Bedding shall be 6" Cement Stabilized Sand or Select Material.

Notes:
1. Bedding shall be 6" Cement Stabilized Sand or Select Material.
2. Bedding shall be 6" Cement Stabilized Sand or Select Material.

GENERAL NOTES:
1. Manhole Sides, Transition Sides, Cones, Riser, and Elbow Sections Meet or Exceed the Requirements of ASTM C-478.
2. Riser shall be 6" Cement Stabilized Sand or Select Material.

**NOTES:**
- Manhole and Catch Basin units shall be stacked to achieve required depth of incoming and outgoing pipe invert.
NOTE: THE UNDERGROUND RETENTION SYSTEM SHALL HAVE A CAPACITY OF 5,090 CUBIC FEET.

THE SYSTEM SHALL CONTAIN ONE, 45 FOOT LONG, 144 INCH DIAMETER PERFORATED CORRUGATED METAL PIPE PLACED AS SHOWN ABOVE.

THE SYSTEM SHALL RECEIVE STORMWATER VIA MH1 AND SHALL BE CONVEYED BY THE MANHOLE CHAMBER.

THE SYSTEM ACCOUNTS FOR THE MINIMUM COVER OF 18" AS PER PRODUCT SPECIFICATIONS.

CLEAN, CRUSHED, ANGULAR STONE SHALL BE PLACED AROUND THE PERFORATED CORRUGATED METAL PIPE, 6 INCHES ABOVE AND BELOW AND 12 INCHES IN FRONT, BEHIND, AND AT PIPE ENDS. CRUSHED STONE SHALL HAVE 40% POROSITY.

A REM CRESCENT FILTER SHALL BE INSTALLED IN MH1 FOR PRETREATMENT OF STORMWATER AND TO AVOID SEDIMENTATION IN THE RETENTION SYSTEM.
BIORETENTION AREA

CB8

RIM = 178.71 FT

INV = 174.27 FT

BIORETENTION AREA

CURB CUTS

3 IN MULCH

3 FT PLANTING SOIL

PLASTIC WATER BARRIER

CURB WITH 1 FT CURB CUTS EVERY 3 FT

6 IN DEPRESSION TO ALLOW FOR PONDING

PAVEMENT SURFACE

8 IN GRAVEL

4 IN PERFORATED HDPE SUBDRAIN FOR TREATED STORMWATER

STORM SEWER OUTLET

CB8

RIM = 178.71 FT

INV = 174.27 FT

0' - 6'

178.50

178.78

EARTH

NOTES:

THE BIORETENTION AREA SHALL BE LANDSCAPED WITH THE FOLLOWING PLANT SPECIES:

BLUE FLAG IRIS (IRIS VERSICOLOR)

BROOMSEDGE (ANDROPOGON VIRGINICUS)

CARDINAL FLOWER (LOBELIA CARDINALIS)

ANY AREAS WITH EXPOSED SOIL SHALL BE COVERED WITH BIOFILTRATION SOD TO CONTROL WEEDS AND PREVENT EROSION.

INDIAN HILL SENIOR LIFESTYLE CENTER

BIORETENTION DETAIL

C-305

As indicated
**NOTES:**

1. *Channel Protection Volume* is included in the Extended Detention Volume.
2. The sides of the Pond shall be graded to a 3:1 slope.
3. Pond Embankment shall consist of new compacted silty-sand consisting of well-graded gravel and (SW-SM) with more than 15% gravel, and between 5% and 12% passing No. 200 sieve. The soil mix shall have a uniformity coefficient larger than 6, and a coefficient of gradation between 1 and 3. The soil density shall range between 110 and 125 PCF. The optimum moisture content shall be between 11% and 16%. The saturated cohesion shall be larger than 400 PCF. The internal friction angle shall be larger than 34 degrees.

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**Table:**

- **Scale:** 1" = 10'-0" (C-306)
- **Date:** 2/2/2017 2:47:51 PM
- **Project Number:** C-306
- **Issue Date:** As indicated
SPECIFICATION CLAUSE

K200 KLASSIKDRAIN - LOAD CLASS A

GENERAL:
THE SURFACE DRAINAGE SYSTEM SHALL BE POLYMER CONCRETE K200 CHANNEL SYSTEM WITH GALVANIZED STEEL EDGE RAILS AS MANUFACTURED BY ACO POLYMER PRODUCTS, INC.

