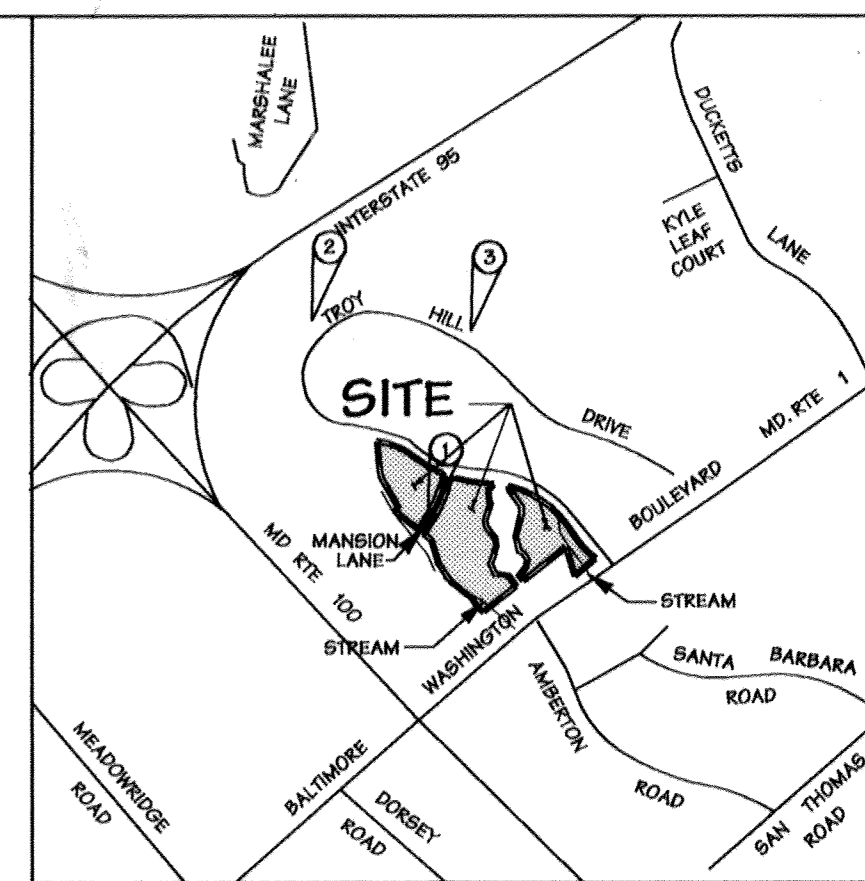


Sheet Index

SHEET	DESCRIPTION
1	COVER SHEET
2	SITE PLAN LOT A-10
3	SITE PLAN LOT A-11
4	SITE PLAN LOT A-12
5	GRADING PLAN LOT A-10
6	GRADING PLAN LOT A-11
7	GRADING PLAN LOT A-12
8	DRAINAGE AREA MAP & SEDIMENT CONTROL PLAN LOT A-10
9	DRAINAGE AREA MAP & SEDIMENT CONTROL PLAN LOT A-11
10	DRAINAGE AREA MAP & SEDIMENT CONTROL PLAN LOT A-12
11	EROSION & SEDIMENT CONTROL DETAILS
12	EROSION & SEDIMENT CONTROL DETAILS
13	STORM DRAIN PROFILES LOT A-10
14	STORM DRAIN PROFILES LOT A-11
15	STORM DRAIN PROFILES LOT A-12
16	UTILITY PROFILES LOTS A-10 & A-11
17	UTILITY PROFILES LOTS A-12
18	SITE DETAILS
19	LANDSCAPE PLAN LOT A-10
20	LANDSCAPE PLAN LOT A-11
21	LANDSCAPE PLAN LOT A-12
22	LANDSCAPE PLAN DETAILS
23	RETAINING WALL DETAILS
24	RETAINING WALL DETAILS
25	RETAINING WALL DETAILS
26	RETAINING WALL DETAILS
27	RETAINING WALL DETAILS
28	RETAINING WALL DETAILS
29	RETAINING WALL DETAILS
30	RETAINING WALL DETAILS

SITE DEVELOPMENT PLAN

for
Troy Hill Corporate Center
Lots- A-10, A-11 & A-12
Howard County, Maryland

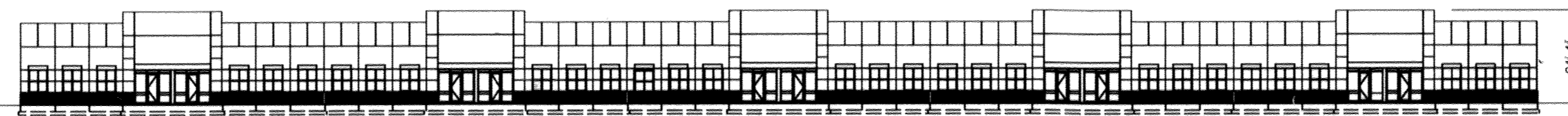
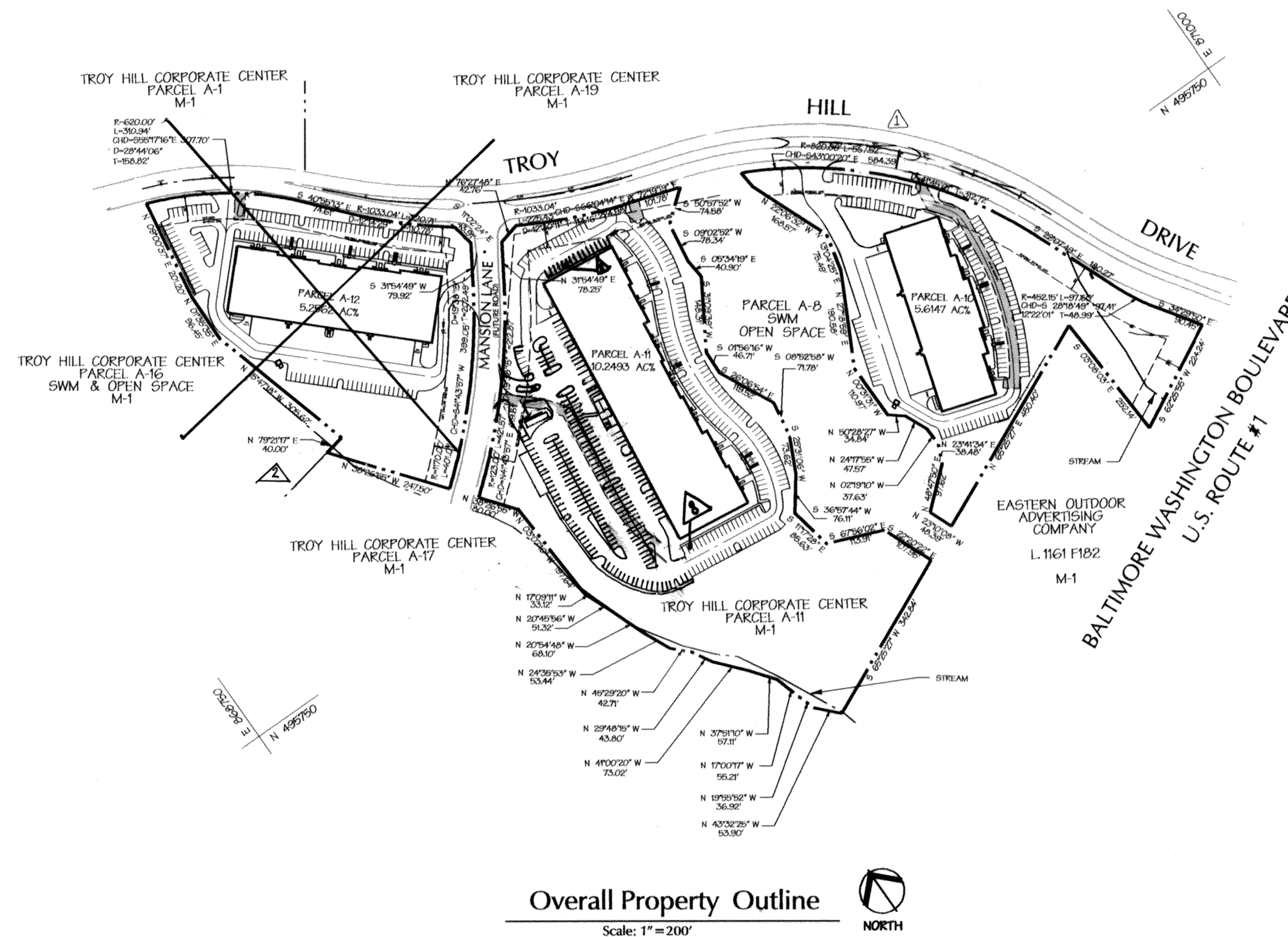


