

\* PIPE LENGTHS NOT IN ( ) ARE MEASURED CL TO CL OF STRUCTURES. THE PIPE SLOPE IS MEASURED USING THE PIPE LENGTH IN ( ).

NOTE: CONCRETE PIPE JOINTS SHALL BE MSD TYPE "A" APPROVED COMPRESSION-TYPE JOINTS AND SHALL CONFORM TO THE REQUIREMENTS OF THE SPECIFICATIONS FOR JOINTS FOR CIRCULAR CONCRETE SEWER AND CULVERT PIPE, USING FLEXIBLE, WATERTIGHT, RUBBER-TYPE GASKETS ASTM C443. BAND-TYPE GASKETS DEPENDING ENTIRELY ON CEMENT FOR ADHESION AND RESISTANCE TO DISPLACEMENT DURING JOINTING SHALL NOT BE USED.

ALL STORM SEWER PIPES SHALL BE REINFORCED CONCRETE PIPE, CLASS II MINIMUM. ANY CONCRETE PIPE, CONDUIT, OR CULVERT BENEATH A STREET RIGHT-OF-WAY OR WITH REASONABLE PROBABILITY OF BEING SO LOCATED SHALL BE A MINIMUM OF CLASS III, BUT ALSO SHALL ACCOUNT FOR ALL VERTICAL LOADS. IN NO CASE SHALL THE DESIGN PROVIDE FOR LESS THAN HS-20 LOADING PER AASHTO. FOR OTHER LOCATIONS, THE MINIMUM DESIGN LIVE LOAD SHALL BE THE HS-10 LOADING.

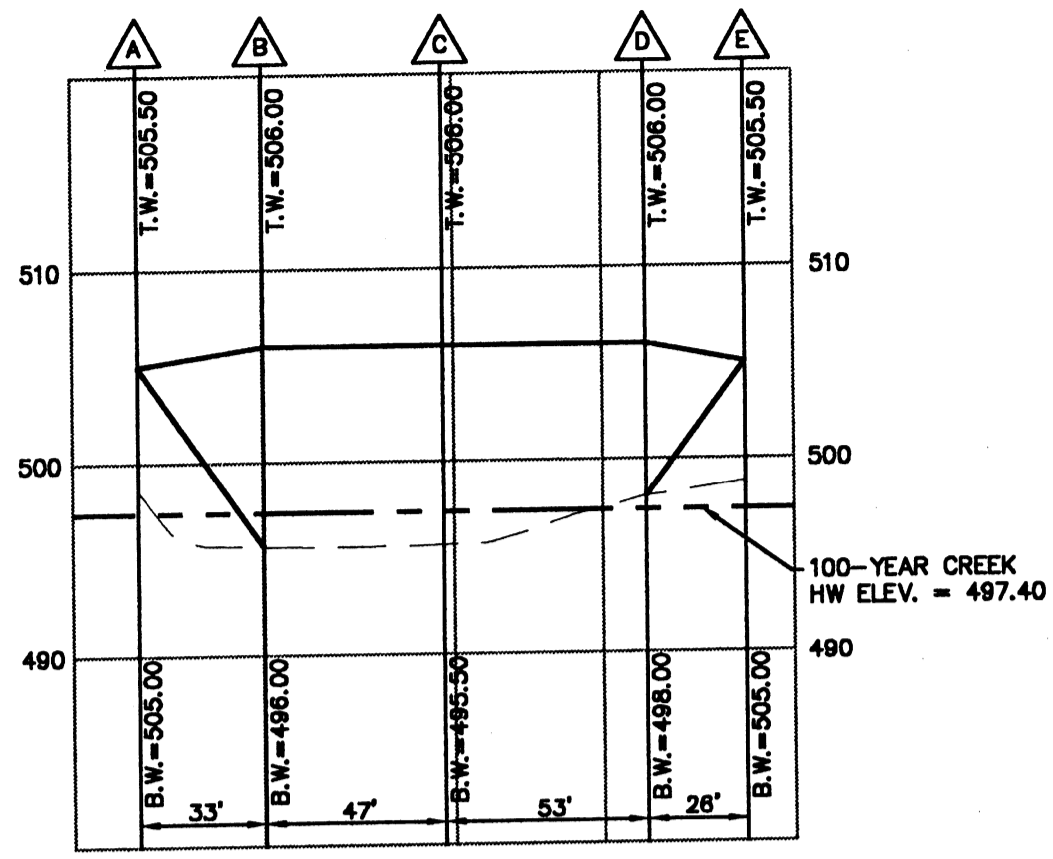
STORM SEWER PIPES WHICH CROSS OVER EXISTING OR PROPOSED SANITARY SEWER TRENCHES SHALL BE CRADLED IN CONCRETE THROUGH THE FULL WIDTH OF THE SANITARY SEWER TRENCH. THE TRENCH SHALL BE BACKFILLED AND COMPACTED WITH GRANULAR FILL TO THE BOTTOM OF THE CONCRETE CRADLE.

