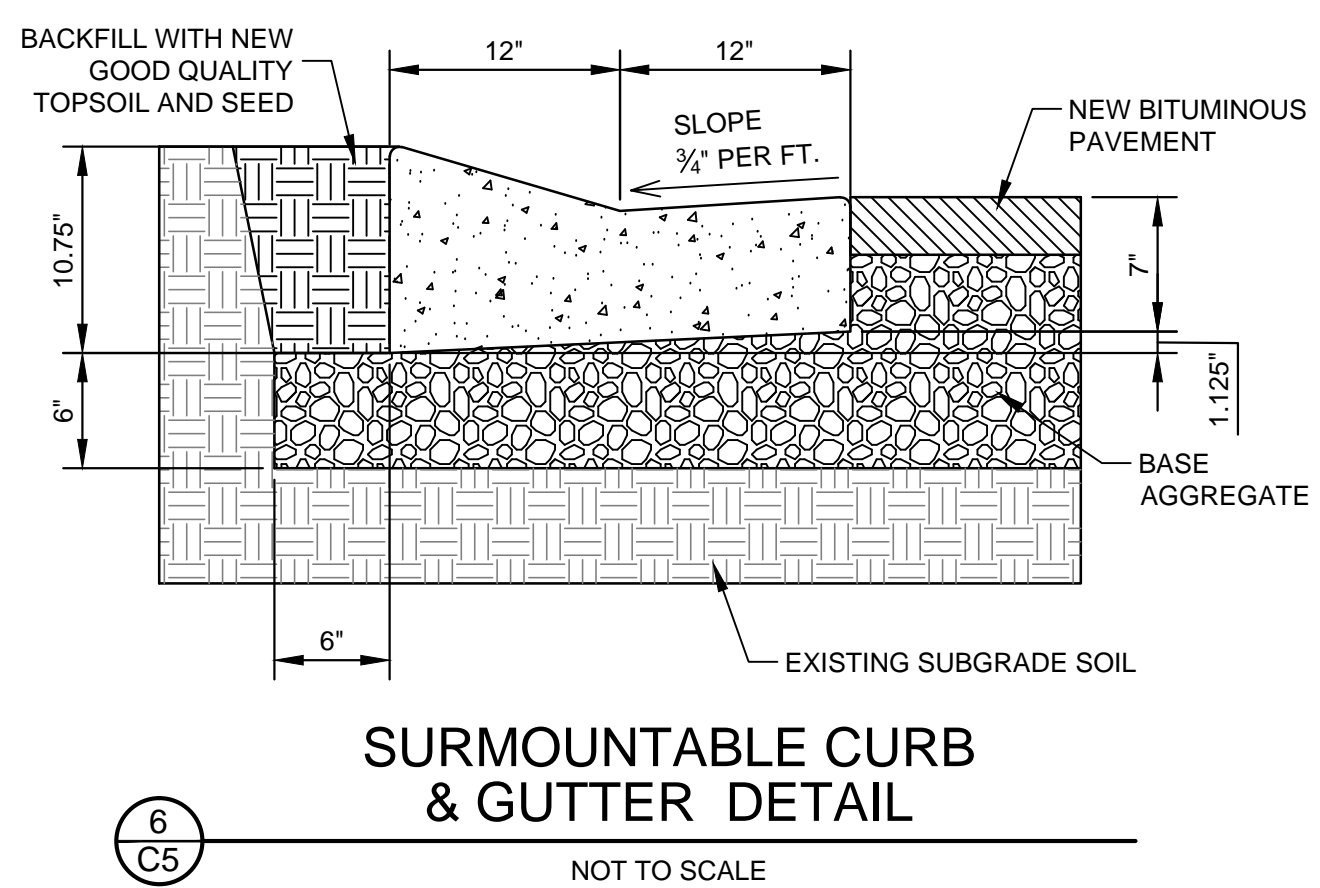
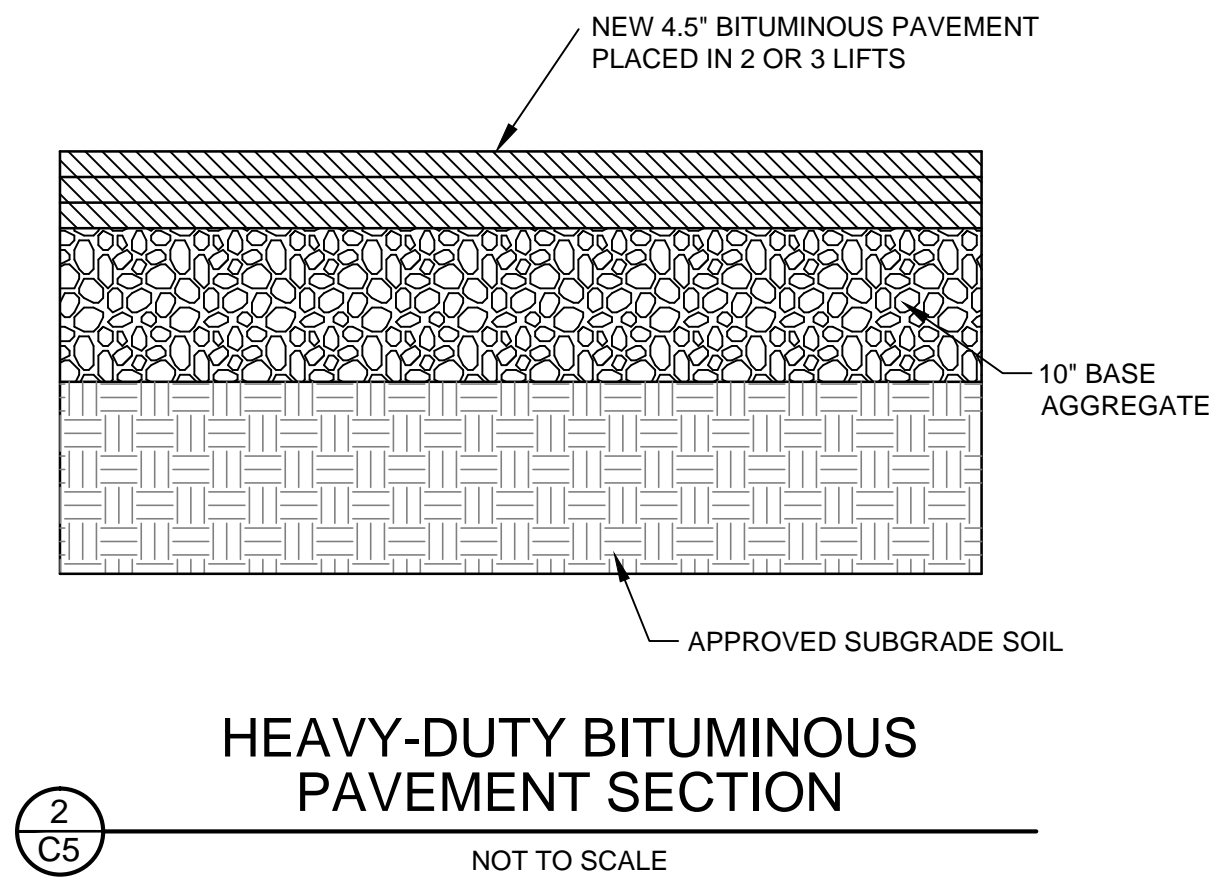
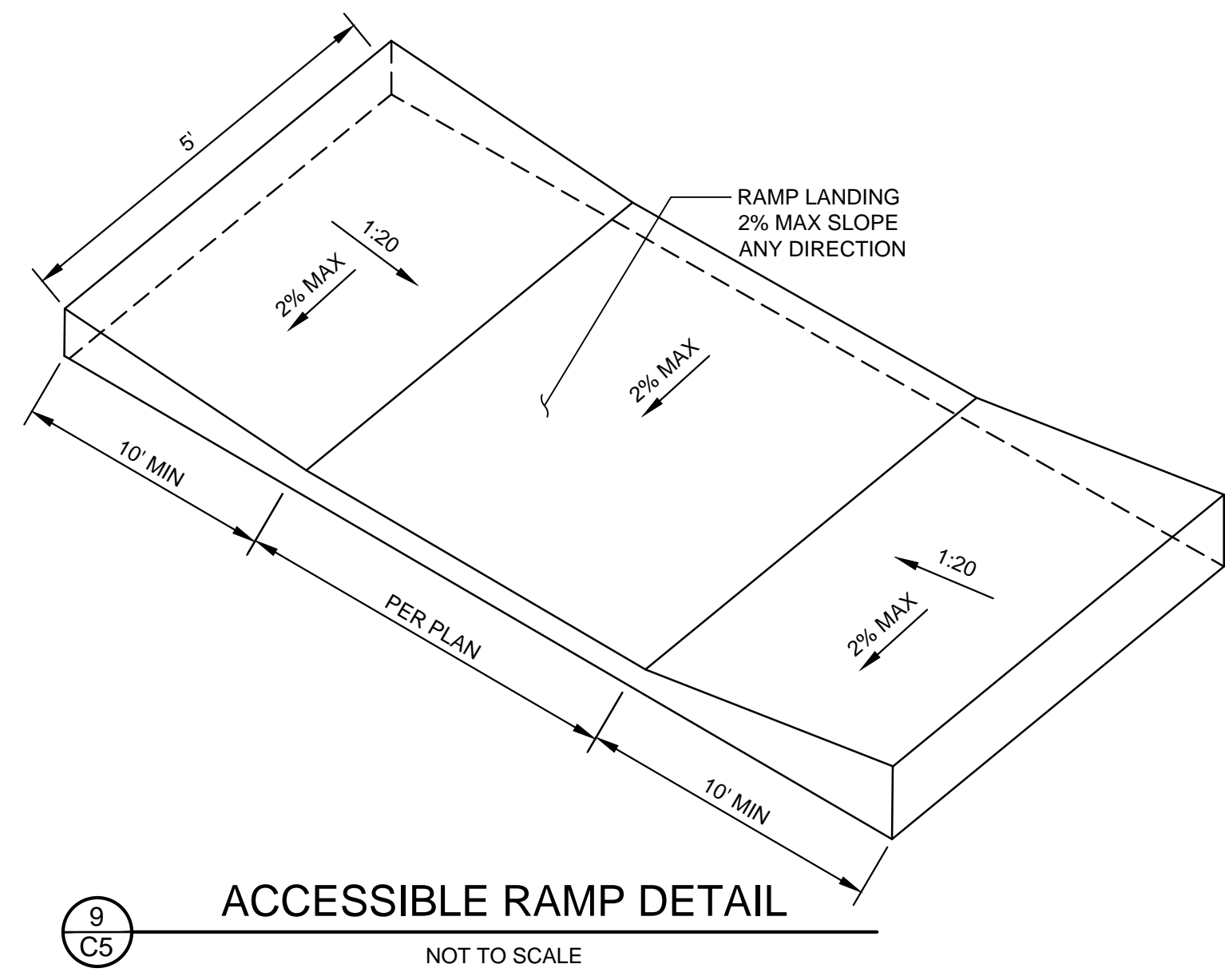