VICINITY MAP
SCALE: 1"=2000'

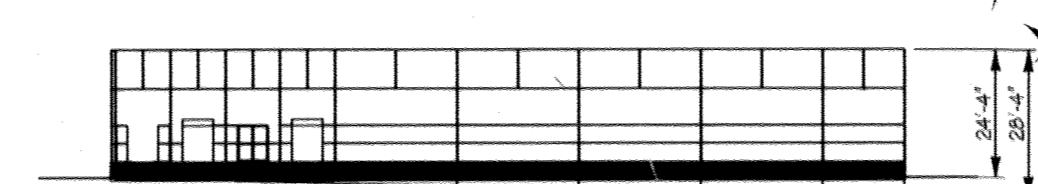
BENCHMARK	DESCRIPTION
106	NORTH (±FT) EAST (±FT) 497923.68269 868870.53079
108	497310.68320 868644.53291
371A	ELEVATION (±FT) 195.762
3805	193.718

General Notes

- All construction shall be performed in accordance with the latest standards and specifications of Howard County, plus MSHA standards and specifications if applicable or as specified.
- Approximate location of existing utilities are based solely on available records. Contractor shall verify the location of any utilities which may be impacted by the work. The contractor shall take all necessary precautions to protect the existing utilities and maintain uninterrupted service. Any damage incurred due to contractors operation shall be repaired immediately at the contractor's expense.
- The contractor shall test pit existing utilities at least five (5) days before starting work shown on these drawings to verify their location and elevation. The contractor shall notify the engineer immediately if location of utilities is other than shown.
- The contractor shall notify 'Miss Utility' at 1-800-257-7777 at least 48 hours prior to any excavation work being done and 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). All street and regulatory signs shall be in place prior to the placement of any asphalt.
- Any damage caused by the Contractor to existing public right-of-way, existing paving, existing curb and gutter, existing utilities, etc. shall be repaired at the Contractors expense.
- The existing topography inside property line per mass grading as shown on SDP-98-149
- All hydraulic data is for the 10-year storm unless otherwise noted.
- All fill areas shall be compacted to a minimum of 95% of the maximum dry density as determined and verified in accordance with AASHTO T-180.
- All plan dimensions are to face of curb unless otherwise noted. Numerically written dimensions take precedence over scaled dimensions.
- The coordinates shown hereon are based upon the Howard County geodetic control which is based upon NAD 27 Howard County monument nos 2445004 and 2445005 were used for this project.
- Quantity SWM is provided by Pond #1 as shown on SDP-98-149 and #2 as shown on F-98-103. Both SWM Ponds are Detention/Pond Hazard Class A with W Q provided via Stormceptors. Privately owned and maintained.
- Public water (Contract # 44-39140) and Public sewer (Contract# 14-3715-D) to service the site.
- There are 100 year floodplain and wetlands on this site, study performed by George W. Stephens
- There are no known cemeteries or burial grounds on this site.
- A traffic report update has been prepared by I.T.S.
- Exterior Lighting will be in conformance with Section 134, Zoning Regulations
- Electric, gas, cable and telephone lines designed by others.
- All curb 5' radius unless other wise noted.



Front Elevation - Lots A-10, A-11, A-12
Not To Scale



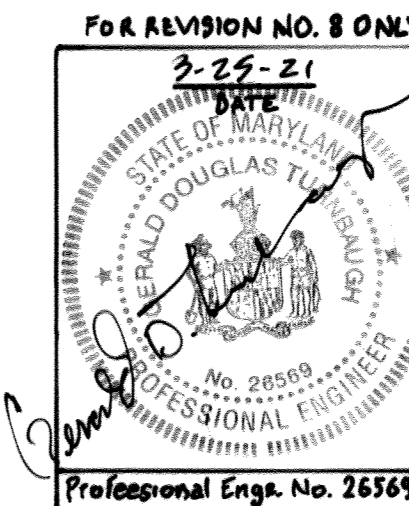
Right Side Elevation - Lots A-10, A-11, A-12
Not To Scale

Site Analysis Data Chart

1. General Site Data	
a. Present Zoning:	M-1
b. Applicable DZ File References:	9-90-05, P-90-23, F-91-24, F-96-136, WP-96-91 F-98-163, SDP-98-149, F-00-103, F-01-054
c. Proposed Use of Site or Structure(s):	Lot A-10 & A-11: Flex Buildings Lot A-12: Warehouse + Distribution
d. Proposed Water:	Public X Proposed Sewer: Private X
2. Area Tabulation	
a. Total Project Area:	
Lot A-10:	5.6147± AC.
Lot A-11:	10.2493± AC.
Lot A-12:	5.2862± AC.
b. Net Area of Site:	21.1202± Acres (Indicate by Section and Area As Shown on Final Plat)
c. Area of This Plan Submission:	21.1202± Acres
d. Limit of Disturbed Area:	
Lot A-10:	4.1± AC.
Lot A-11:	7.3± AC.
Lot A-12:	4.9± AC.
e. Building Coverage of Site:	A-10 = 1.06± Acres and 19 % of Gross Area (Proposed)
Building Coverage of Site:	A-11 = 1.93± Acres and 19 % of Gross Area (Proposed)
Building Coverage of Site:	A-12 = 1.23± Acres and 23 % of Gross Area (Proposed)

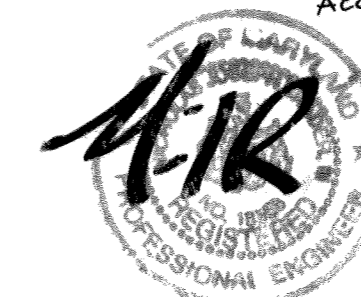
3. Open Space Data: N / A	
4. Parking Space Data	
a. Floor Space per floor of proposed use on site:	
Lot A-10	46,346 SF (One Story)
Lot A-11	84,031 SF (One Story)
Lot A-12	53,627 SF (One Story)
b. Number of Parking Spaces Required by Zoning Regulations:	
Lot A-10	116 SPACES
Lot A-11	210 SPACES
Lot A-12	127 SPACES
c. Total Number of Parking Spaces Provided On-Site:	
Lot A-10	115
Lot A-11	210
Lot A-12	127
d. Number of Handicapped Parking Spaces Provided:	
Lot A-10	4
Lot A-11	10
Lot A-12	5

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. 26569, Expiration Date: 7-18-21



NOTE: A BUILDING PERMIT FOR THE PROPOSED WORK UNDER THIS REDLINE REVISION SHALL BE APPLIED FOR WITHIN 1 YEAR MEASURED FROM THE DED APPROVAL LETTER DATE.

NOTE: THE OWNER SHALL BE ADVISED, BUT NOT REQUIRED, THAT NOT LESS THAN ONE CHARGING STATION SHOULD BE DESIGNED TO MEET THE ACCESS BOARD'S GUIDE FOR ACCESSIBLE EV CHARGING STATIONS.

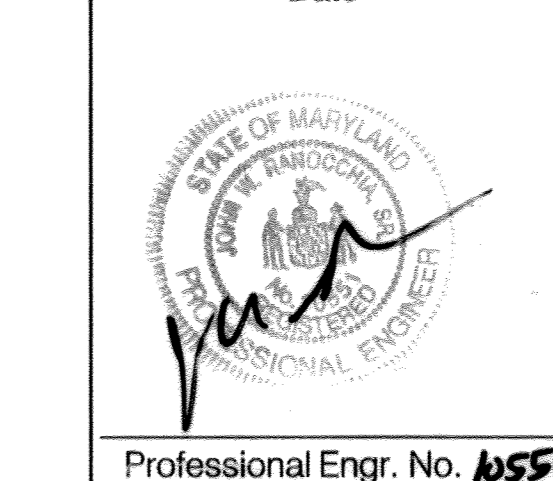


REVISION BY MATIS WARFIELD, INC. 10540 YORK ROAD, SUITE M HUNT VALLEY, MD 21030

FOR REVISION NO. 7 ONLY

Date	No.	Revision Description
12/22/00	1	MATIS WARFIELD - CHANGED ENTRANCE LOCATION - PARCEL A-10
9/17/01	2	ELIM. A12 FROM PLAN. SEE SDP01-92 FOR REVISED A12
10/22/05	3	Revise All PKG. SP. TOTAL
11/17/10	4	Note 1b.

