

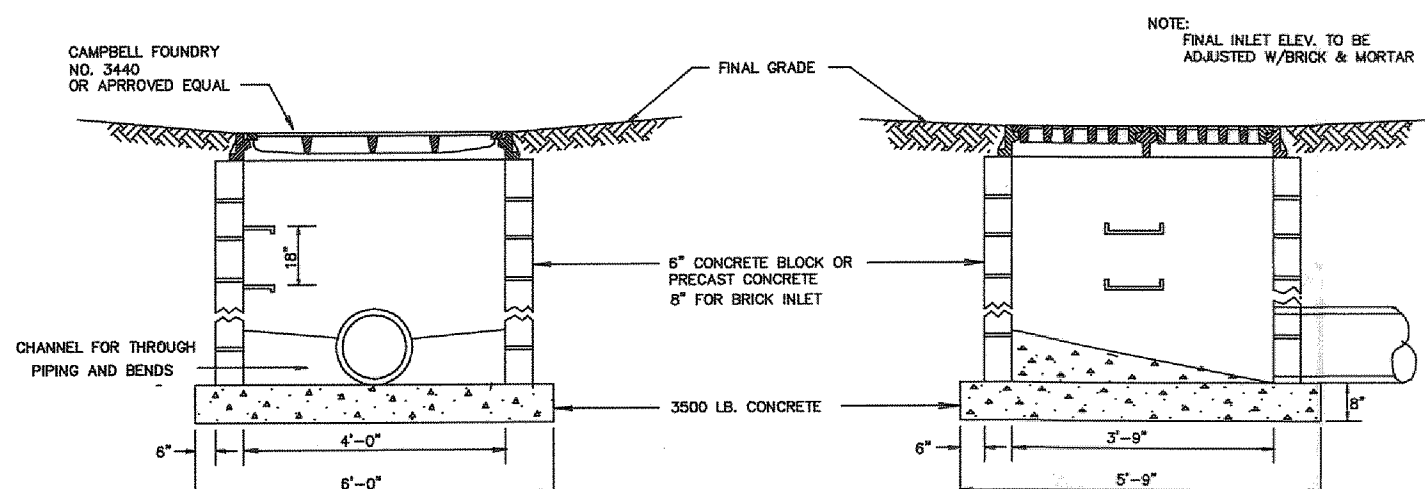
### PREFORMED SCOUR HOLE

N.T.S.

$$Q_{100} = 27.2 \text{ C.F.S. } D_o = 3.0' \text{ } T_w = 0.6' \text{ } q = 18.9$$

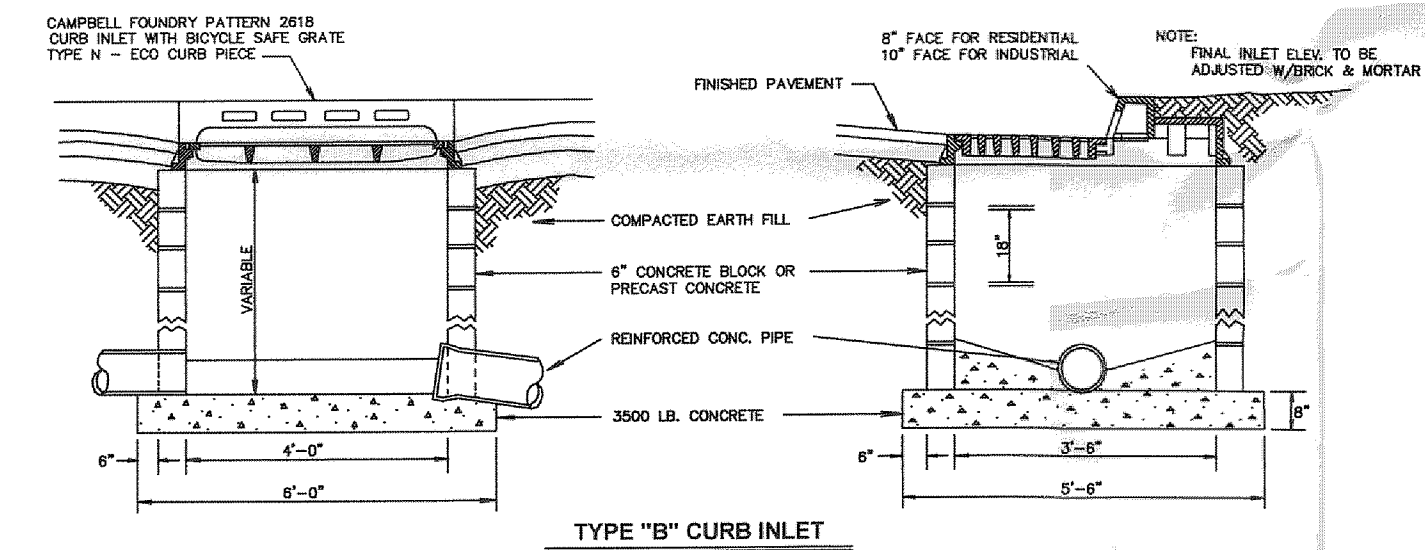
$$D_{50} = 0.0125 \frac{q^{1.33}}{T_w} = 0.39' \text{ USE } 6''$$

