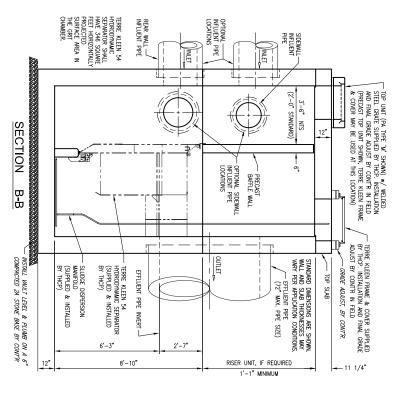


TOP SLAB LAYOUT OPTIONS



NEI N

TERRE KLEEN FRAME & COVER SUPPLIED BY THEP. INSTALLATION AND FINAL GRADE ADJUST BY CONT'R.

ORADE ADJUST, BY CONT'R.

NE

- OPTIONAL INFLUENT PIPE LOCATIONS

SIDEWALL PIPE

- TERRE KLEEN 54
HYDRODYNAMIC
SEPARATOR
(SUPPLIED &
INSTALLED BY THCP)

SECTION

A-A

TERRE KLEEN - GENERAL NOTES:

THE TERRE KLEEN W (US PATENT 6,676,832 B2) HYDRODYNAMIC SEPARATOR AS DESIGNED, MANUFACTURED AND INSTALLED BY TERRE HILL SURRAMATER SYSTEMS.

CONTACT: TERRE HILL STORMAKTER SYSTEMS of P.O. BOX 10, 485 WEAVERLAND VALLEY ROAD,

TERRE HILL, PA 17281 (PHONE 1–800–242–1509) OR WWW.TERRESTORM.COM CONCRETE: f'c=5,000 PSI @ 28 DAYS, WITH ASTM C-33 NO. 57 OR NO. 67 COARSE AGGREGATE.

DEFORMED STEEL CONFORMS TO ASTM A615 GRADE 60. WELDED WIRE FABRIC CONFORMS TO ASTM A185. DEFORMED WILDED WIRE, FABRIC OF EQUAL SIZE WAY BE SUBSTITUTED FOR SMOOTH WELDED WIRE FABRIC AND SHALL CONFORM TO ASTM AND SI

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9 Design1	INSTI	MANH	TYPIC UNIT	DROF	Ě	GROU	WITH	
2	RUCTIONS	IST BY O	AL FOR	NA NI	PIPES TI	JIAR SP. JT OR C	MEN CON ORMS T	
Design ¹	AND M	AMES AN	UNI LIFT ANCHORS MAN TYPICAL FOR HANDLING	CHORS 1	O BE CL	ACE BET	NSEAL CO	
2	UNTENAN	ID COVE	IANUFACT	н 38 о	JT FLUSH	ANNULAR SPACE BETWEEN PIPE AND GROUT OR CONCRETE AS SPECIFIED.	S-102B VAL SPEC JANTS, IT	
Design ¹	INSTALLATION AND MAINTEMANCE MUST BE IN ACCORDANCE WITH THE MANUFACTURERS WRITTEN INSTRUCTIONS AND COMPLY WITH LOCAL ORDINANCES AND NPDES PHASE II REGULATIONS.	MANHOLE FRAMES AND COVERS SUPPLIED BY TERRE HILL STORMWATER SYSTEMS. INSTALLATION AND ADJUST BY OTHERS. COVERS TO BE MARKED WITH "TERRE KLEEN STORMWATER TREATMENT SYSTEM"	URED BY	LTI 316	ALL PIPES TO BE CUT FLUSH WITH INSIDE WALL, AFTER GROUT HAS DRIED.	PE AND ECIFIED.	BITUMEN CONSEAL CS-102B JOINT MATERIAL MANU! CONFORMS TO FEDERAL SPECIFICATION SS-S-210A WITH CONCRETE SEALANTS, INC. RECOMMENDATIONS.	
	AL ORDII	LED BY MARKED	UNIVER	STAINLES	√SIDE ₩	HOLE 10	ATERIAL A SS-S- MMENDA	
Design ¹	ACCORD/ VANCES	TERRE I	SAL FOR	S STEEL	II, AFTE	- BE -FI	MANUFAC 210A. J TIONS.	
7	AND NPI	RRE KLE	M CLAMF	. KWIK E	R GROU	ED, BY	TURED E	
	H THE N	RMWATER EN STOF	COMPA	30LT A	T HAS D	OTHERS,	TANT MI	
_	ANUFACT	SYSTEM	NY, OR	S MANUE	RIED.	WITH A	RETE SE JST BE I	
3	SULAT FINANCE	IS. N	EQUA	-ACTU		APF	NSTAL	
5	IONS.	STALLATI	I. UNI I	RED BY		ROVED	S, INC.	
Minimum St	Ë	SYSTEM"	UNI LIFT ANCHORS MANUFACTURED BY UNIVERSAL FORM CLAMP COMPANY, OR EQUAL. UNI LIFT ANCHORS TYPICAL FOR HANDLING.	DROP-IN ANCHORS TO BE HILTI 316 STANLESS STEEL KWIK BOLT II AS MANUFACTURED BY HILTI CORP.		ANNULAR SPACE BETWEEN PIPE AND HOLE TO BE FILLED, BY OTHERS, WITH AN APPROVED NON-SHRINK GROUT OR CONCRETE AS SPECIFIED.	BITUMEN CONSEAL CS-102B JOINT MATERIAL MANUFACTURED BY CONCRETE SEALANTS, INC. AND CONFORMS TO FEDERAL SPECIFICATION SS-S-210A. JOINT SEALANT MUST BE INSTALLED IN ACCORDANCE WITH CONCRETE SEALANTS, INC. RECOMMENDATIONS.	
Minimum		GRADE LOGO.	ORS	. R		Ķ	NCE	
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Terre Kleen TK54 Performance, Design and Installation Specifications