MATERIALS:
CHANNELS SHALL BE MANUFACTURED FROM POLYESTER RESIN POLYMER CONCRETE WITH AN INTEGRALLY CAST-IN GALVANIZED STEEL EDGE RAIL. MINIMUM PROPERTIES OF POLYMER CONCRETE WILL BE AS FOLLOWS:

- COMpressive STRENGTH: 14,000 PSI
- FLEXURAL STRENGTH: 4,000 PSI
- TENSILE STRENGTH: 1,500 PSI
- WATER ABSORPTION: 0.07%
- FROST PROOF: YES
- DILUTE ACID AND ALKALI RESISTANT: YES
- B117 SALT SPRAY TEST COMPLIANT: YES

THE SYSTEM SHALL BE 8" (200mm) NOMINAL INTERNAL WIDTH WITH A 10.2" (260mm) OVERALL WIDTH AND A BUILT-IN SLOPE OF 0.5%. CHANNEL INVERT SHALL HAVE DEVELOPED "V" SHAPE. ALL CHANNELS SHALL BE INTERLOCKING WITH A MALE/FEMALE JOINT.

THE COMPLETE DRAINAGE SYSTEM SHALL BE BY ACO POLYMER PRODUCTS, INC. ANY DEVIATION OR PARTIAL SYSTEM DESIGN AND/OR IMPROPER INSTALLATION WILL VOID ANY AND ALL WARRANTIES PROVIDED BY ACO POLYMER PRODUCTS, INC.

CHANNEL SHALL WITHSTAND LOADING TO PROPER LOAD CLASS AS OUTLINED BY EN 1433. GRATE TYPE SHALL BE APPROPRIATE TO MEET THE SYSTEM LOAD CLASS SPECIFIED AND INTENDED APPLICATION. GRATES SHALL BE SECURED USING QUICKLUX BOLTLESS LOCKING SYSTEM. CHANNEL AND GRATE SHALL BE CERTIFIED TO MEET THE SPECIFIED EN 1433 LOAD CLASS. THE SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.

NOTES:
1. IT IS NECESSARY TO ENSURE MINIMUM DIMENSIONS SHOWN ARE SUITABLE FOR EXISTING GROUND CONDITIONS.
2. MINIMUM CONCRETE STRENGTH OF 4,000 PSI IS RECOMMENDED. CONCRETE SHOULD BE VIBRATED TO ELIMINATE AIR POCKETS.
3. EXPANSION AND CONTRACTION CONTROL JOINTS AND REINFORCEMENT ARE RECOMMENDED TO PROTECT CHANNEL AND CONCRETE SURROUND. ENGINEERING ADVICE MAY BE REQUIRED.
4. THE FINISHED LEVEL OF THE CONCRETE SURROUND MUST BE APPROX. 1.5" (30mm) ABOVE THE TOP OF THE CHANNEL EDGE.
5. CONCRETE BASE THICKNESS SHOULD MATCH SLAB THICKNESS. ENGINEERING ADVICE MAY BE REQUIRED TO DETERMINE PROPER LOAD CLASS.
6. REFER TO ACO'S LATEST INSTALLATION INSTRUCTIONS FOR FURTHER DETAILS.
**SM-4**

4'-0" Diameter I.D. Sanitary Manhole

Gallon Capacity Varies

**INDIAN HILL**

**SENIOR LIFESTYLE CENTER**

**SANITARY MANHOLE DETAIL**

**C-402**

3/8" = 1'-0"

**NOTES:**

MANHOLE UNITS SHALL BE STACKED TO ACHIEVE REQUIRED DEPTH OF INCOMING AND OUTCOMING PIPE INVERTS.
PROPOSED NEW GRADE
EXISTING GRADE

EXISTING GRADE
NEW GRADE

INDIAN HILL
SENIOR
LIFESTYLE CENTER
ROAD PROFILE

ANTHONY FITZGERALD
Checker

C-601
1/8" = 1'-0"
Note:
1. The development length in the footing is 3in less than the length of the footing on both sides.
2. hL should be at least 3'-6"