



Village of South Elgin

Engineering Design & Inspection

Policy Manual

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ENGINEERING DESIGN & INSPECTION POLICY MANUAL

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INTRODUCTION

The Village of South Elgin takes great pride in providing clear communication to the community regarding Village guidelines. The following guidance document is intended to provide an easy reference for the general public, engineers, consultants, and developers performing business in the Village.

The standards provided in this document also support consistent standards when building within the Village right-of-way. Although intended to be as comprehensive as possible, the reader of this document should not expect every plausible design instance to be included.

The Village of South Elgin continuously updates this manual to reflect best available design practices.

Steven Super, Village Administrator

Michael D. Millette, P.E., Director of Public Works

Nancy Hill, AICP, Director of Community Development

SECTION I

SANITARY SEWER SYSTEM

A. DESIGN REQUIREMENTS

B. MATERIALS

SANITARY SEWER REQUIREMENTS

A. Sanitary Design Requirements:

1. **Auger:** Augering will be required at all roadway crossings unless otherwise permitted by the Village of South Elgin Public Works Department. Steel casing and “Cascade” spacers (or approved equal) shall be utilized. In most installations, the casing shall be filled with pea gravel or sand, and the ends shall be blocked and mortared shut (refer to Village Casing Pipe Detail).
2. **Cover Depth:** All sanitary sewer and services must have a minimum cover of 4’.
3. **Calculations:** Provide calculations to substantiate the available capacity of the Village receiving sewer.
4. **Drop Connections:** Exterior drop connections will be permitted only where site conditions are not conducive for an elevation drop. Interior drop connections will not be permitted (refer to Village Drop Manhole Detail(s)).
5. **Manhole Spacing:** Manholes shall be provided at:
 - 300’ maximum intervals
 - Change in pipe diameter
 - Change in pipe material
 - Change in grade
 - Change in horizontal alignment
 - Manholes shall be offset from common lot lines by a minimum of 2 feet
6. **Manhole Sizing:** Sanitary sewer manholes shall have a minimum inside diameter of 4’ (refer to Village Sanitary Manhole Detail).
7. **Separation Requirements:** A minimum of 10’ horizontal separation shall be established between the sewer and any proposed or existing water distribution facility, or the invert of the water main shall lie a minimum of 18” above the top of the sewer pipe. Where neither of the above conditions can be met, the water main shall be encased for the duration of the horizontal conflict (10’ on each side of a perpendicular conflict), or the sewer shall be constructed of water main quality materials for the duration of the conflict (10’ on each side of a perpendicular conflict).
8. **Services, Domestic:** Wherever Illinois Department of Public Health rules do not apply, domestic sanitary services shall be constructed of PVC SDR 26 or C900 with a minimum diameter of 6”. All services will comply with all applicable Illinois Plumbing Codes. All domestic services shall connect to the public sewer with a wye fitting. A cleanout shall be installed within 5’ of the structure.

- a. A full size cleanout is required both 5' inside and within 5' outside of the foundation wall.
 - b. Waste piping below grade shall discharge to a sealed and vented ejector pit and be pumped to an overhead sewer.
 - c. The minimum underground waste pipe size shall be 6".
 - d. The minimum underground vent piping size shall be 2".
9. **Services, Industrial & Commercial:** Industrial and commercial sanitary services shall be constructed of PVC SDR 26 or C900 with a minimum diameter of 6". All services will comply with applicable Illinois Plumbing Codes. All industrial and commercial services shall connect to the public sewer at a manhole, and an inspection manhole shall be provided within 10' of the structure (refer to manhole Sanitary Sewer Service Connection).
10. **Sewer Pipe, Materials (gravity):** Sanitary sewer shall be constructed of the following materials:
- i) Depth less than 16': PVC SDR 26 or C900 or Ductile Iron Pipe, Class 52 (ceramic lined). (ASTM E96 or equivalent).
 - ii) Depth greater than 16': PVC SDR 21 or C900 or Ductile Iron Pipe, (ceramic lined) (class to be specified by depth, and manufacturer's specifications). (ASTM E96 or equivalent).
11. **Sewer Pipe, Minimum Size (gravity):** Public sewer may have a minimum diameter of 8", and must provide a minimum self-cleaning flow velocity to the Village of two (2) fps.
12. **Force Main:** Sanitary sewer force main shall conform to the following:
- i) 4" minimum diameter.
 - ii) Ductile Iron Pipe, Class 51 (ceramic lined) (ASTM E96 or equivalent) or C900, with Poly-wrapping.
 - iii) Clean-outs at all vertical and/or horizontal bends, or at 700' maximum intervals in a manhole. Clean-outs will be installed via the use of a "T" connection with a cap at the top of the clean-out.
 - iv) Minimum flow velocity for the Village of two (2) fps.
 - v) Air release valve shall be located at the high point of the force main. The PVC force main shall be installed with two (2) 12 gauge Soloshot EHS tracer wires as manufactured by Copperhead or approved equal and shall be attached to all structures to ensure signal conductivity along all portions of the new force main. A Copperhead SnakesPit Test Station (maximum 500' intervals) with grounding anode shall be installed at the mid-point of the force main in the pavement. The locations of the test stations with grounding anodes shall be approved by the Village prior to

installation. The tracer wire shall be taped to the pipe at 10' intervals or as directed by the Village and/or Engineer to ensure contact with the PVC pipe and an accurate locate. Any splices in the tracer wire shall be done as recommended by the manufacturer to ensure conductivity across the splice. The Contractor will be responsible to repair any locations at their own cost where the force main cannot be traced prior to acceptance by the Village.

13. **Trench Backfill:** All utility and service trenches (including the angle of repose of the trench) within 3' of paved surfaces, or at a distance specified by the Public Works Director, shall be backfilled with CA-7 (Virgin Crushed stone). All backfill material shall be properly compacted unless otherwise directed by the Public Works Department. Provide a minimum thickness of 4" of pipe bedding under the pipe and a minimum thickness of 12" of covering over the top of pipe which shall be CA-7 (Virgin Crushed stone). Backfill under existing pavements, where an open cut of the pavement has been approved, shall be covered by a full depth of crushed CA-6 stone (Refer to Village Pipe Trench Details.).
14. **Lift Station:** Lift stations will be permitted only where site conditions do not allow for the construction of a functional gravity sewage collection system. Where lift stations are permitted, the following criteria shall be met:
 - i) A lift station design report shall be submitted for review (*Contact the Village of South Elgin Public Works Department*).
 - ii) A complete set of shop drawings and product specification information (i.e.: generator, pump, lift station) shall be provided to the Village for review. Pumps shall be manufactured by Flyght.
 - iii) A detailed plan depicting the proposed layout of the lift station, including the location of the generator, control panel, wet and dry wells, access drive, and fencing, lighting, and landscape features shall be submitted for review. Pre-fabricated buildings are not allowed.
 - iv) A natural gas powered emergency generator shall be provided.
 - v) A communication connection to the main Sewage Treatment Plant alarm system shall be provided.
 - vi) A dedicated lot and access drive shall be provided to the Village.
 - vii) All lift stations will be subject to the Planning and Zoning design review.
 - viii) All lift stations will have a sewage grinder, Muffin Monster, manufactured by JWC, Ind.
 - ix) Village will not assume ownership of new lift stations.
15. **Extension of Sewer System:** Sanitary sewer system must be extended as a minimum, to the limit of the development at a minimum slope for self-cleaning velocity Village. Note on plans which sewer lines are to be public and private. Sanitary sewers shall be designed to accept all existing and future demand, based on

the fully developed state under present zoning and the Village of South Elgin Comprehensive Plan.

16. **Disconnection of Existing Services:** Disconnection of existing services at their respective mains shall be by means of cutting out existing wye or tee and replacing with a straight piece of equal size pipe and making the final connection with a "Cascade" "non-shear" mission couplings. Disconnection of all services must be performed prior to the demolition of an existing structure. Existing services to be abandoned shall be filled or removed unless existing wye is approved by the Director of Public Works.
17. **Connecting to an Existing Sewer:** When connecting to an existing sewer main by means other than an existing "Y", "T", or an existing manhole, one of the following methods shall be used:
 - i) Using pipe cutter, neatly and accurately cut out desired length of pipe for insertion of proper fittings. Use "band-seal" couplings or similar couplings, and non-shear rings and clamps to fasten the inserted fittings and hold it firmly in place. Mission couplings shall have the length of boot approximately equal to the pipe diameter. Follow manufacturer's recommendations for the installation. No cut-in connection, made by breaking or cutting a hole in the main and inserting the spigot end of an ordinary sewer pipe shall be permitted.
 - ii) Circular, saw-cut of sewer main with proper tools ("Shewer-tap" machine or similar) and proper installation of hub-"Y" saddle or hub-"T" saddle, in accordance with manufacturer's recommendations. This method shall only be allowed for pipe sizes over 12" in diameter. All must be encased in concrete flowable fill.
18. **Structures Located Within the Floodplain:** Sanitary sewer manholes constructed on the floodplain must have a rim 2' above the base flood elevation (except for 3' within the floodplain of the Fox River) or have a water-tight lock type frame and cover, Neenah R-1916 C or approved equal.
19. **Video Note on All Plans:** Engineering plans must contain the following note: "A current color video record and a type written transcription of the internal inspection of the newly constructed sewer system shall be submitted prior to refunding of site improvement surety or letter of credit by the Village of South Elgin. All public mains shall be videotaped. The contractor must rotate the lens of the camera to look at all services. The service connections must be noted in the television report. When the proposed sanitary sewer system is to connect to an existing sanitary sewer system abutting the property, the existing sewer must also be televised and reported. The contractor shall coordinate the televising of existing contiguous sewers with the Village of South Elgin. All lines shall be flushed and cleaned prior to videotaping."

20. **GIS/GPS Standards:** All work will conform to the Village's GIS/GPS Standards found in Section VIII-*Inspection Procedures* of this manual.
21. **Connecting to an Existing Structure:** Pipe penetrations into existing sanitary manholes shall be properly sized and cored and sealed with flexible watertight connections (refer to Village Sanitary Sewer Connection Detail).
22. **Separation Requirements:** Sanitary and storm sewer utility services shall be separated by a minimum 10' of horizontal separation.
23. **Other Requirements:** Contractors or developers must meet all Fox River Water Reclamation District (FRWRD) requirements.
- I. Sanitary manhole lid must have concealed pick holes and have the word "SANITARY" and "Village of South Elgin" stamped in the cover with an intact rubber gasket seal.
 - II. The frame lip shall be cleaned of all mud and debris to provide a watertight seal between the frame and the manhole cover gasket.
 - III. In **non-paved** areas - *ONLY* butyl rubber joint sealant shall be used between all joints, adjusting rings and manhole frames.
 - IV. In **paved** areas – all sanitary structures are to be adjusted with a full mortar bed along with a six-inch minimum concrete collar encasing the frames, all adjusting rings, and the top three inches of the cone or down to the flat top.
 - V. All steps must be installed, aligned and clean.
 - VI. The barrel section joints must be tuckpointed with hydraulic cement or mortar with a brush finish.
 - VII. All pinholes must be mortared with a brush finish to provide a watertight seal.
 - VIII. The upstream and downstream pipe cavities must be filled with mortar and smoothed with a brush finish.
 - IX. The upstream and downstream flow lines (inverts) shall have a smooth transition from the pipe to the manhole invert.
 - X. All manhole structures shall be free of any type of infiltration (water leaking into the structure).
 - XI. If there is an internal drop in the structure there must be a smooth transition from the pipe to the invert (i.e. channel the flow from the pipe to the manhole invert).

- XII. All manholes shall be cleaned of any accumulation of silt, debris, or foreign matter of any kind, and shall be free from such accumulations at the time of final inspection.
- XIII. Manholes in the parkway shall have a final frame elevation which is curb height or higher.

24. **Typical Sanitary Details:** Included in Section X-*Engineering Details* for reference.

B. Sanitary Material Requirements:

- 1. **Drop Connections:** Drop connections shall be constructed of Ductile Iron Pipe, Class 52 (ceramic lined) or PVC SDR 26 or C900, per manufactures specifications. All drop manhole piping shall be encased in concrete (refer to Standard Drop Manhole Detail). No internal drop manholes will be allowed.
- 2. **Frame & Lid:** Frame: *Neenah R-1713 or R-1916C in Floodplain*
Lid: *Neenah R-1713 or R-1916C type "B" with the words "Village of South Elgin - SANITARY" cast into surface*
- 3. **Joints:** All joints shall conform to ASTM D-3212 for PVC pipe and ASTM A-746 for ductile iron. Both pipe types shall be joined by means of a flexible gasket. Gaskets for PVC joints shall be in conformance with ASTM A 21.11-79 (AWWA C111).
- 4. **Manhole:** New sanitary manholes are to be precast reinforced concrete eccentric type with a minimum 48" I.D. barrel section; Cone sections shall have a 3" integrally cast precast concrete collar; Pipe penetrations are to be sealed via the use of a cast in place flexible synthetic rubber pipe sleeve which is to be fastened to the pipe with two stainless steel bands. Barrel sections shall be sealed using two (2) butyl rubber strips per tongue and groove section. Chimney seals are to be external type, manufactured by "Cretex" or approved equal by the Public Works Department. All new or adjusted steps shall be made of steel reinforced plastic, using an approved plastic meeting ASTM D4101, Type II, Grade 49108 over a #3 Grade 60, ASTM A615, and reinforcing bar. A maximum of 8" of adjusting rings, but no more than two rings, shall be used (refer to Standard Sanitary Manhole Detail).

5. **Services:** Sanitary services shall be constructed for all buildable lots. Services shall be constructed of PVC SDR 26 or C900, 6" minimum diameter, and shall be extended to the rights-of-way limits. All connections to the public main shall be at a manhole or at a "wye" fitting approved by the Public Works Department. Once installed all services extending to the Village right-of-way limits shall be located utilizing a 4" x 4" treated wooden post painted red.
6. **Sewer Pipe, Materials:** Sanitary sewer shall be constructed of the following materials:
 - Depth less than 16': PVC SDR 26 or C900 or Ductile Iron Pipe, Class 52 (ceramic lined)
 - Depth greater than 16': Ductile Iron Pipe, (class to be determined by manufacturers recommendations) (ceramic lined) or PVC C900
 - Force Main: Ductile Iron Pipe, Class 51 (ceramic lined) or PVC C900
7. **Thrust Blocks (force main):** Thrust blocking shall be a combination pre-cast masonry blocks and "*Mega-lug*" brand restraints including stainless steel hardware.

SECTION II

STORM SEWER SYSTEM

A. DESIGN REQUIREMENTS

B. MATERIALS

STORM SEWER REQUIREMENTS

A. Storm Sewer Design Requirements:

1. **Auger:** Augering will be required at all roadway crossings unless otherwise permitted by the Village of South Elgin Public Works Department. Steel casing and “Cascade” spacers (or approved equal) shall be utilized. Following completion of the auger, the casing shall be filled with pea gravel or sand, and the ends shall be blocked and mortared shut (refer to Village Casing Pipe Detail).
2. **Catch Basins:** Catch basins shall consist of 4’ minimum interior diameter reinforced concrete structures with a 3’ sump (refer to Restrictor Structure Detail).
3. **Cover Depth:** All storm sewer and sump lines must have a minimum cover of 2’.
4. **Video Note on All Plans:** Engineering plans must contain the following note: “A current color video record and a type written transcription of the internal inspection of the newly constructed sewer system shall be submitted prior to refunding of site improvement surety or letter of credit by the Village of South Elgin. All public and private storm sewers shall be videotaped. The contractor must rotate the lens of the camera to look at all services. The service connections must be noted in the television report. When the proposed storm sewer system is to connect to an existing storm sewer system abutting the property, the existing sewer must also be televised and reported. The contractor shall coordinate the televising of existing contiguous sewers with the Village of South Elgin. All lines shall be flushed and cleaned prior to videotaping.”
5. **GIS/GPS Standards:** All work will conform to the Village’s GIS/GPS Standards found in Section VIII-*Inspection Procedures* of this manual.
6. **Disconnection of Existing Services:** Shall be by means of cutting out existing “wye” or tee and replacing with a straight piece of equal size pipe and making the final connection with “non-shear” mission couplings. Disconnection of all services must be performed prior to the demolition of an existing structure.
7. **Flared End Sections:** All flared end sections greater than or equal to 12” that will receive or discharge storm water, shall have a removable grate system to prevent entry. This grate system shall be made from steel stock that is hot-dipped galvanized after fabrication. Add toe block and rip rap erosion protection based on design velocities.
8. **Extension of Sewer System:** The storm sewer must be extended to the limits of the subdivision or lot and must be sized to accept all tributary areas.

9. **Village Capacity Calculations:** Provide calculations to substantiate the available capacity of the existing Village receiving storm sewer/stream in light of the design discharge from the proposed development. Note on all plans which sewer lines are to be public and private. All proposed storm sewer systems shall be designed for a 10-year storm event per the Kane County Storm Water Ordinance as adopted and modified by the Village of South Elgin. The storm sewer shall be designed such that the calculated 10 year event hydraulic grade line (HGL) is not higher than the top of storm sewer pipe unless approved otherwise by the Director of Public Works or his/her designee. For pipes designed to convey the 100 year event the 100 year event HGL shall not exceed to top of storm sewer pipe.
10. **Connecting to an Existing Sewer:** When connecting to an existing sewer main by means other than an existing “Y”, “T”, or an existing manhole, one of the following methods shall be used:
- a. Using pipe cutter, neatly and accurately cut out desired length of pipe for insertion of proper fittings. Use “band-seal” couplings or similar couplings, and shear rings and clamps to fasten the inserted fittings and hold it firmly in place. Mission couplings shall have the length of boot approximately equal to the pipe diameter. Follow manufacturer’s recommendations for the installation. No cut-in connection, made by breaking or cutting a hole in the main and inserting the spigot end of an ordinary sewer pipe shall be permitted.
 - b. Circular, saw-cut of sewer main with proper tools (“Shewer-tap” machine or similar) and proper installation of hub-“Y” saddle or hub-“T” saddle, in accordance with manufacturer’s recommendations. This method shall only be allowed for pipe sizes over 12” in diameter. All must be encased in concrete flowable fill.
11. **Frame & Grate:** Frames and grates shall be provided as appropriate for the structure location (i.e.: depressed curb, barrier curb, overflow route, rear yard). All grates to be located near a paved surface shall be “bicycle safe”. Calculations may be required to demonstrate that the proposed grates allow for an inflow that does not exceed the design capacity for the downstream pipe (refer to Standard Manhole Cover). Frame and inlet capacity shall not allow ponding greater than 6 inches for the 10 year design event, unless approved otherwise by the Director of Public works or his/her designee. For inlets conveying the 100 year event, inlet and grate capacity shall be fully redundant and provide 2 times required design flows.
12. **Inlets:** Inlets shall consist of a 2’ minimum interior diameter reinforced concrete structure. Inlets shall be placed at the sag of vertical curves in roadways, at low points in parking areas, and at other locations as necessary to minimize storm water

ponding and/or flow across roadways or intersections. Storm sewer inlets shall be placed not more than 500' in pavement and shall not exceed 250' apart in grassy areas. Public roadway inlets shall be spaced such that pavement encroachment does not exceed 3 feet.

13. **Release Structure / Restrictor:** The release structure shall be of a weir wall orifice design (refer to Overflow Weir Structure Detail) or as approved by the Village of South Elgin.

14. Underground Storage System:

- a. Underground chambers must be large enough to allow the chamber to be manually cleaned and include a settlement chamber or forebay configuration.
- b. Access points for ingress and ventilation purposes are to be provided in the chamber at a maximum spacing of 100' and at the ends of the chamber.
- c. Underground storage chambers are to be clearly labeled on the engineering plans as "Private Storm Water Storage Facility." These chambers are to be maintained by the developer until an owners association has been established.
- d. Poured in place reinforced concrete chamber designs must be signed and sealed by an Illinois Licensed Structural Engineer.
- e. All reinforcement steel shall be epoxy coated and all concrete shall be treated with a protective concrete coating, on the interior and exterior of the chamber.
- f. For precast concrete construction, geo-textile fabric must be placed over the top of the structure, and all joints must be grouted.
- g. A minimum of 12" of topsoil plus sod must be placed to cover the underground storage facility when constructed under pervious surface.

15. **Separation Requirements:** A minimum 10' horizontal separation shall be established between the sewer and any proposed or existing water distribution facility, or the invert of the water main shall lie a minimum of 18" above the top of the sewer pipe. Where neither of the above conditions can be met, the water main shall be encased for the duration of the horizontal conflict (10' on each side of a perpendicular conflict), or the sewer shall be constructed of water main quality materials the duration of the conflict (10' on each side of a perpendicular conflict).

16. **Sewer Pipe, Minimum Size:** Public sewer shall have a minimum diameter of 10" for the first "run" of pipe, 12" minimum for all other.

17. **Slope:** Slope shall be adequate to provide a minimum flow velocity of three (3) fps and maximum acceptable velocity of ten (10) fps.

18. **Structure Sizing:** Manholes and catch basins shall have a minimum inside diameter of 48" for sewer pipe 18" or less in diameter, 60" for sewer pipe 21" to 48" in diameter. Pipes larger than 48" in diameter will require a special design (refer to Standard Manhole and Catch Basin Details).

19. **Structure Spacing:** Manholes / Catch basins shall be provided at:

- 300' maximum intervals.
- Change in pipe diameter.
- Change in pipe material.
- Change in vertical alignment.
- Change in horizontal alignment.
- Manholes/Catch Basins shall be offset from common lot lines by a minimum of 2 feet.

20. **Existing Home Sump Lines:** Domestic sump services shall be constructed of PVC SDR 26 or C900 with a minimum diameter of 4". All domestic services shall connect to the public sewer by removing a section of main and installing a new "wye" fitting for pipes less than 15" in diameter, "Kor-N-Tee" Boots for pipes 15" and larger, or at a structure (refer to Connection Detail).

Trench Backfill: All utility and service trenches (including the angle of repose of the trench) within 3' of paved surfaces, or at a distance specified by the Public Works Director, shall be backfilled with CA-7 (Virgin Crushed Limestone). All Backfill material shall be properly compacted unless otherwise directed by the Public Works Director. Provide a minimum thickness of 4" of pipe bedding under the pipe and a minimum thickness of 6" of covering over the top of pipe. Backfill under existing pavements, where an open cut of the pavement has been approved, shall be covered by a full depth of crushed CA-6 stone (refer to Village Pipe Trench Detail).

21. **Underdrains:** Underdrains will be required under curbs at the bottom of all roadway sags. Underdrains shall extend 50' on each side of the inlet. Underdrains shall be perforated polyethylene pipe. The underdrain shall be encased in gravel trench CA-6 (Virgin Crushed Limestone) with no fines, and a geotextile fabric shall be used to limit sedimentation in the pipe (refer to Standard Pipe Underdrain Detail).

22. **New Home Sump Lines:** Storm services shall be constructed for all buildable lots. Services shall be constructed of PVC SDR 26 or C900 with tracer wire pipe, 4" minimum diameter, and shall be extended to the rights-of-way limits. All

connections to the public main shall be at a manhole or at a “wye” fitting approved by the Public Works Department. Once installed all services extending to the Village right-of-way limits shall be located utilizing a 4” x 4” treated wooden post painted green.

23. **Culverts:** Culvert pipe designs shall be in accordance with the Illinois Department of Transportation “Standard Specification for Road and Bridge Construction” latest edition. Publicly owned culvert pipes shall be PVC SDR 26 for pipes less than 12” in diameter or RCP for pipes equal to 12” or larger in diameter.

24. **Storm Details:** Typical storm details can be found in Section X-*Engineering Details*.

B. Storm Sewer Materials:

1. **Casing:** Where water main protection is required, encasement shall consist of PVC SDR 26 or C900 or steel casing with “*Cascade type CCR-STD*” spacers or approved equal.

2. **Frame & Grate:** Must be cast “Dump No Waste; Drains to River”

Curb Inlet/C.B.:	High back:	<i>Neenah R-3281-A or R-3278-1</i>
	Depressed:	<i>Neenah R-3506-A2</i>
C.B., “behind the curb type”:		<i>Neenah R-3305</i>
		<i>Neenah R 1713 (Refer to Lid Detail)</i>
C.B./M.H., Type “D”:	Grate:	<i>Neenah R 1713 (Refer to Lid Detail)</i>
	Frame:	<i>Neenah R-1713</i>
C.B., “beehive type”:		<i>Neenah R-4340-B</i>

3. **Manhole:** Manholes shall be reinforced concrete with steps provided 16” on-center. All manholes shall have a minimum inside diameter which conform to the following:

- 18” storm sewer and smaller – 4’ inside diameter
- 21” to 36” storm sewer – 5’ inside diameter
- Larger than 48” storm sewer – special design required
- Stamp top manhole cover “Village of South Elgin – Storm”

4. **Sewer Pipe, Materials:** Main line storm sewer shall be constructed of one of the following:

- a. Pre-cast reinforced concrete pipe, with “O-ring” joints;
- b. PVC pipe, rigid, (Min. SDR 26 or C900 with tracer wire, push-on gasket joints);

- c. All joints shall conform to ANSI 21.11 for ductile iron pipe (ceramic lined).
 - d. Ductile iron pipe, (Class 52) (ceramic lined), minimum;
 - e. **FOR PRIVATE USE ONLY. NOT TO BE USED WITHIN PUBLIC RIGHT-OF-WAY OR FOR PUBLICLY OWNED AND MAINTAINED STORM SEWER.** HDPE pipe, (Rigid with corrugated exterior and smooth interior meeting AASHTO M-294, Type S. Pipe sections shall be joined with PVC double bell couplers installed on the pipe with O-ring gaskets. Ex-filtration standards shall meet or exceed that of PVC SDR 26 or C900 with push-on-joints.)
 - f. The type of pipe material will be dependent upon the depth of bury, soil conditions, and pipe criteria, and as approved by the Village of South Elgin.
 - g. For RCP/CSP pipe, lifting holes shall not be allowed on pipes less than 84" in diameter.
 - h. All storm sewer smaller than 12" in diameter that will be publicly owned and maintained shall be PVC pipe, rigid, (Min. SDR 26 or C900 with push-on gasket joints).
5. **Flared End Section:** Flared end sections and subsequent riprap material shall be designed and specified per the Illinois Department of Transportation "Standard Specification for Road and Bridge Construction" latest edition.

SECTION III

STORM WATER MANAGEMENT / SITE GRADING

- A. DESIGN GUIDELINES**
- B. DESIGN RESTRICTIONS**
- C. DESIGN REQUIREMENTS**

STORM WATER MANAGEMENT DESIGN REQUIREMENTS

A. Design Guidelines:

STORMWATER MANAGEMENT GUIDELINES:

- A. The provisions of the current Kane County Stormwater Management Ordinance #00-312 are hereby adopted by reference, together with the special regulations listed below modifying said Kane County Stormwater Management Ordinance, as the regulations governing storm water run-off control within the boundaries of the village.
- B. The following are amendments or modifications to the Kane County Stormwater Management Ordinance and correspond to the numbering system within said ordinance:

Section9-28D: Amend to read as follows:

The following permit fee shall be paid at the time of application: \$100 for administration of the permit. The developer (permittee) shall agree to pay all review and inspection costs prior to, during and after construction, through the time of final acceptance by the Board of Trustees. Payments shall be made within 30 days of invoicing. Failure to pay within the time allotted shall result in the stoppage of all work on the development until such time as all payments due are current.

Section9-258: Amend to read as follows:

With the filing of the application for a variance, the applicant shall pay a fee of \$250. The applicant shall agree to pay all consultant review costs throughout the variance process until completion. Payment shall be made within 30 days of invoicing. Failure to pay within the time allotted shall result in the stoppage of all work on the development until such time as all payments due are current.

Section9-312: Clarification:

The Administrator is hereby designated to be the Village Engineer.

Section 9-314: Amend to read as follows:

Oversight committee: The Community Development Department is hereby established as an oversight committee to oversee the implementation and enforcement of this ordinance within the village, and to perform the duties assigned to the oversight committee in this ordinance. The oversight committee, when considering an appeal or request for a variance under this ordinance, may request an opinion from a qualified engineer review specialist or qualified wetland review specialist on technical issues.

Section 9-315: Amend to read as follows:

Decision-making authority:

The decision-making authority is hereby designated to be the Board of Trustees of the Village. The decision-making authority, when considering an appeal or request for a variance under this ordinance, may request an opinion from a qualified engineer review specialist or qualified wetland review specialist on technical issues.

Section 9-203: Replace subsection “C” with the following:

The Administrator may approve periodic reductions in the amount of security based upon the progress of construction. At no time, however, shall more than 75% of the security be released prior to approval of record drawings and final inspection. A minimum of 25% of the original amount of the security shall be retained for a period of one year after completion of all required storm water facilities.

Section 9-318: Amend to add the following:

The Administrator may require, or in the limited circumstances prescribed in Article 2 an applicant may request approval of, the payment of a fee-in-lieu of site runoff storage to fulfill all or part of the site runoff storage requirement for a development. The fee to be paid in lieu of site runoff storage shall be the certifiable cost of otherwise providing the required storage, including the value of the land required and all construction costs. For this purpose the land required shall be valued according to the use to which it will ultimately be put if not used to provide the required storage.

(Ord. 2001-28, passed 6-18-01; Am. Ord. 2002-103, passed 12-2-02; Am. Ord. 2006-15, passed 4-17-06)

Cross-reference:

Stormwater Management Ordinance Enforcement, see § 153.111

B. Design Restrictions:

1. High Water Level: The proposed grading conditions shall not result in conditions that will cause water to pond or flow on adjacent property or to rise within 2' of any existing or proposed top of foundation elevations or low opening of a structure during the 100 year critical duration event.

2. Off-site Grading: Off-site grading will not be permitted unless permission in the form of an easement is obtained from the subject property owner.

3. Release Rates: Storm water release rates shall meet or exceed the Kane County Storm Water Ordinance as adopted and modified by the Village of South Elgin.

4. Watershed Boundaries: Proposed construction may not result in any modification to existing watershed boundaries or the alteration of off-site drainage patterns.

5. Wetlands: Existing wetlands may not be impacted without an authorized permit from the Village, and the Army Corps of Engineers as necessary.

C. Design Requirements:

1. Detention Basins (Dry Basins) Detention Basins (Wet Basins): Shall meet or exceed the Kane County Storm Water Ordinance as adopted and modified by the Village of South Elgin.

- Maximum differential from NWL-HWL or dry bottom- HWL of 5 feet without approval of the Director of Public Works.
- Maximum side slopes of 4:1.
- Safety shelf for all wet basins set at 2 feet below NWL and at least 8 feet wide.
- Wet basins shall have 25% of NWL area at least 10 feet deep. (To promote fish opportunities and water turnover).
- Wetland basins shall have vegetation selected based on hydro period evaluation and tolerance to saturated conditions.
- Retaining walls are discouraged. If proposed they should provide for safety measures at the top of the wall and/or a terraced configuration.

2. Flared End Section: Flared end sections shall be required in any areas where a storm sewer discharges into a detention basin. Trash grates shall be provided on all flared end sections 12" in diameter and greater. Permanent erosion control shall be provided with riprap at all flared end sections. Temporary erosion control in the form of sediment logs shall be provided at all outlet flared end sections, and shall be maintained until the topsoil has been adequately stabilized with vegetative cover. All

flared end sections greater than or equal to 12" that will receive or discharge storm water, shall have a removable grate system to prevent entry. This grate system shall be made from steel stock that is hot-dipped galvanized after fabrication.

3. Green Space, Slope Requirements: Green space slopes shall conform to the following:

- 4:1 maximum slope
- 2% minimum slope
- Where retaining walls are required, a registered Illinois Structural Engineer must sign the plans if the proposed height is 4' or higher.

4. Inlet Ponding, Maximum Levels: The engineer shall calculate the 100-year water surface elevations for the storm water storage facilities. Inlet ponding in excess of 1' during a 100-year event will not be permitted. The overflow route and limits of ponding shall be clearly illustrated on the plans. Paved parking lots may not be utilized to provide any portion of the required site run-off storage volume.

5. Overflow: An overflow drainage route must be established. All storm water management facilities shall have a clearly defined and protected overflow route illustrated with an overflow elevation and a large arrow. The overflow routes through the subdivision shall also be illustrated with large arrows, and spot elevations shall be shown at 50' intervals along the route.

6. Pavement, Slope Requirements: Pavement slopes shall conform to the following:

- 1% minimum and 5% maximum slope (pavement)
- 0.5% minimum slope (curb & gutter)
- 8% maximum slope (driveways only)
- Basin overflow weir shall be established with a concrete surface

7. Release Rate: Shall meet or exceed the Kane County Storm Water Ordinance as adopted and modified by the Village of South Elgin.

8. Release Structures: Shall meet or exceed the Kane County Storm Water Ordinance as adopted and modified by the Village of South Elgin.

9. Storm Water Management Report: A Storm Water Management Report shall be submitted to the Village for review. The report shall include the following:

- All appropriate permit forms, associated fees need to be submitted.
- A narrative that discusses topographical conditions, soil conditions, analysis methodology, modeling results, and conclusions.
- Data from an analytical modeling program which features hydrograph methodology, TR20 or equal.

- A critical duration analysis shall be performed which analyzes the proposed topographic and drainage conditions for the 2, 6, 12, 18, and 24 hour durations of the 100-year rainfall. Hydrograph methodology shall be used in cooperation with projected rainfall data as documented in the “Bulletin 70 Huff Distribution Curve”. The largest storage volume that is produced from this analysis shall be the required volume for the development.
- Basin sizing calculations; required and proposed storm water storage volumes.
- Storm water release structure calculations including proposed, required, and existing release rates.
- Exhibits which illustrate the following:
 - Existing conditions (i.e.: topography, buildings / structures, water bodies, roadways).
 - Proposed conditions (i.e.: topography, lot alignments, top of foundation elevations, roadways, drainage ways, storm water storage facilities, overflow routes).
 - Existing and proposed watershed boundaries and ridgelines.
- Proposed 100-year water surface elevation and high water level.
- The design engineer shall refer to the Village of South Elgin Stormwater Management Ordinance for storm water report and permit application requirements. Because these requirements can be complex when compared against any particular project, the design engineer shall identify design and submittal requirements where clarifications are necessary. Questions and clarifications shall be submitted to the Director of Public Works for review and guidance related to the specific project under consideration. The Village encourages communication prior to any submittal and during the design process.

10. Topography: A drainage plan shall be provided which includes the following:

- 1’ contours.
- Easements, including dimensions and easement type.
- Proposed storm water storage facilities.
- Existing water bodies and drainage features.
- Proposed roadways and rights-of-ways.
- Proposed lot alignments and lot numbers.
- Proposed top of foundation elevations.
- Overflow drainage routes and 100-year water surface elevations with cross sections.
- Proposed basin volumes, 100-year water surface elevations, and high water levels.
- Storm sewer appurtenances.
- Proposed elevations at all lot corners and along all break points at side yards.

11. Off Site Flows: The design engineer shall have a clear understanding of where the proposed project lies relative to the overall watershed in which it lies. This shall include:

- An understanding of watershed boundaries.
- Delineation of all off-site area tributary to the site.
- Understanding the impact on downstream properties and conveyance systems.

SECTION IV

WATER SYSTEM

- A. DESIGN RESTRICTIONS**
- B. DESIGN REQUIREMENTS**
- C. MATERIALS**

WATER SYSTEM REQUIREMENTS

A. Design Restrictions:

1. **Dead End Water Main:** The construction of dead end water main will not be permitted. Where dead end mains cannot be avoided on a temporary basis, a fire hydrant shall be placed at the end.
2. **Pipe Compound Pipe:** Pipe compound will not be permitted in any water main construction, including service connections. A general note to this effect shall be included in the Final Engineering Plans.

B. Design Requirements:

1. **Tunneling:** Augering or directional drilled will be required at all roadway crossings unless otherwise permitted by the Village of South Elgin Public Works Director. Steel casing and "Cascade" spacers shall be utilized exclusively. Following completion of the auger, the casing shall be filled with pea gravel or sand, the ends shall be blocked and mortared shut, or have end boots installed.
2. **Cover Depth:** All water main, hydrant leads, and services must have a minimum cover of 6' and a maximum cover of 10'. Variations from these standards will require approval of the Public Works Director.
3. **Fire Flows:** Fire flows shall be calculated at a twenty (20) psi residual pressure and shall be available for a minimum 4-hour continuous duration for flows above 2,000 gpm, and a 2-hour continuous duration for flows below 2,000 gpm. For industrial uses which require stronger fire flows, the required PSI shall be determined by the Village Engineer.

Minimum Recommended Fire Flow Rates

Land Use	Minimum Fire Flow (gpm)
Single-Family Residential	1,000
Multi-Family Residential	2,500
Commercial – General	2,500
Office/Research	2,500
Commercial – Downtown	3,500
Institutional	3,500
General Manufacturing	3,500

4. **Hydrant Spacing:** Hydrants must be placed at a maximum of 300' intervals, and may not be less than 5' from the back of curb. No buildable area shall be farther than 200' from a fire hydrant, and a minimum of one (1) hydrant shall be located at each intersection. For larger projects, hydrants shall be proposed at high points for air release. All hydrant locations shall be coordinated with the Village of South Elgin

Fire Protection District and appropriate Public Works Department.

- 5. Horizontal and Vertical Separation:** Water mains and sewer horizontal and vertical separations shall conform to the latest version of the "Standard Specifications for Water & Sewer Construction in Illinois". Reference to these standard and specifications should be made when it is impossible to meet separation requirements for casing pipe requirements (refer to Standard Casing Pipe Detail).
- 6. Abandoning and Replacing Existing Services:** All existing services shall be abandoned at the corporation stop (close corporation stop, cut services, and install copper disk). Existing services should be replaced from the new main to the B-Box if service is lead. If service is copper, it should be cut and tapped into the new main. Approved trench backfill material is to be placed where any trench lies within 3' of the edge of pavement, curb, or sidewalk. It is assumed all lines are lead and must be replaced to B-Box.
- 7. Interruption of Water Usage:** Water services may only be interrupted when the transfer of services to the new main takes place. Services shall be transferred subsequent to testing and chlorination of the proposed main. The contractor shall contact the Village of South Elgin Water Division at 1-847-695-2742 prior to transfer of service. Residents and Businesses must be informed a minimum of 24-hours in advance, during normal business hours (7:00 am – 3:30 pm) of any interruption by the Village of South Elgin Water Division staff.
- 8. Services, Domestic:** Domestic water services shall be provided to each lot. The minimum size for domestic services is 1". Service size needs to be determined based on Illinois Plumbing Code. Once installed all services extending to the Village right-of-way limits shall be located utilizing a 4" x 4" treated wooden post painted blue.
- 9. Services, Fire Protection:** Where fire protection services are required, separate domestic and fire protection services shall be provided. Each service must have an independent tie into the public water main or as required by Illinois Plumbing Code.
- 10. Thrust Blocking:** Preformed concrete block thrust blocking shall be provided at all bends greater than 10 degrees, at all mechanical joint connections, and at all fire hydrants (refer to Village Thrust Blocking Detail).
- 11. Trench Backfill:** All utility and service trenches within 3' of paved surfaces, or at a distance specified by the Public Works Director, shall be backfilled with CA-6 (Virgin Crushed Limestone). All Backfill material shall be properly compacted unless otherwise directed by the Public Works Director. Backfill under existing pavements, where an open cut of the pavement has been approved, shall be covered by a full depth of crushed CA-6 stone (refer to Village Pipe Trench Detail).

- 12. Valve Spacing:** Right-hand closing resilient wedge gate valves at intervals not over 600' intervals.
- 13. Valve Vaults:** Valve vaults are to be precast reinforced concrete, eccentric type. A maximum of (8-inches) of adjusting rings shall be used.
- 14. Frame and Covers:** All valve vault structures shall have a Neenah Foundry Company R-1713 frame and type "B" Lid with concealed pick hole. Lids shall be furnished with "Village of South Elgin - Water" cast into the top surface (refer to Village Standard Cover Detail).
- 15. Water Main, Minimum Size:** The minimum size for any public water main shall be 8" (with the exception of hydrant laterals that may be 6", (see design requirement #3 above for fire flow considerations).
- 16. Separation:** A ten-foot horizontal separation shall be maintained between water mains and appurtenances, and all other utilities, public or private.
- 17. Appurtenance Separation:** Water appurtenances shall be a minimum of 20' from permanent structures; this applies to any structure that may require a building permit (i.e. retaining walls, pools, shed, garages, etc.).
- 18. Dead Ends:** Dead end water mains longer than 300' should not be permitted. The water system must be extended, as a minimum, to the limits of the development and looped wherever possible. Note on all plans which mains are to be public and private.
- 19. Adjustment of Structures:** All adjustments to valve vaults shall be made with precast concrete adjusting rings not to exceed a maximum of two rings and a total of eight (8) inches overall in height. Watertight valve vaults shall be provided for each valve. Barrel sections shall be seated using two (2) butyl rubber strips per tongue and groove section. Valve vaults are to be precast reinforced concrete, concentric type. After final adjustments have been made, all joints in precast structures shall be mortared. The mortar shall be composed of one part cement to three parts sand, by volume, based on dry metals and shall be thoroughly wetted before laying. Vaults may only be extended to a maximum of 23" from the surface to the inside flare of the manhole cone section.
- 20. Connecting to Existing Water Mains:** Connection to the end of an existing water main shall be with a valve only. No new water main should be connected to the existing water main unless the new water main can be pressure tested separately. Connection to an existing water main shall be done by pressure connection only unless authorized by the Public Works Director. Pressure connection and valve shall be located within the valve vault. No pressure connection shall be within 3' of an

existing water main joint. If pressure connection cannot be done, use a cut in sleeve and tee connection. All fittings will be swabbed out with a chlorine solution of at least 50 mg/L. A Village Representative must test this solution.

21. Service Connections: Service connections to water mains are not permitted until after bacteriological sampling and analysis has been completed to the satisfaction of the Public Works Director. No water service connection shall be made by any person or firm other than a State of Illinois licensed contractor, with a State of Illinois licensed plumber on the job, and bonded with the Village. All water services and water service connections must be inspected by the Village's plumbing inspector. Domestic shut off (b-box) shall not be permitted within driveways, driveway aprons, and/or public sidewalks.

22. Water Main Taps: The following are the requirements for water main taps:

1. All taps into a cast iron water main must use a full circle stainless repair-tapping clamp, minimum of 12" X the diameter of the pipe.
2. All taps into ductile iron water main that are 1" will be direct tap.
3. All taps into ductile iron water mains that are over 1" must use a full stainless steel tapping clamp, minimum of 8" X diameter of the pipe.
4. All water main repair bands must be the full circle stainless steel type, minimum of 12" X diameter of the pipe.

23. Landscaping: Landscape plantings shall not interfere with operation and maintenance of water appurtenances. Trees shall be placed no closer than 10' from any structure(s).

24. Fire Hydrants: Fire hydrants shall be installed with a maximum of one extension kit used, and a maximum extension of 36". Fire hydrant extension kits must be of the same manufacture as the hydrant, and must be installed according to the manufacturer's specifications. All fire hydrants shall be placed on an extension of a common property line in the public right-of-way and not closer than 2-feet to existing property, sidewalk, driveway apron and/or curb.

25. GIS/GPS Standards: All work will conform to the Village's GIS/GPS Standards found in Section VIII-*Inspection Procedures* of this manual.

26. Water Details: Typical water details can be found in Section IX-*Engineering Details* for reference.

C. Materials:

1. Corporation Stops:

- a. Compression fittings.
 - i. A. Y. McDonald 4701-BQ (1", 1 ½", 2")

2. Curb Stops:

- a. Compression fittings.
 - i. A. Y. McDonald 6104-Q (1", 1 ½", 2")

3. Curb Box: (Minneapolis pattern, lid marked "WATER")

4. Buffalo Type:

- a. A. Y. McDonald, 5615 1 ¼"
- b. LMK, 4848M 2"

5. Fire Hydrant:

- a. Approved Models: (Refer to standard Fire Hydrant Detail)
 - i. Waterous Pacer Model WB-67-250 – Red Factory
 - ii. All hydrants shall have:
 - 1. 6" mechanical joint connection
 - 2. 5 ¼" valve opening
 - 3. 5-1/2' cover over hydrant lateral
 - 4. 6" valve on lateral
 - 5. "Hydra-finder" standard hydrant locator, installed
 - 6. Valve box shall have a valve box stabilizer installed*
 - 7. 30" center hydrant to center of valve.
- *(Valve box adaptor #2 type A, as made by Adaptor, Inc. or approved equal)
- 8. All hydrants shall have a sacrificial anode. (see drawing in Section X)

6. Fire Hydrant Paint: International® Intercure 99® Safety Red Tinted via Chromascan system, Color Number 71016 Base-QNA044/3GL. Private fire hydrants shall be painted yellow.

7. Bolts Placed Underground: All below grade factory installed bolts and fasteners shall be 304-grade stainless steel.

8. Valves: 4" through 16" diameter" Right-hand closing Resilient Wedge gate valves, conforming to AWWA Standard C-5151 as manufactured by the Clow Corporation, Waterous Company. All below grade factory installed bolts and fasteners shall be 304-grade stainless steel.

9. Water Supply Control Valves and Meter: Valves shall be located following these guidelines:

- a. Locate all meters in an accessible location for Village personnel to inspect and replace. A crawl space, pit or under a stairway will not be considered accessible.
- b. Provide protection from damage for water meter in non-residential buildings.

- c. Provide full port ball valve before the meter, located within 16" of the service entering the building space and immediately after the meter.

- d. Commercial buildings or units that share a single water service for fire protection and domestic supply, at the discretion of the Director of Public Works, subject to the following conditions:
 - i. An accessible outside shutoff valve installed on the service line.
 - ii. Buildings on slab must have a shutoff valve installed on the service line located in the outside wall of the building that faces the street and labeled "WATER" with 6" letters.
 - iii. Meters shall be in a central place accessible from the building exterior to Water Department personnel for maintenance, inspection or shutoff. Each meter must, however, be supplied a locking valve approved by the Village.
 - iv. Provide B-box shutoff valves for residential buildings.
 - v. Extend B-box to finished grade.
 - vi. B-boxes shall not be located in driveways, driveway aprons, or sidewalks.
 - vii. Provide one main shutoff valve accessible to Village personnel for multi-unit buildings. In addition, provide shutoff to each individual units as follows:
 - 1. Located B-boxes together in the same order as the units.
 - 2. A 24-hour outside accessible meter room will be allowed.
 - 3. Separate complete water services shall be required from the water main for each. Each service line shall be separately metered. In lieu of separate services, meters shall be in a central place accessible from the building exterior to Water Department personnel for maintenance, inspection, or shutoff. Each meter must, however, be supplied a locking valve approved by the Village.

10. RPZ Valve Requirements:

- a. RPZ required on domestic water supply to all non-residential buildings.
- b. RPZ required on water supply to all fire sprinkler systems.
- c. Upon a showing of circumstances to warrant same, a double check valve may be substituted for an RPZ device on fire protection systems with the approval of the Director of Public Works.
- d. Install RPZ a minimum of 12" and a maximum of 4 feet above the finished floor elevation measured from the bottom of the device.
- e. Install RPZ a minimum distance of 12" from any building structure of safety devices as measured from the body of the device.
- f. Install RPZ a maximum of 5 feet from a floor drain.
- g. All individual services will have an RPZ valve.

11. Valve Vaults: Watertight valve vaults shall be provided for each valve. Barrel sections shall be sealed using a butyl rubber or rubber strip (refer to Village Standard Valve Vault Detail).

- a. 3" through 6" valves Min. 4' inside diameter vault minimum
- b. 8" and larger valves..... Min. 5' inside diameter vault minimum
- c. Pressure Taps Min. 5' inside diameter vault minimum
- d. Valve Vault Lid.....Neenah R-1712, Type B or approved equal
- e. The words "WATER" and "Village of South Elgin" shall be cast into the surface of the lid.
- f. Vaults are not required for hydrant auxiliary valves except when a pressure tap for a hydrant lateral is in a roadway.
- g. All vaults to have steps.

12. Water Main Pipes:

- a. Ductile Iron Class 52, conforming to AWWA Standard C-151.
 - i. Cement Lining, conforming to AWWA Standard C-104 (ceramic lined).
 - ii. Mechanical or push-on joints shall conform to AWWA Standard C-111.
 - iii. At minimum, Type 3 laying conditions shall be provided, conforming to AWWA Standard C-600 (Attached).
 - iv. The exterior of ductile iron pipe shall be coated with a layer of arc-sprayed zinc per ISO 8179. The mass of the zinc applied shall be 200 g/m² of pipe surface area. A finished layer topcoat shall be applied to the zinc. The mean dry film thickness of the finishing layer shall not be less than 3 mils with a local minimum not less than 2 mils. The coating system shall conform in every respect to ISO 8197-1 "Ductile iron pipes – External zinc-based coating – Part 1: Metallic zinc with finishing layer. Second edition 2004-06-01."
- b. V-Bio Polyethylene Encasement shall be used on all water main pipe and meet ANSI/AWWA C104/A21.5. The inside surface of the polyethylene wrap to be in contact with the pipe exterior shall be infused with a blend of anti-microbial biocide and a volatiles corrosion inhibitor. Polyethylene wrap must be V-Bio Poly-Wrap. The installation method shall be in accordance with ANSI.AWWAC105/A21.5, ASTM A674, using "Method A" installation.
- c. All side yard and rear yard water mains not directly adjacent to public roadways or paved surfaces shall be Ductile Iron Pipe (ceramic lined), Class 55 with a type 5 laying conditions.
- d. Brass Wedges shall be installed to provide electrical conductivity.

13. Joint Restraint: All mechanical joint fittings shall have restraining glands installed. Restraint device shall be Mega-Lug by EBAA Iron. Push joint pipe restraint shall be Field Lock Gaskets by US Pipe, Fast-Grip by American Pipe or Series 1700 Mega-Lug. Field Lock and Fast-Grip gaskets must be a color other than black and this color must be

inherent throughout the cross section of the gasket. Lengths of pipe restraint shall be determined from DIPRA's installation specifications.

14. Copper Service Lines:

- a. 1" diameter minimum.
- b. Type K copper tubing.
- c. Compression fittings only.
- d. All service connections shall include a sacrificial anode connection and anode as depicted in the drawings in Section X

1" service connections only may be connected utilize the direct tap methods to 6" mains and larger only. If there is insufficient diameter water main to install a direct tap, then a saddle tap shall be allowed. Service taps of 1 ¼", 1 ½", & 2" require the use of a tapping saddle. Saddles shall be full circle, 304-grade stainless steel, with nylon washers and Nitrile gasket, as manufactured by Cascade Waterworks Mfg. Style CS22 double bolt clamp.

15. Tapping Sleeves:

- a. 4" through 8" diameter:
 - i. Stainless steel or approved equal or Cascade Waterworks Mfg. Style CST-EX tapping sleeve.

16. Casing Pipe: Carrier pipe shall be centered within a casing by use of model CCS stainless steel Casing Spacers as manufactured by Cascade Waterworks Mfg. of Yorkville, Illinois or prior approved equal. Fill casing pipe void with sand and install End Boots as manufactured by Cascade Waterworks Mfg. of Yorkville, Illinois.

17. Ductile Service Lines:

- a. Fire:
 - i. The first O. S. & Y. valve on the inside of the building must be in place for pressure testing, chlorination and sampling.
 - ii. Testing against flanges will not be allowed.
- b. Domestic:
 - i. The first permanent valve on the inside of the building must be in place for pressure testing, chlorination and sampling.
 - ii. Testing against flanges will not be allowed.

18. Pipe Insulation:

- a. Rigid Pipe Insulation:
 - i. Provide extruded polystyrene sheathing conforming with ASTM C578, Type IV.
 - ii. Place rigid insulation board above the pipe bedding material to the width of the trench.

- iii. Place rigid insulation board to the required thickness and in the locations as shown on the drawings.
- iv. Thickness: 2 inches.
- v. R-Value: 10.
- vi. Water absorption: No greater than 0.10% by volume per ASTM C272.
- vii. Acceptable product:
 - Formular Rigid Foam Insulation, Owens-Corning.
 - Or equal.

SECTION V

PAVEMENT / ROADWAYS / SIDEWALKS

A. DESIGN REQUIREMENTS

STREET SYSTEM REQUIREMENTS

A. Design Requirements:

1. Generally: Street systems shall be designed to meet the requirements of the applicable jurisdiction (i.e., Village, IDOT, KDOT). Any proposed street dedication shall be in accordance with the following standards.

2. Subdivision Design and Layout: See 156.04.B of the Unified Development Ordinance for standards regarding block lengths, size and bicycle and pedestrian connectivity.

3. Street Standards: See 156.04.C of the Unified Development Ordinance for standards regarding street design, intersection design, curb radii, and crosswalks.

4. General Street Type Standards: See Table 156-04-C-A of the Unified Development Ordinance for General Street Type Standards, including street type, right-of-way width, pavement width, etc.

5. Pavement Design: Pavements shall be designed and constructed so as to obtain a minimum 20-year service life with minimal maintenance after acceptance of the pavement by the Village of South Elgin. The design engineer should consider such factors as construction and end use traffic loading sub-base I.B.R., etc., in determining the structural make-up of the pavement section.

a. **Pavement Materials and Minimum thickness:** The following pavement sections are the **MINIMUM** acceptable to the Village. Their use must be supported by calculations to substantiate the use of the minimum pavement section.

i. The following types of street surfacing shall be considered minimum requirements in accordance with the standard specifications:

1. Local residential street.

a. 4" granular sub base, 6" PC concrete; or

b. 4" granular sub base, 4" hot-mix asphalt binder course, 2" hot-mix asphalt surface course.

2. Residential collector.

a. 4" granular sub base, 6" PC concrete; or

b. 4" granular sub base, 6" hot-mix asphalt base course, 2" hot-mix asphalt surface course; or

3. Secondary Thoroughfare (Major Collector).

a. 4" granular sub base, 7" PC concrete; or

b. 4" granular sub base, 8" hot-mix asphalt base course, 2" hot-mix asphalt surface course.

4. Major Thoroughfare (Minor Arterial).
 - a. 12" granular sub base, 8" PC concrete; or
 - b. 12" granular sub base, 8" hot-mix asphalt binder course, 2" hot-mix asphalt surface course.

Note: All asphalt is to be laid by a self-propelled mechanical spreader.

- b. **Sub-grade:** All sub-grade material shall have a minimum Illinois Bearing Ratio (IBR) of 3.0. All unsuitable sub-grade material, including sub-grade material having an IBR less than 3.0 shall be removed and replaced with a suitable fill material, or the pavement must be designed to compensate for the soil condition. The soil support IBR values selected for use by the engineer shall represent a minimum value for the soil to be used.
- c. **Pavement Design Shall Include:** In addition to the information provided in the right-of-way and pavement requirements, pavement design shall include the following:
 - i. Public Alleys shall be constructed of reinforced Portland Cement Concrete (PCC) designed in accordance to specifications listed above for rigid pavements.
 - ii. Maximum allowable pavement grade = 7% and minimum allowable pavement grade = 0.5%;
 - iii. Driveway grades shall have a minimum slope of 1% and a maximum slope of 8%. All driveway grades in excess of 5% shall substantiate that vehicular bottom clearances are met.
 - iv. Vertical curves shall be used when the absolute value of the algebraic difference between the intersecting pavements' centerlines exceed 1%. The minimum length of vertical curves shall be 3 times the design speed, or 100' whichever is higher. Rate of curvature or K value shall meet AASHTO Geometric Design Standards. Asymmetrical curves are not allowed.
 - v. Curb and gutter shall be a B-6.12 barrier type unless otherwise directed by the Village of South Elgin Public Works Director. Curbs shall be constructed of 6.1 bag mix Portland Cement Concrete: 5-8% air entrained, (PCC) with two (2), continuous epoxy coated, #4 rebar. A 1" expansion joints shall be placed at 60' intervals, and contraction joints shall be at 15' intervals and all points of curvature. All B-box, sanitary services and storm service locations shall be marked on the curb with a "W", "S" or "ST", as the case may be. All Portland Cement Concrete (PCC) shall be treated with a protective coat application.
 - vi. Hot-mix asphalt pavement shall have a 2% minimum and 3% maximum cross slope.

vii. Pavement Patches.

Note: All pavement patches shall be replaced in kind with the following revisions:

1. Flexible Pavement

Patches shall have a minimum of 6" Hot-Mix Asphalt Base Course, placed over a 4" compacted sub-base of granular material. 4-1/2" of Hot-Mix Asphalt Binder Course, IL-19.0, N50, and 1 1/2" of Hot-Mix Asphalt Surface Course, Mix "D", N50 shall be laid subsequent to the Base Course. (See details for pavement patching).

2. Rigid Pavement

Concrete pavements shall be replaced with a minimum of 14 day, 3500 psi, 9" of Portland Cement Concrete mix placed over a 4" compacted granular sub-base (or match existing concrete pavement profile). The existing pavement shall have #6 epoxy-coated dowel bars, 2' in length, drilled at 24" on center, grouted in place. All Portland Cement Concrete shall be treated with a protective coat application. (See details for pavement patching). PCC shall be a 6.1 bag mix, 5-8% air entrained.

3. Composite Pavement

For pavements with a concrete base and asphalt surface, the concrete shall be placed at the same thickness as the existing pavement, but shall be a minimum of 8" thick. #6 Epoxy-coated dowel bars, 2' in length, shall be placed at 24" on center, grouted in place .

There shall be a minimum of 2 1/2" surface asphalt placed over the concrete, Steel plates shall be placed over all Portland Cement Concrete patches until concrete is cured or a minimum of 3-days. (See details for pavement patching).

- ix. Storm inlets and catch basins placed within the roadway surface shall be designed to incorporate an under drain system of perforated PVC pipe in accordance with the attached detail.

6. Sidewalks:

- a. Public Sidewalks are to be constructed of a minimum of 5" thick by 5' wide, 6.1 bag mix Portland Cement Concrete (PCC) with (5-8%) air entrainment. The minimum width of sidewalks for single family developments shall be 5" thick by 4' wide, 6.1 bag mix Portland Cement Concrete (PCC)

with 5-8% air entrainment. If 4' wide, 5' x 5' passing areas shall be provided in accordance with current PROWAG.

b. Public walks that cross driveways are to be thickened to a minimum of 6" for residential and 8" for commercial or the thickness of the driveway, whichever is thicker; and contain 6" x 6" wire mesh reinforcement.

c. Sidewalks shall be constructed 1' off the street R.O.W. line unless otherwise directed by the Public Works Director.

d. Sidewalks shall be continuous through driveways and have no more than 2% cross slope across DW.

e. All utility service locations shall be stamped on the curb with a "W", "S" and "ST".

f. A 1" expansion joint shall be provided at 50' intervals, and contraction joints shall be at 5' intervals.

g. Ramping and sloping of sidewalks at street intersections shall be in accordance with the specifications and standards as set forth by the Illinois Department of Transportation, the American Disabilities Act (ADA), and the Illinois Disability Code.

h. Sidewalk cross slopes shall not exceed 2%.

7. Bike Path:

- Designed per AASHTO standards (10' wide, 2' shoulder @ 4% max slope).
- Shoulders can be grass or aggregate.
- Pavement shall consist of 8" aggregate base course, 2-1/2" hot-mix asphalt binder course, 1-1/2" hot-mix asphalt surface course, and geotextile fabric on a prepared subgrade per IDOT specifications, as needed.
- Detectable warnings shall be installed in concrete if required.

8. Signage: Telescoping steel sign supports water V-lock base.

- All signs shall meet current MUTCD retro-reflectivity requirements.
- All signs shall be mounted on black, powder-coated, Telspar posts.
- Lettering and border shall be black. Street sign shall be white and match current Village standard.
- For two lane streets 40 MPH or less lettering shall be composed of a combination of 4" initial upper case letter and 3" lower case letters on an 9" high sign.
- For two lane streets > 40 MPH lettering shall be composed of a combination of 6" initial upper case letter and 4.5" lower case letters on a 12" high sign.

- Supplementary lettering to indicate type of street shall be sized in accordance with the Village Sign Detail. Conventional abbreviations shall be used.
- When approved by the Director of Public Works, crosswalk beacons to be installed shall be Tapco Rectangular Rapid Flashing Beacon on a black pole. (Refer to Section X – Engineering Details)

9. Driveway Aprons: 6" concrete residential, 8" concrete commercial with 6" x 6" wire mesh, 6" aggregate base.

- a. **Width:** No driveway for vehicular ingress and egress shall exceed 28 feet in width at the right-of-way and 34 feet in width at the roadway in residential uses; no driveway for vehicular ingress and egress shall exceed 34 feet in width at the right-of-way and 44 feet in width at the roadway in all non-residential uses. Driveways shall be dimensioned in accordance with generally accepted engineering standards, subject to the approval of the Village Engineer and Zoning Administrator.

10. Pavement Markings: shall be Thermoplastic

- Crosswalks shall be two 6" white lines, or 12" "ladder" style for school crossings with 12" wide lines and 2' wide space.

Note: All concrete shall be treated with a protective coat application of linseed oil or curing compound equivalent for temperatures over 40 degrees.

SECTION VI

PARKS and STREETSCAPE

- A. SITE LIGHTING**
- B. STREETSCAPE FURNISHINGS**
- C. PLAY STRUCTURES**
- D. CONCRETE WORK**
- E. PARKING LOTS / BIKE PATHS**
- F. RESTROOM FACILITY**
- G. SIGNAGE**
- H. PARKS AMENITIES**

STREETSCAPE

The Village has established streetscape requirements for public spaces. The following is a summary of those requirements to be applied in the Village Center area as defined by the Village Board.

Site Lighting:

A. Street Light

- Light shall be Domus series, Type A, Vehicular: 24' ht., Type B, Pedestrian: 14' ht., banner arm attachments, aluminum pole, color: black, textured, as shown in the Village design details.

B. Landscape Bollard

- Bollard shall be Annapolis bollard, 6" diameter by 33" high, embedded, as shown in the Village design details.

Streetscape Furnishings:

A. Ornamental Fence

- Fence shall be Aegis Plus, Classic Style C3 (3-Rail), 6' ht., aluminum pole, color-black.

B. Bench

- Bench shall be flat steel bench/arched back, MF 2201, horizontal strap seat, 74" x 28" x 39", color-black.

C. Waste Receptacle

- Waste receptacles shall be a flat steel waste can, MF 3200, 26" diameter x 33".

D. Planter

- Planters shall be a flat steel planter, MF 8010 (23" diameter x 24") MF 8011 (23" diameter x 18").

PARKS

Parks owned and or operated by the Village of South Elgin are maintained by the Parks & Recreation Department. All parks must meet current standards of Americans with Disabilities Act and Certified Playground Safety. The information below details expectations of all parks. All parks will be accepted at the same time as other public utilities. Prior to acceptance of the park a one-year maintenance bond must be received by the Village.

Play Structures:

A. Engineering & Design

1. During the review process with Community Development, Parks & Recreation staff must have the ability to review and approve design and engineering.

B. Equipment Manufacturer

2. Landscape Structures is the preferred manufacturer of all playground structures and stand-alone features. Must confirm structure theme and colors with Director.
3. The Village of South Elgin expects minimum ADA standards to be met. However, any opportunity to ensure equal play for individuals with disabilities should be considered when choosing play structures and stand-alone features.

C. Installation

4. Must be installed to manufactures specifications. Any installation deviations must be accompanied by a letter from the manufacturer.
5. Once installed, must pass a Certified Playground Safety Inspection completed by an individual who holds a current Certified Playground Safety Inspection Certification. The Certified Playground Safety Inspector for the Village must be on-site during this inspection.
6. A certificate stating the play structure and stand-alone features passed inspection must be presented to the Parks & Recreation Department prior to acceptance of the park.

Playground Surfacing:

A. Engineering & Design

1. During the review process with Community Development, Parks & Recreation staff must have the ability to review and approved design and engineering.

B. Surfacing Type

1. Acceptable Surfacing Types include: Poured-in-Place and Synthetic Turf.
2. Other forms of unitary surfacing would be considered by staff; no loose fill surface will be accepted.

C. Installation

1. Must be installed to manufactures specifications. Any installation deviations must be accompanied by a letter from the manufacturer.
2. Once installed, surfacing must be tested in accordance with ASTM 1292 standards, not to exceed 200 G's or 1000 HIC's.

Concrete Work:

A. Playground Border

1. See specifications located in Engineering Details.

B. Sidewalk

1. Public sidewalks are to be constructed of a minimum of 5" thick by 5' wide, 6.1 bag mix Portland Cement Concrete (PCC) with (5-8%) air entrainment.
2. Sidewalks shall be constructed 1' off the street R.O.W. line unless otherwise directed by the Public Works Director.
3. A 1" expansion joint shall be provided at 50' intervals, and contraction joints shall be at 5' intervals.
4. Ramping and sloping of sidewalks at street intersections shall be in accordance with the specifications and standards as set forth by the Illinois Department of Transportation, the American with Disabilities Act (ADA) and the Illinois Disability Code.
5. See specifications located in Engineering Details.

Parking Lots / Bike Paths:

The following is a **MINIMUM** acceptable for Village Park parking lots and bike paths.

A. Parking Lots

1. 4" granular sub base, 6" PC concrete; or
2. 8" aggregate base course, 2-1/2" hot-mix asphalt binder course, 1-1/2" hot-mix asphalt surface course.
3. Must meet the minimum number of ADA required parking stalls.
4. Install signage on site appropriate posts dictated by owner. This includes stop signs, handicap parking signs, and way-finding signs.

Restroom Facility:

See specifications located in Engineering Details.

Signage:

The following are acceptable to the Village purposes in a park. Installation of signage on site dictated by owner on site appropriate posts.

- A. Park Name Sign** – Vendor: Image 360, South Elgin, IL
 - Sandblasted Sign
 - HDU Foam Panel 15LB (24"x60"x1.5") Single Sided Includes Raised/Painted text/graphics
 - Matthew's Satin finish.
 - Includes a Routed Wood Grain Texture background Finish Total of 2 Colors:
 - Benjamin Moore 2021-60 Provence Crème
 - Benjamin Moore 2040-10 Rainforest
 - Village Logo – 6"x10" vinyl logo, 3M Premium Cast – High Gloss
- B. Playground Rule Sign** – Sign provided by playground vendor.
- C. Park Rule Sign** – Sign provided by owner.
- D. Wetland Sign** – Sign provided by owner.
- E. Field Permit Sign** – Sign provided by owner.

Parks Amenities:

If developing in the downtown corridor, the developer will follow park site amenities listed in the Downtown Development Guideline. Otherwise, the following are acceptable for site amenities in a park. Amenities are site specific. It is best to discuss amenities with the Parks & Recreation Department. All amenities must be installed per manufacturer's specifications. If deviating from the specification, a written letter must be submitted and approved by the Director of Parks & Recreation.

- A. Lighting**
 - 1. Style of in-park lighting must be pre-approved by Director
 - 2. Lighting fixtures shall be obtained through Graybar.
- B. Benches**
 - 1. Purchased from Belson Outdoor.
 - 2. Black powder coated.
 - 3. Commercial steel outdoor bench.
 - 4. Straight bench.
 - 5. Shall have arms. (see detail)
- C. Flagpole**
 - 1. Purchased from Display Sales.
 - 2. 30' Sentry concealed halyard.
 - 3. Aluminum satin finish.
 - 4. Must install solar light for flagpole per state statute.

D. Picnic Table

1. Picnic tables under shelters are surface mounted permanent rubber coated ordered from Belson.
2. Picnic tables in areas other than shelters are from Belson Outdoors. 6' wood; Navajo Red.

E. Trash Can

1. Belson Outdoor.
2. Various sizes.
3. Commercial steel.
4. Black powder coated.

F. Fencing – Two different types of fencing are used in the Parks depending on application and location. Please check with the Director of Parks & Recreation as to which type you will use.

1. Black powder coated.
2. Height will vary depending on site.
3. Split rail – cedar split rail with two rails.

G. Planter

1. Belson outdoor.
2. Various sizes.
3. Commercial steel.
4. Black powder coated.

H. Water Source

1. Yard hydrants may be required per site use. If one is to be installed, Village staff will do the install while the developer has ground open during site work.

I. Landscape

1. Grass seed mixture used shall be Greenskeeper Drought Beater Mixture from National Seed
2. Seed spec sheet shall be provided to Director
3. Trees installation requirements shall be per Village Ordinance #156.09

SECTION VII

STREET LIGHTING

STREET LIGHTING

Subdivisions shall construct street lighting service installations on all public roadways as required by the Village of South Elgin to illuminate roadway and sidewalk surfaces and pay any costs or fees incidental thereto.

STANDARDS:

A. Village of South Elgin Streets:

- Minimum LED 90 watt luminaire fixture.
- Light(s) shall be provided at all street intersections, entrances to cul-de-sacs and at the closed end of cul-de-sacs.
- If additional streetlights are proposed, they will have to be approved by the Village on a case-by-case basis.

B. Other Jurisdictions:

- For roads that are not under the Village of South Elgin jurisdiction, consult with the appropriate unit of government for their lighting standards.
- Where conflicts in standards occur, follow the more luminous standard.

FIXTURES:

1. Typical

A. Luminaire:

- Philips Lumec
 - 90W 48LED 4LC – R – LE3
 - Or approved equivalent, as per the Public Works Director.

B. Pole:

- Hapco – RTA Series (e.g. 25' high – RTA25D7B4D1601 or RTA25D7B4D2601)
 - Minimum Overall Height – 16'
 - Double Davit fixtures shall only be installed with approval of Public Works Director.
 - Or approved equivalent, as per the Public Works Director.

C. Photocell or timing circuit:

- All luminaries shall have either an independent photocell or an interconnected photocell control as approved by the Village.