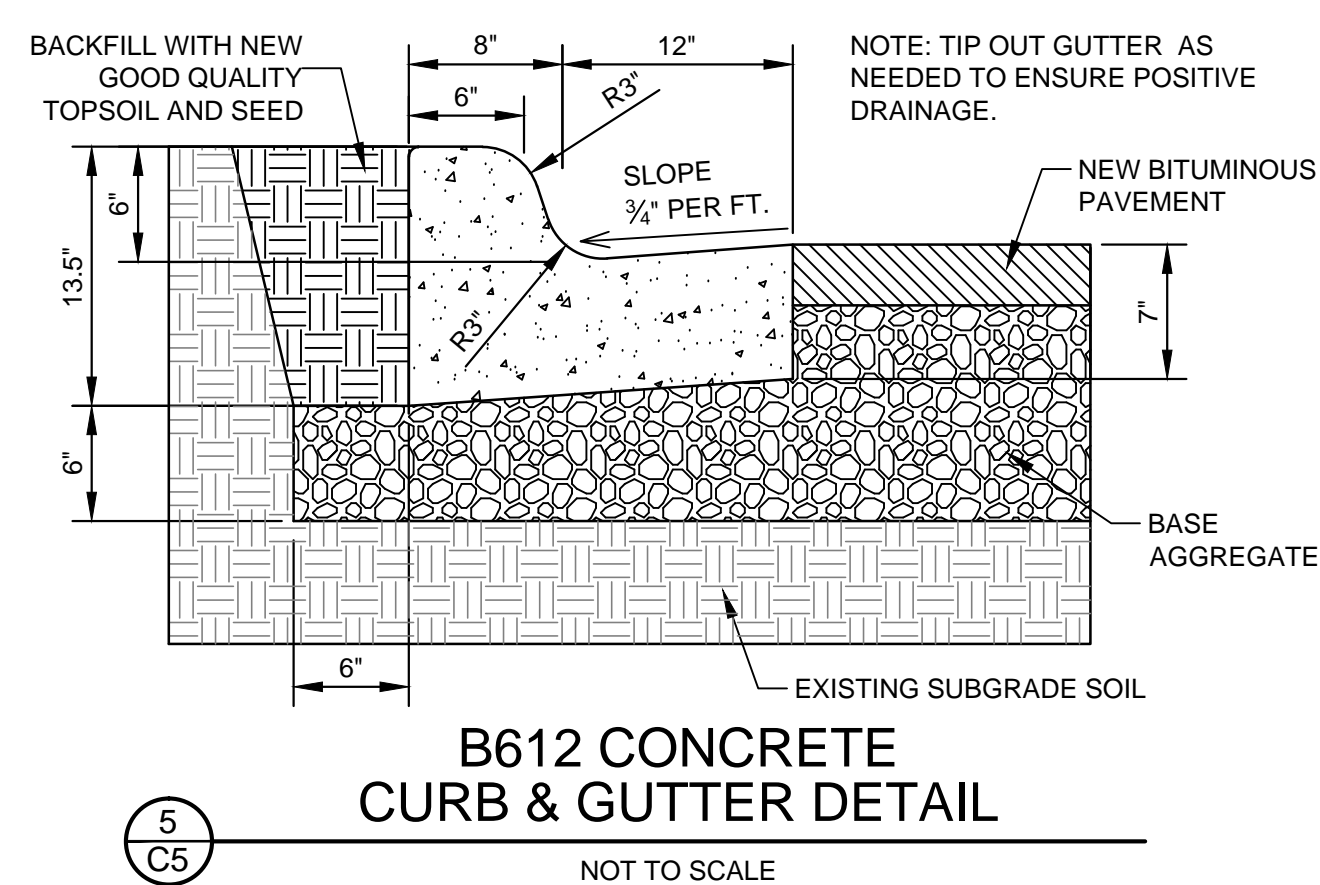
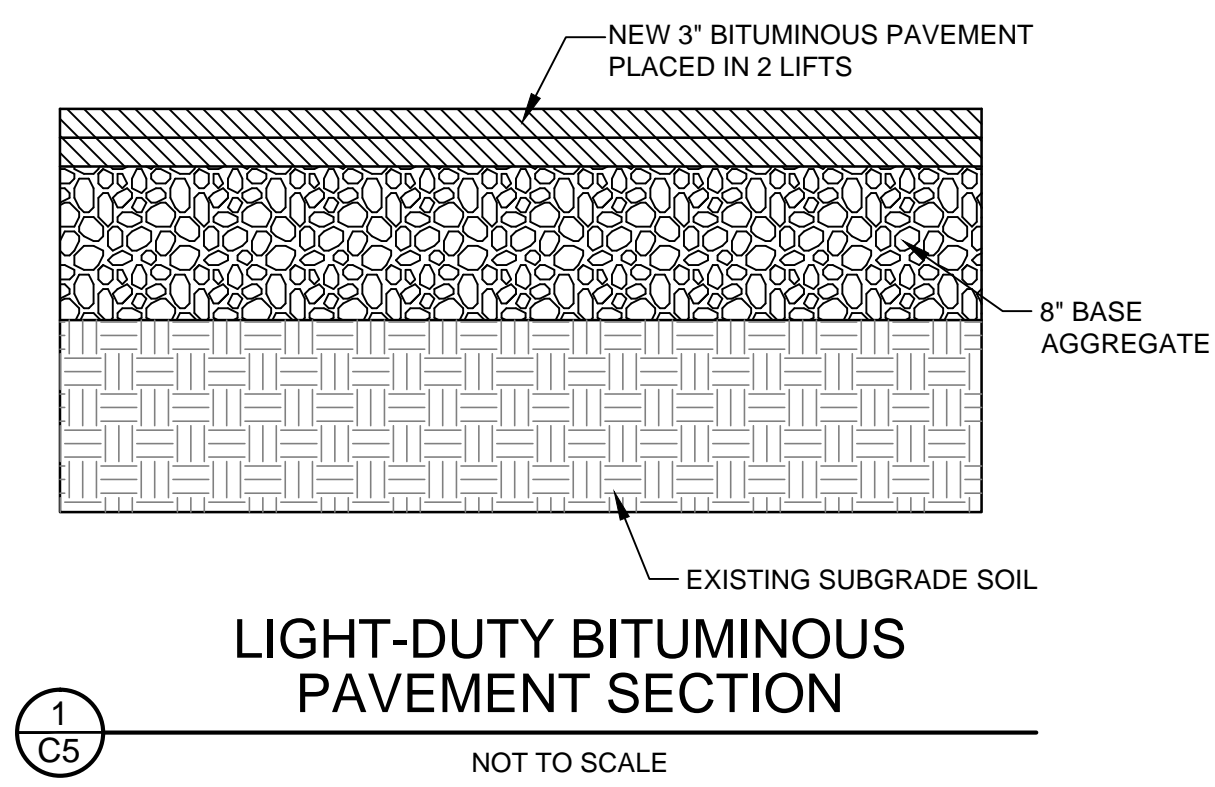
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UTILITY PLAN

