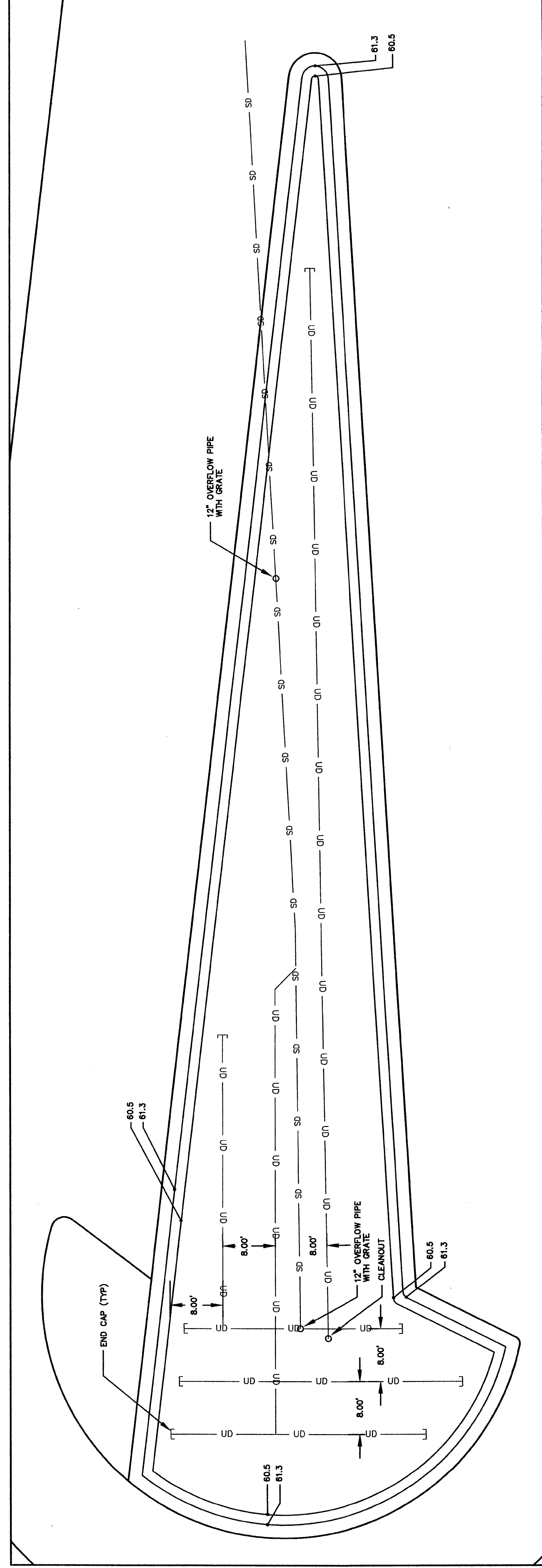
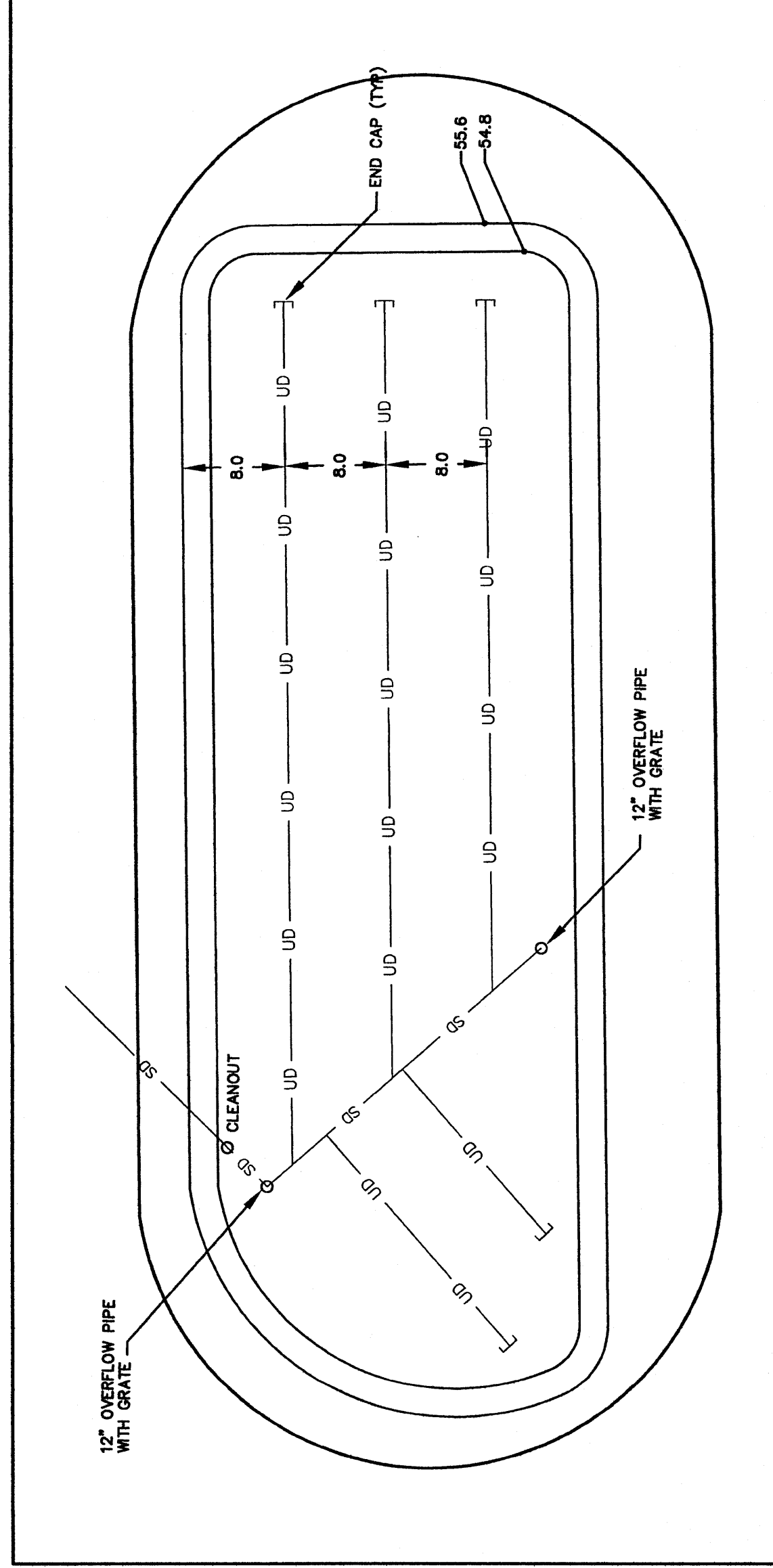