2-20-19
Professional Engr. No. 26569
Date: 10/18/00



1. The courses and coordinates shown hereon are referred to the system of coordinates established in the Maryland Coordinate System - NAD 27, and are based on the following control stations:

DESIGNATION	NORTH (±FT)	EAST (±FT)
106	497923.68269	868870.53079
108	497310.68320	868644.53291

2. All utilities shown hereon are based solely on field location. No comparison to, or enhancement has been made from any utility drawings. The location of any underground utility shown hereon is approximate and must be verified.

3. ELEVATIONS shown hereon are referred to the North American Vertical Datum 1929 (NAVD 29) and are based on the following control stations, provided by the HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS/SURVEY DIVISION:

DESIGNATION	ELEVATION (±FT)
371A	195.762
3805	193.718

4. Boundary information shown hereon is based upon an ALTA Survey performed by Daft-McCune-Walker on August 26, 1999.

BENCHMARK #1	BENCHMARK #2	BENCHMARK #3
IRON PIN# TRAVERSE #1066 N 496501.3597 E 86934.4576	IRON PIN# TRAVERSE #1061 N 496036.69457 E 868731.1502	IRON PIN# TRAVERSE #1034 N 497636.7437 E 869835.6586

Address Chart

Bldg.	Street Address
A-10	7195 Troy Hill Drive
A-11	7175 Troy Hill Drive
A-12	7145 Troy Hill Drive

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING

Chief, Development Engineering Division	10/18/00
Chief, Division of Land Development	11/18/00
Director	11/18/00

Date	No.	Revision Description
12/22/00	1	MATIS WARFIELD - CHANGED ENTRANCE LOCATION - PARCEL A-10
9/17/01	2	ELIM. A12 FROM PLAN. SEE SDP01-92 FOR REVISED A12
10/22/05	3	Revise All PKG. SP. TOTAL
11/17/10	4	Note 1b.

Troy Hill Corporate Center
Lots: A-10, A-11 & A-12

OWNER: TROY HILL BUSINESS PARK PARTNERSHIP
C/O MANERIN CORPORATION
7165 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046
(410) 290-1400

DEVELOPER: C & S TROY HILL LLC
925 FELL STREET
BALTIMORE, MARYLAND 21231
(410) 534-6350

DMW
Daft-McCune-Walker, Inc.
200 East Pennsylvania Avenue
Towson, Maryland 21286
(410) 296-3838
Fax 296-4705

A Team of Land Planners, Landscape Architects, Golf Course Architects, Engineers, Surveyors & Environmental Professionals

SUBDIVISION NAME	SECTION/AREA	LOT/PARCEL #
TROY HILL CORPORATE CENTER	10	A-10, A-11, A-12
DATE OF THIS RECORD/FILING	TAX/ZONE MAP	ELECT DISTRICT
12/17/19	10 M-1	37
WATER CODE	SEWER CODE	CENSUS TRACT
A03	2192200	601102

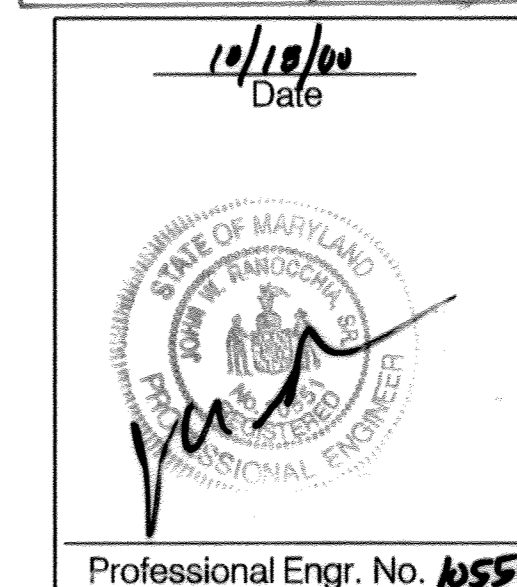
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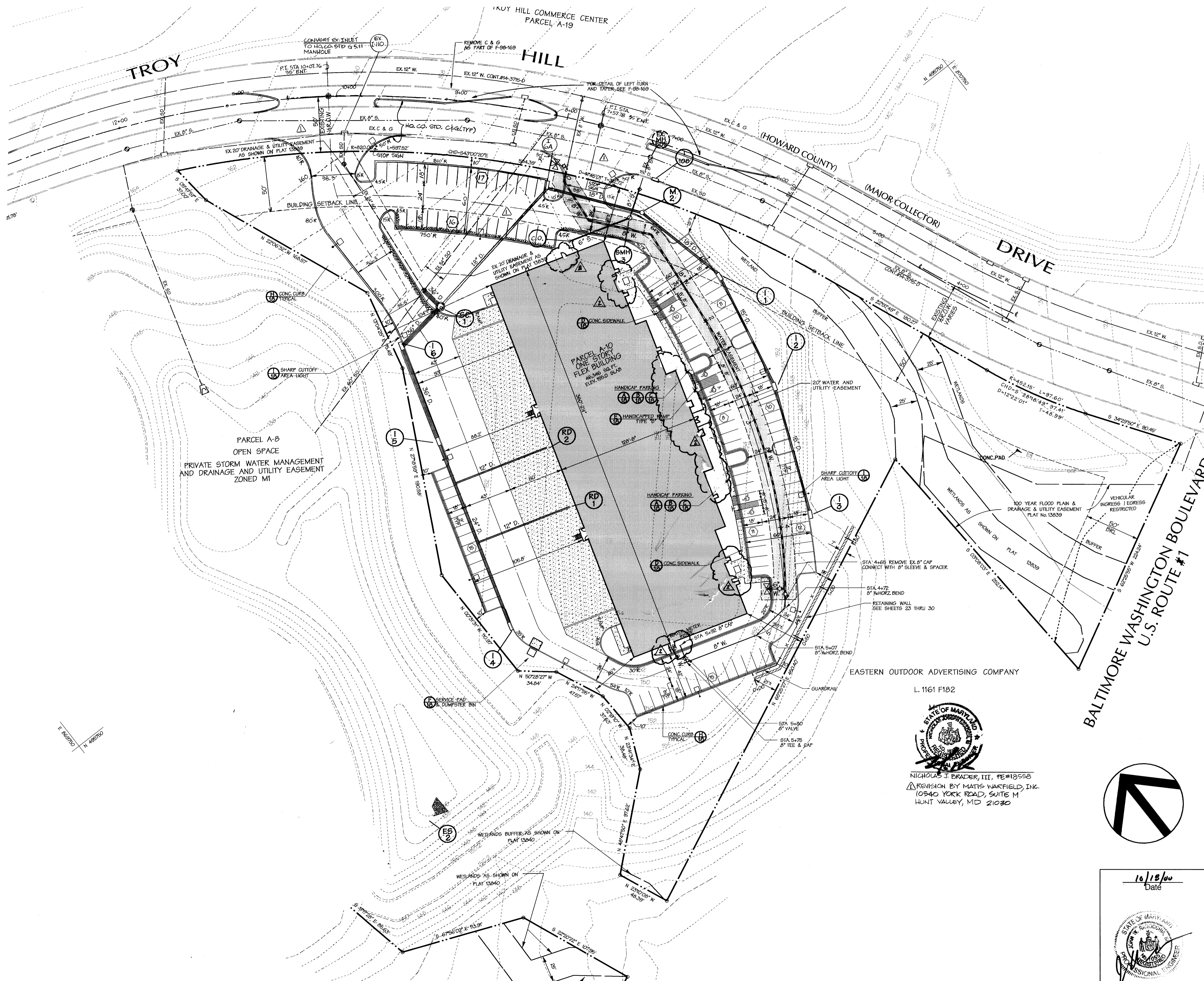
Drn. By: ADL	Scale: 1"=200'	Proj. No. 99058.A
Des. By: ADL	Date: 9-20-00	
Chk. By:	Approved:	1 of 30

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.