2. Village Center and Parks

- A. Decorative lighting options are to be approved by the Village on a case-by-case basis.
- B. See the Specification section for the Village Center approved lighting fixtures in the Streetscape Section of this plan.

3. General

A. Base

2'x2'x7' deep Portland cement concrete foundation with steel reinforcing as appropriate. The top of form must protrude at least 3" above the finished grade and be formed accordingly. Augured ready-made helical galvanized steel foundation; or approved equivalent, as per the Public Works Director.

B. Ground Rods

5/8" x 10" copper-clad only and in sufficient number to maintain an appropriate electrical ground per the NEC, latest edition.

C. Cable

Single strand copper only, number six (6) gauge or larger. Type 11SF-RR or any type which is listed by U.L. Labs for direct burial (Multiple conductors not permitted). All cable runs under concrete, blacktop, public or private walks or roadways, shall be encased in Schedule 80 PVC conduit (1 ½" minimum diameter).

PROCEDURES FOR NEW LIGHT CONSIDERATION:

A. Light locations must be approved by the Village before service installation is initiated. Exact light locations should be indicated on the final engineering plans as prepared by an architect or engineer, and location of necessary easements and their location should be indicated.

B. Street light foundation shall be installed in conjunction with the development of streets, curbs and gutters:

1. No trenching is to be done until sanitary sewer, storm, electric, telephone, cable TV, gas and water has been installed.

2. Rough grading must be done before trenching will be permitted.

C. Trenches must be not less than 24" in depth, but more than 30" from finished grade.

D. Yellow marking tape indicating **"CAUTION BURIED ELECTRIC LINE"** must be installed in a trench above the cable within 6" to 12" from the finished grade.

E. The developer or contractor is responsible for contacting Commonwealth Edison to determine the proper cable termination for the required power source. (A map locating “as built” street light cable routes relative to property lot lines shall be furnished by the contractor to the Village.)

F. Three inspections by the Village shall be required of all service installations:

1. Base Installation;
2. Trenching and cable inspections; and
3. Electrical service connections.

G. Final inspections will be performed by the Village after service has been initiated by Commonwealth Edison. When appropriate, the street lighting poles and fixtures will be accepted by the Village Board as part of all the public improvements in the subdivision.

H. Street lighting on new private roads must meet the minimum standards as noted in this document.

I. The developer or contractor shall be responsible for the operation of the streetlights until such time they are accepted by the Village. Streetlights shall be repaired by the developer or contractor within 48-hours (2 business days) after notification. If the developer or contractor does not repair the streetlights, as needed, the Village reserves the right to repair them and invoice the developer or contractor at the current rate plus any applicable penalties.

J. The Village shall be responsible for the cost of electricity of any and all lights located on a block when the project is accepted by the Village. The developer shall request the appropriate contract amendment from Commonwealth Edison to transfer the billing from the developer to the Village when the development is accepted.

SECTION VIII

DESIGN REFERENCES

DESIGN REFERENCES

All work shall be designed and constructed in accordance with the following references as they apply:

1. "Standard Specifications for Road and Bridge Construction," Illinois Department of Transportation, latest edition.
2. "Manual for Structural Design of Portland Cement Concrete Pavement," Illinois Department of Transportation, latest edition.
3. "Manual of Instructions for the Structural Design of Flexible Pavements on Projects involving MFT, FAS, and FAUS Funds," Illinois Department of Transportation, latest edition.
4. "Design Manual," Illinois Department of Transportation, latest edition.
5. Standard Specifications for Water and Sewer Main Construction in Illinois, latest edition.
6. Kane County "Storm Water Ordinance" as adopted by the Village of South Elgin.
7. Transportation Research Board of National Academies "Highway Capacity Manual", latest edition.
8. Federal Highway Administration "Manual on Uniform Traffic Control Devices, for Streets and Highways", latest edition.
9. American Association of State Highway and Transportation Officials "A Policy on Geometric Design of Highways and Streets", latest edition.

Note: Written requests received prior to final approval for alternate materials and/or construction methods will be reviewed by the Public Works Director prior to final approval.

SECTION IX

INSPECTION PROCEDURES

- A. STORM AND SANITARY**
- B. WATER DISTRIBUTION SYSTEM**
- C. PAVEMENT AND ROADWAYS**

INSPECTION PROCEDURES

GIS/GPS Standards:

The Village of South Elgin uses GIS (Geographical Information System) technologies to store, manage, and maintain geographic/spatially-related data. Likewise, the majority of the civil engineering community has evolved to the point where the predominating design environment is computer aided design and drafting (CAD). It is the goal of the Village to use GIS and CAD technologies to acquire as-built data for all infrastructure installed. It is the responsibility of the developer to deliver complete and accurate GIS data prior to acceptance of any development. The standards below will guide integration of digital engineering CAD drawings into the GIS environment maintaining the integrity and positional accuracy of the data.

Blank attribute tables in geodatabase format will be provided by the Village for; water, sanitary, storm, electric, signs and trees. The fields are already formatted and are to be used for providing attribute information that corresponds to the infrastructure.

- All data shall be in coordinate system:
NAD_1983_StatePlane_Illinois_East_FIPS_1201_Feet
- Do not rename any of the attribute tables.
- Do not alter the original formatting and structure of the attribute tables, or replace them with similar tables.
- Use the correct table being used for each sewer line, structure type, or other feature.
- All required fields filled in with appropriate data. Additional information entered in the non-required fields is also helpful.
- Correct units and precision used for pipe diameter, pipe length, upstream elevation, etc.
- Correct code from the lookup tables used when required. The lookup tables can be found in the metadata associated with the geodatabases. Whenever possible use the code that most accurately describes the item.
- Removed or abandoned features need to be denoted as such within the attribute table.
- Collect GPS points of structures prior to burying.

General Notes:

- The lookup tables are not linked to the attribute tables, so they are used as a reference.
- Adhere to the requirements in any "Type" column in the Attribute Table Requirements. This formatting must be adhered to in order for the attribute information to be used properly.
- Excel (.xls) files can be accepted for the attribute tables as long as the formatting is kept the same and none of the field names are changed or deleted, however the original geodatabase file format is preferred.
- If it is unclear which attribute tables should be used or how to code any of the required fields please consult with the Village prior to delivering your digital data submission.

General Note: Inspection of the installation of a development's infrastructure is done to ensure conformance with the Engineering plans and specifications as approved by the Village of South Elgin or approved designee. The following sets forth the procedures of the Village of South Elgin:

A. Storm and Sanitary Sewer: Inspection of storm and sanitary sewer improvements throughout the Village of South Elgin will be performed to ensure that the project is being constructed in accordance with the approved Final Engineering plans, and to determine if minimum construction and material standards are achieved. If the developer or contractor desires to deviate from the approved plan or does not feel that minimum construction standards are being satisfied, he/she is responsible for contacting the Village immediately. The Village of South Elgin will not accept a substandard product, and will not be responsible for any additional cost incurred by the developer / contractor as a result. Items 1 & 2 of this list of tests shall be required for sanitary sewer improvements in South Elgin. An authorized representative of the Village of South Elgin shall supervise all tests. All tests shall be scheduled a minimum of 48 hours in advance.

NOTE: FOX RIVER WATER RECLAMATION DISTRICT (FRWRD) MUST SUPERVISE ALL SANITARY INSTALLATIONS.

1. Air Test: All sanitary sewers shall pass an air test in conformance with Section 31 of the "Standard Specifications for Water and Sewer Construction in Illinois". The sewer shall be tested at an initial pressure of 3.5 psig above the level of the ground water, and the time for a pressure drop of 1 psi shall be determined. The time for the pressure drop to occur shall not be less than that specified by the "Standard Specifications for Water and Sewer Construction in Illinois".
2. Deflection Test: All PVC sanitary sewers shall pass a mandrel test in conformance with Section 31 of the "Standard Specifications for Water and Sewer Construction in Illinois".
3. Televising: The Contractor shall provide the Public Works Department a current color video record and a type written transcription of the internal inspection of the newly constructed sewer system. This shall be submitted prior to refunding of site improvement escrow retention monies by the Village of South Elgin and final approval and acceptance of the system. **All public and private lines equal to and larger than 8" in diameter shall be videotaped.** The contractor must rotate the lens of the camera to look at all services. The service connections must be noted in the television report. When the proposed sanitary sewer system is to connect to an existing sanitary sewer system abutting the property, the existing sewer must also be televised and reported. The contractor shall coordinate the televising of existing contiguous sewers with the

Public Works Director. Costs associated with this work shall be borne by the contractor.

4. Acceptance Inspection: Prior to Board acceptance of public sewers, the Village of South Elgin Public Works Department must inspect and approve the improvement. A punch list of items that require corrective action will be generated, and the developer will coordinate resolution efforts and schedule a re-inspection. Following approval, the acceptance process may proceed. Acceptance inspections will be coordinated through the Public Works Department.

5. Maintenance Inspection: Prior to the release of a maintenance guarantee, the Village of South Elgin Public Works Department will re-inspect and approve the condition of the sewer improvement. This inspection is performed after a minimum of one year, at the developer's request, or following notification from the financial lending institution that the expiration date for the maintenance letter of credit is approaching. A punch list of items that require corrective action will be generated, and the developer will coordinate resolution efforts and schedule a re-inspection. Following approval, the maintenance guarantee will be released. The release of the maintenance guarantee shall be coordinated with the Public Works Department.

B. Water Distribution System: The mandatory inspection of water main improvements throughout the Village of South Elgin will be performed to ensure that the project is being constructed in accordance with the approved Final Engineering plans, and to determine if minimum construction and material standards are achieved. If the developer or contractor desires to deviate from the approved plan or does not feel that minimum construction standards are being satisfied, he/she is responsible for contacting the Village immediately. The Village of South Elgin will not accept a substandard product, and will not be responsible for any additional cost incurred by the developer / contractor as a result.

NOTE: Only Village of South Elgin personnel may operate public water main facilities. The contractor is not permitted to open, close, or adjust any public water valve for any reason. If an emergency situation arises, the contractor shall contact the Village of South Elgin Public Works Department immediately. Failure to follow these rules may result in severe penalties as allowed by law.

1. Required Testing: The following is a list of tests, which shall be required for water distribution system improvements in the Village of South Elgin. A representative of the Village of South Elgin Public Works Department shall supervise all tests. All tests shall be scheduled 48-hours in advance.

a. After a water main has been installed and before the water main has been placed into operation, the contractor shall “bag” or cover fire hydrants. The bag shall not be removed until after the main has become operational. All hydrants shall be placed to face the road.

b. Flushing: Flushing of all water system improvements will be performed to create a minimum pipeline velocity of 2.5’/per second.

c. All tests shall be scheduled 48 hours in advance.

d. Disinfection: All water mains shall pass a disinfection test in conformance with AWWA C65186. The following test criteria shall be met:

- i. 50-ppm initial chlorine concentration (chlorine gas only)
- ii. 25-ppm residual chlorine concentration (after 24-hour duration). Sample must be extracted under the supervision of a Village of South Elgin representative and analyzed by a laboratory of the Villages choice.
- iii. Sampling will be performed on two consecutive days, 24-hours apart.

e. Leakage Test: All public water main improvements shall pass a leakage test. Allowable leakage in gallons per hour may not exceed that determined by the following:

- High PSI Test of 150 PSI for 1 hour with no loss using a 2-pound increment gauge
- The Village guideline for allowable leakage is 1 gallon/inch of pipe per 1,000 linear feet of pipe per day (24 hours).

f. Pressure Diameter Test:

All public water main improvements shall pass a pressure test in conformance with the requirements of ANSI/AWWA C600-87 Section 4, and the Testing requirements shall follow the “Standard Specifications for Water and Sewer Main Construction in Illinois”, latest edition.

The contractor shall, after installation of the water main system or parts thereof, pressure test and chlorinate the new system. A 1-hour pre-test must be made and passed by the Contractor before scheduling the pressure test with the Village. The main shall then be pressure tested at 150 PSI for a duration of 1-hours using a 2-pound increment gauge in the presence of a representative of the Village of South Elgin Public Works Department. If a scheduled pressure test does not pass because of the failure of the Contractor to hold a pre-test, the Village may charge a re-inspection fee to the

Contractor. Any other water main work will be halted until the re-inspection fees have been paid.

After a successful pressure test, the main shall be chlorinated by a qualified technician. Samples shall be taken on 2 consecutive working days, Monday through Thursday, 24-hours after chlorination, and after the main has been flushed. A Village representative shall determine the number of samples taken. A Village of South Elgin representative must be present for the pressure testing, chlorination, flushing, and drawing of the sample. The contractor shall bear the costs of these tests and re-inspection fees. If after four (4) samplings, the results do not yield two (2) consecutive satisfactory readings, a re-chlorination will be necessary. Only the Village of South Elgin Public Works Department shall make the water system operational after receiving satisfactory lab reports from a qualified testing lab.

NOTE: The Village will take the water sample and the contractor will deliver the sample to the lab.

g. All private fire service lines shall pass a pressure test in conformance with the requirements of ANSI/AWWA C600-87 Section 4. The following test criteria shall be met:

- High PSI Test of 150 PSI for 1 hour with no loss using a 2-pound increment gauge which shall be supplied by the contractor.
- The Village guideline for allowable leakage is 1 gallon/inch of pipe per 1,000 linear feet of pipe per day (24 hours).

2. Inspections:

a. Notice: The developer or contractor shall contact the Village of South Elgin Public Works Department a minimum of 48-hours in advance of a scheduled inspection. The developer or contractor shall contact the Village of South Elgin Community Development Department a minimum of 24-hours in advance to schedule a plumbing inspection for each water service and water service tap.

b. Acceptance Inspection: Prior to Board acceptance of a public water main, the Village of South Elgin Water Division must inspect and approve the improvement. A punch list of items, which require corrective action, will be generated, and the developer will coordinate resolution efforts and schedule a re-inspection. Following approval, the acceptance process may proceed. Acceptance proceedings will be coordinated through the Public Works Department.

c. Maintenance Inspection: Prior to the release of a maintenance guarantee, the Village of South Elgin Public Works Department must inspect and approve the condition of the water main. This inspection is performed just prior to 1-year from the date of Village Board acceptance of the improvements. This will be at the developer's request, or following notification from the financial lending institution that the expiration date for the maintenance letter of credit is approaching. A punch list of items, which require corrective action, will be generated, and the developer will coordinate resolution efforts and schedule a re-inspection. Following approval, the maintenance guarantee will be released. The release of the maintenance guarantee shall be coordinated with the Public Works Department.

d. B-Boxes: Upon completion of the project, the B-boxes will be adjusted to grade, and checked to see if they are operational without altering the shutoff key. Locations of the B-box with measurements to the property lines shall be supplied to the Public Works Department and shown on the as-built plans for the project. The Public Works Department for locating B-boxes will issue a charge. B-box locations shall be stamped on the curb/sidewalk with a "W".

C. Pavement and Roadways: Inspection of roadway and paving projects throughout the Village of South Elgin will be performed to ensure that traffic control is in place and functional, that the project is being constructed in accordance with the approved Final Engineering plans, and to determine if minimum construction and material standards are achieved. If the developer or contractor desires to deviate from the approved plan or does not feel that minimum construction standards are being satisfied, the Contractor is responsible for contacting the Village of South Elgin immediately. The Village of South Elgin will not accept a substandard product, and will not be responsible for any additional cost incurred by the developer / contractor as a result.

1. Inspections:

a. Notice: The developer or contractor shall contact the Village of South Elgin Public Works Department a minimum of 48-hours in advance of a scheduled inspection.

b. Acceptance Inspection: Prior to Board acceptance of a public roadway, the Village of South Elgin Public Works Department must inspect and approve the improvement. A punch list of items, which require corrective action, will be generated, and the developer will coordinate resolution efforts and schedule a re-inspection. Following the Public Works Department approval, the acceptance process may proceed. New pavement will be tested by a Village appointed consultant to ensure that the structural strength of said pavement will provide a minimum of

twenty (20) years of service life after acceptance. The cost for said testing shall be borne by the developer. This testing shall be completed and approved the Village immediately prior to placement of the final surface course of asphalt.

c. Curb Inspection: An inspection is required for all curb work in the public right-of-way. The contractor shall contact the Village of South Public Works Department 24-hours in advance of the scheduled pour. A Public Works representative must inspect and approve the base, forms, alignment, and location, and expansion material prior to the pour.

d. Sidewalk Inspection: An inspection is required for all public sidewalks. The contractor shall contact the Village of South Elgin Community Development Department 24-hours in advance of the scheduled pour. A Community Development Department representative must inspect and approve the sidewalk base, forms, alignment, and expansion material prior to the pour.

e. Compaction Test: Compaction tests of the sub-base, base, and surface courses of the pavement shall be made by a qualified testing lab (approved by the Village of South Elgin), and must be made in the presence of a representative of the Village of South Elgin Public Works Department. The developer/contractor shall bear the cost of the testing. The shape and thickness of the pavement base and sub-base must be checked and approved by a representative of the Village of South Elgin Public Works Department before the placement of the next course. Prior to the placement of the surface course, a preliminary punch list generated by the Village of South Elgin Public Works Department must be completed by the contractor.

f. Maintenance Inspection: Prior to the release of a maintenance guarantee, the Village of South Elgin Public Works Department will re-inspect and approve the condition of the roadway. This inspection is performed after a minimum of one year, at the developer's request, or following notification from the financial lending institution that the expiration date for the maintenance letter of credit is approaching. A punch list of items, which require corrective action, will be generated, and the developer will coordinate resolution efforts and schedule a re-inspection. Following the Public Works Department approval, the maintenance guarantee will be released.

SECTION X
ENGINEERING DETAILS

ENGINEERING DETAILS LISTING

The pages following this list are engineering drawing details:

BENCH

BIKE RACK

BOLLARD

CASING PIPE DETAIL

CATCH BASIN DETAIL

CONCRETE CURB & GUTTER – Type B – 4.12 (SPECIAL) & Type B – 6.12 (SPECIAL)

CONCRETE GUTTER (SPECIAL)

CONCRETE CURB & GUTTER REMOVAL and REPLACEMENT

CURB CUT DETAIL

DECORATIVE SIGN FOUNDATION DETAIL

DETECTABLE WARNING DETAIL

DETECTABLE WARNINGS – TRUNCATED DOME DETAIL

DITCH CHECK CONTROL

DRAINAGE PROTECTION

DRINKING FOUNTAIN

DRIVEWAYS

DROP MANHOLE DETAIL

EROSION CONTROL BLANKET (Details 1 & 2)

EROSION CONTROL BLANKET (Details 3, 5 & Staple Detail)

FIRE HYDRANT INSTALLATION

GATEWAY SIGN

GRASS SEED

INLET PROTECTION FILTER

LIGHTING (VILLAGE CENTER - STANDARD 1)

LIGHTING (VILLAGE CENTER - STANDARD 2)

LIGHTING (VILLAGE CENTER - STANDARD 3)

LIGHTING (VILLAGE STANDARD)

METAL SITE FURNISHINGS

ORNAMENTAL FENCE

P.C.C. SIDEWALK

PIPE DRAINS 6" (SPECIAL)

PIPE INSULATION DETAIL

PIPE OUTLET/RIPRAP DETAIL

PIPE UNDERDRAINS 4"

PLANTER, 18" ht.

PLANTER, 24" ht.

**PRECAST
CONCRETE**

PVC PIPE TRENCH DETAIL

QUARRY STONE

RCP & DIP TRENCH DETAIL

RECTANGULAR RAPID FLASHING BEACON ASSEMBLY (COMPLETE) DETAIL

RESTRICTOR STRUCTURE

SACRIFICIAL ANODE AND CONNECTION

SANITARY AND STORM SEWER MANHOLE COVER

SANITARY MANHOLE DETAIL

SANITARY SEWER CONNECTION TO EXISTING MANHOLE

SANITARY SEWER SERVICE REPLACEMENT

SIDEWALK STREETScape DETAIL

SIGN POST BASE COVER

SIGN POST BASE

SILT FENCE

STANDARD VALVE VAULT DETAIL

STORM MANHOLE RESTRICTOR

STORM MANHOLE – TYPE A & B

STREET NAME SIGN

THRUST BLOCK INSTALLATION

WASTE RECEPTACLE

WATER MAIN RELOCATION DETAIL

WATER MAIN TRENCH DETAIL – (Paved Areas)

WATER MAIN TRENCH DETAIL – (Non-Paved Areas)

WATER REPAIR CLAMPS

WATER SERVICE CONNECTION SADDLE DETAIL

WATER SERVICE RECONNECTION DETAIL

WATER SYSTEM DETAIL

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Commercial Steel Outdoor Bench with Straight Back

SALE



Model CBPB-6SB-BK

Beauty & Quality

This classic style heavy-duty steel bench is built to last. Manufactured to withstand the rigors of commercial use, the backrest and seat are constructed from 1-9/16" x 3/16" welded steel bars while the arms and legs use 2" x 1/2" steel.

Dimensions: 74"L x 24.25"W x 33"H

This imported bench is perfect for any indoor or outdoor setting. Its solid textured powder-coated finish will provide full protection against rust and corrosion for years. Simple and easy four piece six bolt assembly. Stainless steel security hardware is included.

Matching Products

SALE



**Flat Park Bench
with Armrests**

SALE



**Verona Series
Recycling Receptacle**



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that are *QuickShip* Ready.

Color Options



black
river finish

▼ Item Specific Details Available on Linked Model Numbers Below



Commercial Steel Outdoor Bench 6' Length				Was	Special	Qty
CBPB-6SB-BK	(1 to 5 Units)	Black (River Finish)	(179 lbs)	\$935.00	\$850.00	v
CBPB-6SB-BKB	(6 to 12 Units)	Black (River Finish)	(179 lbs)	\$924.00	\$840.00	v
CBPB-6SB-BKC	(13 to 24 Units)	Black (River Finish)	(179 lbs)	\$913.00	\$830.00	v
CBPB-6SB-BKD	(25+ Units)	Black (River Finish)	(179 lbs)	\$902.00	\$820.00	

Optional Accessories				Was	Special	Qty
CBPB-6WBA-BK	Center Arm	Black	(8 lbs)	\$64.00	\$58.00	

(Prices F.O.B. Origin)
Some Assembly Required

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Related Products



Commercial Steel
Park Bench with
Curved Back



Commercial Steel
Trash Receptacle with
Flare Top



Park Master
Aluminum
Picnic Tables



Gloss Black Finish
'U' Bike Rack

[Previous Product](#)

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Standard Inverted 'U' Bike Rack



Model 5801SM | [Video](#)

Dimensions

Model 5801S - 14-3/8"W x 36"H*

Model 5801SM - 17"W x 36"H

*In-ground Mount is From Grade when Installed

With exceptional support for the whole bicycle, frame and wheel, using just a single U-Lock. This storage rack supports each bicycle in a stable upright position and holds up to two bicycles, one on each side.

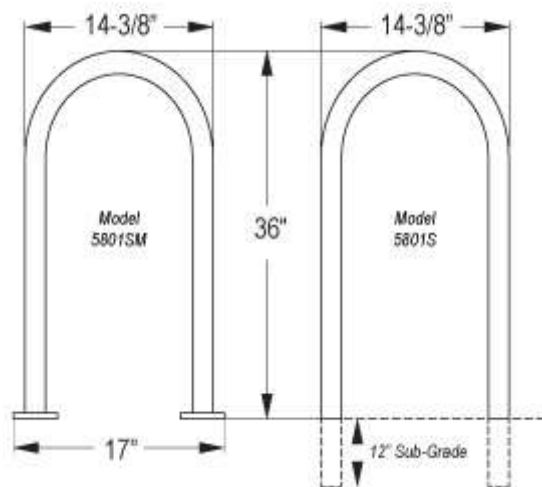
Constructed with 2-3/8"O.D. steel tubing that is finished with an ultra-durable powder-coated finish in the any of the color selections as shown.

Please Note

Optional Grout Covers are not available in Galvanized Finish.

The Standard of Bike Parking

The Standard Inverted 'U' Bike Rack provides economical, convenient and safe bicycle parking which is great for places where appearance is important but economy is a consideration.



Matching Products



Thermoplastic Coated
Park Bench



Rectangular Steel
Picnic Tables

Galvanized Finish

The hot dip galvanizing process results in an effective corrosion resistant surface with multi-varied spangle appearance.

Free Freight

Models Listed Below Qualify for Free Freight!

Offer not valid with any other promotion or discount. All orders must ship when ready. [Freight Terms](#).



▼ Item Specific Details Available on Linked Model Numbers Below



Standard Inverted 'U' Bike Rack						Qty
5801S	In-ground Mount	Choose Color ▼	(24 lbs)	\$293.00		
CVR-238	Optional Covers - 2 Covers Required Per Rack - \$42/each				☐ No ☐ Yes	
5801SM	Surface Mount	Choose Color ▼	(29 lbs)	\$321.00		
CVR-238	Optional Covers - 2 Covers Required Per Rack - \$42/each				☐ No ☐ Yes	

(Prices F.O.B. Origin)

[Bulk Inquiry](#)

Add to Cart

Related Products



Expanded Steel
Trash Receptacles



Precast Concrete
Drinking Fountain



Architectural
Concrete Planter



Hip Rectangular
Shade Structure

Previous Product

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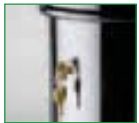
Annapolis stands its ground and performs multiple maneuvers with style. This new bollard functions as a defining element to mark pathways and direct pedestrian traffic; as a safety barrier to protect pedestrian areas from vehicular traffic; and as a security bulwark against intentional, destructive trespass. Constructed of half-inch sheet steel in 6" or 12" diameters, it is exceptionally strong. Annapolis is designed to complement the range of Landscape Forms'



furniture for outdoor spaces. A removable bollard option provides site flexibility. Other smart options include a polyethylene sleeve that protects it from dents and scratches, and lighting that sheds a soft glow.

Annapolis Bollard Specifications

Annapolis bollards are constructed of a structural steel tube body with a cast aluminum top and a spun aluminum base ring. Bollards securely embed in 18" of concrete. The removable version is secured in an embedded steel socket. Annapolis is available in 6" or 12" diameter, with or without low voltage lighting. A protective polyethylene sleeve is available in three standard colors – Grotto, Ivy, or Silver. Custom color sleeves are available on orders of 50 or more for an upcharge. A removable bollard option is also available to provide additional site flexibility. This bollard comes with a keyed lock for security and a cover plate that stores within the base when the bollard is fixed. On removal, the cover plate fits flush with the surface and is secured with a chain. The embedded socket and cover plate are constructed of hot dip galvanized steel. All other metal is finished with Landscape Forms' proprietary Pangard II® polyester powdercoat, a hard yet flexible finish that resists rusting, chipping, peeling and fading. Call for a standard color chart.



		
6" x 33"	12" x 33"	dia. x h
		outer sleeve

Our purpose is to Enrich Outdoor Spaces

We believe in the power of design and its ability to influence and elevate the quality of public space. High quality products and outstanding customer experience makes us one of the world's premier designers and manufacturers of outdoor commercial furnishings.

www.landscapeforms.com

Visit our website for product details, color charts, technical sheets, sales office locations. Download JPG images, brochure PDF, CAD details, CSI specifications.

Annapolis is designed by Brian Kane, IDSA.
Specifications are subject to change without notice.
Annapolis is manufactured in U.S.A.
Location photography: Kalamazoo College, Kalamazoo, MI
Landscape Forms supports the LAF at the Second Century level.
©2003 Landscape Forms, Inc. Printed in U.S.A.

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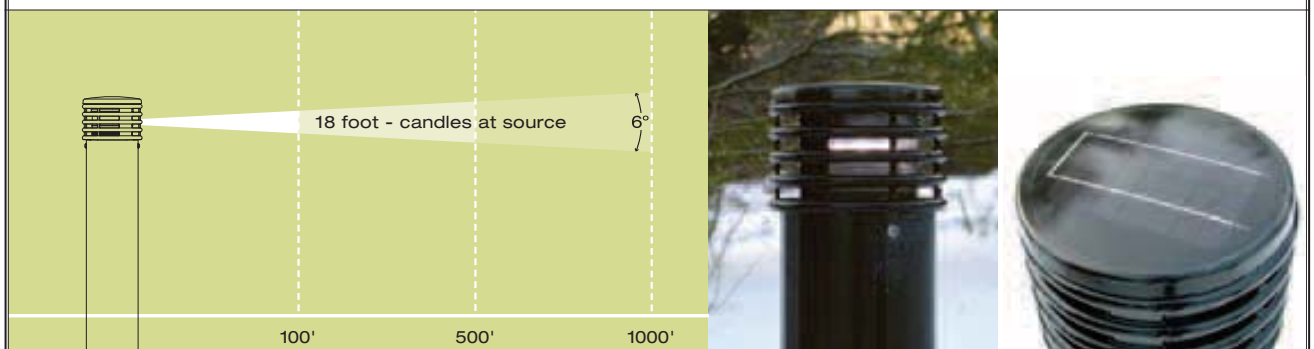
ANNAPOLIS SMART BOLLARD

Annapolis™ Smart Bollard is the first bollard with integrated solar powered lighting provided by advanced light-emitting diode (LED) technology. This bollard is not just the smartest in its class. It's in a class all its own.

Smart Bollard was developed in response to customer requests for a lighted bollard designed for use in areas where wiring is unfeasible or inconvenient, or where security concerns demand lighting that is off the grid. It is a reliable, economical, energy-saving solution for marking pathways, dividing pedestrian and vehicular traffic, and providing security in settings ranging from corporate and university campuses to urban streetscapes.

Smart Bollard adds new function to a familiar form. It integrates a completely self-contained solar-powered LED lighting unit, encapsulated in a durable weatherproof polycarbonate/polymer housing, into the standard 6" diameter Annapolis bollard.

Smart Bollard casts directional light above the ground. Its sixteen white LEDs provide 360° visibility with a range exceeding one mile. Because it requires no wiring, Smart Bollard breaks new ground as the first removable bollard with integrated lighting.



landscapeforms®

The Benefits of Being Smart:

- **Smart Bollard is solar powered.** It is environmentally responsible in its reliance on sustainable energy. And the absence of wiring saves on installation, maintenance and energy costs.
- **Smart Bollard is off the grid.** In case of power emergencies due to natural or man-made causes, it just glows on.
- **Smart Bollard is intelligent.** Microprocessor technology automatically turns lights on at dusk and off at dawn. An "intelligent energy management system" calibrates light output to the amount of energy in storage to ensure uninterrupted function.
- **Smart Bollard is efficient.** LED light is generated by tiny silicon chips which require a much smaller electrical current than incandescent bulbs, waste almost no energy through heat dissipation. And high-intensity LEDs typically enjoy over 100,000 hours of life. As a result, they are 100 times as efficient at producing light as incandescent bulbs and last about 20 times longer.
- **Smart Bollard is state of the art.** The completely unitized light, which has no internal moving parts, is environmentally sealed in a clear, patented polymer dome that traps sunlight and protects the solar panel from damage and dirt. This solar powered LED lighting technology was developed for commercial navigation where durability and reliability are the bottom line. Its crystalline solar panel has been tested under extreme environmental conditions and is up to 14% more efficient than solar panels used in consumer products. These lights are used by the US armed forces and in industrial/commercial applications, including buoys, piers, wharves and aquaculture facilities, around the world.

How the Annapolis Smart Bollard Works:

The solar panel in the light collects energy from the sun and converts it to electrical current. Energy is stored in a sealed lead-acid rechargeable battery that provides a large energy capacity for its size and delivers extremely reliable power output over a long period of time. (*expected battery life is five years*) The solar panel begins charging at dawn and discharging at dusk when the light automatically goes on.

Location Selection

Smart Bollard requires adequate sunlight and suitable ambient temperature to function effectively. It is a viable solution for areas with an average of at least 3 hours or more sunlight per day year round, at latitudes within 55° North or South, and at a temperature range of -40° F to 176° F. Care must be taken in the placement of units. Even in sunny locations the light will not function if the bollard is in the shade for most of the day. Under typical conditions, Smart Bollard will run for up to 15 hours per day and require three hours daylight to recharge. With a fully charged battery, under extreme weather conditions, Smart Bollard can operate for up to 150 hours without recharging.

Warranty

Smart Bollard is a Landscape Forms product that meets the company's stringent standards of quality, durability and performance. It is covered by the Landscape Forms three-year warranty. After the warranty period, customers can return the solar unit to Landscape Forms and receive \$50.00 off the purchase of a replacement unit.

Specifications:

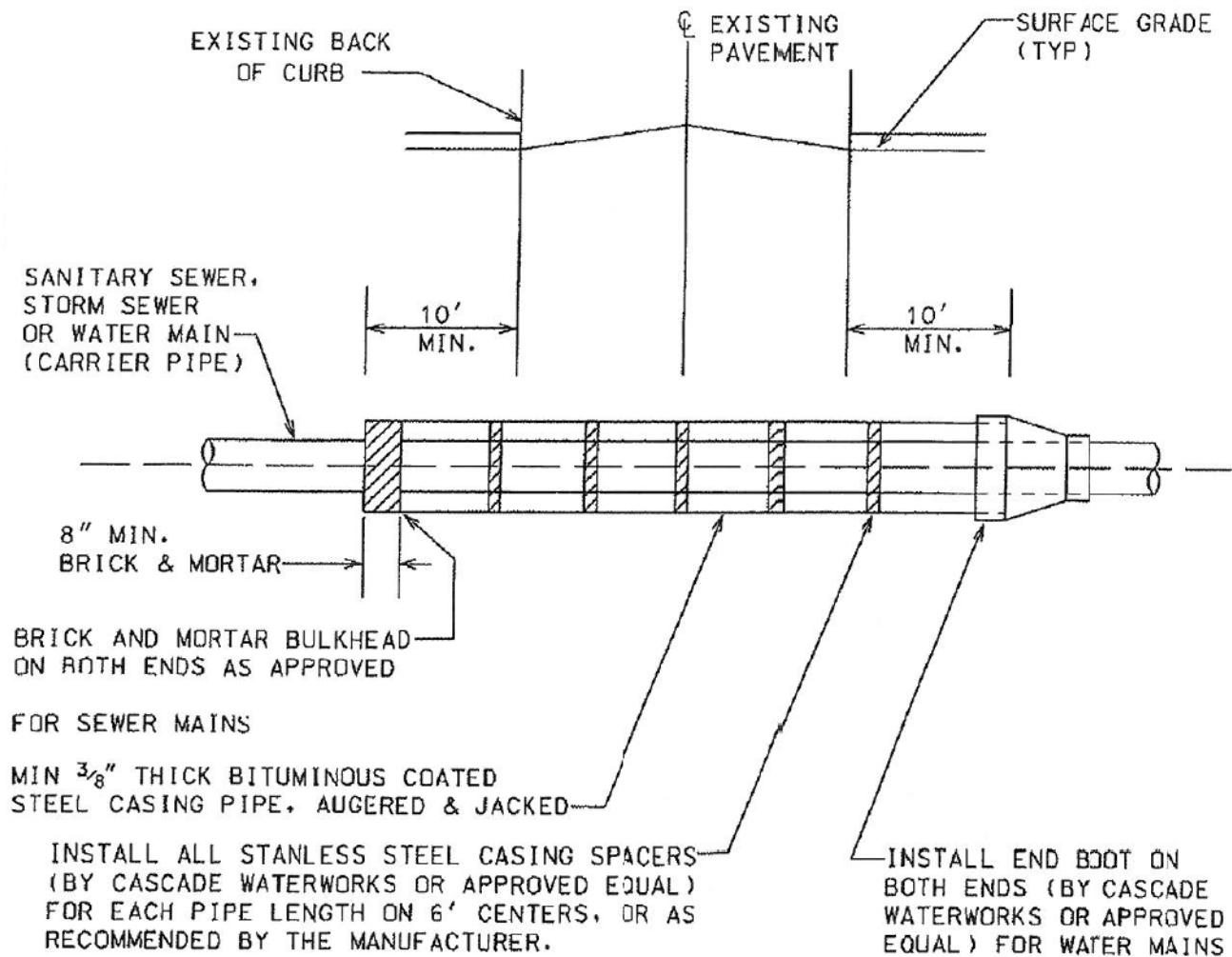
Sizes	6" diameter x 33" high
Bollard Tube	structural steel
Bollard Top	aluminum casting
Optional Protective Sleeve	polyethylene
Metal Finish	Pangard II® Powdercoat. Standard, optional and customs colors available.
Mounting	6" diameter embedded or removable with embedded socket.

Solar Light Specifications:

Solar Lighting Components	encapsulated in patented domed polycarbonate housing
Light Output Effective Intensity	~2 candela
Light Output Nominal Night Range	~1.5 NM
Horizontal Output	360°
Minimum Autonomy	150 hours
Min. Equivalent Peak Sun Hours to Maintain Min. Autonomy	3 hours
Latitude Range	55° S to 55° N
On/Off Level	70/100 lux
Illumination Technology	16 White LEDs
Lifespan of LEDs	Up to 100,000 hours
Solar Panels	Mono-Crystalline/Potted with UV-protected polyurethane and domed for higher efficiency
Maximum Power	1.4 Watts
Efficiency	14%
Battery	Pure-lead thin plate with starved electrolyte
Nominal Voltage	4 Volts
Capacity	5 Amp-hr at 10-hr discharge rate
Lens Material	Polycarbonate
Weight	4.0 lbs
Temperature Range	-40° F to 176° F
Waterproof/Explosion Resistant/CE Approved	

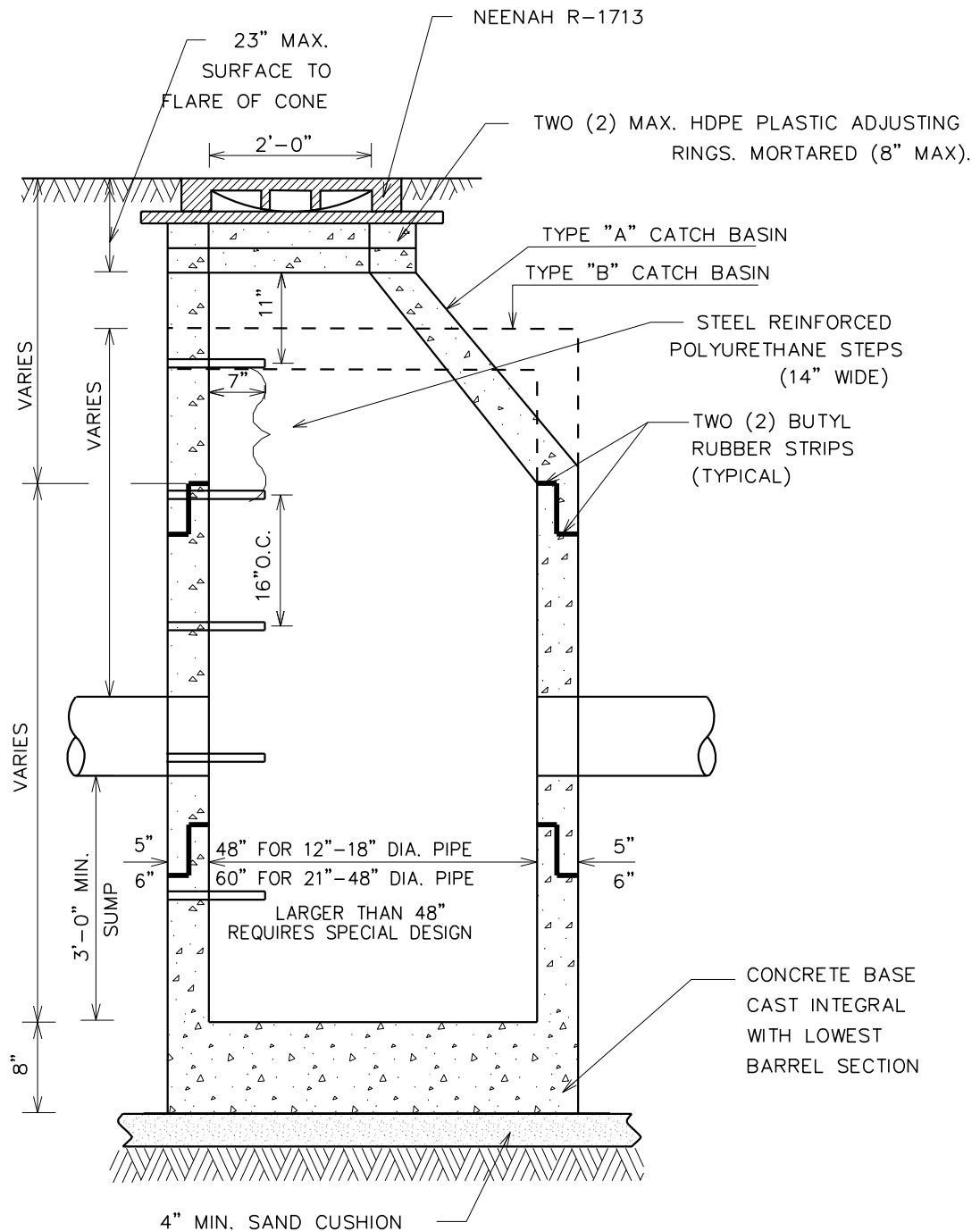


Annapolis Smart Bollard sealed light with solar panel is protected by U.S. Patent No. 6,013,985 and U.S. Patent No. 6,573,659



NOTES:

1. CASING PIPE IS REQUIRED UNDER ALL EXISTING ROADWAYS, OR AS OTHERWISE DIRECTED BY THE DIRECTOR OF PUBLIC WORKS WHERE OPEN CUTS ARE NOT PERMITTED, EXCEPT FOR WATER SERVICE LINES UP TO 2" IN DIAMETER.
2. WATER MAIN CASING SPACERS SHALL BE RESTRAINED IN POSITION.
3. THE INSIDE DIAMETER OF THE CASING PIPE SHALL BE DETERMINED BY CONTRACTOR BUT IN NO CASE SHALL IT BE LESS THAN 8" LARGER THAN THE DIAMETER OF THE CARRIER PIPE TO ALLOW AMPLE SPACE FOR BELLS, AND CARRIER PIPE SLOPE (FOR GRAVITY PIPE).
4. ALL AUGER PITS TO BE BACKFILLED WITH IDOT CA-7 VIRGIN CRUSHED LIMESTONE MATERIAL.
5. POLY WRAPPED WATER MAIN REQUIRED IN CASING.



NOTES:

1. MANHOLES MUST CONFORM TO ASTM C-478.
2. MANHOLE SECTIONS TO BE TONGUE AND GROOVED.
3. NON-PRECAST OPENINGS SHALL BE CORED AND RUBBER BOOTED.
4. MORTAR ALL PENETRATIONS INSIDE AND OUTSIDE OF STRUCTURE.
5. IN "SUBMERGED" CONDITIONS, ALL PIPE PENETRATIONS TO BE CORED, RUBBER BOOTED AND INTERIOR MORTARED.
6. PRIOR TO THE PLACEMENT OF FINAL LAYER OF ROADWAY, FRAMES AND ADJUSTING RINGS LOCATED WITHIN PAVED AREAS SHALL BE SET IN AN IDOT APPROVED CONCRETE "S1" MIXTURE.

1/2" DEPRESSED CURB
AT SIDEWALK RAMP AND
1 1/2" DEPRESSED CURB
AT DRIVEWAYS

PARKWAY SHALL BE
BACKFILLED WITH SAND
OR MATERIAL APPROVED
BY THE ENGINEER AND
SHALL BE INCLUDED IN
THE CURB AND GUTTER
CONSTRUCTION. DRIVEWAYS
SHALL BE BACKFILLED WITH AN
APPROVED GRANULAR MATERIAL
AS TEMPORARY PAVEMENT AND SHALL
BE PAID FOR AS TEMPORARY ACCESS.

2-NO.4 (1/2") CONTINUOUS
REINFORCING BARS (INCLUDED IN
CURB AND GUTTER CONSTRUCTION)
(SEE NOTE 4)

AGGREGATE BASE COURSE, TYPE B
- 4" (PAID FOR SEPARATELY)

BACKFILL WITH CA-6 CRUSHED STONE OR
GRAVEL FOR STREETS TO BE
RECONSTRUCTED OR CLASS SI CONCRETE
FOR STREETS TO BE OVERLAID.
(CONCRETE TO BE LEFT 2 1/2" BELOW
GUTTER FLAG) AGGREGATE OR CONCRETE
BACKFILL SHALL BE INCLUDED IN THE
GUTTER CONSTRUCTION.

NOTES:

1. PROVIDE A ONE-INCH EXPANSION JOINT EVERY 60 FEET AND AT ALL STRUCTURES.
2. PROVIDE CONTRACTION JOINTS EVERY 15 FEET TO A DEPTH OF 2 INCHES AND AT ALL POINTS OF CURVATURE.
3. STAMP CURB WITH "S", "W" AND "ST" AT SANITARY, WATER AND STORM SERVICE LOCATIONS.
4. CONTINUOUS REINFORCING BARS SHALL BE PROVIDED FOR ALL SECTIONS OF CURB AND GUTTER REMOVAL AND REPLACEMENT.

1/2" DEPRESSED CURB
AT SIDEWALK RAMP AND
1 1/2" DEPRESSED CURB
AT DRIVEWAYS

PARKWAY SHALL BE
BACKFILLED WITH SAND
OR MATERIAL APPROVED
BY THE ENGINEER AND
SHALL BE INCLUDED IN
THE CURB AND GUTTER
CONSTRUCTION. DRIVEWAYS
SHALL BE BACKFILLED WITH AN
APPROVED GRANULAR MATERIAL
AS TEMPORARY PAVEMENT AND SHALL
BE PAID FOR AS TEMPORARY ACCESS.

2-NO.4 (1/2") CONTINUOUS
REINFORCING BARS (INCLUDED IN
CURB AND GUTTER CONSTRUCTION)
(SEE NOTE 4)

AGGREGATE BASE COURSE, TYPE B
- 4" (PAID FOR SEPARATELY)

BACKFILL WITH CA-6 CRUSHED STONE OR
GRAVEL FOR STREETS TO BE
RECONSTRUCTED OR CLASS SI CONCRETE
FOR STREETS TO BE OVERLAID.
(CONCRETE TO BE LEFT 2 1/2" BELOW
GUTTER FLAG) AGGREGATE OR CONCRETE
BACKFILL SHALL BE INCLUDED IN THE
GUTTER CONSTRUCTION.

NOTES:

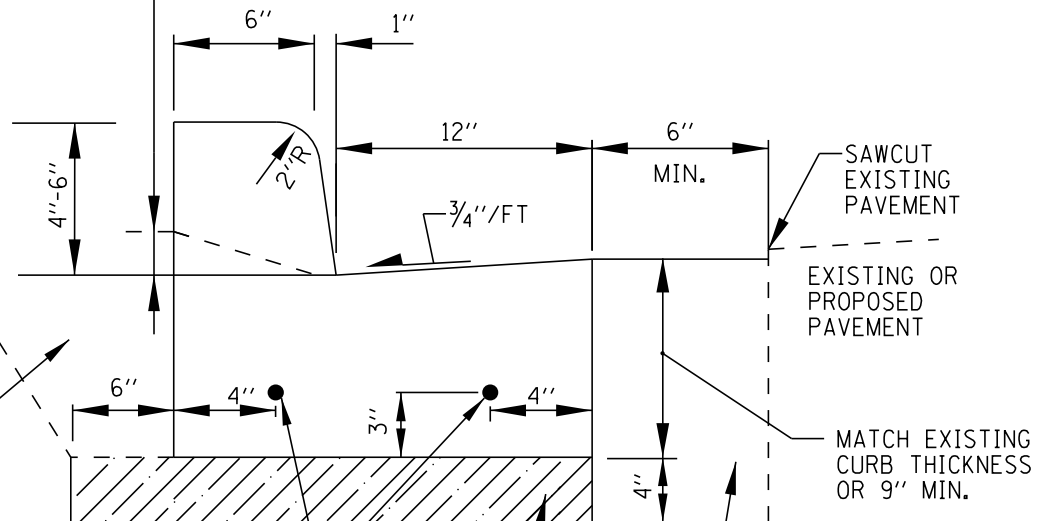
1. PROVIDE A ONE-INCH EXPANSION JOINT EVERY 60 FEET AND AT ALL STRUCTURES.
2. PROVIDE CONTRACTION JOINTS EVERY 15 FEET TO A DEPTH OF 2 INCHES AND AT ALL POINTS OF CURVATURE.
3. STAMP CURB WITH "S", "W" AND "ST" AT SANITARY, WATER AND STORM SERVICE LOCATIONS.
4. CONTINUOUS REINFORCING BARS SHALL BE PROVIDED FOR ALL SECTIONS OF CURB AND GUTTER REMOVAL AND REPLACEMENT.

COMBINATION CONCRETE CURB & GUTTER TYPE M-3.12 (SPECIAL)

REV 04/13/21
NOT TO SCALE

1/2" DEPRESSED CURB
AT SIDEWALK RAMP
1 1/2" DEPRESSED CURB
AT DRIVEWAYS

NOTE: PROPOSED CURB TO MATCH
EXISTING CURB TYPE. (VARIES
FROM TYPE M3-12 TO B6-12)



2-NO.4 (1/2") CONTINUOUS
REINFORCING BARS (INCLUDED IN
CURB AND GUTTER CONSTRUCTION)
(SEE NOTE 4)

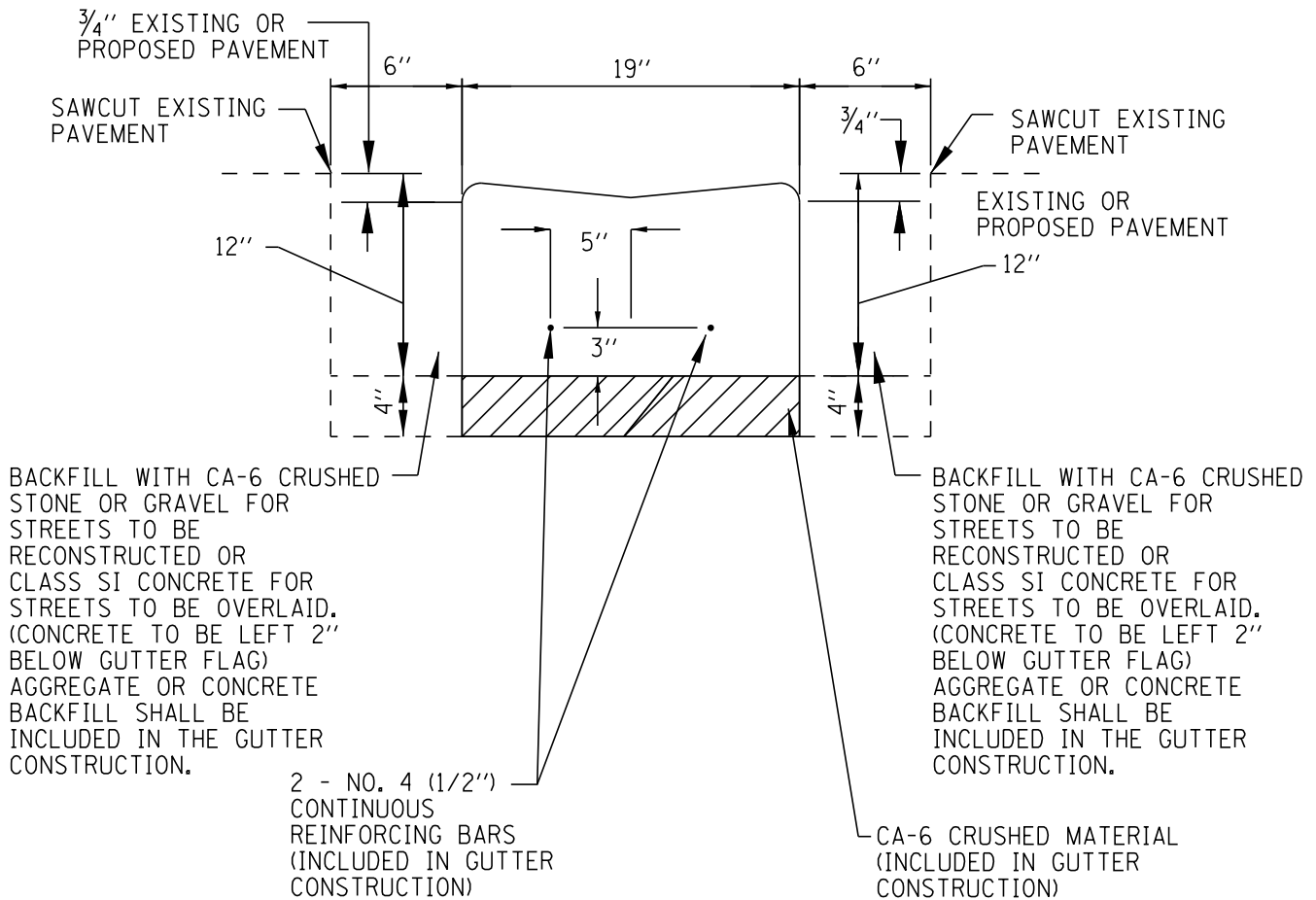
PARKWAY SHALL BE BACKFILLED WITH SAND OR MATERIAL
APPROVED BY THE ENGINEER AND SHALL BE INCLUDED IN
THE CURB AND GUTTER CONSTRUCTION. DRIVEWAYS SHALL
BE BACKFILLED WITH AN APPROVED GRANULAR MATERIAL
AS TEMPORARY PAVEMENT AND SHALL BE PAID FOR AS
TEMPORARY ACCESS.

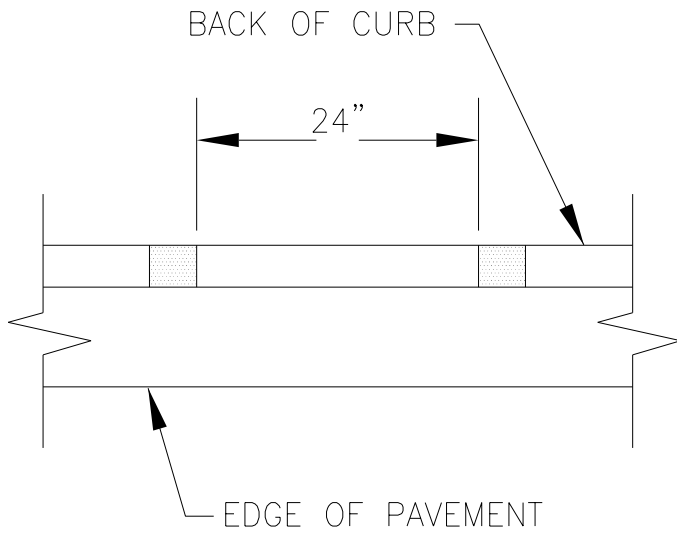
CA-6 CRUSHED MATERIAL
(INCLUDED IN CURB AND GUTTER
CONSTRUCTION)

BACKFILL WITH CA-6 CRUSHED STONE OR
GRAVEL FOR STREETS TO BE
RECONSTRUCTED OR CLASS SI CONCRETE
FOR STREETS TO BE OVERLAID.
(CONCRETE TO BE LEFT 1 3/4" BELOW
GUTTER FLAG) AGGREGATE OR CONCRETE
BACKFILL SHALL BE INCLUDED IN THE
GUTTER CONSTRUCTION.

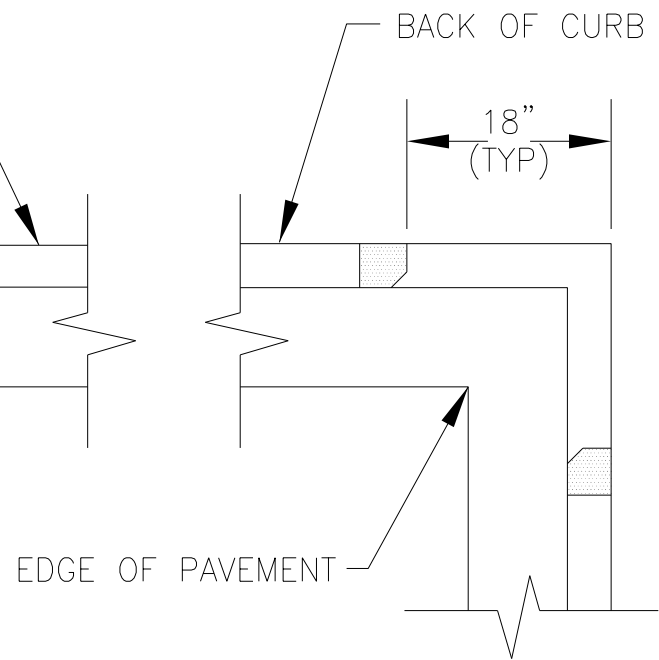
NOTES:

1. PROVIDE A ONE-INCH EXPANSION JOINT EVERY 60 FEET AND AT ALL STRUCTURES.
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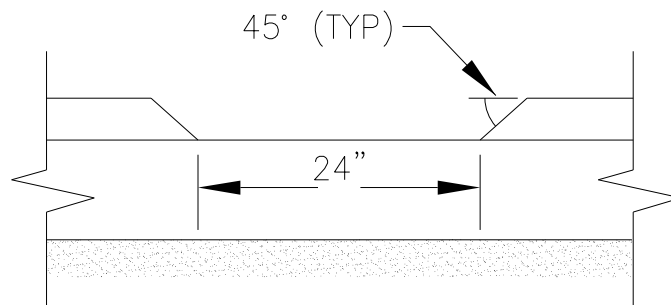




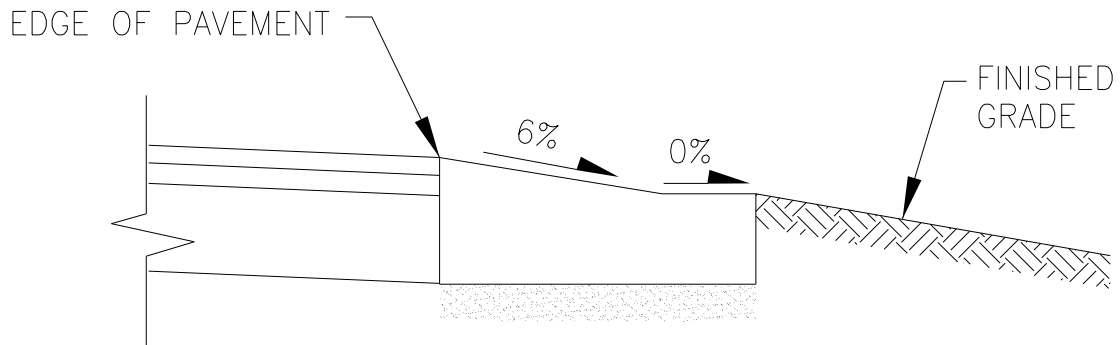
CURB CUT
PLAN



CURB CUT CORNER
PLAN



SECTION

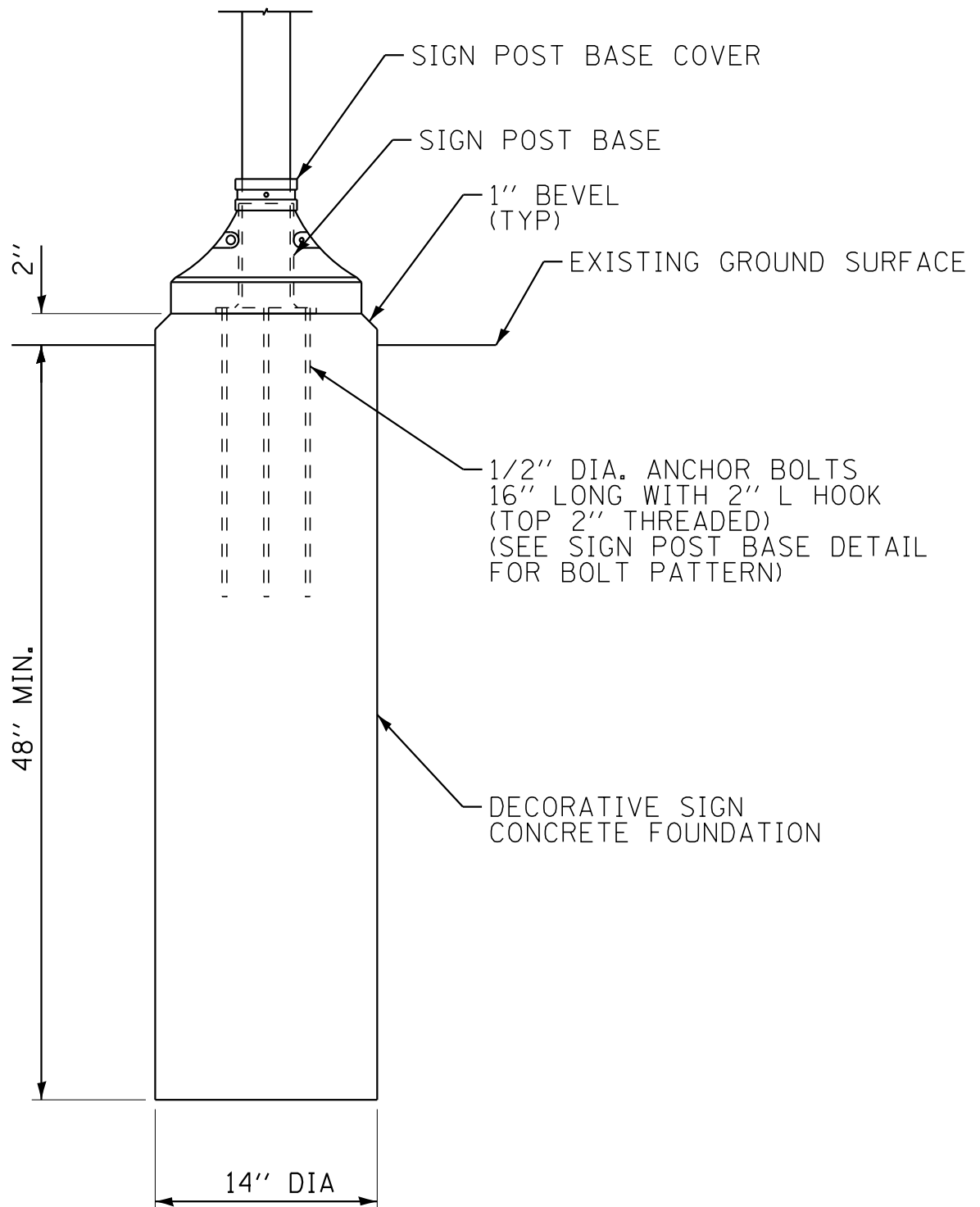


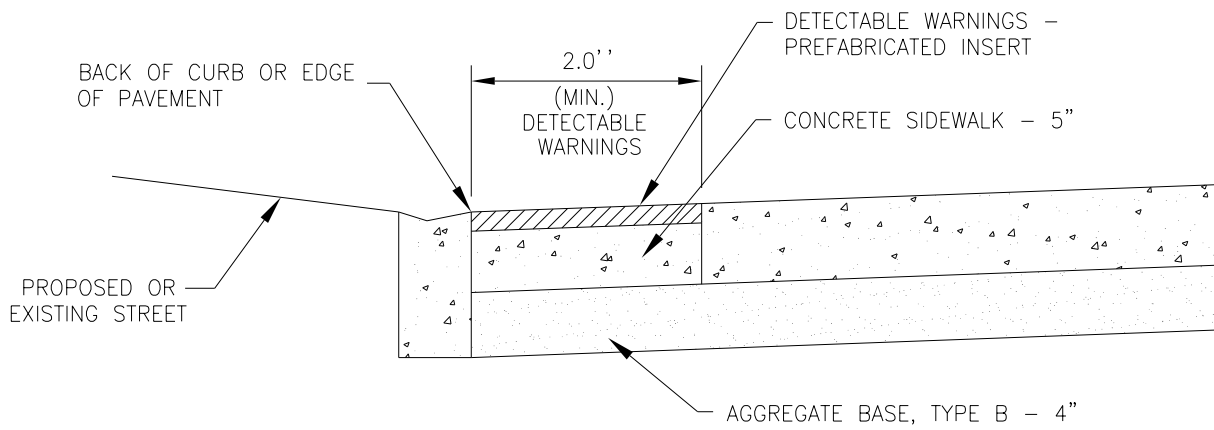
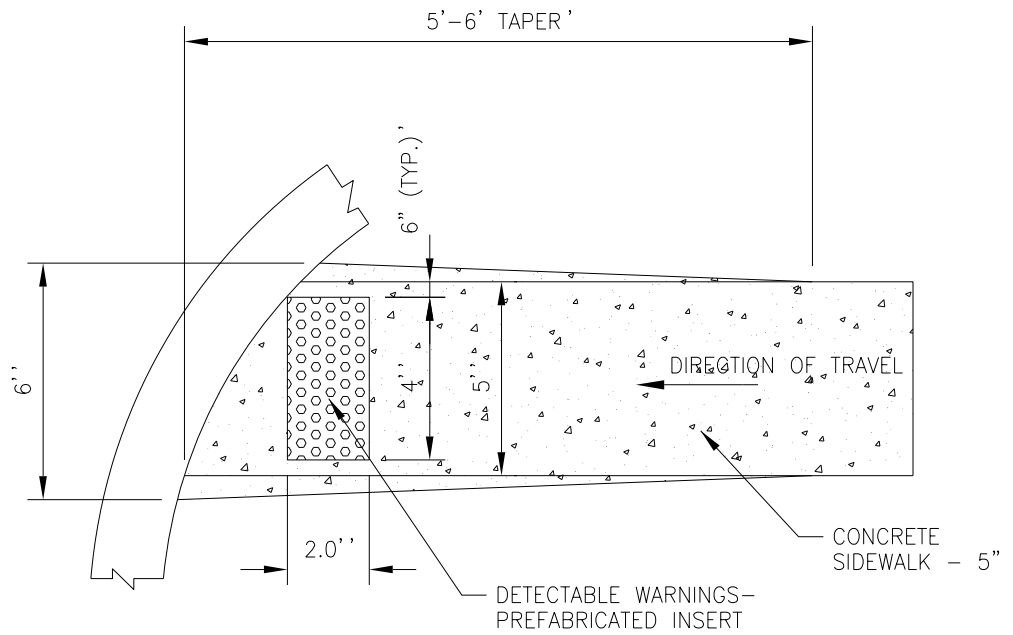
SECTION

NOTE: GRADES GIVEN AT CURB CUT LOCATIONS REFLECT TOP BACK OF CURB EXTENDED. NOT FLOW LINE ELEVATION.

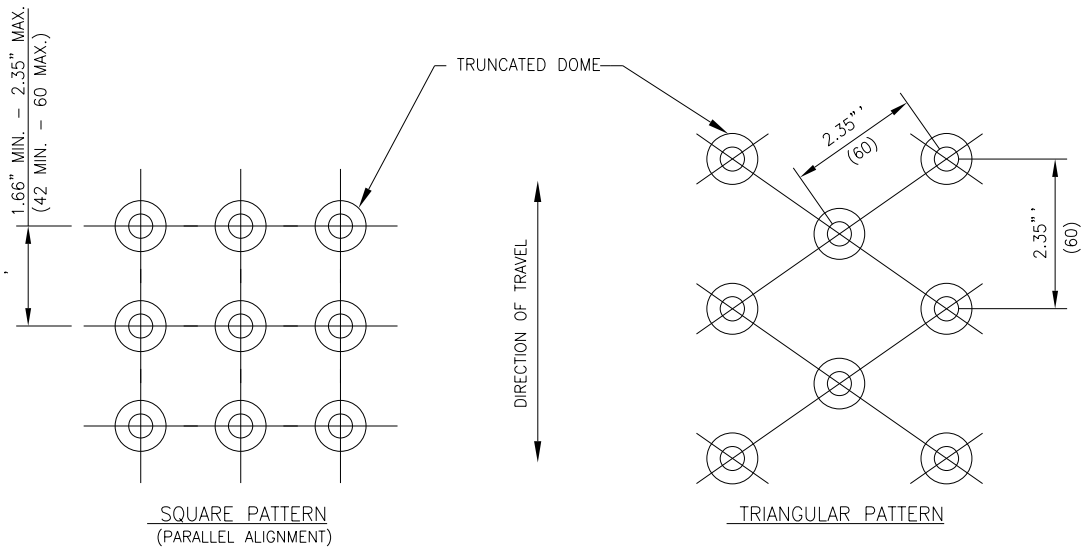
CURB CUT DETAIL

REV 01/01/14
NOT TO SCALE



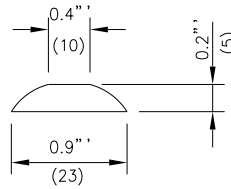


NOTE:
SEE IDOT STANDARD DETAILS OR PROWAG FOR
ALTERNATE CONFIGURATIONS.

