

CURVE	LENGTH	RADIUS	DELTA	TANGENT	CHORD	CHORD BEARING
C1	120.02'	1118.00'	67°09'03"	60.07'	119.96'	N24°04'09\"E
C2	236.13'	995.00'	13°35'51"	118.62'	235.58'	S19°46'02\"E

MAP SYMBOL	SOIL NAME	SOIL GROUP	NATURAL SOIL GROUP	HYDROLOGIC SOIL GROUP	DWELLINGS TWO STYS OR LESS	STREETS AND PARKING LOTS	SWELL POTENTIAL	FACTOR
AV	AURA & CROOM GRAVELLY LOAMS	20-50%	B2c	B	MOD. TO SEVERE	SEVERE	LOW	0.43
SHB2	SASSAFRAS SANDY LOAM	2-5%	B1a	D	SLIGHT	SLIGHT	LOW	0.32
BB2	BELTSVILLE SILT LOAM	2-5%	E2a	C	MODERATE	MODERATE	LOW	0.43

**NOTES:**

- A HYDRANT WILL BE USED FOR WASH WATER.
- SEE EROSION AND SEDIMENT CONTROL NOTES SHEETS FOR EROSION AND SEDIMENT CONTROL DETAILS AND NOTES.

**Figure 2 Temporary Sediment Basin Design Data Sheet**

Computed by: RW Date: 4/06/07 Checked by: RW Date: 4/06/07

Project name: BETH SHALOM AME ZION CHURCH Basin #1

Location: RITCHIE ROAD, SOUTH OF D'ARCY ROAD, DISTRICT HEIGHTS, MD.

Total area draining to basin: 1.32 acres (ac)

**Basin Volume Design**

Note: 1. Also see Surface Area Design #30, this form.  
2. To convert ft<sup>3</sup> to yd<sup>3</sup>, divide ft<sup>3</sup> by 27. To convert ft<sup>2</sup> to yd<sup>2</sup>, divide ft<sup>2</sup> by 9.

- Min. required vol. = 3600 ft<sup>3</sup>/ac x 1.32 ac. drainage = 4,752 ft<sup>3</sup>
- Actual Volume of basin = 13,308 ft<sup>3</sup>
- Excavate 13,308 ft<sup>3</sup> (493 yd<sup>3</sup>) to obtain required capacity.
- Vol. at dewatering elev. = 1800 ft<sup>3</sup>/ac x 1.32 ac. = 2,376 ft<sup>3</sup>
- Vol. of basin at cleanout = 900 ft<sup>3</sup>/ac x 1.32 ac. = 1,188 ft<sup>3</sup>
- Elevation corresponding to min. required volume of basin (riser crest elevation) = 251.75 ft.
- Permanent pool elevation = 250.88 ft.
- Distance from riser crest elevation to permanent pool elevation = 0.87 ft.
- Basin cleanout elevation = 250.44 ft.
- Distance from riser crest elevation to cleanout elevation = 1.31 ft.

**Spillway Design**

- Q<sub>10</sub> = 11 cfs (peak discharge from 10-yr, 24-hr storm event, attach computations) SEE COMPUTATION SHEETS ACCOMPANYING PLANS
- Design Principal Spillway (Barrel) discharge, Design Q<sub>10</sub> = 11 cfs (min. 10% of 10 year peak or 8" Diameter Pipe)
- H = 3.0 ft.; Barrel length = 42 ft.
- Barrel Diam. 18 in. Note: Q<sub>10</sub> must equal or exceed Design Q<sub>10</sub>. Q<sub>10</sub> = Q (from Table 13 or 14) 13.6 x (length correction factor) 1.10 = 15.0 cfs.
- Riser Diameter 48 in.; Riser Height 3 ft.; Riser Head (h) = 0.54 ft.
- Trash Rack Diam. 72 in.; Trash Rack Height = 21 in.