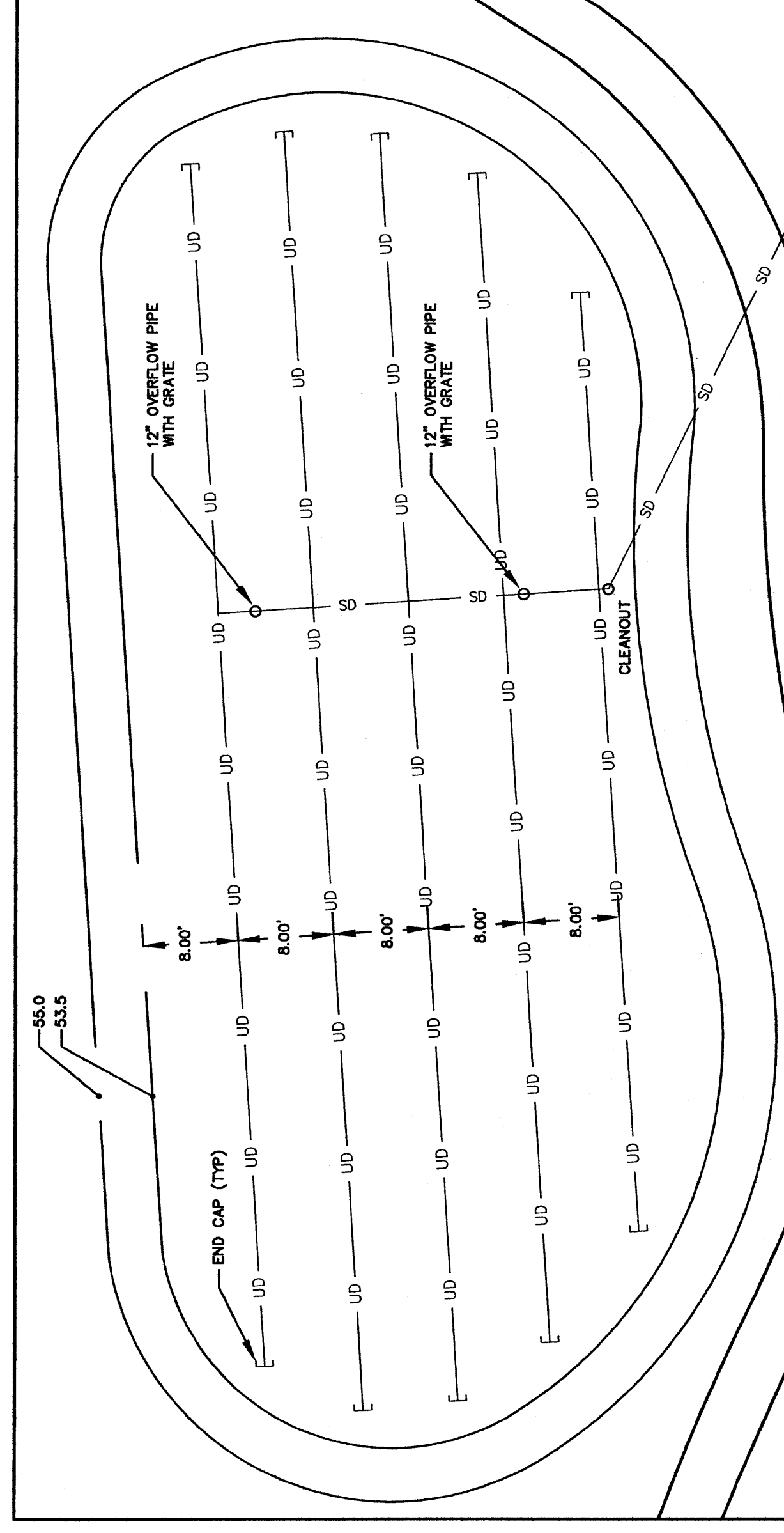
CS102 PLAN BIO-RETENTION BED NO. 2-4
UNDERDRAIN & OVERFLOW LAYOUT
1"=10'



