VILLAGE OF Sussex

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VILLAGE OF SUSSEX

DEVELOPMENT REQUIREMENTS

FOR GRADING

SANITARY SEWER, WATER MAIN AND STORM SEWER

STREETS, INCLUDING CURB & GUTTER, SIDEWALK, & RESTORATION

VILLAGE EROSION CONTROL

WARRANTY

DETAILS

PUNCH LIST

RECORD DRAWINGS

September 1999
Revised April 2000
Revised August 2001
Revised February 2007

VILLAGE OF SUSSEX

DEVELOPMENT REQUIREMENTS

FOR

GRADING

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1. REFERENCES STANDARD

To that specific extent permitted in paragraph 3.5 of the General Conditions and where not in conflict with any other provision of the Contract Documents, by reference hereto the State of Wisconsin - Department of Transportation - Standard Specifications for Road and Bridge Construction - 2003 Edition, 2005 Supplement and Standard Specifications for Sewer and Water Construction in Wisconsin, sixth Edition December 22, 2003, Addendum No. 1, December 22, 2004, are hereby made a part of the Contract Documents. Copies of the document may be obtained from the Public Works Industry Improvement Program, 2835 North Mayfair Road, Milwaukee, Wisconsin 53222.

2. SCOPE

Included items in grading requirements may include, but are not limited to, the following:

- Erosion control, silt fence, tracking mat and wetland delineator posts.
- Clearing of the site, grubbing and tree removal and disposal.
- Stripping and stockpiling of topsoil and other specified material.
- Undercutting of specific areas.
- Excavation, filling and grading of the site including all berming, detention pond and restoration.
- Ditch and sediment basin construction including seeding.
- Rough shaping of the roads and right-of-ways.
- Replacement of topsoil on the site.
- Restoration of all disturbed areas including site cleanup.

All erosion control measures such as silt fence, hay bales, tracking mat, etc. shall be in place prior to site disturbance and/or clearing or grading activity. These measures shall be maintained until project completion, and removed and the area restored after project completion.

3. WORK SCHEDULE/NOISE ABATEMENT

The Contractor shall submit a detailed work schedule to the Village Engineer prior to the preconstruction conference.

In order to abate objectionable noise to the extent feasible, motorized construction equipment shall not be operated between the hours of 7:00 p.m. and 7:00 a.m. weekdays without prior written approval of the Village Engineer. Saturday working hours shall be

limited to 8:00 a.m. to 4:00 p.m. unless approved by Village Engineer. There shall be no work on Sundays or holidays. Each item of motorized construction equipment shall be equipped with a muffler constructed according to the equipment manufacturer's specifications or a system of equivalent noise reducing capability. Mufflers and exhaust systems shall be maintained in good operating condition, free from leaks and holes.

4. CLEARING

Prior to the start of earth moving and grading operations, the site shall be cleared of all brush, grass, weeds, stumps, roots, rocks, boulders, rubbish and debris, and all other objectionable and deleterious matter.

Trees shall be removed only after authorization is given by the Village of Sussex.

Topsoil shall be stripped from the site as required to avoid contamination from underlaying soils.

5. EXCAVATING, CUTTING AND FILLING

Do all excavating, cutting and filling required to complete the Work. Excavation and cutting shall include all materials encountered except for rock, as hereinafter provided.

Construct swales, drainage ditches and sediment basins necessary to create the drainage patterns shown on the Drawings.

Construct berms and detention ponds as shown on the plans. Pond berm shall be constructed with clay or material containing a high percentage of clay.

Cover all areas with 4" of topsoil material. Topsoil shall be seeded within 24 hours after placement.

The Contractor shall make no changes in the final grades or the design without the prior approval of the Village.

Except for topsoil and organic materials, excavated materials are to be placed in fill areas but shall be reasonably free of logs, stumps, brush, rubbish and other perishable matter. If the Contractor receives written approval of the Village large stones, rocks and boulders encountered during the work may be disposed of on the site in the fill areas along the rear or side lot lines of the proposed lots but shall not be placed within the proposed street right-of-ways. Such materials shall be buried in a manner to eliminate all voids and shall be buried not less than 12 inches below finished ground grade and located away from all proposed structures. Materials unacceptable for fill shall be disposed of at the expense of the Contractor off the site, and these materials shall not be considered surplus material.

As part of this work, the Contractor shall rough shape and compact the road right-of-way areas. This shall include leaving the right-of-way area within four (4) inches of subgrade. In fill areas, the right-of-way shall be filled to subgrade and compacted prior to any utility construction. A typical right-of-way section is shown on the Plans.

Materials placed in fill areas shall be disposed, spread and leveled in layers to obtain consolidation and minimize settlement. Each layer shall be compacted to a degree that no further appreciable consolidation is observed under the action of the compaction equipment. The compaction shall be achieved using the hauling or leveling equipment, and in addition, with the use of other types of equipment which will minimize future settlement. All areas within the right-of-way shall meet a 95%-Standard Proctor compaction test. Costs for compaction tests shall be the Contractor's responsibility. All embankments and slopes shall be reasonably uniform, smooth and neatly blended into adjacent areas before topsoil application and seeding. All graded areas along the property lines of this site shall be blended into the existing ground grade at a point at least five feet within the site.

The Village may order areas to be undercut due to unsuitable soil conditions. In areas of undercut, the material shall be removed to a stable base and backfilled with suitable compacted backfill material.

6. ROCK EXCAVATION

Should rock be encountered, it shall be removed as necessary to conform to the grading plan. The Contractor shall obtain proper permits for any blasting operations. The rock shall be removed to a depth of not less than 12 inches below the finished ground grade.

7. FINISHED GRADE

All final grading work shall be done in conformance to the proposed finished ground grades as shown on the plan. The tolerance for this work shall be within a plus or minus 2 inches of the proposed finished grade within the right-of-way and within a plus or minus 4 inches of the proposed finished grade outside the right-of-way.

8. TREE, STUMP AND BRUSH REMOVAL

All trees and brush on the site shall be saved if possible and practical to conform with the proposed finished grades. All other trees within the site designated by the Village shall be cut down and removed from the site.

9. DRAINAGE DITCH, SEDIMENT BASIN CONSTRUCTION AND EROSION CONTROL

The Contractor shall construct the drainage ditches that are shown on the plan. These ditches shall have the following cross section.

- A maximum side slope of 4 to 1
- A 2 ft. flat bottom invert
- An average minimum depth of 3 feet
- A straight invert grade between the invert elevations that are shown on the plan unless otherwise specified by the Village due to field conditions.

After these ditches are constructed and approved by the Village, the ditches, from bank to bank, shall be seeded, fertilized, and mulched.

The Contractor shall construct sediment basins and traps as shown on the plans. These basins and traps shall be continually maintained by the Contractor so that all sediment material is entrapped in these basins.

The Contractor shall take all measures necessary to minimize erosion, water pollution and siltation caused by construction of this project. Erosion control measures shall be in accordance with Section 107.20 of the "State Specifications" as well as Section 17.1100 of the Village of Sussex Ordinance, the CPS: Wisconsin Department of Natural Resources Conservation Practice Standards (technical standards) available online at: http://dnr.wi.gov/org/water/wm/nps/stormwater/techstds.htm. and shall include, but not be limited to: prompt removal of excavated material, proper storage of backfill and bedding materials, construction of erosion control measures such as "inlet protection" on all inlets, catch basins and open grated structures, temporary silt traps, silt fences, prompt cleanup of material tracked onto adjacent streets and timely restoration of damaged surface areas. In order to eliminate sediment material from being deposited outside of this site and onto abutting private and public properties, the Contractor shall install and maintain siltation fences, silt screens or geotextile fabric fences around the grading limits of this site. Any erosion control measure necessary to protect any river, stream, lakes, drainage area, retention or detention pond or other waterway shall be installed by the Contractor whether the erosion control measure is shown on the plan or not.

Contractor shall continually monitor and maintain erosion control devices and measures. Contractor shall modify, fortify or rectify any erosion control measures which proves inadequate.

A. Silt Fence

1. The Contractor shall place silt fence at the locations shown on the Plans and all other places to prevent sediment material from being deposited outside the site.

B. Erosion Mat

1. The Contractor shall place erosion mat where shown on the plans.

    a. Erosion mat material shall be either jute fabric or wood fiber blanket.

C. Sodding

1. The Contractor shall place sod over all damaged grass, lawn and terrace areas as shown on the Plans.

2. Sodding shall comply with Section 631 of the "State Specifications" as amended below:

   a. Materials
      1) Sod shall consist of permanent grasses, indigenous to the general locality where it is to be used and practically free from weeds or undesirable grasses.
      2) The Contractor shall submit a certificate to the Village before installation, detailing the sod grass composition and place of origin.
      3) Sod shall be cut in uniform strips approximately 18" x 72", be 3/4" thick or more and have grass 2" tall.
   b. Areas to be sodded shall be fertilized in accordance with Subsection 10 of these Special Provisions.

   c. All sodded and seeded areas shall be kept thoroughly moist by watering, when rainfall is deficient. Watering shall continue until grass is fully matured.

D. Temporary Erosion Barriers

1. The Contractor shall construct temporary earthen dikes to prevent surface runoff from flowing over areas as shown on the Plans. The earthen dikes shall be removed after slopes and ditches have been stabilized and turf developed to the extent that future erosion is unlikely. The dike area shall be reshaped and restored by seeding in accordance with these Specifications.

E. Maintenance, Removal and Restoration

The Contractor is responsible for maintenance of the erosion control measures throughout the life of the project. This not only includes the grading period but also during the underground utility installation and paving and other above ground right-of-way improvements. The Contractor shall immediately after each rain and at other times as appropriate clean the sediment from the erosion control measures. The Contractor shall clean the temporary sedimentation pond should it collect excessive sediment. It is the intent of these erosion control measures to prevent siltation and sedimentation from impacting adjacent properties. Any sedimentation and siltation occurring from this site to adjacent areas shall be cleaned up immediately. Erosion control measures shall be replaced as needed. All new hay bales shall be installed in early spring should the project last over the winter months. Upon the completion of the project and upon the direction of the Village the erosion control measures shall remain in place until vegetation has returned and stabilized. When the construction site has actively growing vegetation and there is no indication of erosion, Village Engineer will determine when

silt fence and hay bales shall be removed from site and properly disposed of. The Contractor shall remove and restore all areas of erosion control facilities.

10. TOPSOIL REPLACEMENT AND RESEEDING

The Contractor shall provide 4 inches of topsoil over the site except roadways and/or shoulder areas. The topsoil shall be from the stockpiled material and shall be reasonably free of stones, sticks, roots and other objectionable matter and debris. After the topsoil has been spread, the area shall be seeded with Seed Mixture No. 10 in Section 630 of the "State Specifications" except the white clover shall be eliminated and the respective percentages of the other seed material increased in the same proportion as the original mix.

The Contractor shall apply a fertilizer (10-10-10) over the above seeded area at a rate of 10 pounds per 1000 square feet. This area shall be maintained by the Contractor. Straw mulch shall be placed in accordance with Method A as described in Section 627 of the "State Specifications", except that the mulch shall be placed within one (1) day after the seeding has been completed. All sloped mulched areas shall be stabilized with erosion mats per Section 628.2 of the "State Specification". The contractor shall immediately repair by reseeding or resodding, damage resulting from erosion, gullies, washouts or other causes.

11. RESTORATION

The Contractor shall preserve all existing section monuments and property irons or stakes. If any of these markers must be disturbed, the Contractor shall notify the Village at least four days in advance so that ties can be taken to re-establish said marker.

Existing drain tile that are cut or damaged due to the construction, shall be reconnected by the Contractor to maintain drainage, if the drain tile is presently operational or functioning (or if the drain tile is still needed to drain an area outside of the site). The Contractor shall abandon and plug all drain tile that, previous to the project, drained areas within the site.

All objects on private and public properties damaged by the Contractor or his assigns shall be replaced or restored in kind by the Contractor to a condition that existed prior to the construction of this project unless otherwise specified by the respective property owner in writing.

The Contractor shall be responsible for and shall take all necessary precautions to protect and preserve any and all existing sewers, water mains or other subsurface pipes, conduits and other underground structures or parts thereof which may be affected by his operations and which, in the opinion of the Village, may properly be continued in use without any change. The Contractor shall, at his own cost and expense, satisfactorily repair any and all damage to any such structure which may result from any of his operations or negligence during the period the contract is in force.

Upon completion of this work, the Contractor shall remove all surplus materials, trash and debris from the site that resulted from this construction.

VILLAGE OF SUSSEX

DEVELOPMENT REQUIREMENTS

FOR

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101. GENERAL

A. Specifications

1. The "Standard Specifications for Sewer and Water Construction in Wisconsin", Sixth Edition, December 22, 2003, Addendum No. 1, December 22, 2004, will govern all utility work performed on this project and hereinafter will be referred to as the "Standard Specifications". Reference to "State Specifications" shall be the "Standard Specifications for Road and Bridge Construction of State of Wisconsin, Department of Transportation", 1989 Edition.

B. Alternate Materials

1. If the Contractor wishes to substitute an alternate material as an "equal" to the material specified, he shall first submit a detailed description of such to the Village and Owner for its review and approval/disapproval. The Contractor shall not install any alternate materials prior to receiving approval for their use. Only those materials listed in these Special Provisions or approved as alternates may be used on this project. See Section 1.5.9 of the Standard Specifications for additional requirements.

C. Work Schedule/Noise Abatement

1. The Contractor shall submit a detailed work schedule to the Village Engineer prior to the preconstruction conference.

2. In order to abate objectionable noise to the extent feasible, motorized construction equipment shall not be operated between the hours of 7:00 p.m. and 7:00 a.m. weekdays without prior written approval of the Village. Saturday working hours shall be limited to 8:00 a.m. to 4:00 p.m. There shall be no work on Sundays or holidays. Each item of motorized construction equipment shall be equipped with a muffler constructed according to the equipment manufacturer's specifications or a system of equivalent noise reducing capability. Mufflers and exhaust systems shall be maintained in good operating condition, free from leaks and holes.

D. Preconstruction Conference

1. Village will schedule and conduct a preconstruction conference at a time and location selected by the Village. At this time changes to Requirements will be discussed.

2. The conference shall be attended by authorized representatives of the Contractor and Village and may also include those others who Contractor may desire to invite or Village may request.

E. Handling Pipe and Accessories

1. Proper equipment, tools and facilities satisfactory to the Village shall be provided and used by the Contractor for the safe and convenient prosecution of the work. Pipe, fittings, valves and other accessories shall at all times be handled with care to avoid damage. In loading and unloading they shall be lifted by hoist or derrick or rolled on skidways in such manner as to avoid shock. Pipe unloaded by skidding shall be protected from bumping contact with other pipe or the ground. Under no circumstances shall pipe be dropped. Contractor shall furnish Village representative with pipe test reports and certification papers when pipe is delivered.

2. The Contractor shall carefully examine all pipes and other materials immediately before placing in the trench. If any such pipes or materials are found to be defective they shall be rejected and removed from the work site.

F. Village's Field Office

1. The Contractor shall furnish, equip and maintain a field office for the inspector's use in accord with Section 2.1.7 of the "Standard Specifications". A nonpay telephone shall be provided with the field office.

2. Sanitary provisions. The Contractor shall provide and maintain properly sheltered sanitary conveniences for his employees, and their use must be strictly enforced.

G. Borrow Excavation

1. Borrow excavation shall comply with Section 208 of the "State Specifications". Fill areas shall be constructed in accordance with Section 207 of the "State Specifications" prior to any Village utility construction. Fill shall be placed in 12 inch maximum layers and compacted using specialized compaction equipment including pneumatic-tire rollers or vibratory rollers. The initial layer of fill placed over storm sewers shall be 24 inches in thickness. The Contractor shall take precautions to protect storm sewers from damage during compaction operations.

H. Backfill Material

1. If excavated backfill material is to be considered as a suitable substitute for granular backfill, samples must be taken by the Developer and sieve analysis must be performed. The analysis of the material must meet the gradation requirements for granular backfill. See "Backfilling Utility Trenches". Granular backfill shall be imported until analysis has been approved by Village Engineer.

102. PERMITS AND EASEMENTS

A. Permits and Approvals

1. Amend Section 1.2.8 of the "Standard Specifications" to read in part:

   "The Developer has or will obtain the following permits/approvals needed for construction of the work. Copies of these documents are or will be made available to the Village and the Contractor to review and become familiar with in order that he may comply with their special provisions. The Contractor shall obtain well permits from the Department of Natural Resources if dewatering wells will be installed or operated for which the single or aggregate capacity will be in excess of 70 gallons per minute."

   The permits obtained are:

   a. DNR Sanitary Sewer Approval

   b. DNR Water Main Approval

   LIST OTHERS_____

B. Easements and Construction License Agreements

1. The Developer shall obtain the necessary easements and construction license agreements for construction of the work. The Contractor shall comply with all of the conditions of these easements. Unless written permission is obtained from the offsite Property Owners, all work, materials, and equipment shall be confined to the project limits.

C. Soil Boring Permit/Approval

1. Contractors shall obtain permission from the Village or Property Owners prior to performing subsurface investigations. Street opening or highway permits may be required for taking soil borings within streets or highway departments other than the Village's.

2. The Contractor is reminded to contact all utilities, as well as Digger's Hotline, before performing soil boring work.

3. Soil borings shall not be taken within pavement or shoulder areas without the Village's permission. All boring holes shall be completely filled after the work has been completed.

103. NOTIFICATION OF UTILITIES

A. Utility Protection

1. It shall be the responsibility of the Contractor to protect all utilities that are encountered in his work operations. The Contractor shall contact utilities to determine their procedure and schedule for supporting underground gas, electric, telephone and cable television. Contractor shall also contact the utilities regarding supporting and/or relocating poles and shall notify any above ground utility such as electric and telephone companies to relocate or reinforce any poles, ties or anchors which may be on or near the line of the proposed utility or weakened by excavation for the proposed utility.

201. SANITARY SEWER CONSTRUCTION

Prior to construction, Contractor shall provide and install a bulkhead and/or plug at the point of connection to the existing sewer. The plug shall conform with the requirements of Section 3.2.25 of the "Standard Specifications". This plug shall be braced and tied off to manhole steps and remain in place until final acceptance by Village Wastewater Superintendent. If air test plug is used, pressure shall be checked on a weekly basis.

A. Bedding and Cover Material

1. Sanitary sewer bedding and cover material shall conform to the appropriate sections of the "Standard Specifications", as specified and/or modified below:

   a. PVC pipe - Sections 3.2.6(b) and 3.2.6(i). Use crushed chips and Class "B" bedding conforming to the Standard Specifications.

   b. Reinforced concrete, ductile iron, prestressed concrete and non-reinforced concrete pipe -Class "C" Bedding conforming to Section 3.2.6(a) and File No. 3, Class "B" Bedding conforming to Section 3.2.6(b) and File No. 4 of Class "A" Bedding conforming to Section 3.2.6(c) and File No. 5 (concrete cradle) or Section 3.2.6(d) and File No. 6 (concrete cap). Unless specified otherwise on the Plans, Class "C" Bedding may be used.

B. Laterals

1. Developer's survey crew shall stake lateral termination location (ends) of all sanitary sewer laterals.

2. Building sewer (lateral) connections to the main sewer shall be made with wyes. The ends of laterals shall be plugged in accordance with Section 3.2.25(a) of the "Standard Specifications". Laterals shall be installed at a slope of 1/4" per foot from the sewer main to the lot line.

3. The Contractor shall furnish and install a marker stake over the end of each lateral installed. The marker shall be a minimum 2" x 6" x 12' hardwood plank or as approved in writing by the Village Engineer. The marker's top one foot shall be painted green and placed vertically with its top flush with the surface grade. Place a spike or other durable magnetic material in the top of the marker stake to aid in future relocation.

4. Risers for rigid pipes shall be ductile iron constructed in accordance with File No. 10A of the "Standard Specifications" and risers for flexible pipes shall be constructed in accordance with File No. 10E.

C. Connections to Existing Sewers and/or Manholes

1. The Contractor shall notify Water Treatment Facility Superintendent, phone 262-246-5184 and Village Engineer, phone 262-820-3126 to make the connection to existing sewers, force mains, and/or manholes as shown on the Plans, in conformance with Section 3.2.27 of the "Standard Specifications". The Contractor is to verify alignment and grade of existing sewers in existing manholes and replace and/or restore bench as necessary.

2. Drain line connections to existing manholes shall be made in accordance with Section 3.5.7 of the "Standard Specifications". Field tapped holes for connecting sewer pipe to manholes shall be made by coring the manhole except that connections to brick or block manholes may be made by punching out the opening. Flexible pipe connections shall be made with flexible watertight connectors, Kor-N-Seal, Link-Seal or equal. All clamps, bolts, etc. of pipe to manhole seals shall be stainless steel. If Link-Seal connectors are used, the bolt heads shall be placed on the inside of manholes.

D. Deflection Testing

1. Polyvinyl chloride (PVC) sewer pipe shall be deflection tested with an approved go-no-go acceptance testing device. The test shall not be conducted until after all backfill has been placed and consolidated and after riser pipes and sewer laterals have been installed. The entire length of sewer pipe shall be tested.

   a. PVC pipe shall be deflection tested in accordance with Paragraph 3.2.6(i)4. of the "Standard Specifications".

   b. Go-no-go mandrels shall conform to the requirements of File No. 30 of the "Standard Specifications".

E. Leakage Testing

1. Amend Paragraph 3.7.1 of the "Standard Specifications" to read in part: "Sanitary sewers shall be tested for leakage using the low pressure air test. The length of laterals included in the test section shall be included in determining the test time."

F. Infiltration Testing

1. Follow 3.7.2 of the "Standard Specifications" when the top surface of the groundwater level is at least two (2) feet above the top of the pipe for the entire test length of the tested section during the test measurement.

G. Insulation

1. Sewer lines shall be insulated where noted on the Plans and wherever the depth of cover is less than five (5) feet. Insulation shall be in accordance with Chapter 4.17.0. of the "Standard Specifications".

205. SANITARY SEWER MATERIALS

A. Sanitary sewer pipe material shall be polyvinyl chloride (PVC), reinforced concrete, ductile iron, prestressed concrete pressure pipe or non-reinforced concrete pipe, as shown on the plans, and conforming to the following:

1. Polyvinyl chloride (PVC) sewer pipe, 4 inch through 15 inch diameter, meeting the requirements of ASTM D-3034, SDR-35, with integral bell type flexible elastomeric joints meeting the requirements of ASTM D-3212.

2. Polyvinyl chloride (PVC) large diameter solid wall sewer pipe, 18 inch through 27 inch diameter, meeting the requirements of ASTM F-679, with a minimum pipe stiffness of 46 psi and having integral bell type flexible elastomeric joints meeting the requirements of ASTM D-3212. Lateral pipe material shall conform to the requirements of Paragraph 1 above.

3. Reinforced concrete sanitary sewer pipe (RCP) meeting the requirements of ASTM C-76 with rubber gasket joints conforming to ASTM C-443.

4. Ductile iron pipe meeting the requirements of AWWA Standard C-151 (ANSI 21.51), Class 52 equal to Clow Super Bell-Tite gasket joint pipe, cement mortar lined with internal and external bituminous coating and furnished with either push-on rubber gasket joints.

a. Ductile iron pipe shall be wrapped with polyethylene wrap meeting the requirements of AWWA Standard C-105 (ANSI A21.5) using Class C (black) polyethylene material and shall be installed as specified in Chapter 4.4.4. of the "Standard Specifications".

B. Sanitary sewer lateral and riser pipe material shall be the same as selected for the main sanitary sewer, except the rigid riser pipe shall be ductile iron. Lateral pipe material shall be PVC.

C. Well Protection

1. Sanitary sewer pipe material within 25 to 50 feet of private wells, as shown on the Plans, shall be Polyvinyl Chloride (PVC) pressure pipe conforming to AWWA C-900, Class 150, DR-18, or ASTM D2241, CL. 250, DR-18, with integral elastomeric bell and spigot joints. The pressure pipe shall be connected to the sewer pipe with an approved adaptor.

2. Sanitary sewer lateral pipe material within 8 to 25 feet of private wells shall be plastic sewer pipe conforming to the requirements for PVC pressure pipe.

210. SANITARY SEWER MANHOLES

A. Manhole Construction

1. Sanitary manholes shall be constructed in accordance with Chapter 3.5.0. and File Nos. 12, 12A, 13 and 15 of the "Standard Specifications" and these Special Provisions for waterproof manholes.

2. Manholes shall be precast 48 inch inside diameter with eccentric cones.

a. A minimum of 6 inches to a maximum of 15 inches of adjusting rings shall be furnished for each manhole. Provide Type III mortar joints between frame and chimney rings. Extensions to internal seals will be required if initial seal will not cover from frame to cone.

b. Manhole rim grades shall be adjusted to match the existing and/or proposed final pavement grades after the curb and gutter is completed. Manholes shall be ramped within the placement of binder course asphalt. Each ramp shall be a minimum 30' diameter, and shall be installed 3/4" above the manhole frame. (See detail).

c. Benches shall be poured to springline with bench slope according to File #12-, unless engineer requests benches be poured to the top of pipe.

3. Plastic manhole steps shall be provided in accordance with paragraph 3.5.4(g) of the Standard Specifications.

4. Manhole Frames and Covers.

a. Manhole frames and covers shall be Neenah R-1661B, with Type "C" self-sealing lids or equal, concealed pick hole and no vent holes. Manhole frames shall be centered on the top of the cone.

b. Manhole Frame Sleeves

(1) Manholes shall be constructed and furnished with waterproof frames, lids and internal seals. Internal rubber sleeves shall be installed in all manholes included in this project. These sleeves shall be installed at the manhole frame-chimney interface and shall be extruded or molded from high-grade rubber compound conforming to the applicable requirements of ASTM C443. The sleeves shall be double pleated and be capable of a vertical expansion when installed of not less than 2 inches.

Expandable stainless steel bands for compressing the sleeve against the manhole shall be 16 gage by a minimum of 1-3/4 inches wide and shall be fabricated of stainless steel conforming to ASTM W240, Type 304. The band shall be lubricated per manufacturer's recommendation before installation. Screws, bolts and nuts used on the band shall be stainless steel conforming to STM A276, Type 304.

Test all seals in ENGINEER's presence following SWS 3.5.3(f)1.a.

(2) Extension will be required to cover from frame to cone.

(3) Manhole vacuum testing. Amend paragraph 3.7.6 of the "Standard Specifications" to read in part "Sanitary vacuum testing shall be done after backfill placement."

B. Frame/Chimney Joints

1. The manhole chimney rings and frame shall be set on a bed of mortar, 5/8 inch minimum thickness, extending the full width of and continuously around the top of the chimney. The inner and outer faces of the mortar joint shall be trowel finished.

2. The interior and exterior dimensions of the top of the cone section and adjusting rings shall be equal and these surfaces shall be constructed flush with each other.

3. Sealing Manhole Chimneys

a. The entire outside surface of the manhole chimney, including all adjusting rings and overlapping both the manhole cone or flat-top slab (a minimum of 2 inches) and the manhole frame, shall be covered with mortar.

C. Manhole Riser Joints

1. Joints for precast manhole riser sections shall be made with rubber "O"-ring gaskets, two continuous rings of butyl rubber sealant (EZ-Stik or Kent-Seal in rope form) or equal. The butyl sealant shall be 1 inch diameter equivalent or as recommended by the manhole manufacturer, placed on top inside askew vertical portion of manhole section. (See detail.)

D. Manhole Lifting Holes

1. All lifting holes in precast manhole sections shall be plugged using cement mortar and rubber plugs supplied by the manhole supplier. Rubber plugs shall be placed from the exterior of the manhole.

E. Manhole Pipe Connections

1. Connections of pipes to manholes shall be made in accordance with Section 3.5.7. of the "Standard Specifications". All field tapped holes for connecting sewer pipe to manholes shall be made by coring.

2. Flexible pipe connections shall be made with flexible watertight connectors, Kor-N-Seal, Link Seal or Equal. All clamps, bolts, etc. of pipe to manhole seals shall be stainless steel. If Link Seal connectors are used, the bolt heads shall be placed on the inside of manholes.

F. Drop Manholes

1. Drop manholes shall be constructed in accordance with Section 3.5.8.(d), File No. 19 or 20 of the "Standard Specifications" and the requirements of these Special Provisions.

G. Sewer Stubs

1. Sewer stubs shall be plugged in accordance with Section 3.2.25.(a) of the "Standard Specifications".

H. Manhole Marker Posts

1. The Contractor shall furnish and place steel fence posts to mark manholes located within easements. Marker posts shall be heavy duty angle steel posts, 1" x 1" x 7/64" by 7 feet long and painted with a red acrylic enamel finish.

I. Location Aids:

1. Warning tape:

a. "Terra tape extra strength 540" by Reed Industries, Inc. or "Shieldtec" by Empire Level Manufacturing Corporation.

b. Tape shall read: "CAUTION – BURIED PRESSURE SEWAGE FORCE MAIN".

c. Color: Green.

d. Width: 3 inches.

e. Place 12" below finished grade.

2. Detector wire:

a. SWS 4.3.14.

b. For open-cut: Direct-burial-rated insulated AWG #12 copper conductor.

c. For trenchless installation: Aircraft cable, nylon-coated stainless-steel, 3/8 inch diameter.

d. Splices: SWS Drawing File No. 24B. Do not splice without Engineer's approval except at laterals and services.

3. Install location boxes at 1000 feet maximum intervals. Center location box above main. Use two sections of valve box including top section. Install with hardwood blocking. Top of cover marked "sewer".

215. SANITARY SEWER TELEVISING

Sanitary sewers will not be approved until punch list and DVD taping has been completed. DVD taping shall not be conducted until punch list is completed and approved by Village Engineer.

All newly installed sanitary sewers shall be taped prior to acceptance. Provide color DVD-format recordings of the data. The Contractor shall ensure that all lines are flushed and clean prior to taping. The camera shall be able to swing right and left to view the lateral. Sanitary sewers which show debris in lines will not be accepted. Prior to televising, sewer mains shall receive enough water that flow is observed in downstream manhole(s). The cost of cleaning and taping shall be paid for by the Developer or his Contractor. The sewer plug and/or bulkhead as defined in Section 201 of these Special Provisions shall remain in place throughout the cleaning and taping process and until final acceptance of the project.

301. FORCE MAIN CONSTRUCTION

A. General Requirements

1. Delete Section 3.2.6.(n)1. of the "Standard Specifications" and replace with:

   "Force mains shall be installed in accordance with Chapter 4.1.0., 4.2.0., 4.3.0. (delete Section 4.3.12.), 4.4.0, 4.7.0, 4.10.0., 4.11.0. and 4.15. of the 'Standard Specifications' and as specified herein."

B. Polyethylene Wrap

1. Polyethylene wrap shall be provided on all ductile iron force main and fittings. Polyethylene wrap shall be taped tightly at all ends.

2. Polyethylene wrap shall meet the requirements of AWWA Standard C-105 (ANSI A21.5) using Class C (black) polyethylene material and shall be installed as specified in Chapter 4.4.4. of the "Standard Specifications".

C. Bedding Material

1. Force main bedding and cover material shall be sand conforming to Section SWS 8.43.0 of the "Standard Specifications".

2. The trench section shall conform with Subsection 4.3.3. and File No. 36 of the "Standard Specifications", as amended below:

   a. Bedding and cover material shall be placed in a minimum of three separate lifts to ensure adequate compaction of these materials, with one lift of bedding material ending at or near the springline of the pipe. The Contractor shall take care to completely work bedding material under the haunch of the pipe to provide adequate side support.

   b. Polyethylene pipe shall have a minimum bedding depth of 6" and a minimum embedment depth of 12" above the top of pipe. Compact bedding and backfill to at least 85% of standard proctor (AASHTO T-99) density.

D. Water main Crossings

1. Center one full length of force main on water mains wherever the force main crosses over or under a water main so that both force main joints will be as far from the water main as possible.

E. High Points in Force Main

1. The Contractor shall install force main at the grades shown on the Plans with no high points constructed in the main except as indicated on the Plans. If a high point which could trap air cannot be prevented, then an air release assembly shall be constructed at that point.

F. Joint Restraint

1. Concrete Blocking (Buttresses).

a. All bends, tees, caps and plugs shall be buttressed to provide thrust blocking in accordance with Section 4.3.13. and File Nos. 44, 45 and 46 of the "Standard Specifications".

2. Restraining Vertical Bends and Offsets

a. Changes in the grade of the force main made by vertical bends or offsets shall be restrained by strapping in accordance with File No. 47 of the "Standard Specifications" or as provided for below.

(1) The Contractor has the option of using retainer glands in place of tie rods to restrain mechanical joint fittings where bends or offsets are used to make changes in the grade of the main. Retainer gland set screws shall be tightened to 75 foot-pounds torque or as recommended by the manufacturer using a torque wrench. Retainer glands may be used only on 12 inch diameter pipe or smaller.

(2) Joint restraint for push-on joint pipe may be provided by using U.S. Pipe TR FLEX restrained joint pipe, Clow Super-Lock Joint pipe, Griffin Snap-Lok restrained joint pipe or equal.

G. Insulation

1. Force mains shall be insulated where noted on the Plans and wherever the depth of cover is less than five (5) feet. Insulation shall be in accordance with Chapter 4.17.0. of the "Standard Specifications".

H. Location Aids:

1. Warning tape:

a. "Terra tape extra strength 540" by Reed Industries, Inc. or "Shieldtec" by Empire Level Manufacturing Corporation.

b. Tape shall read: "CAUTION – SANITARY LINE BURIED BELOW".

c. Color: Green.

d. Width: 3 inches.

e. Place 12" below finished grade.

2. Detector wire:

a. SWS 4.3.14.

b. For open-cut: Direct-burial-rated insulated AWG #12 copper conductor.

c. For trenchless installation: Aircraft cable, nylon-coated stainless-steel, 3/8 inch diameter.

d. Splices: SWS Drawing File No. 24B. Do not splice without Engineer's approval except at laterals and services.

3. Install location boxes at 1000 feet maximum intervals. Center location box above main. Use two sections of valve box including top section. Install with hardwood blocking. Top of cover marked "sewer".

305. FORCE MAIN MATERIALS

A. Force main pipe material shall be ductile iron or polyethylene conforming to the following:

1. Ductile iron pipe meeting the requirements of AWWA Standard C-151 (ANSI A21.51), cement mortar lined with internal and external bituminous coating and furnished with either push-on rubber gasket joints equipped to provide cable bonding for electrical continuity or mechanical joints with lead tipped rubber gaskets.

Ductile iron pipe shall be furnished for the following minimum thickness classes:

a. Four (4) and (6) inch pipe shall be Class 54.

b. Eight (8) and (10) inch pipe shall be Class 53.

c. Twelve (12) inch or larger pipe shall be Class 52.

2. Polyethylene pipe meeting the requirement of ASTM D1248 and SWS shall be butt fused extra high molecular weight, high density polyethylene pipe, butt-fused per ASTM D2657 and manufacturers recommendations.

a. Manufacturer/Product

(1) Phillips Driscopipe, Inc. DRISCOPIPE 1000.

(2) Plexco/EHMW PE3408.

b. Materials

(1) Pipe:

(a) Material Designation: PPI PE 3408.
(b) Material Classification: Type III, Class C, Category 5, Grade P34.
(c) Cell Classification: 345434C per ASTM D3350.
(d) Pressure Class: DR17 (100 psi).

B. Force main fittings shall be ductile iron cement mortar lined with internal and external bituminous coating and meet the requirements of AWWA Standard C-110 (ANSI 21.10), or polyethylene. Ductile iron fittings shall be supplied with mechanical joints with lead tipped rubber gaskets.

1. Ductile iron fittings meeting the requirements of AWWA Standard C-153 for "compact fittings" may be used. Compact fittings shall be U.S. Pipe "Trim Tyte" ductile iron mechanical joint fittings or equal.

2. Polyethylene Fitting:

a. Per ASTM D3261.

b. Pressure Class: DR17 (100 psi).

c. Molded or fabricated.

d. Molded flange adaptor with ductile iron backup ring.

3. Joints:

a. Pipe and Fittings:

(1) Butt fuse per ASTM D2657 and manufacturer recommendations.

b. Connection to Flanged Pipe:

(1) Use molded flange adaptor with ductile iron backup ring.

310. VALVES AND VALVE BOXES

A. Eccentric Plug Valves

1. Eccentric plug valves shall be furnished for buried or submerged service with mechanical joint ends, cast iron body, corrosion resistant bearings, nickel or stainless steel seat, resilient faced plug for drip-tight shutoff, 2" square operating nut opening to the left (counterclockwise) with a by-directional worm gear actuator operating against a shut-off pressure of from 0 to 75 psi and rated at 175 psi working pressure.

a. Eccentric plug valves shall be DeZurik Series 100, or equal.

B. Valve Boxes

1. Valve boxes shall be three piece cast iron valve boxes consisting of base, screw type center (5-1/4 inch shaft diameter) and top section with cover marked "SEWER". Extension sections shall be furnished as required. Valve boxes shall be furnished for the depth of trench shown on the Plans with the cover placed at the existing grade or to the elevation shown on the Plans. Air release vents shall be installed in accordance with File 43 of the "Standard Specifications" (separate box).

a. Valve boxes shall be Tyler 6860 series, Clow or equal.

320. SEWAGE AIR VALVES AND AIR VALVE MANHOLES

A. Sewage Air Release Valves

1. Sewage air release valves shall be Valmatic Series 48, or Golden-Anderson Figure 925 with backflushing accessories, or equal.

a. Valves shall be constructed of cast iron body and cover, stainless steel float and linkage and resilient seat. Valves shall be furnished with protective hoods.

b. Valvematic Series 48 valves shall be furnished with a 2, 3, or 4 inch inlet by 1/2 inch outlet with a 5/16 inch orifice rated for a working pressure of 0 to 75 psi. Golden Anderson Valves shall be furnished with a 2 or 3 inch inlet by 1/2 inch outlet with 5/16 inch orifice.

B. Backflushing Accessories

1. Backflushing accessories consisting of a 4 inch inlet shutoff plug valve or inlet isolation valve(s) on combination air valves, bronze rubber seated blowoff valve(s), bronze rubber seated clear water inlet valve(s) with quick disconnect coupling, quick disconnect coupling to insert in air release valve orifice outlet and 5 feet minimum of rubber hose with quick disconnect couplings on each end shall be furnished by the valve manufacturer and assembled to all sewage air valves.

C. Air Valve Coating System

1. All interior and exterior surfaces of sewage air valves shall be sandblasted and coated to protect them from corrosion. The coating system shall consist of a 10% solid epoxy, non-solvent bearing, non-leaching, Keysite #740 or equal, applied in 2 coats each 7/10 mil minimum thickness.

D. Air Valve Manholes

1. Air valve manholes shall be constructed in accordance with the general requirements of Section 210 of these Special Provisions for Sanitary Manholes, as amended below.

   a. Manholes shall be precast 48 inch inside diameter, unless shown otherwise, with flat top slabs and offset openings.

   b. Manhole frames and covers shall be Neenah R-1758-C (frost-retardant) with Type "C" self-sealing lids, machined horizontal bearing surfaces on both lids, or equal.

   c. All force mains, including rigid pipe and drain lines, shall be connected to manholes using approved flexible watertight pipe to manhole seals in accordance with Paragraph 3.5.7.(c) of the "Standard Specifications".

   d. Construct 4 inch diameter manhole drain lines as shown on the Plans.

   e. Insulate manhole exterior with 2 inch polystyrene insulation to a depth of 6 feet below finish grade.

2. Warning Label

   a. A weatherproof durable warning label, 4 inch by 6 inch size, printed in red shall be permanently attached to the inside surface of manhole slabs in line with manhole steps.

   b. The labels shall read:

      "Warning: Hazardous gases may be present which could cause severe injury or death. No smoking. Enter only with proper ventilation, life line attached and standby personnel present."

E. Air Valve Warranty

1. The sewage air valve manufacturer shall provide a two (2) year warranty from the date that the work is accepted by the Village guaranteeing that all materials and equipment are free from defects in design, materials and workmanship. The manufacturer shall, upon proper notification, repair or replace any equipment proven defective during the warranty period.

330. HYDROSTATIC TESTING

A. Delete Section 3.2.6.(n)2. of the "Standard Specifications" and replace with:

Force mains shall be hydrostatically tested in accordance with Chapter 4.15.0. of the "Standard Specifications", as amended below:

1. The pressure test shall be run at 200% of the design operating pressure, but not less than 75 psi measured at the point of highest elevation of the section of force main being tested. Polyethylene piping shall be tested at 1.5 times design operating pressure. Pressure initially shall be pumped to 100 psi, stabilized for 5 to 10 minutes and reduced to 60 psi. Conduct test for one hour with no pressure drop.

2. The leakage test shall be run at 150% of the design operation pressure, but not less than 50 psi, measured at the point of highest elevation of the section of force main being tested. The final leakage test shall be run for 3 continuous hours. The formula for computing maximum allowable leakage shown in Section 4.15.3.

3. The Contractor shall furnish all labor, equipment and material to complete all testing. The Village or their Representative shall be present at all times during testing. The cost of all force main testing shall be paid for by the Developer or his Contractor.

B. Water for Testing

1. Water for testing may be furnished by the Village. The Contractor shall notify and coordinate his operations with the Village.

340. EQUIPMENT TESTING, START-UP AND INSTRUCTIONS

A. The Contractor shall test all equipment, including air valves and plug valves, after it is installed and prior to lift station start-up to ensure that it is functioning and in proper working order.

B. The Contractor shall have personnel available should they be needed to adjust or repair force main equipment during start-up of the lift station, by others.

C. Instructions by Manufacturer's Representative

1. After the equipment has been installed, inspected and approved, the manufacturer's representative shall instruct the Villages operating personnel as to the proper procedures for operating and maintaining the equipment.