C4





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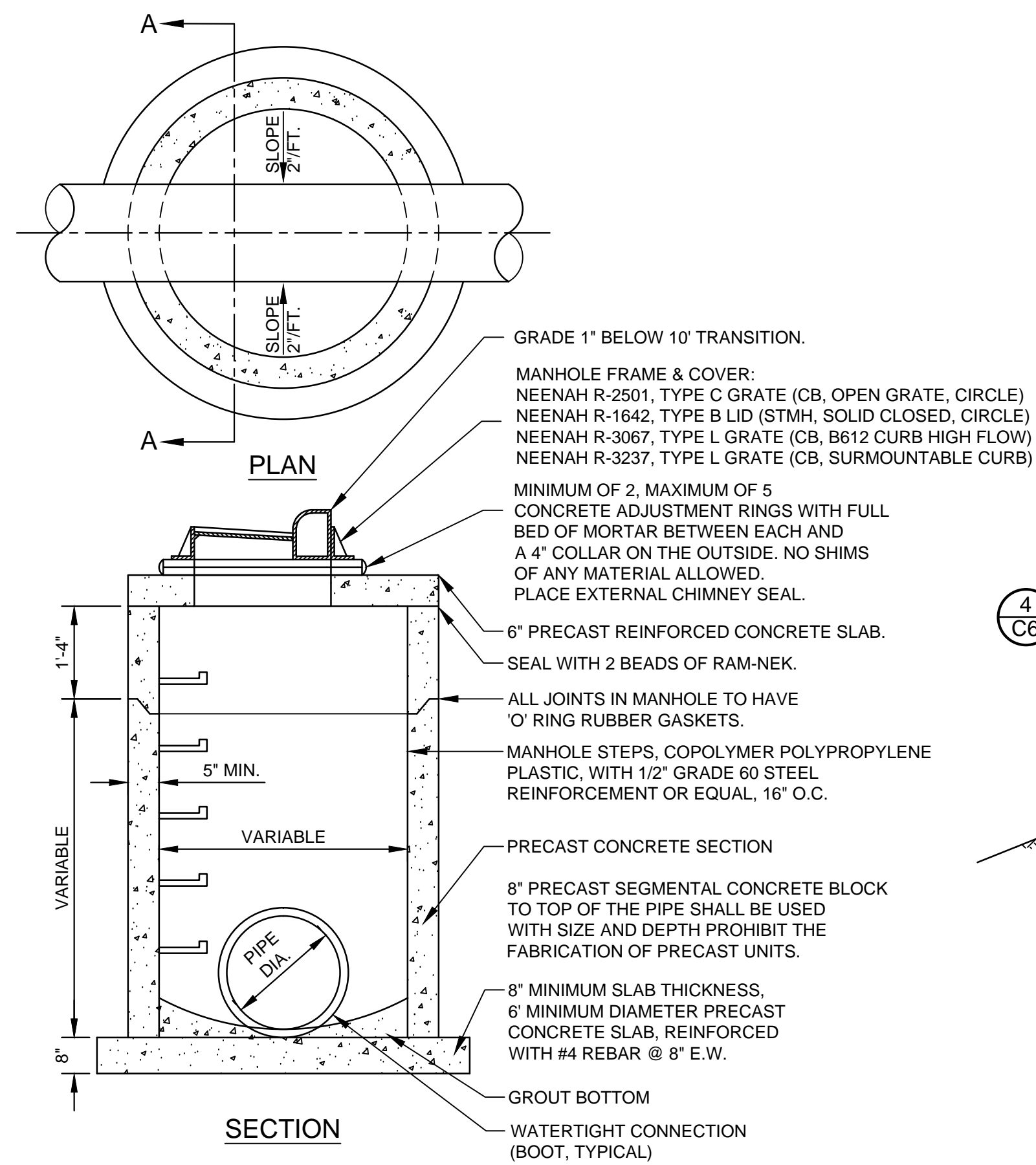
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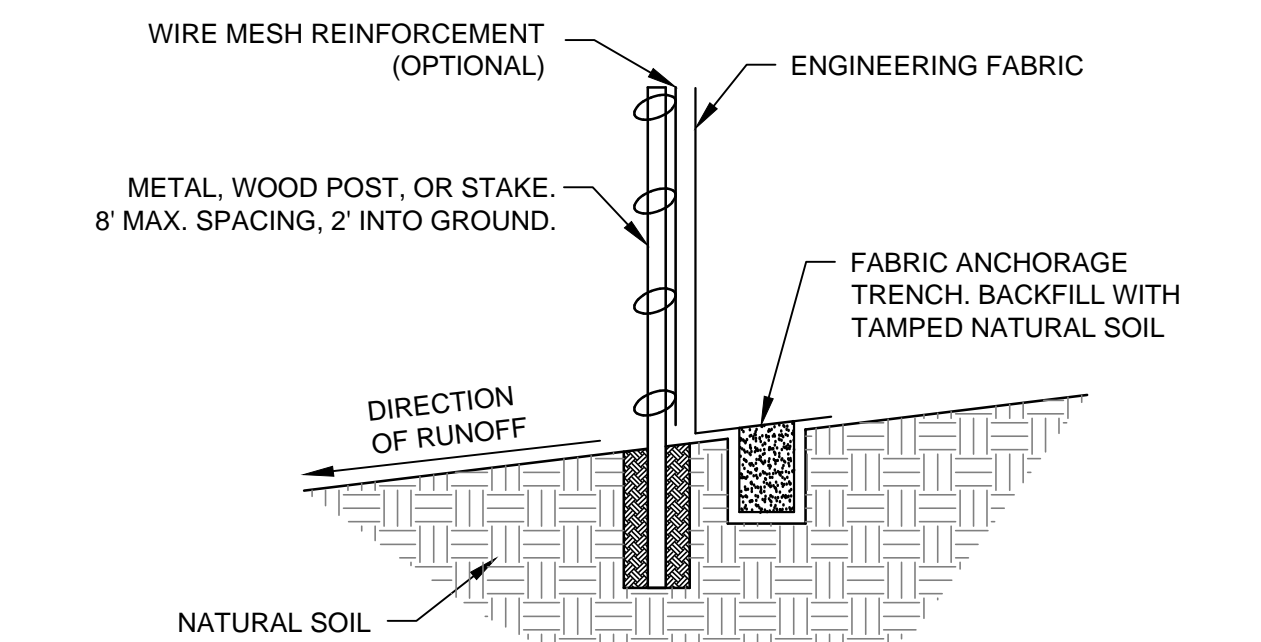
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DETAILS

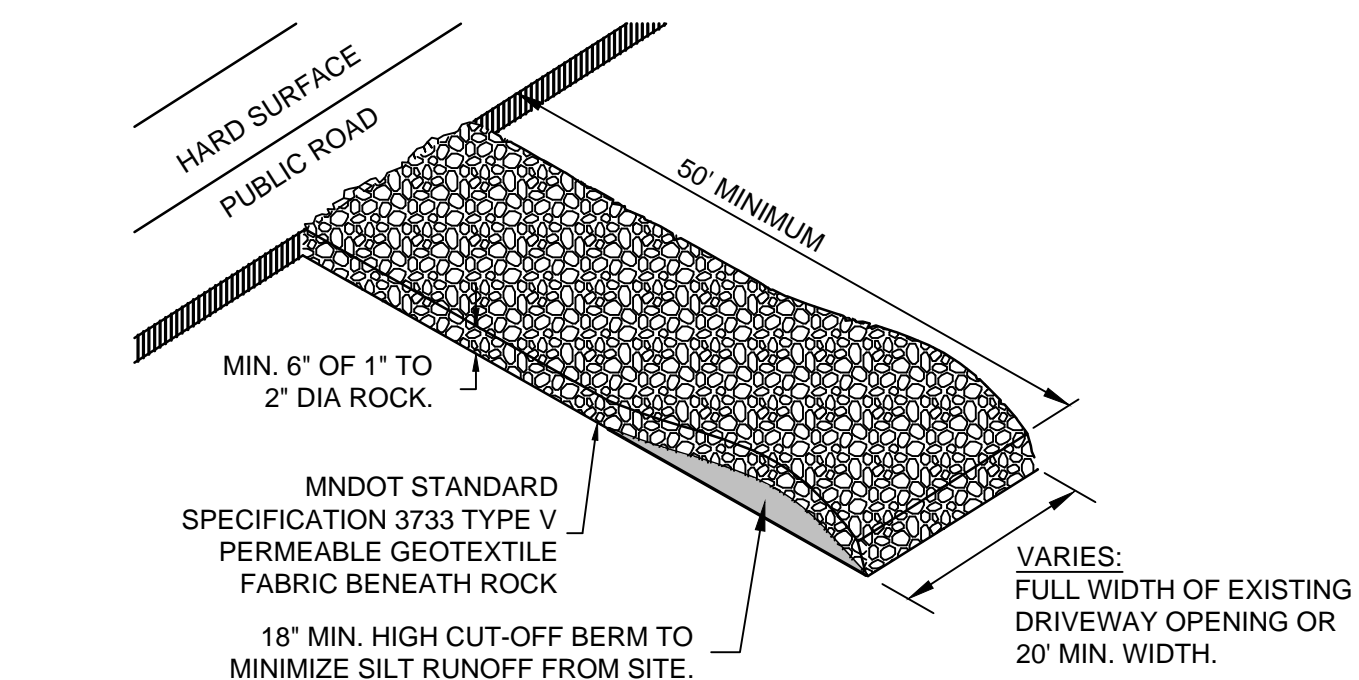
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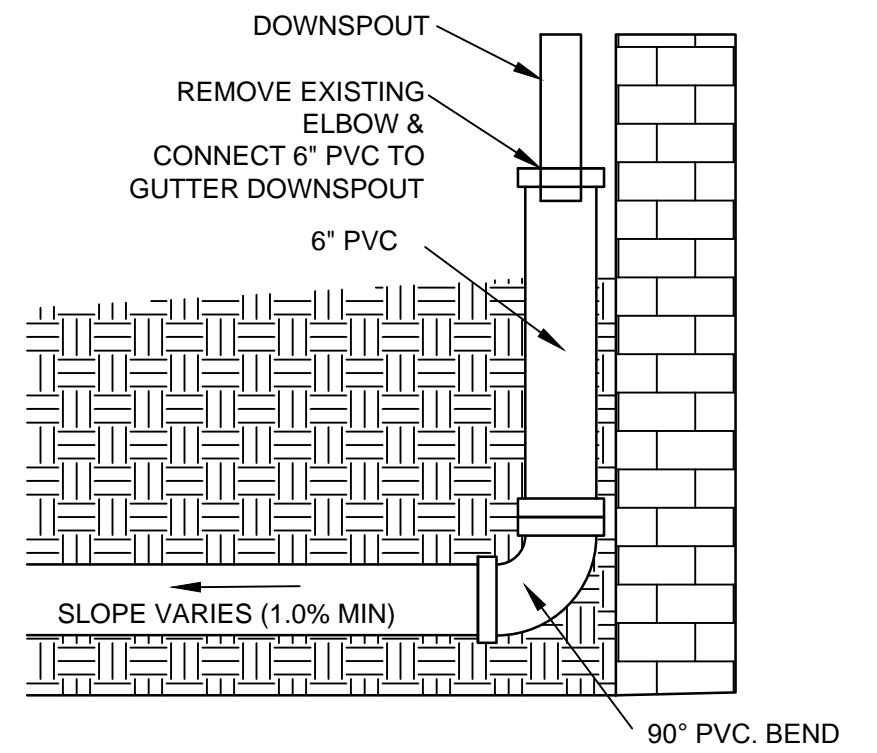
1 CB AND STORM MANHOLE DETAIL
NOT TO SCALE