$$T = 18'' \text{ } S = 0.0 \%$$



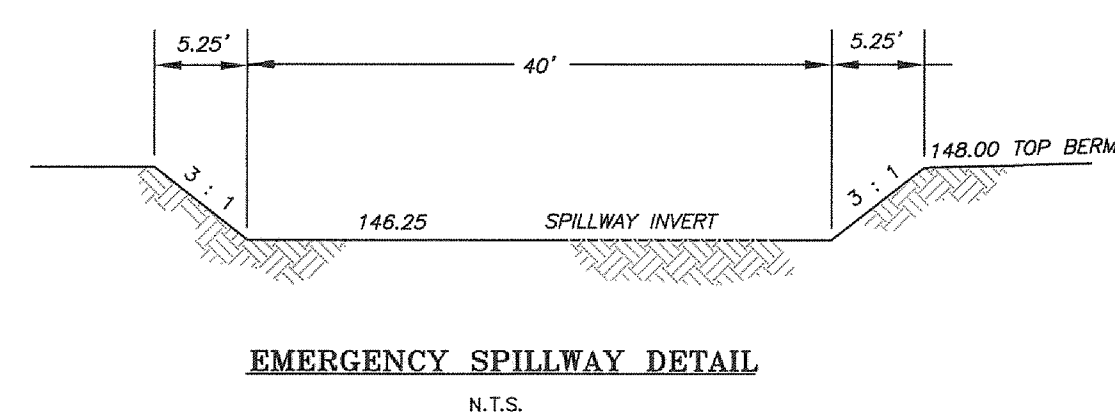
TYPE "A" INLET

N.T.S.