350. OPERATION/MAINTENANCE MANUALS AND INSTRUCTIONS

A. Prior to substantial completion, the Contractor shall provide the Village with four (4) operation and maintenance manuals covering each item of equipment, including air valves and plug valves, furnished or installed under the contract.

B. Operation and maintenance manuals shall include the following information:

1. Supplier and manufacturer's name, address, telephone number, and local representative's name, address and telephone number. Sources of service and parts and a list of local repair services, supply houses and potential sources for the types of repairs and equipment parts.

2. Warranties and bonds shall be included in manual.

3. Catalog literature complete with performance data and ratings.

4. Specify equipment function, normal operating and limiting conditions.

5. Assembly, installation, alignment, adjusting and checking instructions.

6. Operating instruction for start-up, shutdown, routine and normal operation.

7. Detailed service information including schedule of recommended maintenance.

8. Troubleshooting, common operating problems, problems that might occur in unit/process. List probable causes and discuss control/prevention.

9. Detailed safety section covering the operation and maintenance of unit. Contractor shall supply a complete list of equipment service numbers, model numbers, electrical requirements, manufacturer's names, etc.

10. Complete an accurate set of as-built drawings including dimensions, schematics of hydraulics, wiring and piping.

11. Emergency operating instructions indicating range and flexibility during emergencies.

C. The correct model number shall be designated where the literature covers more than one model.

D. For items assembled by the Contractor, the Contractor shall write and provide duplicate operation and maintenance instructions.

E. Data shall be folded to 8-1/2" x 11" size and placed into hard cover binders. Material shall be grouped according to specifications sections and filed behind individual filing tab pages on which the following is to be typed: Item, Manufacturer, Contractor's Order Number, Supplier's Order Number, and Manufacturer's Order Number.

F. Manuals shall be delivered to the Village for approval prior to 75% of job completion. Final payment will not be certified until manuals have been received and approved.

401. WATER MAIN CONSTRUCTION

A. Materials

1. All water main materials, valves, and appurtenances shall be AWWA Certified.

B. Bedding and Cover Material

1. Water main bedding and cover material shall be 3/8" crushed limestone chips or crushed limestone screenings conforming to Chapter 8.43.0 of the "Standard Specifications" and placed as shown on File No. 36 of the "Standard Specifications".

C. Polyethylene Wrap

1. Polyethylene wrap shall meet the requirements of AWWA standard C-105 (ANSI A21.5) using Class C (black) polyethylene material and shall be provided on all ductile iron water main and fittings and shall conform to the requirements of Chapters 4.4.4. of the "Standard Specifications". Polyethylene wrap shall be taped tightly at both ends.

D. Operation of Existing Valves

1. All existing valves will be operated by or under the supervision of the Sussex Water Utility (262) 246-0930.

E. Connections to Existing Mains

1. Connections shall be made per approval from the Village Water Utility.

    a. The Contractor shall coordinate his work schedule with the Village of Sussex Water Utility when connecting to the new water main in order to minimize inconvenience and disruption caused by the temporary discontinuance of water service. The Contractor shall notify the Utility at least 24 hours prior to requesting shutting off any water service. The Contractor shall use temporary valves or plugs to return lines to service. The Contractor shall take whatever measures necessary to return service at the end of each working day.

    b. Tapping sleeve shall be stainless steel Mueller H-304, or equal, with valve tested at 100# minimum for 15 minutes. Replace 3/4" iron plug with stainless steel or brass upon completion of test prior to tapping. The coupon shall be turned over to Village on-site representative after tap is completed.

F. Restrained joints

1. Megalug and/or tie all dead ends so connections can be made in the future without shutting mains off.

2. EBAA Iron Megalug, Star Pipe Products Allgrip 3600 or MJ Field Lok Gland and Gasket. All dead ends, bends, tees, caps and plugs shall be restrained. Clow Super-Lock joint pipe shall be used under water crossings.

G. Concrete Blocking (Buttresses)

1. All bends, tees, caps and plugs shall be buttressed to provide thrust blocking in accordance with Section 4.3.13 and File Nos. 44, 45 and 46 of the "Standard Specifications".

H. Insulation

1. Water mains, hydrant leads, and services shall be insulated where noted on the plans and wherever the depth of cover is less than 5-1/2 feet.

405. WATER MAIN MATERIALS

A. Water main pipe material shall be ductile iron, conforming to the following:

1. Ductile iron pipe meeting the requirements of AWWA Standard C-151 (ANSI 21.51), cement mortar lined with internal and external bituminous coating. Pipe shall be equal to Clow Super Bell-Tite gasket joint pipe. Furnish and install 2 bronze serrated wedges in each joint. The Contractor may be required to perform a Conductivity Test and obtain approval prior to acceptance and payment. All joint surfaces shall be cleaned and lubricated with a non-toxic lubricant recommended by the manufacturer for use in potable water. Field cut pipe shall be beveled at the outside edge of the cut to smooth sharp corners.

Ductile iron pipe shall be Class 52 minimum thickness:

B. Fittings shall be ductile iron, cement mortar lined with internal and external bituminous coating and meeting the requirements of AWWA Standard C-153 (ANSI 21.53). 505B Standard C153 (ANSI 21.53) and ASTM A5361 and NSF 61/C153/A21.53 Fittings. Fittings may be supplied with either mechanical joints with rubber gaskets or push-on rubber gasket joints with cable bonding in areas where restrained joints are not required. Mechanical joint fittings shall be used in areas where restrained joints are required. Mechanical joints shall meet the requirements of AWWA C-111 (ANSI 21.11) and as specified in Section 4.4.2(b) of the "Standard Specifications". All fittings shall have a minimum working pressure of 250 psi and stamped USA.

C. Location Aids:

1. Warning tape:

a. "Terra tape extra strength 540" by Reed Industries, Inc. or "Shieldtec" by Empire Level Manufacturing Corporation.

b. Tape shall read: "CAUTION – WATER LINE BURIED BELOW".

c. Color: Blue.

d. Width: 3 inches.

e. Place above centerline of pipe and 12" below finished grade.

2. Detector wire:

a. SWS 4.3.14 except attach detector wire box to back of hydrant.

b. For open-cut: Direct-burial-rated insulated AWG #12 copper conductor.

c. For trenchless installation: Aircraft cable, nylon-coated stainless-steel, 3/8 inch diameter.

d. Splices: SWS Drawing File No. 24B. Do not splice without Engineer's approval except at laterals and services.

3. Install location boxes at all hydrant locations. Follow "water main detection wire and location box" detail.

410. VALVES AND VALVE BOXES

A. Butterfly Valves

1. Butterfly valves shall be used on all mains 12" diameter & larger.

2. Butterfly valves shall meet the requirements of AWWA C-504.

3. SWS 8.28.0

a. Butterfly valves shall be of the rubber seated tight-closing type design mechanical joint with rubber tipped gaskets, cast iron body, 2 inch square operating nut opening counterclockwise and rated at 200 psi working pressure.

b. Valves shall be Clow F5370, M&H 4500 or Mueller Lineseal III.

B. Gate Valves

1. Gate valves shall be used on all mains 10" diameter & under.

2. Gate valves shall meet the requirements of AWWA C-509 and be furnished with stainless steel top bolts on valve.

3. SWS 8.27.0.

    a. Gate valves shall consist of cast iron body, flange joint, O-ring stem seals and opening counter clockwise.

    b. Valves shall be Mueller A-2360-20, Clow F6100, or M&H 4067-01.

    c. Valves will have non-rising stem.

    d. Valves will have epoxy interior and exterior coating per ANSI/AWWA C550.

C. Valve Boxes

1. All butterfly and gate valves shall be placed in valve boxes. Valve boxes shall have appropriate valve box adapters and be three piece cast iron valve boxes consisting of base, screw type center (5-1/4 inch shaft diameter) and top section with "Traffic Cap" drop lid and with cover marked "WATER". Extension sections shall be furnished as required. All water valves and box extensions shall be polywrapped in accordance with Section 401.6.1.B. of these Specifications. Valve boxes shall be furnished for the depth of trench shown on the Plans with the cover placed at the proposed grade or to the elevation shown on the Plans. Water valve boxes shall be set to asphaltic binder course grade upon initial installation. At the time of asphaltic surface course placement, the valve boxes shall be turned up to the surface course elevation. If the valve box cannot be turned up, a slip extension will be allowed to make the adjustment. Valve boxes will not be asphalt ramped. One slip extension only will be allowed per valve box.

415. HYDRANTS

A. Standard Hydrant

1. Hydrants shall be Kennedy-Guardian, Waterous Pacer, or Clow Medallion conforming to the following specifications.

    a. Hydrants shall be compression type, with 5-1/4 inch bottom valve and 6 inch mechanical joint inlet connection, "O"-ring packing, safety flange construction, "break away flange" meeting the requirements of AWWA Standard C502 and meeting specifications for 300 PSI test pressure and 150 PSI working pressure.

    b. Hydrants shall have two 2-1/2 inch hose nozzles and one 4-1/2 inch pumper nozzle with National Standard fire hose coupling screw threads and nut type nozzle caps with gaskets and chains.

    c. Hydrants shall have 1-1/2 inch pentagon operating nut opening to the left (counterclockwise).

d. Hydrants shall be painted chrome Yellow by the Village. All costs for painting hydrants at Substantial Completion and at Final Completion shall be reimbursed to the Village by the Developer.

e. A Hydrafinder, fiberglass marker wand shall be installed on each hydrant. Fasten marker wand to break away flange (lower flange). Hydrafinder is manufactured by the Rodon Corporation (630) 232-1477.

2. Hydrants shall be full height hydrants and furnished for the depth of bury shown on the Plans. The distance from the ground line to the centerline of the lowest nozzle shall be from 18 to 24 inches.

B. Valve and Valve Box

1. Hydrant valves and valve boxes shall conform to the requirements for gate valves and valve boxes of these Special Provisions. All hydrant valves and box extensions shall be polywrapped in accordance with Section 401.6.1 of these Specifications.

2. Gate Valves (Hydrants Only).

a. Gate valves shall meet the requirements of AWWA C-509.

b. SWS 8.27.0.

1) Gate valves shall consist of cast iron body, flange joint, O-ring stem seals and counter clockwise opening design.

2) Valves shall be Mueller A-2360-20, Clow F6100 or M&H 4067-01, equipped with appropriate valve box adapter.

3) Valves will have non-rising stem.

4) Valves will have epoxy interior and exterior coating per ANSI/AWWA C550.

C. Hydrant Leads

1. Hydrant leads shall be six (6) inch, Class 52, ductile iron pipe, with polyethylene wrap. Hydrant barrels shall also be polyethylene wrapped. All polyethylene wrap shall be taped.

2. Hydrant leads shall be insulated where noted on plans and wherever depth of cover is less than 5-1/2 feet.

D. Hydrant Installation

1. Hydrants shall be supported upon a precast concrete block.

2. Where a hydrant is set in soil that allows drainage, drainage shall be provided at the bases of the hydrant by placing crushed stone from the bottom of the trench to at least 6" above waste opening in the hydrant and to a distance of 1 foot around the base elbow.

3. Whenever a hydrant is set in clay, rock, or other impervious soil, a drainage pit 2 feet in diameter and 3 feet deep shall be excavated below each hydrant base and filled with compacted crushed stone. Place stone under and around the elbow and concrete base to a level of 6" above the waste opening. No drainage system shall be connected to a sewer. In high water areas the weephole shall be plugged as specified.

4. Hydrant leads shall be 6 inch "Anchoring Pipe" and/or "Anchoring fittings" equivalent to Clow Nos. F1211, F1215, and F1216. Megalugs or restraining rods and clamps, approved by the Village, may be used in lieu of "anchoring pipe".

5. A hydrant shall be installed at all dead ends, which maybe reused in additional phases. (i.e. phase 2 or 3).

6. See File No. 38 of "Standard Specifications" for additional installation details.

E. Sampling Station:

1. Sampling stations shall be Eclipse 88 (See product information in detail sheets).

2. A sampling station shall be installed in strategic locations as determined by the Water utility and Village Engineer. Developer's survey crew shall stake location and elevation of station and curb stop valve box.

420. WATER SERVICES

Developer's survey crew shall stake location and elevation of water service curb boxes.

All water services shall be wet tapped under main pressure. Services shall be insulated where noted on plans and wherever the depth of cover is less than 5-1/2 feet. Insulation is also required when water services are installed beneath storm sewer pipes.

No water service shall be laid through any trench having cinders, rubbish, rock, or any other material which may cause injury to or disintegration of the service pipe, unless adequate means of protection are provided by 3/8" limestone chips or such other insulation as may be approved by the Village. Service pipes passing through curb or retaining walls shall be adequately safeguarded by provision of channel space or pipe casing, not less than twice the diameter of the service connection. The space between the service pipe and channel or pipe casing, shall be filled and lightly caulked with an oakum, mastic cement, or other resilient material, and made impervious to moisture.

In backfilling the pipe trench, the service pipe must be protected against injury by carefully hand tamping the backfill. 3/8" Crushed limestone chip backfill shall be brought up to a height of at least 6" above the service pipe per the Standard Specifications.

1. Polyethylene Water Services:

   All services shall be DR9 HDPE (CTS), with a minimum inside diameter of 1 1/4 inch. Corporation stops shall withstand 150 PSI pressure test, use compression fittings with stainless steel stiffeners. Use Mueller B-25008 or Ford FB1000.

   Curb valves must withstand 150 PSI pressure test. Use compression fittings with stainless steel stiffeners. Mueller H15155 or Ford B44-M.

   Locator wire shall be installed with all polyethylene water services. Use direct-burial-rated insulated AWG #12 copper conductor.

   All water services are to be centered on the lot as close as practical (within 5 feet of center). All services shall be staked prior to construction.

2. Curb Boxes:

   Curb boxes shall be Tyler 101F with 4 foot heavy duty rod with guide ring. (Drop on rod). The new curb stop and box shall be placed on the lot line in a lawn area, not in an existing or proposed driveway approach. Use valve stem extenders. Screw-on style. Mueller H-10300, Ford EM 2-65-56, A.Y. McDonald 5614.

   The new curb corporation stop and box shall be placed on the lot line and marked with a minimum 2" x 6" x 8' hardwood marker. The top 1' shall be painted blue.

430. WATER MAIN TESTS

A. Hydrostatic Testing

1. All tests shall be performed as specified in Chapter 4.15.0 of the "Standard Specifications" after all taps have been made. The Village's Representative shall be present at all times during testing.

2. The Contractor shall furnish all labor, equipment and material to complete all testing.

B. Test Sections

1. The Contractor has the option to test the entire new water main as one continuous test section or in segments per his discretion.

440. DISINFECTION

A. General Requirements

1. The Contractor shall furnish and bond chlorine tablets to the inside spigot end top of each pipe as it is installed in the ground.

2. The water main shall be disinfected in accordance with Chapter 4.16.0 of the "Standard Specifications".

B. Safe Samples

1. Safe samples will be taken by the Sussex Water Utility with the Contractor's assistance. The Contractor shall supply flushing hoses, petcock and manpower necessary to flush the test section in order to obtain a safe sample. A safe sample must be obtained from each of the segments hydrostatically tested as listed under the article for Water main Tests of these Special Provisions. Samples shall also be taken from connection to intersecting mains to check the effectiveness of the disinfection procedure.

a. Water main segments shall be isolated by a closed valve and shall not be placed into service until after safe water samples have been obtained and are proven safe. Connections shall be made per approval from the Village Water Utility.

C. Rechlorination

1. Should any test prove unsatisfactory, the water main shall be sterilized by the Contractor by such methods as he deems necessary and samples taken until acceptable results are obtained.

D. Water Furnished

1. Water for the initial testing and flushing of mains will be furnished by the Sussex Water Utility. The Contractor shall notify the Sussex Water Utility for flushing and shall coordinate his operations with the Sussex Water Utility in order not to deplete the water supply. All flushing of new mains shall be done by the Contractor under the direction of the Sussex Water Utility.

a. Provisions shall be made to convey water used for flushing or testing to a suitable discharge point without causing damage or erosion to properties.

b. If highly chlorinated water from a well, water tower or new water main is to be discharged to a surface water, it must be treated for chlorine minimization (addition of Sodium Thiosulfate or equivalent) prior to discharge. This means the water cannot be dumped into a storm sewer or ditch where it will end up in a river, lake, wetland or other surface water without first being chlorine neutralized. The maximum chlorine content is 0.03 mg/l measured at the point of discharge.

c. If the chlorinated water is contained by a dike or berm and allowed to seep into the ground, or discharged to an area at a rate where it will seep into the ground prior to reaching a surface water, then no chlorine neutralization is required.

E. Swabbing Water Main

1. All piping installed outside of water main test segments shall be disinfected by swabbing with a 5% hypochlorite solution and thoroughly flushed. The entire interior surfaces of all pipes and fittings shall be thoroughly swabbed. The diameter of swabs used in pipes shall match the interior pipe diameters and provide resistance when swabbing the pipes. Pipes shall be swabbed with a pumping motion with all surfaces wiped several times. The Contractor shall use extreme care to insure the cleanliness of all water main materials used.

F. Approval of Water Main

1. Water Main will not be approved until punch list work is satisfactorily completed. Water main will not be put into service until approved by Village Engineer.

501. STORM SEWER CONSTRUCTION

A. Bedding and Cover Material

1. Storm sewer bedding and cover material shall conform to the appropriate sections of the "Standard Specifications", as noted below. Unless otherwise specified on the Plans, Class "C" Bedding shall be used.

a. Class "C" Bedding - File No. 3 and Section 3.2.6(a).

b. Bedding material may be substituted for cover material in sewer installation. Cover material for storm sewer 36 inches and under shall be of the same material as the bedding.

505. STORM SEWER MATERIALS

A. Storm sewer pipe and end section material shall be reinforced or non-reinforced concrete sewer pipe as shown on the plans conforming to the following:

1. Reinforced concrete sewer pipe (RCP) shall meet the requirements of ASTM C-76. Joints shall be cement mortared type joints, as per Section 3.2.16 of the "Standard Specifications".

2. Nonreinforced concrete sewer pipe (NRCP) shall meet the requirements of ASTM C-507. Joints shall be cement mortared type joints, as per Section 3.2.16 of the "Standard Specifications".

B. End sections: When rip-rap is required per plan, it shall be sized to handle flow velocities of proposed storm sewer. Alternatives for rip rap may be used with approval, in writing, from Village Engineer.

C. End Section Grates: For all horizontal pipe outlets 15 inches and larger follow SWS 8.16.2.

510. STORM SEWER MANHOLES

A. Standard Manhole

1. Storm sewer manholes shall be constructed in accordance with Chapter 3.5.0. and File Nos. 12, 13, 15 and 16 of the "Standard Specifications" and these Special Provisions. Pipe to manhole connections shall be mortar.

2. For storm sewer 42 inch and greater, manholes shall be 48" precast manhole tees with eccentric cones. All other manholes shall be 42 inch or larger inside diameter. When manhole tees are used, Contractor shall supply 2 foot and 4 foot bell and spigot lengths of pipe to allow required positioning of manholes.

a. Flat top slabs with offset openings may be used for shallow manholes where there is not sufficient depth to install cones or on deeper manholes with the approval of the Village.

b. A minimum of 6 inches to a maximum of 15 inches of adjusting rings shall be furnished for each manhole.

c. Manhole depths shown on plans are approximate only. Final manhole rim grades shall be adjusted to match the existing and proposed finished pavement grades with a surface course asphaltic concrete pavement ramp. The manhole ramp shall be a minimum of 30' diameter. Manholes shall be ramped within the placement of the binder course asphalt. (See detail).

3. Plastic manhole steps shall be provided in accordance with paragraph 3.5.4(g) of the Standard Specifications.

a. Manholes less than 4 feet deep do not require steps.

4. Manhole Frames and Covers

a. Manhole frames and covers shall be Neenah R-1661B. Where height restrictions apply, Neenah R-1580 frames and covers shall be used.

b. Beehive grate manhole covers shall be Neenah R-2560-D3 or equal.

c. Manhole frames shall be centered on the top of the cone section.

B. Manhole Joints

1. Joints for precast manhole riser sections shall be made with rubber "O"-ring gaskets or two continuous rings of butyl rubber sealant (Ex-Stik or Kent Seal in rope form) or equal. The butyl sealant shall be 1 inch diameter equivalent or as recommended by the manhole manufacturer.

C. Frame. Chimney Joints

1. The manhole chimney rings and frame shall be set on a bed of mortar, 5/8 inch minimum thickness, extending the full width of and continuously around the top of the chimney. The inner and outer faces of the mortar joint shall be trowel finished.

2. The interior and exterior dimensions of the top of the cone section and adjusting rings shall be equal and these surfaces shall be constructed flush with each other.

3. Sealing Manhole Chimneys.

a. The entire outside surface of the manhole chimney, including all adjusting rings and overlapping both the manhole cone or flat-top slab (a minimum of 2 inches) and the manhole frame, shall be covered with mortar.

D. Sewer Stubs

1. Sewer stubs shall be bulkheaded in accordance with Section 3.2.25(a) of the "Standard Specifications".

515. CATCH BASINS

A. Standard Catch Basin

1. Catch basins shall be constructed in accordance with the standard catch basin details of the "Standard Specifications" and these Special Provisions.

a. Catch basins shall be precast and shall have 12 inch sumps. Six inch concrete block catch basins shall be used where indicated on the Plans or as approved by the Village.

b. The depths of catch basins shown on the Plans are measured from the invert of the lead to the flow line of the grate and do not include the sump depth. Catch basin grates shall be placed to match the ditch or gutter grade or at the elevation indicated on the Plans. Catch basin frame and grate shall be Neenah R-3228BD or equal for low side vertical curb and gutter and Neenah R-3501-R, with Type C grate, for mountable face curb and gutter.

c. The Contractor shall construct catch basin chimneys using precast adjustment rings. All catch basins on slopes shall be adjusted to finish surface grade. Catch basins at low spots shall be adjusted to 3 inches below top of curb per the interim pavement detail. The Contractor will set the casting as part of their curb and gutter installation. The Contractor shall have on site a supply of adjusting rings to use if necessary when placing the casting. Chimney adjustments made with anything other than precast rings shall not be allowed. The Contractor shall return and back plaster inside and outside of basins as necessary.

d. Catch basins greater than four (4) feet in depth, measured from the inlet flow line to the rim, shall be provided with plastic steps in accordance with Paragraph 3.5.4.(g) of the "Standard Specifications".

e. Storm sewers will not be approved until punch list has been completed and approved by Village Engineer.

f. The entire storm system shall be cleaned at the Developers expense prior to installing the surface pavement course or when the sediment basin is to be filled, seeded and mulched whichever is later. This time limit shall be a minimum of one year after the initial construction of the street or 80% of the homes have been occupied and binder course has experienced one winter.

g. The storm sewer outlets shall be lined with geotextile fabric and covered with light rip-rap. (6"-12" limestone) 18" deep.

Geotextile fabric shall be non-woven needle punched polyester, polypropylene or approved material and shall meet the following minimum requirements:

Test	Requirements (min.) Fabric Unprotected
Grab tensile strength (ASTM D-1682) (lbs)	200
Puncture strength (ASTM -751) (lbs)	80
Mullen burst strength (ASTM D-3786) (psi)	300
Elongation at failure (ASTM D-1682 (%) (any direction)	10
Ultra violet radiation stability (ASTM G-26/D-1682) (%)	90

The geotextile fabric shall be insect, rodent, mildew, and rot resistant. The geotextile fabric shall be placed on the specified area and covered with the crushed limestone. All stones, roots, sticks, or other foreign material which would interfere with the fabric bearing completely on the soil shall be removed prior to placing fabric. The fabric shall extend beyond the crushed stone limits and shall have its lateral edges covered with soil a minimum depth of 6 inches.

520. DITCH FILLING AND GRADING

A. The Contractor shall fill in ditches where indicated on the Plans, grade the ditches to drain to storm sewer inlets in accordance with the grades shown and form new ditch sections per typical details and cross-sections.

B. Prior to grading and filling in ditches, the Contractor shall strip and stockpile all topsoil for future use in restoring disturbed construction areas. All fill areas shall be covered with a minimum of 4 inches of topsoil. If sufficient quantities of salvaged topsoil are not available for covering fill areas, the Contractor shall furnish additional topsoil at no cost to the Owner.

C. Ditch drainage, in accordance with Section 1.7.10. of the "Standard Specifications", must be provided at all times.

605. ROCK EXCAVATION

A. Rock excavation shall be in accordance with Section 2.2.9 of the "Standard Specifications".

606. BLASTING

The Wisconsin Administrative Code on Explosives and all local ordinances that regulate blasting shall be adhered to when blasting is to be done. The Contractor will be held solely responsible for any damage to adjacent property including but not limited to structure, above-ground and underground utilities, culverts, sewers, services, pavements and parking lots due to his blasting operations.

A. Scope

This section covers the work necessary for the use of explosives and blasting in connection with surface excavations.

SUBMITTALS DURING CONSTRUCTION

The following specific information shall be provided:

PERMITS: The Contractor shall submit a copy of all applicable permits for transportation, storage, and use of explosives to the Village.

B. Materials

The use of these explosives and initiation systems shall be in accordance with the instructions and recommendations of the suppliers.

C. Workmanship

Unless otherwise approved by the Village, all blasting shall occur between the hours of 8:00 A.M. and 5:00 P.M., Monday through Friday.

When drilling through the overburden soils and weathered rock for trench blasting, the drill holes may require casing to remain open for the time it takes to drill and load the complete blasting pattern.

Warning System - The Contractor shall erect signboards of adequate size stating that blasting operations are taking place in the area, and such signs shall be clearly visible at all points of access to the area. All requirements of the Wisconsin Department of Industry, Labor and Human Relations (Chapter IND 7) shall be followed.

Contractor shall show proof that he or his blasting subcontractor has a minimum of the following insurance.

Personal Injury	$3,000,000 in aggregate
Bodily Injury	$3,000,000 in aggregate
Property Damage	$3,000,000 in aggregate

607. PORTABLE TRENCH BOX

A. The use of portable trench boxes and sliding trench shields shall conform to Section 2.3.6 of the "Standard Specifications", as modified below:

1. Trench boxes shall ride on a shelf excavated in the trench located no lower than the top of the pipe to ensure that the proper bedding section is achieved and maintained.

608. MANUFACTURER'S REPRESENTATIVE

A. The pipe manufacturer shall have a representative available to the Contractor and Village for the purpose of advising them in the proper method of laying pipe and making watertight joints. It is the intent of this requirement that the representative spend only such time on the job as will accomplish the desired result of satisfactory installation practice. The presence of such representative, however, or the partial payment made for pipe as delivered, shall not relieve the Contractor of his responsibility under these Special Provisions. All pipe laying and making of all joints shall be done strictly in accordance with the manufacturer's directions. However, the Contractor shall be responsible for the watertightness specified.

610. BORING AND JACKING

A. General

1. Boring and jacking shall be in accordance with the provisions of Chapters SWS 4.13.0and 6.2.0 and File No. 49 of the "Standard Specifications", as amended herein.

a. The diameter of borings shall be no greater than the outside diameter of the bell of the lateral pipe or casing plus two inches. Voids occurring between the pipe and the undisturbed natural soil shall be backfilled with backfill concrete or cellular concrete.

2. Casing pipe shall be installed by jacking unless placement of casing pipes in open-cut trenches is indicated on the Plans.

B. Alignment

1. The Contractor shall be responsible for maintaining proper line and grade of the boring or casing pipe and shall check the alignment during coring or jacking operations at intervals he feels are necessary to maintain the proper alignment. The casing shall be installed at a positive or negative grade as indicated on the Plans with no intermediate high or low points. Misalignment of the bore or casing pipe shall be corrected at the Contractor's expense.

a. Casing pipe shall be installed by jacking at the grade shown on the Plans. Final alignment of the casing pipe shall be within 3 inches of line and grade.

(1) The grade of the casing pipe, including both end elevations, will be checked by the Village upon completion of jacking operations and prior to backfilling of jacking pits. The Contractor shall expose both ends of the casing and shall provide any assistance required by the Village when checking grade. The Contractor shall provide the Village with at least 24 hours advance notice when requesting alignment checks.

b. Sanitary sewer laterals installed by boring shall be placed at a grade of 1/4 inch per foot (2.08%) unless shown otherwise on the Plans. Vertical alignment of the completed bore shall be within 4 inches of grade and shall provide a continuous positive lateral grade.

C. Casing Pipe

1. Casing pipe shall be steel having a minimum yield strength of 35,000 psi and minimum thickness(es) of follow file 49 of SWS.

D. Inserting Carrier Pipe

1. Carrier pipes installed within casing pipes shall rest on wooden skids securely fastened to the pipe by steel straps positioned in notches in the skids. A minimum of 2 skids placed at 90° to each other and of sufficient thickness to prevent bells or couplings from resting on the casing shall be fastened to each section of pipe.

a. The thickness of skids shall be varied through the casing, if required, to provide a positive grade on the carrier pipe.

b. If carrier pipes twist or turn during insertion operations, the pipe shall be withdrawn and reinserted until the carrier pipe rests level on the skids as inserted.

2. Amend Paragraph 2.4.3(b)1. to read in part:

"The annular space between the casing pipe and carrier pipe shall be filled by pumping or blowing in sand or pea gravel. Elastosil or other concrete products shall not be used to backfill the annular space."

3. The cost of inserting carrier pipe within casing pipe including blowing in sand or pea gravel shall be paid for separately at the unit price(s) bid per foot for utilities.

615. WATERWAY CROSSINGS

A. The Contractor shall comply with all of the conditions of stream crossing permits issued by the State Department of Natural Resources and the Army Corps of Engineers. A partial list of conditions of these permits is as follows:

1. None of the excavated materials shall be deposited, either temporarily or permanently, upon any part of the bed of the waterway below the high waterline and all spoil shall be placed out of the hydraulic floodway. Surplus excavated material shall not be deposited in any wetland area.

2. No dams, causeways, roadways, fills or other similar temporary or permanent devices are to be placed below the ordinary high water mark unless authorized by the DNR.

3. The removal of materials shall be done with suitable equipment, approved by the DNR, utilizing methods to minimize turbidity and deposition of silt downstream of the project area.

4. The trench shall be backfilled with clean washed gravel, free of excessive fines.

B. The Contractor may use construction methods conflicting with conditions of stream crossing permits only if approved by the State Department of Natural Resources. Contact Mr. Gary Nelson, District Water Management Coordinator, at (414) 562-9675 for information on alternate construction methods.

650. EROSION CONTROL

A. General

1. The Contractor shall take all measures necessary to minimize erosion, water pollution and siltation caused by construction of this project. Erosion control measures shall be in accordance with Section 107.20 of the "State Specifications" as well as Section 17.1100 of the Village of Sussex Ordinance, the CPS: Wisconsin Department of Natural Resources Conservation Practice Standards: http://dnr.wi.gov/org/water/wm/nps/stormwater/techstds.htm. and shall include, but not be limited to: prompt removal of excavated material, proper storage of backfill and bedding materials, construction of erosion control measures such as "inlet protection" on all inlets, catch basins and open grated structures, temporary silt traps, silt fences, prompt cleanup of material tracked onto adjacent streets and timely restoration of damaged surface areas. In order to eliminate sediment material from being deposited outside of this site and onto abutting private and public properties, the Contractor shall install and maintain siltation fences, silt screens or geotextile fabric fences around the grading limits of this site. Any erosion control measure necessary to protect any river, stream, lakes, drainage area, retention or detention pond or other waterway shall be installed by the Contractor whether the erosion control measure is shown on the plan or not.

B. Erosion Mat

1. The Contractor shall place erosion mat over all seeded and sodded areas where shown on the Plans.

   a. Erosion mat material shall be either jute fabric or wood fiber blanket.

   b. Secure the mat with staples placed at three-foot centers except place at ten-inch centers at end or junction slots in accordance with Subsection 628.3.2.2.

C. Silt Fence

1. The Contractor shall place silt fence at the locations shown on the Plans. Silt fence installed shall be toed in to a 4 inch minimum depth.

D. Sodding

1. See Subsection 820.B. of these Special Provisions.

E. Temporary Erosion Barriers

1. The Contractor shall construct temporary earthen dikes to prevent surface runoff from flowing over areas as shown on the Plans. The earthen dikes shall be removed after slopes and ditches have been stabilized and turf developed to the extent that future erosion is unlikely. The dike area shall be reshaped and restored by seeding in accordance with Subsection 820.A. of these Special Provisions.

F. Temporary Sedimentation Basins

1. The Contractor shall construct temporary sedimentation basin(s) at location(s) shown on the Plans. The basin(s) shall be filled in and banks removed after slopes and ditches have been stabilized and turf developed to the extent that future erosion is unlikely. The basin area shall be reshaped and restored by seeding in accordance with Subsection 820.A. of these Special Provisions.

G. Maintenance, Removal and Restoration:

1. The Contractor is responsible for maintenance of the erosion control measures throughout the life of the project. This not only includes the grading period but also during the underground utility installation and paving and other above ground right-of-way improvements. The Contractor shall immediately after each rain and at other times as appropriate clean the temporary sedimentation pond should it collect excessive sediment. It is the intent of these erosion control measures to prevent siltation and sedimentation from impacting adjacent properties. Any sedimentation and siltation occurring from this site to adjacent areas shall be cleaned up immediately. Erosion control measures shall be replaced as needed. All new hay bales shall be installed in early spring should the project last over the winter

months. Upon the completion of the project and upon the direction of the Village the erosion control measures shall remain in place until vegetation has returned and stabilized. The Contractor shall remove and restore all areas of erosion control facilities.

660. REMOVAL OF WATER

A. General

During construction, provide and maintain adequate means and equipment to promptly remove and dispose of all water encountered during excavating and trenching. Under normal excavating and pipe laying conditions, maintain the groundwater table at least one foot below the bottom of the trench.

Under no circumstances shall water be allowed to rise above any trench bottom until the affected work has been completed, including backfilling.

The removal of water shall be accomplished in a manner which will not undermine structures and utilities or cause damage to the work. Water shall be disposed of so as not to interfere with other work.

Selection and use of dewatering methods and removal of groundwater shall take into account and allow for the detrimental effects which the methods and removal may have on existing property and structures, both on and contiguous to the site, including private wells and water supplies. Contractor shall assume responsibility for damage or loss arising from removal or disturbance of groundwater. Loss or damage includes but is not limited to: reduction in water supply; substantial decrease in well capacity, water quality, dried up wells; subsidence of soil; and damage to foundations, structures and other property. Prompt response to rectify claims resulting from dewatering operations is essential. If a private well or water supply is interrupted or detrimentally affected during dewatering operations, provide potable water to the affected user until water supply is restored.

Where dewatering wells are installed to accomplish the removal of water, the wells shall be drilled and sealed in accord with the applicable regulations of the Wisconsin Department of Natural Resources (DNR).

B. Groundwater Control

To accomplish the construction, Contractor shall provide and maintain a groundwater control system as is necessary and mandatory for the performance of the work. The type of groundwater control system used shall be selected and designed by the Contractor and may include well points, deep wells, grouting, or a combination thereof.

Contractor shall maintain groundwater levels such that any excavation, trench or other construction will be performed in the dry and until backfilling is completed.

The dewatering system shall be designed and operated so as to prevent removal of existing soils. Open excavations shall be dewatered from outside their structural limits and from a point below the bottom of the excavation.

All water shall be removed in a manner which will not cause damage to existing structures and property, both on and off the site. The repair and restoration of any such damage shall be the responsibility of the Contractor.

Throughout the dewatering period, Contractor shall carefully monitor and record the operation and performance of the groundwater control system. Provide the means necessary to facilitate the monitoring and allow Village access to the information recorded.

Contractor shall be responsible for the continuous operation and maintenance of the groundwater control system at all times.

Upon completion of the work, all materials and equipment shall be removed from the site. Wells must be abandoned in accord with DNR regulations.

C. Disposal of Water and Sedimentation Control

Contractor shall dispose of all water by methods which will prevent erosion of earth and control the discharge and deposition of sediment and complies with Section 650 of these special provisions.

All groundwater removed from the site shall be conveyed through pipes to the point of discharge. The conveying of water in open ditches or trenches will not be allowed.

Provide and maintain the temporary facilities necessary to control the discharge of sediment resulting from the removal of water and groundwater. The methods and facilities necessary to prevent erosion and control sedimentation shall be selected in accordance with Section 107.20 of the "State Specification" as well as Section 17.100 of the Village of Sussex Ordinance. Contractor shall take all necessary precautions to prevent silting of existing drainage systems including any storm sewers, ditches and natural waterways, and to prevent flooding damage to property.

The means of water disposal and the methods of erosion and sedimentation control shall be acceptable to the Village and shall comply with pollution control laws and regulations. Village's approval of means and methods shall not relieve Contractor of his responsibilities to comply with the requirements of any authority having jurisdiction over the work.

Permission to use any storm sewers, ditches or other existing drainage facilities for the disposal of water shall be obtained by Contractor from the authority having jurisdiction. However, Contractor shall not utilize such facilities in any manner which will obstruct their normal function or cause flooding or damage. Upon completion of the work, Contractor shall leave such facilities as clean as originally found. He shall repair damage resulting from Contractor's operations at his own expense.

Temporary facilities provided for the disposal of water and erosion and sedimentation control shall be maintained until no longer needed. At such time, remove all temporary structures and equipment from the premises, restore area and proceed with remaining work.

700. BACKFILLING UTILITY TRENCHES

A. Excavated Material Backfill

1. Excavated material, in accordance with Section SWS 8.43.4 of the "Standard Specifications", may be used to backfill trenches where shown on the plans, except as provided for below:

a. Trenches through future and existing paved or graveled surface, such as driveways, parking areas, shoulders, curb and gutter, sidewalks or cross streets, in sections allowing excavated material backfill shall be backfilled with granular material within one to one slopes extending downward and outward from the edges of such improved surfaces.

B. Granular Backfill

1. Granular backfill, in accordance with Table 37 of Section SWS 8.43.4 of the "Standard Specifications", shall be used to backfill trenches where shown on the plans and as stated above except, percent passing a #200 sieve shall not exceed 12%.

b. Granular backfill placed within state highway right-of-ways shall conform to Section 209 of the "State Specifications".

C. Slurry Backfill

1. All utilities installed in existing Village streets shall be backfilled with slurry backfill.

a. The materials for the slurry backfill (no. 2 mix) shall be thoroughly mixed in the following proportions:

1350	lbs. sand
775	lbs. #1 stone
1150	lbs. #2 stone
25	gals. (0 to -0.5 gal.) water per C.Y.

This backfill material shall be placed and mechanically compacted in layers not to exceed 8 inches in depth. No additional water will be allowed. The above weights are damp weights. This material shall be thoroughly mixed just prior to installation.

D. Consolidation

1. Amend Section 2.6.14 of the "Standard Specifications" to read in part:

   "All granular and excavated material backfill shall be consolidated through mechanical compaction by means of a backhoe boom-mounted compactor. The backfill shall be compacted in two (2) foot maximum lifts, before compaction, except that the first lift shall be three (3) feet in depth. The Contractor shall take all precautions necessary to protect utilities from being damaged during backfilling and compaction operations."

   Excavated material backfill shall be compacted to result in a minimum of 90% of the Standard Proctor maximum dry density. Where roads will be constructed above the backfill, compaction shall result in at least 95% of the Standard Proctor maximum dry density. All granular backfill shall be compacted to at least 95% of the Standard Proctor maximum dry density.

2. If there is a question as to whether or not the specified density has been achieved, a soil testing firm selected by the Village will be brought in to determine the backfill density.

3. If the Contractor desires to use alternate compaction methods/equipment for granular backfill only, or backfill depths greater than those specified, documentation must be submitted to the Village substantiating the need of the proposed compaction method for approval of the alternate compaction method by the Village Engineer. Flooding of excavated material not meeting the granular backfill specifications will not be permitted. Water for flooding of granular backfill will be furnished by the Village at the Contractors expense. The Contractor shall notify, obtain a water meter and coordinate his operations with the Village.

   Backfill requiring density testing shall be compacted in accordance with the special compaction procedure as specified.

E. Compaction Testing

1. Testing laboratory: Within 15 days of Contract award, submit:

   a. Complete data relative to testing laboratory proposed.

   b. Brief resume of potential technicians who may Work on project.

c. Certification of compliance of each potential technician with on-site testing qualifications.

2. Testing firm: Meet ASTM E329 – Agencies Engaged in the Testing and/or Inspection of Materials Used for Construction.

3. Personnel shall:

a. Have a minimum of 2 years experience.

b. Be trained and experienced in the necessary skills.

c. Be familiar with Contract Document requirements.

4. Testing Execution

a. Perform compaction testing on a daily basis to verify compaction means and acceptability.

b. Fax results of on-site compaction tests daily to ENGINEER.

c. If compaction is unsatisfactory, direct testing agency to make additional in-place density and moisture tests to determine the extent of recompaction Work required. Perform corrective compaction.

F. Surplus Excavated Material

1. The Contractor shall make inquiry of the Village as to the disposal point for all surplus excavated materials and he shall there upon deliver such material to street, alley, public properties or other locations designated or approved by the Village. The cost of delivering such surplus excavated material to any point within a radial distance of two miles from the site of the work shall be included in the price bid for the work. After delivery to the designated location, such material shall be properly leveled off by the Contractor.

2. Surplus excavated materials shall not be deposited within floodplains, marshes or other wetland areas.

800. SURFACE REPLACEMENT AND SITE RESTORATION

A. General Replacement

1. The provisions of Sections 2.6.11. and 2.7.2. of the "Standard Specifications" are modified as follows:

a. The Contractor shall replace or restore to its original condition, unless specified otherwise, any sidewalk, driveway, curb, gutter, shoulder, pavement, culvert, drain tile, lawn, ditch, fence, sign, mailbox or other property damaged by him during his work operations at his own cost.

b. Restoration of pavements damaged by normal truck hauling operations; i.e., hauling within approved weight and speed limits and exercising reasonable care while starting, stopping or turning vehicles, will not be the responsibility of the Contractor. This provision does not apply to pavement damaged by truck wheels during loading or unloading operations.