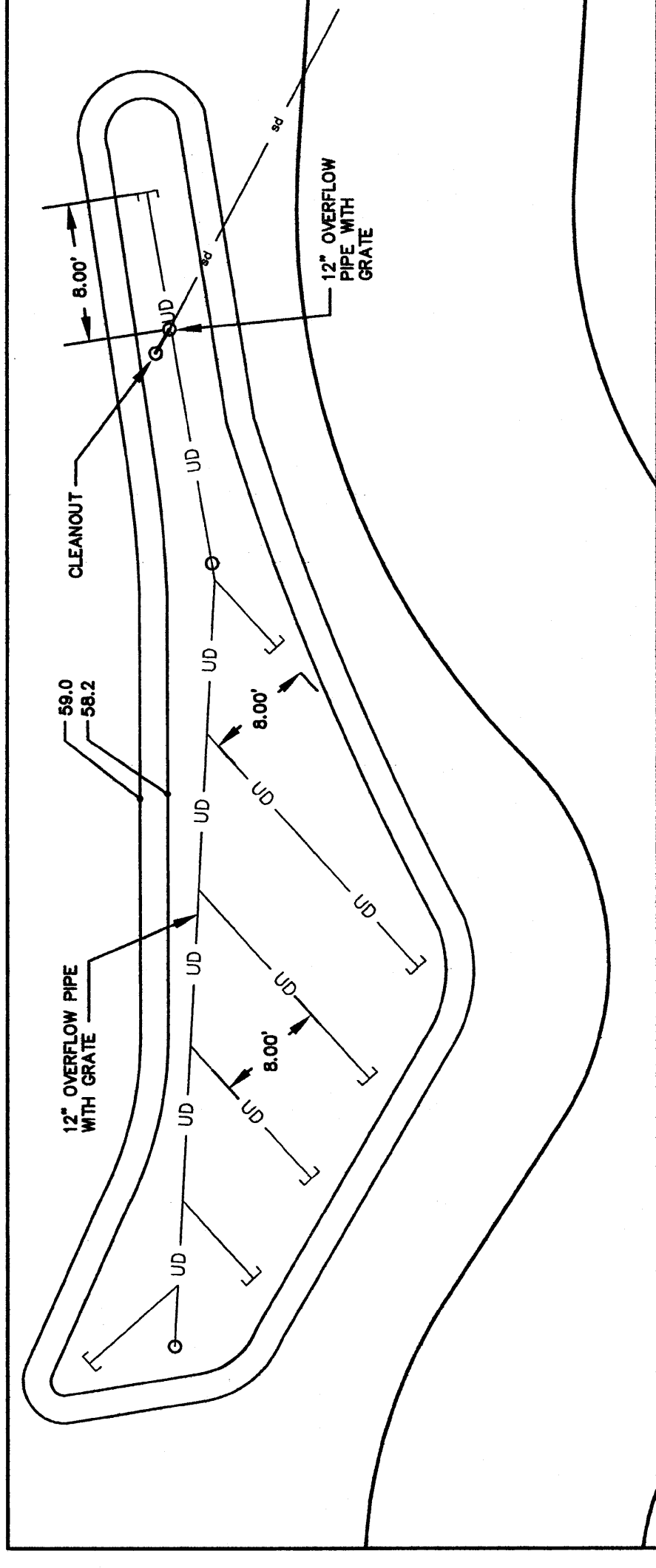
CS102 PLAN BIO-RETENTION BED NO. 2-2
UNDERDRAIN & OVERFLOW LAYOUT
1"=10'