IF THE STORM AND SANITARY SEWERS ARE PARALLEL AND IN THE SAME TRENCH OR OVER-DIG, THE UPPER PIPE SHALL BE PLACED ON A SHELF AND THE LOWER PIPE SHALL BE BEDDED IN COMPACTED GRANULAR FILL TO THE FLOWLINE OF THE UPPER PIPE.

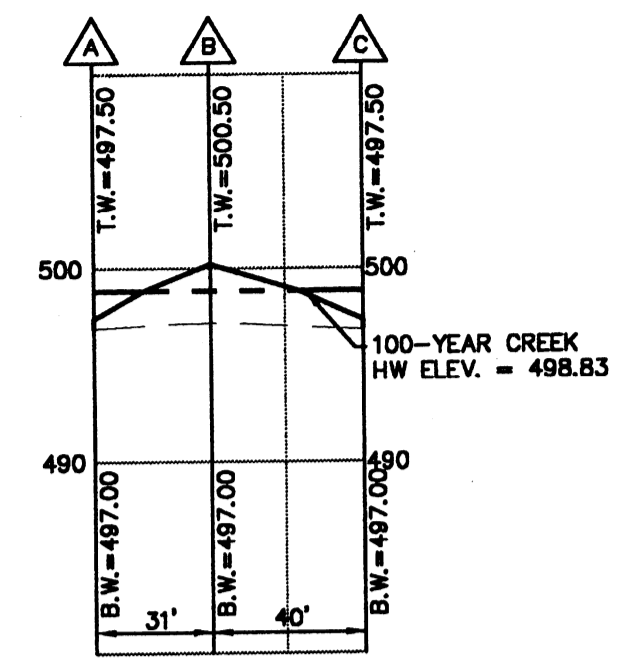
BRICK SHALL NOT BE USED IN THE CONSTRUCTION OF STORM SEWER STRUCTURES

ALL CONCRETE PIPES WILL BE INSTALLED WITH O-RING RUBBER TYPE GASKETS

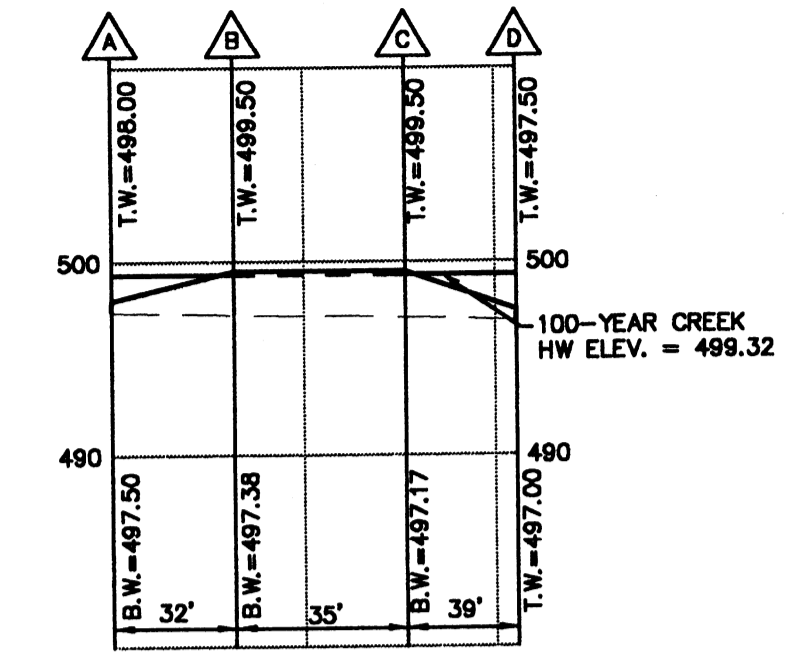
CONNECTIONS AT ALL STORM SEWER STRUCTURES TO BE MADE WITH A-LOK JOINT OR EQUAL.