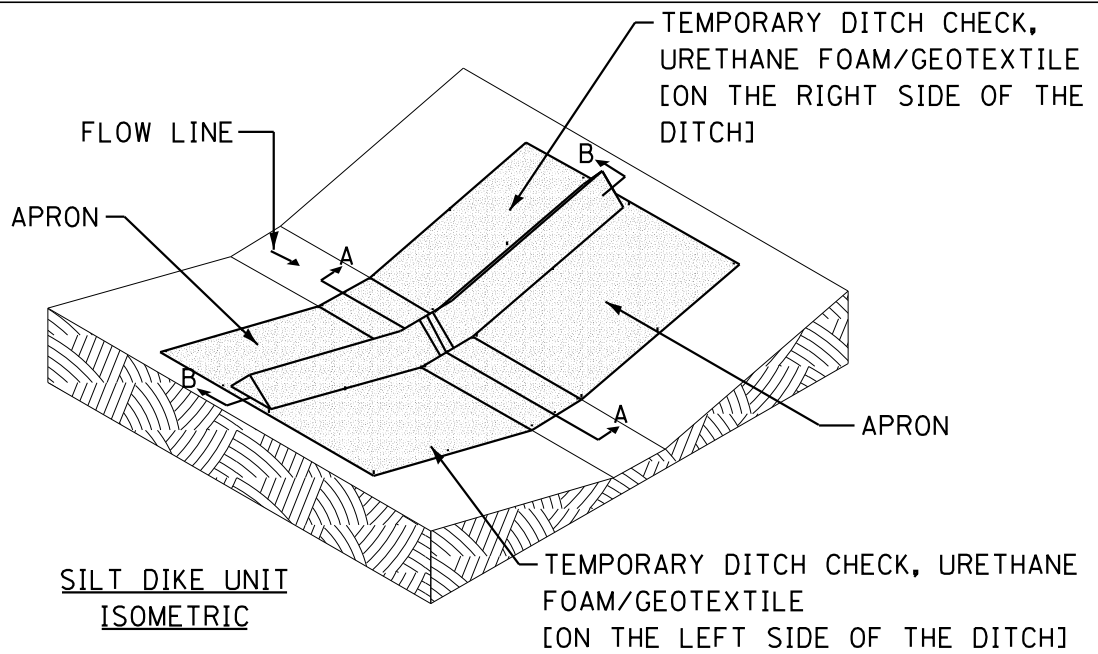


DETECTABLE WARNINGS-TRUNCATED DOME DETAIL

NO SCALE

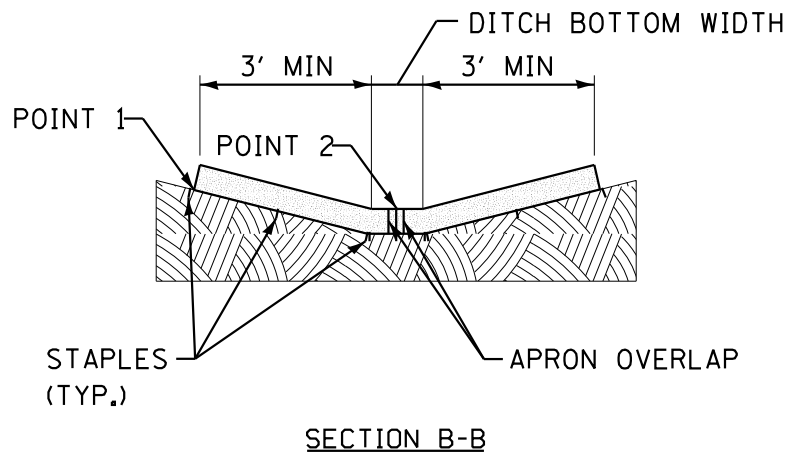
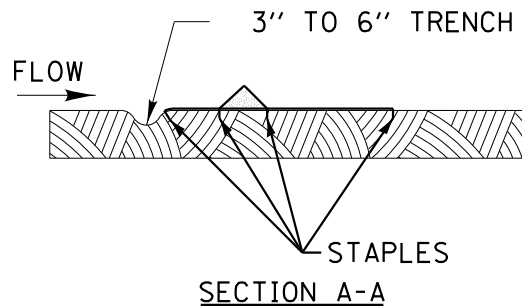


TRUNCATED DOME DETAIL



NOTES:

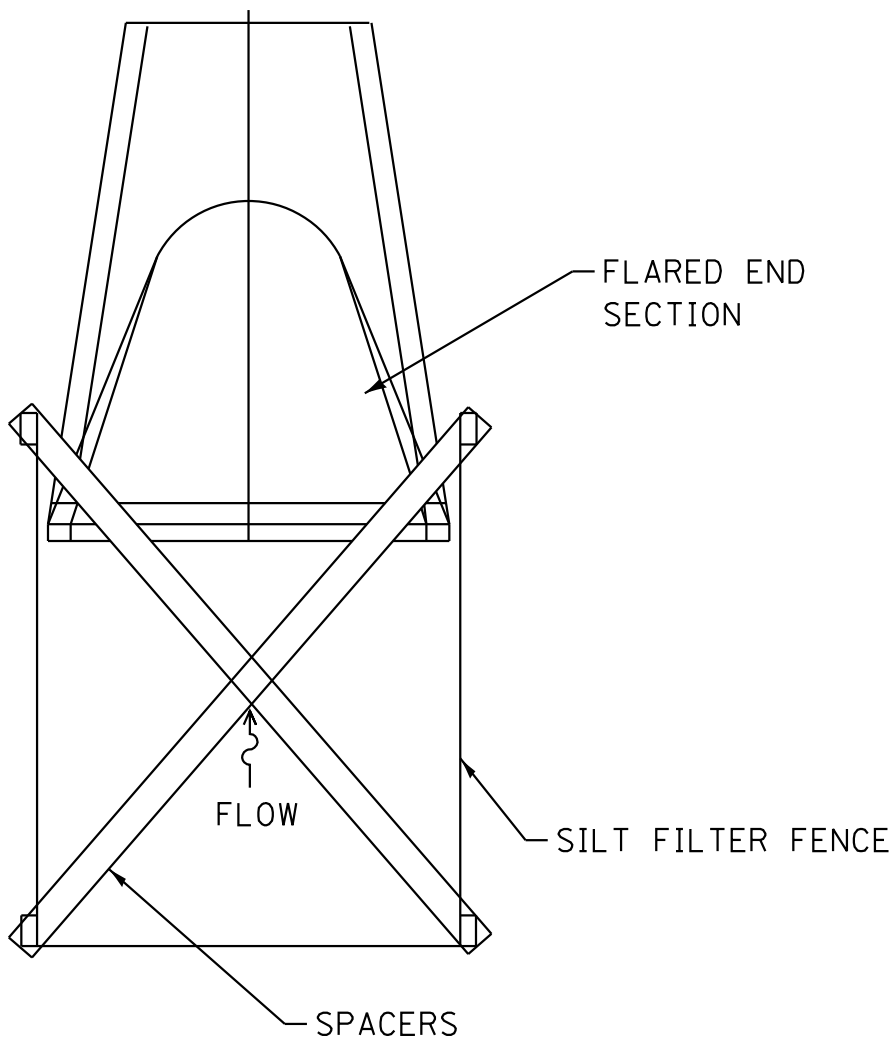
THE INSTALLATION SHOWN ABOVE WILL BE MEASURED FOR PAYMENT IN FEET PERPENDICULAR TO THE FLOW LINE.



STAPLES SHALL BE PLACED WHERE THE UNITS OVERLAP AND IN THE CENTER OF THE DITCH AS SHOWN ON THE DIAGRAM.

POINT 1 MUST BE HIGHER THAN POINT 2 TO INSURE THAT WATER FLOWS OVER THE DIKE AND NOT AROUND THE ENDS.

TEMPORARY DITCH CHECK



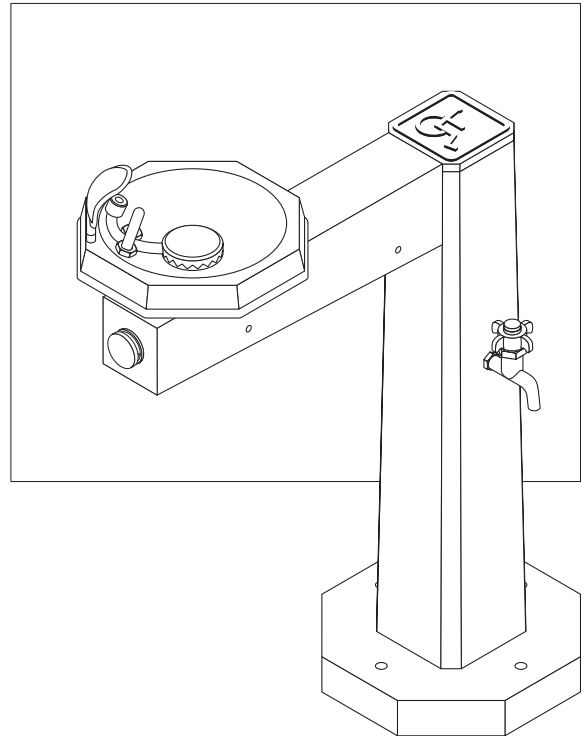
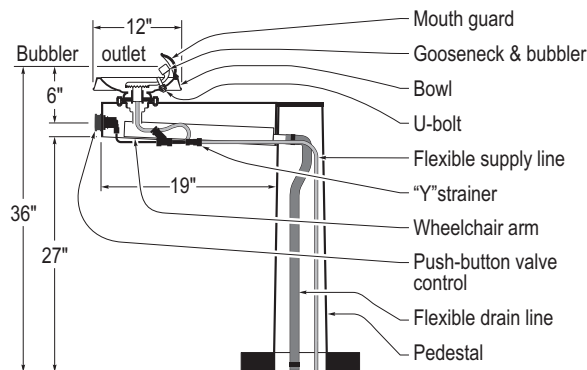
*INSTALL PER IDOT STANDARD 280001-05

DRAINAGE PROTECTION

REV 01/01/14
NOT TO SCALE

Model M43-2 Wheelchair-Accessible Drinking Fountain With Side Spigot

Model M43-2 features design simplicity, incorporating a wheelchair arm to accommodate disabled users in compliance with the height and under-arm clearance requirements of the Americans with Disabilities Act. Model M43-2 is not an antifreezing drinking fountain. To control water flow to the bowl, a push button at the front of the wheelchair arm is standard. In addition to water delivery to the bowl, model M43-2 is furnished with a spigot mounted to the side of the pedestal, either spring-loaded to shut off or with threads for installing a hose. Heavy-duty construction ensures durability, and field-serviceable components are easily accessible. Solid-brass castings for bowl and mouth guard are powder-coated; chrome or polished-brass finish is optional.



Model M43-2 is furnished with a side spigot is shown. A self-closing spigot is standard, and a hose-thread spigot is optional. Note: Due to continual product improvement, all specifications are subject to change without notice.

Suggested specification

Drinking fountain shall be Murdock model M43-2. Unit shall incorporate a wheelchair arm to accommodate disabled users.

Bowl shall be octagonal, powder-coated, solid-brass casting with outer edge at least 8 1/2 inches from center of bubbler outlet. Drain opening in bowl shall be adequately protected from stoppage and vandalism by a chrome-plated, solid-brass casting. Bubbler shall be chrome-plated, solid-brass casting with outlet near outer edge of bowl and above bowl rim. Mouth guard

shall be powder-coated, solid-brass casting, mounted on outer edge of bowl to meet sanitary requirements. All solid-brass castings shall conform to ASTM standards B61 and B62 for cast metals.

Pedestal shall be a heavy-duty, grey iron casting, and wheelchair arm shall be an aluminum-magnesium casting. Base shall be furnished with mounting holes to accommodate anchor bolts.

Valve controlling flow to bowl shall be activated by push button at end of arm. Unit shall be furnished with

a spigot mounted on the side of the pedestal, spring-loaded for shut-off (with hose threads). Water-supply connection shall be 3/8-inch NPS male fitting.



(513) 471-7700
Fax (513) 471-3299
2488 River Road
Cincinnati, Ohio 45204
www.murdockfountains.com
e-mail: murdock@fuse.net

Approved _____

Model M43-2 4/19/02

Installation

Prepare trench for water-supply line and waste line (if required). Below fountain location, prepare hole to trench depth and large enough for a person to work. Lay water-supply line and waste line (if required) into trench. Run supply line to above

grade level, allowing extra line length to be trimmed during hook-up.

Depending on code and design requirements, drain may be open, French or sanitary connection. Make certain that drain line is

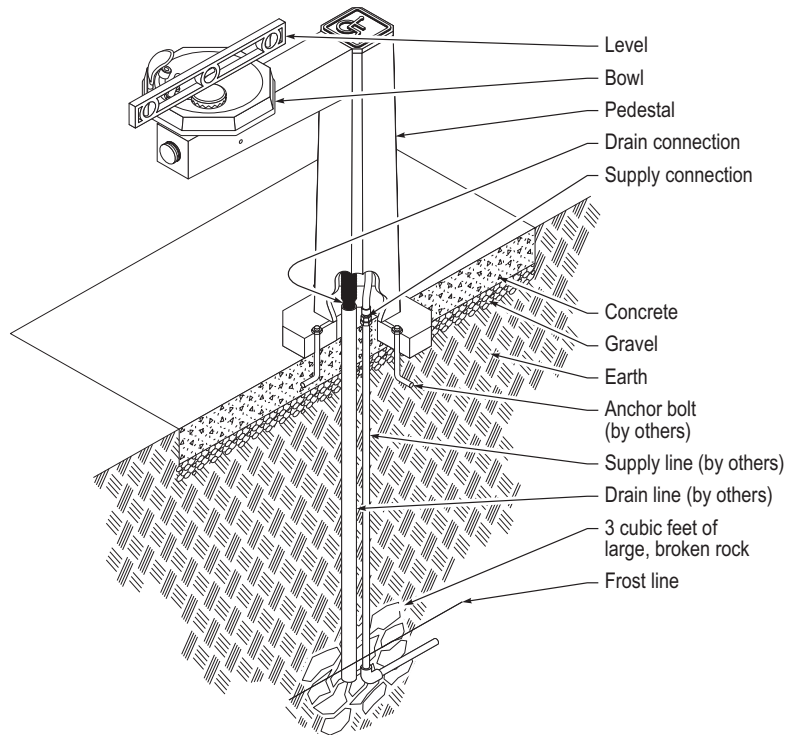
plumb. For open drain, wrap bottom opening of drain line with filter fabric and place a minimum of three cubic feet of large, broken rock around opening.

Back-fill trench and hole. Compact back-filled earth. Prepare area surrounding fountain site for concrete slab. Spread and compact gravel as necessary. Determine finished grade level and trim supply and drain lines as necessary. Install supply fittings by others as required.

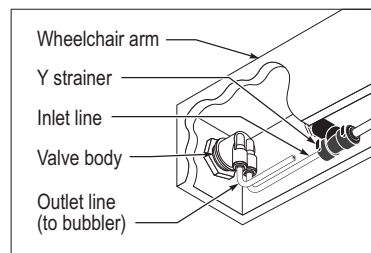
Position drinking fountain in desired location, supporting fountain on boards. Connect supply line to supply connection in pedestal base. Insert flexible drain line into top opening of buried drain line. Insert anchor bolts through pedestal base, tapped ends oriented upward. Fasten nuts on anchor bolts, allowing approximately 3/8 inch of thread above nuts. Lower bottom of fountain base to grade level.

Pour concrete to grade level. Finish concrete as necessary, ensuring that top surface of slab is flat and level. After concrete has cured, remove support boards and allow fountain to rest on concrete.

Lay bubble level across fountain bowl and shim pedestal base as necessary to ensure that fountain is plumb. Secure nuts onto anchors.



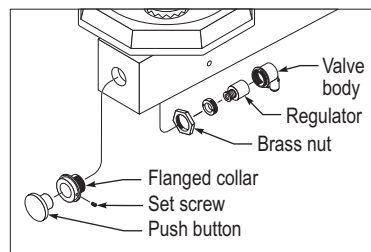
Maintenance instructions



To remove push-button assembly, shut off water supply. Inside wheelchair arm, remove inlet and outlet lines from quick-disconnect ports of valve body. Unscrew valve body from flanged collar. Remove brass nut from flanged collar, and remove push button and flanged collar from wheelchair arm. To remove push button from flanged collar, back out set screw from flanged collar as necessary to allow push button to be removed.

To replace regulator, unscrew retaining ring from valve body. Align ports of new regulator with mating ports in valve body, and replace retaining ring.

When replacing push-button in flanged collar, tighten set screw



enough to prevent removal of push button, but not tight enough to impede push-button activation.

When replacing inlet and outlet lines, be certain to insert supply line into valve port labeled "IN."



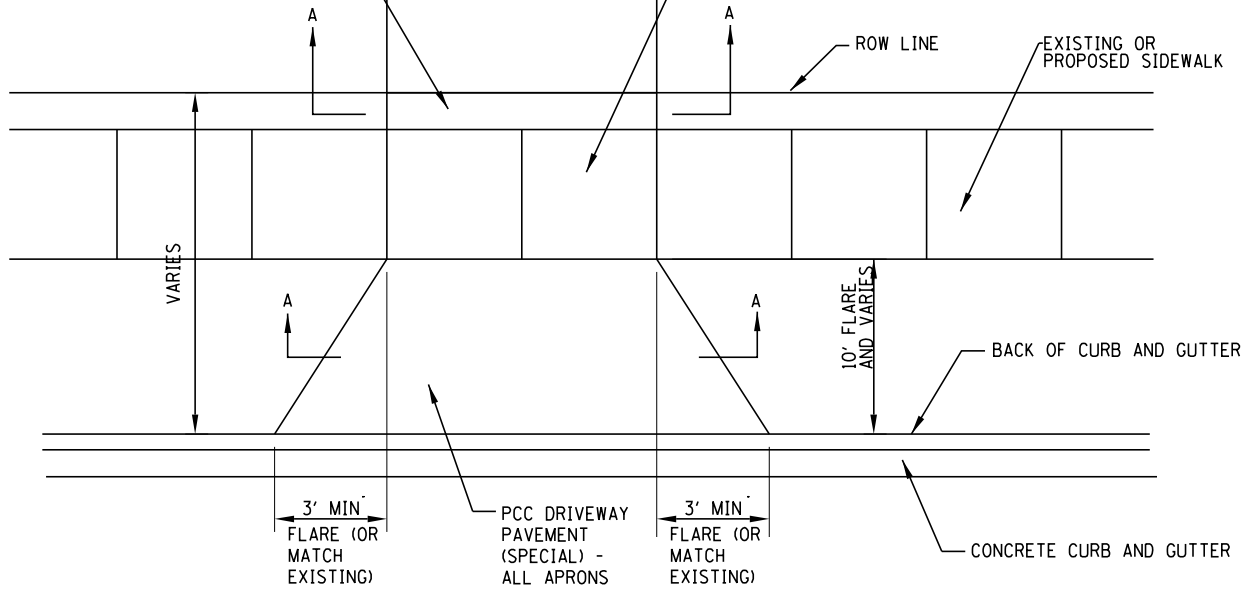
(513) 471-7700
Fax (513) 471-3299
2488 River Road
Cincinnati, Ohio 45204
www.murdockfountains.com
e-mail: murdock@fuse.net

Model M43-2 4/19/02

REPLACE DRIVEWAY BETWEEN
SIDEWALK AND ROW IN-KIND

MATCH EXISTING
DRIVEWAY WIDTH
OR 10' MIN.

THICKEN SIDEWALK TO 6" THRU RESIDENTIAL DRIVEWAYS
(INCLUDED IN PCC SIDEWALK - 5")
THICKEN SIDEWALK TO 8" THRU COMMERCIAL DRIVEWAYS AND ALLEYS
(PAID FOR AS PCC SIDEWALK - 8")



- 5' MIN ON COMMERCIAL DRIVEWAYS OR REFER TO IDOT D1 DETAILS BD01 & BD02 FOR HORIZONTAL GEOMETRY WITH CURB AND GUTTER

PAID FOR AS HOT-MIX
ASPHALT DRIVEWAY
PAVEMENT, 3"

HOT-MIX ASPHALT SURFACE
COURSE, MIX "D", N50 - 3"

AGGREGATE BASE COURSE
TYPE B - 8" (PAID SEPARATELY)

SECTION A-A

(BETWEEN SIDEWALK AND ROW ONLY)

PCC DRIVEWAY PAVEMENT, 6" (SPECIAL)
WITH 6" X 6" WELDED WIRE FABRIC
(INCLUDED)

AGGREGATE BASE COURSE
TYPE B - 6" (PAID SEPARATELY)

SECTION A-A

RESIDENTIAL

PAID FOR AS HOT-MIX
ASPHALT DRIVEWAY
PAVEMENT, 6"

HOT-MIX ASPHALT SURFACE COURSE,
MIX "D", N50 - 2"

HOT-MIX ASPHALT BINDER
COURSE, IL-19.0mm, N50 - 4"

AGGREGATE BASE COURSE
TYPE B - 6" (PAID SEPARATELY)

SECTION A-A

(BETWEEN SIDEWALK AND ROW ONLY)

PCC DRIVEWAY PAVEMENT, 8" (SPECIAL)
WITH 6" X 6" WELDED WIRE FABRIC
(INCLUDED)

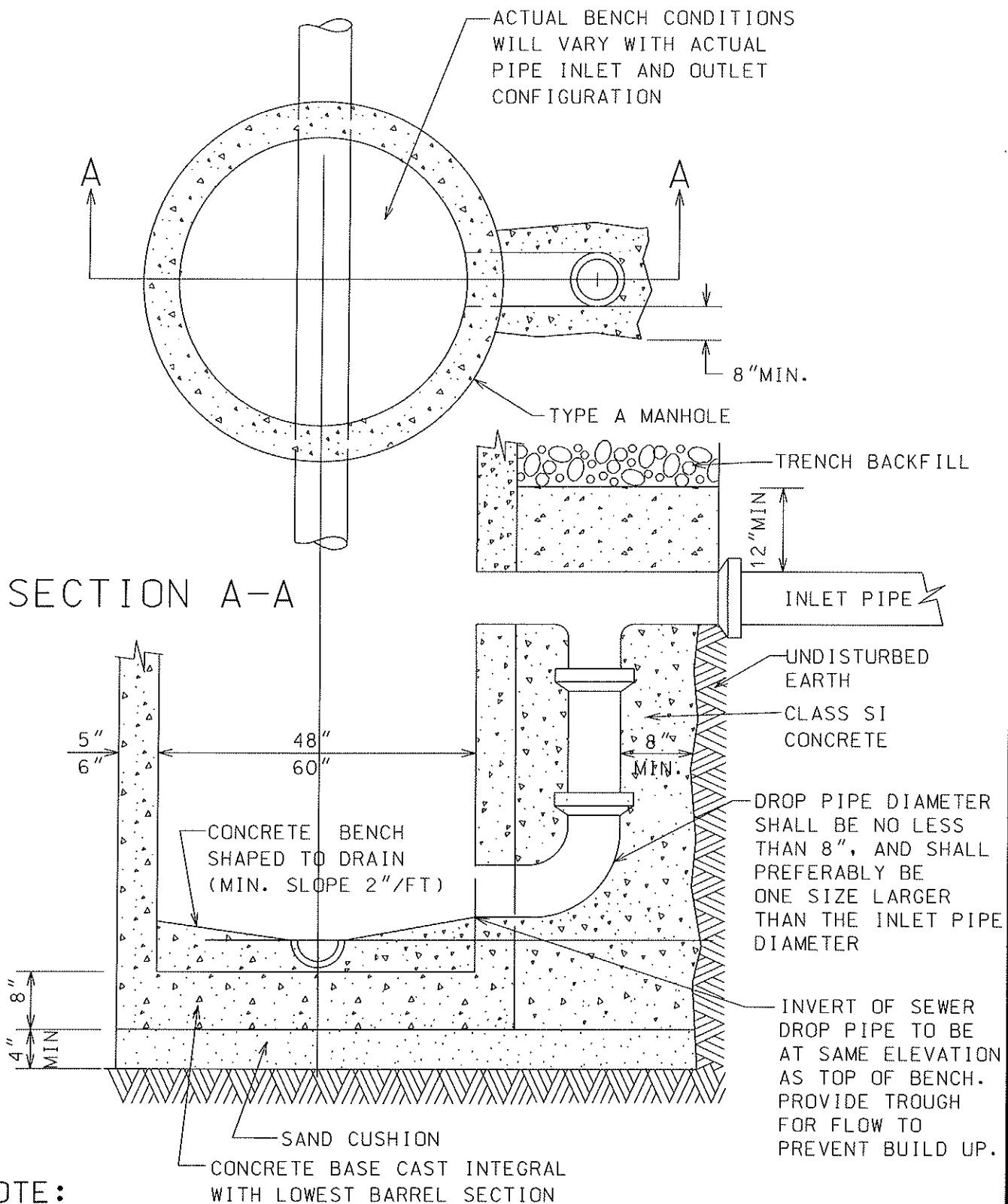
AGGREGATE BASE COURSE
TYPE B - 6" (PAID SEPARATELY)

SECTION A-A

COMMERCIAL & ALLEYS

DRIVEWAYS

REV 08-08-19
NOT TO SCALE



NOTE:

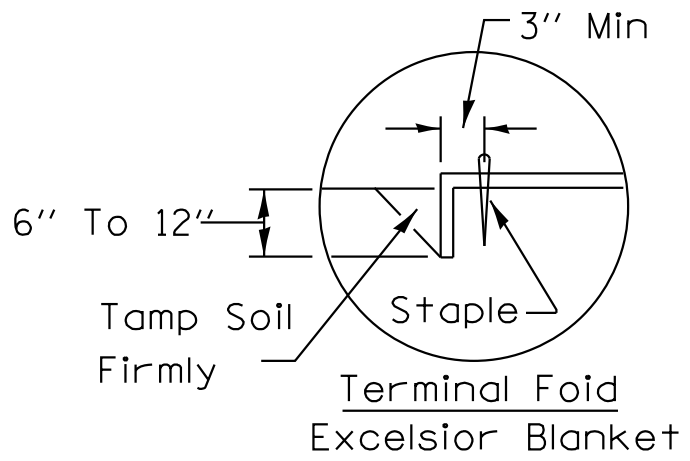
1. DROP MANHOLE WILL BE REQUIRED WHERE DIFFERENCE BETWEEN INVERT ELEVATION OF INLET AND DOWNSTREAM PIPE IS GREATER THAN 12".

2. NON-PRECAST OPENINGS SHALL BE CORED AND RUBBER BOOTED.

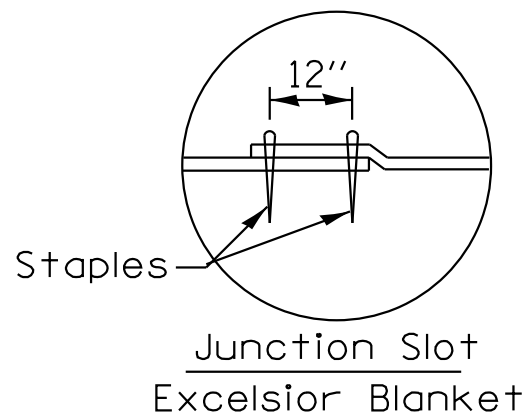
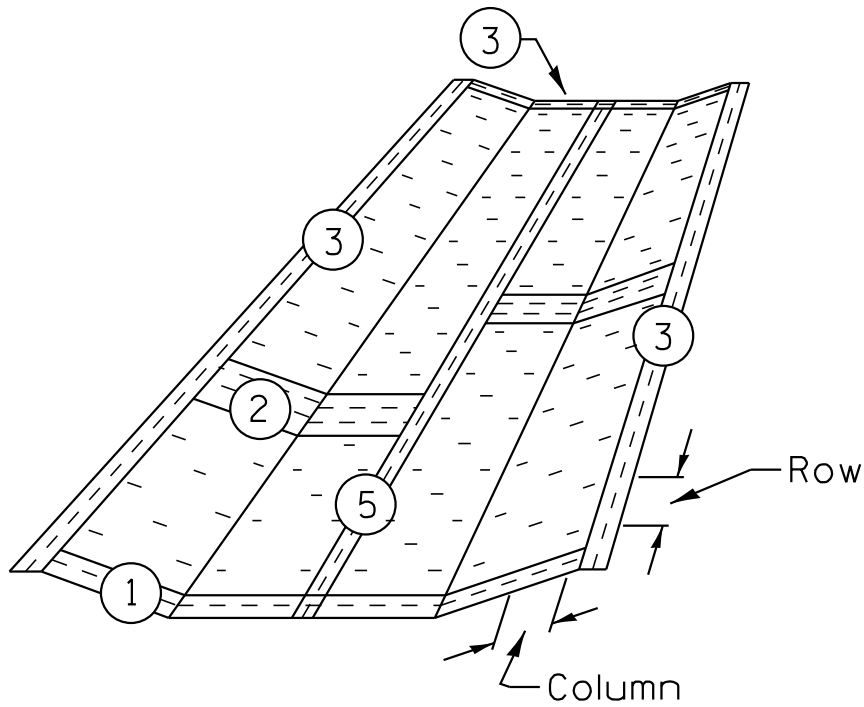
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NOT TO SCALE

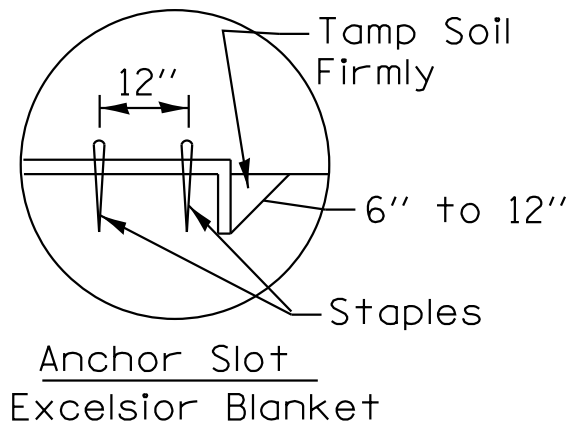
**DROP MANHOLE
DETAIL**



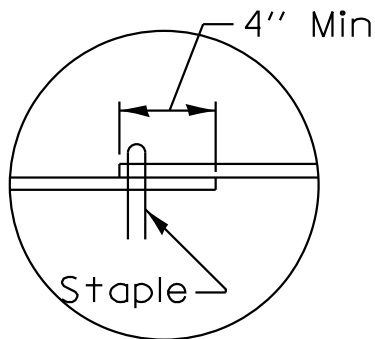
DETAIL 1



DETAIL 2

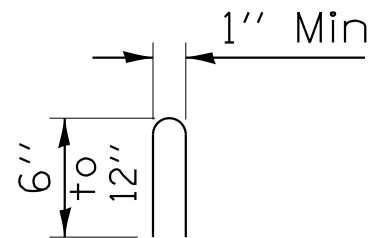


DETAIL 3



Lap Joint
Excelsior Blanket shall be bitted together

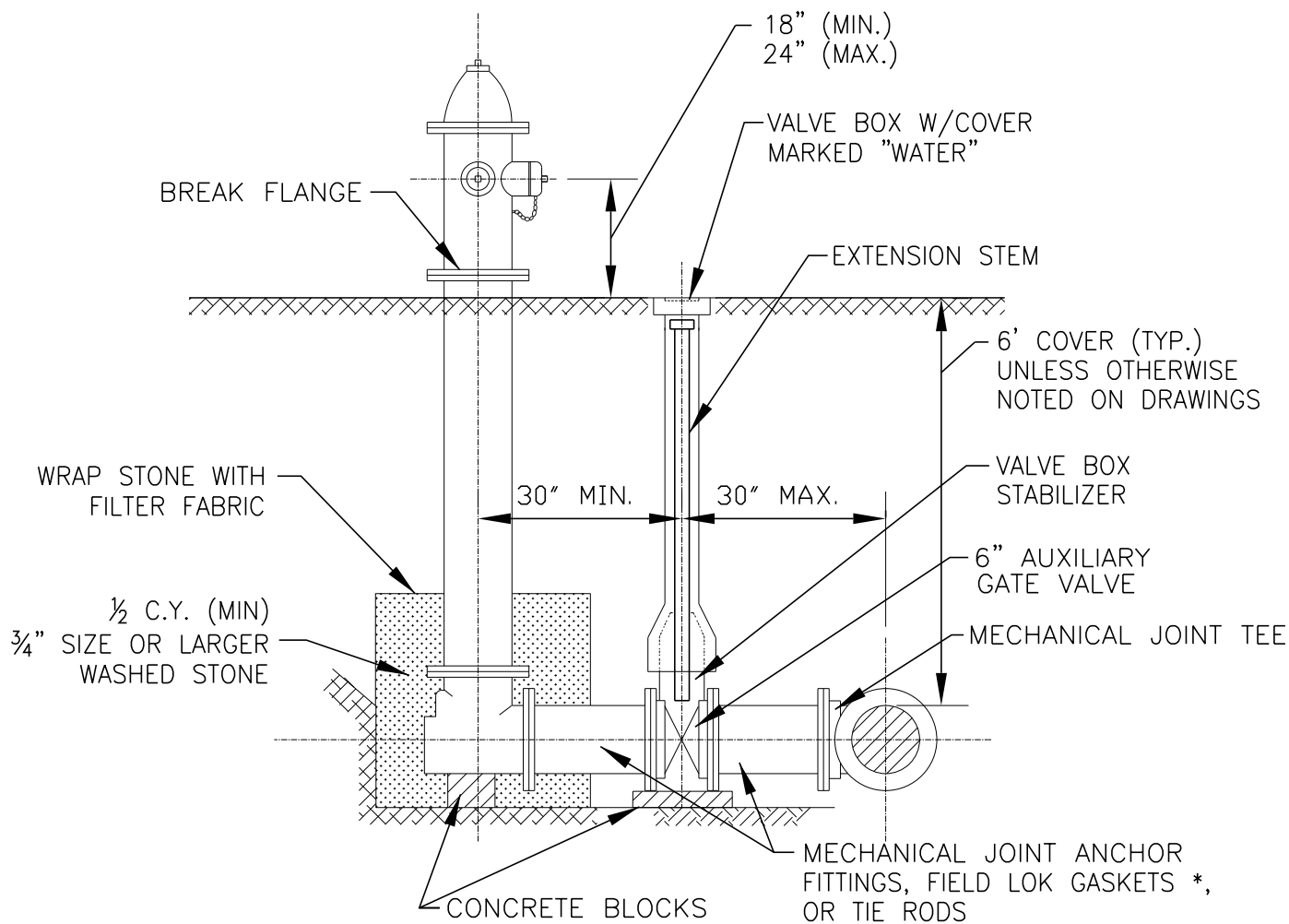
DETAIL 5



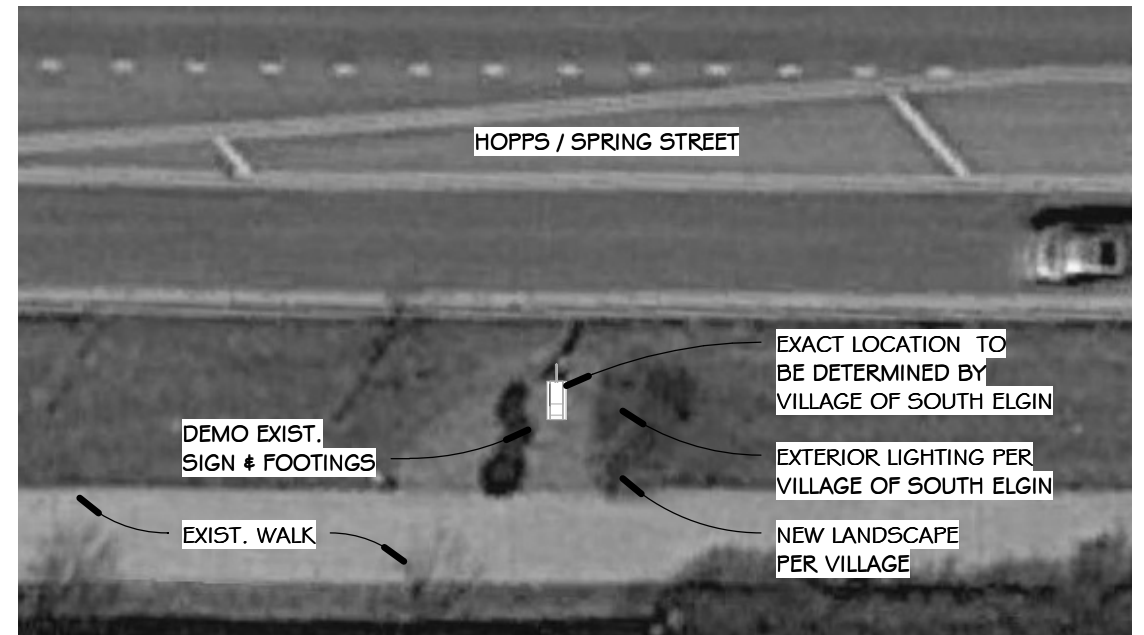
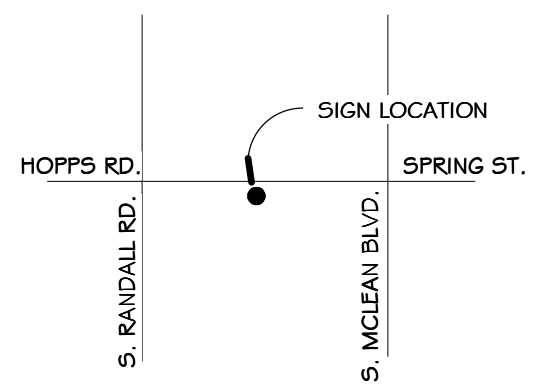
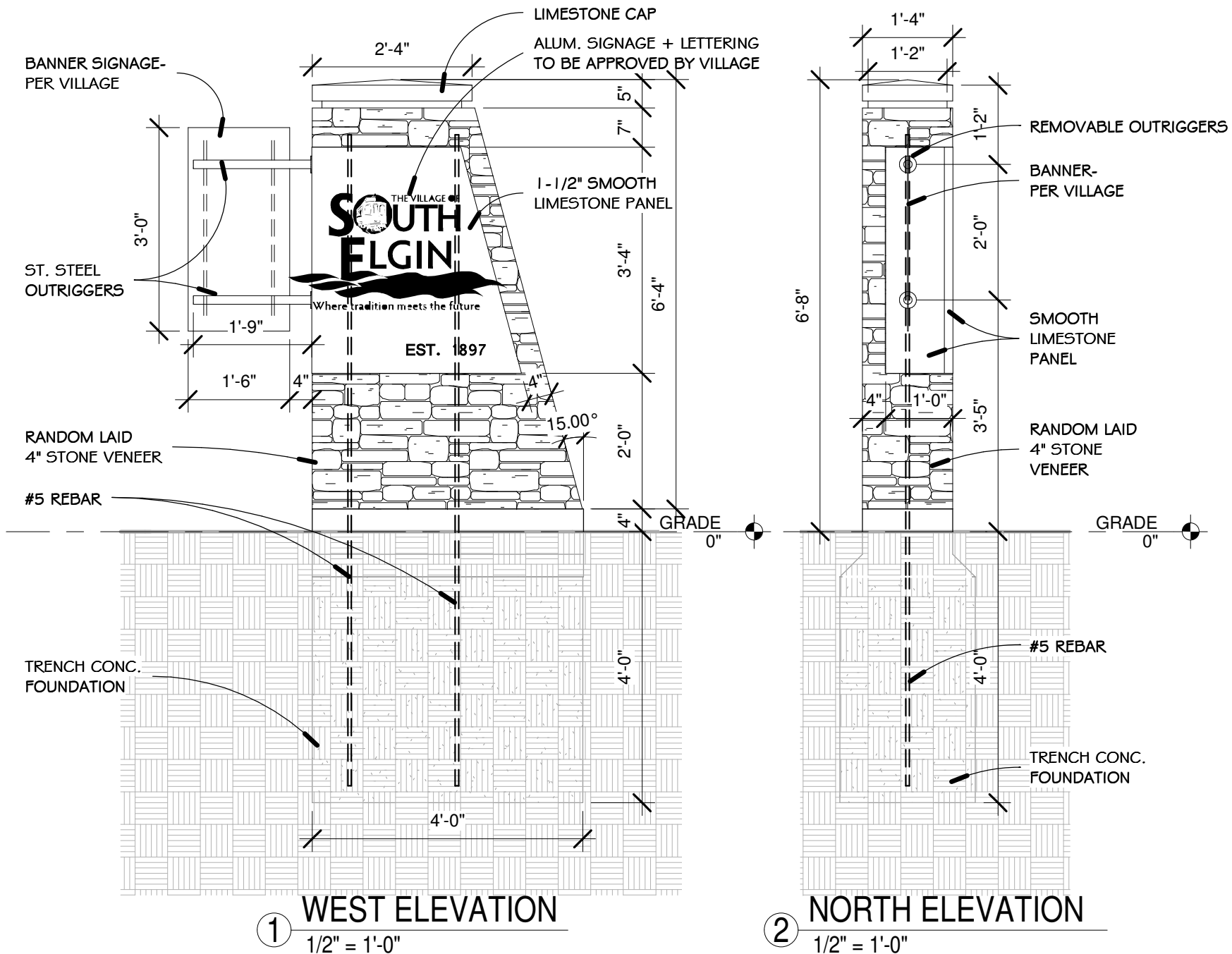
STAPLE DETAIL

NOTES:

1. Staples are to be placed alternately, in columns approximately 2' apart and in rows approximately 3' apart. Approximately 175 staples are required per 4'x225' roll of material and 125 staples are required per 4'x150' roll of material.
2. Erosion control materials shall be placed loosely over ground surface. Do not stretch.
3. All terminal ends and transverse laps shall be stapled at approximately 2" intervals.



* NOTE: MECHANICAL JOINT FITTINGS ARE NOT REQUIRED WHERE FIELD LOK GASKETS ARE UTILIZED.



LIST OF DRAWINGS		
NO.	NAME	DESCRIPTION
1	A1-1	FLOOR PLAN
2	A1-2	DETAILS
3	A1-3	GENERAL NOTES & SPECS

5 SITE PLAN
1" = 20'-0"

THE ARCHITECT IS NOT RESPONSIBLE FOR THE WORKMANSHIP OF THE CONTRACTOR. ALL LIABILITY OF THE ARCHITECT IS WAIVED WHEN THE CONTRACTOR OR OWNER DEVIATES FROM THESE DOCUMENTS WITHOUT WRITTEN APPROVAL FROM THE ARCHITECT

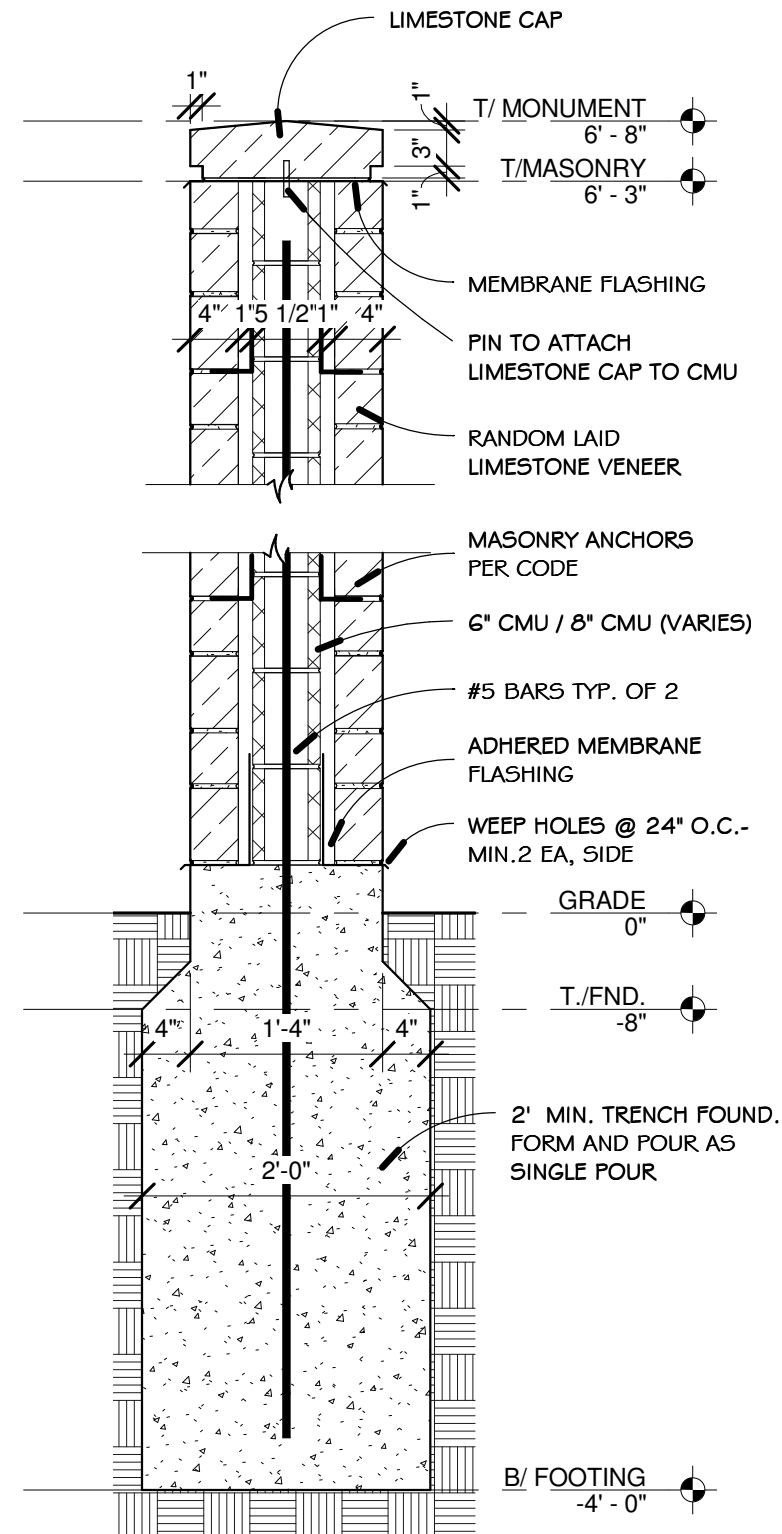
DO NOT SCALE THE PLANS. ALL DIMENSIONS SHALL BE CONFIRMED BY THE CONTRACTOR PRIOR TO ASSEMBLY.

THESE PLANS ARE THE SOLE PROPERTY OF ALLEN+PEPA ARCHITECTS ELGIN STUDIO, INC. OF SOUTH ELGIN, ILLINOIS. COPYRIGHT 2014. ANY UNAUTHORIZED USE OF THESE PLANS, IN WHOLE OR IN PART IS STRICTLY PROHIBITED.

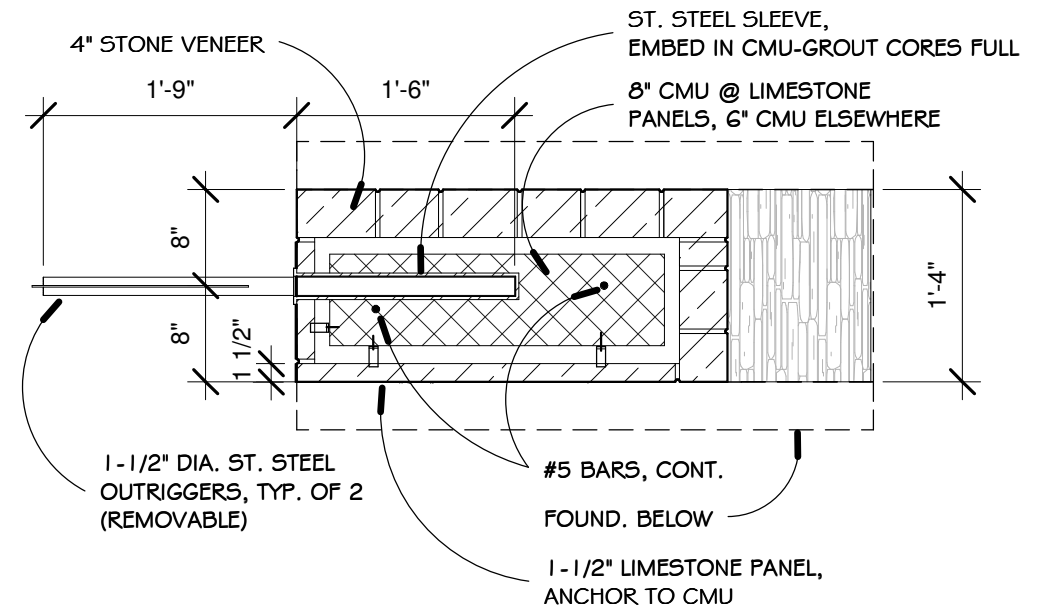
ERIC PEPA
001-015516
REGISTERED
LICENSED
ARCHITECT
OF
ILLINOIS

DESIGN FIRM #: IL 184-002172
DATE OF SIGNATURE:

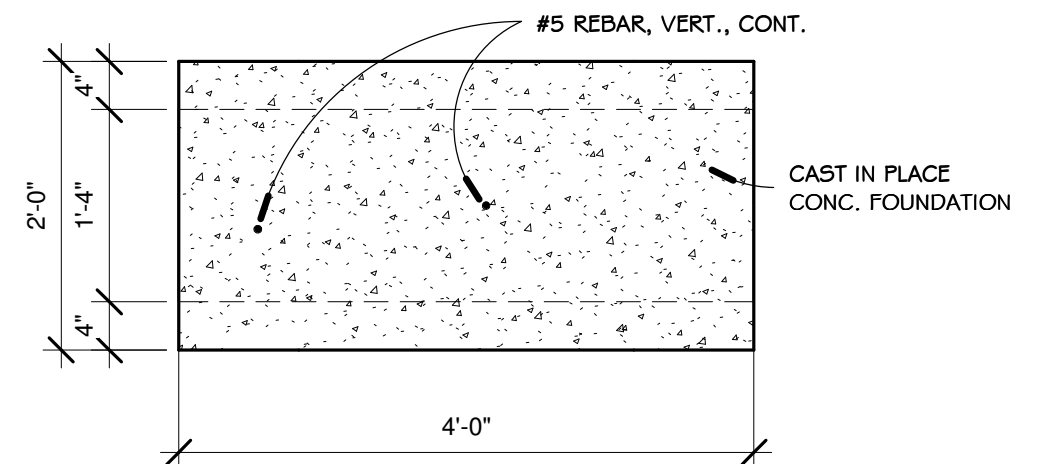
FOR PERMIT



① SECTION DETAIL
3/4" = 1'-0"



② SECTION DETAIL PLAN
3/4" = 1'-0"



③ FOUNDATION PLAN
3/4" = 1'-0"

FOR PERMIT

SOUTH ELGIN GATEWAY SIGN
SPRING ST./HOPPS RD., SOUTH ELGIN, 60177

DATE: 11/18/14
DRAWN: -
SCALE: 3/4" = 1'-0"
PROJECT NO.: 11-030

ALLEN PEPA
ARCHITECTS

ELGIN STUDIO, INC
81 S. McLEAN BLVD., SUITE A
SOUTH ELGIN, IL 60177
Ph. 847.695.7092 / Fx. 847.628.5744
www.allenpepa.com

A1-2

SECTION 01000- GENERAL PROVISIONS

1.01 ALL WORK IS TO BE DONE IN ACCORDANCE WITH STATE AND LOCAL BUILDING CODES AND ALL OTHER CODES OR ORDINANCES WHICH MAY HAVE AUTHORITY OVER THIS PROJECT. IN THE CASE OF DISCREPANCY IN THOSE CODES, THE MORE STRINGENT ONE SHALL BE OBSERVED.

1.02 MATERIALS AND SPECIFIC MANUFACTURERS SPECIFIED MAY BE CHANGED UPON REQUEST IF THE SUBSTITUTION IS OF COMPARABLE QUALITY, COST AND SERVICEABILITY AS DETERMINED BY THE ARCHITECT.

1.03 THE GENERAL CONTRACTOR SHALL PAY ALL REQUIRED FEES AND SECURE ALL PERMITS AS REQUIRED BY GOVERNING BODIES OVER THIS PROJECT.

1.04 THE GENERAL CONTRACTOR SHALL HAVE APPROPRIATE LIABILITY. OWNER AND ARCHITECT SHALL BE PROTECTED FROM ALL LIABILITES FROM THE CONTRACTOR, ITS EMPLOYEES, AGENTS OR SUBCONTRACTORS.

1.10 SURVEY OF EXISTING CONDITIONS
1.11 THE GENERAL CONTRACTOR, PRIOR TO SUBMITTING HIS BID, SHALL FIELD SURVEY SITE OF PROPOSED WORK TO DETERMINE THE EXTENT AND NATURE OF WORK, VERIFY ALL DIMENSIONS AND CONDITIONS SHOWN ON DRAWINGS AND ACQUAINT HIMSELF WITH THE EXISTING CONDITIONS PRIOR TO SUBMITTING HIS BID. ANY DISCREPANCIES, OMISSIONS OR CONFLICTS FOUND BETWEEN THE SITE CONDITIONS AND THOSE SHOWN ON THE DRAWINGS SHALL BE PROMPTLY BROUGHT TO THE ATTENTION OF THE ARCHITECT.

1.12 THE GENERAL CONTRACTOR SHALL NOTIFY ARCHITECT OF ANY UNFORESEEN JOB CONDITIONS WHICH MIGHT AFFECT PROJECT COSTS. CLAIMS FOR ADDITIONAL COMPENSATION AND/OR EXTENSIONS OF TIME BECAUSE OF THE CONTRACTOR'S FAILURE TO FOLLOW THE FOREGOING PROCEDURE AND TO FAMILIARIZE HIMSELF WITH THE CONTRACT DOCUMENTS AND ALL CONDITIONS WHICH MIGHT AFFECT WORK WILL NOT BE ALLOWED. EXTRA WORK AND/OR COSTS MUST BE APPROVED IN WRITING PRIOR TO CONSTRUCTION OF SUCH WORK.

1.20 PROVISIONS FOR LABOR AND MATERIAL
1.21 THE GENERAL CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIAL AND EQUIPMENT NECESSARY FOR THE SUCCESSFUL EXECUTION AND COMPLETION OF THIS PROJECT.

1.22 ALL MATERIALS, METHODS OF INSTALLATION AND FINISHING OF CONSTRUCTION SYSTEMS (PARTITIONS, CEILING, DOORS, FRAMES, FLOORS, ETC.) SHALL CONFORM TO THE MANUFACTURERS' SPECIFICATIONS AND INSTALLATION INSTRUCTION FOR THE EXPECTED USE.

1.30 KEEPING PREMISES CLEAN
1.31 THE GENERAL CONTRACTOR SHALL REMOVE ALL WASTE MATERIALS ON A REGULAR BASIS, AND SHALL PREVENT ANY DIRT, DEBRIS OR DUST FROM AFFECTING ANY FINISHED AREA.

1.32 THE GENERAL CONTRACTOR AND HIS SUBCONTRACTORS SHALL TURN THE PROJECT OVER TO THE OWNER FREE FROM ALL CONSTRUCTION DEBRIS, MATERIAL AND EQUIPMENT.

1.40 PROTECTION OF PERSONS AND PROPERTY
1.41 PRIOR TO THE COMMENCEMENT OF WORK, THE GENERAL CONTRACTOR SHALL PROTECT AREAS AND NEW OR EXISTING MATERIALS AND FINISHES FROM DAMAGE WHICH MAY OCCUR FROM CONSTRUCTION, DUST, WATER, ETC.

1.50 COORDINATION
1.51 THE GENERAL CONTRACTOR SHALL COORDINATE ALL TRADES REQUIRED TO PERFORM WORK AS OUTLINED IN THE CONTRACT DOCUMENTS.

1.60 DRAWINGS
1.61 DO NOT SCALE DRAWINGS. DIMENSIONS SHALL GOVERN. LARGE SCALE DETAILS SHALL GOVERN OVER SMALL SCALE DETAILS.

1.62 ALL DIMENSIONS ARE TO AND FROM WALL CENTERLINES OR NOMINAL STUD WIDTHS, U.N.O.

SECTION 03000 - STRUCTURAL CONCRETE

1. ALL CONCRETE WORK SHALL CONFORM TO THE REQUIREMENTS OF THE LATEST EDITIONS OF ACI 318 "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE" AND THE ACI 302 "GUIDE FOR CONCRETE FLOOR AND SLAB CONSTRUCTION".

2. SUBMIT FOR REVIEW CONCRETE DESIGN MIXES, INCLUDING REQUIRED BACK UP DATA, FOR EACH TYPE OF CONCRETE PROPOSED FOR USE IN THE WORK. PROVIDE AIR-ENTRAINING FOR ALL CONCRETE EXPOSED TO THE WEATHER UNLESS NOTED OTHERWISE WITH A RANGE OF AIR-ENTRAINMENT OF BETWEEN 5% AND 7%.

3. THE USE OF CALCIUM CHLORIDE IN ANY CONCRETE IS STRICTLY PROHIBITED.

4. REFER ACI 305 FOR REQUIREMENTS FOR PLACING CONCRETE IN COLD WEATHER.

5. LOCATE JOINTS, IF PROVIDED, AT POINTS OF MINIMUM STRESS. HORIZONTAL JOINTS IN ANY CONCRETE POURS ARE NOT PERMITTED.

6. CLEAN AND MOISTEN ALL CONSTRUCTION JOINTS IMMEDIATELY PRIOR TO PLACING FRESH CONCRETE.

7. WHERE WATERSTOPS ARE INDICATED ON PLANS, USE CONTINUOUS 6" PVC RIBBED STYLE.

8. REFER TO ACI 318, CHAPTER 7.7 FOR MINIMUM CONCRETE COVER REQUIREMENTS.

9. REFER TO ARCHITECTURAL, MECHANICAL, ELECTRICAL AND PLUMBING DRAWINGS FOR CURBS, PADS, DEPRESSIONS, WALL/SLAB OPENINGS, SPECIAL FINISHES, ETC. PROVIDE ONLY THOSE OPENINGS SHOWN ON THE APPROVED SHOP DRAWINGS. REINFORCED BARS SHALL NOT BE CUT OR DISPLACED FOR THE WORK OF OTHER TRADES WITHOUT THE APPROVAL OF THE STRUCTURAL ENGINEER.

10. DETAIL, FABRICATE, LABEL, SUPPORT AND PLACE ALL CONCRETE REINFORCEMENT IN ACCORDANCE ACI 315 "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES" AND ACI 318.

11. SUBMIT FOR REVIEW DETAILED SHOP DRAWINGS INDICATING REINFORCEMENT SIZE, SPACING AND PLACEMENT PRIOR TO FABRICATION. INCLUDE DETAILS AND LOCATIONS OF ALL CURBS, CONSTRUCTION JOINTS, SLAB DEPRESSIONS, SLEEVES, OPENINGS, ETC.

12. PROVIDE DOWELS, WHERE REQUIRED, TO MATCH MAIN REINFORCING SIZE AND SPACING.

13. LAP WELDED WIRE FABRIC ONE FULL MESH PANEL TYPICALLY AND TWO MESH PANELS AT ALL CONSTRUCTION JOINTS AND TIE SECURELY. LAP ALL CONTINUOUS REINFORCEMENT SHOWN ON PLANS A MINIMUM OF 36 BAR DIAMETERS OR 24" WHICHEVER IS GREATER. LAP TOP BARS ONLY AT MIDSPAN AND BOTTOM BARS ONLY OVER SUPPORTS.

14. PROVIDE ONLY CONCRETE AND REINFORCING MATERIAL OF THE TYPES AND GRADES LISTED IN THE TABLE BELOW

CONCRETE	F'c (PSI)	UNIT WEIGHT (PCF)
FOOTINGS	3000 PSI	150 PCF
SLAB ON GRADE	4000 PSI	150 PCF
ALL OTHER CONCRETE	3000PSI	150 PCF
REINFORCING BARS	ASTM A-615	GRADE 60
WELDED WIRE FABRIC	ASTM A-82 AND ASTM A-185	FOR PLAIN BARS
- FIBERMESH REINFORCING		
WELDABLE BARS	ASTM A-706	

15. BASEPLATES, ANCHOR BOLTS, SUPPORT ANGLES, ETC. BELOW GRAD SHALL BE COVERED WITH A MINIMUM OF 3 INCHES OF CONCRETE

SECTION 042000- UNIT MASONRY

A. UNIT MASONRY: COMPLY WITH ACI 530.1/ASCE 6/TMS 602.
B. CONCRETE MASONRY UNITS: ASTM C 90; DENSITY CLASSIFICATION, MEDIUM WEIGHT.
1. SPECIAL SHAPES FOR LINTELS, CORNERS, JAMBS, SASH, CONTROL JOINTS, AND OTHER SPECIAL CONDITIONS.
2. SQUARE-EDGED UNITS FOR OUTSIDE CORNERS UNLESS OTHERWISE INDICATED.

B. FACE BRICK: ASTM C 216, GRADE SW, TYPE FBX.

1. PRODUCTS OR A COMPARABLE PRODUCT APPROVED BY ARCHITECT.
2. SIZE: 3-1/2 INCHES WIDE BY 2-1/4 INCHES HIGH BY 7-1/2 INCHES LONG OR 3-5/8 INCHES WIDE BY 2-1/4 INCHES HIGH BY 7-5/8 INCHES LONG.
3. SOLID BRICK WITH EXPOSED SURFACES FINISHED FOR ENDS OF SILLS AND CAPS.
4. SPECIAL SHAPES FOR APPLICATIONS WHERE SHAPES PRODUCED BY SAWING WOULD RESULT IN SAWED SURFACES BEING EXPOSED TO VIEW.

2.3 MORTAR AND GROUT
A. MORTAR: ASTM C 270, PROPORTION SPECIFICATION.
1. USE PORTLAND CEMENT-LIME MORTAR.
2. DO NOT USE CALCIUM CHLORIDE IN MORTAR.
3. FOR MASONRY BELOW GRADE OR IN CONTACT WITH EARTH, USE TYPE M.
4. FOR REINFORCED MASONRY, USE TYPE S.
5. FOR EXTERIOR, ABOVE-GRADE, LOAD-BEARING AND NON-LOAD-BEARING WALLS AND PARAPET WALLS; FOR INTERIOR LOAD-BEARING WALLS; FOR INTERIOR NON-LOAD-BEARING PARTITIONS, AND FOR OTHER APPLICATIONS WHERE ANOTHER TYPE IS NOT INDICATED, USE TYPE N.
6. COLORED MORTAR: FOR FACE BRICK, USE COLORED CEMENT OR CEMENT-LIME MIX OF COLOR SELECTED.

B. GROUT: ASTM C 476 WITH A SLUMP OF 8 TO 11 INCHES.

2.4 REINFORCEMENT, TIES, AND ANCHORS
A. STEEL REINFORCING BARS: ASTM A 615/A 615M OR ASTM A 996/A 996M, GRADE 60.
B. JOINT REINFORCEMENT: ASTM A 951.
1. COATING: HOT-DIP GALVANIZED AT BOTH INTERIOR AND EXTERIOR WALLS.
2. WIRE SIZE FOR VENEER TIES: 0.148-INCH DIAMETER.
C. CORRUGATED-METAL VENEER ANCHORS: 7/8 INCH WIDE AND MADE FROM 0.030-INCH- THICK STEEL SHEET, GALVANIZED AFTER FABRICATION.
D. VENEER ANCHORS: HOT-DIP GALVANIZED STEEL, TWO-PIECE ADJUSTABLE MASONRY VENEER ANCHORS THAT ALLOW VERTICAL OR HORIZONTAL ADJUSTMENT BUT RESIST TENSION AND COMPRESSION FORCES PERPENDICULAR TO PLANE OF WALL, FOR ATTACHMENT OVER SHEATHING TO STUDS, AND ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION.

2.5 EMBEDDED FLASHING MATERIALS

A. THE FLASHING SYSTEM FOR ALL HEADS, SILLS, SHELF ANGLES, SPANDRELS, THRU-WALL CONDITIONS AND OTHER LOCATIONS WHERE INDICATED, SHALL CONSIST OF A SELF-ADHESIVE RUBBERIZED ASPHALT LAMINATED FLASHING MATERIAL, SELF-ADHESIVE PRE-FORMED FLASHING CORNERS AND END-DAMS, AND STAINLESS STEEL DRIP-EDGE, ALL PROVIDED BY A SINGLE-SOURCE AND INSTALLED AS A FLASHING SYSTEM. FIELD FABRICATED INSIDE CORNERS, OUTSIDE CORNERS, OR END-DAMS WILL NOT BE ALLOWED. THE MANUFACTURER SHALL PREFORM ALL CORNERS AND END-DAMS.

1. SELF-ADHESIVE RUBBERIZED ASPHALT: MANUFACTURER'S STANDARD COMPOSITE FLASHING PRODUCT CONSISTING OF A PLIABLE AND HIGHLY ADHESIVE RUBBERIZED-ASPHALT COMPOUND, BONDED TO A HIGH-DENSITY, CROSS-LAMINATED POLYETHYLENE FILM TO PRODUCE AN OVERALL THICKNESS OF 0.040 INCH.
2. STAINLESS STEEL DRIP EDGE: 0.0156-INCH THICK TYPE 304 STAINLESS STEEL. DRIP EDGE SHALL BE 2 INCHES DEEP BY 8'-0" LONG AND CONTAIN A HEMMED EDGE. CORNER EDGES SHALL BE PREFORMED.

2.6 MISCELLANEOUS MASONRY ACCESSORIES

A. COMPRESSIBLE FILLER: PREMOLDED STRIPS COMPLYING WITH ASTM D 1056, GRADE 2A1.
B. PREFORMED CONTROL-JOINT GASKETS: DESIGNED TO FIT STANDARD SASH BLOCK AND TO MAINTAIN LATERAL STABILITY IN MASONRY WALL; MADE FROM STYRENE-BUTADIENE RUBBER OR PVC.
C. WEEP HOLES: COTTON OR POLYESTER ROPE, 1/4 TO 3/8 INCH IN DIAMETER, 24 INCHES LONG.
D. CAVITY DRAINAGE MATERIAL: FREE-DRAINING POLYMER MESH, FULL DEPTH OF CAVITY.

EXECUTION
3.1 INSTALLATION, GENERAL
A. CUT MASONRY UNITS WITH SAW. INSTALL WITH CUT SURFACES AND, WHERE POSSIBLE, CUT EDGES CONCEALED.
B. MIX UNITS FOR EXPOSED UNIT MASONRY FROM SEVERAL PALLETS OR CUBES AS THEY ARE PLACED TO PRODUCE UNIFORM BLEND OF COLORS AND TEXTURES.
C. STOPPING AND RESUMING WORK: RACK BACK UNITS; DO NOT TOOTH.
D. FILL CORES IN HOLLOW CONCRETE MASONRY UNITS WITH GROUT 24 INCHES UNDER BEARING PLATES, BEAMS, LINTELS, POSTS, AND SIMILAR ITEMS UNLESS OTHERWISE INDICATED.
E. BUILD NON-LOAD-BEARING INTERIOR PARTITIONS FULL HEIGHT AND INSTALL COMPRESSIBLE FILLER IN JOINT BETWEEN TOP OF PARTITION AND UNDERSIDE OF STRUCTURE ABOVE.
F. TOOL EXPOSED JOINTS SLIGHTLY CONCAVE WHEN THUMBPRINT HARD UNLESS OTHERWISE INDICATED.
G. KEEP CAVITIES CLEAN OF MORTAR DROPPINGS AND OTHER MATERIALS DURING CONSTRUCTION.

3.3 FLASHING AND WEEP HOLES

A. INSTALL EMBEDDED FLASHING AND WEEP HOLES IN MASONRY AT SHELF ANGLES, LINTELS, LEDGES, OTHER OBSTRUCTIONS TO THE DOWNWARD FLOW OF WATER IN THE WALL, AND WHERE INDICATED.
B. INSTALL METAL DRIP EDGES BENEATH FLASHING AT EXTERIOR FACE OF WALL.
C. STAINLESS STEEL DRIP EDGE SHALL BE HELD IN PLACE DURING CONSTRUCTION WITH A CONTINUOUS BEAD OF URETHANE SEALANT. THE BENT HEMMED EDGE PORTION OF THE STAINLESS STEEL DRIP EDGE SHALL EXTEND BEYOND THE VERTICAL FACE OF THE MASONRY WALL. INSTALL THE SELF- ADHESIVE RUBBERIZED ASPHALT FLASHING OVER THE STAINLESS STEEL DROP EDGE AND RECESSED 3/4" FROM THE VERTICAL FACE OF THE MASONRY WALL SO THAT THE FLASHING WILL BE COMPLETELY COVERED BY MORTAR WHEN THE REMAINDER OF THE MASONRY WALL IS CONSTRUCTED.
D. OVERLAP THE FLASHING SEGMENT AND/OR ANY FLASHING CORNERS AND END-DAMS A MINIMUM OF 4" FORMING A CONTINUOUS MOISTURE BARRIER TO DIRECT THE FLOW OF WATER TO THE EXTERIOR AND/OR WEEP HOLES. ALL TOP EDGES AND OVERLAPS SHALL BE SEALED WITH A BEAD OF THE MANUFACTURED RECOMMENDED MASTIC.
E. IF FLASHING TERMINATES IN A VERTICAL POSITION, INSTALL A BEAD OF MASTIC ALONG THE TOP EDGE OF THE FLASHING.
F. TRIM WICKING MATERIAL USED IN WEEP HOLES FLUSH WITH OUTSIDE FACE OF WALL AFTER MORTAR HAS SET.

3.4 FIELD QUALITY CONTROL
A. TESTING AND INSPECTING: OWNER WILL ENGAGE SPECIAL INSPECTORS TO PERFORM TESTS AND INSPECTIONS REQUIRED BY AUTHORITIES HAVING JURISDICTION.