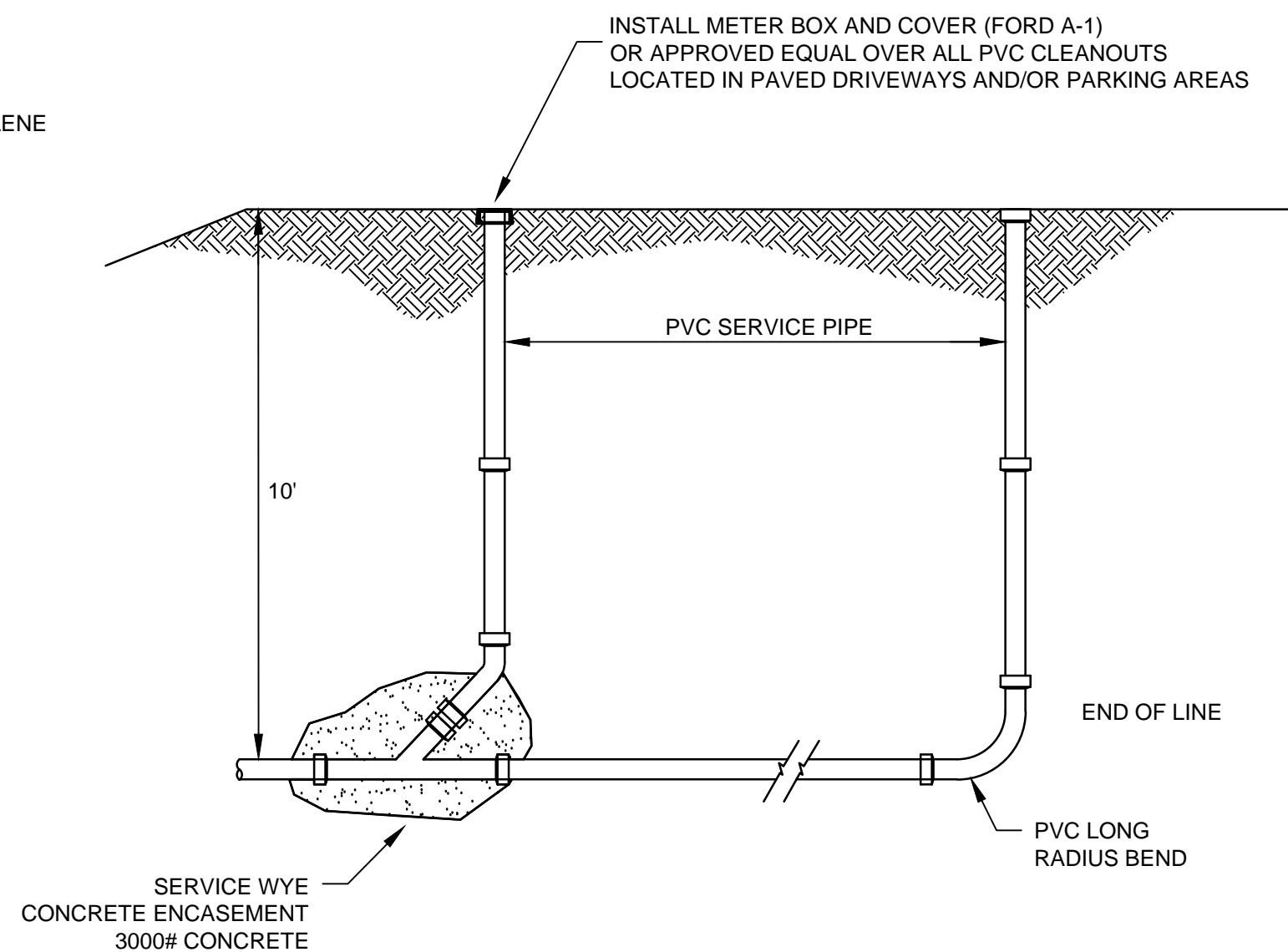
2 SILT FENCE INSTALLATION DETAIL
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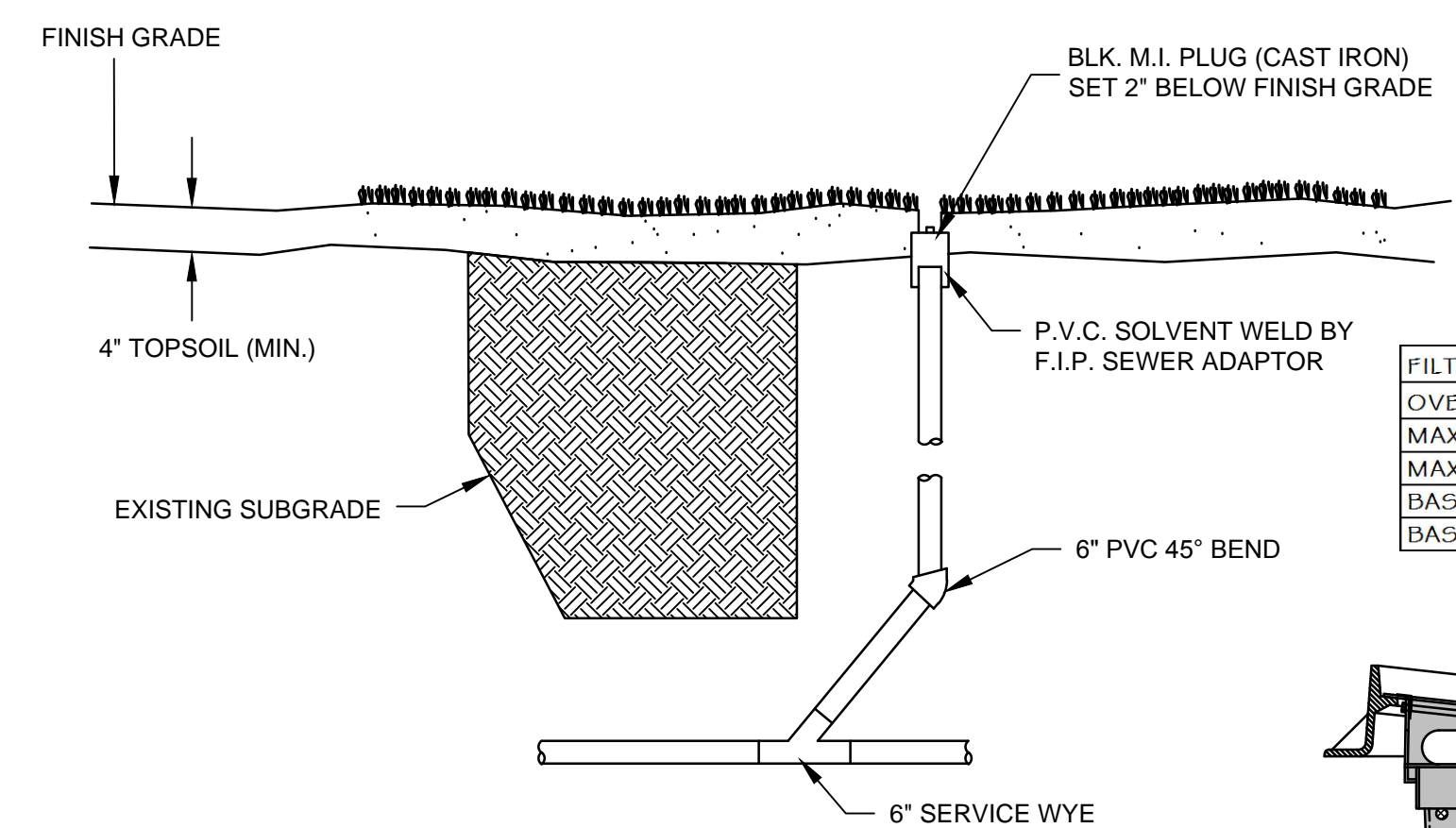
3 ROCK CONSTRUCTION ENTRANCE
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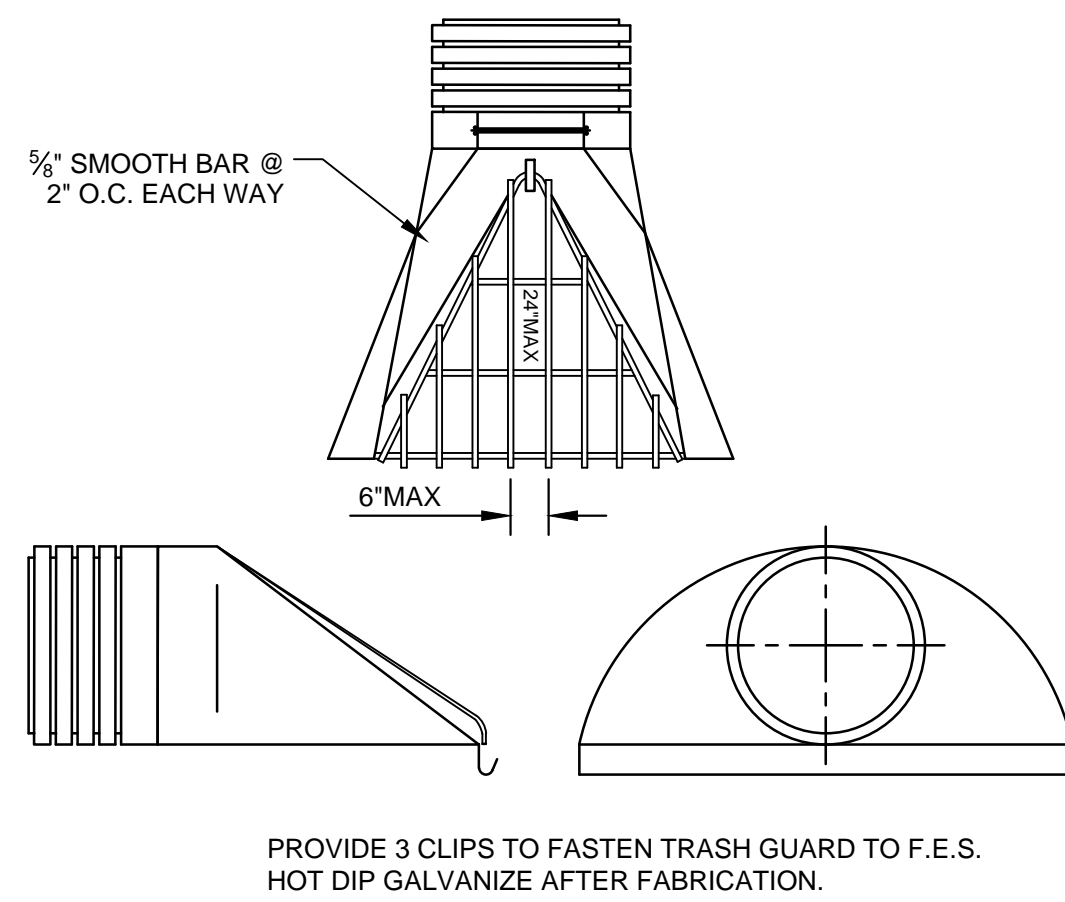
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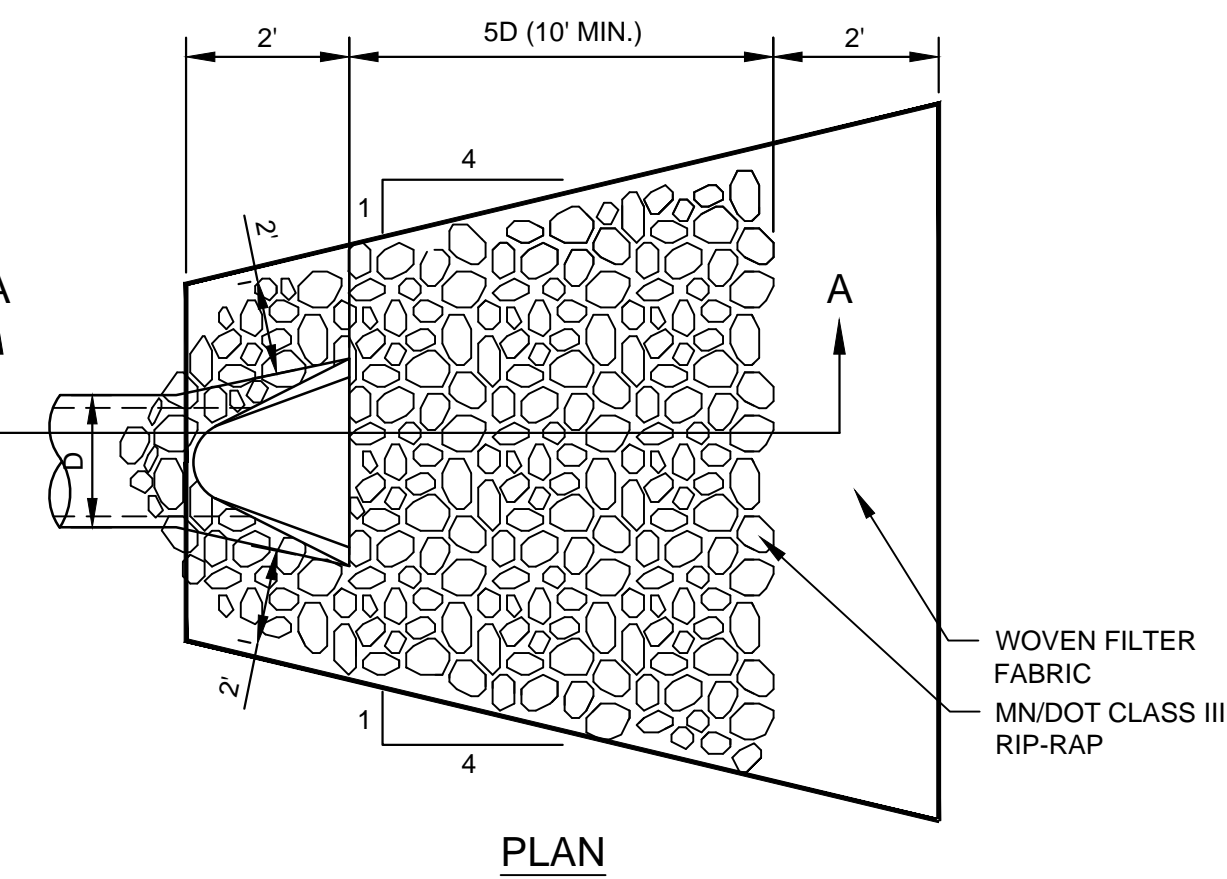
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NOT TO SCALE