License No.: 26569 Expiration Date: 7-18-19

DATE	NO.	REVISION DESCRIPTION
01-29-21	1	ADD TWO DUAL ELECTRIC CHARGING STATIONS TO LOT A-11, PURPOSE STATEMENT, ADVISORY NOTE, SHEET INDEX & CALLOUTS.
02-17-19	2	REMOVE & REPLACE EXIST'G TRAFFIC BARRIERS
		FOR REVISION 3





LEGEND

EX. CURB & GUTTER	---
EX. MAJOR CONTOURS	--- 400 ---
EX. MINOR CONTOURS	--- 402 ---
PROP. STORM DRAIN	15' RCCP CL. IV
PROP. SEWER	8" S.
PROP. WATER	8" W.
EX. STORM DRAIN	EX. 21" RCP
EX. SEWER	EX. 8" S.
EX. WATER	EX. 8" W.
PARKING COUNT LABELS	(10)
CONCRETE SIDEWALKS	[Symbol]
STANDARD CURB	[Symbol]
REVERSE CURB	[Symbol]
HANDICAP SYMBOLS	[Symbol]
HANDICAP RAMPS	[Symbol]
MANHOLE & INLET LABELS	(M 4)
EX. MANHOLE & INLET LABELS	(EX. 1 5)
DETAIL CALL OUTS	(16)
PROP. LIGHT FIXTURE	[Symbol]
WETLAND BUFFER	---
STREAM BUFFER	---
100-YEAR FLOOD PLAIN	---
FENCE	---
GUARDRAIL	---

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING

John Dammen 10/21/00
 CHIEF, DEVELOPMENT ENGINEERING DIVISION, DATE

Cheryl Hamstra 11/8/00
 CHIEF, DIVISION OF LAND DEVELOPMENT, DATE

Les S. Smith 11/8/00
 REGISTERED PROFESSIONAL ENGINEER, DATE

Date	No.	Revision Description
12/22/00	1	MATS WARFIELD - CHANGED ENTRANCE LOCATIONS, CONVERTED MH-2 TO IGA, CONVERTED EX. I-110 TO MH
9/19/01	2	REVISE ENTRANCES TO A-10 BLDG AND ELIM A-12 FROM PLAN. SEE SPT 01-92 FOR REV. A-12.

Troy Hill Corporate Center
 Lots: A-10, A-11 & A-12

OWNER:
 TROY HILL BUSINESS PARK PARTNERSHIP
 CIO MANEKIN CORPORATION
 7665 COLUMBIA GATEWAY DRIVE
 COLUMBIA, MARYLAND 21046
 (410) 290-1400

DEVELOPER:
 C & S TROY HILL LLC
 925 FELL STREET
 BALTIMORE, MARYLAND 21231
 (410) 534-6350

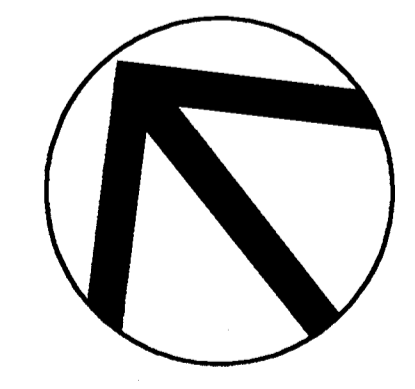
DMW
 Dan McCune-Walker, Inc.
 300 East Pennsylvania Avenue
 Towson, Maryland 21286
 (410) 296-3333
 Fax 296-4705

A Team of Land Planners,
 Landscape Architects,
 Civil Engineers, Surveyors &
 Environmental Professionals

SUBDIVISION NAME TROY HILL CORPORATE CENTER	SECTION/AREA 1	LOT/FACILITY A-10, A-11, A-12
PLAT OR L.P. BLOCK# 1457-MSB	ZONE M-1	ELECT. DISTRICT 37
WATER CODE A03	SEWER CODE 21B2200	CENSUS TRACT 6011.02
TITLE		
SITE PLAN		
LOT A-10		
Drn. By: ADL	Scale: 1" = 40'	Proj. No. 99058.A
Des. By: LL	Date: 10-06-00	
Chk. By:	Approved:	2 of 30

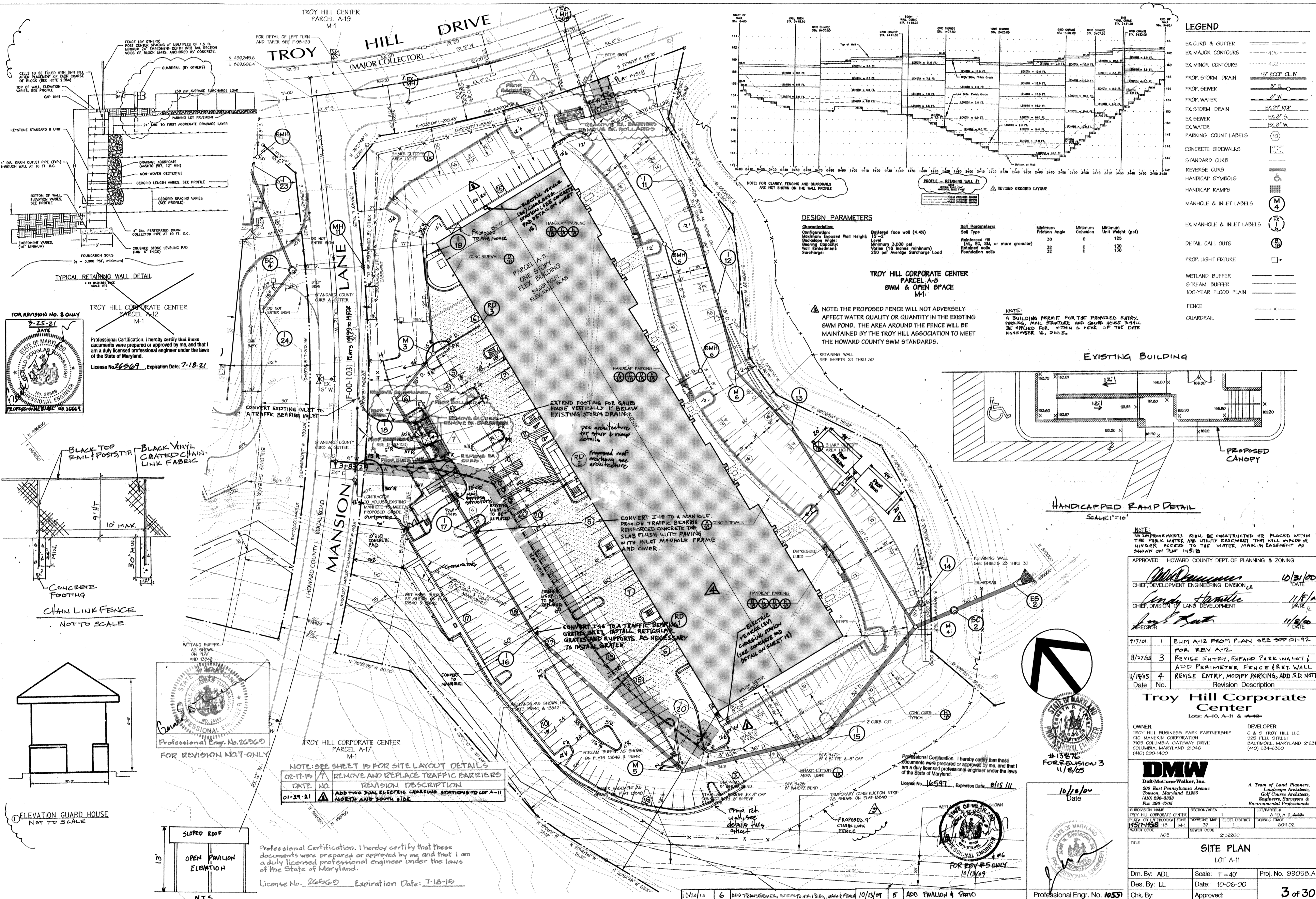
EASTERN OUTDOOR ADVERTISING COMPANY
 L. 1161 F182