B. Pavement Protection

1. The Contractor shall take all precautions necessary to protect road pavements, including shoulders, from being damaged. Sheathing and bracing or the use of a portable trench box, if required, shall be in accordance with Chapter 2.3.0. of the "Standard Specifications".

2. Backfill or excavated material spilled or tracked onto pavements or shoulders shall be removed at the completion of each working day or more often if needed as directed by the Village. Any such materials interfering with traffic shall immediately be swept off with power brooming equipment.

C. Saw-Cutting Pavements

1. All concrete and asphalt pavements, shoulders and driveways shall be saw-cut to a minimum depth of three (3) inches prior to being shattered and removed. Where concrete pavements are covered with an asphalt overlay, both the asphalt and concrete shall be saw-cut. Pavements shall be saw-cut in a neat straight line to produce a clean joint for pavement restoration. If the saw-cut edge is damaged during construction, the Contractor shall saw-cut the pavement again immediately prior to paving.

D. Temporary Surfacing

1. All trenches in asphaltic concrete shoulders, driveways and pavements shall be temporarily surfaced with crushed aggregate base course equal in thickness to the total thickness of gravel base course and asphaltic concrete pavement surfacing.

E. Clearing and Grubbing

1. Amend Sections 2.1.3 and 2.2.15 of the "Standard Specifications": to read in part:

"The Contractor shall cut down and remove all trees, stumps, bushes, shrubs and brush interfering with construction of utilities as shown on the Plans and/or as directed by the Village."

2. The Contractor's attention is directed to Section 2.1.3 of the "Standard Specifications" requiring the Contractor to neatly cut and treat with a tree wound dressing all tree limbs and roots one inch or greater in diameter.

F. Waterway Restoration

1. Care shall be taken during construction to minimize erosion into waterways. Temporary erosion control measures including bales or silt fences shall be used to prevent sediment laden runoff from entering waterways.

810. PAVEMENT REPLACEMENT

A. Damaged pavements, shoulders and driveway areas shall be replaced "in kind' or to the following minimums, whichever is greater:

1. Road Shoulders

a. 8 inches of crushed aggregate base course shall be placed over road shoulder areas.

2. Road Pavements.

a. 10 inches of crushed aggregate base course and 5 inches of asphaltic concrete pavement (hot mix) shall be placed over trenches within paved street areas.

(1) The pavement shall consist of 1-1/2 inch thick surface course and two lifts of 1-3/4 inch thick binder course.

3. Driveways and Parking Areas.

a. 6 inches of crushed aggregate base course shall be placed over existing gravel driveways and parking areas, in addition to 2 inches of asphaltic concrete pavement (hot mix, surface course) over existing paved drives and parking areas.

820. LANDSCAPING AND RESTORATION

A. The Contractor shall place four (4) inches minimum of topsoil or salvaged topsoil in all existing grass and terrace areas and as shown on the Plans.

1. Seed mixture shall be as per the "Standard Specifications". The fertilizer shall be 10-10-10 or 12-7-7 and shall be applied in strict accord with the manufacturer's instructions.

B. Sodding

1. The Contractor shall place sod over all damaged grass, lawn and terrace areas as shown on the Plans. Sodding shall comply with Section 631. of the "State Specifications".

(1) The Contractor shall submit a certificate to the Village before installation, detailing the sod grass composition and place of origin.

(2) Sod shall be cut in uniform strips approximately 18" x 72", be 3/4" thick or more and have grass 2" tall.

b. Areas to be sodded shall be covered with 4 inches minimum of topsoil or salvaged topsoil and fertilized in accordance with Subsection 820.A.1. of these Special Provisions.

c. All sodded areas shall be kept thoroughly moist by watering or sprinkling, until grass is fully matured.

C. Erosion Control Mat

1. See Subsection 650.B. of these Special Provisions.

900. TRAFFIC MAINTENANCE

A. Signing, Barricades and Flagmen

1. Whenever the Contractor's activities shall obstruct through traffic, there shall be sufficient flagmen on duty to guide the traffic, and the Contractor shall furnish and install all temporary signing and barricades required to safely direct the traveling public around the obstructed area.

a. As a minimum, suitable barriers shall be erected and maintained at each end of the obstructed section of roadway and at all affected roadway intersections.

b. All signing and barricades shall be done in accordance with the latest revision of Part VI, Traffic Controls for Street and Highway Construction and Maintenance Operations of the U.S. Department of Transportation, Federal Highway Administration's "Manual on Uniform Traffic Control Devices" for Streets and Highways and Section 643. of the "State Specifications".

c. Whenever traffic on state or county highways is obstructed, the Contractor shall provide a minimum of two (2) flagmen to direct traffic at each separate work location.

d. Additional signing maybe required by Village or Engineer for informational or safety reasons.

B. Snow Removal

1. Upon completion of the asphalt binder course and road shoulder (if applicable), the Village will plow the subdivision streets prior to final acceptance at the developer's cost.

1000. CONSTRUCTION IN STATE, COUNTY AND TOWN HIGHWAYS

A. Highway Permits

1. Construction within the right-of-ways of State, County and Town Highways shall be governed by the applicable permits and the appropriate sections of the Specifications.

2. The Contractor shall familiarize himself with all requirements of said permits and general requirements of these agencies.

VILLAGE OF SUSSEX

DEVELOPMENT REQUIREMENTS

FOR STREETS, INCLUDING CURB & GUTTER,

SIDEWALK, & RESTORATION

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DEVELOPMENT REQUIREMENTS
STREETS, INCLUDING CURB & GUTTER, SIDEWALK, & RESTORATION
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WAUKESHA COUNTY, WISCONSIN

1. GENERAL

A. Specifications

All work performed shall be in accordance with the Standard Specifications for Road and Bridge Construction of State of Wisconsin, Department of Transportation, Division of Highway - 1989 Edition, hereinafter known as the "State Specifications", unless otherwise specified by these Development Requirements.

B. Preconstruction Conference

Village will schedule and conduct a preconstruction conference in accord with the General Conditions. The conference will be held at a time and location selected by the Village.

The conference shall be attended by authorized representatives of the Contractor and Village and may also include those others who Contractor may desire to invite or Village may request.

C. Work Schedule/Noise Abatement

The Contractor shall submit a detailed work schedule to the Village prior to the preconstruction conference.

In order to abate objectionable noise to the extent feasible, motorized construction equipment shall not be operated between the hours of 7:00 p.m. and 7:00 a.m. weekdays without prior written approval of the Engineer. Saturday working hours shall be limited to 8:00 a.m. to 4:00 p.m. There shall be no work on Sundays or holidays. Each item of motorized construction equipment shall be equipped with a muffler constructed according to the equipment manufacturer's specifications or a system of equivalent noise reducing capability. Mufflers and exhaust systems shall be maintained in good operating condition, free from leaks and holes.

All work, except for the asphaltic concrete pavement course paving, shall be performed during one construction season. The asphaltic concrete pavement surface course shall be installed during the construction season of the following year, thus experiencing one complete winter season. The Contractor shall submit a detailed work schedule to the Village prior to the preconstruction conference.

D. Alternate Materials

If the Contractor wishes to substitute an alternate material as an "equal" to the material specified, he shall first submit a detailed description of such to the Village for its review and approval/disapproval. The Contractor shall not install any alternate materials prior to receiving approval for their use.

2. DAMAGED PROPERTY

All damaged private and public property, such as trees, fences, culverts, utility poles, etc. and including existing streets and underground utilities, caused by the construction of this project shall be restored to the condition existing prior to construction at the Contractor's expense unless otherwise specified by the Village.

3. UTILITIES

The Contractor shall contact all utility companies prior to the commencement of construction and shall arrange to have those existing utilities located and staked or marked in the field that are in the construction area or that might affect the proposed location of pavement underdrains.

4. EROSION CONTROL

The Contractor shall take all measures necessary to minimize erosion, water pollution and siltation caused by construction of this project. Erosion control measures shall be in accordance with Section 107.20 of the "State Specifications" as well as Section 17.1100 of the Village of Sussex Ordinance, the CPS: Wisconsin Department of Natural Resources Conservation Practice Standards (technical standards) available online at: http://dnr.wi.gov/org/water/wm/nps/stormwater/techstds.htm. and shall include, but not be limited to: prompt removal of excavated material, proper storage of backfill and bedding materials, construction of erosion control measures such as "inlet protection" on all inlets, catch basins and open grated structures, temporary silt traps, silt fences, prompt cleanup of material tracked onto adjacent streets and timely restoration of damaged surface areas. In order to eliminate sediment material from being deposited outside of this site and onto abutting private and public properties, the Contractor shall install and maintain siltation fences, silt screens or geotextile fabric fences around the grading limits of this site. Any erosion control measure necessary to protect any river, stream, lakes, drainage area, retention or detention pond or other waterway shall be installed by the Contractor whether the erosion control measure is shown on the plan or not.

The Contractor shall maintain silt fences and silt traps which are installed by him at all times to prevent sediment from entering any surface water, existing ditches or storm sewers. If maintenance of the existing silt traps is needed due to the occurrence of sedimentation from this project, the Contractor will be responsible for this maintenance work.

The Contractor shall remove all erosion control measures installed by him after notification is given by the Village Engineer. If sedimentation and/or erosion does occur, the Contractor must promptly remove said sediment material and must repair erosion damage or such property damage caused by said sedimentation and/or erosion.

5. LANDSCAPING AND RESTORATION

The topsoil shall be placed at a minimum thickness of four (4) inches and blended in with the existing grade. The topsoil shall meet the requirements of Section 625 of the "State Specifications".

Fertilizing shall be done according to Section 629 of the "State Specifications" using Type A fertilizer.

The seed mixture used shall conform to mixture Number 10 as designated in Section 630 of the "State Specifications" except the white clover shall be eliminated and the respective percentages of the other seeds increased in the same proportion as the original mix. Written evidence of the mixture shall be submitted to the Village. Seed shall be so sown in accordance with Method A as described in Section 630 of the "State Specifications".

Straw mulch shall be placed in accordance with Method A as described in Section 627 of the "State Specifications", except that the mulch shall be placed within one (1) day after the seeding has been completed.

The sodded and/or seeded areas shall be kept thoroughly moist by watering, when rainfall is deficient. Watering shall continue until grass is fully matured.

Seeded areas shall be maintained for 2 months after grass has shown "a catch" or uniform stand verified by ENGINEER. Lawn areas shall receive two 2 inch mowings before acceptance, reseeding areas which fail to show adequate catch. Bare spots shall not exceed 2 square feet in area and not exceed 3 percent of the total seeded areas. Reseed areas which do not show a satisfactory stand of established grass, or areas which show erosion, dead grass, or other defects, to produce established, satisfactory grass. Correct damage resulting from erosion, gullies, washouts, or other causes by filling with topsoil, tamping, refertilizing, and reseeding, if damage occurs before Work acceptance. Protect grass areas with warning signs during maintenance period. Request inspection by ENGINEER at end of maintenance period.

6. STREET CONSTRUCTION

The streets shall be constructed according to the profiles and Typical Section as shown on the plans. The roadways shall be graded and compacted to bring the subgrade of the roads and parkways to the proposed grades as shown on the plans. Surplus Material disposal methods within the Village of Sussex shall conform to the Village's Erosion Control Ordinance. In the event that materials other than earth are excavated, they shall be disposed of in a properly certified landfill. A temporary Tee turn-a-round with signing shall be installed at all dead end streets. (Per detail).

The base course material for all streets shall be as shown on the Typical Section. Compaction of the subgrade and the base course shall be in accordance with the "State Specifications" but shall never be less than 95% of the maximum density of the material being compacted using the "Standard Proctor".

Curb and gutter shall be placed according to plan detail. Contractor shall obtain a "marking stamp" from the Village Water Utility. Contractor shall imprint a stamp in the top of the curb head in alignment with each water service curb stop box and each main line valve box.

All manholes and catch basins located on slopes shall be adjusted to finish surface grade. Catch basins at low spots shall be adjusted to 3 inches below top of curb per the interim pavement detail. Utilities such as valve boxes shall be adjusted to finished binder course grade. The Road Contractor shall coordinate all utility adjustments with the Utility Contractor. Manholes shall be ramped within the placement of binder course asphalt. Each ramp shall be a minimum of 30' diameter and shall be installed 3/4" above the manhole frame. (See detail).

All utilities such as valve boxes shall be mechanically adjusted to finished grade upon installation of the asphaltic concrete surface course pavement. The Road Contractor shall coordinate all utility adjustments with the Utility Contractor.

The asphaltic concrete pavement shall be installed in stages. Submit mix design. The binder course pavement, two lifts of 2" shall conform to 12.5 mm per the "State Specifications". Follow "State Specifications" 450, 460, and 465. The surface course pavement shall conform to 9.5 mm per the "State Specifications". During placement of the binder course, the 5' area each side of the catch basin shall be constructed per interim pavement. See catch basin detail. The 18" pavement wedge and manhole ramp shall also be placed per details. The asphaltic concrete surface course shall not be installed for a minimum of a year after the initial construction of the street. (i.e. after one winter season has passed). This temporary binder wedge and manhole ramping shall be milled prior to placing surface course. The interim pavement at the catch basin shall be removed, and casting set to grade with one 2" adjusting ring and necessary mortar. No brick adjustments will be allowed. Mortar must be set up before placement of surface. Asphaltic materials used in the work shall conform to the mixture requirements of E-1.0. For tack coat follow "State Specifications" 455.2.5. Asphaltic material dependent on weather conditions. Apply between each layer of asphaltic concrete. Follow "State Specifications" 455.3. Allow to cure before paving. All existing asphaltic concrete pavements shall be saw cut at all match points.

Asphaltic concrete binder course shall not be placed unless the air temperature is 35°F and rising. Do not pave on frozen ground. Asphaltic concrete surface course shall not be placed unless the air temperature is 40°F and rising. Under no circumstances shall asphalt be placed on frozen ground. No paving will be allowed after November 1 without written approval of the Village Engineer.

7. CONCRETE CONSTRUCTION

A. All work shall be constructed in accordance with Section 601 of the "State Specifications" and with the typical section. Curb ramps shall be installed at all intersections in accordance with the detail as shown on the plans.

Concrete shall be air entrained (6+/-1%), maximum slump of 3 inches, shall have a minimum designed 28 day compressive strength of 4,000 pounds per square inch, and a cement content of at least a six (6) bag mix or approved equal. Aggregate shall conform to Section 501, 501.3.6.3 and Section 501.3.6.4 of the "State Specifications".

Prior to beginning any concrete work the Contractor shall submit to the Village the concrete mix design. In addition to the requirements specified above, concrete materials shall be proportioned according to the procedures outlined in ACI 301-84, Section 3.9 and the maximum allowable water-cement ratio shall not exceed 0.45.

Concrete which has not been discharged from the truck within 1-1/2 hours or 300 drum turns after mixing shall be rejected.

B. Expansion Joint Filler

Type I shall consist of a bituminous (asphalt or tar) mastic composition, formed and encased between two layers of bituminous impregnated felt.

C. Finishing

After the concrete has been placed and struck off to the required elevations, the surface shall be worked by means of long handled wood or metal floats with a circular motion until a thin uniform mortar surface is obtained. The surface shall then be troweled smooth with a metal hand trowel. Immediately after the water glaze or sheen has disappeared, the surface shall again be troweled smooth with a metal hand trowel operated with a circular motion.

All sidewalk edges shall be finished with an edging tool having a radius of 1/2 inch. All dummy joints shall be finished with a jointer having radii of 1/2 inch and minimum depth of one inch.

The final surface finish shall be obtained by brushing light with a damp whitewash brush or with a floor brush having soft bristles. Any marring of the finished concrete surface before it has set will be cause for rejection and replacement of the concrete at the Contractor's expense.

D. Joints

Dummy joints for the sidewalks shall be constructed at right angles to the edge of the walk and spaced at a distance equal to the width of the sidewalk, unless otherwise directed. These joints shall be a minimum of one inch in depth and shall be 1/4 inch in width.

Dummy joints for curb and gutter shall be constructed at right angles to the edge of the curb at a distance of every 10 feet.

Expansion Joints shall be one-half-inch expansion joint material (Type I) installed to the full depth of the concrete at the following locations:

- The end of all curb & gutter radii;
- 5' from all catch basins;
- Where walk adjoins a curb;
- At intervals not to exceed 150 feet for curb and gutter and 90 feet for sidewalk;
- Where curb ramp adjoins sidewalk.

E. Curing and Protection

All freshly placed concrete shall be protected from rapid drops in temperature and loss of moisture and from subsequent construction operations. No concrete shall be allowed to freeze. An approved liquid membrane-forming curing compound shall be applied to all finished concrete surfaces as soon as possible after placement, but in no case more than two hours after concrete placement. Curing compound shall have white pigmentation having AASHO Designation M148 and be applied in <u>two</u> coats in directions opposite to each other (cross pattern). Each coat should be applied at the recommended application rate. Extreme care shall be taken so as not to injure the surface of the concrete during the process of applying curing compound. Curing compound shall be applied thick enough that the concrete is white, not grey and sprayed on to the top and all exposed sides at the time of placement.

Concrete work shall be closed to pedestrian traffic for a period of twenty-four hours and to vehicular traffic for seven days unless otherwise authorized. The Contractor shall provide and maintain sufficient barricades to effectively close the concrete work to traffic.

F. Concrete Testing

The Contractor shall be responsible for supplying, obtaining and testing of concrete cylinders. Four test cylinders shall be taken for every 500 feet of concrete placed, or as otherwise directed by the Village. Test results shall be submitted to the Village.

The Village may take test cylinders at their discretion. Concrete failing to obtain the required 28 day strength shall be rejected as unacceptable material. Areas in which this material was placed shall be removed and replaced with concrete of specified quality and thickness at the Contractor's expense. The Contractor may have an independent testing laboratory cut cores from a questionable area at his expense. In this case, acceptance of the compressive strength shall be based on the compressive strength of the cores.

G. Hot Weather Work

Comply with the requirements of ACI 305-77R. During hot weather, that is when the air temperature is above 80 degrees F., special precautions shall be taken, during mixing, transporting, handling and placement, and finishing of all concrete work. Concrete work shall be carefully scheduled and maintained to minimize the elapsed time between mixing and placement.

During handling and placement, special efforts shall be directed toward the prevention of excessive loss of moisture from the concrete, loss of slump, flash setting, and the development of cold joints. Subgrades and abutting finished concrete work shall be sprinkled or wetted just prior to placement to prevent suction of water from fresh concrete. All new work shall be carefully protected against excessively rapid drying.

The published recommended practices of the ACI and PCA shall be adhered to as they apply to the work. A set-retarding admixture may be used when approved by the Village.

H. Cold Weather Work

Comply with the provisions of ACI 306R. Unless the air temperature is at least 40 degrees F. and rising, heat concrete materials at the time of mixing. Handle and

protect the mix so that the temperature of the concrete when placed is not less than 55 degrees F. Written authorization from the Village must be obtained for concrete placement when the air temperature is below 40 degrees F.

The use of salts or other chemical additives (i.e., calcium chloride) which prevent the concrete from freezing will not be permitted.

All reinforcement, forms, fillers, soils and other surfaces with which the concrete may come in contact shall be free of frost, snow and ice. All concrete must be protected from frost for a minimum of seven days.

When the projected overnight temperature is 32 degrees F. or below, double polyethylene wrap must be placed over concrete. When the projected overnight temperature is 25 degrees F. or below, hay must be placed over concrete in addition to the double polywrap.

I. Sidewalks

The sidewalks shall be installed in accordance with the typical Section shown on the plans, except as where noted on the plans.

J. Catch Basins

Catch basin castings shall be set by the Paving Contractor as part of their curb and gutter placement operations. Any needed height adjustments shall be made by the Paving Contractor using precast concrete chimney rings with mortar joints. The Utility Contractor shall supply the Paving Contractor with all needed chimney rings prior to curb and gutter placement. Adjustments made with any materials other than precast concrete adjusting rings will not be accepted and will be cause for rejection.

K. Curb and Gutter Patches

Patches shall be Hi-Early 8 bag concrete mix. Barricade patched area for 3 days, during which time, traffic will not be allowed.

8. SUBGRADE/GRAVEL CHECKS

Contractor shall contact the Village upon completion of the sub-base and the gravel base, respectively, for approval.

Contractor shall provide and perform a roll test of the sub-base and gravel base as directed by the Village. All tests shall be in the presence of and directed by the Village.

9. MATERIALS DELIVERY TICKETS

Contractor shall supply all material delivery tickets to the Village on a daily basis, or as otherwise directed by the Village.

10. UNDERCUTTING SUBGRADE

The Village may order that the subgrade of the roadway be undercut due to unsuitable soil conditions. Where directed by the Village, the Contractor shall undercut these areas to a stable base.

VILLAGE OF SUSSEX

EROSION CONTROL ORDINANCE

CONSTRUCTION SITE EROSION CONTROL ZONING ORDINANCE

FOREWORD.

The intent of this ordinance is to require use of best management practices to reduce the amount of sediment and other pollutants resulting from land disturbing construction activities including sites that do not include the construction of a building and are otherwise regulated by the Wisconsin Department of Commerce in s. COMM 21.125 or COMM 50.115, Wis. Adm. Code. Use of this ordinance will foster consistent, statewide application of the construction site performance standards for new development and redevelopment contained in subchapters III and IV of ch. NR 151, Wis. Adm. Code.

The Village Board of the Village of Sussex does hereby ordain that Chapter 17.1100 of the Municipal Code of the Village of Sussex is created to read as follows:

17.1100 CONSTRUCTION SITE EROSION

17.1101 AUTHORITY.

(1) This ordinance is adopted under the authority granted by s. 61.354, Wis. Stats. This ordinance supersedes all provisions of any ordinance previously enacted under s. 61.35, Wis. Stats., that conflict with this ordinance in relation to construction site erosion control at sites where the construction activities do not include the construction of a building; except that Chapter 14 of the Village of Sussex Municipal Code is not superceded otherwise specified in s. 61.354, Wis. Stats., s. 61.35, Wis. Stats., applies to this ordinance and to any amendments to this ordinance.

(2) The provisions of this ordinance are deemed not to limit any other lawful regulatory powers of the same governing body.

(3) The Village Board hereby designates the Village Engineer to administer and enforce the provisions of this ordinance.

(4) The requirements of this ordinance do not pre-empt more stringent erosion and sediment control requirements that may be imposed by any of the following:
- (a) Wisconsin Department of Natural Resources administrative rules, permits or approvals including those authorized under ss. 281.16 and 283.33, Wis. Stats.
- (b) Targeted non-agricultural performance standards promulgated in rules by the Wisconsin Department of Natural Resources under s. NR 151.004, Wis. Adm. Code.
- (c) Waukesha County Storm Water Management and Erosion Control Ordinance

17.1102 FINDINGS OF FACT.

The Village Board finds that runoff from land disturbing construction activity carries a significant amount of sediment and other pollutants to the waters of the state in the Village of Sussex.

17.1103 PURPOSE.

It is the purpose of this ordinance to further the maintenance of safe and healthful conditions; prevent and control water pollution; prevent and control soil erosion; protect spawning grounds, fish and aquatic life; control building sites, placement of structures and land uses; preserve ground cover and scenic beauty; and promote sound economic growth, by minimizing the amount of sediment and other pollutants carried by runoff or discharged from land disturbing construction activity to waters of the state in the Village of Sussex.

17.1104 APPLICABILITY AND JURISDICTION.

(1) APPLICABILITY.

(a) This ordinance applies to the following land disturbing construction activi ties except as provided under sub. (b):

1. An area of 3,000 square feet or greater will be disturbed by excavation, grading, filling, or other earth-moving activities, resulting in a loss or removal of protective ground cover, vegetation; or
2. Excavation, fill, or any combination thereof, will exceed 400 cubic yards; or
3. Any public (federal, state or local) street, road or highway is to be constructed, enlarged, relocated or substantially reconstructed; or
4. Any water course is to be changed, enlarged, or materials are removed from a stream or lake bed; or
5. Any utility work in which underground conduits, piping, wiring, water lines, sanitary sewers, storm sewers, or similar structures will be laid, repaired, replaced or enlarged, if such work involves more than 300 linear feet of earth disturbance.
6. Land disturbing construction activity that includes the construction of a building and is otherwise regulated by the Wisconsin Department of Commerce under s. COMM 21.125 or COMM 50.115, Wis. Adm. Code.

(b) This ordinance does not apply to the following:

1. A construction project that is exempted by federal statutes or regulations from the requirement to have a national pollutant discharge elimination system permit issued under chapter 40, Code of Federal Regulations, part 122, for land disturbing construction activity.
2. Nonpoint discharges from agricultural facilities and practices.
3. Nonpoint discharges from silviculture activities.
4. Routine maintenance for project sites under 5 acres of land disturbance if performed to maintain the original line and grade, hydraulic capacity or original purpose of the facility.
5. Nonmetallic mining activities that are covered under a nonmetallic mining reclamation permit under NR 135, Wisconsin Administrative Code.

(c) Notwithstanding the applicability requirements in paragraph (a), this ordinance applies to construction sites of any size that, in the opinion of the Village Engineer, are likely to result in runoff that exceeds the safe capacity of the existing drainage facilities or receiving body of water, that causes undue channel erosion, that increases water pollution by scouring or the transportation of particulate matter or that endangers property or public safety.

(2) JURISDICTION.
This ordinance applies to land disturbing construction activity on construction sites located within the boundaries and jurisdiction of the Village of Sussex.

(3) EXCLUSIONS.
This ordinance is not applicable to activities conducted by a state agency, as defined under s. 227.01 (1), Wis. Stats., but also including the office of district attorney, which is subject to the state plan promulgated or a memorandum of understanding entered into under s. 281.33 (2), Wis. Stats.

17.1105 DEFINITIONS. For the purpose of this Section 17.1100, the following terms shall be defined as follows:

(1) "Agricultural facilities and practices " has the meaning in s. 281.16(1), Wis. Stats.

(2) "Average annual rainfall" means a calendar year of precipitation, excluding snow, which is considered typical.

(3) "Best management practice" or "BMP" means structural or non-structural measures, practices, techniques or devices employed to avoid or minimize soil, sediment or pollutants carried in runoff to waters of the state.

(4) "Business day" means a day the office of the Village Engineer is routinely and customarily open for business.

(5) "Cease and desist order" means a court-issued order to halt land disturbing construction activity that is being conducted without the required permit.

(6) "Construction site" means an area upon which one or more land disturbing construction activities occur, including areas that are part of a larger common plan of development or sale where multiple separate and distinct land disturbing construction activities may be taking place at different times on different schedules but under one plan.

(7) "Erosion" means the process by which the land's surface is worn away by the action of wind, water, ice or gravity.

(8) "Erosion and sediment control plan" means a comprehensive plan developed to address pollution caused by erosion and sedimentation of soil particles or rock fragments during construction.

(9) "Extraterritorial" means the unincorporated area within 3 miles of the corporate limits of a first, second, or third class city, or within 1.5 miles of a fourth class city or village.

(10) "Final stabilization" means that all land disturbing construction activities at the construction site have been completed and that a uniform perennial vegetative cover has been established, with a density of at least 70 percent of the cover, for the unpaved areas and areas not covered by permanent structures, or that employ equivalent permanent stabilization measures.

(11) "Governing body" means town board of supervisors, county board of supervisors, city council, village board of trustees or village council.

(12) "Land disturbing construction activity" means any man-made alteration of the land surface resulting in a change in the topography or existing vegetative or non-vegetative soil cover, that may result in runoff and lead to an increase in soil erosion and movement of sediment into waters of the state. Land disturbing construction activity includes clearing and grubbing, demolition, excavating, pit trench dewatering, filling and grading activities.

(13) "MEP" or "maximum extent practicable" means a level of implementing best management practices in order to achieve a performance standard specified in this chapter which takes into account the best available technology, cost effectiveness and other competing issues such as human safety and welfare, endangered and threatened resources, historic properties and geographic features. MEP allows flexibility in the way to meet the performance standards and may vary based on the performance standard and site conditions.

(14) "Performance standard" means a narrative or measurable number specifying the minimum acceptable outcome for a facility or practice.

(15) "Permit" means a written authorization made by the Village Engineer to the applicant to conduct land disturbing construction activity or to discharge post-construction runoff to waters of the state.

"Pollutant" has the meaning given in s. 283.01 (13), Wis. Stats.

"Pollution" has the meaning given in s. 281.01 (10), Wis. Stats.

(18) "Responsible party" means any entity holding fee title to the property or performing services to meet the performance standards of this ordinance through a contract or other agreement.

(19) "Runoff" means storm water or precipitation including rain, snow or ice melt or similar water that moves on the land surface via sheet or channelized flow.

(20) "Sediment" means settleable solid material that is transported by runoff, suspended within runoff or deposited by runoff away from its original location.

(21) "Separate storm sewer" means a conveyance or system of conveyances including roads with drainage systems, streets, catch basins, curbs, gutters, ditches, constructed channels or storm drains, which meets all of the following criteria:

(a) Is designed or used for collecting water or conveying runoff.

(b) Is not part of a combined sewer system.

(c) Is not draining to a storm water treatment device or system.

(d) Discharges directly or indirectly to waters of the state.

(22) "Site" means the entire area included in the legal description of the land on which the land disturbing construction activity is proposed in the permit application.

(23) "Stop work order" means an order issued by the Village Engineer which requires that all construction activity on the site be stopped.

(24) "Technical standard" means a document that specifies design, predicted performance and operation and maintenance specifications for a material, device or method.

(25) "Village Engineer" means a governmental employee, or a regional planning commission empowered under s. 61.354, Wis. Stats., that is designated by the Village Board to administer this ordinance.

(26) "Waters of the state" has the meaning given in s. 281.01 (18), Wis. Stats.

17.1106 TECHNICAL STANDARDS.

(1) DESIGN CRITERIA, STANDARDS AND SPECIFICATIONS. All BMPs required to comply with this ordinance shall meet the more restrictive design criteria, standards and specifications based on any of the following:

(a) Applicable design criteria, standards and specifications identified in the *Wisconsin Construction Site Best Management Practice Handbook,* WDNR Pub. WR-222 November 1993 Revision.

(b) Other design guidance and technical standards identified or developed by the Wisconsin Department of Natural Resources under subchapter V of chapter NR 151, Wis. Adm. Code.

(c) For this ordinance, average annual basis is calculated using the appropriate annual rainfall or runoff factor, also referred to as the R factor, or an equivalent design storm using a type II distribution, with consideration given to the geographic location of the site and the period of disturbance.

(2) OTHER STANDARDS. Other technical standards not identified or developed in sub. (1), may be used provided that the methods have been approved by the Village Engineer.

17.1107 PERFORMANCE STANDARDS.

(1) RESPONSIBLE PARTY. The responsible party shall implement an erosion and sediment control plan, developed in accordance with 17.1109, that incorporates the requirements of this section.

(2) PLAN. A written plan shall be developed in accordance with 17.1109 and implemented for each construction site.

(3) EROSION AND OTHER POLLUTANT CONTROL REQUIREMENTS. The plan required under sub. (2) shall include the following:

(a) BMPs that, by design, achieve to the maximum extent practicable, a reduction of 80% of the sediment load carried in runoff, on an average annual basis, as compared with no sediment or erosion controls until the construction site has undergone final stabilization.

No person shall be required to exceed an 80% sediment reduction to meet the requirements of this paragraph. Erosion and sediment control BMPs may be used alone or in combination to meet the requirements of this paragraph. Credit toward meeting the sediment reduction shall be given for limiting the duration or area, or both, of land disturbing construction activity, or other appropriate mechanism.

(b) Notwithstanding par. (a), if BMPs cannot be designed and implemented to reduce the sediment load by 80%, on an average annual basis, the plan shall include a written and site-specific explanation as to why the 80% reduction goal is not attainable and the sediment load shall be reduced to the maximum extent practicable.

(c) Where appropriate, the plan shall include sediment controls to do all of the following to the maximum extent practicable:

1. Prevent tracking of sediment from the construction site onto roads and other paved surfaces. Materials tracked onto roads or other impervious surfaces shall be removed daily.
2. Prevent the discharge of sediment as part of site de-watering.
3. Protect the separate storm drain inlet structure from receiving sediment.

(d) The use, storage and disposal of chemicals, cement and other compounds and materials used on the construction site shall be managed during the construction period, to prevent their entrance into waters of the state. However, projects that require the placement of these materials in waters of the state, such as constructing bridge footings or BMP installations, are not prohibited by this paragraph.

(4) LOCATION. The BMPs used to comply with this section shall be located prior to runoff entering waters of the state.

(5) ALTERNATE REQUIREMENTS. The Village Engineer may establish storm water management requirements more stringent than those set forth in this section if the Village Engineer determines that an added level of protection is needed for sensitive resources.

17.1108 PERMITTING REQUIREMENTS, PROCEDURES AND FEES.

(1) PERMIT REQUIRED. No responsible party may commence a land disturbing construction activity subject to this ordinance without receiving prior approval of an erosion and sediment control plan for the site and a permit from the Village Engineer.

(2) PERMIT APPLICATION AND FEES. At least one responsible party desiring to undertake a land disturbing construction activity subject to this ordinance shall submit an application for a permit and an erosion and sediment control plan that meets the requirements of 17.1109 and shall pay an application fee as approved by the Village Board. By submitting an application, the applicant is authorizing the Village Engineer to enter the site to obtain information required for the review of the erosion and sediment control plan.

(3) REVIEW AND APPROVAL OF PERMIT APPLICATION. The Village Engineer shall review any permit application that is submitted with erosion and sediment control plan, and the required fee. The following approval procedure shall be used:

(a) Within thirty (30) business days of the receipt of a complete permit application, as required by sub. (2), and after approval of any other plans required by Village Ordinance, the Village Engineer shall inform the applicant whether the application and plan are approved or disapproved based on the requirements of this ordinance.

(b) If the permit application and plan are approved, the Village Engineer shall issue the permit.

(c) If the permit application or plan is disapproved, the Village Engineer shall state in writing the reasons for disapproval.

(d) The Village Engineer may request additional information from the applicant. If additional information is submitted, the Village Engineer shall have thirty (30) business days from the date the additional information is received to inform the applicant that the plan is either approved or disapproved.

(e) Failure by the Village Engineer to inform the permit applicant of a decision within thirty (30) business days of a required submittal shall be deemed to mean approval of the submittal and the applicant may proceed as if a permit had been issued.

(4) SURETY BOND. As a condition of approval and issuance of the permit, the Village Engineer may require the applicant to deposit a surety bond or irrevocable letter of credit to guarantee a good faith execution of the approved erosion control plan and any permit conditions.

(5) PERMIT REQUIREMENTS. All permits shall require the responsible party to:

(a) Notify the Village Engineer within 48 hours of commencing any land disturbing construction activity.

(b) Notify the Village Engineer of completion of any BMPs within 14 days after their installation.

(c) Obtain permission in writing from the Village Engineer prior to any modification pursuant to 17.1109(3) of the erosion and sediment control plan.

(d) Install all BMPs as identified in the approved erosion and sediment control plan prior to starting any land disturbing activities.

(e) Maintain all road drainage systems, stormwater drainage systems, BMPs and other facilities identified in the erosion and sediment control plan.

(f) Repair any siltation or erosion damage to adjoining surfaces and drainage ways resulting from land disturbing construction activities and document repairs in a site erosion control log.

(g) Inspect the BMPs within 24 hours after each rain of 0.5 inches or more which results in runoff during active construction periods, and at least once each week, make needed repairs and document the findings of the inspections in a site erosion control log with the date of inspection, the name of the person conducting the inspection, and a description of the present phase of the construction at the site.

(h) Allow the Village Engineer to enter the site for the purpose of inspecting compliance with the erosion and sediment control plan or for performing any work necessary to bring the site into compliance with the control plan. Keep a copy of the erosion and sediment control plan at the construction site.

(i) Maintain erosion control practices through rough grading and until grading contractor begins final site grading. Restoration shall be completed within 7 days from removal of any silt fence.

(6) PERMIT CONDITIONS. Permits issued under this section may include conditions established by Village Engineer in addition to the requirements set forth in sub. (5), where needed to assure compliance with the performance standards in 17.1107.

(7) PERMIT DURATION. Permits issued under this section shall be valid for a period of 180 days from the date of issuance. The Village Engineer may extend the period one or more times for up to an additional 180 days. The Village Engineer may require additional BMPs as a condition of the extension if they are necessary to meet the requirements of this ordinance.

(8) MAINTENANCE. The responsible party throughout the duration of the construction activities shall maintain all BMPs necessary to meet the requirements of this ordinance until the site has undergone final stabilization.

17.1109 EROSION AND SEDIMENT CONTROL PLAN, STATEMENT, AND AMENDMENTS.

(1) EROSION AND SEDIMENT CONTROL PLAN.

(a) An erosion and sediment control plan shall be prepared and submitted to the Village Engineer.

(b) The erosion and sediment control plan shall be designed to meet the performance standards in 17.1107 and other requirements of this ordinance.

(c) The erosion and sediment control plan shall address pollution caused by soil

erosion and sedimentation during construction and up to final stabilization of the site. The erosion and sediment control plan shall include, at a minimum, the following items:

1. The name(s) and address(es) of the owner or developer of the site, and of any consulting firm retained by the applicant, together with the name of the applicant's principal contact at such firm. The application shall also include start and end dates for construction.
2. Description of the site and the nature of the construction activity, including representation of the limits of land disturbance on a United States Geological Service 7.5 minute series topographic map.
3. A sequence of construction of the development site, including stripping and clearing; rough grading; construction of utilities, infrastructure, and buildings; and final grading and landscaping. Sequencing shall identify the expected date on which clearing will begin, the estimated duration of exposure of cleared areas, areas of clearing, installation of temporary erosion and sediment control measures, and establishment of permanent vegetation.
4. Estimates of the total area of the site and the total area of the site that is expected to be disturbed by construction activities.
5. Estimates, including calculations, if any, of the runoff coefficient of the site before and after construction activities are completed.
6. Calculations to show the expected percent reduction in the average annual sediment load carried in runoff as compared to no sediment or erosion controls.
7. Existing data describing the surface soil as well as subsoils.
8. Depth to groundwater, as indicated by Natural Resources Conservation Service soil information where available.
9. Name of the immediate named receiving water from the United States Geological Service 7.5 minute series topographic maps.

(d) The erosion and sediment control plan shall include a site map; or plat of survey for a single one or two-family residential construction site. The site map and plat of survey shall include the following items and shall be at a scale not greater than 100 feet per inch and at a contour interval not to exceed two feet.

1. Existing topography, vegetative cover, natural and engineered drainage systems, roads and surface waters. Lakes, streams, wetlands, channels, ditches and other watercourses on and immediately adjacent to the site shall be shown. Any identified 100-year flood plains, flood fringes and floodways shall also be shown.
2. Boundaries of the construction site.
3. Drainage patterns and approximate slopes anticipated after major grading activities.
4. Areas of soil disturbance.
5. Location of major structural and non-structural controls identified in the plan.
6. Location of areas where stabilization practices will be employed.
7. Areas which will be vegetated following construction.
8. Area extent of wetland acreage on the site and locations where storm water is discharged to a surface water or wetland.
9. Locations of all surface waters and wetlands within one mile of the construction site.

(e) Each erosion and sediment control plan shall include a description of appropriate controls and measures that will be performed at the site to prevent pollutants from reaching waters of the state. The plan shall clearly describe the appropriate control measures for each major activity and the timing during the construction process that the measures will be implemented. The description of erosion controls shall include, when appropriate, the following minimum requirements:

1. Description of interim and permanent stabilization practices, including a practice implementation schedule. Site plans shall ensure that existing vegetation is preserved where attainable and that disturbed portions of the site are stabilized.
2. Description of structural practices to divert flow away from exposed soils, store flows or otherwise limit runoff and the discharge of pollutants from the site. Unless otherwise specifically approved in writing by the Village Engineer, structural measures shall be installed on upland soils.

3. Management of overland flow at all sites, unless otherwise controlled by outfall controls.
4. Trapping of sediment in channelized flow.
5. Staging construction to limit bare areas subject to erosion.
6. Protection of downslope drainage inlets where they occur.
7. Minimization of tracking at all sites.
8. Clean up of off-site sediment deposits.
9. Proper disposal of building and waste materials at all sites.
10. Stabilization of drainage ways.
11. Control of soil erosion from dirt stockpiles.
12. Installation of permanent stabilization practices within 7 days after final grading.
13. Minimization of dust to the maximum extent practicable.

(f) The erosion and sediment control plan shall require that velocity dissipation devices be placed at discharge locations and along the length of any outfall channel, as necessary, to provide a non-erosive flow from the structure to a water course so that the natural physical and biological characteristics and functions are maintained and protected.

(2) EROSION AND SEDIMENT CONTROL PLAN STATEMENT. For each construction site identified under 17.1104(1)(c), an erosion and sediment control plan statement shall be prepared. This statement shall be submitted to the Village Engineer. The control plan statement shall briefly describe the site, including a site map. Further, it shall also include the best management practices that will be used to meet the requirements of the ordinance, including the site development schedule.

(3) AMENDMENTS. The applicant shall amend the plan if any of the following occur:

(a) There is a change in design, construction, operation or maintenance at the site which has the reasonable potential for the discharge of pollutants to waters of the state and which has not otherwise been addressed in the plan.

(b) The actions required by the plan fail to reduce the impacts of pollutants carried by construction site runoff.

(c) The Village Engineer notifies the applicant of changes needed in the plan.

17.1110 FEE SCHEDULE.

The fees referred to in other sections of this ordinance shall be established by the Village Engineer and may from time to time be modified by resolution adopted by the Village Board. A schedule of the fees established by the Village Board shall be available for review in the Sussex Village Hall.

