

**SITE ANALYSIS & GENERAL NOTES**

- TOTAL SITE AREA 5.465 ACRES
- TOTAL DISTURBED AREA 4.78 ACRES
- CURRENT ZONING M-2
- EXISTING/PROPOSED USE VACANT/WAREHOUSE BUILDING (SINGLE STORY)
- BUILDING SQUARE FOOTAGE 54,412.50 SF OR 1,249 AC. BUILDING COVERAGE OF SITE 22.85% OF GROSS SITE AREA (5.465 AC)
- PARKING

PARKING REQUIREMENT IS BASED ON SECTION 133.0.5.b. HYBRID INDUSTRIAL/OFFICE SPACE BUILDING 160 FEET DEEP OR LESS AT A REQUIRED RATE OF 2.5 SPACES PER 1,000 S.F. OF BUILDING.

WITH THIS IN MIND A PARKING NEEDS STUDY FOR THIS TYPE OF STRUCTURE HAS BEEN FURTHER BROKEN DOWN AS FOLLOWS:

A MAXIMUM 25% OF THE PROPOSED BUILDING DESIGNATED AS OFFICE, PARKED AT A RATE OF 3.3 PS/1000 SF OR:  
 54,412 S.F. x 25% = 13,603 S.F. @ 3.3 PS / 1000 = 45 PS. FOR OFFICE  
 THE BALANCE, 75% OF THE PROPOSED BUILDING HAS BEEN DESIGNATED WAREHOUSE SPACE AND PARKED AT A RATE OF 0.5 PS / 1000 OR:  
 54,412 S.F. x 75% = 40,809 S.F. @ 0.5 PS / 1000 = 20 PS. FOR WAREHOUSE SPACE.

USING THIS ACTUAL PARKING NEEDS STUDY DETERMINES A REQUIRED PARKING NEED OF 65 SPACES ON SITE WITH 111 SPACES BEING PROVIDED.

THIS ADDITIONAL PARKING WOULD ALLOW UP TO 42% OF THE GROSS S.F. TO BE DESIGNATED OFFICE SPACE, A PERCENTAGE NOT ASSOCIATED WITH BUILDINGS OF THIS TYPE IN INDUSTRIAL PARKS TYPICAL IN CHARACTER AS THE ONE IN WHICH THIS SITE IS LOCATED.

NO CHANGE IN THESE USES OR IN THE AREAS OF THESE USES IS PERMITTED WITHOUT THE PRIOR APPROVAL OF THE HOWARD COUNTY DEP AND COMPLIANCE WITH THE APPLICABLE PARKING AND LOADING REQUIREMENTS OF ZONING SECTION 133.

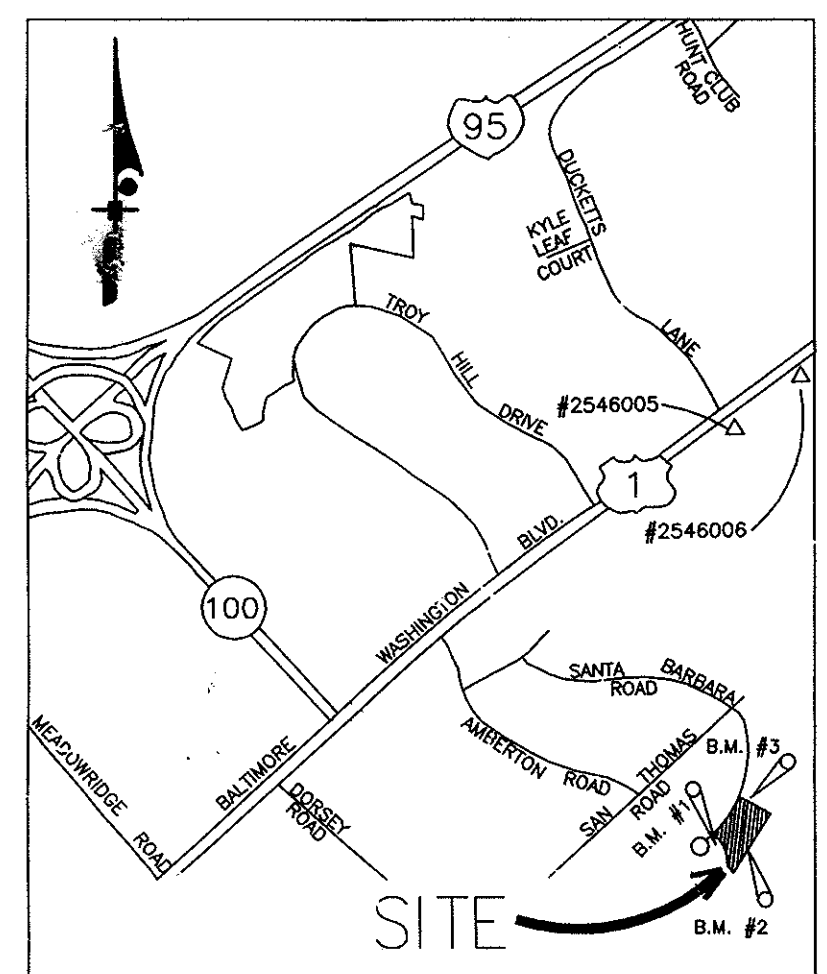
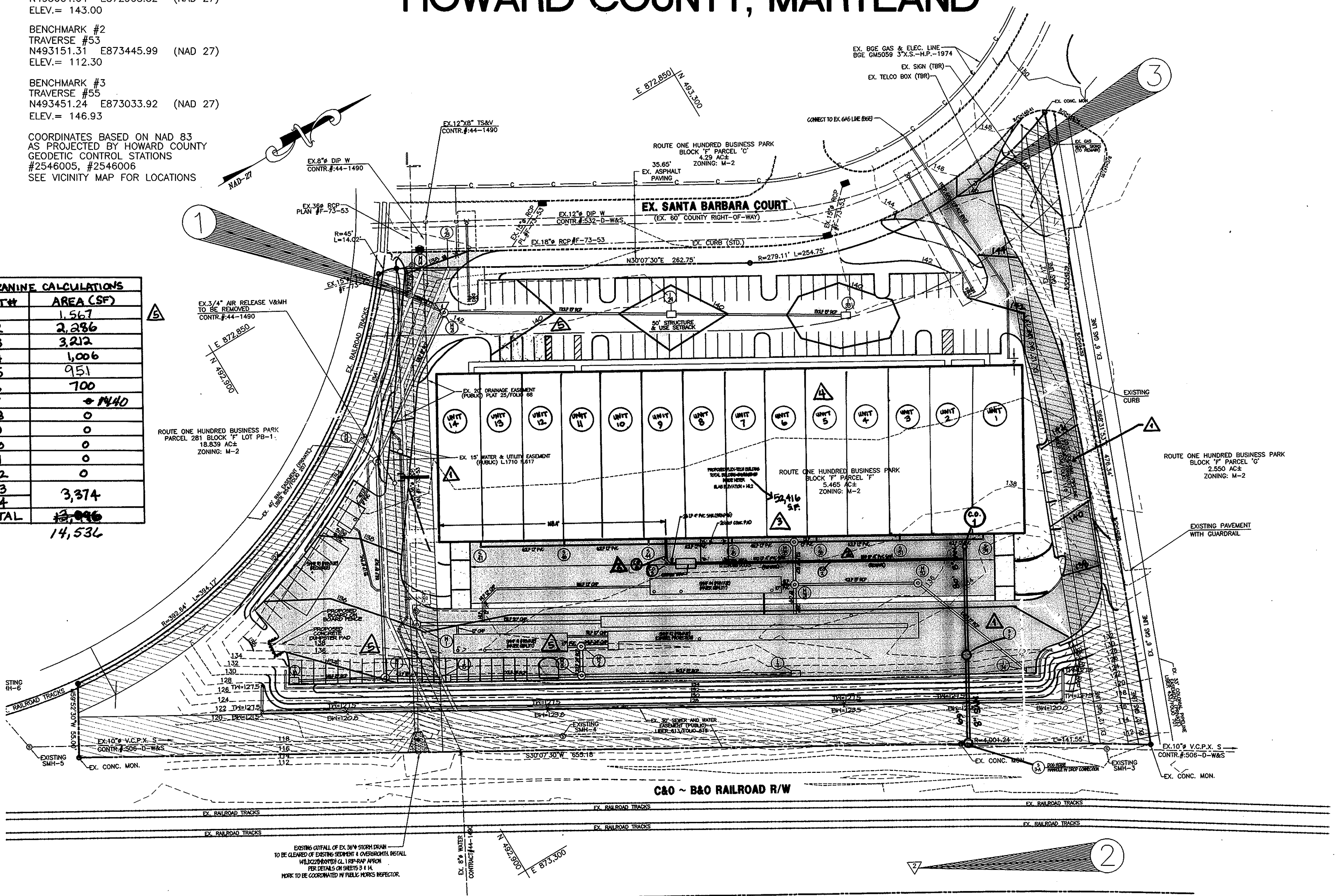
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS, IF APPLICABLE.
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT (410)-313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
- TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) - MILLIENIUM EDITION. ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
- ALL PLAN DIMENSIONS ARE TO FACE OF CURB OR FACE OF BUILDING, UNLESS OTHERWISE NOTED. ALL PROPOSED SPOT-ELEVATIONS ARE @ BOTTOM OF CURB, UNLESS OTHERWISE NOTED.
- THE TOPOGRAPHY AND SITE BOUNDARY WAS PROVIDED BY MORRIS & RITCHE ASSOCIATES INC. DATED (APRIL 8, 2002). COORDINATES SHOWN ARE IN NAD 27.
- THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED ON THE STATE PLANE COORDINATE SYSTEM HOWARD COUNTY MONUMENT NOS. 2445004 AND 2445005 WERE USED FOR THIS PROJECT.
- EXISTING WATER IS PUBLIC. CONTRACT NO. - 532-D
- EXISTING SEWER IS PUBLIC. CONTRACT NO. - 506-D
- APPROXIMATE LOCATION OF EXISTING UTILITIES ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO CONTRACTOR'S OPERATION SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE. EXISTING UTILITIES ARE SHOWN BASED ON THE BEST AVAILABLE INFORMATION. ANY DISCREPANCIES IN EXISTING UTILITY LOCATIONS, EITHER HORIZONTALLY OR VERTICALLY SHALL BE REPORTED TO THE OWNER OR HIS REPRESENTATIVE AND TO THE DESIGN ENGINEER.
- A 100-YEAR FLOOD PLAIN STUDY IS NOT REQUIRED FOR THIS PROJECT.
- NO WETLANDS EXIST ON THIS SITE.
- A TRAFFIC STUDY FOR APFO REQUIREMENTS WAS PREPARED BY THE TRAFFIC GROUP MARCH 19, 2002
- A NOISE STUDY FOR THIS PROJECT IS NOT REQUIRED.
- A GEOTECHNICAL STUDY WAS PREPARED BY HILLIS-CARNES ON AUGUST 3, 1998. A SECOND GEOTECHNICAL STUDY FOR RETAINING WALL AND SWM FACILITY INSTALLATION WAS PREPARED BY GEO-TECHNOLOGY ASSOCIATES, INC. DATED MAY 2, 2002.
- STORMWATER QUANTITY MANAGEMENT IS PROVIDED BY FOUR SEPARATE UNDERGROUND FACILITIES. WATER QUALITY IS PROVIDED BY TWO UNDERGROUND SAND FILTERS. RECHARGE IS PROVIDED BY AN UNDERGROUND INFILTRATION TRENCH. CHANNEL PROTECTION VOLUME IS PROVIDED BY AN UNDERGROUND CORRUGATED STEEL PIPE STORAGE SYSTEM.
- SEE DEPARTMENT OF PLANNING AND ZONING FILES: F 74-46, F-82-12, F-82-01, F-86-126, WP-02-109, F-03-177, AND F-04-042.
- THE CONTRACTOR SHALL TEST PIT ALL EXISTING UTILITIES AT LEAST FIVE (5) DAYS PRIOR TO STARTING ANY WORK SHOWN ON THESE DRAWINGS.
- ALL INLETS, MANHOLES, HYDRANTS, VALVES, CLEANOUTS, OR OTHER UTILITY STRUCTURES SHALL BE CONSTRUCTED IN ACCORDANCE WITH HOWARD COUNTY STANDARDS.
- THIS SITE IS EXEMPT FROM THE FOREST CONSERVATION ACT PER SUBDIVISION SUBTITLE 12, SECTION 16.1202(b)(1)(ii) OF THE HOWARD COUNTY FOREST CONSERVATION MANUAL, CHAPTER TWO, PAGE TWO, ITEM ONE. THE ENTIRE SITE WAS CLEARED AND MASS GRADED UNDER F-73-04. THIS DEVELOPMENT DOES NOT INCREASE THE LIMIT OF DISTURBANCE AS APPROVED UNDER F-73-04. F-73-04 WAS APPROVED PRIOR TO THE ENACTMENT OF THE 1993 FOREST CONSERVATION ACT.
- ALL EXTERIOR LIGHTING SHALL COMPLY WITH ZONING REGULATIONS SECTION 134.
- TRAFFIC CONTROL FOR UTILITY CONSTRUCTION WITHIN THE SANTA BARBARA COURT RIGHT-OF-WAY SHALL BE DONE IN ACCORDANCE WITH MD SHA TYPICAL DETAILS FOR TRAFFIC CONTROL, MD 104.04 AND MD 104.31.
- CONTRACTOR TO NOTIFY RICH TROUTMAN OF COLONIAL PIPELINE COMPANY (410-549-4107) PRIOR TO ANY CONSTRUCTION ACTIVITY WITHIN THE COLONIAL PIPELINE EASEMENTS.
- CONTRACTOR TO NOTIFY RAILROAD AUTHORITY PRIOR TO INSTALLATION OF SANITARY SERVICE, CLEARING OF EXISTING STORM DRAIN OUTFALL, OR ANY OTHER CONSTRUCTION ACTIVITY ADJACENT TO THE RAILROAD RIGHT-OF-WAY.
- FABRICATION OF SWMF #2 (UNDERGROUND CMP) SHALL BE PROVIDED BY CONTECH CONSTRUCTION PRODUCTS, INC. THE CONSTRUCTION AND INSTALLATION OF SWMF #2 SHALL BE DONE IN ACCORDANCE WITH ALL APPLICABLE CONTECH STANDARDS AND SPECIFICATIONS. CONTRACTOR TO NOTIFY DAN BISHOP (410-838-7812) PRIOR TO ANY CONSTRUCTION ACTIVITY FOR SWMF #2.
- WAIVER PETITION WP-02-109 WAS APPROVED ON SEPT. 11, 2002 BY HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING TO WAIVE SECTION 16.124(b)(3)(i) OF THE HOWARD COUNTY LANDSCAPE MANUAL, SUBJECT TO THE FOLLOWING CONDITIONS:  
 1. A DOUBLE ROW OF EVERGREEN SHRUBS THAT WILL ATTAIN A MINIMUM HEIGHT OF 6-8 FEET SHALL BE PLANTED ALONG THE REAR OF THE PROPERTY AS SHOWN ON THE REVISED WP-02-109 EXHIBIT PLAN, AND TO BE INCLUDED ON THE LANDSCAPE PLAN FOR THIS SDP.
- WAIVER REQUEST TO DESIGN MANUAL VOLUME III WAS APPROVED ON MAY 29, 2002 BY THE HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING, DEVELOPMENT ENGINEERING DIVISION, TO WAIVE THE 3-CENTERED CURVE REQUIREMENT FOR COMMERCIAL ENTRANCES (SECT. 2.6.2), AND 110' COMMERCIAL DRIVEWAY SPACING ALONG A LOCAL ACCESS ROAD (SECT. 2.6.4).

**△ TOTAL MEZZANINE AREA IS: 13,696 S.F. - 14,536 S.F.**  
**ALL MEZZANINE AREAS WILL BE CONSIDERED AS OFFICE SPACE**  
**14,536 13,696 SF @ 3.3 PS. 1,000 PS. FOR OFFICE SPACE.**  
**REFER TO NOTE #6 ON THIS SHEET FOR ADDITIONAL PARKING REQUIREMENTS.**  
**△ TOTAL PARKING REQUIRED IS: 48 PS. + 63 PS.**  
**(NOTE #6) = 107 PS. REQUIRED PARKING III PS. PROVIDED IS: 111 PS.**

# SITE DEVELOPMENT PLAN OF SANTA BARBARA COURT ROUTE 100 BUSINESS PARK, 6725 SANTA BARBARA COURT 1st ELECTION DISTRICT HOWARD COUNTY, MARYLAND

**BENCHMARKS**  
 BENCHMARK #1  
 TRAVERSE #50  
 N493064.64 E872908.52 (NAD 27)  
 ELEV. = 143.00  
 BENCHMARK #2  
 TRAVERSE #53  
 N493151.31 E873445.99 (NAD 27)  
 ELEV. = 112.30  
 BENCHMARK #3  
 TRAVERSE #55  
 N493451.24 E873033.92 (NAD 27)  
 ELEV. = 146.93  
 COORDINATES BASED ON NAD 83  
 AS PROJECTED BY HOWARD COUNTY  
 GEODETIC CONTROL STATIONS  
 #2546005, #2546006  
 SEE VICINITY MAP FOR LOCATIONS

UNIT #	AREA (SF)
1	1,567
2	2,286
3	3,212
4	1,006
5	951
6	700
7	0
8	0
9	0
10	0
11	0
12	0
13	3,374
14	0
<b>TOTAL</b>	<b>14,536</b>

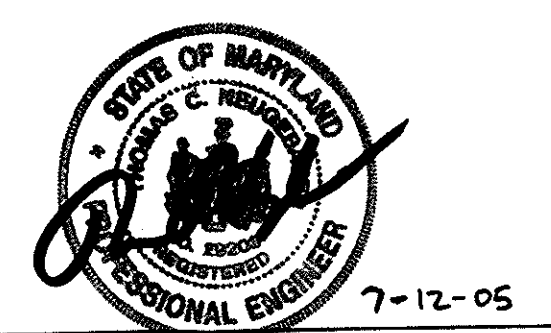


**SHEET INDEX**

1 OF 20	TITLE SHEET
2 OF 20	SITE PLAN
3 OF 20	SITE NOTES & DETAILS
4 OF 20	UTILITY PROFILES
5 OF 20	STORM DRAIN PROFILES
6 OF 20	STORMWATER MANAGEMENT DETAILS
7 OF 20	STORMWATER MANAGEMENT DETAILS
8 OF 20	STORMWATER MANAGEMENT DETAILS
9 OF 20	STORMWATER MANAGEMENT DETAILS
10 OF 20	RETAINING WALL PLAN, NOTES & DETAILS
11 OF 20	RETAINING WALL PROFILES 'ND SECTIONS
12 OF 20	SEDIMENT CONTROL PLAN
13 OF 20	SEDIMENT CONTROL DETAILS
14 OF 20	SEDIMENT CONTROL DETAILS
15 OF 20	LANDSCAPE PLAN
16 OF 20	LANDSCAPE NOTES & SPECIFICATIONS
17 OF 20	STORM DRAIN & SWM DRAINAGE AREA MAP
18 OF 20	SOIL BORING LOGS AND RECOMMENDATIONS
19 OF 20	SWM DETAILS-UNDERGROUND CMP FACILITY
20 OF 20	SWM SPECIFICATIONS-UNDERGROUND CMP FACILITY

**LOCATION MAP**  
 SCALE: 1"=50'

OPTION 2: EXEMPT/DOI	FOREST CONSERVATION DATA SUMMARY
File Number: SDP-02-123	Project/Subdivision Name: ROUTE 100 BUSINESS PARK, BLOCK F, PARCEL F 6725 SANTA BARBARA COURT
Comment: Addressed by How. Co. Subdivision & Land Development Regulations, Sec. 16.1202(b)(1)(ii) of the Howard County Forest Conservation Manual, chapter two, page two, item one. The entire site was cleared and mass graded under F-73-04. This development does not increase the limit of disturbance as approved under F-73-04. Final Plan F-73-04 was approved prior to the enactment of the 1993 Forest Conservation Act.	



Rev. No. 4  
 TCN  
 11-22-05  
 Rev. No. 5  
 TCN  
 1-13-06  
 9-20-05  
 FOR REVISION NO. 3, MRA  
 THOMAS NEUGEBAUER, PE LICENSE #29203  
 FOR REVISION NO. 4, MRA/FOR REVISION NO. 5 MRA

OWNER: Bruce Jaffe  
 DAYTIME TELEPHONE: 301-596-0222  
 COMPANY: Morlick L.L.C.  
 ADDRESS: 11628 Log Jump Trail  
 CITY: Ellicott City STATE: MD ZIP: 21042  
 DEVELOPER: Bruce Jaffe  
 DAYTIME TELEPHONE: 301-596-0222  
 COMPANY: The Sanford Companies, Inc.  
 ADDRESS: 11628 Log Jump Trail  
 CITY: Ellicott City STATE: MD ZIP: 21042

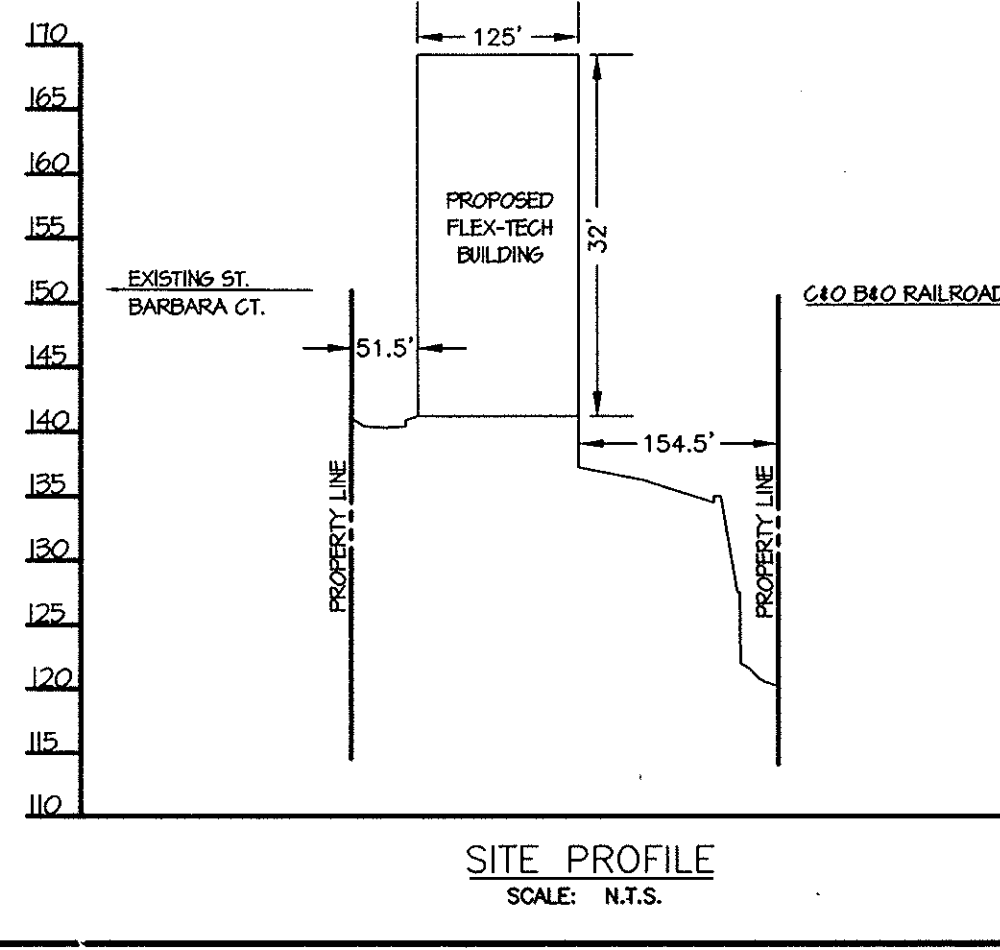
APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 Chief, Development Engineering Division  
 Chief, Division of Land Development  
 Director, Department of Planning and Zoning

**PERMIT INFORMATION CHART**

Subdivision Name: ROUTE 100 BUSINESS PARK	Section/Area: BLOCK F	Lot/Parcel #: PARCEL F / # 857
Plot #: 16079.16235	Block #: 19	Zoning: M-2
Water Code: AD4	Tax Map: 38	Elec. District: 1
	Sewer Code: 2151500	Census Tract: 8012.02

**ADDRESS CHART**

LOT/PARCEL #	STREET ADDRESS
PARCEL F / # 857	6725 SANTA BARBARA COURT



**REVISIONS**

DATE	REVISIONS
7/2005	MRA-REV. PARKING REQ'TS & ADDED MEZZANINE CALCULATION CHART
11/2005	MRA-REV. PARKING REQ'TS & MEZZANINE CAL. CHART
11/2005	MRA-REV. PARKING REQ'TS & MEZZANINE CAL. CHART
1/2006	MRA-REV. PARKING REQ'TS & MEZZANINE CAL. CHART

**REVISIONS**

DATE	REVISIONS	JOB NO.:
6/2004	MRA-REV. LOCATION OF WAT. PROFILE 'C' AND SAN. SERVICE, REV. GRADES AND ADDED PARKING	11570.02
7/2005	W/IN COLONIAL PL. R/W. MRA-REV. ADDED GREASE TRAP & INCOMING 4" SANITARY LINE	SCALE: AS SHOWN DATE: 12/15/03 DRAWN BY: TCN DESIGN BY: TCN REVIEW BY: PVM, TFM SHEET: 1 OF 20

**SANTA BARBARA CT.**  
 ROUTE 100 BUSINESS PARK  
 BLOCK F PARCEL F  
 SITE DEVELOPMENT PLAN  
 TITLE SHEET  
 TAX MAP 38 BLOCK F PARCEL F  
 1ST ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND

**MORRIS & RITCHE ASSOCIATES, INC.**  
 ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS  
 9090 JUNCTION DRIVE, SUITE 9  
 ANNAPOLIS JUNCTION, MARYLAND 20701  
 (410) 792-9792 or (301) 778-1690  
 FAX (410) 792-7395

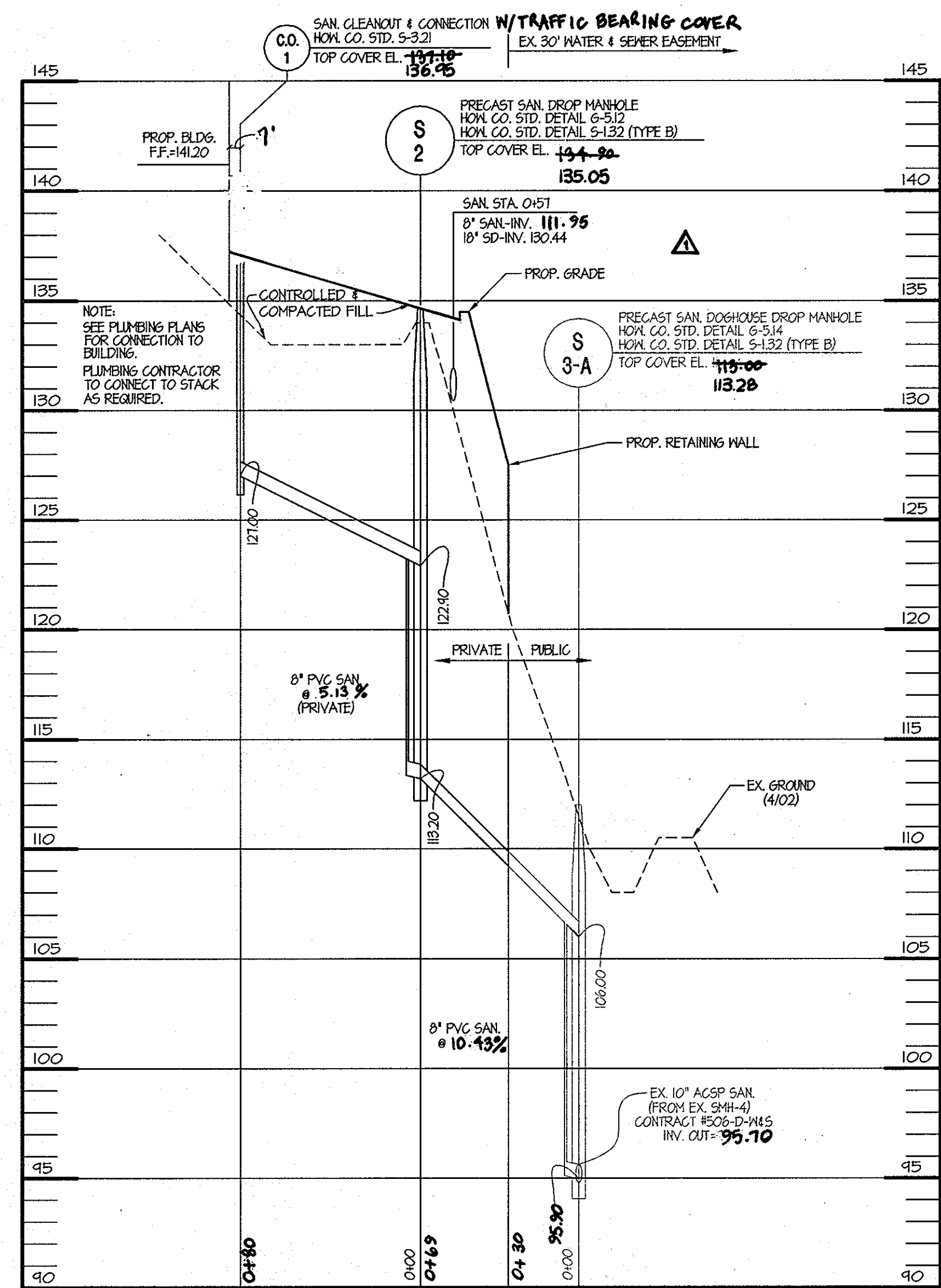












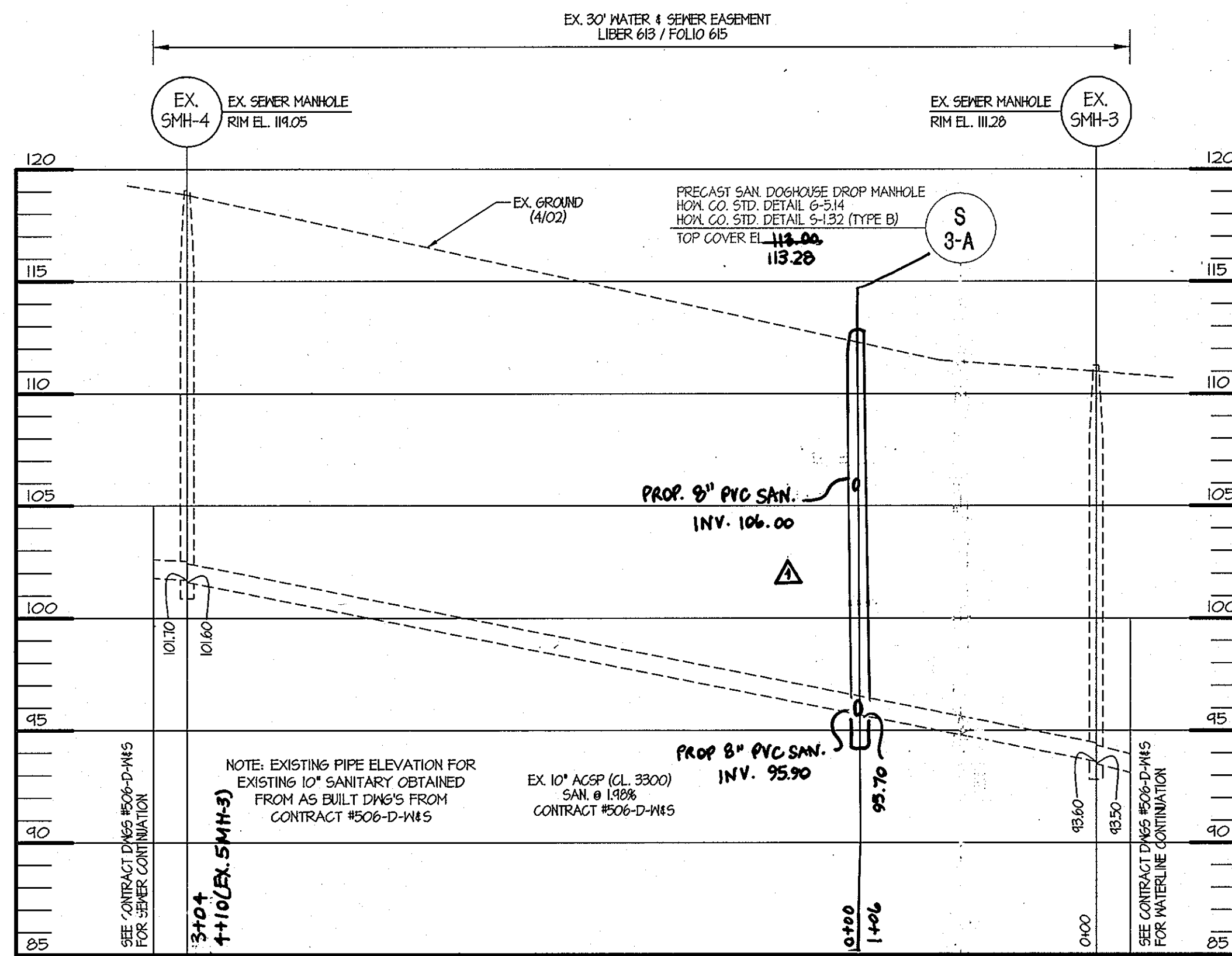
**SANITARY SEWER PROFILE**

SCALE: HOR. 1" = 50'  
VERT. 1" = 5'

- COORDINATES TO CENTER OF STRUCTURE FOR MANHOLES AND CLEANOUTS.
- \* TOP OF RIM ELEVATION AT CENTER OF STRUCTURE FOR MANHOLES AND CLEANOUTS.

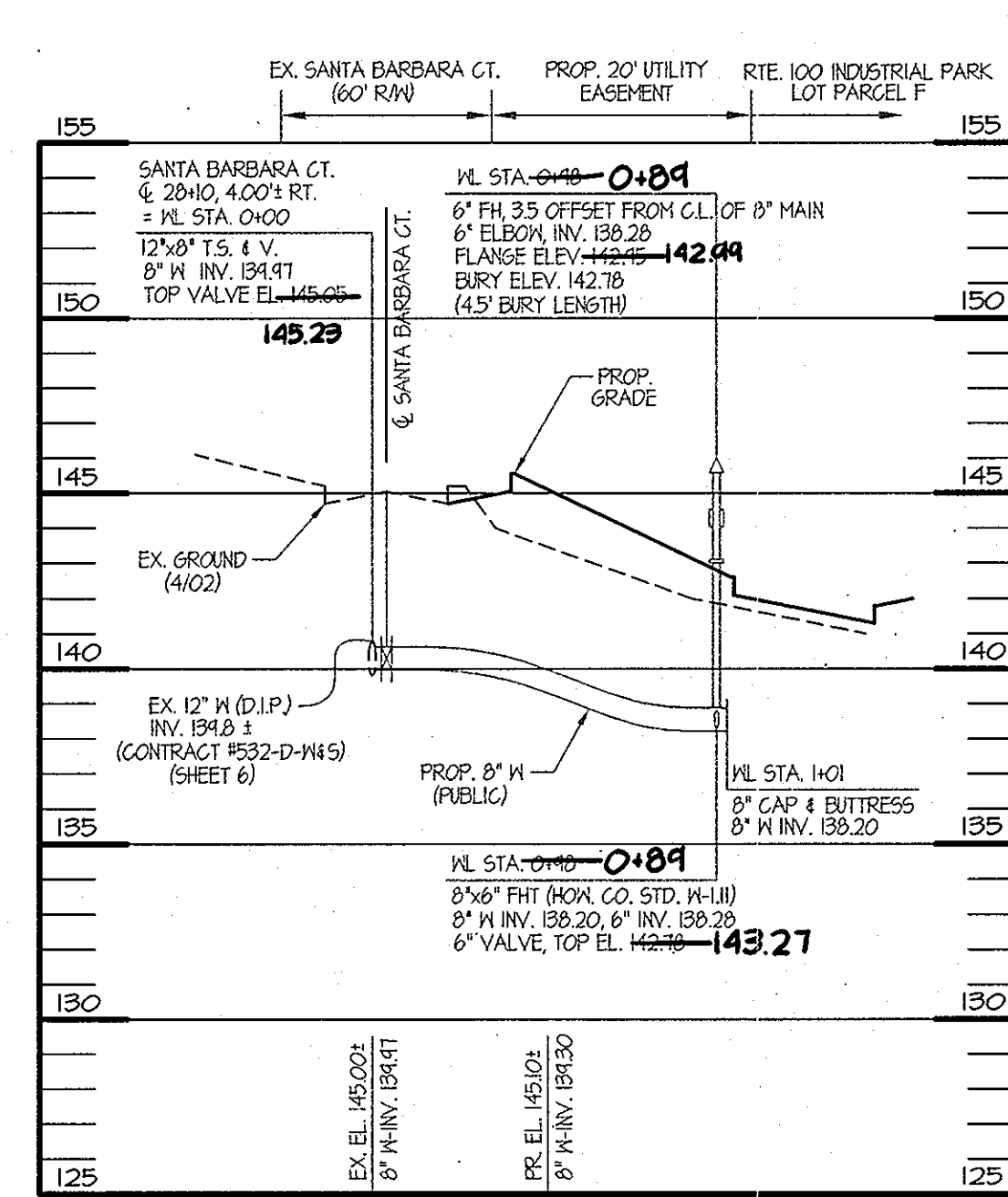
STR. NO.	TOP ELEV.	INV. IN.	INV. IN.	INV. OUT.	TYPE	REMARKS	NORTHING	EASTING
CO-1	131.10	---	---	127.00	STANDARD CLEANOUT HOWARD CO. STD. DETAIL S-3.21		493,305.31	873,259.54
S-2	134.20	122.90	113.20	113.20	PRECAST DROP MANHOLE HOW. CO. G-5.12, S-1.32	"B" DROP	493,265.21	873,328.70

NOTE: PUBLIC PORTION OF SAN. LINE IS SHOWN FOR REFERENCE ONLY. PUBLIC PORTION OF LINE IS TO BE BUILT PER CONTRACT NO. 14-4151-D.



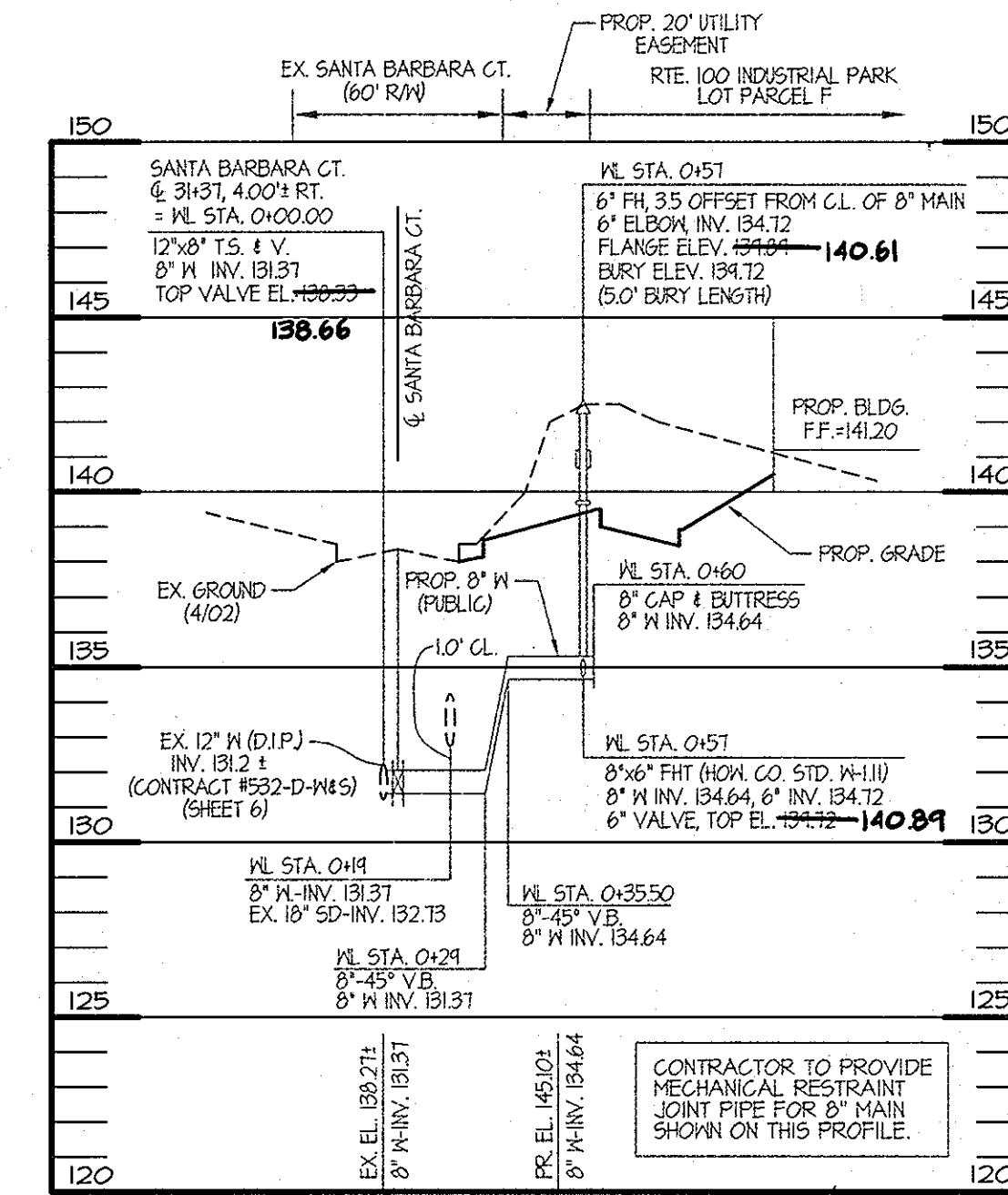
**REVISION TO CONTRACT NO. 506-D-W&S**

SCALE: HOR. 1" = 50'  
VERT. 1" = 5'



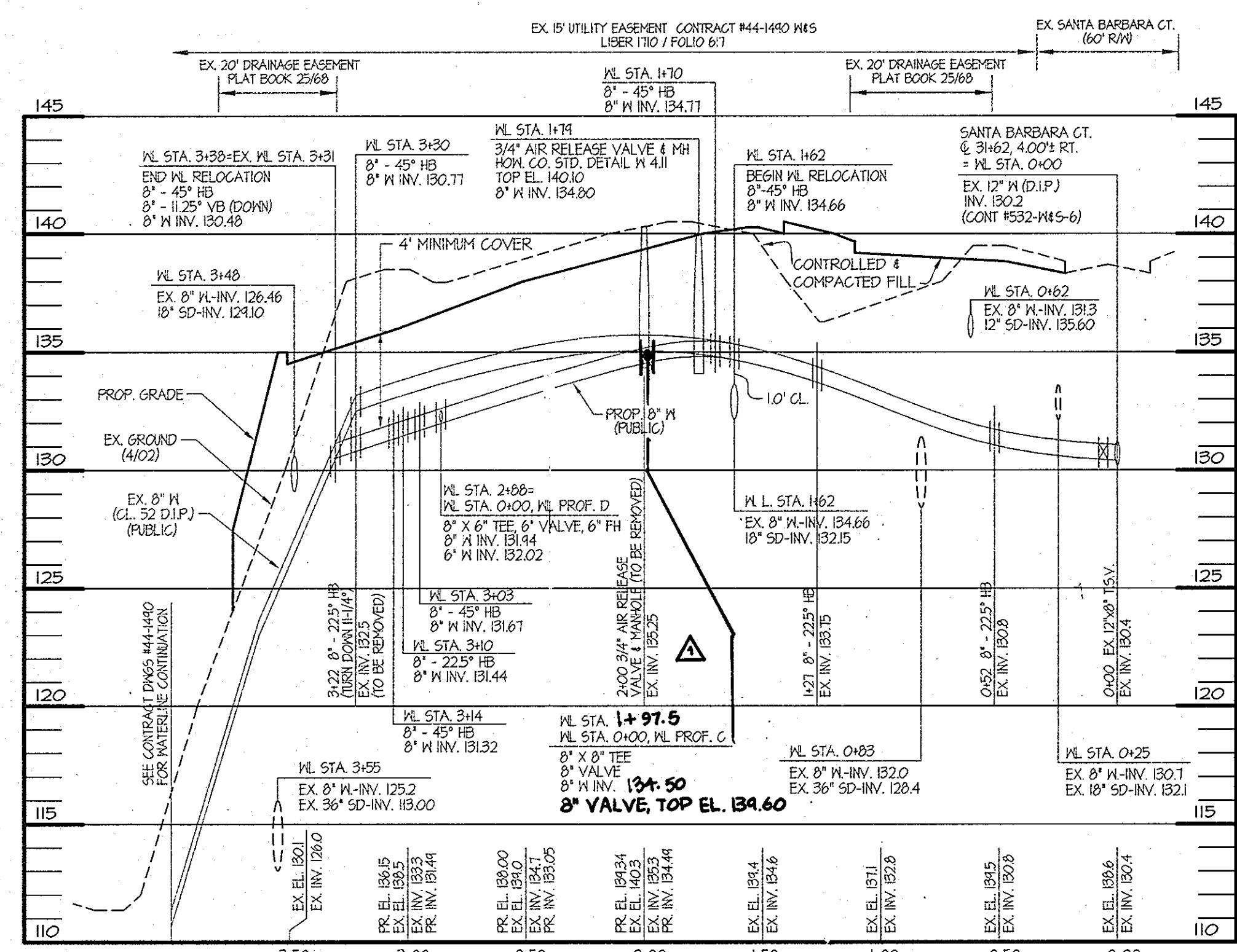
**WATER PROFILE 'A'**

SCALE: HOR. 1" = 50'  
VERT. 1" = 5'



**WATER PROFILE 'B'**

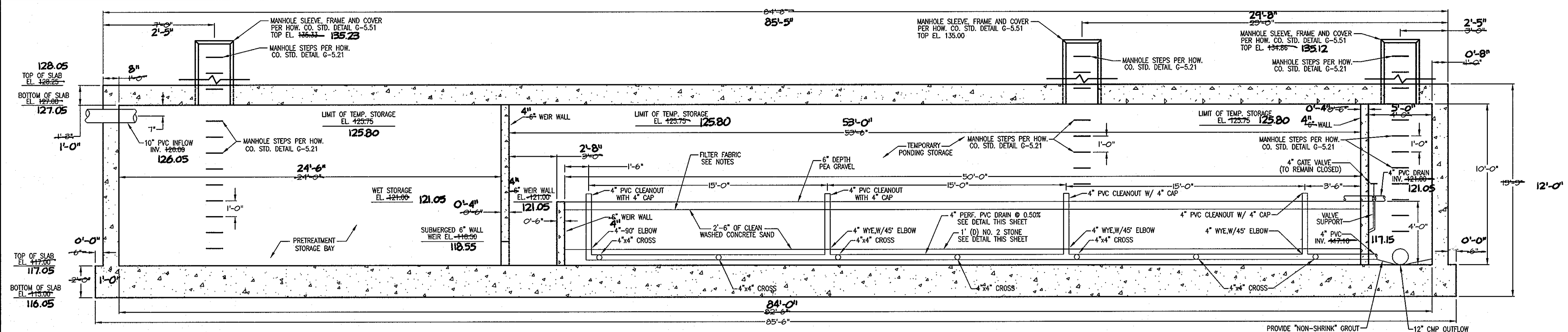
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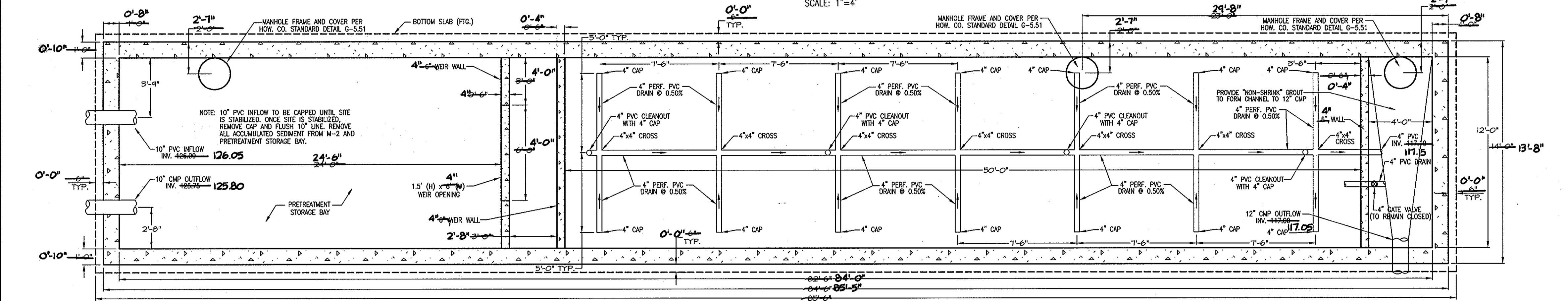






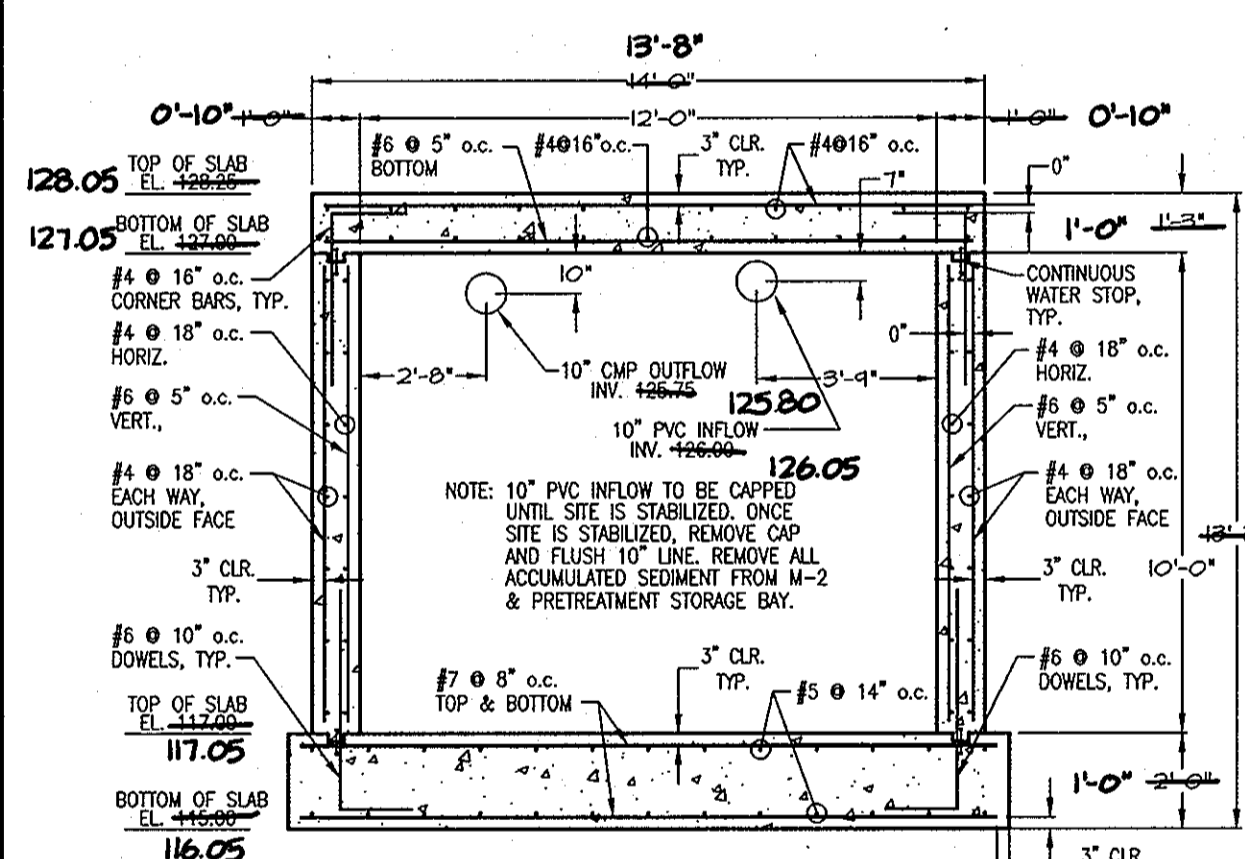


**SECTION A-A UNDERGROUND SAND FILTER FACILITY (SWMF #1)**  
SCALE: 1"=4'

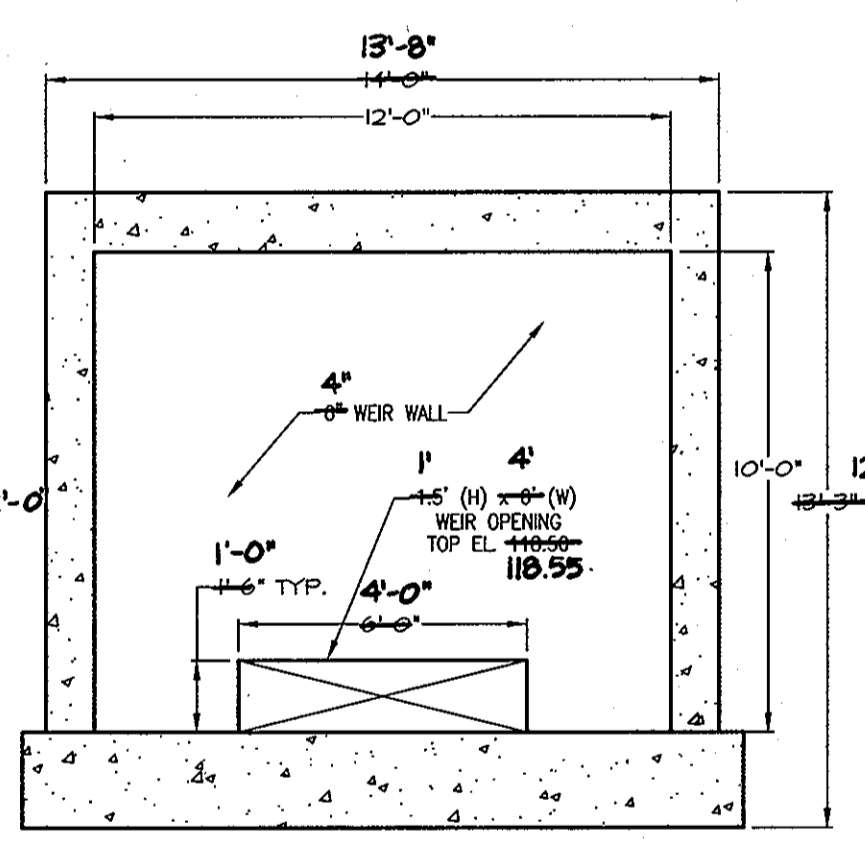


**SECTION B-B UNDERGROUND SAND FILTER FACILITY (SWMF #1)**  
SCALE: 1"=4'

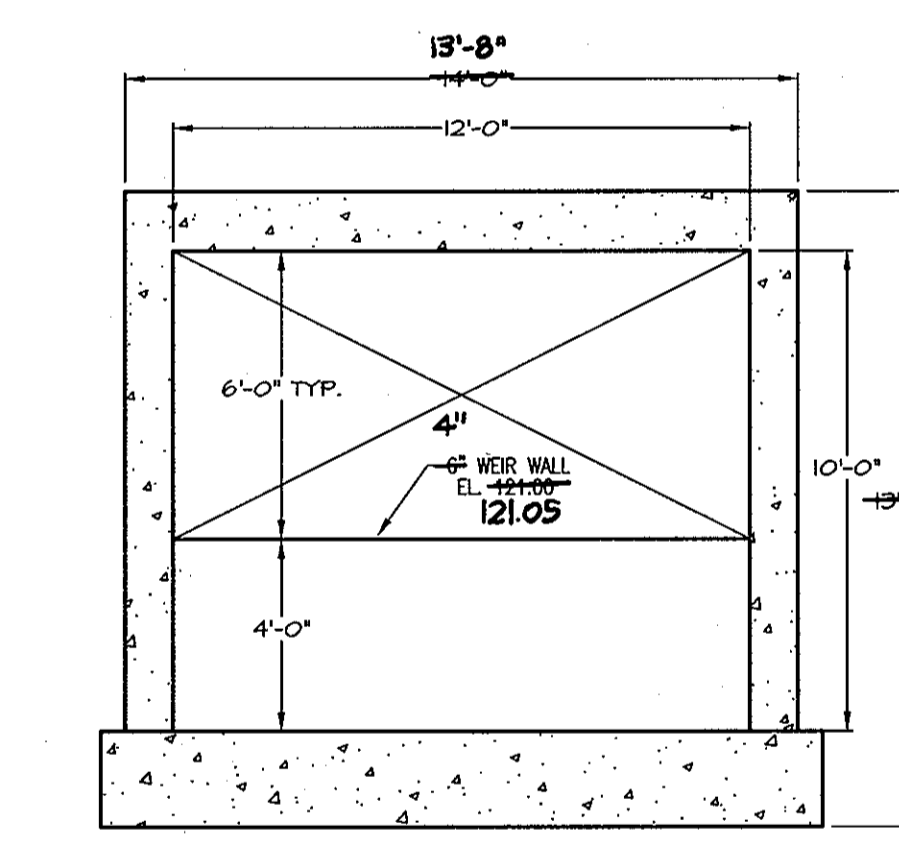
NOTE: SEE SHEET 8 FOR CONCRETE CONSTRUCTION NOTES & SPECIFICATIONS.