NICHOLAS J. DRAPER, III, PE#18558
 REVISION BY MATIS WARFIELD, INC.
 10540 YORK ROAD, SUITE M
 HUNT VALLEY, MD 21030



10/18/00
 Date

Professional Engr. No. 10531



LEGEND

- EX CURB & GUTTER
- EX MAJOR CONTOURS
- EX MINOR CONTOURS
- PROP. STORM DRAIN
- PROP. SEWER
- PROP. WATER
- EX STORM DRAIN
- EX SEWER
- EX WATER
- PARKING COUNT LABELS
- CONCRETE SIDEWALKS
- STANDARD CURB
- REVERSE CURB
- HANDICAP SYMBOLS
- HANDICAP RAMPS
- MANHOLE & INLET LABELS
- EX MANHOLE & INLET LABELS
- DETAIL CALL OUTS
- PROP. LIGHT FIXTURE
- WETLAND BUFFER
- STREAM BUFFER
- 100-YEAR FLOOD PLAN
- FENCE
- GUARDRAIL

DESIGN PARAMETERS

Characteristics:
 Configuration: Batter face wall (4.4%)
 Maximum Exposed Wall Height: 10'-2"
 Backslope Angle: Minimum 3,000 pcf
 Bearing Capacity: Minimum 1.6 inches minimum
 Surcharge: 250 pcf Average Surcharge Load

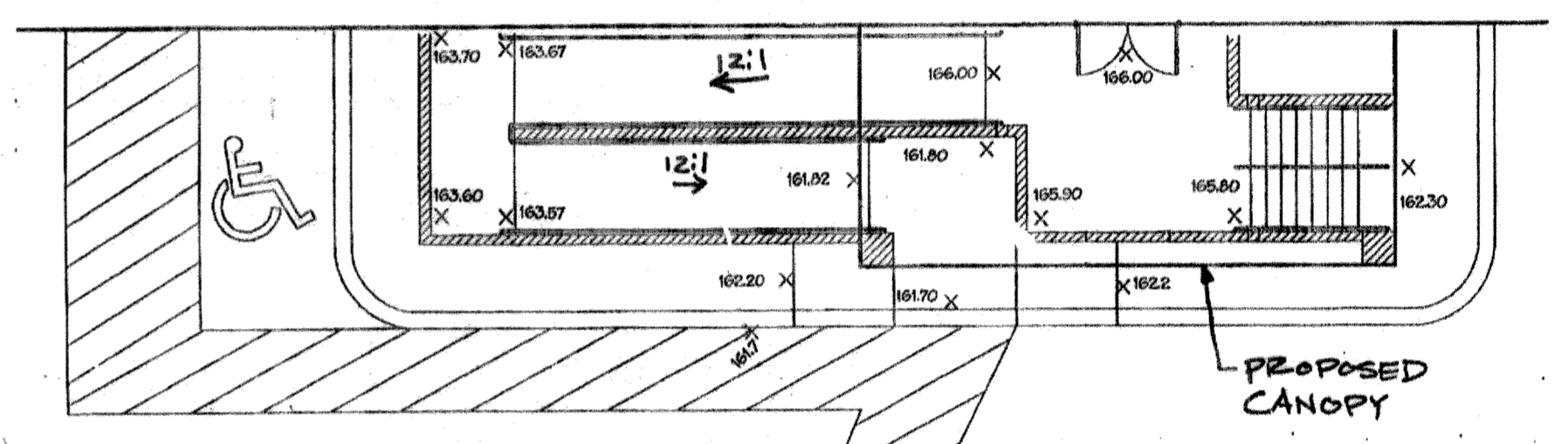
Soil Parameters:	Minimum Friction Angle	Minimum Cohesion	Minimum Unit Weight (pcf)
Soil Type	30	0	125
Reinforced fill (1/4", 5/8", 1", or more granular)	32	0	130
Retained soils	32	0	130
Foundation soils			

**TROY HILL CORPORATE CENTER
 PARCEL A-11
 SWM & OPEN SPACE
 M-1**

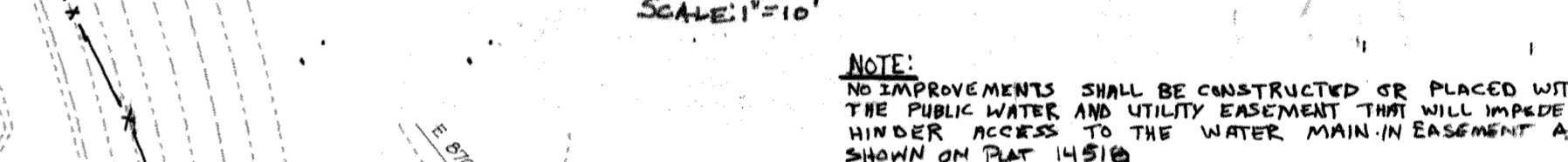
NOTE: THE PROPOSED FENCE WILL NOT ADVERSELY AFFECT WATER QUALITY OR QUANTITY IN THE EXISTING SWM POND. THE AREA AROUND THE FENCE WILL BE MAINTAINED BY THE TROY HILL ASSOCIATION TO MEET THE HOWARD COUNTY SWM STANDARDS.

NOTE: A BUILDING PERMIT FOR THE PROPOSED ENTRY, PARKING, MAIL STRUCTURE AND GUARD HOUSE SHALL BE APPLIED FOR WITHIN 6 MONTHS OF THE DATE NOVEMBER 16, 2005.

EXISTING BUILDING



HANDICAPPED RAMP DETAIL



NOTE: NO IMPROVEMENTS SHALL BE CONSTRUCTED OR PLACED WITHIN THE PUBLIC WATER AND UTILITY EASEMENT THAT WILL IMPEDOR HINDER ACCESS TO THE WATER MAIN IN EASEMENT AS SHOWN ON PLAN 14518

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING

Chief, Development Engineering Division	10/31/00
Chief, Division of Land Development	11/8/00
Director	11/9/00

Date	No.	Revision Description
9/7/01	1	ELIM A-12 FROM PLAN SEE SPP01-92
8/27/05	3	FOR REV A-12 REVISE ENTRY, EXPAND PARKING LOT & ADD PERIMETER FENCE & RET. WALL
11/14/05	4	REVISE ENTRY, MODIFY PARKING, ADD SD NOTES

Troy Hill Corporate Center
 Lots: A-10, A-11 & A-12

OWNER: TROY HILL BUSINESS PARK PARTNERSHIP
 C/O MANEIN CORPORATION
 7165 COLUMBIA GATEWAY DRIVE
 COLUMBIA, MARYLAND 21046
 (410) 280-1400

DEVELOPER: C & S TROY HILL LLC
 925 FELL STREET
 BALTIMORE, MARYLAND 21231
 (410) 534-6350

DMW
 Daft-McCune-Walker, Inc.
 200 East Pennsylvania Avenue
 Towson, Maryland 21286
 (410) 296-3333
 Fax 296-4705

A Team of Land Planners, Landscape Architects, Golf Course Architects, Engineers, Surveyors & Environmental Professionals

Subdivision Name	SECTION/AREA	LOT/PARCEL
TROY HILL CORPORATE CENTER	37	A-10, A-11, A-12
TRAY 001 RECORD ZONE 14517-11518	1	
WATER CODE	SEWER CODE	GENERIC TRUST
A03	2152200	601.02

SITE PLAN
 LOT A-11

Drn. By: ADL Scale: 1"=40'
 Des. By: LL Date: 10-06-00
 Chk. By: Approved: Proj. No. 99058.A

3 of 30

NOTE: SEE SHEET 13 FOR SITE LAYOUT DETAILS

DATE	NO.	REVISION DESCRIPTION
02-17-15	1	REMOVE AND REPLACE TRAFFIC BARRIERS
01-21-21	2	ADD TWO PAUL ELECTRIC CHARGING STATIONS TO LOT A-11 NORTH AND SOUTH SIDE

Professional Certification. I hereby certify that these documents were prepared or approved by me and that I am a duly licensed professional engineer under the laws of the State of Maryland.
 License No. 26569 Expiration Date: 7-18-15