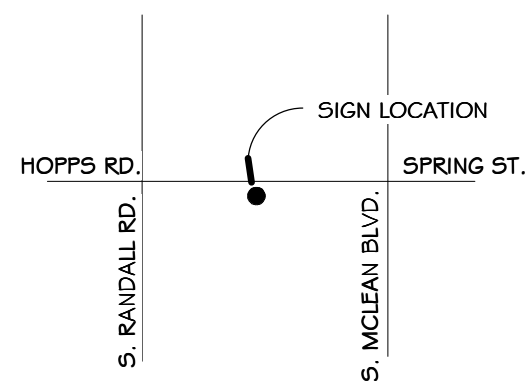
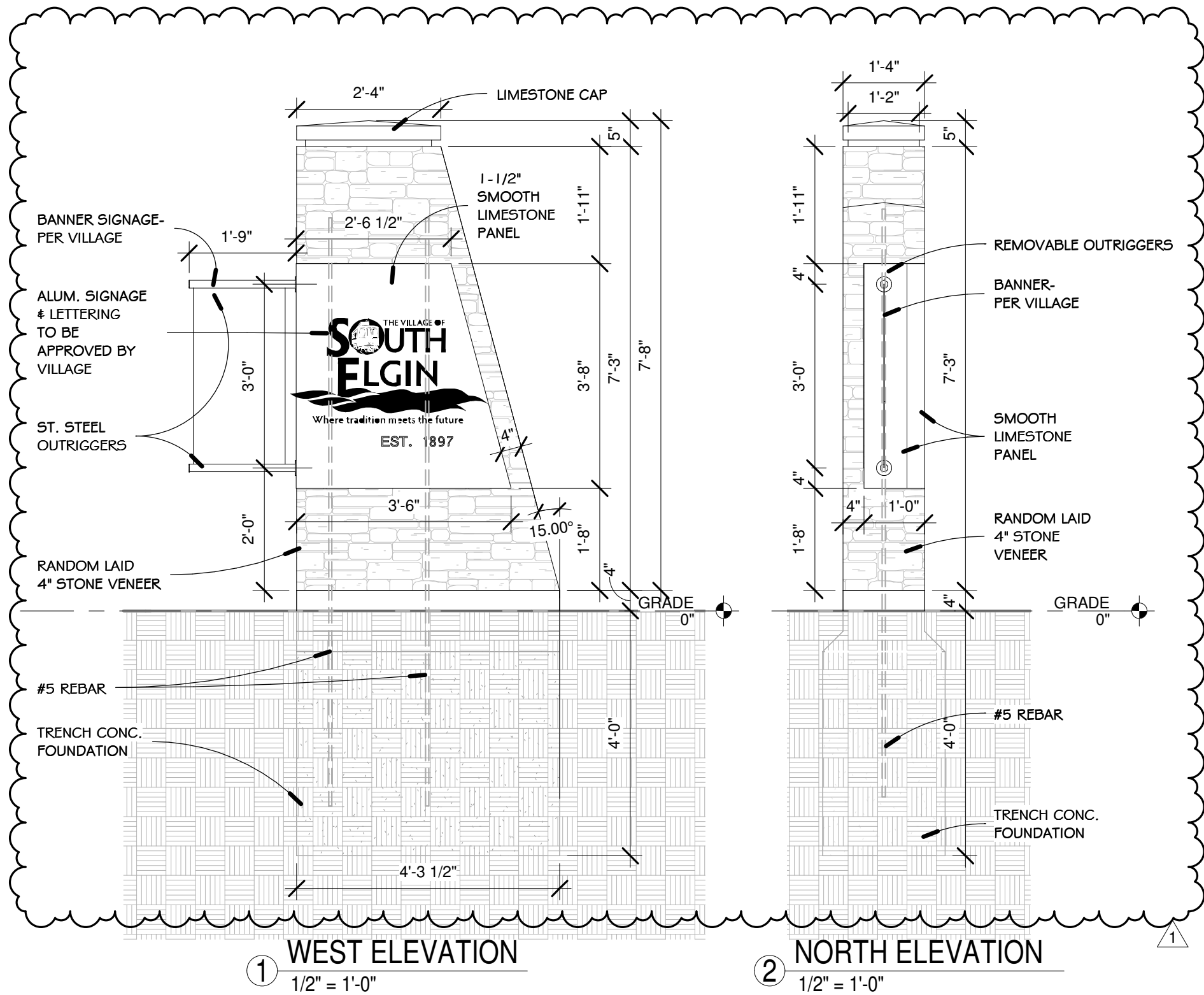
1. INSPECTIONS: LEVEL 1 SPECIAL INSPECTIONS ACCORDING TO THE IBC.
2. PLACE GROUT ONLY AFTER INSPECTORS HAVE VERIFIED COMPLIANCE OF GROUT SPACES AND OF GRADES, SIZES, AND LOCATIONS OF REINFORCEMENT.

3.5 CLEANING
A. CLEAN MASONRY AS WORK PROGRESSES. REMOVE MORTAR FINS AND SMEARS BEFORE TOOLING JOINTS.

B. FINAL CLEANING: AFTER MORTAR IS THOROUGHLY CURED, CLEAN EXPOSED MASONRY.
1. WET WALL SURFACES WITH WATER BEFORE APPLYING ACIDIC CLEANER, THEN REMOVE CLEANER PROMPTLY BY RINSING THOROUGHLY WITH CLEAR WATER.
2. CLEAN MASONRY WITH A PROPRIETARY ACIDIC CLEANER APPLIED ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS.

FOR PERMIT

SOUTH ELGIN GATEWAY SIGN SPRING ST./HOPPS RD., SOUTH ELGIN, 60177	DATE:	11/18/14	
	DRAWN:	Author	
	SCALE:	1/4" = 1'-0"	
	PROJECT NO.:	11-030	
ALLEN ARCHITECTS PEPA		ELGIN STUDIO, INC 81 S. McLEAN BLVD., SUITE A SOUTH ELGIN, IL 60177 Ph. 847.695.7092 / Fx. 847.628.5744 www.allenpepa.com	A1-3



5 SITE PLAN
1" = 20'-0"

LIST OF DRAWINGS		
NO.	NAME	DESCRIPTION
1	A1-1	FLOOR PLAN
2	A1-2	DETAILS
3	A1-3	GENERAL NOTES & SPECS

THE ARCHITECT IS NOT RESPONSIBLE FOR THE WORKMANSHIP OF THE CONTRACTOR. ALL LIABILITY OF THE ARCHITECT IS WAIVED WHEN THE CONTRACTOR OR OWNER DEVIATES FROM THESE DOCUMENTS WITHOUT WRITTEN APPROVAL FROM THE ARCHITECT

DO NOT SCALE THE PLANS. ALL DIMENSIONS SHALL BE CONFIRMED BY THE CONTRACTOR PRIOR TO ASSEMBLY.

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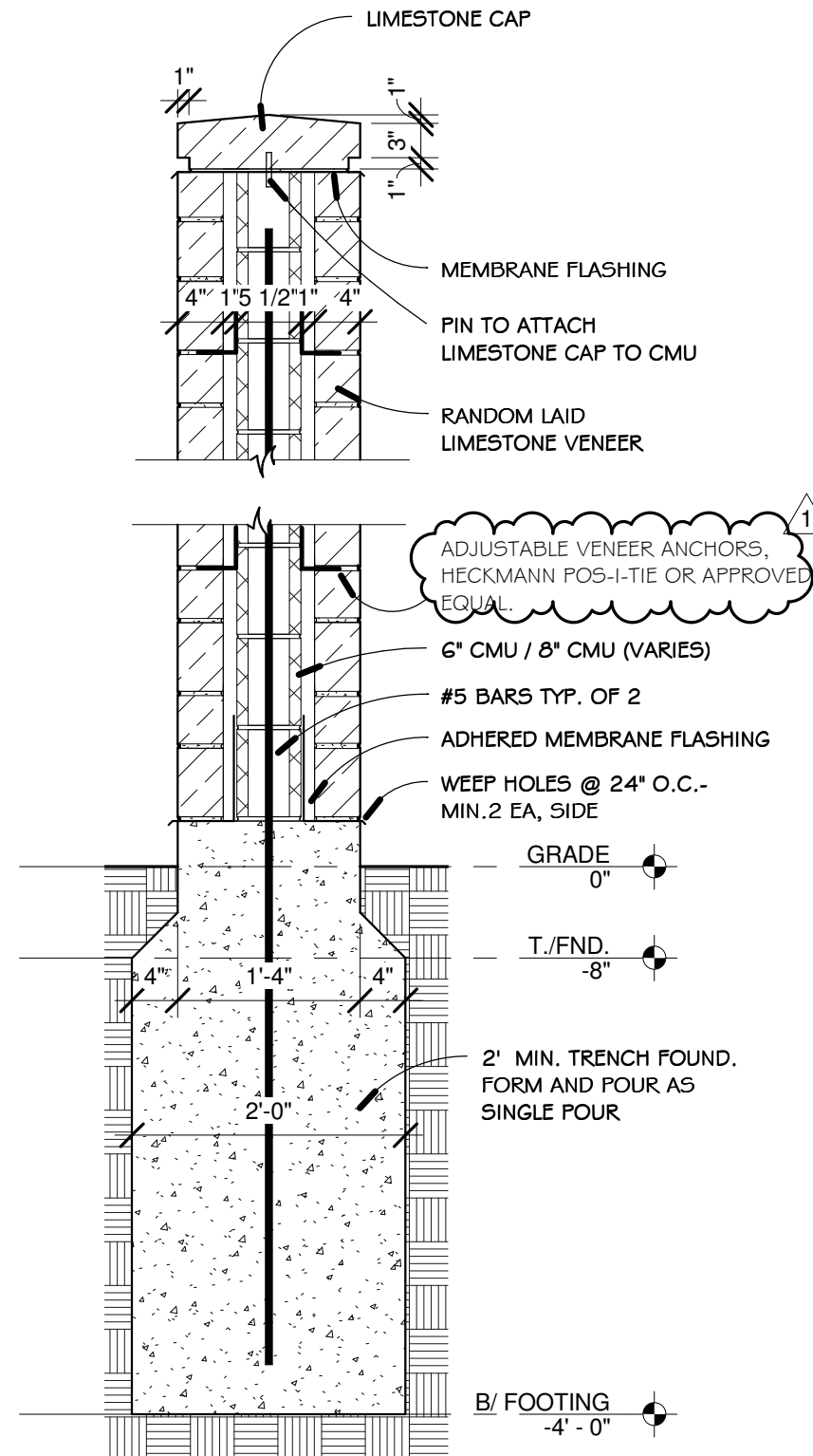
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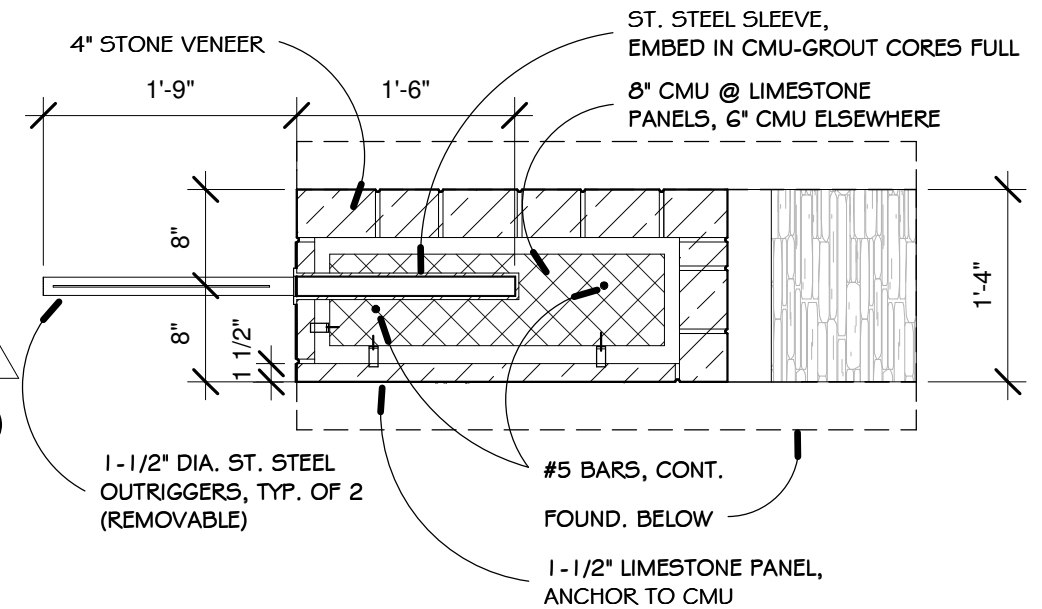
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DRAWN:	EP			
SCALE:	As indicated			
PROJECT NO.:	11-030			

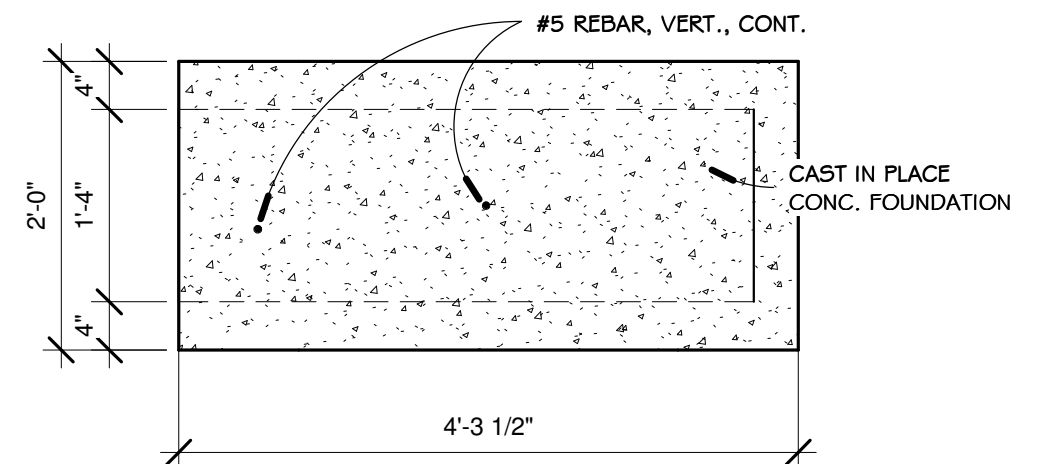
REVISION	DATE
REVISION 1	4/25/15



1 SECTION DETAIL
3/4" = 1'-0"



2 SECTION DETAIL PLAN
3/4" = 1'-0"



3 FOUNDATION PLAN
3/4" = 1'-0"

REVISION	DATE
REVISION 1	4/25/15

SOUTH ELGIN GATEWAY SIGN
SPRING ST./HOPPS RD., SOUTH ELGIN, 60177

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A1-2

SECTION 01000- GENERAL PROVISIONS

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1.02 MATERIALS AND SPECIFIC MANUFACTURERS SPECIFIED MAY BE CHANGED UPON REQUEST IF THE SUBSTITUTION IS OF COMPARABLE QUALITY, COST AND SERVICEABILITY AS DETERMINED BY THE ARCHITECT.

1.03 THE GENERAL CONTRACTOR SHALL PAY ALL REQUIRED FEES AND SECURE ALL PERMITS AS REQUIRED BY GOVERNING BODIES OVER THIS PROJECT.

1.04 THE GENERAL CONTRACTOR SHALL HAVE APPROPRIATE LIABILITY. OWNER AND ARCHITECT SHALL BE PROTECTED FROM ALL LIABILITES FROM THE CONTRACTOR, ITS EMPLOYEES, AGENTS OR SUBCONTRACTORS.

1.10 SURVEY OF EXISTING CONDITIONS
1.11 THE GENERAL CONTRACTOR, PRIOR TO SUBMITTING HIS BID, SHALL FIELD SURVEY SITE OF PROPOSED WORK TO DETERMINE THE EXTENT AND NATURE OF WORK, VERIFY ALL DIMENSIONS AND CONDITIONS SHOWN ON DRAWINGS AND ACQUAINT HIMSELF WITH THE EXISTING CONDITIONS PRIOR TO SUBMITTING HIS BID. ANY DISCREPANCIES, OMISSIONS OR CONFLICTS FOUND BETWEEN THE SITE CONDITIONS AND THOSE SHOWN ON THE DRAWINGS SHALL BE PROMPTLY BROUGHT TO THE ATTENTION OF THE ARCHITECT.

1.12 THE GENERAL CONTRACTOR SHALL NOTIFY ARCHITECT OF ANY UNFORESEEN JOB CONDITIONS WHICH MIGHT AFFECT PROJECT COSTS. CLAIMS FOR ADDITIONAL COMPENSATION AND/OR EXTENSIONS OF TIME BECAUSE OF THE CONTRACTOR'S FAILURE TO FOLLOW THE FOREGOING PROCEDURE AND TO FAMILIARIZE HIMSELF WITH THE CONTRACT DOCUMENTS AND ALL CONDITIONS WHICH MIGHT AFFECT WORK WILL NOT BE ALLOWED. EXTRA WORK AND/OR COSTS MUST BE APPROVED IN WRITING PRIOR TO CONSTRUCTION OF SUCH WORK.

1.20 PROVISIONS FOR LABOR AND MATERIAL
1.21 THE GENERAL CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIAL AND EQUIPMENT NECESSARY FOR THE SUCCESSFUL EXECUTION AND COMPLETION OF THIS PROJECT.

1.22 ALL MATERIALS, METHODS OF INSTALLATION AND FINISHING OF CONSTRUCTION SYSTEMS (PARTITIONS, CEILING, DOORS, FRAMES, FLOORS, ETC.) SHALL CONFORM TO THE MANUFACTURERS' SPECIFICATIONS AND INSTALLATION INSTRUCTION FOR THE EXPECTED USE.

1.30 KEEPING PREMISES CLEAN
1.31 THE GENERAL CONTRACTOR SHALL REMOVE ALL WASTE MATERIALS ON A REGULAR BASIS, AND SHALL PREVENT ANY DIRT, DEBRIS OR DUST FROM AFFECTING ANY FINISHED AREA.

1.32 THE GENERAL CONTRACTOR AND HIS SUBCONTRACTORS SHALL TURN THE PROJECT OVER TO THE OWNER FREE FROM ALL CONSTRUCTION DEBRIS, MATERIAL AND EQUIPMENT.

1.40 PROTECTION OF PERSONS AND PROPERTY
1.41 PRIOR TO THE COMMENCEMENT OF WORK, THE GENERAL CONTRACTOR SHALL PROTECT AREAS AND NEW OR EXISTING MATERIALS AND FINISHES FROM DAMAGE WHICH MAY OCCUR FROM CONSTRUCTION, DUST, WATER, ETC.

1.50 COORDINATION
1.51 THE GENERAL CONTRACTOR SHALL COORDINATE ALL TRADES REQUIRED TO PERFORM WORK AS OUTLINED IN THE CONTRACT DOCUMENTS.

1.60 DRAWINGS
1.61 DO NOT SCALE DRAWINGS. DIMENSIONS SHALL GOVERN. LARGE SCALE DETAILS SHALL GOVERN OVER SMALL SCALE DETAILS.

1.62 ALL DIMENSIONS ARE TO AND FROM WALL CENTERLINES OR NOMINAL STUD WIDTHS, U.N.O.

SECTION 03000 - STRUCTURAL CONCRETE

1. ALL CONCRETE WORK SHALL CONFORM TO THE REQUIREMENTS OF THE LATEST EDITIONS OF ACI 318 "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE" AND THE ACI 302 "GUIDE FOR CONCRETE FLOOR AND SLAB CONSTRUCTION".

2. SUBMIT FOR REVIEW CONCRETE DESIGN MIXES, INCLUDING REQUIRED BACK UP DATA, FOR EACH TYPE OF CONCRETE PROPOSED FOR USE IN THE WORK. PROVIDE AIR-ENTRAINING FOR ALL CONCRETE EXPOSED TO THE WEATHER UNLESS NOTED OTHERWISE WITH A RANGE OF AIR-ENTRAINMENT OF BETWEEN 5% AND 7%.

3. THE USE OF CALCIUM CHLORIDE IN ANY CONCRETE IS STRICTLY PROHIBITED.

4. REFER ACI 305 FOR REQUIREMENTS FOR PLACING CONCRETE IN COLD WEATHER.

5. LOCATE JOINTS, IF PROVIDED, AT POINTS OF MINIMUM STRESS. HORIZONTAL JOINTS IN ANY CONCRETE POURS ARE NOT PERMITTED.

6. CLEAN AND MOISTEN ALL CONSTRUCTION JOINTS IMMEDIATELY PRIOR TO PLACING FRESH CONCRETE.

7. WHERE WATERSTOPS ARE INDICATED ON PLANS, USE CONTINUOUS 6" PVC RIBBED STYLE.

8. REFER TO ACI 318, CHAPTER 7.7 FOR MINIMUM CONCRETE COVER REQUIREMENTS.

9. REFER TO ARCHITECTURAL, MECHANICAL, ELECTRICAL AND PLUMBING DRAWINGS FOR CURBS, PADS, DEPRESSIONS, WALL/SLAB OPENINGS, SPECIAL FINISHES, ETC. PROVIDE ONLY THOSE OPENINGS SHOWN ON THE APPROVED SHOP DRAWINGS. REINFORCED BARS SHALL NOT BE CUT OR DISPLACED FOR THE WORK OF OTHER TRADES WITHOUT THE APPROVAL OF THE STRUCTURAL ENGINEER.

10. DETAIL, FABRICATE, LABEL, SUPPORT AND PLACE ALL CONCRETE REINFORCEMENT IN ACCORDANCE ACI 315 "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES" AND ACI 318.

11. SUBMIT FOR REVIEW DETAILED SHOP DRAWINGS INDICATING REINFORCEMENT SIZE, SPACING AND PLACEMENT PRIOR TO FABRICATION. INCLUDE DETAILS AND LOCATIONS OF ALL CURBS, CONSTRUCTION JOINTS, SLAB DEPRESSIONS, SLEEVES, OPENINGS, ETC.

12. PROVIDE DOWELS, WHERE REQUIRED, TO MATCH MAIN REINFORCING SIZE AND SPACING.

13. LAP WELDED WIRE FABRIC ONE FULL MESH PANEL TYPICALLY AND TWO MESH PANELS AT ALL CONSTRUCTION JOINTS AND TIE SECURELY. LAP ALL CONTINUOUS REINFORCEMENT SHOWN ON PLANS A MINIMUM OF 36 BAR DIAMETERS OR 24" WHICHEVER IS GREATER. LAP TOP BARS ONLY AT MIDSPAN AND BOTTOM BARS ONLY OVER SUPPORTS.

14. PROVIDE ONLY CONCRETE AND REINFORCING MATERIAL OF THE TYPES AND GRADES LISTED IN THE TABLE BELOW

CONCRETE	F'c (PSI)	UNIT WEIGHT (PCF)
FOOTINGS	3000 PSI	150 PCF
SLAB ON GRADE	4000 PSI	150 PCF
ALL OTHER CONCRETE	3000PSI	150 PCF
REINFORCING BARS	ASTM A-615	GRADE 60
WELDED WIRE FABRIC	ASTM A-82 AND ASTM A-185	FOR PLAIN BARS
- FIBERMESH REINFORCING		
WELDABLE BARS	ASTM A-706	

15. BASEPLATES, ANCHOR BOLTS, SUPPORT ANGLES, ETC. BELOW GRAD SHALL BE COVERED WITH A MINIMUM OF 3 INCHES OF CONCRETE

SECTION 042000- UNIT MASONRY

A. UNIT MASONRY: COMPLY WITH ACI 530.1/ASCE 6/TMS 602.
B. CONCRETE MASONRY UNITS: ASTM C 90; DENSITY CLASSIFICATION, MEDIUM WEIGHT.
1. SPECIAL SHAPES FOR LINTELS, CORNERS, JAMBS, SASH, CONTROL JOINTS, AND OTHER SPECIAL CONDITIONS.
2. SQUARE-EDGED UNITS FOR OUTSIDE CORNERS UNLESS OTHERWISE INDICATED.

B. FACE BRICK: ASTM C 216, GRADE SW, TYPE FBX.

1. PRODUCTS OR A COMPARABLE PRODUCT APPROVED BY ARCHITECT.
2. SIZE: 3-1/2 INCHES WIDE BY 2-1/4 INCHES HIGH BY 7-1/2 INCHES LONG OR 3-5/8 INCHES WIDE BY 2-1/4 INCHES HIGH BY 7-5/8 INCHES LONG.
3. SOLID BRICK WITH EXPOSED SURFACES FINISHED FOR ENDS OF SILLS AND CAPS.
4. SPECIAL SHAPES FOR APPLICATIONS WHERE SHAPES PRODUCED BY SAWING WOULD RESULT IN SAWED SURFACES BEING EXPOSED TO VIEW.

2.3 MORTAR AND GROUT
A. MORTAR: ASTM C 270, PROPORTION SPECIFICATION.
1. USE PORTLAND CEMENT-LIME MORTAR.
2. DO NOT USE CALCIUM CHLORIDE IN MORTAR.
3. FOR MASONRY BELOW GRADE OR IN CONTACT WITH EARTH, USE TYPE M.
4. FOR REINFORCED MASONRY, USE TYPE S.
5. FOR EXTERIOR, ABOVE-GRADE, LOAD-BEARING AND NON-LOAD-BEARING WALLS AND PARAPET WALLS; FOR INTERIOR LOAD-BEARING WALLS; FOR INTERIOR NON-LOAD-BEARING PARTITIONS, AND FOR OTHER APPLICATIONS WHERE ANOTHER TYPE IS NOT INDICATED, USE TYPE N.
6. COLORED MORTAR: FOR FACE BRICK, USE COLORED CEMENT OR CEMENT-LIME MIX OF COLOR SELECTED.

B. GROUT: ASTM C 476 WITH A SLUMP OF 8 TO 11 INCHES.

2.4 REINFORCEMENT, TIES, AND ANCHORS
A. STEEL REINFORCING BARS: ASTM A 615/A 615M OR ASTM A 996/A 996M, GRADE 60.
B. JOINT REINFORCEMENT: ASTM A 951.
1. COATING: HOT-DIP GALVANIZED AT BOTH INTERIOR AND EXTERIOR WALLS.
2. WIRE SIZE FOR VENEER TIES: 0.148-INCH DIAMETER.
C. CORRUGATED-METAL VENEER ANCHORS: 7/8 INCH WIDE AND MADE FROM 0.030-INCH- THICK STEEL SHEET, GALVANIZED AFTER FABRICATION (FOR WOOD BACKUP ONLY)
D. VENEER ANCHORS: HOT-DIP GALVANIZED STEEL, TWO-PIECE ADJUSTABLE MASONRY VENEER ANCHORS THAT ALLOW VERTICAL OR HORIZONTAL ADJUSTMENT BUT RESIST TENSION AND COMPRESSION FORCES PERPENDICULAR TO PLANE OF WALL, FOR ATTACHMENT OVER SHEATHING TO STUDS, AND ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION.

2.5 EMBEDDED FLASHING MATERIALS

A. THE FLASHING SYSTEM FOR ALL HEADS, SILLS, SHELF ANGLES, SPANDRELS, THRU-WALL CONDITIONS AND OTHER LOCATIONS WHERE INDICATED, SHALL CONSIST OF A SELF-ADHESIVE RUBBERIZED ASPHALT LAMINATED FLASHING MATERIAL, SELF-ADHESIVE PRE-FORMED FLASHING CORNERS AND END-DAMS, AND STAINLESS STEEL DRIP-EDGE, ALL PROVIDED BY A SINGLE-SOURCE AND INSTALLED AS A FLASHING SYSTEM. FIELD FABRICATED INSIDE CORNERS, OUTSIDE CORNERS, OR END-DAMS WILL NOT BE ALLOWED. THE MANUFACTURER SHALL PREFORM ALL CORNERS AND END-DAMS.

1. SELF-ADHESIVE RUBBERIZED ASPHALT: MANUFACTURER'S STANDARD COMPOSITE FLASHING PRODUCT CONSISTING OF A PLIABLE AND HIGHLY ADHESIVE RUBBERIZED-ASPHALT COMPOUND, BONDED TO A HIGH-DENSITY, CROSS-LAMINATED POLYETHYLENE FILM TO PRODUCE AN OVERALL THICKNESS OF 0.040 INCH.
2. STAINLESS STEEL DRIP EDGE: 0.0156-INCH THICK TYPE 304 STAINLESS STEEL. DRIP EDGE SHALL BE 2 INCHES DEEP BY 8'-0" LONG AND CONTAIN A HEMMED EDGE. CORNER EDGES SHALL BE PREFORMED.

2.6 MISCELLANEOUS MASONRY ACCESSORIES

A. COMPRESSIBLE FILLER: PREMOLDED STRIPS COMPLYING WITH ASTM D 1056, GRADE 2A1.
B. PREFORMED CONTROL-JOINT GASKETS: DESIGNED TO FIT STANDARD SASH BLOCK AND TO MAINTAIN LATERAL STABILITY IN MASONRY WALL; MADE FROM STYRENE-BUTADIENE RUBBER OR PVC.
C. WEEP HOLES: COTTON OR POLYESTER ROPE, 1/4 TO 3/8 INCH IN DIAMETER, 24 INCHES LONG.
D. CAVITY DRAINAGE MATERIAL: FREE-DRAINING POLYMER MESH, FULL DEPTH OF CAVITY.

EXECUTION
3.1 INSTALLATION, GENERAL
A. CUT MASONRY UNITS WITH SAW. INSTALL WITH CUT SURFACES AND, WHERE POSSIBLE, CUT EDGES CONCEALED.
B. MIX UNITS FOR EXPOSED UNIT MASONRY FROM SEVERAL PALLETS OR CUBES AS THEY ARE PLACED TO PRODUCE UNIFORM BLEND OF COLORS AND TEXTURES.
C. STOPPING AND RESUMING WORK: RACK BACK UNITS; DO NOT TOOTH.
D. FILL CORES IN HOLLOW CONCRETE MASONRY UNITS WITH GROUT 24 INCHES UNDER BEARING PLATES, BEAMS, LINTELS, POSTS, AND SIMILAR ITEMS UNLESS OTHERWISE INDICATED.
E. BUILD NON-LOAD-BEARING INTERIOR PARTITIONS FULL HEIGHT AND INSTALL COMPRESSIBLE FILLER IN JOINT BETWEEN TOP OF PARTITION AND UNDERSIDE OF STRUCTURE ABOVE.
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E. IF FLASHING TERMINATES IN A VERTICAL POSITION, INSTALL A BEAD OF MASTIC ALONG THE TOP EDGE OF THE FLASHING.
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FOR PERMIT

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SPRING ST./HOPPS RD., SOUTH ELGIN, 60177

DATE:

11/18/14

DRAWN:

Author

SCALE:

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PROJECT NO.:

11-030

ALLENPEPA

ARCHITECTS

ELGIN STUDIO, INC

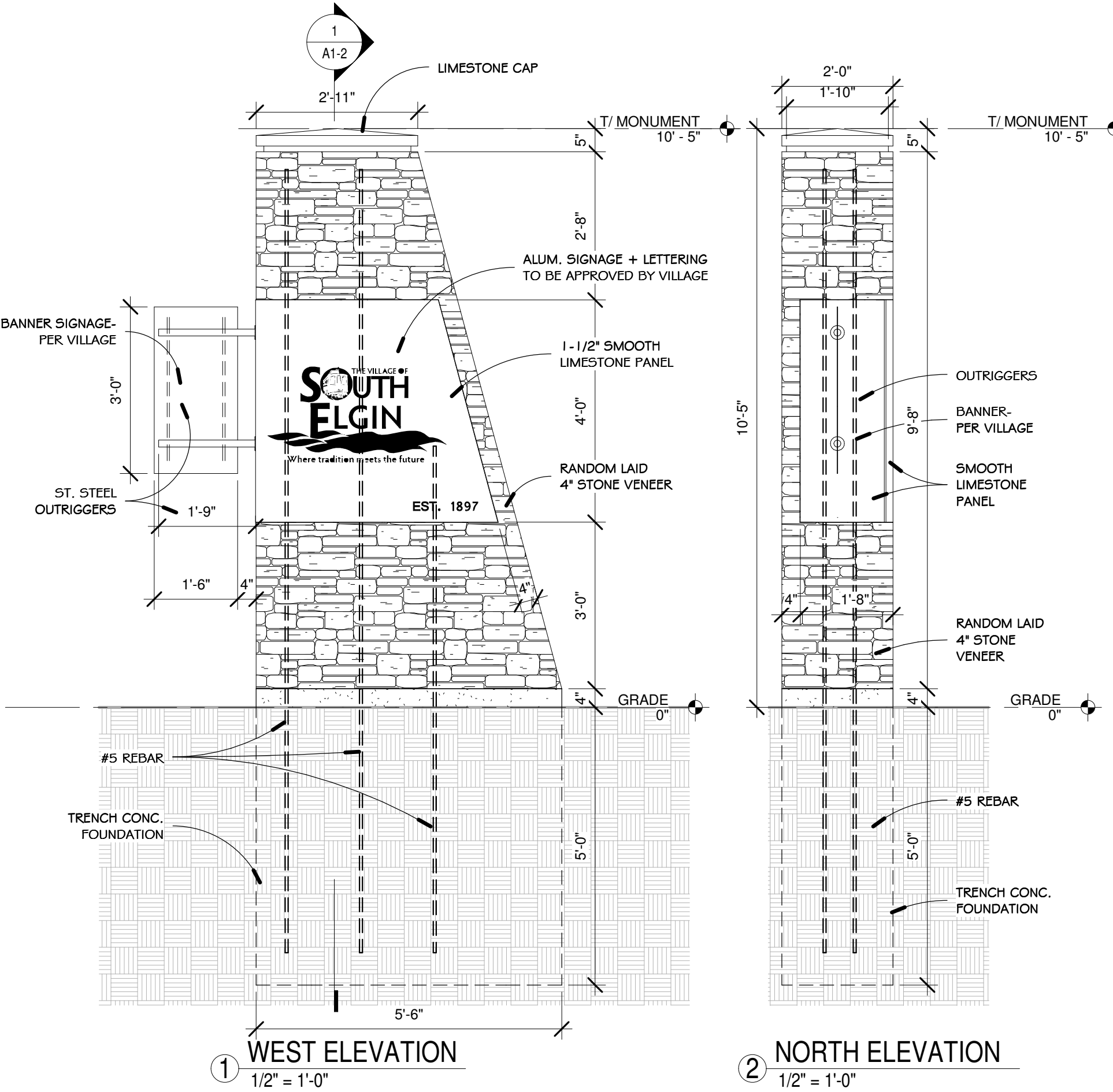
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A1-3



LIST OF DRAWINGS		
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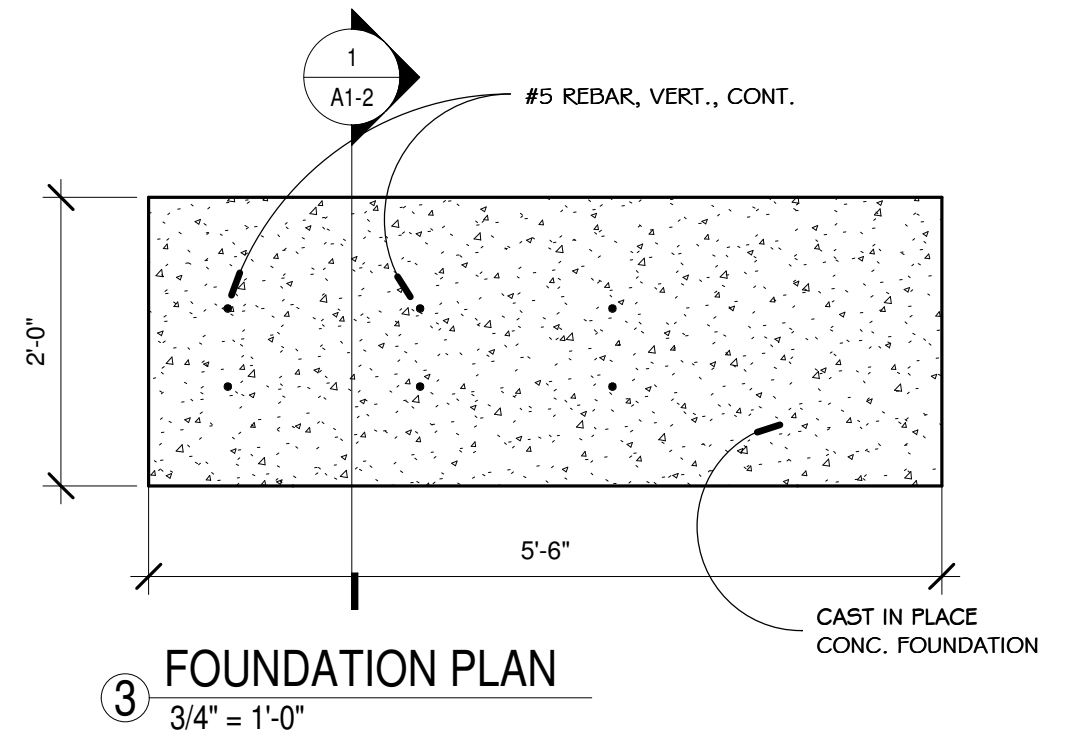
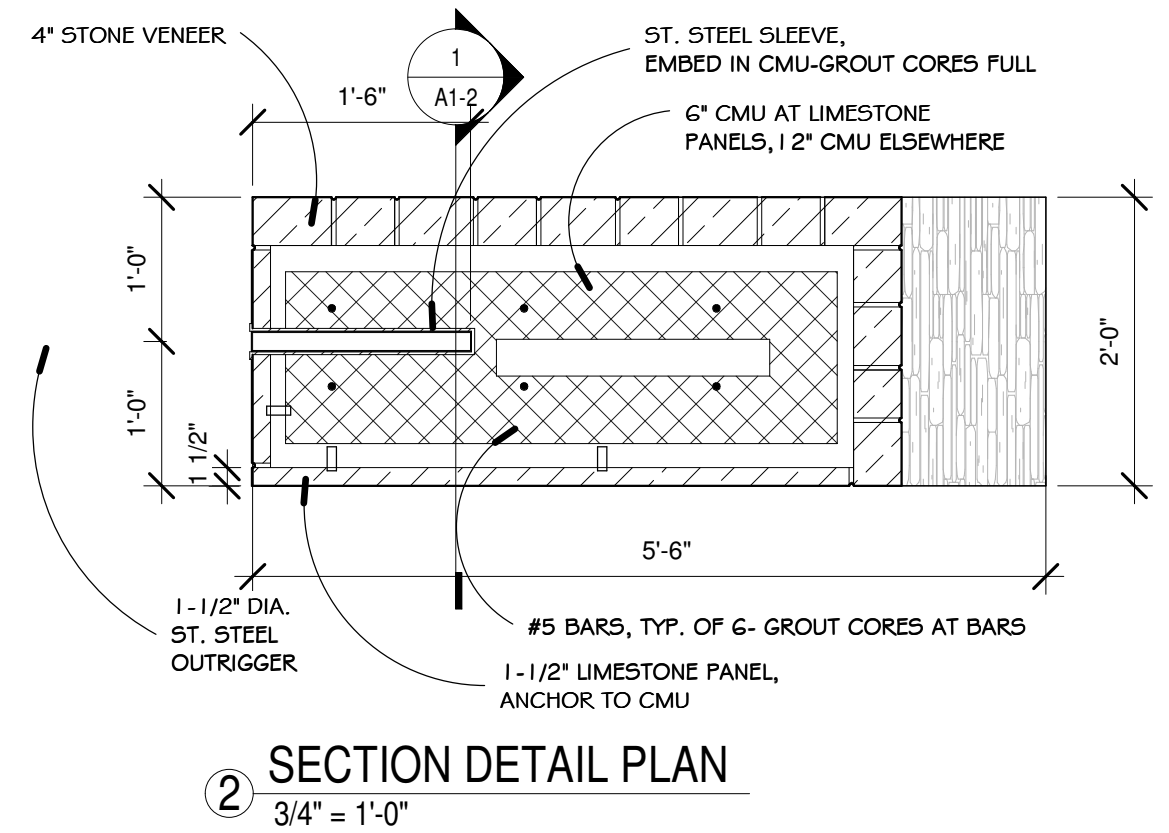
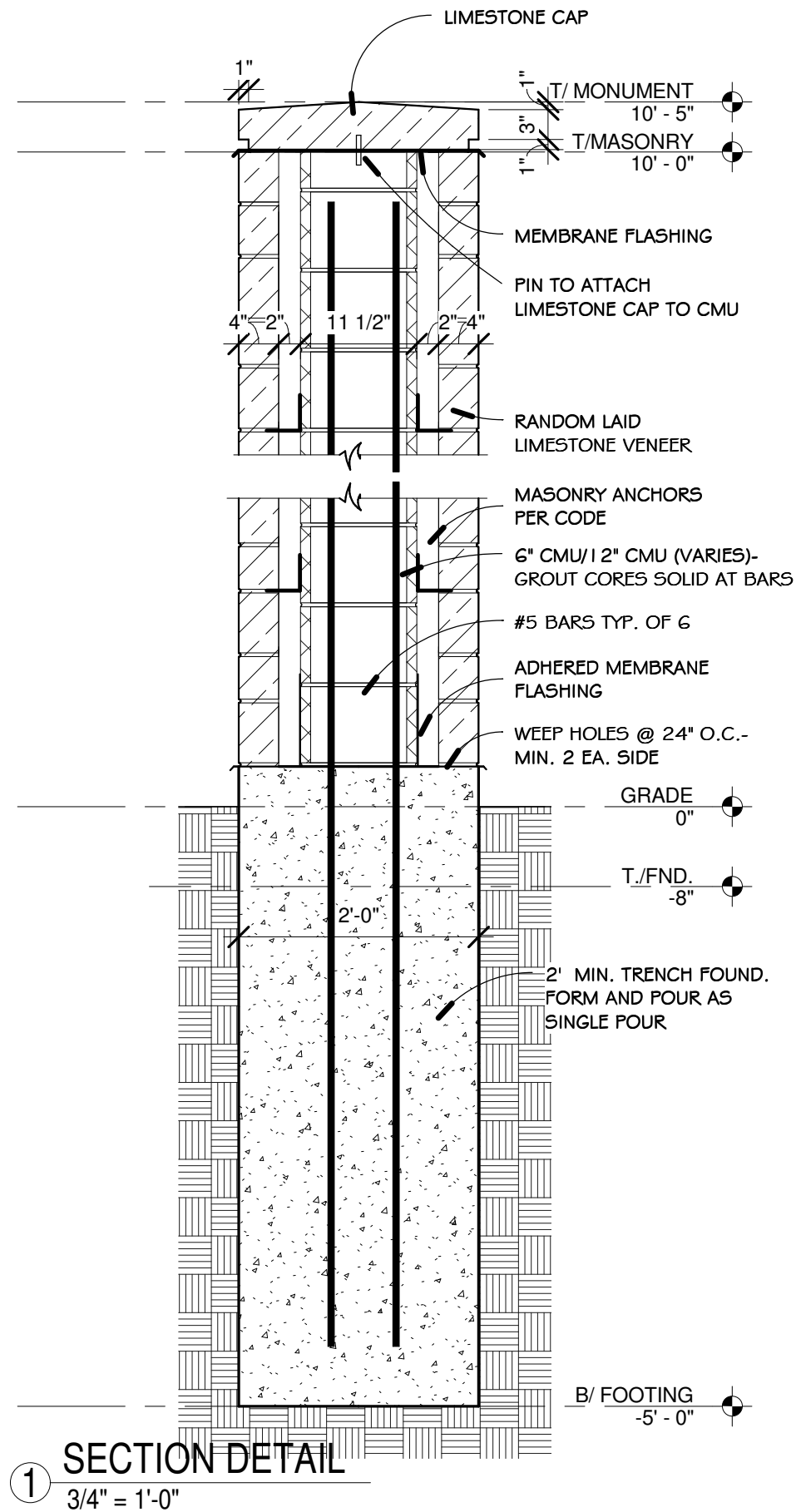
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DATE OF SIGNATURE:

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SOUTH ELGIN GATEWAY SIGN
SILVER GLEN RD., SOUTH ELGIN, 60177

DATE: 11/26/14
DRAWN: EP
SCALE: 3/4" = 1'-0"
PROJECT NO.: 11-030

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1.04 THE GENERAL CONTRACTOR SHALL HAVE APPROPRIATE LIABILITY. OWNER AND ARCHITECT SHALL BE PROTECTED FROM ALL LIABILITES FROM THE CONTRACTOR, ITS EMPLOYEES, AGENTS OR SUBCONTRACTORS.

1.10 SURVEY OF EXISTING CONDITIONS
1.11 THE GENERAL CONTRACTOR, PRIOR TO SUBMITTING HIS BID, SHALL FIELD SURVEY SITE OF PROPOSED WORK TO DETERMINE THE EXTENT AND NATURE OF WORK, VERIFY ALL DIMENSIONS AND CONDITIONS SHOWN ON DRAWINGS AND ACQUAINT HIMSELF WITH THE EXISTING CONDITIONS PRIOR TO SUBMITTING HIS BID. ANY DISCREPANCIES, OMISSIONS OR CONFLICTS FOUND BETWEEN THE SITE CONDITIONS AND THOSE SHOWN ON THE DRAWINGS SHALL BE PROMPTLY BROUGHT TO THE ATTENTION OF THE ARCHITECT.

1.12 THE GENERAL CONTRACTOR SHALL NOTIFY ARCHITECT OF ANY UNFORESEEN JOB CONDITIONS WHICH MIGHT AFFECT PROJECT COSTS. CLAIMS FOR ADDITIONAL COMPENSATION AND/OR EXTENSIONS OF TIME BECAUSE OF THE CONTRACTOR'S FAILURE TO FOLLOW THE FOREGOING PROCEDURE AND TO FAMILIARIZE HIMSELF WITH THE CONTRACT DOCUMENTS AND ALL CONDITIONS WHICH MIGHT AFFECT WORK WILL NOT BE ALLOWED. EXTRA WORK AND/OR COSTS MUST BE APPROVED IN WRITING PRIOR TO CONSTRUCTION OF SUCH WORK.

1.20 PROVISIONS FOR LABOR AND MATERIAL
1.21 THE GENERAL CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIAL AND EQUIPMENT NECESSARY FOR THE SUCCESSFUL EXECUTION AND COMPLETION OF THIS PROJECT.

1.22 ALL MATERIALS, METHODS OF INSTALLATION AND FINISHING OF CONSTRUCTION SYSTEMS (PARTITIONS, CEILING, DOORS, FRAMES, FLOORS, ETC.) SHALL CONFORM TO THE MANUFACTURERS' SPECIFICATIONS AND INSTALLATION INSTRUCTION FOR THE EXPECTED USE.

1.30 KEEPING PREMISES CLEAN
1.31 THE GENERAL CONTRACTOR SHALL REMOVE ALL WASTE MATERIALS ON A REGULAR BASIS, AND SHALL PREVENT ANY DIRT, DEBRIS OR DUST FROM AFFECTING ANY FINISHED AREA.

1.32 THE GENERAL CONTRACTOR AND HIS SUBCONTRACTORS SHALL TURN THE PROJECT OVER TO THE OWNER FREE FROM ALL CONSTRUCTION DEBRIS, MATERIAL AND EQUIPMENT.

1.40 PROTECTION OF PERSONS AND PROPERTY
1.41 PRIOR TO THE COMMENCEMENT OF WORK, THE GENERAL CONTRACTOR SHALL PROTECT AREAS AND NEW OR EXISTING MATERIALS AND FINISHES FROM DAMAGE WHICH MAY OCCUR FROM CONSTRUCTION, DUST, WATER, ETC.

1.50 COORDINATION
1.51 THE GENERAL CONTRACTOR SHALL COORDINATE ALL TRADES REQUIRED TO PERFORM WORK AS OUTLINED IN THE CONTRACT DOCUMENTS.

1.60 DRAWINGS
1.61 DO NOT SCALE DRAWINGS. DIMENSIONS SHALL GOVERN. LARGE SCALE DETAILS SHALL GOVERN OVER SMALL SCALE DETAILS.

1.62 ALL DIMENSIONS ARE TO AND FROM WALL CENTERLINES OR NOMINAL STUD WIDTHS, U.N.O.

SECTION 03000 - STRUCTURAL CONCRETE

1. ALL CONCRETE WORK SHALL CONFORM TO THE REQUIREMENTS OF THE LATEST EDITIONS OF ACI 318 "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE" AND THE ACI 302 "GUIDE FOR CONCRETE FLOOR AND SLAB CONSTRUCTION".

2. SUBMIT FOR REVIEW CONCRETE DESIGN MIXES, INCLUDING REQUIRED BACK UP DATA, FOR EACH TYPE OF CONCRETE PROPOSED FOR USE IN THE WORK. PROVIDE AIR-ENTRAINING FOR ALL CONCRETE EXPOSED TO THE WEATHER UNLESS NOTED OTHERWISE WITH A RANGE OF AIR-ENTRAINMENT OF BETWEEN 5% AND 7%.

3. THE USE OF CALCIUM CHLORIDE IN ANY CONCRETE IS STRICTLY PROHIBITED.

4. REFER ACI 305 FOR REQUIREMENTS FOR PLACING CONCRETE IN COLD WEATHER.

5. LOCATE JOINTS, IF PROVIDED, AT POINTS OF MINIMUM STRESS. HORIZONTAL JOINTS IN ANY CONCRETE POURS ARE NOT PERMITTED.

6. CLEAN AND MOISTEN ALL CONSTRUCTION JOINTS IMMEDIATELY PRIOR TO PLACING FRESH CONCRETE.

7. WHERE WATERSTOPS ARE INDICATED ON PLANS, USE CONTINUOUS 6" PVC RIBBED STYLE.

8. REFER TO ACI 318, CHAPTER 7.7 FOR MINIMUM CONCRETE COVER REQUIREMENTS.

9. REFER TO ARCHITECTURAL, MECHANICAL, ELECTRICAL AND PLUMBING DRAWINGS FOR CURBS, PADS, DEPRESSIONS, WALL/SLAB OPENINGS, SPECIAL FINISHES, ETC. PROVIDE ONLY THOSE OPENINGS SHOWN ON THE APPROVED SHOP DRAWINGS. REINFORCED BARS SHALL NOT BE CUT OR DISPLACED FOR THE WORK OF OTHER TRADES WITHOUT THE APPROVAL OF THE STRUCTURAL ENGINEER.

10. DETAIL, FABRICATE, LABEL, SUPPORT AND PLACE ALL CONCRETE REINFORCEMENT IN ACCORDANCE ACI 315 "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES" AND ACI 318.

11. SUBMIT FOR REVIEW DETAILED SHOP DRAWINGS INDICATING REINFORCEMENT SIZE, SPACING AND PLACEMENT PRIOR TO FABRICATION. INCLUDE DETAILS AND LOCATIONS OF ALL CURBS, CONSTRUCTION JOINTS, SLAB DEPRESSIONS, SLEEVES, OPENINGS, ETC.

12. PROVIDE DOWELS, WHERE REQUIRED, TO MATCH MAIN REINFORCING SIZE AND SPACING.

13. LAP WELDED WIRE FABRIC ONE FULL MESH PANEL TYPICALLY AND TWO MESH PANELS AT ALL CONSTRUCTION JOINTS AND TIE SECURELY. LAP ALL CONTINUOUS REINFORCEMENT SHOWN ON PLANS A MINIMUM OF 36 BAR DIAMETERS OR 24" WHICHEVER IS GREATER. LAP TOP BARS ONLY AT MIDSPAN AND BOTTOM BARS ONLY OVER SUPPORTS.

14. PROVIDE ONLY CONCRETE AND REINFORCING MATERIAL OF THE TYPES AND GRADES LISTED IN THE TABLE BELOW

CONCRETE	F'c (PSI)	UNIT WEIGHT (PCF)
FOOTINGS	3000 PSI	150 PCF
SLAB ON GRADE	4000 PSI	150 PCF
ALL OTHER CONCRETE	3000PSI	150 PCF
REINFORCING BARS	ASTM A-615	GRADE 60
WELDED WIRE FABRIC	ASTM A-82 AND ASTM A-185	FOR PLAIN BARS
- FIBERMESH REINFORCING		
WELDABLE BARS	ASTM A-706	

15. BASEPLATES, ANCHOR BOLTS, SUPPORT ANGLES, ETC. BELOW GRAD SHALL BE COVERED WITH A MINIMUM OF 3 INCHES OF CONCRETE

SECTION 042000- UNIT MASONRY

A. UNIT MASONRY: COMPLY WITH ACI 530.1/ASCE 6/TMS 602.
B. CONCRETE MASONRY UNITS: ASTM C 90; DENSITY CLASSIFICATION, MEDIUM WEIGHT.
1. SPECIAL SHAPES FOR LINTELS, CORNERS, JAMBS, SASH, CONTROL JOINTS, AND OTHER SPECIAL CONDITIONS.
2. SQUARE-EDGED UNITS FOR OUTSIDE CORNERS UNLESS OTHERWISE INDICATED.

B. FACE BRICK: ASTM C 216, GRADE SW, TYPE FBX.

1. PRODUCTS OR A COMPARABLE PRODUCT APPROVED BY ARCHITECT.
2. SIZE: 3-1/2 INCHES WIDE BY 2-1/4 INCHES HIGH BY 7-1/2 INCHES LONG OR 3-5/8 INCHES WIDE BY 2-1/4 INCHES HIGH BY 7-5/8 INCHES LONG.
3. SOLID BRICK WITH EXPOSED SURFACES FINISHED FOR ENDS OF SILLS AND CAPS.
4. SPECIAL SHAPES FOR APPLICATIONS WHERE SHAPES PRODUCED BY SAWING WOULD RESULT IN SAWED SURFACES BEING EXPOSED TO VIEW.

2.3 MORTAR AND GROUT
A. MORTAR: ASTM C 270, PROPORTION SPECIFICATION.
1. USE PORTLAND CEMENT-LIME MORTAR.
2. DO NOT USE CALCIUM CHLORIDE IN MORTAR.
3. FOR MASONRY BELOW GRADE OR IN CONTACT WITH EARTH, USE TYPE M.
4. FOR REINFORCED MASONRY, USE TYPE S.
5. FOR EXTERIOR, ABOVE-GRADE, LOAD-BEARING AND NON-LOAD-BEARING WALLS AND PARAPET WALLS; FOR INTERIOR LOAD-BEARING WALLS; FOR INTERIOR NON-LOAD-BEARING PARTITIONS, AND FOR OTHER APPLICATIONS WHERE ANOTHER TYPE IS NOT INDICATED, USE TYPE N.
6. COLORED MORTAR: FOR FACE BRICK, USE COLORED CEMENT OR CEMENT-LIME MIX OF COLOR SELECTED.

B. GROUT: ASTM C 476 WITH A SLUMP OF 8 TO 11 INCHES.

2.4 REINFORCEMENT, TIES, AND ANCHORS
A. STEEL REINFORCING BARS: ASTM A 615/A 615M OR ASTM A 996/A 996M, GRADE 60.
B. JOINT REINFORCEMENT: ASTM A 951.
1. COATING: HOT-DIP GALVANIZED AT BOTH INTERIOR AND EXTERIOR WALLS.
2. WIRE SIZE FOR VENEER TIES: 0.148-INCH DIAMETER.
C. CORRUGATED-METAL VENEER ANCHORS: 7/8 INCH WIDE AND MADE FROM 0.030-INCH- THICK STEEL SHEET, GALVANIZED AFTER FABRICATION.
D. VENEER ANCHORS: HOT-DIP GALVANIZED STEEL, TWO-PIECE ADJUSTABLE MASONRY VENEER ANCHORS THAT ALLOW VERTICAL OR HORIZONTAL ADJUSTMENT BUT RESIST TENSION AND COMPRESSION FORCES PERPENDICULAR TO PLANE OF WALL, FOR ATTACHMENT OVER SHEATHING TO STUDS, AND ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION.

2.5 EMBEDDED FLASHING MATERIALS

A. THE FLASHING SYSTEM FOR ALL HEADS, SILLS, SHELF ANGLES, SPANDRELS, THRU-WALL CONDITIONS AND OTHER LOCATIONS WHERE INDICATED, SHALL CONSIST OF A SELF-ADHESIVE RUBBERIZED ASPHALT LAMINATED FLASHING MATERIAL, SELF-ADHESIVE PRE-FORMED FLASHING CORNERS AND END-DAMS, AND STAINLESS STEEL DRIP-EDGE, ALL PROVIDED BY A SINGLE-SOURCE AND INSTALLED AS A FLASHING SYSTEM. FIELD FABRICATED INSIDE CORNERS, OUTSIDE CORNERS, OR END-DAMS WILL NOT BE ALLOWED. THE MANUFACTURER SHALL PREFORM ALL CORNERS AND END-DAMS.

1. SELF-ADHESIVE RUBBERIZED ASPHALT: MANUFACTURER'S STANDARD COMPOSITE FLASHING PRODUCT CONSISTING OF A PLIABLE AND HIGHLY ADHESIVE RUBBERIZED-ASPHALT COMPOUND, BONDED TO A HIGH-DENSITY, CROSS-LAMINATED POLYETHYLENE FILM TO PRODUCE AN OVERALL THICKNESS OF 0.040 INCH.
2. STAINLESS STEEL DRIP EDGE: 0.0156-INCH THICK TYPE 304 STAINLESS STEEL. DRIP EDGE SHALL BE 2 INCHES DEEP BY 8'-0" LONG AND CONTAIN A HEMMED EDGE. CORNER EDGES SHALL BE PREFORMED.

2.6 MISCELLANEOUS MASONRY ACCESSORIES

A. COMPRESSIBLE FILLER: PREMOLDED STRIPS COMPLYING WITH ASTM D 1056, GRADE 2A1.
B. PREFORMED CONTROL-JOINT GASKETS: DESIGNED TO FIT STANDARD SASH BLOCK AND TO MAINTAIN LATERAL STABILITY IN MASONRY WALL; MADE FROM STYRENE-BUTADIENE RUBBER OR PVC.
C. WEEP HOLES: COTTON OR POLYESTER ROPE, 1/4 TO 3/8 INCH IN DIAMETER, 24 INCHES LONG.
D. CAVITY DRAINAGE MATERIAL: FREE-DRAINING POLYMER MESH, FULL DEPTH OF CAVITY.

EXECUTION
3.1 INSTALLATION, GENERAL
A. CUT MASONRY UNITS WITH SAW. INSTALL WITH CUT SURFACES AND, WHERE POSSIBLE, CUT EDGES CONCEALED.
B. MIX UNITS FOR EXPOSED UNIT MASONRY FROM SEVERAL PALLETS OR CUBES AS THEY ARE PLACED TO PRODUCE UNIFORM BLEND OF COLORS AND TEXTURES.
C. STOPPING AND RESUMING WORK: RACK BACK UNITS; DO NOT TOOTH.
D. FILL CORES IN HOLLOW CONCRETE MASONRY UNITS WITH GROUT 24 INCHES UNDER BEARING PLATES, BEAMS, LINTELS, POSTS, AND SIMILAR ITEMS UNLESS OTHERWISE INDICATED.
E. BUILD NON-LOAD-BEARING INTERIOR PARTITIONS FULL HEIGHT AND INSTALL COMPRESSIBLE FILLER IN JOINT BETWEEN TOP OF PARTITION AND UNDERSIDE OF STRUCTURE ABOVE.
F. TOOL EXPOSED JOINTS SLIGHTLY CONCAVE WHEN THUMBPRINT HARD UNLESS OTHERWISE INDICATED.
G. KEEP CAVITIES CLEAN OF MORTAR DROPPINGS AND OTHER MATERIALS DURING CONSTRUCTION.

3.3 FLASHING AND WEEP HOLES

A. INSTALL EMBEDDED FLASHING AND WEEP HOLES IN MASONRY AT SHELF ANGLES, LINTELS, LEDGES, OTHER OBSTRUCTIONS TO THE DOWNWARD FLOW OF WATER IN THE WALL, AND WHERE INDICATED.
B. INSTALL METAL DRIP EDGES BENEATH FLASHING AT EXTERIOR FACE OF WALL.
C. STAINLESS STEEL DRIP EDGE SHALL BE HELD IN PLACE DURING CONSTRUCTION WITH A CONTINUOUS BEAD OF URETHANE SEALANT. THE BENT HEMMED EDGE PORTION OF THE STAINLESS STEEL DRIP EDGE SHALL EXTEND BEYOND THE VERTICAL FACE OF THE MASONRY WALL. INSTALL THE SELF- ADHESIVE RUBBERIZED ASPHALT FLASHING OVER THE STAINLESS STEEL DROP EDGE AND RECESSED 3/4" FROM THE VERTICAL FACE OF THE MASONRY WALL SO THAT THE FLASHING WILL BE COMPLETELY COVERED BY MORTAR WHEN THE REMAINDER OF THE MASONRY WALL IS CONSTRUCTED.
D. OVERLAP THE FLASHING SEGMENT AND/OR ANY FLASHING CORNERS AND END-DAMS A MINIMUM OF 4" FORMING A CONTINUOUS MOISTURE BARRIER TO DIRECT THE FLOW OF WATER TO THE EXTERIOR AND/OR WEEP HOLES. ALL TOP EDGES AND OVERLAPS SHALL BE SEALED WITH A BEAD OF THE MANUFACTURED RECOMMENDED MASTIC.
E. IF FLASHING TERMINATES IN A VERTICAL POSITION, INSTALL A BEAD OF MASTIC ALONG THE TOP EDGE OF THE FLASHING.
F. TRIM WICKING MATERIAL USED IN WEEP HOLES FLUSH WITH OUTSIDE FACE OF WALL AFTER MORTAR HAS SET.

3.4 FIELD QUALITY CONTROL
A. TESTING AND INSPECTING: OWNER WILL ENGAGE SPECIAL INSPECTORS TO PERFORM TESTS AND INSPECTIONS REQUIRED BY AUTHORITIES HAVING JURISDICTION.

1. INSPECTIONS: LEVEL 1 SPECIAL INSPECTIONS ACCORDING TO THE IBC.
2. PLACE GROUT ONLY AFTER INSPECTORS HAVE VERIFIED COMPLIANCE OF GROUT SPACES AND OF GRADES, SIZES, AND LOCATIONS OF REINFORCEMENT.

3.5 CLEANING
A. CLEAN MASONRY AS WORK PROGRESSES. REMOVE MORTAR FINS AND SMEARS BEFORE TOOLING JOINTS.

B. FINAL CLEANING: AFTER MORTAR IS THOROUGHLY CURED, CLEAN EXPOSED MASONRY.
1. WET WALL SURFACES WITH WATER BEFORE APPLYING ACIDIC CLEANER, THEN REMOVE CLEANER PROMPTLY BY RINSING THOROUGHLY WITH CLEAR WATER.
2. CLEAN MASONRY WITH A PROPRIETARY ACIDIC CLEANER APPLIED ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS.

FOR PERMIT

SOUTH ELGIN GATEWAY SIGN		DATE:	11/18/14		ELGIN STUDIO, INC 81 S. McLEAN BLVD., SUITE A SOUTH ELGIN, IL 60177 Ph. 847.695.7092 / Fx. 847.628.5744 www.allenpepa.com	A1-3
SILVER GLEN RD., SOUTH ELGIN, 60177		DRAWN:	Author			
		SCALE:	1/4" = 1'-0"			
		PROJECT NO.:	11-030			

FOR PERMIT



THE VILLAGE OF
**SOUTH
ELGIN**

Where tradition meets the future



**NATIONAL
SEED**



Greenskeeper Drought Beater Mixture

APPLICATIONS

- Traffic areas
- Sports fields
- Residential lawns
- Commercial sites
- Controls troublesome weeds
- Performs well under both heavy and light soils



SEEDING RATES

New Seeding Rate: 8 to 10 pounds per 1,000 square feet

Over Seeding Rate: 5 to 7 pounds per 1,000 square feet

MIXTURE HIGHLIGHTS

- Tested and approved by the Turfgrass Water Conservation Alliance (TWCA) as your guarantee of true water savings. These varieties meet a very stringent set of testing criteria to merit the Green Guard H₂O Seal of Approval.
- Requires less water, fertilizer, and mowing than most other grasses. Reduces need for inputs.
- Formula produces some rhizomes for lateral spreading.
- Very drought and traffic tolerant.
- Components consist of newer, fine-bladed tall fescues.
- Contains endophyte for disease resistance.
- Beautiful overall turf quality and color.

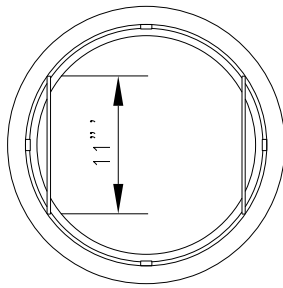
Please note that varieties may vary depending on availability and newer varieties that come on the market.

888.963.7333

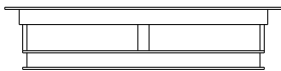
www.natseed.com

4720 Yender Ave, Lisle, IL 60532
local 630.963.8787 | fax 630.963.8814

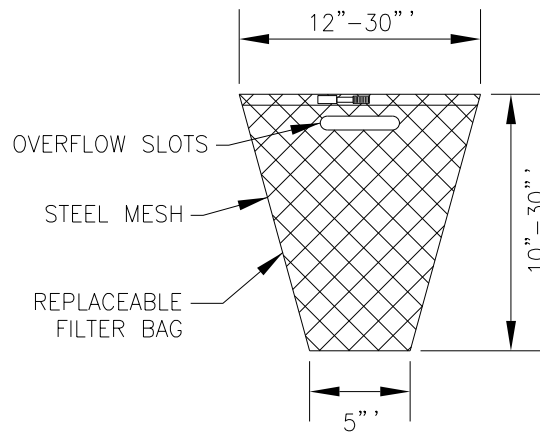
INFO@NATSEED.COM



PLAN



SECTION



GENERAL NOTES:

FRAME: TOP RING CONSTRUCTED FROM 1 1/4" x 1 1/4" x 1/8" ANGLE.
 BASE RING CONSTRUCTED OF 1 1/2" x 1/2" x 1/8" CHANNEL.
 HANDLES & SUSPENSION BRACKETS CONSTRUCTED FROM 1/4" x 1 1/4" FLAT. ALL STEEL CONFORMING TO ASTM-A36.

REPLACEABLE BAG: CONSTRUCTED FROM 4 OZ./SQ. YD. NON-WOVEN
 POLYPROPYLENE GEOTEXTILE REINFORCED WITH POLYESTER MESH.
 CONNECTED TO BASE RING WITH STAINLESS STEEL STRAP & LOCK.

STEEL MESH: REMOVABLE STAINLESS STEEL MESH STRAINER BASKET.
 1/4" DIA. HOLE SIZE, 58% OPEN AREA.

INLET PROTECTION FILTER

REV 01/01/14
 NOT TO SCALE

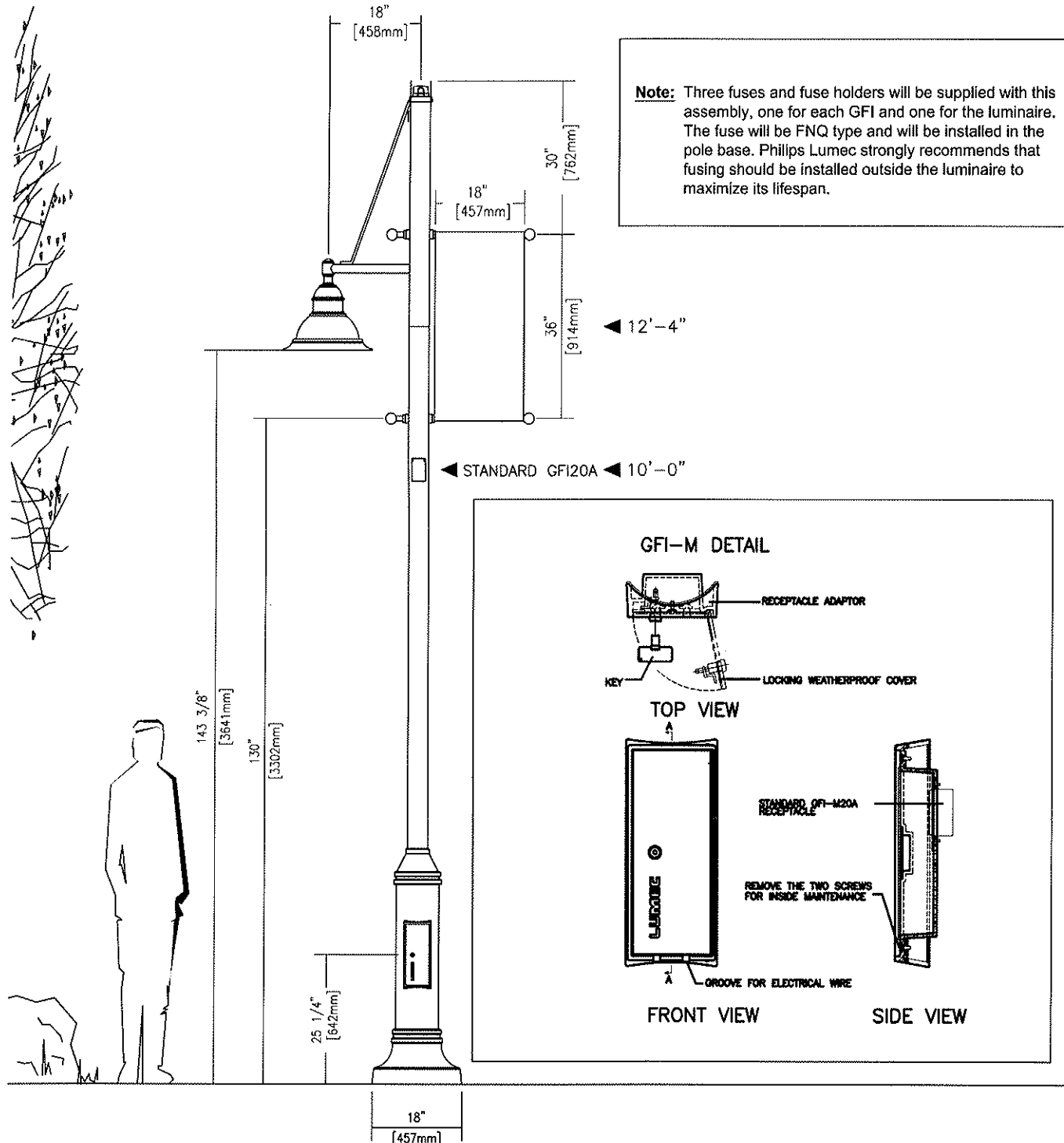
LIGHTING (VILLAGE CENTER STANDARD 1)

PHILIPS

LUMEC

640, Curé-Boivin
Boisbriand (Québec)
Canada, J7G 2A7

Presentation



South Elgin Village of (47589)

Type: Single DOS DOS-40W30LED4K-ES-LE3F-120-[DBG-003]-1A-270deg-[BA-063]-PH8/120-AM8U-12.33-BAS18-[FS1-001]-GFI20AI-GFI-M20A-3/4x20-12 1/2-DEC-BKTX DOS-TA-LCP56743 REV.1-47589-172-MA 20120920_113422.DOC

LIGHTING (VILLAGE CENTER STANDARD 2)

PHILIPS

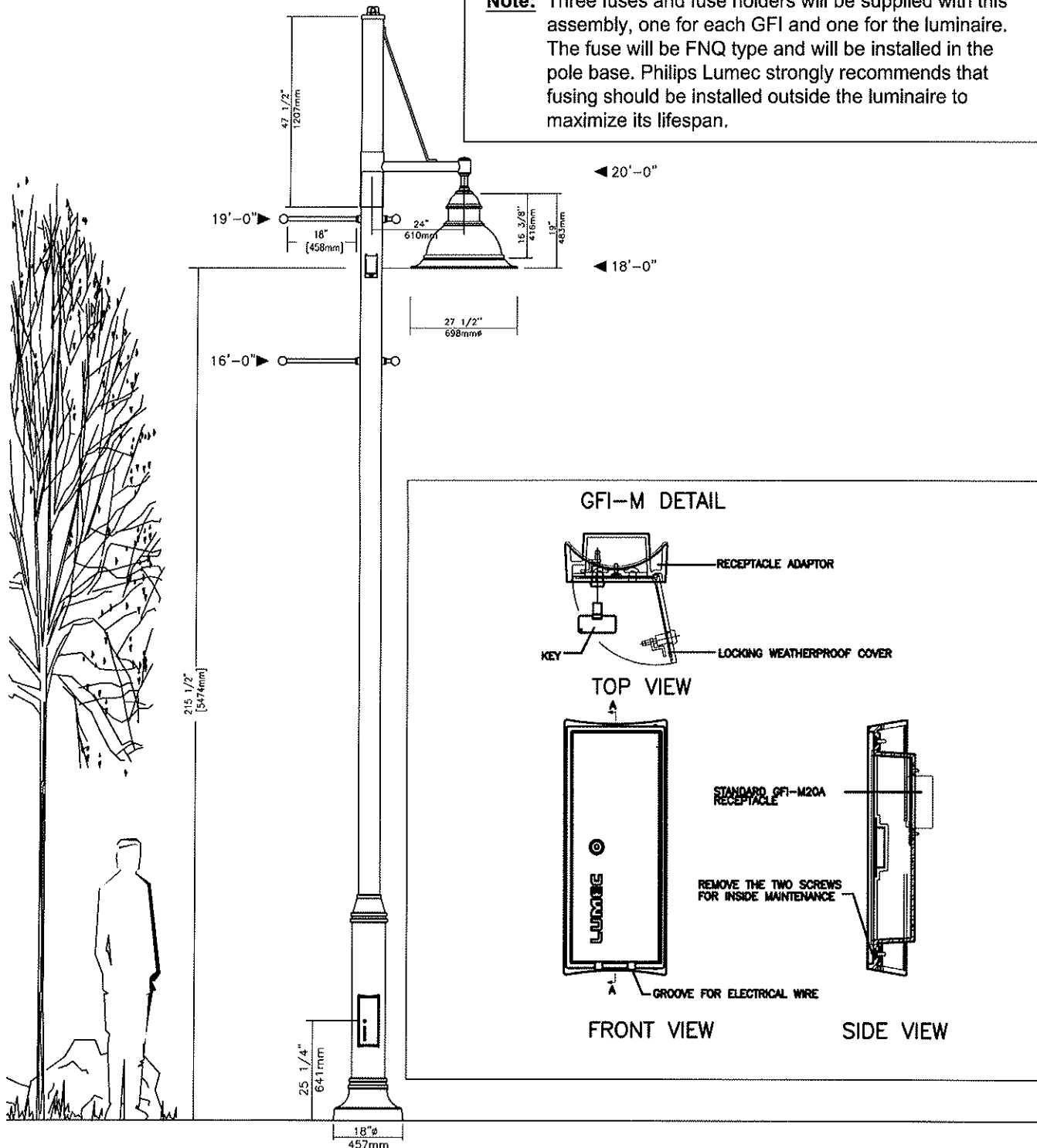
LUMEC

640, Curé-Boivin
Boisbriand (Québec)
Canada, J7G 2A7

Presentation



Note: Three fuses and fuse holders will be supplied with this assembly, one for each GFI and one for the luminaire. The fuse will be FNQ type and will be installed in the pole base. Philips Lumec strongly recommends that fusing should be installed outside the luminaire to maximize its lifespan.



