

MAXWELL™ IV DRAINAGE SYSTEM DETAIL AND SPECIFICATIONS

ITEM NUMBERS

1. Manhole Cone - Modified Flat Bottom.
2. Moisture Membrane - 6 Mil. Plastic. Place securely against eccentric cone and hole sidewall.
3. Bolted Ring & Grate - Diameter as shown. Clean cast iron with wording "Storm Water Only" in raised letters. Bolted in 2 locations and secured to cone with mortar. Rim elevation $\pm 0.02'$ of plans.
4. Graded Basin or Paving (by Others).
5. Compacted Base Material (by Others).
6. PureFlo™ Debris Shield - Rolled 16 ga. steel X 24" length with vented anti-siphon and Internal .265" Max. SWO flattened expanded steel screen X 12" length. Fusion bonded epoxy coated.
7. Pre-cast Liner - 4000 PSI concrete 48" ID. X 54" OD. Center in hole and align sections to maximize bearing surface.
8. Min. 6' \emptyset Drilled Shaft.
9. Support Bracket - Formed 12 Ga. steel. Fusion bonded epoxy coated.
10. Overflow Pipe - Sch. 40 PVC mated to drainage pipe at base seal.
11. Drainage Pipe - ADS highway grade with TRI-A coupler. Suspend pipe during backfill operations to prevent buckling or breakage. Diameter as noted.
12. Base Seal - Geotextile, poly liner or concrete slurry.
13. Rock - Clean and washed, sized between 3/8" and 1-1/2" to best complement soil conditions.
14. FloFast™ Drainage Screen - Sch. 40 PVC 0.120" slotted well screen with 32 slots per row/ft. 96" overall length with TRI-B coupler.
15. Min. 4" \emptyset Shaft - Drilled to maintain permeability of drainage soils.
16. Fabric Seal - U.V. resistant geotextile - to be removed by customer at project completion.
17. Absorbent - Hydrophobic Petrochemical Sponge. Min. 128 oz. capacity.
18. Freeboard Depth Varies with inlet pipe elevation. Increase settling chamber depth as needed to maintain all inlet pipe elevations above overflow pipe inlet.
19. Optional Inlet Pipe (Maximum 4", by Others). Extend moisture membrane and compacted base material or 1 sack slurry backfill below pipe invert.

The referenced drawing and specifications are available on CAD either through our office or web site. Ask for Drawing TRI-1104 IV. This detail is copyrighted (2004) but may be used as is in construction plans without further release. For information on product application, individual project specifications or site evaluation, contact our Design Staff for no-charge assistance in any phase of your planning.

CALCULATING MAXWELL IV REQUIREMENTS

The type of property, soil permeability, rainfall intensity and local drainage ordinances determine the number and design of MaxWell Systems. For general applications draining retained storm water, use **one standard Type IV MaxWell per the instructions below** for up to 3 acres of landscaped contributory area, and up to 1 acre of paved surface. For larger paved surfaces, subdivision drainage, nuisance water drainage, connecting pipes larger than 4" \emptyset from catch basins or underground storage, or other demanding applications, refer to our **MaxWell Plus System**. For industrial drainage, including gasoline service stations, our **Envibro™ System** may be recommended. For additional considerations, please refer to "Design Suggestions For Retention And Drainage Systems" or consult our Design Staff.

COMPLETING THE MAXWELL IV DRAWING

To apply the MaxWell IV drawing to your specific project, simply fill in the blue boxes per instructions below. For assistance, please consult our Design Staff.

ESTIMATED TOTAL DEPTH

The Estimated Total Depth is the approximate depth required to achieve 10 continuous feet of penetration into permeable soils. Torrent's specialized "crowd" equipped drill rigs can penetrate even cemented soils to reach permeable materials at depths up to **180 feet**. Our extensive database of drilling logs and soils information is available for use as a reference. Please contact our Design Staff for site-specific information on your project.

SETTLING CHAMBER DEPTH

On MaxWell IV systems of over 30 feet overall depth and up to 0.25cfs design rate, the **standard** Settling Chamber Depth is **18 feet**. For systems exposed to greater contributory area than noted above, extreme service conditions, or that require higher design rates, chamber depths up to 25 feet are recommended.

OVERFLOW HEIGHT

The Overflow Height and Settling Chamber Depth determine the effectiveness of the settling process. The higher the overflow pipe, the deeper the chamber, the greater the settling capacity. For normal drainage applications, an overflow height of **13 feet** is used with the standard settling chamber depth of **18 feet**. Sites with higher design rates than noted above, heavy debris loading or unusual service conditions require greater settling capacities