FOR REVISION NO. 3 ONLY
 2-25-21
 STATE OF MARYLAND
 DEPARTMENT OF GENERAL SERVICES
 DIVISION OF PROFESSIONAL REGULATION
 PROFESSIONAL ENGINEER
 No. 26569
 PROFESSIONAL SEAL NO. 26569

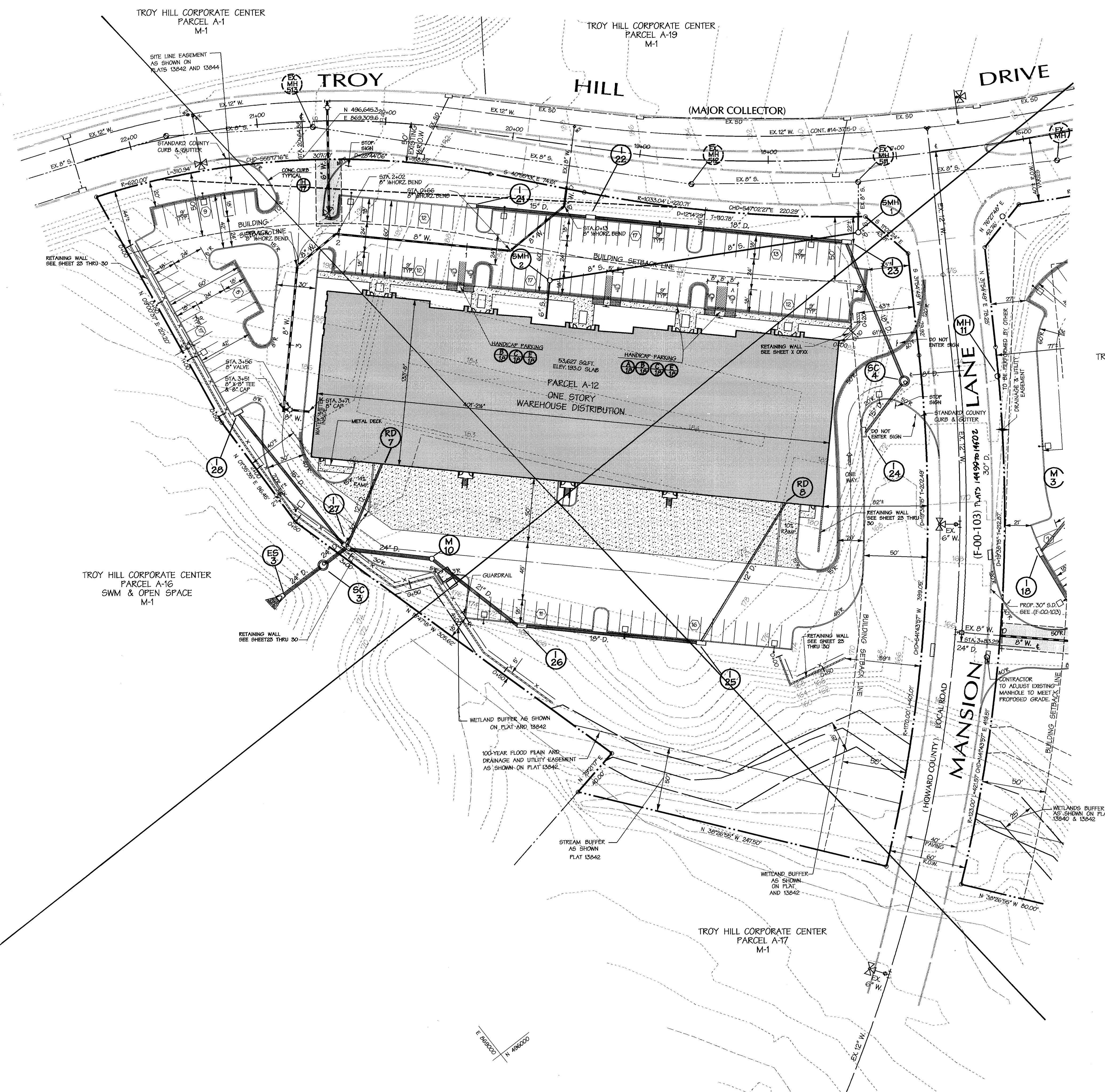
Professional Eng. No. 26569
 FOR REVISION NO. 7 ONLY

Professional Engineer
 FOR REV #5 ONLY
 10/13/09

Professional Engr. No. 10551
 Date: 10/10/00

LEGEND

- EX. CURB & GUTTER
- EX. MAJOR CONTOURS
- EX. MINOR CONTOURS
- PROP. STORM DRAIN
- PROP. WATER
- EX. STORM DRAIN
- EX. SEWER
- EX. WATER
- PARKING COUNT LABELS
- CONCRETE SIDEWALKS
- STANDARD CURB
- REVERSE CURB
- HANDICAP SYMBOLS
- HANDICAP RAMP
- MANHOLE & INLET LABELS
- EX. MANHOLE & INLET LABELS
- DETAIL CALL OUTS
- PROP. LIGHT FIXTURE
- WETLAND BUFFER
- STREAM BUFFER
- 100-YEAR FLOOD PLAIN
- FENCE
- GUARDRAIL



TROY HILL CORPORATE CENTER
PARCEL A-11
M-1

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING
Adrian P. ... 10/31/00
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE
... 11/8/00
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE
... 11/8/00
 DIRECTOR DATE

9/01/00	1	ELIM A-12 FROM PLAN. SEE SPP 01-92 FOR REVISED A-12
---------	---	---

Troy Hill Corporate Center
 Lots: A-10, A-11 & A-12

OWNER:
 TROY HILL BUSINESS PARK PARTNERSHIP
 610 MANSION CORPORATION
 7165 COLUMBIA GATEWAY DRIVE
 COLUMBIA, MARYLAND 21046
 (410) 290-1400