South Elgin Village of (47589)

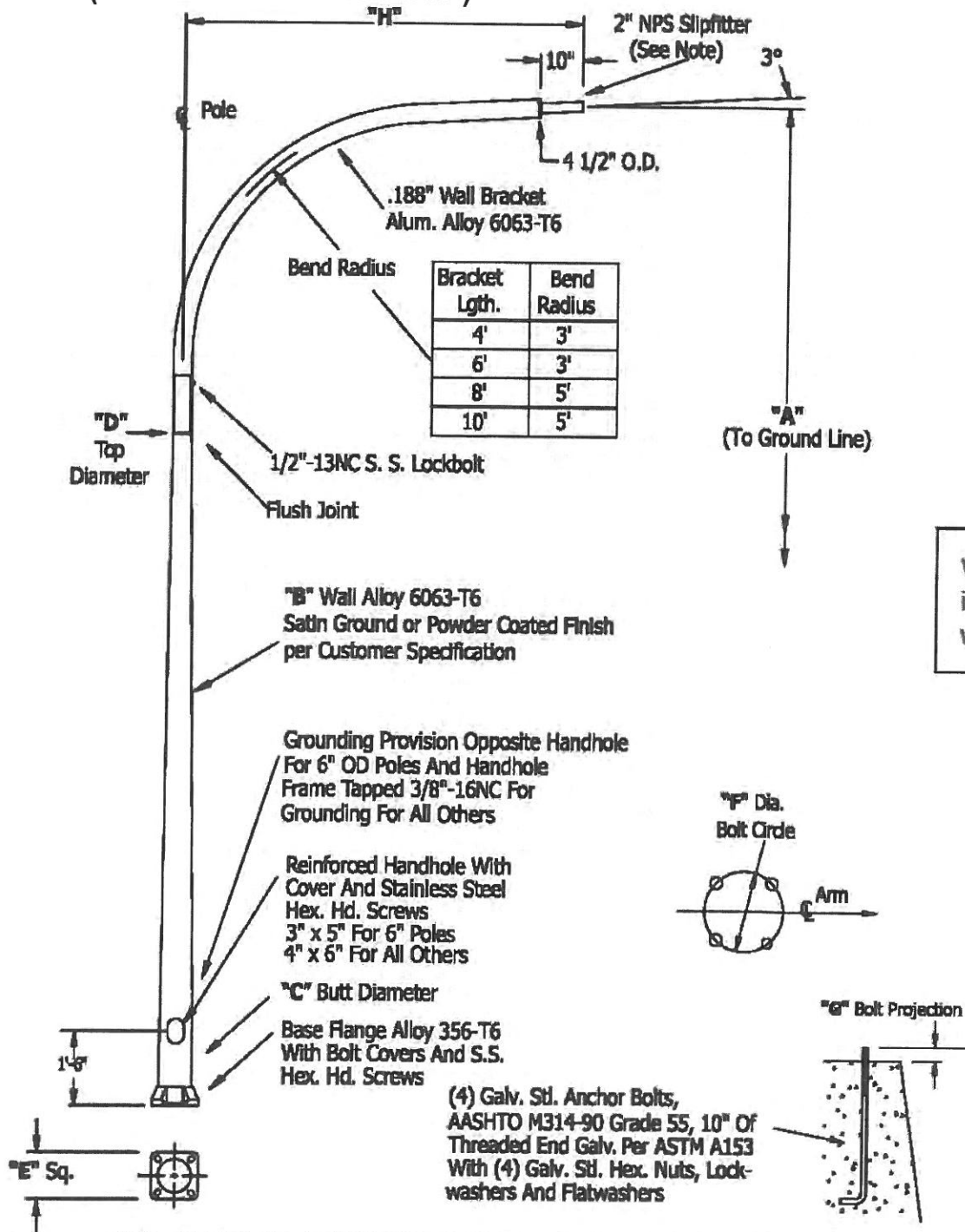
Type: Single DMS50 DMS50-90W80LED4K-ES-LE3F-120-PC-1A-90deg-PH8/120-SAM8V-20-BAS18(2)-[FS1-001]-GFI20AI-GFI-M20A-1X36-12 1/2-DEC-BKTX
LCP56520 REV.1-47589-171-MA 20120920_084245.DOC

DMS50-TA-

DMS50-TA-LCP56518 REV.1-47589-170-MA 20120920 083835.DOC



LIGHTING (VILLAGE STANDARD)



WARNING: Do not install light pole without luminaire.

Mounting Height:	25	Note: Brackets Supplied With 2" N.P.S. Slipfitter. Specify Modification 140 For 1.25" N.P.S. Slipfitter.	
Wall Thickness:	.188 In		
Butt Diameter:	7 In		
Top Diameter:	4.5 In		
Base Diameter:	10.5 In		
Bolt Circle:	10-11 In		
Bolt Projection:	2.75 In		
Bolt Size:	1 x 36 x 4		
Net Weight:	122		
Luminary Weight:	75		
Arm Length:	6		
Quantity:	6		

Maximum EPA		Your Name:
70:	13.5	Representative Name:
80:	9.6	Architect Name:
90:	6.8	Project Name:
100:	5.2	Customer P.O. #:
110:	4	Finish: -
Accessories		Date: 05/01/2012
		Notes:

RTA**Round Tapered Aluminum Pole with Arms
Double Davit — 4-Bolt Base****RTA25D7B4D26****01**

CATALOG NUMBER

FINISH

Pole

Shaft and arm will be constructed of seamless extruded tube of 6063 Aluminum Alloy per the requirements of ASTM B221. The shaft assembly shall be full-length heat treated after base weld to produce a T6 temper.

Base Style

4-Bolt Cast Aluminum Base Flange of Alloy 356-T6 with Aluminum Bolt Covers (Alloy 356-F) and Stainless Steel Hex Head Attaching Screws.

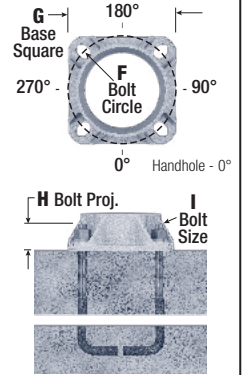
**Handhole**

Reinforced, 4" x 6" curved Cast Aluminum Frame (Alloy 356-T6) with Aluminum Door and two (2) SS Hex Head Screws. Reinforced Frame will contain a tapped 3/8"-16NC Grounding Provision.

Anchorage

Anchorage Kit will include four (4) L-shaped Steel Anchor Bolts conforming to AASHTO M314-90 Grade 55. Ten inches (10") of threaded end will be galvanized per ASTM A153.

Kits will contain four (4) Hex Nuts, four (4) Lock Washers, and four (4) Flat Washers (all components Galvanized Steel). A bolt circle template will be provided.

**Vibration Damper**

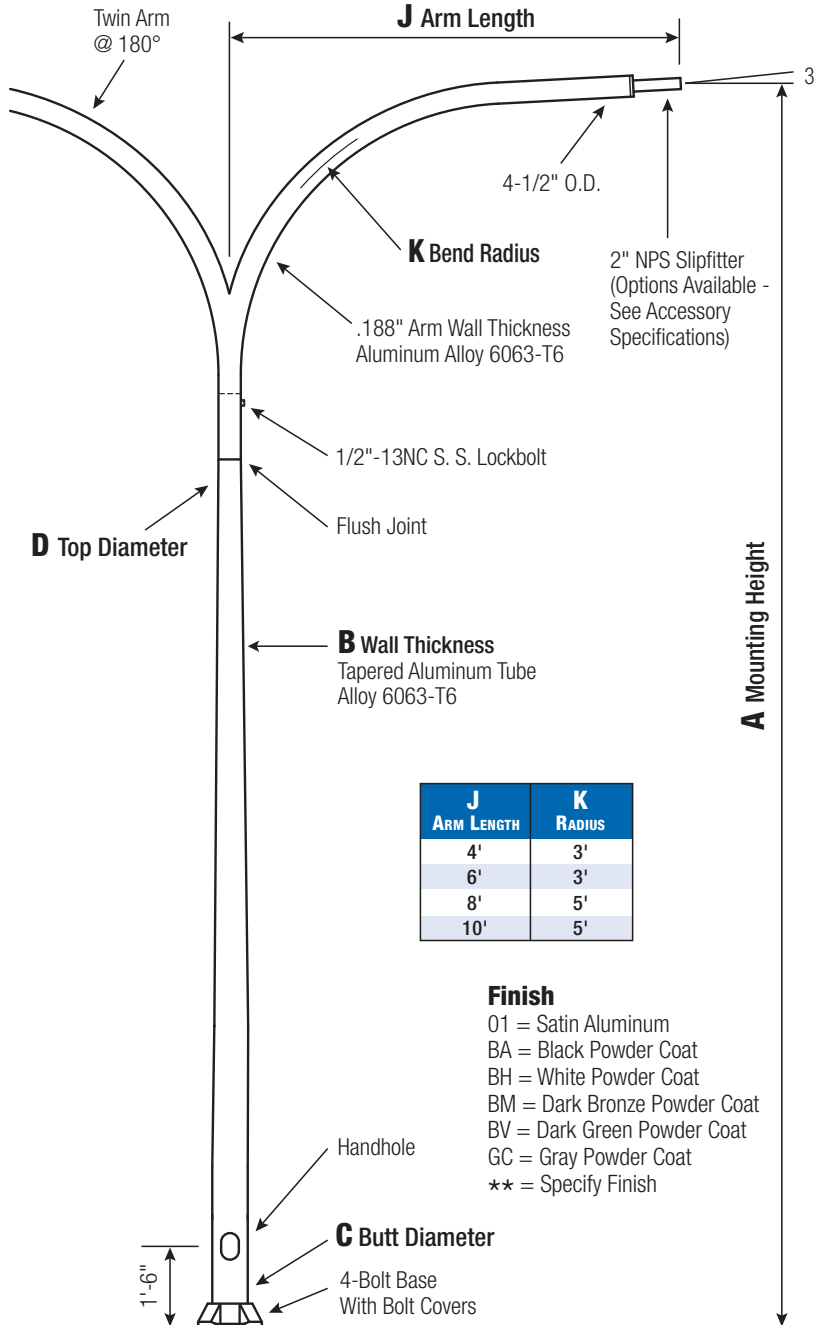
When determined necessary by Hapco, a Vibration Damper will be factory-installed inside the pole shaft. Customer specification of the damper is available.



EPA Notes: Effective Projected Area (EPA) in square feet. EPA's calculated using wind velocity (mph) indicated in accordance with 2009 AASHTO LTS-5 using a 25 year design life. Maximum EPA is based on the luminaire weight shown. Increased luminaire weight may reduce the maximum EPA. If weight is exceeded, or if other design life or code is required, please consult the factory.



26252 Hillman Highway
Abingdon, VA 24210
800.368.7171
www.hapco.com

**WARNING:**

Do not install light pole without luminaire.

Satin Aluminum or Powder Coated Finish per Customer Specification.

A MTG. HGT.	B WALL THICKNESS	C BUTT DIAMETER	J ARM LENGTH	LUM. WEIGHT	90	100	110	120	130	OLD CAT. NUMBER	CATALOG NUMBER
25	0.188"	7	6'	35	7.0	4.9	4.4	3.1	2.2	42-080	RTA25D7B4D26-**

C BUTT DIA.	D TOP DIA.	F BOLT CIR. DIA.	G BASE SQ.	H BOLT PROJ.	I BOLT SIZE
7	4.5	10 - 11	10.5	2.75	1 x 36 x 4

Dimensions in Inches

CUSTOMER NAME:

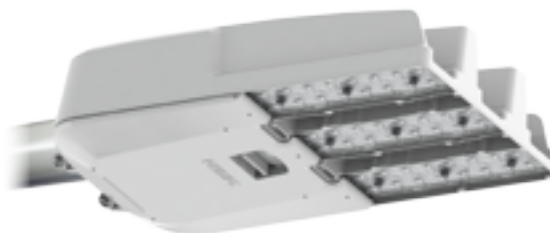
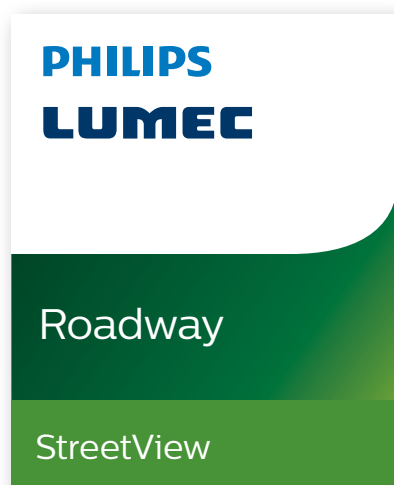
PROJECT:

LOCATION:

NOTES:

QUANTITY:

LIGHTING (VILLAGE STANDARD)



Project: _____

Location: _____

Cat.No: _____

Type: _____

Lamps: _____ Qty: _____

Notes: _____

The Philips Lumec StreetView LED luminaire is designed for many applications that require medium intensity lighting. Powered by the Philips LEDgine platform and featuring innovative thermal management design, this LED luminaire has two major assets: exceptional performance and unbeatable value.

Ordering guide

example: SVM-90W48LED4K-G2-LE3-UNIV-DMG-RC-HS-GY3

Luminaire	LED Module	Optical System	Voltage	Driver and Dimming	Twist-Lock Receptacle	Surge Protection	Luminaire Accessories	Finish
SVM					RC			GY3
SVM StreetView Medium	16W16LED4K-G2 ⁴ or 22W16LED4K-G2 ⁴ or 24W16LED4K-G2 ⁴ or 30W16LED4K-G2 ⁴ or 32W32LED4K-G2 or 48W32LED4K-G2 or 60W32LED4K-G2 or 48W48LED4K-G2 or 72W48LED4K-G2 or 90W48LED4K-G2 or 140W48LED4K-G2 ^{2,4}	LE2 Type II LE3 Type III LE5 Type V	UNIV 120-277VAC: 16 LED 32 LED 48 LED 140W 48 LED HVU 347-480VAC: 32 LED 48 LED	<i>Standard:</i> DMG ^{1,5} Dimmable driver 0-10V <i>Optional:</i> (not available for 140W48LED) AMPD ^{2,4,5} Amplight Dimming Dynadimmer Economy Profile CDMGE25 ^{2,4,5} CDMGE50 ^{2,4,5} CDMGE75 ^{2,4,5} Median Profile CDMGM25 ^{2,4,5} CDMGM50 ^{2,4,5} CDMGM75 ^{2,4,5} Safety Profile CDMGS25 ^{2,4,5} CDMGS50 ^{2,4,5} CDMGS75 ^{2,4,5} DALI ^{2,4,5} Digitally Addressable Lighting Interface DMG-AST ^{*2,4} Adjustable Startup Time DMG-CLO ^{*2,4,5} Constant Light Output DMG-OTL ^{*2,4} Over The Life <i>*Includes 0-10v dimming</i>	<i>Standard:</i> RC ^{1,3} Receptacle for twist-lock photocell or shorting cap	<i>Optional:</i> SP2 ⁵ 20kV / 20kA Surge Protector	HS House side shield, 1 per 16 LED light engine PH8 ^{3,4} Twist-lock Photoelectric Cell, UNIV (120-277VAC) PH8/347 ³ (not available for 140W48LED) Twist-lock Photoelectric Cell, HVU (347VAC) PH8/480 ³ (not available for 140W48LED) Twist-lock Photoelectric Cell, HVU (480VAC) PH8XL ^{3,4} Twist-lock Photoelectric Cell, extended life, UNIV (120-277VAC) PH9 ³ Shorting cap SPC ^{3,7} Starsense Photo-cell Control	GY3 Grey finish

- Please note these integrated features come standard with StreetView luminaires.
- Denotes programmable driver option. Not available with HVU (347-480volt).
Not available with 1050 mA version (140W48LED).
- Use of photoelectric cell or shorting cap is required to ensure proper illumination.
- Not available with HVU (347-480volt).

- Dimming choices: Select either DMG or AMPD or one of the CDMG options or DALI.
- When SP2 option is selected you will get SP2 instead of standard SP1.
- Please note that more hardware as well as software are required. Please contact the quotations department for help with putting together the entire control system.

LIGHTING (VILLAGE STANDARD)

SVM StreetView

LED Cobra Head: 16, 32, and 48 LED

LED wattage and lumen values

LED CRI = 70, CCT = 4000K nominal (3985K +/- 275K or 3710K to 4260K), System (LED + driver) rated life = 100,000 hrs¹

LED Module	Typical delivered lumens	Typical system wattage (W) ²	LED current (mA)	Typical System Current (A) @						Luminaire Efficacy Rating (Lm/W)	BUG rating
				120V	208V	240V	277V	347V	480V		
16W16LED4K-G2-LE2	2164	19	350	0.160	0.100	0.090	0.082	N/A		113	B1-U0-G1
16W16LED4K-G2-LE3	2192	19	350	0.160	0.100	0.090	0.082			115	B1-U0-G1
16W16LED4K-G2-LE5	2299	19	350	0.160	0.100	0.090	0.082			123	B2-U0-G0
22W16LED4K-G2-LE2	2822	26	470	0.210	0.125	0.115	0.105			109	B1-U0-G1
22W16LED4K-G2-LE3	2860	26	470	0.210	0.125	0.115	0.105			111	B1-U0-G1
22W16LED4K-G2-LE5	2999	26	470	0.210	0.125	0.115	0.105			116	B2-U0-G1
24W16LED4K-G2-LE2	2965	27	530	0.225	0.135	0.120	0.110			109	B1-U0-G1
24W16LED4K-G2-LE3	3004	27	530	0.225	0.135	0.120	0.110			110	B1-U0-G1
24W16LED4K-G2-LE5	3150	27	530	0.225	0.135	0.120	0.110			115	B2-U0-G1
30W16LED4K-G2-LE2	3792	36	700	0.290	0.175	0.150	0.135			105	B1-U0-G1
30W16LED4K-G2-LE3	3842	36	700	0.290	0.175	0.150	0.135			106	B1-U0-G1
30W16LED4K-G2-LE5	4029	36	700	0.290	0.175	0.150	0.135			112	B3-U0-G1
32W32LED4K-G2-LE2	4085	34	350	0.300	0.185	0.165	0.155	0.105	0.090	118	B1-U0-G1
32W32LED4K-G2-LE3	4139	35	350	0.300	0.185	0.165	0.155	0.105	0.090	120	B1-U0-G1
32W32LED4K-G2-LE5	4341	35	350	0.300	0.185	0.165	0.155	0.105	0.090	126	B3-U0-G1
48W32LED4K-G2-LE2	6132	53	530	0.450	0.270	0.240	0.215	0.160	0.130	116	B2-U0-G1
48W32LED4K-G2-LE3	6214	53	530	0.450	0.270	0.240	0.215	0.160	0.130	117	B2-U0-G1
48W32LED4K-G2-LE5	6515	53	530	0.450	0.270	0.240	0.215	0.160	0.130	123	B3-U0-G1
60W32LED4K-G2-LE2	7752	71	700	0.595	0.340	0.295	0.265	0.210	0.160	109	B2-U0-G2
60W32LED4K-G2-LE3	7855	71	700	0.595	0.340	0.295	0.265	0.210	0.160	110	B2-U0-G2
60W32LED4K-G2-LE5	8237	71	700	0.595	0.340	0.295	0.265	0.210	0.160	116	B3-U0-G1
48W48LED4K-G2-LE2	6341	54	350	0.440	0.260	0.250	0.230	0.160	0.130	117	B2-U0-G1
48W48LED4K-G2-LE3	6426	54	350	0.440	0.260	0.250	0.230	0.160	0.130	118	B2-U0-G2
48W48LED4K-G2-LE5	6734	54	350	0.440	0.260	0.250	0.230	0.160	0.130	124	B3-U0-G1
72W48LED4K-G2-LE2	8985	79	530	0.660	0.390	0.350	0.310	0.225	0.170	114	B2-U0-G2
72W48LED4K-G2-LE3	9105	79	530	0.660	0.390	0.350	0.310	0.225	0.170	116	B2-U0-G2
72W48LED4K-G2-LE5	9542	79	530	0.660	0.390	0.350	0.310	0.225	0.170	121	B3-U0-G2
90W48LED4K-G2-LE2	11475	105	700	0.890	0.515	0.455	0.390	0.305	0.225	109	B2-U0-G2
90W48LED4K-G2-LE3	11628	105	700	0.890	0.515	0.455	0.390	0.305	0.225	111	B2-U0-G2
90W48LED4K-G2-LE5	12186	105	700	0.890	0.515	0.455	0.390	0.305	0.225	116	B4-U0-G2
140W48LED4K-G2-LE2	15790	160	1050	1.330	0.760	0.665	0.575	N/A		99	B3-U0-G3
140W48LED4K-G2-LE3	16010	161	1050	1.330	0.760	0.665	0.575			99	B3-U0-G3
140W48LED4K-G2-LE5	17248	162	1050	1.330	0.760	0.665	0.575			106	B4-U0-G2

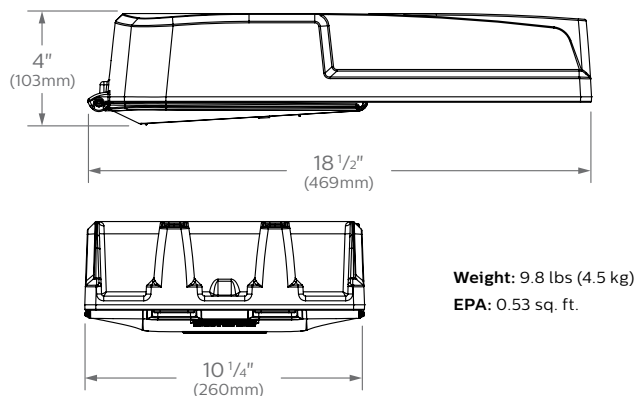
LIGHTING (VILLAGE STANDARD)

SVM StreetView

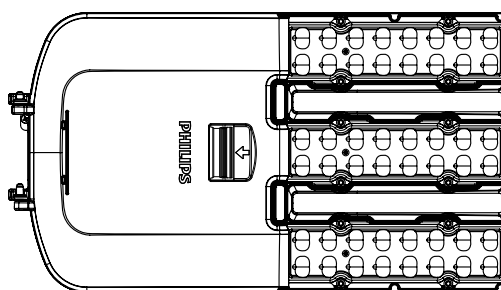
LED Cobra Head: 16, 32, and 48 LED

Dimensions

Side View



Bottom View



Predicted Lumen Depreciation Data

Predicted performance derived from LED manufacturer's data and engineering design estimates, based on IESNA LM-80 methodology. Actual experience may vary due to field application conditions. L₇₀ is the predicted time when LED performance depreciates to 70% of initial lumen output. Calculated per IESNA TM21-11. Published L₇₀ hours limited to 6 times actual LED test hours

Ambient Temperature °C	Driver mA	Calculated L ₇₀ Hours	L ₇₀ per TM-21	Lumen Maintenance % at 60,000 hrs
25°C	up to 1050 mA	>100,000 hours	>60,000 hours	>96%

Specifications

Housing

Made of low copper die cast A360 Aluminum alloy, for a high resistance to corrosion, 0.100" (2.5mm) minimum thickness. Fits on a 1.66" (42mm) O.D. (1.25" NPS), 1.9" (48mm) O.D. (1.5" NPS) or 2 3/8" (60mm) O.D. (2" NPS) by 5 1/4" (133mm) minimum long tenon. Comes with a zinc plated clamp fixed by 2 zinc plated hexagonal bolts 3/8 16 UNC for ease of installation. Provides an easy step adjustment of +/- 5° tilt in 2.5° increments. A quick release, tool less entry, hinged, removable polymeric door with integral latch opens downward to provide access to electronic components and to a terminal block. Door is secured to prevent accidental dropping or disengagement. A clearance of 8" (203mm) at the rear is required in order to remove the door. Complete with a bird guard protecting against birds and similar intruders and an ANSI label to identify wattage and source (both included in box).

Light Engine

Composed of 4 main components: LED Module / Optical System / Heat Sink / Driver.

Electrical components are RoHS compliant, IP66 sealed light engine. LEDs tested by ISO 17025-2005 accredited lab in accordance with IESNA LM-80 guidelines in compliance with EPA ENERGY STAR, extrapolations in accordance with IESNA TM-21. Metal core board ensures greater heat transfer and longer lifespan.

LED Module: (Included), High performance white LEDs. Color temperature as per ANSI/NEMA, bin neutral white 4000 Kelvin nominal (3985 +/- 275K or 3710K to 4260K), CRI 70 Min.

Optical System: Composed of high performance UV stabilized optical grade polymer refractor lenses to achieve desired distribution optimized to get maximum spacing, target lumens and a superior lighting uniformity. System is rated IP66. Performance shall be tested per LM-63, LM-79 and TM-15 (IESNA) certifying its photometric performance. Dark Sky compliant with 0% uplight and U0 per IESNA TM-15.

Heat Sink: Built in the housing, designed to ensure high efficacy and superior cooling by natural vertical convection air flow pattern always close to LEDs and driver optimising their efficiency and life. Product does not use any cooling device with moving parts (only passive cooling). Wide openings enable natural cleaning and removal of dirt and debris. Entire luminaire is rated for operation in ambient temperature of -40°C / -40°F up to +40°C / +104°F.

Driver: High power factor of 95%. Electronic driver, operating range 50/60 Hz. Auto adjusting universal voltage input from 120 to 277 or 347 to 480 VAC (140W48LED4K available in 120-277V only) rated for both application line to line or line to neutral, Class I, THD of 20% max.

DMG: Dimming compatible 0-10 volts.

The current supplying the LEDs will be reduced by the driver if the driver experiences internal overheating as a protection to the LEDs and the electrical components. Output is protected from short circuits, voltage overload and current overload. Automatic recovery after correction. Standard built in driver surge protection of 2.5kV (min).

Integrated Features

DMG: Dimmable driver 0-10V.

RC: Receptacle for a twist-lock photocell or shorting cap. Use of photocell or shorting cap is required to ensure proper illumination.

SP1: Surge protection device tested in accordance with ANSI/IEEE C62.45 per ANSI/IEEE C62.41.2 Scenario I Category C High Exposure 10kV/10kA waveforms for Line-Ground, Line-Neutral and Neutral-Ground, and in accordance with DOE MSSLC Model Specification for LED Roadway Luminaires Appendix D Electrical Immunity High test level 10kV/10kA.

Please note that these integrated features always come with StreetView luminaire.

LIGHTING (VILLAGE STANDARD)

SVM StreetView

LED Cobra Head: 16, 32, and 48 LED

Specifications (continued)

Driver and Luminaire Options

AMPD*: Driver pre-programmed for compatibility with Amplight control system.

AST*: Pre-set driver for progressive start-up of the LED module(s) to optimize energy management and enhance visual comfort at start-up.

CLO*: Pre-set driver to manage the lumen depreciation by adjusting the power given to the LEDs offering the same lighting intensity during the entire lifespan of the LED module.

DALI*: Pre-set driver compatible with the DALI control system.

OTL*: Pre-set driver to signal end of life of the LED module(s) for better fixture management.

CDMG*: Dynadimmer standard dimming functionalities including pre-programmed scenarios to suit many applications and needs from safety to maximum energy savings.

Safety Mode:

CDMG525: 4 hours, 25% power dimming

CDMG550: 4 hours 50% power dimming

CDMG575: 4 hours 75% power dimming

Median Mode:

CDMG25: 6 hours 25% power dimming

CDMG50: 6 hours 50% power dimming

CDMG75: 6 hours 75% power dimming

Economy Mode:

CDMG25: 8 hours 25% power dimming

CDMG50: 8 hours 50% power dimming

CDMG75: 8 hours 75% power dimming

* Not available with HVU (347-480V)

SP2: 20kV / 20kA surge protection device that provides extra protection beyond the SPI 10kV/10kA level.

HS: House side shield, 1 per 16 LED light engine.

PH8*: Twist-lock Photoelectric Cell, UNIV (120-277VAC).

PH8/347*: Twist-lock Photoelectric Cell, HVU (347VAC).

PH8/480*: Twist-lock Photoelectric Cell, HVU (480VAC).

PH8XL*: Twist-lock Photoelectric Cell, extended life, UNIV (120-277VAC).

PH9*: Shorting cap.

* Use of photoelectric cell or shorting cap is required to ensure proper illumination.

SPC: Starsense twist-lock photoelectric cell and antenna node, on / off.

Luminaire Useful Life

Refer to IES files for energy consumption and delivered lumens for each option. Based on ISTMT in situ thermal testing in accordance with UL1598 and UL8750, Philips System Reliability Tool, Philips Advance data and Philips Lumileds LM-80/TM-21 data, expected to reach 100,000 + hours with >L70 lumen maintenance @ 25°C. Luminaire Useful Life accounts for LED lumen maintenance AND all of these additional factors including: LED life, driver life, PCB substrate, solder joints, on/off cycles, burning hours and corrosion.

Wiring

The connection of the luminaire is done using a terminal block connector 600V, 85A for use with #2 to #14 AWG. wires from the primary circuit, located inside the housing. Due to the inrush current that occurs with electronic drivers, recommend using a 10Amp time-delay fuse to avoid unwanted fuse blowing (false tripping) that can occur with normal or fast acting fuses.

Hardware

All exposed screws shall be complete with Ceramic primer seal to reduce seizing of the parts, also offers a high resistance to corrosion. All seals and sealing devices are made and/or lined with EPDM and/or silicone and/or rubber.

Finish

Color in accordance with the AAMA 2603 standard. Application of polyester powder coat paint (4 mils/100 microns) with ± 1 mils/24 microns of tolerance. The Thermosetting resins provides a discoloration resistant finish in accordance with the ASTM D2244 standard, as well as luster retention in keeping with the ASTM D523 standard and humidity proof in accordance with the ASTM D2247 standard.

The surface treatment achieves a minimum of 2000 hours for salt spray resistant finish in accordance with testing performed and per ASTM B117 standard.

LED products manufacturing standard

The electronic components sensitive to electrostatic discharge (ESD) such as light emitting diodes (LEDs) are assembled in compliance with IEC61340-5-1 and ANSI/ESD S20.20 standards so as to eliminate ESD events that could decrease the useful life of the product.

Vibration Resistance

The SVM meets the ANSI C136.31, American National Standard for Roadway Luminaire Vibration specifications for Bridge/overpass applications. (Tested for 3G over 100,000 cycles by independent lab)

Certifications and Compliance

cULus Listed for Canada and USA. Luminaire meets DOE and MSSLC Model Specification for LED Roadway Luminaires. StreetView LED Cobrahead luminaires are DesignLights Consortium qualified. Luminaire complies with or exceeds the following ANSI C136 standards: .2, .3, .10, .14, .15, .22, .25, .31, .37, .41.

Limited Warranty

10-year limited warranty.

See philips.com/warranties for details and restrictions.

Brackets/Arms

For brackets / arms available with this luminaire, see Lumec 3D for details.

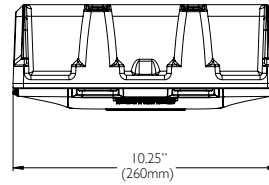
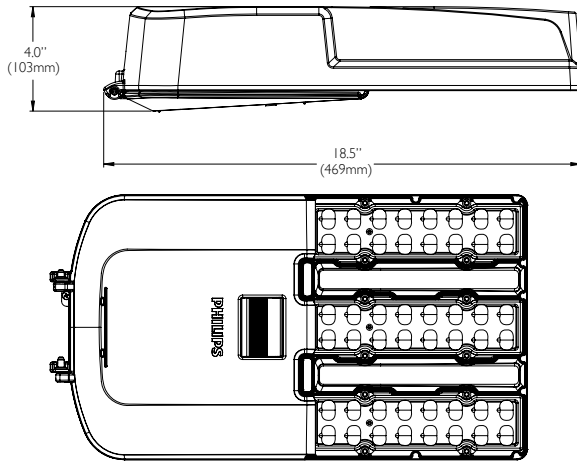


LIGHTING (VILLAGE STANDARD)

StreetView

SVM

Project: _____ Catalog No: _____ Mfg: _____
 Location: _____ Fixture Type: _____ Qty: _____
 Notes: _____



SVM

EPA:
0.51 sq ft

Weight:
10.4 lbs (4.7 kg)

Ordering Guide

example: SVM-90W48LED4K-R-LE3-UNIV-DMG-RC-WC10-HS-GY3

Luminaire	LED Module	Optical System	Voltage	Integrated Features	Driver and Luminaire Options	Luminaire Accessories	Finish
SVM	90W48LED4K-R	LE3	UNIV	DMG-RC-WC10	SP1	HS	GY3
SVM LED Roadway Luminaire	16W16LED4K-R 22W16LED4K-R 24W16LED4K-R 30W16LED4K-R 32W32LED4K-R 48W32LED4K-R 60W32LED4K-R 48W48LED4K-R 72W48LED4K-R 90W48LED4K-R	LE2 TYPE II LE3 TYPE III LE5 TYPE V	UNIV: 120 / 277: 16LED 32 LED 48 LED HVU: 347 / 480: 32 LED 48 LED	DMG ¹ Dimmable driver 0-10V RC ^{1,2} Receptacle for a twist-lock photocell or shorting cap WC10 ¹ 10-year limited warranty	SP1 CLO * AST * OTL * AMPD * CDMG * DALI * * Not available with 347/480V	HS ³ House side shield PH8 ^{2,3} Photoelectric cell PH8XL ^{2,3,4} Photoelectric cell, extended life PH9 ^{2,3} Shorting Cap SPC ³ Starsense Photo-cell Control	GY3 Grey finish NF Non-painted (optional)

Ordering Guide - StreetView High Output

example: SVM-140W48LED4K-T-LE3-UNIV-DMG-RC-WC10-HS-GY3

Luminaire	LED Module	Optical System	Voltage	Integrated Features	Driver and Luminaire Options	Luminaire Accessories	Finish
SVM	140W48LED4K-T	LE3	UNIV	DMG-RC-WC10	SP1	HS	GY3
SVM LED Roadway Luminaire	140W48LED4K-T	LE2 TYPE II LE3 TYPE III LE5 TYPE V	UNIV: 120 / 277	DMG ¹ Dimmable driver 0-10V RC ^{1,2} Receptacle for a twist-lock photocell or shorting cap WC10 ¹ 10-year limited warranty	SP1	HS ³ House side shield PH8 ^{2,3} Photoelectric cell PH8XL ^{2,3,4} Photoelectric cell, extended life PH9 ^{2,3} Shorting Cap SPC ³ Starsense Photo-cell Control	GY3 Grey finish

- Please note that these integrated features always come with MiniView luminaires.
- Use of photoelectric cell or shorting cap is required to ensure proper illumination.
- Please note that these accessories need to be ordered as an accessory, and they are quickly and easily installed in the field.
- Not available with HVU: 347 / 480 volt.



LED Wattage and Lumen Values - StreetView Luminaire

LED = Philips Lumileds LUXEON R, CRI = 75, CCT = 4000K (+/- 350K)

System (LED + driver) rated life = 100,000 hrs¹

LED Module	Typical Delivered Lumens	Typical System Wattage (W) ²	Typical System Current (A) @						LED Current (mA)	HID Equivalent ³	Luminaire Efficacy Rating (Lm/W)	BUG Rating
			120V	208V	240V	277V	347V	480V				
16W16LED4K-R-LE2	1761	18	0.157	0.091	0.089	0.085	N/A	N/A	350	50-70W	100	B1 U0 G1
16W16LED4K-R-LE3	1870	18	0.157	0.091	0.089	0.085	N/A	N/A	350	50-70W	107	B1 U0 G1
16W16LED4K-R-LE5	1784	18	0.157	0.091	0.089	0.085	N/A	N/A	350	50-70W	102	B2 U0 G0
22W16LED4K-R-LE2	2359	24	0.215	0.124	0.156	0.142	N/A	N/A	490	50-70W	95	B1 U0 G1
22W16LED4K-R-LE3	2504	24	0.215	0.124	0.156	0.142	N/A	N/A	490	50-70W	101	B1 U0 G1
22W16LED4K-R-LE5	2390	24	0.215	0.124	0.156	0.142	N/A	N/A	490	50-70W	96	B2 U0 G1
24W16LED4K-R-LE2	2511	25	0.307	0.177	0.158	0.141	N/A	N/A	530	70-100W	94	B1 U0 G1
24W16LED4K-R-LE3	2666	25	0.307	0.177	0.158	0.141	N/A	N/A	530	70-100W	100	B1 U0 G1
24W16LED4K-R-LE5	2544	25	0.307	0.177	0.158	0.141	N/A	N/A	530	70-100W	95	B2 U0 G1
30W16LED4K-R-LE2	3075	35	0.29	0.167	0.17	0.12	N/A	N/A	700	70-100W	87	B1 U0 G1
30W16LED4K-R-LE3	3295	35	0.29	0.167	0.17	0.12	N/A	N/A	700	70-100W	92	B1 U0 G1
30W16LED4K-R-LE5	3145	35	0.29	0.167	0.17	0.12	N/A	N/A	700	70-100W	88	B2 U0 G1
32W32LED4K-R-LE2	3618	36	0.29	0.167	0.162	0.154	0.119	0.1	350	70-100W	103	B1 U0 G1
32W32LED4K-R-LE3	3754	36	0.29	0.167	0.162	0.154	0.119	0.1	350	70-100W	107	B1 U0 G1
32W32LED4K-R-LE5	3404	36	0.29	0.167	0.162	0.154	0.119	0.1	350	70-100W	97	B2 U0 G1
48W32LED4K-R-LE2	5309	49	0.401	0.231	0.211	0.193	0.172	0.14	530	70-100W	100	B1 U0 G1
48W32LED4K-R-LE3	5509	49	0.401	0.231	0.211	0.193	0.172	0.14	530	70-100W	104	B1 U0 G1
48W32LED4K-R-LE5	4995	49	0.401	0.231	0.211	0.193	0.172	0.14	530	70-100W	94	B3 U0 G1
60W32LED4K-R-LE2	6619	70	0.57	0.329	0.33	0.25	0.2	0.14	700	100-150W	94	B2 U0 G1
60W32LED4K-R-LE3	6924	70	0.57	0.329	0.33	0.25	0.2	0.14	700	100-150W	97	B2 U0 G2
60W32LED4K-R-LE5	6280	70	0.57	0.329	0.33	0.25	0.2	0.14	700	100-150W	89	B3 U0 G1
48W48LED4K-R-LE2	5090	49	0.383	0.221	0.225	0.214	0.167	0.132	350	70-100W	105	B1 U0 G1
48W48LED4K-R-LE3	5224	49	0.383	0.221	0.225	0.214	0.167	0.132	350	70-100W	107	B1 U0 G1
48W48LED4K-R-LE5	5097	49	0.383	0.221	0.225	0.214	0.167	0.132	350	70-100W	105	B3 U0 G1
72W48LED4K-R-LE2	7705	78	0.63	0.363	0.336	0.309	0.239	0.178	530	100-150W	99	B2 U0 G2
72W48LED4K-R-LE3	7909	78	0.63	0.363	0.336	0.309	0.239	0.178	530	100-150W	101	B2 U0 G2
72W48LED4K-R-LE5	7717	78	0.63	0.363	0.336	0.309	0.239	0.178	530	100-150W	99	B3 U0 G2
90W48LED4K-R-LE2	9854	105	0.86	0.496	0.5	0.43	0.3	0.22	700	150-175W	95	B2 U0 G2
90W48LED4K-R-LE3	10113	105	0.86	0.496	0.5	0.43	0.3	0.22	700	150-175W	98	B2 U0 G2
90W48LED4K-R-LE5	9868	105	0.86	0.496	0.5	0.43	0.3	0.22	700	150-175W	95	B4 U0 G4
90W48LED4K-R-LE2-HS ⁴	7793	105	0.86	-	0.5	0.43	0.3	0.22	700	150W	75	B1 U0 G2
90W48LED4K-R-LE3-HS ⁴	7866	105	0.86	-	0.5	0.43	0.3	0.22	700	150W	76	B1 U0 G2

¹ $L_{70} > 100,000$ hrs (at ambient temperature = 25°C and forward current = 700 mA).

² System wattage or total luminaire wattage includes the LED module and the LED driver.

³ Equivalence should always be confirmed by a photometric layout.

⁴ HS is shown as an example. HS is also available with all other LED modules except for type V distribution.

Note : Due to rapid and continuous advances in LED technology, LED luminaire data is subject to change without notice and at the discretion of Philips.

LED Wattage and Lumen Values - StreetView High Output Luminaire

LED = Philips Lumileds LUXEON T, CRI = 75, CCT = 4000K (+/- 350K)

System (LED + driver) rated life = 100,000 hrs¹

LED Module	Typical Delivered Lumens	Typical System Wattage (W) ²	Typical System Current (A) @						LED Current (mA)	HID Equivalent ³	Luminaire Efficacy Rating (Lm/W)	BUG Rating
			120V	208V	240V	277V	347V	480V				
140W48LED4K-T-LE2	14556	160	1.330	0.760	0.665	0.575	N/A	N/A	1050	200-250W	94	B3 U0 G2
140W48LED4K-T-LE3	15200	160	1.330	0.760	0.665	0.575	N/A	N/A	1050	200-250W	98	B3 U0 G2
140W48LED4K-T-LE5	14880	160	1.330	0.760	0.665	0.575	N/A	N/A	1050	200-250W	96	B4 U0 G2

¹ L₇₀ > 100,000 hrs (at ambient temperature = 25°C and forward current = 1050 mA).

² System wattage or total luminaire wattage includes the LED module and the LED driver.

³ Equivalence should always be confirmed by a photometric layout.

⁴ HS is shown as an example. HS is also available with all other LED modules except for type V distribution.

Note: Due to rapid and continuous advances in LED technology, LED luminaire data is subject to change without notice and at the discretion of Philips.

Specifications

Housing:

Made of low copper die cast A360 Aluminum alloy 0.100" (2.5mm) minimum thickness. Fits on a 1.66" (42mm) O.D. (1.25" NPS), 1.9" (48mm) O.D. (1.5" NPS) or 2 3/8" (60mm) O.D. (2" NPS) by 4 1/4" (108mm) minimum long tenon. Comes with a zinc plated clamp fixed by 2 zinc plated hexagonal bolts 3/8 16 UNC for ease of installation. Provides an easy step adjustment of +/- 5° tilt in 2.5° increments.

A quick release, tool less entry, hinged, removable door opens downward to provide access to electronic components and to a terminal block. Door is secured to prevent accidental dropping or disengagement.

A clearance of 8" (203mm) at the rear is required in order to remove the door. Complete with a bird guard protecting against birds and similar intruders and an ANSI label to identify wattage and source (both included in box).

Light Engine:

Composed of 4 main components: LED module / Optical System / Heat Sink / Driver

Electrical components are RoHS compliant, IP66 sealed LED module equipped with Philips Lumileds LUXEON LEDs.

LEDs tested by ISO 17025-2005 accredited lab in accordance with IESNA LM-80 guidelines in compliance with EPA ENERGY STAR, extrapolations in accordance with IESNA TM-21. Metal core board ensures greater heat transfer and longer lifespan.

LED Module:

(Included), Philips Lumileds LUXEON R LEDs = all 16LED, all 32LED, 48LED versions except 140W48LED4K = LUXEON T LEDs. Color temperature as per ANSI bin 4000 Kelvin nominal (3985K +/- 275K), CRI 70 Min. 75 Typical.

Optical System:

Composed of high-performance optical grade polymer refractors lenses to achieve desired distribution optimized to get maximum spacing, target lumens and a superior lighting uniformity. System is rated IP66. Performance shall be tested per LM-63, LM-79 and TM-15 (IESNA) certifying its photometric performance. Dark Sky compliant with 0% uplight and U0 per IESNA TM-15.

LE2 TYPE II Asymmetrical Distribution

LE3 TYPE III Asymmetrical Distribution

LE5 TYPE V Symmetrical (square)

Heat Sink:

Built in the housing, the innovative high efficacy heat sink chimney design ensures superior cooling by natural convection air flow pattern always close to LEDs and driver optimising their efficiency and life. Product does not use any cooling device with moving parts (only passive cooling). Wide channels enable natural cleaning and removal of dirt and debris.

Entire luminaire is rated for operation in ambient temperature of -40°C / -40°F up to +40°C / +104°F.

Driver

High power factor of 95%. Electronic driver, operating range 50/60 Hz. Auto adjusting universal voltage input from 120 to 277 and 347 to 480 VAC (148W40LED4K available in 120-277V only) rated for both application line to line or line to neutral, Class I, THD of 20% max.

The current supplying the LEDs will be reduced by the driver if the driver experiences internal overheating as a protection to the LEDs and the electrical components. Output is protected from short circuits, voltage overload and current overload. Automatic recovery after correction. Standard built in driver surge protection of 2.5kV (min).

Integrated Features

RC

Receptacle for a twist-lock photocell or shorting cap. Use of photocell or shorting cap is required to ensure proper illumination.

DMG

Dimmable driver 0-10V

WC10

StreetView is covered by a 10-year warranty from defects in material and workmanship in its intended use, as well as coverage for the finish. Visit website for more details on warranty.

Please note that these integrated features always come with StreetView luminaire.

Driver and Luminaire Options

SP1

Surge protection device tested in accordance with ANSI/IEEE C62.45 per ANSI/IEEE C62.41.2 Scenario I Category C High Exposure 10kV/10kA waveforms for Line-Ground, Line-Neutral and Neutral-Ground, and in accordance with DOE MSSLC Model Specification for LED Roadway Luminaires Appendix D Electrical Immunity High test level 10kV/10kA.

CLO*

Pre-set driver to manage the lumen depreciation by adjusting the power given to the LEDs offering the same lighting intensity during the entire lifespan of the LED module.

AST*

Pre-set driver for progressive start-up of the LED module(s) to optimize energy management and enhance visual comfort at start-up.

OTL*

Pre-set driver to signal end of life of the LED module(s) for better fixture management.

AMPD*

Driver pre-programmed for compatibility with Amplight control system.

CDMG*

Dynadimmer standard dimming functionalities including pre-programmed scenarios to suit many applications and needs from safety to maximum energy savings.

DALI*

Pre-set driver compatible with the DALI control system.

** Not available with 347/480V or 140W48LED versions.*

Luminaire Accessories

HS

House side shield

PH8¹

Photoelectric cell

PH8XL^{1,2}

Photoelectric cell, twist-lock type, "Fail ON", extended life / 10-year limited warranty from supplier

PH9¹

Shorting Cap

SPC¹

Starsense Photo-cell Control

1 Luminaire option RC is required with this accessory.

2 Not available with HVU: 347 / 480 volt.

Please note that these accessories need to be ordered as an accessory, and they are quickly and easily installed in the field.

Luminaire Useful Life:

Refer to IES files for energy consumption and delivered lumens for each option. Based on ISTMT in situ thermal testing in accordance with UL1598 and UL8750, Philips Advance data and Philips Lumileds LM-80/TM-21 data, expected to reach

100,000+ hours with >L70 lumen maintenance @ 25°C.

Wiring:

The connection of the luminaire is done using a terminal block connector 600V, 85A for use with #2 14 AWG. wires from the primary circuit, located inside the housing.

Hardware:

All exposed screws shall be stainless steel with Ceramic primer seal basecoat to reduce seizing of the parts. All seals and sealing devices are made and/or lined with EPDM and/or silicone and/or rubber.

Finish:

Color to be medium grey (GY3) and in accordance with the AAMA 2603 standard. Application of a polyester powdercoat paint (4 mils/100 microns) with ± 1 mils/24 microns of tolerance. The Thermosetting resins provides a discoloration resistant finish in accordance with the ASTM-D2244 standard, as well as luster retention in keeping with the ASTM-D523 standard and humidity proof in accordance with the ASTM-D2247 standard.

The surface treatment achieves a minimum of 2000 hours for salt spray resistant finish

in accordance with testing performed and per ASTM-B117 standard.

LED Products Manufacturing Standard:

The electronic components sensitive to electrostatic discharge (ESD) such as light emitting diodes (LEDs) are assembled in compliance with IEC61340-5-1 and ANSI/ESD S20.20 standards so as to eliminate ESD events that could decrease the useful life of the product.

Vibration Resistance:

The SVM meets the ANSI C136.31, American National Standard for Roadway Luminaire Vibration specifications for Bridge /overpass applications. (Tested for 3G over 100,000 cycles by an independent lab).

Certifications and Compliance:

CSA, cULus listed for Canada and USA.

Luminaire complies with DOE MSSL Model Specification for LED Roadway Luminaires.

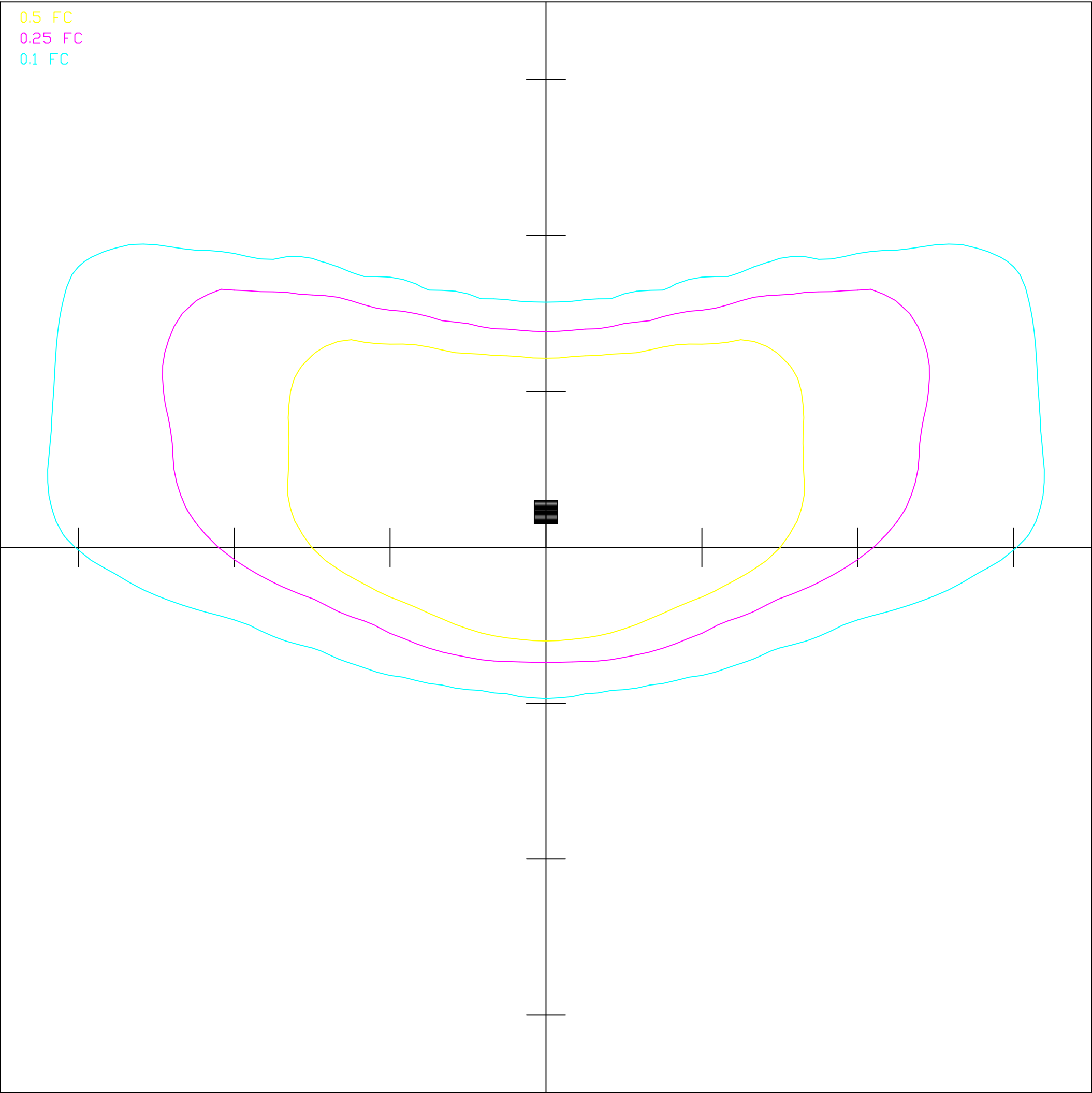
StreetView is listed on the DesignLights

Consortium (DLC) Qualified Products Consortium



LIGHTING (VILLAGE STANDARD)

0.5 FC
0.25 FC
0.1 FC



IESNA:LM-63-2002
[ISSUE DATE] 11 January 2013
[TEST LAB] Spectra Lux Industries Inc.
[TEST] S1301111-R1
[MANUFACT] Philips Roadway Lighting
[LUMCAT] SVM-90W48LED4K-R-LE3
[LUMINAIRE] StreetView
[LAMP] (3 Cluster of 16 LXA7-PW40 LED's) White 100W SSL
[_LAMPDETAILS] DC Voltage=142.85V, Current=0.7A, CCT=N/K, CRI=N/
[_BURNING] Vertical Base Up (10,034 Luminaire Lumens)
[_REFLECTOR] None
[_LENS] 3x16 Clear Acrylic Collimators
[_HOUSING] Die Cast Aluminum
[_SKTPOSITION] Fixed
[_REPORTMODULE] IES LM-31-95 Roadway Report
[_SUBREPORTMODULE] IES LM-31-95 Roadway Asymmetric Luminaire
[DISTRIBUTION] Type III, Medium

30 FEET BETWEEN AXIS TICK-MARKS
LUMENS PER LAMP = -1
LIGHT LOSS FACTOR = 0.85
OPTICAL HEIGHT = 25 FEET
ARM LENGTH = 1.5 FEET
TILT = 0 DEGREES FROM NADIR
MAXIMUM ILLUMINANCE = 3.4 FOOTCANDLES



Wausau Tile One Source

A Pledge To Our Customers



Edward J. Creske
Founder, CEO

Bill Creske
President

To Our Friends:

When our company was founded in 1953, our primary goal was to provide the best in products, workmanship and service. True success is measured by how well a company responds to the needs of its customers. Over 50 years later, that's still our focus. Each and every member of our company is dedicated to an uncompromised commitment to quality.

Sincerely,

A handwritten signature in black ink, appearing to read "Bill Creske".

William J. Creske
President

Wausau Tile....Your One Source

Concrete Site Furnishings

Steel-reinforced precast concrete site furnishings include waste containers, snuffers, tables, benches, planters, bollards, signs and playground amenities. From complete streetscapes, as found in New Orleans and Miami, to stadium security at the Coliseum, home of the Tennessee Titans, these products are used worldwide.

Metal Site Furnishings

Exclusive Metal-Armor coating process provides superior fade and impact resistant finish in both perforated and flat-steel designed site furnishings. The product carries a 5-year warranty, one of the longest warranties in the industry.

Terra-Paving

A wide variety of colors and finishes in concrete pavers and pedestal systems is available for plazas, walkways and roof decks. From the plazas at West Point Military Academy to Grand Canyon National Park, our pavers are used in many different applications.

Precast Concrete

Precast concrete designs to custom fit your needs, from median planters to fountains to column covers, all can be found on Chicago's Michigan Avenue and Wacker Drive, and numerous other projects nationwide. The finishes can be matched to complement our pavers for a complete project as seen at the Veteran's Memorial in New York.

Terrazzo Tile

For high traffic and low maintenance interior floors, this cementitious terrazzo tile will look great for many years to come. Airports, schools and shopping malls, such as O'Hare International, Princeton University and Coral Square Mall, have our terrazzo tile installed.

Precast Terrazzo

Precast terrazzo amenities, including treads, risers and base, are manufactured to complement your flooring design. The precast terrazzo can be seen at the Smithsonian Museum, Logan Airport and McCormick Center.

Recycling today is everyone's concern. Our products now can also be made with 100 percent recycled glass.

Wausau Transit

From our door to your's, all trucks are equipped with cranes for low cost and ease of delivery.



Why Are We Different?

Their Coating



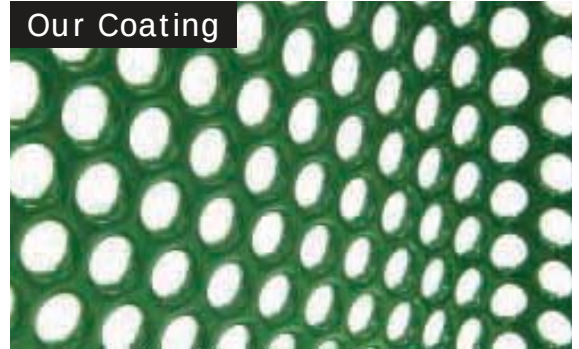
The finest coating process available.

Unlike other metal coating processes that use a primer, then a color over the top, Metal-Armorsm is a solid process color treatment. Should a nick or scratch occur, the beauty of your color will remain intact. A wide assortment of standard colors is available.



Delta shift is the measurement of the amount of color loss within a set time period. A detectable change of delta 4 is notable to the uneducated eye.

Our Coating



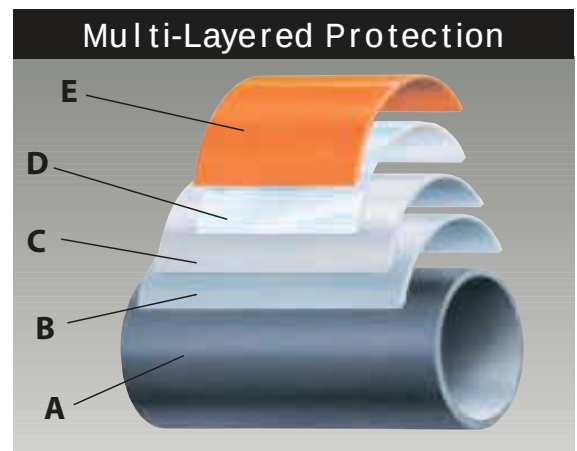
Other advantages of Metal-Armorsm:

- Better color and gloss retention
- Crack and chip resistant
- Even, more uniform coating – clean finish, with no runs or drips
- Excellent solvent resistance
- Graffiti resistant
- Does not support growth of molds or bacteria
- Environmentally safe

PERFORMANCE TESTING	PVC with Primer	TGIC Polyester	Metal-Armor sm
Salt Spray Corrosion ASTM B117	1880 hrs	300 hrs	4000 hrs
UV Protection Emmaqua Delta E900K Lys	2.60 shift	2.20 shift	0.30 shift
Impact Resistance ASTM 2794	400 in-lb	98 in-lb	425 in-lb
Abrasion Resistance ASTM 4010	45 mg loss	32 mg loss	30 mg loss
Chemical Resistance Various Reagents	Good	Excellent	Good

For color brilliance, durability and fade resistance, Wausau Tile frames are manufactured in multiple layers.

- A. Cold-formed steel tubing includes an internal corrosion-resistant coating for protection in a variety of environmental conditions.
- B. The steel exterior is further protected with a galvanized steel coating of 99.99% pure zinc.
- C. A chromate conversion coating on top of the zinc provides further rust protection.
- D. A clear organic coating seals in rust protection and also acts as a primer for the final powder coating.
- E. The baked on powder coating resists mildew, fungus and staining, and adds high-gloss color to the product. A special UV inhibitor in the powder coat helps prevent color fading.



Call 1-800-388-8728 or visit our website: www.wausautile.com

Flat-Steel Benches



MF3201
26" x 41"
41 Gallons

MF2201 - Bench with arched back - 74" x 28" x 39" - 240 lbs.



MF2204 - Bench with center arm rest, arched back
74" x 28" x 39" - 255 lbs.



MF2202 - Bench with no back
72" x 26" x 24" - 210 lbs.

Waste Containers & Planters



MF8010
Flat Steel Planter
23" Dia. x 24"

MF8011
Flat Steel Planter
23" Dia. x 18"

What is one step better than a powder coated finish?

Try our exclusive Metal-ArmorSM thermo-plastic coating with a full 5-year warranty for fading, chipping and peeling. Exceptional quality and service is what makes us the leader in site amenities.



MF3200 - Flat Steel Waste Container
26" Dia. x 33" - 31 Gallon Cap. - 149 lbs.



MF3203
Flat Steel Waste
Container with
Dome Top
26" Dia. x 43-1/2"
31 Gallon Cap.
185 lbs.

Not pictured
MF3204
Flat Steel Waste
Container, Dome Top
26" Dia. x 51"
41 Gallon Cap.
200 lbs.

MF3201
Flat Steel Waste
Container
26" Dia. x 41"
41 Gallon Cap.
164 lbs.



Call 1-800-388-8728 or visit our website: www.wausautile.com

Color Palette

Standard Colors

Aluminum Container Covers

MF Black

MF Gray

MF Bronze



Waste Container Plastic Covers

Brown - P1

Gray - P2

Charcoal - P3

Blue - P4

Red - P5

Green - P6

Frame Powder-Coating Colors

Blue - 0

Red - 2

MF Gray - 6

MF Sand - 7

MF Black - 8

Metal-Armor™ Seat, Back, Table, Side Panels Colors

MF Blue - 0

MF Green - 1

MF Red - 2

MF Yellow - 3

MF Brown - 4

MF Gray - 6

MF Black - 8

MF Burgundy - 18

MF Beige - 28

Weatherstone Concrete Colors for Benches and Bases

Gray
B1

French Gray
B2

Sand
B3

Buff
B4

Cream
B5

Brown
B5

Brick Red
B6

Charcoal
B7

Soulard Green
B8

Concrete Table Colors

Misty Gray
G1

Gray
G2

Sand
G3

Brick Red
G4

Brown
G5



Call 1-800-388-8728 or visit our website: www.wausautile.com

Visit our website for a complete listing of products to help you with your projects.

Delivery is made easy and affordable using the many options we have, based on your needs, with our own fleet of 11 crane-equipped trucks to deliver and place products where you need them. Common carrier with free liftgate delivery is available to lower product to the ground. Dedicated trucks, vans or flatbed trailers deliver throughout the U.S. and Canada. Tell us your needs and we will find the most cost-effective delivery options to meet your needs.

Wausau Tile can put the whole package together for you! **One Company – One Source**



YOUR REPRESENTATIVE IS:

WAUSAU TILE

Sales & Distribution Offices

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(715) 359-3121
Fax: (715) 355-4627

PO Box 967, Banning, CA 92220
(800) 231-4836 (States of AZ, CA, NV)
(909) 849-5695
Fax: (909) 849-4781

www.wausautile.com
E-mail: wtile@ausautile.com



02825/AEG
Buyline 3012

TM

Aegis II Industrial

TM

*Aegis Plus Commercial
Ornamental Steel Fence*

*TransPortTM and
Ornamental Gates*



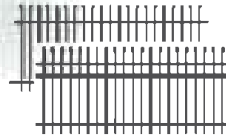
Dallas / Ft. Worth International Airport
Dallas, TX

*Maintenance-Free PermaCoat® Finish
Over Galvanized High Strength Steel*

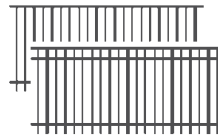
www.ameristarfence.com

PRODUCT PRESENTATION AEGIS PLUS™ COMMERCIAL

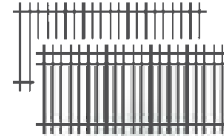
Styles Available



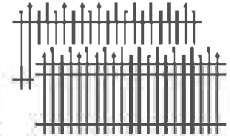
CLASSIC™
Style C2 (2-Rail)
Style C3 (3-Rail)



MAJESTIC™
Style M2 (2-Rail)
Style M3 (3-Rail)



GENESIS™
Style G2 (2-Rail)
Style G3 (3-Rail)



WARRIOR™
Style W2 (2-Rail)
Style W3 (3-Rail)

“Just the Right Size”

Commercial businesses finally have a high quality, competitively priced alternative to welded steel, aluminum and chain link. Painted steel that has been welded can rust soon after installation; ultra light aluminum fencing can be easily deformed by small climbing loads or impact loads. Aegis Plus™ combines strength greater than most industrial steel fences with a surface finish that is essentially maintenance-free. The size also works well for residential users seeking greater strength and a more substantial look without the extremely high cost of heavy industrial fencing.



Aegis Plus™ Warrior™



Aegis Plus™ Classic™

Classic™ & Warrior™ Commercial

The extended spear pointed pickets of the Classic™ & Warrior™ styles lend to their popularity for most traditional ornamental applications.

PRODUCT PRESENTATION AEGIS PLUS™ COMMERCIAL

Majestic™ Commercial

The smooth clean lines of the Majestic™ style make it ideal for many contemporary applications. The Majestic™ style is a popular and safe perimeter for a pool area.



Aegis Plus™ Majestic™



Aegis Plus™ Genesis™

Genesis™ Commercial

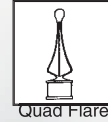
The simple lines of the Genesis™ style with flat-topped extended pickets never detract from the architecture and landscaping that the fence protects.

GENERAL PRODUCT INFORMATION

Adornments for Aegis II™



Notre Dame
South Bend, IN



Quad Flare



Ring

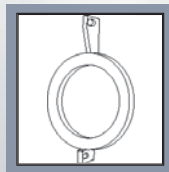


Triad



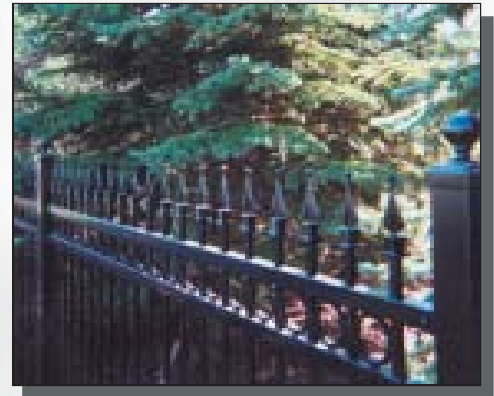
Ball Cap

Finials or Rings always add a decorative flair to any Aegis II™ fence.