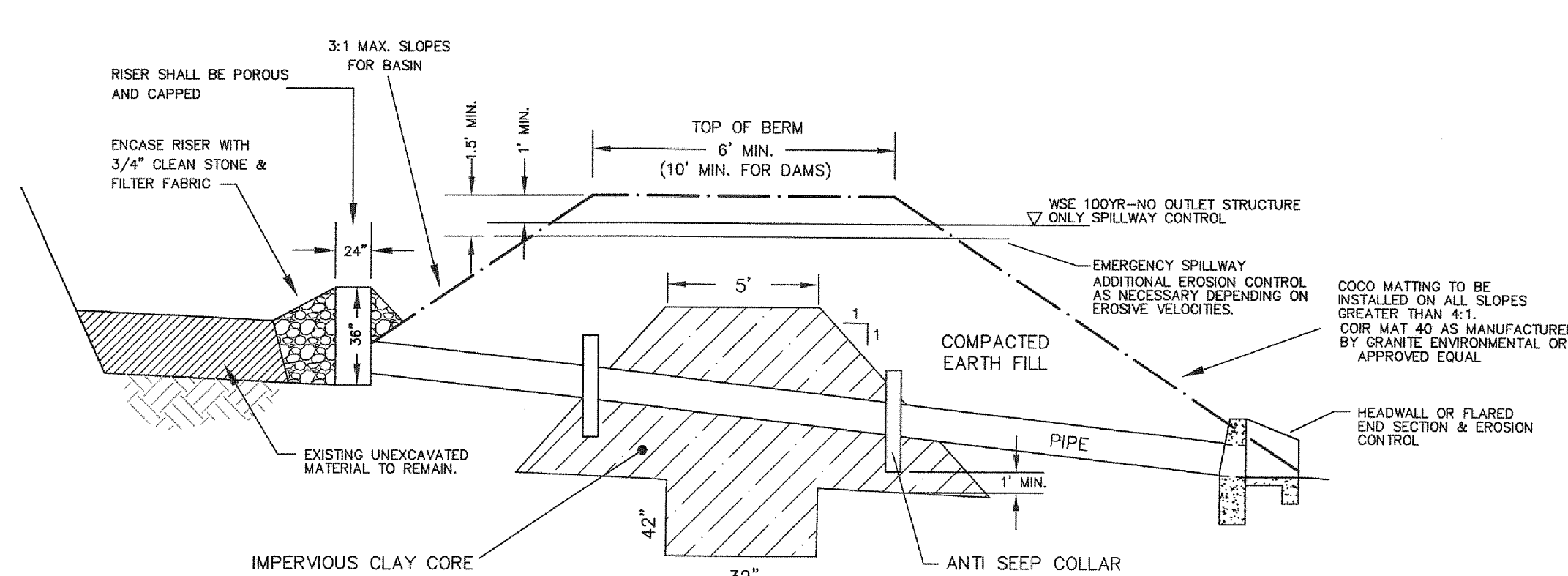
TYPE "B" CURB INLET

N.T.S.



EMERGENCY SPILLWAY DETAIL

N.T.S.

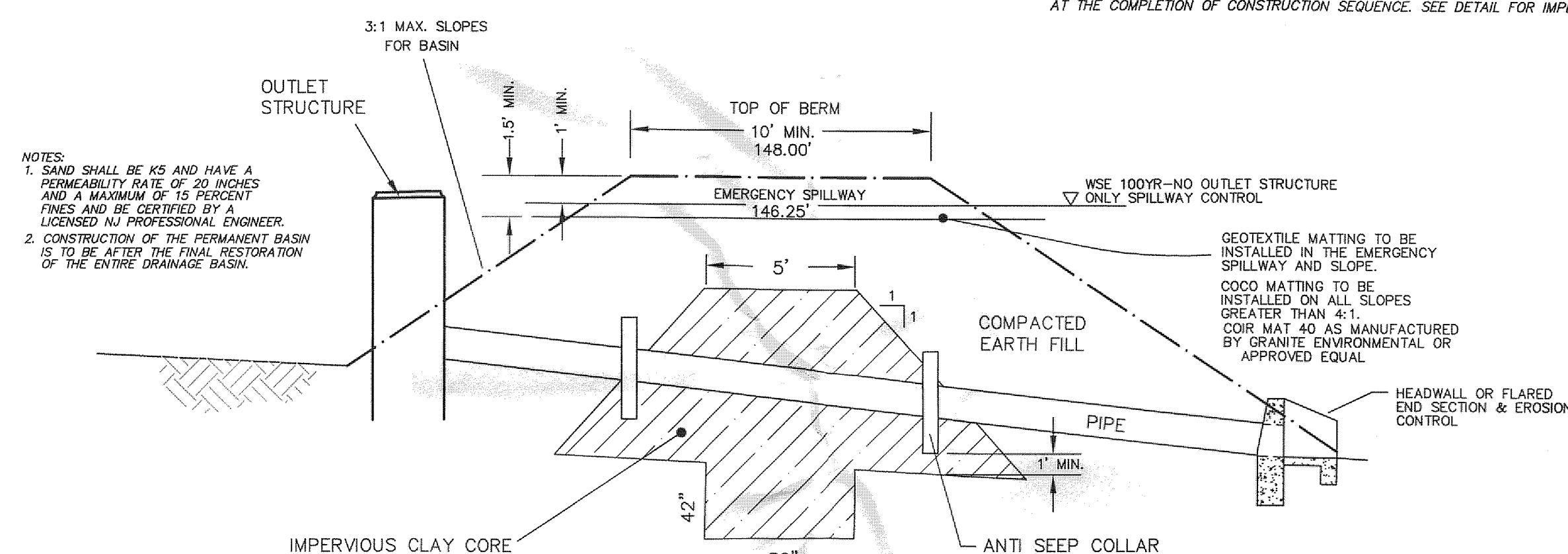


TEMPORARY SEDIMENT BASIN

CROSS SECTION

N.T.S.