DEVELOPER:
 C & S TROY HILL LLC
 925 FELL STREET
 BALTIMORE, MARYLAND 21231
 (410) 534-6350

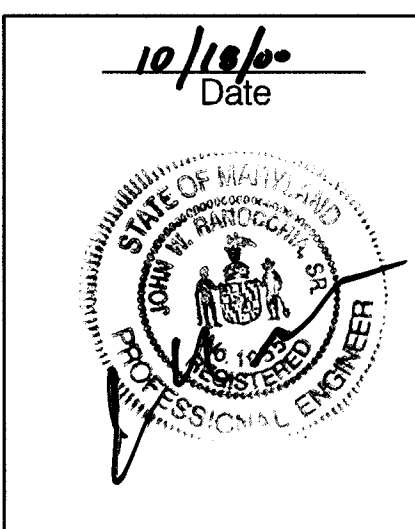
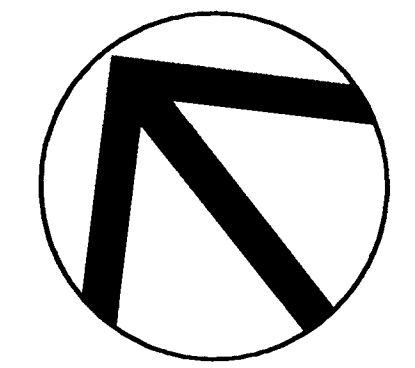
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A Team of Land Planners,
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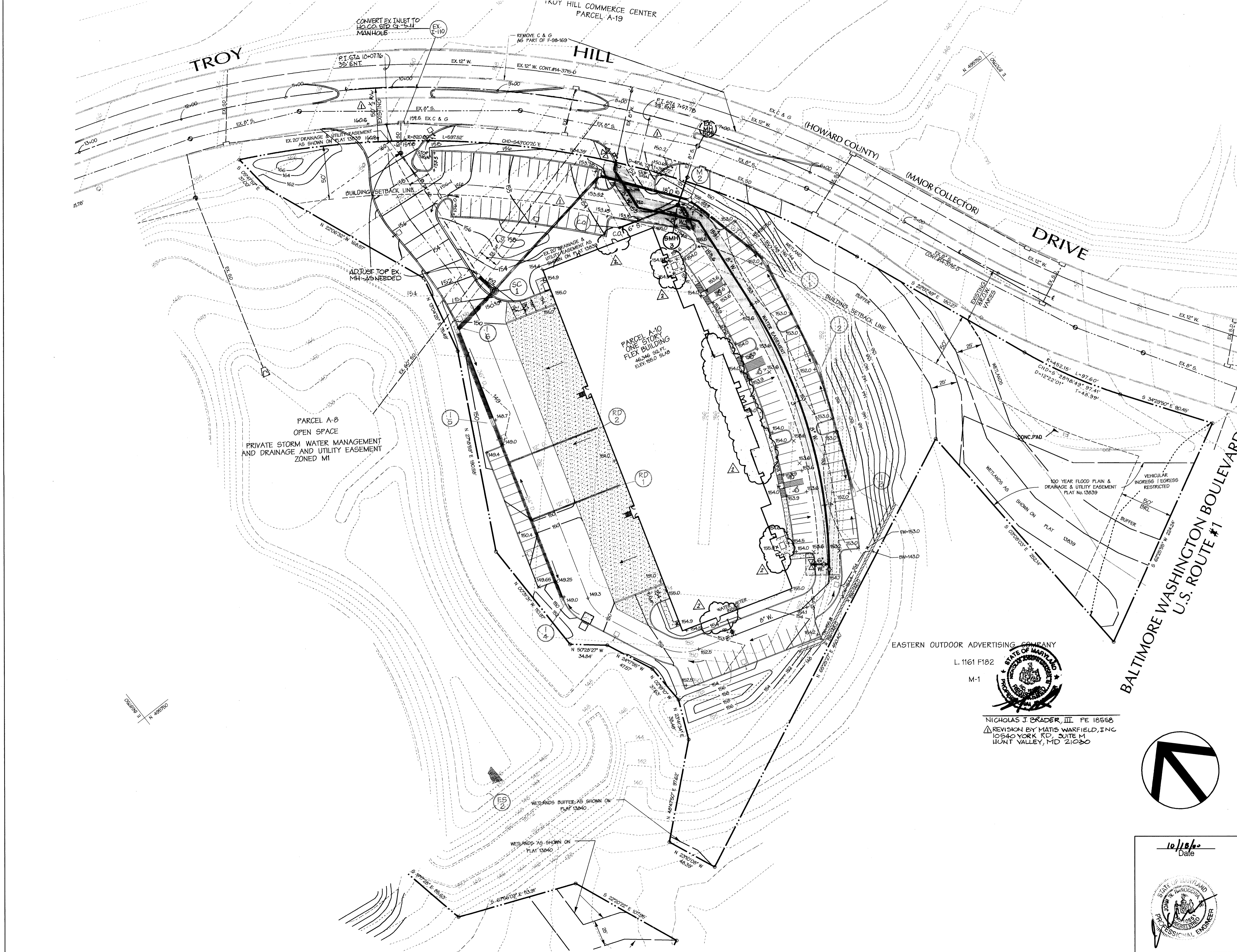
SUBDIVISION NAME	SECTION / AREA	LOT / PARCEL
TROY HILL CORPORATE CENTER	1	A-10, A-11, A-12
PLAT / OR L.P. / BLOCK / ZONE	TAX / ZONE / MAP	ELECT. DISTRICT
457-458 1B M-1	37	1
WATER CODE	SEWER CODE	CENSUS TRACT
A03	2152200	601102

TITLE
SITE PLAN
 LOT A-12

Drn. By: ADL Scale: 1" = 40' Proj. No. 99058.A
 Des. By: LL Date: 10-06-00
 Chk. By: Approved: 4 of 30



Professional Engr. No. 14551



LEGEND

- EX CURB & GUTTER
- EX MAJOR CONTOURS
- EX MINOR CONTOURS
- PROP. STORM DRAIN
- PROP. SEWER
- PROP. WATER
- EX STORM DRAIN
- EX SEWER
- EX WATER
- PARKING COUNT LABELS
- CONCRETE SIDEWALKS
- STANDARD CURB
- REVERSE CURB
- HANDICAP SYMBOLS
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- MANHOLE & INLET LABELS
- EX MANHOLE & INLET LABELS
- DETAIL CALL OUTS
- PROP. LIGHT FIXTURE
- WETLAND BUFFER
- STREAM BUFFER
- 100-YEAR FLOOD PLAIN
- FENCE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING

[Signature] 10/31/00
CHIEF, DEVELOPMENT ENGINEERING DIVISION & DATE

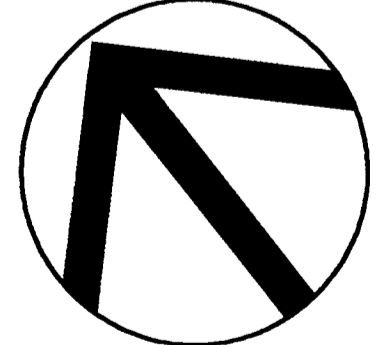
[Signature] 11/15/00
CHIEF, DIVISION OF LAND DEVELOPMENT & DATE

[Signature] 11/8/00
DIRECTOR & DATE

12/22/00	1	PLATT'S WARFIELD - CHANGED ENTRANCE LOCATION
9/07/01	2	CONVERTED 2ND TO 1ST, CONVERTED EX 11 TO 10.22
		ELIM A-12 FROM PLAN. SEE SPP 01-
		92 FOR REVISED A-12 AND REV.
		ENT. TO BLDG. A-10.

EASTERN OUTDOOR ADVERTISING COMPANY
L. 1161 F182
M-1

STATE OF MARYLAND
NICHOLAS J. BRADER, III PE 18558
REVISION BY MATIS WARFIELD, INC.
10540 YORK RD., SUITE M
HUNT VALLEY, MD 21030



10/18/00
Date

STATE OF MARYLAND
NICHOLAS J. BRADER, III
PROFESSIONAL ENGINEER

Troy Hill Corporate Center
Lots: A-10, A-11 & A-12

OWNER: TROY HILL BUSINESS PARK PARTNERSHIP
C/O MANEON CORPORATION
7165 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046
(410) 230-1400

DEVELOPER: C & S TROY HILL LLC
305 FELL STREET
BALTIMORE, MARYLAND 21231
(410) 534-6260

DMW
Doherty-McCune-Walker, Inc.
200 East Pennsylvania Avenue
Towson, Maryland 21286
(410) 296-3333
Fax: 296-4705

A Team of Land Planners,
Landscape Architects,
Golf Course Architects,
Engineers, Surveyors &
Environmental Professionals

SUBDIVISION NAME	SECTION/AREA	LOT/PARCEL#
TROY HILL CORPORATE CENTER	1	A-10, A-11, A-12
TROY HILL CORPORATE CENTER	TAX/ZONE MAP	37
157-145A	12 M-1	1
WATER CODE	SEWER CODE	CENSUS TRACT
AO3	2152200	6011.02

TITLE: **GRADING PLAN**
LOT A-10

Dwn. By: ADL	Scale: 1" = 40'	Proj. No. 99058.A
Des. By: DJA	Date: 9-20-00	
Chk. By:	Approved:	5 of 30

HOWARD COUNTY STANDARD RETAINING WALL NOTES

- A. "Retaining walls shall only be constructed under the observation of a Registered Professional Engineer and a (NICET, WACEL or equivalent) certified soils technician."
- B. "The required bearing pressure beneath the footing of the wall shall be verified in the field by a certified soils technician. Testing documentation must be provided to the Howard County Inspector prior to the start of construction. The required test procedure shall be the Dynamic Cone Penetrometer Test ASTM STP-399."
- C. "The suitability of fill material shall be confirmed by the on-site soils technician. Each eight inch lift must be compacted to a minimum of 95% Standard Proctor Density and the testing report shall be made available to the Howard County Inspector upon completion of construction."
- D. "For 'CRITICAL' walls, one soil boring is required every 100 feet along the length of the wall, copies of the boring reports shall be provided to the Howard County Inspector prior to the start of construction."
- E. All other miscellaneous information required for the construction of the retaining wall shall be included somewhere on the construction drawings. Items may include: material specifications, recommendations from the manufacturer of block wall systems, notes from the design engineer, specific instructions for non-typical designs, etc.
- F. Each design package shall include the designer's seal and signature on the cover page along with the name, address, and telephone number of the consulting firm he represents. Also provide the name, address, and telephone number of the owner/developer.