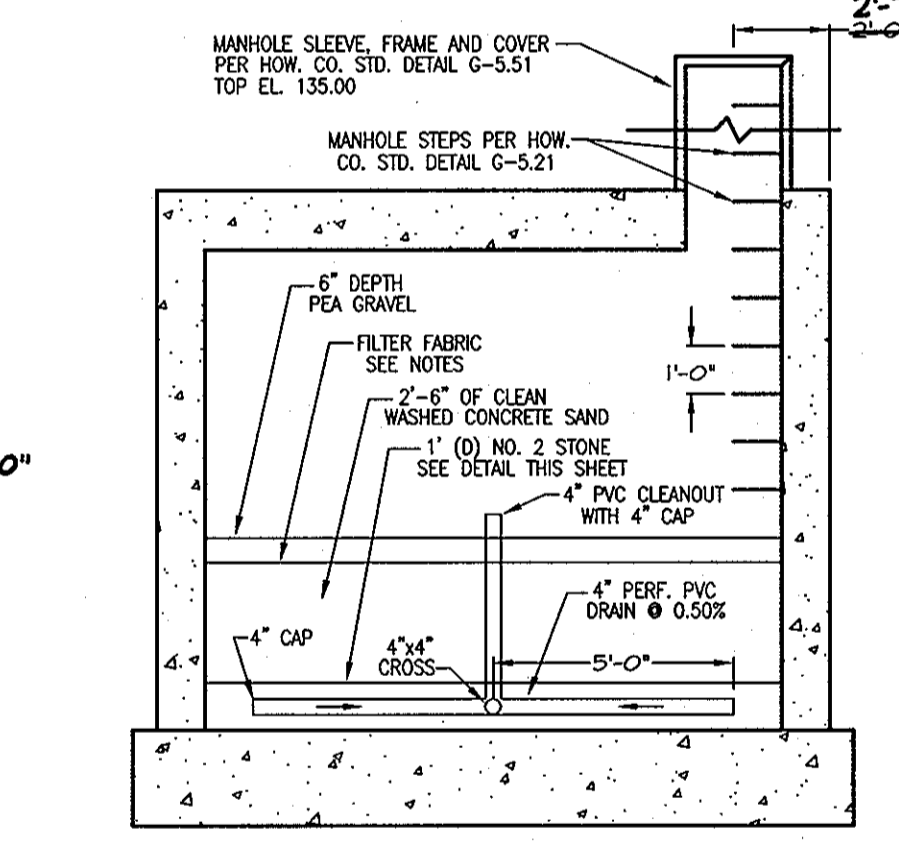
**SECTION C-C REINFORCEMENT DETAIL (SWMF #1)**  
SCALE: 1"=4'



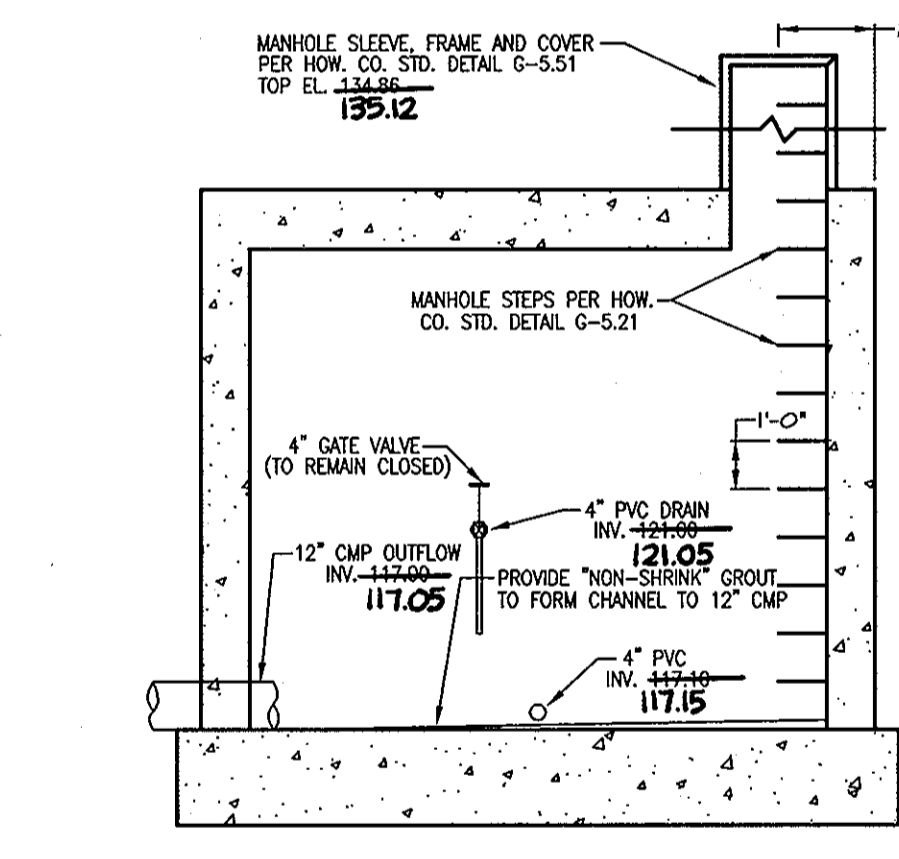
**SECTION D-D UNDERGROUND SAND FILTER FACILITY (SWMF #1)**  
SCALE: 1"=4'



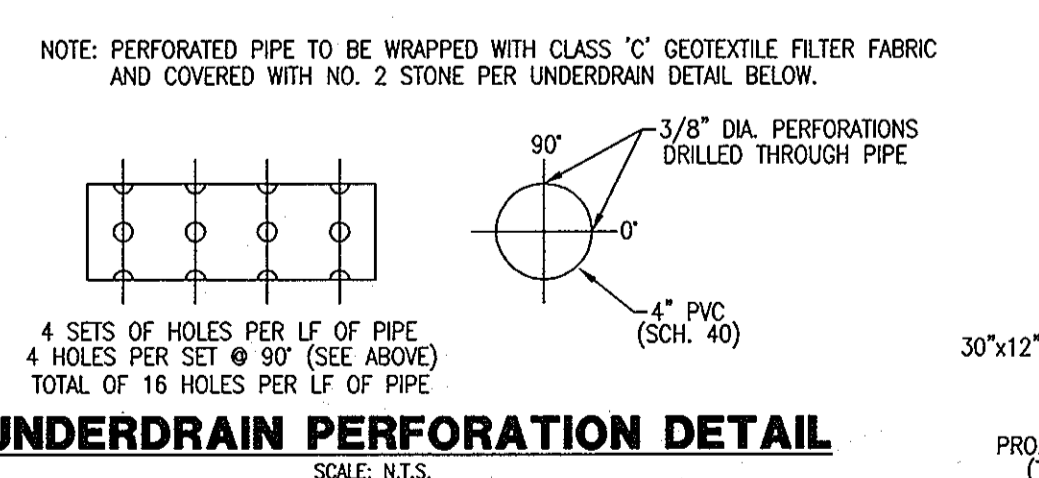
**SECTION E-E UNDERGROUND SAND FILTER FACILITY (SWMF #1)**  
SCALE: 1"=4'



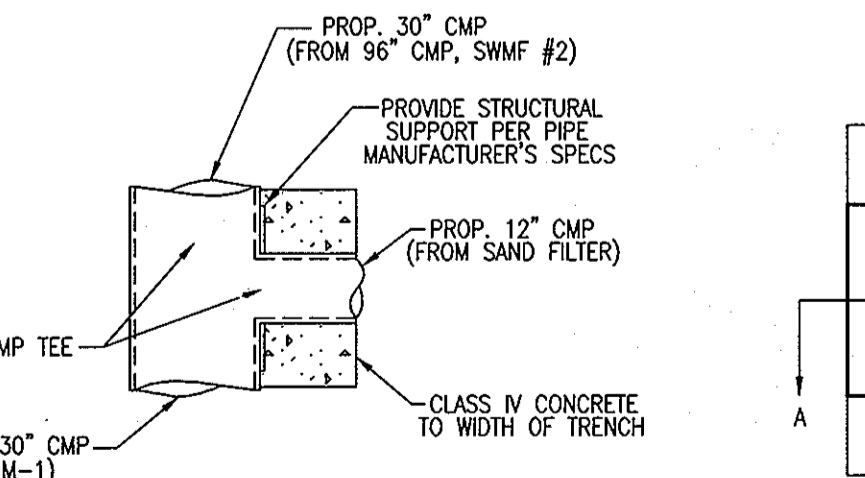
**SECTION F-F UNDERGROUND SAND FILTER FACILITY (SWMF #1)**  
SCALE: 1"=4'



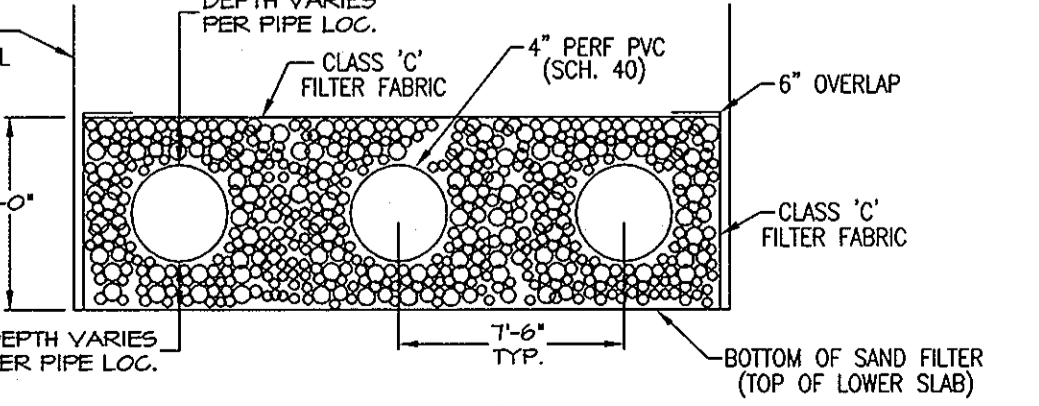
**SECTION G-G UNDERGROUND SAND FILTER FACILITY (SWMF #1)**  
SCALE: 1"=4'



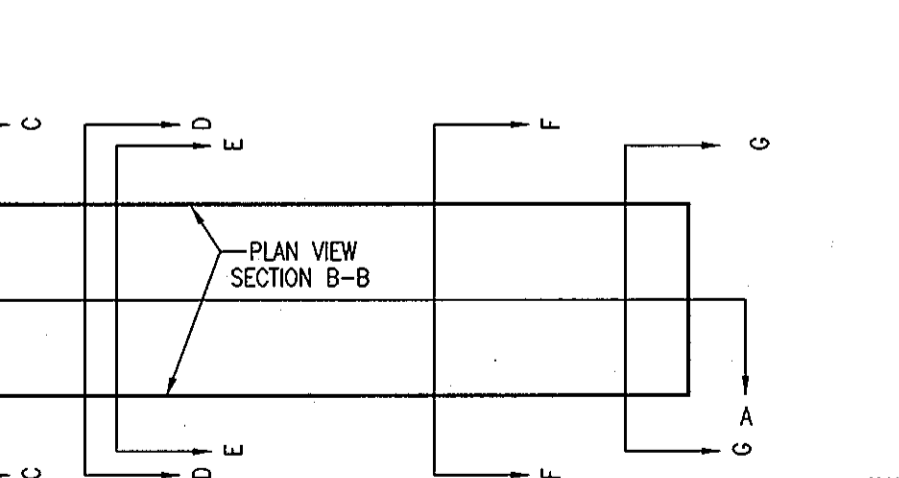
**UNDERDRAIN PERFORATION DETAIL**  
SCALE: N.T.S.



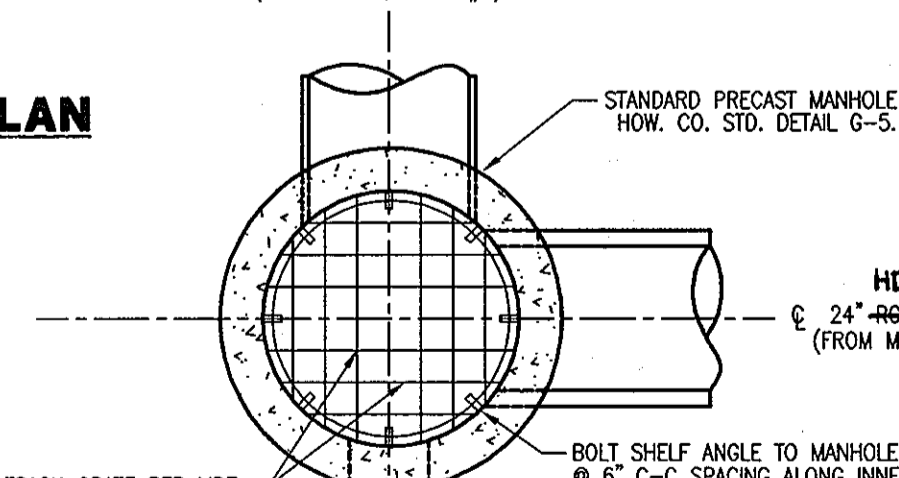
**FIELD CONNECTION DETAIL**  
SCALE: 1"=4'



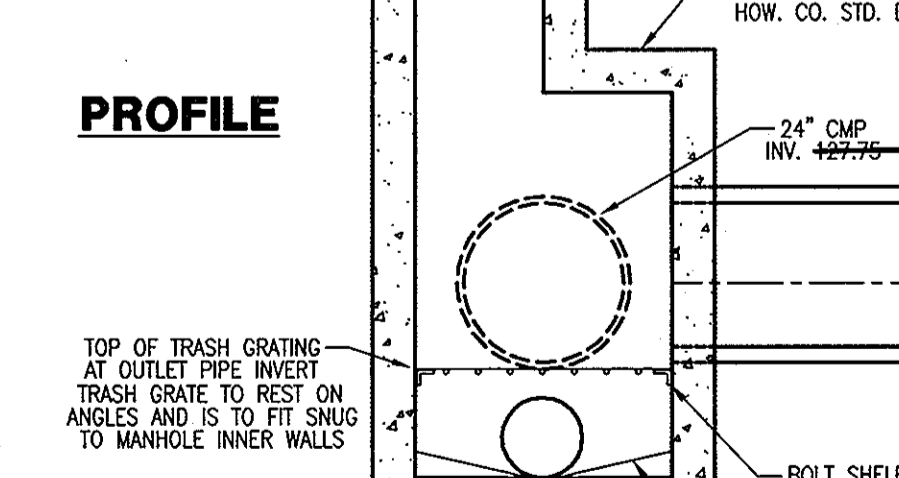
**UNDERDRAIN DETAIL**  
SCALE: N.T.S.



**UNDERGROUND SAND FILTER SECTION LOCATIONS**  
SCALE: N.T.S.



**STRUCTURE M-2 DETAIL**  
SCALE: N.T.S.



**STRUCTURE M-2 DETAIL**  
SCALE: N.T.S.

**SAND FILTER SPECIFICATIONS**

- MATERIAL SPECIFICATIONS FOR SAND FILTER**  
THE ALLOWABLE MATERIALS FOR SAND FILTER CONSTRUCTION ARE DETAILED IN TABLE B.3.1. (SEE PAGE SDP-3)
- SAND FILTER TESTING SPECIFICATIONS**  
UNDERGROUND SAND FILTERS, FACILITIES WITHIN SENSITIVE GROUNDWATER AQUIFERS, AND FILTERS DESIGNED TO SERVE URBAN HOT SPOTS ARE TO BE TESTED FOR WATER TIGHTNESS PRIOR TO PLACEMENT OF FILTER MEDIA. ENTRANCES AND EXITS SHOULD BE PLUGGED AND THE SYSTEM COMPLETELY FILLED WITH WATER TO DEMONSTRATE WATER TIGHTNESS. WATER TIGHTNESS MEANS NO LEAKAGE FOR A PERIOD OF 8 HOURS.  
ALL OVERFLOW WEIRS, MULTIPLE ORIFICES AND FLOW DISTRIBUTION SLOTS ARE TO BE FIELD-TESTED TO VERIFY ADEQUATE DISTRIBUTION OF FLOWS.
- SAND FILTER CONSTRUCTION SPECIFICATIONS**  
PROVIDE SUFFICIENT MAINTENANCE ACCESS (I.E., 12'-FOOT-WIDE ROAD WITH LEGALLY RECORDED EASEMENT), VEGETATED ACCESS SLOPES ARE TO BE MAXIMUM OF 10%; GRAVEL SLOPES TO 15%; PAVED SLOPES TO 25%. ABSOLUTELY NO RUNOFF IS TO ENTER THE FILTER UNTIL ALL CONTRIBUTING DRAINAGE AREAS HAVE BEEN STABILIZED. SURFACE OR FILTER BED IS TO BE LEVEL.  
ALL UNDERGROUND SAND FILTERS SHOULD BE CLEARLY DELINEATED WITH SIGNS SO THAT THEY MAY BE LOCATED WHEN MAINTENANCE IS DUE.  
SURFACE SAND FILTERS MAY BE PLANTED WITH APPROPRIATE GRASSES. SEE APPENDIX A.  
"POCKET" SAND FILTERS (AND RESIDENTIAL BIOTRENMENT FACILITIES TREATING AREAS LARGER THAN AN ACRE) SHALL BE PLACED WITH A STONE "WINDOW" THAT COVERS APPROXIMATELY 10% OF THE FILTER AREA. THIS "WINDOW" SHALL BE FILLED PEA GRAVEL (3/4 INCH STONE)
- SPECIFICATIONS PERTAINING TO UNDERGROUND SAND FILTERS (F-2)**  
PROVIDE MANHOLE AND/OR GRATES TO ALL UNDERGROUND AND BELOW GRADE STRUCTURES. MANHOLES SHALL BE IN COMPLIANCE WITH STANDARD SPECIFICATIONS FOR EACH COUNTY BUT DIAMETERS SHALL BE 30" MINIMUM (TO COMPLY WITH OSHA CONFINED SPACE REQUIREMENTS). ALUMINUM AND STEEL LOUVERED DOORS ARE ALSO ACCEPTABLE. TEN INCH WIDE (MINIMUM) MANHOLE STEPS (12" O.C.) SHALL BE CAST IN PLACE OR DRILLED AND MORTARED INTO THE WALL BELOW EACH MANHOLE. A 5' MINIMUM HEIGHT CLEARANCE (FROM THE TOP OF THE SAND LAYER TO THE BOTTOM OF THE UPPER/SURFACE SLAB) IS REQUIRED FOR ALL PERMANENT UNDERGROUND STRUCTURES. LIFT RINGS ARE TO BE SUPPLIED TO REMOVE/REPLACE TOP SLABS ON PRE-FABRICATED STRUCTURES. MANHOLE COVERS SHOULD ALLOW FOR PROPER VENTILATION.  
UNDERGROUND SAND FILTERS SHOULD BE CONSTRUCTED WITH A GATE VALVE LOCATED JUST ABOVE THE TOP OF THE FILTER BED FOR DEWATERING IN THE EVENT THAT CLOGGING OCCURS.  
UNDERGROUND SAND BEDS SHALL BE PROTECTED FROM TRASH ACCUMULATION BY A WIDE MESH GEOTEXTILE SCREEN TO BE PLACED ON THE SURFACE OF THE SAND BED; SCREEN IS TO BE ROLLED UP, REMOVED, CLEANED AND RE-INSTALLED DURING MAINTENANCE OPERATIONS.

**MAINTENANCE & REPAIR SCHEDULE**

- MAINTENANCE AND REPAIR SHALL BE CONDUCTED IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL REQUIREMENTS. IN GENERAL, THE PRACTICES CONTAINED IN THE "MAINTENANCE AND REPAIR" CHAPTER OF THE "MANHOLE AND SANITARY MANHOLE" DIVISION 1088, AND ANY ADDENDA THERETO, AND SHOULD BE FOLLOWED AND CONDUCTED UNDER THE SUPERVISION OF A QUALIFIED PROFESSIONAL ENGINEER FAMILIAR WITH DAM CONSTRUCTION, OPERATION, MAINTENANCE, AND REPAIR.
- IN ADDITION, THE MD-378 DAM INSPECTION CHECKLIST MAY BE USED AS A GUIDE FOR MAINTENANCE AND INSPECTION.
- AT A MINIMUM, THE STORMWATER MANAGEMENT FACILITY SHALL BE INSPECTED BI-ANNUALLY FOR THE FOLLOWING ITEMS:
- CONDITION OF FOUNDATION, INTERIOR WALLS, AND TOP SLAB.
  - CONDITION OF ALL WEIR WALLS.
  - CONDITION OF ACCESS MANHOLES.
  - CONDITION OF SPILLWAYS AND PIPE OUTLETS.
  - CONDITION OF PRETREATMENT STORAGE AREA.
  - CONDITION OF SAND FILTER BED AND FILTER BED PIPE DRAINS.
  - SEDIMENT LOAD IN PRETREATMENT STORAGE AREA AND FILTER BED.
  - SEEPAGE INTO FACILITY THROUGH FOUNDATION OR INTERIOR WALLS.
  - ANY OTHER ITEMS WHICH COULD AFFECT THE FUNCTION OF THE SWM FACILITY.
  - EVIDENCE OF CLOGGING OF ALL OPENINGS AND FILTER BED PIPE DRAINS.
  - EROSION OF SAND FILTER BED.
  - CRACKING OF CONCRETE FOUNDATION, INTERIOR WALLS, AND TOP SLAB.

**CONSTRUCTION INSPECTION SCHEDULE**

- UNDERGROUND SAND FILTER STRUCTURES
- INSPECTIONS SHALL BE CONDUCTED BY THE AS-BUILT CERTIFYING ENGINEER:
    - UPON THE COMPLETION OF EXCAVATION TO SUB-FOUNDATION AND WHEN REQUIRED, AND UPON THE INSTALLATION OF STRUCTURAL SUPPORTS OR REINFORCEMENT FOR STRUCTURES, INCLUDING BUT NOT LIMITED TO:
      - REINFORCEMENT AND FORM WORK FOR FOUNDATION, WALLS, AND TOP SLAB OF UNDERGROUND CONCRETE VAULT.
      - INLET OR OUTLET STRUCTURES.
      - WATER-TIGHT CONNECTORS ON PIPES.
      - TRENCHES FOR ENCLOSED STORM DRAIN FACILITIES.
      - UTILITY CROSSINGS OF INFLOW OR OUTFLOW PIPES.
  - DURING THE PLACEMENT OF STRUCTURAL FILL AND CONCRETE, AND INSTALLATION OF PIPING.
  - DURING BACKFILL OF FOUNDATIONS AND TRENCHES.
  - UPON COMPLETION OF FINAL GRADING AND ESTABLISHMENT OF PERMANENT STABILIZATION.

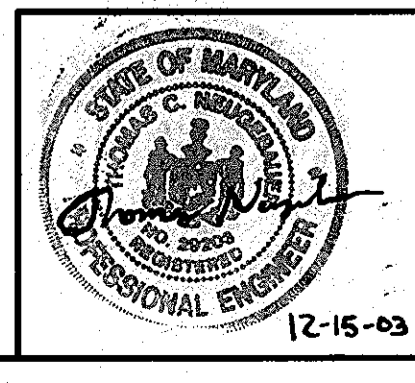
OWNER:		FAX NO.: 410-964-0223	
A. NAME: Bruce Jaffe	B. DAYTIME TELEPHONE: 301-596-0222		
C. COMPANY: Morlick L.L.C.			
D. ADDRESS: 11628 Log Jump Trail			
E. CITY: Ellicott City	STATE: MD	ZIP: 21042	
DEVELOPER:		FAX NO.: 410-964-0223	
A. NAME: Bruce Jaffe	B. DAYTIME TELEPHONE: 301-596-0222		
C. COMPANY: The Sanford Companies, Inc.			
D. ADDRESS: 11628 Log Jump Trail			
E. CITY: Ellicott City	STATE: MD	ZIP: 21042	

APPROVED: DEPARTMENT OF PLANNING AND ZONING

*[Signature]* 11/6/04  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

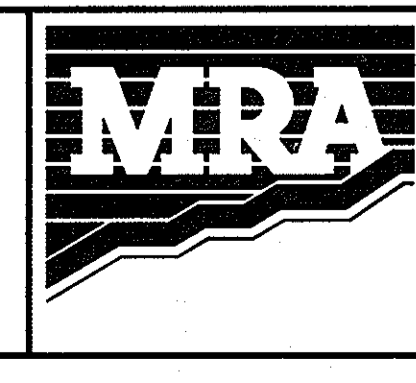
*[Signature]* 11/6/04  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*[Signature]* 11/6/04  
 DIRECTOR, DEPARTMENT OF PLANNING AND ZONING DATE



DATE	REVISIONS	JOB NO.:	11570.02
		SCALE:	AS SHOWN
		DATE:	12/15/03
		DRAWN BY:	TCN
		DESIGN BY:	TCN
		REVIEW BY:	PVM, TFM
		SHEET:	6 OF 20

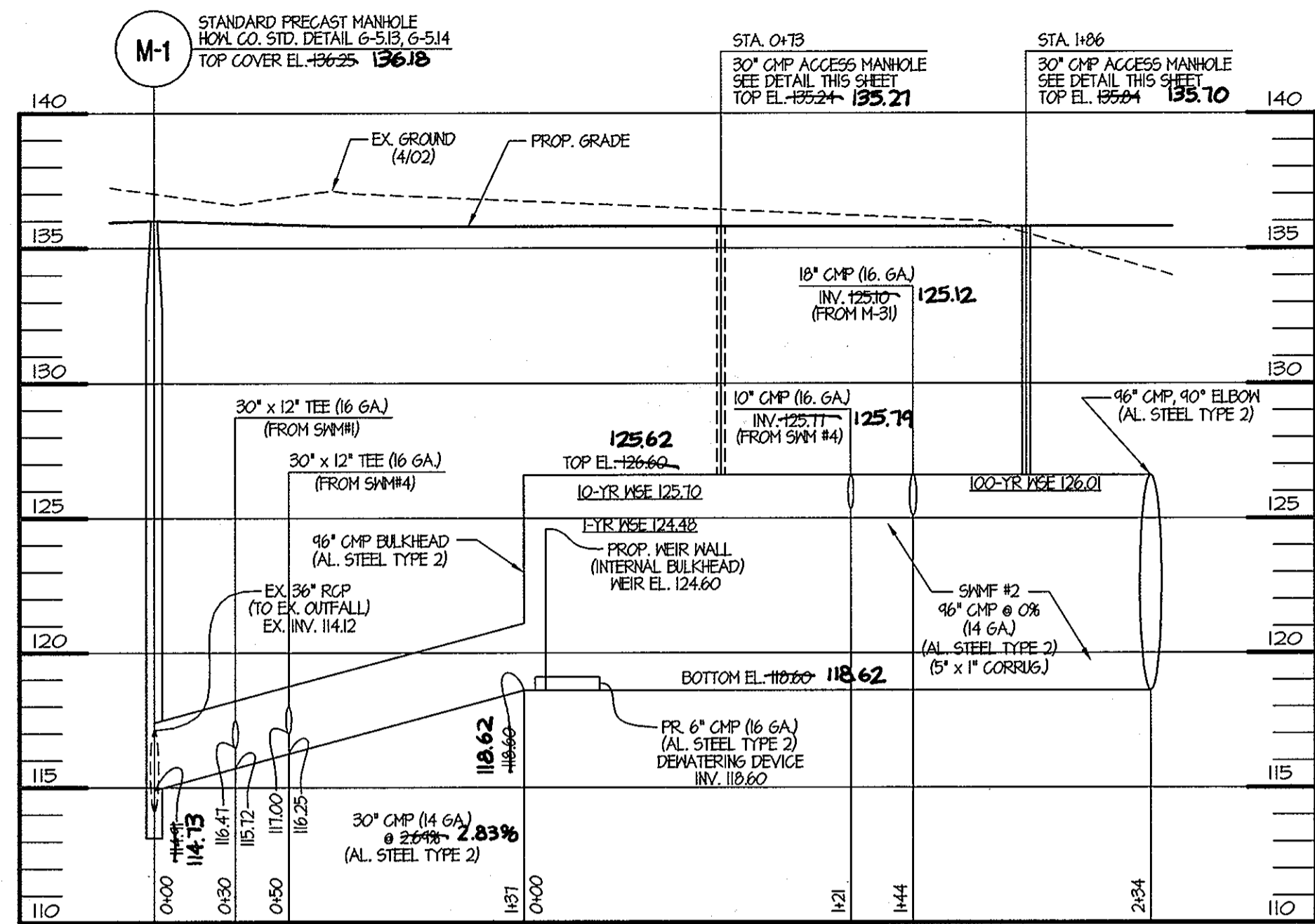
**SANTA BARBARA CT.**  
**ROUTE 100 BUSINESS PARK**  
**BLOCK F PARCEL F**  
**SITE DEVELOPMENT PLAN**  
**STORMWATER MANAGEMENT DETAILS**  
 TAX MAP 38 BLOCK F PARCEL F  
 1ST ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND



**MORRIS & RITCHIE ASSOCIATES, INC.**  
 ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS

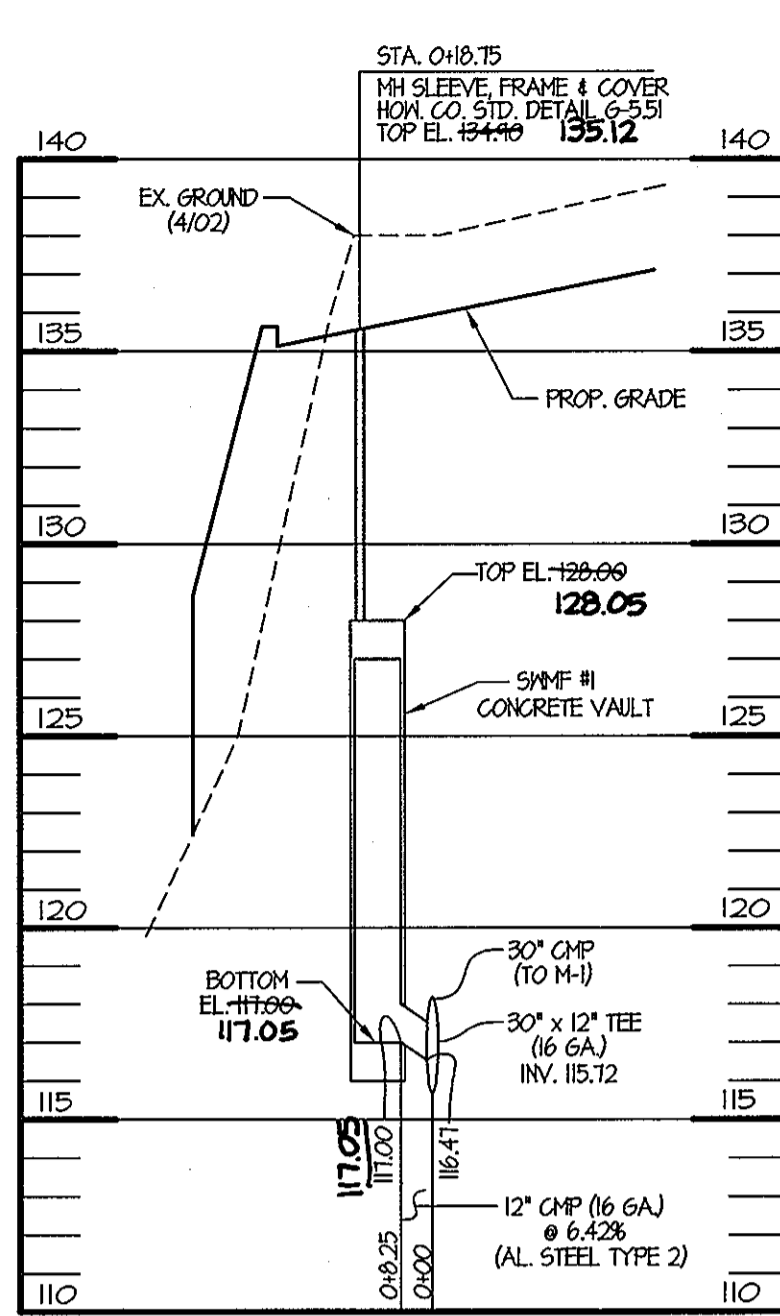
9090 JUNCTION DRIVE, SUITE 9  
 ANNAPOLIS JUNCTION, MARYLAND 20701  
 (410) 792-9792 or (301) 776-1690  
 FAX (410) 792-7395





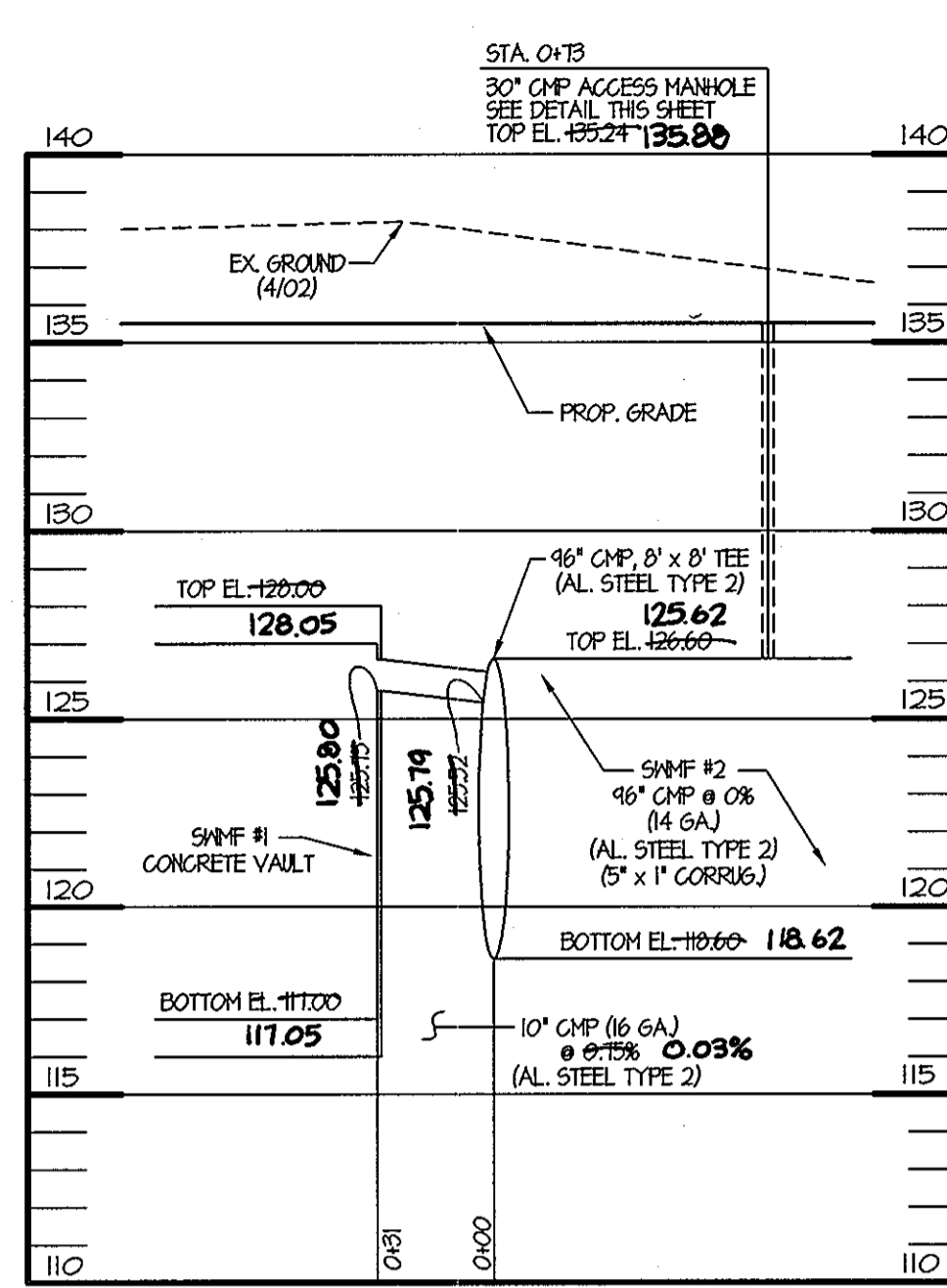
**SWMF#2 OUTFALL PROFILE**

SCALE: HOR. 1" = 50'  
VERT. 1" = 5'



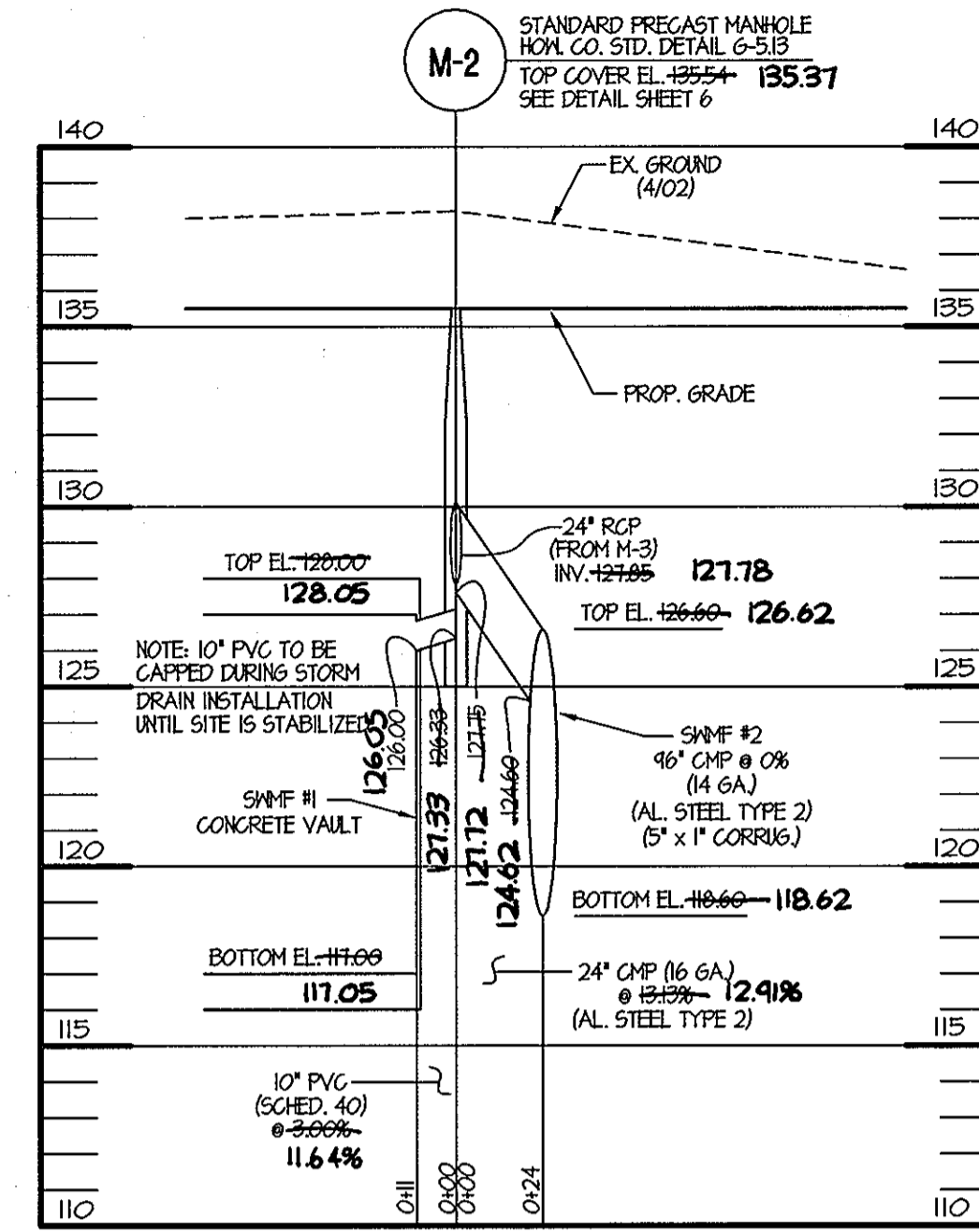
**SWMF#1 OUTFALL PROFILE**

SCALE: HOR. 1" = 50'  
VERT. 1" = 5'



**SWMF#1 OVERFLOW PROFILE**

SCALE: HOR. 1" = 50'  
VERT. 1" = 5'



**SWMF 1&2, INFLOW PROFILE**

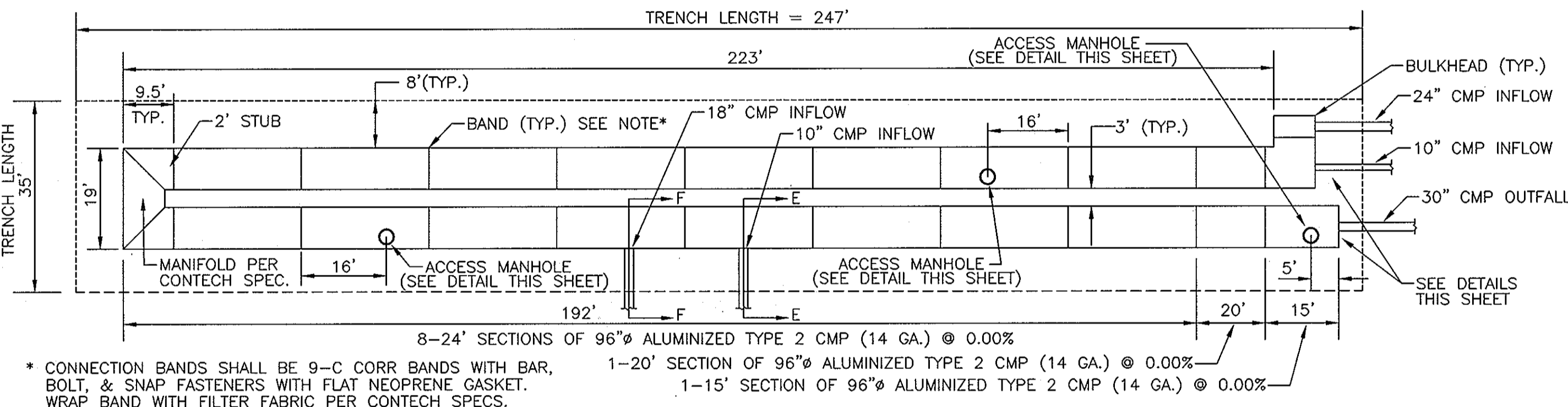
SCALE: HOR. 1" = 50'  
VERT. 1" = 5'

**OPERATION AND MAINTENANCE SCHEDULE FOR UNDERGROUND FACILITIES**

1. THE UNDERGROUND SWM FACILITY IS PRIVATELY OWNED AND IT SHALL BE THE RESPONSIBILITY OF THE OWNER TO PERIODICALLY INSPECT AND CLEAN THE FACILITY TO MAINTAIN ITS OPERATION AND FUNCTION.
2. THE UNDERGROUND SWM FACILITY SHALL BE INSPECTED YEARLY AT A MINIMUM AND AFTER ESPECIALLY SEVERE STORM EVENTS.
3. WHEN SEDIMENT ACCUMULATION OF MORE THAN 2" IS OBSERVED OR ANY DEBRIS THAT MIGHT OBSTRUCT THE OUTFALL IS OBSERVED, THE FACILITY SHALL BE CLEANED.
4. THE FACILITY SHALL BE CLEANED IMMEDIATELY AFTER PETROLEUM SPILLS. THE OWNER SHALL CONTACT THE APPROPRIATE REGULATOR AGENCIES NOTIFYING THEM OF THE SPILL AND CLEANUP OPERATION.
5. THE SEDIMENT AND DEBRIS SHALL BE REMOVED FROM THE UNDERGROUND SWM FACILITY BY VACUUM TRUCK OR OTHER MANUAL MEANS. THE OWNER SHALL FOLLOW PROPER CLEANING AND DISPOSAL OF THE REMOVED MATERIAL AND LIQUID.
6. THE INLET AND OUTLET PIPES SHALL BE CHECKED FOR ANY OBSTRUCTIONS AT LEAST ONCE EVERY SIX (6) MONTHS. IF OBSTRUCTIONS ARE FOUND, THE OWNER SHALL HAVE THEM REMOVED AND PROPERLY DISPOSED OF.
7. THE STORMWATER MANAGEMENT FACILITY OWNER(S) AND ANY HEIRS, SUCCESSORS OR ASSIGNS SHALL BE RESPONSIBLE FOR SAFETY OF THE FACILITY AND CONTINUED OPERATION, SURVEILLANCE, INSPECTION, AND MAINTENANCE THEREOF. THE OWNERS SHALL EMPLOY A QUALIFIED ENGINEER TO MAKE YEARLY INSPECTIONS OF THE UNDERGROUND SYSTEM AND RECOMMEND REPAIRS AS DEEMED NECESSARY.

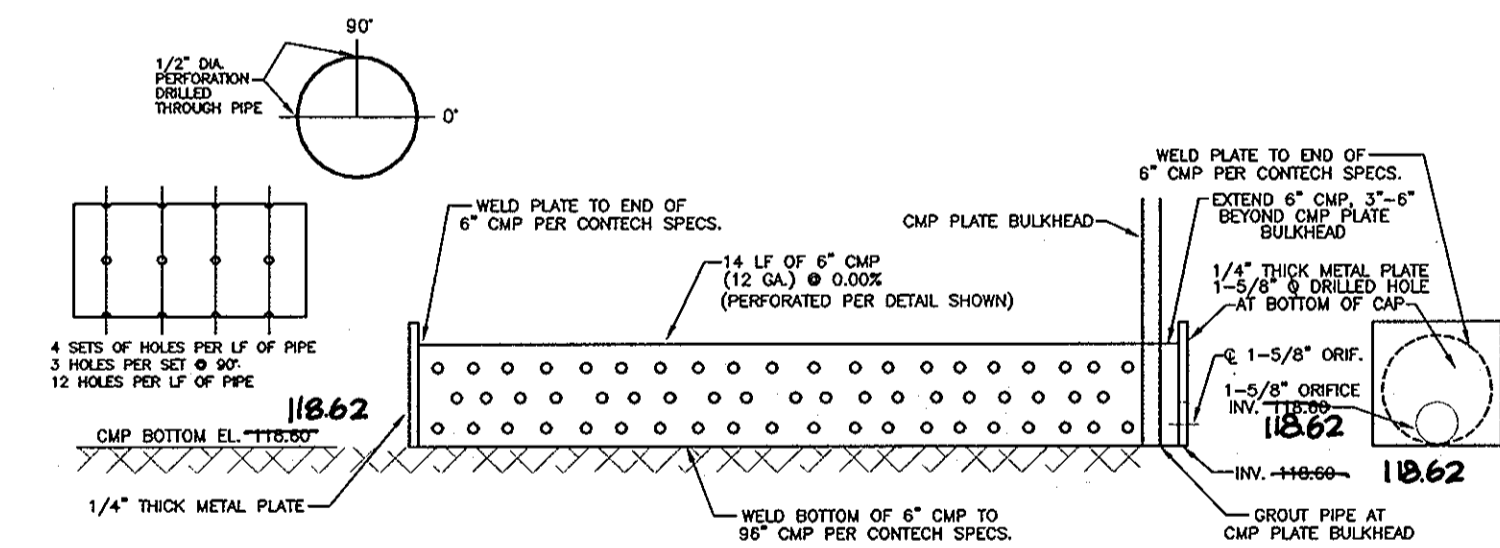
**CONSTRUCTION SPECIFICATIONS**

- A. BEDDING
  1. THE BED SHALL BE PLACED TO UNIFORM GRADE AND LINE TO ENSURE GOOD VERTICAL ALIGNMENT AND TO AVOID EXCESSIVE STRESSES AT PIPE JOINTS. THE BEDDING SHALL BE FREE OF ROCK FORMATIONS, PROTRUDING STONES, FROZEN LUMPS, ROOTS, AND OTHER FOREIGN MATERIAL. THE BEDDING FOUNDATION MUST BE A STABLE, WELL GRADED GRANULAR MATERIAL. ANY MATERIAL THAT HAS INADEQUATE BEARING CAPACITY MUST BE REMOVED AND REPLACED WITH A COMPACTED SELECT FILL APPROVED BY THE GEOTECHNICAL ENGINEER.
- B. BACKFILL
  1. THE FILL MATERIAL SHALL BE FREE OF ROCKS, FROZEN LUMPS, AND FOREIGN MATTER THAT COULD CAUSE HARD SPOTS IN BACKFILL OR THAT COULD DECOMPOSE AND CREATE VOIDS.
  2. BACKFILL MATERIAL SHALL BE A WELL GRADED GRANULAR MATERIAL.
  3. HIGHLY PLASTIC SILTS, HIGHLY PLASTIC CLAYS, ORGANIC SILTS, ORGANIC SLUDGES, AND PEATS SHALL NOT BE USED AS BACKFILL MATERIAL.
  4. BACKFILL SHALL BE PLACED SYMMETRICALLY ON EACH SIDE OF THE STRUCTURE IN SIX-INCH TO EIGHT-INCH LOOSE LAYERS TO ONE FOOT ABOVE THE TOP OF THE PIPE. EACH LAYER IS TO BE COMPACTED TO THE SPECIFIED DENSITY (MINIMUM 90%) BEFORE PLACING THE NEXT LAYER. REFERENCE ASTM A798.
- C. BIDDING
  1. THE PIPE FABRICATOR SHALL PROVIDE SPECIFICATIONS OF ALL MATERIALS (BASED ON HS-20 LOADING).
  2. SHOP DRAWINGS ARE TO BE PROVIDED BY FABRICATOR. APPROVAL BY ENGINEER IS REQUIRED PRIOR TO CONSTRUCTION.
  3. CONTRACTOR IS REQUIRED TO COORDINATE APPROVAL OF SHOP DRAWINGS AND SPECIFICATIONS AND SHALL BE OBLIGATED FOR ANY COST THEREOF.



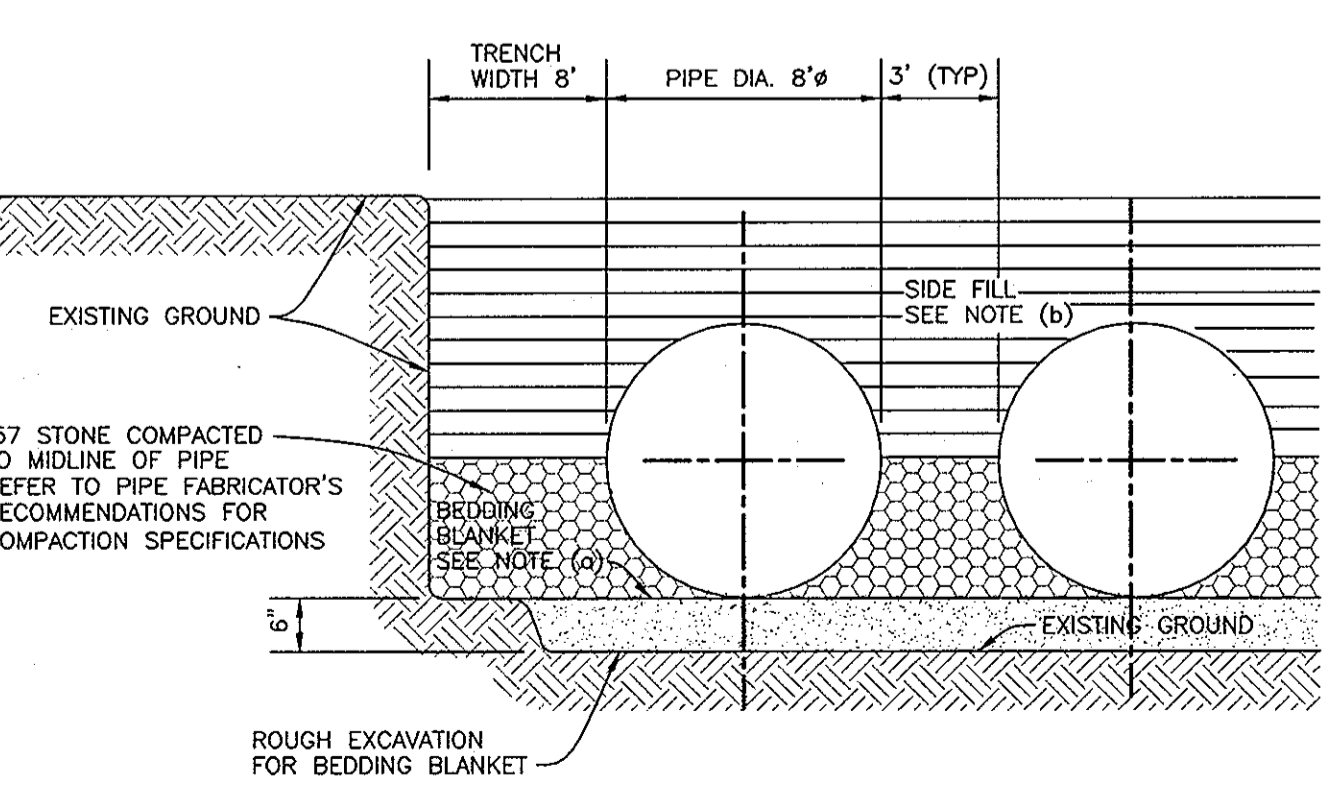
**PIPE LAYOUT**  
NOT TO SCALE

\* CONNECTION BANDS SHALL BE 9-C CORR BANDS WITH BAR, BOLT, & SNAP FASTENERS WITH FLAT NEOPRENE GASKET. WRAP BAND WITH FILTER FABRIC PER CONTECH SPECS.