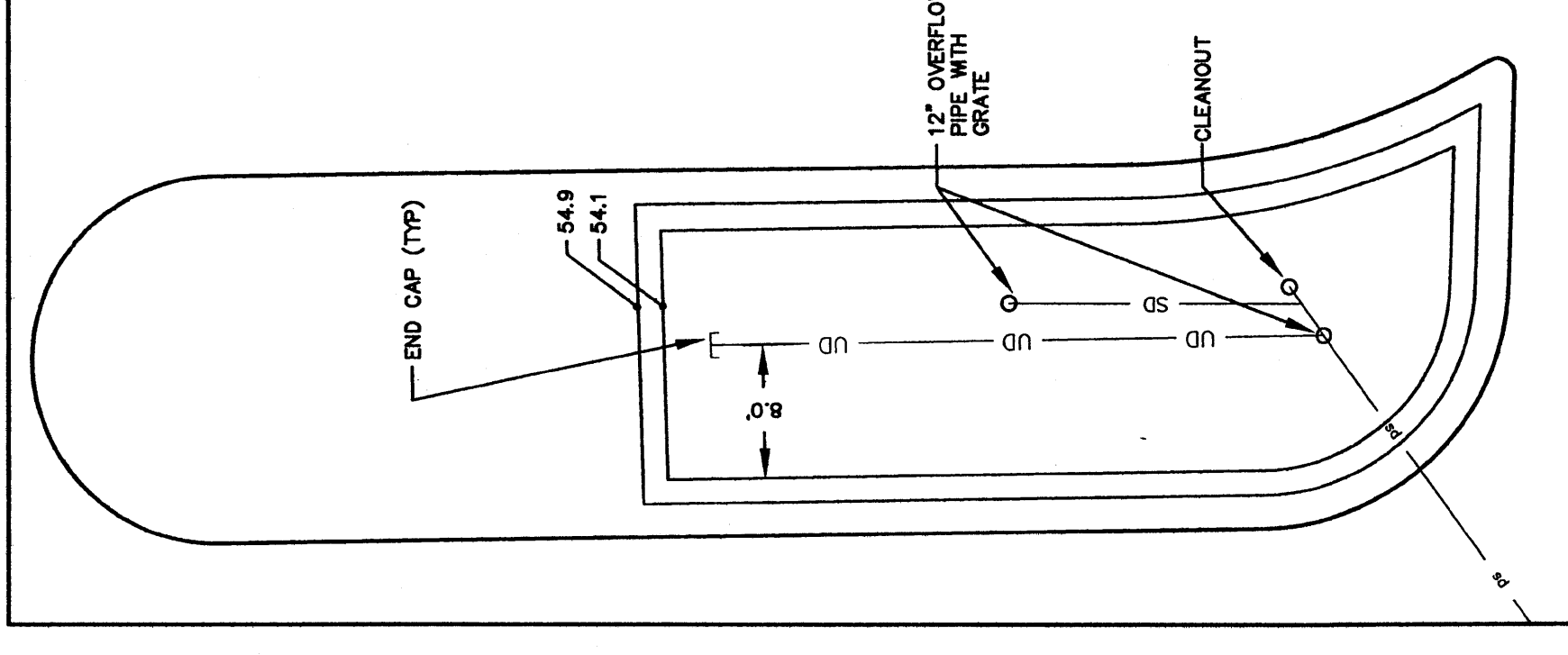
CS102 PLAN BIO-RETENTION BED NO. 2-5
UNDERDRAIN & OVERFLOW LAYOUT
1"=10'