**Principal Spillway (Cont.) (See Detail 11)**

- Design Principal Spillway (Barrel) discharge, Design Q<sub>10</sub> = 11 cfs (min. 10% of 10 year peak or 8" Diameter Pipe)
- H = 3.0 ft.; Barrel length = 42 ft.
- Barrel Diam. 18 in. Note: Q<sub>10</sub> must equal or exceed Design Q<sub>10</sub>. Q<sub>10</sub> = Q (from Table 13 or 14) 13.6 x (length correction factor) 1.10 = 15.0 cfs.
- Riser Diameter 48 in.; Riser Height 3 ft.; Riser Head (h) = 0.54 ft.
- Trash Rack Diam. 72 in.; Trash Rack Height = 21 in.

**NOTE:** A table showing design data shall be included on the plan for each basin.

**Emergency Spillway (Cont.)**

THE PRINCIPAL SPILLWAY WILL BE USED AS THE EMERGENCY SPILLWAY

- Emergency spillway cap., Q<sub>10</sub> = Q<sub>10</sub> - Q<sub>1</sub> = \_\_\_\_\_ cfs
- Width \_\_\_\_\_ ft.; Hp \_\_\_\_\_ ft
- Entrance channel slope \_\_\_\_\_ %.
- Exit channel slope \_\_\_\_\_ %.

**Anti-Seep Collar Design (If Required)**

- y = 3 ft.; z = 2 ft.; pipe slope = 1.83 %; L<sub>s</sub> = 20 ft
- Use 1 collars, 5 ft. - 6 in. square; projection = 2 ft.