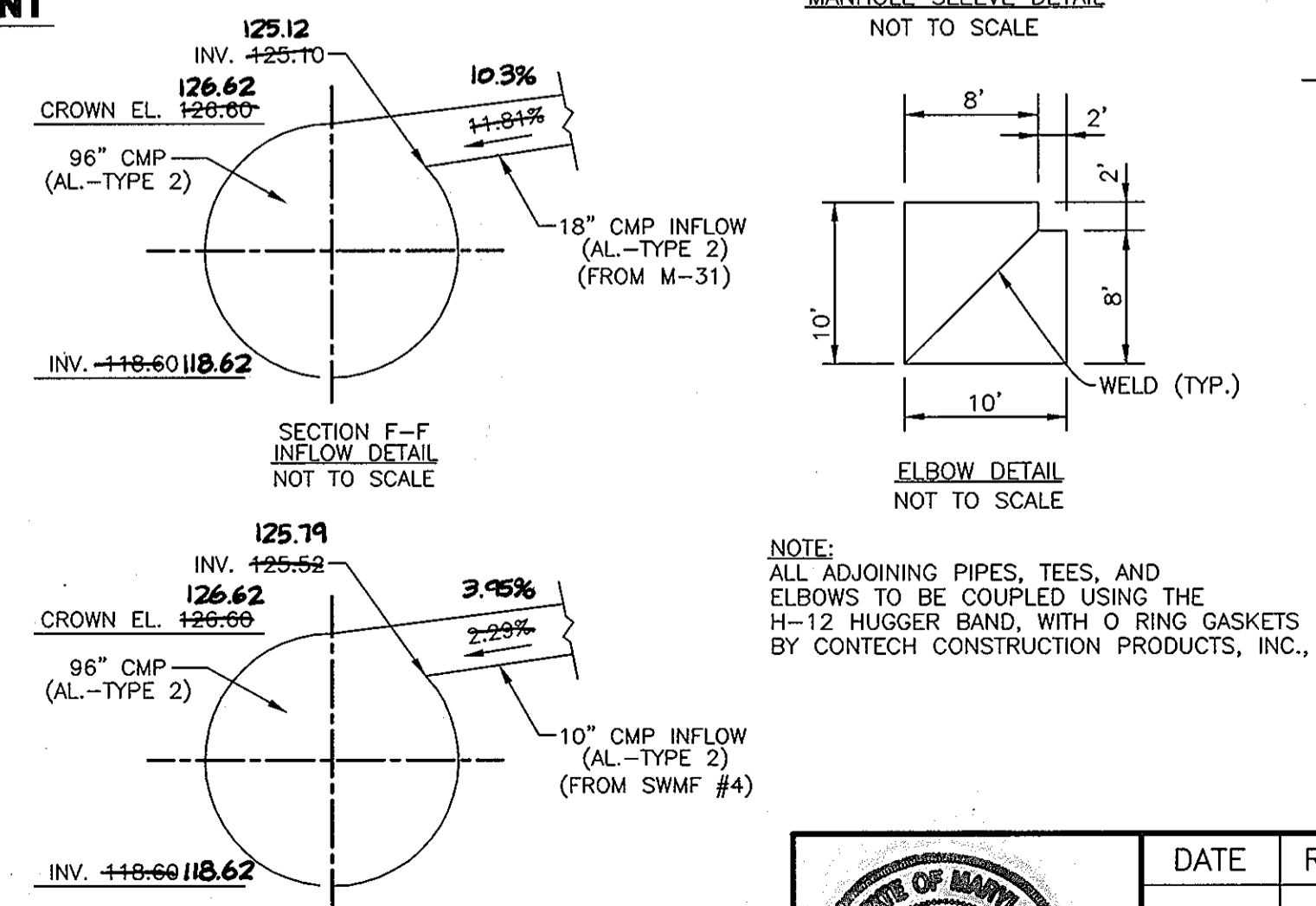


**DEWATERING DEVICE DETAIL FOR STORMWATER MANAGEMENT**

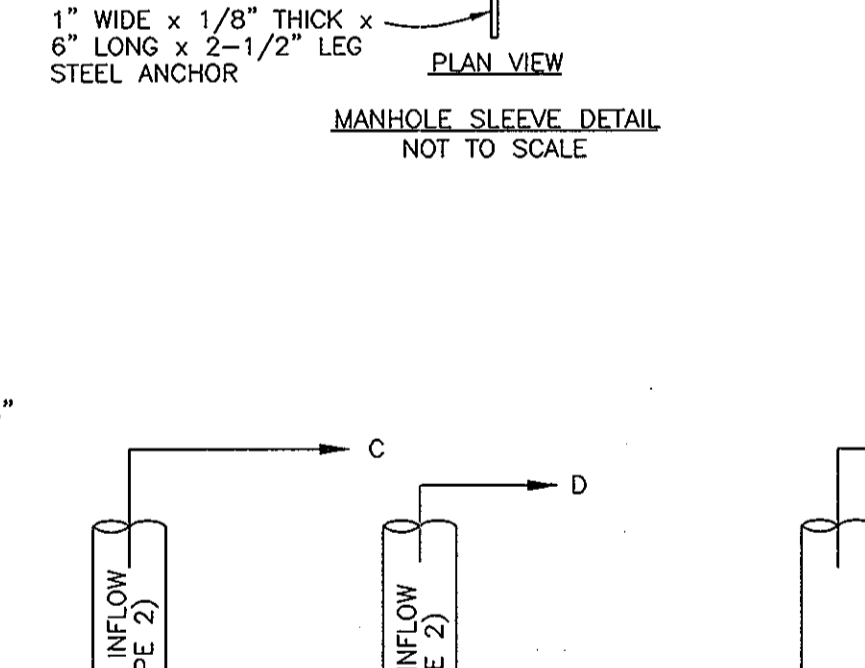
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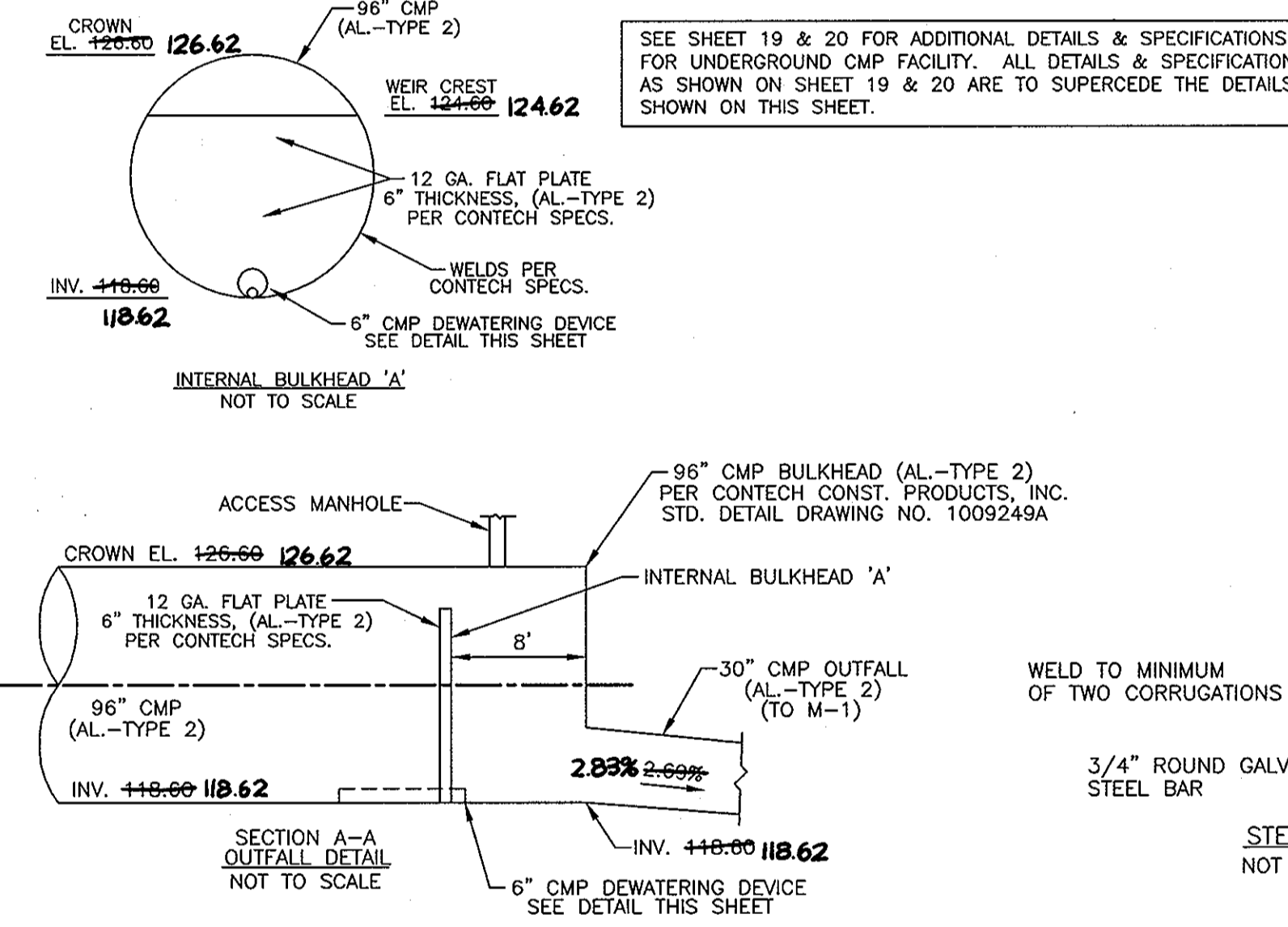
**BEDDING AND BACKFILL DETAIL**  
N.T.S.



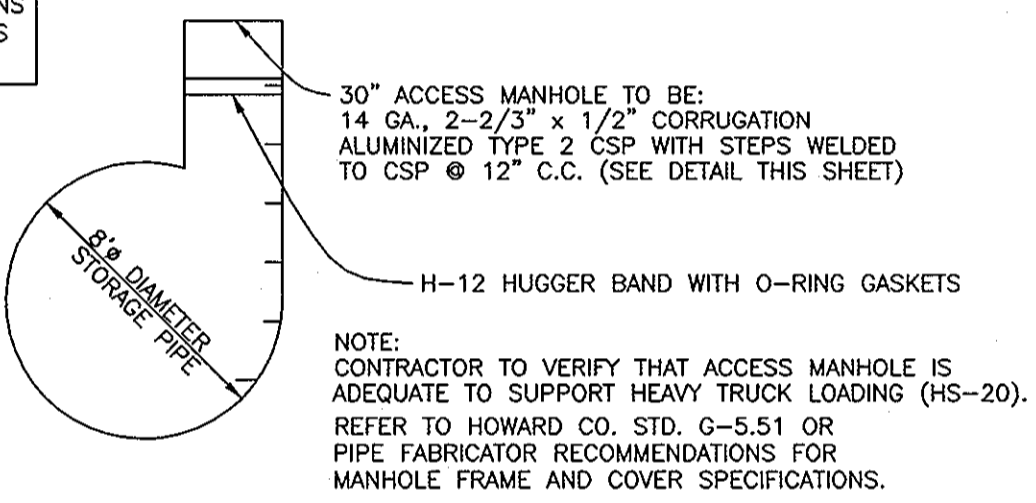
**INFLOW/OUTFLOW DETAIL**  
NOT TO SCALE



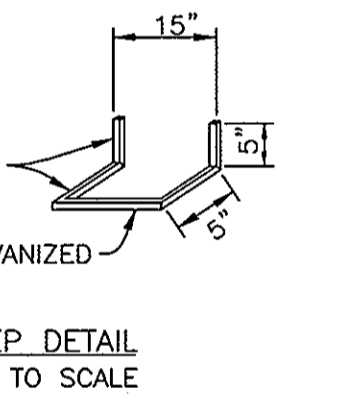
**MANHOLE SLEEVE DETAIL**  
NOT TO SCALE



**ACCESS MANHOLE DETAIL**  
NOT TO SCALE



NOTE: CONTRACTOR TO VERIFY THAT ACCESS MANHOLE IS ADEQUATE TO SUPPORT HEAVY TRUCK LOADING (HS-20). REFER TO HOWARD CO. STD. G-5.51 OR PIPE FABRICATOR RECOMMENDATIONS FOR MANHOLE FRAME AND COVER SPECIFICATIONS.



**STEP DETAIL**  
NOT TO SCALE

**SUMMARY OF SWMF #2**

DESIGN STORM	PROPOSED FACILITY INFLOW (CFS)	PROPOSED FACILITY DISCHARGE (CFS)	FACILITY WATER SURFACE ELEVATION (FT)	FACILITY STORAGE VOLUME (AC.-FT.)
1 YR	9.48	0.26	124.8	0.42
10 YR	20.72	20.72	125.70	0.50
100 YR	30.00	29.65	126.01	0.52

DRAINAGE AREA 4.07 ACRES  
IMPERVIOUS AREA 3.57 ACRES

**OWNER:** Bruce Jaffe  
**FAX NO.:** 410-964-0223

**COMPANY:** Morick L.L.C.  
**DAYTIME TELEPHONE:** 301-596-0222

**ADDRESS:** 11628 Log Jump Trail  
**CITY:** Ellicott City, **STATE:** MD, **ZIP:** 21042

**DEVELOPER:** Bruce Jaffe  
**FAX NO.:** 410-964-0223

**COMPANY:** The Sanford Companies, Inc.  
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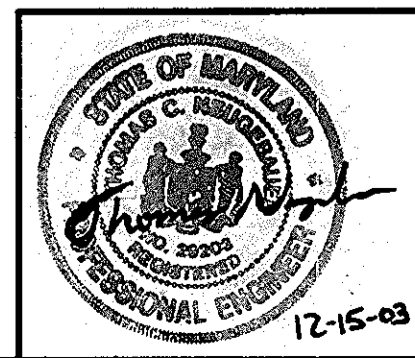
**ADDRESS:** 11628 Log Jump Trail  
**CITY:** Ellicott City, **STATE:** MD, **ZIP:** 21042

APPROVED: DEPARTMENT OF PLANNING AND ZONING

*[Signature]* 1/16/04  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

*[Signature]* 1/19/04  
CHIEF, DIVISION OF LAND DEVELOPMENT

*[Signature]* 1/16/04  
DIRECTOR, DEPARTMENT OF PLANNING AND ZONING



DATE	REVISIONS	JOB NO.:
		11570.02
		SCALE: AS SHOWN
		DATE: 12/15/03
		DRAWN BY: TCN
		DESIGN BY: TCN
		REVIEW BY: PVM, TFM
		SHEET: 7 OF 20

**SANTA BARBARA CT.**  
**ROUTE 100 BUSINESS PARK**  
**BLOCK F PARCEL F**  
**SITE DEVELOPMENT PLAN**  
**STORMWATER MANAGEMENT DETAILS**

TAX MAP 38 BLOCK F PARCEL F  
1ST ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

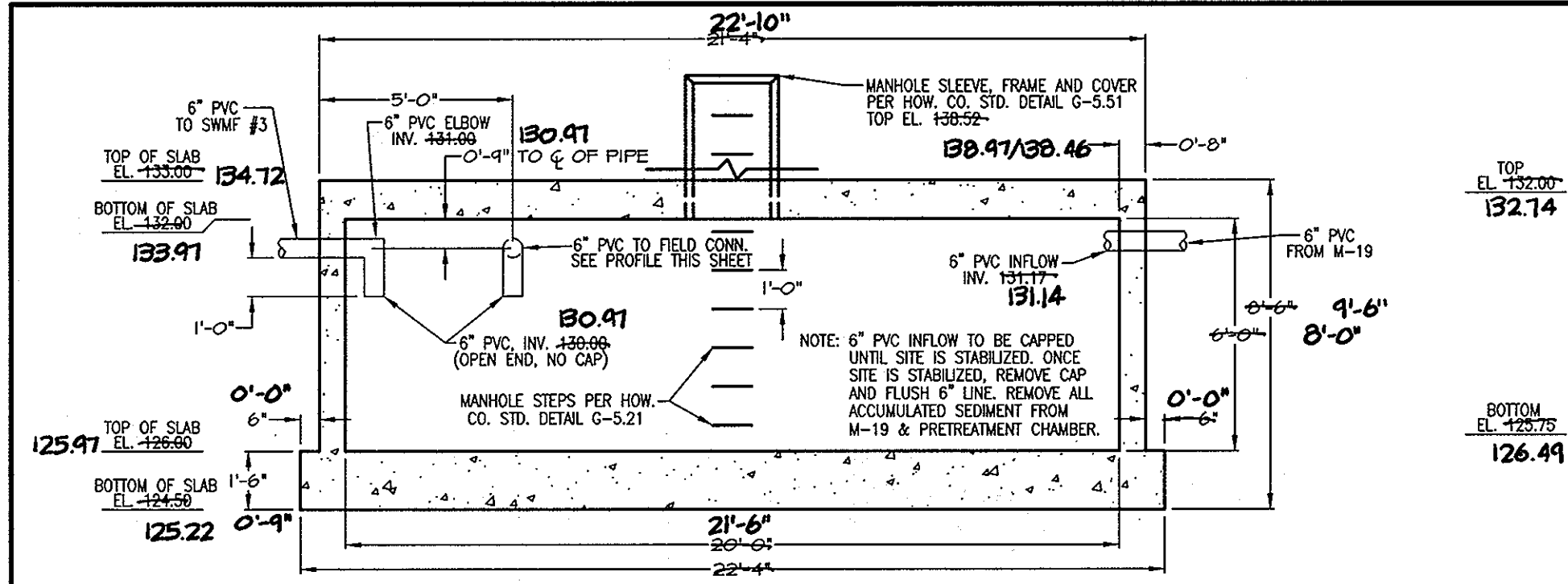


**MORRIS & RITCHIE ASSOCIATES, INC.**  
ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS

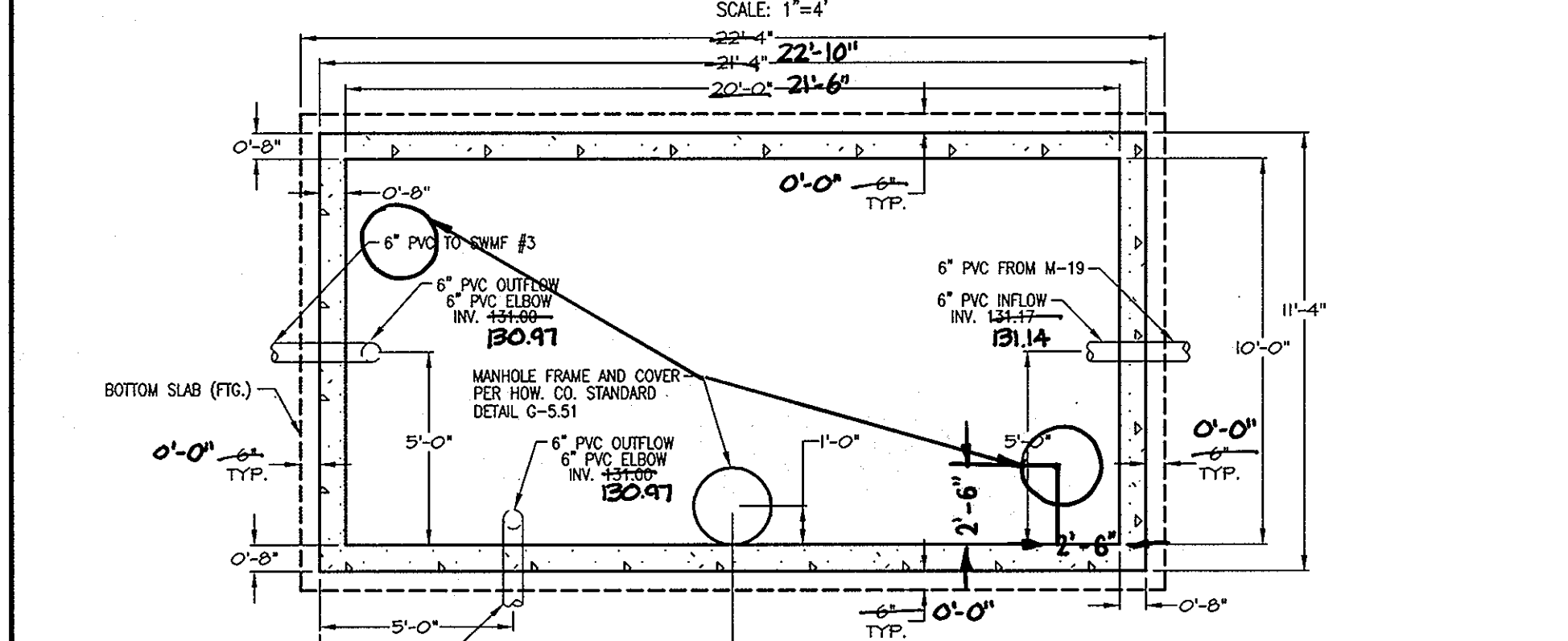
9090 JUNCTION DRIVE, SUITE 9  
ANNAPOLIS JUNCTION, MARYLAND 20701  
(410) 792-9792 or (301) 776-1690  
FAX (410) 792-7395

AS BUILT DONE BY MRA - 12/2005

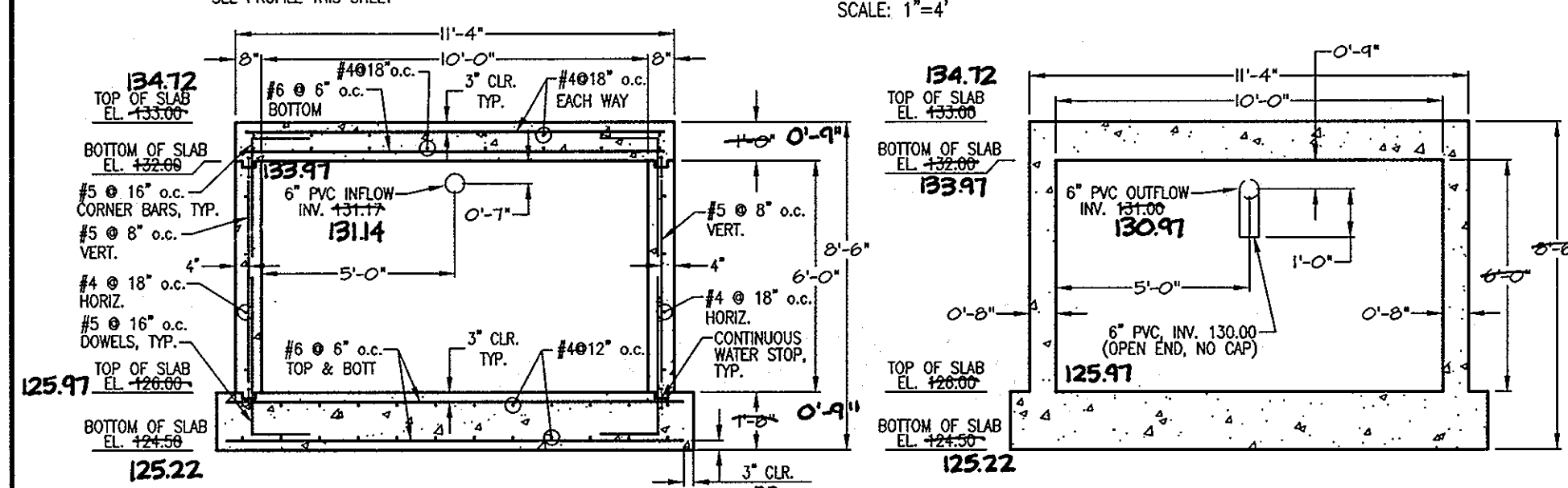




**SECTION A-A UNDERGROUND PRETREATMENT CHAMBER**  
SCALE: 1"=4'

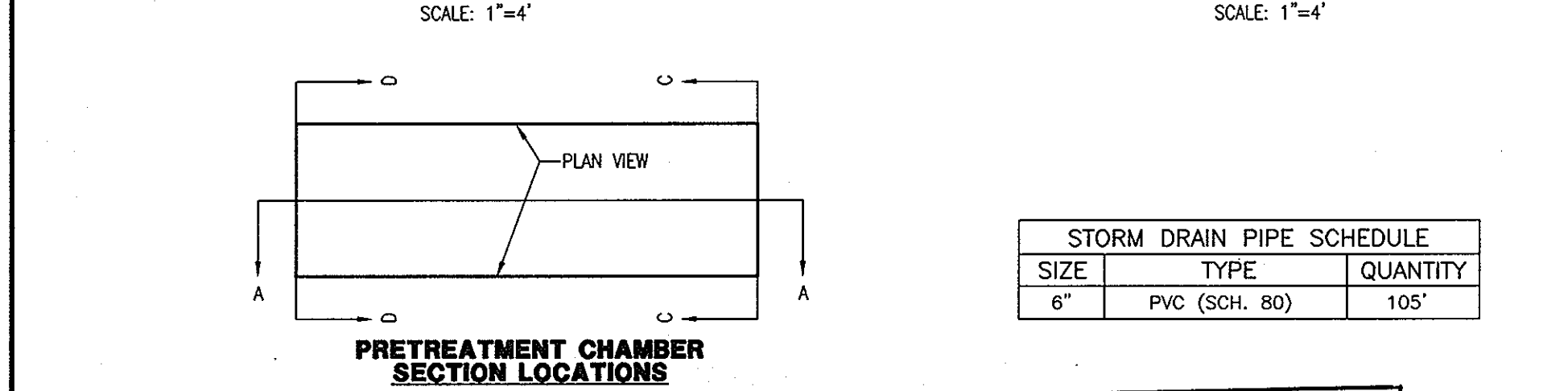


**PLAN VIEW PRETREATMENT CHAMBER**  
SCALE: 1"=4'



**SECTION C-C REINFORCEMENT DETAIL (PT CHAMBER)**  
SCALE: 1"=4'

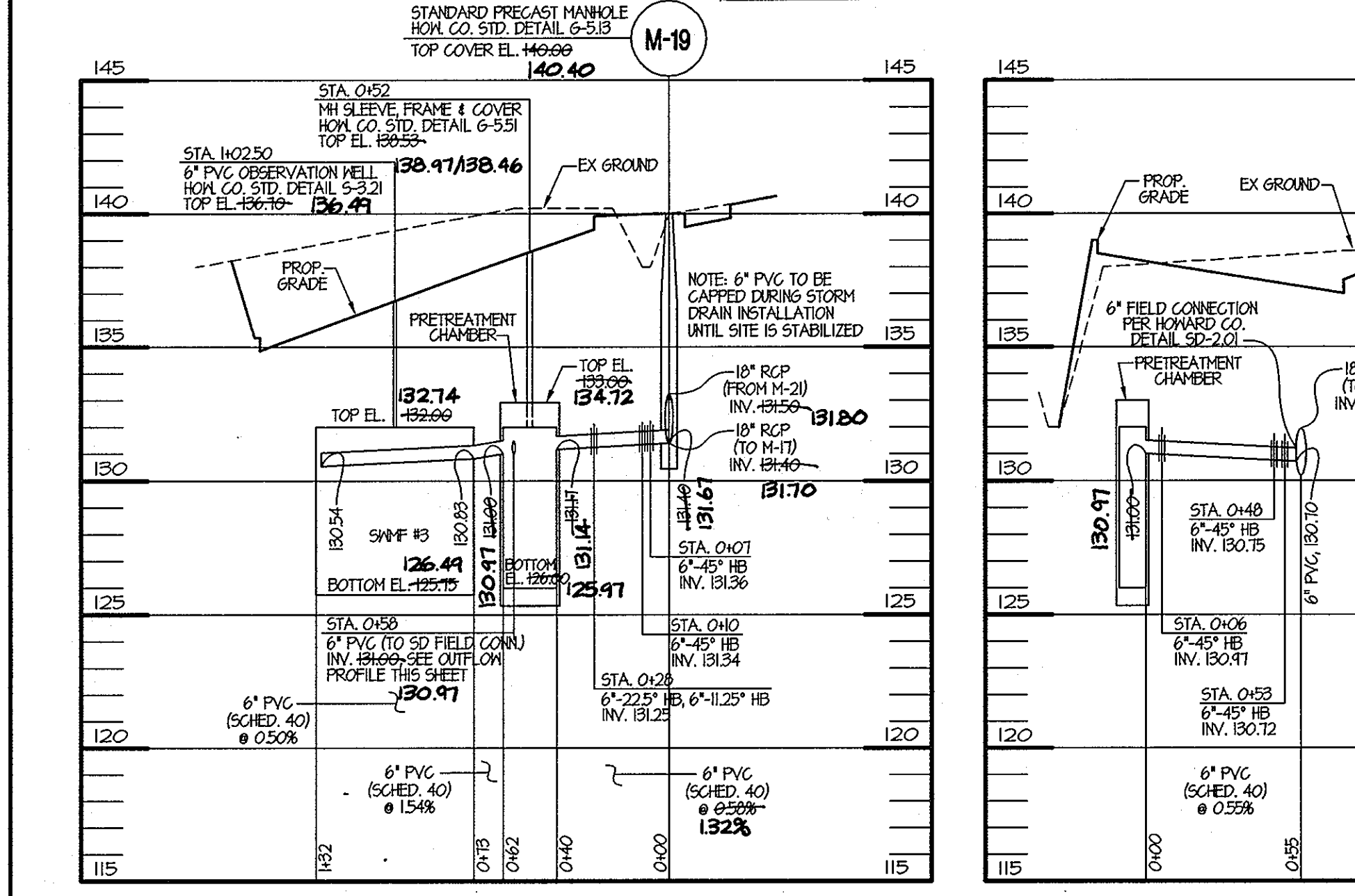
**SECTION D-D UNDERGROUND PRETREATMENT CHAMBER**  
SCALE: 1"=4'



**PRETREATMENT CHAMBER SECTION LOCATIONS**  
SCALE: N.T.S.

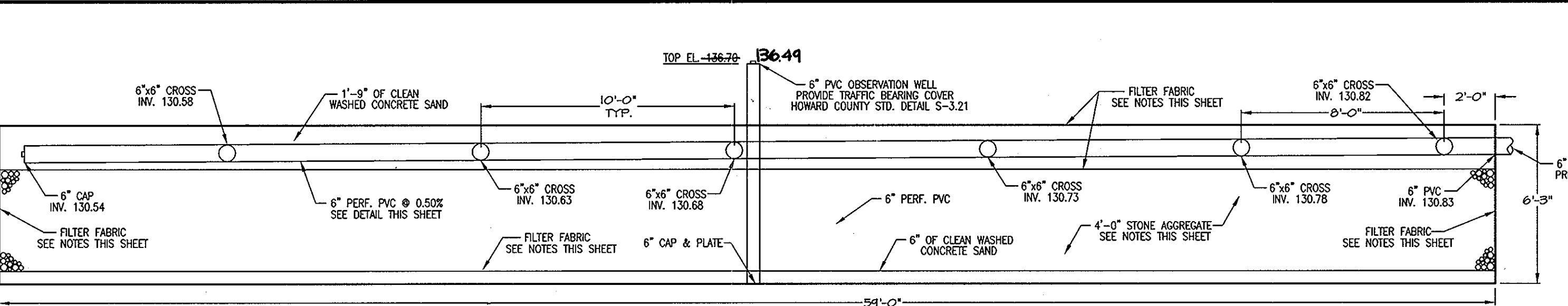
SIZE	TYPE	QUANTITY
6"	PVC (SCH. 80)	105'

**A5-BUILT DONE BY MRA-12/2005**

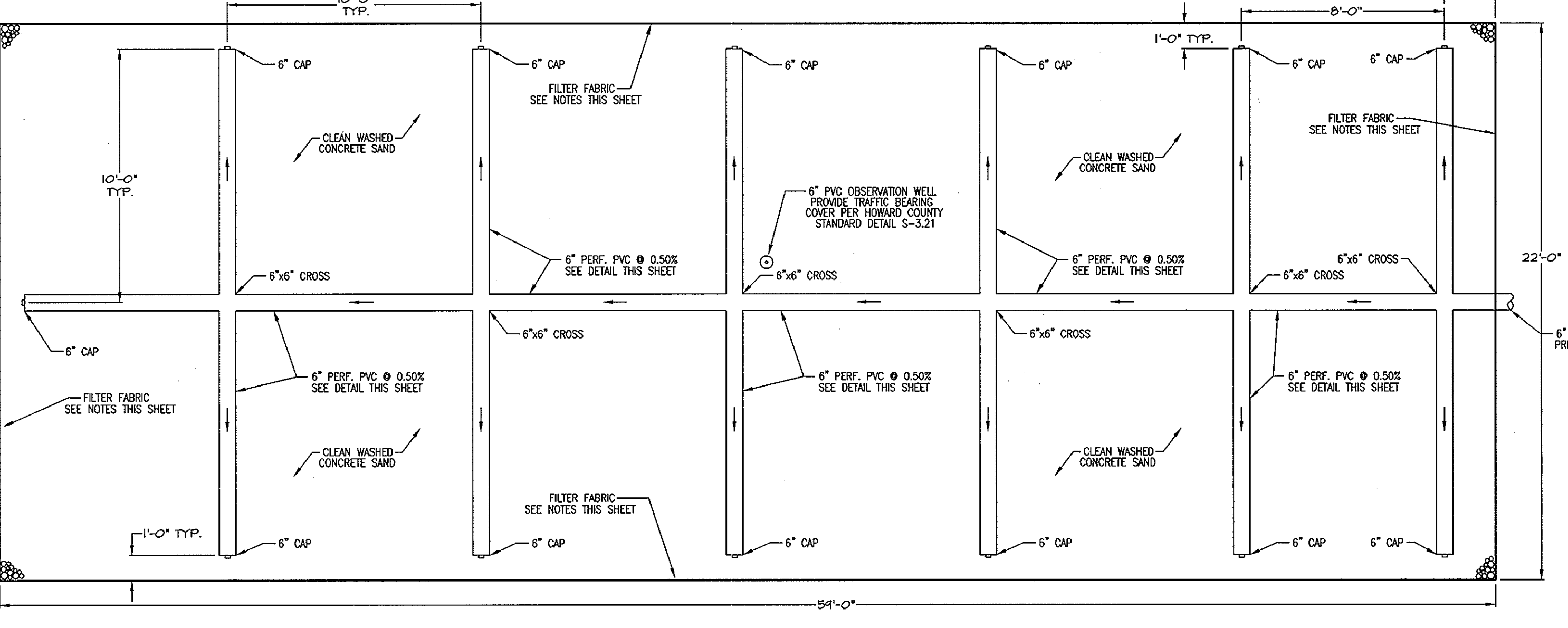


**SWMF 3, PROFILE**  
SCALE: HOR. 1"=50'  
VERT. 1"=5'

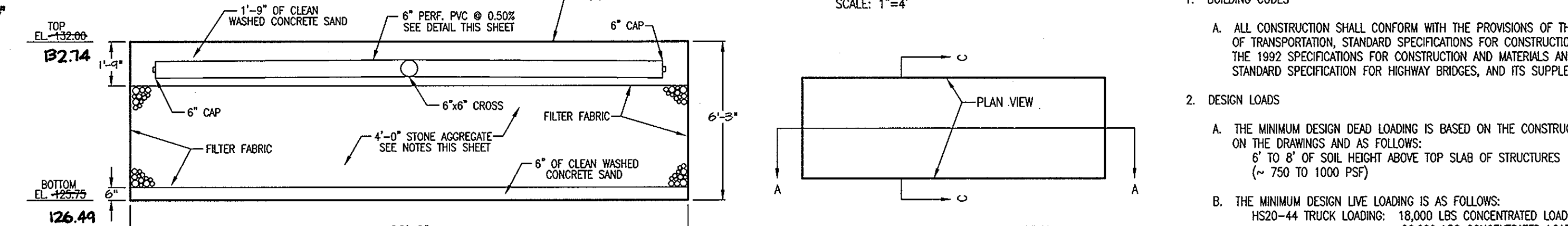
**SWMF 3, OUTFLOW PROFILE**  
SCALE: HOR. 1"=50'  
VERT. 1"=5'



**SECTION A-A UNDERGROUND RECHARGE TRENCH (SWMF #3)**  
SCALE: 1"=4'

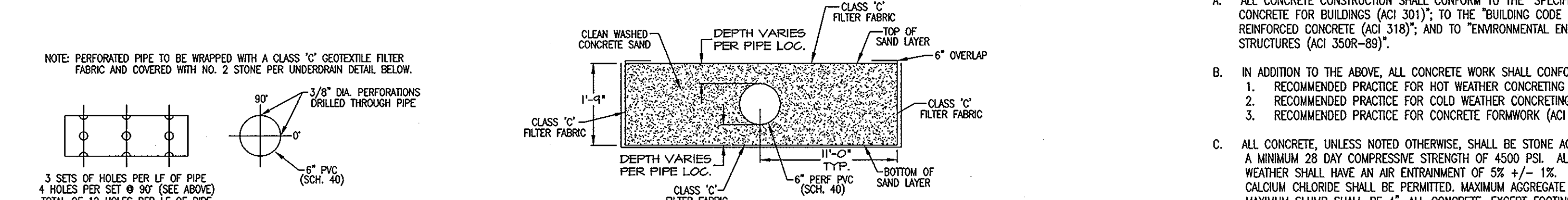


**PLAN VIEW - SWMF#3 RECHARGE TRENCH**  
SCALE: 1"=4'

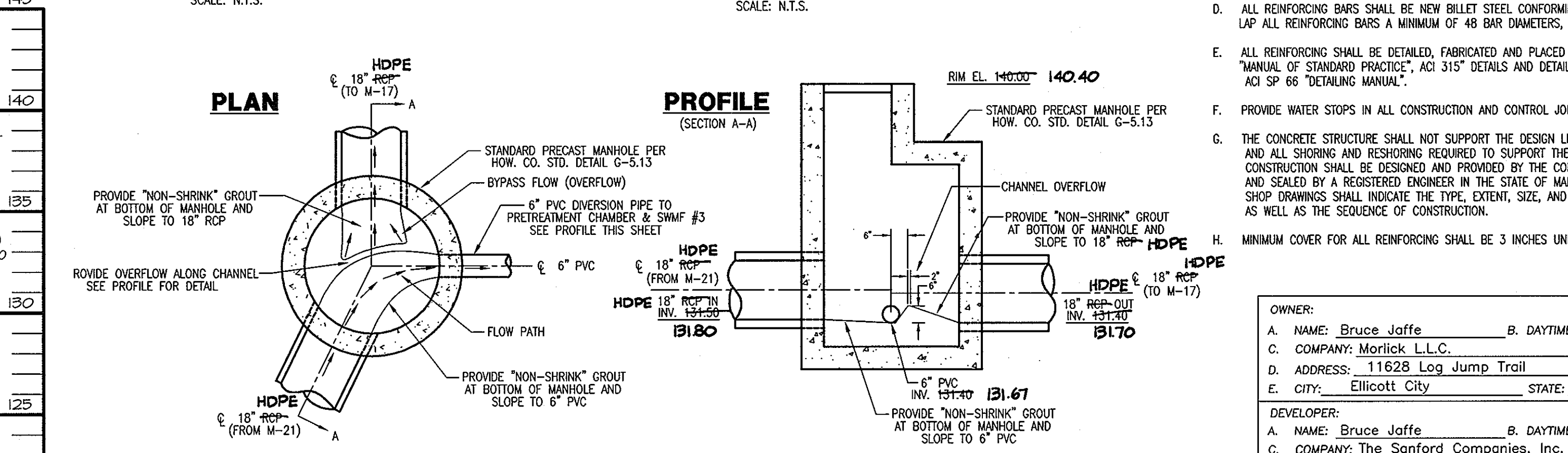


**SECTION C-C UNDERGROUND RECHARGE TRENCH (SWMF#3)**  
SCALE: 1"=4'

**RECHARGE TRENCH SECTION LOCATIONS**  
SCALE: N.T.S.



**PERFORATED PIPE DETAIL**  
SCALE: N.T.S.



**STRUCTURE M-19 DETAIL**  
SCALE: N.T.S.

**STRUCTURE M-19 DETAIL**  
SCALE: N.T.S.

**INFILTRATION TRENCH GENERAL NOTES AND SPECIFICATIONS**

- AN INFILTRATION TRENCH MAY NOT RECEIVE RUN-OFF UNTIL THE ENTIRE CONTRIBUTING DRAINAGE AREA TO THE INFILTRATION TRENCH HAS RECEIVED FINAL STABILIZATION.
- HEAVY EQUIPMENT AND TRAFFIC SHALL BE RESTRICTED FROM TRAVELLING OVER THE PROPOSED LOCATION OF THE INFILTRATION TRENCH TO MINIMIZE COMPACTION OF THE SOIL.
- EXCAVATE THE INFILTRATION TRENCH TO THE DESIGN DIMENSIONS. EXCAVATED MATERIALS SHALL BE PLACED AWAY FROM THE TRENCH SIDES TO ENHANCE TRENCH WALL STABILITY. LARGE TREE ROOTS MUST BE TRIMMED FLUSH WITH THE TRENCH SIDES IN ORDER TO PREVENT FABRIC PUNCTURING OR TEARING OF THE FILTER FABRIC DURING SUBSEQUENT INSTALLATION PROCEDURES. THE SIDE WALLS OF THE TRENCH SHALL BE ROUGHENED WHERE SHEARED AND SEALED BY HEAVY EQUIPMENT.
- A CLASS "C" GEOTEXTILE OR BETTER (SEE SECTION 24.0, MATERIAL SPECIFICATIONS, 1994 STANDARDS AND SPECIFICATIONS FOR SOIL EXCISION AND STORM CONTROL, MDE 1994) SHALL INTERLOCK BETWEEN THE TRENCH SIDE WALLS AND BETWEEN STONE RESERVOIR AND GRAVEL FILTER LAYERS. A PARTIAL LIST OF NON-WOVEN FABRICS THAT MEET THE CLASS "C" CRITERIA FOLLOWS. ANY ALTERNATIVE FILTER FABRIC MUST BE APPROVED BY THE PLAN APPROVAL AUTHORITY.
  - AMOCO 4552
  - GEOLON N70
  - WEBTEC N07
  - CARTHAGE FX-805
  - MIRAFI 180-N
- THE WIDTH OF GEOTEXTILE MUST INCLUDE SUFFICIENT MATERIAL TO CONFORM THE TRENCH PERIMETER IRREGULARITIES AND FOR A 6-INCH MINIMUM TOP OVERLAP. THE FILTER FABRIC SHALL BE TUCKED UNDER THE SAND LAYER ON THE BOTTOM OF THE INFILTRATION TRENCH FOR A DISTANCE OF 6 TO 12 INCHES. STONES OR OTHER ANCHORING OBJECTS SHOULD BE PLACED ON THE FABRIC AT THE EDGE OF THE TRENCH TO KEEP THE TRENCH OPEN DURING WINDY PERIODS. WHEN OVERLAPS ARE REQUIRED BETWEEN ROLLS, THE UPHILL ROLL SHOULD LAP A MINIMUM OF 2 FEET OVER THE DOWNHILL ROLL IN ORDER TO PROVIDE A SHINGLED EFFECT.
- IF A 6" SAND FILTER LAYER IS PLACED ON THE BOTTOM OF THE INFILTRATION TRENCH, THE SAND FOR THE FILTER TRENCH SHALL BE WASHED AND MEET ASHTO-M-43, SIZE NO. 9 OR NO. 10. ANY ALTERNATIVE SAND GRADATION SHALL BE APPROVED BY THE PLAN APPROVAL AUTHORITY.
- THE STONE AGGREGATE SHOULD BE PLACED IN A MAXIMUM LOOSE LIFT THICKNESS OF 12 INCHES. THE GRAVEL (ROUNDED "BANK RUN" GRAVEL IS PREFERRED) FOR THE INFILTRATION TRENCH SHALL BE WASHED AND MEET ONE OF THE FOLLOWING ASHTO-M-43, SIZE NO. 2 OR NO. 3.
- FOLLOWING THE STONE AGGREGATE PLACEMENT, THE FILTER FABRIC SHALL BE FOLDED OVER THE STONE AGGREGATE TO FORM A 6-INCH MINIMUM LONGITUDINAL LAP. THE DESIRED FULL SOIL OR STONE AGGREGATE SHALL BE PLACED OVER THE LAP AT SUFFICIENT INTERVALS TO MAINTAIN THE LAP DURING SUBSEQUENT BACKFILLING.
- CARE SHALL BE EXERCISED TO PREVENT NATURAL OR FILL SOILS FROM INTERMIXING WITH THE STONE AGGREGATE. ALL CONTAMINATED STONE AGGREGATE SHALL BE REMOVED AND REPLACED WITH UNCONTAMINATED STONE AGGREGATE.
- VOIDS MAY OCCUR BETWEEN FABRIC AND THE EXCAVATION SIDES SHALL BE AVOIDED. REMOVING BOULDERS OR OTHER OBSTACLES FROM THE TRENCH WALLS IS ONE SOURCE OF SUCH VOIDS. THEREFORE, NATURAL SOILS SHOULD BE PLACED IN THOSE VOIDS AT THE MOST CONVENIENT TIME DURING CONSTRUCTION TO ENSURE FABRIC CONFORMITY TO THE EXCAVATION SIDES.
- VERTICALLY EXCAVATED WALLS MAY BE DIFFICULT TO MAINTAIN IN AREAS WHERE SOIL MOISTURE IS HIGH OR WHERE SOFT CHESIVE OR CONESSIONLESS SOILS ARE DOMINANT. THESE CONDITIONS MAY REQUIRE LAYING BACK OF THE SIDE SLOPES TO MAINTAIN STABILITY.
- PVC DISTRIBUTION PIPES SHALL BE SCHEDULE 40 AND MEET ASTM-D-1785. ALL FITTINGS SHALL MEET ASTM-D-2729. DISTRIBUTION PIPES SHALL BE 3/8" IN DIAMETER. A PERFORATED PIPE SHALL BE PROVIDED ONLY WITHIN THE INFILTRATION TRENCH AND SHALL TERMINATE 1 FOOT SHORT OF THE INFILTRATION TRENCH WALL. THE END OF THE PVC PIPE SHALL BE CAPPED. NOTE: PVC PIPE WITH A WALL THICKNESS CLASSIFICATION OF SUR-35 MEETING ASTM-D-3034 IS AN ACCEPTABLE SUBSTITUTE FOR THE SCHEDULE 40 PIPE.
- THE OBSERVATION WELL IS TO CONSIST OF 6-INCH DIAMETER PERFORATED PVC SCHEDULE 40 PIPE (4078 OR F758, TYPE PS 28) WITH A CAP SET FLUSH TO FINAL PAVED SURFACE AND IS TO BE LOCATED NEAR THE LONGITUDINAL CENTER OF THE INFILTRATION TRENCH. THE PIPE SHALL HAVE A PLASTIC COLLAR WITH RISBS TO PREVENT ROTATION WHEN REMOVING THE CAP. THE SCREW TOP LID SHALL BE A CLEANOUT WITH A LOCKING MECHANISM OR SPECIAL BOLT TO DISCOURAGE WINDMILL. THE BOLT TO THE INVERT SHALL BE MARKED ON THE LID. THE PIPE SHALL BE PLACED VERTICALLY WITHIN THE GRAVEL PORTION OF THE INFILTRATION TRENCH AND A CAP MARKED AT THE BOTTOM OF THE PIPE. THE BOTTOM OF THE CAP SHALL REST ON THE INFILTRATION TRENCH BOTTOM.
- CORRUGATED METAL DISTRIBUTION PIPES SHALL CONFORM TO ASHTO-M-36, AND SHALL BE ALUMINIZED IN ACCORDANCE WITH ASHTO-M-274. ALUMINIZED PIPE IN CONTACT WITH CONCRETE SHALL BE COATED WITH AN INERT COMPOUND CAPABLE OF PREVENTING THE DECELERATORY EFFECT OF ALUMINUM ON THE CONCRETE. PERFORATED DISTRIBUTION PIPES SHALL CONFORM TO ASHTO-M-36, CLASS 2 AND SHALL BE PROVIDED ONLY WITHIN THE INFILTRATION TRENCH AND SHALL TERMINATE 1 FOOT SHORT OF THE INFILTRATION TRENCH WALL. AN ALUMINIZED METAL PLATE SHALL BE WELDED TO THE END OF THE PIPE.
- IF A DISTRIBUTION STRUCTURE WITH A WET WELL IS USED, A 4-INCH DRAIN PIPE SHALL BE PROVIDED AT OPPOSITE ENDS OF THE INFILTRATION TRENCH DISTRIBUTION STRUCTURE. TWO (2) CUBIC FEET OF POROUS BACKFILL MEETING ASHTO-M-43, SIZE NO. 57 SHALL BE PROVIDED AT EACH DRAIN.
- IF A DISTRIBUTION STRUCTURE IS USED, THE MANHOLE COVER SHALL BE BOLTED TO THE FRAME.

**CONCRETE NOTES**

- BUILDING CODES
  - ALL CONSTRUCTION SHALL CONFORM WITH THE PROVISIONS OF THE MARYLAND DEPARTMENT OF TRANSPORTATION, STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS AND THE 1992 SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS AND THE 1992 ASHTO STANDARD SPECIFICATION FOR HIGHWAY BRIDGES, AND ITS SUPPLEMENTS.
- DESIGN LOADS
  - THE MINIMUM DESIGN DEAD LOADING IS BASED ON THE CONSTRUCTION MATERIALS SHOWN ON THE DRAWINGS AND AS FOLLOWS:
    - 6" TO 8" OF SOIL HEIGHT ABOVE TOP SLAB OF STRUCTURES (~ 750 TO 1000 PSF)
  - THE MINIMUM DESIGN LIVE LOADING IS AS FOLLOWS:
    - H520-44 TRUCK LOADINGS: 18,000 LBS CONCENTRATED LOAD (FOR MOMENT)
    - 26,000 LBS CONCENTRATED LOAD (FOR SHEAR)
    - 100 PSF SURCHARGE
- CAST IN PLACE CONCRETE
  - ALL CONCRETE CONSTRUCTION SHALL CONFORM TO THE "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS (ACI 301)"; TO THE "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (ACI 318)"; AND TO "ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES (ACI 350R-89)".
  - IN ADDITION TO THE ABOVE, ALL CONCRETE WORK SHALL CONFORM TO THE FOLLOWING:
    - RECOMMENDED PRACTICE FOR HOT WEATHER CONCRETING (ACI 305).
    - RECOMMENDED PRACTICE FOR COLD WEATHER CONCRETING (ACI 306).
    - RECOMMENDED PRACTICE FOR CONCRETE FORMWORK (ACI 347).
  - ALL CONCRETE, UNLESS NOTED OTHERWISE, SHALL BE STONE AGGREGATE CONCRETE HAVING A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4500 PSI. ALL CONCRETE EXPOSED TO WEATHER SHALL HAVE AN AIR ENTRAINMENT OF 5% +/- 1%. NO ADMIXTURES CONTAINING CALCIUM CHLORIDE SHALL BE PERMITTED. MAXIMUM AGGREGATE SIZE SHALL BE 1", AND MAXIMUM SLUMP SHALL BE 4". ALL CONCRETE, EXCEPT FOOTINGS, SHALL CONTAIN A WATER REDUCING ADMIXTURE. PORTLAND CEMENT SHALL CONFORM TO ASTM C 150 AND NORMAL WEIGHT AGGREGATES SHALL CONFORM TO ASTM C 33.
  - ALL REINFORCING BARS SHALL BE NEW BILLET STEEL CONFORMING TO ASTM A 615 GRADE 60. LAP ALL REINFORCING BARS A MINIMUM OF 48 BAR DIAMETERS, UNLESS OTHERWISE INDICATED.
  - ALL REINFORCING SHALL BE DETAILED, FABRICATED AND PLACED IN ACCORDANCE WITH THE CRSI "MANUAL OF STANDARD PRACTICE", ACI 315' DETAILS AND DETAILING OF CONCRETE REINFORCEMENT", ACI SP 66 'DETAILING MANUAL'.
  - PROVIDE WATER STOPS IN ALL CONSTRUCTION AND CONTROL JOINTS IN CONCRETE BELOW GRADE.
  - THE CONCRETE STRUCTURE SHALL NOT SUPPORT THE DESIGN LIVE LOAD FOR A MINIMUM OF 28 DAYS AND ALL SHORING AND RESHORING REQUIRED TO SUPPORT THE CONCRETE STRUCTURE DURING CONSTRUCTION SHALL BE DESIGNED AND PROVIDED BY THE CONTRACTOR. SHOP DRAWINGS, SIGNED AND SEALED BY A REGISTERED ENGINEER IN THE STATE OF MARYLAND, SHALL BE SUBMITTED FOR REVIEW. SHOP DRAWINGS SHALL INDICATE THE TYPE, EXTENT, SIZE, AND LOCATION OF ALL SHORING AND RESHORING AS WELL AS THE SEQUENCE OF CONSTRUCTION.
  - MINIMUM COVER FOR ALL REINFORCING SHALL BE 3 INCHES UNLESS OTHERWISE INDICATED.