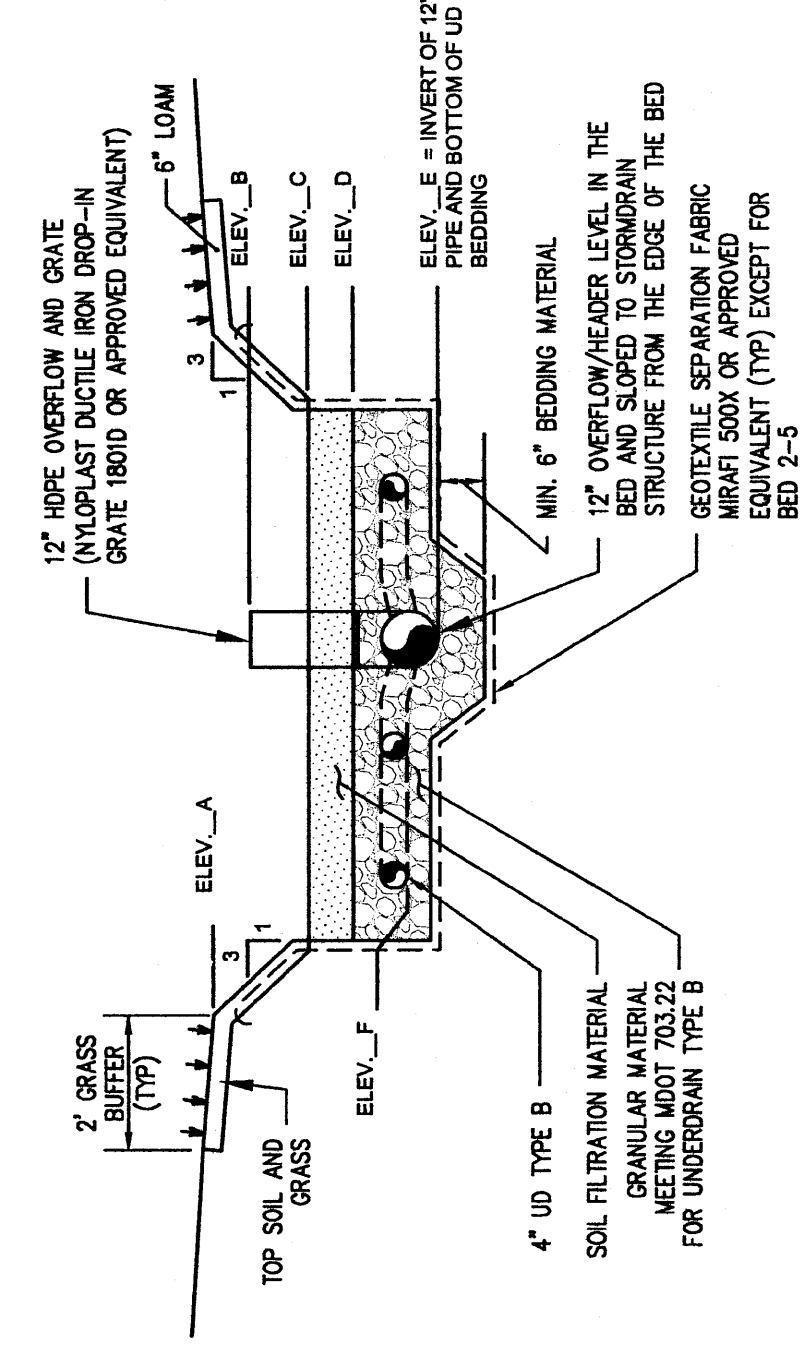
CS102 PLAN BIO-RETENTION BED NO. 3-2
UNDERDRAIN & OVERFLOW LAYOUT
1"=10'