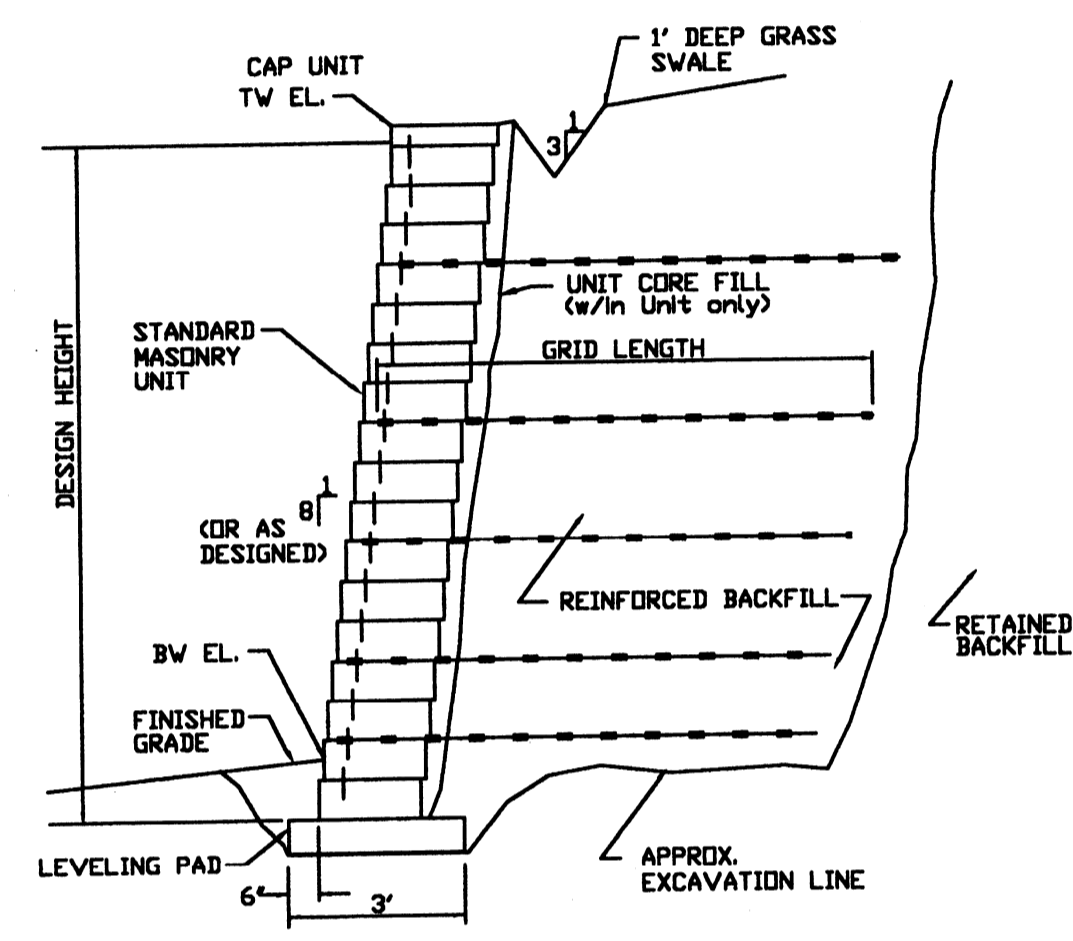
WALL "A"



WALL "B"



WALL "C"



- RETAINING WALL, TIE BACK, AND DRAINAGE BEHIND WALL SHALL BE DESIGNED BY THE MASONRY BLOCK SUPPLIER OR INSTALLER, THIS DESIGN MUST BE SIGNED AND SEALED BY A MISSOURI REGISTERED PROFESSIONAL ENGINEER AND SUBMITTED TO THE GENERAL CONTRACTOR AS PART OF THE WALL PERMIT PACKAGE, CIVIL ENGINEER IS NOT RESPONSIBLE FOR WALL DESIGN.
- TW = ELEVATION AT TOP OF WALL ARE REQUIRED TO CATCH BACKFILL SLOPES.
- BW = ELEVATION OF FINISHED GRADE OR PAVEMENT AT THE FRONT SIDE OF WALL. THE DEPTH OF FOOTING SHALL BE DETERMINED BY THE RETAINING WALL DESIGN ENGINEER.
- KEYSTONE SYSTEMS ARE AN ACCEPTABLE ALTERNATIVE TO THE VERSA-LOK SYSTEM
- SHOP DRAWINGS WILL BE REQUIRED TO BE SUBMITTED TO THE CONSTRUCTION INSPECTION DEPARTMENT FOR REVIEW AND APPROVAL PRIOR TO THE CONSTRUCTION OF RETAINING WALLS.
- MATERIALS USED FOR CONSTRUCTION OF RETAINING WALLS SHOULD TAKE INTO ACCOUNT FLOW OF TRIBUTARY NO. 15 OVER SURFACE OF RETAINING WALL AS PORTIONS OF THE RETAINING WALL ARE WITHIN THE 10-YEAR FLOODPLAIN.