**CONSTRUCTION INSPECTION SCHEDULE**

- INSPECTIONS SHALL BE CONDUCTED BY THE AS-BUILT CERTIFYING ENGINEER:
  - UPON THE COMPLETION OF EXCAVATION TO SUB-FOUNDATION AND WHEN REQUIRED, AND UPON THE INSTALLATION OF STRUCTURAL SUPPORTS OR REINFORCEMENT FOR STRUCTURES, INCLUDING BUT NOT LIMITED TO:
    - REINFORCEMENT AND FORM WORK FOR FOUNDATION, WALLS, AND TOP SLAB OF UNDERGROUND CONCRETE PRETREATMENT CHAMBER.
    - INLET OR OUTLET STRUCTURES, INCLUDING STORM DRAIN DIVERSIONS.
    - WATER-TIGHT CONNECTORS ON PIPES.
    - TRENCHES FOR ENCLOSED STORM DRAIN FACILITIES.
    - UTILITY CROSSINGS OF INFLOW OR OUTFLOW PIPES.
  - DURING THE PLACEMENT OF STONE, SAND, & FILTER FABRIC WITHIN INFILTRATION TRENCH.
  - DURING THE PLACEMENT OF STRUCTURAL FILL AND CONCRETE, AND INSTALLATION OF PIPING.
  - DURING BACKFILL OF FOUNDATIONS AND TRENCHES.
  - UPON COMPLETION OF FINAL GRADING AND ESTABLISHMENT OF PERMANENT STABILIZATION.

**MAINTENANCE & REPAIR SCHEDULE**

- MAINTENANCE AND REPAIR SHALL BE CONDUCTED IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL REQUIREMENTS. IN GENERAL, THE PRACTICES CONTAINED IN THE "MAINTENANCE AND REPAIR" CHAPTER OF THE "MARYLAND DAM SAFETY MANUAL", DNR-WRA 1988, SHALL BE FOLLOWED AND CONDUCTED UNDER THE SUPERVISION OF A QUALIFIED PROFESSIONAL ENGINEER FAMILIAR WITH DAM CONSTRUCTION, OPERATION IN ADDITION, THE MD-378 DAM INSPECTION CHECKLIST MAY BE USED AS A GUIDE FOR MAINTENANCE AT A MINIMUM, THE STORMWATER MANAGEMENT FACILITY SHALL BE INSPECTED BI-ANNUALLY FOR THE
- CONDITION OF FOUNDATION, INTERIOR WALLS, AND TOP SLAB OF PRETREATMENT CHAMBER.
  - CONDITION OF ACCESS MANHOLES AND DIVERSION STRUCTURE.
  - CONDITION OF CLEANOUTS, PIPE INLETS AND OUTLETS.
  - SEDIMENT LOAD IN PRETREATMENT CHAMBER.
  - SEEPAGE INTO PRETREATMENT CHAMBER THROUGH FOUNDATION OR INTERIOR WALLS.
  - ANY OTHER ITEMS WHICH COULD AFFECT THE FUNCTION OF THE SWMF FACILITY.
  - EVIDENCE OF CLOGGING OF ANY PIPE CONDUITS.
  - CRACKING OF CONCRETE CHAMBER FOUNDATION, INTERIOR WALLS, AND TOP SLAB.
  - WATER LEVEL WITHIN INFILTRATION TRENCH STORAGE AREA.
- ANY NEEDED MAINTENANCE OR REPAIR OF PRETREATMENT CHAMBER FOUNDATION, INTERIOR WALLS, OR PIPE CONDUITS SHALL BE DONE UNDER THE SUPERVISION OF A QUALIFIED GEOTECHNICAL ENGINEER. ANY NEEDED MAINTENANCE OR REPAIR OF INFILTRATION TRENCH STORAGE AREA OR PIPE CONDUITS SHALL BE DONE UNDER THE SUPERVISION OF A QUALIFIED GEOTECHNICAL ENGINEER.
- IN ADDITION TO BI-ANNUAL INSPECTIONS, INSPECTIONS SHALL BE DONE DURING WET SEASON, AND ALL DEBRIS, LITTER, OR SEDIMENT ACCUMULATED IN PRETREATMENT STORAGE AREA, INLET PIPES, AND DIVERSION STRUCTURE SHALL BE REMOVED.

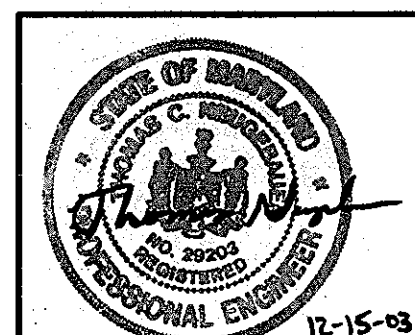
OWNER: Bruce Jaffe  
 A. NAME: Bruce Jaffe  
 B. DAYTIME TELEPHONE: 410-964-0223  
 C. COMPANY: Morris & Ritchie, L.L.C.  
 D. ADDRESS: 11628 Log Jump Trail  
 E. CITY: Ellicott City STATE: MD ZIP: 21042

DEVELOPER: Bruce Jaffe  
 A. NAME: Bruce Jaffe  
 B. DAYTIME TELEPHONE: 410-964-0223  
 C. COMPANY: The Sanford Companies, Inc.  
 D. ADDRESS: 11628 Log Jump Trail  
 E. CITY: Ellicott City STATE: MD ZIP: 21042

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 [Signature]  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
 DATE: 4/6/04

DEVELOPER: [Signature]  
 CHIEF, DIVISION OF LAND DEVELOPMENT  
 DATE: 4/6/04

DEVELOPER: [Signature]  
 DIRECTOR, DEPARTMENT OF PLANNING AND ZONING  
 DATE: 4/6/04



DATE	REVISIONS	JOB NO.:
		11570.02
		SCALE: AS SHOWN
		DATE: 12/15/03
		DRAWN BY: TCN
		DESIGN BY: TCN
		REVIEW BY: PVM, TFM
		SHEET: 8 OF 20

**SANTA BARBARA CT.**  
**ROUTE 100 BUSINESS PARK**  
**BLOCK F PARCEL F**  
**SITE DEVELOPMENT PLAN**  
**STORMWATER MANAGEMENT DETAILS**  
 TAX MAP 38 BLOCK F PARCEL F  
 1ST ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND



**MORRIS & RITCHIE ASSOCIATES, INC.**  
 ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS  
 9090 JUNCTION DRIVE, SUITE 9  
 ANNAPOLIS JUNCTION, MARYLAND 20701  
 (410) 792-9792 OR (301) 776-1690  
 FAX (410) 792-7395







**SEGMENTAL RETAINING WALL SPECIFICATIONS**

**PART 1 - GENERAL**

- 1.1 Work includes furnishing and installing segmental retaining wall units, geogrid reinforcement, wall fill, and backfill to the lines and grades shown on the construction drawings and as specified herein. The contract also includes the furnishing and installing all appurtenant materials, equipment, and labor required for construction of the geogrid reinforced, segmental retaining wall.
- 1.2 REFERENCE STANDARDS
  - A. ASTM C90-75 (1981 rev) - Hollow Load Bearing Masonry Units
  - B. ASTM C140-75 (1981 rev) - Sampling and Testing Concrete Masonry Units
  - C. ASTM C145-75 (1981 rev) - Solid Load Bearing Concrete Masonry Units
  - D. Geosynthetic Research Institute (GRI), GRI-0G4 - Determination of Long Term Design Strength of Geogrids.
  - E. ASTM D 638 - Test Method for Tensile Properties of Plastic
  - F. ASTM D 1248 - Specification of Polyethylene Plastics Molding and Extrusion Materials
  - G. ASTM D 4218 - Test Method for Carbon Black Content in Polyethylene Compounds by the Muffle Furnace Technique
  - H. ASTM D 3034 - Specification for Polyvinyl Chloride (PVC) Pipe
- 1.3 DELIVERY, STORAGE AND HANDLING
  - A. Contractor should check the materials upon delivery to assure that proper material has been received.
  - B. Contractor should prevent excessive mud, wet cement, epoxy, and like materials which may affix themselves, from coming in contact with the materials.
  - C. Geogrids should be stored above -20 degrees F.
  - D. Contractor should protect the materials from damage. Damaged material should not be incorporated into the reinforced retaining wall.

**PART 2 - PRODUCTS**

- 2.1 DEFINITIONS
  - A. Geogrid is a high density polyethylene grid, specifically fabricated for use as a soil reinforcement.
  - B. Concrete retaining wall units are as detailed on the drawings and as specified herein.
  - C. Geosynthetic Drainage Composites are polyethylene net structure with non-woven geotextiles bonded to both sides.
  - D. Erosion Control Blankets consist of a web of polyolefin fibers securely bounded by polyolefin threads between two high strength polyolefin nets.
  - E. Backfill is the soil which is used as fill for the reinforced soil mass.
  - F. Foundation soil is the in-situ soil or controlled compacted fill placed below the bottom of the retaining wall and geogrid zone.
- 2.2 MATERIALS
 

The contractor should submit manufacturer's catalog and samples of the proposed materials for approval by the project geotechnical engineer a minimum of seven days before the start of construction. Materials should be transported to the site only after approval of the proposed materials by the project geotechnical engineer.

  - A. Concrete Units
    1. Masonry units should be Keystone Standard Retaining Wall Units. Substitution of other concrete units may be allowed with the prior approval of the Geotechnical Engineer.
    2. Concrete wall units should have a minimum 28 day compressive strength of 3000 psi, in accordance with ASTM C-90. The concrete should have adequate freeze/thaw protection with a maximum moisture absorption of 8 to 9 percent.
    3. Exterior dimensions may vary. Units are required to have a minimum of one square foot of face area each.
    4. Units should have angled sides and be capable of attaining concave and convex alignment curves in accordance with manufacturer's recommendations.
    5. Units should be interlocked with non-corrosive reinforced fiberglass pins.
    6. Units should be interlocked as to provide a maximum of 1-1/4 inch of setback per block.
  - B. Leveling Pad
 

Material for leveling pad/footing should consist of compacted free-draining coarse aggregates meeting the requirements of ASTM #57 or Graded Aggregate Base (GAB) per Maryland State Highway Administration Standard Specifications for Construction and Materials. A minimum of 6 inches deep and 36 inches wide compacted leveling pad is required.
  - C. Fiberglass Connecting Pins
    1. Thermoset isotactic polyester resin pultruded fiberglass reinforcements rods, minimum one-half inch in diameter.
    2. Pins should have a minimum flexural strength of 128,000 psi and short beam shear of 6400 psi.
    3. For substitute concrete units, use of other compatible connector system may be allowed with the prior approval of the Geotechnical Engineer.
  - D. Geogrid
 

Geogrid should be Tensor UX 1500SB or equivalent as approved by the geotechnical engineer. The geogrid should have a long term design strength of 2,190 pounds/foot for UX 1500SB geogrid.
  - E. Reinforced Backfill
 

Reinforced backfill soils should be non-plastic, controlled fill meeting the requirements of AASHTO A-2-4 or more granular. The test borings performed for the project indicate that A-2-4 material is available on site. However, the material is existing fill and may contain soft, oversized, or otherwise unsuitable soils and also may be wet of optimum moisture. Contractor should be prepared to dry the on-site soils or import suitable AASHTO A-2-4 materials if suitable materials are not readily available from an on-site source at the time of construction.
  - F. Controlled Fill
 

Controlled Fill soils to be placed outside the Reinforced Backfill area and where specified should be soils meeting the requirements of AASHTO A-4, or more granular.
  - G. Drainage Pipe
 

The drainage pipes should be perforated or slotted PVC pipe manufactured in accordance with ASTM D-3034.
  - H. Filter Fabric
 

Filter Fabric should be non-woven, polypropylene geotextile, 140 N manufactured by Nicolon Mirafi Group or approved equivalent.
  - I. Drainage Composite
 

Drainage Geocomposite should be DC 4200 Geotextile, manufactured by Evergreen Technologies, Inc. or an approved equivalent.
  - J. Erosion Control Blanket
 

Erosion Control Blanket should be Tensor TB 1000 manufactured by the Tensor Corporation or an approved equivalent.

**PART 3 - EXECUTION**

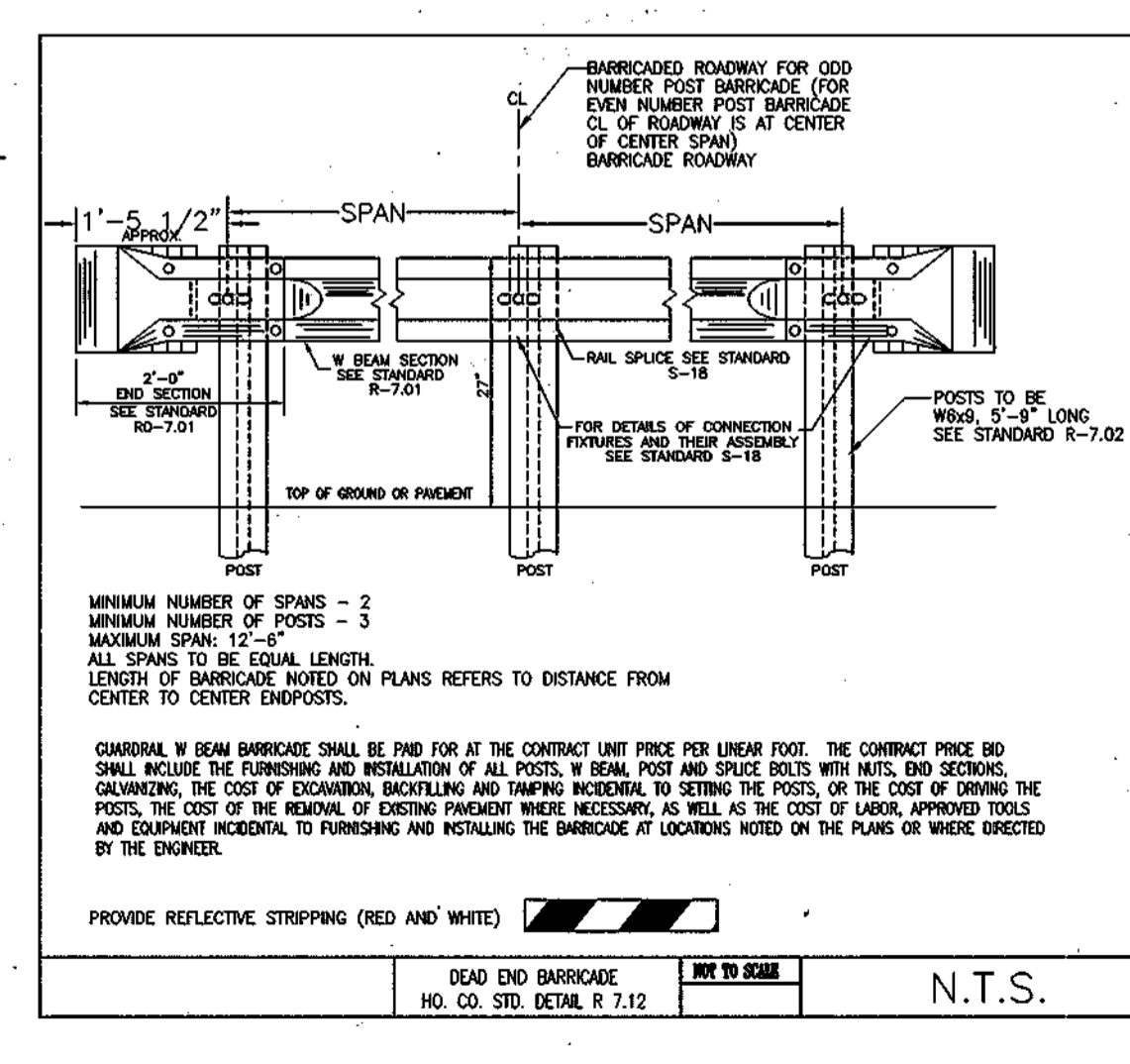
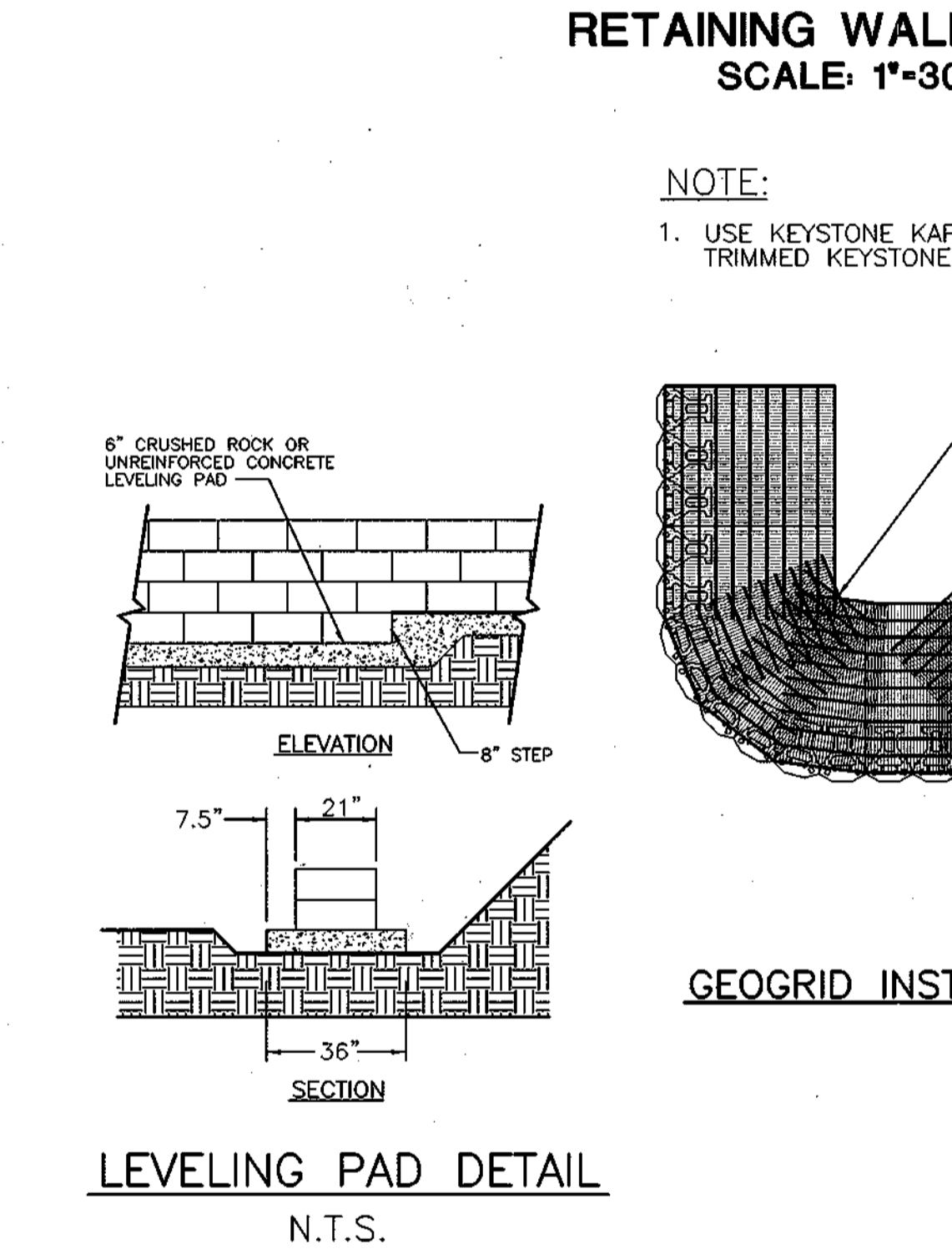
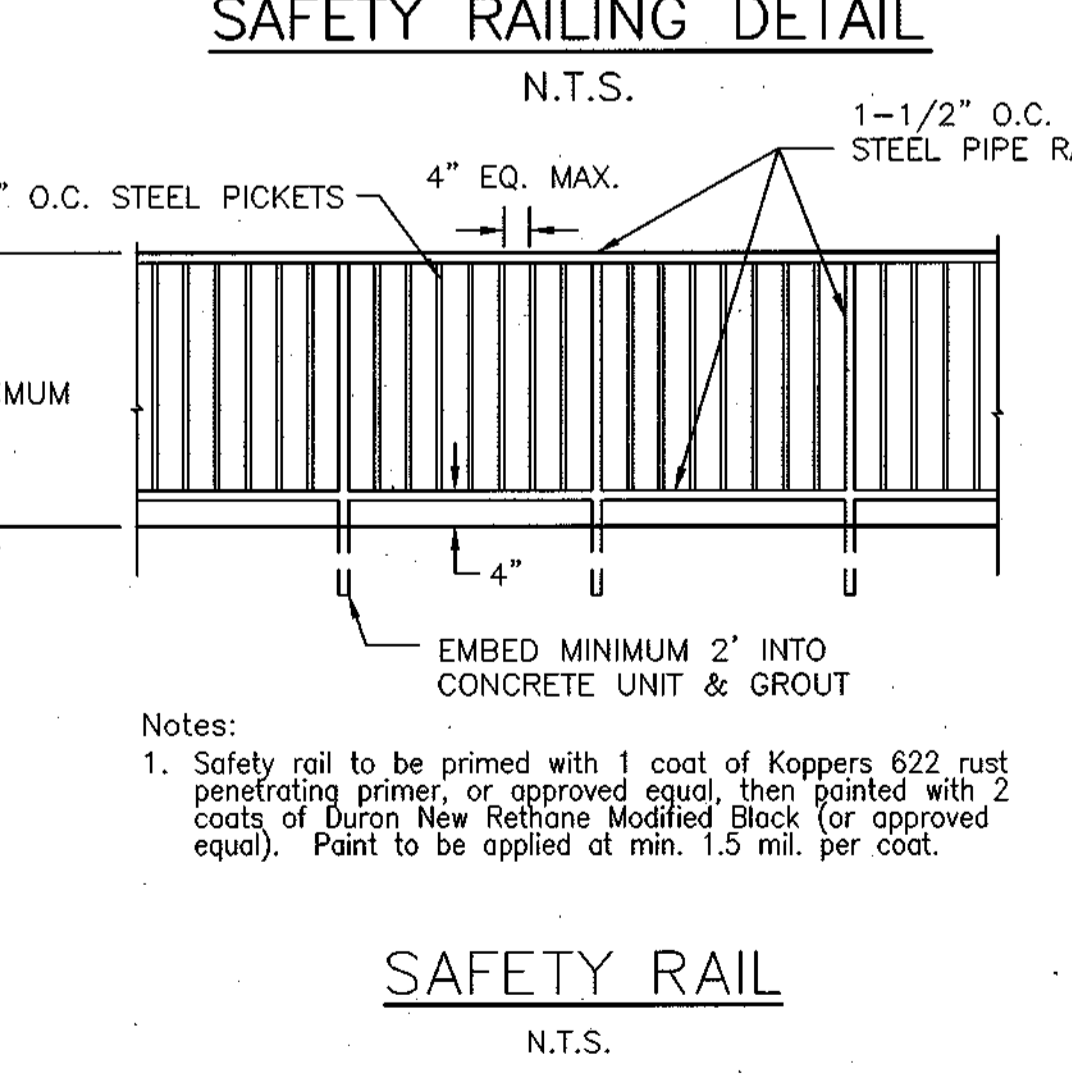
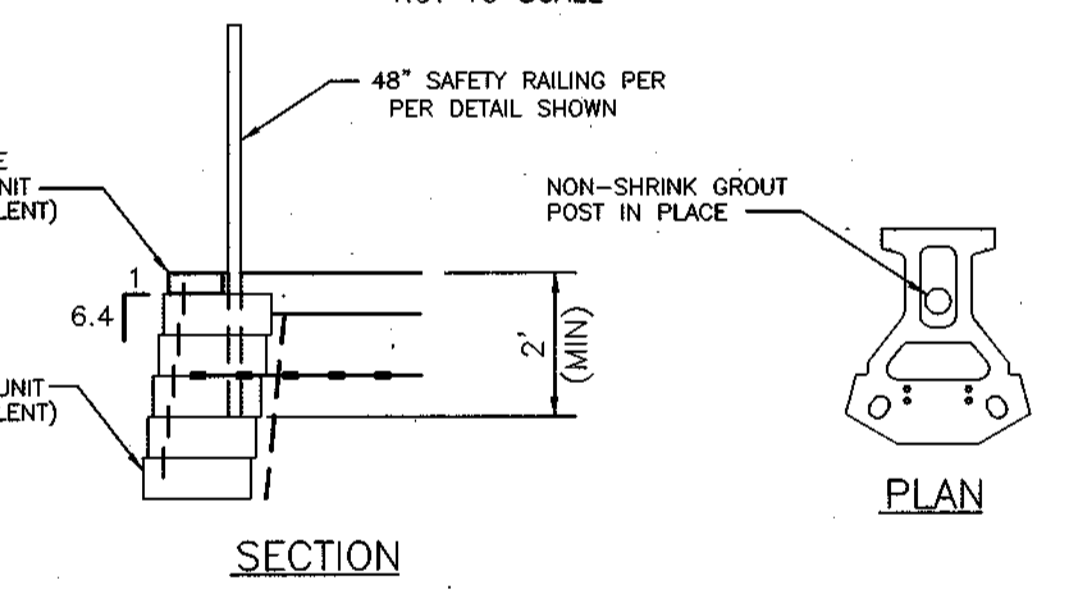
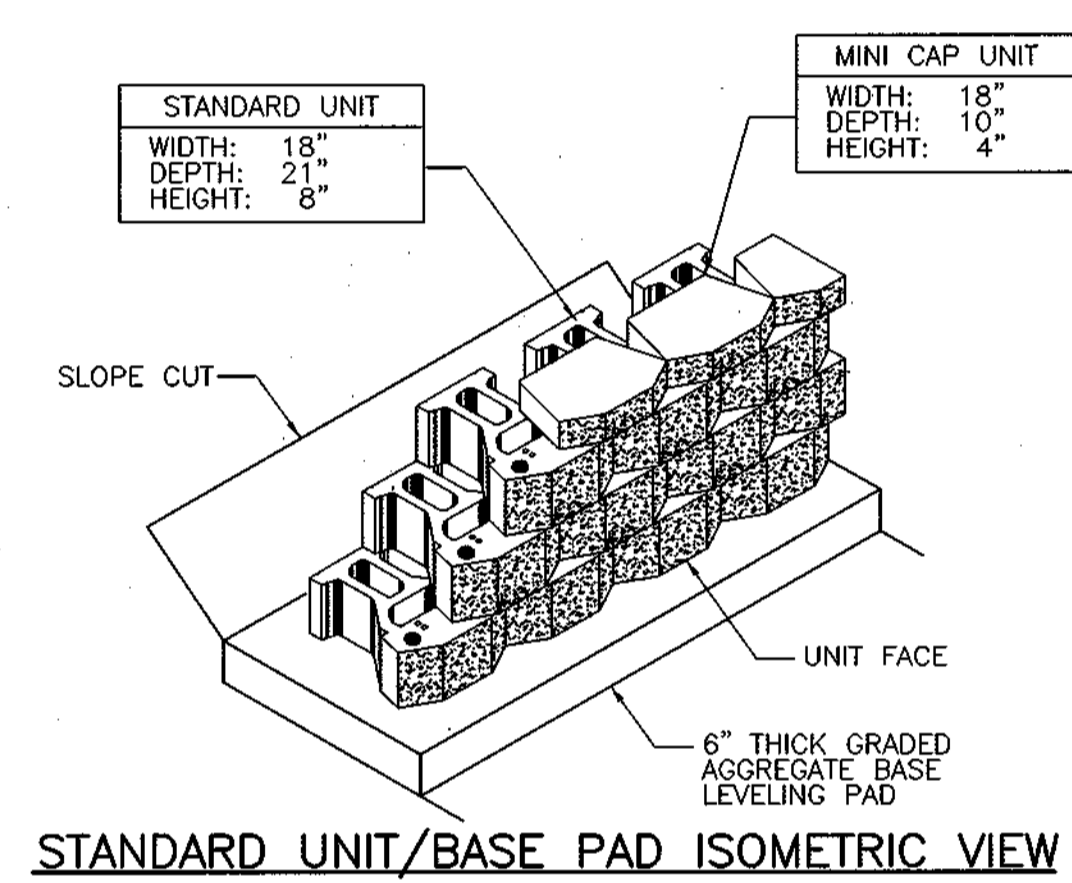
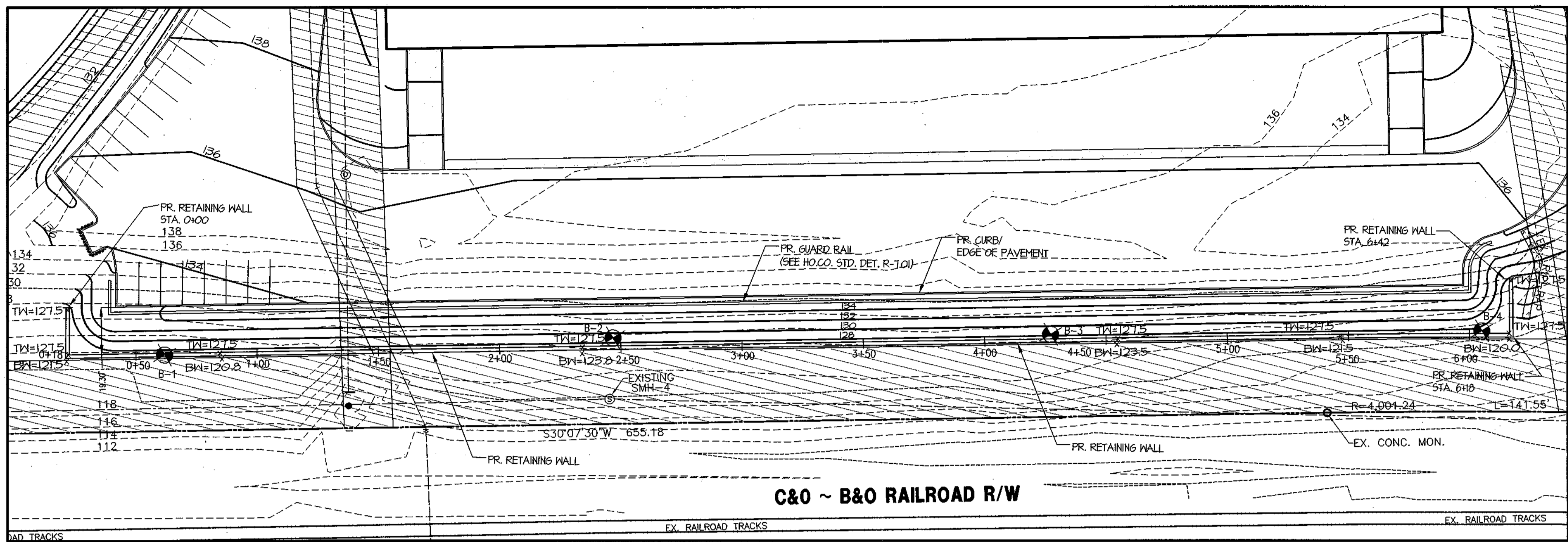
- A. Excavation
  1. The contractor should excavate to the lines and grades shown on the construction drawings. Under no circumstances should the excavation lines and grades be exceeded, except with owner's approval. The contractor should protect the excavation from sloughing by placing a membrane over the face of the excavation.
  2. Excavations should be sloped or otherwise supported in accordance with Occupation Safety and Health Administration (OSHA) and other local and state regulations.
- B. Foundation Subgrade Preparation
  1. Foundation soil should be excavated as required for installation of leveling pad, geogrid and other elements and as shown on the construction drawings.
  2. Mounded fills are present at and below the foundation level of the retaining wall. The existing fill should be reviewed by the Engineer to evaluate if actual foundation soil strength meets or exceeds assumed design strength. Soils not meeting required strength should be removed and replaced with controlled, compacted material. Some undercutting and replacement of soft and loose fills will likely be required.
  3. Over-excavated areas should be filled with select and approved material and compacted to 92 percent of maximum dry density in accordance with the Modified Proctor, ASTM D-1557.
  4. Allowable bearing pressure for natural and controlled, compacted fill soils should be at least 2,000 psf for the retaining wall.
  5. The exposed foundation subgrade should be proffered with a loaded dump truck. Any soft or unstable areas identified during proffering should be overexcavated and backfilled with Controlled Fill.
  6. Fill required to establish the sloping surface in front of the wall should consist of Controlled Fill and should be placed, compacted and field tested in accordance with the requirements specified herein.
- C. Leveling Pad
  1. The leveling pad should be placed as shown on the construction drawings with a minimum thickness of 6 inches.
  2. Leveling pad materials should be installed upon undisturbed in-situ soils or controlled, compacted backfill.
  3. Leveling Pad should be prepared to insure complete contact of retaining wall unit with base. Gaps should not be allowed.
- D. Unit Installation
  1. First course of concrete wall units should be placed on the footing. The units should be checked for level and alignment. The first course is the most important to insure accurate and acceptable results.
  2. Insure that units are in full contact with base.
  3. Units are placed side by side for full length of wall alignment. Alignment may be done by means of a string line or offset from base line.
  4. Install fiberglass connecting pin.
  5. Lay up each course insuring that the connecting pins are inserted through front slot of the unit, and into the receiving slot in the course beneath. Repeat procedure to the extent of wall height.
  6. At the end of each course where the wall changes elevation, units should be turned into the backfill. Units should be laid so to create the minimum radius possible. Unless otherwise shown on the drawings, a minimum of one unit should be installed into the grade. Only the front face of the units should be visible from the side of the wall.
  7. Standard Units should be used to make convex and concave curves in accordance with manufacturer's recommendations.
  8. Cap units should be installed and bonded with construction adhesive or epoxy cement as required by manufacturer.
  9. Contractor should provide positive drainage for the back of the retaining wall during construction.
- E. Geogrid Installation
  1. All utilities in the vicinity of any retaining wall or geogrid reinforcement must be installed and properly backfilled prior to placing the geogrid soil reinforcement or constructing the wall.
  2. The geogrid soil reinforcement should be laid horizontally on compacted backfill, connected to the concrete wall units. Hook over the fiberglass connecting pin, pull taut, and anchor before backfill is placed on the geogrid.
  3. Slack in the geogrid at the wall unit connections should be removed in a manner, and to such a degree, as approved by the Engineer.
  4. Geogrid should be laid at the proper elevation and orientation as shown on the construction drawings or as directed by the Engineer.
  5. Correct orientation (roll direction) of the geogrid should be verified by the Contractor.
  6. Geogrid should be secured in-place with staples, pins, sand bags, or backfill as required by fill properties, fill placement procedures, or weather conditions, or as directed by the Engineer.
  7. Overlaps
    - a. Uniaxial geogrid does not need to be overlapped in the across the roll direction, except to contain the fill at the slope face when wrap-around facing is used. Uniaxial grid should be overlapped 48" in the roll direction.
    - b. A layer of soil a minimum of 4 inches in thickness should be spread between uniaxial geogrid layers in the area to be overlapped, or as directed.
- F. Fill Placement
  1. Wall backfill material should be placed in no more than 8-inch lifts and compacted to 92 percent of the Modified Proctor (ASTM D-1557).
  2. Backfill should be placed, spread, and compacted in such a manner that minimizes the development of wrinkles in and/or movement of the geogrid.
  3. Only hand-operated compaction equipment should be allowed within 4 feet of the wall face.
  4. Backfill should be placed from the wall outward to insure that the geogrid remains taut.
  5. Tracked construction equipment should not be operated behind or above the wall.
  6. Rubber-tired equipment may pass over the geogrid reinforcement at slow speeds, less than 10 MPH. Sudden braking and sharp turning should be avoided.
  7. Place filter fabric between the unit core fill and the reinforced backfill as shown on plans. The filter fabric should be embedded a minimum of two feet into the reinforced fill.
  8. The finished sloping surface on the toe side of the retaining wall should be protected by installing the permanent erosion control blanket and seeding in accordance with project requirements.
- G. DRAINAGE
  1. Drainage fill should be placed behind the wall to the limits shown. The drainage fill should be a minimum of 12-inches thick. The drainage fill should be ASTM #57 stone. The drainage fill should be wrapped in filter fabric (Mirafi 140N or equal) as shown on the drawings.
  2. Positive drainage should be maintained during and after construction. Soils within the reinforced zone that become wet during construction should be dried to optimum moisture or removed.
  3. Install the perforated drainage pipes and lateral drainage pipes incrementally along with installation of concrete units and placement of fill.
  4. The groundwater levels should be evaluated during construction. If the groundwater levels are found to be higher than the levels assumed for design, a field underdrain system shall be installed to lower the groundwater levels.

**PART 4 - CONSTRUCTION OBSERVATION AND TESTING**

- A. The required leveling pad subgrade bearing capacity should be certified by a Maryland Registered Professional Geotechnical Engineer prior to footing placement.
- B. Construction of retaining wall should be performed under the observations of a Maryland Professional Engineer. Conformance testing should be performed to verify material engineering properties. Upon completion of the work the engineer should submit a signed and sealed report stating that the retaining wall was constructed in accordance with the plans, specifications, and accepted modifications (if applicable).

**PART 5 - DESIGN CRITERIA**

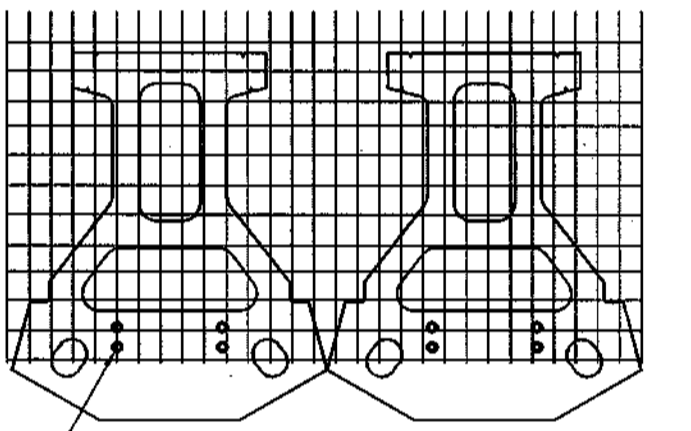
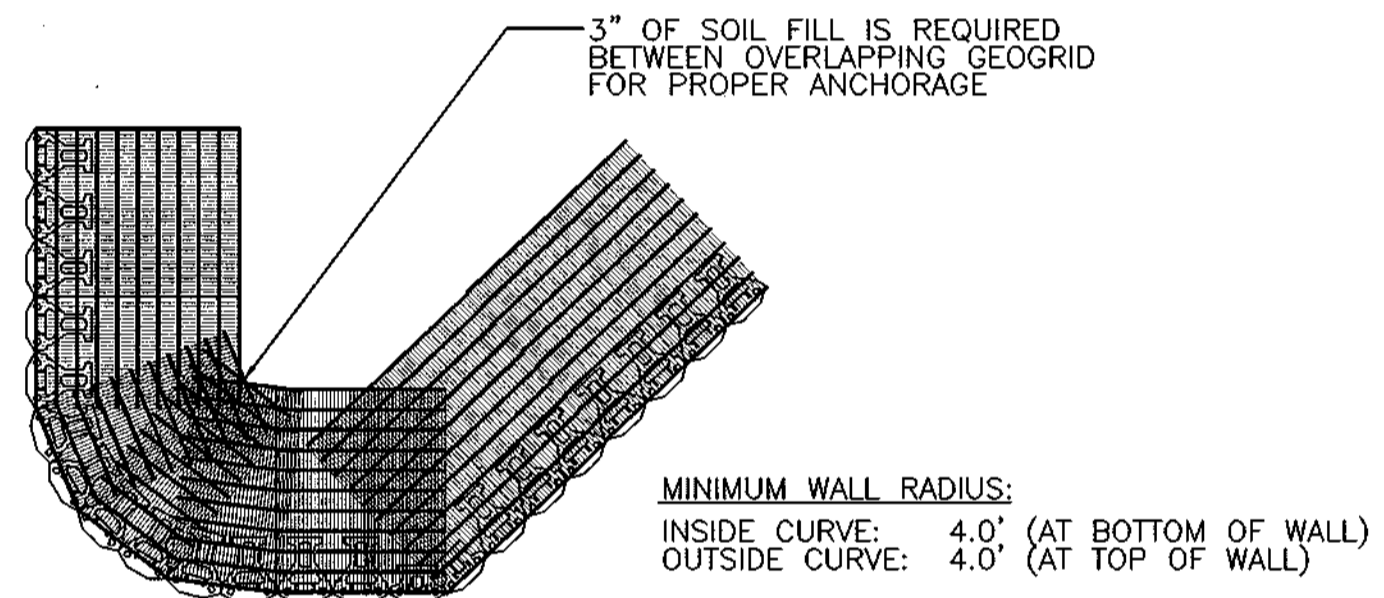
1. Required minimum allowable foundation bearing pressure is 2,000 psf.
2. Design internal friction angle = 30 degrees.
3. Design moist unit weight = 130 pcf.
4. Retaining walls are not designed to resist hydrostatic pressure.
5. Foundation soil internal friction angle = 30 degrees and cohesion = 0 psf.
6. This design includes a surcharge of 250 psf for traffic live load at the top of the wall.
7. Groundwater at or below the leveling pad level and no closer than 3 feet from the face of slope on the toe side.



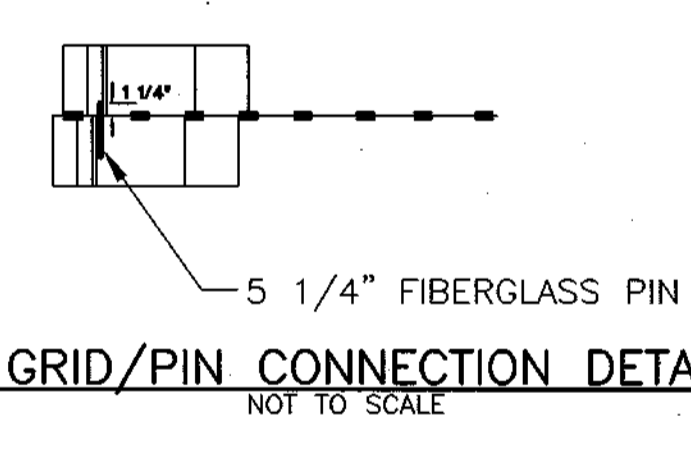
**RETAINING WALL PLAN**  
SCALE: 1"=30'

**NOTE:**

1. USE KEYSTONE KAPSEAL ADHESIVE TO JOIN THE TRIMMED KEYSTONE UNITS AT CORNERS.



**GRID & PIN CONNECTION**  
NOT TO SCALE



**GRID/PIN CONNECTION DETAIL**  
NOT TO SCALE

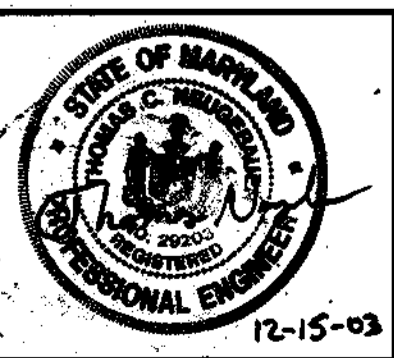
OWNER:		FAX NO.: 410-964-0223
A. NAME: Bruce Jaffe	B. DAYTIME TELEPHONE: 301-596-0222	
C. COMPANY: Morlick L.L.C.		
D. ADDRESS: 11628 Log Jump Trail		
E. CITY: Ellicott City	STATE: MD	ZIP: 21042
DEVELOPER:		FAX NO.: 410-964-0223
A. NAME: Bruce Jaffe	B. DAYTIME TELEPHONE: 301-596-0222	
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APPROVED: DEPARTMENT OF PLANNING AND ZONING

*[Signature]* 1/6/04  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

*[Signature]* 1/9/04  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*[Signature]* 1/6/04  
DIRECTOR, DEPARTMENT OF PLANNING AND ZONING DATE



DATE	REVISIONS

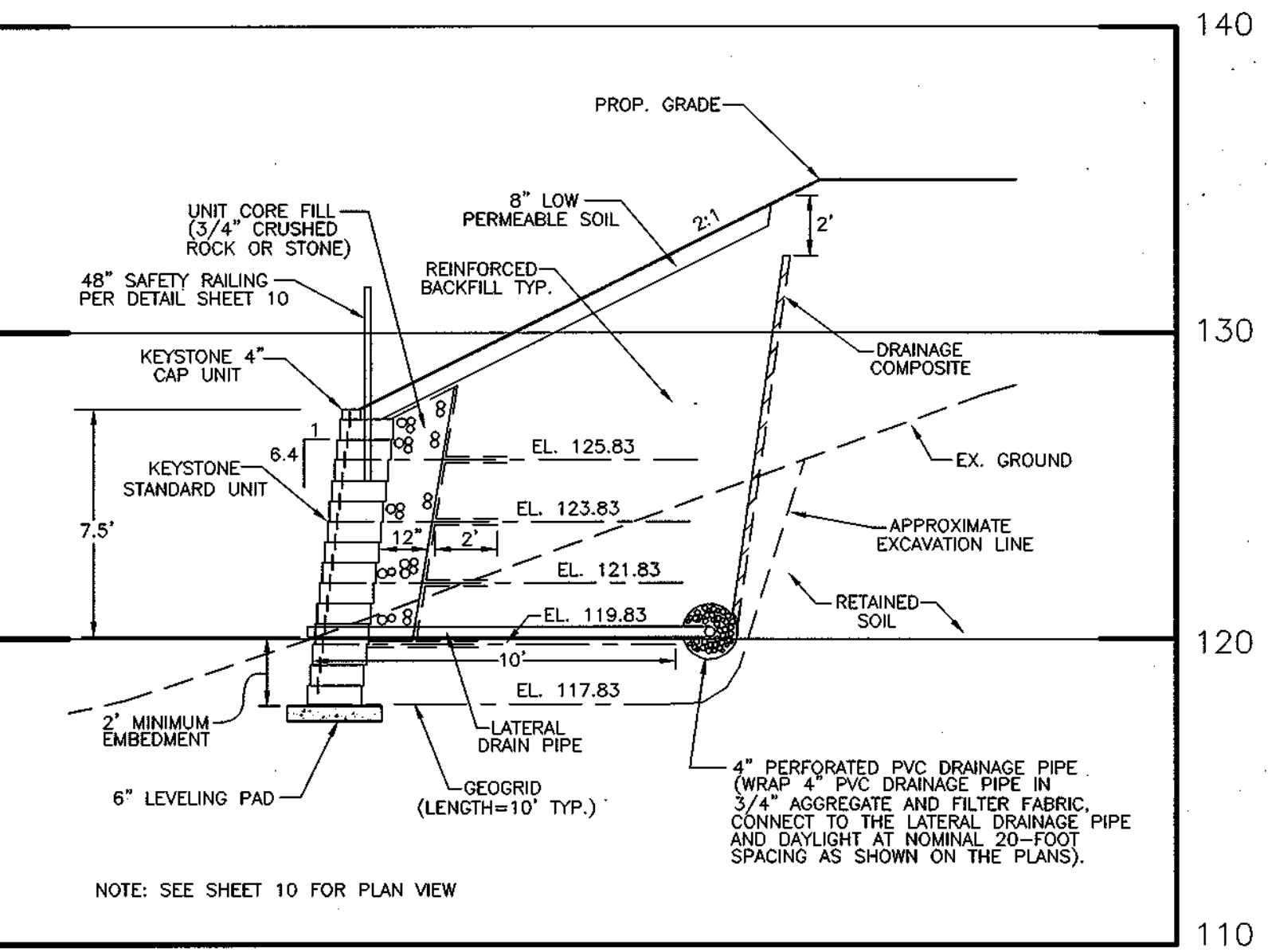
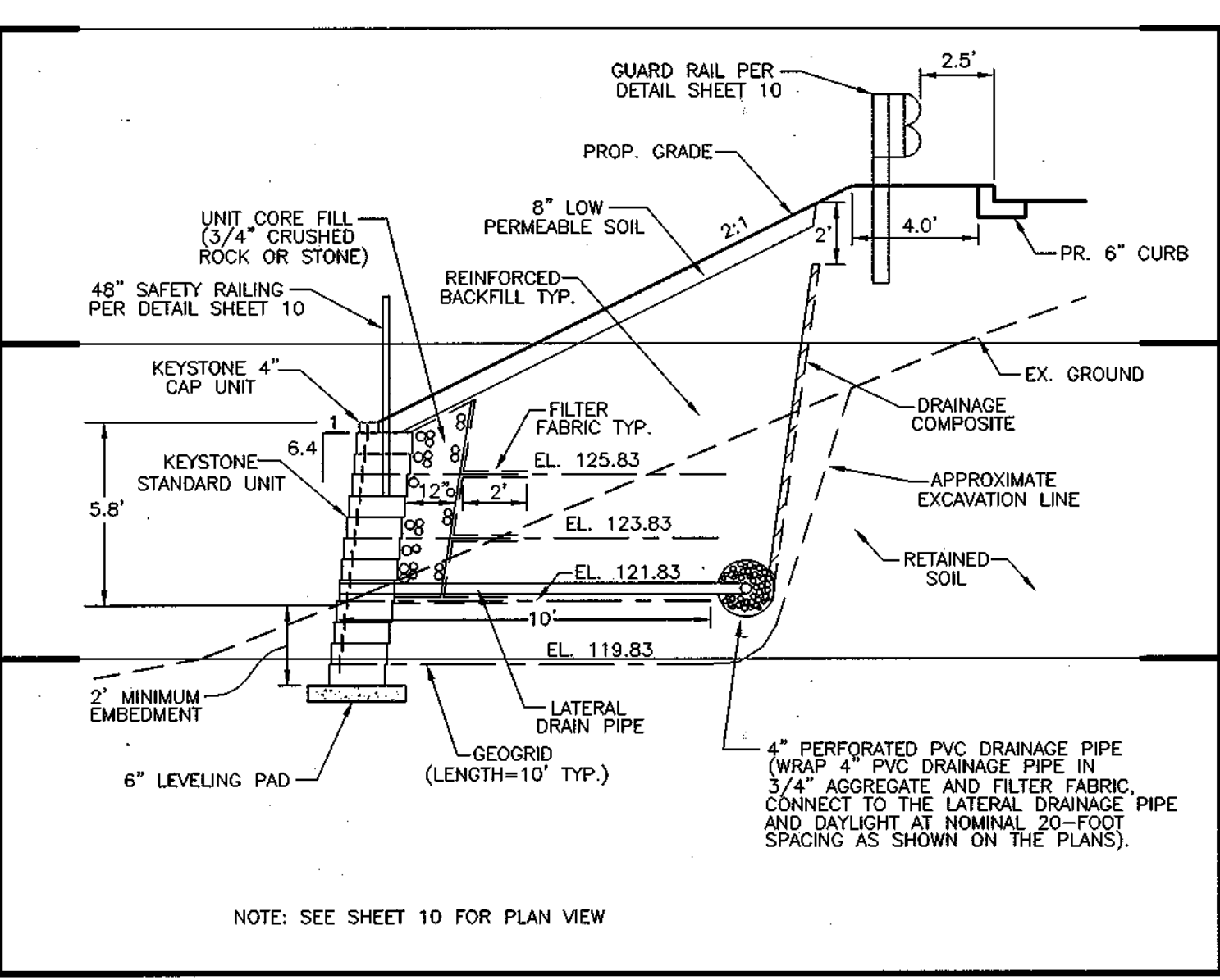
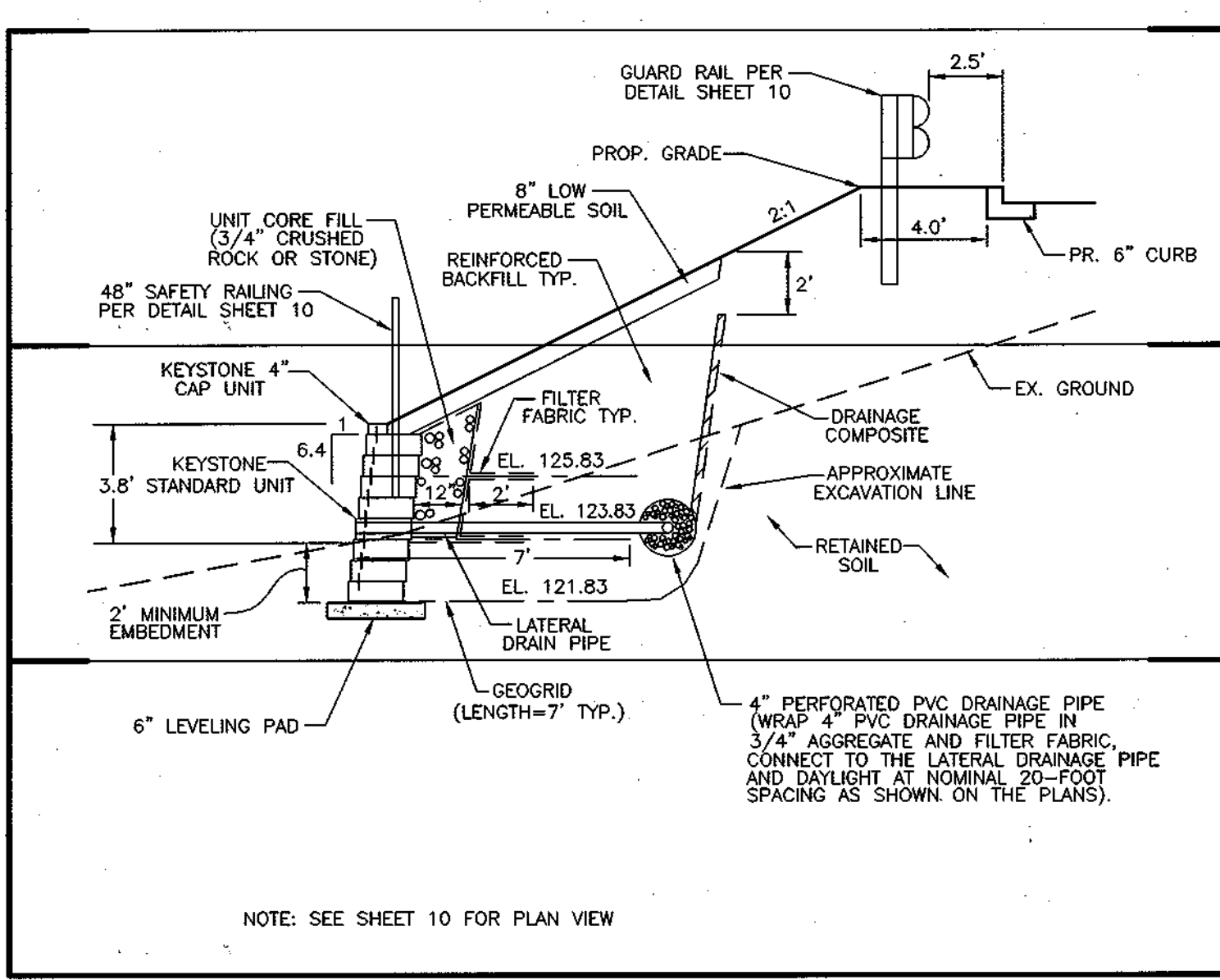
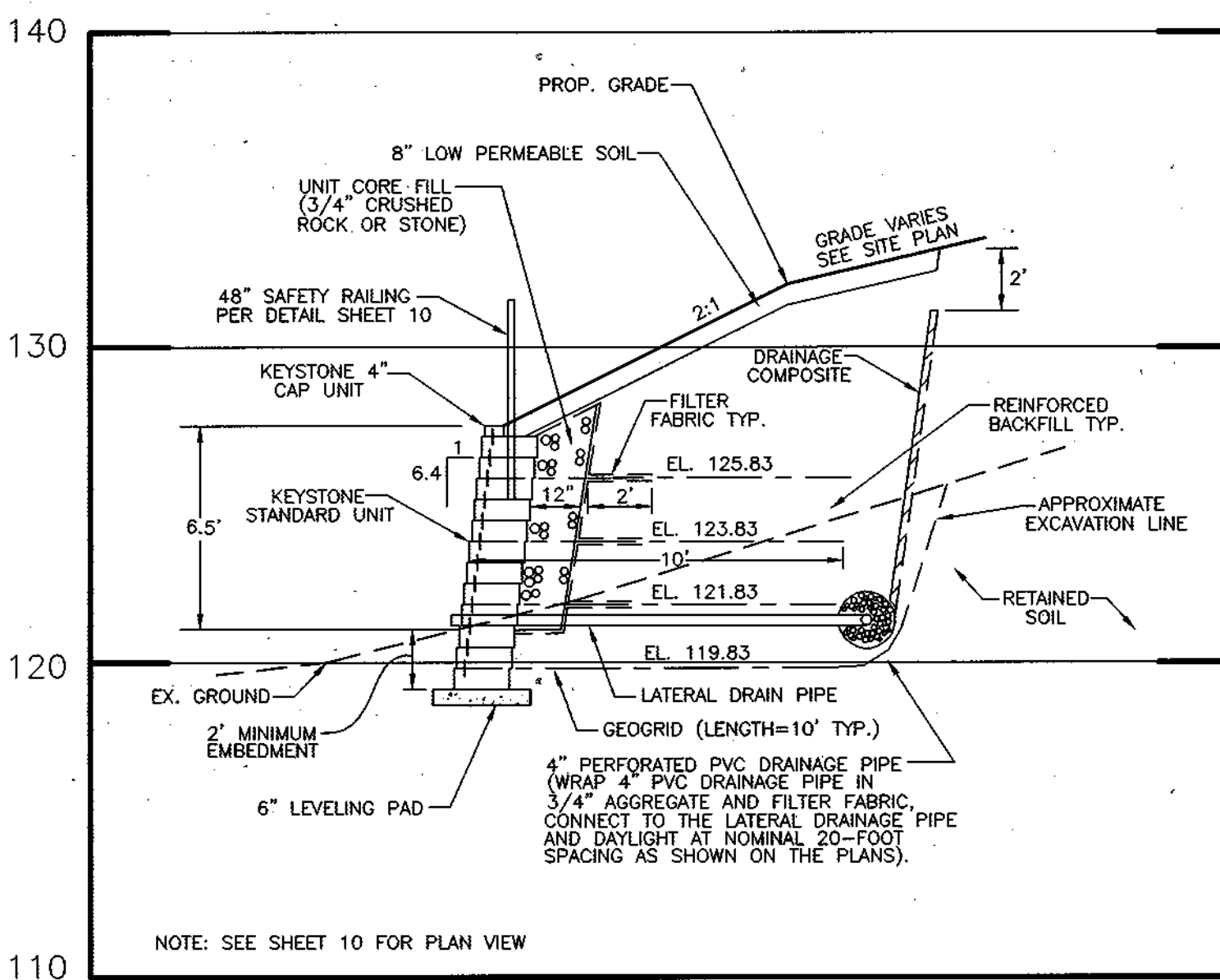
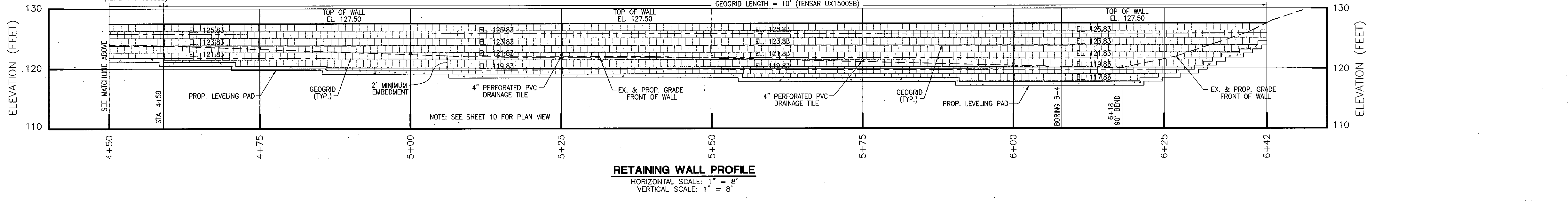
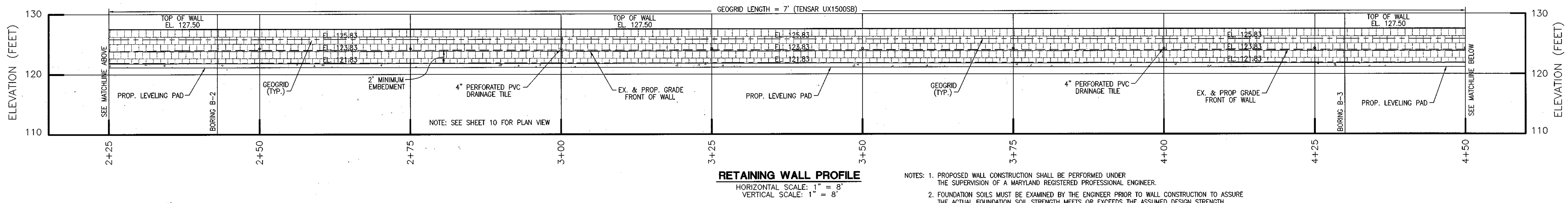
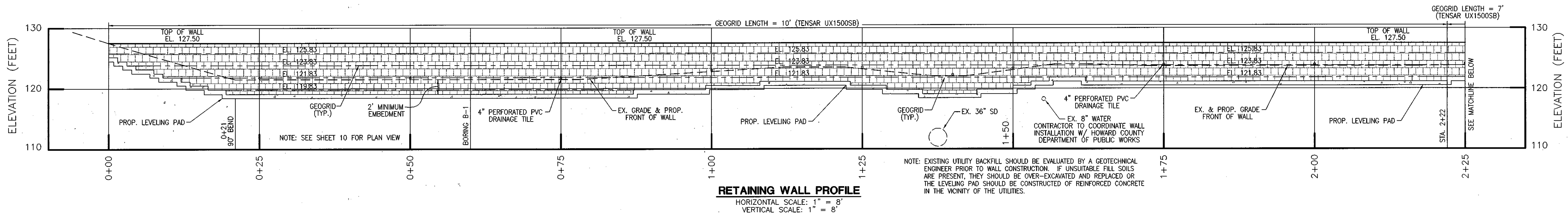
JOB NO.:	11570.02
SCALE:	AS SHOWN
DATE:	12/15/03
DRAWN BY:	TCN
DESIGN BY:	TCN
REVIEW BY:	PVM, TFM
SHEET:	10 OF 20