6 STORM SEWER CLEANOUT DETAIL
NOT TO SCALE



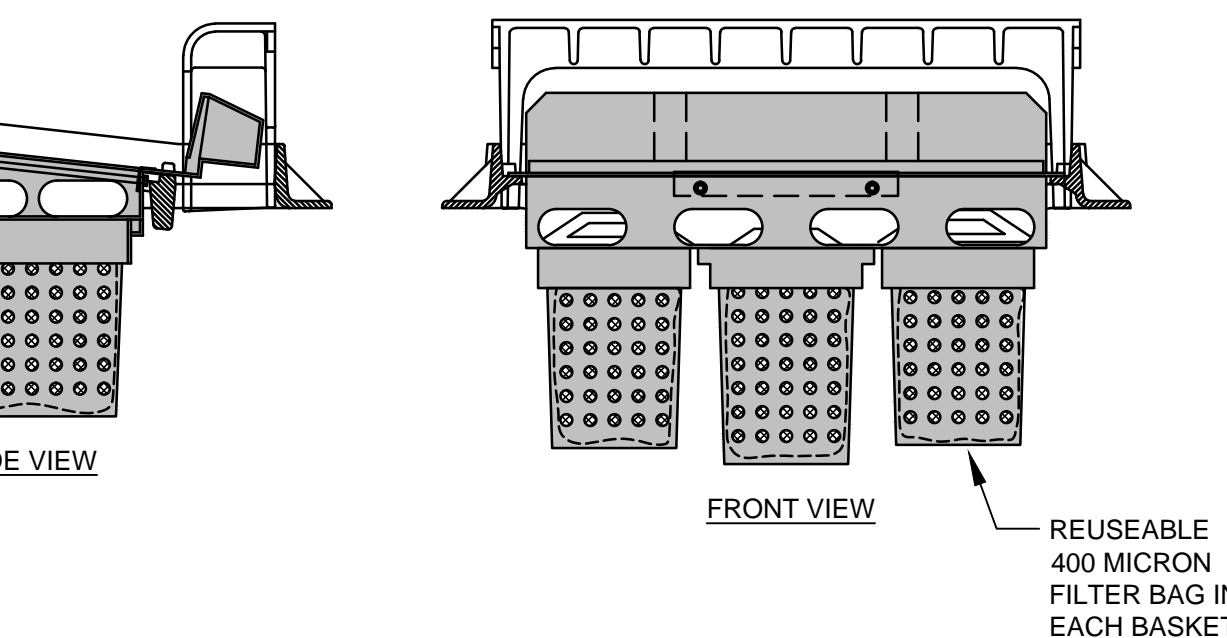
7 FLARED END SECTION DETAIL
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8 RIP-RAP AT OUTLETS
NOT TO SCALE

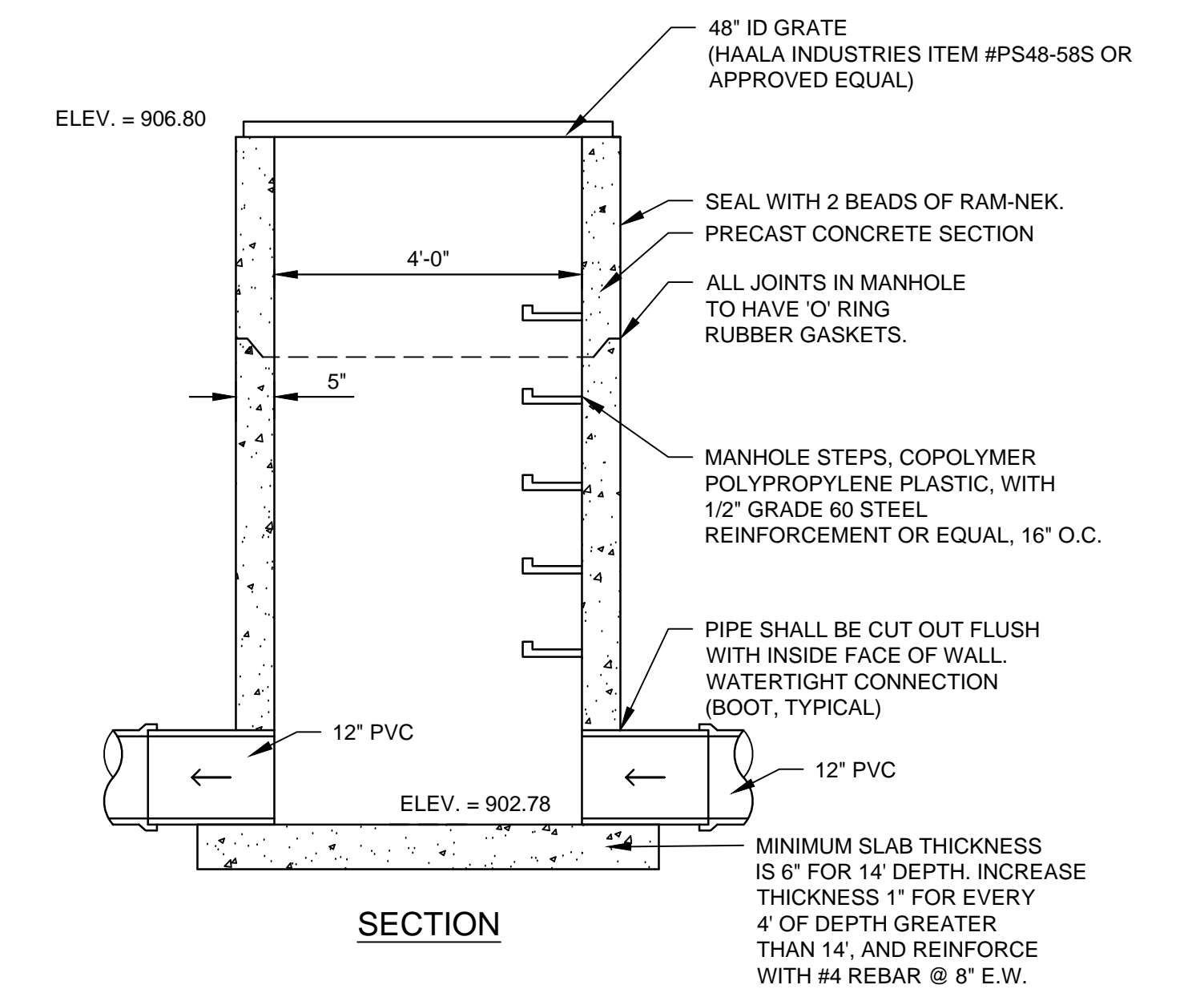
NOTE: FW300 MIRAFI FABRIC OR EQUAL

| | |
|------------------------------------|---------------------|
| FILTER AREA | 6.5 FT ² |
| OVERFLOW AREA | 0.6 FT ² |
| MAXIMUM OVERFLOW RATE (@ 7" HEAD) | 3.00 CFS |
| MAXIMUM OVERFLOW RATE (@ 13" HEAD) | 4.00 CFS |
| BASKET WEIGHT (EMPTY) | 1 LB |
| BASKET WEIGHT (FULL-APPROX.) | 70 LBS |