1 RETAINING WALL DETAIL  
SCALE: N.T.S. REF. DWG.

Title: Conduit FlexTable: Hydraulic Calculations (stormcad MASS GRADING.stc)

Current Time: 0.000 min

Reach	Station	Ground Elevation (Upstream) (ft)	Hydraulic Grade Line (ft)	Invert (Downstream) (ft)	Upstream Structure	Hydraulic Grade Line (In) (ft)	Ground Elevation (Elevation) (ft)	Invert (Upstream) (ft)	Downstream Freeboard (ft)								
1-2	24	62	0.013	0	0.01	13.44	9.18	22.62	4.28	4.28	494	497.1	491.92	497.32	503.3	492.52	5.98
2-3	24	148	0.013	37.13	0.01	13.44	9.18	22.62	4.28	4.28	503.3	497.32	492.68	497.84	502.46	494.16	4.62
3-4	18	150	0.013	0	0.01	9.36	1.14	10.5	5.3	5.3	502.46	497.84	494.32	499.03	505.95	495.82	6.92
4-5	15	35	0.013	0	0.01	5.2	1.26	6.46	4.24	4.24	505.95	499.03	495.98	499.26	505.95	496.33	6.69
5-6	15	59	0.013	48.58	0.01	3.63	2.83	6.46	2.96	2.96	505.95	499.26	496.49	499.42	505.5	496.99	6.08
6-7	15	71	0.013	49.29	0.01	3.63	2.83	6.46	2.96	2.96	505.5	499.42	497.15	499.64	506.2	497.86	6.56
7-8	15	74	0.013	81.35	0.01	2.01	4.45	6.46	1.78	1.64	506.2	499.78	498.02	499.84	503	498.76	3.16

REVISIONS

DATE	BY	DESCRIPTION
11/14/2007	A	ISSUE FOR PERMIT
12/12/2007	A	CITY OF OFALLON COMMENTS
02/20/2008	A	CITY OF OFALLON COMMENTS
02/25/2008	A	CITY OF OFALLON COMMENTS
03/07/2008	A	CITY OF OFALLON COMMENTS

DEVELOPER/OWNER: MCEAGLE DEVELOPMENT  
1001 BOARDWALK SPRINGS PL  
OFALLON, MO 63366  
PHONE: (636) 561-9323

THE PROFESSIONAL ENGINEER'S SEAL AND SIGNATURE ARE REQUIRED ON ALL PLANS AND PERMITS. THE PROFESSIONAL ENGINEER IS NOT RESPONSIBLE FOR ANY OTHER PLANS OR SPECIFICATIONS ESTIMATES, CONTRACTS, OR PERMITS. THE PROFESSIONAL ENGINEER'S SEAL AND SIGNATURE ARE REQUIRED ON ALL PLANS AND PERMITS. THE PROFESSIONAL ENGINEER IS NOT RESPONSIBLE FOR ANY OTHER PLANS OR SPECIFICATIONS ESTIMATES, CONTRACTS, OR PERMITS.

SEAL: [Professional Engineer Seal]

PLANNING AND DEVELOPMENT DEPARTMENT FILE #0831.57 (AREA PLAN-APPROVED MAY 24TH, ORDINANCE #5178) - 9831.57.01 (FINAL PLAN)

PARK AVENUE VILLAGE  
MASS GRADING PLANS  
PHOENIX PARKWAY  
OFALLON, MO

DESIGNED BY: CJB  
DRAWN BY: CJB  
CHECKED BY: TDB  
DATE: 8/17/07  
Job Number: 07-075  
Sheet Number: G5.0

planning • engineering • surveying • landscape architecture  
**Cole** and ASSOCIATES INCORPORATED  
10777 sunset office drive  
saint louis, missouri  
p: 314 984 9887 f: 314 984 0587

SCALE: 1" = 50' HORIZ.  
1" = 10' VERT.

LAYOUT: G5.0  
DATE: Mar 07, 2008 - 4:46pm  
DRAWING: S:\0831.57\07-0075.dwg\MASS GRADING PLANS\G5.0\PROFILES.dwg