17.1111 INSPECTION.

If land disturbing construction activities are being carried out without a permit required by this ordinance, the Village Engineer may enter the land pursuant to the provisions of ss. 66.0119(1), (2), and (3), Wis. Stats.

17.1112 ENFORCEMENT.

(1) The Village Engineer may post a stop-work order if any of the following occurs:

(a) Any land disturbing construction activity regulated under this ordinance is being undertaken without a permit.

(b) The erosion and sediment control plan is not being implemented in a good faith manner.

(c) The conditions of the permit are not being met.

(2) If the responsible party does not cease activity as required in a stop-work order posted under this section or fails to comply with the erosion and sediment control plan or permit conditions, the Village Engineer may revoke the permit.

(3) If the responsible party, where no permit has been issued, does not cease the activity after being notified by the Village Engineer, or if a responsible party violates a stop-work order posted under sub. (1), the Village Engineer may request the Village Attorney to obtain a cease and desist order in any court with jurisdiction.

(4) The Village Engineer or the Board of Appeals may retract the stop-work order issued under sub. (1) or the permit revocation under sub. (2).

(5) After posting a stop-work order under sub. (1), the Village Engineer may issue a notice of intent to the responsible party of its intent to perform work necessary to comply with this ordinance. The Village Engineer may go on the land and commence the work after issuing the notice of intent. The costs of the work performed under this subsection by the Village Engineer, plus interest at the rate authorized by the Village Board shall be billed to the responsible party. In the event a responsible party fails to pay the amount due, the clerk shall enter the amount due on the tax rolls and collect as a special charge against the property pursuant to Section 66.0627, Wis. Stats.

(6) Any person violating any of the provisions of this ordinance shall be subject to a forfeiture of not less than One Hundred Dollars ($100.00) nor more than Five Hundred Dollars ($500.00) and the costs of prosecution for each violation. Each day a violation exists shall constitute a separate offense.

(7) Compliance with the provisions of this ordinance may also be enforced by injunction in any court with jurisdiction. It shall not be necessary to prosecute for forfeiture or a cease and desist order before resorting to injunctional proceedings.

(8) Any building, utility or road construction inspections required by Village Ordinance will be suspended until all erosion control measures are in full compliance with this Ordinance.

17.1113 APPEALS.

(1) BOARD OF APPEALS. The Board of Appeals created pursuant to Section 17.1200 of the Village Zoning Code ordinance pursuant to s. 61.354(4)(b), Wis. Stats.:

(a) Shall hear and decide appeals where it is alleged that there is error in any order, decision or determination made by the Village Engineer in administering this ordinance except for cease and desist orders obtained under 17.1112 (3).

(b) Upon appeal, may authorize variances from the provisions of this ordinance which are not contrary to the public interest and where owing to special conditions a literal enforcement of the provisions of the ordinance will result in unnecessary hardship; and

(c) Shall use the rules, procedures, duties and powers authorized by statute in hearing and deciding appeals and authorizing variances.

(2) WHO MAY APPEAL. Appeals to the Board of Appeals may be taken by any aggrieved person or by any office, department, board, or bureau of the Village of Sussex affected by any decision of the Village Engineer.

WARRANTY

GUARANTEE/WARRANTY

The Contractor and/or Developer shall leave the entire system for which he is responsible in good working order, and shall at his expense repair, rebuild, remodel, and make good and acceptable all defective labor, and materials, that may develop within two years after completion and final acceptance of the work. The two year period will begin when final acceptance has been given in writing. Warranty provisions shall not bar any claims against Contractor or subcontractors for negligence.

CORRECTION PERIOD

If within two years after the date of the surface course asphalt pavement installation time as may be prescribed by Laws or Regulations or by the terms of any applicable special guarantee required by the Developer's Agreement or by any specific provisions of the contract documents, any Work is found to be defective, CONTRACTOR shall promptly, without cost to OWNER and in accordance with OWNER's written instructions: (i) correct such defective Work, or, if it has been rejected by the Village, remove it from the site and replace it with Work that is not defective, and (ii) satisfactorily correct or remove and replace any damage to other Work or the work of others resulting therefrom. If CONTRACTOR does not promptly comply with the terms of such instructions, or in any emergency where delay would cause serious risk of loss or damage, the Village may have the defective Work corrected or the rejected Work removed and replaced, and all claims, costs, losses and damages caused by or resulting from such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by CONTRACTOR.

Two to four months prior to the end of the two year correction period, a visual inspection of all work will be conducted with the Developer and Engineer or his representative to insure all work is in good order. Developer and/or Contractor shall arrange this inspection. **Correction period shall not expire until this inspection is completed and all items are satisfied.**

VILLAGE OF SUSSEX

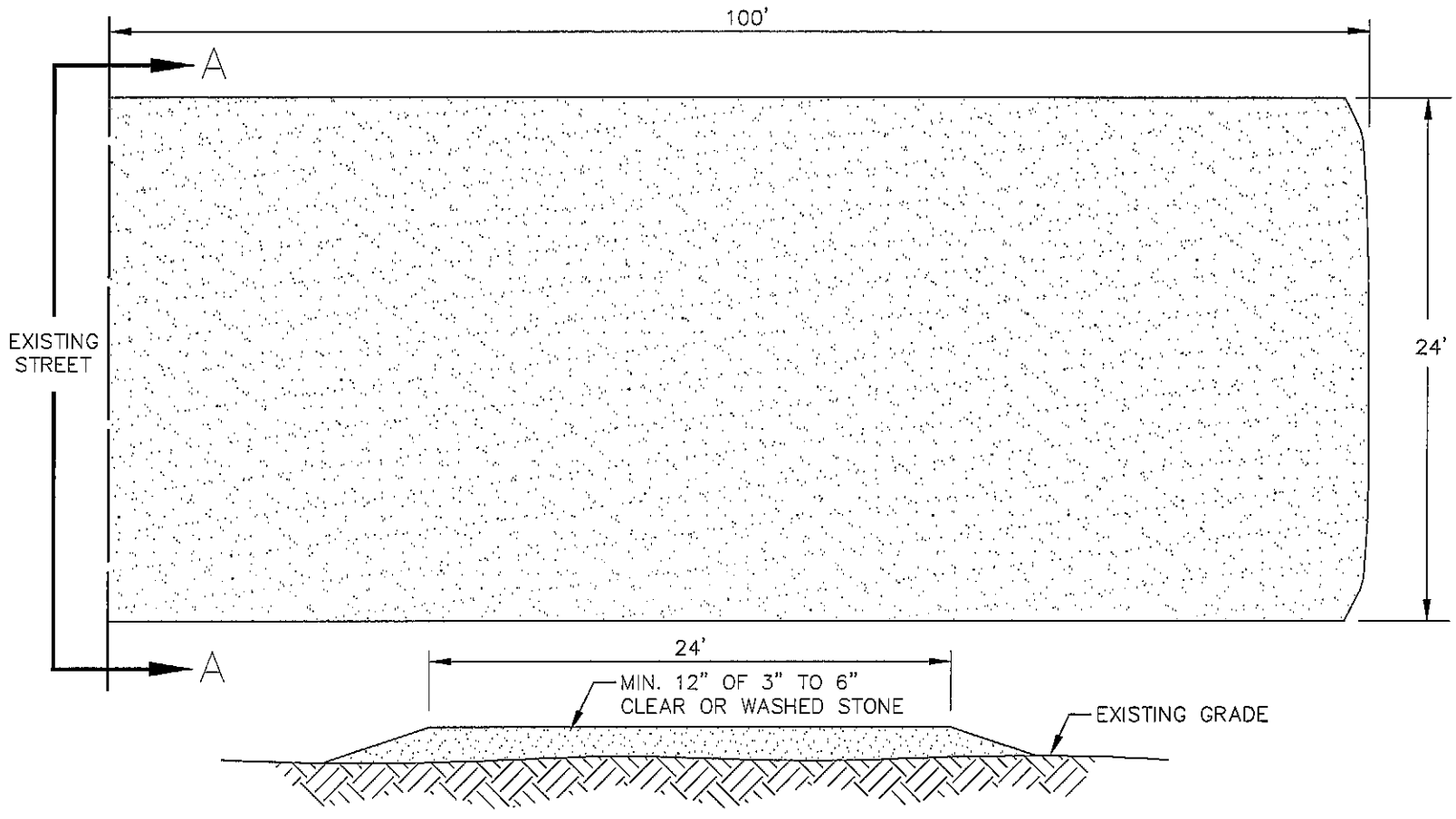
DEVELOPMENT REQUIREMENTS

DETAILS

INDEX TO
DEVELOPMENT REQUIREMENTS
DETAILS
VILLAGE OF SUSSEX
WAUKESHA COUNTY, WISCONSIN

INDEX TO
DEVELOPMENT REQUIREMENTS
DETAILS
VILLAGE OF SUSSEX
WAUKESHA COUNTY, WISCONSIN

TITLE PAGE



SECTION A – A

NOTE: CONTRACTOR TO INSTALL ENTRANCE ROAD PRIOR TO START OF CONSTRUCTION, AND MAINTAIN UNTIL WORK IS COMPLETED.

THE AGGREGATE SHALL BE PLACED IN A LAYER AT LEAST 12 INCHES THICK. ON SITES WITH A HIGH WATER TABLE, OR WHERE SATURATED CONDITIONS ARE EXPECTED DURING THE LIFE OF THE PRACTICE, STONE TRACKING PADS SHALL BE UNDERLAIN WITH A WISDOT TYPE R GEOTEXTILE FABRIC TO PREVENT MIGRATION OF UNDERLYING SOIL INTO THE STONE.

CONTRACTOR TO CLEAN EXISTING STREET DAILY, OR MORE OFTEN AT THE DIRECTION OF THE VILLAGE ENGINEER.

TEMPORARY STONE TRACKING MAT

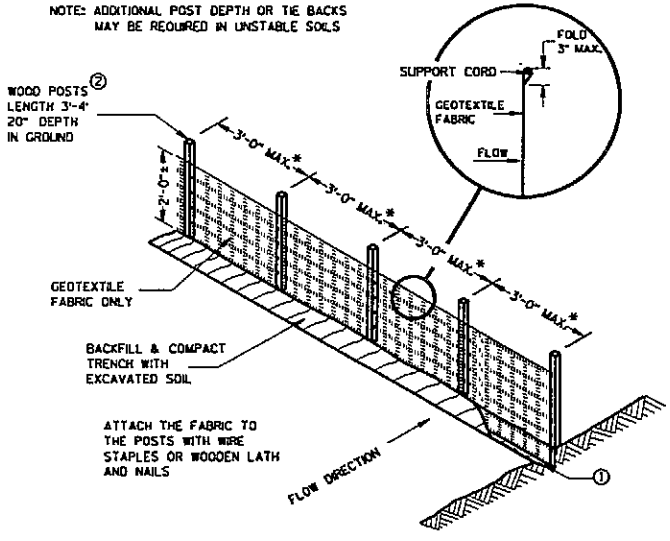
NOT TO SCALE

GENERAL NOTES

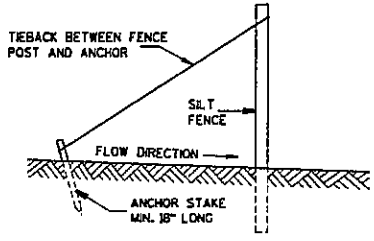
① TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.

② WOOD POSTS SHALL BE A MINIMUM SIZE OF 1½" X 1½" OF OAK OR HICKORY.

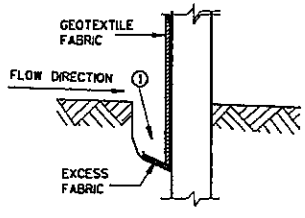
③ CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS: A) TWIST METHOD -- OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES. B) HOOK METHOD -- HOOK THE END OF EACH SILT FENCE LENGTH.



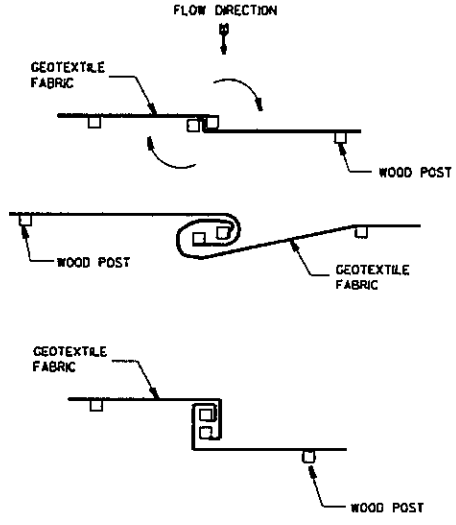
SILT FENCE



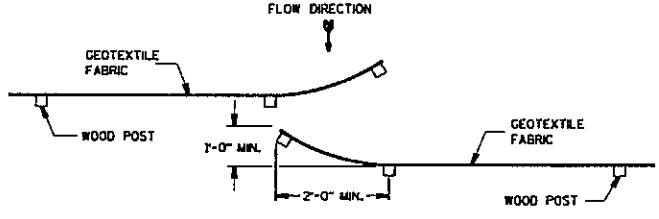
SILT FENCE TIE BACK
(WHEN ADDITIONAL SUPPORT REQUIRED)



TRENCH DETAIL



TWIST METHOD



HOOK METHOD

JOINING TWO LENGTHS OF SILT FENCE ④

This drawing based on Wisconsin Department of Transportation Standard Detail Drawing 8 E 9-6.

VERIFY CURRENT DNR DETAIL PRIOR TO USE
http://www.dnr.state.wi.us/org/water/wm/nps/stormwater/techstds.htm

SILT FENCE

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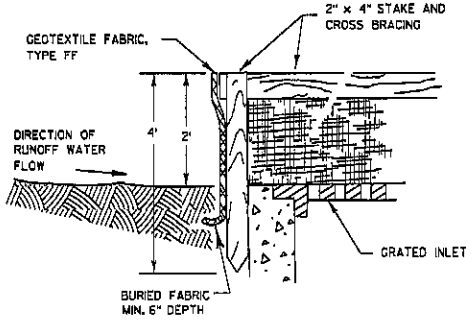
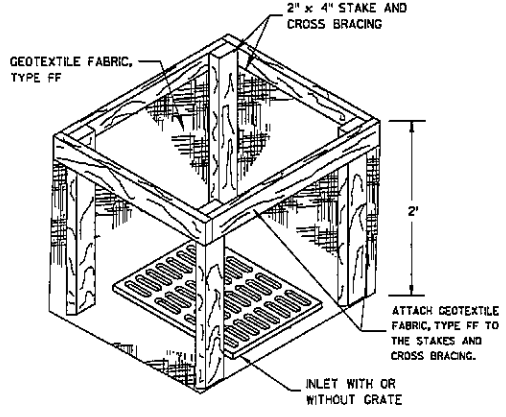
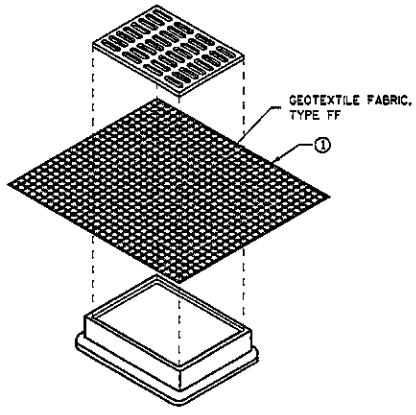


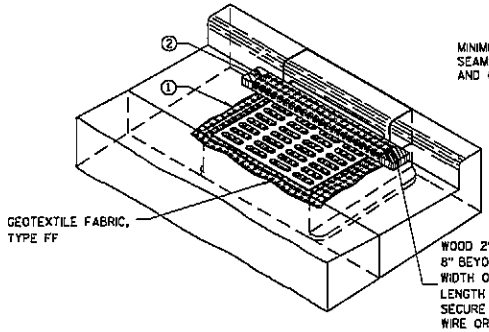


INLET PROTECTION, TYPE A

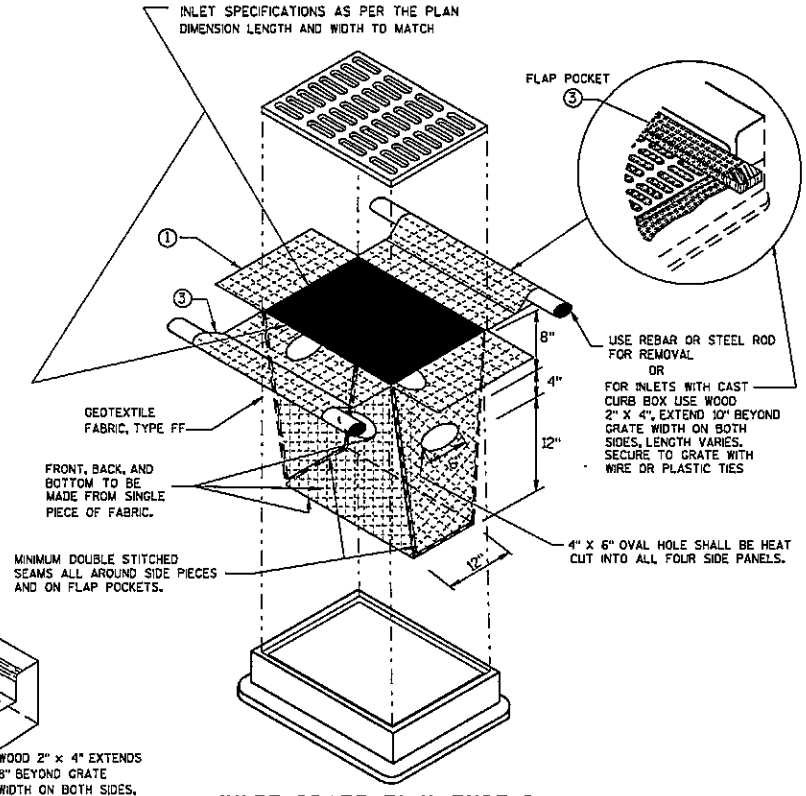


INLET PROTECTION, TYPE B (WITHOUT CURB BOX)

(CAN BE INSTALLED IN ANY INLET WITHOUT A CURB BOX)



INLET PROTECTION, TYPE C (WITH CURB BOX)



INLET PROTECTION, TYPE D

(CAN BE INSTALLED IN ANY INLET TYPE WITH OR WITHOUT A CURB BOX AS PER NOTE ②)

2A

GENERAL NOTES

MANUFACTURED ALTERNATIVES APPROVED AND LISTED ON THE DEPARTMENT'S EROSION CONTROL PRODUCT ACCEPTABILITY LIST MAY BE SUBSTITUTED.

WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

① FINISHED SIZE, INCLUDING FLAP POCKETS WHERE REQUIRED, SHALL EXTEND A MINIMUM OF 10" AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.

② FOR INLET PROTECTION, TYPE C (WITH CURB BOX), AN ADDITIONAL 18" OF FABRIC IS WRAPPED AROUND THE WOOD AND SECURED WITH STAPLES. THE WOOD SHALL NOT BLOCK THE ENTIRE HEIGHT OF THE CURB BOX OPENING.

③ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2X4.

INSTALLATION NOTES

TYPE B & C

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

TYPE D

DO NOT INSTALL INLET PROTECTION TYPE D IN INLETS SHALLOWER THAN 30", MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE.

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3". WHERE NECESSARY THE CONTRACTOR SHALL CINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3" CLEARANCE. THE TIES SHALL BE PLACED AT A MAXIMUM OF 4" FROM THE BOTTOM OF THE BAG.

This drawing based on Wisconsin Department of Transportation Standard Detail Drawing 8 E 10-2.

INLET PROTECTION TYPE A, B, C, AND D

VERIFY CURRENT DNR DETAIL PRIOR TO USE
http://www.dnr.state.wi.us/org/water/wm/nps/stormwater/techstds.htm

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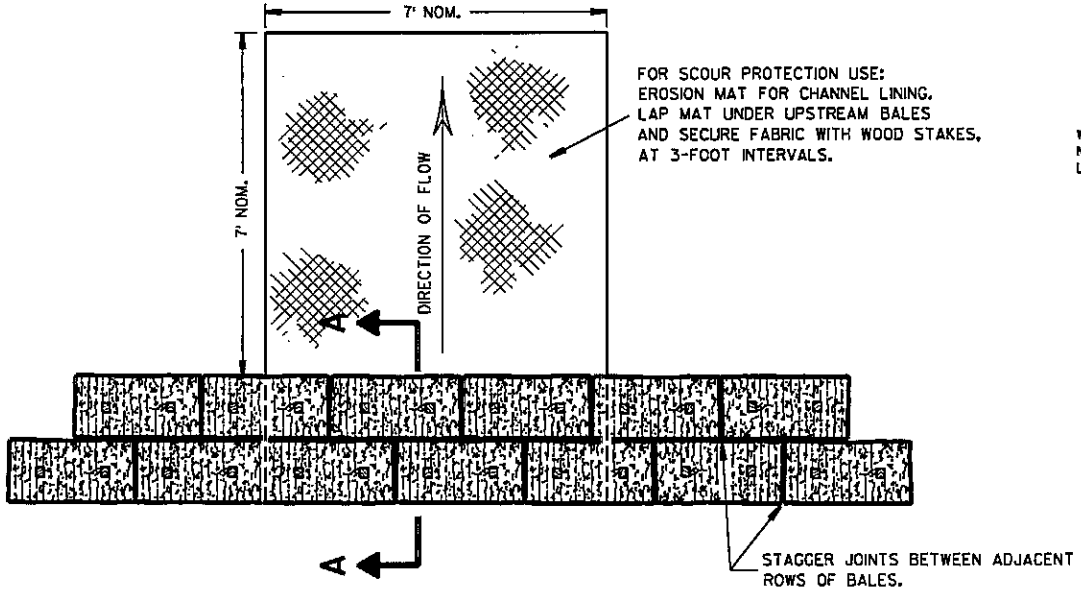
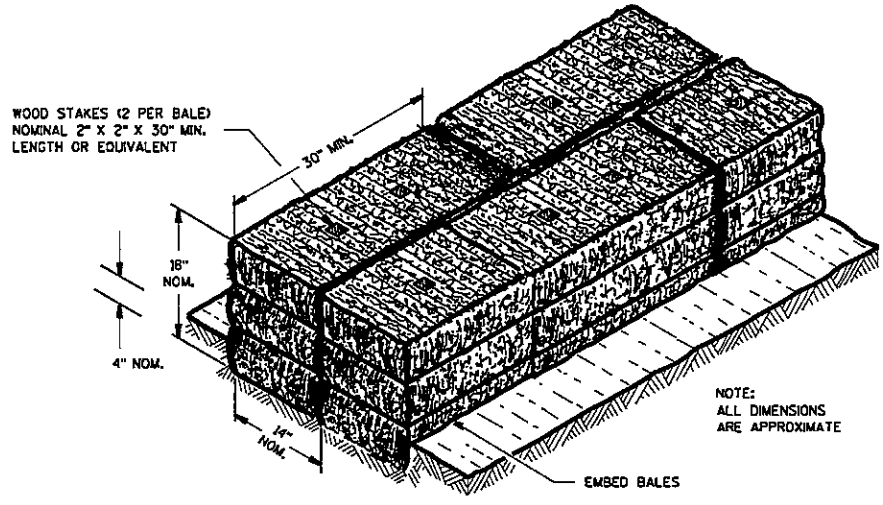
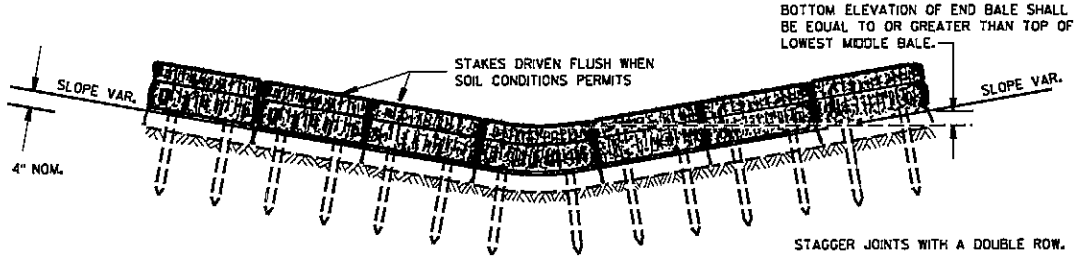


PLAN VIEW



SECTION A-A



FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES (1)

This drawing based on Wisconsin Department of Transportation Standard Detail Drawing 8 E 8-3.

VERIFY CURRENT DNR DETAIL PRIOR TO USE
http://www.dnr.state.wi.us/org/water/wm/nps/stormwater/techstds.htm

TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS

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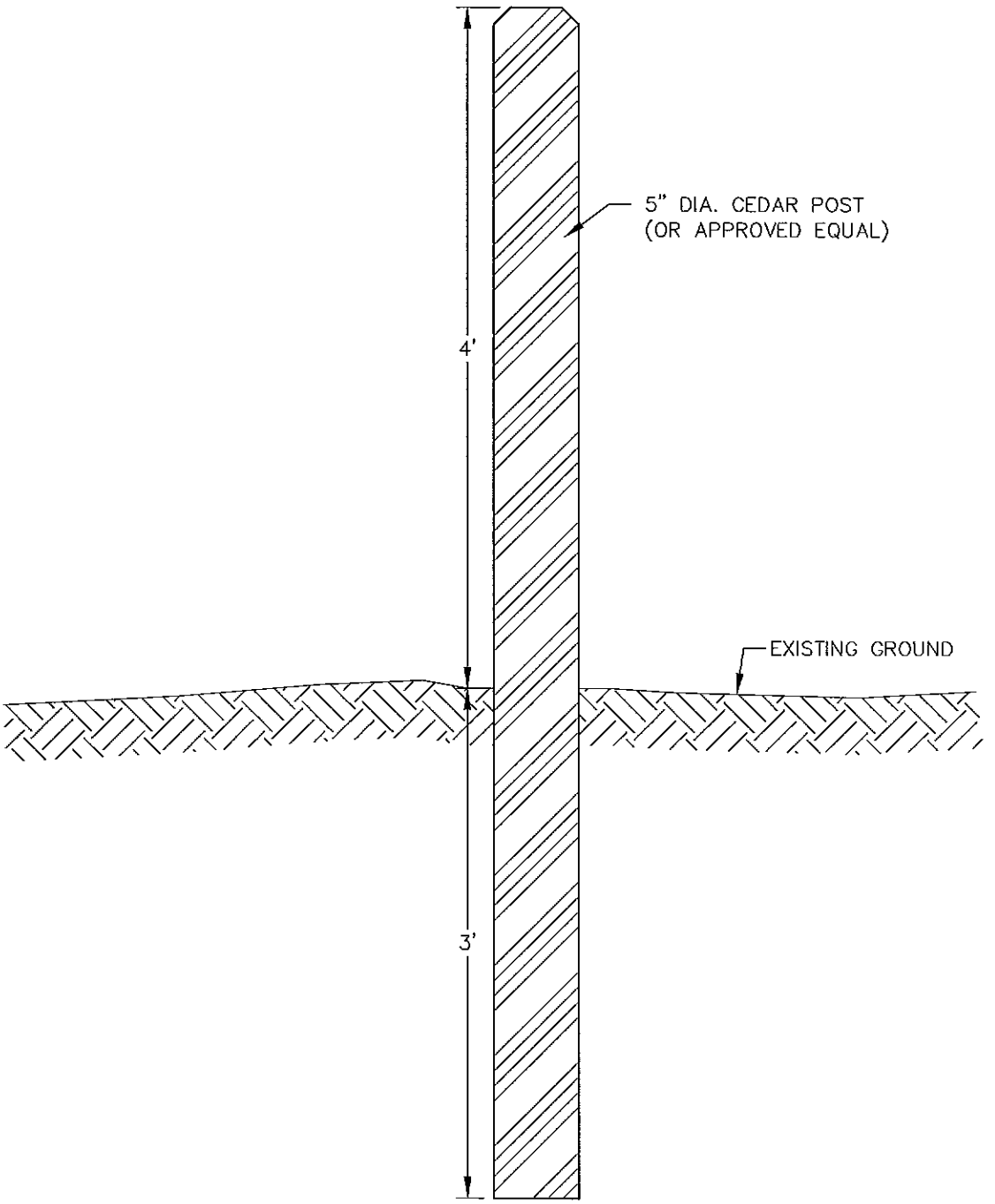
RM811PB



WETLANDS DELINEATOR POST

NOT TO SCALE

1

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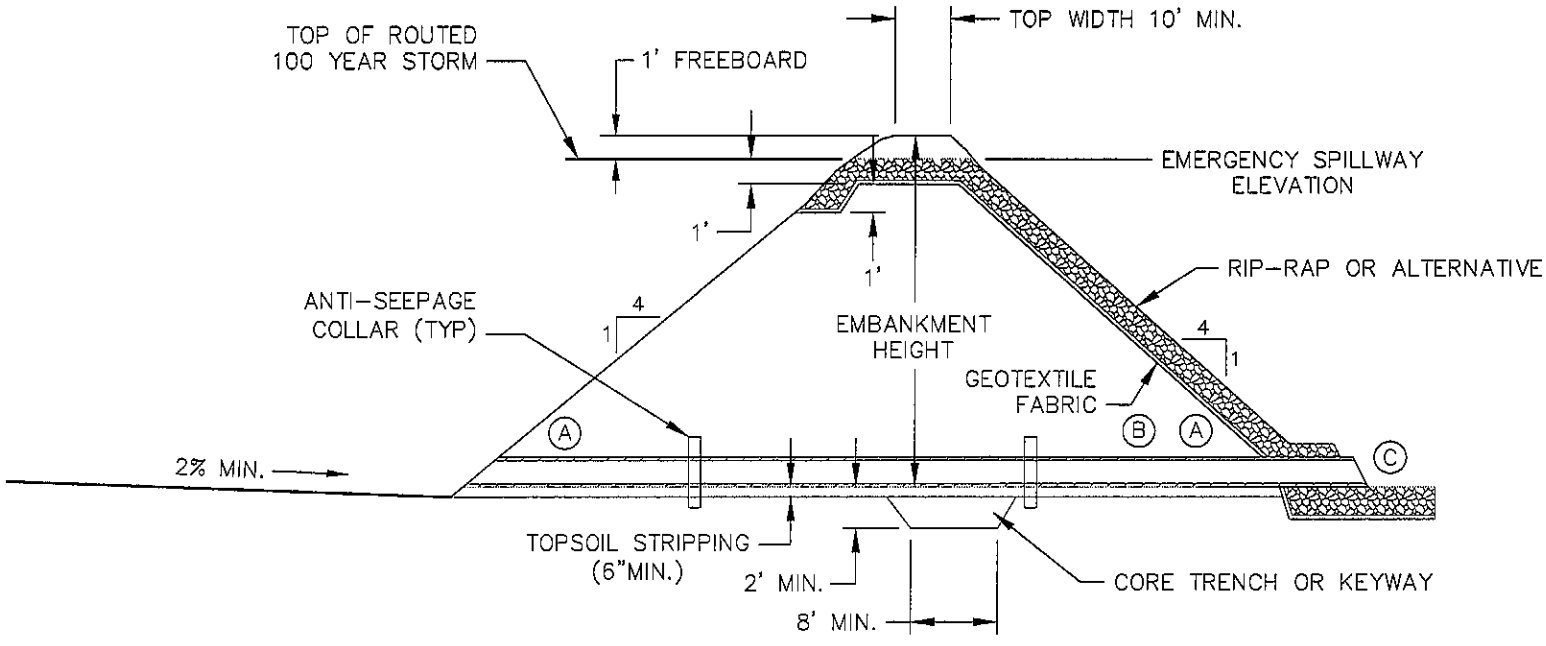


CROSS SECTION

NOTES:

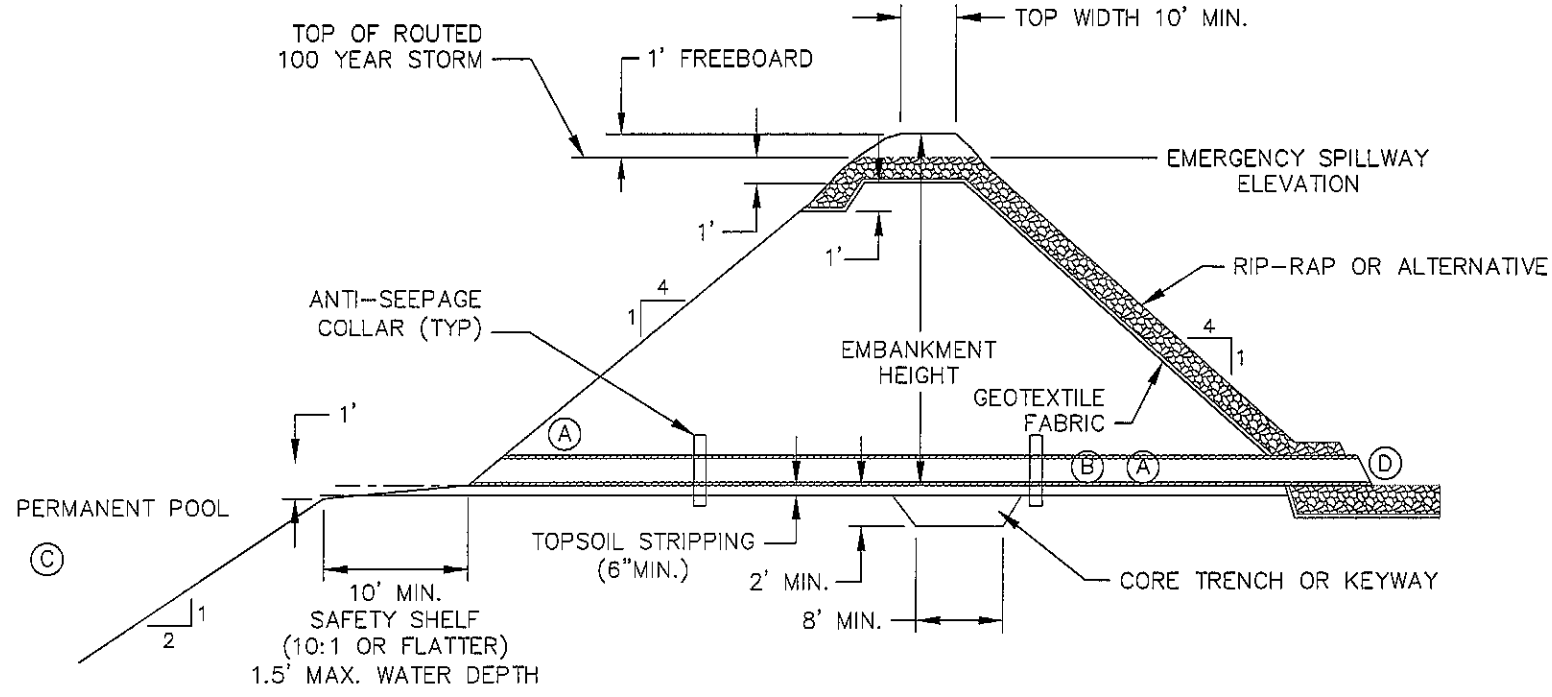
(A) SEE ORDINANCE FOR OUTLET REQUIREMENTS. USE OF DETENTION POND OUTLET STRUCTURE REQUIRED UNLESS OTHERWISE APPROVED BY VILLAGE ENGINEER.

(B) ANTI-SEEPAGE COLLARS REQUIRED ON OUTLET PIPE. (2 MIN. – EXTEND MINIMUM OF 12" BEYOND DIAMETER OF PIPE.) INSTALL AT 1/3 POINTS OF BERM

(C) DIAMETER SIZE PER DESIGN

TYPICAL DETENTION POND

NOT TO SCALE



CROSS SECTION

NOTE:

(A) SEE ORDINANCE FOR OUTLET REQUIREMENTS. USE OF DETENTION POND OUTLET STRUCTURE REQUIRED UNLESS OTHERWISE APPROVED BY VILLAGE ENGINEER.

(B) ANTI-SEEPAGE COLLARS REQUIRED ON OUTLET PIPE. (2 MIN. – EXTEND MINIMUM OF 12" BEYOND DIAMETER OF PIPE.) INSTALL AT 1/3 POINTS OF BERM.

(C) MINIMUM DEPTH OF 3' REQUIRED TO ELIMINATE WEEDS.
MINIMUM DEPTH OF 5' REQUIRED FOR FISH HABITAT.