Terre Kleen is a HYDRODYNAMIC SEPARATOR consisting of preinstalled, stacked inclined plates housed inside a precast structure, Terre Kleen removes pollutants by separating sediment and floatables such as also, grease, trash and debris from stormwater. Terre Kleen features are as follows:

1. capture & permanently retain 100 percent of floatable trash & debris at all flows 2. capture & permanently retain > 90 percent of floatable free oil, grease and fold Petroleum Hydrocatons (FPH) at all flows; unit shall be capable of receiving oil sorbents to permanently remove captured oil, grease and FPH
3. capable of removing all and cloy size particles
4. All storm water flows shall enter the farer Kleen and, flows in excess of design flows, shall pass through the internal flow through duct to the effluent pipe without the use of an setural bypass.
5. stacked inclined plates in the grit chamber are self cleaning setting surfaces
5. HSS traffic and earth loadings formal bypass. stocked inclined plates in the grit chamber are self cleaning settling surfaces tusy 25 traffic and earth loadings busyarsy presention. Certified sediment, organic solids and other settled material in the primary and certified sediment, organic solids and other settled material in the primary and

8. Certified softment, organic solids and other settled material in the primary and grit chambers are stored in a sump area containing not less than (29.0) Cuft; entire sump area is below the settling surfoces and the treatment flow point, preventing re-suspension of captured poliutants.

9. Minimum volume of captured gross pollutant sump area is 29.0 Cuft.

10. Minimum organs oil storage volume is 45.2 galions.

11. 30 inch manhole access for maintenance from grade by vacuum truck; with not less than 18 inch continuous access opening to bottom of sump area.

12. Air and water pressurface sludge dispersion manifold below stacked inclined plate sediment sump area, causing pollutants to drain to vacuum truck suction hose.

13. Manufacture pressurface shop draining sond such other information requested by Engineer to verify Performance and Design Specifications.