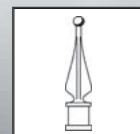


Rings and Finials for Aegis Plus™

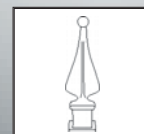
Ameristar's unique patented (pending) ring design provides secure and beautiful attachment with no exterior fasteners.



Ameristar's unique flare finial adds a beautiful look and can be attached either of two ways.



Narrow



Wide

GENERAL PRODUCT INFORMATION

02825/AEG
Buyline 3012

Colors

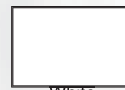
Refer to Color Chip samples
for actual color



Black



Bronze



White



Desert Sand



Dorney Park
Allentown, PA

Specification

All Aegis II™ and Aegis Plus™ Single Pedestrian, Double Pedestrian and Drive Gates shall be welded construction. Electrostatic application of PermaCoat® powder coating system, shall follow the

Swing Gates

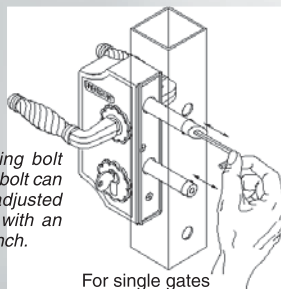
Aegis II™ Single and Double Gates are available for maximum openings of 16' and 32' respectively. Aegis Plus™ Single and Double Gates are available for maximum openings of 14' and 28' respectively.



Victory Lane - Texas Speedway
Roanoke, TX

Ameristar® Deadbolt Lock

Eliminates need for weld-on lock boxes



Self-latching bolt and dead bolt can both be adjusted over 3/8" with an Allen wrench.

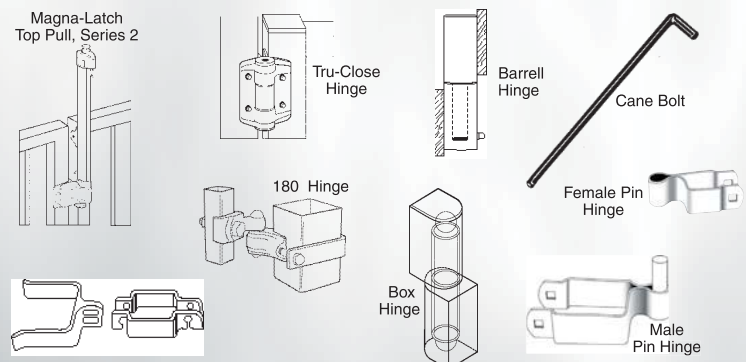
For single gates



Easy-mount striker plate

- Keyed Lock-Both Sides
- Completely Rustproof
- Easy Installation
- No Welding
- Adjustable Bolt Length

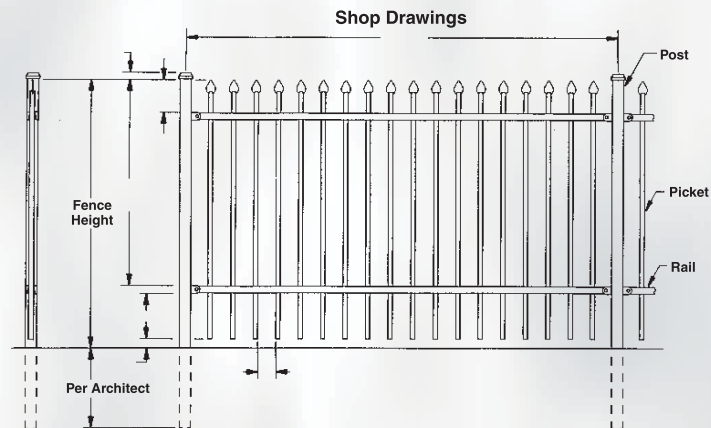
Heavy-Duty Hardware



Swing Gate Hinges

Hinge	Size of Gate Leaf (Ft.)
Pin Hinge w/2-1/2" Male	Gate Leaves up to 4' long
Pin Hinge w/3" Male	Gate Leaves from 4' to 6'
Barrell Hinge/Box Hinge	Gate Leaves fit 2-1/2", 3" and 4" Square Posts
180° Hinge	Gate Leaves fit 3" and 4" Square Posts

COMPREHENSIVE PRODUCT INFORMATION



Framework

System	Pickets	Rails	Posts
Aegis II™	1" x 14 GA.	1-3/4" x 14 GA.	See Table
Aegis Plus™	3/4" x 16 GA.	1-1/2" x 14 GA.	See Table

* Special Roll-Formed ForeRunner™ Shape

Wind Loading

Height (FT)	Rail Length	Post Size	Aegis II™ Wind Load Capacity Factor (PSF)	Aegis Plus™ Wind Load Capacity Factor (PSF)	Typical Wind Load Capacity (mph)
4	6	2-1/2" x 12 GA.	102.3	127.8	236
		3" x 12 GA.	122.8	152.6	259
	8	2-1/2" x 12 GA.	77.0	93.2	205
		3" x 12 GA.	92.2	111.2	224
5	6	2-1/2" x 12 GA.	65.5	82.1	189
		3" x 12 GA.	78.6	98.0	203
	8	2-1/2" x 12 GA.	49.3	59.8	164
		3" x 12 GA.	59.0	71.3	179
6	6	2-1/2" x 12 GA.	45.5	57.1	133
		3" x 12 GA.	54.6	68.2	146
	8	2-1/2" x 12 GA.	34.2	41.5	116
		3" x 12 GA.	41.0	49.6	127
7	6	2-1/2" x 12 GA.	33.4	42.0	114
		3" x 12 GA.	40.0	50.0	125
	8	2-1/2" x 12 GA.	25.0	30.4	99
		3" x 12 GA.	30.0	36.3	108
8	6	2-1/2" x 12 GA.	25.6	32.2	100
		3" x 12 GA.	30.7	38.4	110
	8	2-1/2" x 12 GA.	19.2	23.4	87
		3" x 12 GA.	23.0	27.9	95
9	6	4" x 12 GA.	30.6	36.8	110
		4" x 12 GA.	32.0	N/A	113
10	6	4" x 12 GA.	28.7	N/A	107

Note: Mph calculated using ANSI/ASCE 7-95, "American Society of Civil Engineers Minimum Design Loads for Buildings and other Structures." Exposure Category B (urban and suburban areas with closely spaced obstructions having the size of single-family dwellings or larger). For wind loading applicable to a particular specification, consult the appropriate Building Code.

Detailed Product Data

• Architectural Binder

The Classic™ series drawing above is one of several Aegis II™ and Aegis Plus™ shop drawings contained in the Architectural Binder, which is available upon request. Ameristar's PermaCoat® Color Chain Link Fencing specifications and drawings are also included.

• Compact Disc

Ameristar's ornamental and color chain link fencing technical information is also available on CD format. On the new CD, architects will find all the details they require on Ameristar's ornamental fence and gate systems as well as relevant data on PermaCoat® color chain link framework for commercial and industrial applications.



• Internet Website

The Ameristar® architectural website (<http://www.ameristarfence.com>) enables the user to browse the entire Ameristar® product line. The site is complete with photos, drawings, specifications and installation procedures.

Ameristar's electronic media enable architects and specifiers to simply download specification information directly into the appropriate section of their CSI-formatted project specifications; they also enable the direct downloading of product drawings onto project blueprints.

CONSTRUCTION SPECIFICATION

SECTION 02825 - ORNAMENTAL METAL FENCING SYSTEM

Aegis Plus™ - Commercial Weight

PART 1 - GENERAL

1.01 WORK INCLUDED

The contractor shall provide all labor, materials and appurtenances necessary for installation of the commercial ornamental steel fence system defined herein at (specify project site).

1.02 RELATED WORK

Section ____ - Earthwork
Section ____ - Concrete

1.03 SYSTEM DESCRIPTION

The manufacturer shall supply a total commercial ornamental steel fence system of the Ameristar® Aegis Plus™ (specify Classic™, Majestic™, Genesis™ or Warrior™) design. The system shall include all components (i.e., pickets, rails, posts, gates and hardware) required.

1.04 QUALITY ASSURANCE

The contractor shall ensure that all workers and supervisors who are thoroughly familiar with the type of construction involved and materials and techniques specified.

1.05 REFERENCES

ASTM A924/A924M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvannealed) by the Hot-Dip Process. **ASTM A924/A924M**
- Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process. **ASTM A1011/A1011M** - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength and High-Strength Low-Alloy with Improved Formability. **ASTM B117** - Practice for Operating Salt-Spray (Fog) Apparatus. **ASTM D523** - Test Method for Specular Gloss. **ASTM D622** - Practice for Conducting Tests on Paint and Related Coatings and Materials using Filtered Open-Flame Carbon-Arc Light and Water Exposure Apparatus. **ASTM D1654** - Test Method for Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments. **ASTM D2244** - Test Method for Calculation of Color Differences from Instrumentally Measured Color Coordinates. **ASTM D2794** - Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact). **ASTM D3359** - Test Method for Measuring Adhesion by Tape Test.

1.06 SUBMITTALS

The manufacturer's literature shall be submitted prior to installation.

1.07 PRODUCT HANDLING AND STORAGE

Upon receipt at the job site, all materials shall be checked for damage. Materials shall be stored in such a manner to ensure proper ventilation and drainage, and to protect against damage, weather, vandalism and theft.

ensure proper ventilation and drainage, and to protect against damage, weather, vandalism and theft.

PART 2 - MATERIALS

2.01 MANUFACTURER

The commercial ornamental steel fence system shall conform to Ameristar® AEGIS Plus™, (specify Classic™, Majestic™, Genesis™ or Warrior™) (specify 2-Rail, 3-Rail or 3-Rail with Rings) style manufactured by Ameristar® Fence Products, Inc., in Tulsa, Oklahoma.

2.02 MATERIAL

A. Steel material for fence framework (i.e., tubular pickets, rails and posts), when galvanized after forming, shall conform to the requirements of ASTM A1011/A1011M, with a minimum yield strength of 50,000 psi (344 MPa). The exterior shall be hot-dip galvanized with a 0.45 oz/ft² (138 g/m²) minimum zinc weight. The interior surface shall be coated with a minimum of 81% nominal zinc pigmented coating, 0.3 mils (0.0076 mm) minimum thickness.

B. Steel material for fence framework (i.e., tubular pickets, rails and posts), when galvanized prior to forming, shall conform to the requirements of ASTM A924/A924M, with a minimum yield strength of 50,000 psi (344 MPa). The steel shall be hot-dip galvanized to meet the requirements of ASTM A653/A653M with a minimum zinc coating weight of 0.90 oz/ft² (276 g/m²), Coating Designation G-90.

C. The manufactured galvanized framework shall be subjected to the PermaCoat® thermal stratification coating process (high-temperature, in-line, multi-stage, multi-layer) including, as a minimum, a six-stage pretreatment/wash (with zinc phosphate), an electrostatic spray application of an epoxy base, and a separate electrostatic spray application of a polyester finish. The base coat shall be a zinc-rich thermosetting epoxy powder coating (gray in color) with a minimum thickness of 2 mils (0.0508mm). The topcoat shall be a "no-mar" TGIC polyester powder coat finish with a minimum thickness of 2 mils (0.0508mm). The color shall be (specify black, bronze, white or desert sand). The stratification-coated framework shall be capable of meeting the performance requirements for each quality characteristic shown in Table 1.

D. Material for fence pickets shall be 3/4" square x 16 Ga. tubing. The cross-sectional shape of the rails shall conform to the manufacturer's ForeRunner™ design with outside cross-section dimensions of 1.50" square and a minimum thickness of 14 Ga. Picket holes in the ForeRunner™ rail shall be spaced 4.70" o.c. Picket retaining rods shall be 0.125" diameter galvanized steel. Posts shall be a minimum

of 2-1/2" square x 12 Ga. High quality PVC grommets shall be supplied to seal all picket-to-rail intersections.

2.03 FABRICATION

A. Pickets, rails and posts shall be pre-cut to specified lengths. ForeRunner™ rails shall be pre-punched to accept pickets.

B. Grommets shall be inserted into the pre-punched holes in the rails and pickets shall be inserted through the grommets so that pre-drilled picket holes align with the internal upper raceway of the ForeRunner™ rails. (Note: This can best be accomplished by using an alignment template). Retaining rods shall be inserted into each ForeRunner™ rail so that they pass through the pre-drilled holes in each picket, thus completing the panel assembly.

C. Completed panels shall be capable of supporting a 400 lb. load (applied at midspan) without permanent deformation. Panels without rings shall be biasable to a 25% change in grade; panels with rings shall be biasable to a 12.5% change in grade.

D. Gates shall be fabricated using AEGIS Plus™ panel material and gate ends having the same outside cross-section dimensions as the ForeRunner™ rail. All rail and upright intersections shall be joined by welding. All picket and rail intersections shall also be joined either by welding or by the same retaining rod process used for panel assembly.

PART 3 - EXECUTION

3.01 PREPARATION

All new installation shall be laid out by the contractor in accordance with the construction plans.

3.02 INSTALLATION

Fence posts shall be set in accordance with the spacings shown in Table 2, plus or minus 1/2", depending on the nominal span specified. Gate posts shall be spaced according to the gate openings specified in the construction plans. The "Earthwork" and "Concrete" sections of this specification shall govern post base material requirements. AEGIS Plus™ panels shall be attached to posts using mechanically fastened panel brackets supplied by the manufacturer.

3.03 CLEANING

The contractor shall clean the jobsite of excess materials; post-hole excavations shall be scattered uniformly away from posts.

Table 1 - Coating Performance Requirements

Quality Characteristics	ASTM Test Method	Performance Requirements
Adhesion	D3359 - Method B	Adhesion (Retention of Coating) over 90% of test area (Tape and knife test).
Corrosion Resistance	B117 & D1654	Corrosion Resistance over 3,500 hours (Scribed per D1654; failure mode is accumulation of 1/8" coating loss from scribe or medium #8)
Impact Resistance	D2794	Impact Resistance over 60 inch lb. (Forward impact using 0.625" ball).
Weathering Resistance	D822, D2244, D523 (60° Method)	Weathering Resistance over 1,000 hours (Failure mode is 60% loss of gloss or color variance of more than 3 delta-E color units).

Table 2 - Post Spacing Requirements

Span	6" Nominal (73-1/4" Rail)	8" Nominal (92" Rail)
Post Settings	2-1/2"	3"
Post Settings ± 1/2" O.C.	76-3/4"	77-1/4"
	95-1/2"	96"

Shipping

Aegis II™ and Aegis Plus™ Industrial ornamental fencing components (e.g., pickets, rails, etc.) and TransPort™ cantilever gates are carefully packaged in heavy duty cardboard boxes to ensure the most economical damage-free shipping.

Ordering Information

To order, simply specify the fence or gate design series, color, and height desired. Then figure and provide the quantities needed. Contact Ameristar® for the nearest distributor or if any other assistance is needed.

Warranty

A written 10 year limited warranty is extended on Ameristar's Aegis II™ and Aegis Plus™ fencing systems. Call Ameristar® today for a copy.

DISTRIBUTED BY:

Printed in U.S.A.
Rev. 07/02

Availability

Maintenance

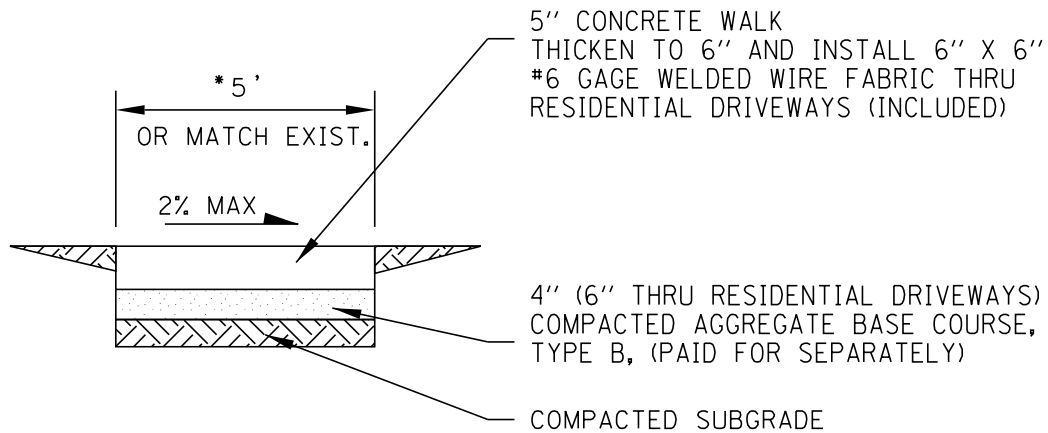
Little or no maintenance is required for the fence and gate systems supplied by Ameristar®. The PermaCoat® coated galvanized metal in Aegis II™ and Aegis Plus™ and the polyester coated aluminum in TransPort™ gates will remain corrosion free for years to come. If pickets or rails are damaged by accidental impact, the affected components can be easily replaced. Damages to coated surfaces can be readily covered with commercially available spray



P.O. BOX 581000 - TULSA, OK. 74158-1000
(918) 835-0898 - 1-800-321-8724 - FAX (877) 926-3747

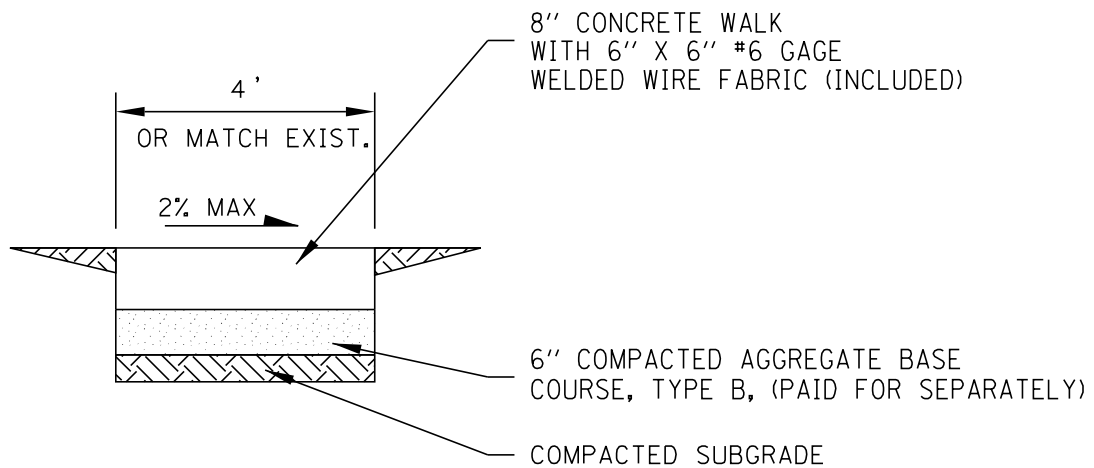
E-Mail: arch@ameristarfence.com

Http://www.ameristarfence.com



NOTE: PROVIDE FIBER EXPANSION JOINTS WHERE NEW SIDEWALK
MEETS EXISTING AND @ 50' O.C. MAX. AND PROVIDE
CONTROL JOINTS @ 5' O.C.

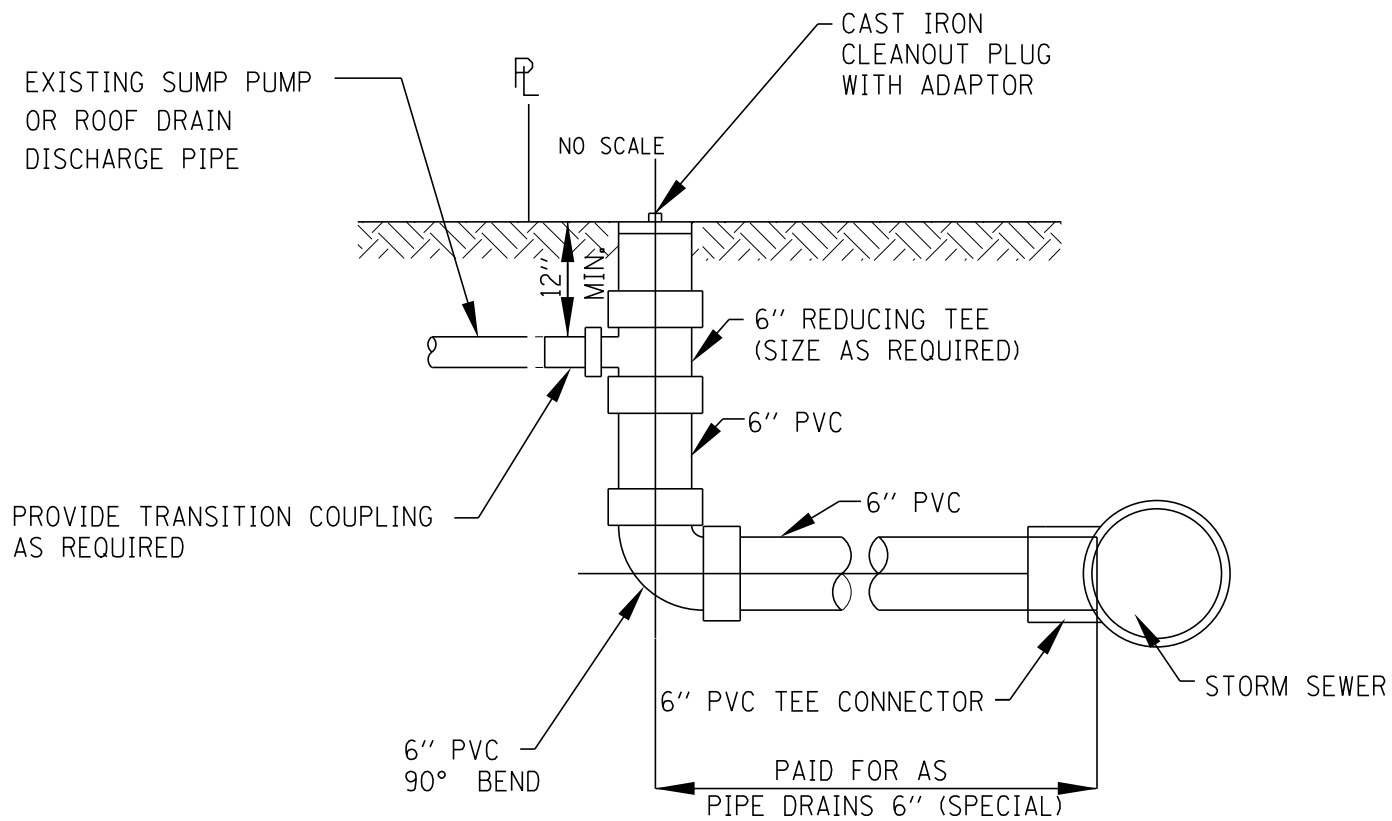
P.C.C. SIDEWALK - 5"



NOTE: PROVIDE FIBER EXPANSION JOINTS WHERE NEW SIDEWALK
MEETS EXISTING AND @ 50' O.C. MAX. AND PROVIDE
CONTROL JOINTS @ 5' O.C.

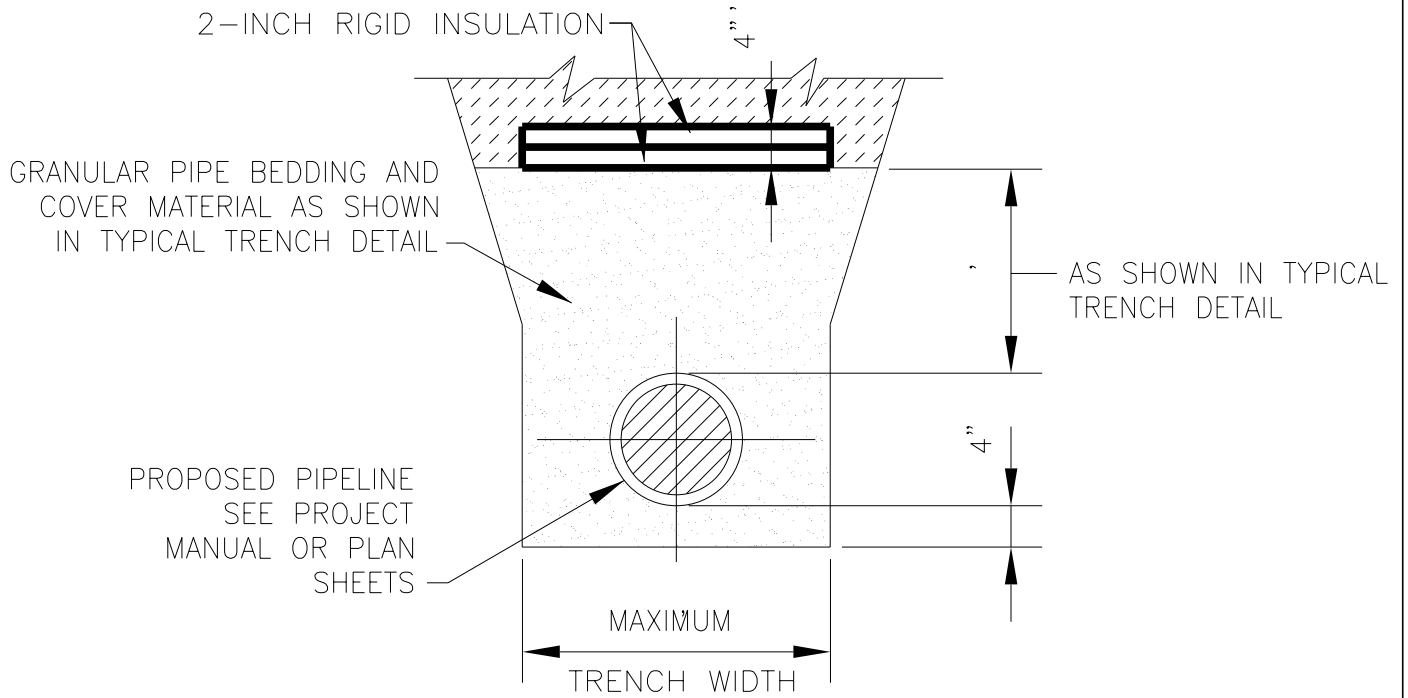
P.C.C. SIDEWALK - 8"

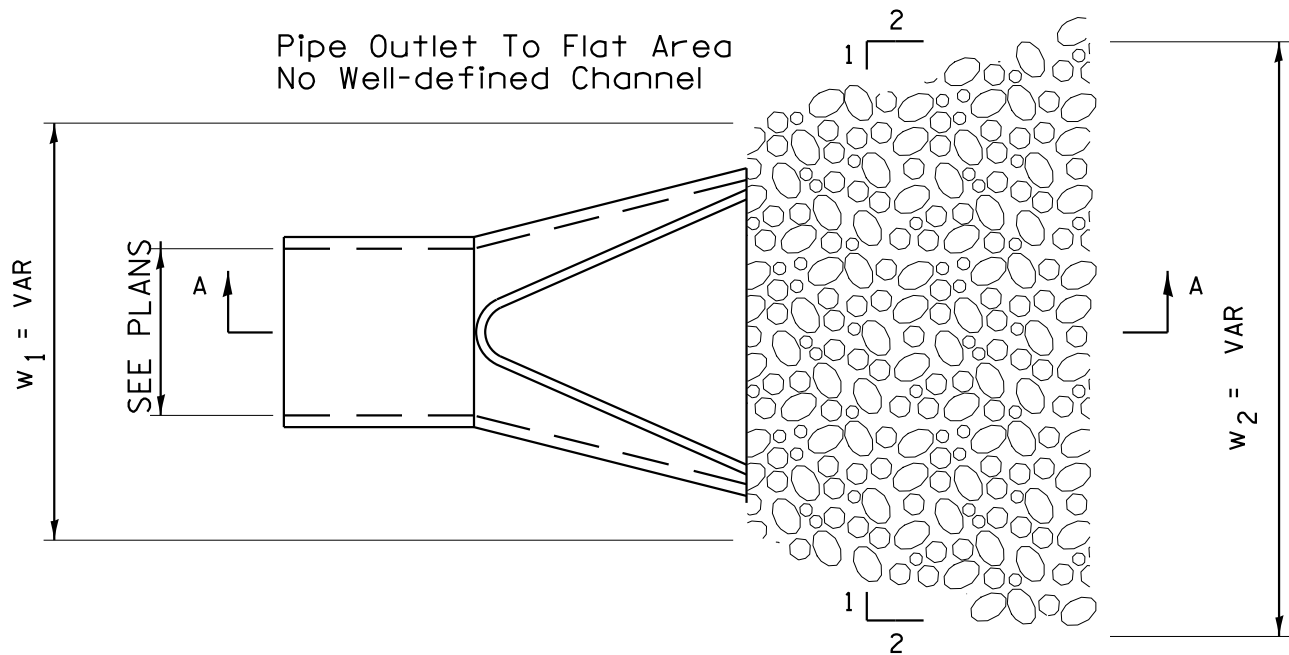
* 4' WIDE ALLOWED IF 5' WIDE PASSING AREA PROVIDED PER PROWAG



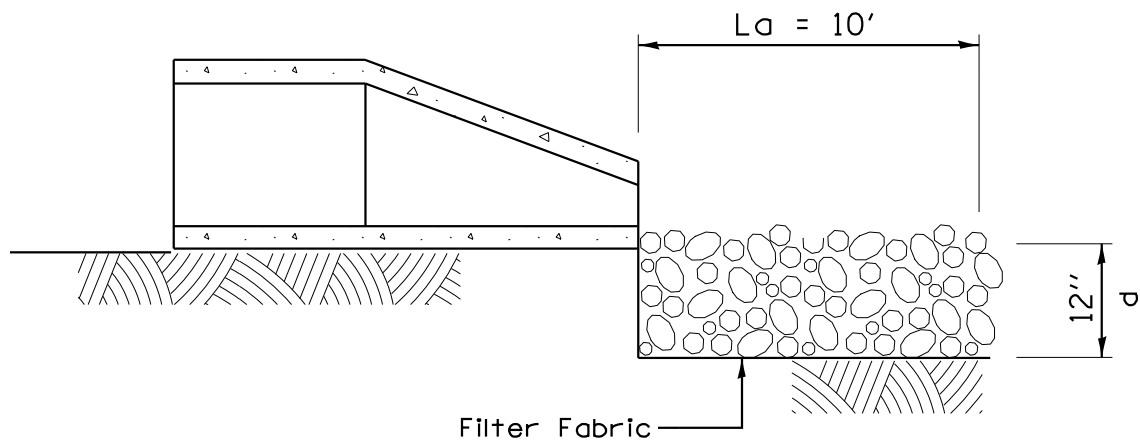
NOTE:

THE PIPE DRAINS 6" (SPECIAL) MAY ALSO CONNECT TO A STORM MANHOLE, INLET, OR STORM SEWER AS SHOWN ON THE PLANS. THE SPECIFIC STORM DRAINAGE STRUCTURE IS NOT SHOWN IN THE DETAIL.





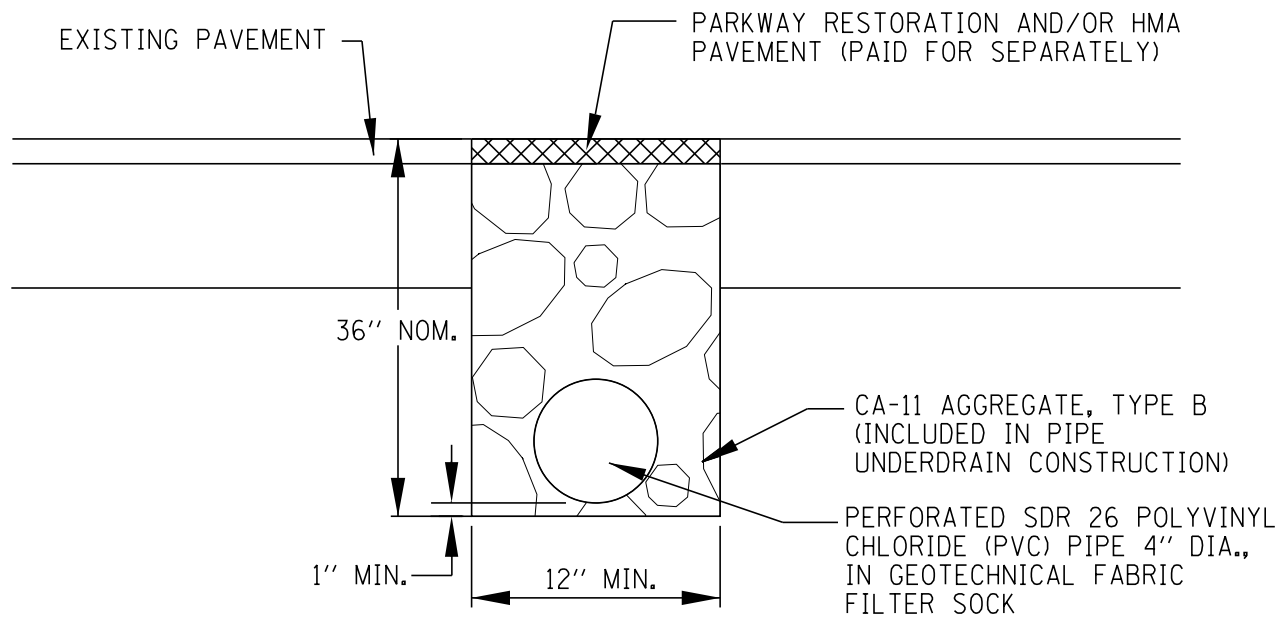
PLAN



SECTION A-A

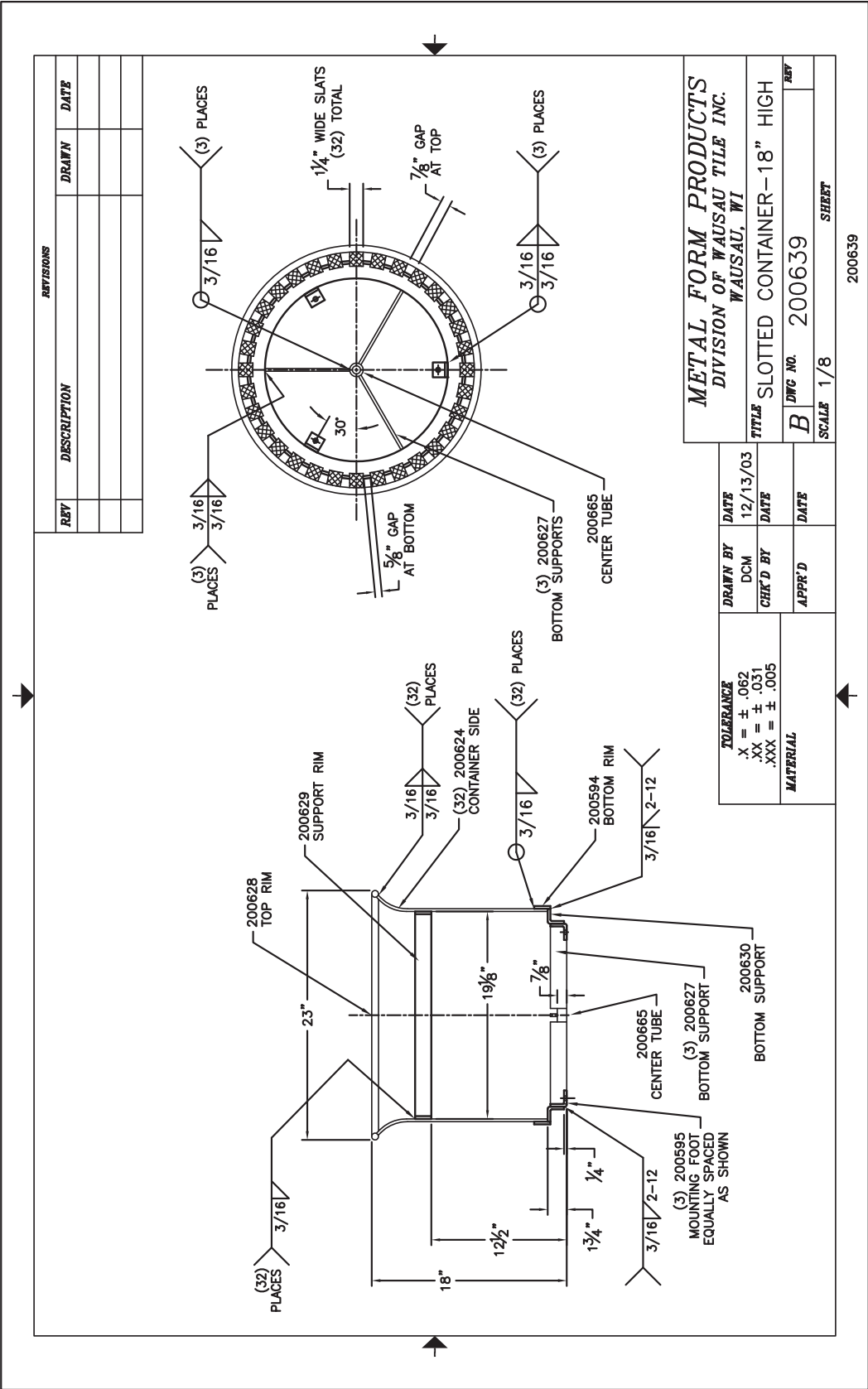
NOTES:

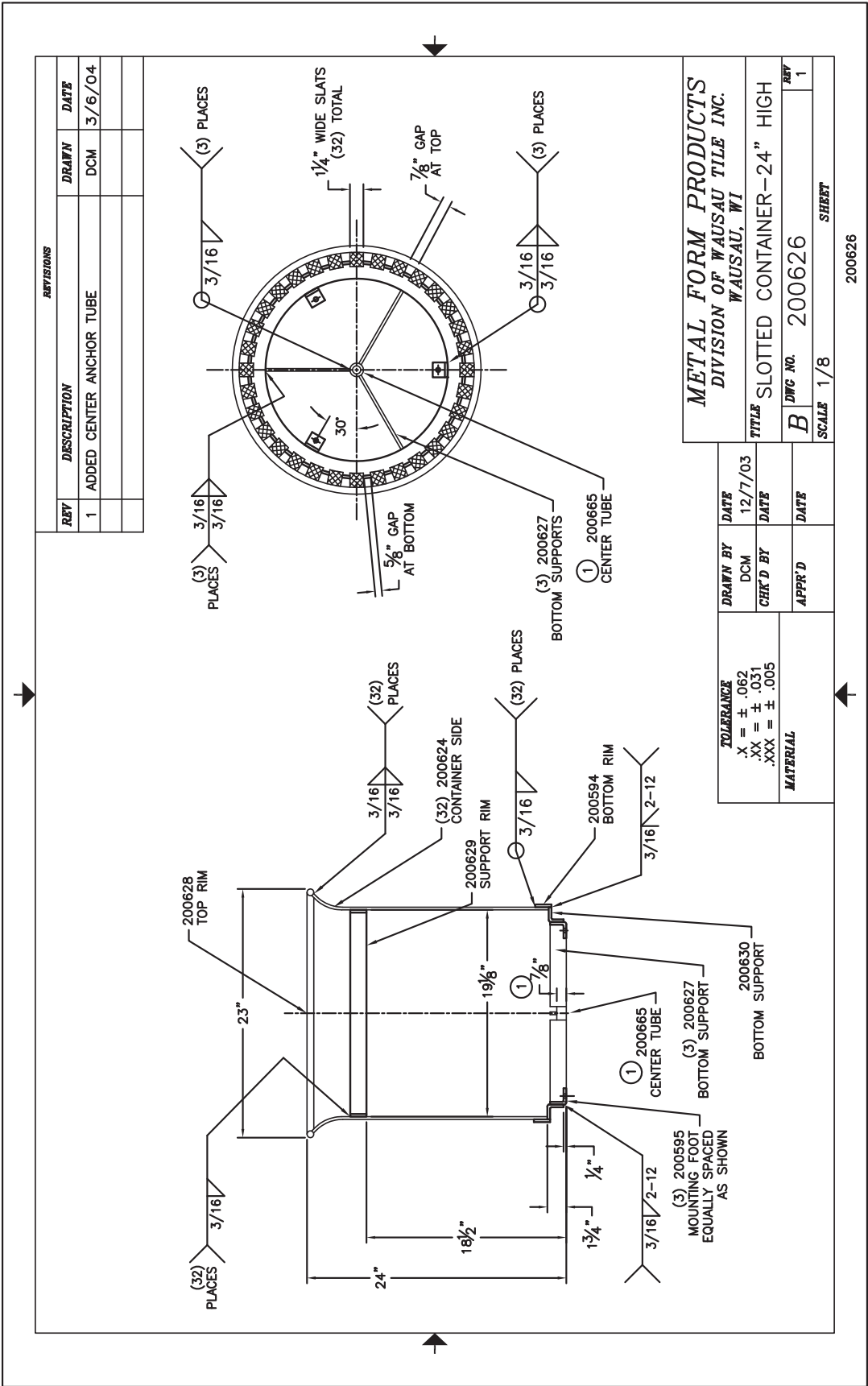
1. The rock riprap shall meet the IDOT requirement for the following gradation: RR 4, Quality A



PIPE UNDERDRAINS 4"

REV 01/01/14
NOT TO SCALE





UNILOCK

Designed to be a step ahead® 1-800-UNILOCK

Consumers Contractors Design Professionals Engineers

→ Design Ideas → Products → Installation → Pro Installs → Seminars → Where to buy → Site Map



Half Stone
4 1/8" X 7" X 2 3/4"
10.4cm X 17.3cm X 7cm



Standard Stone
6 7/8" X 8 1/4" X 2 3/4"
17.3cm X 20.8cm X 7cm



XL Stone
8 1/4" X 13 3/4" X 2 3/4"
20.8cm X 34.3cm X 7cm

-- Change Product --

Midwest: IL, WI,...

→ view regions map

Brussels Block®

The irregular shape of Brussels Block® gives your installation a relaxed, timeless appearance. It's antiqued, tumbled look creates one-of-a-kind pavers which, when combined, achieve a natural "old world" cobblestone look.

Information

[Design ideas for Brussels Block®](#)

[Visualize Your Project](#)

[Installation Instructions](#)

[Specifications](#)

[Laying Patterns](#)

[Print this page](#)

Available Colors*

Limestone



New York



Prairie



Sandstone



Sierra



→ UNILOCK COLOR PLANNER

* Colors, product data, and availability are subject to change without notice. Please confirm all details with your local Unilock Dealer or call 1- 800- UNILOCK. The colors shown should only be used as a guide. Final color selections should always be made from actual samples. Click [here](#) to find a Unilock dealer near you.

Product Data

Region - Midwest: IL, WI, MO, IA, IN, MN, KS

Stones & Bundling	Unit Thickness	SqFt/ Bdle	SqFt/ Section	SqFt/ Stone	Sections/ Bundle	Ln Ft/Sec (Soldier)	LnFt/Bndle (Soldier)	Units/ SqFt	Lbs/ Bundle	Lbs/ Section	Units/ Bundle
XL Stone	7cm 2 3/4"	93.86	31.29	0.797	3	27.5	82.5	1.25	3097	1002	120
Half Stone	7cm 2 3/4"	88.7	12.67	0.198	7	22	154	5.05	2811	406	448
Standard Stone	7cm 2 3/4"	94.91	15.81	0.395	6	22.5	135	2.53	3008	509	240

Notes:

All measurements are nominal.

New packaging to allow for mechanical installation.

PHB TechBullet #9

SPECIFICATION & PERFORMANCE



AMERICA'S PREMIER PAVER

Permanent color fastness- *vitrified shale*
Far exceed ASTM C902-Pedestrian/Light Traffic & C1272-Heavy Vehicular Traffic
All pavers exceed application PX for tolerance: $\pm 1/8"$. (except for Rumbled®)
Average compressive strength: 12,500 psi
Average Absorption: 5.5 %
Freeze Thaw Cycles: 150+
Passes CSA-A231.2 freeze thaw test in saline solution
British Pendulum Test (skid resistance): 74.5
Average Coefficient of Friction (ASTM C1028): 1.06 dry, 0.97 wet

Specification Enhancements

We suggest the following enhancements to our standard specifications to insure the highest quality of product for your project:

.....in addition to conforming to the PX application, the dimensional tolerances around the mean values for length, width, and depth shall be 1/16 of an inch.
(Studies show that dimensional tolerances are directly linked to joint width size and proper interlock)

.....the average cold water absorption shall not be greater than 6% with no individual unit greater than 7%. Absorption test results may not be achieved through the use of sealers or other products applied to the clay paver. (Sealer protection degrades over time requiring re-application after several years)

.....the clay paver must pass CSA-A231.2 freeze thaw test in saline solution without the use of sealers or other products applied to the paver. (Salt is the most common substance used for de-icing during the winter months. See PHB report Tech Bullet #1.)

.....The contractor shall ensure that the manufacturer conduct a test sampling of 24 pavers for every 50,000 pavers manufactured to determine the paver's compliance with dimensional and water absorption characteristics. The 24 paver sample shall be representative of the color mix in the typical finished package

and chosen on a consistent basis from one kiln car. (Proper control procedures and testing are standard operating principles for high quality manufacturers.)

Product Specifications

English Edge® - Features and Specifications:

Pine Hall Brick's English Edge® pavers are manufactured to conform to the American Society for Testing and Materials (ASTM) specification standards C902, (Class SX, Type 1, Application PX) and C67 for freeze and thaw.

Features: Chamfers on both bed surfaces for reversibility; spacer nibs to control joint size and chippage; full range, through the body color eliminates color fading; exceeds ASTM standard with over 10,000 p.s.i. compressive strength. Meets PX application on dimensional tolerance. Colors: red, red flash (FR), buff, ironspot, autumn, dark accent & rose flash.

Specification: Unit clay paver shall conform to the requirements of ASTM C902, Class SX, Type 1, Application PX. The units shall be standard 4" x 8" size having dimensions of 2 1/4" x 4" x 8" (including spacer nibs on the side), chamfered edges on both bed surfaces, 10,000 psi minimum compressive strength and below 6% cold water absorption. Paver color shall conform to English Edge® (color) brick pavers as manufactured by Pine Hall Brick Co., Inc., Winston-Salem, North Carolina and distributed by (party responsible for specification).

Old Towne, Old Tavern, Old Mill & Old South - Features and Specifications:

Pine Hall Brick's Old Towne, Old Tavern, Old South and Sunset Blend pavers are manufactured to conform to the American Society for Testing and Materials (ASTM) specification standards C902, (Class SX, Type 1, Application PX) and C67 for freeze and thaw.

Features: Old Series: Textured edges and "torn" face texture for aged appearance; ceramic penetrating color for additional antique look; full relieved edge controls chippage; exceeds ASTM standard with over 8,000 p.s.i. compressive strength.

Sunset Blend: rolled edges control chippage and ceramic penetrating color with light sand coating simulates molded paver; exceeds ASTM standard with over 8,000 p.s.i. compressive strength. Colors: Old Towne- red flash with random black & white paint smears, Old Tavern- burgundy blue flash, Old South- salmon orange flash, Old Mill- gray brown blend, Sunset Blend-pink flash.

Specification: Unit clay paver shall conform to the requirements of ASTM C902, Class SX, Type 1, Application PX. The units shall be standard 4" x 8" size having dimensions of 2 1/4" x 4" x 8", having textured edges and below 6% cold water absorption. Paver color shall conform to Old Towne (Old Tavern, Old South, Old Mill or Sunset Blend) brick pavers as manufactured by Pine Hall Brick Co., Inc., Winston-Salem, North Carolina and distributed by (party responsible for specification).

Rumbled® Pavers - Features and Specifications:

Pine Hall Brick's Rumbled® pavers are manufactured to conform to the American Society for Testing and Materials (ASTM) specification standards C902, (Class SX, Type 1, Application PA) and C67 for freeze and thaw.

Features: Tumbled after firing for aged appearance; exceeds ASTM standard with over 10,000 p.s.i. compressive strength. Colors: red flashed (FR), red, ironspot, rose FR and Main St.

Specification: Unit clay paver shall conform to the requirements of ASTM C902, Class SX, Type 1, Application PA. The units shall be standard 4" x 8" size having dimensions of 2 1/4" x 4" x 8", 10,000 psi minimum compressive strength and below 6% cold water absorption. Paver color shall conform to Rumbled® (color) as manufactured by Pine Hall Brick Co., Inc., Winston-Salem, North Carolina and distributed by (party responsible for specification).

Pathway and Cocoa - Features and Specifications:

Pine Hall Brick's Pathway and Cocoa brick pavers are manufactured to conform to the American Society for Testing and Materials (ASTM) specification standards C902, (Class SX, Type 1, Application PX) and C67 for freeze and thaw.

Features: 2 1/4" thick square edge brick pavers available in 4"X 8" and modular sizes. Colors: Pathway-red or red flash(FR), Pathway Autumn, Cocoa-chocolate flash(FR)

Specification: Unit clay paver shall conform to the requirements of ASTM C902, Class SX, Type 1, Application PX. The units shall be standard 4" x 8" (or standard modular) size having dimensions of 2 1/4" x 4" x 8" (or 2 1/4" x 3 5/8" x 7 5/8"), square edges, 10,000 psi minimum compressive strength and below 6% cold water absorption. Paver color shall conform to Pathway FR or Red (or Cocoa FR) brick pavers as manufactured by Pine Hall Brick Co., Inc., Winston-Salem, North Carolina and distributed by (party responsible for specification).

Brookstown, Harbourn town and Carytown - Features and Specifications:

Pine Hall Brick's thin brick pavers are manufactured to conform to the American Society for Testing and Materials (ASTM) specification standards C902, (Class SX, Type 1, Application PX) and C67 for freeze and thaw.

Features: 1 3/8" thin square edge pavers available in: Brookstown-red or red flash, 4" X 8" or modular; Harbourn town-chocolate flash, 4" X 8"; Carytown-rose flash, modular.

Specification: Unit clay paver shall conform to the American Society for Testing and Materials (ASTM) specification standards C902, Class SX, Type 1, Application PX. The units shall be standard 4" x 8" (or standard modular) size having dimensions of 1 3/8" x 4" x 8" (or 1 3/8" x 3 5/8" x 7 5/8"), square edges, 10,000 psi minimum compressive strength and below 6% cold water absorption. Paver color shall conform to Brookstown (or Harbourn town or Carytown) brick pavers as manufactured by Pine Hall Brick Co., Inc., Winston-Salem, North Carolina and distributed by (party responsible for specification).

Heavy Vehicular Paver Specifications

English Edge® Heavy Duty 2 3/4" - Features and Specifications:

Pine Hall Brick's English Edge® pavers are manufactured to conform to the American Society for Testing and Materials (ASTM) specification standards C1272, (Type F, Application PX).

Last rev. 5/8/05

Features: Spacer nibs & beveled edges to control joint size and chippage; full range, through the body color eliminates color fading; exceeds ASTM standard with over 10,000 p.s.i. compressive strength and less than 6% cold water absorption. Meets PX application on dimensional tolerance. Colors: red & red flash(FR). (other colors may be available)

Specification: Unit clay paver shall conform to the requirements of ASTM C1272, Type F, Application PX. The units shall be standard 4" x 8" size having dimensions of 2 3/4" x 4" x 8" (including spacer nibs on the side), chamfered edges, 10,000 psi minimum compressive strength and below 6% cold water absorption. Paver color shall conform to English Edge® (color) **HD** brick pavers as manufactured by Pine Hall Brick Co., Inc., Winston-Salem, North Carolina and distributed by (party responsible for specification).

2 1/4" Type R - Features and Specifications:

Pine Hall Brick's 2 1/4" pavers are manufactured to conform to the American Society for Testing and Materials (ASTM) specification standards C1272, (Type R, Application PX).

Features: full range, through the body color eliminates color fading; exceeds ASTM standard with over 10,000 p.s.i. compressive strength and less than 6% cold water absorption. Meets PX application on dimensional tolerance. Colors: depends on paver selected.

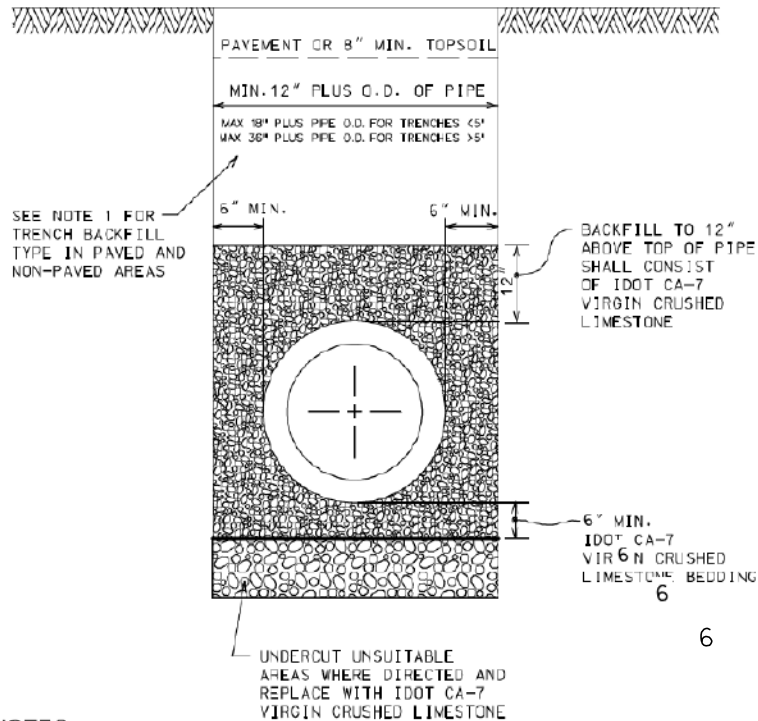
Specification: Unit clay paver shall conform to the requirements of ASTM C1272, Type R, Application PX. The units shall be standard 4" x 8" (or standard modular) size having dimensions of 2 1/4" x 4" x 8" (or 2 1/4" x 3 5/8" x 7 5/8"), _____ edges, 10,000 psi minimum compressive strength and below 6% cold water absorption. Paver color shall conform to _____ brick pavers as manufactured by Pine Hall Brick Co., Inc., Winston-Salem, North Carolina and distributed by (party responsible for specification).



All Pine Hall Brick Interlocking Pavers are fired to meet the *Test of Time* in the worst weather possible!



AMERICA'S PREMIER PAVER™
over 300 million sold!
www.pinehallbrick.com



NOTES:

1. TRENCH BACKFILL MATERIAL SHALL CONSIST OF CA-7 (VIRGIN CRUSHED LIMESTONE) UNDER PAVED AREAS OR WITHIN ZONE OF INFLUENCE, OR FA-6 (CLEAN BROWN BEACH SAND) IN NON-PAVED AREAS.
2. ALL MATERIALS SHALL BE PROPERLY COMPACTED PER SPECIFICATIONS (INUNDATION OR WATER JETTING NOT ALLOWED)
3. ALL TRENCH EXCAVATIONS SHALL MEET OSHA REQUIREMENTS.
4. ALL STORM SEWER SMALLER THAN 15" DIA. THAT WILL BE PUBLICLY OWNED & MAINTAINED SHALL BE RIGID PVC PIPE, MINIMUM SDR 26 WITH PUSH-ON GASKET JOINTS.

PVC PIPE TRENCH DETAIL

REV 09-09-14
NOT TO SCALE

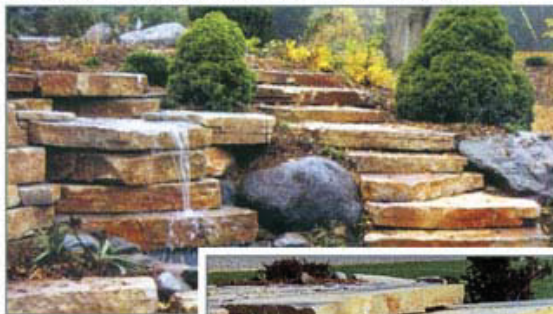
 		QUARRY STONE	29
	 	▲ 8" Fond Du Lac Drywall (color-grey/white) Approximately 20 sf/ton. Available 2-3", 3-4", 4-5" or 5-7" thick. Also available in 6" (approximately 30 sf/ton) and 12" (approximately 15 sf/ton). Both available 2-3", 3-4", 4-5" or 5-7" thick.	▲ Fond Du Lac Random Tumbled Approximately 15 sf/ton. Available 2-4" thick.
		▲ 8" Chilton Drywall (color-grey, blue, lilac, rust blend) Approximately 20 sf/ton. Available 2-3", 3-4", 4-5" or 5-7" thick. Also available in 12" (approximately 15 sf/ton). Available 2-3", 3-4", 4-5" or 5-7" thick.	▲ Patterned Flagstone. Available in Sand Castle White or Dark with Bushhammered or Flamed surface. 2" thick in 12" x 12" to 24" x 24" sizes.
		▲ Holey Flat Weathered Boulders. Available 12-24" or 24-60" thick. Also available in Round 12-60" thick. or Nuggets 4-12" thick.	▲ 8" Chilton Weathered Edge Drywall (color-grey, buff, rust blend) Approximately 20 sf/ton. Available 2-5" thick. Also available in 8" Random Thickness (approximately 15 sf/ton).
www.aspenvalleyls.com		 Quarry Stone	



▲ Chilton Flagging. Approximately 80 sf/ton. 18" diameter or larger. Chilton Steppers are available. Approximately 80 sf/ton. Up to 18" diameter. Available 1 1/4"-2 1/2" thick.



▲ Fond Du Lac Outcropping. Available in Large or 2 Man sizes.



▲ Chilton Outcropping (Large or 2 Man sizes). Also shown, Chilton Weathered Edge Outcropping Steps (Approximately 5-7" thickness).



▲ Chilton Outcropping Steps. Approximately 5-7" thickness. Fond Du Lac is also available. Approximately 5-7" thickness.



▲ Fond Du Lac Flagging. Standard (80 sf/ton), Smooth (80 sf/ton) or Thin & Smooth (160 sf/ton). 18" diameter or larger.

Fond Du Lac Steppers are available. Standard (80 sf/ton), Smooth (80 sf/ton) or Thin & Smooth (160 sf/ton). Up to 18" diameter.



▲ Weathered Edge Outcropping. Available in Large or 2 Man sizes.



▲ Chilton Snapped Steps. Approximately 5-7" thick. Snapped all sides with Natural top. Available in 18" x 36", 18" x 48", 24" x 36", or 24" x 48" sizes.



▲ Fond Du Lac Snapped Steps. Approximately 5-7" thick. Snapped all sides with Natural top. Available in 18" x 36", 18" x 48", 24" x 36", or 24" x 48" sizes. Also available with Sawn/Bushhammered top.



▲ Chilton 8" Drywall (color-grey, rust, red)
Approximately 20 sf/ton. Available 2-3", 3-4" or 4-5" thick.



▲ Eden 8" Drywall (color-white)
Approximately 20 sf/ton. Available 2-3", 3-4" or 4-5" thick.



◀ Oakfield 8" Drywall (color-buff to white)
Approximately 20 sf/ton. Available 2-3", 3-4" or 4-5" thick.



▲ Weathered Edge Eden 8" Drywall
(color-more uniform shades of brown). Approximately 20 sf/ton.
Available 2-3", 3-4" or 4-5" thick.



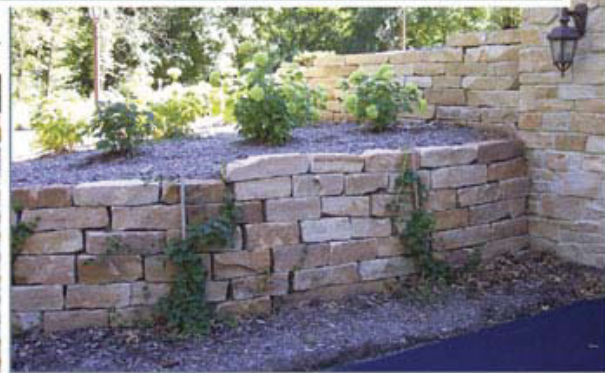
▲ Weathered Edge Chilton 8" Drywall (color-shades of brown, rust, and red)
Approximately 20 sf/ton. Available 2-3", 3-4" or 4-5" thick.



Weathered Edge Oakfield 8" Drywall (color—shades of brown)
Approximately 20 sf/ton.
Available 2-3", 3-4" or 4-5" thick.



▲ Valders 8" Drywall (color—white, sawn top and bottom)
Approximately 20 sf/ton. Available 2 1/4", 3 5/8" or 4 1/2" thick.



▲ Weathered Edge Winnebago 8" Drywall
(color—sandstone and burnt brown)
Approximately 20 sf/ton. Available 2-3", 3-4" or 4-5" thick.

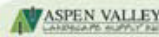


▲ Empire 8" Drywall (color—sandstone)
Approximately 20 sf/ton. Available 2-3", 3-4" or 4-5" thick.



▲ Hole Boulders—Flat Stackable

Quarry Stone

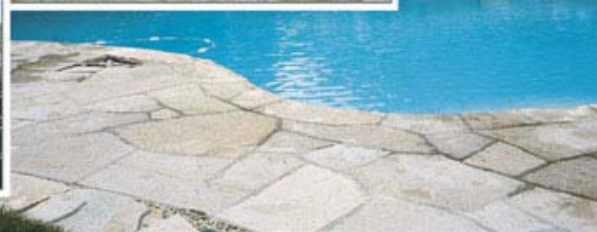


www.aspenvalleyls.com

Oakfield Flagging. Approximately 80 sf/ton. ▶
 1"-2" thick. Approximately 16"-42" diameter.
 Oakfield Steppers are available 1"-2" thick.
 Approximately 8"-20" diameter.
 Approximately 80 sf/ton.



▲ Chilton Flagging. Approximately 80 sf/ton.
 1"-2" thick. Approximately 16"-42" diameter.
 Chilton Steppers are available 1"-2" thick. Approximately
 8"-20" diameter. Approximately 80 sf/ton.



▲ Eden Flagging
 Approximately 80 sf/ton. 1"-2" thick. Approximately 16"-42" diameter.
 Eden Steppers are available 1"-2" thick. Approximately 8"-20" diameter.
 Approximately 80 sf/ton.



▲ Rockfaced Steps (rockfaced sides and front, natural top)
 Approximately 5-6", 6-7" or 7-8" thick. Available in 18" x 36",
 18" x 48", 24" x 36", 24" x 48", or 24" x 60" sizes.



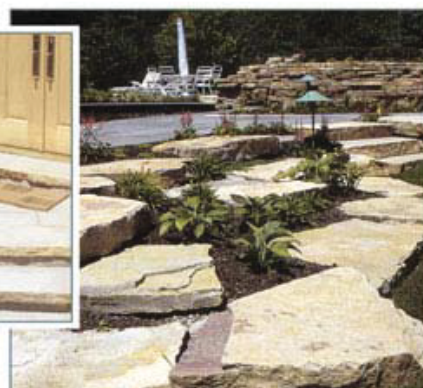
▲ Eden Outcropping. Flat pieces up to 8' starting at 8" thickness.



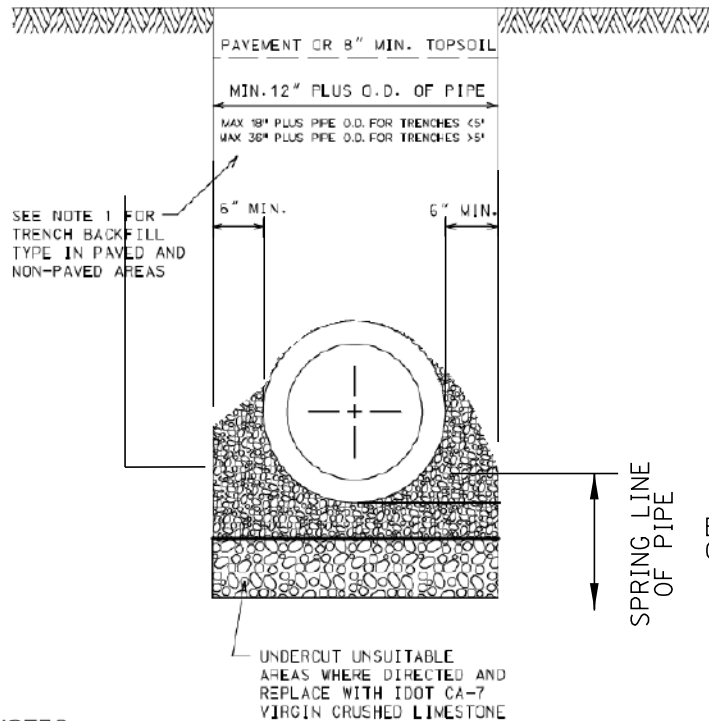
▲ Valders Dove White Patterned Flagstone
 6" multiples, 1 5/8" thick ± 1/8".
 Available Honed, Sandblasted, or Flamed.



▲ Eden Patterned Flagstone
 6" multiples with natural top.
 12" x 12" up to 24" x 30" and select
 sizes up to 24" x 24" are available.
 Custom order larger than 24" x 24".



▲ Chilton Weathered Edge Outcropping
 Flat pieces up to 8' starting at 8" thickness.