- NOTES:
1. A TEMPORARY SEDIMENT BASIN SHALL BE CONSTRUCTED AS PART OF THE OVERALL SOIL EROSION SEDIMENT CONTROL PLAN.
  2. SEQUENCE OF CONSTRUCTION AS FOLLOWS:
    - INSTALLATION OF TRACKING PAD AND SILT FENCE AT THE LIMIT OF DISTURBANCE.
    - CLEARING OF SITE.
    - STRIPPING & STOCKPILING TOPSOIL.
    - CONSTRUCT TEMPORARY SEDIMENT BASIN.
  3. CONTRACTOR SHALL NOT EXCAVATE THE BOTTOM 24" OF THE FINAL BASIN DURING USE AS A TEMPORARY SEDIMENT BASIN. IF CONTRACTOR OVER EXCAVATES THE TSB, THE FINAL BASIN SHALL BE OVER EXCAVATED BY THE SAME AMOUNT AND THE AREAS ARE TO BE FILLED WITH SAND MATERIAL WHEN BASIN IS CONVERTED TO FINAL INFILTRATION/DETENTION BASIN AT THE COMPLETION OF CONSTRUCTION SEQUENCE.
  4. CONTRACTOR SHALL EXCAVATE TO FINAL BASIN GRADE ONLY AROUND THE OUTLET STRUCTURE AS NECESSARY TO INSTALL THE TEMPORARY SEDIMENT RISER.
  5. CONTRACTOR SHALL INSTALL THE CLAY CORE TO 20 FEET ON BOTH SIDES OF THE PERMANENT OUTLET PIPES AND ANTI SEEP COLLARS. THE REMAINDER OF THE CLAY CORE ZONES SHALL BE INSTALLED WHEN THE BASINS ARE CONVERTED TO FINAL INFILTRATION/DETENTION BASINS AT THE COMPLETION OF CONSTRUCTION SEQUENCE. SEE DETAIL FOR IMPERVIOUS CLAY CORE.