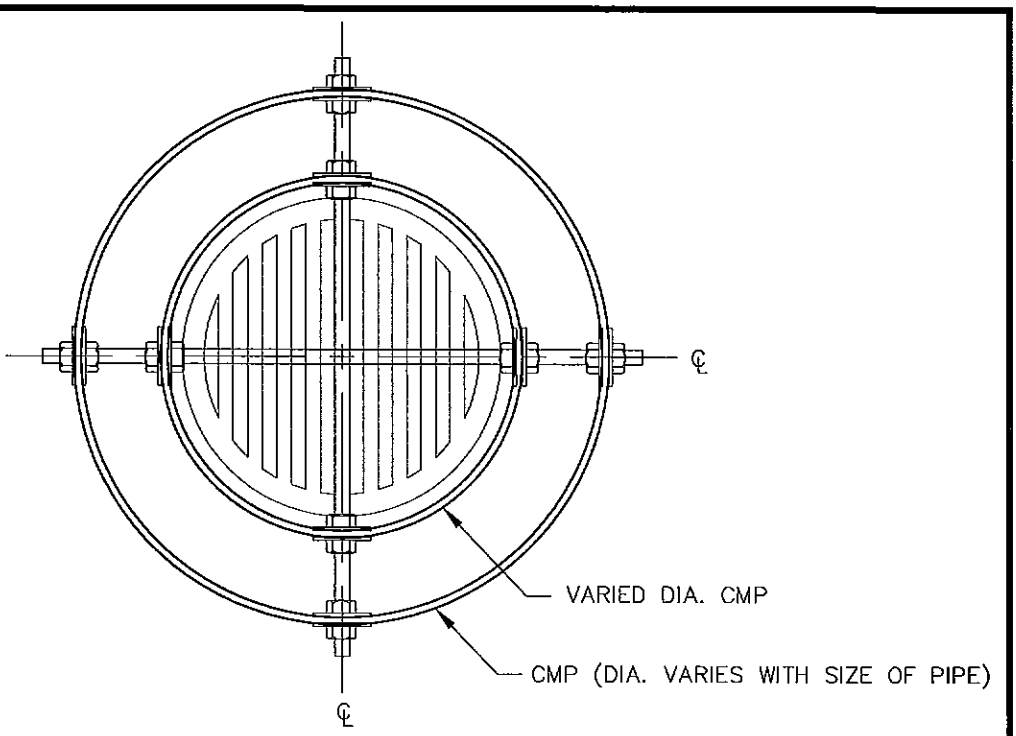
(D) DIAMETER SIZE PER DESIGN

TYPICAL WET DETENTION POND

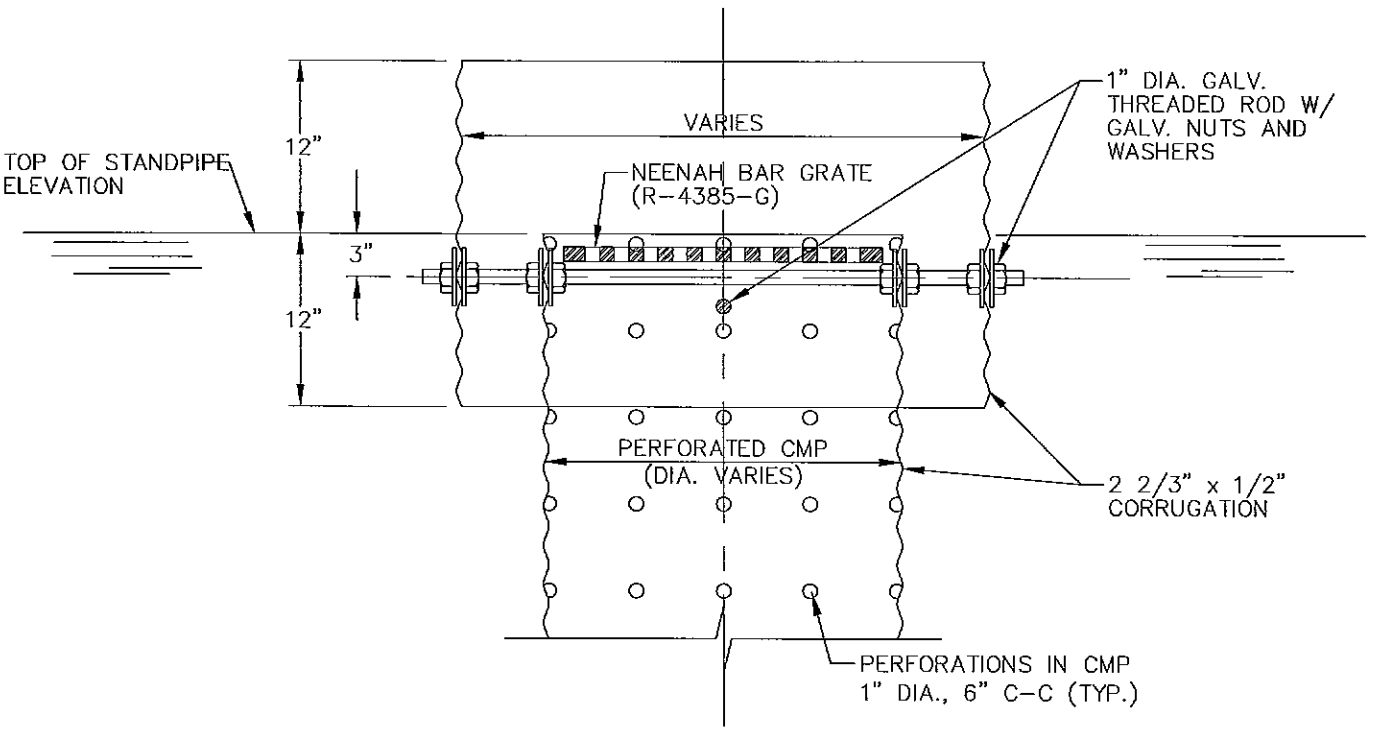
NOT TO SCALE

1

RM811PB



PLAN VIEW



SECTION

STANDPIPE INLET DEBRIS GUARD

FOR EROSION CONTROL ONLY

NOT TO SCALE

12

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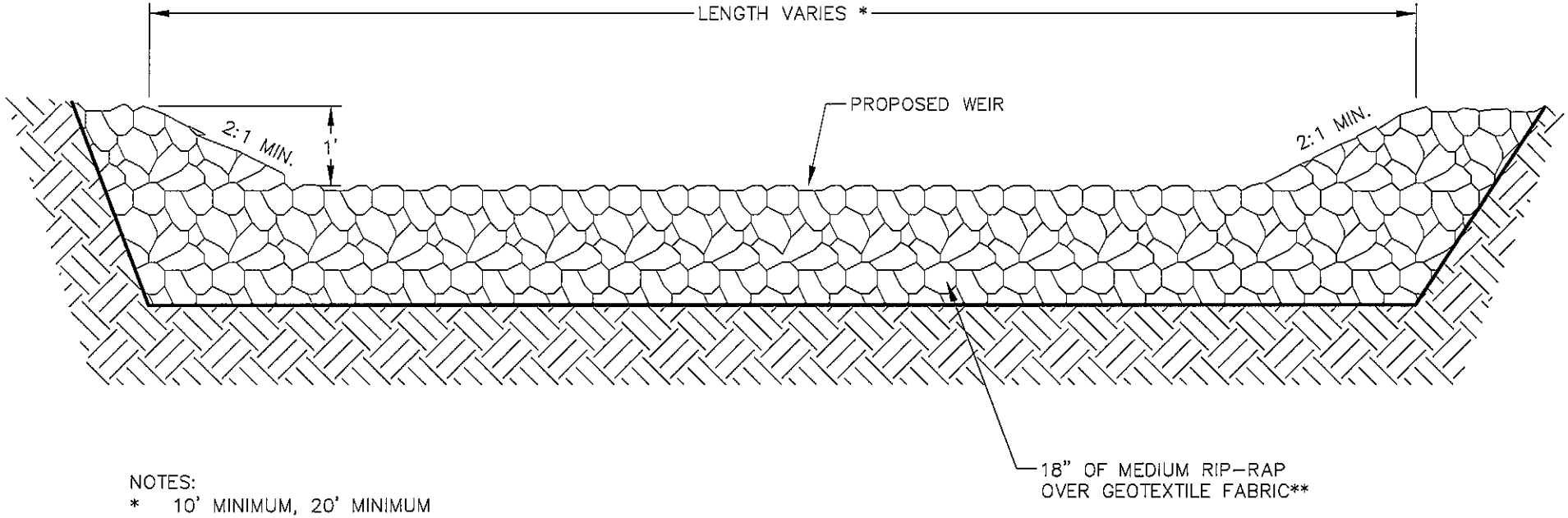
engineering solutions for a working world

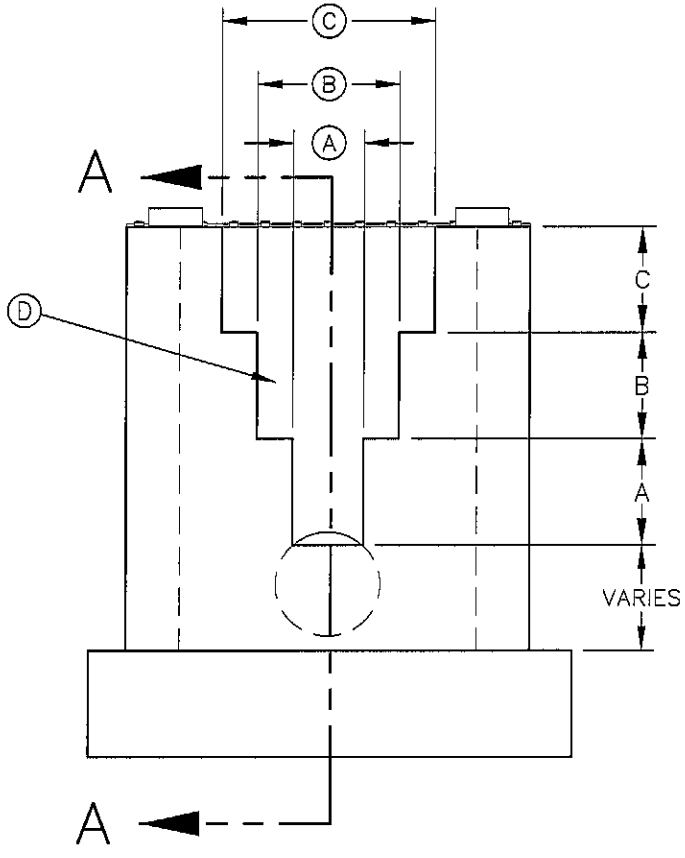


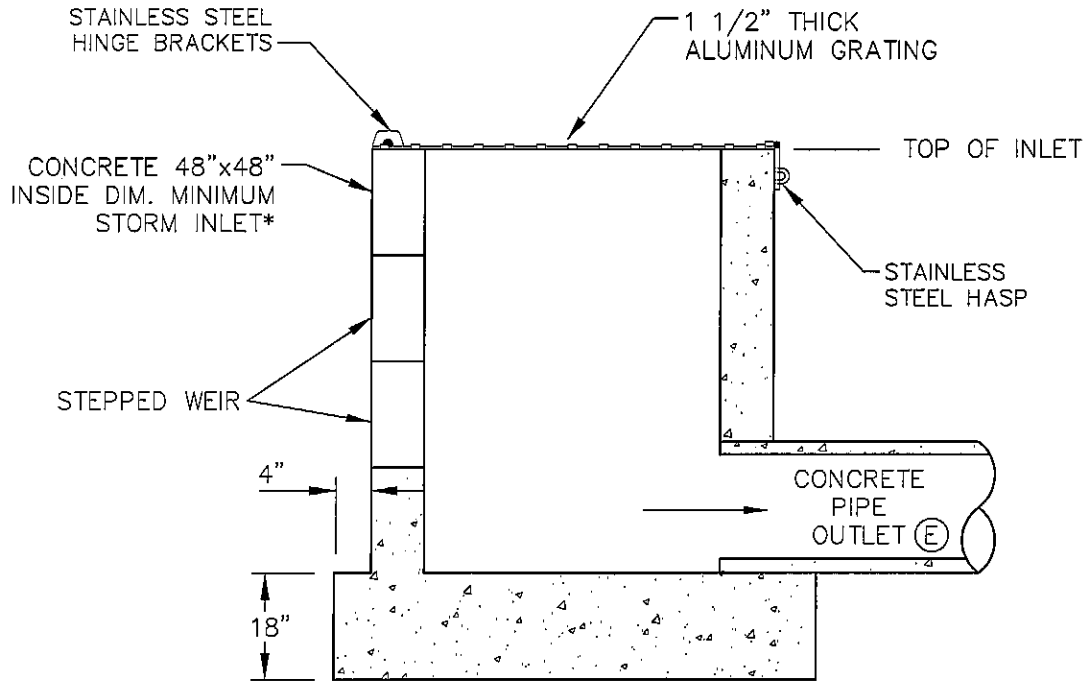
NOTES:
* 10' MINIMUM, 20' MINIMUM IF DRAINAGE AREA IS GREATER THAN 20 ACRES.

** OR OTHER MATERIAL AS APPROVED BY VILLAGE ENGINEER

DETENTION POND EMERGENCY SPILLWAY DETAIL

NOT TO SCALE





CONSTRUCT PER SWS

FOOTING TO BE CLASS "D" CONCRETE
STABILIZE FOOTING AS NECESSARY

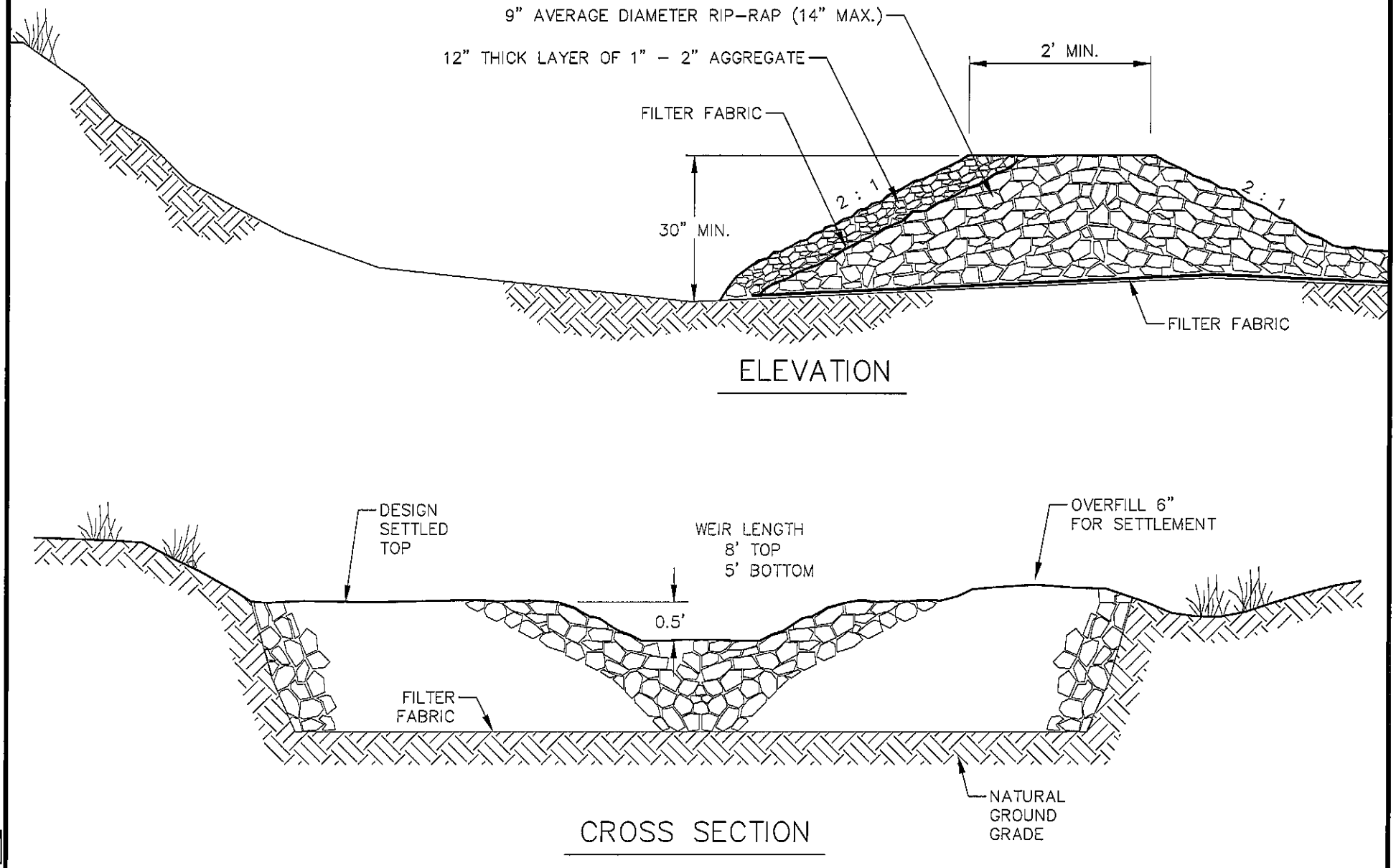
SECTION A–A

Ⓐ – DESIGNED FOR 2 YEAR STORM
Ⓑ – DESIGNED FOR 10 YEAR STORM
Ⓒ – DESIGNED FOR 100 YEAR STORM
Ⓓ – VERTICAL STEEL GRATES OR RODS PER SWS 6.16
Ⓔ – OUTLET PIPE SIZED PER ORDINANCE

* REINFORCEMENT REQUIRED

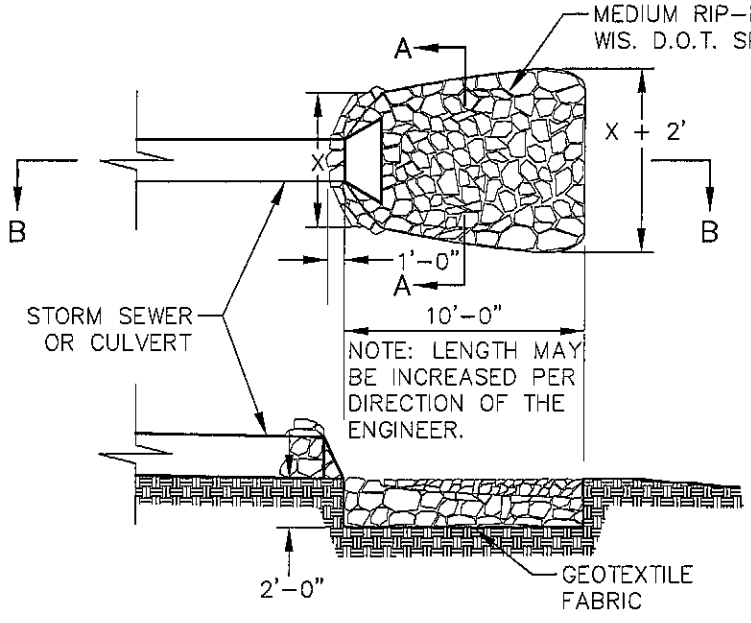
DETENTION POND OUTLET STRUCTURE

NOT TO SCALE



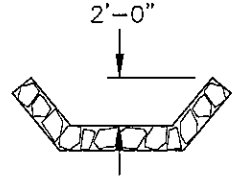
SEDIMENT TRAP DETAIL

NOT TO SCALE



PIPE DIA.	X
12"	4.0'
15"	4.5'
18"	5.0'
21"	5.5'
24"	6.0'
27"	6.5'
30"	7.0'
36"	8.0'

SECTION B-B

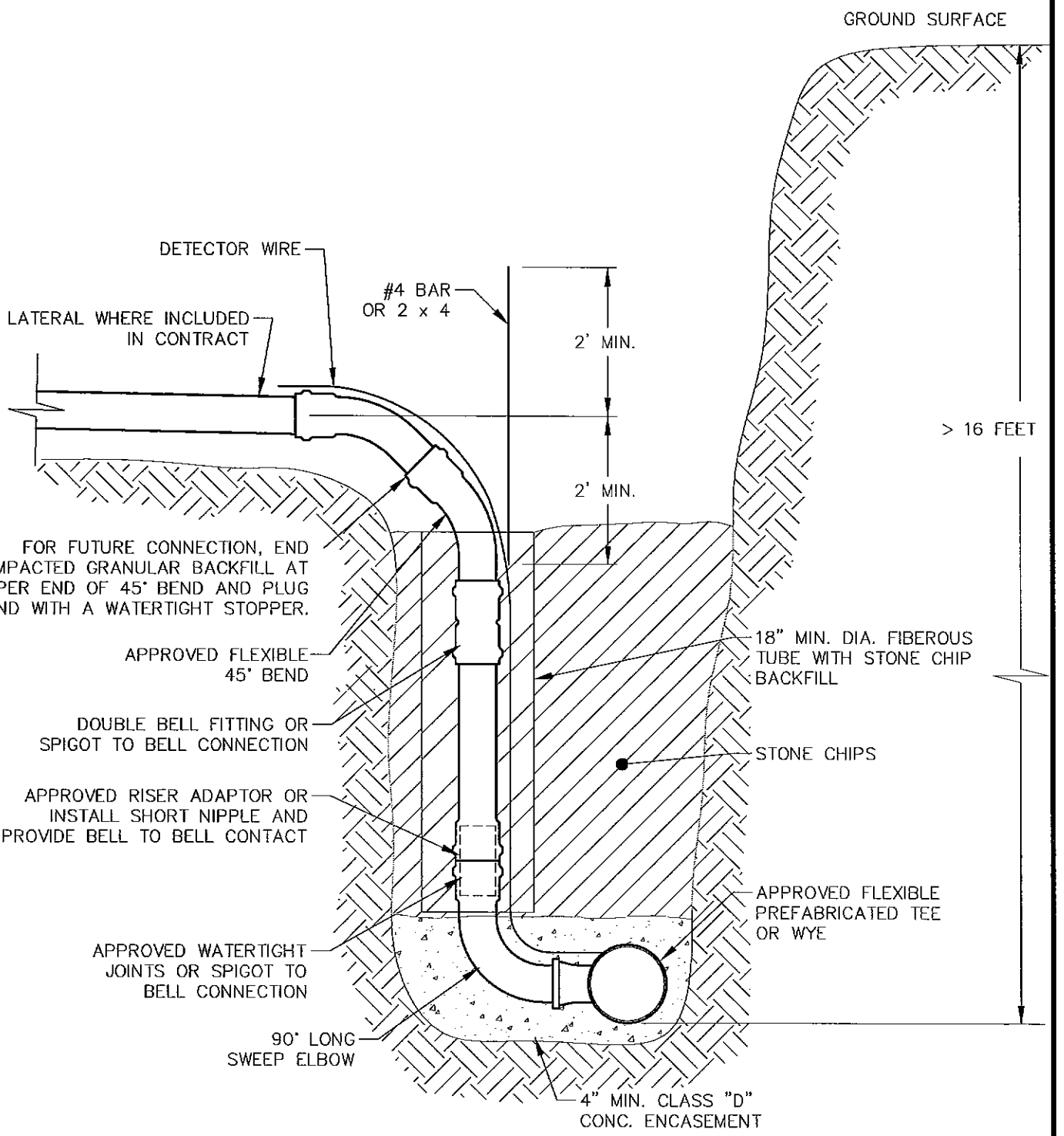


SECTION A-A

RIP-RAP DETAIL

NOT TO SCALE

RM811PB



RISER DETAIL

FLEXIBLE RISER TO FLEXIBLE MAIN

RISERS GREATER THAN 6 FEET IN HEIGHT

OR MAINS GREATER THAN 16 FEET DEEP

NOT TO SCALE

24

Aug 04, 2006 1:01pm
ZDAVIS LOSKI Update for Douaman and Sussex\Douaman\12-Riser Detail Flexible Riser to Flexible Main Risers Greater Than 6 Feet in Height or Mains Greater Than 16 Feet Deep.dwg Model
IMAGES: G:\SHT\RMDgnlib.jpg;
XREFS:

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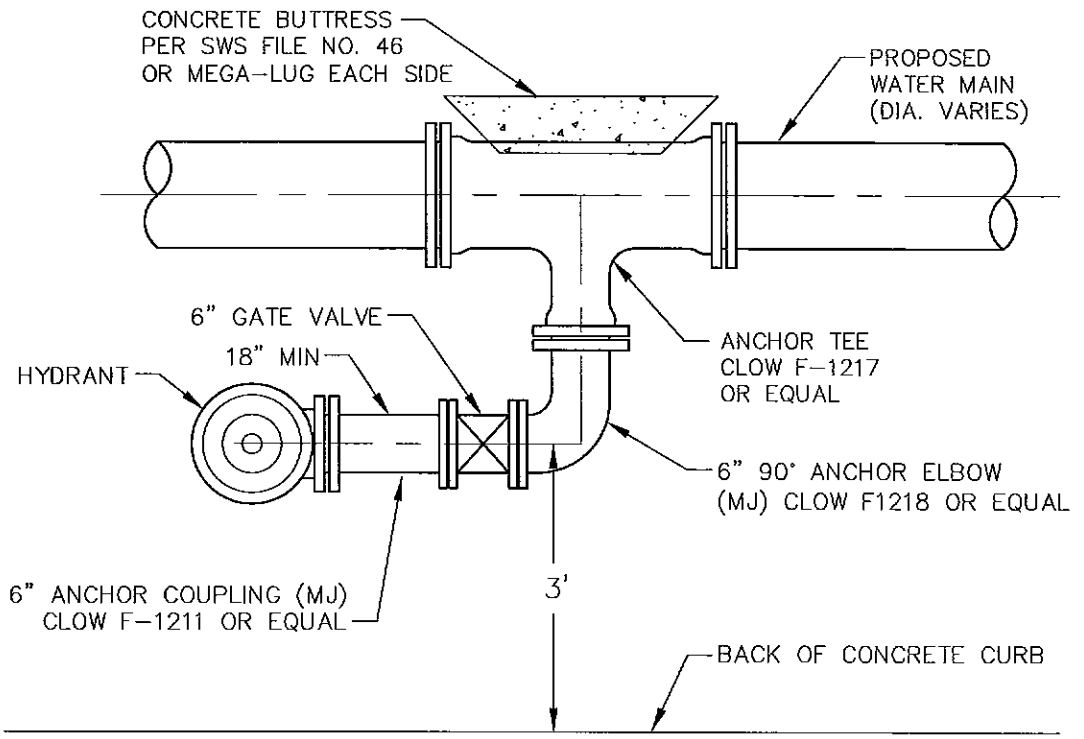
engineering solutions for a working world



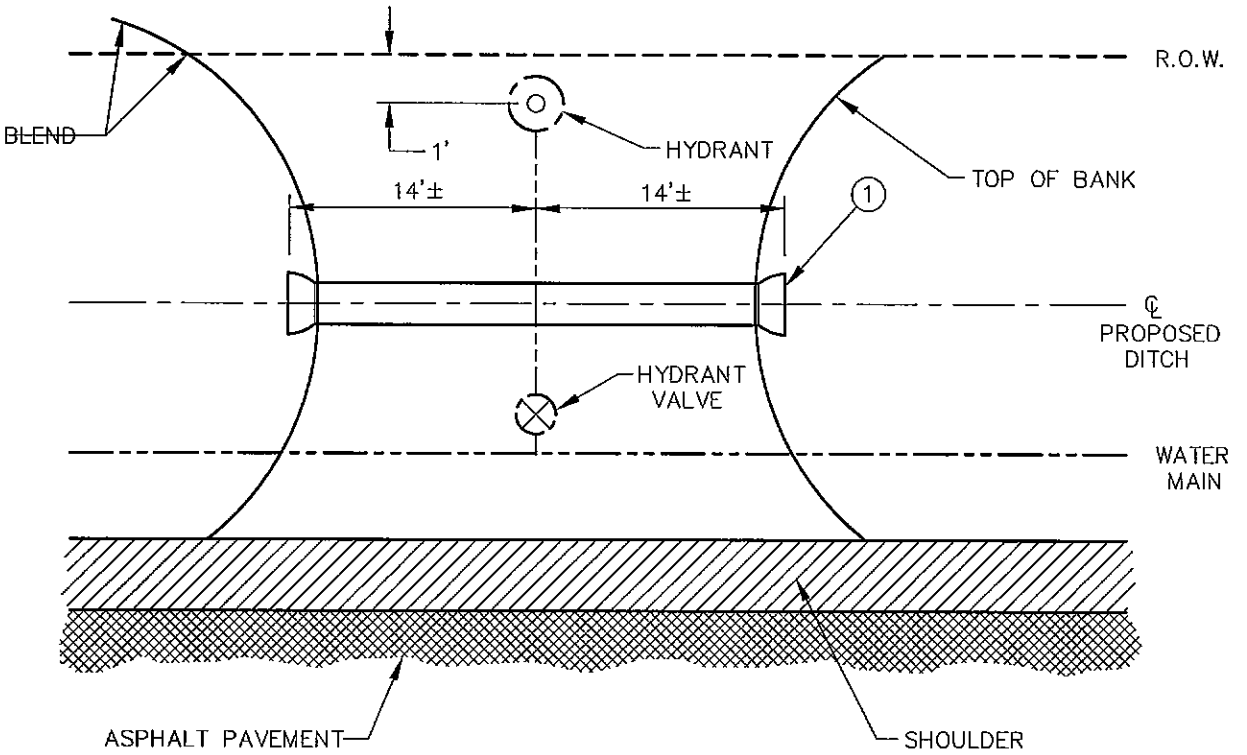
CONCRETE CURB AND
GUTTER

NOTE:
SEE "WATERMAIN DETECTION WIRE AND LOCATION BOX"
DETAIL FOR INSTALLATION CRITERIA. (DETAILS PAGE 18).

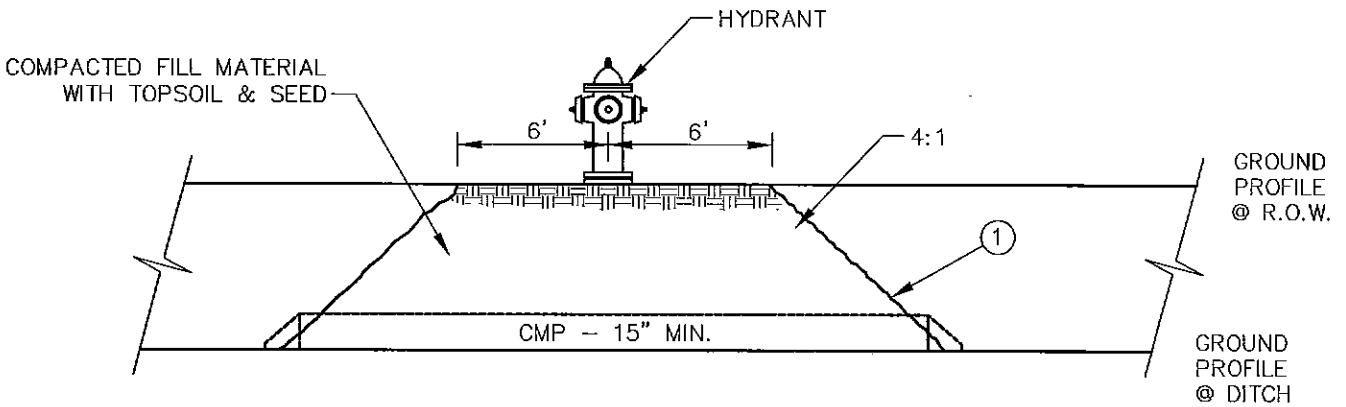
ANCHORING TEE & HYDRANT DETAIL

NOT TO SCALE

24



PLAN VIEW



ELEVATION VIEW

(1) CORREGATED METAL PIPE WITH END SECTIONS. SIZE APPROPRIATELY. MINIMUM SIZE TO MATCH NEAREST DOWNSTREAM CULVERT OR STORM SEWER. LENGTH DETERMINED BY DEPTH OF DITCH AND 4:1 SLOPES.

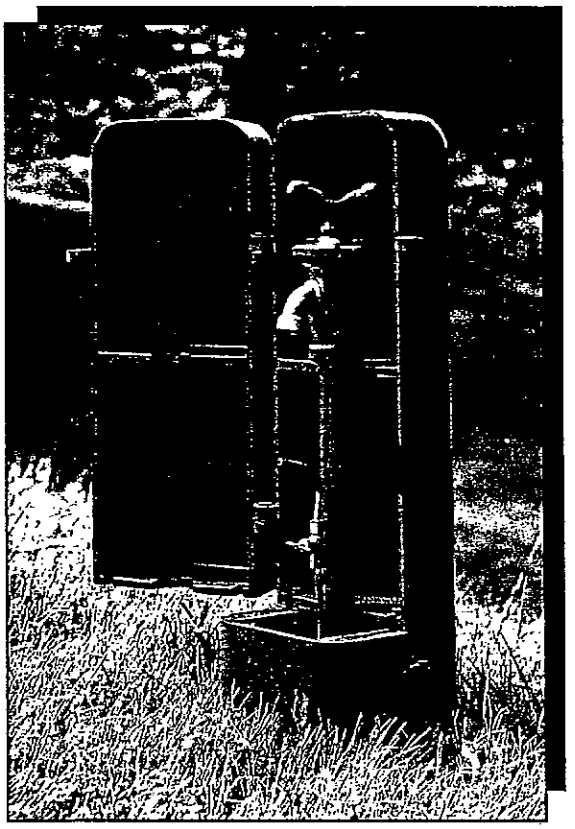
-DETAIL-
RURAL HYDRANT INSTALLATION WITH CULVERT

NOT TO SCALE

48

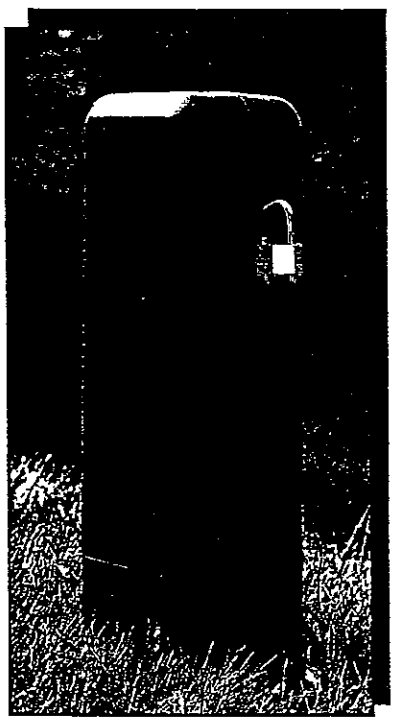
ECLIPSE™ NO. 88
Sampling Station

- Safe sampling from above ground
- All interior parts extractable for maintenance without digging
- Unthreaded nozzle
- Aluminum cover with storage shelves
- All brass waterway



#88 Eclipse Sampling Station with aluminum enclosure

- Protected from freezing without drain holes
- ¾" FIP inlet
- O-Ring Valve design
- Any depth of bury available
- The first factory "Sampling Station"

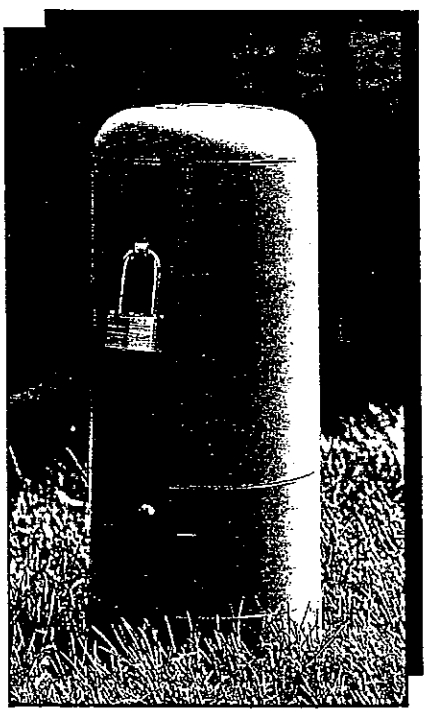


Aluminum cover locks for security

When choosing sampling stations remember:

1. *Safety:* When using the #88, samples are drawn from above ground. There is no chance of contamination from groundwater, existing bacteria, animal wastes, etc.

2. *Serviceability:* Every working part inside the #88 can be removed without digging. No ball valves or other throwaway valves are used.



Also available with economical plastic cover

MEMBER

ECLIPSE
PRICE WARE REQUESTED
Since 1857

THE KUPFERLE FOUNDRY COMPANY

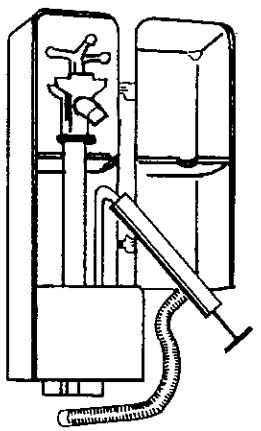
813 HEMPSTEAD STREET / ST. LOUIS, MISSOURI 63102
314-231-8738 FAX# 314-231-2820

Call Toll Free
1-800-231-3990

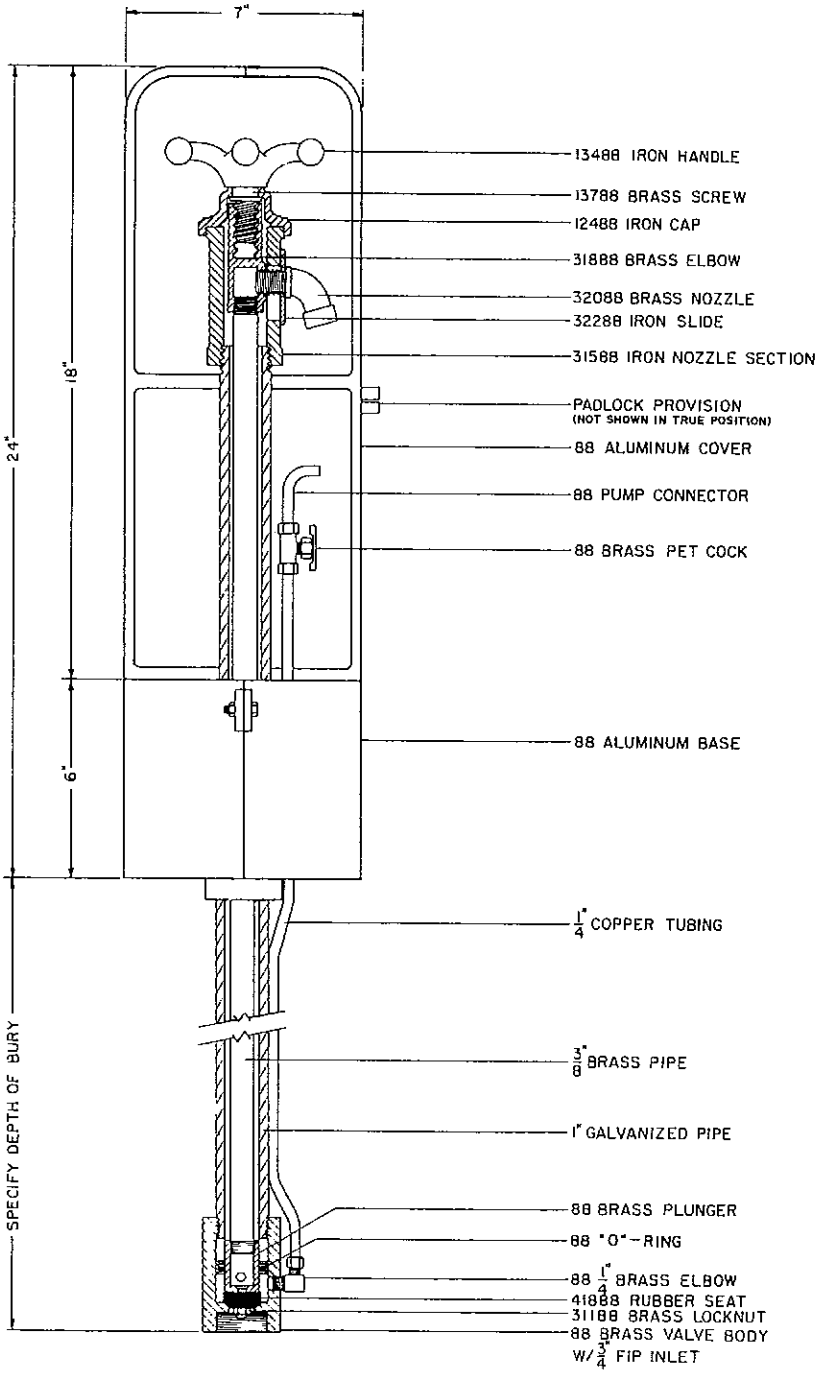
ECLIPSE™ NO. 88
Sampling Station

Standard Specifications:

Sampling Stations shall be ____' bury, with a 3/4" FIP inlet, and a (3/4" hose or unthreaded)nozzle. All stations shall be enclosed in a lockable, nonremovable, aluminum-cast housing. When opened, the station shall require no key for operation, and the water will flow in an allbrass waterway. All working parts will also be of brass and be removable from above ground with no digging. A copper vent tube will enable each station to be pumped free of standing water to prevent freezing and to minimize bacteria growth. The exterior piping will be galvanized, as manufactured by Kupferle Foundry, St. Louis, MO 63102.



Standard utility bilge pump attaches to vent tube to remove water from waterway, insuring a clean sample in the future, and preventing freezing.



ECLIPSE
TRADE MARK REGISTERED
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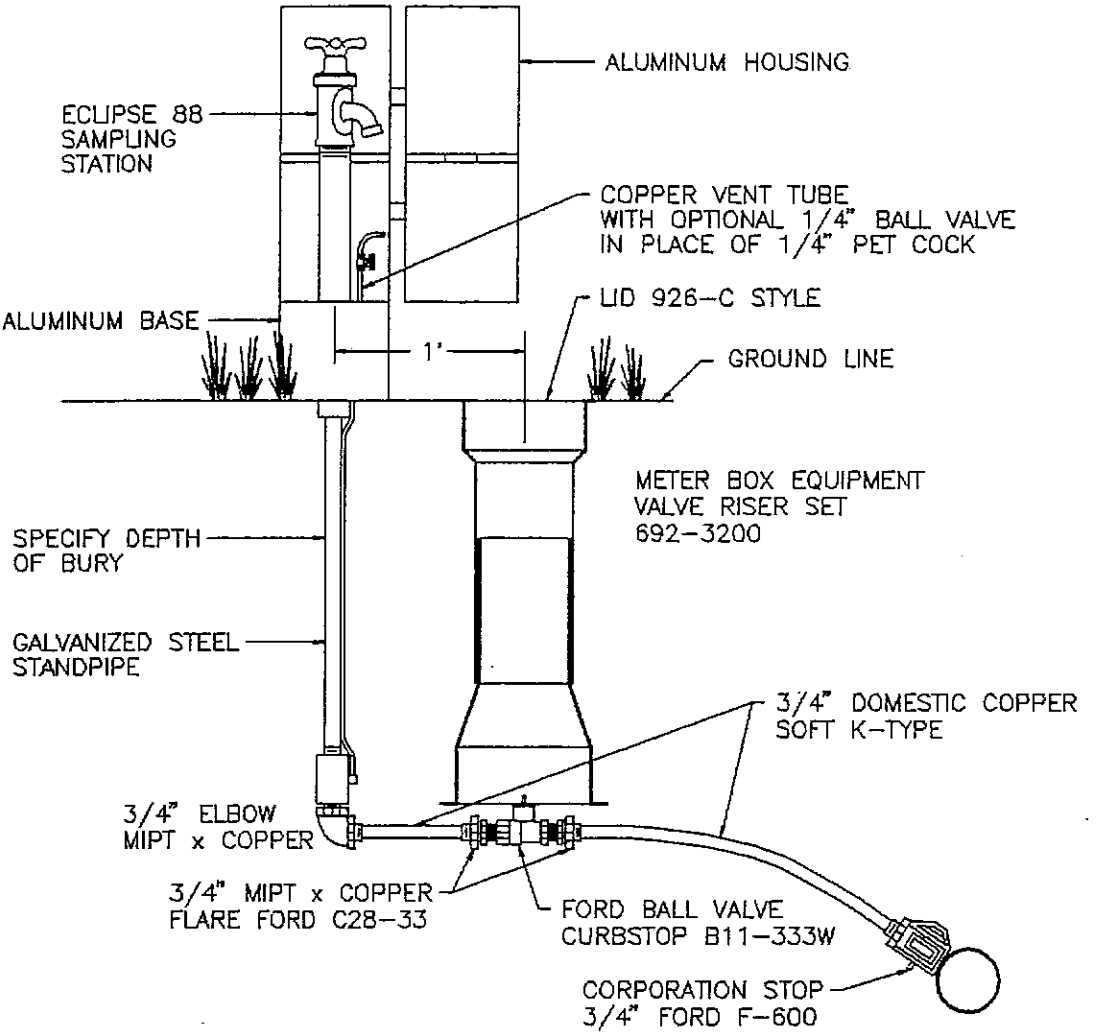
613 HEMPSTEAD STREET / ST. LOUIS, MISSOURI 63102
314-231-8738 FAX# 314-231-2820

Call Toll Free
1-800-231-3990

ECLIPSE NO. 88 SAMPLING STATION



Sampling Stations shall be ' bury, with a 3/4" FIP inlet, and a (3/4" hose or unthreaded) nozzle.

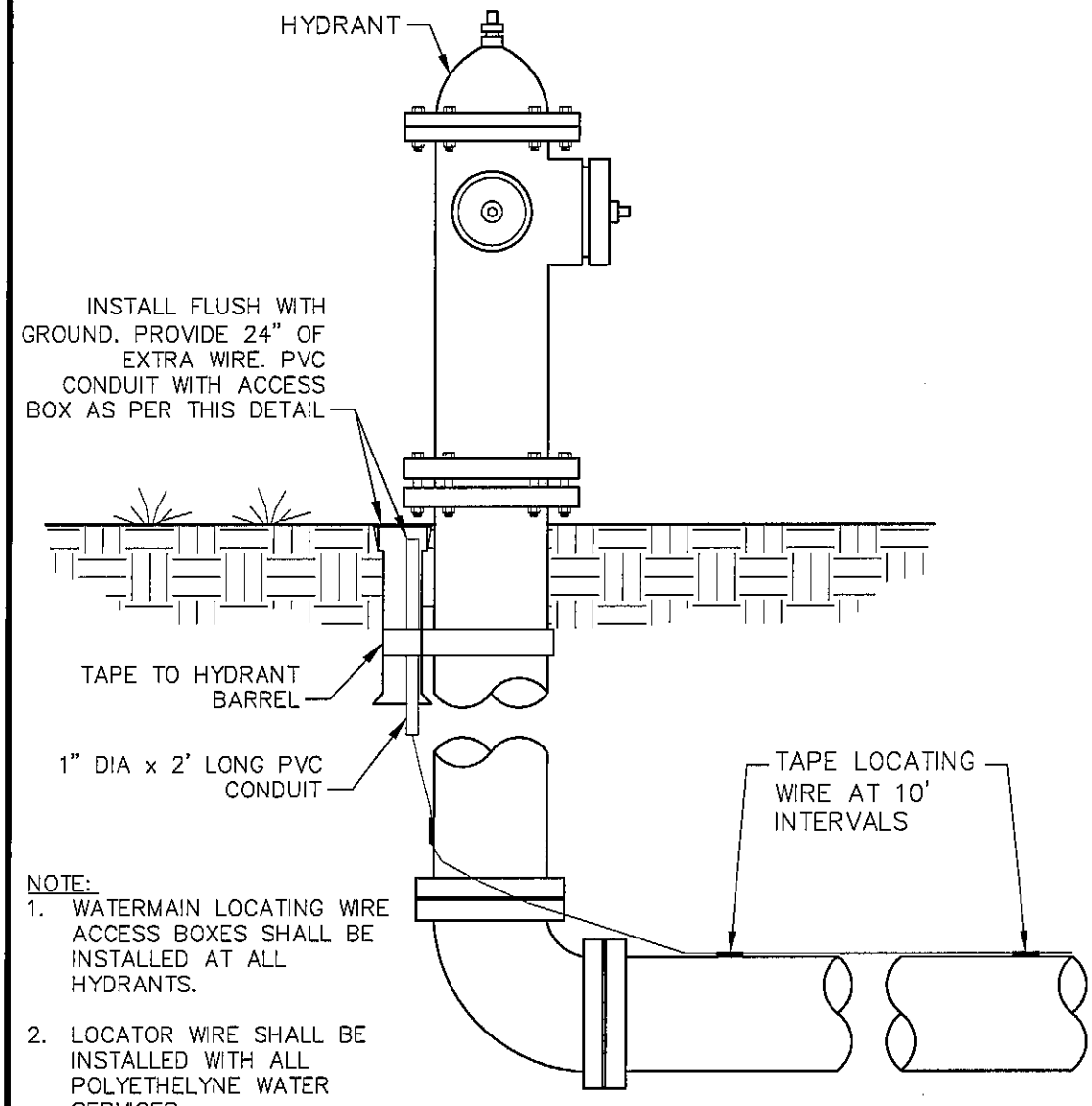
All stations shall be enclosed in a lockable, nonremovable, aluminum-cast housing.