9 INFRA SAFE INLET PROTECTION DEVICE (OR EQUAL)
NOT TO SCALE

- ### EROSION CONTROL NOTES
- Owner and Contractor shall obtain MPCA-NPDES permit. Contractor shall be responsible for all fees pertaining to this permit. The SWPPP shall be kept onsite at all times.
 - 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 changes shall be recorded in the SWPPP.
 - 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 14 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 14 days after connecting to a surface water and construction in that portion of the ditch has temporarily or permanently ceased.
 - Pipe outlets must be provided with energy dissipation within 24 hours of connection to surface water.
 - All riprap shall be installed with a filter material or soil separation fabric and comply with the Minnesota Department of Transportation Standard Specifications.
 - All storm sewers discharging into wetlands or water bodies shall outlet at or below the normal water level of the respective wetland or water body at an elevation where the downstream slope is 1 percent or flatter. The normal water level shall be the invert elevation of the outlet of the wetland or water body.
 - 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 inspections shall be recorded in the SWPPP.
 - All silt fences must be repaired, replaced, or supplemented when they become nonfunctional or the sediment reaches 1/3 of the height of the fence. These repairs must be made within 24 hours of discovery, or as soon as field conditions allow access. All repairs shall be recorded in the SWPPP.
 - 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 infiltration areas must be inspected to ensure that no sediment from ongoing construction activity is reaching the infiltration area and these areas are protected from compaction due to construction equipment driving across the infiltration 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.
 - All permanent sedimentation basins must be restored to their design condition immediately following stabilization of the site.
 - Contractor shall submit Notice of Termination for MPCA-NPDES permit within 30 days after Final Stabilization.



