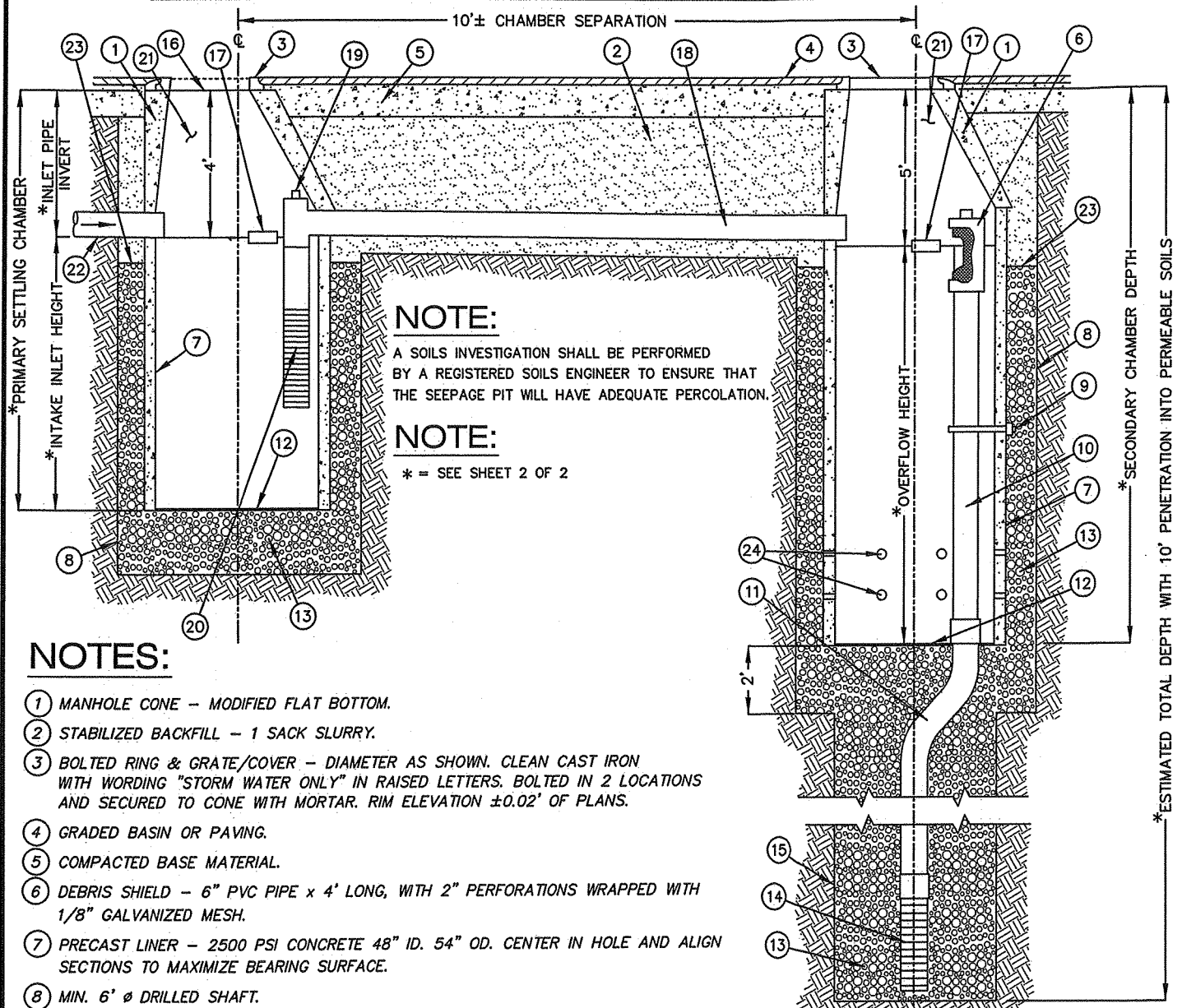


DRAINAGE SYSTEM DETAIL AND SPECIFICATION



NOTE:
A SOILS INVESTIGATION SHALL BE PERFORMED BY A REGISTERED SOILS ENGINEER TO ENSURE THAT THE SEEPAGE PIT WILL HAVE ADEQUATE PERCOLATION.