When opened, the station shall require no key for operation, and the water will flow in an all brass waterway.

All working parts will also be of brass and be removable from above ground with no digging. Exterior piping shall be galvanized steel (brass pipe also available).

A copper vent tube will enable each station to be pumped free of standing water to prevent freezing and to minimize bacteria growth.

Eclipse No. 88 Sampling Station shall be manufactured by Kupferle Foundry, St. Louis, MO 63102.



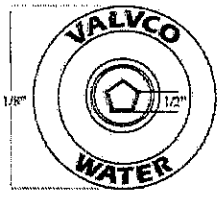
NOTE:
1. WATERMAIN LOCATING WIRE ACCESS BOXES SHALL BE INSTALLED AT ALL HYDRANTS.
2. LOCATOR WIRE SHALL BE INSTALLED WITH ALL POLYETHELYNE WATER SERVICES.

WATERMAIN
DETECTION WIRE AND LOCATION BOX

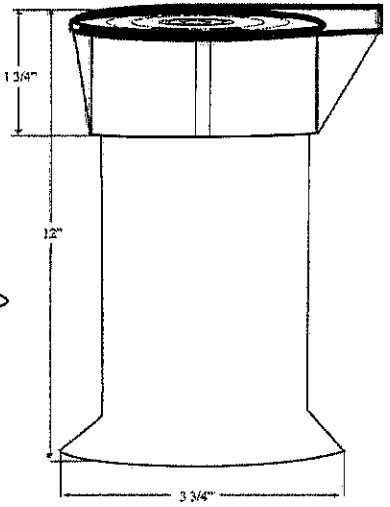
NOT TO SCALE

Tracer Wire Access Box

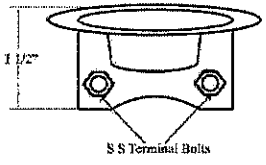
Lid Top View



Complete Box Side View



Lid Side View



Collar Top View

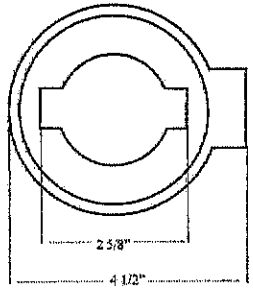


Figure # TWAB
Tracer Wire Access Box

Figure # SEWAB
Tracer Wire Access Box

ABS shaft conforms to:
ASTM specification D-1788
Country of Origin: USA

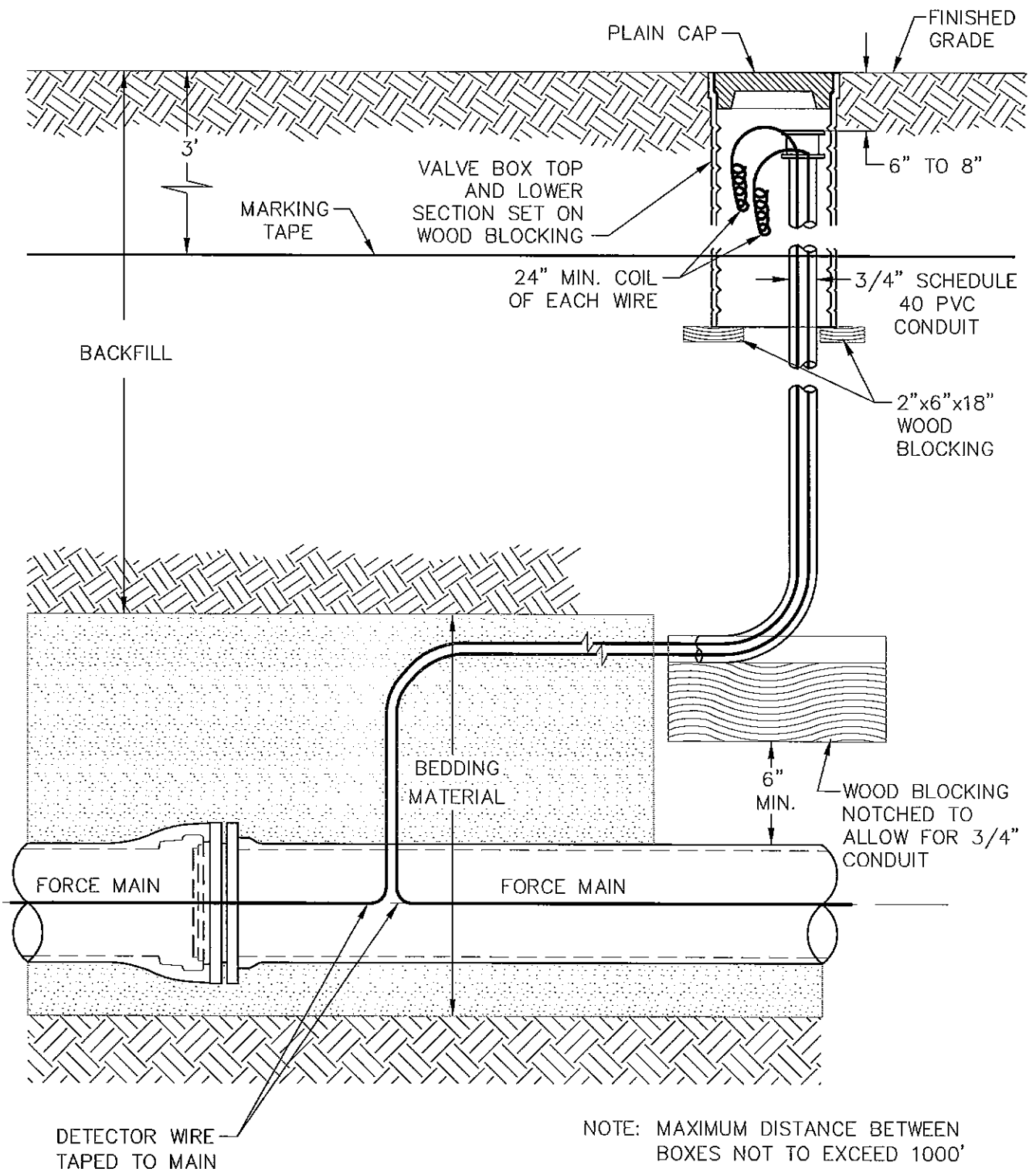
Casting conforms to:
ASTM specification A-48 Class 30
Country of Origin: USA

Compliance certified to:
Scranton Water District
Latest revision: October 2002

C.P. Test Services - Valvco, Inc.

C.P. Test Services - VALVCO, Inc.
Sales Office
P.O. Box 366, New Berlinville, PA 19545
Toll Free: 888-482-5826

RM811PB



FORCEMAIN

DETECTION WIRE AND LOCATION BOX

NOT TO SCALE

10

Mar 22, 2006 3:02pm
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IMAGES: G:\SHT\RMGraphic.jpg
XREFS:

Mar 22, 2006 3:02pm
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IMAGES: G:\SHT\RMGrphic.jpg
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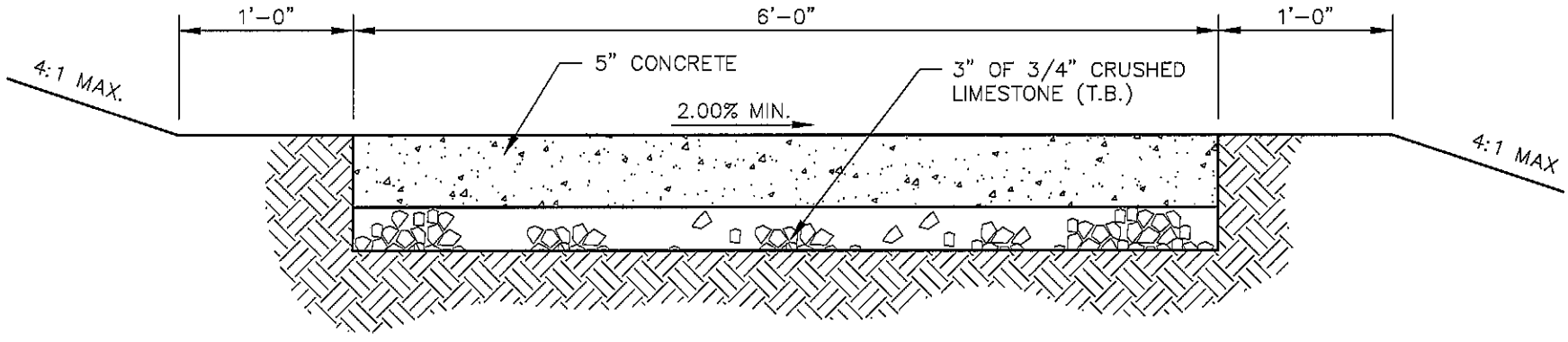
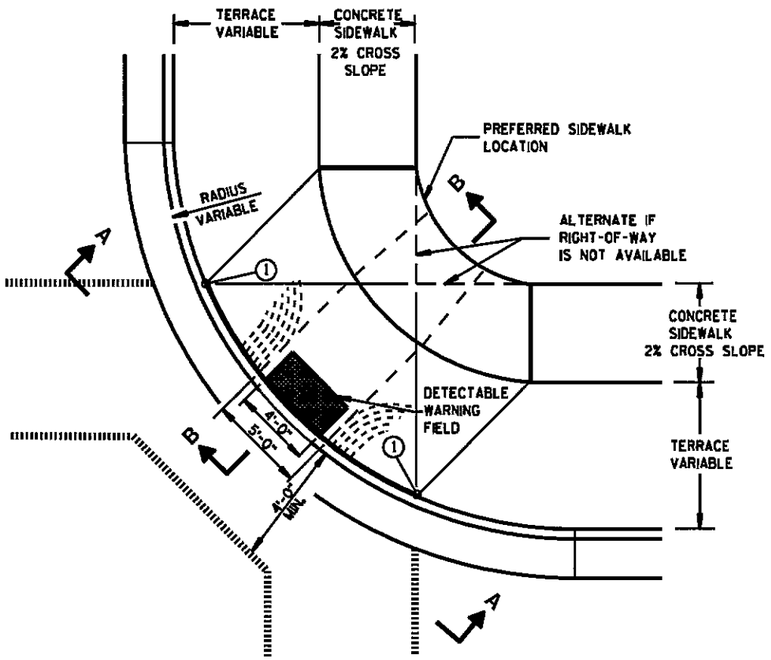


CONCRETE SIDEWALK SECTION

NOT TO SCALE

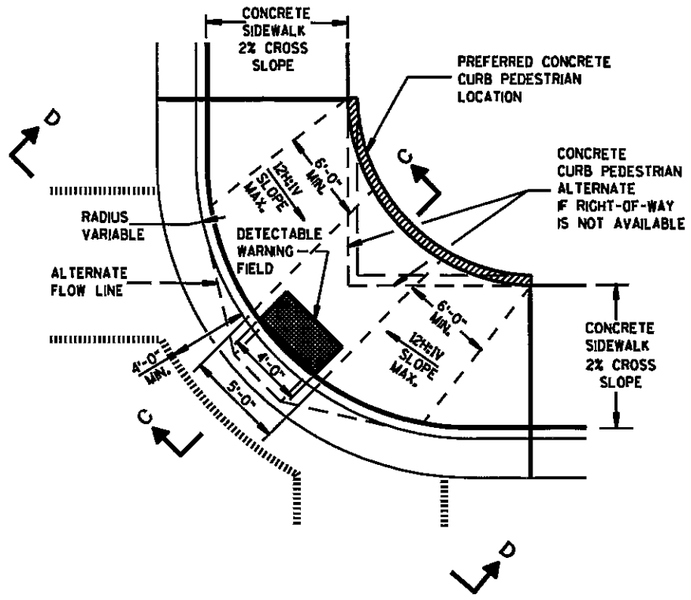
12



PLAN VIEW

TYPE 1 RAMP

(CENTER OF CORNER RADIUS)



PLAN VIEW

TYPE 1-A RAMP

(NO TERRACE)

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

RAMPS SHALL BE BUILT AT 12H:1V OR FLATTER. WHEN NECESSARY, THE SIDEWALK ELEVATION MAY BE LOWERED TO MEET THE HIGH POINT ON THE RAMP.

TYPE 1 RAMPS SHALL HAVE A NORMAL SIDEWALK APRON AND CURB ON BOTH SIDES OF RAMP.

DETECTABLE WARNING FIELD SHALL BE MEASURED AND PAID BY THE SQUARE FOOT AS "CURB RAMP DETECTABLE WARNING FIELD". THE CONCRETE PEDESTRIAN CURB, IF NEEDED, SHALL BE MEASURED AND PAID BY THE LINEAL FOOT AS "CONCRETE CURB PEDESTRIAN". CONCRETE SIDEWALK IN THE CURB RAMP AREA SHALL BE MEASURED AND PAID BY THE SQUARE FOOT AS CONCRETE SIDEWALK, INCLUDING THE AREA UNDER THE DETECTABLE WARNING FIELD.

SELECT CURB RAMP DETECTABLE WARNING FIELD MATERIALS AND DEVICES FROM THE DEPARTMENT'S APPROVED MATERIALS LIST. THE COLOR OF THE DETECTABLE WARNING FIELD IS SPECIFIED ELSEWHERE AND IS INCIDENTAL TO THE BID ITEM OF "CURB RAMP DETECTABLE WARNING FIELD".

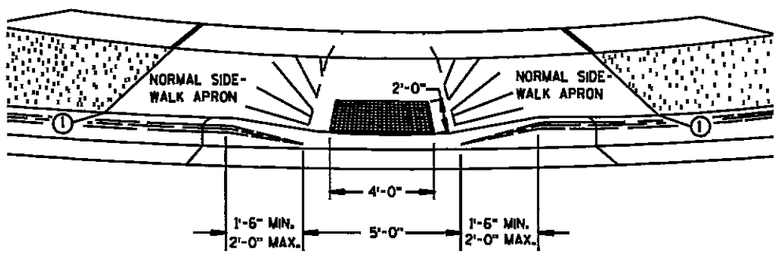
SURFACE TEXTURE OF THE RAMP SHALL BE OBTAINED BY COARSE BROOMING TRANSVERSE TO THE SLOPE OF THE RAMP.

(1) THIS POINT IS AN EXTENSION OF OUTSIDE EDGE OF APPROACHING SIDEWALK WHERE IT MEETS THE BACK OF CONCRETE CURB.

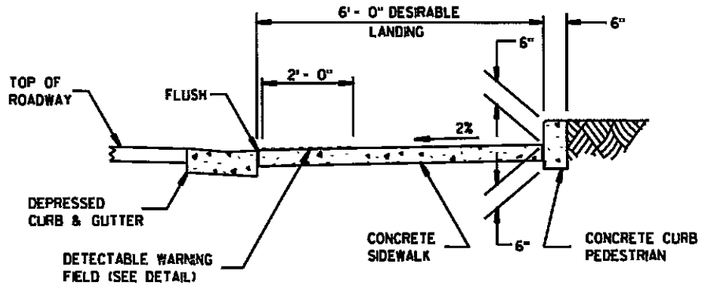
(2) GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. PROVIDE DRAINAGE AWAY FROM CURB RAMP AT GUTTER FLAG INTERFACE.

LEGEND

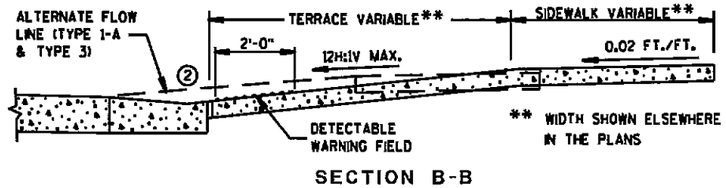
- ½" EXPANSION JOINT-SIDEWALK
- CONTRACTION JOINT FIELD LOCATED
- PAVEMENT MARKING CROSSWALK (WHITE)
- ALTERNATIVE LAYOUT



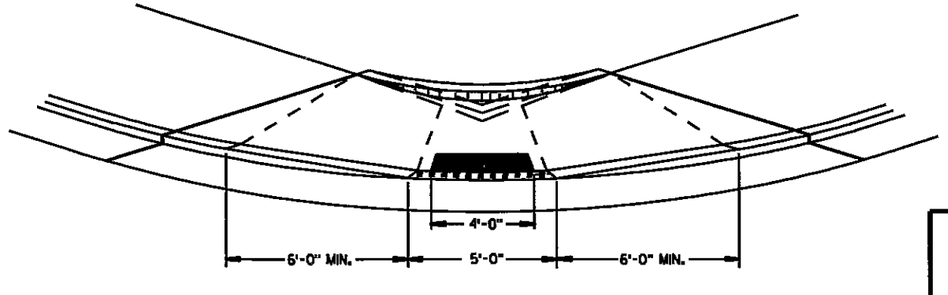
VIEW A-A



SECTION C-C



SECTION B-B



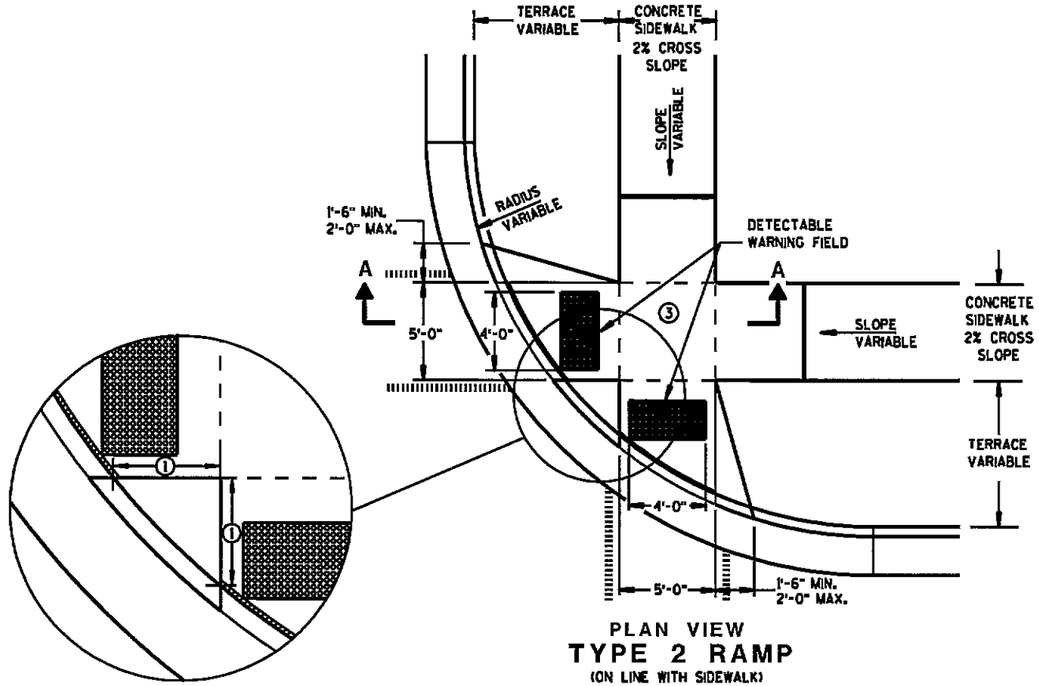
VIEW D-D

CURB RAMPS
TYPES 1 AND 1-A

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

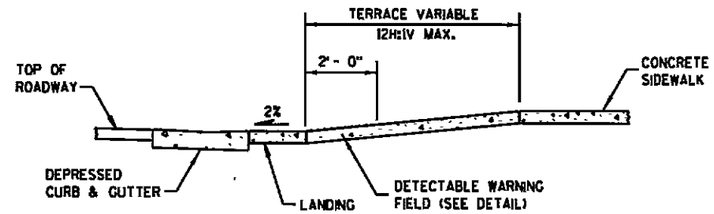
S.D.D. 8 D 5-11a



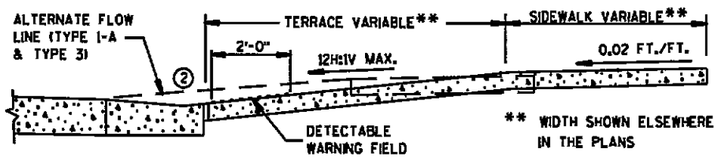
PLAN VIEW

TYPE 2 RAMP

(ON LINE WITH SIDEWALK)



SECTION A-A



SECTION B-B

GENERAL NOTES

USE THE TYPE 3 RAMP ONLY WHEN A TYPE 1 OR TYPE 2 CANNOT BE ACHIEVED BECAUSE OF FIELD CONDITIONS.

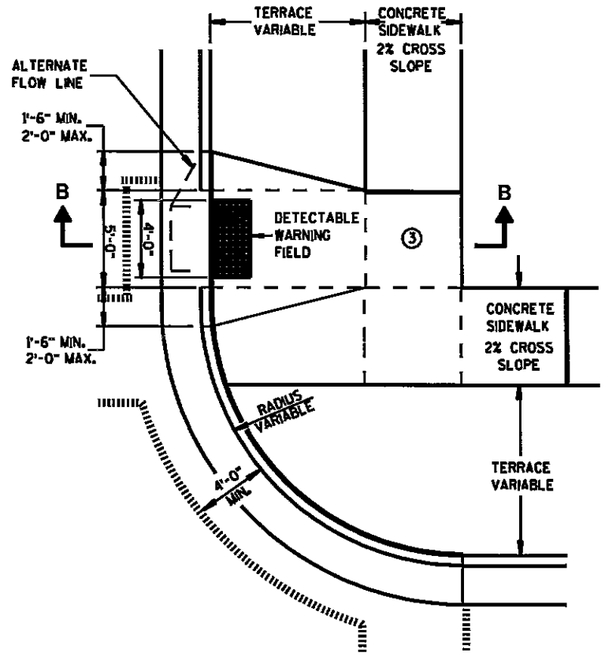
① WHEN THIS DISTANCE IS LESS THAN 6'-0" IT MAY BE DIFFICULT TO ACHIEVE A 12H:1V SLOPE, OR FLATTER, ON THE RAMP. REDUCE CURB HEIGHT IN TRIANGLE AREA TO ACHIEVE 12H:1V SLOPE, OR FLATTER, ON RAMP. 2" MINIMUM CURB HEIGHT.

② GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. PROVIDE DRAINAGE AWAY FROM CURB RAMP AT GUTTER FLAG INTERFACE.

③ PROVIDE LANDING AT TOP OF RAMP WITH NO MORE THAN 2% SLOPE IN ANY DIRECTION.

LEGEND

- ½" EXPANSION JOINT-SIDEWALK
- CONTRACTION JOINT FIELD LOCATED
- PAVEMENT MARKING CROSSWALK (WHITE)
- ALTERNATIVE LAYOUT



PLAN VIEW

TYPE 3 RAMP

(OUTSIDE OF CROSSWALK AREA)

CURB RAMPS
TYPES 2 AND 3

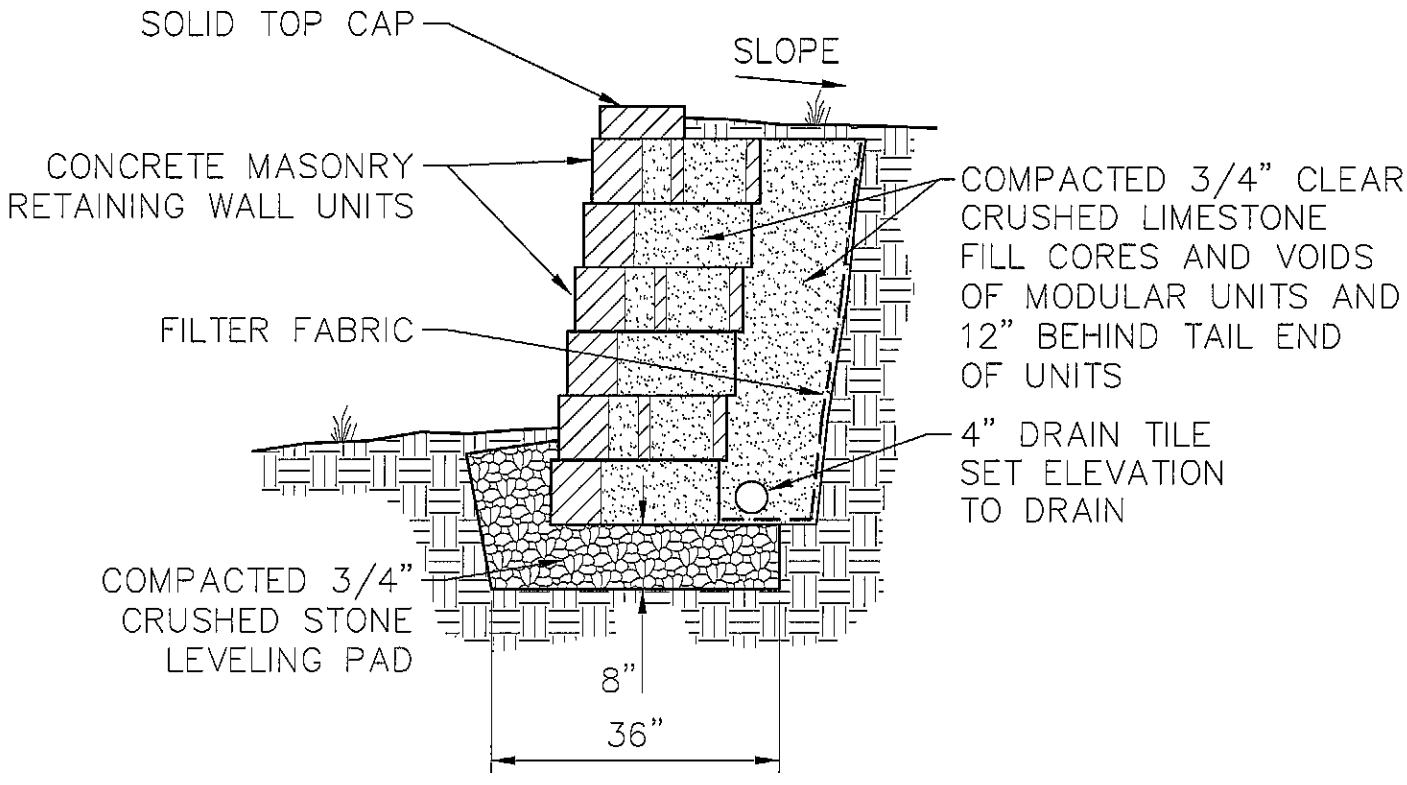
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

S.D.D. 8 D 5-11b

6

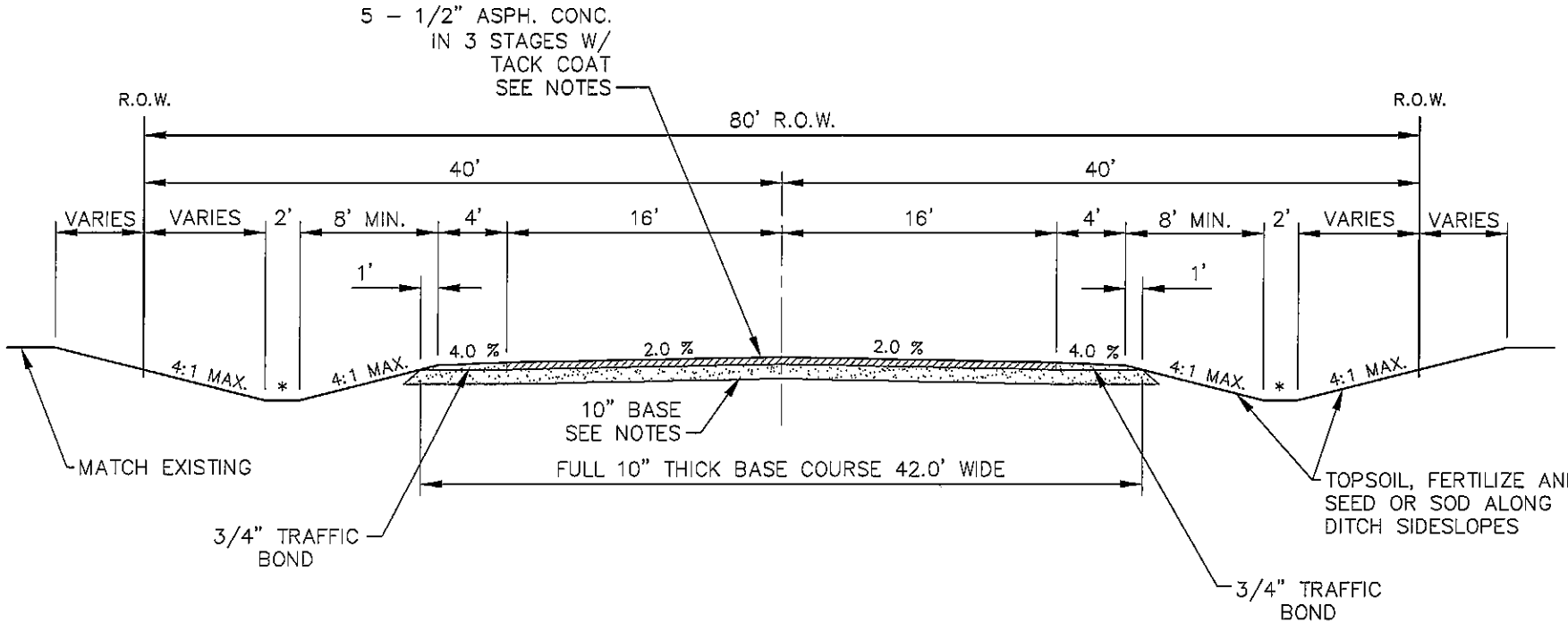
S.D.D. 8 D 5-11b



MASONRY UNIT RETAINING WALL

NOT TO SCALE

RM811PB



3 STAGE PAVEMENT
2 – 2" BINDER COURSES
1 – 1 1/2" SURFACE COURSE

10" BASE – CONSISTING OF:
TOP – 5" OF 3/4" CRUSHED LIMESTONE (T.B.)
BOT – 5" OF 1 1/4" CRUSHED LIMESTONE (T.B.)

NOTES:

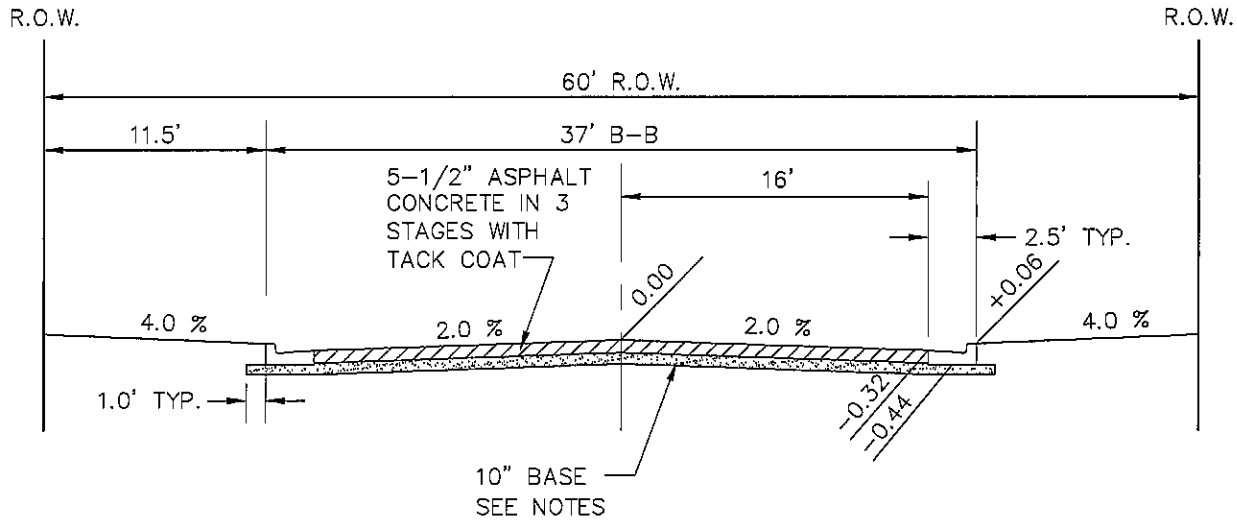
* DITCH DEPTH VARIABLE TO ACCOMODATE LARGER CULVERTS. DITCH DEPTH SHALL BE A MINIMUM OF 2' BELOW SHOULDER.

DITCH SLOPES OUTSIDE R.O.W. REQUIRE DRAINAGE EASEMENTS.

TYPICAL RURAL CROSS SECTION 80' R.O.W.

NOT TO SCALE

120

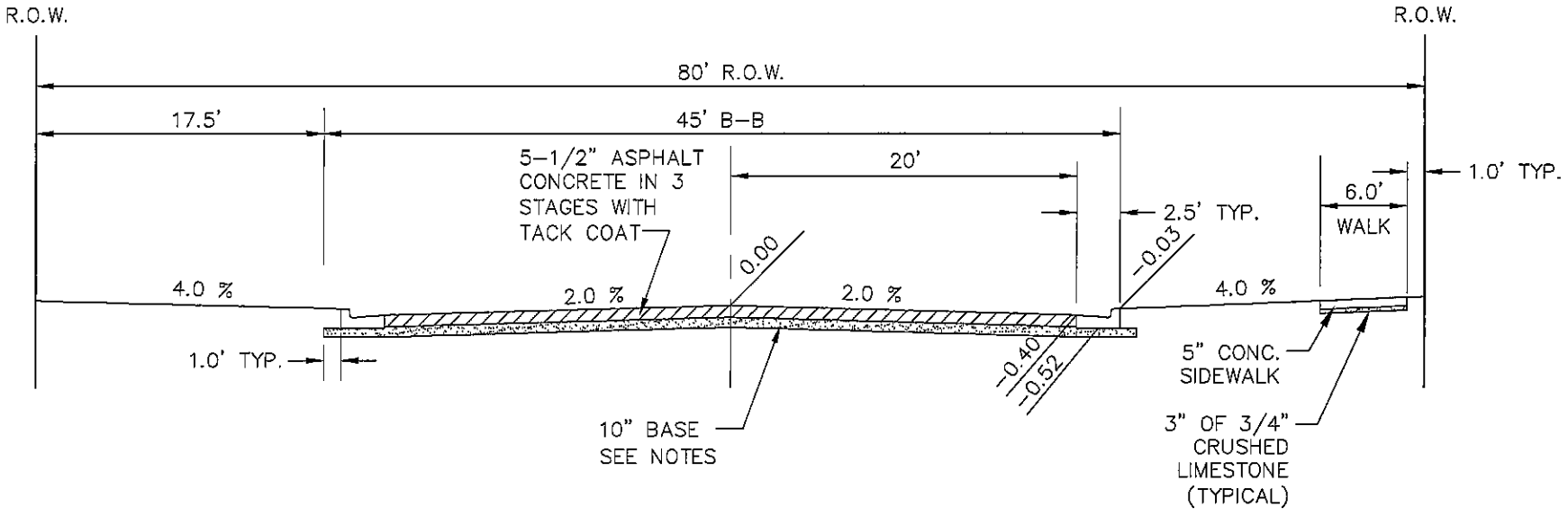


3 STAGE PAVEMENT
2 – 2" BINDER COURSES
1 – 1 1/2" SURFACE COURSE

10" BASE – CONSISTING OF:
TOP – 5" OF 3/4" CRUSHED LIMESTONE (T.B.)
BOT – 5" OF 1 1/4" CRUSHED LIMESTONE (T.B.)

TYPICAL SECTION FOR 60' R.O.W.

NOT TO SCALE



3 STAGE PAVEMENT
2 – 2" BINDER COURSES
1 – 1 1/2" SURFACE COURSE

10" BASE – CONSISTING OF:
TOP – 5" OF 3/4" CRUSHED LIMESTONE (T.B.)
BOT – 5" OF 1 1/4" CRUSHED LIMESTONE (T.B.)

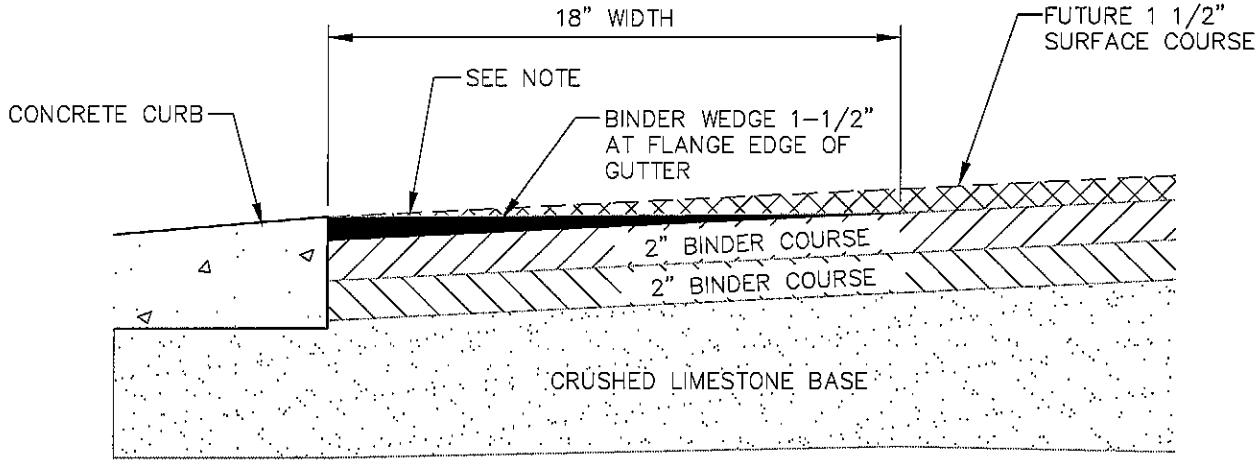
CONCRETE NOTE:
CONCRETE WALKS ARE TYPICALLY INSTALLED ON EITHER THE NORTH OR THE EAST SIDES OF MAJOR THOROUGHFARES. CHECK PLANS FOR ANY VARIATIONS.

TYPICAL SECTION FOR 80' R.O.W.