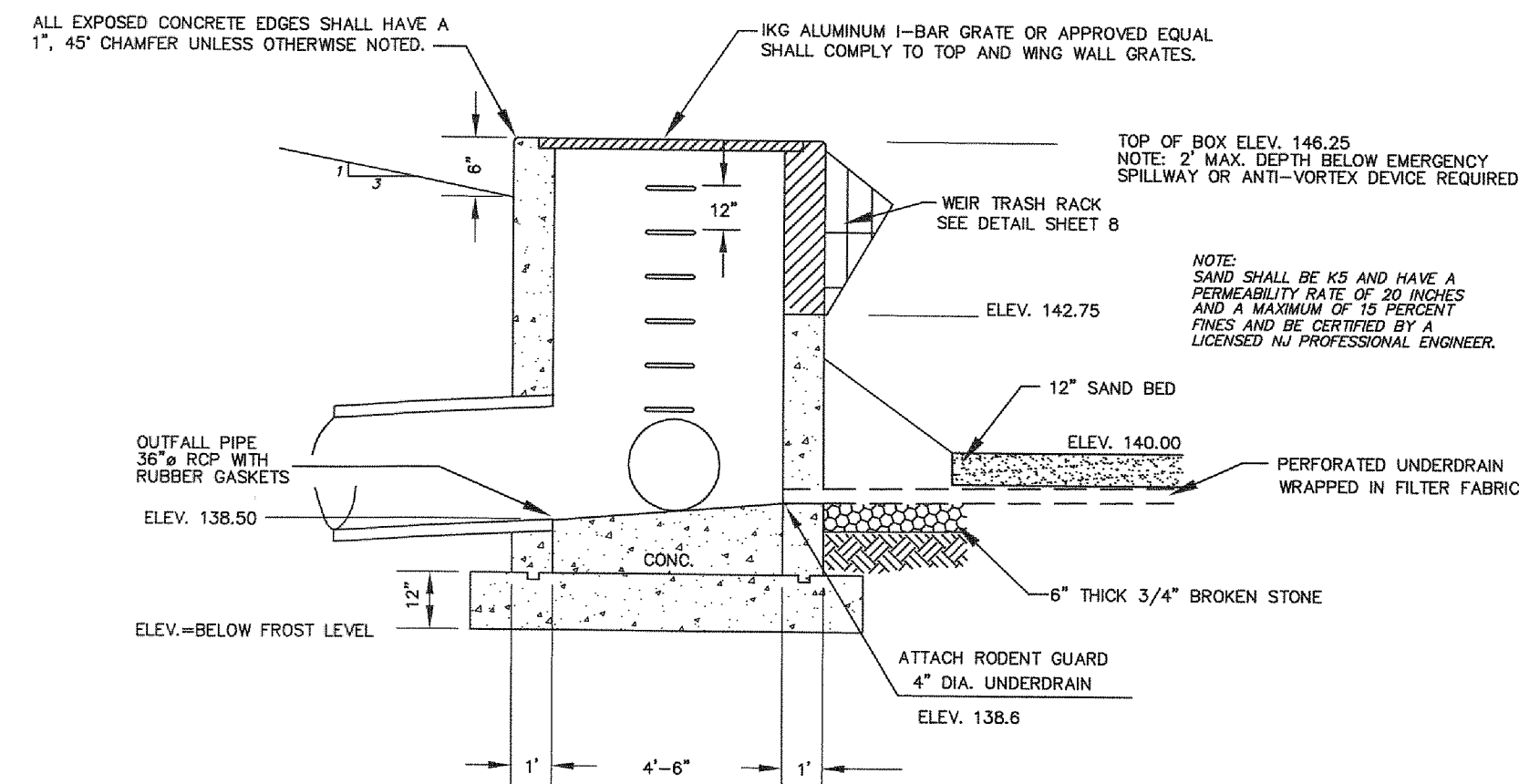


DETENTION BASIN

EMBANKMENT-CLAY CORE DETAIL

N.T.S.