NOTE:
* = SEE SHEET 2 OF 2

NOTES:

- (1) MANHOLE CONE - MODIFIED FLAT BOTTOM.
- (2) STABILIZED BACKFILL - 1 SACK SLURRY.
- (3) BOLTED RING & GRATE/COVER - 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.
- (5) COMPACTED BASE MATERIAL.
- (6) DEBRIS SHIELD - 6" PVC PIPE x 4' LONG, WITH 2" PERFORATIONS WRAPPED WITH 1/8" GALVANIZED MESH.
- (7) PRECAST LINER - 2500 PSI CONCRETE 48" ID. 54" OD. CENTER IN HOLE AND ALIGN SECTIONS TO MAXIMIZE BEARING SURFACE.
- (8) MIN. 6" ϕ DRILLED SHAFT.
- (9) SUPPORT BRACKET - FORMED 12 GA. STEEL. FUSION BONDED EPOXY COATED.
- (10) OVERFLOW PIPE - 6" SCH. 40 PVC MATED TO DRAINAGE PIPE AT BASE SEAL.
- (11) DRAINAGE PIPE - ADS HIGHWAY GRADE WITH TRI-A COUPLER (OR APPROVED EQUAL). SUSPEND PIPE DURING BACKFILL OPERATIONS TO PREVENT BUCKLING OR BREAKAGE. DIAMETER AS NOTED (MINIMUM PIPE SIZE TO BE 8" DIAMETER).
- (12) BASE SEAL - GEOTEXTILE, POLY LINER OR CONCRETE SLURRY.
- (13) ROCK - CLEAN AND WASHED, SIZED BETWEEN 3/4" AND 1-1/2" TO BEST COMPLEMENT SOIL CONDITIONS.
- (14) DRAINAGE SCREEN - 6" CORRUGATED PERFORATED POLYETHYLENE (ADS OR APPROVED EQUAL).
- (15) MIN. 4' ϕ 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) CONNECTOR PIPE - 6" ϕ SCH 40 PVC.
- (19) ANTI-SIPHON VENT WITH FLOW REGULATOR.
- (20) INTAKE SCREEN - 6-INCH CORRUGATED PERFORATED POLYETHYLENE (ADS OR APPROVED EQUAL).
- (21) FREEBOARD DEPTH VARIES WITH INLET PIPE ELEVATION. INCREASE PRIMARY/SECONDARY SETTLING CHAMBER DEPTHS AS NEEDED TO MAINTAIN ALL INLET PIPE ELEVATIONS ABOVE CONNECTOR PIPE OVERFLOW.
- (22) OPTIONAL INLET PIPE.
- (23) MOISTURE MEMBRANE - 6 MIL. PLASTIC. PLACE SECURELY AGAINST ECCENTRIC CONE AND HOLE SIDEWALL. USED IN LIEU OF SLURRY IN LANDSCAPE AREAS.
- (24) EIGHT - (8) PERFORATIONS PER FOOT, 2 ROW MIN.