CS102 PLAN BIO-RETENTION BED NO. 1-2
UNDERDRAIN & OVERFLOW LAYOUT
1"=10'



CS102 PLAN BIO-RETENTION BED NO. 2-6
UNDERDRAIN & OVERFLOW LAYOUT
1"=10'



| BIO-RETENTION BED | A | B** | C | D | E | F |
|-------------------|------|----------|------|------|------|-------|
| 1-2 | 59.0 | 58.8-(2) | 58.2 | 56.7 | 55.7 | 56.1 |
| 2-2 | 61.3 | 60.9-(3) | 60.3 | 59.0 | 58.0 | 58.33 |
| 2-4 | 55.0 | 54.7-(2) | 54.0 | 52.5 | 51.5 | 51.83 |
| 2-5*** | 55.6 | 54.9-(2) | 54.8 | 53.3 | 52.3 | 52.63 |
| 2-6 | 54.9 | 54.5-(2) | 54.1 | 52.8 | 51.6 | 51.93 |
| 3-2 | 55.0 | 54.4-(2) | 53.5 | 52.0 | 51.0 | 51.33 |

WEIR ELEVATION
** SEE "X" LINES FOR OVERFLOW RIM ELEVATIONS AND NUMBER OF OVERFLOW WITHIN THE BED (A, B-C)
*** IN PLACE OF THE MRFAT 500K, INSTALL A MANUFACTURED IMPERVIOUS POND UNDERDRAIN WITH STONE AND UNDERDRAIN OUTSIDE THE CURB. SEE DETAIL C504.

SOIL BIO-RETENTION BED NOTES:

- BIO-RETENTION BEDS SHALL NOT BE CONSTRUCTED UNTIL SURROUNDING AREA IS STABILIZED. SEE DEFINITION ON DRAWING C500.
- IF ANY EXISTING SOIL WITHIN THE BED IS FOUND TO BE UNDESIRABLE, THE BED SHALL BE CONSTRUCTED IN AN AREA COMPACTED DURING CONSTRUCTION.
- SOIL FILTRATION MATERIAL SHALL BE A COMBINATION OF A B-HORIZON GLACIAL TILL CONTAINING NO CLAY, SUCH AS IS FOUND IN WESTERN AND DOWNCAST MAINS, A SILTY SAND CONTAINING NO OR LITTLE CLAY, AND ORGANIC MATERIAL, SUCH AS SUPERDUMPS, MANUFACTURED BY THE ENCLAND ORGANICS.
- FOR THE PURPOSES OF THIS SPECIFICATION, THE DESIGNER SHALL USE THE DESIGN PROVISIONS BEFORE AND DURING CONSTRUCTION OF THE FILTRATION BEDS. THE EXACT COMPOSITION OF THE FILTRATION MATERIAL SHALL BE DETERMINED BY THE DESIGNER AND SHALL BE SUBMITTED TO THE DESIGNER FOR APPROVAL. THE DESIGNER SHALL TEST THE MATERIAL TO DETERMINE PERMEABILITY, AND IF PERMEABILITY IS GREATER THAN 2.4 IN/HR, THEN EITHER MATERIAL SHALL BE TESTED FOR PERMEABILITY, OR THE DESIGNER SHALL APPROVE THESE CHANGES. THIS TESTING SHALL BE APPROVED BY THE OWNER TO VERIFY THAT THE SOIL MEETS ALL REQUIREMENTS. THE FILTRATION MATERIAL SHALL ALSO FOLLOW THE FOLLOWING ADDITIONAL REQUIREMENTS:
PH - 6.0-6.5
SAND (PERCENT) - 60-70
SILT (PERCENT) - 20-30
CLAY (PERCENT) - 10-15
SANDY SILTY SAND - WELL COMPOSTED WITH NO MANURE OR STUMP GRINDINGS
SILTY CLAY - WEIGHT OF MATERIAL
MINIMUM DEPTH - 12 INCHES
MINIMUM DEPTH OF SOIL - 24 INCHES
- A SURFACE LAYER OF 2" OF AGED FIBROUS BARK MULCH SHALL BE ADDED AFTER PLANTING.
- UNDERDRAIN MATERIAL SHALL BE WELL GRADED, CLEAN, COARSE SAND MEETING MOST SPECIFICATION 703.22 TYPE B WITH FINES PASSING THE #200 SIEVE OF NO MORE THAN 2%.
- PIPE SHALL BE TYPE 8 SDR33 PVC PERFORATED UNDERDRAIN FOR THE LENGTH OF THE BED AND 12" HDPE SOLID PIPE FROM THE END OF THE BED TO THE OUTLET, INCLUDING THE OVERFLOWS.
- END CAPS SHALL BE INSTALLED ON ALL PIPES.
- CONTRACTOR SHALL USE ONLY LOW PRESSURE EQUIPMENT IF IT IS NECESSARY TO ENTER FILTRATION BEDS DURING CONSTRUCTION.
- SEE LANDSCAPE DRAWINGS FOR PLANTINGS AND LOAM SPECIFICATIONS FOR THE SLOPED AREA OF THE BEDS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF EXISTING UTILITIES AND FOR THE PROTECTION OF ALL UTILITIES INSTALLED.
- CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF EXISTING UTILITIES AND FOR THE PROTECTION OF ALL UTILITIES INSTALLED.
- DESIGNER SHALL BE NOTIFIED OF THE EXISTENCE OF ANY UTILITIES PRIOR TO THE START OF ANY CONSTRUCTION OF THIS PROJECT. THE DESIGNER SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL UTILITIES INSTALLED.
- CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF EXISTING UTILITIES AND FOR THE PROTECTION OF ALL UTILITIES INSTALLED.