10 OUTLET CONTROL STRUCTURE MANHOLE DETAIL
NOT TO SCALE

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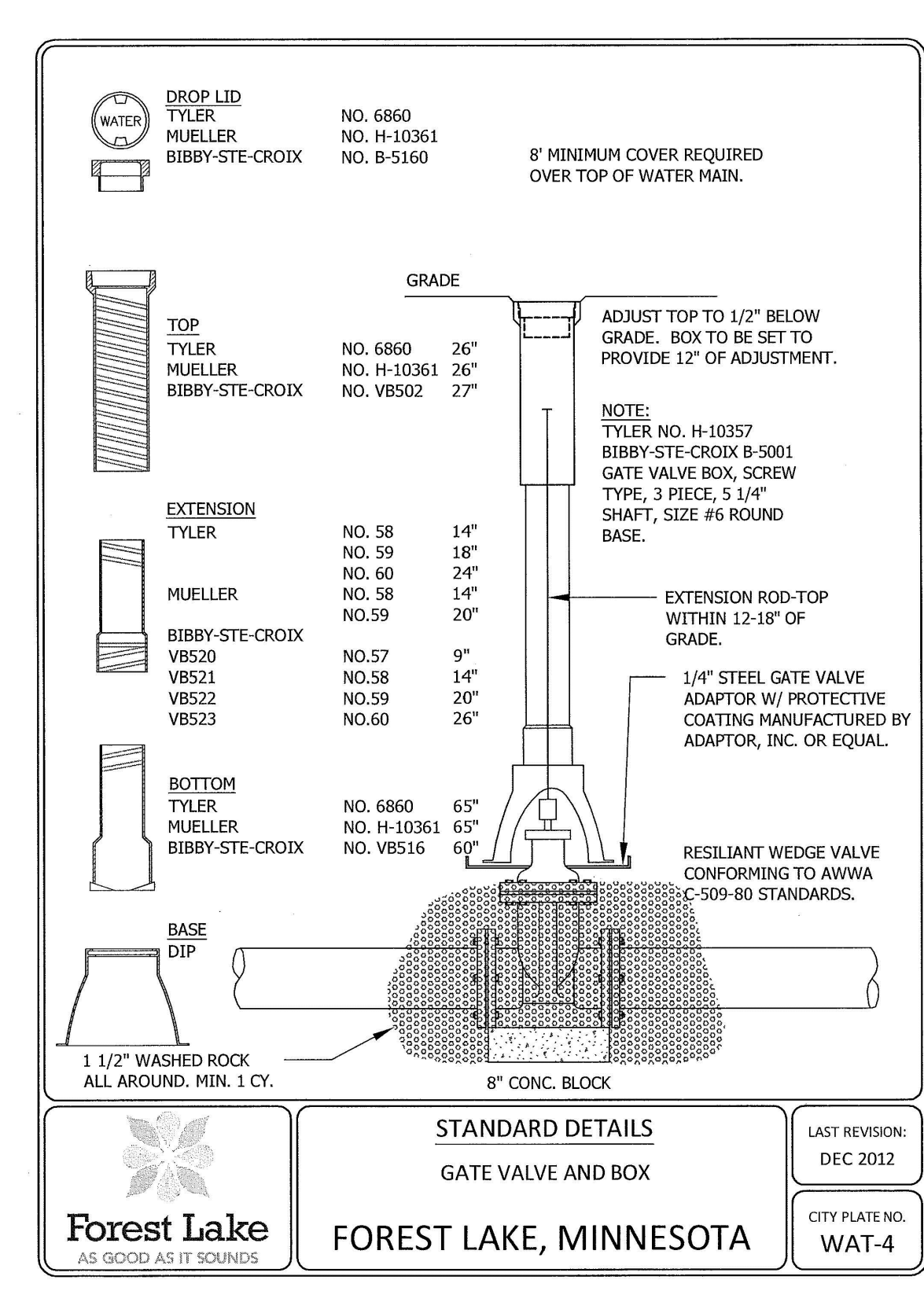
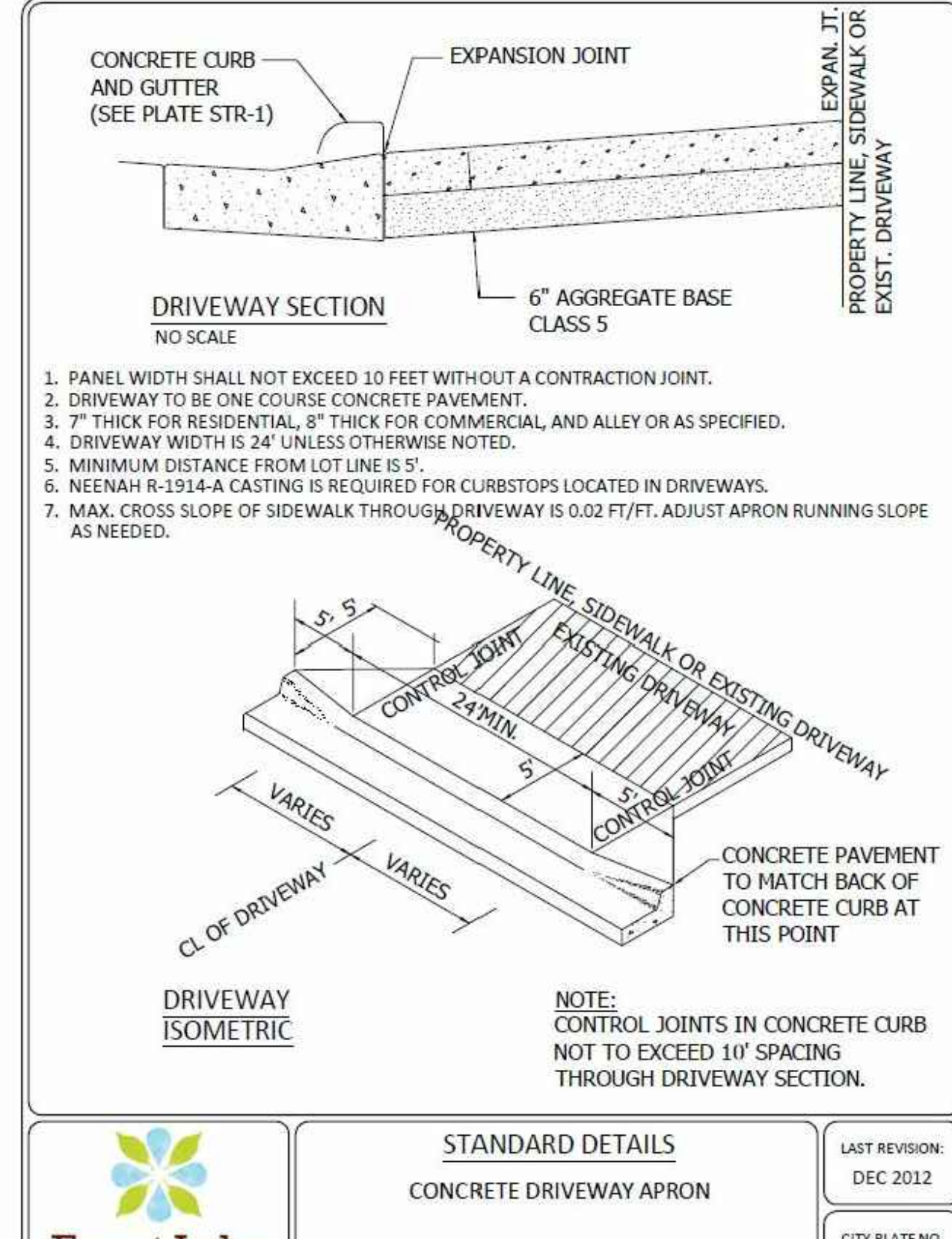
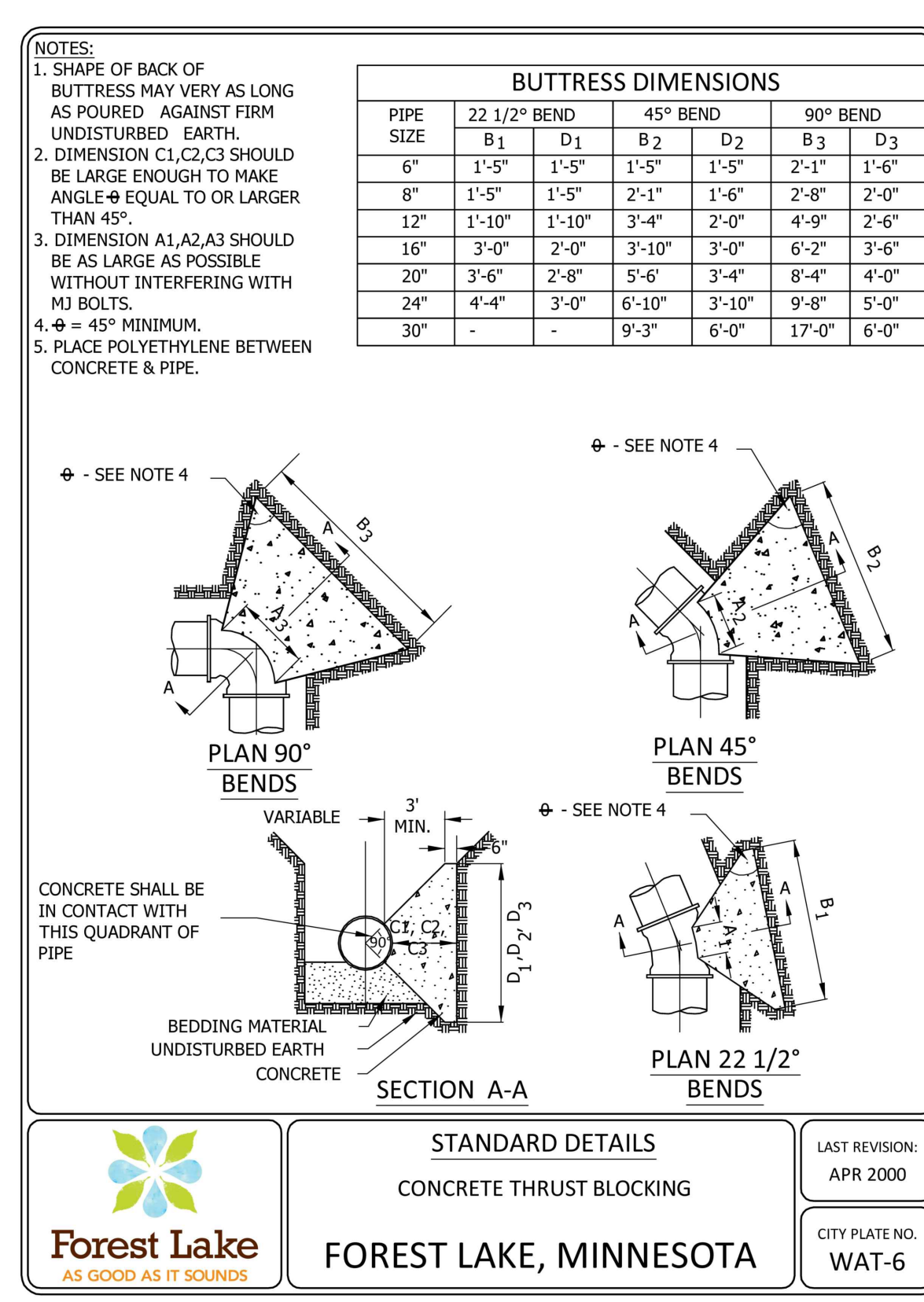
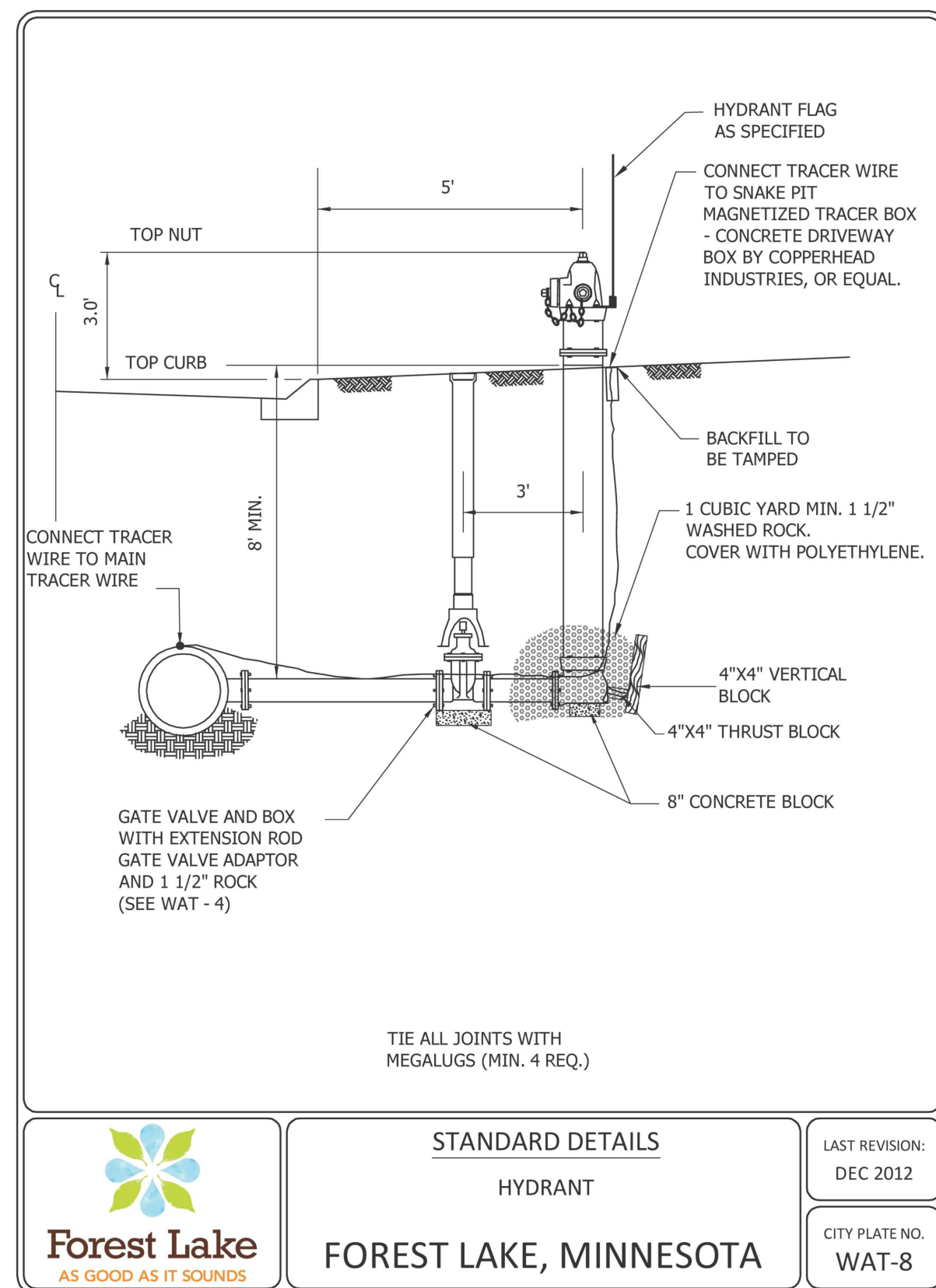
Matt Woodruff
Matt Woodruff, P.E.
Date: 10.10.17 Reg. No.: 41885

| Rev. | Date | Description |
|------|----------|---------------------|
| ▲ | 12.22.17 | City Comments |
| ▲ | 11.02.17 | City Submittal |
| ▲ | 11.17.17 | Watershed Submittal |
| ▲ | 11.30.17 | City Submittal |
| ▲ | 12.12.17 | Watershed Comments |
| ▲ | 12.18.17 | City Comments |