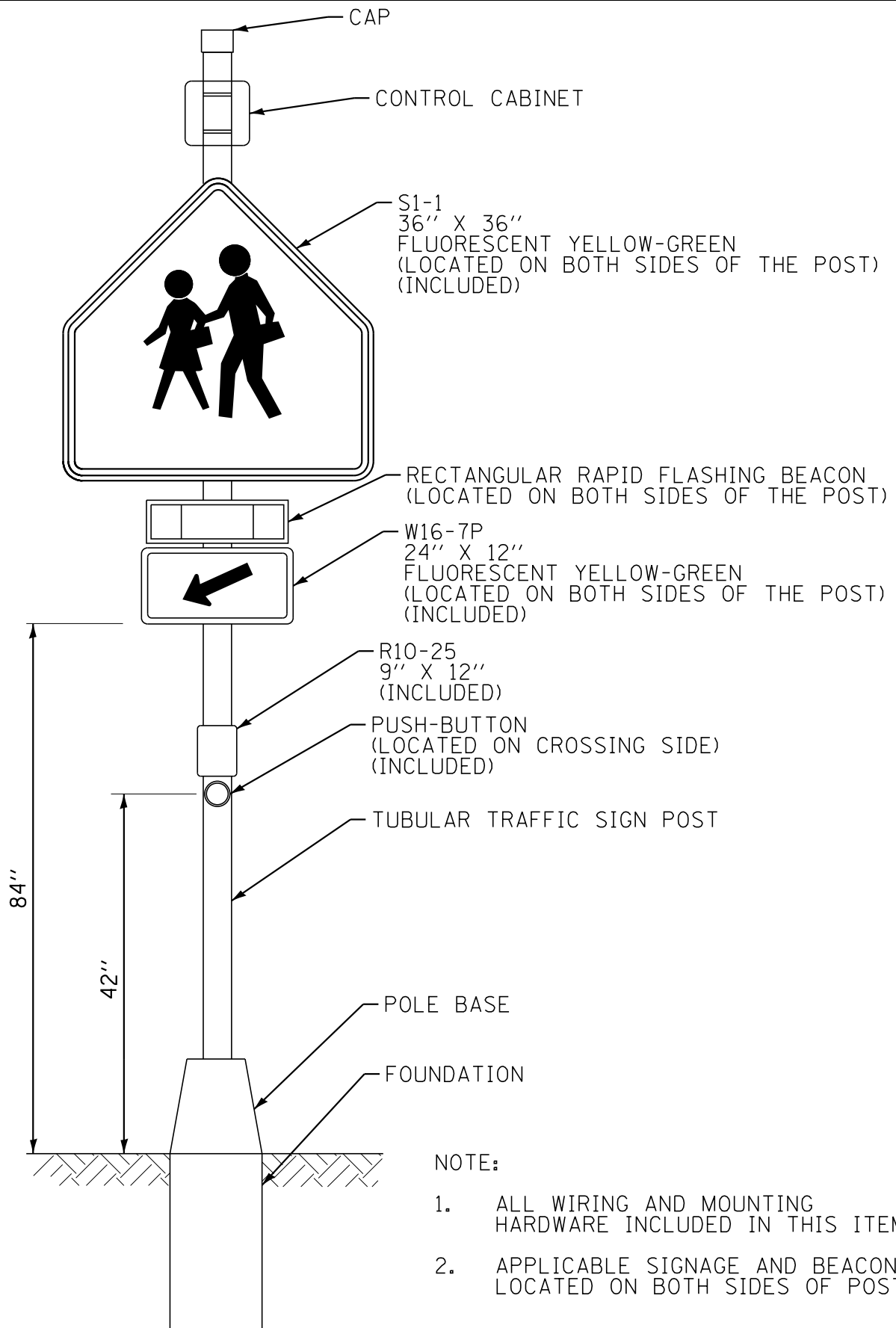
NOTES:

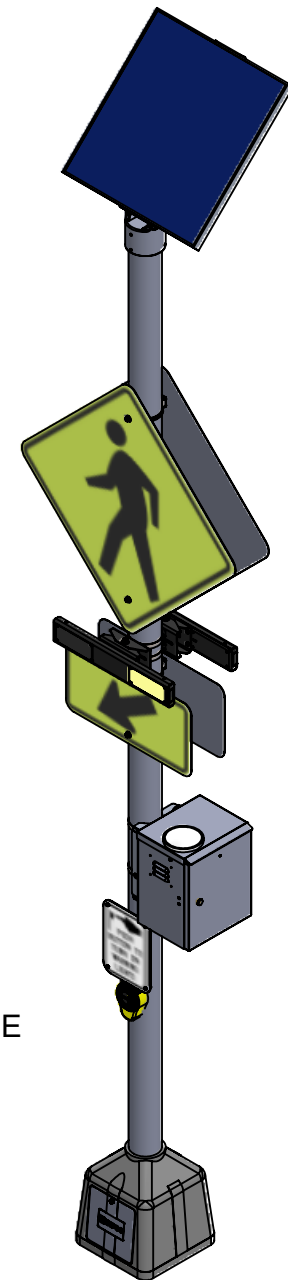
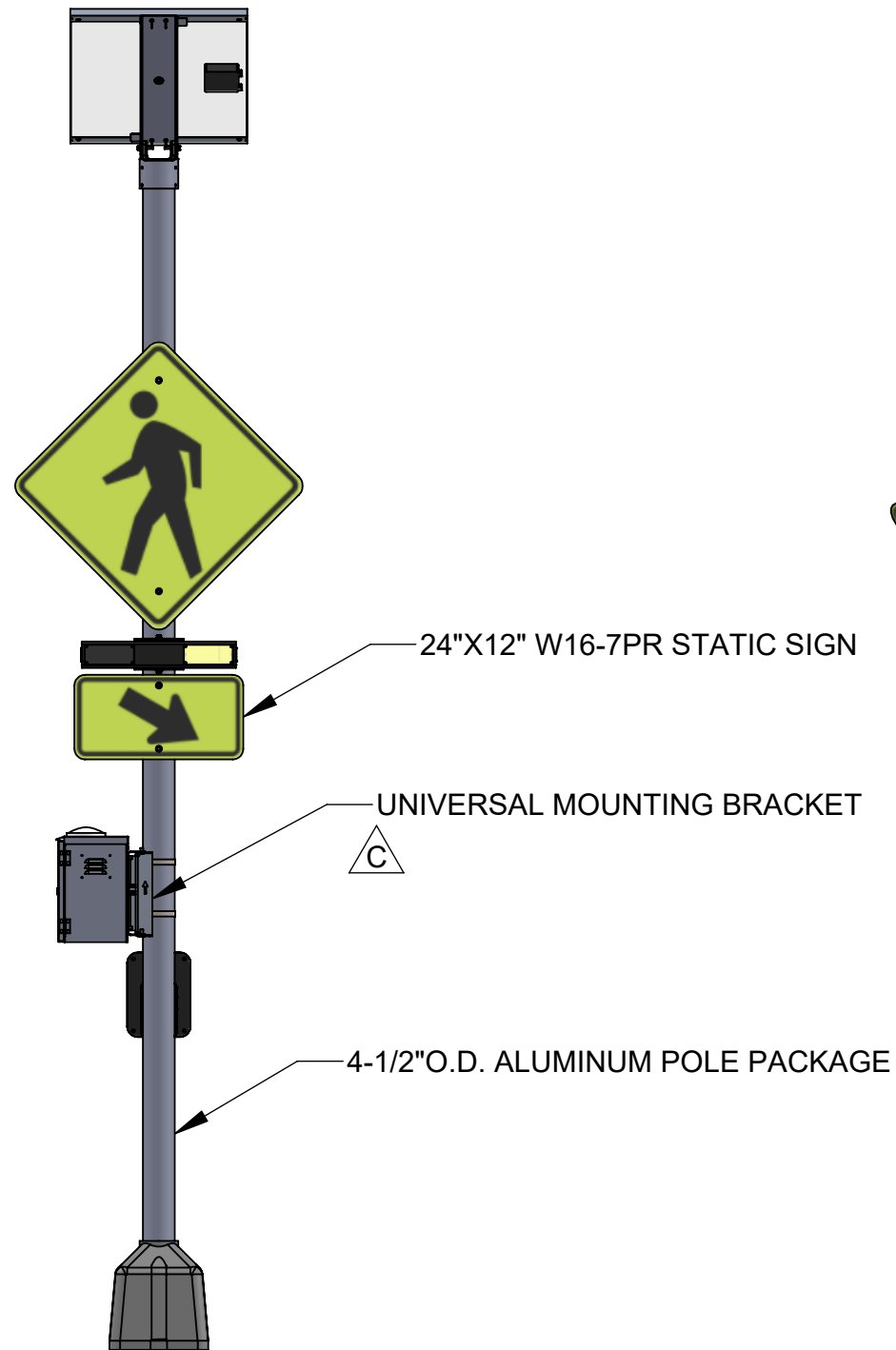
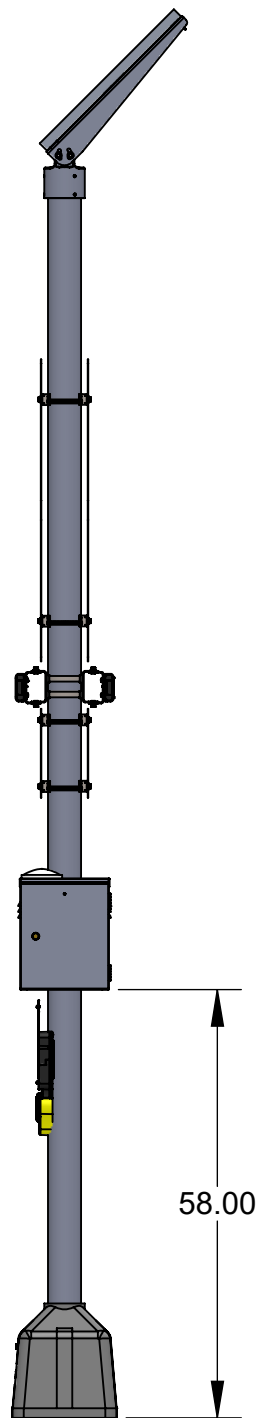
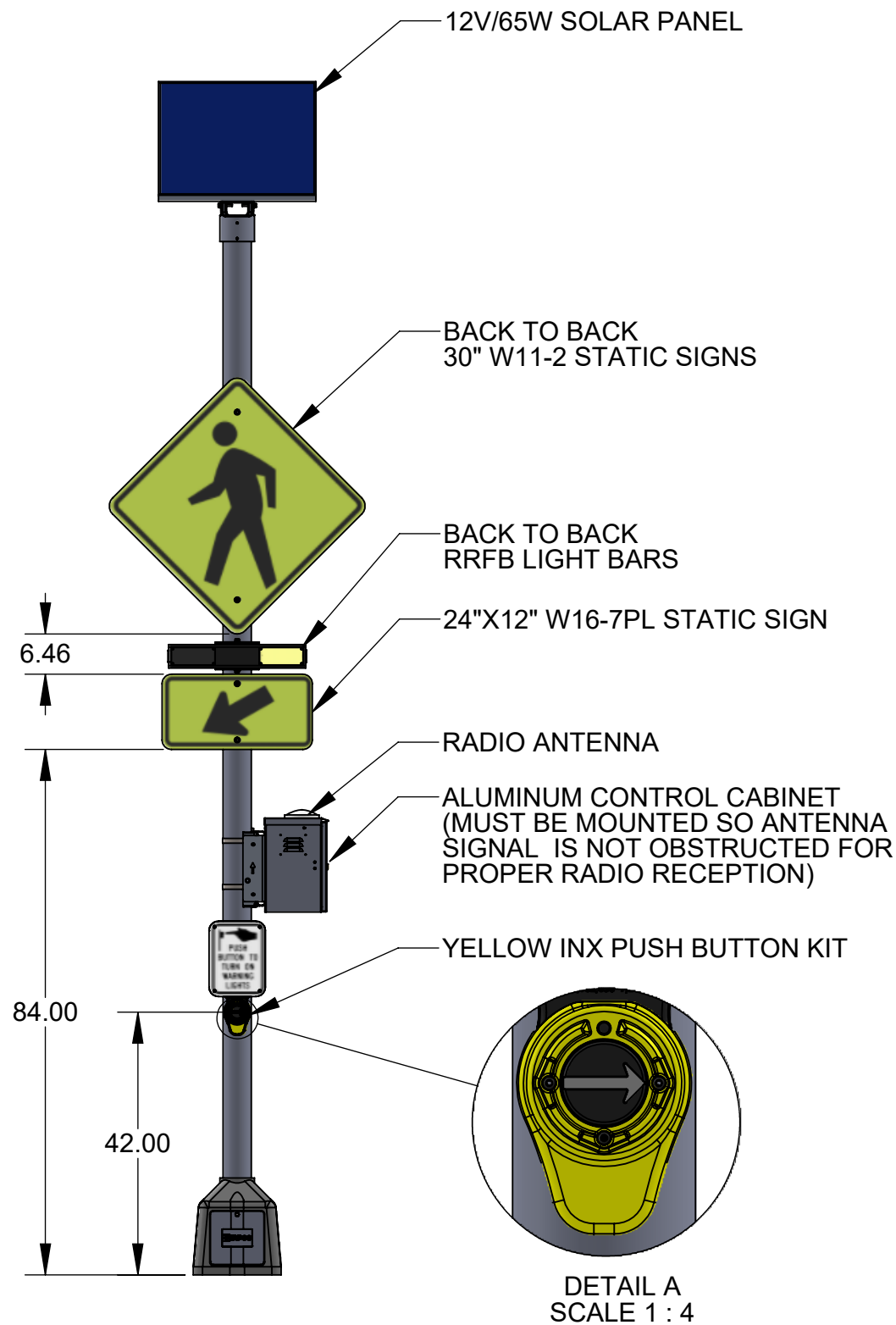
1. TRENCH BACKFILL MATERIAL SHALL CONSIST OF CA-7 (VIRGIN CRUSHED LIMESTONE) UNDER PAVED AREAS OR WITHIN ZONE OF INFLUENCE, OR FA-6 (CLEAN BROWN BEACH SAND) IN NON-PAVED AREAS.
2. ALL MATERIALS SHALL BE PROPERLY COMPACTED PER SPECIFICATIONS (INUNDATION OR WATER JETTING NOT ALLOWED)
3. ALL TRENCH EXCAVATIONS SHALL MEET OSHA REQUIREMENTS.
4. ALL STORM SEWER SMALLER THAN 15" DIA. THAT WILL BE PUBLICLY OWNED & MAINTAINED SHALL BE RIGID PVC PIPE, MINIMUM SDR 26 WITH PUSH-ON GASKET JOINTS.

RCP TRENCH
BEDDING REQUIREMENTS
6" UNDER UP TO
SPRING LINE OF PIPE
WITH CA-7

RCP TRENCH DETAIL

REV 09-09-14
NOT TO SCALE





- NOTES:
1. ORIENT SOLAR PANEL TOWARDS SOUTHERN SKY FOR MAXIMUM SOLAR EXPOSURE
 2. CONTROL CABINET HEIGHT MAY VARY.
 3. WORM CLAMPS ARE PROVIDED, STANDARD 3/4" S/S BANDING IS RECOMMENDED
 4. J-BOLTS NOT SHOWN
 5. ALL DIMENSIONS ARE FOR REFERENCE ONLY.
 6. STATIC SIGNS NOT INCLUDED IN SYSTEM.

C	ADDED UNIVERSAL CABINET BRACKET TO DRAWING	CH-409	AK	4/19/2023
B	UPDATE DESCRIPTION FROM 55/48 TO 65/50. UPDATE SOLAR PANEL NOTE TO 65W	CC-392 / CC-692	S.R	3/15/2023
A	INITIAL RELEASE	N/A	AEK	10/29/2020
REV.	DESCRIPTION	ECO	BY	DATE

DIMENSIONS ARE INCH AND TOLERANCES ARE AS FOLLOWS UNLESS OTHERWISE SPECIFIED	
.X	±0.1
.XX	±0.02
.XXX	±0.008
ANGLES	±1°
DESIGNED BY	DATE
AK	04/19/2023
DRAWN BY	DATE
AK	04/19/2023
APPROVED BY	DATE
SR	04/20/2023

 TAPCO TRAFFIC & PARKING CONTROL CO., INC.		5100 West Brown Deer Rd Brown Deer, WI 53223 USA		 
		7840 North 86th Street Milwaukee, WI 53224 USA		
TITLE: PEDX, RRFB, SOLAR 65/50, RADIO, SOP, DS, AMBER, INX, H POLE X2				
SIZE B	DOCUMENT NO. (SEE TABLE FOR P/N)	600640		REVISION C
SCALE:	1:26	REFERENCE:	SHT	1 of 1
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POLARA INX PUSH BUTTON

SPECIFICATIONS

POWER	10 to 24VDC
PUSH BUTTON	ADA compliant. Field adjustable directional arrow is standard; bidirectional and blank buttons available. Optional adjustable locator tone
ACTIVATION CONFIRMATION	Yellow LEDs and voice confirmation activated when push button is pressed; custom message available
PUSH BUTTON HOUSING	Yellow powder coat finish is standard; black and green available
SPEAKER	Field replaceable, weather resistant, 10-watt audio amplifier Maximum volume: 100 dB at 1 meter
INSTRUCTIONAL SIGN	9" x 12" is standard; larger signs available; braille available. Retroreflective sheeting with tamper-resistant mounting screws
OPERATING FORCE	Three adjustable settings: .5 to 3.5 pounds
IDLE CURRENT DRAW	~9mA @ 12 VDC
PEAK CURRENT DRAW	~500mA (@15VDC) with voice message at maximum
ENCLOSURE	NEMA 250 Type 4X Powdercoated cast aluminum cover and backplate
CONNECTIVITY	Bluetooth 5.0 Polara Field Service app for customization
WIRING	6 conductor
OPERATING TEMPERATURE RANGE	-30°F to 165°F (-34°C to 74°C)
DIMENSIONS	9"W x 18.2"L x 2.6"H



IWS CONTROLLER

SPECIFICATIONS

POWER	Solar Charging for 6VDC and 12VDC systems with Power and Charging Indicator Light
INPUTS	Two digital inputs
OUTPUTS	Two LED device driver outputs; Two digital outputs
PROGRAMMABILITY	Locally using serial input (RS232) or remotely using BlinkLink® via cell modem
PROGRAM ACTIVATION OPTIONS	24/7, Dusk 'til Dawn, BlinkLink® Scheduling, Time Clock, Pushbutton, Radar, or other digital input device
LED-WARNING CONTROL COMPATIBILITY	BlinkerSign®, BlinkerBeacon™, RRFB-XL2™, LegendViz™
CONTROLLER DIMMING	Auto-adjustable via solar panel input for 6V and 12V systems; Auto-adjustable via photocell sensor, if equipped, for 120VAC, 6V and 12V systems
INTERNAL SYSTEM CLOCK	Programmable for Daylight Savings Time, and includes integrated backup battery
SELF-DIAGNOSTIC CAPABILITY	Internal temperature monitor; Battery charging temperature monitor
SOLAR CHARGING	6V and 12V capable, with temperature compensation on 12V
DATA COLLECTION	Collect and store system activation data. Read locally through serial interface or remotely with BlinkLink via cell modem
OPERATING TEMPERATURE RANGE	-40°F to 176°F (-40°C to 80°C)
ENCLOSURE	IP67 rated
ENCLOSURE DIMENSIONS	3.2"W x 3.7"H x 2.5"D



BLINKERBEAM® WIRELESS RADIO

SPECIFICATIONS

POWER	6V and 12VDC with power indicator light
INPUT	1 digital input, micro USB
OUTPUTS	2 digital output lines, host serial lines for over the air serial
PROGRAMMABILITY	Locally using USB port or front-mounted joystick
BACKLIT LCD DISPLAY	4 lines at 21 characters per line
RADIO TYPES	Low Power Device Radio Low Power Activation Radio Standard Low Power Radio Standard Medium Power Radio Standard High Power Radio
CONNECTIVITY	Up to 16 devices on one network
FREQUENCY	License free 900 MHz frequency hopping spread spectrum with 10 different RF patterns to prevent interference between collocated radio systems
RANGE	Up to 900 feet standard or longer with optional antennas; Indoor applications do not use antennas
STATUS LEDS	Red, green, yellow, amber
REGULATORY COMPLIANCE	 and ISED compliant
OPTIONAL OUTDOOR ANTENNAS	Omni Whip Omni Dome Omni Base Station Yagi (for specific applications)
OPERATING TEMPERATURE	-40°F to 176°F (-40°C to 80°C); less than 90% relative humidity
DIMENSIONS	3.2"W x 3.7"H x 2.5"D

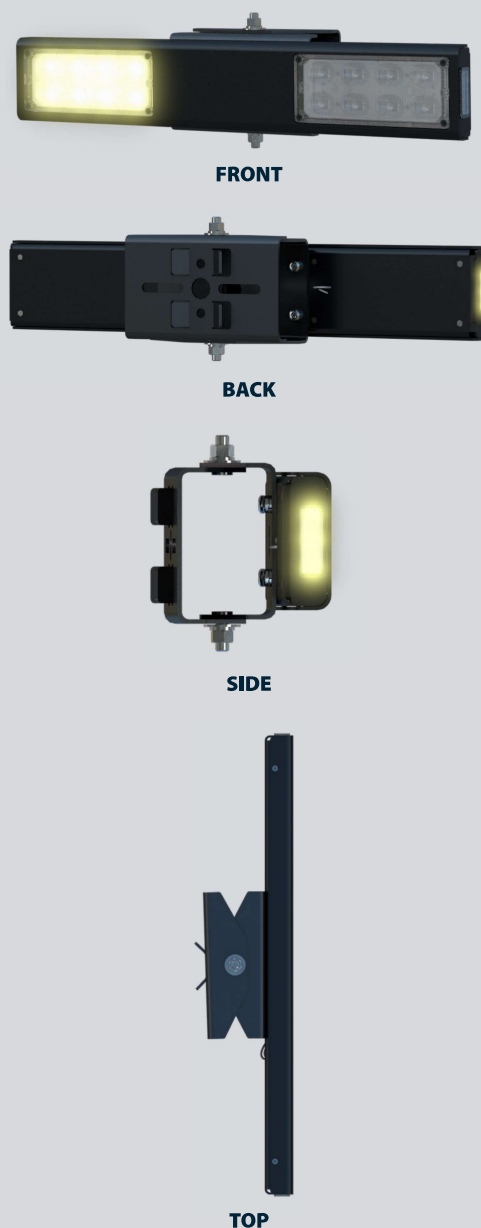


RECTANGULAR RAPID FLASHING BEACON

RRFB-XL2™

SPECIFICATIONS

POWER	Low voltage, current controlled from TAPCO controller
CONTROLLER DIMMING	Auto-adjustable via solar panel input for 6V and 12V systems; Auto-adjustable via photocell sensor, if equipped, for 120VAC, 6V and 12V systems. Non-dimming option available.
LIGHT BAR HOUSING	Black powder-coated aluminum
CERTIFICATIONS	NEMA TS2
VEHICLE LED MODULES	7"W x 3"H; 2 arrays of 8 amber LEDs spaced 7" apart, SAE J595 Class 1 Certified
PEDESTRIAN LED MODULES	0.5"W x 1.75"H side-viewable, flash simultaneously with vehicle LED (Field-configurable - optional, one, or both sides)
LED COLOR	Amber
FLASH PATTERNS	Interim Approval 21 compliant Wig-Wag plus Simultaneous (WW + S)
VISIBILITY	Daytime: more than 1,000 feet Nighttime: more than 1 mile
UNIVERSAL MOUNTING BRACKET	Articulates up to 30° Mounts to most common size metal or wood posts
MOUNTING HARDWARE	Banding to round pole, U-bolt to round pole, bolt to square pole
LIFE EXPECTANCY	100,000 hours
TEMPERATURE RANGE	-40°F to 176°F (-40°C to 80°C)
LIGHT BAR DIMENSIONS	22"W x 4"H x 1.5"D



65W SOLAR PANEL

SPECIFICATIONS

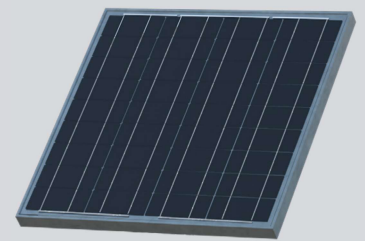
POWER	65W
NOMINAL VOLTAGE	12V
OPEN CIRCUIT VOLTAGE	21.66V
SHORT CIRCUIT CURRENT	3.97A
MAXIMUM POWER VOLTAGE	18.65V
MAXIMUM POWER CURRENT	3.77A
GLASS	High transparent, low iron, tempered
FRAME	Heavy-duty anodized aluminum
CONSTRUCTION	Silicon cells encapsulated in double-layer EVA with a white polymer backing
WEIGHT	10.8lbs
ENCLOSURE	IP67 rated
MOUNTING HARDWARE	Various options available
OPERATING TEMPERATURE RANGE	-40°F to 185°F (-40°C to 85°C)
DIMENSIONS	25.7"W x 25.2"H x 1.4"D

TOP-OF-POLE MOUNTING BRACKET

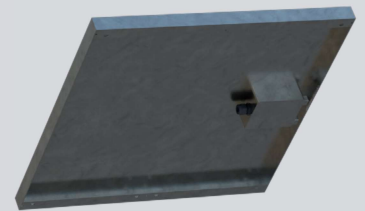
MATERIAL	Aluminum
POLE TYPE	4½" round (shown) or 3" round
MOUNTING HARDWARE	Set screws

SIDE-OF-POLE MOUNTING BRACKET

MATERIAL	Aluminum
POLE TYPE	Universal (4½" shown)
MOUNTING HARDWARE	Banding, U-bolt, or bolt



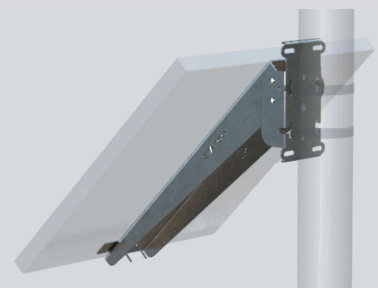
FRONT



BACK



**TOP-OF-POLE
MOUNTING BRACKET**



**SIDE-OF-POLE
MOUNTING BRACKET**

50Ah BATTERY

Sealed Lead-Acid

SPECIFICATIONS

VOLTAGE	12V
CAPACITY AT C/100	50Ah
VENT	Valve Regulated
TERMINAL	I6
NON-SPILLABLE	As defined by Department of Transportation (DOT), International Commercial Airline Organization (ICAO) and International Airline Transport Association (IATA) definitions
WEIGHT	32.23 lbs
OPERATING TEMPERATURE RANGE	-40°F to 176°F (-40°C to 80°C)
DIMENSIONS	7.75"Lx6.49"Wx6.69"H



MEDIUM CONTROL CABINET

CABINET SPECIFICATIONS

CERTIFICATION	NEMA 3R type
MATERIAL	0.080" aluminum
MOUNTING OPTIONS	4 stainless steel studs for various mounting bracket options including banding, U-bolt, wall-mount, square pole and wood post.
HINGES	2 tamper-resistant stainless steel hinges
ACCESS	Replaceable #2 traffic lock with keys
VENTING	Screened vents on cabinet side and door
DRAINAGE	Screened drain holes on bottom of cabinet
UV RESISTANT LABEL	Applied to exterior of cabinet outlining model number, serial number, date of manufacture as well as any applicable regulatory information
CONTROL PANEL	All circuit components are attached or connected to removable control panel for maintenance
DOOR MOUNTED POUCH	Contains system documents
ENCLOSURE DIMENSIONS	12.5"W x 15"H x 9.9"D



FRONT



BACK

UNIVERSAL SIDE-OF-POLE CABINET MOUNTING BRACKET

UNIVERSAL MOUNTING BRACKET

MATERIAL	5052-H32 Aluminum
MOUNTING HARDWARE INCLUDED	U-bolts and Straight Bolts, 3/8-16" (2) 3.5"L, (1) 4.5x6, (1) 4x5.5, (1) 3.5x4.5, (1) 2.375x3.5 (HK01AA)
MOUNTING METHODS ACCEPTED	Through bolts, u-bolts, banding
ACCEPTED POLE TYPES	2-3/8", 3", 3-1/2", 4", 4-1/2" Round, 2" Square Perforated Post
COMPATIBLE CABINETS	Small: 108766-PEM Medium: 108045-PEM (shown) Large: 120652-PEM
HUB EXTENSION	Threaded Pipe Extension (2), 3/4" x 2.5" SCH 40 Aluminum and 1-1/4" x 2.5" SCH 40 Aluminum
BRACKET TO CABINET HARDWARE	Nut, serrated flange, 5/16-18 SS
SECURITY HARDWARE	Tamper Resistant Screw, 1/4-20X0.75, BH Torx
SECURITY HARDWARE TOOL	Torx Driver, T-27 Pin Head, 1/4" Hex Driver
WEIGHT	7 lbs.
DIMENSIONS	12.54"Lx8.14"Wx3.5"D



FRONT - OPEN

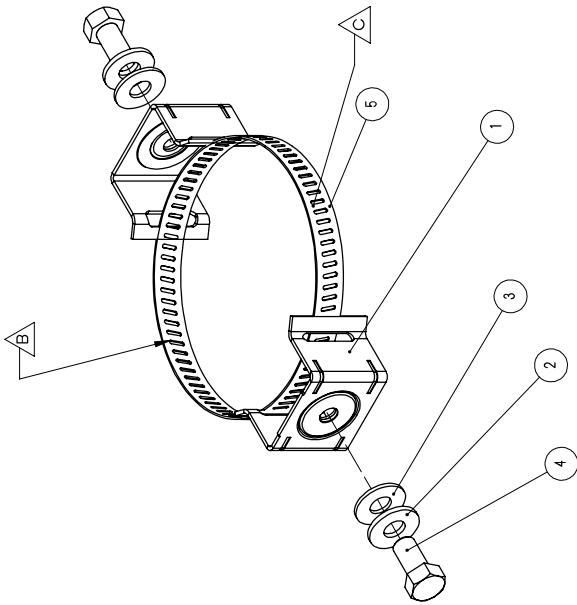


FRONT - CLOSED

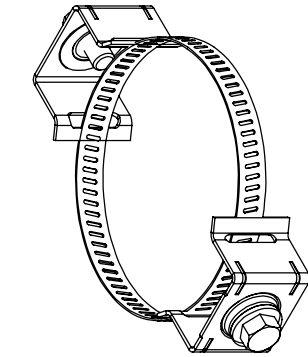


BACK - CLOSED

REVISIONS				
REV.	DESCRIPTION	DATE	CC #	AUTHOR/APPROVED
A	INITIAL RELEASE	-	-	--/--
B	SWITCHED 037-00016 TO 140163	6/17/2019	CC-120	C.G./JRP.
C	SWITCHED 140163 TO 037-00016	6/21/2019	CC-250	C.G./JRP.



ITEM NO.	PART NUMBER	DESCRIPTION	DWG	QTY	KIT	QTY	UNITS
6	126997 (NOT SHOWN)	BAG, RECLOSABLE 10"x12" 2 MIL S-1701		1	1	1	EA
5	037-00016	SNAP-LOK ASSY, WORM CLAMP 2 TO 12-1/4 DIA X 3/16W		1	2	2	EA
4	763-00042	BOLT 3/8-16X3/4 HEX S/S		2	4	4	EA
3	052-00295	NYLON WASHER 5/16" X 7/8" OD		2	4	4	EA
2	052-00295	NYLON WASHER 5/16" X 7/8" OD		2	4	4	EA
1	035-00008	FLARED LEG BRACKET, NO BOLT, NO WASHER D07299		2	4	4	EA



TOLERANCE UNLESS OTHERWISE SPECIFIED		TITLE:	
HOLE ϕ	$\pm .003$	SIGN MOUNTING KIT, BANDED, FLARE LEG, STANDARD, FOR MOUNTING B2B STATIC SIGNS TO A LARGE POLE	
DEC.	$\pm .0030$		
XX	$\pm .0015$		
XXX	$\pm .0005$		
ANGULAR	$\pm .05^\circ$		
DESIGNED BY:	J. PATTERSON	SIZE	DWG. NO.
DRAWN BY:	C. GRAVES	B	107265
CHECKED BY:	J. PATTERSON	REV	WEIGHT:
		C	SCALE: 1:2
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SHEET 1 OF 1			

Pedestal Bases and Traffic Signal Standards

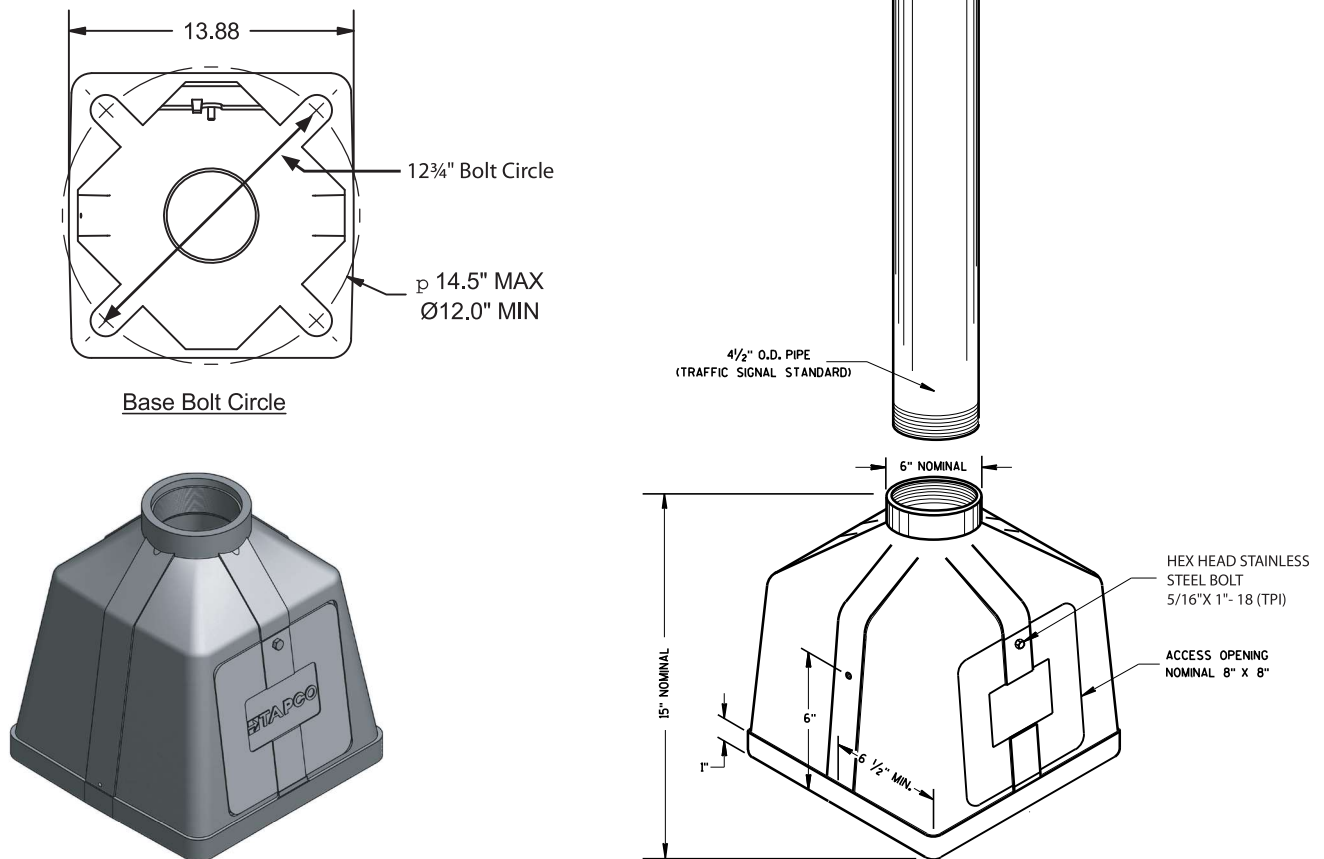
The TAPCO pedestal base is designed in accordance with the current AASHTO Specification for the Design and Construction of Structural Supports for Traffic Signals, Signs and Highway Light to withstand a 3 second gust wind speed of 90 miles per hour. These standards and tests for compliance were developed by the Wisconsin Department of Transportation.

Traffic Signal Standard

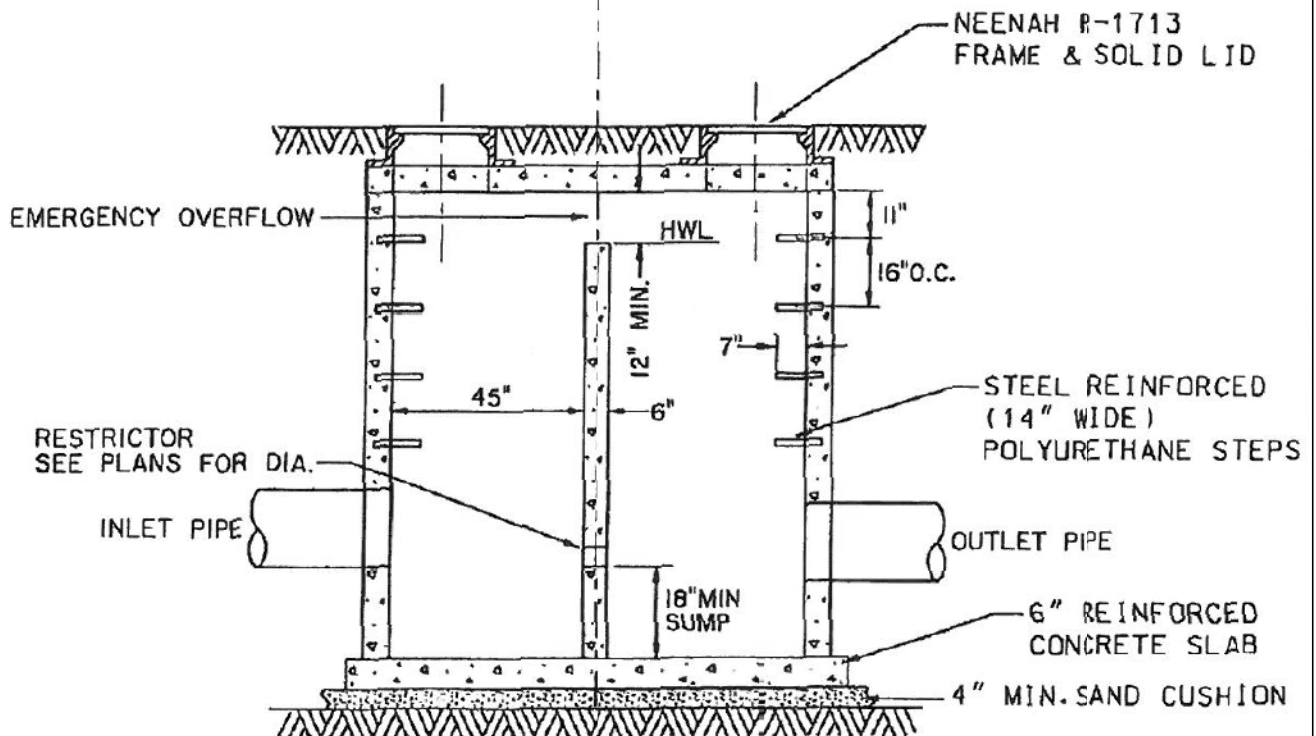
Pipes are cleaned of all mill scale, oil and foreign material. They are stocked unpainted, yet are able to be powder coated or anodized with color of your choice. They are made of Schedule 80 aluminum alloy 6061-T6 manufactured in accordance with ASTM B429. Pipe is threaded on one end. The outside dimensions are 4.5". Standard lengths are 3.5', 4', 8', 9', 10', 11', 13' and 15'.

Pedestal Base

The TP-358 series base is used for mounting traffic signals, flasher assemblies or traffic control equipment. The base assembly is arranged to mount on a concrete base, attached by four internal galvanized anchor bolts (standard is 1"x42"). The square cast aluminum base is made of aluminum alloy 319 in accordance with WISDOT specifications. It includes an 8.5" square handhole cover that is also made of aluminum alloy 319. The door is secured by a 5/16"-18x1" stainless hex head bolt. They are stocked unpainted, yet are able to be powder coated or anodized with color of your choice. The base is FHWA certified and meets AASHTO break away requirements.



96" MIN. DIA PRECAST
CONCRETE CATCH BASIN
WITH 6" THICK REINFORCED
CONCRETE BAFFLE WALL



NOTES:

1. RESTRICTOR SIZE TO BE APPROVED BY THE VILLAGE ENGINEER
2. MANHOLES MUST CONFORM TO ASTM C-478.
3. MANHOLE SECTIONS TO BE TONGUE AND GROOVED.
4. NON-PRECAST OPENINGS SHALL BE CORED AND RUBBER BOOTED.
5. MORTAR ALL PIPE PENETRATIONS INSIDE AND OUTSIDE OF STRUCTURE.
6. IN "SUBMERGED" CONDITIONS, ALL PIPE PENETRATIONS TO BE CORED, RUBBER BOOTED AND INTERIOR MORTARED.

RESTRICTOR STRUCTURE

REV 01/01/14
NOT TO SCALE

**GENERIC SPECIFICATIONS
FOR
SACRIFICIAL ANODE
CATHODIC PROTECTION
MATERIALS AND INSTALLATION**



JULY 20, 2019

JAS

1. GENERAL

1.1. Not Used

2. PRODUCTS

2.1. Sacrificial Anodes

2.1.1. Magnesium Anodes

2.1.1.1. Description: Magnesium anodes shall have the following metallurgical analysis and physical properties:

2.1.1.2. Ingot Weight: **17** pounds.

2.1.1.3. Metallurgy per ASTM B 843:

2.1.1.3.1. Aluminum:	0.01% (max.)
2.1.1.3.2. Manganese:	0.50% - 1.3%
2.1.1.3.3. Copper:	0.02% (max.)
2.1.1.3.4. Nickel:	0.001% (max.)
2.1.1.3.5. Iron:	0.03% (max.)
2.1.1.3.6. Other (each):	0.05% (max.)
2.1.1.3.7. Other (total):	0.30% (max.)
2.1.1.3.8. Magnesium:	Balance

2.1.2. Certification: Submit written certification per ASTM G97 for the anode production heats to demonstrate compliance with the following performance requirements:

2.1.2.1. Open-Circuit Potential: **1.75** volts (copper/copper-sulfate reference)

2.1.2.2. Electrochemical Capacity: **500** A-H/# of magnesium (average of heats)

2.1.2.3. Electrochemical Efficiency: **50** percent (average of heats)

2.1.3. Packaged Magnesium Anode Backfill

2.1.3.1. Magnesium anodes shall be packaged within a cotton sack in a special chemical backfill having the following proportions:

2.1.3.1.1. Ground Hydrated Gypsum:	75%
2.1.3.1.2. Powdered Bentonite:	20%
2.1.3.1.3. Anhydrous Sodium Sulfate:	5%

2.1.3.2. Backfill shall have a grain size such that 100% is capable of passing a 20-mesh screen and a 100-mesh screen shall retain 50 %.

2.1.3.3. Backfill shall completely surround the anode ingot without voids.

2.1.3.4. Package Dimensions (nominal): **6"** ϕ by **30"** long.

2.1.3.5. Package Weight (nominal): **40** pounds.

2.1.3.6. Anode Lead Wire

2.1.3.6.1. The standard lead wire for a magnesium anode shall be a **10'** length of No. **12** AWG **solid** copper wire with Type **TW** thermoplastic insulation.

2.1.3.7. Lead Wire Connection to Anode Core

2.1.3.7.1. Magnesium anodes shall be cast with a minimum 20 gauge galvanized steel core.

2.1.3.7.2. One end of the anode shall be recessed to expose the core for silver-soldering the lead wire.

2.1.3.7.3. The silver-soldered lead wire connection and anode recess shall be filled with an electrical potting compound before packaging.

2.2. Exothermic Weld Connections

- 2.2.1. All connections used within the DC cathodic protection system circuit shall be by exothermic welds. The proper size welders, metal charges, and wire sleeves shall be used in accordance with the manufacturer's recommendations.
- 2.2.2. Subject to meeting the requirements of this specification, acceptable manufacturer's products which may be incorporated into the work include the following or an approved equal:
 - 2.2.2.1. Continental Industries (918-627-5210), Model thermOweld®.
 - 2.2.2.2. ERICO International Corporation (440-248-0100), Model Cadweld®.
- 2.2.3. Coating of Wire and Cable Exothermic Weld Connections to Structures
 - 2.2.3.1. A pre-fabricated, pre-primed elastomeric tape and rubber compound shall be applied to all exothermic weld connections.
- 2.2.4. Subject to meeting the requirements of this specification, acceptable manufacturer's products which may be incorporated into the work include the following or an approved equal:
 - 2.2.4.1. Continental Industries (918-627-5210), Model thermOcap® PC.
 - 2.2.4.2. The Tapecoat Company (800-758-6041), Model Royston Handy Cap® IP.

3. EXECUTION

3.1. Installation of Sacrificial Anodes

- 3.1.1. Remove paper or cardboard shipping containers from all anodes leaving cotton sack exposed to the soil.
- 3.1.2. Install prepackaged anodes horizontally at pipe invert depth and between **24 and 36 inches** laterally from the centerline of the pipe.
- 3.1.3. Cover anode bag with a minimum of 6 inches of native soil or clay. Wet thoroughly dry soils with water prior to backfilling.
- 3.1.4. All anode lead wires shall be of sufficient length to extend to their termination point without splicing.

3.2. Installation of Exothermic Weld Connections

- 3.2.1. All exothermic welding shall be performed in accordance with the manufacturer's recommendations for welding equipment, weld metal charge size, and applicability to the structure. Do not use exothermic weld equipment if the graphite mold is wet.
- 3.2.2. Structure Surface Preparation
 - 3.2.2.1. All bare metal shall be free of dust, dirt, grease, oil and other foreign matter.
 - 3.2.2.2. Practical removal shall be by either power or hand wire brushing.
 - 3.2.2.3. Grinding or filing shall remove sharp edges or burrs.
- 3.2.3. Installation of Elastomeric Cover Over Exothermic Welds
 - 3.2.3.1. Clean the pipe surface which is to be covered by removing all moisture, dirt, grease and other contaminants.
 - 3.2.3.2. The weld areas shall be no more than warm to the touch before applying the elastomeric cover.
 - 3.2.3.3. Remove the release paper from the back of the mastic pad. Avoid touching the exposed elastomeric tape.
 - 3.2.3.4. Apply the mastic pad to the structure by firmly pressing on all edges making sure that the tunnel area of the plastic dome completely covers the lead wire entering the exposed copper of the connection.
 - 3.2.3.5. Push the dome of the plastic weld cap firmly over the exothermic weld area and the wire entering the weld cap.

RECOMMENDED STANDARD SPECIFICATION FOR ATTACHING SACRIFICIAL ANODES TO BURIED CAST AND DUCTILE IRON WATER PIPING

Scope: This specification applies a proprietary stainless steel (SS) pipe band and associated hardware hereafter referred to as the trademarked¹ product, Cathodi-Clamp®.

Application: The Cathodi-Clamp® is used to attach sacrificial anodes to buried cast and ductile iron water main pipes having nominal diameters from 6" up to and including 24".

Materials: The Cathodi-Clamp® is configured with the following components:

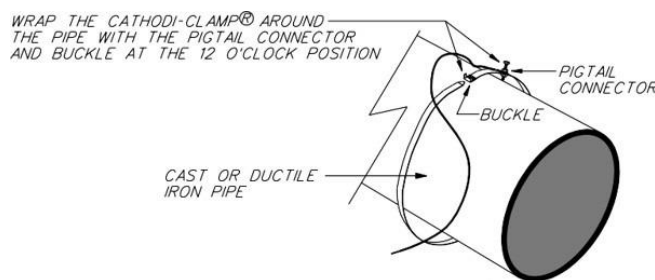
- A minimum 5-foot length of #12 AWG-THWN insulated solid copper wire (pigtail) that is mechanically-crimped and also silver-soldered to a ring tongue connector that connects to a proprietary SS "cutter" bolt.
- The cutter bolt is screwed into a fixed SS nut that is welded to the SS pipe band and is secured to the SS pipe band via a SS lock washer and double SS hex nuts.
- A silicon-filled wire connector suitable for continuous direct burial is used to connect the pigtail from the Cathodi-Clamp® to the insulated wire pigtail from a prepackaged sacrificial anode (anode is sold separately).
- A laminated Field Instruction Card to guide the installer when using the Cathodi-Clamp®.

Tools:

- Open/box-end/spanner wrench
- Wire brush (optional)
- Continuity tester (optional)

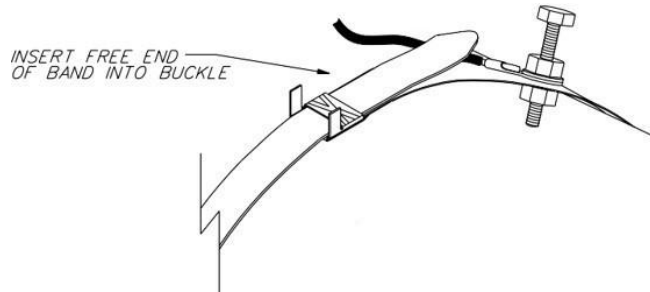
Installation of the CPSI Cathodi-Clamp® Device

1. Wrap the SS band around the exterior of the ferrous pipe with the wire pigtail and the "cutter" bolt near the top of the pipe. Remove rust scale and dirt to ensure the SS band lies flat against the pipe surface.

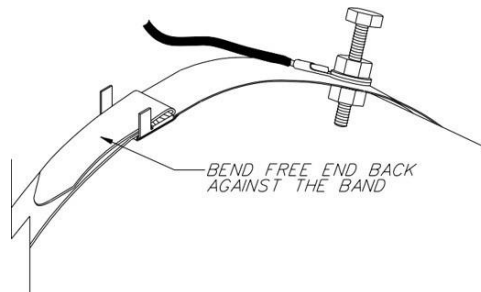


¹ The Cathodi-Clamp® is a registered trademark of CP Solutions, Inc.

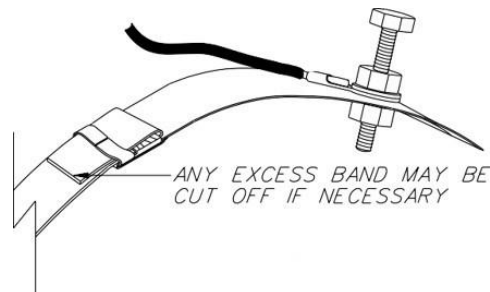
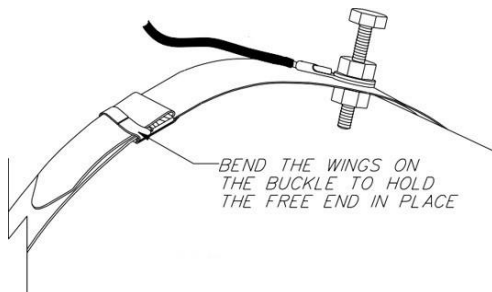
2. Insert the free end of the SS band into the "buckle" making sure that the SS band and the square nut are both resting flat against the pipe. The exposed end of the cutter bolt should extend no more than 1/16" beyond the square nut facing toward the pipe.
3. Pull on the free end of the SS band to place it in tension around the exterior of the pipe.



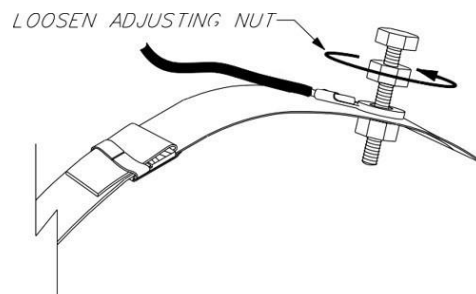
4. Bend the free end of the SS band back against the buckle to hold it in place.



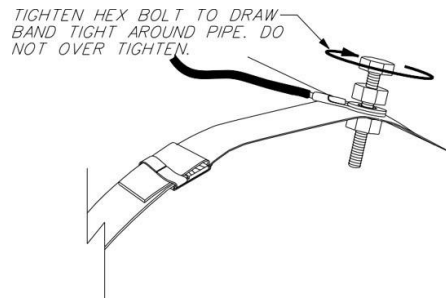
5. Strike the fastener "wings" of the buckle to secure the free end of the SS band in place. Any excess length of the SS band may be cut off.



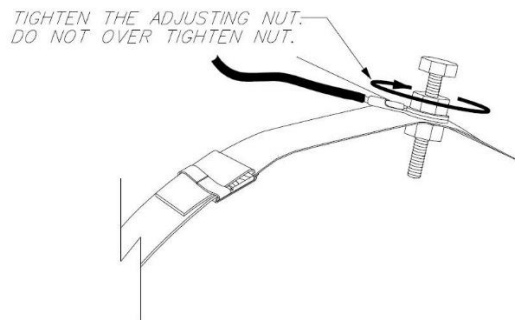
6. Slightly loosen the adjusting hex nut on the top of the SS band.



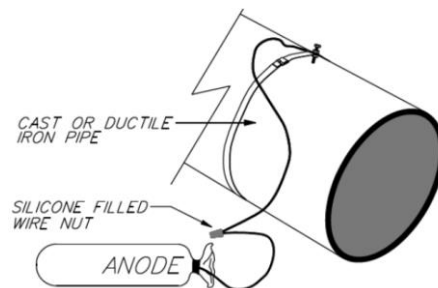
7. Using a 7/16" wrench, slowly tighten the cutter bolt to draw the SS band tight against the pipe and ensure that the cutter bolt "bites" into the exposed pipe surface.
- ✓ Although a torque-wrench is not required, this effort should be between 100 and 125 inch-pounds when applied at the bolt head to ensure a secure electrical connection on sound ferrous pipe walls.
- ✓ Verify electrical continuity from the pigtail's end to the pipe surface through a volt-ohmmeter, if necessary.



8. Tighten the hex nut on the top of the SS band with a wrench.



9. The Cathodi-Clamp® connection to the pipe is now completed.
10. Connect the insulated wire pigtail from the Cathodi-Clamp® directly to the insulated lead wire coming from a sacrificial anode using the silicone-insulated wire nut.

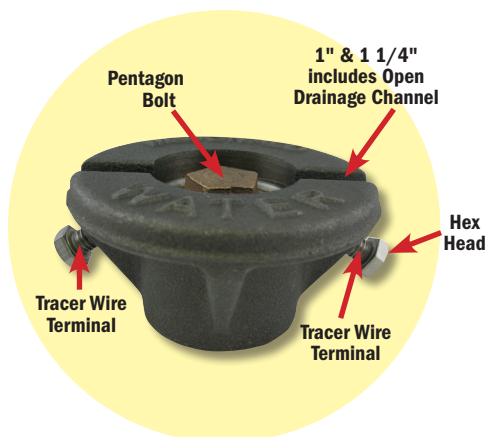




Tracer Wire or Anode Access Option

Unique Features:

- Two Wire Terminals
- Easy access to stainless steel bolts
- Clear access drainage channel (1" & 1 1/4" only)



For Pentagon lid type curb boxes with ability to attach tracer wires - add TW to model number. i.e. 5607LR becomes 5607LRTW.

For Flare, Q, & -3Q series anode nut add "A" to model #.

The McDonald Tracer Wire Curb Box Lid offers a current solution to maintaining tracer wire integrity with our dual terminal lid.

Tracer wire (also known as locating wire) is used frequently by utility companies to locate buried service lines made of plastic. Tracer wire is buried alongside plastic service lines that are installed underground, to assist in locating them for service and repairs. This practice saves contractors and consumers time, money and inconvenience, but only when the tracer wire maintains its integrity so that a line needing service can be promptly located.

Cathodic Protection - Thaw Nut - Tracer Wire/Locater Nut on McDonald "Q" Series connections.

Sacrificial Anode connection

In cathodic protection, a metal anode that is more reactive to the corrosive environment of the system to be protected is linked to the protected system, and partially corrodes or dissolves, which protects the metal of the system it is connected to. As an example, a Ductile Iron water main may be protected by a zinc sacrificial anode, which will dissolve into the wet earth around the main and prevent the water main from being corroded. Sacrificial anodes are particularly needed for systems where a static charge is generated by the action of flowing liquids, such as pipelines.

Thaw Wire connection

An installation that incorporates a thaw wire is one that could potentially freeze under extreme cold weather conditions. A copper wire is normally connected to various positions of a copper service line so that if required an electrical device such as an arc welder could apply electric current to unfreeze the water line.

Tracer Wire/Locater Nut connection

Tracer wire (also known as locating wire) is used frequently by utility companies to locate buried service lines made of plastic. Tracer wire is buried alongside plastic service lines that are installed underground, to assist in locating them for service and repairs. This practice saves contractors and consumers time, money and inconvenience, but only when the tracer wire maintains its integrity so that a line needing service can be promptly located.

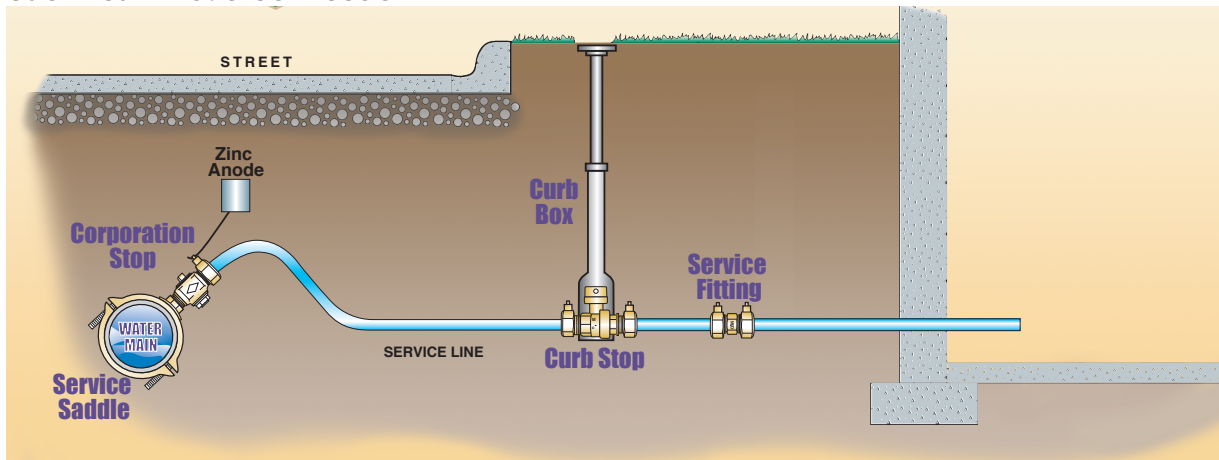
"Q" Series service line connections can be ordered by adding an "A" to the existing model number. 74701Q = 74701QA

Cast brass material meets or exceeds latest revision of A.W.W.A. C800 standard.

Cast brass "Q" Series Compression nut includes stainless steel cap screw.

Product Bulletin

Sacrificial Anode Connection

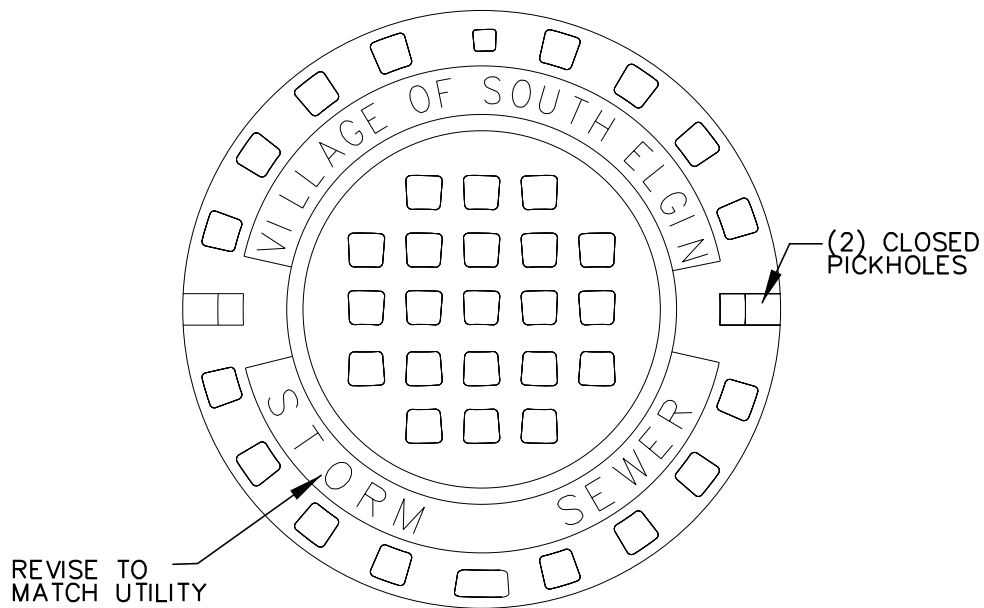


Specification

Anode Nut feature on Flare or Compression type nut assemblies.

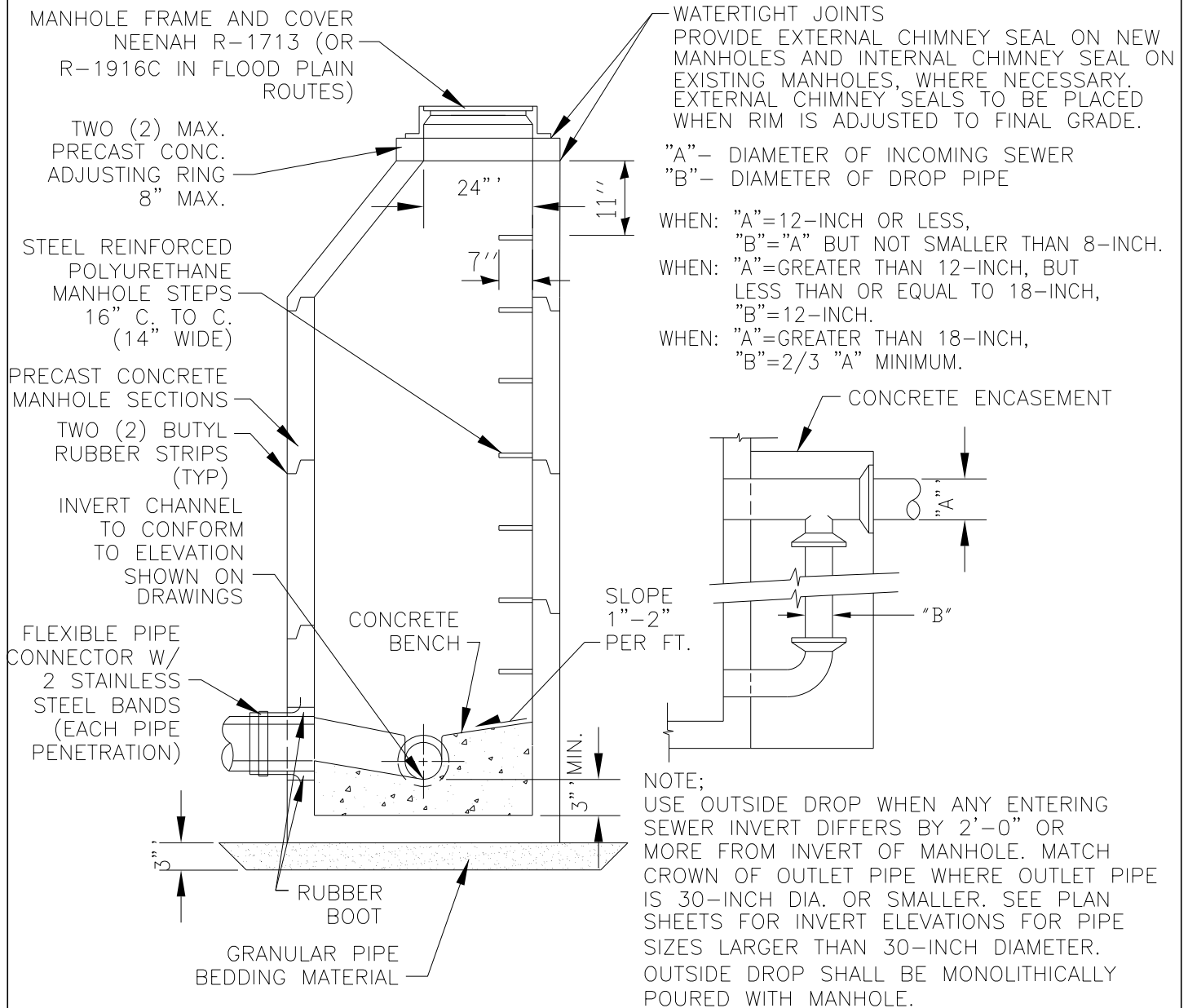
Anode nut shall be made of cast brass material meeting or exceeding the latest revision of AWWA C800. Anode nut to include a $\frac{1}{4}$ " – 20 UNC-2B stainless steel cap screw. Anode nut for flare connection to include one .44 I.D hole for wire. Anode nut for compression connection to include two perpendicular wire holes. One measuring .25 I.D. and one measuring .44 to accept multiple gauge wires. Compression type anode nut shall include "Tighten To Stop" feature.





NEENAH R-1713

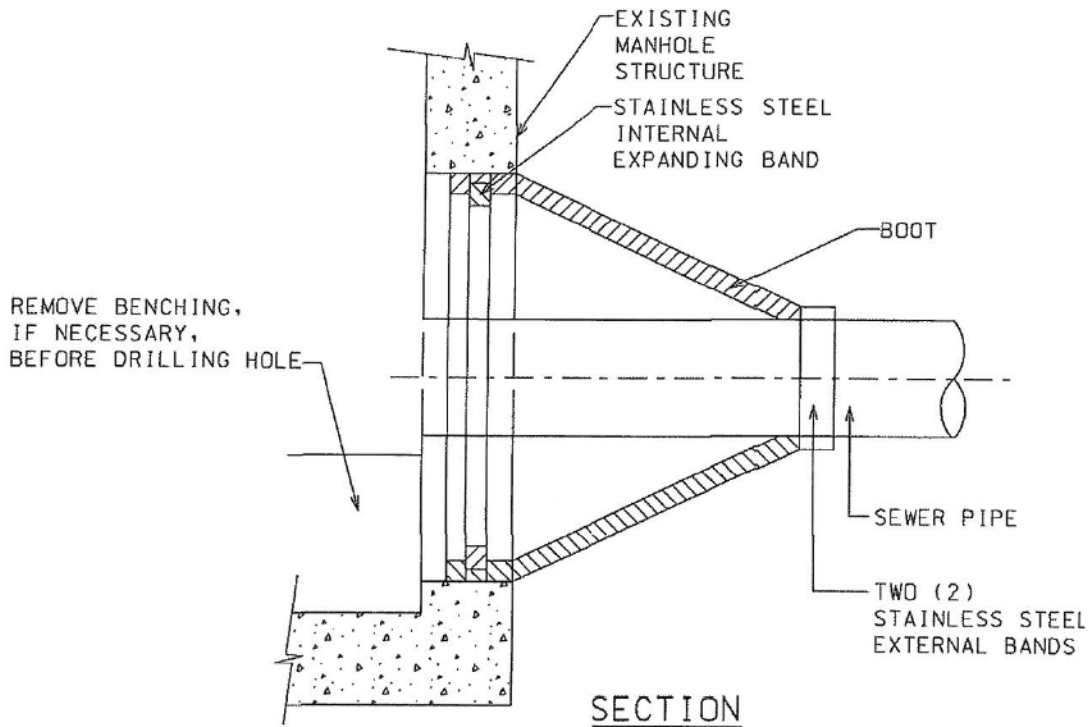
R-1916C IN FLOODPLAIN OR OVERLAND FLOW ROUTES
AS DIRECTED BY ENGINEER (SANITARY AND WATER VAULT)



NOTES:

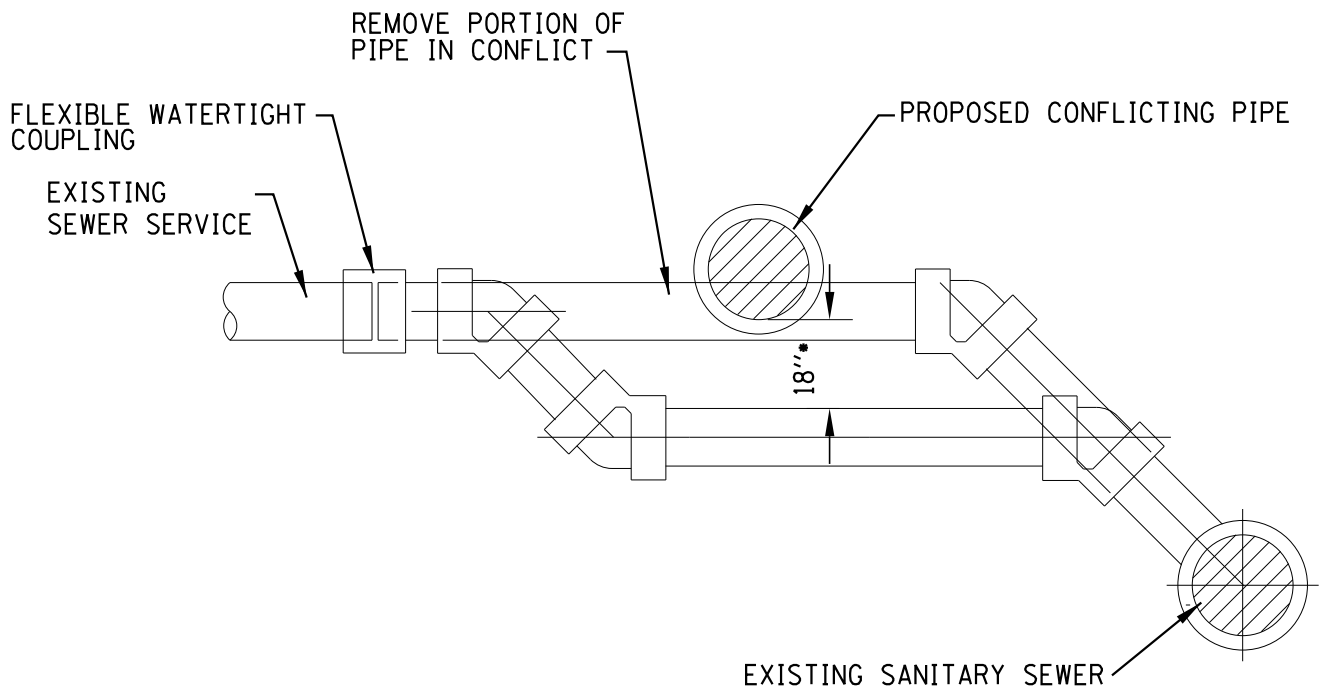
1. ECCENTRIC CONES REQUIRED, FLAT SLAB TOPS PERMITTED ONLY FOR MANHOLES TOO SHALLOW FOR CONES.
2. USE 4'-0" DIAMETER FOR SEWER SIZES 8" THRU 21", 5'-0" DIAMETER FOR SEWER SIZES 24" THRU 33", UNLESS OTHERWISE NOTED.
3. MANHOLES MUST CONFORM TO ASTM C-478.
4. MANHOLE SECTIONS TO BE TONGUE AND GROOVED.
5. BENCHES MUST BE PROVIDED IN ALL SANITARY SEWER MANHOLES.
6. NON-PRECAST OPENINGS SHALL BE CORED, RUBBER BOOTED.
7. MORTAR ALL PIPE PENETRATIONS INSIDE AND OUTSIDE OF THE STRUCTURE.
8. IN "SUBMERGED" CONDITIONS, ALL PIPE PENETRATIONS TO BE CORED, RUBBER BOOTED AND INTERIOR MORTARED.
9. PRIOR TO THE PLACEMENT OF FINAL LAYER OF ROADWAY, FRAMES AND ADJUSTING RINGS LOCATED WITHIN PAVED AREAS SHALL BE SET IN AN IDOT APPROVED CONCRETE "SI" MIXTURE.

OUTSIDE DROP DETAIL



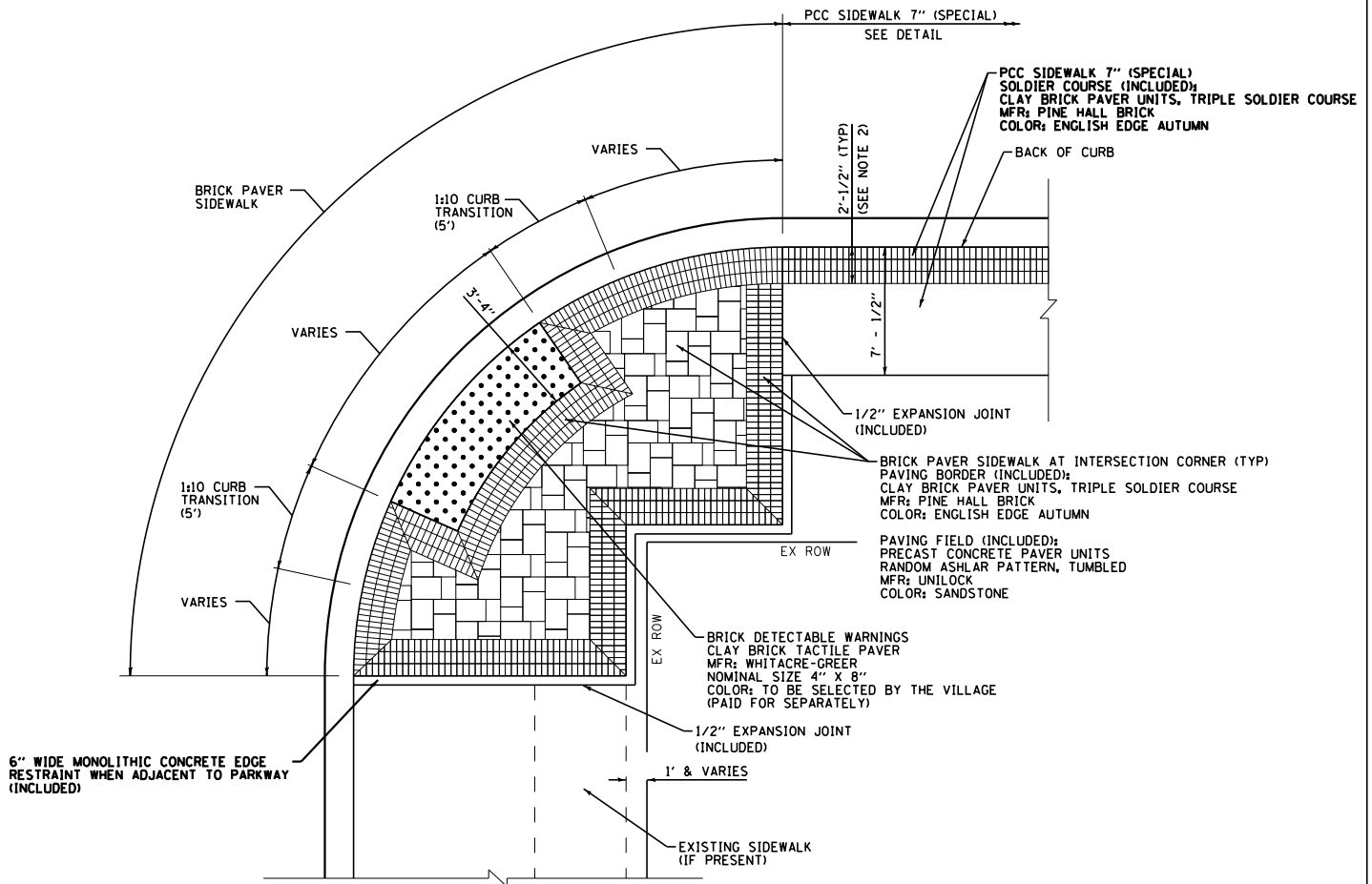
NOTES:

1. CORE-DRILL CIRCULAR OPENING IN MANHOLE WALL OF DIAMETER TO FIT THE REQUIRED BOOT SIZE.
2. KOR-N SEAL FLEXIBLE RUBBER BOOT (MANUFACTURED BY NATIONAL POLLUTION CONTROL SYSTEMS, INC. OR AS APPROVED BY THE **DIRECTOR OF PUBLIC WORKS**) SHALL BE USED FOR WATERTIGHT CONNECTION.
3. CUT, SHAPE AND SLOPE NEW INVERT CHANNEL IN THE EXISTING CONCRETE BENCH FOR SMOOTH FLOW FROM NEW SANITARY SEWER CONNECTION.
4. CLEAN EXISTING MANHOLE OF ANY DIRT, CONCRETE OR DEBRIS WHICH MAY ACCUMULATE DURING THE CONSTRUCTION PROCESS.