**SANTA BARBARA CT.**  
ROUTE 100 BUSINESS PARK  
BLOCK F PARCEL F  
SITE DEVELOPMENT PLAN  
RETAINING WALL DETAILS  
TAX MAP 38 - BLOCK F PARCEL F  
1ST ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND



**MORRIS & RITCHIE ASSOCIATES, INC.**  
ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS  
9090 JUNCTION DRIVE, SUITE 9  
ANNAPOLIS JUNCTION, MARYLAND 20701  
(410) 792-9792 or (301) 776-1690  
FAX (410) 792-7395





APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
 DATE: 1/16/04

OWNER:  
 A. NAME: Bruce Jaffe B. DAYTIME TELEPHONE: 301-984-0223  
 C. COMPANY: Morlick L.L.C.  
 D. ADDRESS: 11828 Log Jump Trail  
 E. CITY: Ellicott City STATE: MD ZIP: 21042



DATE	REVISIONS	JOB NO.:
		11570.02
		SCALE: AS SHOWN
		DATE: 12/15/03
		DRAWN BY: TCN
		DESIGN BY: TCN
		REVIEW BY: PVM, TFM
		SHEET: 11 OF 20

**SANTA BARBARA CT.**  
**ROUTE 100 BUSINESS PARK**  
**BLOCK F PARCEL F**  
**SITE DEVELOPMENT PLAN**  
**RETAINING WALL DETAILS**  
 TAX MAP 38 BLOCK F PARCEL F  
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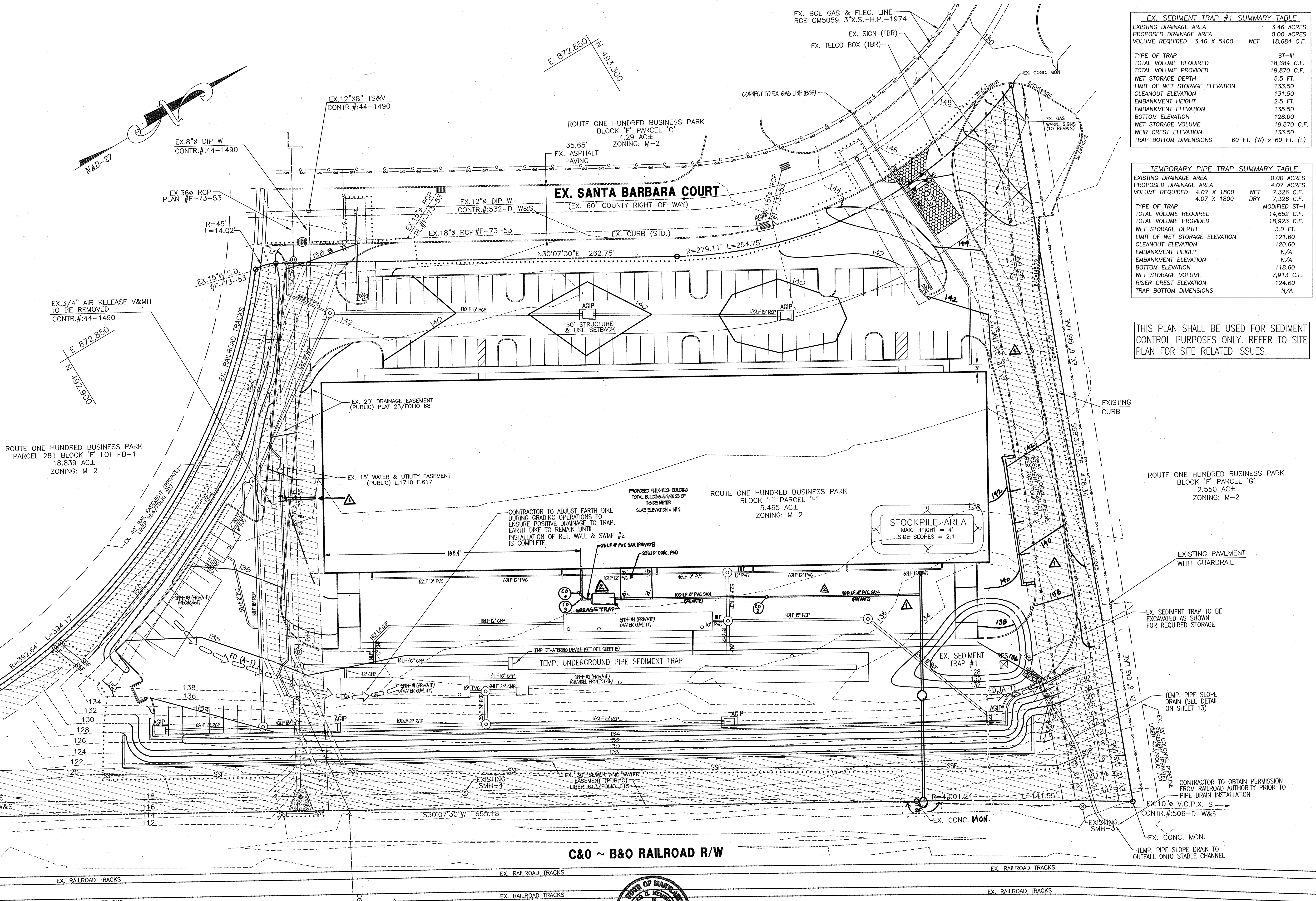


BY THE ENGINEER  
 I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.  
*Thomas C. Neugebauer* 12/15/03  
 SIGNATURE OF ENGINEER DATE  
 THOMAS C. NEUGEBAUER, P.E. MD LICENSE #29203

BY THE DEVELOPER  
 I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.  
*Bruce Jaffe* 12/15/03  
 SIGNATURE OF DEVELOPER DATE  
 BRUCE JAFFE

REVIEWED FOR HOWARD S.C.D. AND MEETS TECHNICAL REQUIREMENTS.  
*Jim Meyer* 12-30-03  
 U.S.D.A.-NATURAL RESOURCE CONSERVATION SERVICE DATE  
 THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.  
*John M. Hunter* 12-30-03  
 HOWARD S.C.D. DATE

- LEGEND**
- 404 --- EX. 2' CONTOUR
  - 400 --- EX. 10' CONTOUR
  - ==== EX. CURB
  - EX. 12" W --- EX. PROPERTY LINE
  - EX. 10" SAN --- EX. WATER LINE
  - EX. 36" S.D. --- EX. SANITARY SEWER
  - EX. 36" S.D. --- EX. STORM DRAIN
  - EX. 36" S.D. --- EX. LIGHT/ELEC. POLE
  - EX. 36" S.D. --- EX. ELEC./TELECOM BOX
  - EX. 36" S.D. --- EX. STORM DRAIN MANHOLE
  - EX. 36" S.D. --- EX. SANITARY MANHOLE
  - EX. 36" S.D. --- EX. FH/WATER VALVE
  - EX. 36" S.D. --- 30' BUILDING SETBACK LINE
  - 142 --- PR. 2' CONTOUR
  - 140 --- PR. 10' CONTOUR
  - PR. STORM DRAIN
  - PR. WATER LINE
  - PR. SANITARY LINE
  - PR. LOD
  - SF --- PR. SILT FENCE
  - SSF --- PR. SUPER SILT FENCE
  - AGIP --- PR. INLET PROTECTION
  - PR. EARTH DIKE



**EX. SEDIMENT TRAP #1 SUMMARY TABLE**

EXISTING DRAINAGE AREA	3.46 ACRES
PROPOSED DRAINAGE AREA	0.00 ACRES
VOLUME REQUIRED	3.46 X 5400 WET 18,684 C.F.
TYPE OF TRAP	ST-III
TOTAL VOLUME REQUIRED	18,684 C.F.
TOTAL VOLUME PROVIDED	19,870 C.F.
WET STORAGE DEPTH	5.5 FT.
LIMIT OF WET STORAGE ELEVATION	133.50
CLEANOUT ELEVATION	131.50
EMBANKMENT HEIGHT	2.5 FT.
EMBANKMENT ELEVATION	135.50
BOTTOM ELEVATION	128.00
WET STORAGE VOLUME	19,870 C.F.
WEIR CREST ELEVATION	133.50
TRAP BOTTOM DIMENSIONS	60 FT. (W) X 60 FT. (L)

**TEMPORARY PIPE TRAP SUMMARY TABLE**

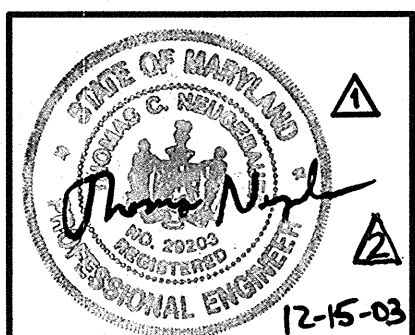
EXISTING DRAINAGE AREA	0.00 ACRES
PROPOSED DRAINAGE AREA	4.07 ACRES
VOLUME REQUIRED	4.07 X 1800 WET 7,326 C.F.
	4.07 X 1800 DRY 7,326 C.F.
TYPE OF TRAP	MODIFIED ST-I
TOTAL VOLUME REQUIRED	14,652 C.F.
TOTAL VOLUME PROVIDED	18,923 C.F.
WET STORAGE DEPTH	3.0 FT.
LIMIT OF WET STORAGE ELEVATION	121.60
CLEANOUT ELEVATION	120.60
EMBANKMENT HEIGHT	N/A
EMBANKMENT ELEVATION	N/A
BOTTOM ELEVATION	118.60
WET STORAGE VOLUME	7,913 C.F.
RISER CREST ELEVATION	124.60
TRAP BOTTOM DIMENSIONS	N/A

THIS PLAN SHALL BE USED FOR SEDIMENT CONTROL PURPOSES ONLY. REFER TO SITE PLAN FOR SITE RELATED ISSUES.

OWNER: FAX NO.: 410-964-0223  
 A. NAME: Bruce Jaffe B. DAYTIME TELEPHONE: 301-596-0222  
 C. COMPANY: Morlick L.L.C.  
 D. ADDRESS: 11628 Log Jump Trail  
 E. CITY: Ellicott City STATE: MD ZIP: 21042

DEVELOPER: FAX NO.: 410-964-0223  
 A. NAME: Bruce Jaffe B. DAYTIME TELEPHONE: 301-596-0222  
 C. COMPANY: The Sanford Companies, Inc.  
 D. ADDRESS: 11628 Log Jump Trail  
 E. CITY: Ellicott City STATE: MD ZIP: 21042

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*Chad Hamilton* 1/6/04  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE  
*Frank D. Cooper* 1/14/04  
 DIRECTOR, DEPARTMENT OF PLANNING AND ZONING DATE



DATE	REVISIONS	JOB NO.:
6/2/04	MRA-REV. LOCATION OF WAT. PROFILE 'C' AND SAN SERVICE. GRADES AND ADDED PARKING W/IN COLONIAL PL R/W.	11570.02
7/2/05	MRA-REV. ADDED GREASE TRAP & INCOMING 4" SANITARY LINE	SCALE: 1"=30'
		DATE: 12/15/03
		DRAWN BY: TCN
		DESIGN BY: TCN
		REVIEW BY: PVM, TFM
		SHEET: 12 OF 20

**SANTA BARBARA CT.**  
 ROUTE 100 BUSINESS PARK  
 BLOCK F PARCEL F  
 SITE DEVELOPMENT PLAN  
 SEDIMENT CONTROL PLAN  
 TAX MAP 38 BLOCK F PARCEL F  
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**STANDARDS AND SPECIFICATION FOR TOPSOIL**

DEFINITION  
PLACEMENT OF TOPSOIL OVER A PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION.

PURPOSE  
TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH. SOILS OF CONCERN HAVE LOW NUTRIENT LEVELS, LOW pH, MATERIAL TOXIC TO PLANTS, AND/OR UNACCEPTABLE SOIL GRADATION.

**CONDITIONS WHERE PRACTICE APPLIES**

1. THIS PRACTICE IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES WHERE:
  - A. THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH.
  - B. THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGH TO SUPPORT PLANTS OR TURFGRASS CONTAINING SUPPLIES OF MOISTURE AND PLANT NUTRIENTS.
  - C. THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.
  - D. THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.

FOR THE PURPOSE OF THESE STANDARDS AND SPECIFICATIONS, AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND DESIGN FOR ADEQUATE STABILIZATION. AREA HAVING SLOPES STEEPER THAN 2:1 SHALL HAVE THE APPROPRIATE STABILIZATION SHOWN ON THE PLANS.

**CONSTRUCTION AND MATERIAL SPECIFICATIONS**

1. TOPSOIL SALVAGED FROM THE EXISTING SITE MAY BE USED PROVIDED THAT IT MEETS STANDARDS AS SET FORTH IN THESE SPECIFICATIONS. TOPSOIL, OTHER THAN THAT WHICH IS TO BE SALVAGED FOR A GIVEN SITE, TYPE CAN BE FOUND IN REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA-SCS IN COOPERATION WITH MARYLAND AGRICULTURAL EXPERIMENTAL STATION.
2. TOPSOIL SPECIFICATIONS-SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING:
  - I. TOPSOIL SHALL BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, LOAMY SAND, OR OTHER SOILS MAY BE USED IF RECOMMENDED BY AN AGRONOMIC OR SOIL SCIENTIST AND APPROVED BY THE APPLICABLE APPROVAL AUTHORITY. REGARDLESS OF SOURCE, TOPSOIL SHALL NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND SHALL CONTAIN LESS THAN 1% BY VOLUME OF CONCRETES, STONES, GRAVELS, FRAGMENTS, GRAVELS, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1/2" IN DIAMETER.
  - II. TOPSOIL MUST BE FREE OF PLANTS OR PLANT PARTS SUCH AS BERBERIS GRASS, QUACKGRASS, JOHNSONGRASS, NUTSEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.
  - III. WHERE THE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, GROUND LIMESTONE SHALL BE SPREAD AT THE RATE OF 4-8 TONS/ACRE (200-400 POUNDS PER 1,000 SF) PRIOR TO THE PLACEMENT OF TOPSOIL. SLAG GARBAGE DISTRIBUTED UNIFORMLY OVER DESIGNATED AREAS AND WORKED INTO THE SOIL IN CONJUNCTION WITH TILLAGE OPERATIONS AS DESCRIBED IN THE FOLLOWING PROCEDURES.
3. FOR SITE HAVING DISTURBED AREAS UNDER 5 ACRE
  - I. PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMENDMENTS AS SPECIFIED IN 2.0.0 VEGETATIVE STABILIZATION-SECTION 1-VEGETATIVE STABILIZATION METHODS AND MATERIALS.

TOPSOIL APPLICATION  
1. WHEN TOPSOILING, MAINTAIN NEEDED EROSION AND SEDIMENT CONTROL PRACTICES SUCH AS DIMENSIONS, GRADE STABILIZATION STRUCTURES, EARTH DIKES, SLOPE SILT FENCE AND SEDIMENT TRAPS AND BASINS.

2. GRADES ON THE AREAS TO BE TOPSOILED, WHICH HAVE BEEN PREVIOUSLY ESTABLISHED, SHALL BE MAINTAINED, ALBERT 4"-8" HIGHER IN ELEVATION.

3. TOPSOIL SHALL BE UNIFORMLY DISTRIBUTED IN A 4"-8" LAYER AND LIGHTLY COMPACTED TO A MINIMUM THICKNESS OF 4". SPREADING SHALL BE PERFORMED IN SUCH A MANNER THAT SOILING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. UNIFORMITY OF DISTRIBUTION IN THE SURFACE RESULTING FROM TOPSOILING OR OTHER OPERATIONS SHALL BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.

4. TOPSOIL SHALL NOT BE PLACED WHILE THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR BRIDGY CONDITION, WHEN THE SUBSOIL IS EXCESSIVELY WET OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDING PREPARATION.

5. ALTERNATE FOR PERMANENT SEEDING- INSTEAD OF APPLYING THE FULL AMOUNTS OF LIME AND COMMERCIAL FERTILIZER, COMPOSTED SLUDGE AND AMENDMENTS MAY BE APPLIED AS SPECIFIED BELOW:

1. COMPOSTED SLUDGE MATERIAL FOR USE AS SOIL CONDITIONER FOR SITES HAVING DISTURBED AREAS OVER 5 ACRE SHALL BE TESTED TO PRESCRIBE AMENDMENTS AND FOR SITES HAVING DISTURBED AREAS UNDER 5 ACRES SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:

A. COMPOSTED SLUDGE SHALL BE SUPPLIED BY, OR ORIGINATE FROM, A PERSON OR PERSONS THAT ARE PERMITTED (AT THE TIME OF ACQUISITION OF THE COMPOST) BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT UNDER COMAR 26.04.06.

B. COMPOSTED SLUDGE SHALL CONTAIN AT LEAST 1% PHOSPHORUS, 1.5% POTASSIUM AND HAVE A pH OF 7.0 TO 8.0. IF COMPOST DOES NOT MEET THESE REQUIREMENTS, THE APPROPRIATE CONSTITUENTS MUST BE ADDED TO MEET THE REQUIREMENTS PRIOR TO USE.

C. COMPOSTED SLUDGE SHALL BE APPLIED AT A RATE OF 1 TON/1,000 SF.

D. COMPOSTED SLUDGE SHALL BE AMENDED WITH A POTASSIUM FERTILIZER APPLIED AT THE RATE OF 4LB/1,000 SF, AND 1/3 THE NORMAL LIME APPLICATION RATE.

2. STOCKPILES, BORROW AREAS AND SPOIL SHALL BE SHOWN ON THE PLANS AND SHALL BE SUBJECT TO THE PROVISIONS OF THESE STANDARDS AND SPECIFICATIONS.

3. ALL DISTURBED AREAS SHALL BE STABILIZED STRUCTURALLY OR VEGETATIVELY IN COMPLIANCE WITH 2.0 STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION.

4. ALL DISTURBED AREAS SHALL BE STABILIZED STRUCTURALLY OR VEGETATIVELY IN COMPLIANCE WITH 2.0 STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION.

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17. ALL DISTURBED AREAS SHALL BE STABILIZED STRUCTURALLY OR VEGETATIVELY IN COMPLIANCE WITH 2.0 STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION.

18. ALL DISTURBED AREAS SHALL BE STABILIZED STRUCTURALLY OR VEGETATIVELY IN COMPLIANCE WITH 2.0 STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION.

19. ALL DISTURBED AREAS SHALL BE STABILIZED STRUCTURALLY OR VEGETATIVELY IN COMPLIANCE WITH 2.0 STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION.

20. ALL DISTURBED AREAS SHALL BE STABILIZED STRUCTURALLY OR VEGETATIVELY IN COMPLIANCE WITH 2.0 STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION.

21. ALL DISTURBED AREAS SHALL BE STABILIZED STRUCTURALLY OR VEGETATIVELY IN COMPLIANCE WITH 2.0 STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION.

22. ALL DISTURBED AREAS SHALL BE STABILIZED STRUCTURALLY OR VEGETATIVELY IN COMPLIANCE WITH 2.0 STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION.

23. ALL DISTURBED AREAS SHALL BE STABILIZED STRUCTURALLY OR VEGETATIVELY IN COMPLIANCE WITH 2.0 STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION.

**STANDARDS AND SPECIFICATIONS FOR LAND GRADING**

DEFINITION  
RESHAPING OF THE EXISTING LAND SURFACE IN ACCORDANCE WITH A PLAN AS DETERMINED BY ENGINEERING SURVEY AND LAYOUT.

PURPOSE  
THE PURPOSE OF A LAND GRADING SPECIFICATION IS TO PROVIDE FOR EROSION CONTROL AND VEGETATIVE ESTABLISHMENT ON THOSE AREAS WHERE THE EXISTING LAND SURFACE IS TO BE RESHAPED BY GRADING ACCORDING TO A PLAN.

**DESIGN CRITERIA**

THE GRADING PLAN SHOULD BE BASED UPON THE INCORPORATION OF BUILDING DESIGNS AND STREET LAYOUTS THAT FIT AND UTILIZE EXISTING TOPOGRAPHY AND DESIRABLE NATURAL SURROUNDINGS TO AVOID EXTREME GRADE MODIFICATIONS. INFORMATION SUBMITTED MUST PROVIDE SUFFICIENT TOPOGRAPHIC SURVEYS AND SOIL INVESTIGATIONS TO DETERMINE LIMITATIONS THAT MUST BE IMPOSED ON THE GRADING OPERATION RELATED TO SOIL STABILITY, EFFECT ON ADJACENT PROPERTIES AND DRAINAGE PATTERNS. MEASURES FOR DRAINAGE AND WATER REMOVAL AND VEGETATIVE TREATMENT, ETC.

MANY COUNTIES HAVE REGULATIONS AND DESIGN PROCEDURES ALREADY ESTABLISHED FOR LAND GRADING AND CUT AND FILL SLOPES. WHERE THESE REQUIREMENTS EXIST, THEY SHALL BE FOLLOWED. THE PLAN MUST SHOW EXISTING AND PROPOSED CONTOURS OF THE AREA(S) TO BE GRADED. THE PLAN SHALL ALSO INCLUDE PRACTICES FOR EROSION CONTROL, SOIL STABILIZATION, SAFE DISPOSAL OF RUNOFF WATER AND DRAINAGE, SUCH AS WATERWAYS, LINED DITCHES, REVERSE SLOPE BENCHES (INCLUDE GRADE AND CROSS SECTIONS), MEASURES FOR DRAINAGE AND WATER REMOVAL AND VEGETATIVE TREATMENT, ETC.

**DESIGN CRITERIA**

THE GRADING PLAN SHOULD BE BASED UPON THE INCORPORATION OF BUILDING DESIGNS AND STREET LAYOUTS THAT FIT AND UTILIZE EXISTING TOPOGRAPHY AND DESIRABLE NATURAL SURROUNDINGS TO AVOID EXTREME GRADE MODIFICATIONS. INFORMATION SUBMITTED MUST PROVIDE SUFFICIENT TOPOGRAPHIC SURVEYS AND SOIL INVESTIGATIONS TO DETERMINE LIMITATIONS THAT MUST BE IMPOSED ON THE GRADING OPERATION RELATED TO SOIL STABILITY, EFFECT ON ADJACENT PROPERTIES AND DRAINAGE PATTERNS. MEASURES FOR DRAINAGE AND WATER REMOVAL AND VEGETATIVE TREATMENT, ETC.

1. PROVISIONS SHALL BE MADE TO SAFELY CONDUCT SURFACE RUNOFF TO STORM DRAINAGE, PROTECTED OUTLETS OR TO STABLE WATER COURSES TO INSURE THAT SURFACE RUNOFF WILL NOT DAMAGE SLOPES OR OTHER GRADED AREAS.

2. CUT AND FILL SLOPES THAT ARE TO BE STABILIZED WITH GRASSES SHALL NOT BE STEEPER THAN 2:1. (WHERE THE SLOPE IS TO BE MOVED THE SLOPE SHOULD BE NO STEEPER THAN 3:1. PREFERRED BECAUSE OF SAFETY FACTORS RELATED TO MOWING STEEP SLOPES.) SLOPES EXCEEDING 2:1 SHALL REQUIRE SPECIAL DESIGN AND STABILIZATION CONSIDERATIONS THAT SHALL BE ADEQUATELY SHOWN ON THE PLANS.

3. REVERSE BENCHES SHALL BE PROVIDED WHEREVER THE VERTICAL INTERVAL (HEIGHT) OF ANY 2:1 SLOPE EXCEEDS 30 FEET, FOR 3:1 SLOPE, IT SHALL BE INCREASED TO 30 FEET AND FOR 4:1 TO 40 FEET. BENCHES SHALL BE LOCATED TO DRAIN THE SLOPE FACE AS EQUALLY AS POSSIBLE AND SHALL CONVEY THE WATER TO A STABLE OUTLET. SOILS, SEEPS, STONES, ETC. SHALL ALSO BE TAKEN INTO CONSIDERATION WHEN DESIGNING BENCHES.

4. BENCHES SHALL BE A MINIMUM OF SIX FEET WIDE TO PROVIDE FOR EASE OF MAINTENANCE.

5. BENCHES SHALL BE DESIGNED WITH A REVERSE SLOPE OF 6:1 OR FLATTER TO THE TOP OF THE UPPER SLOPE AND WITH A MINIMUM OF ONE FOOT IN DEPTH. BENCH GRADIENT TO THE OUTLET SHALL BE BETWEEN 2 PERCENT AND 3 PERCENT, UNLESS ACCOMPANIED BY APPROPRIATE DESIGN AND COMPUTATIONS.

6. THE FLOW LENGTH WITHIN A BENCH SHALL NOT EXCEED 100 FEET UNLESS ACCOMPANIED BY APPROPRIATE DESIGN AND COMPUTATIONS. FOR FLOW CHANNEL STABILIZATION SEE TEMPORARY SWALE.

7. SURFACE WATER SHALL BE DIVERTED FROM THE FACE OF ALL CUT AND/OR FILL SLOPES BY APPROPRIATE DESIGN AND CONSTRUCTION OF DITCHES AND SWALES OR CONVEYED DOWNSLOPE BY THE USE OF A DESIGNED STRUCTURE, EXCEPT WHERE:

A. THE FACE OF THE SLOPE IS OR SHALL BE STABILIZED AND THE PROTECTION OF ALL GRADED SLOPES SHALL BE PROTECTED FROM SURFACE RUNOFF UNTIL THEY ARE STABILIZED.

B. THE FACE OF SLOPE SHALL NOT BE SUBJECT TO ANY CONCENTRATED FLOWS OF SURFACE WATER SUCH AS FROM NATURAL DRAINAGES, GRADED SWALES, DOWNSPOUTS, ETC.

C. THE FACE OF THE SLOPE WILL BE PROTECTED BY SPECIAL EROSION CONTROL MATERIALS, TO INCLUDE, BUT NOT LIMITED TO: APPROVED VEGETATIVE STABILIZATION PRACTICES (SEE SECTION C), RAP-RAP OR OTHER APPROVED STABILIZATION METHODS.

8. CUT SLOPES OCCURRING IN RIPABLE ROCK SHALL BE SERRATED AS SHOWN ON THE FOLLOWING DIAGRAM. THESE SERRATIONS SHALL BE MADE WITH CONVENTIONAL EQUIPMENT AS THE EXCAVATION IS MADE. EACH STEP OR SERRATION SHALL BE CONSTRUCTED ON THE CONTIGUOUS AND WILL HAVE STEPS CUT AT NOMINAL TWO-FOOT INTERVALS WITH NOMINAL THREE-FOOT HORIZONTAL SHELVES. THESE STEPS WILL VARY DEPENDING ON THE SLOPE RATIO OR THE CUT SLOPE. THE NOMINAL SLOPE LINE IS 1:1. THESE STEPS WILL WEATHER AND ACT TO HOLD MOISTURE, LIME, FERTILIZER AND SEED THIS PRODUCING A MUCH QUICKER AND LONGER LIVED VEGETATIVE COVER AND BETTER SOIL STABILIZATION. OVERLAND FLOW SHALL BE DIVERTED FROM THE TOP OF ALL SERRATED CUT SLOPES AND CARRIED TO A SUITABLE OUTLET.

9. SUBSURFACE DRAINAGE SHALL BE PROVIDED WHERE NECESSARY TO INTERCEPT SEEPAGE THAT WOULD OTHERWISE ADVERSELY AFFECT SOIL STABILITY OR CREATE EXCESSIVELY WET SITE CONDITIONS.

10. SLOPES SHALL NOT BE CREATED SO CLOSE TO PROPERTY LINES AS TO ENHANCE ADVANCING PROPERTIES WITHOUT ADEQUATELY PROTECTING SUCH PROPERTIES AGAINST SEDIMENTATION, EROSION, SURFACE SETTLEMENT, SUBSIDENCE OR OTHER RELATED DAMAGES.

11. FILL MATERIAL SHALL BE FREE OF BRUSH, RUBBISH, STONES, LOGS, STAMPS, BUILDING DEBRIS, AND OTHER OBSCURABLE MATERIAL. IT SHOULD BE FREE OF ROCKS OVER TWO (2) INCHES IN DIAMETER WHERE COMPACTED BY HAND OR MECHANICAL HAMMERS OR OVER EIGHT (8) INCHES IN DIAMETER WHERE COMPACTED BY ROLLERS OR OTHER EQUIPMENT. FROZEN MATERIAL SHALL NOT BE PLACED IN THE FILL. SHALL THE FILL MATERIAL BE PLACED ON A FROZEN FOUNDATION.

12. STOCKPILES, BORROW AREAS AND SPOIL SHALL BE SHOWN ON THE PLANS AND SHALL BE SUBJECT TO THE PROVISIONS OF THESE STANDARDS AND SPECIFICATIONS.

13. ALL DISTURBED AREAS SHALL BE STABILIZED STRUCTURALLY OR VEGETATIVELY IN COMPLIANCE WITH 2.0 STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION.

14. ALL DISTURBED AREAS SHALL BE STABILIZED STRUCTURALLY OR VEGETATIVELY IN COMPLIANCE WITH 2.0 STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION.

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**VEGETATIVE STABILIZATION**

PERMANENT AND TEMPORARY SEEDING, SOODING AND MULCHING

DEFINITION  
PERMANENT OR TEMPORARY VEGETATION SHALL BE ESTABLISHED WITHIN SEVEN (7) DAYS ON THE SURFACE OF ALL SEDIMENT CONTROL PRACTICES SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, BENCHES, WATERWAYS, SEDIMENT CONTROL BASINS, AND ALL SLOPES GREATER THAN 1 VERTICAL (3:1) AND WITHIN 14 DAYS FOR ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE. MULCHING MAY ONLY BE USED ON DISTURBED AREAS AS TEMPORARY COVER WHERE VEGETATION IS NOT FEASIBLE OR WHERE SEEDING CAN NOT BE COMPLETED BECAUSE OF WEATHER.

**I. SITE PREPARATION**

PERMANENT OR TEMPORARY VEGETATION SHALL BE ESTABLISHED WITHIN SEVEN (7) DAYS ON THE SURFACE OF ALL SEDIMENT CONTROL PRACTICES SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, BENCHES, WATERWAYS, SEDIMENT CONTROL BASINS, AND ALL SLOPES GREATER THAN 1 VERTICAL (3:1) AND WITHIN 14 DAYS FOR ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE. MULCHING MAY ONLY BE USED ON DISTURBED AREAS AS TEMPORARY COVER WHERE VEGETATION IS NOT FEASIBLE OR WHERE SEEDING CAN NOT BE COMPLETED BECAUSE OF WEATHER.

**II. SEEDING PREPARATION AND SEEDING APPLICATION**

LOOSEN THE TOP LAYER OF THE SOIL TO A DEPTH OF 3 TO 5 INCHES BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION EQUIPMENT SUCH AS DISC HARROWS, COMB PLOWS OR ROPPERS MOUNTED ON CONSTRUCTION EQUIPMENT. INCORPORATE THE LIME AND FERTILIZER INTO THE TOP 3" TO 5" DEPTH OF THE SOIL BY DISCING OR BY OTHER SUITABLE MEANS. ROUGH AREAS SHOULD NOT BE ROLLED OR LEAVED SMOOTH BUT LEFT IN A ROUGHENED CONDITION. STEEP SLOPES GREATER THAN 3:1 SHOULD BE TRACKED BY A DOZER, LEAVING THE SOIL IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE SLOPE.

**III. SOIL AMENDMENTS**

SOIL TESTS SHALL BE MADE ON SITES OVER FIVE ACRES TO DETERMINE THE EXACT REQUIREMENTS FOR BOTH LIME AND FERTILIZER. FOR SITES UNDER 5 ACRES, IN LIEU OF A SOIL TEST, APPLY THE FOLLOWING:

FERTILIZER NITROGEN 2 LBS/1000 SF (90 LBS/AC)  
P2O5 4 LBS/1000 SF (174 LBS/AC)  
K2O 4 LBS/1000 SF (174 LBS/AC)

GROUND LIMESTONE 2 TONS/AC

**IV. SEDIMENT CONTROL PRACTICE SEEDING**

SELECT A SEEDING MIXTURE FROM TABLE 25 OR 26 IN SECTION "C" OF THE 1994 STANDARDS AND SPECIFICATIONS. DOCUMENT SEEDING ON THE EROSION AND SEDIMENT CONTROL PLAN USING APPROPRIATE CHART BELOW.

NOTE: E. SEDIMENT CONTROL PRACTICES ARE IN FOR LONGER THAN 12 MONTHS, PERMANENT SEEDING IS REQUIRED.

**V. TEMPORARY/PERMANENT SEEDING MIXTURES AND RATES**

SELECT A SEEDING MIXTURE FROM APPROPRIATE TABLE 25 OR 26 IN SECTION "C" OF THE 1994 STANDARDS AND SPECIFICATIONS. DOCUMENT SEEDING ON THE EROSION AND SEDIMENT CONTROL PLAN USING APPROPRIATE CHART BELOW.

**TEMPORARY SEEDING SUMMARY**

NO.	SPECIES	APPLICATION RATE (LBS/AC)		SEEDING DATE	SEEDING DEPTH	FERTILIZER RATE (LBS/1000 SF)	LIME RATE (TONS/AC)
		TABLE 25	TABLE 26				
1	BARLEY OR RYE PLUS FOXTAIL MILLET	8/15-11/30	8/15-11/30	1/4"-1/2"	2 LB/1000 SF	1000 SF/1000 SF	2 TONS/AC (100 LB/1000 SF)

**PERMANENT SEEDING SUMMARY**

NO.	SPECIES	APPLICATION RATE (LBS/AC)		SEEDING DATE	SEEDING DEPTH	FERTILIZER RATE (LBS/1000 SF)	LIME RATE (TONS/AC)
		TABLE 25	TABLE 26				
3	TALL FESCUE (85%) CHEWINGS FESCUE (10%) KENTUCKY BLUE GRASS (5%)	8/15-11/30	8/15-11/30	1/4"-1/2"	2 LB/1000 SF	1000 SF/1000 SF	2 TONS/AC (100 LB/1000 SF)
		8/15-11/30	8/15-11/30	1/4"-1/2"	-900 LBS/AC	OF 10-20-20	

**VI. TURFGRASS ESTABLISHMENT**

THIS INCLUDES LAWNS, PARKS, PLAYGROUNDS, AND COMMERCIAL SITES WHICH WILL RECEIVE A MEDIUM TO HIGH LEVEL OF MAINTENANCE. AREAS TO RECEIVE SEED SHALL BE TILED BY DISCING OR BY OTHER APPROVED METHODS TO A DEPTH OF 3 TO 5 INCHES. LEVELED AND ROLLED TO REMOVE SEDIMENT, STONES AND DEBRIS OVER 1 1/2 INCHES IN DIAMETER SHALL BE REMOVED. THE RESULTING SEEDING SHALL BE IN SUCH CONDITION THAT FUTURE MOWING OF CHOICE A TURFGRASS MIXTURE FROM PATE G-20 OF THE 1994 STANDARDS AND SPECIFICATIONS OR SELECT FROM THE LIST IN THE MOST CURRENT UNIVERSITY OF MARYLAND PUBLICATION AGRONOMY MEMO #77, "TURFGRASS CULTIVAR RECOMMENDATIONS FOR MARYLAND".

1. TURFGRASS ESTABLISHMENT SHALL BE MADE BY SEEDING OR BY LAYING TURFGRASS MATS. SEEDING SHALL BE MADE BY DISCING OR BY OTHER APPROVED METHODS TO A DEPTH OF 3 TO 5 INCHES. LEVELED AND ROLLED TO REMOVE SEDIMENT, STONES AND DEBRIS OVER 1 1/2 INCHES IN DIAMETER SHALL BE REMOVED. THE RESULTING SEEDING SHALL BE IN SUCH CONDITION THAT FUTURE MOWING OF CHOICE A TURFGRASS MIXTURE FROM PATE G-20 OF THE 1994 STANDARDS AND SPECIFICATIONS OR SELECT FROM THE LIST IN THE MOST CURRENT UNIVERSITY OF MARYLAND PUBLICATION AGRONOMY MEMO #77, "TURFGRASS CULTIVAR RECOMMENDATIONS FOR MARYLAND".

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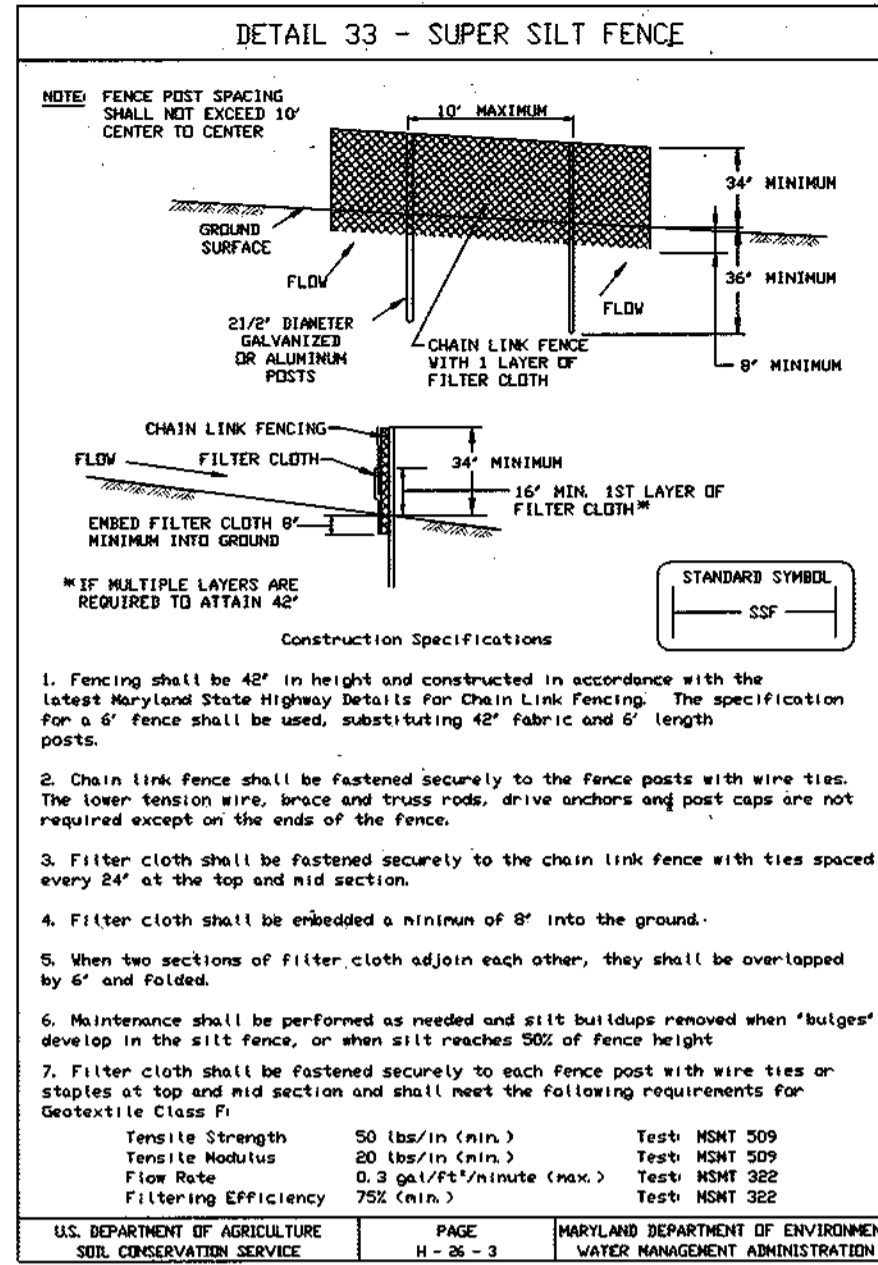
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Design Criteria

Slope	Slope Steepness	Slope Length (Maximum)	Silt Fence Length (Maximum)
0 - 10%	0 - 10:1	Unlimited	Unlimited
10 - 20%	10:1 - 5:1	200 Feet	1,300 Feet
20 - 33%	5:1 - 3:1	100 Feet	1,000 Feet
33 - 50%	3:1 - 2:1	100 Feet	500 Feet
50% +	2:1 +	50 Feet	250 Feet