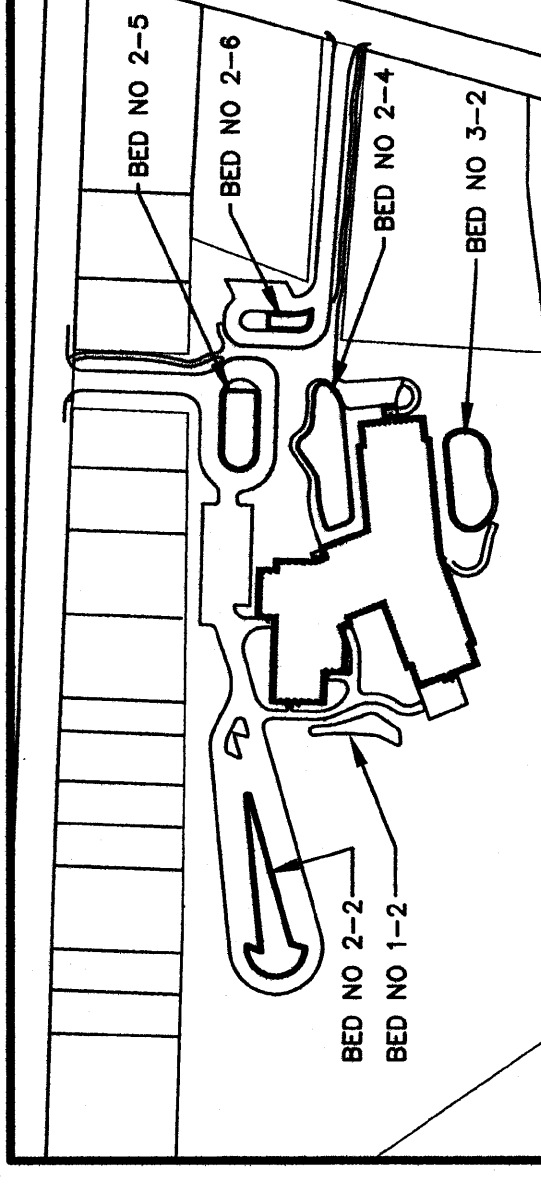
BIO-RETENTION BED

N.T.S. TYPICAL SECTION

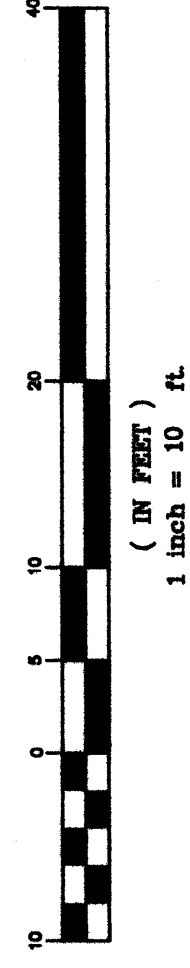
GENERAL NOTES:

- ALL CONNECTIONS UNDERDRAIN TO UNDERDRAIN AND UNDERDRAIN TO SOLID PIPE SHALL BE ACCOMPLISHED WITH APPROPRIATE WYE OR OTHER CONNECTIONS TO DIRECT THE FLOW TOWARD THE OUTLET.
- DESIGNER SHALL BE NOTIFIED TWO DAYS IN ADVANCE OF LAYOUT OF THE FILTRATION BEDS AND FINAL LAYOUT OF THE UNDERDRAIN TO REVIEW AND APPROVE THE LAYOUT.

KEY PLAN:



GRAPHIC SCALE



THIS PROJECT IS REGISTERED WITH THE U.S. GREEN BUILDING COUNCIL AS A LEED FOR SCHOOL PROJECT. FOR MORE INFORMATION, VISIT US AT www.usgbc.org.
THIS PROGRAM FOR MORE INFORMATION, VISIT US AT www.usgbc.org.
018113 OF THE PROJECT SPECIFICATIONS. SITE DISTURBANCE SHALL BE LIMITED TO TWO FEET BEYOND THE TOE OF SLOPE AS INDICATED ON THE GRADING AND DRAINAGE PLAN.

| | | | |
|--|--|---|---|
| PERMIT APPLICATION SUBMISSION 5/18/09 CIVIL ENGINEERING DESIGN BY: SUSTAINABLE DESIGN P.O. BOX 10486 Portland, Maine 04104-0486 Tel: (207) 210-8493 www.sustainablestudio.com | | WBRC ARCHITECTS + ENGINEERS OCEAN AVENUE ELEMENTARY SCHOOL PORTLAND, MAINE STORM WATER CONTROL BIO-RETENTION BEDS | SHEET NO. 331610-C-500 PROJECT NO. AS NOTED SCALE AS SHOWN DRAWN BY: RMC CHECKED BY: AAH SHEET NO. C503 |
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