• 18" SEPARATION REQUIRED WHEN UNDER WATER MAIN.

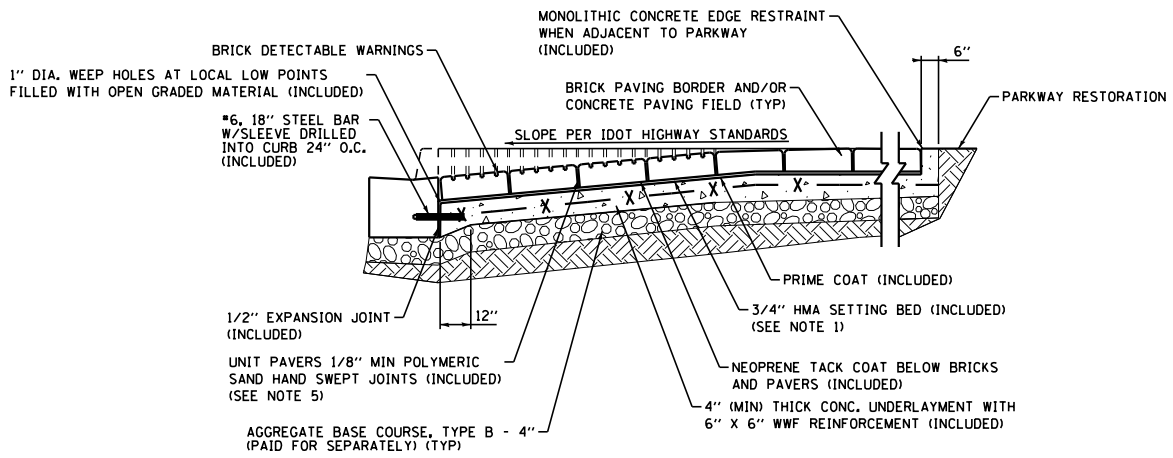
WHEN REPLACEMENT OF SANITARY SERVICE IS REQUIRED ABOVE PROPOSED STORM SEWER OR WATER MAIN THE ENTIRE SERVICE LINE ACROSS THE TRENCH SHALL BE REPLACED WITH DUCTILE IRON PIPE OR C900 PVC AND SHALL BE CONNECTED WITH NON-SHEAR COUPLINGS IN UNDISTURBED GROUND OUTSIDE THE TRENCH WIDTH ON BOTH SIDES.



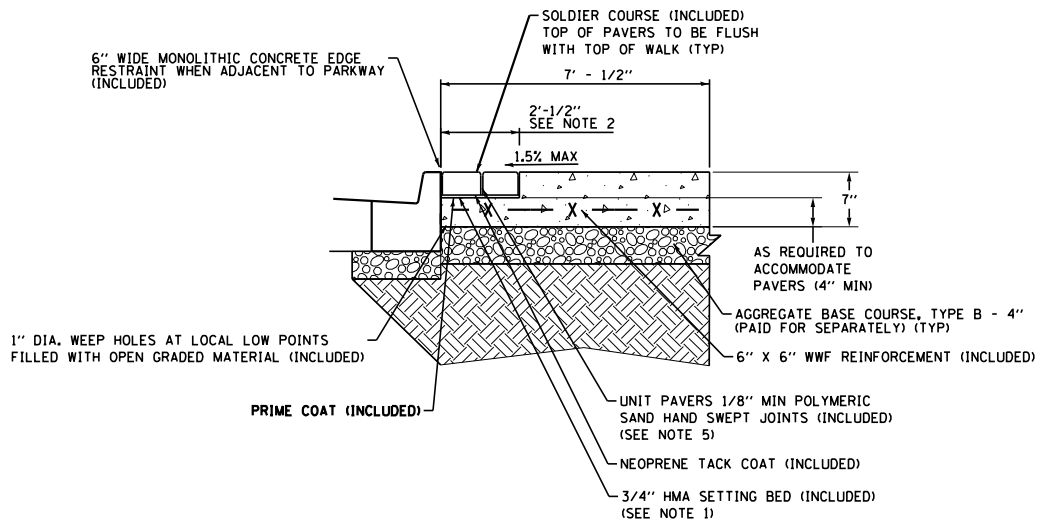
PLAN VIEW

NOTES:

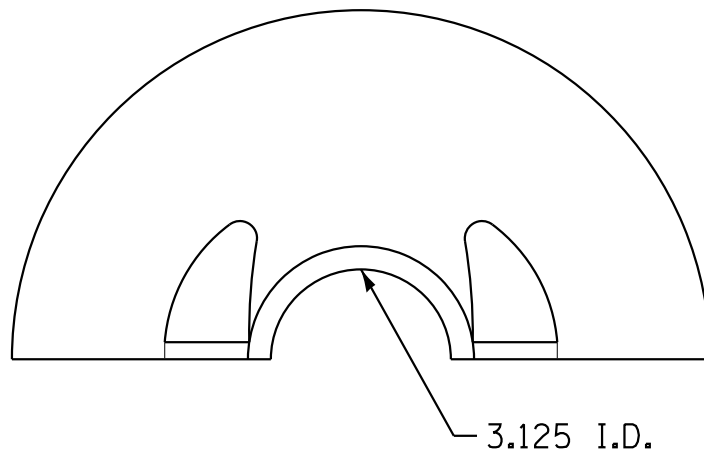
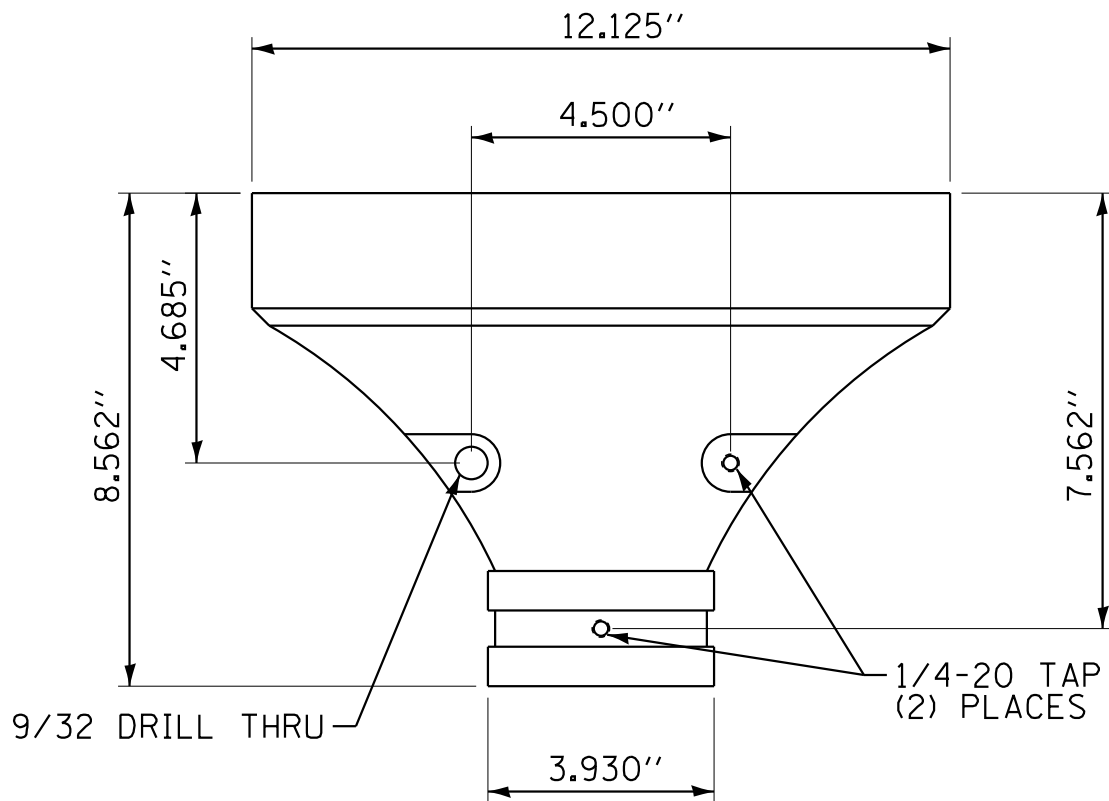
1. THE THICKNESS OF THE BRICK PAVER SIDEWALK, BRICK DETECTABLE WARNINGS, AND CONCRETE PAVER UNITS MAY NOT MATCH. THE CONTRACTOR SHALL INSTALL ADDITIONAL HOT-MIX ASPHALT SETTING BED AS NEEDED SO THE TOP OF ALL PAVERS ARE FLUSH.
2. THE CONTRACTOR SHALL VERIFY THE WIDTH REQUIRED TO SET THE BRICK PAVERS PRIOR TO POURING CONCRETE.
3. THE PATTERN, LAYOUT, AND SEQUENCE OF OPERATION SHALL BE APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION.
4. PROVIDE CONTRACTION JOINTS AS DETERMINED BY THE ENGINEER.
5. POLYMERIC SAND SHALL BE RG+ AS MANUFACTURED BY TECHNISEAL, COLOR: PRAIRIE TAN, OR AS SELECTED BY THE VILLAGE.



PROFILE VIEW
BRICK PAVER SIDEWALK
BRICK DETECTABLE WARNINGS



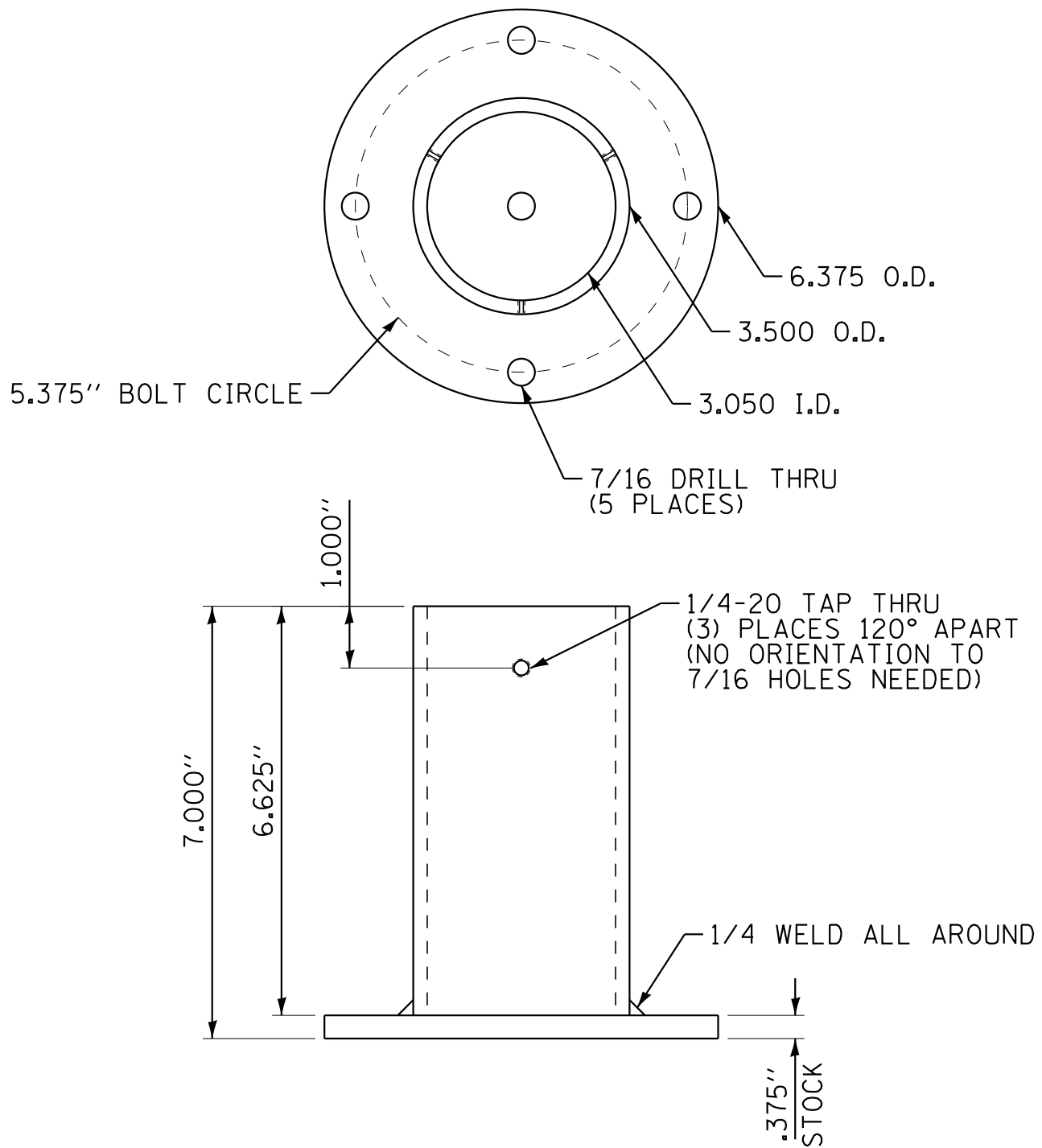
PROFILE VIEW
PCC SIDEWALK 7" (SPECIAL)



ALUMINUM CASTING
SANDBLAST BEFORE POWDERCOAT
BLACK RIVER POWDERCOAT

SIGN POST BASE COVER

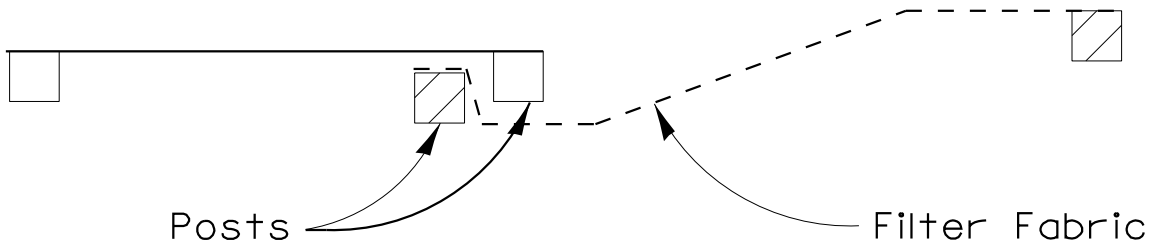
REV 09/30/14
NOT TO SCALE



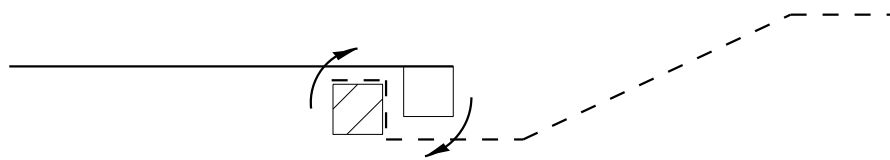
WELDED STEEL CONSTRUCTION
BLACK RIVER POWERCOAT

Filter Fabric

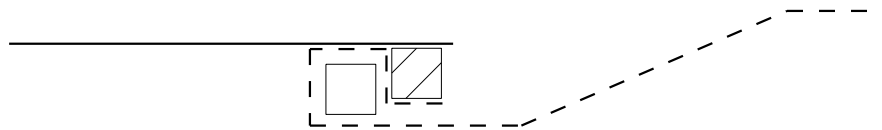
Step 1



Step 2



Step 3



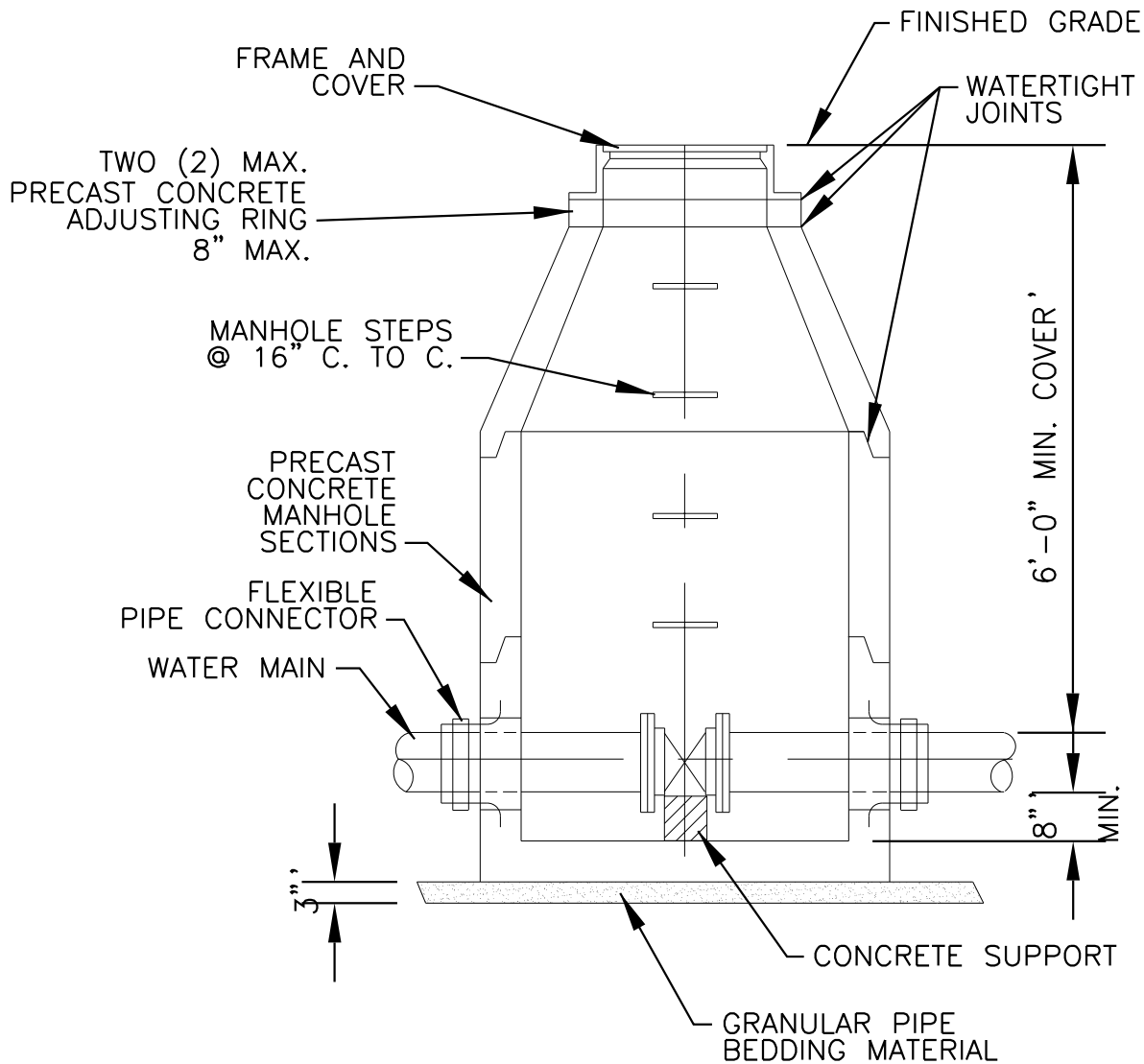
ATTACHING TWO SILT FENCES

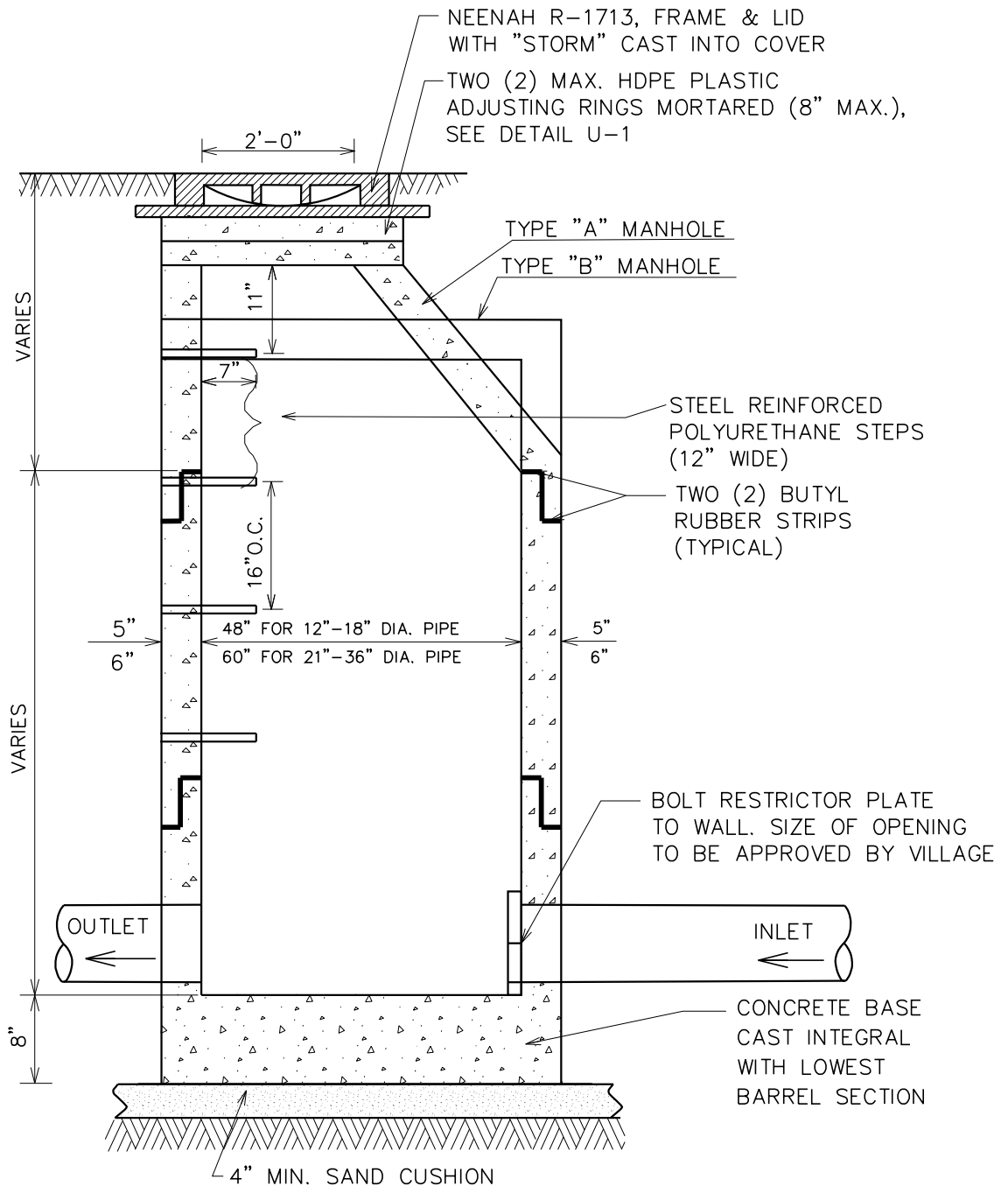
NOTES:

1. Place the end post of the second fence inside the end post of the first fence.
2. Rotate both posts at least 180 degrees in a clockwise direction to create a tight seal with the fabric material.
3. Drive both posts a minimum of 18 inches into the ground and bury the flap.

NOTES:

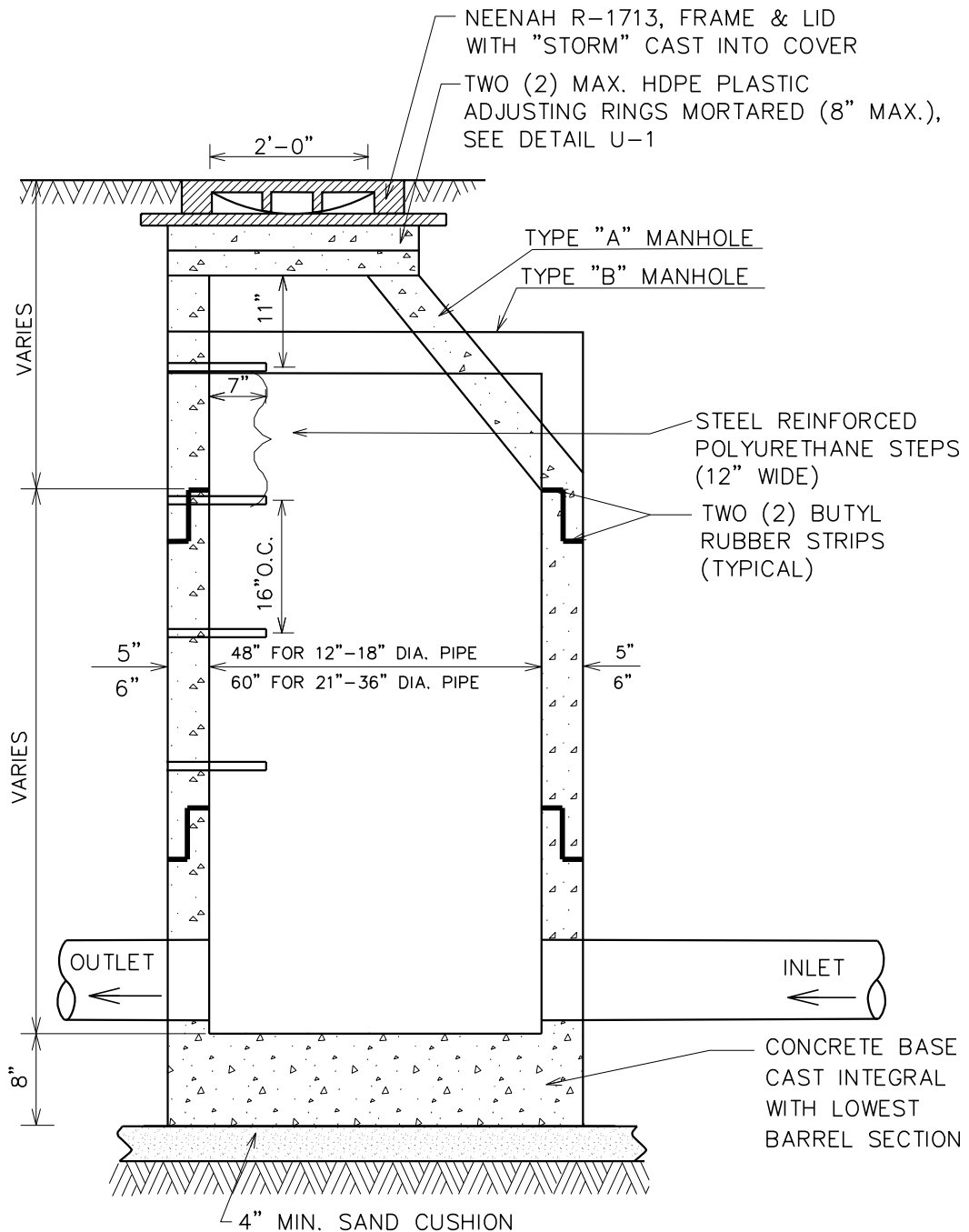
1. CONCENTRIC CONE REQUIRED
2. USE 4'-0" DIAMETER
FOR WATER MAIN SIZES 4" THRU 8"
5'-0" FOR SIZES 10" AND GREATER





NOTES:

1. RESTRICTOR SIZE TO BE APPROVED BY THE VILLAGE ENGINEER. MINIMUM RESTRICTOR DIAMETER IS 3".
2. MANHOLES MUST CONFORM TO ASTM C-478.
3. MANHOLE SECTIONS TO BE TONGUE AND GROOVED.
4. BENCHES MUST BE PROVIDED IN ALL STORM SEWER MANHOLES.
5. NON-PRECAST OPENINGS SHALL BE CORED, RUBBER BOOTED.
6. MORTAR ALL PIPE PENETRATIONS INSIDE AND OUTSIDE OF THE STRUCTURE.
7. IN "SUBMERGED" CONDITIONS, ALL PIPE PENETRATIONS TO BE CORED, RUBBER BOOTED AND INTERIOR MORTARED.
8. PRIOR TO THE PLACEMENT OF FINAL LAYER OF ROADWAY, FRAMES AND ADJUSTING RINGS LOCATED WITHIN PAVED AREAS SHALL BE SET IN AN IDOT APPROVED CONCRETE "SI" MIXTURE.

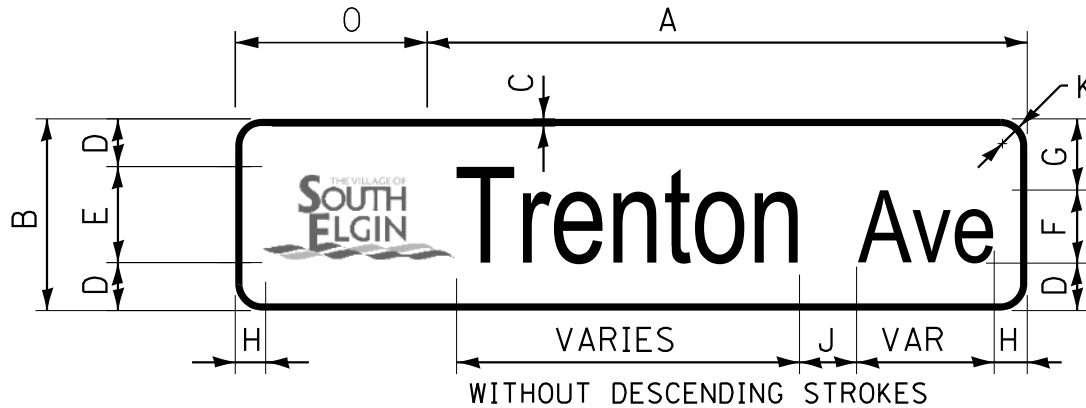
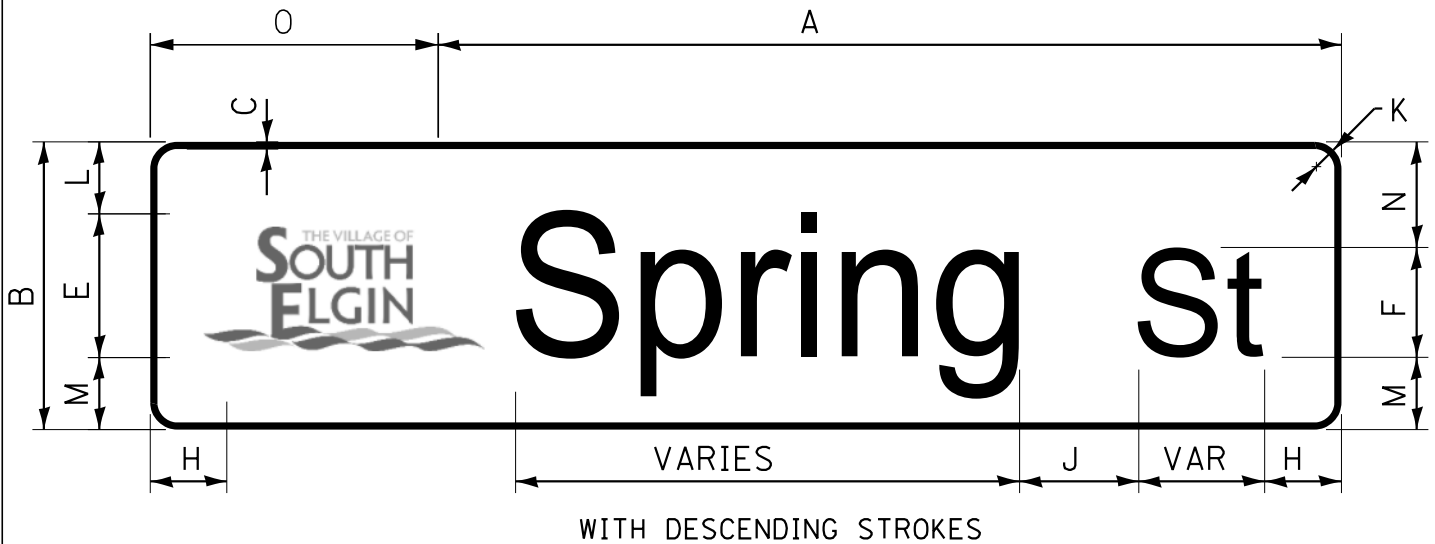


NOTES:

1. MANHOLES MUST CONFORM TO ASTM C-478.
2. MANHOLE SECTIONS TO BE TONGUE AND GROOVED.
3. BENCHES MUST BE PROVIDED IN ALL STORM SEWER MANHOLES.
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7. PRIOR TO THE PLACEMENT OF FINAL LAYER OF ROADWAY, FRAMES AND ADJUSTING RINGS LOCATED WITHIN PAVED AREAS SHALL BE SET IN AN IDOT APPROVED CONCRETE "SI" MIXTURE.

REV 02/28/17

NOT TO SCALE



FONTS:
 FHWA 2000
 SERIES C

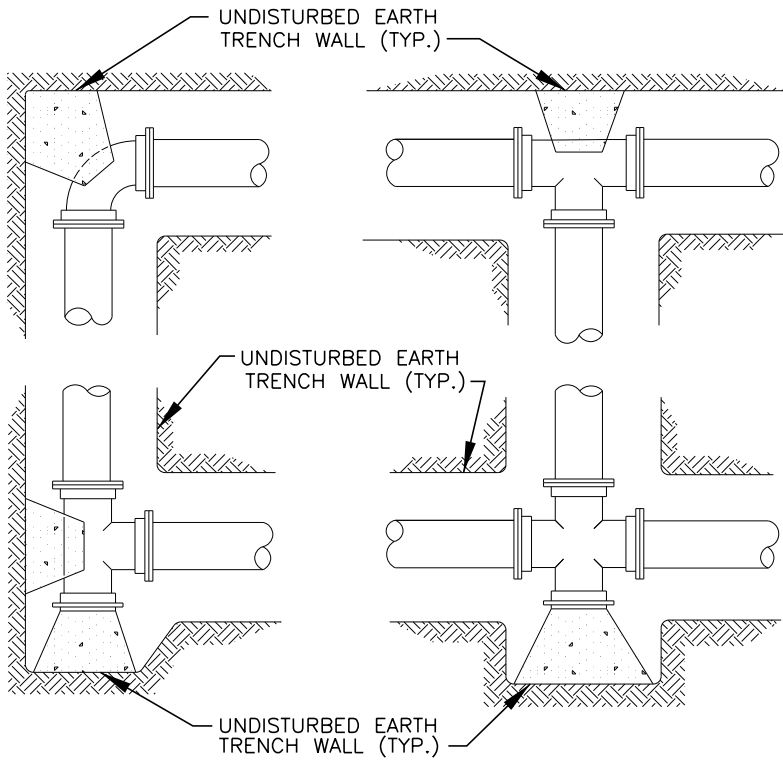
NOTES:

1. SIGNS SHALL BE MUTCD STANDARD D3-1, MEET CURRENT MUTCD REQUIREMENTS FOR RETROREFLECTIVITY AND SHALL BE EXTRUDED.
2. LETTERING, BORDER AND COLOR SHALL BE IN ACCORDANCE WITH CURRENT VILLAGE STANDARDS.
3. FOR TWO LANE STREETS 25MPH OR LESS LETTERING SHALL BE COMPOSED OF A COMBINATION OF 4" INITIAL UPPER CASE LETTER AND 3" LOWER CASE LETTERS ON A 9" HIGH SIGN.
4. FOR TWO LANE STREETS > 25MPH LETTERING SHALL BE COMPOSED OF A COMBINATION OF 6" INITIAL UPPER CASE LETTER AND 4.5" LOWER CASE LETTERS ON A 12" HIGH SIGN.

A	B	C	D	E	F	G	H	J	K	L	M	N	O
VAR	9	0.375	2	4	3	3	3(MIN)	3	1	1.75	2.25	2.75	9
VAR	12	0.5	3	6	4	5	4.5(MIN)	4.5	1.5	2.75	3.25	4.75	12

STREET NAME SIGN

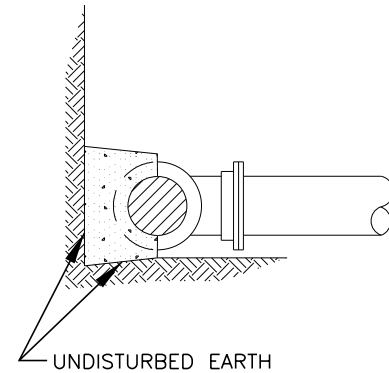
REV 04/06/21
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PLANS

TYPICAL THRUST BLOCK INSTALLATIONS

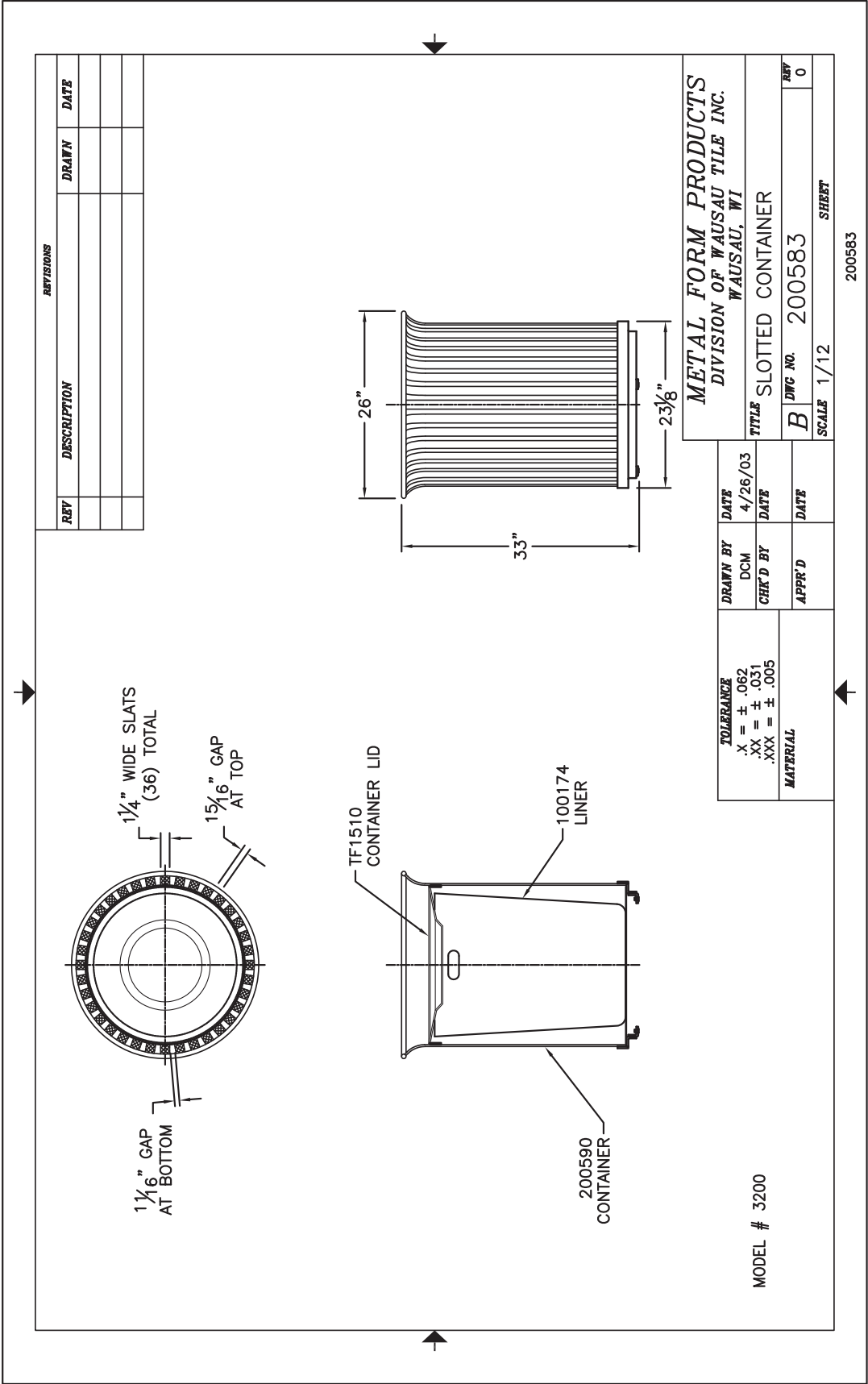
NO SCALE

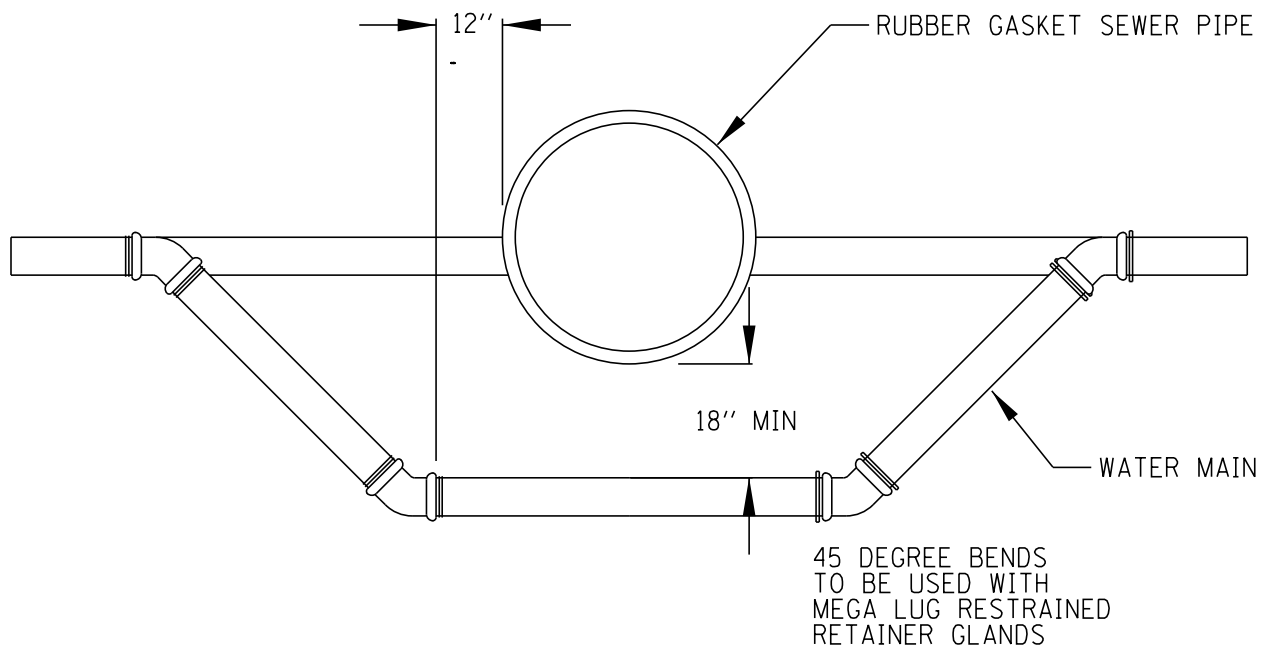


SECTIONS

NOTES

1. PROVIDE PRECAST OR CAST-IN-PLACE CONCRETE THRUST BLOCKS OF ADEQUATE SIZE AND THRUST BEARING SURFACE TO PREVENT MOVEMENT OF PIPELINE UNDER PRESSURE.
2. PLACE THE BASE AND THRUST BEARING SIDES OF THRUST BLOCK DIRECTLY AGAINST UNDISTURBED EARTH.
3. PLACE THRUST BLOCKING SO THE FITTING JOINTS WILL BE ACCESSIBLE FOR REPAIR.





ALL NEW WATER MAIN AND FITTINGS SHALL BE DUCTILE IRON.
THE PIPE SHALL BE OF THE CLASS S2.

4" COMPACTED GRANULAR MATERIAL (CA-6) BEDDING
BENEATH ADJUSTED WATER MAIN SHALL BE EXTENDED
TO THE SPRINGLINE OF THE PIPE.

ALL NEW WATER MAIN SHALL BE DISINFECTED BY
CAREFULLY SWABBING WITH A CHLORINE SOLUTION.

TEMPORARY PAVEMENT - 3" (MIN.)

EX. SURFACE

BITUMINOUS MATERIALS
(PRIME COAT)

FULL DEPTH
SAW CUT (TYP.)

EX. AGGREGATE
BASE

AGGREGATE BASE COURSE
100% CRUSHED CA-6
VIRGIN MATERIAL ONLY

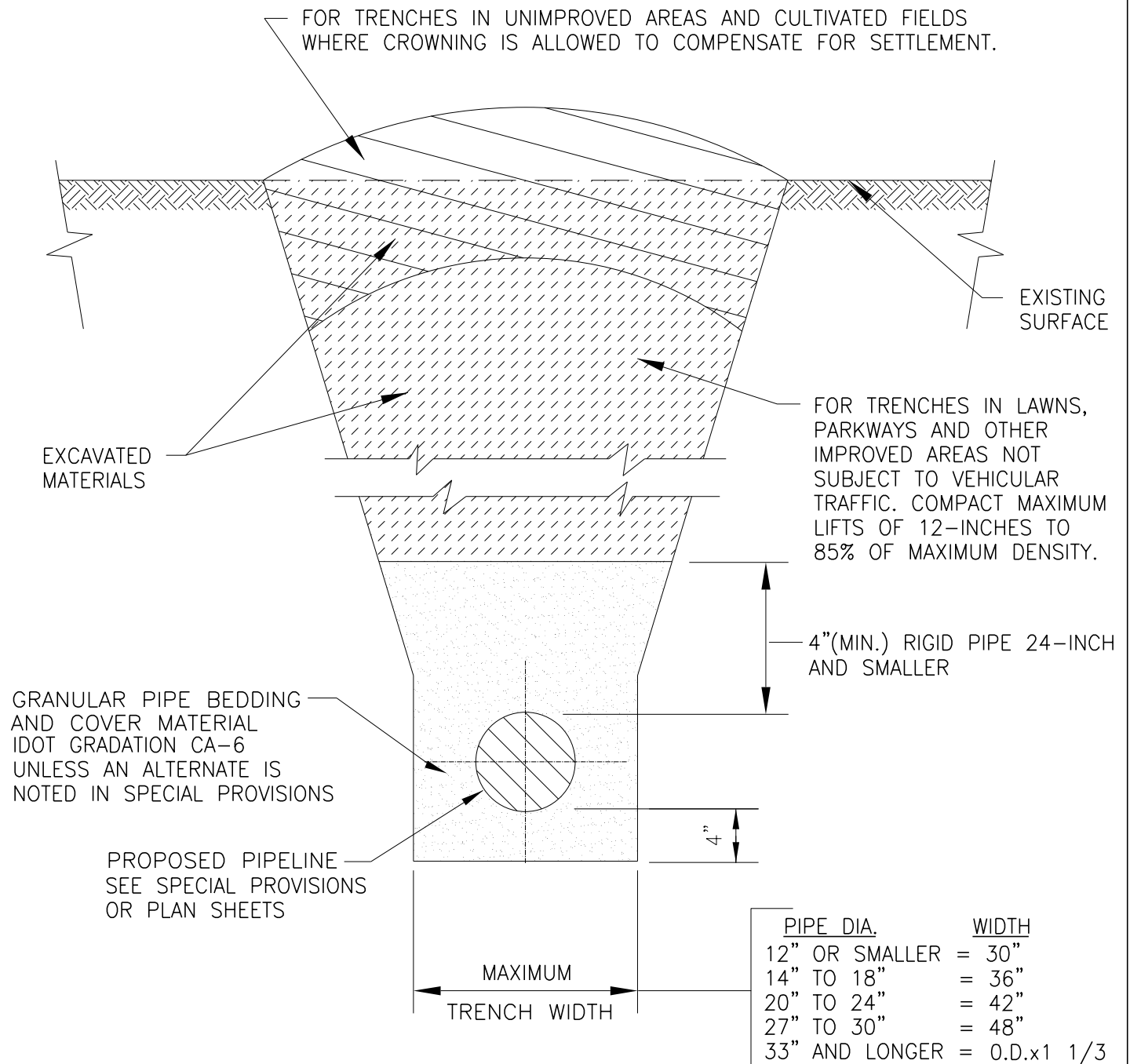
GRANULAR PIPE BEDDING
AND COVER MATERIAL
IDOT GRADATION CA-6
VIRGIN MATERIAL ONLY

4" (MIN.) RIGID PIPE
24-INCH AND SMALLER

PROPOSED PIPELINE
SEE SPECIAL PROVISIONS
OR PLAN SHEETS

MAXIMUM
TRENCH WIDTH

PIPE DIA.	WIDTH
12" OR SMALLER	= 30"
14" TO 18"	= 36"
20" TO 24"	= 42"
27" TO 30"	= 48"
33" AND LONGER	= O.D.x1 1/3





"THE STANDARD OF EXCELLENCE IN THE INDUSTRY"

REPAIR CLAMPS (Stainless Steel) - STYLE – CR1

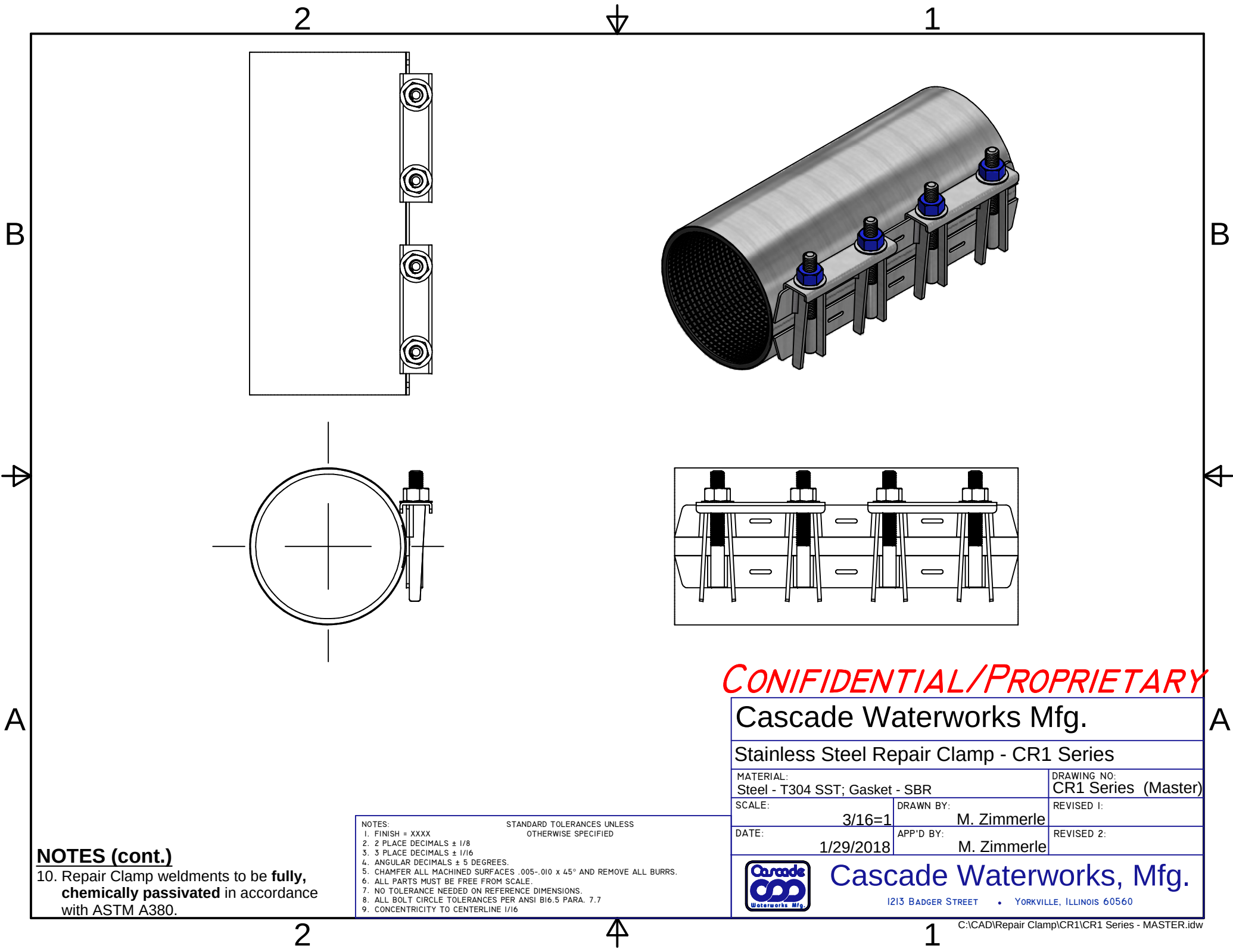
Repair Clamps shall be made from 1 section (CR1). The section (band) shall be made of T304 stainless steel with a minimum thickness of 22 gauge and a maximum thickness of 18 gauge. The section shall have receiver bars & stud bars TIG welded to the shells. Each stud bar shall include 5/8 UNC, T304 stainless steel studs and a stud bar plate which is MIG welded together. Each receiver bar shall include T304 stainless steel receiving fingers and a receiver bar plate which are MIG welded together. The stud bar and receiver bar shall be connected using fluoropolymer coated, heavy hex nuts, nylon anti-galling washers and a T304 stainless steel, U-channel, washer plate. Each section shall be lined with a 0.25" thick, virgin SBR, gridded, mat gasket with tapered ends to provide a 360° seal and an armor plate to aid in providing full hoop support on the pipe. **All weldments shall be fully chemically passivated in accordance with ASTM A380.** The Repair Clamp shall be style CR1 as manufactured by Cascade Waterworks Mfg. Co. of Yorkville, IL.

These specifications are accurate at time of publication and are subject to change without prior notice.



08.24.2017

CASCADE WATERWORKS MANUFACTURING COMPANY
1213 Badger Street • Yorkville, IL 60560 • (630) 553-0840 • (800) 426-4301 • FAX (630) 553-0181
www.cascademfg.com



NOTES (cont.)

10. Repair Clamp weldments to be **fully, chemically passivated** in accordance with ASTM A380.

- NOTES: STANDARD TOLERANCES UNLESS OTHERWISE SPECIFIED
1. FINISH = XXXX
 2. 2 PLACE DECIMALS $\pm 1/8$
 3. 3 PLACE DECIMALS $\pm 1/16$
 4. ANGULAR DECIMALS ± 5 DEGREES.
 5. CHAMFER ALL MACHINED SURFACES .005-.010 x 45° AND REMOVE ALL BURRS.
 6. ALL PARTS MUST BE FREE FROM SCALE.
 7. NO TOLERANCE NEEDED ON REFERENCE DIMENSIONS.
 8. ALL BOLT CIRCLE TOLERANCES PER ANSI B16.5 PARA. 7.7
 9. CONCENTRICITY TO CENTERLINE 1/16

CONFIDENTIAL/PROPRIETARY

Cascade Waterworks Mfg.			
Stainless Steel Repair Clamp - CR1 Series			
MATERIAL: Steel - T304 SST; Gasket - SBR		DRAWING NO: CR1 Series (Master)	
SCALE: 3/16=1	DRAWN BY: M. Zimmerle	REVISED 1:	
DATE: 1/29/2018	APP'D BY: M. Zimmerle	REVISED 2:	
 Cascade Waterworks, Mfg.			
1213 BADGER STREET • YORKVILLE, ILLINOIS 60560			

FEATURES OF THE CASCADE ALL-STAINLESS STEEL SERVICE SADDLE

TAPPED OUTLETS
T304 SST

GASKET
Virgin SBR,
Grade 30
(EDPM available
Upon request.)

SHELL
T304 SST

STUD & RECEIVER BARS
T304 SST

STUD
5/8 UNC, Rolled Thread;
T304 SST

NUTS
18-8/T304 SST Heavy Hex
Fluoropolymer Coated

WASHERS
18-8 SST, Nylon

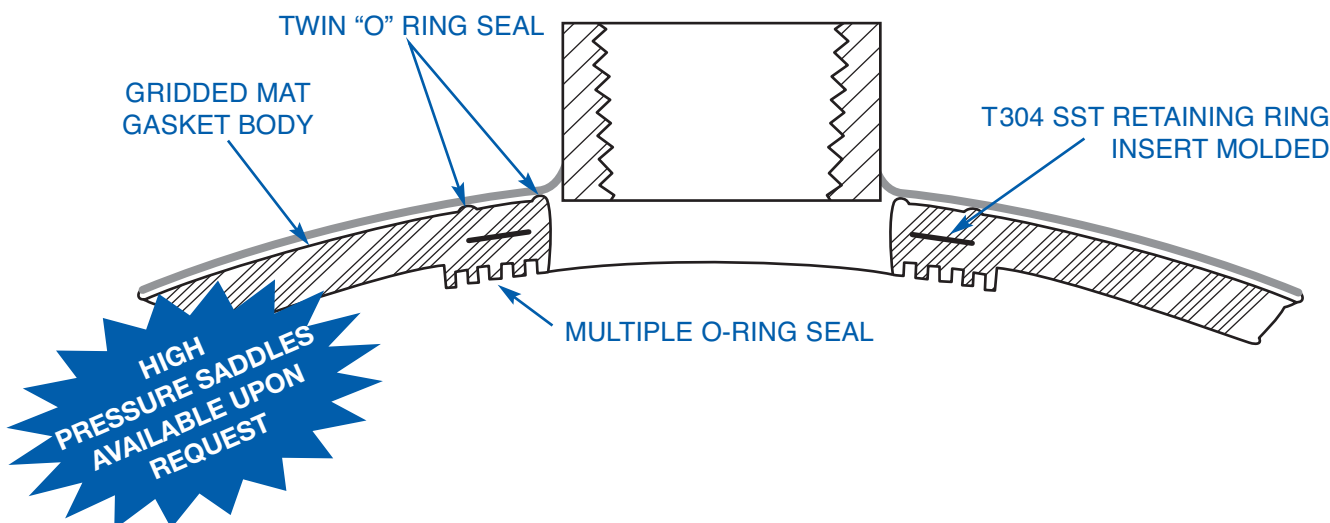
WASHER PLATE
T304 SST

FINGER LUGS
T304 SST

ALL SURFACES ARE FULLY, CHEMICALLY PASSIVATED - ASTM A380

MULTIPLE O-RING RETAINED MAIN SEAL GASKET (Patents 6,173,967 B1 & 6,588,767 B2)

CASCADE EXCLUSIVE – Used on all CSC and CS Style Saddles. Excellent for HDPE Pipe, see HDPE products brochure.



FEATURES

- Heavy Gauge Top Section for Strong Bond with Outlet
- Widest Range Saddle Available
- Fits All Standard Diameters for Pipes in Nominal Sizes

- Full Hoop Support - Saddle Body Conforms to Pipe O.D.
- Certified NSF/ANSI 61



One saddle fits all types of pipe (AC, PVC, DI, Steel, CI)

MATERIAL SPECIFICATIONS

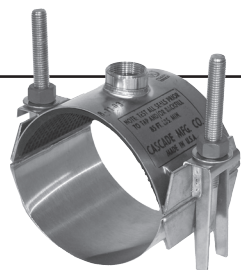
Body / Outlet: T304 SST

Gasket: SBR (EPDM available) - Triple O-ring surrounded by grid matt. Patents 6,173,967B1 & 6,588,767B2

Lugs / Washers / Washer Plates: T304 SST

Studs: 5/8 UNC, Rolled Thread; T304 SST

Nuts: 5/8 UNC, Heavy Hex; 18-8/T304 SST, Fluoropolymer Coated



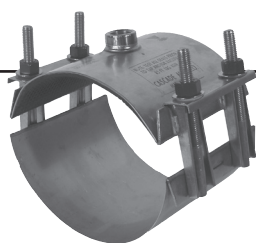
SHELL WIDTH 5"
MAXI-STRETCH
(RANGE - APPROX. 1.30")

STYLE CS12 • 5" WIDE DOUBLE BAND SADDLE

¾" or 1"; C.C. or I.P.



Nominal Pipe Size (inches)	O.D. Range (inches)	Catalog Number	Weight Each (lbs.)
4	4.36–5.66	CS12-0566-TAP	5.00
5	5.40–6.70	CS12-0670-TAP	5.25
6	6.43–7.73	CS12-0773-TAP	5.50
8	8.52–9.82	CS12-0982-TAP	6.00
10	10.65–11.95	CS12-1195-TAP	6.25
12	12.70–14.00 13.10–14.40	CS12-1400-TAP CS12-1440-TAP	6.75



SHELL WIDTH 8"
MAXI-STRETCH
(RANGE - APPROX. 1.30")

STYLE CS22 • 8" WIDE DOUBLE BAND SADDLE

¾", 1", 1¼", 1½" or 2"; C.C. or I.P.



Nominal Pipe Size (inches)	O.D. Range (inches)	Catalog Number	Weight Each (lbs.)
4	4.36–5.66	CS22-0566-TAP	9.75
5	5.40–6.70	CS22-0670-TAP	10.25
6	6.43–7.73	CS22-0773-TAP	10.75
8	8.52–9.82	CS22-0982-TAP	11.50
10	10.65–11.95	CS22-1195-TAP	12.00
12	12.70–14.00 13.10–14.40	CS22-1400-TAP CS22-1440-TAP	12.75
14	14.00–15.30 15.40–16.70	CS22-1530-TAP CS22-1670-TAP	13.25
16	16.20–17.50 17.90–19.20	CS22-1750-TAP CS22-1920-TAP	13.75
18	19.20–20.40	CS22-2040-TAP	14.50
20	21.50–22.80	CS22-2280-TAP	15.00
24	25.70–27.00	CS22-2700-TAP	18.50

TO ORDER: Select desired catalog number and add tap size.

EXAMPLE: An 8" wide double band saddle for 6" pipe with a 2" IP (NPT) tap would be **CS22-0773-2" IP**.

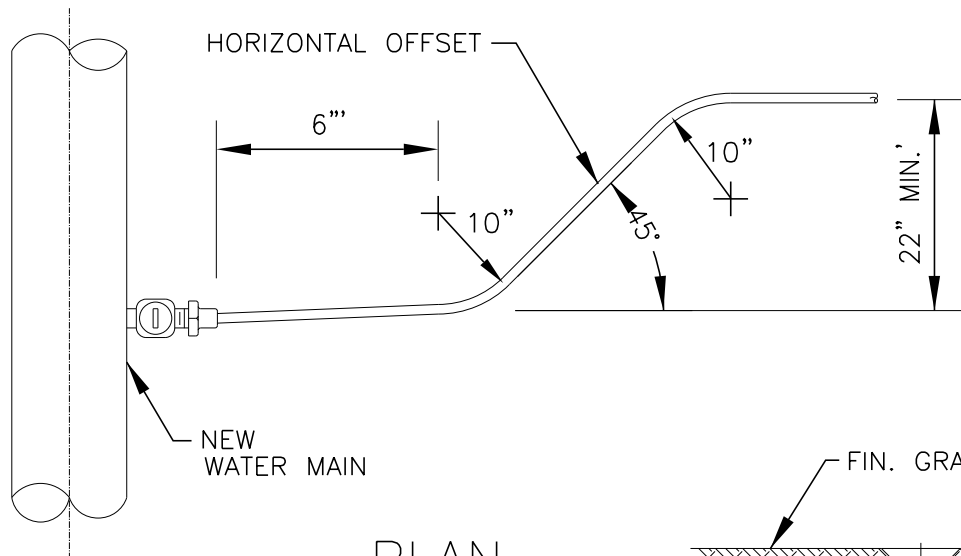
NOTE: Other ranges and tap sizes available upon request.



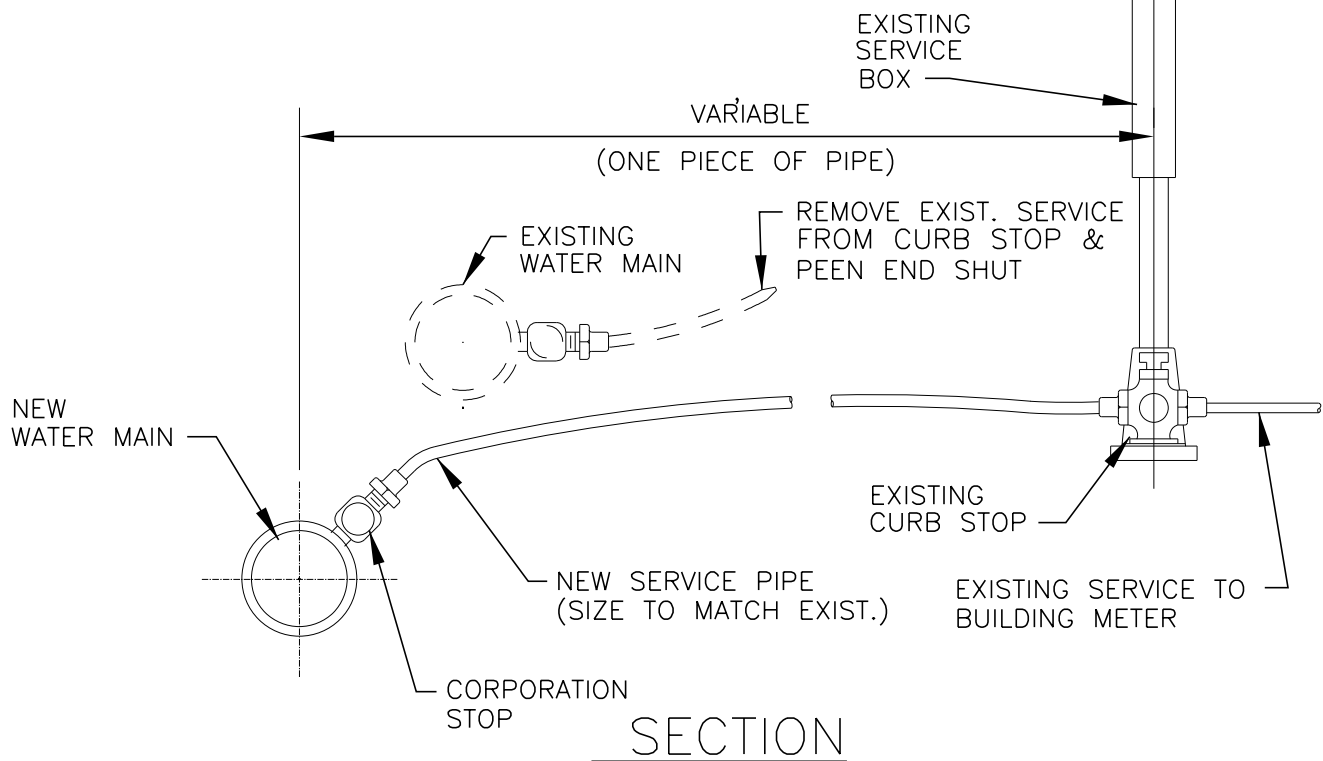
"THE STANDARD OF EXCELLENCE IN THE INDUSTRY"

SADDLES (ALL Stainless Steel) - STYLE – CS22

Service saddles shall be made from 18-8, Type 304 stainless steel, per ASTM A240. All saddles shall be of two-piece construction and shall be certified to NSF/ANSI 61. **Cascade Style CS22** Service Saddles shall be 8 inches wide for 4 inch through 24 inch pipe sizes with outlets of 3/4 inch through 2 inch, with CC or IP thread. These saddles shall have a double stud/receiver assembly per side. Bolts and nuts shall be 5/8 UNC, 18-8 stainless steel. Nuts shall be coated with Xylan to prevent galling. Washers shall be nylon. Outlets shall be 18-8 stainless steel. Gaskets shall be virgin SBR - grade 30 (optional virgin EPDM) rubber. Gasket shall be a gridded mat, with tapered ends, with the outlet section, having dual O-rings contacting the saddle body and multiple rings contacting the pipe. A stainless steel reinforcing ring shall be insert-molded within the outlet section to prevent gasket expansion under pressure. All weldments shall be **fully, chemically passivated** in accordance with ASTM A380. Service Saddles shall be Model CS22 as manufactured by Cascade Waterworks Mfg. Co. of Yorkville, IL.



PLAN



SECTION

SERVICE PIPE	CORP. STOP	CURB STOP	SERVICE BOX
3/4"	3/4"	3/4"	2 1/2"
1"	1"	1"	2 1/2"
1 1/4"	1 1/4"	1 1/4"	3"
1 1/2"	1 1/4" x 1 1/2"	1 1/2"	3"
2"	1 1/2" x 2"	2"	3"