1. SITE PLANS SHALL PROVIDE THE LIMITS OF THE CLAY CORE. FOR EMBANKMENT OR BERM THE LIMITS SHALL BE FOR THE FULL LENGTH OF THE BERM. FOR A RECESSED THE LIMITS SHALL BE 40 FEET O.C. OF THE OUTLET PIPE. CUT SHEETS SHALL BE SUBMITTED TO THE ENGINEERING DEPARTMENT FOR REVIEW. THE TIME OF CONSTRUCTION THE BERM SHALL BE CONSTRUCTED 5% HIGHER TO ALLOW FOR SETTLEMENT.
2. THE IMPERVIOUS CORE SHALL BE CONSTRUCTED OF SOIL MATERIAL CLASSIFIES AS "CL" IN THE INFIED SOIL CLASSIFICATION SYSTEM. SAID MATERIAL SHALL BE PLACED AND COMPACTED IN ACCORDANCE WITH SECTION 2.03 EMBANKMENT, NJDOT SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION. COMPACTION SHALL MEET A MINIMUM 95% DESTINY AS MEASURED BY THE MODIFIED PROCTOR DENSITY TEST (ASTM TEST DESIGNATION D-1557 AND ASSHTO TEST DESIGNATION T-180).
3. THE CLAY CORE SHALL BE COMPOSED OF MATERIAL THAT HAS PERMEABILITY RATE OF 10<sup>-7</sup> CMS OR LESS.
4. PRIOR TO INSTALLATION THE CONTRACTOR SHALL PROVIDE THE TOWNSHIP THE NECESSARY TEST RESULTS AND LOCATION OF THE INTENDED CLAY MATERIAL.
5. THE INSTALLATION OF THE CLAY CORE SHALL BE OBSERVED AND TESTED BY A QUALIFIED GEOTECHNICAL ENGINEER, SUPPLIED BY THE OWNER.
6. KEYWAY DETAIL: DEPTH OF KEYWAY SHALL BE 42" BELOW THE BOTTOM OF THE CLAY CORE OR A MINIMUM OF 12" INTO THE IMPERVIOUS STRATUM.
7. ALL PIPES, STRUCTURES AND DESIGN SHALL ADHERE TO THE "RESIDENTIAL SITE IMPROVEMENT STANDARD", SUBCHAPTER 7 STORMWATER MANAGEMENT.
8. VELOCITIES IN OPEN CHANNELS, EXCLUDING WATER QUALITY SWALE, AT DESIGN FLOW SHALL NOT BE LESS THAN 0.5 FOOT PER SECOND AND NOT GREATER THAN A VELOCITY THAT WILL CAUSE EROSION OR SCOURING OF THE CHANNEL. DESIGN ENGINEERS SHALL DETERMINE PERMISSIBLE VELOCITIES FOR SWALES, OPEN CHANNELS AND DITCHES USING METHODS PRESENTED IN "STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY" AT N.J.A.C. 7:29.
9. VELOCITIES IN CLOSED CONDUITS AT DESIGN FLOW SHALL BE AT LEAST TWO FEET PER SECOND, BUT NOT MORE THAN THE VELOCITY THAT WILL CAUSE EROSION DAMAGE TO THE CONDUIT. PER THE MANUFACTURER'S SPECIFICATION. MINIMUM ALLOWABLE PIPE SLOPES SHALL PRODUCE VELOCITY OF AT LEAST THREE FEET PER SECOND WHEN THE FLOW DEPTH IS FULL OR HALF THE PIPE DIAMETER.
10. IN GENERAL, NO PIPE SIZE IN THE STORM DRAINAGE SYSTEM SHALL BE LESS THAN 15" IN DIAMETER. DESIGN ENGINEERS MAY USE A 12" DIAMETER PIPE AS A CROSS-DRAIN TO A SINGLE INLET.
11. EIGHT INCH THICK ANTI-SEEP COLLARS ARE TO BE INSTALLED ALONG OUTLET PIPES WHEN REQUIRED BY THE MUNICIPAL ENGINEER. REINFORCEMENT STEEL SHALL BE NO. 5 BARS AT 12 INCHES BOTH WAYS, WITH TWO INCHES OF COVER ON BOTH. ALL EXCAVATION FOR THE INSTALLATION FOR THE ANTI-SEEP COLLARS SHALL BE BACKFILLED WITH THE APPROVED IMPERVIOUS CLAY.
12. MAXIMUM VELOCITIES IN EMERGENCY SPILLWAYS SHALL BE CHECKED BASED ON THE VELOCITY OF THE PEAR FLOW IN THE SPILLWAY RESULTING FROM ROUTING THE SPILLWAY DESIGN STORM HYDROGRAPH AS DEFINED IN THE NJ DEP DAM SAFETY RULES (N.J.A.C. 7:20) FOR ALL DETENTION FACILITIES CLASSIFIED AS DAMS AND THE 100-YEAR STORM HYDROGRAPH FOR ALL OTHER FACILITIES (THE ROUTED EMERGENCY SPILLWAY HYDROGRAPH). THE DESIGN OF THE EMERGENCY SPILLWAY WILL BE BASED ON THE 100-YEAR INFLOW TO THE BASIN EXCEPT FOR CLASS IV DAMS, WHICH SHALL COMPLY WITH THE DAM SAFETY STANDARDS N.J.A.C. 7:20.
13. WHILE ESTABLISHING VEGETATION IN THE BASIN-BI-WEEKLY INSPECTIONS OF THE VEGETATION HEALTH IS REQUIRED DURING THE FIRST GROWING SEASON. ONCE ESTABLISHED INSPECTIONS SHALL BE PERFORMED TWICE ANNUALLY DURING BOTH THE GROWING SEASON AND NON GROWING SEASON. AREAS TO BE VEGETATED OR AREAS WITH MORE THAN 50% DAMAGE ARE TO BE REESTABLISHED PER THE ORIGINAL AGRONOMIC SPECIFICATIONS. COMPACTION OF THE SOILS SHALL BE MINIMIZED THROUGH THE USE OF LIGHT WEIGHT CONSTRUCTION EQUIPMENT AND COMPACTED AREAS SHALL BE SCARIFIED AS NECESSARY TO LOOSEN THE SOILS.



OUTLET STRUCTURE

N.T.S.