DRAWN BY:	M.W.M.
APPROVED BY:	
DATE:	8/20/13

CITY OF HESPERIA

2 STAGE
SEEPAGE PITS



REV. DATE	STD. DRW'G. NO.
M.M. 5/18/18	SP-1

PRIMARY SETTLING CHAMBER DEPTH

THE OVERALL DEPTH OF THE PRIMARY SETTLING CHAMBER IS DETERMINED BY THE AMOUNT OF SURFACE AREA BEING DRAINED. USE A STANDARD DEPTH OF 15 FEET FOR THE INITIAL ACRE OF CONTRIBUTORY DRAINAGE AREA, PLUS 2 FEET FOR EACH ADDITIONAL ACRE, UP TO 2 ACRES OF PAVED SURFACE. OTHER CONDITIONS THAT WOULD REQUIRE INCREASE CHAMBER DEPTHS ARE PROPERTY USAGE, MAINTENANCE SCHEDULING, AND SEVERE OR UNUSUAL CONDITIONS. CONNECTING PIPE DEPTH MAY DICTATE DEEPER CHAMBERS SO AS TO MAINTAIN THE EFFECTIVENESS OF THE SETTLING PROCESS. MAXIMUM CHAMBER DEPTH IS 25 FEET.

ESTIMATED TOTAL DEPTH

THE ESTIMATED TOTAL DEPTH IS THE APPROXIMATE TOTAL SYSTEM DEPTH REQUIRED TO ACHIEVE 10 CONTINUOUS FEET OF PENETRATION INTO PERMEABLE SOILS, BASED UPON KNOWN SOILS INFORMATION.

SETTLING CHAMBER DEPTH

SYSTEMS OVER 30 FEET OVERALL DEPTH AND UP TO 0.25 CFS DESIGN RATE, THE STANDARD SETTLING CHAMBER DEPTH IS 18 FEET. MAXIMUM CHAMBER DEPTH IS 25 FEET.

OVERFLOW HEIGHT / SECONDARY SETTLING CHAMBER

THE OVERFLOW HEIGHT AND SECONDARY SETTLING CHAMBER DEPTH DETERMINE THE EFFECTIVENESS OF THE SETTLING PROCESS. THE HIGHER THE OVERFLOW PIPE, THE DEEPER THE CHAMBER, THE GREATER THE SETTLING CAPACITY. AN OVERFLOW HEIGHT OF 13 FEET IS USED WITH THE STANDARD SETTLING CHAMBER DEPTH OF 18 FEET.

DRAINAGE PIPE


THIS DIMENSION ALSO APPLIES TO THE DEBRIS SHIELDS, THE DRAINAGE SCREEN, AND FITTINGS. THE SIZE IS BASED UPON SYSTEM DESIGN RATES, MULTIPLE PRIMARY SETTLING CHAMBERS, SOIL CONDITIONS, AND NEED FOR ADEQUATE VENTING. CHOICES ARE 8" (MIN.) OR 12" DIAMETER.

INLET PIPE INVERT

PIPES UP TO 12" IN DIAMTER FROM CATCH BASINS, UNDERGROUND STORAGE, ETC. MAY BE CONNECTED INTO THE PRIMARY SETTLING CHAMBER. LARGER PIPE DIAMETERS DICTATE THE USE OF MANHOLE MATERIAL FOR THE PRIMARY SETTLING CHAMBER WITH 48" GRATES ON THE CONE. INVERTS DEEPER THAN 5 FEET WILL REQUIRE ADDITIONAL DEPTH IN BOTH SYSTEM SETTLING CHAMBERS TO MAINTAIN RESPECTIVE EFFECTIVE SETTLING CAPACITIES.

INTAKE INLET HEIGHT

THE INTAKE INLET HEIGHT DETERMINES THE EFFECTIVENESS OF THE SETTLING PROCESS IN THE PRIMARY SETTLING CHAMBER. A MINIMUM INLET HEIGHT OF 11 FEET IS USED WITH THE STANDARD PRIMARY SETTLING CHAMBER DEPTH OF 15 FEET. GREATER INLET HEIGHTS WOULD REQUIRED WITH INCREASED SYSTEM DEMANDS AS NOTED IN PRIMARY SETTLING CHAMBER DEPTH. FREEBOARD DEPTH VARIES WITH INLET PIPE ELEVATION. INCREASE PRIMARY/ SECONDARY SETTLING CHAMBER DEPTHS AS NEEDED TO MAINTAIN ALL INLET PIPE ELEVATIONS ABOVE CONNECTOR PIPE OVERFLOW.

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