NOT TO SCALE

10

Jul 20, 2006 11:35am
T:\JMC\27-Pavement Wedge Detail With Concrete Curb And Gutter.DWG Model
IMAGES: G:\SHT\RMGraphic.jpg;
XREFS:

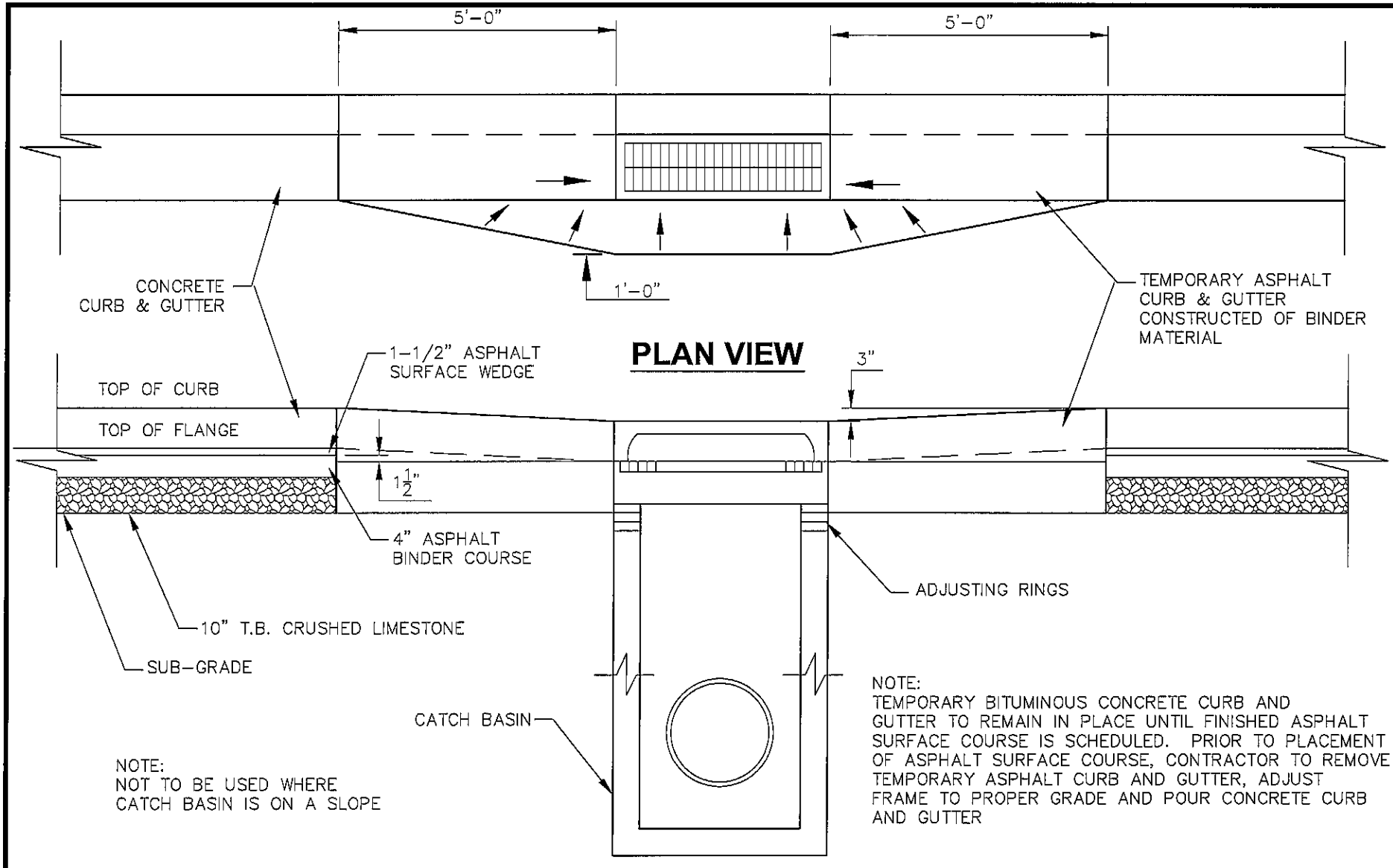


NOTE : MILL BINDER WEDGE PRIOR TO SURFACE PLACEMENT

PAVEMENT WEDGE DETAIL WITH CONCRETE CURB AND GUTTER

NOT TO SCALE

1



CROSS SECTION

INTERIM PAVEMENT CATCH BASIN DETAIL (FOR USE AT ALL LOW SPOTS)

NOT TO SCALE

Mar 22, 2006 2:41pm
R:\RawMaterials\Drawings\library\CLIENT 20\28-Asphaltic Concrete Manhole Ramp.DWG Model
IMAGES: G:\SHT\RMGrphic.jpg;
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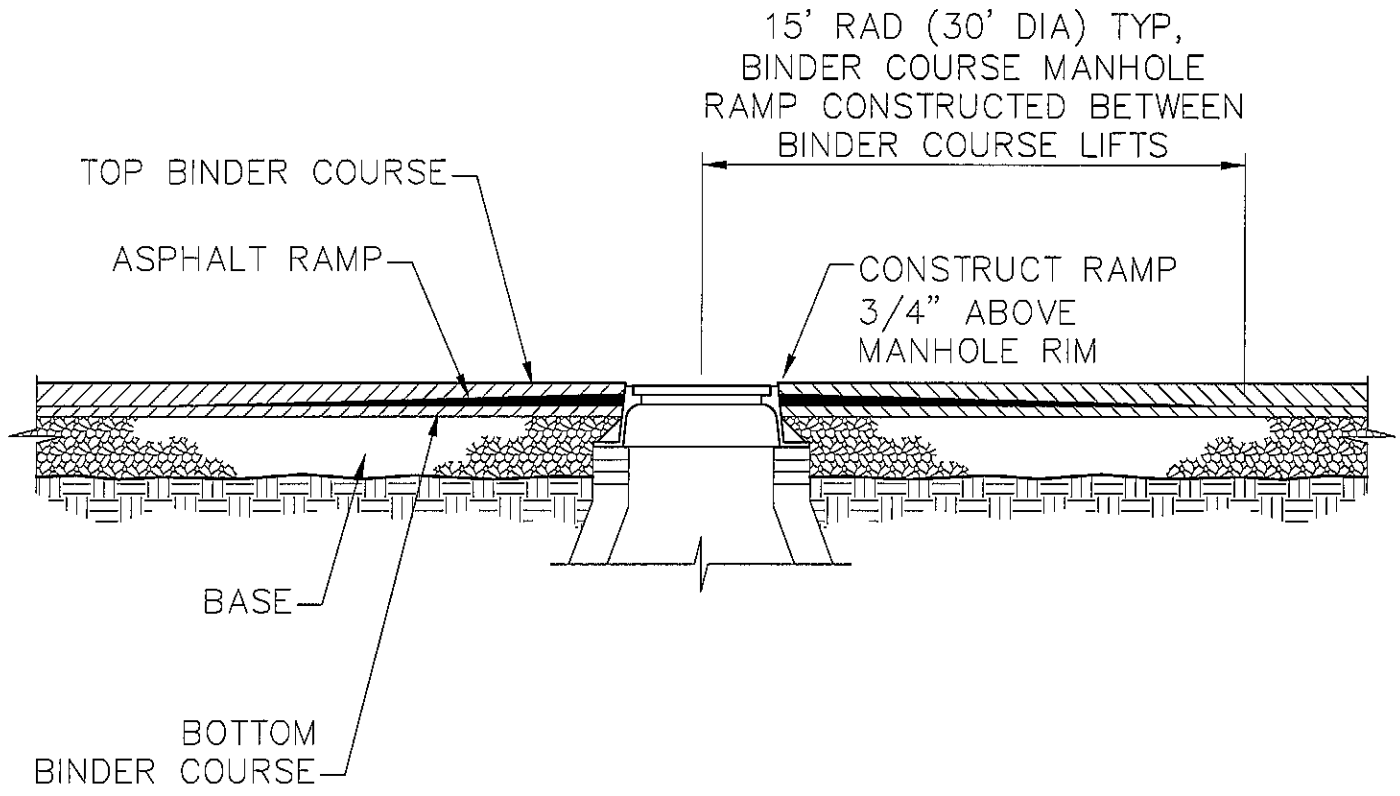
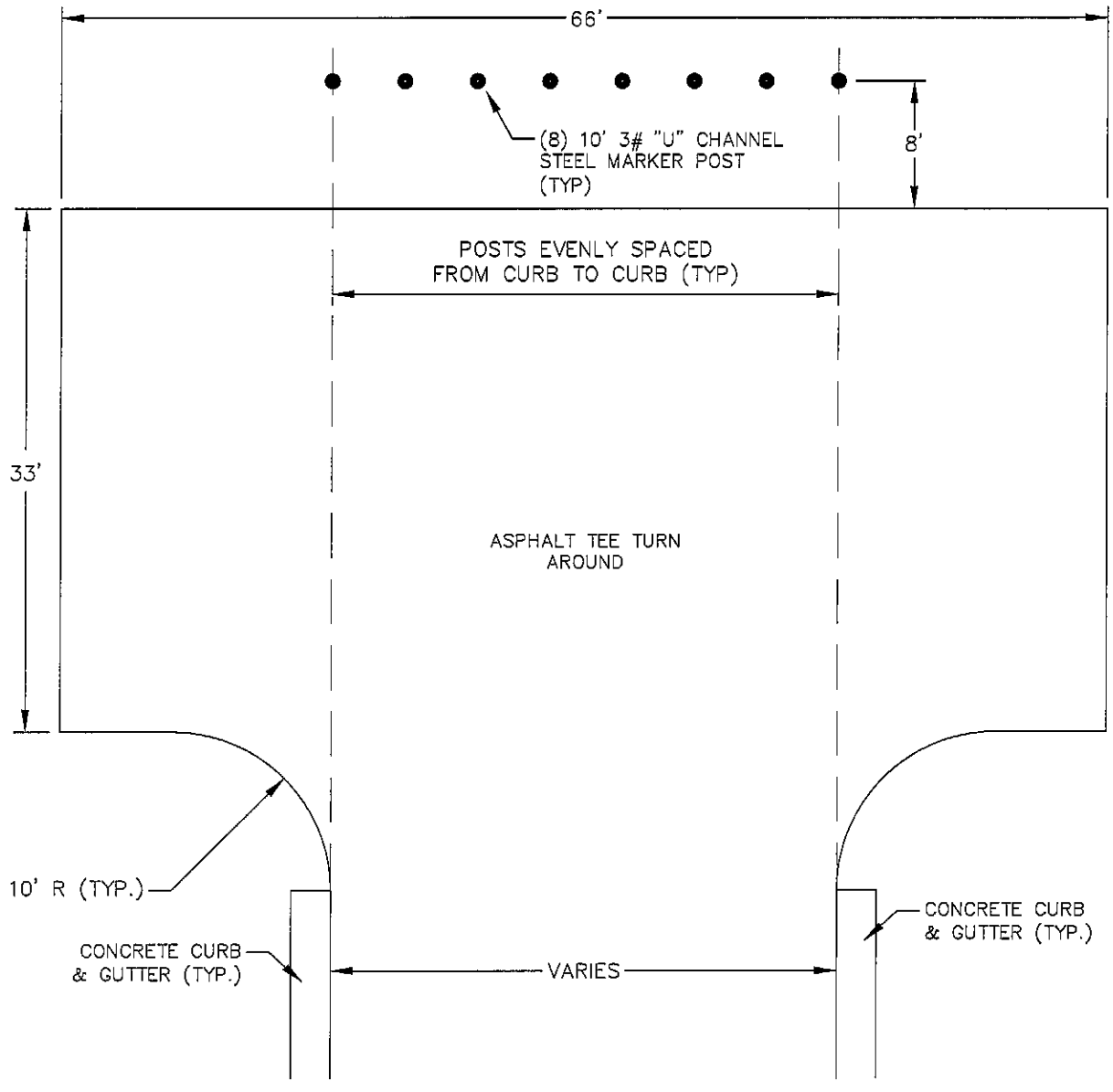
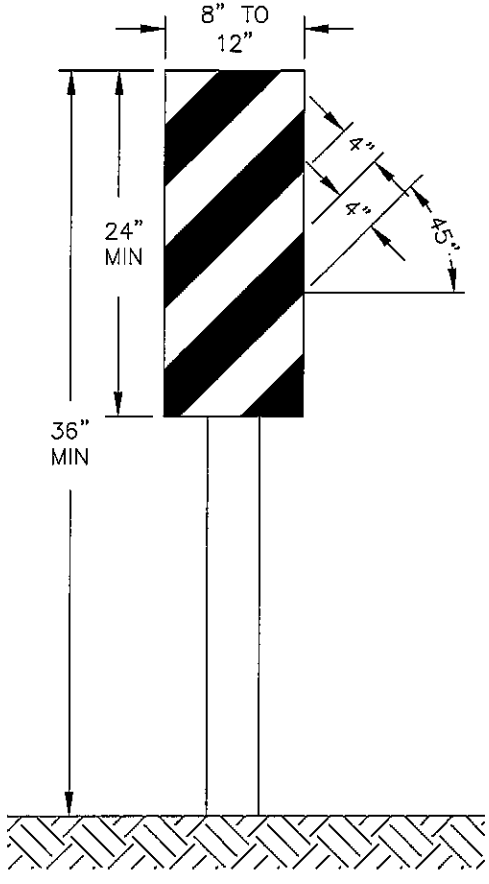


ASPHALTIC CONCRETE MANHOLE RAMP

NOT TO SCALE

32





TYPICAL VERTICAL PANEL

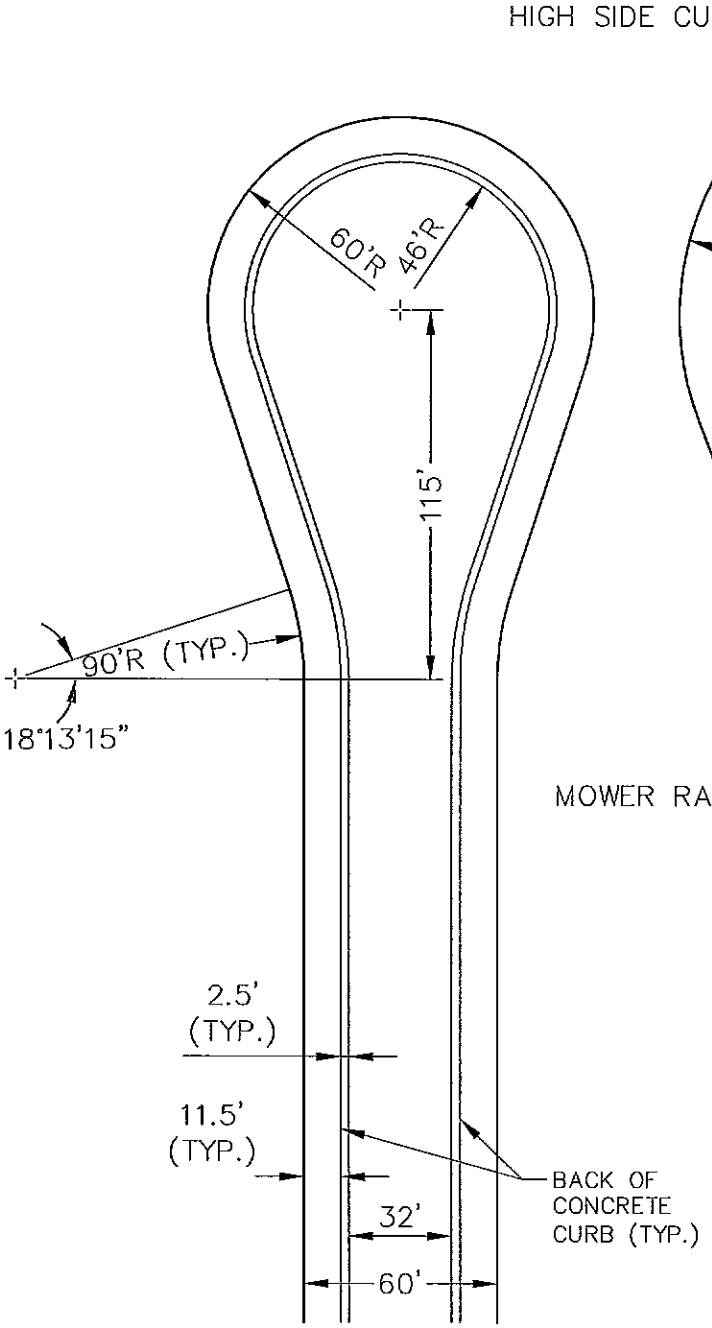
SIGN TO BE HIGH INTENSITY RED AND WHITE DIAGONAL LINES.

FOUR SIGNS TO BE RIGHT DIAGONAL AND FOUR SIGNS TO BE LEFT DIAGONAL.

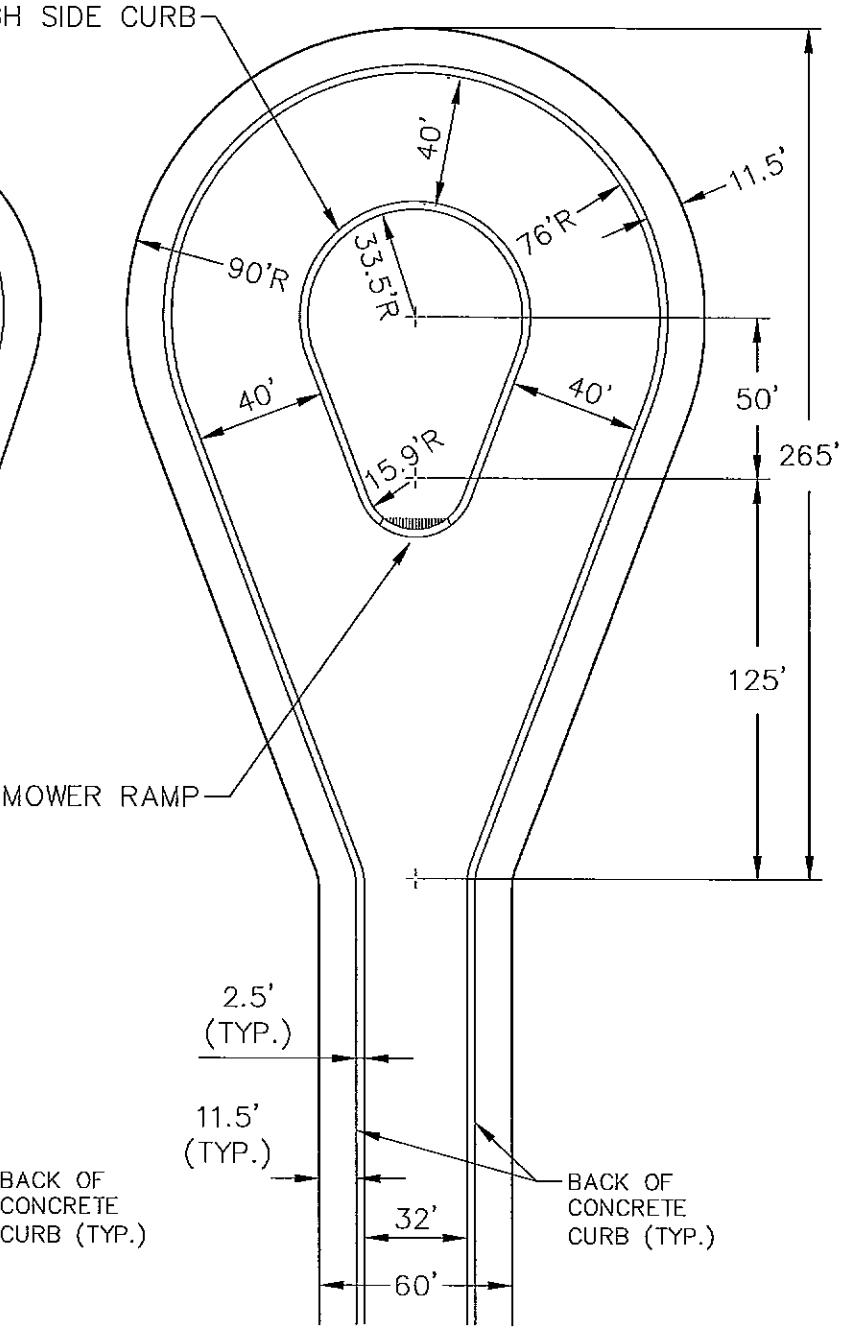
TEMPORARY TEE TURN AROUND

NOT TO SCALE

RM811PB



TYPICAL 60 FOOT
TEARDROP CUL DE SAC
WITHOUT A CENTER
ISLAND



TYPICAL 90 FOOT
TEARDROP CUL DE SAC
WITH A CENTER ISLAND

TYPICAL URBAN CUL DE SAC DETAIL

NOT TO SCALE

60

Mar 22, 2006 2:40pm
R:\Newsletters\Drawings\Library\CLIENT 20\31-Typical Urban Cul De Sac Detail.DWG Model
XREFS:

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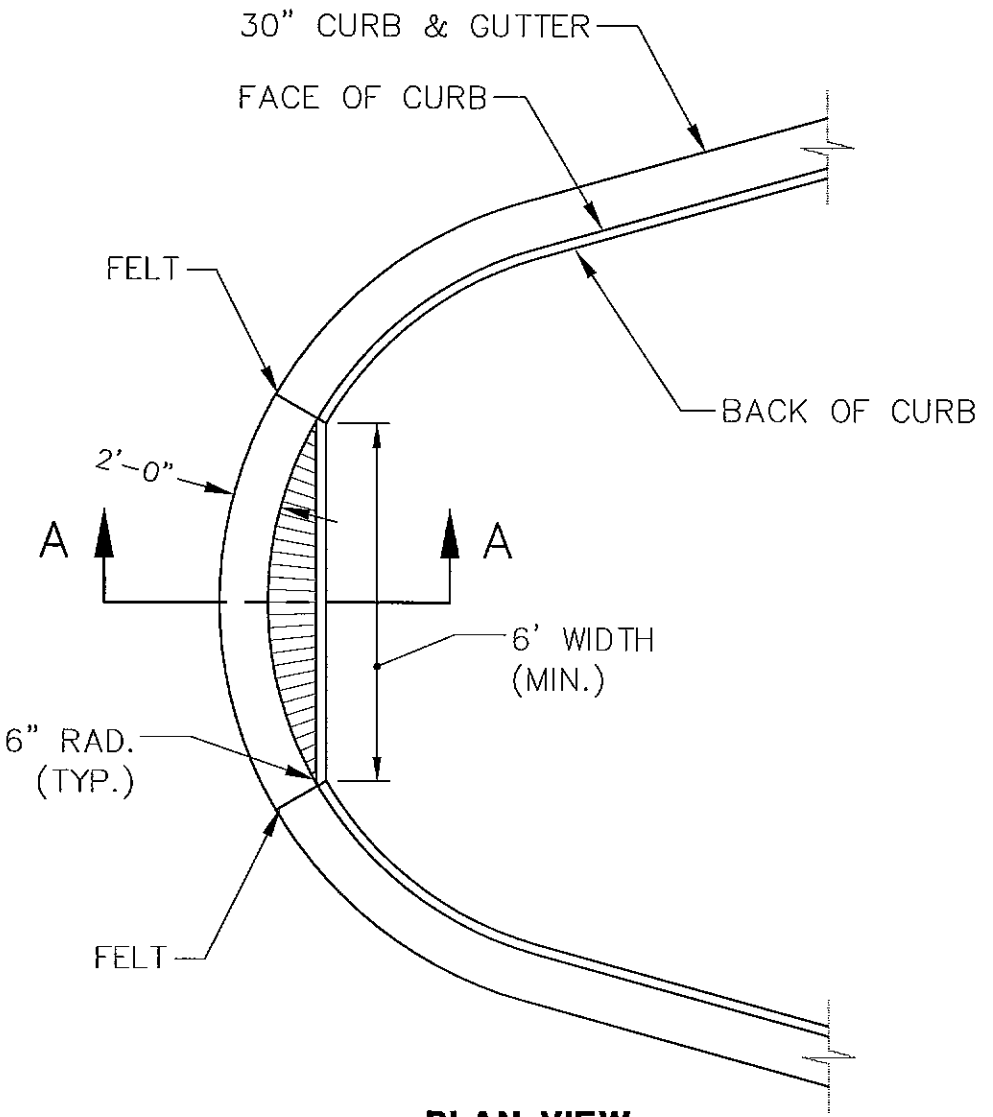
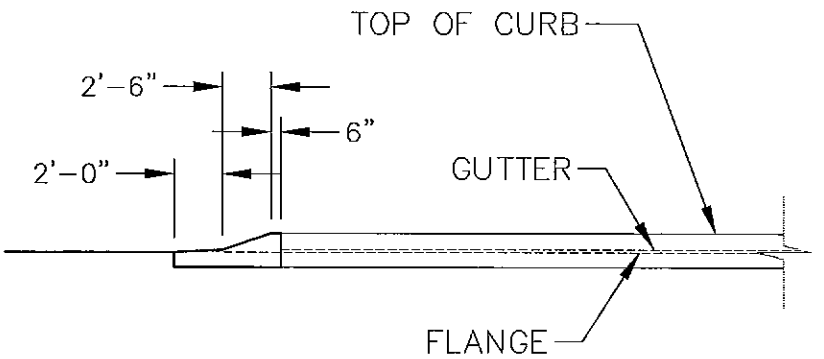


PLAN VIEW

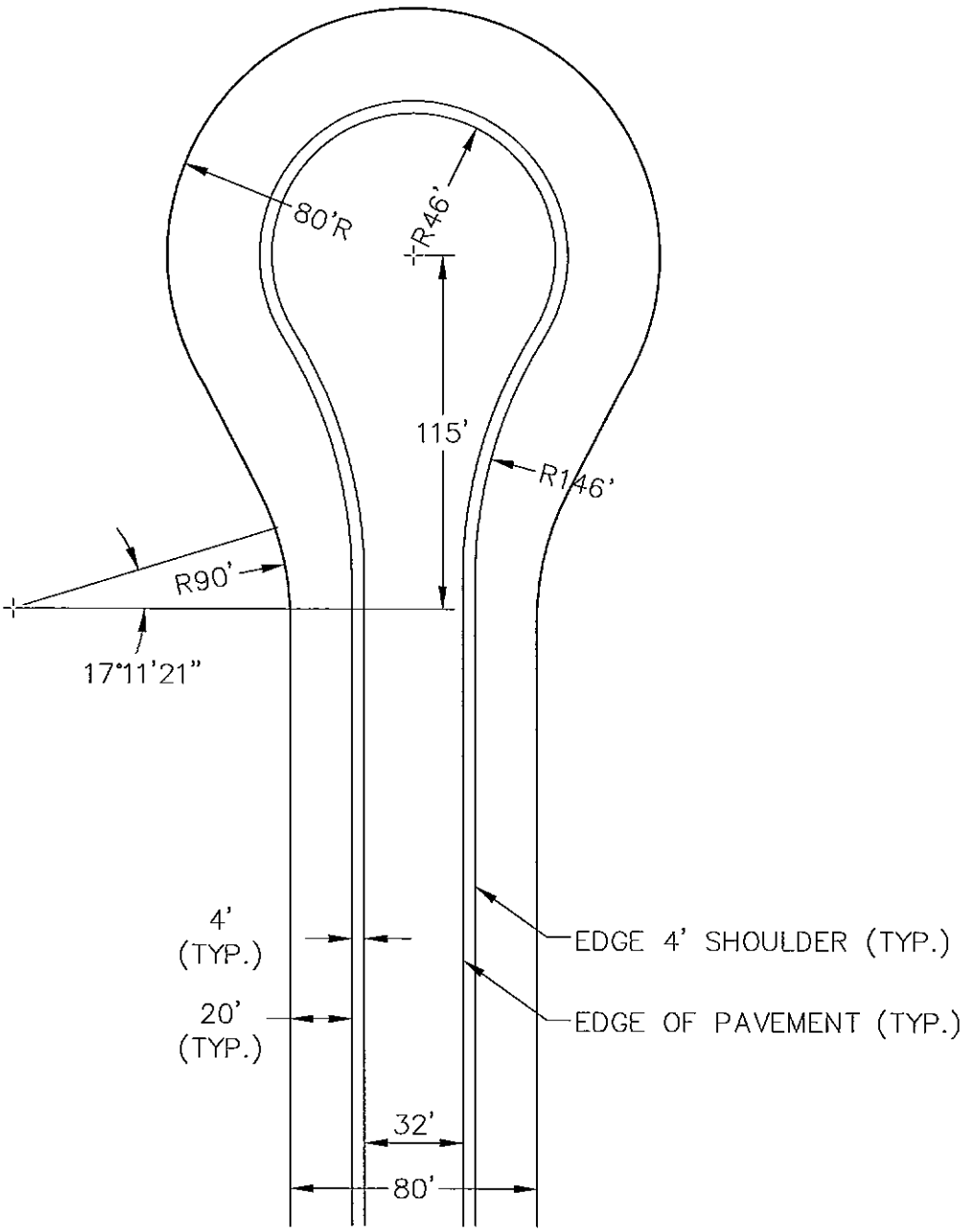


SECTION A-A

CUL DE SAC ISLAND NOSE DETAIL

NOT TO SCALE

10

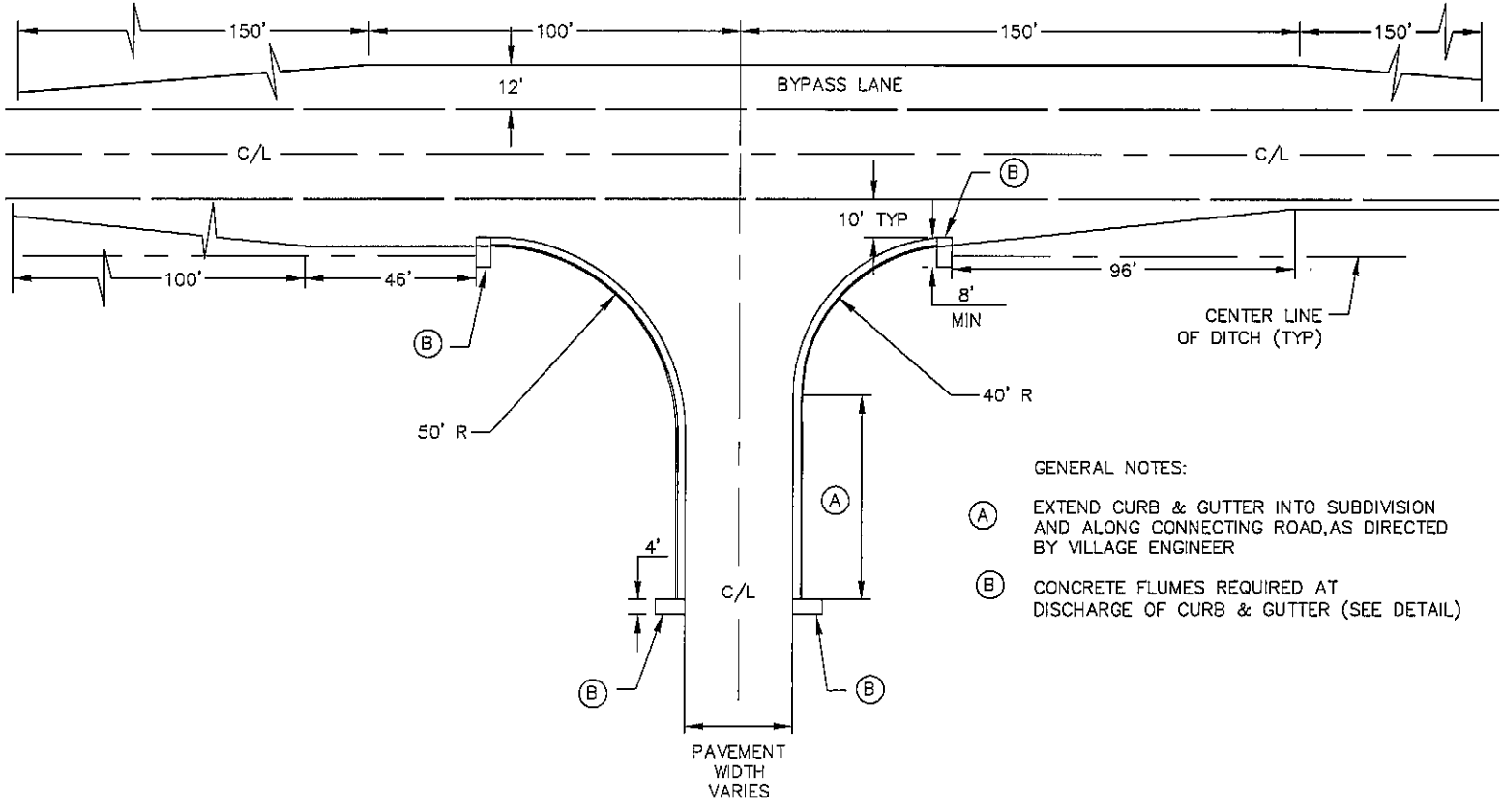


TYPICAL 80 FOOT
TEARDROP CUL DE SAC

TYPICAL RURAL CUL DE SAC DETAIL 80' R.O.W.

NOT TO SCALE

60



GENERAL NOTES:

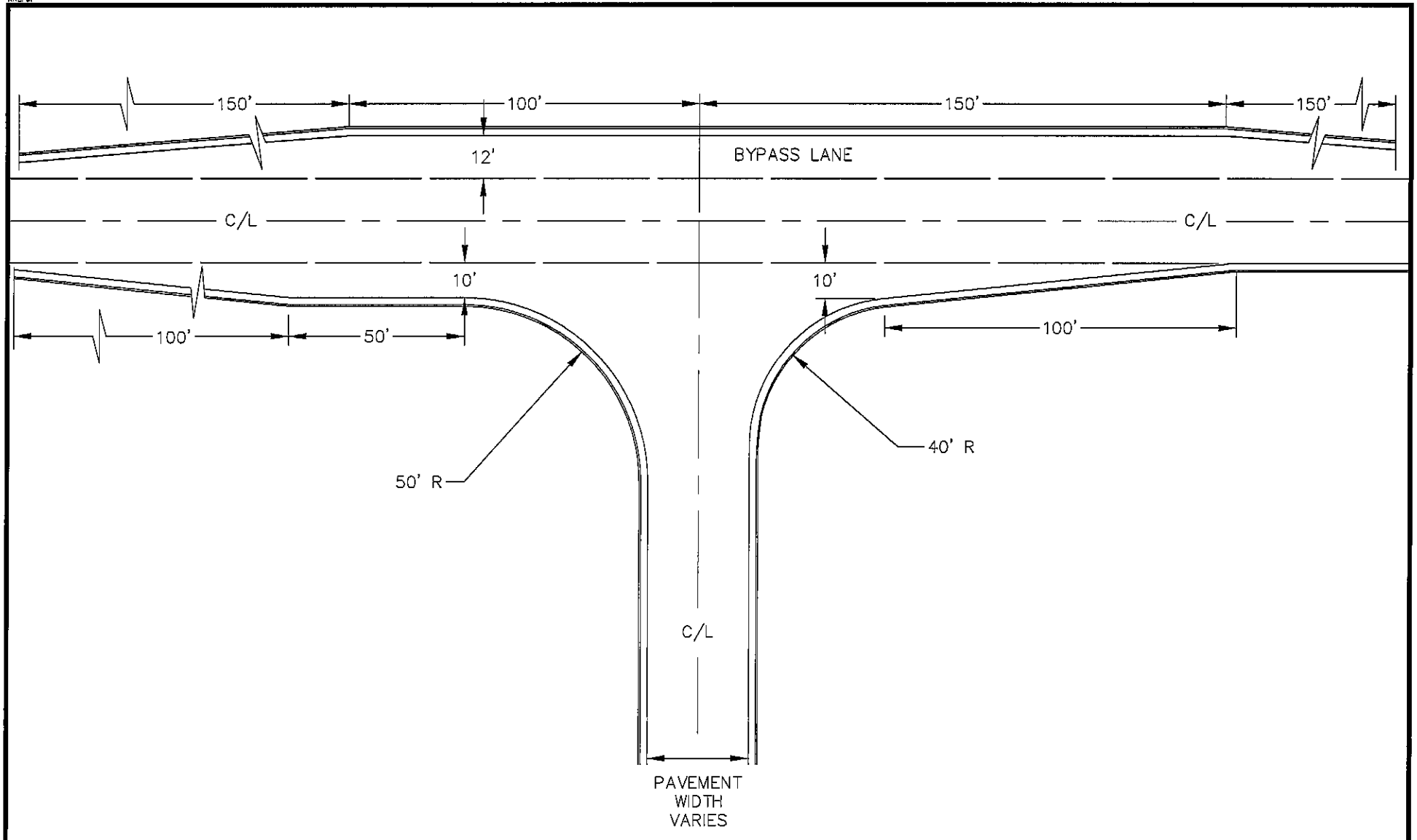
(A) EXTEND CURB & GUTTER INTO SUBDIVISION AND ALONG CONNECTING ROAD, AS DIRECTED BY VILLAGE ENGINEER

(B) CONCRETE FLUMES REQUIRED AT DISCHARGE OF CURB & GUTTER (SEE DETAIL)

TYPICAL RURAL INTERSECTION DETAIL

NOT TO SCALE

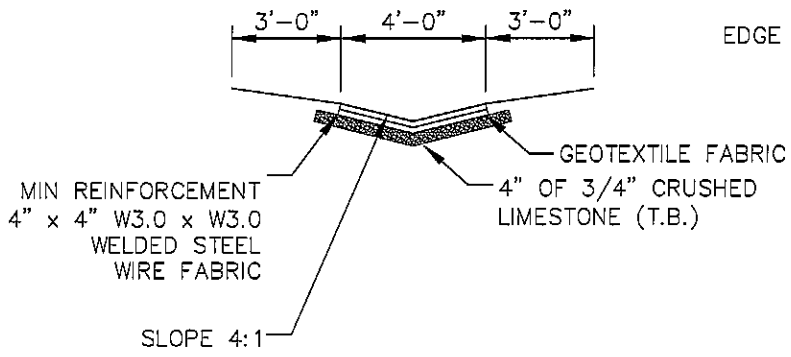
50



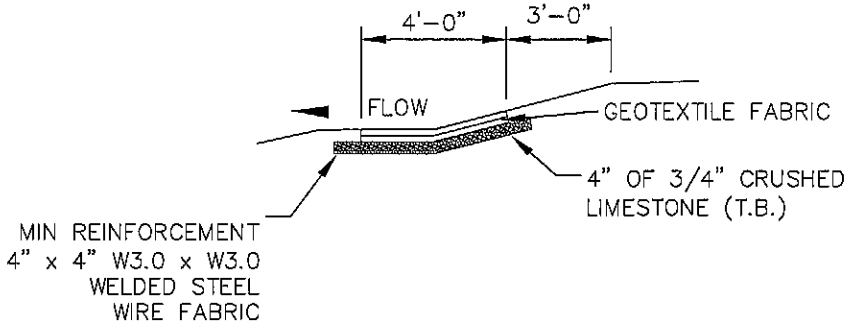
TYPICAL URBAN INTERSECTION DETAIL

NOT TO SCALE

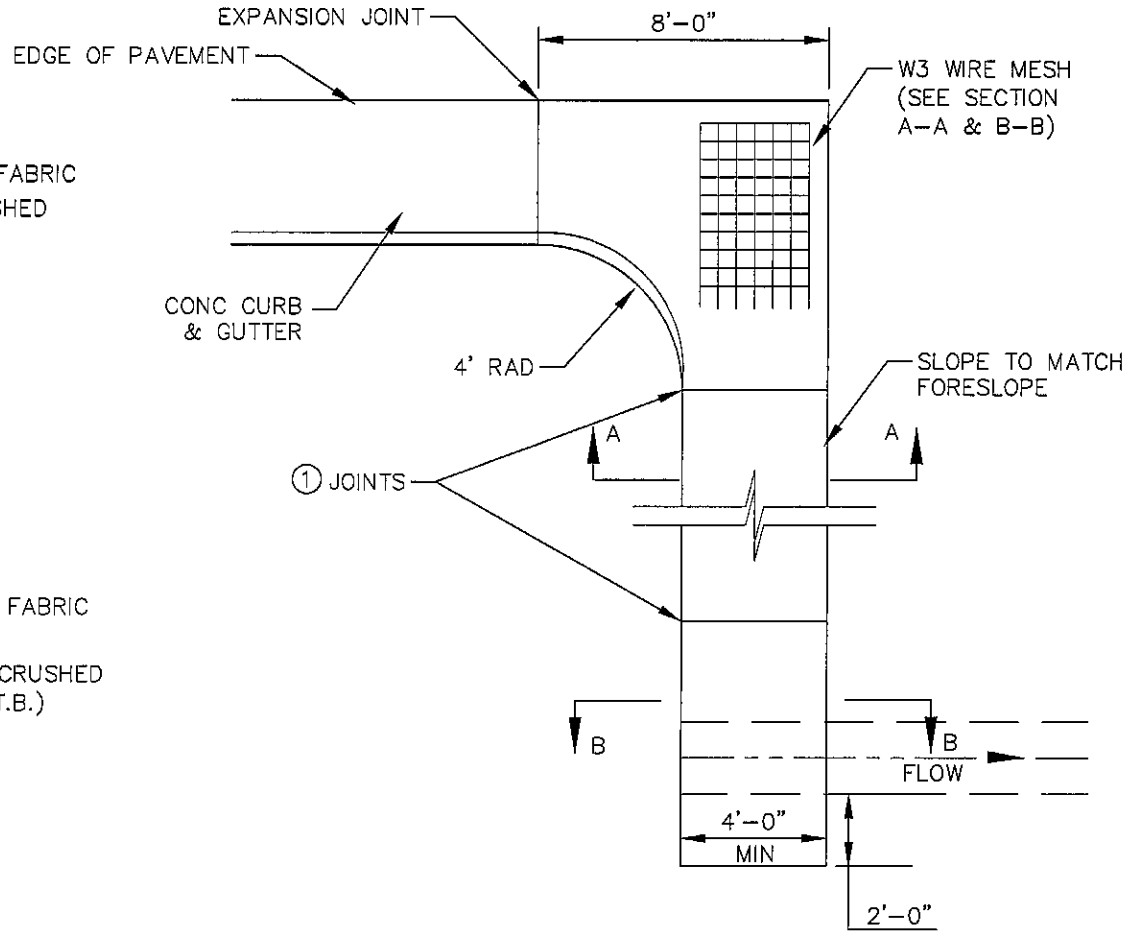
RM811PB



SECTION A-A



SECTION B-B



GENERAL NOTES:

CONCRETE FLUME 5" MIN THICKNESS

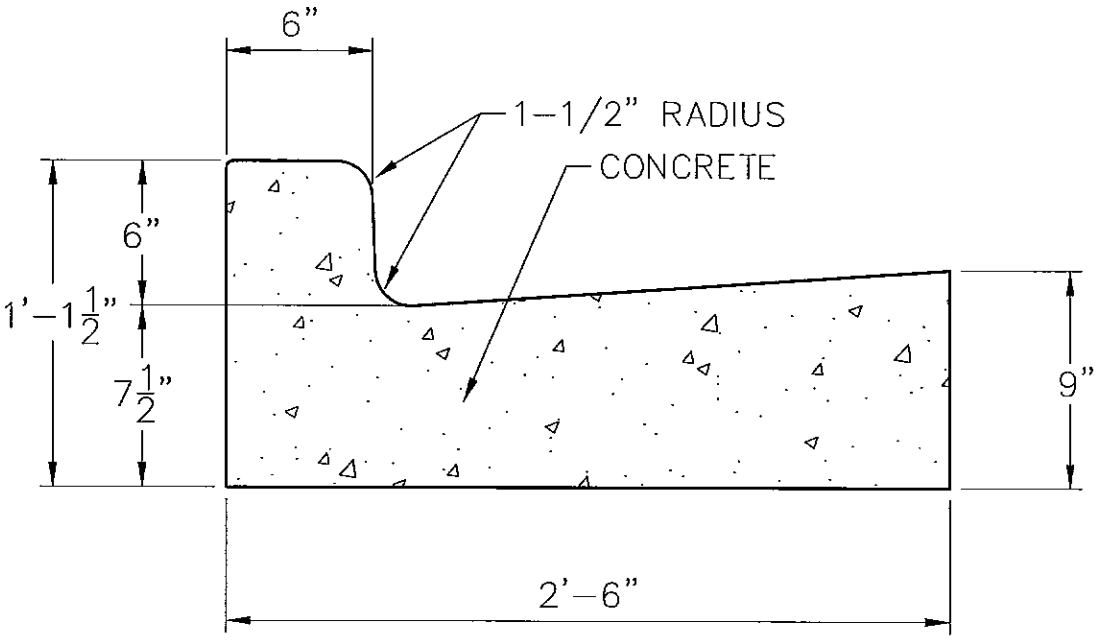
WELDED STEEL WIRE FABRIC SHALL BE IN ACCORDANCE WITH AASHTO SPEC. M55.