**Design Elevations**

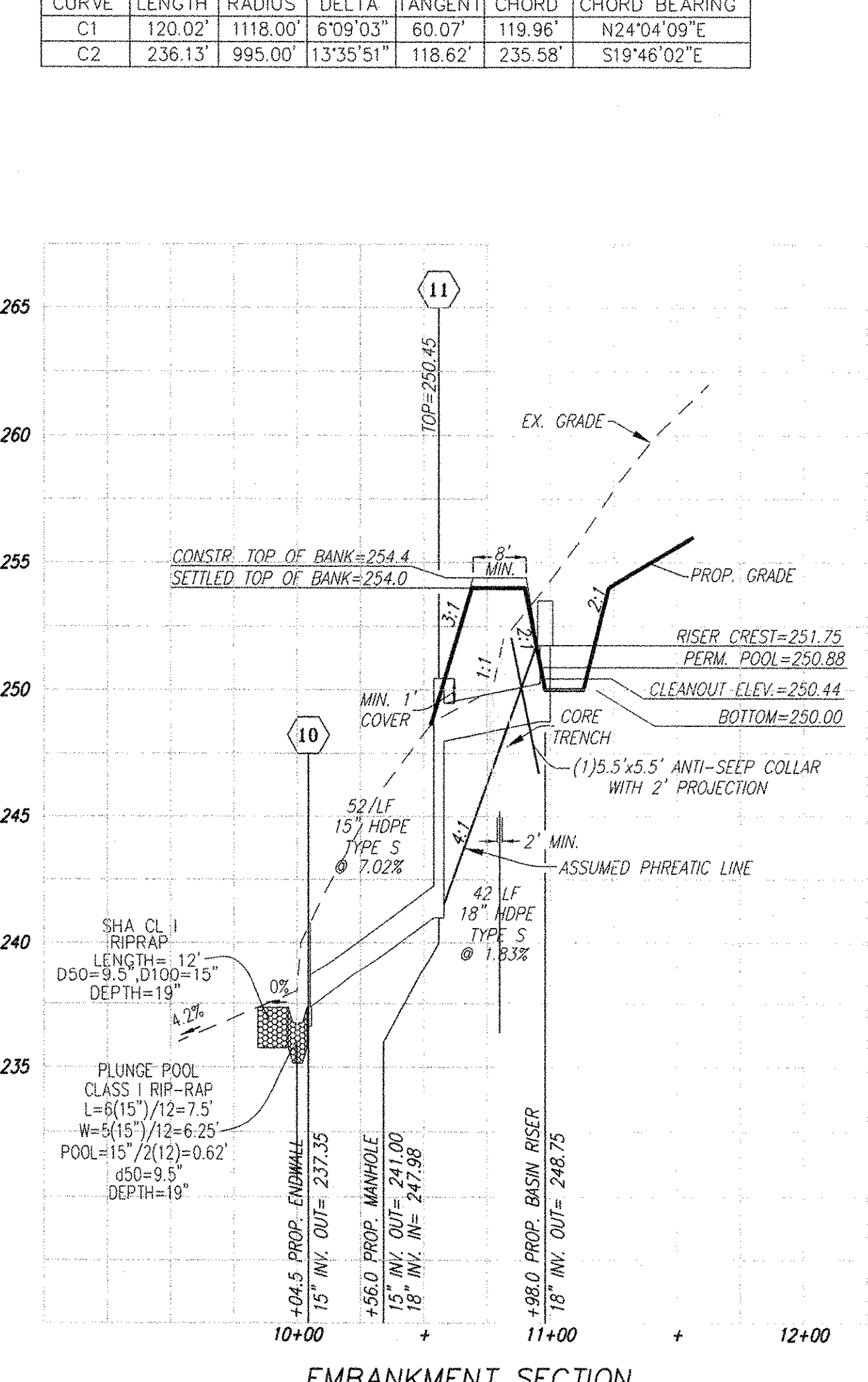
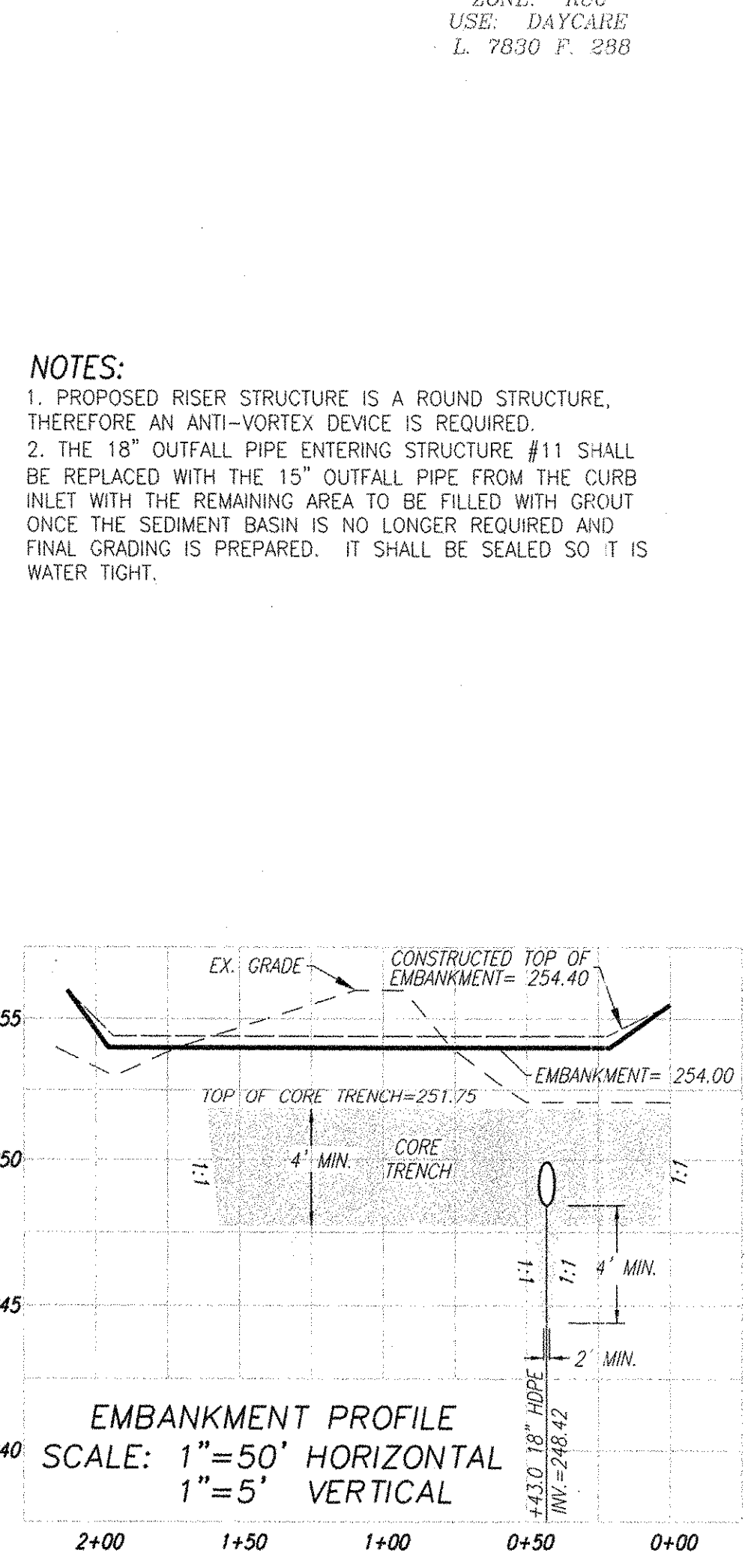
- Riser Crest = 251.75 ft.
- Design High Water = 252.29 ft.
- Emergency Spillway Crest = 251.75 ft.
- Min. settled top of dam = 254.00 ft.
- Permanent pool = 250.88 ft.
- Bottom of Basin = 250.00 ft.
- Draw-down orifice invert = 250.88 ft.