14. Warranty: Labor and material for 4 years from date of installation in the event that the product supplied is not free from defects that materially detect its performance; terre Kleen shall be installed and used only in the particular application for which it was specifically designed, engineered and manufactured (see written Terre Kleen warranty for entire warranty)

 project- specific sizing calculations, with 3rd party performance verification, clearly interioring that the unit meets or exceeds the Performance and Design Specifications of the erre Kleen. project—specific hydraulic calculations, with 3rd party performance verification, showing the hydraulic Grade Line (HGL) plotted through the structure for the design flow . No stormwater treatment BMP shall be approved as an equivalent substitution unless the ragineer shall receive and approve drawings and specifications stamped and sealed by a rolessional engineer registered in the state wherein the project is located showing the

Molinarina Procedures

1. Quarterly inspection is recommended to record sediment, oil, and trash accumulation.

2. Clearing is recommended when the sediment reaches 16 inches in depth in one or both sediment sump once.

3. No conflined space entry required: Terre (Mean design allews access from grade, to both tombers by vocum hose for removal of 100% of locaptured politics).

As conditionally according to the process of the contract of the co Terre Kleen Installation Specifications

1. Terre Kleen inclined plate assembly shall arrive at the job site fully assembled inside precost concrete structure. Precost structure may arrive in sections due to weight and transportation issues. Each precost structure shall contain lifting path on the infinity and interest structure shall provide lifting experit the universal points with Universal structure shall provide interest shall provide shall be considered as the terrest provided by Engineer and OSHA regulations.

2. Contractor shall be accounted develor and shore in accordance with project specifications, as provided by Engineer and OSHA regulations.

3. Sub-grade shall be established as shown on the Drawings. Underlying soil and sub-grade material shall have design loading of not less than 2000 pounds per square foot (psr). Precost components shall be placed on the compacted base (95% Prector bensity), elevation confirmed, level and dispert to ensure that the entire unit will be properly positioned when fully installed.

fully installed.

4. Contractor shall place "CONSEAL" or equivalent water light mastic material between each preast component.

5. Preasat standure condaining the Terre Kleen component shall be dispred horizontally and vertically plumb. Contractor must confirm that the entire Terre Kleen shall be level during and other completion of bookfall of the structure.

6. Manhole frame/cover and inlets frame/grate, if required shall be installed as shown on the drawings and grade algorithm of bookfall of the structure.

7. Connect and seal starm drawin mixet and outlet pipes to the rare Kleen until using non-shrink groul-fill material in accordance with project specifications.

8. BACKFILL SPECIPLIANUS: It is recommended that the store sub-base be extended a minimum of one foot (1 ft) beyond the exterior face of the precast and compacted to 95% Proctor Density to sub-grade Upon completion of the precast installation the backfill material shall be placed and compacted achieving a minimum compaction of 90% Proctor Density, or as secified by the Engineer, when tested by KSM A1557. Backfill material may be a SM Fractor besity by a SMM A1557, if approved by the Engineer is not ensure of 2000 pounds per square foot (pst) and compacts to 95% Proctor Density (SMM A1557). If approved by the Engineer, in the reast of well-cular use, the upper two feet (2 ft) of backfill shall be aggregate base, compacted to 95% Proctor Density (SMM A1557). If approved by the Engineer is not ensure of some construction materials and debris from the inlet pipe, outlet pipe and Terre Kleen upon completion of installation.