Project #: 12176130
Drawn By: NJN
Checked By: MJW
Issue Date: 10.10.17

Sheet Title:
DETAILS AND NOTES

C6

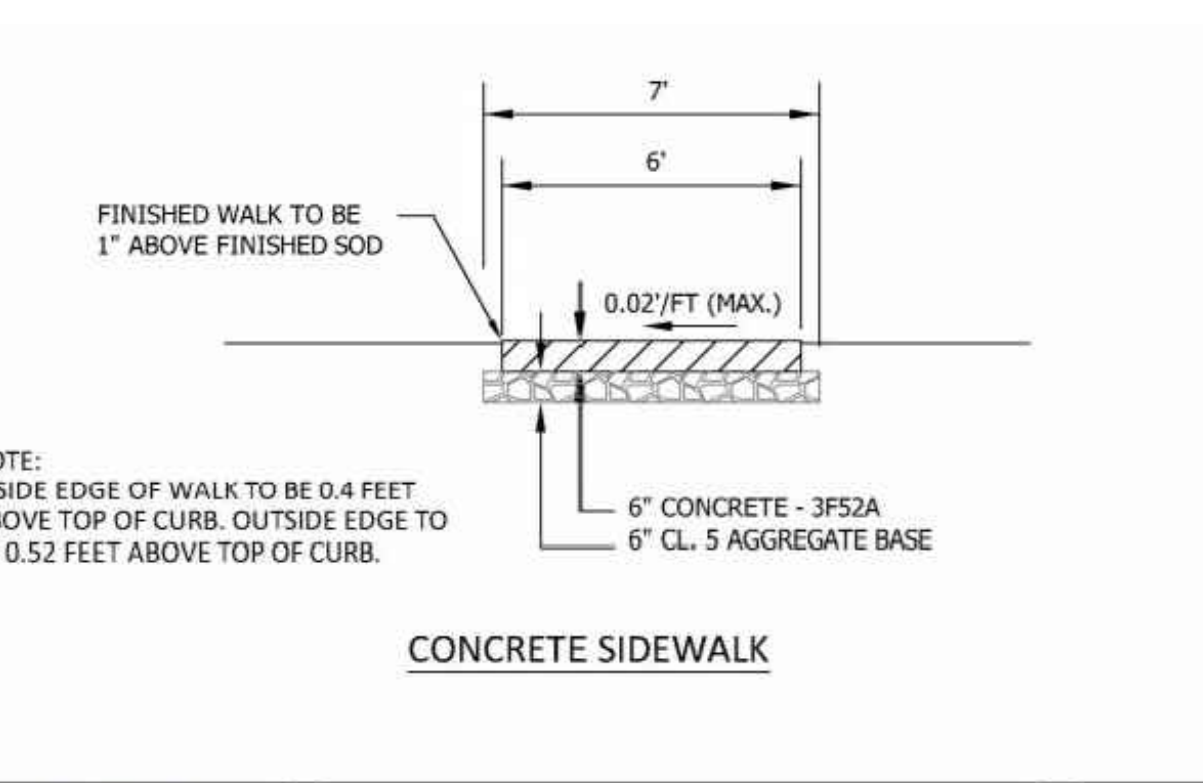


1 C7
HYDRANT STANDARD DETAIL
NOT TO SCALE

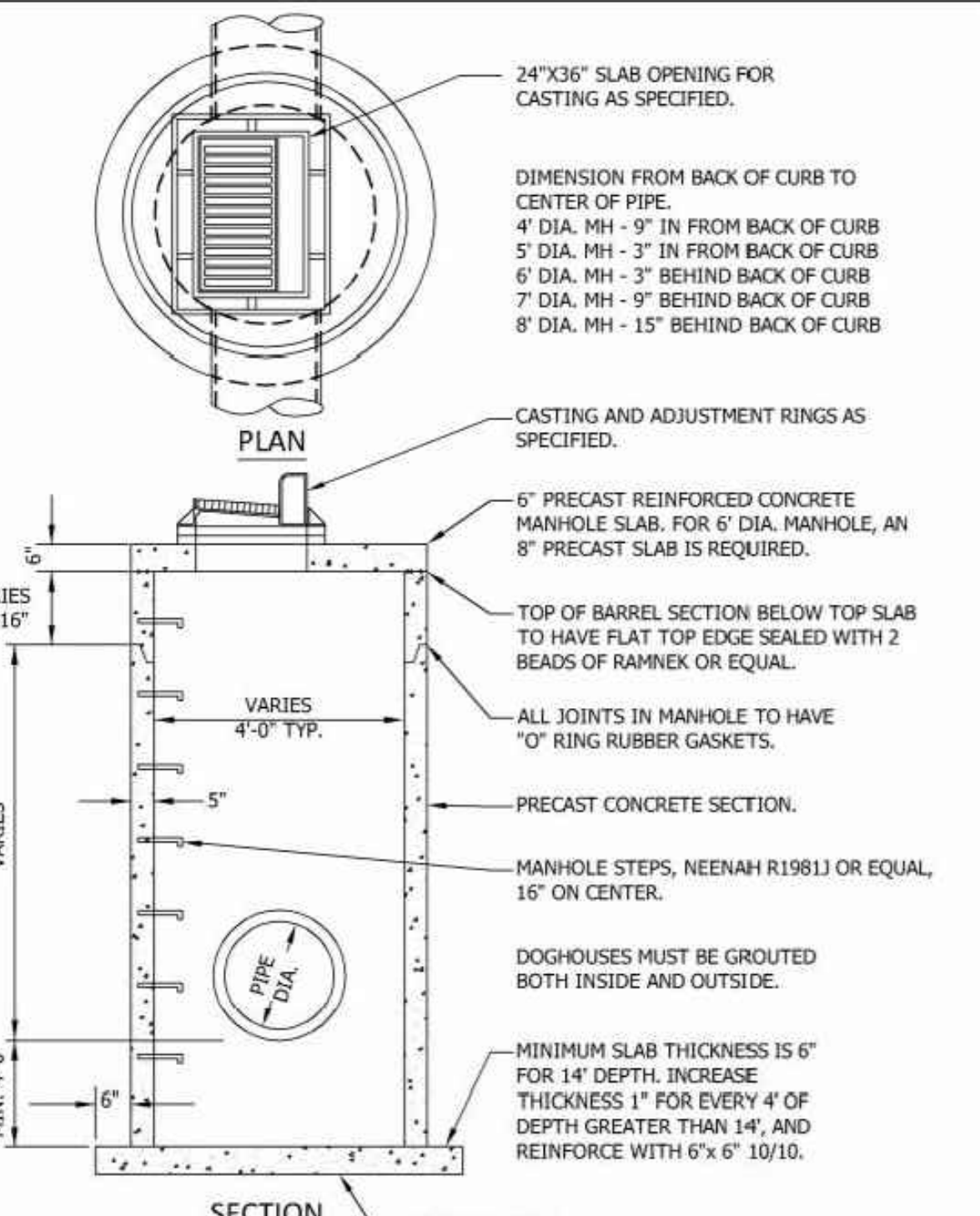
2 C7
CONCRETE THRUST BLOCKING STANDARD DETAIL
NOT TO SCALE

3 C7
APRON DETAIL CONCRETE DRIVEWAY
NOT TO SCALE

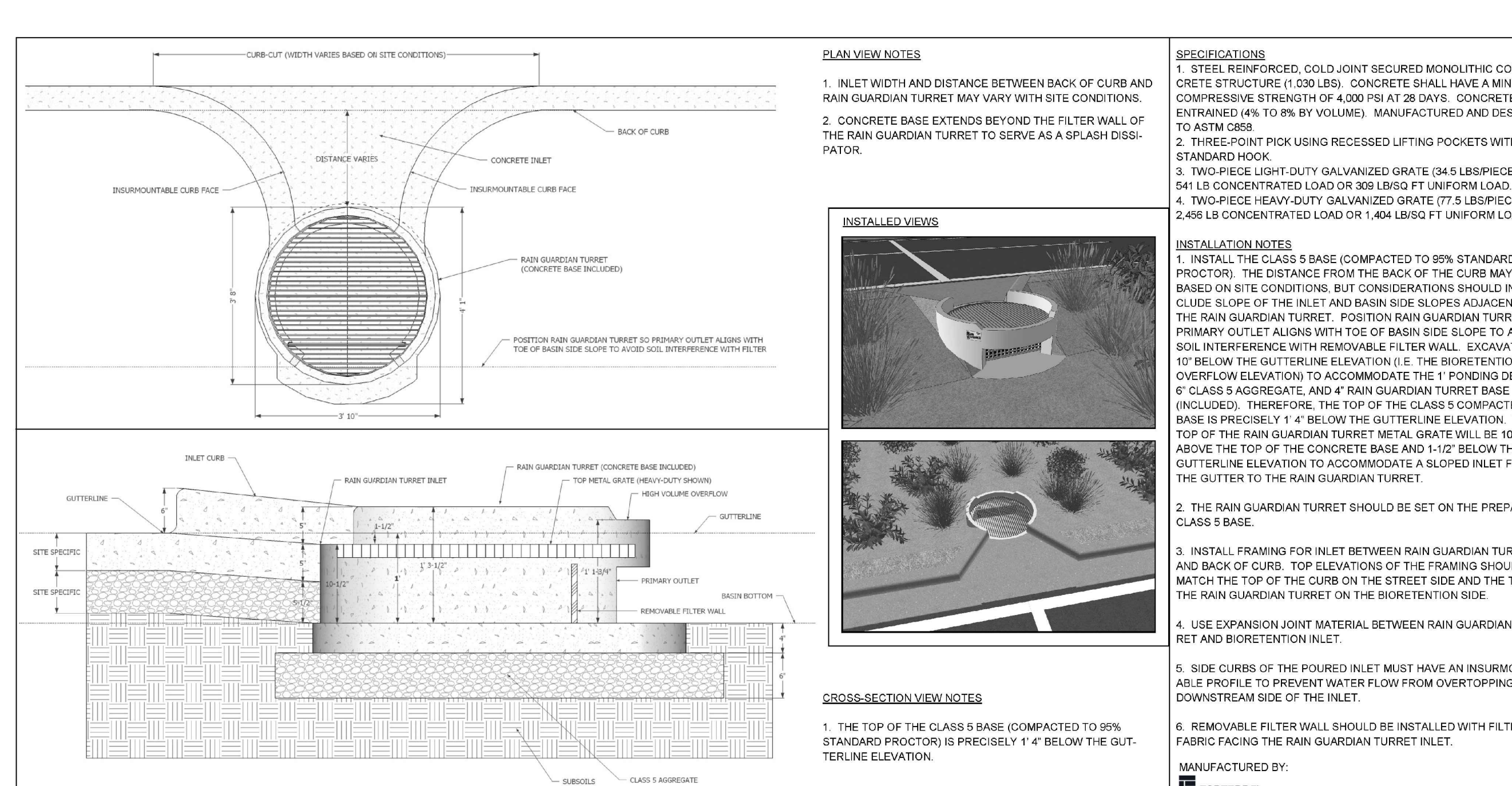
4 C7
GATE VALVE & BOX STANDARD DETAIL
NOT TO SCALE



5 C7
CONCRETE SIDEWALK STANDARD DETAIL
NOT TO SCALE



6 C7
CATCH BASIN MANHOLE WITH SUMP DETAIL
NOT TO SCALE



7 C7
RAIN GUARDIAN DETAIL
NOT TO SCALE

Larson Engineering, Inc.
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FOREST LAKE, MN 55025

I hereby certify that this plan, specifications or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the state of Minnesota.

Matt Woodruff
Matt Woodruff, P.E.
Date: 10.10.17 Reg. No.: 41885

| Rev. | Date | Description |
|------|----------|---------------------|
| 1 | 12.22.17 | City Comments |
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DETAILS

C7