**Surface Area Design**

- Min. basin surface area; SA ≥ 0.0035 x Q<sub>10</sub> = 0.0035 x 11 cfs = 0.0385 ac. (BASIN AREA AT 254 CONTOUR = 4,619 S.F. OR 0.106 AC.)

**Draw-down Device**

- Draw-down device orifice diameter = 4 in. (From Table 11)
- A<sub>1</sub> = Total area of perforations ≥ 4A<sub>2</sub>  
A<sub>1</sub> = (# of perforation/foot)(perforation area ft<sup>2</sup>)(perforated section length ft.)  
A<sub>1</sub> = 0.348 ft<sup>2</sup> 4(0.087) = 0.348  
A<sub>2</sub> = Internal orifice area (from Table 11 or computed) 0.087 SF MAX. PER TABLE 11



**EROSION AND SEDIMENT CONTROL LEGEND**

KEY	SYMBOL	DESCRIPTION
CE	[Symbol]	CONSTRUCTION ENTRANCE
SSF	[Symbol]	SUPER SILT FENCE
OP	[Symbol]	ROCK OUTLET PROTECTION
SIP	[Symbol]	STORM DRAIN INLET PROTECTION
TP	[Symbol]	TREE PROTECTION
SP	[Symbol]	SUMP PIT
[Symbol]	[Symbol]	DIVERSION DIKE
[Symbol]	[Symbol]	DRAINAGE DIVIDES
[Symbol]	[Symbol]	LIMITS OF CLEARING & GRADING
[Symbol]	[Symbol]	CRITICAL SLOPE AREA (15% - 33%)

CRITICAL SLOPES SHALL BE SEED, MULCHED AND TACKED WITHIN 14 DAYS AFTER START OF GRADING, OR SODED AND PEGGED WITHIN 14 DAYS AFTER START OF GRADING.

**CAUTION - NOTICE TO CONTRACTOR**

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AT LEAST 48 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS AND TO VERIFY THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES.

REVISIONS:

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**PROFESSIONAL ENGINEER**  
5/26/07

DATE: APRIL 2007  
SCALE: 1"=30'  
DRAWING NAME: 19D09-ES

**GRADING & EROSION & SEDIMENT CONTROL PHASE I**

PROJECT: **BETH SHALOM AME ZION CHURCH**  
6TH ELECTION DISTRICT  
PRINCE GEORGE'S COUNTY, MARYLAND

SHEET SC 2 OF 7  
FILE No. MDPG-19D09-01