1. Design 2. Peak h 3. Add 9* 4. Excess	TK54	TK45	TK36	TK27	TK18	TK09	TK05	TK02	TK01	Terre Kleen Model
Design flow rates based on Weighted Removal according to NUDEP bit prot. Peak headbass is defined by the standard insert clearance and defines per Add 9 for grobe adjust and forme and cover, otherwise cast into the lid. Eccess design overflow through a screen is possible above insert. Special designs are anotable to increase these values.	346 SqFt 4.7 cfs	288 SqFt	230 SqFt	172 SqFt 2.3 cfs	115 SqFt	57 SqFt	32 SqFt	13 SqFt 0.2 cfs	8 SqFt	Settling area in sedimen- tation chamber
based on the fined by befined by befined by adjust and flow through available to the flow through the flow t	4.7 cfs	3.9 cfs	3.1 cfs	2.3 cfs	1.5 cfs	0.8 cfs	0.4 cfs		0.1 cfs	Design ¹ Capacity d _{tg} =50 Micron
Veighted Re the standa frame and ph a scree to increase	0.16 ln.	0.13 In.	0.13 ln.	0.11 h.	0.10 In.	0.09 In.	< 0.50 ln.	< 0.50 ln. 0.8 cfs	< 0.50 n	Design flow head loss
moval accord insert of cover, other is possible these value.	22.5 cfs	18.7 cfs	15.0 cfs	11.2 cfs	7.5 cfs	3.7 cfs	2.1 cfs		0.5 cfs	Design ¹ Capacity d ₅₀ =110 Micron
ording to N learance or herwise cos le above in ues.	3.58 ln.	3.08 In	2.94 In.	11.2 ds 2.71 ln. 20.8 ds	2.44 n.	1.93 ln.	< 0.50 ln.	< 0.50 ln.	< 0.50 n.	Design Capacity flow head d _{to} =110 loss
JDEP lab p id defines t into the sert.	41.9 cfs	34.9 cfs	27.8 cfs	20.8 cfs	13.9 cfs	6.9 cfs	3.9 cfs	1.6 cfs	1.0 cfs	Design ¹ Capacity d _{of} =150 Micron
protocol an peak flow. lid.	22.5 cfs 3.58 ln. 41.9 cfs 12.41 ln. 74.5 cfs	10.71 ln.	10.11 ln.	9.36 ln.	8.37 In.	6.70 In.	< 0.50 ln.	< 0.50 ln.	< 0.50 n	Design flow head loss
d adjusted Higher f	74.5 cfs	62.0 cfs	49.5 cfs	37.0 cfs	24.7 cfs	12.3 cfs	6.9 cfs	2.8 cfs	1.7 cfs	Design ¹ Capacity d ₅₀ =200 Micron
ons at rec	39.25 ln. 77.0 cfs 43.00 ln. 72 ln.	33.81 In.	32.06 In.	37.0 cfs 29.62 ln. 42.0 cfs 39.00 ln.	26.44 In.	21.30 ln. 15.0 cfs 33.00 ln	< 0.50 ln.	< 0.50 ln. 4.0 cfs 0.21 ln.	< 0.50 ln.	Design flow head loss
ticle dens suced trec	77.0 cfs	70.0 cfs 44.00 in	56.0 cfs 42.00 ln	42.0 cfs	28.0 cfs 35.00 In	15.0 cfs	10.0 cfs 0.56 ln	4.0 cfs	2.5 cfs	Peak flow
ity 140lbs Itment rate	43.00 ln.	44.00 In.	42.00 In.		35.00 In.	33.00 In.	0.56 In.	0.21 ln.	0.08 In	Peak ^{2,4} head loss
cft and	72 ln.	60 In.	52 In.	42 ln.	36 In.	24 In.	18 ln.	18 In.	18 In.	max pipe Diam.
60 degree tional and	299 CF	257 CF	216 CF	151 CF	116 CF	80 CF	132 CF	66 CF	66 CF	Standard ⁵ Sediment Storage
Design flow mates based on Weighted Removal occording to NDEP lab protocol and adjusted for a particle density 1401ts/41 and 60 degree Fahrenhald water temperature. Proof headous is defined by the standard insert clearance and defines post flow. Higher flows at reduced treatment rates are optional and avoid external by 545 of for grope objects of orizone of cover, pharmies cost in the fat. Success design eventual through a screen is possible above insert.	452 Gallon	389 Gallon	327 Gallon	265 Gallon	203 Gallon	140 Gallon	236 Gallon	123 Gallon	192 Gallon	Standard ⁵ Standard ⁵ Sediment Trash and Storage Oi volume
vater tempo al by	3.27 Ft	3.27 Ft	3.27 Ft	3.27 Ft	3.27 Ft	3.27 Ft	3.27 Ft	3.27 Ft	2.52 Ft	Minimum grade to pipe invert ³
erature.	6.25 Ft	6.25 Ft	6.25 Ft	6.25 Ft	6.25 Ft	6.25 Ft	6.25 Ft	6.25 Ft	6.25 Ft	Standard plpe Invert to device bottom

Initial Release 11-12-08

BY: ENG'R: CONT'R:

DATE:

SHT.1 OF 1

FILE NO.

REVISIONS

PRECAST WATER QUALITY CHAMBER

JOB:

TERRE HIL

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