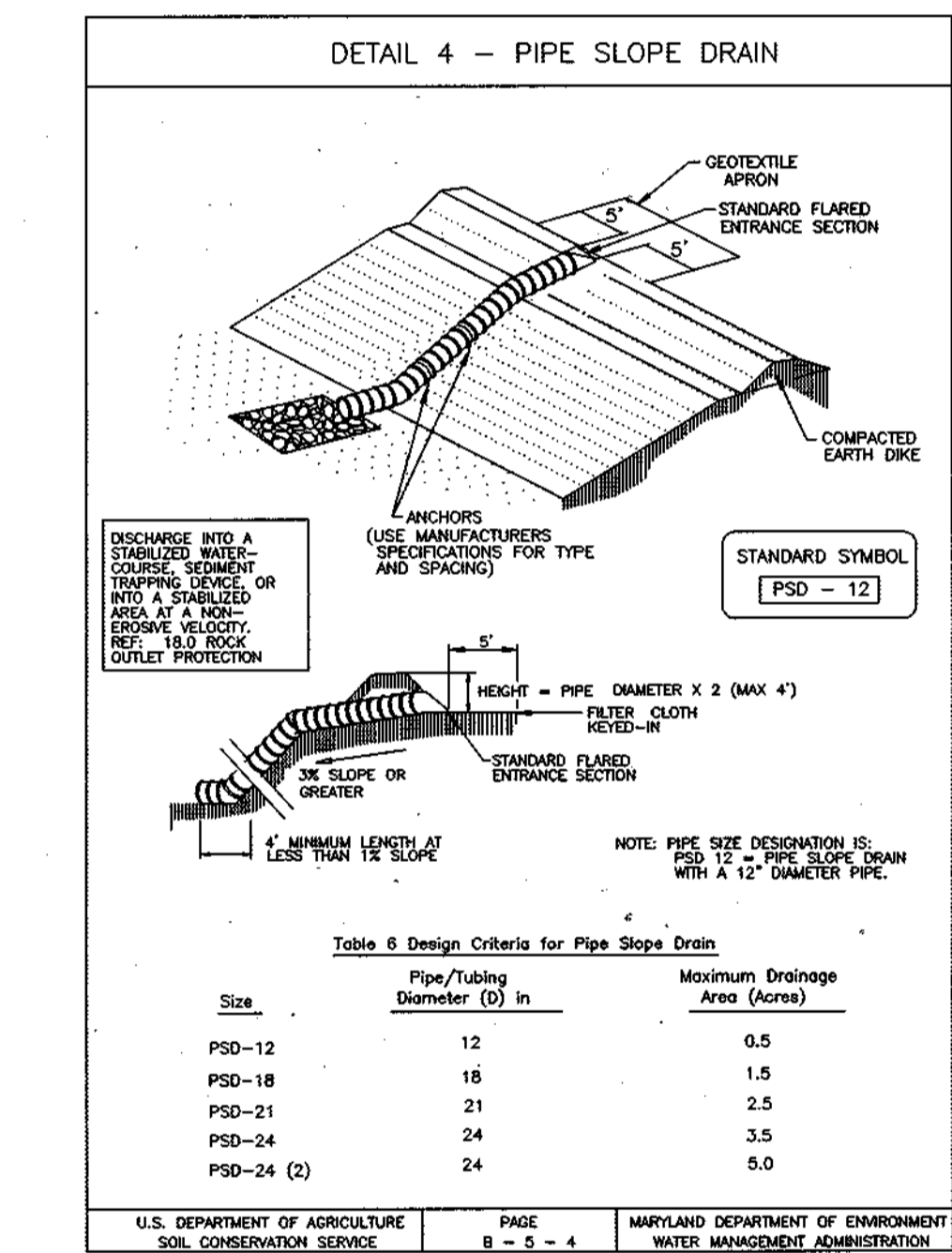
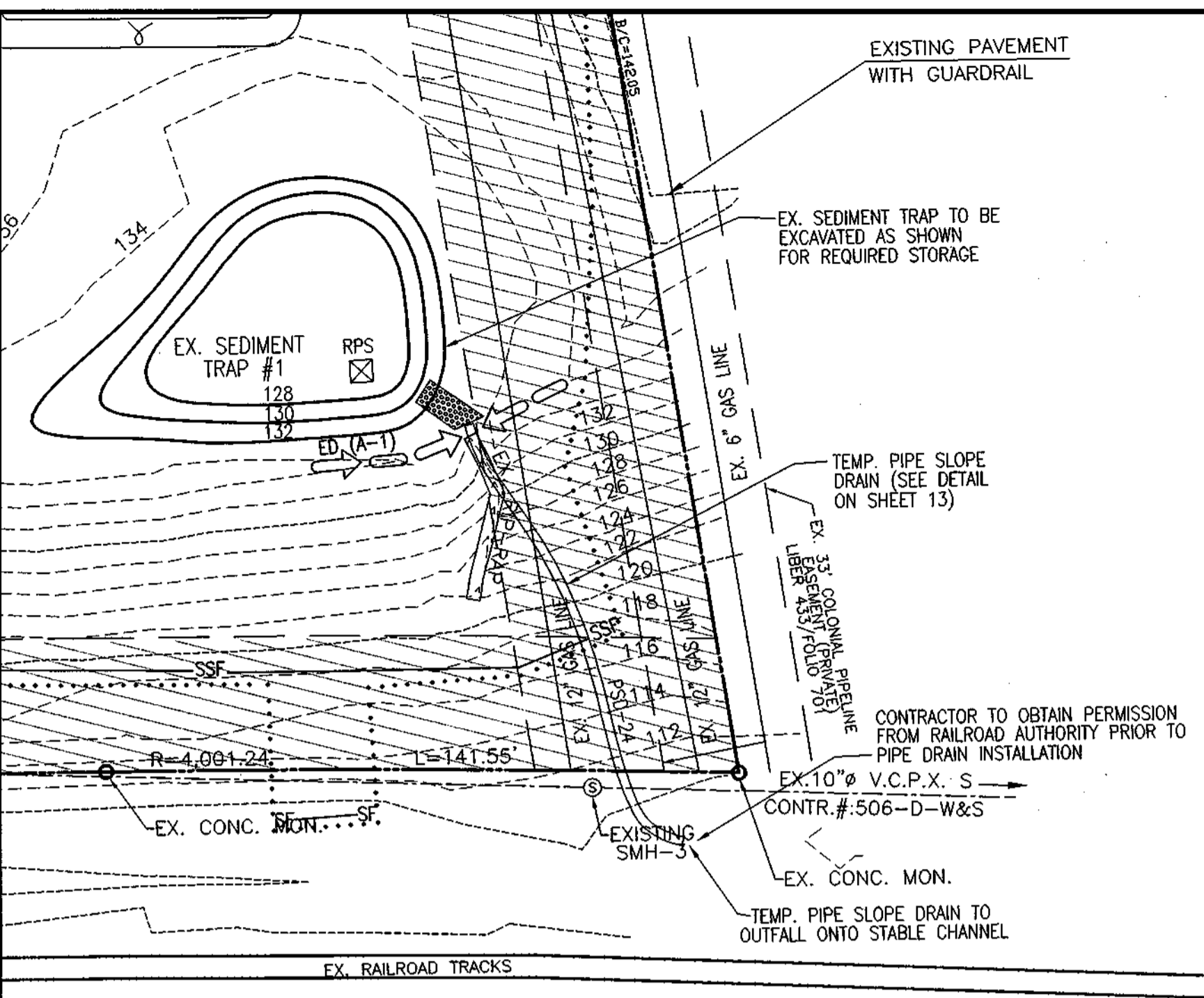
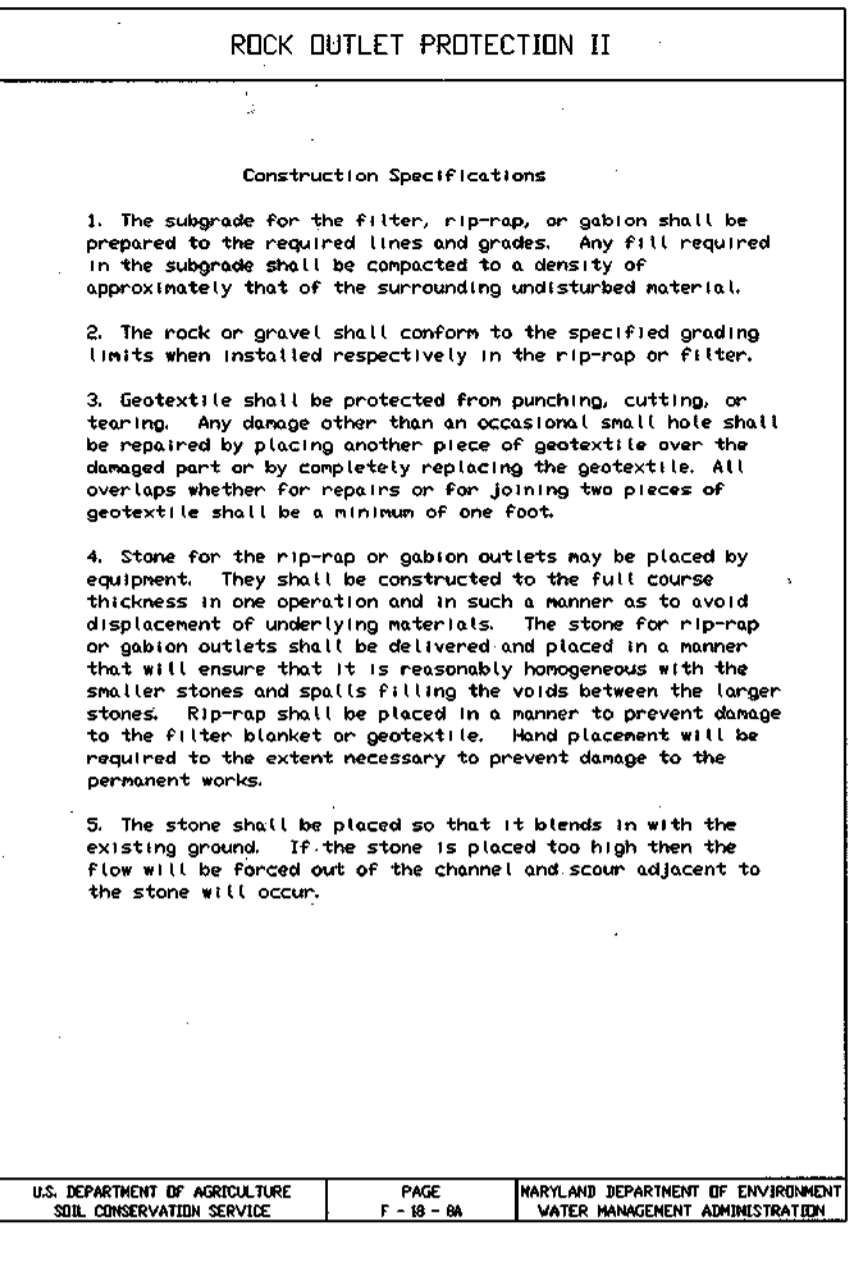
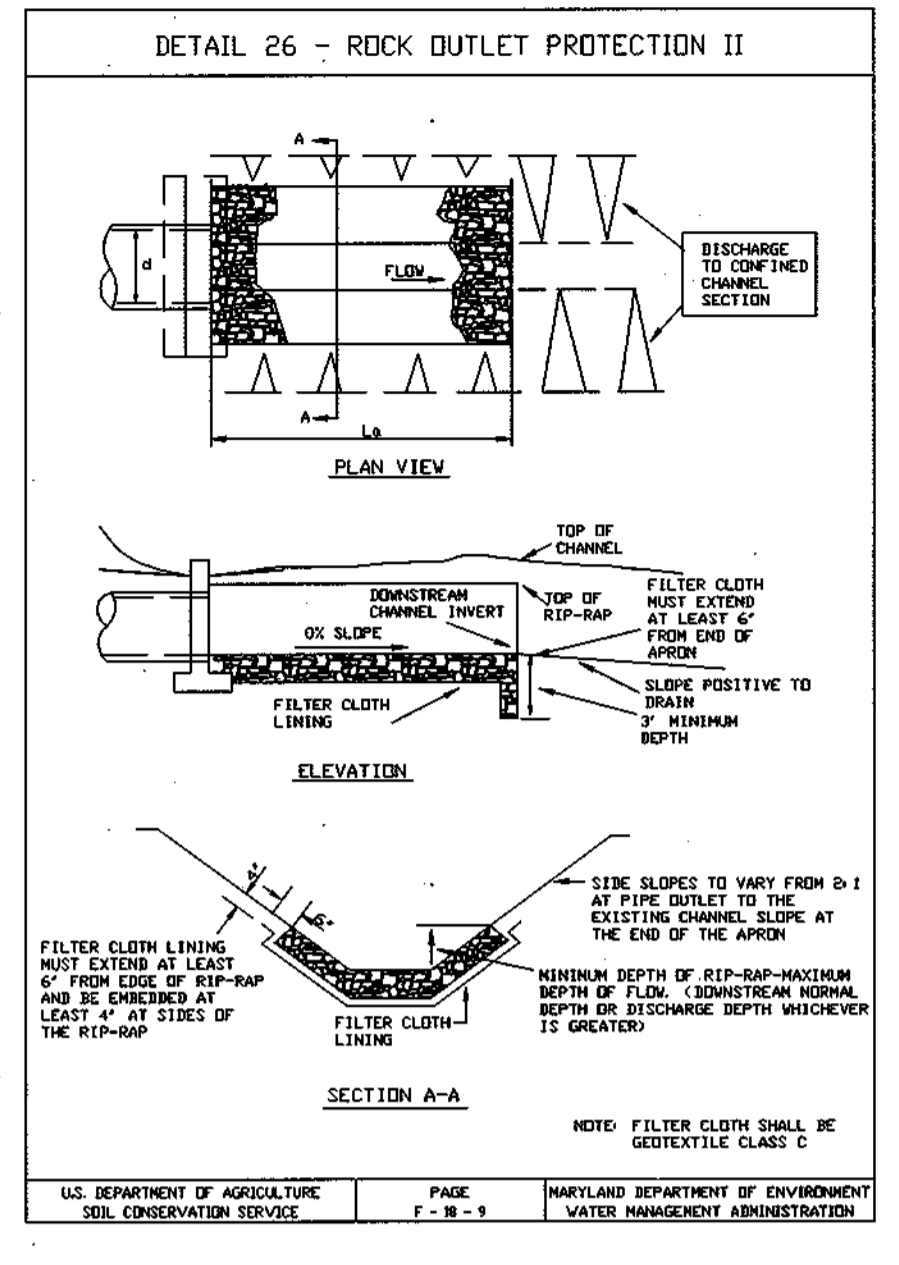
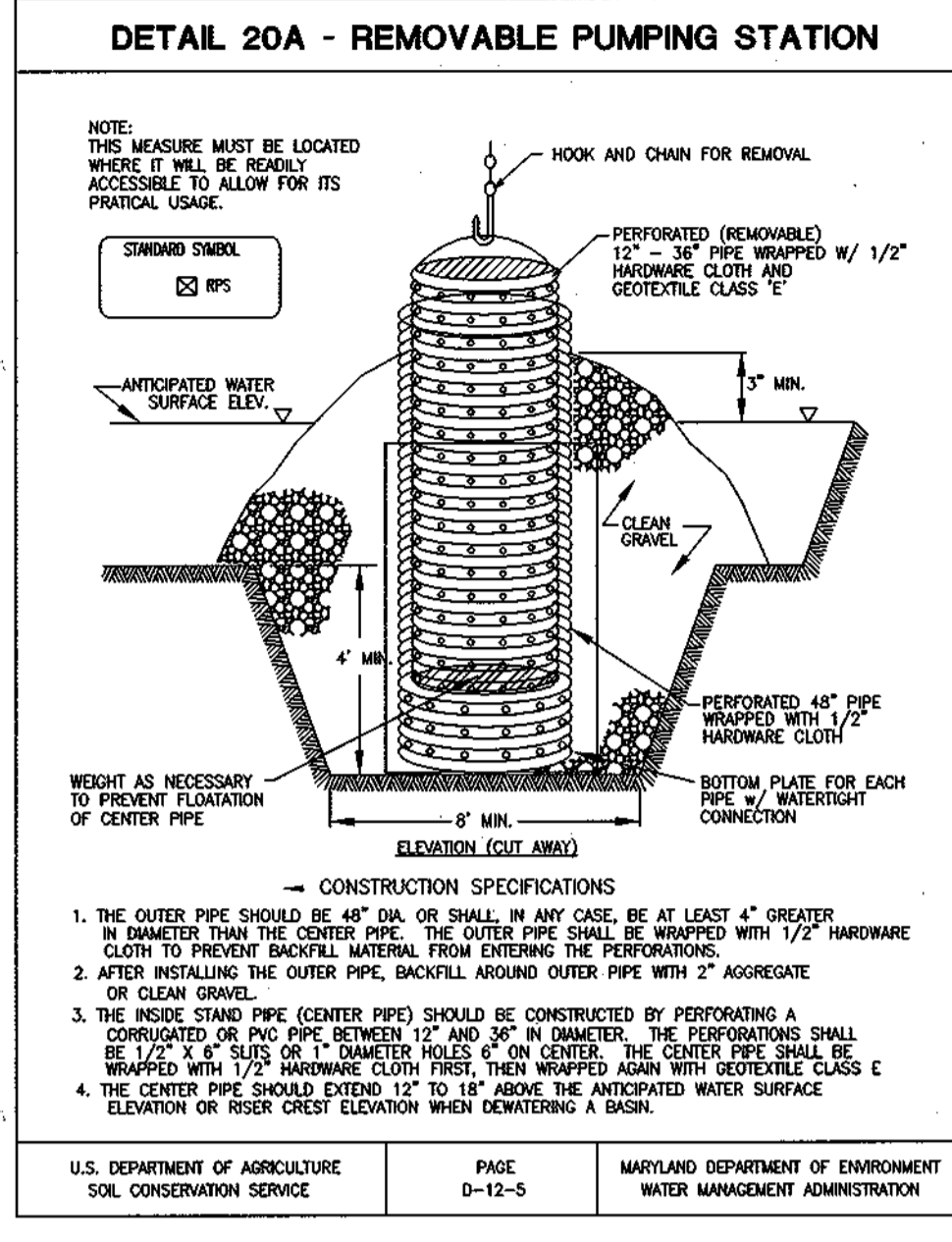
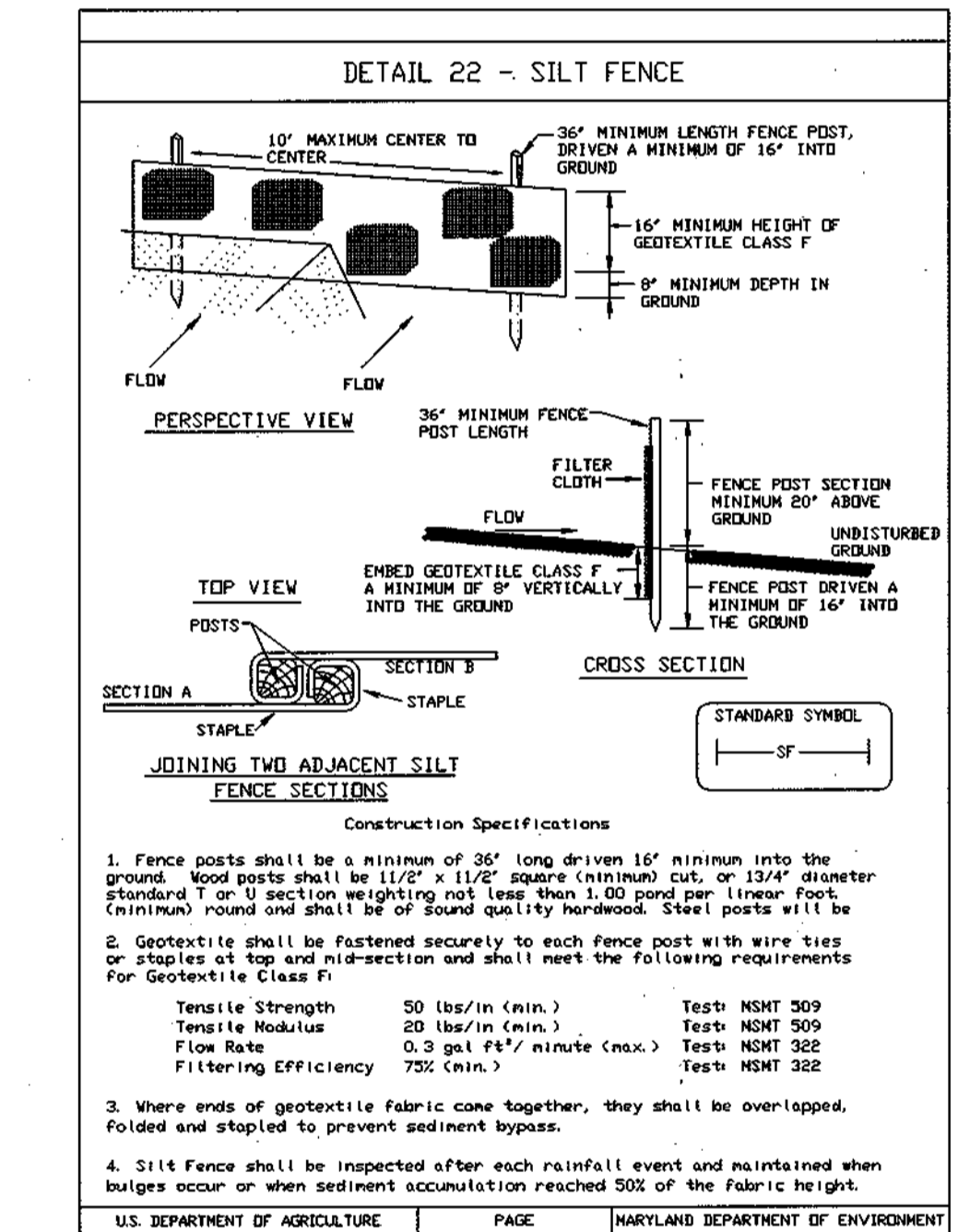


Table B Design Criteria for Pipe Slope Drain

Size	Pipe ( tubing ) Diameter (in)	Maximum Drainage Area (Acres)
PSD-12	12	0.5
PSD-18	18	1.5
PSD-21	21	2.5
PSD-24	24	3.5
PSD-24 (2)	24	5.0



SILT FENCE

Silt Fence Design Criteria

Slope Steepness	(Maximum) Slope Length	(Maximum) Silt Fence Length
Flatter than 50:1	unlimited	unlimited
50:1 to 10:1	125 feet	1,000 feet
10:1 to 3:1	100 feet	750 feet
3:1 to 2:1	60 feet	500 feet
2:1 to 1:1	40 feet	250 feet
1:1 and steeper	20 feet	125 feet

EX. SEDIMENT TRAP #1 SUMMARY TABLE

EXISTING DRAINAGE AREA	3.48 ACRES
PROPOSED DRAINAGE AREA	0.00 ACRES
VOLUME REQUIRED	3.48 X 5400 WET 18,684 C.F.
TYPE OF TRAP	ST-III
TOTAL VOLUME REQUIRED	18,684 C.F.
TOTAL VOLUME PROVIDED	19,870 C.F.
WET STORAGE DEPTH	5.5 FT.
LIMIT OF WET STORAGE ELEVATION	133.50
CLEANOUT ELEVATION	131.50
EMBANKMENT HEIGHT	2.5 FT.
EMBANKMENT ELEVATION	135.50
BOTTOM ELEVATION	128.00
WET STORAGE VOLUME	19,870 C.F.
WEIR CREST ELEVATION	133.50
TRAP BOTTOM DIMENSIONS	60 FT. (W) X 60 FT. (L)

BY THE ENGINEER  
I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.  
*Thomas C. Neugebauer, P.E.* 12-15-03  
SIGNATURE OF ENGINEER DATE  
THOMAS C. NEUGEBAUER, P.E. MD LICENSE #29203

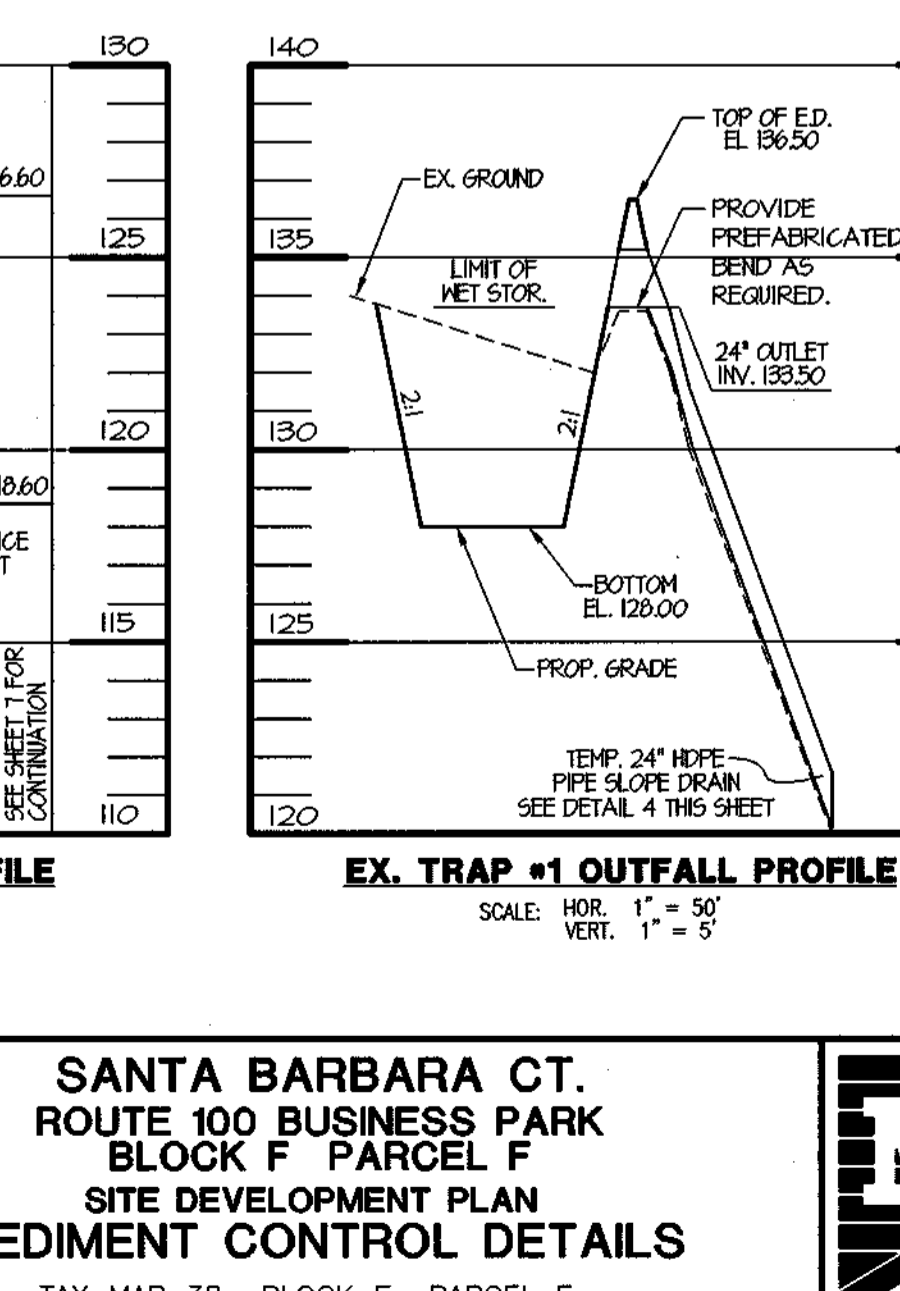
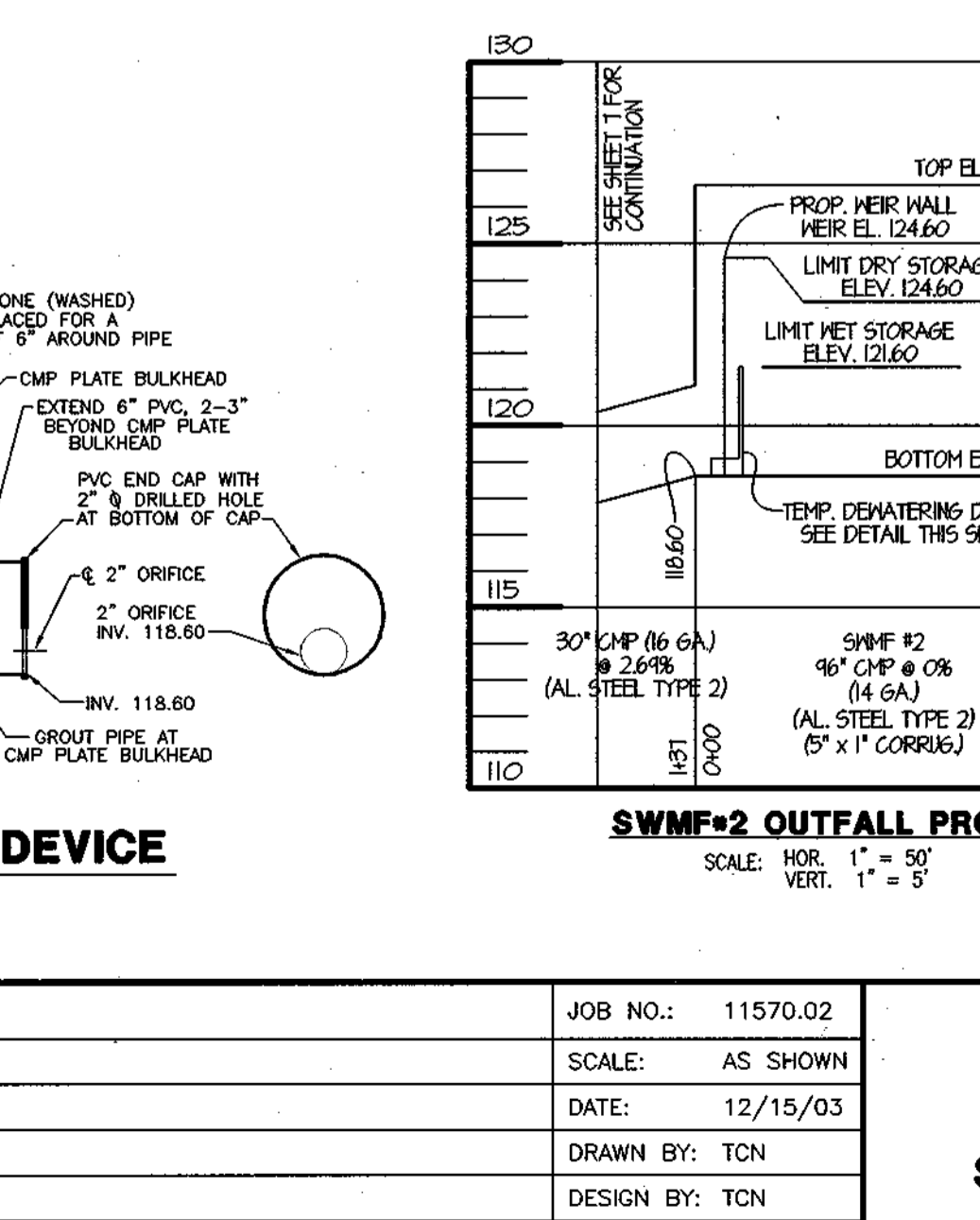
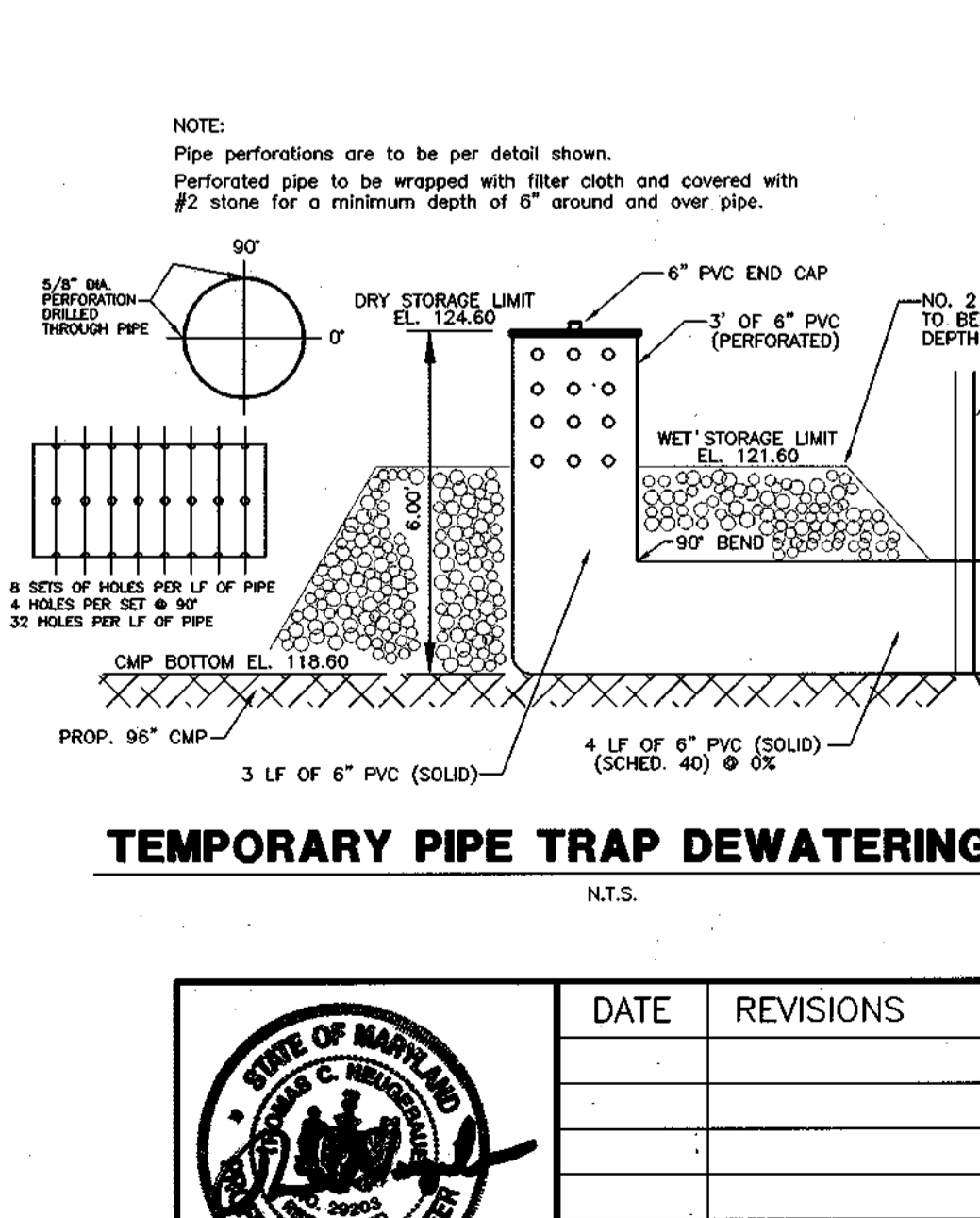
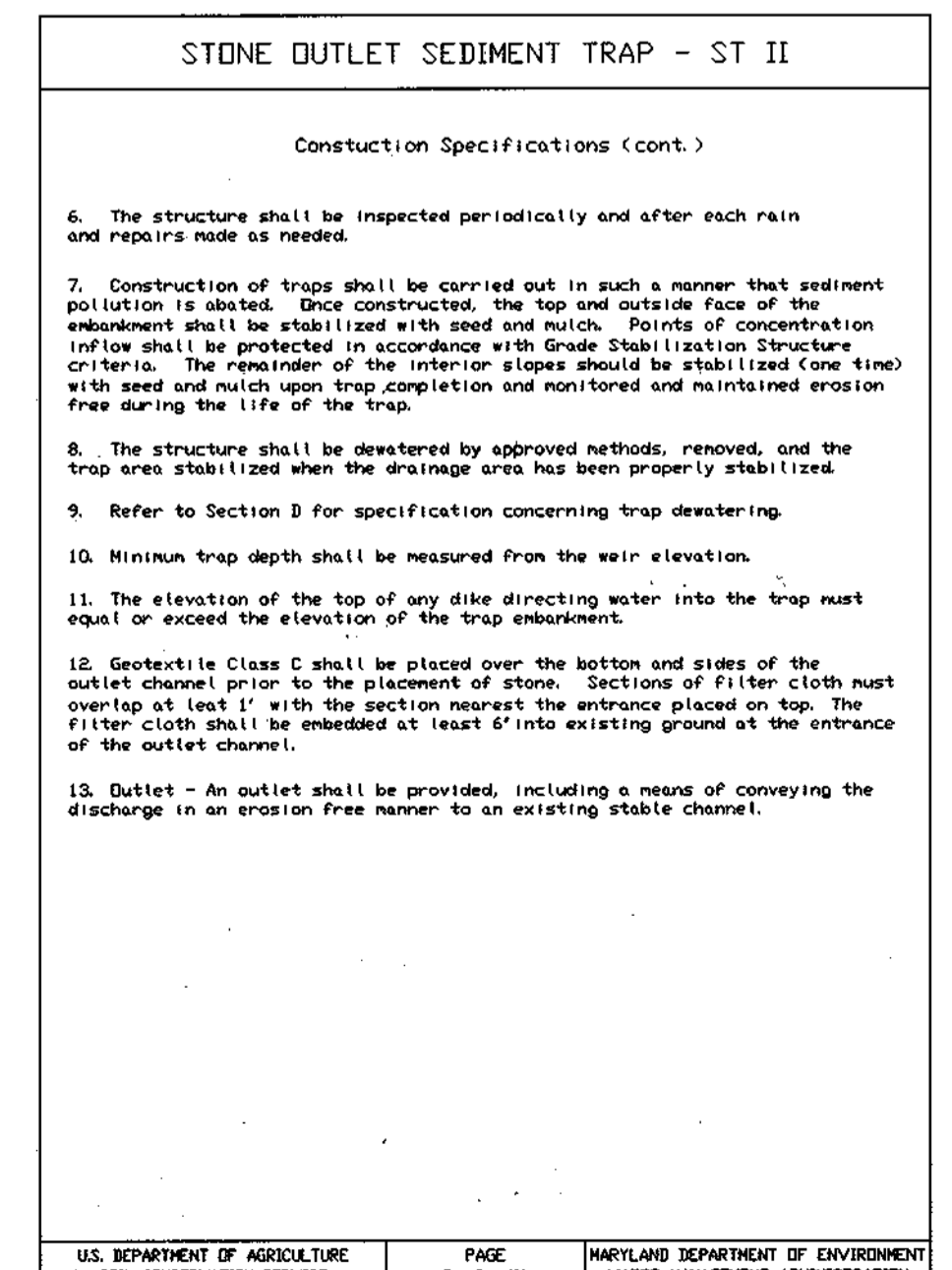
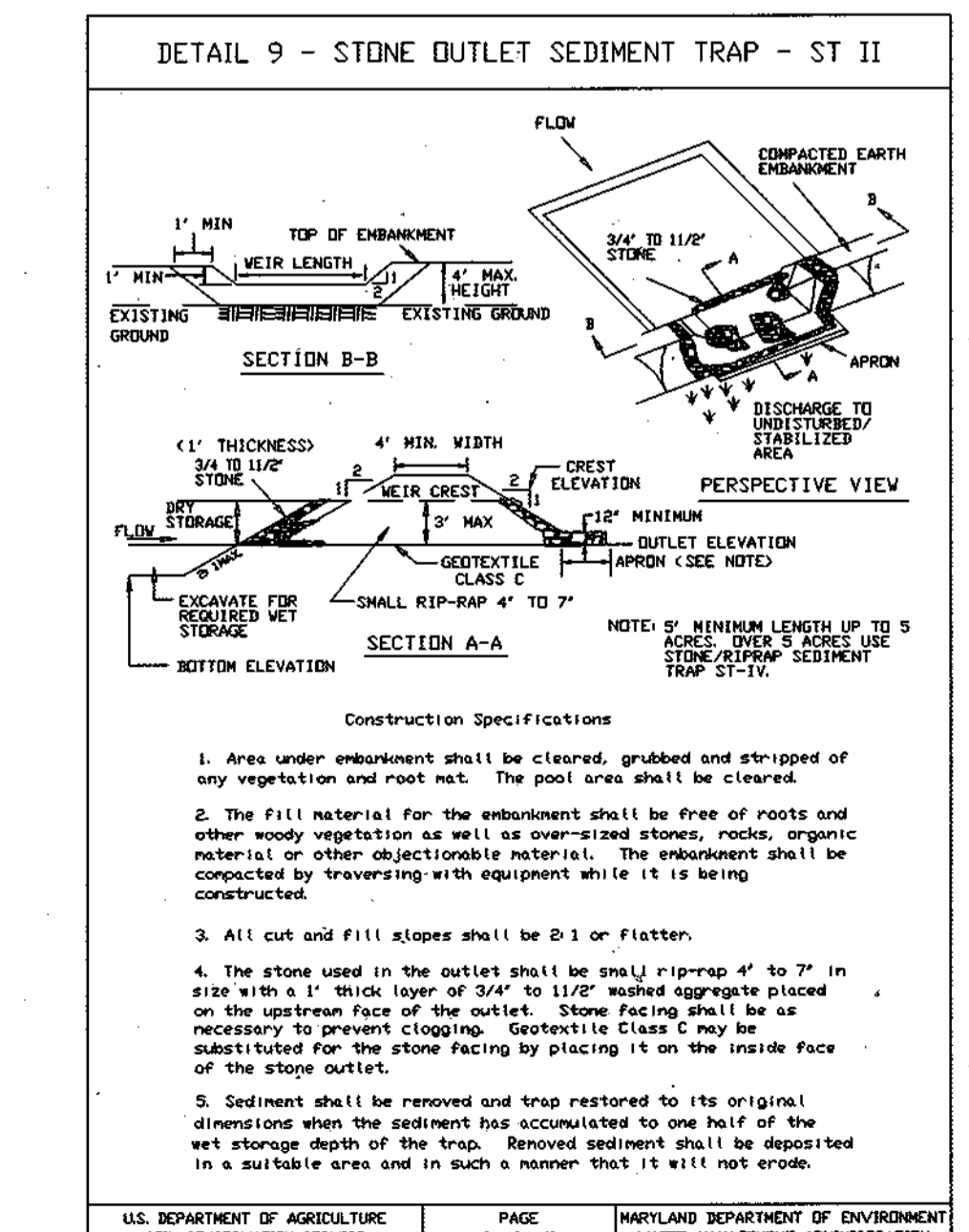
BY THE DEVELOPER  
I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.  
*Bruce Jaffe* 12/15/03  
SIGNATURE OF DEVELOPER DATE  
BRUCE JAFFE

TEMPORARY PIPE TRAP SUMMARY TABLE

EXISTING DRAINAGE AREA	0.00 ACRES
PROPOSED DRAINAGE AREA	4.07 ACRES
VOLUME REQUIRED	4.07 X 1800 WET 7,326 C.F.
	4.07 X 1800 DRY 7,326 C.F.
TYPE OF TRAP	MODIFIED ST-I
TOTAL VOLUME REQUIRED	14,652 C.F.
TOTAL VOLUME PROVIDED	18,923 C.F.
WET STORAGE DEPTH	3.0 FT.
LIMIT OF WET STORAGE ELEVATION	121.60
CLEANOUT ELEVATION	120.60
EMBANKMENT HEIGHT	N/A
EMBANKMENT ELEVATION	N/A
BOTTOM ELEVATION	118.60
WET STORAGE VOLUME	7,913 C.F.
RISER CREST ELEVATION	124.60
TRAP BOTTOM DIMENSIONS	N/A

REVIEWED FOR HOWARD S.C.D. AND MEETS TECHNICAL REQUIREMENTS.  
*Jim Magley* 12-30-03  
J.M. MAGLEY  
J.D.A. - NATURAL RESOURCES CONSERVATION SERVICE DATE

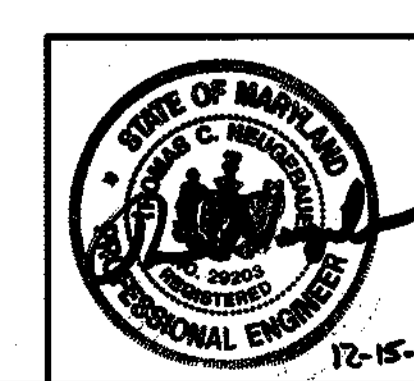
THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.  
*John L. Roberts* 12-30-03  
JOHN L. ROBERTS  
HOWARD S.C.D. DATE



OWNER:  
A. NAME: Bruce Jaffe B. DAYTIME TELEPHONE: 410-964-0223  
C. COMPANY: Morlick, L.L.C.  
D. ADDRESS: 11628 Log Jump Trail  
E. CITY: Ellicott City STATE: MD ZIP: 21042

DEVELOPER:  
A. NAME: Bruce Jaffe B. DAYTIME TELEPHONE: 301-596-0222  
C. COMPANY: The Sanford Companies, Inc.  
D. ADDRESS: 11628 Log Jump Trail  
E. CITY: Ellicott City STATE: MD ZIP: 21042

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*John Hamilton* 1/6/04  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE  
*John Hamilton* 1/6/04  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE  
*John Hamilton* 1/6/04  
DIRECTOR, DEPARTMENT OF PLANNING AND ZONING DATE



DATE	REVISIONS	JOB NO.:
		11570.02
		SCALE: AS SHOWN
		DATE: 12/15/03
		DRAWN BY: TCN
		DESIGN BY: TCN
		REVIEW BY: PVM, TFM
		SHEET: 14 OF 20

SANTA BARBARA CT.  
ROUTE 100 BUSINESS PARK  
BLOCK F PARCEL F  
SITE DEVELOPMENT PLAN  
SEDIMENT CONTROL DETAILS  
TAX MAP 38 BLOCK F PARCEL F  
1ST ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND



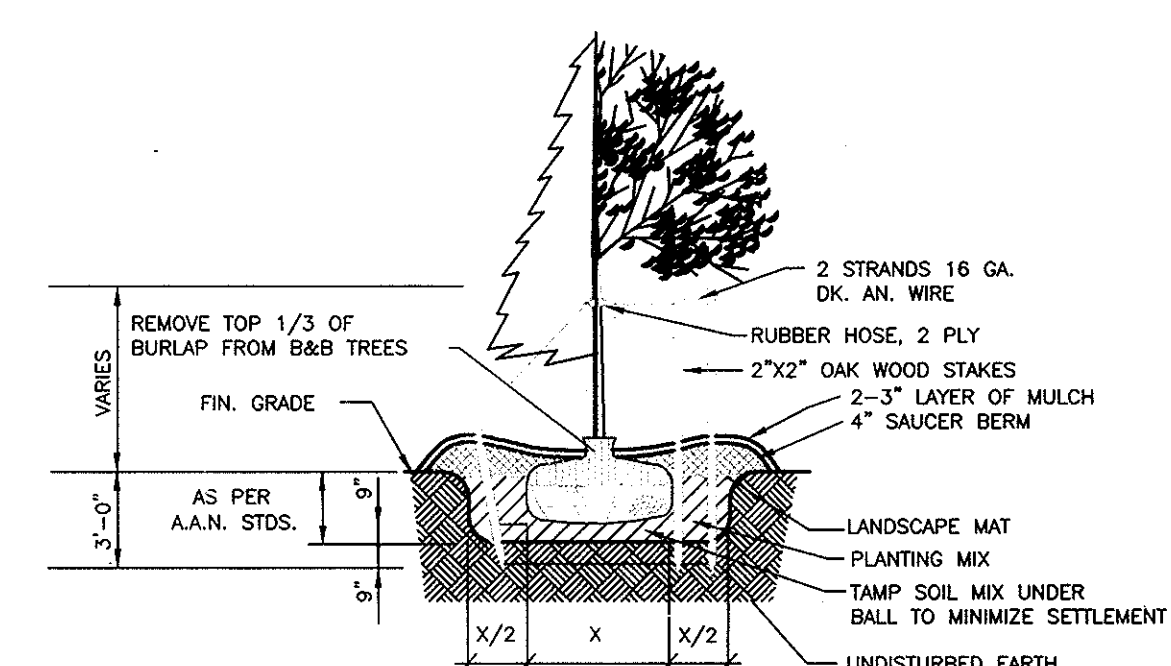
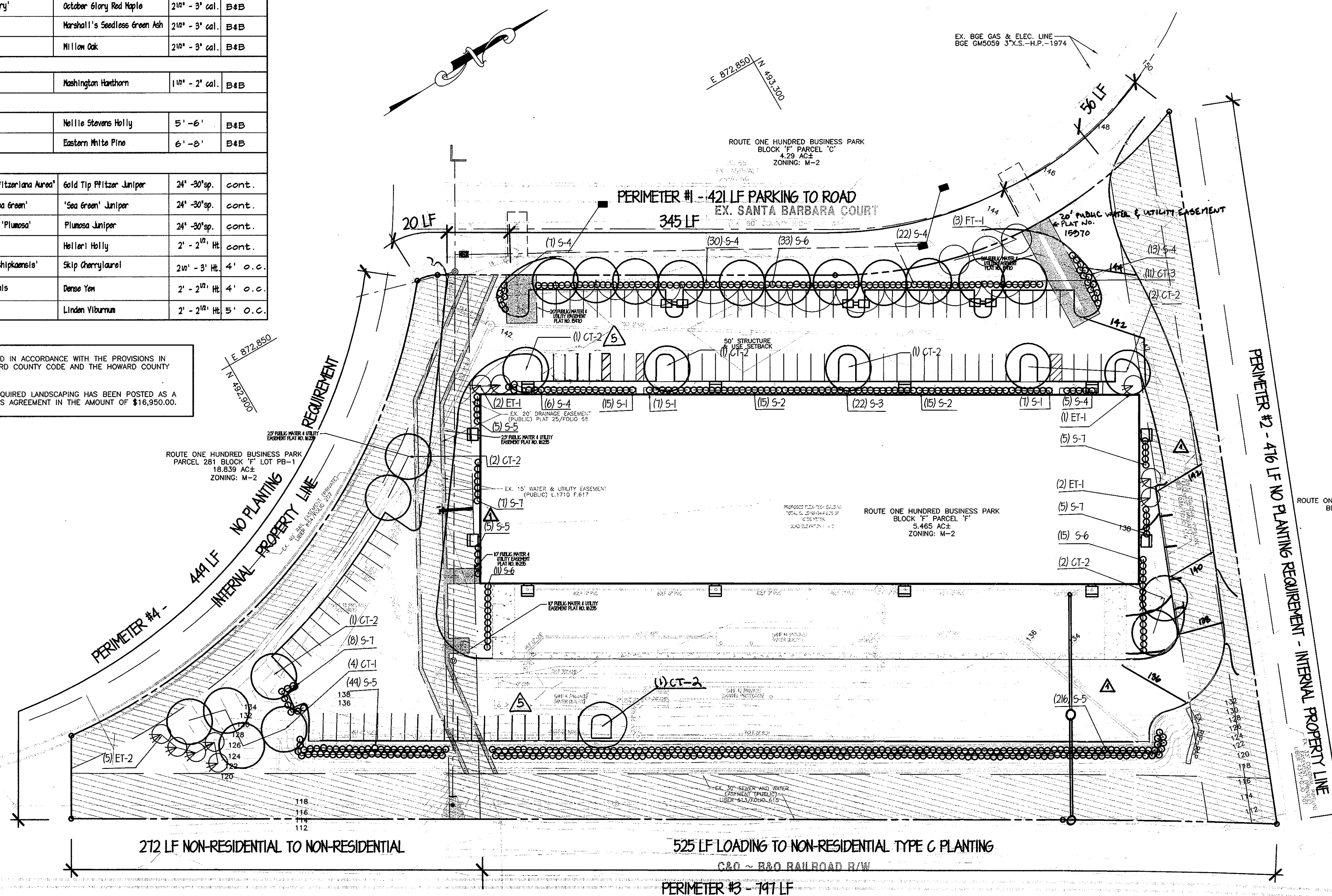
MORRIS & RITCHIE ASSOCIATES, INC.  
ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS  
9090 JUNCTION DRIVE, SUITE 9  
ANNAPOLIS JUNCTION, MARYLAND 20701  
(410) 792-9792 or (301) 776-1690  
FAX (410) 792-7395



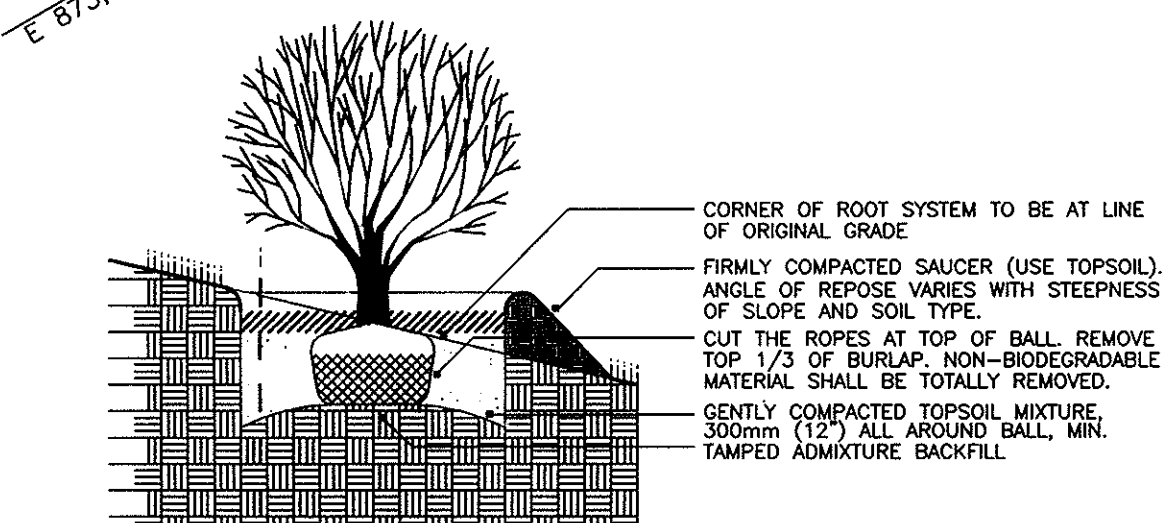
PLANT LIST				
KEY	QTY	BOTANICAL NAME	COMMON NAME	COMMENT
<b>CANOPY TREES</b>				
CT-1	4	Acer rubrum 'October Glory'	October Glory Red Maple	2 1/2" - 3" cal.
CT-2	11	Fraxinus pennsylvanica 'Marshall's Seedless'	Marshall's Seedless Green Ash	2 1/2" - 3" cal.
CT-3	11	Quercus phellos	Willow Oak	2 1/2" - 3" cal.
<b>FLOWERING TREES</b>				
FT-1	5	Crataegus phanopyrum	Washington Hawthorn	1 1/2" - 2" cal.
<b>EVERGREEN TREES</b>				
ET-1	5	Ilex 'Nellie R. Stevens'	Nellie Stevens Holly	5' - 6'
ET-2	5	Pinus strobus	Eastern White Pine	6' - 8'
<b>SHRUBS</b>				
S-1	24	Juniperus chinensis 'Pfitzeriana Aurea'	Gold Tip Pfitzer Juniper	2 1/2" - 30" sp.
S-2	30	Juniperus chinensis 'Sea Green'	'Sea Green' Juniper	2 1/2" - 30" sp.
S-3	22	Juniperus horizontalis 'Plumosa'	Plumosa Juniper	2 1/2" - 30" sp.
S-4	23	Ilex crenata 'Convexa'	Helleri Holly	2' - 2 1/2" ht.
S-5	275	Prunus laurocerasus 'Schipkaiensis'	Skip Cherry Laurel	2 1/2" - 3" ht.
S-6	54	Taxus x media densiformis	Dense Yew	2' - 2 1/2" ht.
S-7	25	Viburnum dilatatum	Linden Viburnum	2' - 2 1/2" ht.

THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS IN SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL.

FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED AS A PART OF THE DPW DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$16,950.00.



SHADE, FLOWERING OR EVERGREEN TREE PLANTING DETAIL  
NOT TO SCALE



SHRUB PLANTING DETAIL (BALL & BURLAP OR CONTAINER)  
NOT TO SCALE

OWNER:		FAX NO: 410-964-0223	
A. NAME: Bruce Jaffe	B. DAYTIME TELEPHONE: 301-596-0222		
C. COMPANY: Morlick L.L.C.			
D. ADDRESS: 11628 Log Jump Trail			
E. CITY: Ellicott City	STATE: MD	ZIP: 21042	
DEVELOPER:		FAX NO: 410-964-0223	
A. NAME: Bruce Jaffe	B. DAYTIME TELEPHONE: 301-596-0222		
C. COMPANY: The Sanford Companies, Inc.			
D. ADDRESS: 11628 Log Jump Trail			
E. CITY: Ellicott City	STATE: MD	ZIP: 21042	

PERMIT INFORMATION CHART				
Subdivision Name:	Section/Area:	Lot/Parcel #:		
ROUTE 100 BUSINESS PARK	BLOCK F	PARCEL F/ 857		
Plot #:	Block #:	Zoning:	Tax Map:	Elec. District:
16676/16235	19	M-2	1	6012.02
Water Code:	Sewer Code:			
A04	2151500			

ADDRESS CHART	
LOT/PARCEL #	STREET ADDRESS
PARCEL F / PARCEL 857	6725 SANTA BARBARA COURT

APPROVED: DEPARTMENT OF PLANNING AND ZONING

*[Signature]* 1/6/04  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

*[Signature]* 1/4/04  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*[Signature]* 1/26/04  
DIRECTOR, DEPARTMENT OF PLANNING AND ZONING DATE

THE LANDSCAPE PLANTING IN THIS REAR TYPE C PLANTING AREA IS SUBJECT TO WP-02-109, WHICH WAIVED THE REQUIRED SHADE TREES. SEE GENERAL NOTE 32 ON SHEET 1 FOR DETAILS.

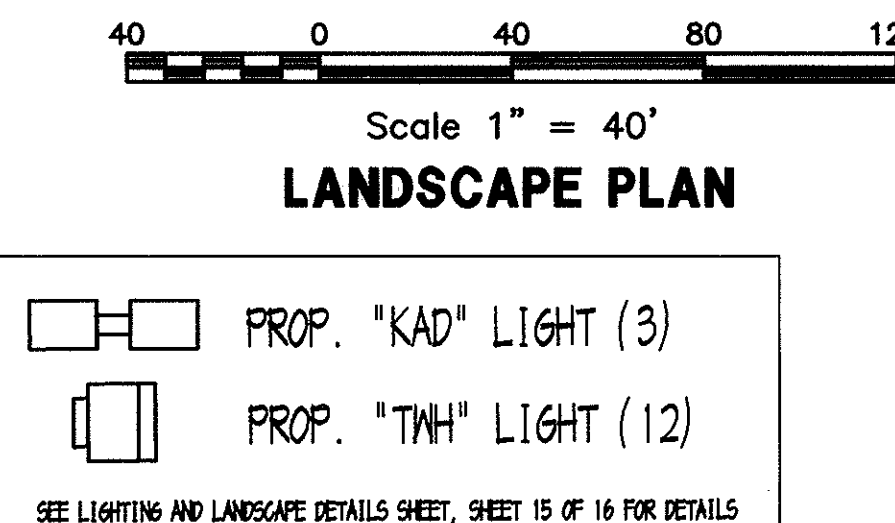
SCHEDULE 'A' PERIMETER LANDSCAPE EDGE			
PERIMETER	PLANTS REQUIRED	PLANTS PROVIDED	EDGE TYPE
① 421 L.F. PARKING TO ROAD	1:40 = 10 SHADE TREES 1:4 = 105 SHRUBS	11 SHADE TREES (1:1) 3 FLOWERING TREES (2:1) = 1.5 SHADE TREES EQUIVALENTS 105 SHRUBS	ⓔ
② 476 L.F. NON-RESIDENTIAL TO NON-RESIDENTIAL	NONE	NONE REQUIRED - INTERNAL LOT LINE	
③ 525 L.F. LOADING TO NON-RESIDENTIAL	1:40 = 13 SHADE TREES 1:20 = 26 EVERGREEN TREES	0 SHADE TREES 265 EVERGREEN TREES (6-8" ULTIMATE HT.): 150 SHRUBS (0:1) = 15 SHADE TREES 135 SHRUBS (5:1) = 27 EVERGREEN TREES	ⓐ
272 L.F. NON-RESIDENTIAL TO NON-RESIDENTIAL	1:60 = 5 SHADE TREES	5 SHADE TREES (1:1) 5 EVERGREEN TREES (2:1) = 2.5 SHADE TREES EQUIVALENTS TOTAL = 7 SHADE TREES	ⓐ
④ 444 L.F. NON-RESIDENTIAL TO NON-RESIDENTIAL	NONE	NONE REQUIRED - INTERNAL LOT LINE	

TOTAL PLANTING OBLIGATION	TOTAL PLANTS PROVIDED
33 SHADE TREES	265 SHADE TREES
26 EVERGREEN TREES	3 FLOWERING TREES (2:1) = 1.5 SHADE TREES EQUIVALENTS
105 SHRUBS	5 EVERGREEN TREES
	265 SHRUBS (130 @ 0:1 = 13 SHADE TREES EQUIVALENTS) AND (135 @ 5:1 = 27 EVERGREEN TREE EQUIVALENTS)
	105 SHRUBS

Note: All other shrubs shown on this plan are foundation planting only. The actual location of these plantings may change with the actual building design.