- NOTES:
1. ALL PIPES, STRUCTURES AND DESIGN SHALL ADHERE TO THE "RESIDENTIAL SITE IMPROVEMENT STANDARD", SUBCHAPTER 7 STORMWATER MANAGEMENT.
  2. IN GENERAL, NO PIPE SIZE IN THE STORM DRAINAGE SYSTEM SHALL BE LESS THAN 15" IN DIAMETER. DESIGN ENGINEERS MAY USE A 12" DIAMETER PIPE AS A CROSS-DRAIN TO A SINGLE INLET.
  3. THE AVERAGE VELOCITY OF FLOW THROUGH A CLEAN TRASH RACK IS NOT TO EXCEED 2.5 FEET PER SECOND UNDER FULL RANGE OF STAGE AND DISCHARGE. VELOCITY IS TO BE COMPUTED ON THE BASINS OF THE NET AREA OF OPENING THROUGH THE RACK.
  4. TRASH RACKS AND OVERFLOW GRATES SHALL BE CONSTRUCTED AND INSTALLED TO BE RIGID, DURABLE AND CORROSION RESISTANT, AND SHALL BE DESIGNED TO WITHSTAND A PERPENDICULAR LIVE LOADING OF 300 POUNDS PER SQUARE FOOT.
  5. OUTFALL PIPE ELEVATION SHALL BE LOWER THAN THE PERFORATED PIPE INVERT ELEVATION UNDER THE LOW FLOW CHANNEL, OR SUCH THAT AN UNDERDRAIN FOR A RECHARGE BASIN CAN BE ACCOMMODATED IN THE FUTURE.
  6. SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEERING DEPARTMENT FOR REVIEW AND APPROVAL.
  7. A 4" PERFORATED UNDERDRAIN WRAPPED IN FILTER FABRIC SHALL BE INSTALLED UNDER THE SAND BED.

### B. Vegetated Areas

Mowing and/or trimming of vegetation must be performed on a regular schedule based on specific site conditions. Grass should be mowed at least once a month during the growing season. Vegetated areas must also be inspected at least annually for erosion and scour. The structure must be inspected for unwanted tree growth at least once a year.

When establishing or restoring vegetation, biweekly inspections of vegetation health should be performed during the first growing season or until the vegetation is established. Once established, inspections of vegetation health, density, and diversity should be performed at least twice annually during both the growing and non-growing season. If vegetation has greater than 50 percent damage, the area should be reestablished in accordance with the original specifications and the inspection requirements presented above.

All use of fertilizers, mechanical treatments, pesticides, and other means to assure optimum vegetation health must not compromise the intended purpose of the infiltration basin. All vegetation deficiencies should be addressed without the use of fertilizers and pesticides whenever possible.

All vegetated areas should be inspected at least annually for unwanted growth, which should be removed with minimum disruption to the remaining vegetation and basin subsoil.

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH THE TOWNSHIP OF BRANCHBURG STANDARD CONSTRUCTION DETAILS

**Templin Engineering Associates**  
Engineering - Surveying

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*Robert J. Templin*  
**Robert J. Templin**

PROFESSIONAL ENGINEER AND LAND SURVEYOR  
N.J. LIC. # 25136

PROFILE - DETENTION BASIN / DETAILS

**PRELIMINARY MAJOR SUBDIVISION OF  
BLOCK 60 LOT 7**

**FLATWATER DEVELOPMENT, INC.**

**BRANCHBURG TOWNSHIP, SOMERSET COUNTY**

**NEW JERSEY**

DESIGNED BY: CHECKED BY: FILE NO. 03-013 SHEET NO. 6/11  
DRAWN BY: T.M. SCALE: AS SHOWN DATE: 2-5-04

REVISION	DATE
PER REVIEW	4-4-05
ROAD SHIFT	1-23-06
PER APPROVAL	6-2-06
PER REVIEW	10-1-07
PER REVIEW	12-12-07
PER DEP REVIEW	10-13-14
PER REVIEW	12-29-14
ENGINEERS REVIEW	3-29-15
ENGINEERS REVIEW	7-10-15
ENGINEERS REVIEW	8-31-15
ENGINEERS REVIEW	10-14-15

PROFILE-DETENTION BASIN

SCALE: 1" = 50' HORIZ.  
1" = 5' VERT.