DRAINAGE PIPE

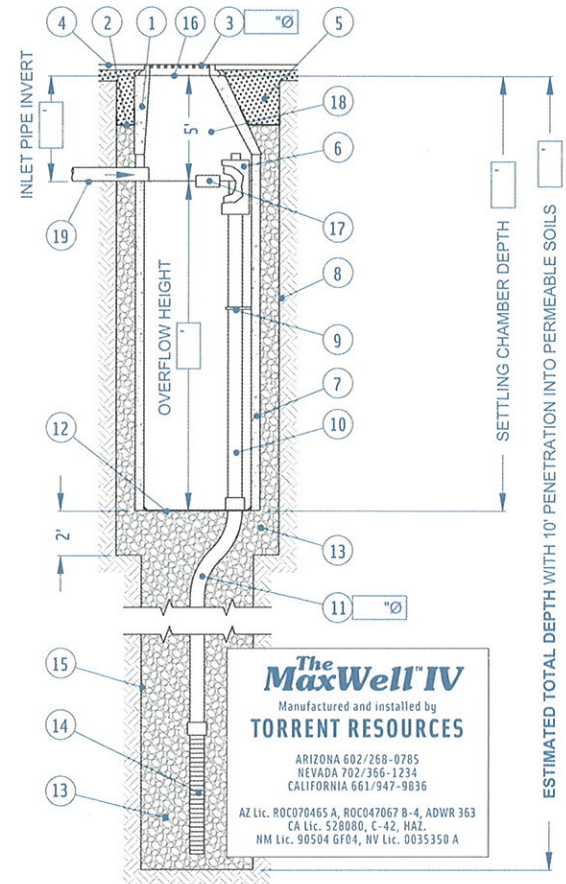
This dimension also applies to the **PureFlo™** Debris Shield, the **FloFast™** Drainage Screen, and fittings. The size selected is based upon system design rates, soil conditions, and the need for adequate venting. Choices are 6", 8", or 12" diameter. Refer to "Design Suggestions for Retention and Drainage Systems" for recommendations on which size best matches your application.

BOLTED RING & GRATE

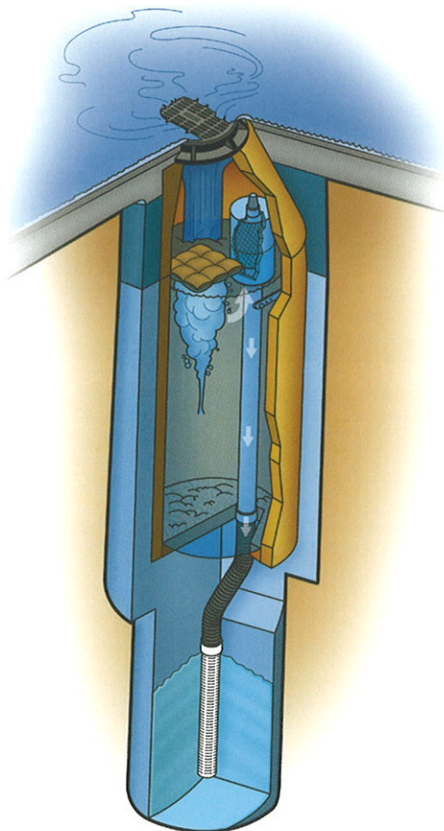
Standard models are quality cast iron and available to fit 24" \emptyset or 30" \emptyset manhole openings. All units are bolted in two locations with wording "Storm Water Only" in raised letters. For other surface treatments, please refer to "Design Suggestions for Retention and Drainage Systems."

INLET PIPE INVERT

Pipes up to 4" in diameter from catch basins, underground storage, etc. may be connected into the settling chamber. Inverts deeper than 4 feet will require additional settling chamber depth to maintain effective overflow height.



The **MaxWell™ IV**, as manufactured and installed exclusively by Torrent Resources Incorporated, is the industry standard for draining landscaped developments and paved areas. This patented system incorporates the latest refinements in pre-treatment technology.



PROVEN DESIGN

Since 1974, over 40,000 MaxWell Systems have proven their value as a cost-effective solution in a wide variety of drainage applications. They are accepted by state and municipal agencies and are a standard detail in numerous drainage manuals.

ADVANCED PRE-TREATMENT

Industry research, together with Torrent Resource's own experience, has shown that initial storm drainage flows have the greatest impact on system performance. This "first flush" occurs during the first few minutes of runoff and carries the majority of sediment and debris. This results in the need for effective processing of runoff from landscaped and paved surfaces. In the MaxWell IV, preliminary

treatment is provided through collection and separation in a deep, large-volume chamber where silt and other heavy particles settle to the bottom. The standard MaxWell IV system has over 1,500 gallons of capacity to contain sediment and debris carried by incoming water. Floating trash, paper, pavement oil, etc. is effectively stopped by the **PureFlo™ Debris Shield** on top of the overflow pipe. Water is drained from the system by rising up to the top of the overflow pipe and under the Debris Shield. The solid metal shields are equipped with an internal screen to filter suspended matter and are vented to prevent siphoning of floating surface debris. The drainage assembly returns the cleaned water to the surrounding soil through the **FloFast™ Drainage Screen**.

ABSORBENT TECHNOLOGY

To provide prompt removal of pavement oils, MaxWell IV settling chambers are equipped with an absorbent sponge. These floating pillow-like devices are 100% water repellent and literally wick petrochemical compounds from the water. Each sponge has a capacity of over 128 ounces to accommodate effective, long-term treatment. The absorbent is completely inert and will safely remove rainbow sheens which are typically one molecule thick.

SECURITY FEATURES

MaxWell IV Systems include bolted, theft-resistant, cast iron gratings and covers as standard security features. Special inset castings that are resistant to loosening from accidental impact are available for use in landscaped applications. Machined mating surfaces and "Storm Water Only" wording are standard.

THE MAXWELL FIVE-YEAR WARRANTY

Innovative engineering, quality materials and exacting construction are standard with every MaxWell system produced and installed by Torrent Resources Incorporated. The MaxWell Drainage Systems warranty is the best in the industry and guarantees against failures due to workmanship or materials for a period of five years from date of completion.