FOR REVISION NO. 5, MRA  
TIMOTHY MADDEN  
LICENSE # 406  
1/13/06



SCHEDULE 'B' PARKING LOT INTERNAL LANDSCAPING	
NUMBER OF PARKING SPACES	111
NUMBER OF LANDSCAPED ISLANDS REQUIRED	1:20 = 6 LANDSCAPED ISLANDS
NUMBER OF LANDSCAPED ISLANDS PROVIDED	6 LANDSCAPED ISLANDS
NUMBER OF TREES REQUIRED	1:20 = 6 SHADE TREES
NUMBER OF TREES PROVIDED	6 SHADE TREES



DATE	REVISIONS	JOB NO.:
12/30/02	REV. PER COUNTY COMMENTS 11-18-02	11570.02
6/2004	MRA-REV. LOCATION OF WAT. PROFILE 'C' AND SAN. SERVICE. REV. GRADES AND ADDED PARKING W/IN COLONIAL PL R/W.	SCALE: AS SHOWN DATE: 12/15/03 DRAWN BY: DWM DESIGN BY: DWM REVIEW BY: DWM SHEET: 15 OF 20
11/2005	MRA-REV. PARKING REQ'TS MEZZANINE CAL. CHART	

SANTA BARBARA CT.  
ROUTE 100 BUSINESS PARK  
BLOCK F PARCEL F  
SITE DEVELOPMENT PLAN  
LANDSCAPE & LIGHTING PLAN  
TAX MAP 38, BLOCK F, PARCEL F  
1ST ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND



**MORRIS & RITCHIE ASSOCIATES, INC.**  
ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS  
9090 JUNCTION DRIVE, SUITE 9  
ANNAPOLIS JUNCTION, MARYLAND 20701  
(410) 792-9792 or (301) 778-1690  
FAX (410) 792-7395



**PLANTING SPECIFICATIONS**

**PART 1 GENERAL:**

- 1.01 DESCRIPTION:**
- Work consists of all labor, materials, equipment and services necessary for and incidental to the execution and completion of the FINAL LANDSCAPE PLAN as indicated on the Drawings and specified herein.
  - Include:
    - Layout.
    - Furnishing of tree protection and planting materials.
    - Preparation, planting operations, mulching and staking.
    - Maintenance.
- 1.02 REFERENCES AND QUALITY ASSURANCE:**
- Landscape Contractors Association MD-DC-VA (LCA), Landscape Specification Guidelines, latest edition except where superseded by specific requirements herein.
  - American Association of Nurserymen (A.A.N.): American Standard for Nursery Stock, A.N.S.I. Z60.1, latest edition.
  - Nomenclature: In accordance with Hortus Third, latest edition, by the staff of the L. H. Bailey Hortorium, Cornell University.
  - Federal Specification: Q-P-166e as applicable to Peat Moss.
  - National Arborist Association, Standard for Pruning of Shade Trees, Guying of Shade Trees, Fertilizing Shade and Ornamental Trees and Pesticides Application Operations, latest edition.
  - Maryland Department of Transportation, State Highway Administration (MSHA) Standard Specifications for Construction and Materials, October 1993, as amended to date. Delete references to "Measurement and Payment".
- 1.03 STANDARD OF COMPARISON:**
- When requested by the Owner's Representative, the Contractor shall obtain approval of a "standard" of comparison, prior to the delivery of plant material to the site.
    - Contact the Owner's Representative to schedule an inspection for approval of the "standards" for plant material to be installed at the project site.
    - "Standards" shall be assembled at the project site for review and approval, or at the Contractor's principal business location, as determined by the Owner's Representative. Approved "standards" may be planted at the project site.
- 1.04 SUBMITTALS:**
- Source: Notify the Owner's Representative, in writing, of the source of all material at least ten (10) working days prior to delivery at the project site.
  - Samples and Certifications:
    - If requested, a mulch sample shall be provided at the site for approval by the Owner's Representative (1 C.F. minimum).
    - Submit certification of peat moss compliance with referenced specifications.
- 1.05 DELIVERY, STORAGE AND HANDLING:**
- Store plants that cannot be planted within 8 hours in a sheltered place. Water and maintain as required until planted.
  - Transport and handle plants so that foliage and roots are protected from breakage, sun and wind. Tops or roots of plants allowed to dry out or which have been damaged or disturbed root systems may be rejected.
  - B & B (balled and burlapped) plants: Firm, natural balls of soil, with size and depth of ball in accordance with A.A.N. Standards.
- 1.06 QUANTITIES AND SUBSTITUTIONS:**
- Quantities of plant material are based upon the plant lists shown on the Drawings.
  - Substitutions
    - Bidders shall notify the Owner's Representative if specified plants are not available from sources within 100 miles of the project site, giving the names of all sources contacted.
    - If an acceptable source cannot be located for the specified plants, the Owner's Representative will select a substitute and notify the Bidders of the approved substitution for the Bid to be based upon, or provide a source for the originally specified plant.
    - Substituted plants shall be of the same size and condition as the original plant specified.
- 1.07 PROJECT CONDITIONS:**
- Planting Season:
    - Primary planting season: September 15 to May 15.
    - Other periods with written approval from the Owner's Representative.
  - Existing Conditions: Notify Miss Utility (1-800-257-7777), and the Owner's Representative prior to planting operations. Verify the location of underground utilities.
- 1.08 DEFINITIONS:**
- Diameter at Breast Height (DBH): The diameter of a tree measured at a point on the trunk 4.5 feet above the ground.
  - Initial Acceptance: Occurs when all plant material is in place in accordance with the specifications and approved by the Owner's Representative.
  - Maintenance Period: From initial acceptance of the plantings, and continuing thereafter for a period of 12 months.
  - Owner's Representative: The Landscape Architect or other Qualified Professional designated by the Owner or Developer of the Project.
  - Retention: The deliberate holding and protecting of existing trees, shrubs or herbaceous plants on the site.
  - Specimen Tree: A tree which exists on the project site prior to construction or planting having a 30 inch or greater DBH, or tree having 75 percent or more of the diameter of the current state or county champion tree of that same species.
  - Start of Planting: Installation of plant material into excavated pits or beds.
  - Final Acceptance: Occurs after Contractor has completed all outstanding items, as determined by the Owner's Representative, at the end of the maintenance period.
- 1.09 SURVIVAL REQUIREMENT AND REPLACEMENTS:**
- The minimum survival rate shall be 100 percent of the total number of trees and shrubs planted at the end of the 12-month maintenance period.
  - Replacement materials shall be the same size as the original plant material taking into account any growth that has occurred since original installation.
  - Methods of installation shall be identical to the original.
- 1.10 PENALTY FOR VIOLATION:**
- Immediately following the completion of construction and installation of the plantings, the owner or owner's representative will be notified for an inspection of the entire project site.
  - If, upon Final Acceptance Inspection, trees and other vegetation designated as retention plant material are found to be damaged or dead due to mechanical intrusion or related construction activities associated with the landscape contractors installation and maintenance of the said plan, then replacement equivalent will be required.

**PART 2 PRODUCTS:**

- 2.01 PLANTS:**
- Plant materials shall meet or exceed the requirements of A.A.N. standards, or as amended herein.
  - Plants shall be typical of the species and variety, and have a normal habit of growth with well established root systems.
  - Sound, healthy, vigorous, free from plant diseases, insect pests or their eggs and without suckers or evidence of suckering.
  - Plants cut back from larger sizes or pruned prior to delivery will not be accepted.
  - Measurements: The caliper of deciduous trees (except seedlings and whips) shall be measured 6-inches above ground level for trees up to and including 4 inch caliper and 12 inches above ground level for material larger than 4 inch caliper. Seedlings and whips shall be measured at the root collar.
- 2.02 DECIDUOUS STREET TREES:**
- Single straight leader, well branched, and symmetrical, without suckers or evidence of suckering, according to their normal habit.
  - Trees planted within five (5) feet of pedestrian ways, parking lots or roads shall be free from branches up to eight (8) feet in height from finish grade.
- 2.03 EVERGREENS:**
- Sheared evergreen plant material shall not be acceptable.
- 2.04 SHRUBS:**
- At least 75% of the individual branches or cones of a shrub shall be to the height specified.
- 2.05 HERBICIDES:**
- Contact herbicide shall be "Round-up" or approved equal.
  - Pre-emergence herbicide shall be "Snapshot" or approved equal.
- 2.06 TOPSOIL FOR AMENDING EXISTING SOIL:**
- General Requirements (only where required by details on the Drawings):
    - Natural, friable sand loam topsoil which is free of subsoil, clay lumps, stones, stumps, roots or similar objects larger than 1-inch.
    - Free of brush, objectionable weeds and litter or other substance which is harmful to plant growth.
  - In accordance with M.S.H.A. Item 920.01.02 for Furnished Topsoil if borrow topsoil is required from an off-site location.
- 2.07 FERTILIZER FOR POST PLANTING:**
- 5-10-5 (Plant food by minimum percentages.)
 

(N) Total Nitrogen	5
(P2O2) Available Phosphoric Acid	10
(K2) Soluble Potash	5
  - Fertilizer shall be slow release over a minimum 3 year period. Fertilizer shall be delivered to the site with formulas attached.
- 2.08 PEAT MOSS:**
- Baled sphagnum peat moss, Type I-A, conforming to Federal Specification Q-P-166e.
- 2.09 MULCH:**
- Mulch shall be the following as indicated on the Drawings.
    - Shredded hardwood.
    - Pine Straw.
  - Mulch shall have been prepared within the last four (4) months.
- 2.10 WATER:**
- Potable; if not available at the site from a public water supply, the Contractor shall provide water at no additional cost to the Owner.
- 2.11 ANTI-TRANSPARENT:**
- Shall be the following or approved equal:
- Wit-Pruf  
Wit-Pruf Products Inc.  
P. O. Box 469  
Easton, CT 06426  
(203) 767-7033  
or approved equal.
- 2.12 ACCESSORIES:**
- Tree guying:
    - Stakes: 2 inch x 2 inch rough sown oak stakes, notched to hold wire, length as required to secure the tree.
    - Wire: Galvanized steel wire, doubled.
    - Sleeves: Nylon reinforced green vinyl hose.
  - Tree shelters, netting and stakes: Extruded twin-walled polypropylene with ultra-violet stabilizer and anti-abrasion rim as manufactured by:
 

Tubex	P.O. Box 7097
	Saint Paul, MN 55107
	(612) 228-0535

 or approved equal.
    - Stake shall be oak, pointed, 1 inch x 1 inch x 3 feet nominal.
    - Protective netting: Flexible plastic mesh capable of covering the top opening of the tube to prevent entry by birds.

**PART 3 EXECUTION:**

- 3.01 INITIAL INSPECTIONS:**
- Pre-construction meeting:
    - Prior to the beginning of any clearing, grading or disturbance of the site, a meeting at the project site shall be held with the Contractor and Owner's Representative.
    - The following items, and others as deemed necessary, will be reviewed as applicable to the Project:
      - Staked limits of required retention areas and protection fencing, proposed limits of clearing and grubbing, the proposed location of sediment control devices, and the sequence of operations.
      - Staking and flagging shall be completed by the Contractor prior to the pre-construction meeting.
    - Designated adjustments to the proposed limits and locations of items reviewed in the field during the pre-construction meeting shall be incorporated prior to beginning construction.
  - Pre-planting meeting:
    - Prior to the beginning of planting operations, a meeting shall be held at the project site with the Contractor and Owner's Representative to review the following, as applicable to the project:
      - Staked limits, of proposed planting areas, completed prior to the meeting.
      - Areas to receive selective application of herbicides prior to planting, if applicable.
      - Proposed location of temporary and permanent fencing.
      - Proposed schedule, sequence of planting operations and other requirements.

**3.02 PREPARATION:**

- Tree protection fencing, signage and other pre-construction activities noted on the Drawings for retention areas shall be installed prior to any on-site clearing or grading operations.
- Additional temporary, and permanent fencing, shall be installed in conjunction with or prior to planting operations as shown on the Drawings.
- Plant Locations: As shown on the Drawings, to dimensions if shown, or as detailed if not specifically labeled. Locations subject to review by the Owner's Representative prior to planting.
- Utilities: The Contractor shall locate existing and proposed utilities prior to excavation of planting holes.
  - If a conflict is identified between the location of utilities and proposed planting locations, the Owner's Representative shall establish an alternate location for plants as required to avoid the conflict.
  - Bidders shall notify the Owner's Representative of potential conflicts identified prior to submission of a Bid.
- No plant material shall be installed until the Owner's Representative has approved the final grade of areas to receive planting.

**3.03 EXCAVATION:**

- Unclassified: Excavate and remove surplus materials encountered, without additional cost to the Owner. Retain only sufficient soil to form soil wells as shown on the Drawings. Disposal of surplus material may be on-site if approved by the Owner's Representative.
- Underground obstruction, rock or other obstructions too massive to remove: Notify Owner's Representative for further direction. Alternate locations will be selected. Make such relocations without additional compensation.

**3.04 PLANTING PROCEDURES:**

- Do not plant when ground is frozen or excessively wet.
- Set plants straight and plumb and at such a level, that after settlement the first lateral root is flush with the adjacent ground surface.
- When B&B or container plants are set, planting soil shall be carefully tamped around the base of the balls to prevent voids. All burp, rope, wires, etc., shall be removed from the tops of balls. Plastic/nylon cords or cloth shall not be left in place on balled materials.
- Backfill plants and tamp to two-thirds depth of pit and thoroughly water before bringing backfill up to proper grade. Thoroughly water the plant again after the soil well has been completely formed in-place.
- Wells Around Trees and Shrubs: After planting is complete, form a soil well around designated plants, extending to the outer limit of the plant pit in accordance with the planting details shown on the Drawings.
- Designated Planting Beds: All vegetative growth shall be removed to a sufficient depth to insure a weed-free bed. Till the existing soil to a depth of 8-inches throughout the designated bed areas. The edge of all planting beds shall be cut vertically and the soil recessed within 1 foot of the bed edge so that the mulch is flush with adjacent grade when the installation has been completed.

**3.05 MULCHING:**

Plants and beds shall receive a 2 to 4 inch cover of mulch. Mulch shall be installed within 8 hours after planting has been completed.

**3.06 STAKING, WRAPPING AND GUYING:**

- Stake trees, which require staking as shown on the Drawings, during the same day as planting.
- Guying:
  - Guying shall be in accordance with the Details.
  - Stakes shall be securely driven in ground and plants guyed to provide and maintain adequate support.

**3.07 PRUNING AND ANTI-TRANSPARENT APPLICATION:**

- Pruning: Any broken or damaged branches shall be removed. Damage, removal or pruning of tree leaders shall be cause for rejection.
- Anti-transparent: Deciduous plants, installed from May 1st to September 15th shall receive application in accordance with the manufacturer's recommendations.

**3.08 POST-PLANTING FERTILIZATION:**

- Notify Owner's Representative prior to fertilizing operations.
- Approximately 1 year after planting, but prior to the maintenance agreement's expiration, the Contractor shall fertilize all plant material. Plant foliage shall be completely dry at the time of application. Fertilizer adhering to plant foliage after application shall be removed. Water thoroughly after application.
- Rate of application shall be in accordance with the fertilizer manufacturer's recommendations or the following:
  - Shrubs: 4 pounds of 5-10-5 per 100 square feet.
  - Trees: 2 pounds of 5-10-5 per inch of caliper distributed uniformly in planting well.

**3.09 CLEAN-UP:**

- Excess and waste materials shall be removed from the site before or upon completion of planting operations, or daily if required by the Owner's Representative.
- Repair turf areas and other existing conditions damaged during planting operations, including regrading, seeding and mulching to the satisfaction of the Owner's Representative.

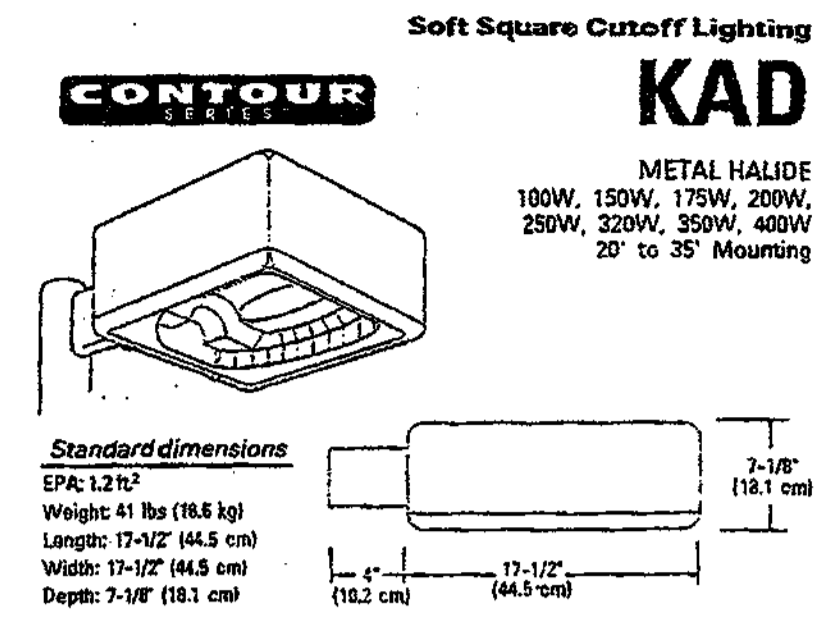
**3.10 MAINTENANCE:**

- Contractor shall inspect and provide necessary services throughout the 12-month maintenance period.
  - Watering as required for local conditions.
  - Inspection for pests and disease shall be performed a minimum of two (2) times within the initial year, after spring leaf-out and at mid-summer, or more frequently if necessary to control problems.
  - Weeding and removal of invasive plants shall be performed a minimum of four (4) times per year, during the first two weeks of the months of May, June, July and August.
  - Plant material shall be re-mulched, just prior to the maintenance agreement's expiration, with a minimum 1-inch depth of new mulch.
  - Fencing, signs, stakes and guys shall be tightened, repaired or replaced as necessary throughout the maintenance period in accordance with original details and installation requirements.
- Remove and replace dead or damaged plant material to comply with the Minimal Survival requirement in accordance with Item 1.09 above.
- Notify Owner's Representative prior to initiating maintenance operations.

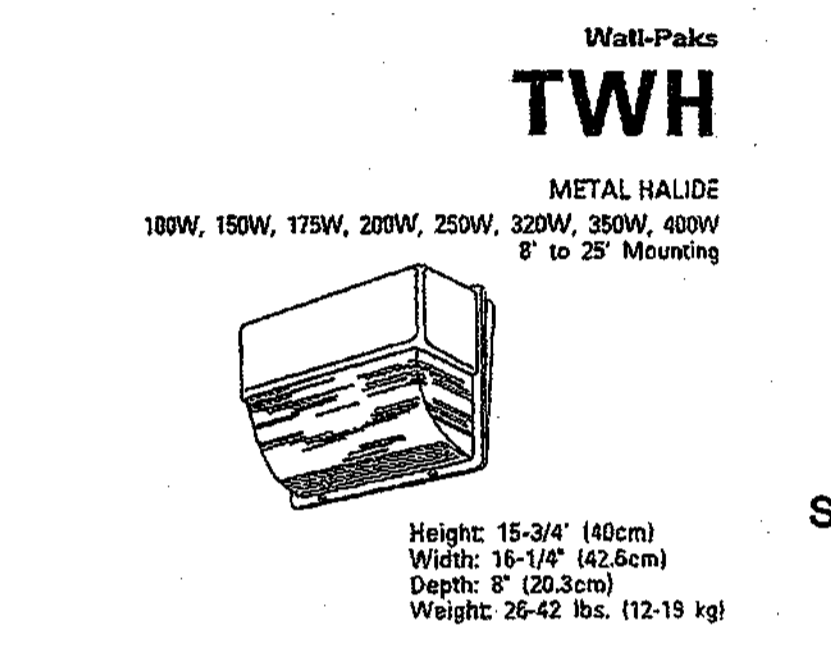
**GENERAL NOTES:**

- ALL PLANT MATERIAL SHALL CONFORM TO THE STANDARDS OF NURSERY STOCK OF THE AMERICAN ASSOCIATION OF NURSERYMEN.
- TREES AND SHRUBS SHALL BE TYPICAL OF THEIR SPECIES AND VARIETY, HAVE NORMAL GROWTH HABITS, WELL DEVELOPED, DENSELY FOLIATED BRANCHES, AND VIGOROUS, FIBROUS ROOT SYSTEMS.
- TREES AND SHRUBS SHALL BE FRESHLY DUG AND NURSERY GROWN. THEY SHALL HAVE BEEN GROWN UNDER CLIMATIC CONDITIONS SIMILAR TO THOSE IN THE LOCALITY OF THE PROJECT OR PROPERLY ACCLIMATED TO CONDITIONS OF THE LOCALITY OF THE PROJECT.
- TREES AND SHRUBS SHALL BE FREE FROM DEFECTS AND INJURIES AND CERTIFIED BY APPROPRIATE FEDERAL AND STATE AUTHORITIES TO BE FREE OF DISEASES AND INSECT INFESTATIONS.
- THE LANDSCAPE CONTRACTOR SHALL WARRANT ALL PLANT MATERIAL FOR A PERIOD OF ONE (1) FULL YEAR AFTER THE DATE OF SUBSTANTIAL COMPLETION AGAINST DEFECTS, UNSATISFACTORY GROWTH, DISEASE OR DEATH. UNSATISFACTORY, UNHEALTHY, DYING OR DEAD PLANT MATERIAL (IN THE OPINION OF THE LANDSCAPE ARCHITECT) SHALL BE REPLACED WITH THE SAME SIZE AND SPECIES.
- IT SHALL BE THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR TO ADEQUATELY AND PROPERLY MAINTAIN THE LANDSCAPED AREAS, WHICH SHALL INCLUDE WATERING, CLEANING OF WEEDS AND DEBRIS, PRUNING AND TRIMMING, REPLACEMENT OF DEAD OR DISEASED PLANTINGS, AND FERTILIZING TO MAINTAIN HEALTHY GROWTH FOR THE ONE YEAR WARRANTY PERIOD.
- THE LANDSCAPE CONTRACTOR SHALL STAKEOUT PLANT LOCATIONS IN THE FIELD. THE LANDSCAPE ARCHITECT OR HIS REPRESENTATIVE SHALL OBSERVE THESE LOCATIONS PRIOR TO COMMENCING PLANT PIT EXCAVATION. THE LANDSCAPE CONTRACTOR SHALL MAKE ANY ADJUSTMENTS AS REQUESTED BY THE LANDSCAPE ARCHITECT.
- ALL PLANT SAUCERS AND PLANT BEDS SHALL BE MULCHED WITH DOUBLE SHREDDED HARDWOOD MULCH OR PINE STRAW, A MINIMUM OF 3" IN DEPTH.
- NO SUBSTITUTIONS OF PLANT MATERIAL SHALL BE PERMITTED WITHOUT WRITTEN AUTHORIZATION OF THE LANDSCAPE ARCHITECT AND/OR HOWARD COUNTY PLANNING AND ZONING. THIS SHALL APPLY TO SUBSTITUTIONS OF SPECIES, SIZE, QUANTITY, AND LOCATION.
- THE LANDSCAPE CONTRACTOR SHALL INSTALL SHREDDED HARDWOOD BARK MULCH TO A DEPTH OF 3" UNDER AND SURROUNDING ALL NEW LANDSCAPED MASS PLANTING AREAS TO PROVIDE A UNIFORM AND CONTINUOUS SURFACE AND APPEARANCE BETWEEN AND AROUND ALL PLANT MATERIAL, BUILDING LINES AND PAVED AREAS. IN GENERAL, THIS PERTAINS TO ALL PLANT MATERIAL THAT IS PLANTED CLOSER THAN SIX (6) FEET CENTER TO CENTER. IT IS THE INTENT OF THIS CONTRACT TO INSTALL LANDSCAPE MAT UNDER THE ENTIRE AREA OF SHREDDED BARK MULCH.
- TREES SHALL BE LOCATED A MINIMUM OF 5' FROM SEWER/WATER CONNECTIONS. CONTRACTOR SHALL BE LIABLE FOR DAMAGE TO ANY AND ALL PUBLIC AND PRIVATE UTILITIES, WATER AND SEWER LINES.
- ALL CONTAINER GROWN MATERIAL SHALL BE HEALTHY, VIGOROUS, WELL-ROOTED PLANTS AND ESTABLISHED IN THE CONTAINER IN WHICH THEY ARE SOLD. THE PLANTS SHALL HAVE TOPS WHICH ARE GOOD QUALITY AND ARE IN A HEALTHY GROWING CONDITION.
- CONTRACTOR SHALL SLIGHTLY ADJUST PLANT LOCATIONS IN THE FIELD AS NECESSARY TO BE CLEAR OF DRAINAGE SWALES AND UTILITIES. FINISHED PLANTING BEDS SHALL BE GRADED SO AS NOT TO IMPEDE DRAINAGE AWAY FROM BUILDINGS.
- ALL TREE PITS, SHRUB BEDS, AND PREPARED PLANTING BEDS ARE TO BE COMPLETELY EXCAVATED IN ACCORDANCE WITH THE PLANTING DETAILS.
- CROWN OF ROOT BALL SHALL BE HIGHER (AFTER SETTING) THAN ADJACENT SOIL.
- SHADE TREES: HEIGHT SHALL BE MEASURED FROM THE CROWN OF THE ROOT BALL TO THE TOP OF MATURE GROWTH. SPREAD SHALL BE MEASURED TO THE END OF BRANCHING EQUALLY AROUND THE CROWN FROM THE CENTER OF THE TRUNK. MEASUREMENTS ARE NOT TO INCLUDE ANY TERMINAL GROWTH. SINGLE TRUNK TREES SHALL BE FREE OF "V" CROTCHES THAT COULD BE POINTS OF WEAK LIMB STRUCTURE OR DISEASE INFESTATION.
- CONTRACTOR MUST CONTACT THE OWNER AT LEAST TEN WORKING DAYS IN ADVANCE TO SCHEDULE ACCEPTANCE INSPECTION(S). CONTRACTOR MUST REPLACE ALL DEAD OR UNACCEPTABLE PLANTS DURING THE FOLLOWING RECOMMENDED PLANTING SEASON.
- TREES SHALL BE PLANTED DURING ACCEPTABLE PLANTING SEASONS: BETWEEN MARCH 15 AND MAY 15 AND BETWEEN AUGUST 15 AND NOVEMBER 15 OR AS APPROVED BY OWNERS REPRESENTATIVE.
- ALL TREE STAKING AND GUYING SHALL BE REMOVED BY THE CONTRACTOR AFTER THE TREES ARE ESTABLISHED.
- SEEDED AREAS THAT WASH OUT MUST BE FILLED AND GRADED AS NECESSARY AND THE RESEEDED. SOME TYPE OF ANCHORING METHOD SHOULD THEN BE USED TO HOLD SEED AND MULCH IN PLACE. THIS IS ESPECIALLY IMPORTANT AROUND WATER COURSE, IN SWALES AND AREAS OF CONCENTRATED FLOWS, AND ON SLOPES.
- THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.
- FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING MUST BE POSTED AS PART OF THE DPW DEVELOPERS AGREEMENT IN THE AMOUNT OF \$ 16,950.00. ( 33 SHADE TREES @ \$300.00 ea., 26 EVERGREEN TREES @ \$150.00 ea., AND 105 SHRUBS @ \$30.00 ea.)

**LIGHTING SPECIFICATIONS**



**CATALOG #:** TWH-250M  
**DESCRIPTION:** CLASS REFRACTOR WALL-PAC LAMP: 250 WATT CLEAR METAL HALIDE LAMP  
**FILE:** 95011902.ies  
**LUMENS:** 20500  
**LLF:** 0.72  
**WATTS:** 300  
**HEIGHT:** 30.0'



**CATALOG #:** KAD 400M SR4SC SPD04 ON 25FT. SQ. STELL POLE AND 18" ABOVE GRADE CONCRETE BASE.  
**DESCRIPTION:** AREA LIGHT WITH HIGH PERFORMANCE SR4SC OPTICS, CLEAR FLAT GLASS. LAMP: ONE 400-WATT CLEAR E-28 METAL HALIDE, HORIZONTAL POS.  
**FILE:** it94777.ies  
**LUMENS:** 32000  
**LLF:** 0.72  
**WATTS:** 930  
**HEIGHT:** 26.5', 20.0'

OWNER: Bruce Jaffe		FAX NO: 410-964-0223	
A. NAME: Bruce Jaffe		B. DAYTIME TELEPHONE: 301-596-0222	
C. COMPANY: Morfick L.L.C.			
D. ADDRESS: 11628 Log Jump Trail			
E. CITY: Elicott City		STATE: MD ZIP: 21042	
DEVELOPER: Bruce Jaffe		FAX NO: 410-964-0223	
A. NAME: Bruce Jaffe		B. DAYTIME TELEPHONE: 301-596-0222	
C. COMPANY: The Sanford Companies, Inc.			
D. ADDRESS: 11628 Log Jump Trail			
E. CITY: Elicott City		STATE: MD ZIP: 21042	

PERMIT INFORMATION CHART			
Subdivision Name:	ROUTE 100 BUSINESS PARK	Section/Area:	BLOCK F
Lot/Parcel #:	PARCEL F/# 857		
Plot #:	19	Zoning:	M-2
Tax Map:	38	Elec. District:	1
Census Tract:	6012.02		
Water Code:	A04	Sewer Code:	2151500

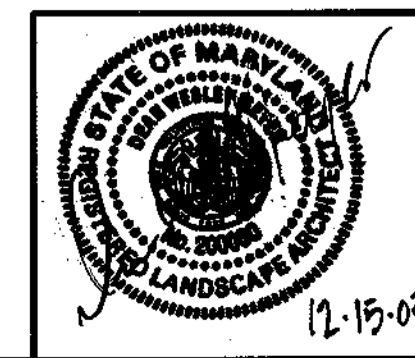
ADDRESS CHART	
LOT/PARCEL #	STREET ADDRESS
PARCEL F / PARCEL 857	6725 SANTA BARBARA COURT

APPROVED: DEPARTMENT OF PLANNING AND ZONING

*[Signature]* 1/6/04  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

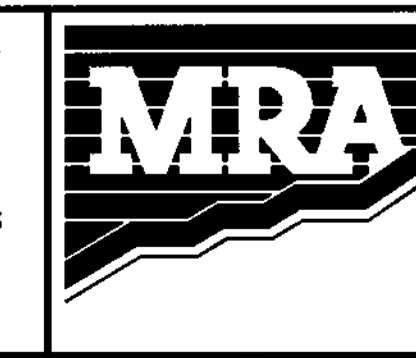
*[Signature]* 1/6/04  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*[Signature]* 1/6/04  
 DIRECTOR, DEPARTMENT OF PLANNING AND ZONING DATE



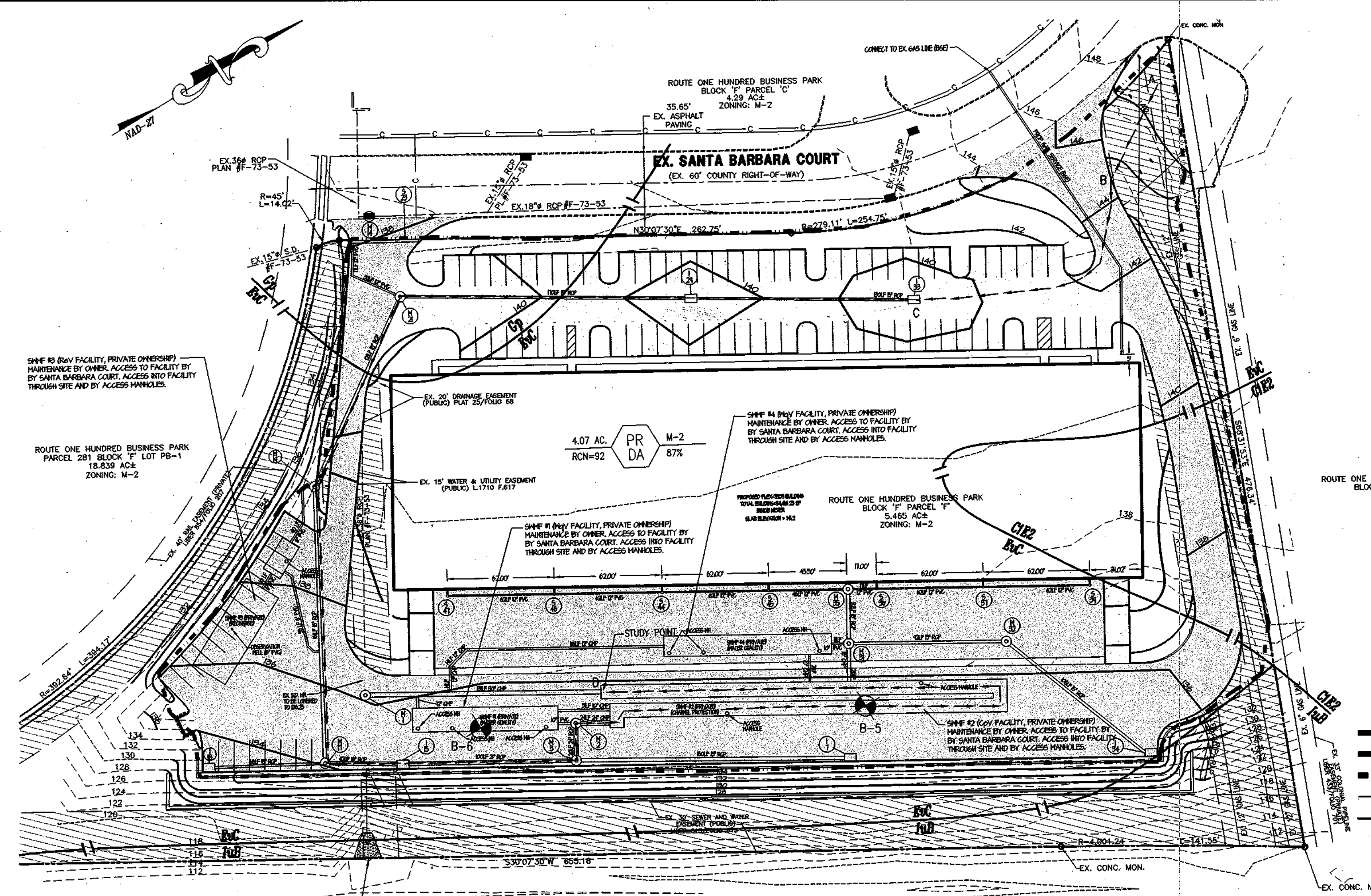
DATE	REVISIONS	JOB NO.:	11570.02
		SCALE:	N/A
		DATE:	12/15/03
		DRAWN BY:	DWM
		DESIGN BY:	DWM
		REVIEW BY:	DWM
		SHEET:	16 OF 20

**SANTA BARBARA CT.**  
**ROUTE 100 BUSINESS PARK**  
**BLOCK F PARCEL F**  
**SITE DEVELOPMENT PLAN**  
**LANDSCAPE & LIGHTING NOTES & SPECIFICATIONS**  
 TAX MAP 38 BLOCK F PARCEL F  
 1ST ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND



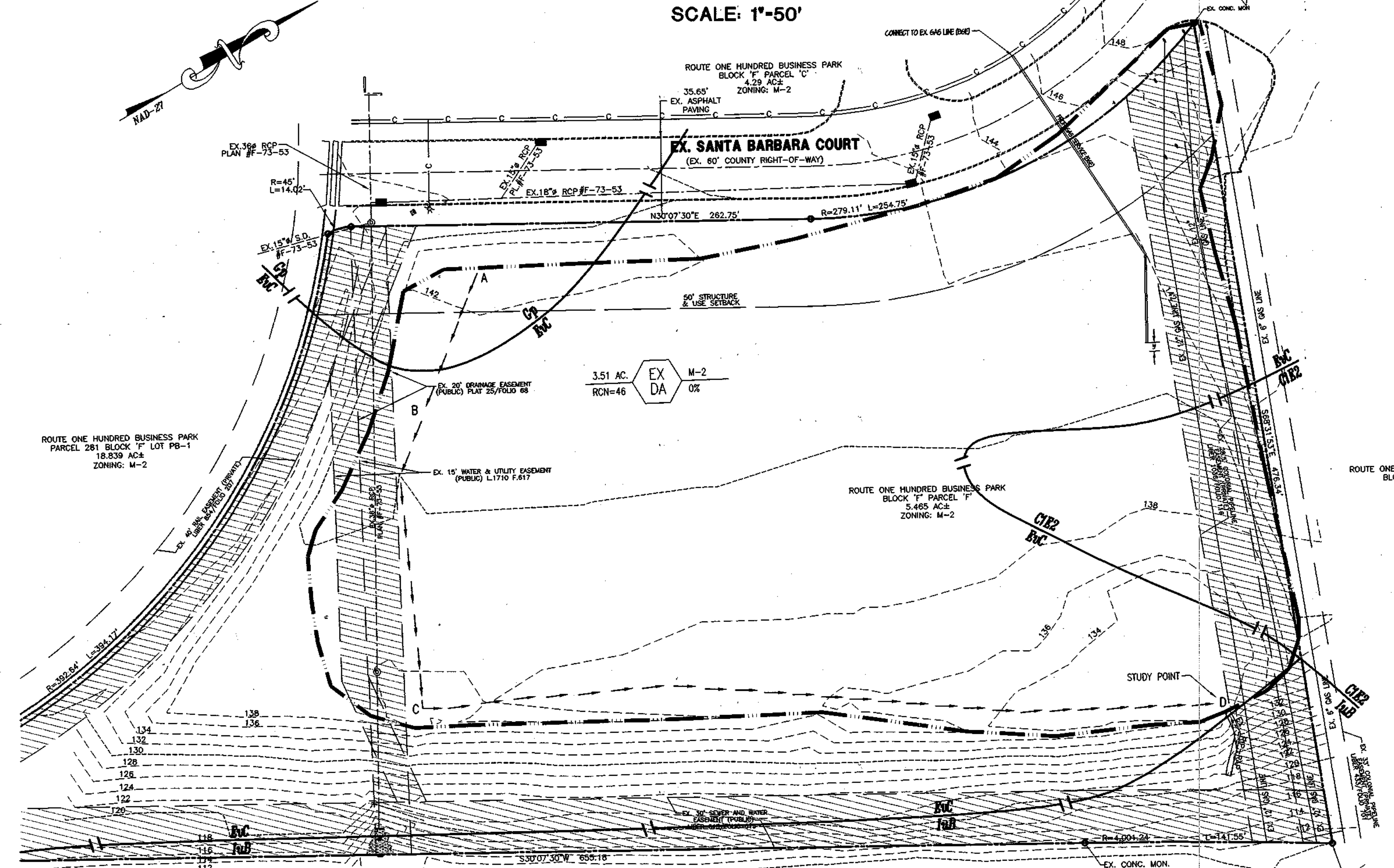
**MORRIS & RITCHIE ASSOCIATES, INC.**  
 ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS  
 8090 JUNCTION DRIVE, SUITE 9  
 ANNAPOLIS JUNCTION, MARYLAND 20701  
 (410) 792-9792 or (301) 776-1690  
 FAX (410) 792-7395





**STORMWATER MANAGEMENT DRAINAGE AREA**

SCALE: 1"=50'



**EXISTING CONDITIONS DRAINAGE AREA MAP**

SCALE: 1"=50'

**PROPOSED CONDITION**

**DRAINAGE AREA DATA:**

SITE AREA: 5.47 AC.  
 ZONING: M-2  
 DRAINAGE AREA: 4.07 AC  
 IMPERVIOUS AREA: 3.57 AC  
 % IMPERVIOUS: 87.71% (DA), 62.27% (SITE)

**TR-55 HYDROLOGIC DATA**

DRAINAGE AREA: 4.07 AC  
 RCN: 92  
 SOIL TYPE: VARIES  
 AREA LAWN: 0.50 AC  
 AREA IMPERVIOUS: 3.57 AC  
 TIME OF CONC.: 0.19 HR

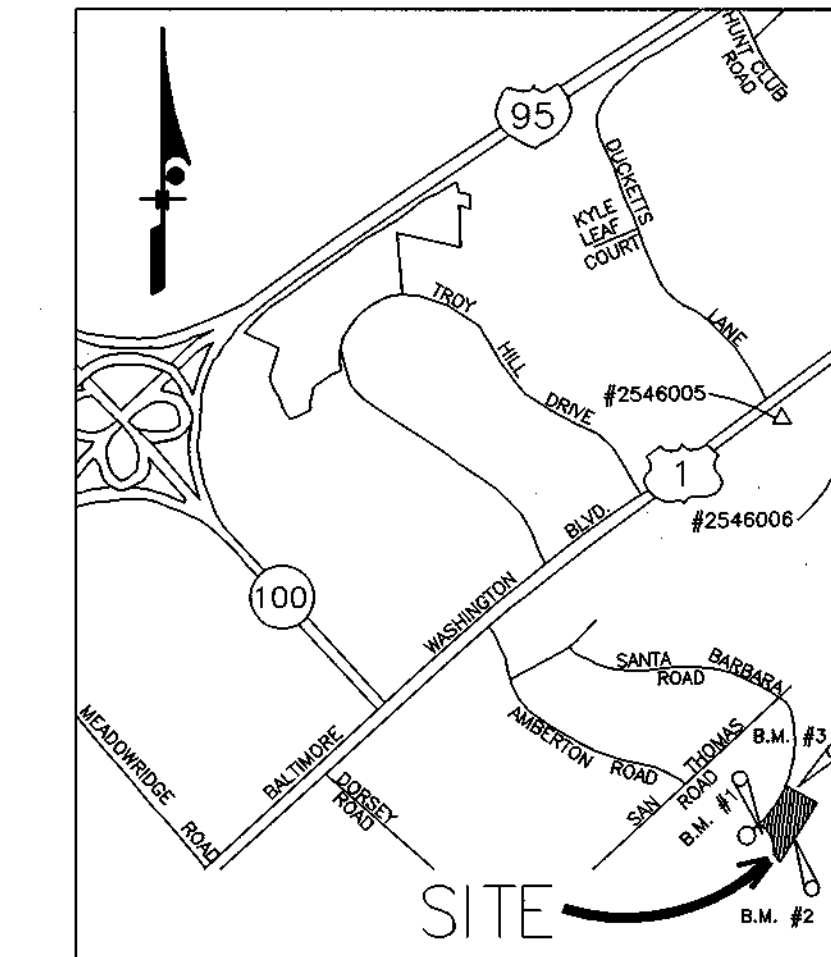
**TIME OF CONCENTRATION PATH**

A-B 80' SHEET FLOW AT 5% GRASS  
 B-C 150' SHALLOW CONC. FLOW AT 3.5% PAVED  
 C-D 1575' OF OPEN CHANNEL FLOW AT 10 FPS  
 TIME OF CONCENTRATION: 0.19 HR

SOILS LEGEND		
SYMBOL	NAME/DESCRIPTION	SOIL TYPE
CIE2	CHILLUM GRAVELLY LOAM, 15%-30% SLOPES, MODERATELY ERODED	C
EvC	EVESBORO LOAMY SAND, 5%-15% SLOPES	A
Gp	GRAVEL PIT OR QUARRY	D
IuB	IUKA LOAM, LOCAL ALLUVIUM, 1%-5% SLOPES	C

**GENERAL SWM REQUIREMENTS**

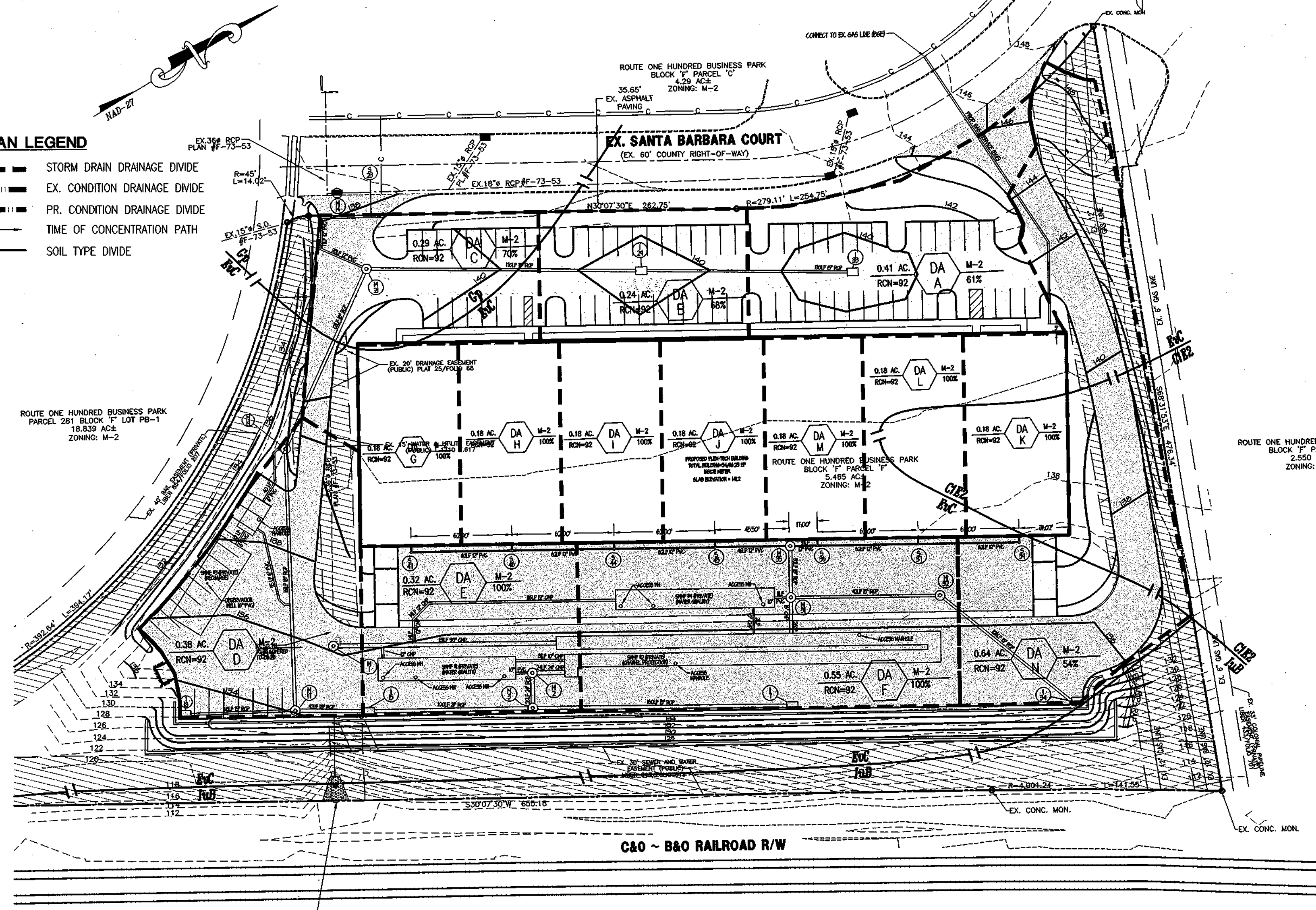
STEP	REQUIREMENT	VOLUME REQUIRED (cc-ft)	NOTES
1	WATER QUALITY VOLUME (WQv)	0.2847 AC.-FT.	0.1527 AC.-FT. PROVIDED BY SWMF #1 (0.1334 AC.-FT. PROVIDED BY SWMF #4) 0.2861 AC.-FT. TOTAL STORAGE
2	RECHARGE VOLUME (Rev)	0.0974 AC.-FT.	0.0975 AC.-FT. PROVIDED BY SWMF #3 (UNDERGROUND RECHARGE FACILITY)
3	CHANNEL PROTECTION VOLUME (CpV)	0.40 AC.-FT.	0.43 AC.-FT. PROVIDED BY SWMF #2 (UNDERGROUND CMP PIPE SYSTEM)
4	OVERBANK FLOOD PROTECTION VOLUME (Op)	N/A	NOT REQUIRED
5	EXTREME FLOOD VOLUME (Of)	N/A	NOT REQUIRED



VICINITY MAP  
SCALE: 1"=2000'

**PLAN LEGEND**

- STORM DRAIN DRAINAGE DIVIDE
- EX. CONDITION DRAINAGE DIVIDE
- PR. CONDITION DRAINAGE DIVIDE
- TIME OF CONCENTRATION PATH
- SOIL TYPE DIVIDE



**STORM DRAIN DRAINAGE AREA MAP**

SCALE: 1"=50'

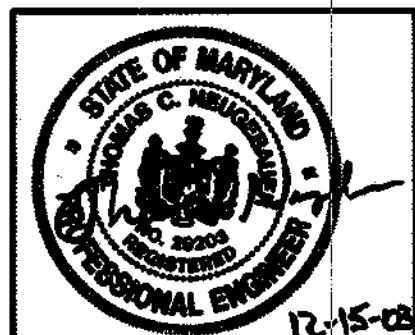
**EXISTING CONDITION**

**TR-55 HYDROLOGIC DATA**  
 DRAINAGE AREA: 3.51 AC  
 RCN: 46  
 SOIL TYPE: VARIES  
 AREA WOODS: 0.26 AC  
 AREA WOODS/GRASS: 3.25 AC  
 AREA IMPERVIOUS: 0.00 AC  
 TIME OF CONC.: 0.25 HR

**TIME OF CONCENTRATION PATH**  
 A-B 80' SHEET FLOW AT 2% GRASS COVER  
 B-C 172' SHALLOW CONC. FLOW AT 2% UNPAVED  
 C-D 460' OF OPEN CHANNEL FLOW AT 4.0 FPS  
 TIME OF CONCENTRATION: 0.25 HR

OWNER:		FAX NO.: 410-984-0223
A. NAME: Bruce Jaffe	B. DAYTIME TELEPHONE: 301-596-0222	
C. COMPANY: Morrill, L.L.C.		
D. ADDRESS: 11628 Log Jump Trail		
E. CITY: Ellicott City	STATE: MD	ZIP: 21042
DEVELOPER:		FAX NO.: 410-984-0223
A. NAME: Bruce Jaffe	B. DAYTIME TELEPHONE: 301-596-0222	
C. COMPANY: The Sanford Companies, Inc.		
D. ADDRESS: 11628 Log Jump Trail		
E. CITY: Ellicott City	STATE: MD	ZIP: 21042

APPROVED: DEPARTMENT OF PLANNING AND ZONING	
<i>[Signature]</i>	1/16/04
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE
<i>[Signature]</i>	1/16/04
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE
<i>[Signature]</i>	1/16/04
DIRECTOR, DEPARTMENT OF PLANNING AND ZONING	DATE



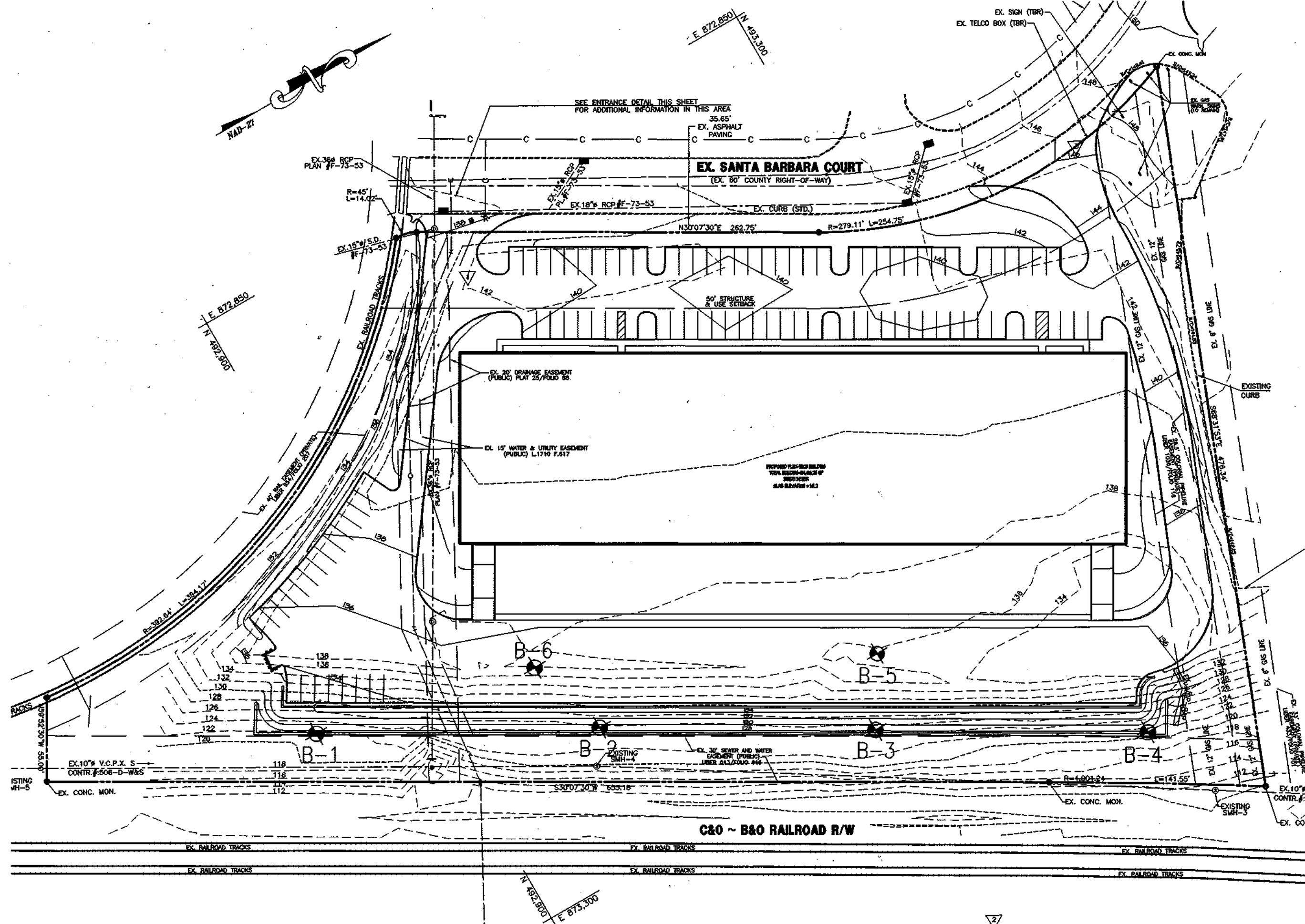
DATE	REVISIONS	JOB NO.:
		11570.02
		SCALE: AS SHOWN
		DATE: 12/15/03
		DRAWN BY: TCN
		DESIGN BY: TCN
		REVIEW BY: PVM, TFM
		SHEET: 17 OF 20

**SANTA BARBARA CT.**  
**ROUTE 100 BUSINESS PARK**  
**BLOCK F PARCEL C**  
**SITE DEVELOPMENT PLAN**  
**STORM DRAIN & SWM DRAINAGE AREA MAPS**  
 TAX MAP 38 BLOCK F PARCEL F  
 1ST ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND



**MORRIS & RITCHIE ASSOCIATES, INC.**  
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 FAX (410) 792-7395





**BORING LOCATION MAP**  
SCALE: 1"=60'

The Sanford Companies, Inc.  
Re: Proposed Commercial Development - Santa Barbara Court  
May 1, 2002  
Page 4

**SUMMARY OF INDEX PROPERTY TESTING**

Boring #	Depth (ft)	Soil	Moisture	Classification	ASTM	Remarks
1	0.0	15.1	SP	ML	A-1	

NP indicates non-plastic.

Please refer to the laboratory test results enclosed as Appendix C for more details.

**CONCLUSIONS AND RECOMMENDATIONS**

Based upon the results of the preliminary subsurface exploration, it is GTA's opinion that construction of the proposed SWM facilities is feasible. The following geotechnical recommendations should be observed and a standard level of care maintained during construction. GTA's preliminary geotechnical recommendations are transmitted in the following paragraphs.