(1) JOINTS SHALL BE 1/8" TO 1/4" WIDE BY 1-1/2" DEEP AND SPACED AT UNIFORM INTERVALS OF APPROX. 4 FEET.

CONCRETE FLUME DETAIL

NOT TO SCALE

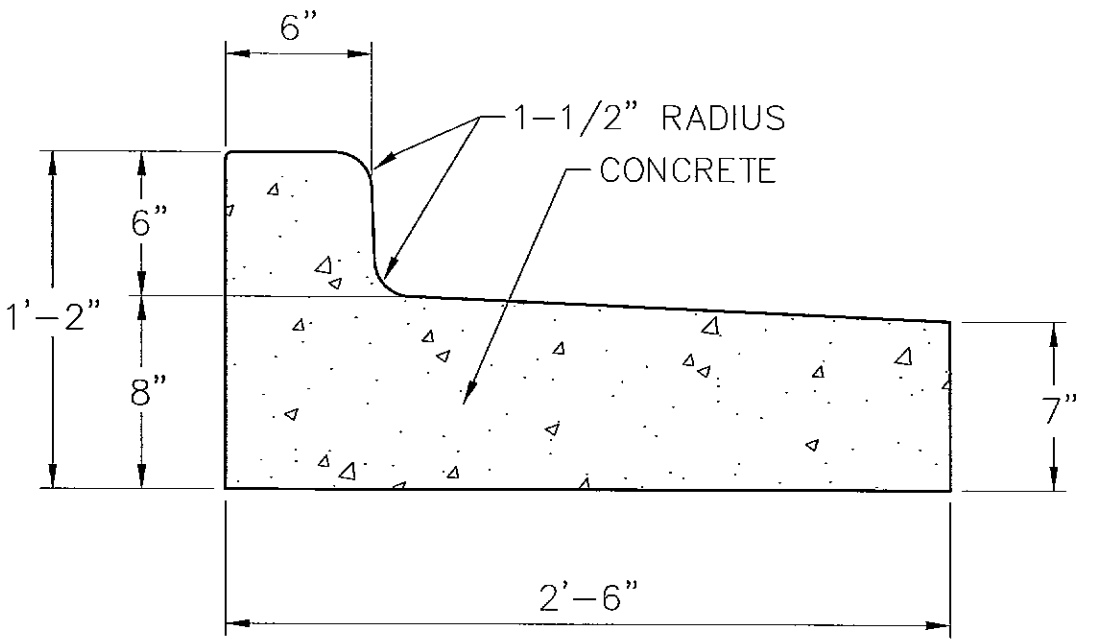
RM811PB



LOW SIDE
CURB & GUTTER

NOT TO SCALE

8



HIGH SIDE
CURB & GUTTER

NOT TO SCALE

8

Mar 22, 2006 2:35pm
R:\Newsletters\Drawings\Library\CLIENT 2013\37-Low Side-High Side Curb & Gutter.DWG Model
XREFS:
IMAGES: G:\SHT\Photorphic.jpg

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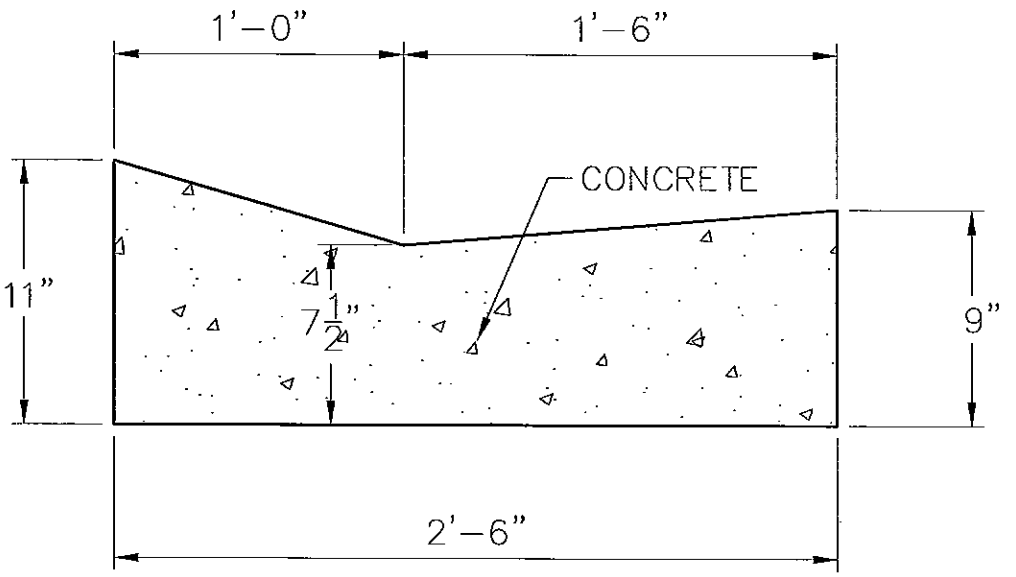
RM811PB



MOUNTABLE CURB & GUTTER

NOT TO SCALE

8

NOTE: ONLY TO BE USED BY SPECIAL APPROVAL OF THE VILLAGE PLAN COMMISION

Mar 22, 2006 2:38pm
R:\Roekdata\Drawings\Library\CLIENT 20\38-Mountable Curb & Gutter.DWG Model
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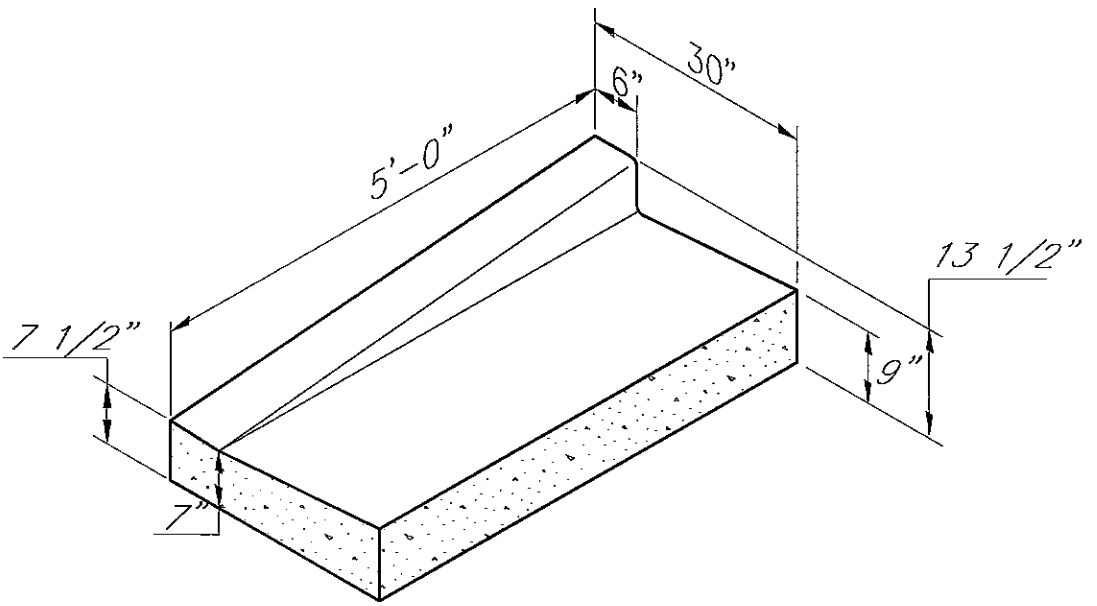

CONCRETE CURB & GUTTER

5' TAPER SECTION

NOT TO SCALE

24

Mar 22, 2006 2:38pm
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IMAGES: G:\SHT\RMGraphic.jpg
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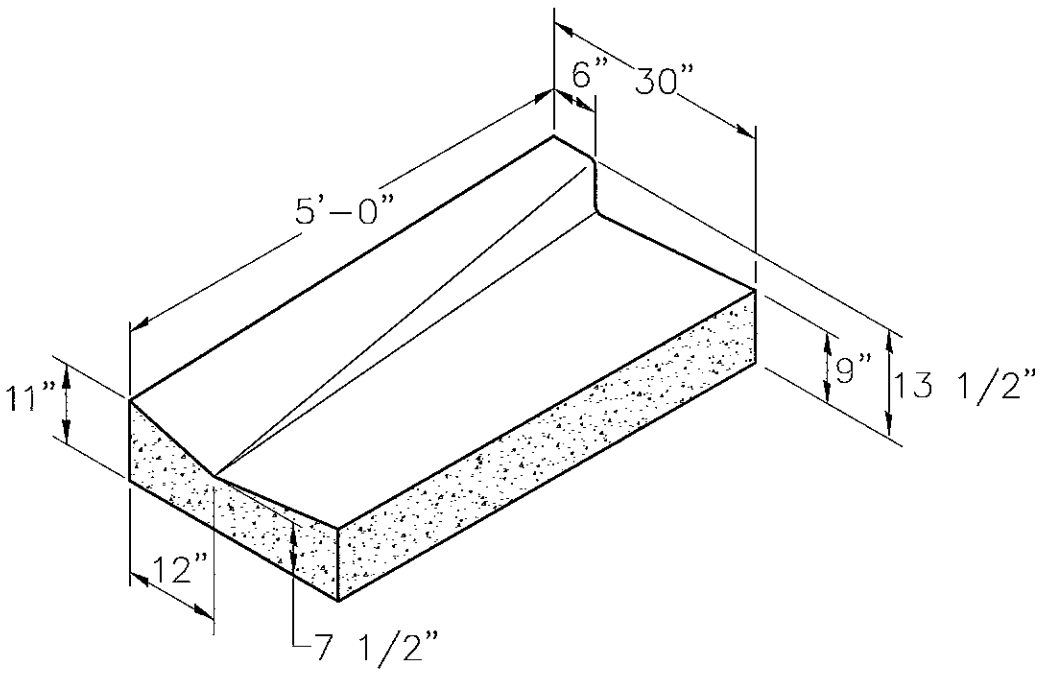
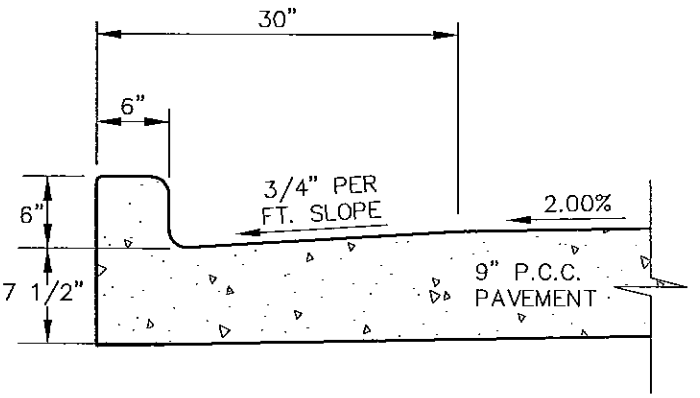


CONCRETE CURB & GUTTER
LOW SIDE TO MOUNTABLE TRANSITION

NOT TO SCALE

24

RM811PB



PARTIAL SECTION OF CONCRETE PAVEMENT WITH INTEGRAL CURB & GUTTER

NOT TO SCALE

16

Mar 22, 2006 2:35pm
R:\RiskMaterials\Drawings\Library\CLIENT 20\41-Partial Section of Concrete Pavement With Integral Curb & Gutter.DWG Model
Layout: Q:\SHT\RMGraphics.jpg
XREFS:

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Mar 22, 2006 3:10pm
R:\RawMaterials\Drawings\library\CLIENT 20\42-Non-Residential Concrete Driveway Village of Sussex.DWG Model
IMAGES: G:\SHT\RMGrphic.jpg;
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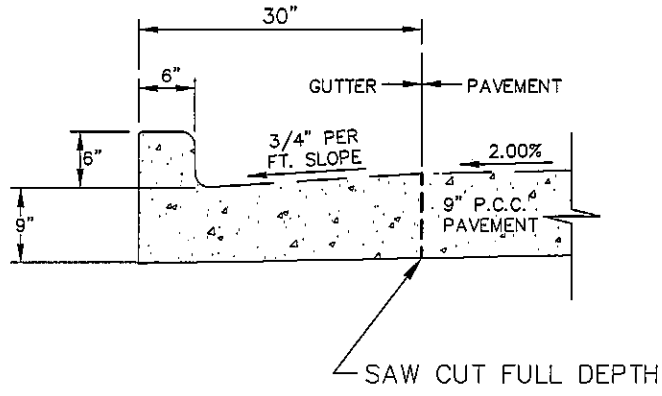
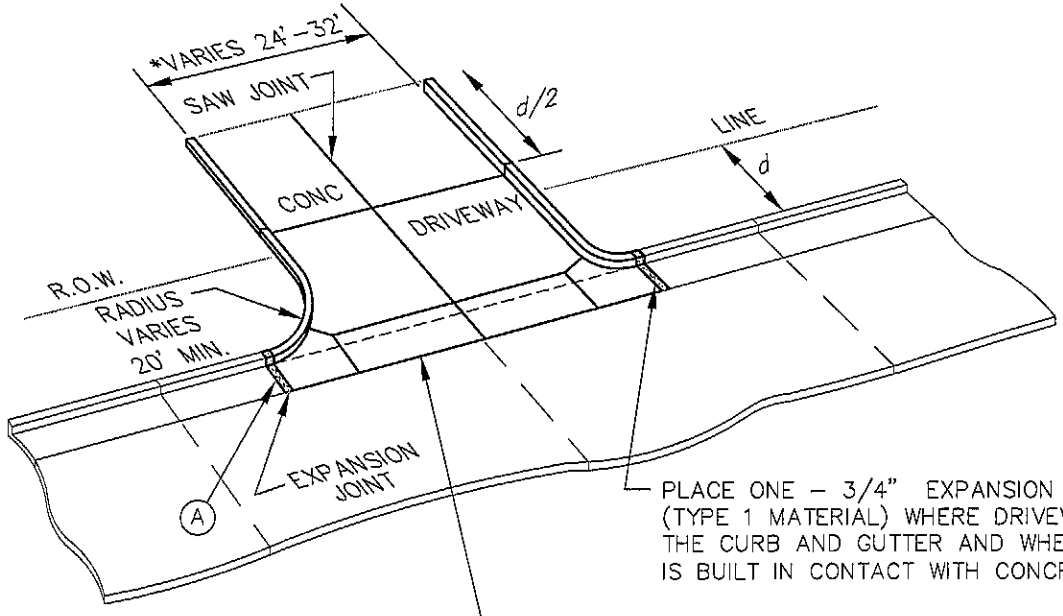
PORTLAND CEMENT CONCRETE SHALL BE A MINIMUM OF 4000 PSI, 28 DAY COMPRESSIVE STRENGTH. CONCRETE SHALL BE PLACED ON AN AGGREGATE BASE COURSE BEING A MINIMUM OF 6" OF 3/4" TB.
THE DRIVEWAY APPROACH SHALL BE A NINE (9) INCH THICK CONCRETE PAVEMENT.
AFTER COMPACTION AND DAMPENING OF THE SUBGRADE, THE CONCRETE SHALL BE PLACED WITHIN OILED FORMS TO THE PROPER HEIGHT, CONSOLIDATED, AND VIBRATED IN PLACE.
IT SHALL BE PLACED IN A CONTINUOUS OPERATION BETWEEN TRANSVERSE JOINTS.

(A) REMOVE TO NEXT JOINT IF LESS THAN FIVE FEET AWAY.

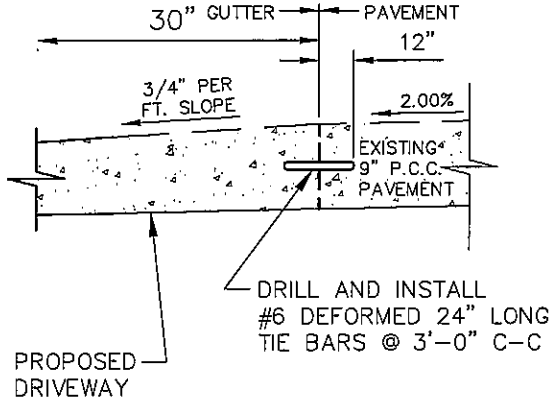
* DRIVEWAY WIDTH – 32' MAXIMUM, PER VILLAGE ZONING CODE

PARTIAL SECTION OF DRIVEWAY WITH INTEGRAL CURB & GUTTER





PARTIAL SECTION OF DRIVEWAY SHOWING REBAR INSTALLATION



NOTE: CONCRETE DRIVES SHALL HAVE CONTROL JOINTS INSTALLED OR SAWED AT 10' MAX. SPACING, 5' MINIMUM SPACING.

CONCRETE TO BE POURED MONOLITHIC, CURB & GUTTER WITH DRIVEWAY TO R.O.W.

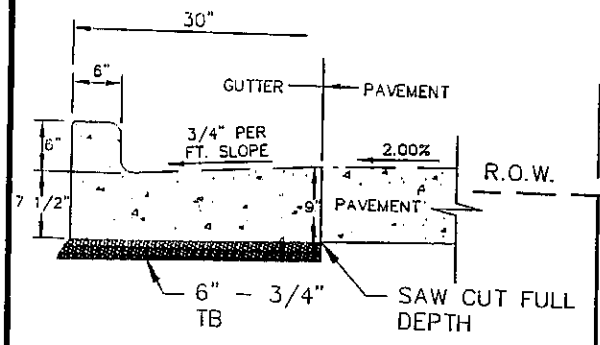
NON-RESIDENTIAL CONCRETE DRIVEWAY VILLAGE OF SUSSEX

NOT TO SCALE

UPDATED 5/21/03

RMB11PB

PARTIAL SECTION OF DRIVEWAY WITH INTEGRAL CURB & GUTTER



SPECIFICATIONS:

PAVEMENT–
CONCRETE – 7" MIN. THICKNESS (4000 PSI)

GRAVEL BASE–
3/4" TRAFFIC BOND – 4" MIN. THICKNESS
THICKNESS DETERMINED BY OWNER
(VILLAGE RESERVES THE RIGHT TO ORDER IT REPLACED IN THE FUTURE IF DETERIORATED)

Ⓐ REMOVE & REPLACE

Ⓑ REMOVE C&G TO NEXT JOINT IF LESS THAN FIVE FEET AWAY

Ⓒ DRILL & INSTALL 2–#6 DEFORMED 24" LONG TIE BARS (TYP.)

NOTES:
1. DRIVEWAY APRON TO BE CONSTRUCTED MONOLITHIC FROM PAVEMENT EDGE TO RIGHT-OF-WAY
2. CONCRETE DRIVES SHALL HAVE CONTROL JOINTS INSTALLED OR SAWED AT 10' MAX SPACING, 5' MIN. SPACING

RESIDENTIAL CONCRETE DRIVEWAY

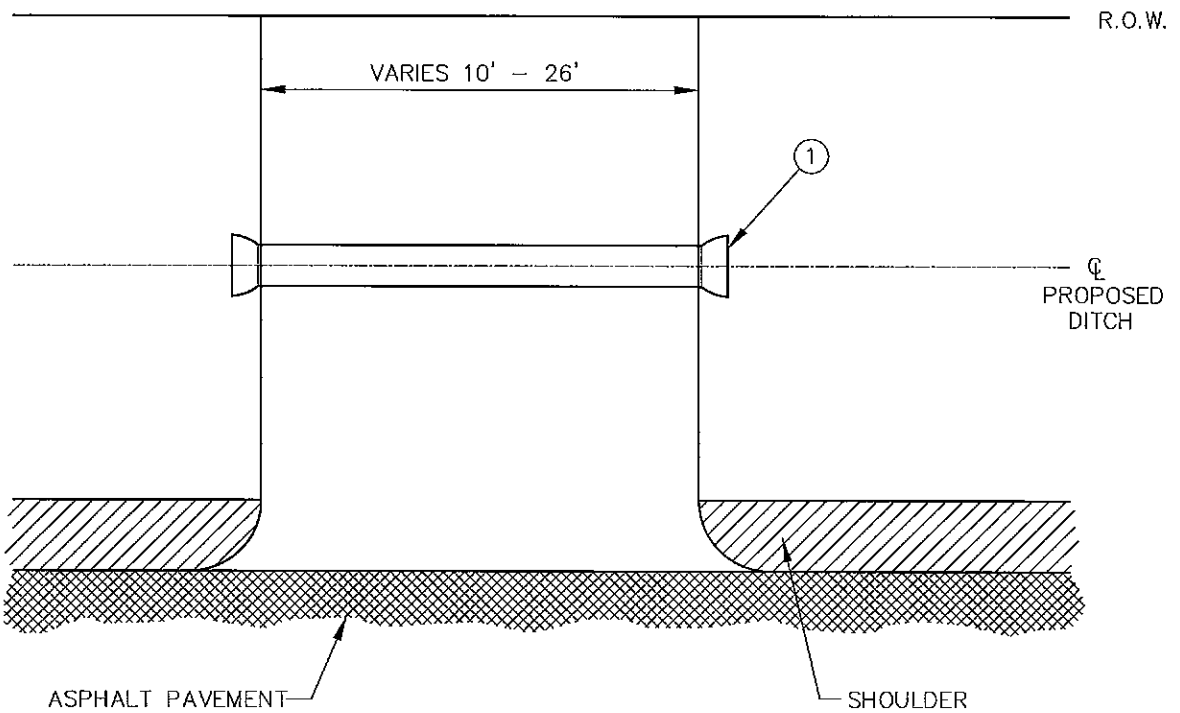
NOT TO SCALE

FOR TEMPORARY ACCESS TO LOT, SEE BACK OF THIS DETAIL

NOTE TO BUILDER:

1. At time of Building Permit, remove back of curb in area of proposed driveway.
2. Back of curb must be removed prior to first inspection of footing.
3. No stone or ramps will be allowed in gutter per NR216 requirements.

RM811PB



PLAN VIEW

(1) CORREGATED METAL PIPE (CMP) WITH END SECTIONS. SIZE APPROPRIATELY FOR LOW SIDE OF LOT. MINIMUM SIZE TO MATCH NEAREST DOWNSTREAM CULVERT OR STORM SEWER. LENGTH DETERMINED BY DEPTH OF DITCH AND 4:1 SLOPES.

(2) MINIMUM SIZE OF CMP TO BE 15"

(3) MINIMUM 3" OF 3/4" CRUSHED LIMESTONE T.B. OVER TOP OF PIPE

RURAL DRIVEWAY WITH CULVERT

NOT TO SCALE

48

Mar 22, 2006 2:37pm
R:\Roehlerlaris\Drawings\Library\CLIENT 20\44-Rural Driveway With Culvert.DWG Model
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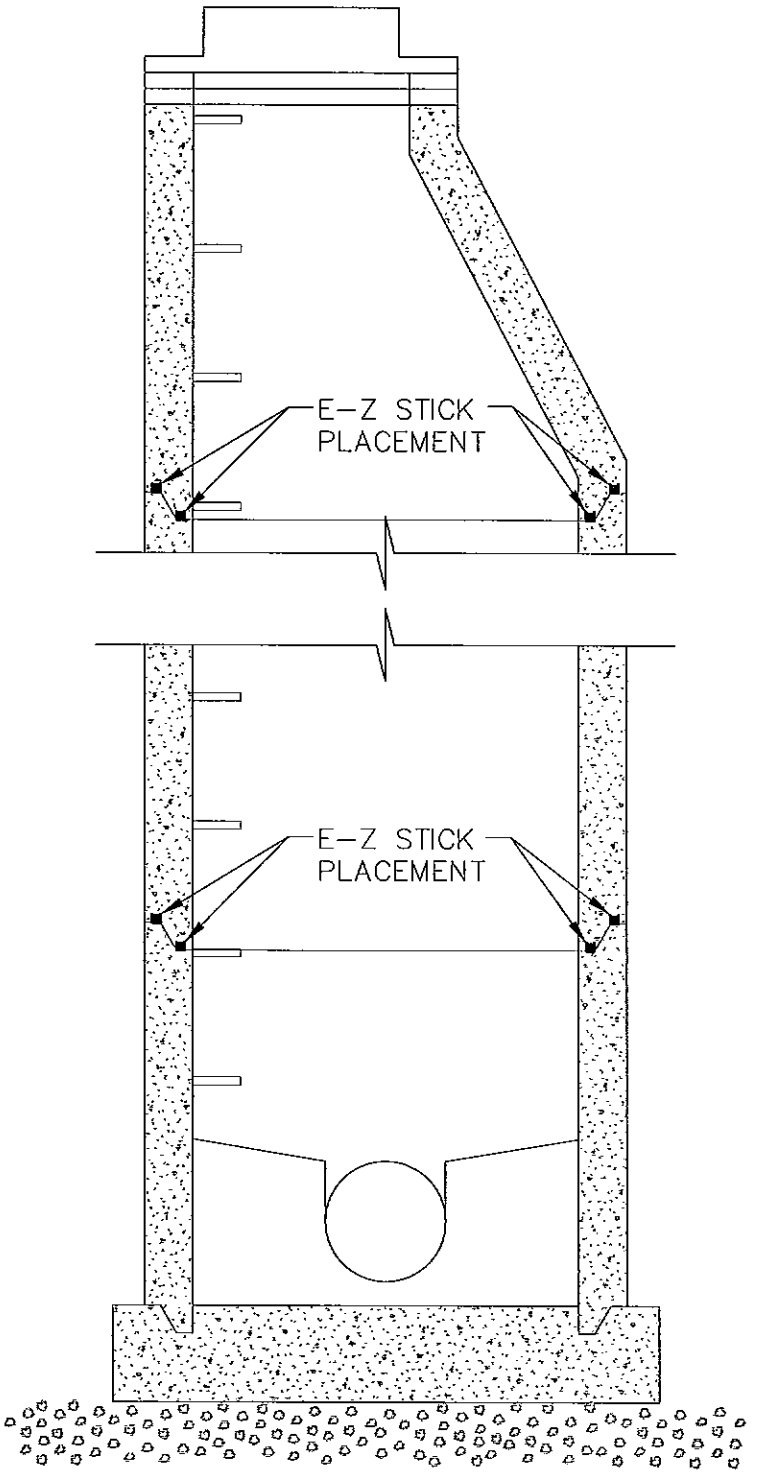

E-Z STICK PLACEMENT INSIDE LAP

NO SCALE

24

Mar 22, 2006 2:37pm
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IMAGES: G:\SHT\RWGraphic.jpg:
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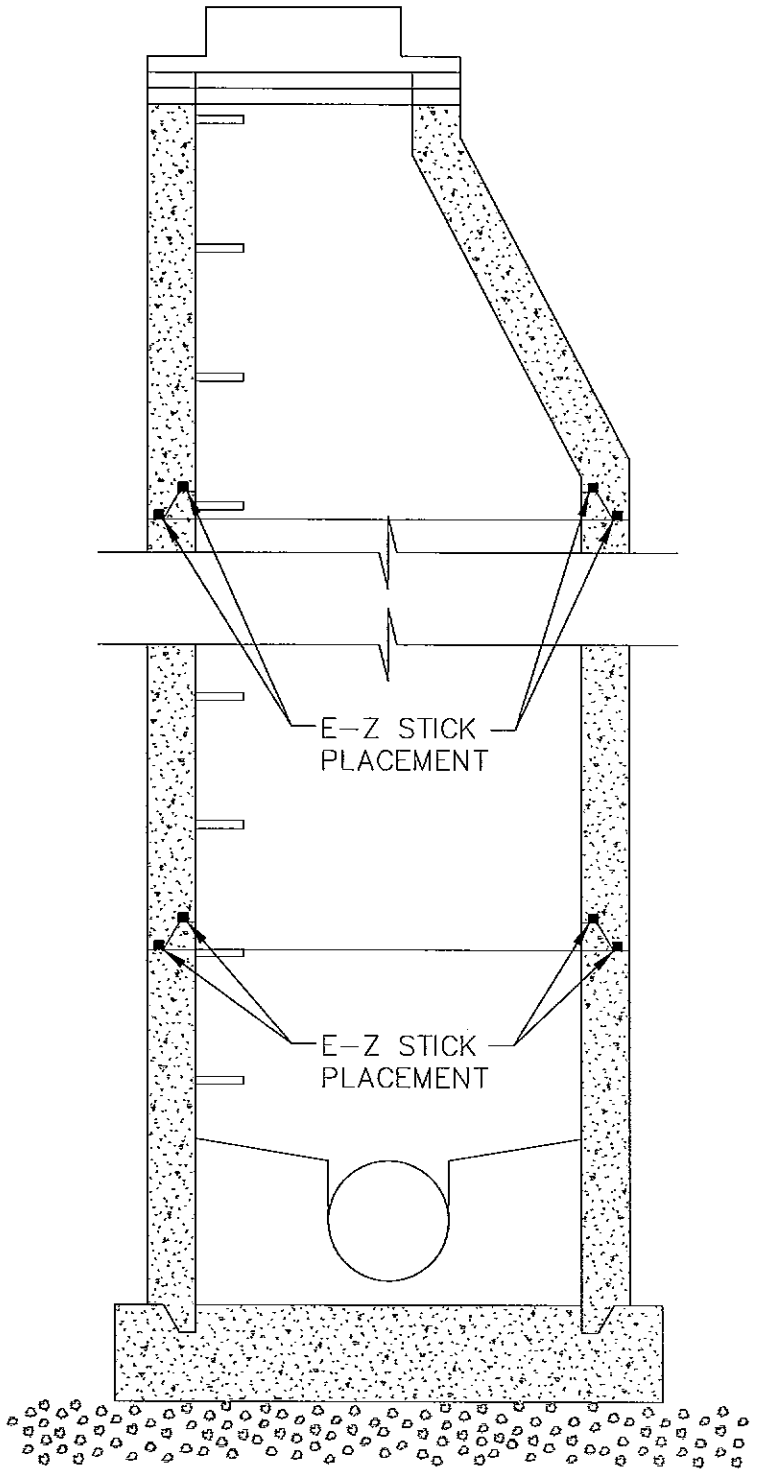

E-Z STICK PLACEMENT OUTSIDE LAP

NO SCALE

24

PUNCHLIST

Sanitary Sewer

Watermain

Storm Sewer

Punchlist items include, but are not limited to those specified in the attached sheets for sanitary sewer, water main and storm sewer.

RUEKERT/MIELKE

SANITARY SEWER MANHOLE PUNCH LIST

PROJECT NO. _____

____ GAS TESTED O.K. ____ TRIPOD & HARNESS USED ____ VENTILATION USED

INITIALS: _____ DATE: _____

MANHOLE NO. _____ **SHEET #** _____

____ 1. Install approved sanitary manhole cover as specified.
____ 2. Install gasket in manhole cover.
____ 3. Align frame to manhole structure.
____ 4. Adjust frame to proper elevation as specified.
____ 5. Mortar frame to manhole structure.
____ 6. Align chimney to corbel.
____ 7. Repair leak between chimney sections.
____ 8. Mortar chimney to provide uniform interior surface.
____ 9. Mortar lift holes closed.
____ 10. Repair leak in joint between manhole sections.
____ 11. Trim excess mastic from joint between manhole sections.
____ 12. Remove and repour bench.
____ 13. Pour bench to crown of pipe.
____ 14. Repour inverts to provide uniform flowline.
____ 15. Reshape flowline in bench to provide uniform flow.
____ 16. Create flowline in bench for lateral.
____ 17. Repair crack in bench.
____ 18. Repair leak in bench.
____ 19. Remove debris from manhole invert and bench.
____ 20. Trim pipe to inside surface of manhole.
____ 21. Clean upstream line from manhole.
____ 22. Clean downstream line from manhole.
____ 23. Clean lateral line from manhole.
____ 24. Realign pipe so light may be seen through line.
____ 25. Repair leak in lateral line from manhole.
____ 26. Repair leak in upstream line from manhole.
____ 27. Repair leak in downstream line from manhole.
____ 28. Repair leak in manhole at step.
____ 29. Secure loose step.
____ 30. Install an additional step.
____ 31. Align steps in manhole.
____ 32. Remove excess mortar from steps.
____ 33. Install an approved internal chimney seal as specified.
____ 34. Install an approved external chimney seal as specified.
____ 35. Remove temporary bulkhead.
____ 36. Remove temporary plug.
____ 37. Backfill around manhole.
____ 38. Surcharged with water - pump it out.
____ 39. Uncover - could not locate.
____ 40. Manholes good.

_____

_____

RUEKERT/MIELKE

STORM SEWER PUNCH LIST

PROJECT NO: _____ SHEET NO: _____

INITIALS: _____ DATE: _____

INITIALS: _____ DATE: _____

INITIALS: _____ DATE: _____

MANHOLE NO. _____ **STATION** _____

_____ 1. Install approved cover as specified.
_____ 2. Align frame to manhole structure.
_____ 3. Adjust frame to proper elevation.
_____ 4. Mortar frame to manhole structure.
_____ 5. Align chimney to corbel.
_____ 6. Repair leak between chimney sections.
_____ 7. Mortar chimney to provide uniform interior surface.
_____ 8. Mortar lift holes closed.
_____ 9. Repair leak in joint between manhole sections.
_____ 10. Trim excess mastic between manhole sections.
_____ 11. Trim pipe to inside surface of manhole.
_____ 12. Remove and repour bench.
_____ 13. Reshape flowline in bench to provide a uniform flowline.
_____ 14. Repair crack in bench.
_____ 15. Repair leak in bench.
_____ 16. Remove debris from manhole invert and bench.
_____ 17. Clean downstream line from manhole.
_____ 18. Clean upstream line from manhole.
_____ 19. Repair leak in downstream line from manhole.
_____ 20. Repair leak in upstream line from manhole.
_____ 21. Secure loose step.
_____ 22. Repair leak in section at step.
_____ 23. Install an additional step.
_____ 24. Align steps in manhole.
_____ 25. Remove temporary bulkhead.
_____ 26. Remove temporary plug.
_____ 27. Backfill around structure.
_____ 28. Uncover - could not locate.
_____ 29. Install end section end grate as specified

CATCH BASIN/INLET NO. _____ **STATION** _____

_____ 30. Install approved grate as specified.
_____ 31. Align frame to structure.
_____ 32. Adjust frame to proper elevation.
_____ 33. Mortar frame to structure.
_____ 34. Mortar interior to provide uniform surface.
_____ 35. Rebuild with sump as specified.
_____ 36. Repair crack in structure.
_____ 37. Repair leak in structure.
_____ 38. Remove debris from basin/inlet.
_____ 39. Clean downstream line from basin/inlet.
_____ 40. Clean upstream lines from basin/inlet.
_____ 41. Repair leak in downstream line from basin/inlet.
_____ 42. Repair leak in upstream line from basin/inlet.
_____ 43. Install a step.
_____ 44. Install an additional step.
_____ 45. Cannot inspect - backfill around structure.
_____ 46. Uncover - could not locate.

RUEKERT/MIELKE

WATER MAIN PUNCH LIST

PROJECT NO: _____ SHEET NO: _____

INITIALS: _____ DATE: _____

INITIALS: _____ DATE: _____

INITIALS: DATE: _____

VALVE STATION

_____ 1) Install approved cover as specified.
_____ 2) Adjust top of box to proper elevation.
_____ 3) Straighten valve box.
_____ 4) Clean debris from bottom of valve box.
_____ 5) Replace broken top section.
_____ 6) Add extension to valve box.
_____ 7) Uncover could not locate.

HYDRANT NO. STATION

_____ 8) Install proper hydrant as specified.
_____ 9) Align steamer with roadway.
_____ 10) Adjust steamer elevation.
_____ 11) Replumb hydrant.
_____ 12) Paint hydrant as specified.
_____ 13) Tighten all caps on hydrant.
_____ 14) Backfill around hydrant.

AIR RELEASE STATION

_____ 15) Install air release as specified.
_____ 16) Install valvebox cover as specified.
_____ 17) Clean debris from bottom of valvebox.
_____ 18) Adjust valvebox to proper elevation.
_____ 19) Uncover could not locate.

LATERAL CONNECTION LOT BLOCK

_____ 20) Plumb curb stop box.
_____ 21) Uncover could not locate.

_____

_____

_____

_____

_____

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VILLAGE OF SUSSEX

DEVELOPMENT REQUIREMENTS

FOR

RECORD DRAWINGS

VILLAGE OF Sussex

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VILLAGE OF SUSSEX
DEVELOPMENT REQUIREMENTS
FOR RECORD DRAWINGS
MAY 2005

The following is to inform and/or confirm with subdividers and their engineer, the requirements for record drawings within the Village of Sussex. At a minimum, the following requirements for record drawings are to be included:

1. Update of all technical data on all plan set sheets, including grading plans and system plans.

2. Remove all superfluous or outdated information which refers to existing, proposed, "Contractor to" do items, etc. This includes the removal of old contour or profile lines which do not exist at record drawing time.

3. Grading plans and plan views of a record drawing should be viewed as a "picture" of the existing conditions and surface features that exist at the time of as-builting for the record drawings. This is a two step process. Initial record drawings must be submitted for review with actual field elevations depicted, to allow the review process to confirm that the grading was completed in substantial conformance to the master grading plan. Upon confirmation of conformance, the final submittal of the grading plan record drawing should depict the contours, etc., without the spot elevations.

4. All invert and rim grades for storm sewers and sanitary sewer must be updated to reflect as-built conditions. This includes updating of the slope of the pipe. Redraw plan and/or profile views if substantial changes have occurred from design plan through construction. (See attached Exhibits "A" and "B" for more defined information.)

5. Water main and force main plans should be as-built for plan view only. Profiles and inverts need not be changed, except if substantial changes have occurred from design plan through construction. (See attached Exhibit "B" for more defined information.)

6. Developer and/or Developer's Engineer to submit record drawings for review and approval. Upon approval of the record drawings, Developer and/or Developer's Engineer to submit the following:

   a. Two sets of prints to the Village Engineer.

   b. One set of prints to Ruekert/Mielke's office.

c. Digital information for all record drawings and plan set details to Ruekert/Mielke's office.

d. One complete set of mylar drawings for the record drawings and detail sheets to the Village Engineer. If the project includes interim catch basins, the following mylars should not be submitted until the asphalt surface course is completed.

   (1) Road and storm sewer plan and profile sheets (due to unobtainable as-built information on the interim catch basins).

   (2) Storm sewer system map (due to unobtainable as-built information on the interim catch basins).

e. Mylar plan sheets for road and storm sewer plan and profile sheets and storm sewer system map shall be submitted to the Village Engineer upon completion of the Projects' asphalt surface course and the updating of the as-built information on to the record drawings, due to the interim catch basins being finalized or completed.

In summary, all as-builting needs to be completed and all approved record drawings submitted to the Village Engineer and Ruekert/Mielke, with the exception of the storm sewer related plans (due to the use of interim catch basins) prior to issuance of any building permits for the project.

As always, if you have any questions regarding the above, please don't hesitate to call. We ask that all Developers and their Engineers share the above information with their respective staff members. Please note that additional information may be required, depending on the type of development.

VILLAGE OF SUSSEX	RUEKERT/MIELKE
Jeremy Smith	Gerald E. Powell, P.E.

Exhibit "A"

Sanitary Sewer and Storm Sewer Record Drawing Requirements

Include cover sheet, with sheet index, with all drawings.

1. Design information shall be erased and replaced with new information.

2. The area in which the sanitary or storm sewer is located shall show all existing lots, property, and easement lines. The addresses when available, lot and block numbers, and subdivision name shall be indicated. Unplatted lands and the address of any home on such lands shall be so indicated. All street names shall be clearly shown.

3. North shall be to the top or right of the sheet and shall be shown by an appropriate north arrow.

4. The size, class, length and type of every main shall be shown. The location of the main shall be dimensioned from the centerline of the right-of-way or easement.

5. The location of all components, including manholes, laterals, vents, etc. shall be shown.

6. All laterals shall be shown giving the size, length and type of materials used. A general note on each sheet giving the types of materials used will be acceptable.

7. All existing storm sewer, culverts, sanitary sewer, force main, and water mains shall be shown as half tone or dashed lines and labeled.

8. A general note shall be placed on each sheet giving the types of materials used.

9. Update system maps accordingly.

Exhibit "B"

Water and Force Main Record Drawing Requirements

Include cover sheet, with sheet index, with all drawings.

1. Design information shall be erased and replaced with any new information. As-built information changes shall be in plan view only.

2. The area in which the water main or force main is located shall show all existing lots, property, and easement lines. The addresses, when available, lot and block numbers, and subdivision name shall be indicated. Unplatted lands and the address of any home on such lands shall be so indicated. All street names shall be clearly shown.

3. North shall be to the top or right of the sheet and shall be shown by an appropriate north arrow.

4. The size, class and type of every main shall be shown. The location of the main shall be shown.

5. The location of all fittings, including valves, tees, crosses, reducers, air vents, air releases, and bends shall be dimensioned from center to center. All fittings shall be suitably labeled for identification.

6. Curved lines shall indicate deflected pipe: if bends are used, lines shall be straight between bends.

7. All laterals shall be shown giving the size, length and type of materials used. A general note on each sheet giving the types of materials used will be acceptable.

8. The location of every hydrant and detector box shall be shown.

9. All existing storm sewer, culverts, sanitary sewer, force main, and water mains shall be shown as half tone or dashed lines and labeled.

10. A general note shall be placed on each sheet giving the types of materials used.

11. Update system maps accordingly.