According to the referenced drawings, the proposed SWM facilities will be excavated up to approximately 22 feet below existing grade. Continuous support systems in trench excavations in accordance with the latest OSHA Standard. The SWM facilities will drain into the site stormwater drainage system. Invert elevations of the proposed facilities, will be approximately 116 to 118 feet above MSL. Based upon a review of the boring data and the referenced plans, excavations for the SWM facilities can generally be accomplished by standard excavation techniques. The bottom of the facilities will likely contain natural granular materials, which are considered suitable for support of the proposed SWM facilities. The subgrade soils should be reviewed by GTA prior to facility construction and backfilling. Any loose subgrade materials or unsuitable fills should be removed and replaced by newly compacted fill constructed in accordance with GTA's recommendations included herein.

Based on the results of the subsurface exploration, groundwater is anticipated to be present at elevations of approximately 121 to 126 feet above MSL, approximately three to ten feet above the proposed invert elevations. Accordingly, groundwater is anticipated to impact construction of the facility. Dewatering of the excavations will likely be required during the construction phase. It is imperative that proper connection techniques be used to provide water-tight joints between pipes and that the facility is properly backfilled. Leakage from the detention facility may lead to saturation and resulting instability of the adjacent fill slopes. In addition, due to the presence of the water table above the SWM facility invert levels, the potential for foundation of the proposed structure should be carefully evaluated.

The Sanford Companies, Inc.  
Re: Proposed Commercial Development - Santa Barbara Court  
May 1, 2002  
Page 5

GTA recommends that the backfill of the corrugated metal pipes be completed to the spring line with open graded No. 57 stone or equivalent. The stone should be carefully worked to insure that the backfills are filled, and should be lightly tamped in maximum 12-inch lifts. It is considered to be extremely important that the entire backfill be backfilled with stone. The remainder of the backfill above the spring line may be accomplished with excavated granular soils. GTA recommends that the backfill be compacted to 95% of ASTM D-1557, the modified proctor. Backfill adjacent to and immediately above the pipes should be performed in 4- to 6-inch maximum lifts, and compacted with hand equipment. Backfill should be placed in accordance with the pipe manufacturer's requirements. Backfill requirements should also be approved by GTA. Earthwork activities should be monitored by a professional engineer and construction testing should be performed to verify material properties and compactive effort.

The proposed, below-grade vault structure for the sand filter will be subjected to unbalanced earth pressures and, therefore, must be designed to resist such lateral pressures. GTA recommends that the following design parameters be used for design:

Friction Angle	$\phi = 30$ degrees
Active Pressure Coefficient	$K_a = 0.33$
At Rest Pressure Coefficient	$K_0 = 0.5$
Passive Pressure Coefficient	$K_p = 3.0$
Moist Unit Weight of Soil	125 pcf
Allowable Bearing Pressure	5,000 pcf

A coefficient of sliding friction of 0.55 should be assumed for the interface between the sand filter structure and the soil subgrade. The above pressures are based on the assumption that adequate drainage will be provided to prevent build up of hydrostatic pressures around the structures. Therefore, use of free-draining, granular backfill and a foundation underdrain is recommended around the sand filter structure. A Foundation Underdrain detail is enclosed as Figure 4 within Appendix A.

**LIMITATIONS**

This report has been prepared for the exclusive use of The Sanford Companies, in accordance with generally accepted geotechnical engineering practice. No other warranty, express or implied, is made.

The Sanford Companies, Inc.  
Re: Proposed Commercial Development - Santa Barbara Court  
May 1, 2002  
Page 6

The analysis and recommendations contained in this report are based on the data obtained from limited observation and testing of the surface materials. The test borings indicate soil conditions only at specific locations and times, and only to the depths presented. They do not necessarily reflect strata variations that may exist between the test boring locations. Consequently, the analysis and recommendations must be considered preliminary until the subsurface conditions can be verified by direct observation at the time of construction. If variations in subsurface conditions from those described are noted during construction, recommendations in this report may need to be re-evaluated.

In the event that any changes in the nature, design, or location of the facilities are planned, the conditions and recommendations contained in this report should not be considered valid unless the changes are reviewed and conclusions of this report are verified in writing. Geo-Technology Associates, Inc. is not responsible for any claims, damages, or liability associated with interpretation of subsurface data or reuse of the subsurface data or engineering analysis without the express written authorization of Geo-Technology Associates, Inc.

In accordance with the guidelines of ASPE/The Association of Engineering Firms Practicing in the Geosciences, it is recommended that Geo-Technology Associates, Inc. be retained to provide continuous soils engineering services for this project. Participation of GTA will facilitate compliance with GTA's recommendations, and allow changes to be made in these recommendations, in the event that subsurface conditions are found to vary from those anticipated prior to the start of construction.

This report and the attached logs are instruments of service. If certain conditions or items are noted during our investigation, Geo-Technology Associates, Inc. may be required by prevailing statutes to notify and provide information to regulatory or enforcement agencies. Geo-Technology Associates, Inc. will notify our Client should a required disclosure condition exist.

This report was prepared by Geo-Technology Associates, Inc. (GTA) for the sole and exclusive use of Geo-Technology Associates, Inc. and The Sanford Companies. Use and reproduction of this report by any other person without the express written permission of GTA and The Sanford Companies, is unauthorized and such use is at the sole risk of the user.

The Sanford Companies, Inc.  
Re: Proposed Commercial Development - Santa Barbara Court  
May 1, 2002  
Page 7

Thank you for this opportunity to be of assistance. Should you have any questions or require additional information, please do not hesitate to contact our office.

Sincerely,  
GEO-TECHNOLOGY ASSOCIATES, INC.  
1. Patrick K...  
Vice President

**NOTE:**

FOR FURTHER INFORMATION, SEE DETAILED GEOTECHNICAL REPORTS PREPARED BY GEO-TECHNOLOGIES ASSOCIATES, INC. IN MAY 1ST, 2002 AND JULY 24, 2002.

**LOG OF BORING NO. B-1** Sheet 1 of 1

PROJECT: Santa Barbara Ct.  
PROJECT NO: 020919  
PROJECT LOCATION: Howard County, Maryland

DATE STARTED: April 11, 2002  
DATE COMPLETED: April 11, 2002  
DRILLING CONTRACTOR: SCDD/SBW  
DRILLER: SCDD/SBW  
DRILLING METHOD: HSA  
SAMPLING METHOD: Split Spoon

WATER LEVEL: 2.0' Dry  
DATE: 04/11/02  
CAVED BY: P. Ledda

GROUND SURFACE ELEVATION: 128.1  
DATE: MSL  
EQUIPMENT: CME 45  
LOGGED BY: P. Ledda  
CHECKED BY: B. Dinmore

SAMPLE NO.	DEPTH (ft)	ELEVATION (ft)	SOIL TYPE	REMARKS
1	0.0	128.1	SM	Topsoil: 12.0 in.
2	2.0	126.1	SM	Water Encountered at 8.0 Feet.
3	4.0	124.1	SM	Water Encountered at 8.0 Feet.
4	6.0	122.1	SM	Water Encountered at 8.0 Feet.
5	8.0	120.1	SM	Water Encountered at 8.0 Feet.
6	10.0	118.1	SM	Water Encountered at 8.0 Feet.
7	12.0	116.1	SM	Water Encountered at 8.0 Feet.
8	14.0	114.1	SM	Water Encountered at 8.0 Feet.
9	16.0	112.1	SM	Water Encountered at 8.0 Feet.
10	18.0	110.1	SM	Water Encountered at 8.0 Feet.
11	20.0	108.1	SM	Water Encountered at 8.0 Feet.
12	22.0	106.1	SM	Water Encountered at 8.0 Feet.
13	24.0	104.1	SM	Water Encountered at 8.0 Feet.
14	26.0	102.1	SM	Water Encountered at 8.0 Feet.
15	28.0	100.1	SM	Water Encountered at 8.0 Feet.
16	30.0	98.1	SM	Water Encountered at 8.0 Feet.
17	32.0	96.1	SM	Water Encountered at 8.0 Feet.
18	34.0	94.1	SM	Water Encountered at 8.0 Feet.
19	36.0	92.1	SM	Water Encountered at 8.0 Feet.
20	38.0	90.1	SM	Water Encountered at 8.0 Feet.
21	40.0	88.1	SM	Water Encountered at 8.0 Feet.
22	42.0	86.1	SM	Water Encountered at 8.0 Feet.
23	44.0	84.1	SM	Water Encountered at 8.0 Feet.
24	46.0	82.1	SM	Water Encountered at 8.0 Feet.
25	48.0	80.1	SM	Water Encountered at 8.0 Feet.
26	50.0	78.1	SM	Water Encountered at 8.0 Feet.
27	52.0	76.1	SM	Water Encountered at 8.0 Feet.
28	54.0	74.1	SM	Water Encountered at 8.0 Feet.
29	56.0	72.1	SM	Water Encountered at 8.0 Feet.
30	58.0	70.1	SM	Water Encountered at 8.0 Feet.
31	60.0	68.1	SM	Water Encountered at 8.0 Feet.
32	62.0	66.1	SM	Water Encountered at 8.0 Feet.
33	64.0	64.1	SM	Water Encountered at 8.0 Feet.
34	66.0	62.1	SM	Water Encountered at 8.0 Feet.
35	68.0	60.1	SM	Water Encountered at 8.0 Feet.
36	70.0	58.1	SM	Water Encountered at 8.0 Feet.
37	72.0	56.1	SM	Water Encountered at 8.0 Feet.
38	74.0	54.1	SM	Water Encountered at 8.0 Feet.
39	76.0	52.1	SM	Water Encountered at 8.0 Feet.
40	78.0	50.1	SM	Water Encountered at 8.0 Feet.
41	80.0	48.1	SM	Water Encountered at 8.0 Feet.
42	82.0	46.1	SM	Water Encountered at 8.0 Feet.
43	84.0	44.1	SM	Water Encountered at 8.0 Feet.
44	86.0	42.1	SM	Water Encountered at 8.0 Feet.
45	88.0	40.1	SM	Water Encountered at 8.0 Feet.
46	90.0	38.1	SM	Water Encountered at 8.0 Feet.
47	92.0	36.1	SM	Water Encountered at 8.0 Feet.
48	94.0	34.1	SM	Water Encountered at 8.0 Feet.
49	96.0	32.1	SM	Water Encountered at 8.0 Feet.
50	98.0	30.1	SM	Water Encountered at 8.0 Feet.
51	100.0	28.1	SM	Water Encountered at 8.0 Feet.
52	102.0	26.1	SM	Water Encountered at 8.0 Feet.
53	104.0	24.1	SM	Water Encountered at 8.0 Feet.
54	106.0	22.1	SM	Water Encountered at 8.0 Feet.
55	108.0	20.1	SM	Water Encountered at 8.0 Feet.
56	110.0	18.1	SM	Water Encountered at 8.0 Feet.
57	112.0	16.1	SM	Water Encountered at 8.0 Feet.
58	114.0	14.1	SM	Water Encountered at 8.0 Feet.
59	116.0	12.1	SM	Water Encountered at 8.0 Feet.
60	118.0	10.1	SM	Water Encountered at 8.0 Feet.
61	120.0	8.1	SM	Water Encountered at 8.0 Feet.
62	122.0	6.1	SM	Water Encountered at 8.0 Feet.
63	124.0	4.1	SM	Water Encountered at 8.0 Feet.
64	126.0	2.1	SM	Water Encountered at 8.0 Feet.
65	128.0	0.1	SM	Water Encountered at 8.0 Feet.

Coordinates:  
N: 49295.0  
E: 87317.0

NOTES:  
GTA GEO-TECHNOLOGY ASSOCIATES, INC.  
9090 Junction Drive, Suite 9  
Annapolis Junction, MD 20701

**LOG OF BORING NO. B-2** Sheet 1 of 1

PROJECT: Santa Barbara Ct.  
PROJECT NO: 020919  
PROJECT LOCATION: Howard County, Maryland

DATE STARTED: April 11, 2002  
DATE COMPLETED: April 11, 2002  
DRILLING CONTRACTOR: SCDD/SBW  
DRILLER: SCDD/SBW  
DRILLING METHOD: HSA  
SAMPLING METHOD: Split Spoon

WATER LEVEL: 2.0' Dry  
DATE: 04/11/02  
CAVED BY: P. Ledda

GROUND SURFACE ELEVATION: 122.9  
DATE: MSL  
EQUIPMENT: CME 45  
LOGGED BY: P. Ledda  
CHECKED BY: B. Dinmore

SAMPLE NO.	DEPTH (ft)	ELEVATION (ft)	SOIL TYPE	REMARKS
1	0.0	122.9	SM	Topsoil: 12.0 in.
2	2.0	120.9	SM	Water Encountered at 8.0 Feet.
3	4.0	118.9	SM	Water Encountered at 8.0 Feet.
4	6.0	116.9	SM	Water Encountered at 8.0 Feet.
5	8.0	114.9	SM	Water Encountered at 8.0 Feet.
6	10.0	112.9	SM	Water Encountered at 8.0 Feet.
7	12.0	110.9	SM	Water Encountered at 8.0 Feet.
8	14.0	108.9	SM	Water Encountered at 8.0 Feet.
9	16.0	106.9	SM	Water Encountered at 8.0 Feet.
10	18.0	104.9	SM	Water Encountered at 8.0 Feet.
11	20.0	102.9	SM	Water Encountered at 8.0 Feet.
12	22.0	100.9	SM	Water Encountered at 8.0 Feet.
13	24.0	98.9	SM	Water Encountered at 8.0 Feet.
14	26.0	96.9	SM	Water Encountered at 8.0 Feet.
15	28.0	94.9	SM	Water Encountered at 8.0 Feet.
16	30.0	92.9	SM	Water Encountered at 8.0 Feet.
17	32.0	90.9	SM	Water Encountered at 8.0 Feet.
18	34.0	88.9	SM	Water Encountered at 8.0 Feet.
19	36.0	86.9	SM	Water Encountered at 8.0 Feet.
20	38.0	84.9	SM	Water Encountered at 8.0 Feet.
21	40.0	82.9	SM	Water Encountered at 8.0 Feet.
22	42.0	80.9	SM	Water Encountered at 8.0 Feet.
23	44.0	78.9	SM	Water Encountered at 8.0 Feet.
24	46.0	76.9	SM	Water Encountered at 8.0 Feet.
25	48.0	74.9	SM	Water Encountered at 8.0 Feet.
26	50.0	72.9	SM	Water Encountered at 8.0 Feet.
27	52.0	70.9	SM	Water Encountered at 8.0 Feet.
28	54.0	68.9	SM	Water Encountered at 8.0 Feet.
29	56.0	66.9	SM	Water Encountered at 8.0 Feet.
30	58.0	64.9	SM	Water Encountered at 8.0 Feet.
31	60.0	62.9	SM	Water Encountered at 8.0 Feet.
32	62.0	60.9	SM	Water Encountered at 8.0 Feet.
33	64.0	58.9	SM	Water Encountered at 8.0 Feet.
34	66.0	56.9	SM	Water Encountered at 8.0 Feet.
35	68.0	54.9	SM	Water Encountered at 8.0 Feet.
36	70.0	52.9	SM	Water Encountered at 8.0 Feet.
37	72.0	50.9	SM	Water Encountered at 8.0 Feet.
38	74.0	48.9	SM	Water Encountered at 8.0 Feet.
39	76.0	46.9	SM	Water Encountered at 8.0 Feet.
40	78.0	44.9	SM	Water Encountered at 8.0 Feet.
41	80.0	42.9	SM	Water Encountered at 8.0 Feet.
42	82.0	40.9	SM	Water Encountered at 8.0 Feet.
43	84.0	38.9	SM	Water Encountered at 8.0 Feet.
44	86.0	36.9	SM	Water Encountered at 8.0 Feet.
45	88.0	34.9	SM	Water Encountered at 8.0 Feet.
46	90.0	32.9	SM	Water Encountered at 8.0 Feet.
47	92.0	30.9	SM	Water Encountered at 8.0 Feet.
48	94.0	28.9	SM	Water Encountered at 8.0 Feet.
49	96.0	26.9	SM	Water Encountered at 8.0 Feet.
50	98.0	24.9	SM	Water Encountered at 8.0 Feet.
51	100.0	22.9	SM	Water Encountered at 8.0 Feet.
52	102.0	20.9	SM	Water Encountered at 8.0 Feet.
53	104.0	18.9	SM	Water Encountered at 8.0 Feet.
54	106.0	16.9	SM	Water Encountered at 8.0 Feet.
55	108.0	14.9	SM	Water Encountered at 8.0 Feet.
56	110.0	12.9	SM	Water Encountered at 8.0 Feet.
57	112.0	10.9	SM	Water Encountered at 8.0 Feet.
58	114.0	8.9	SM	Water Encountered at 8.0 Feet.
59	116.0	6.9	SM	Water Encountered at 8.0 Feet.
60	118.0	4.9	SM	Water Encountered at 8.0 Feet.
61	120.0	2.9	SM	Water Encountered at 8.0 Feet.
62	122.0	0.9	SM	Water Encountered at 8.0 Feet.

Coordinates:  
N: 49295.0  
E: 87325.0

NOTES:  
GTA GEO-TECHNOLOGY ASSOCIATES, INC.  
9090 Junction Drive, Suite 9  
Annapolis Junction, MD 20701

**LOG OF BORING NO. B-3** Sheet 1 of 1

PROJECT: Santa Barbara Ct.  
PROJECT NO: 020919  
PROJECT LOCATION: Howard County, Maryland

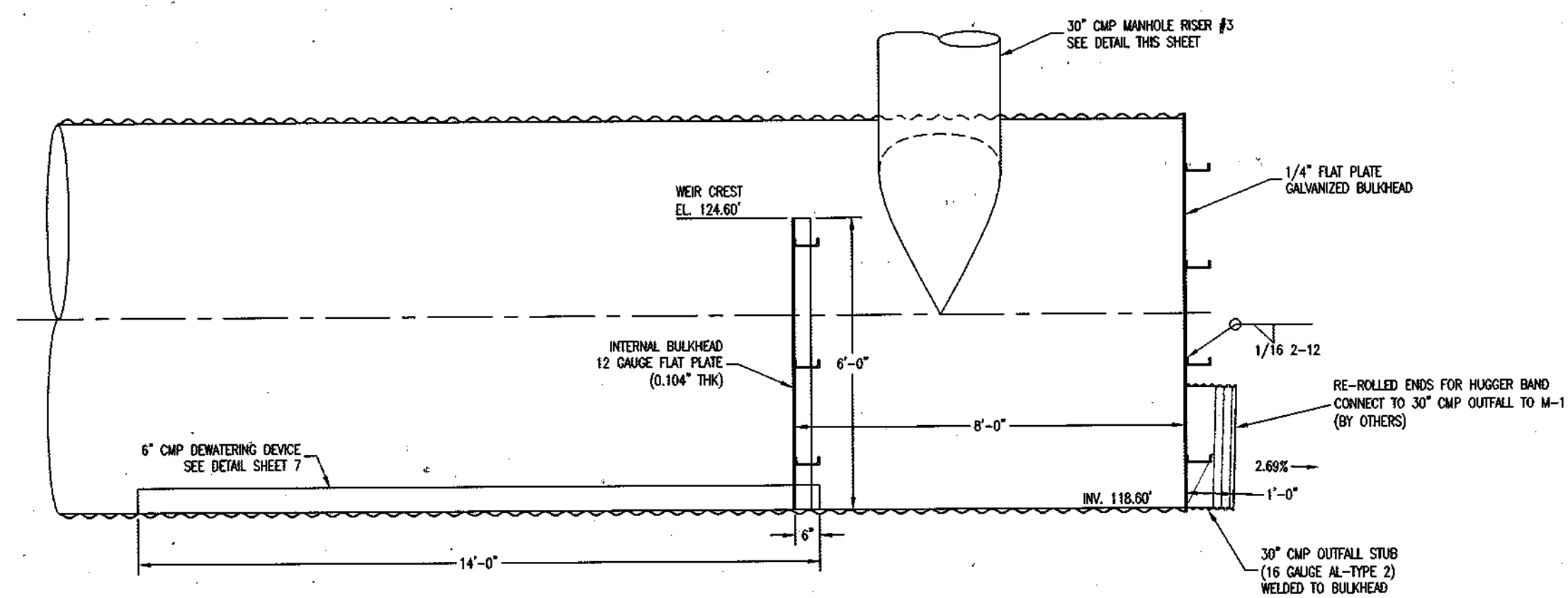
DATE STARTED: April 11, 2002  
DATE COMPLETED: April 11, 2002  
DRILLING CONTRACTOR: SCDD/SBW  
DRILLER: SCDD/SBW  
DRILLING METHOD: HSA  
SAMPLING METHOD: Split Spoon

WATER LEVEL: 2.0' Dry  
DATE: 04/11/02  
CAVED BY: P. Ledda

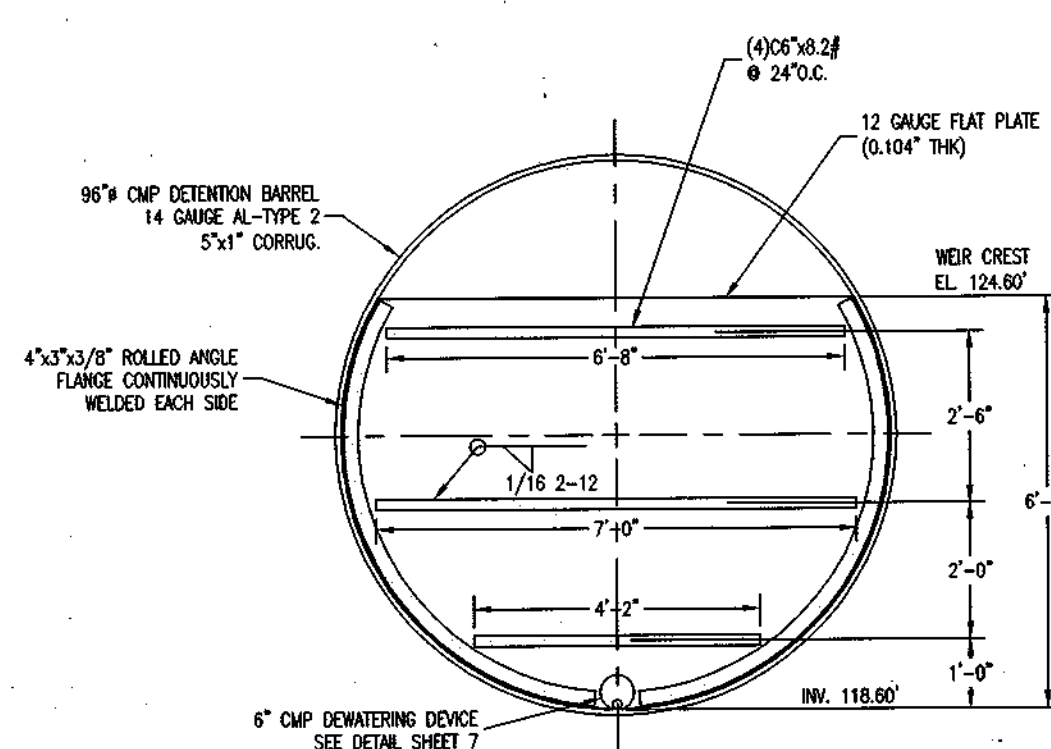
GROUND SURFACE ELEVATION: 125.7  
DATE: MSL  
EQUIPMENT: CME 45  
LOGGED BY: P. Ledda  
CHECKED BY: B. Dinmore

SAMPLE NO.	DEPTH (ft)	ELEVATION (ft)	SOIL TYPE	REMARKS
1	0.0	125.7	SM	Topsoil: 14.0 in.
2	2.0	123.7	SM	Water Encountered at 8.0 Feet.
3	4.0	121.7	SM	Water Encountered at 8.0 Feet.
4	6.0	119.7	SM	Water Encountered at 8.0 Feet.
5	8.0	117.7	SM	Water Encountered at 8.0 Feet.
6	10.0	115.7	SM	Water Encountered at 8.0 Feet.
7	12.0	113.7	SM	Water Encountered at 8.0 Feet.
8	14.0	111.7	SM	Water Encountered at 8.0 Feet.
9	16.0	109.7	SM	Water Encountered at 8.0 Feet.
10	18.0	107.7	SM	Water Encountered at 8.0 Feet.
11	20.0	105.7	SM	Water Encountered at 8.0 Feet.
12	22.0	103.7	SM	Water Encountered at 8.0 Feet.
13	24.0	101.7	SM	Water Encountered at 8.0 Feet.
14	26.0	99.7	SM	Water Encountered at 8.0 Feet.
15	28.0	97.7	SM	Water Encountered at 8.0 Feet.
16	30.			

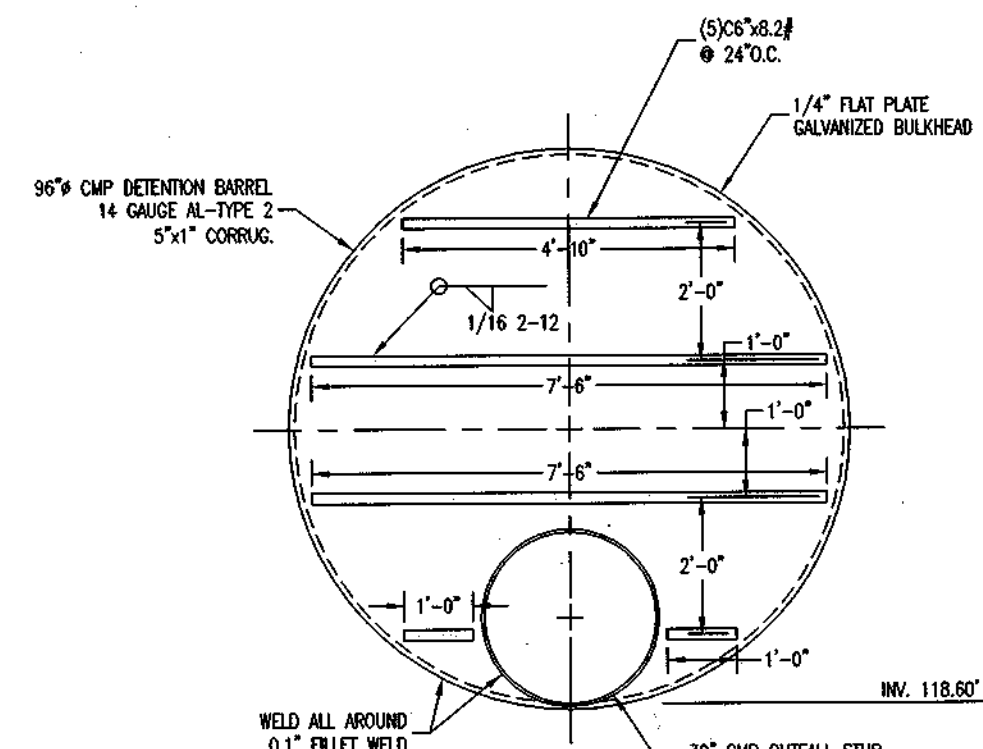




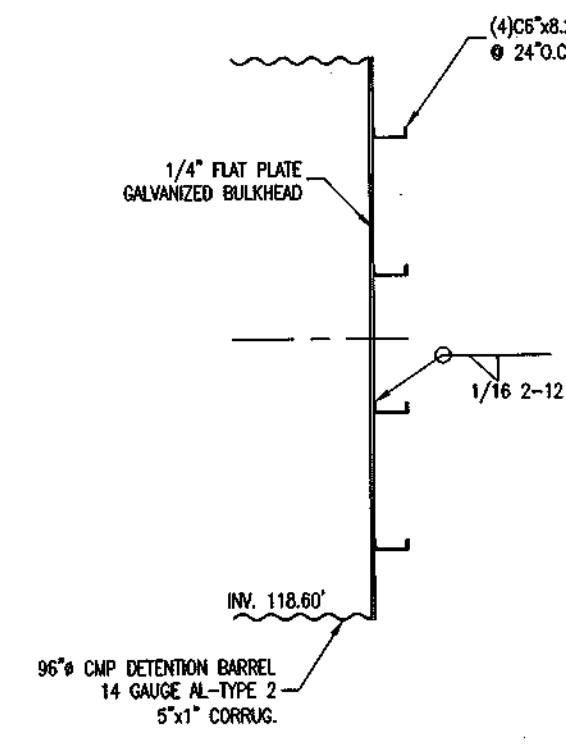
PROFILE VIEW



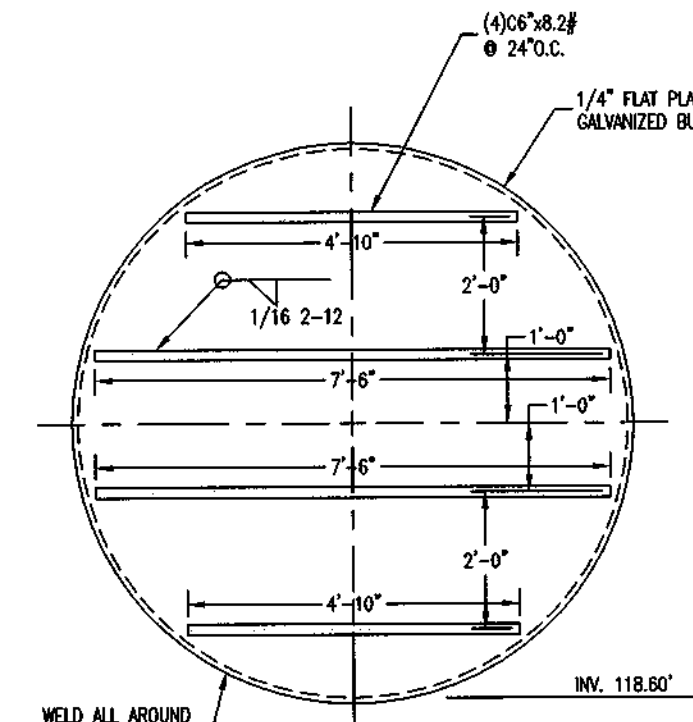
INTERNAL BULKHEAD ELEVATION VIEW



BULKHEAD AT OUTLET END ELEVATION VIEW



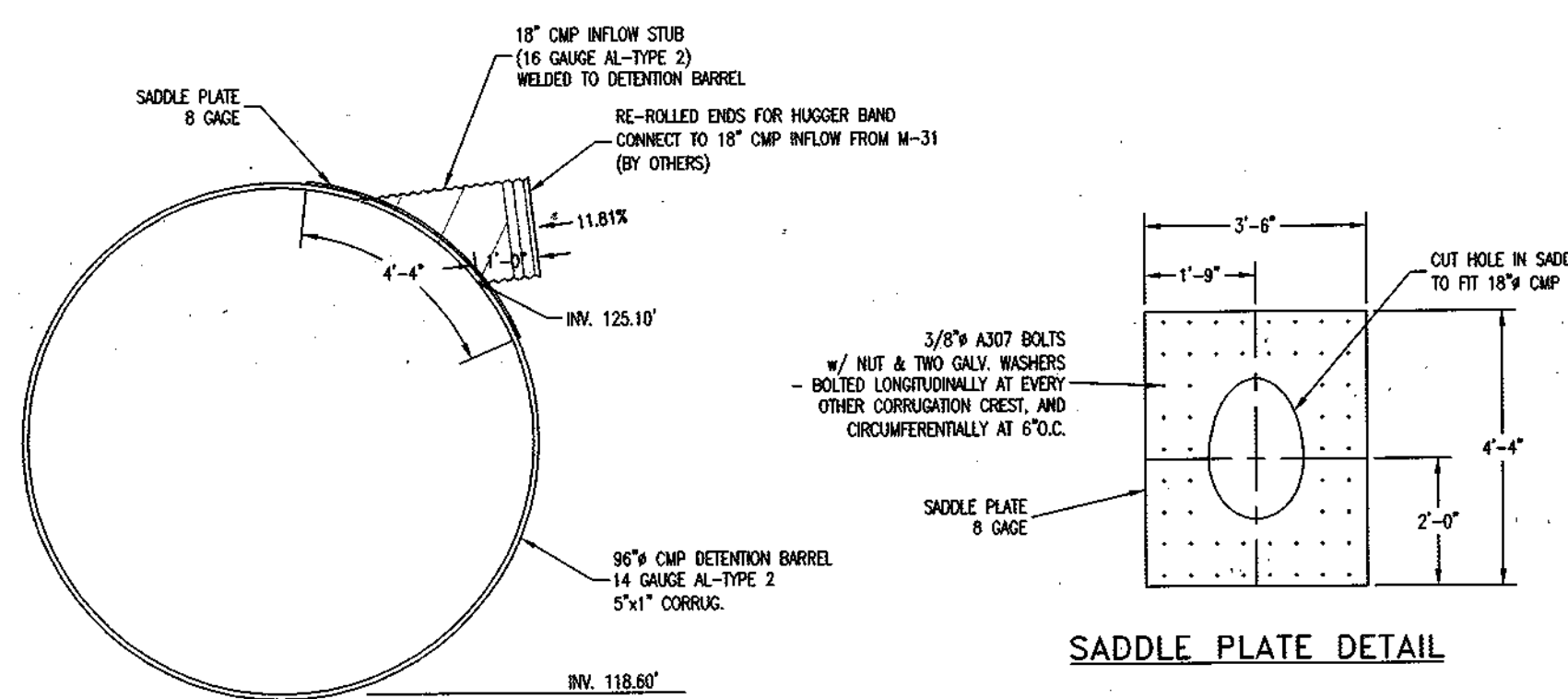
PROFILE VIEW



ELEVATION VIEW

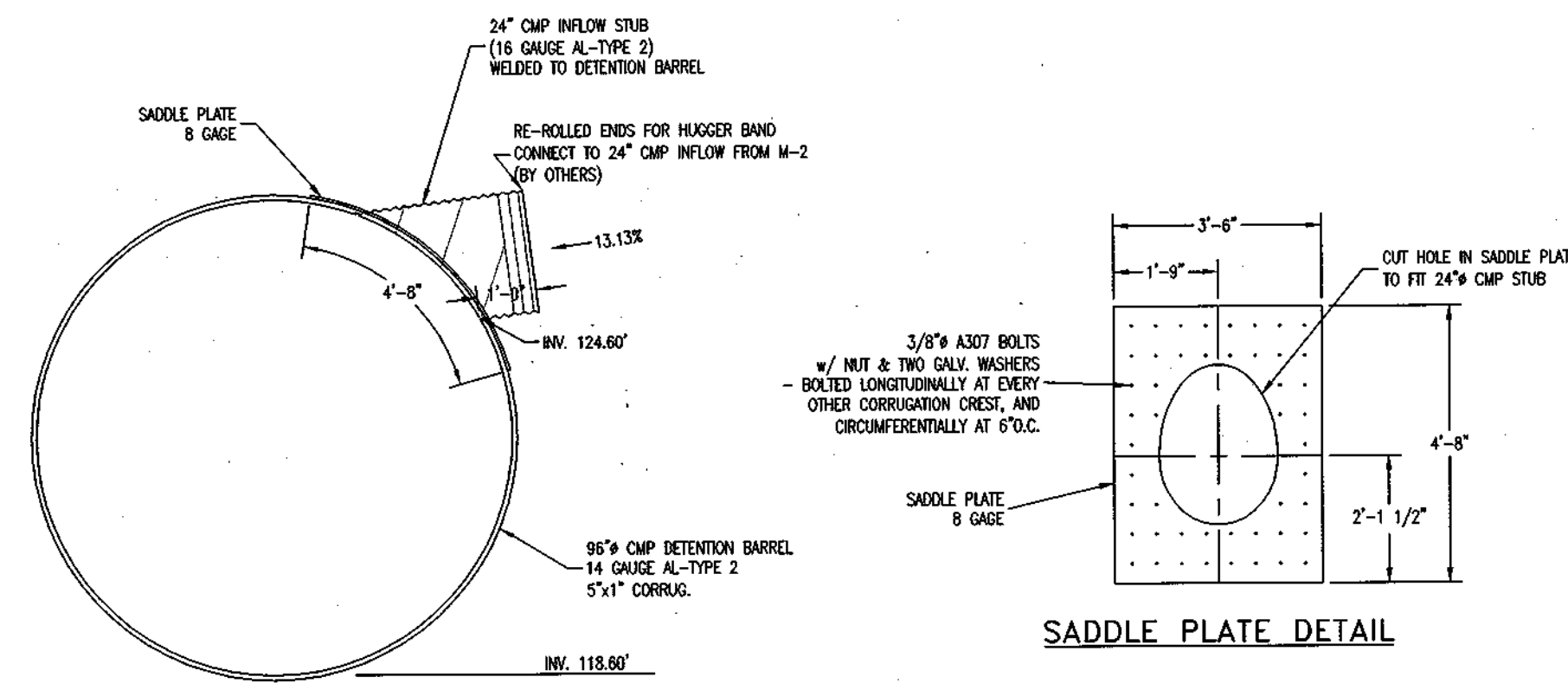
DETAIL OF BULKHEAD AT INLET END N.T.S.

OUTLET END OF DETENTION BARREL N.T.S.



ELEVATION

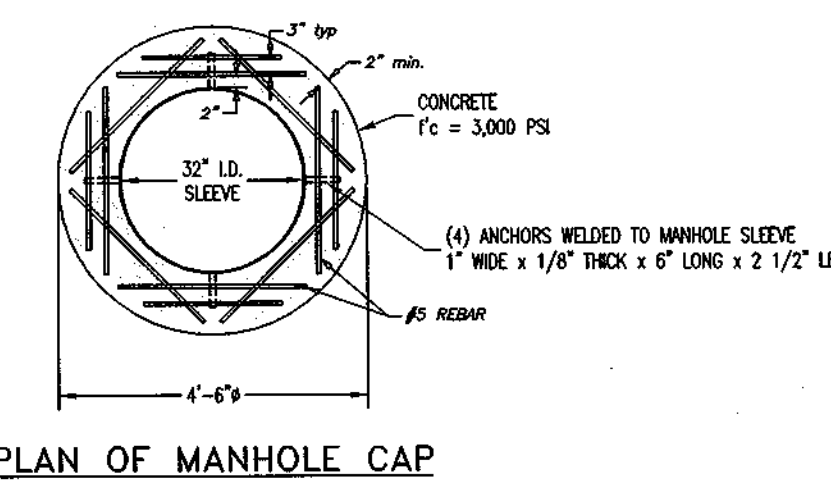
CONNECTION DETAIL (18"Ø CMP INFLOW FROM M-31) N.T.S.



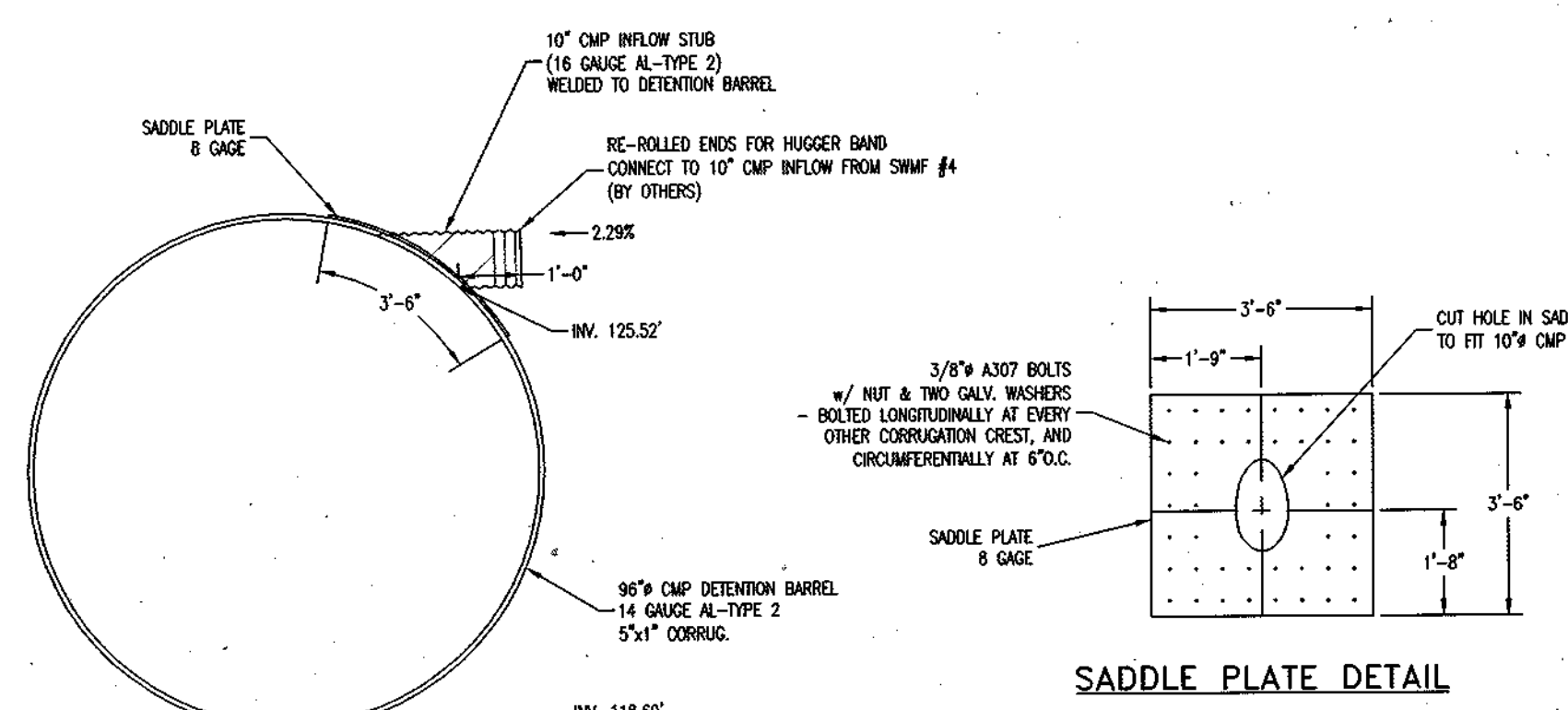
ELEVATION

CONNECTION DETAIL (24"Ø CMP INFLOW FROM M-2) N.T.S.

MANHOLE No.	TOP OF GRADE ELEVATION (FT.)	"W" DIMENSION (ft.-in.)
1	135.84	5'-9"
2	135.24	5'-2"
3	134.85	4'-9"

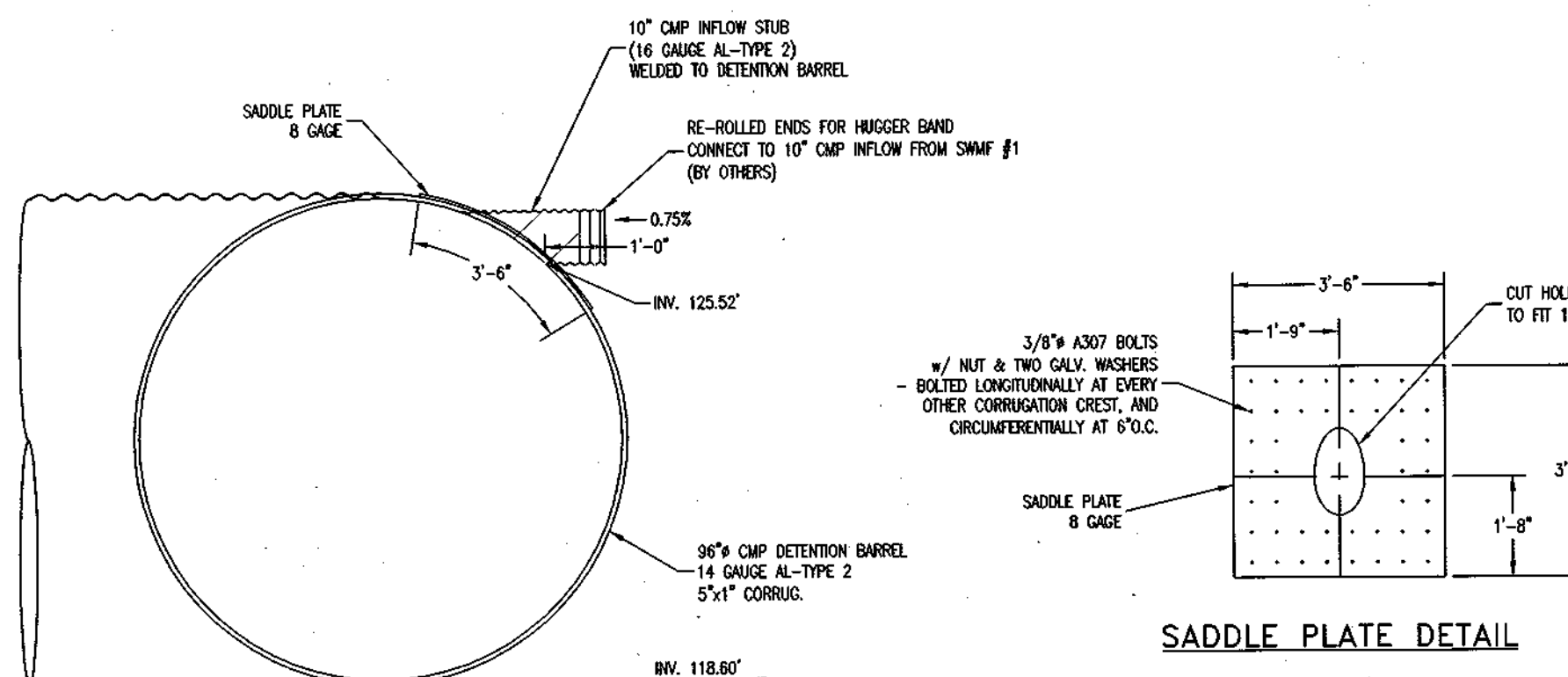


PLAN OF MANHOLE CAP



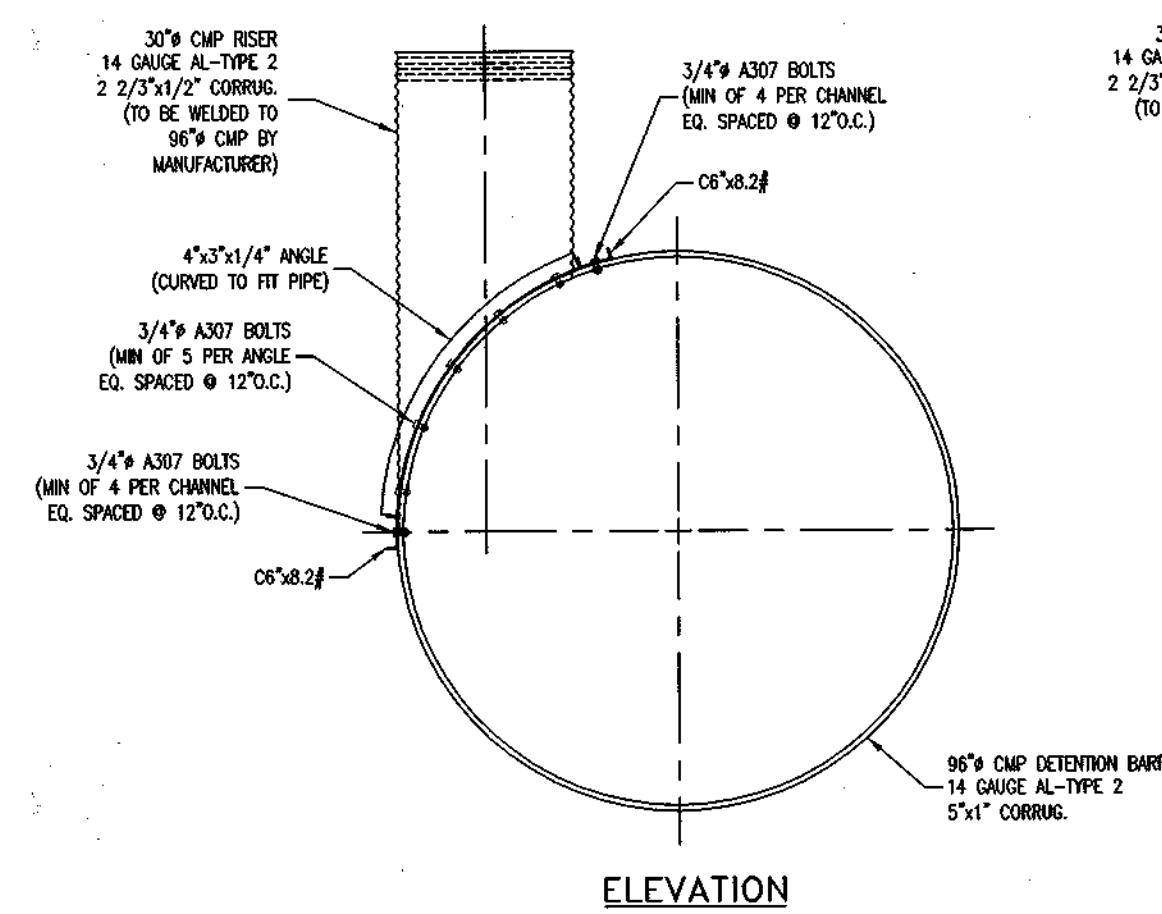
ELEVATION

CONNECTION DETAIL (10"Ø CMP INFLOW FROM SWMF #4) N.T.S.



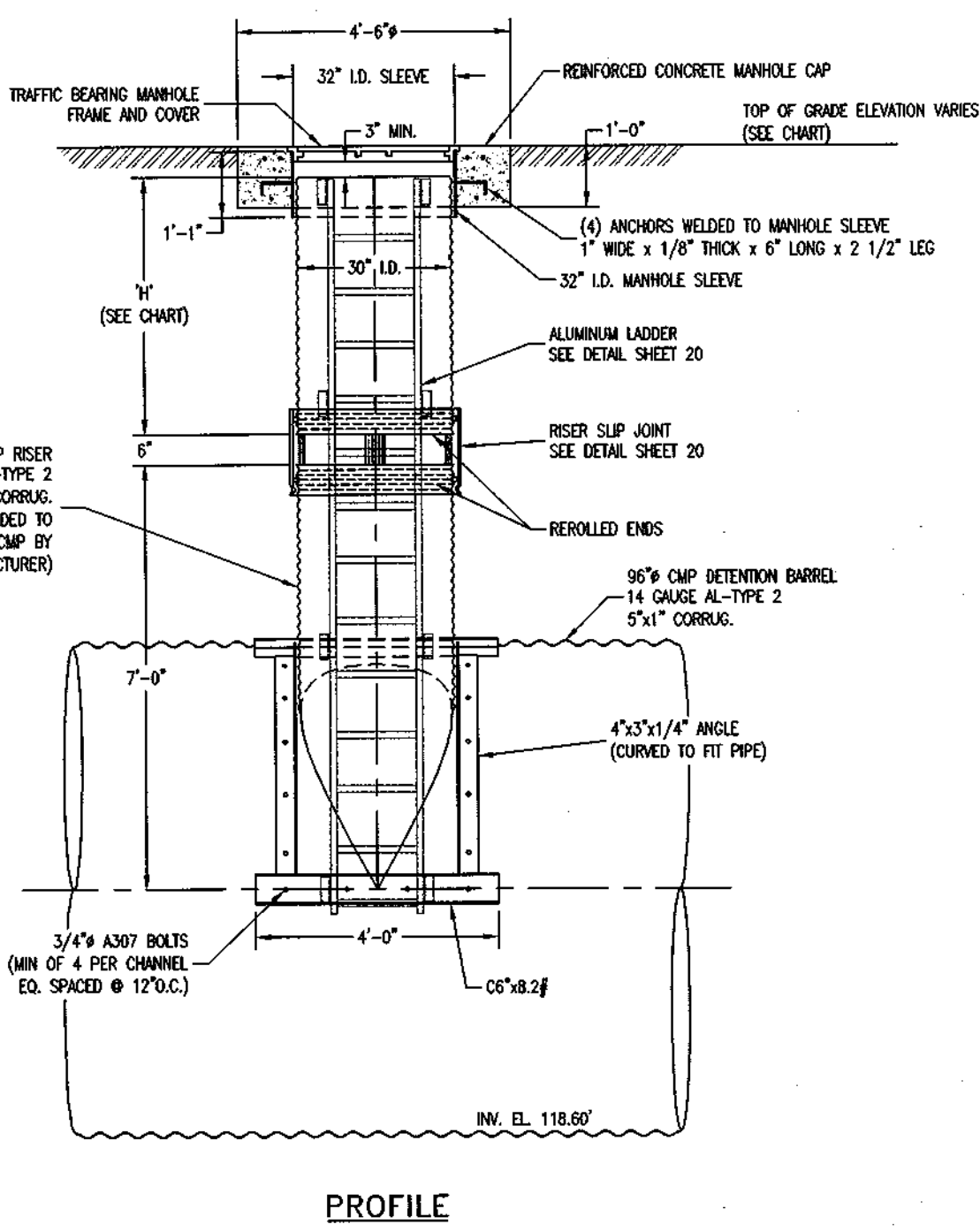
ELEVATION

CONNECTION DETAIL (10"Ø CMP INFLOW FROM SWMF #1) N.T.S.



ELEVATION

MANHOLE CONNECTION DETAIL



PROFILE

OWNER: FAX NO: 410-964-0223  
 A. NAME: Bruce Jaffe B. DAYTIME TELEPHONE: 301-596-0222  
 C. COMPANY: Morlick L.L.C.  
 D. ADDRESS: 11628 Log Jump Trail  
 E. CITY: Ellicott City STATE: MD ZIP: 21042  
 DEVELOPER: FAX NO: 410-964-0223  
 A. NAME: Bruce Jaffe B. DAYTIME TELEPHONE: 301-596-0222  
 C. COMPANY: The Sanford Companies, Inc.  
 D. ADDRESS: 11628 Log Jump Trail  
 E. CITY: Ellicott City STATE: MD ZIP: 21042

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 [Signature] 11/6/04 DATE  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
 [Signature] 11/9/04 DATE  
 CHIEF, DIVISION OF LAND DEVELOPMENT  
 [Signature] 11/10/04 DATE  
 DIRECTOR, DEPARTMENT OF PLANNING AND ZONING



DATE	REVISIONS	JOB NO.:
		11570.02
		SCALE: AS SHOWN
		DATE: 12/15/03
		DRAWN BY: TCN
		DESIGN BY: TCN
		REVIEW BY: PVM, TFM
		SHEET: 19 OF 20

SANTA BARBARA CT.  
 ROUTE 100 BUSINESS PARK  
 BLOCK F PARCEL F  
 SITE DEVELOPMENT PLAN  
 SWM DETAILS - UNDERGROUND CMP FACILITY  
 TAX MAP 38 BLOCK F PARCEL F  
 1ST ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND



MORRIS & RITCHE ASSOCIATES, INC.  
 ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS  
 9090 JUNCTION DRIVE, SUITE 9  
 ANNAPOLIS JUNCTION, MARYLAND 20701  
 (410) 792-8782 or (301) 778-1890  
 FAX (410) 792-7395