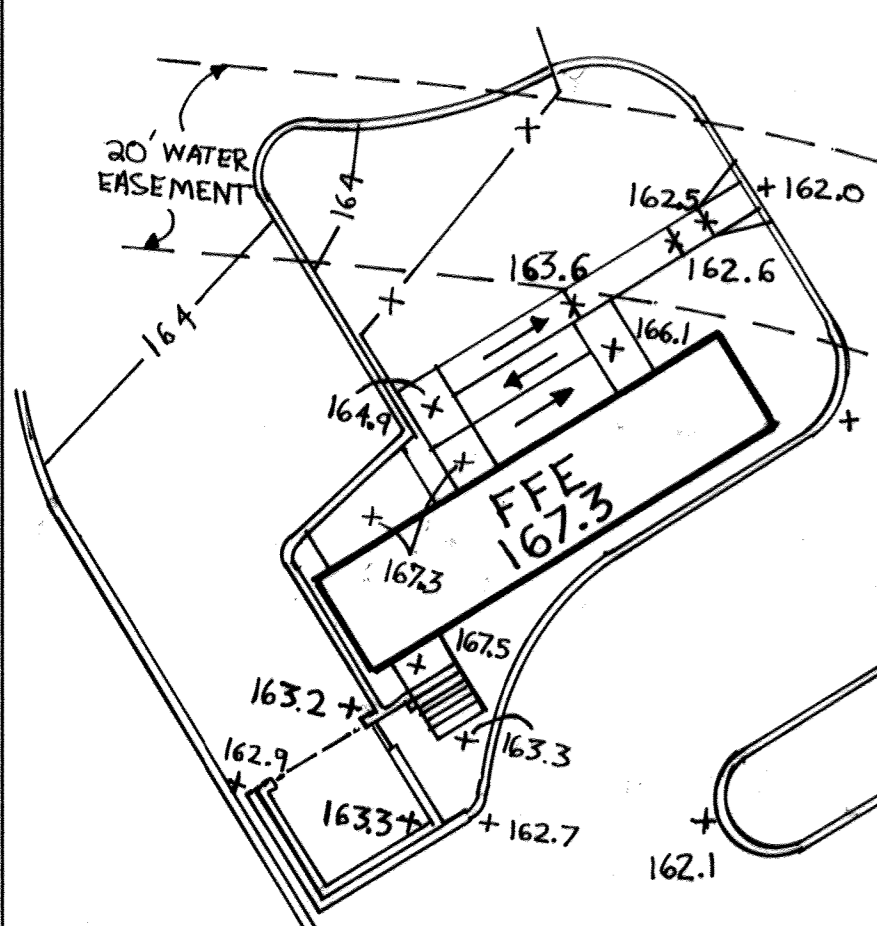
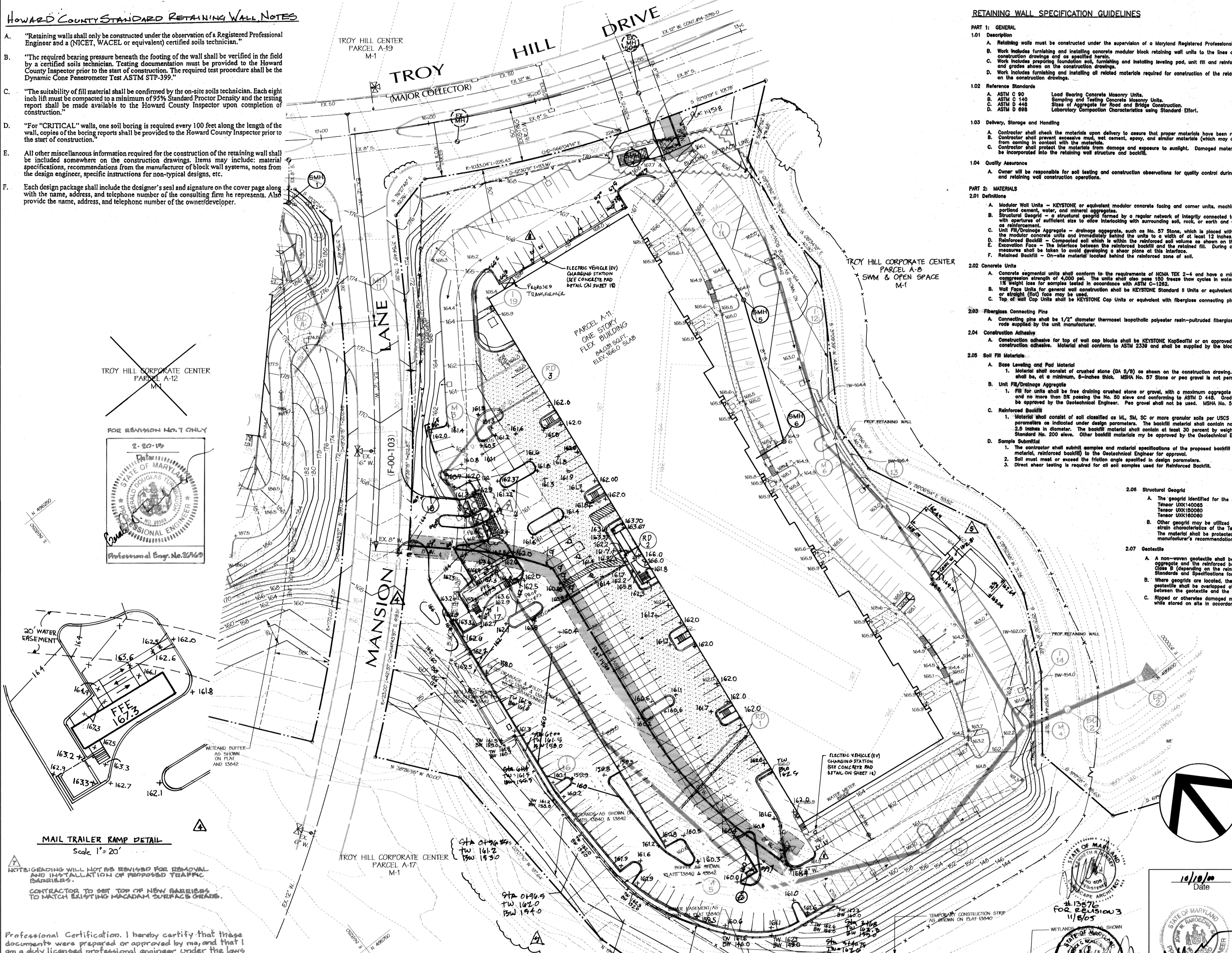
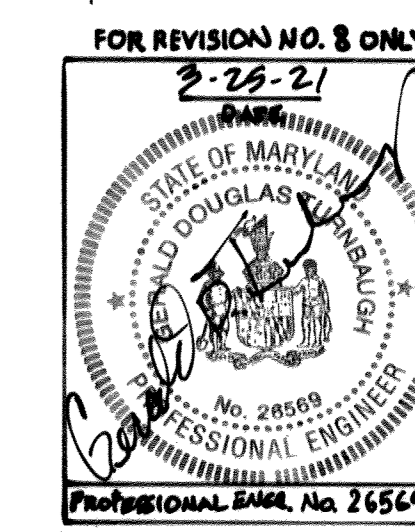
RETAINING WALL SPECIFICATION GUIDELINES

- PART 1: GENERAL**
- 1.01 Description
- A. Retaining walls must be constructed under the supervision of a Maryland Registered Professional Engineer.
 - B. Work includes furnishing and installing concrete modular block retaining wall units to the lines and grades shown on the construction drawings and as specified herein.
 - C. Work includes preparing foundation soil, furnishing and installing leveling pad, unit fill and reinforced backfill to the lines and grades shown on the construction drawings.
 - D. Work includes furnishing and installing all related materials required for construction of the retaining wall as shown on the construction drawings.
- 1.02 Reference Standards
- A. ASTM C 90 Load Bearing Concrete Masonry Units.
 - B. ASTM C 140 Sampling and Testing Concrete Masonry Units.
 - C. ASTM D 448 Sizes of Aggregate for Road and Bridge Construction.
 - D. ASTM D 698 Laboratory Compaction Characteristics using Standard Effort.
- 1.03 Delivery, Storage and Handling
- A. Contractor shall check the materials upon delivery to assure that proper materials have been received.
 - B. Contractor shall prevent excessive mud, wet cement, epoxy, and similar materials (which may offend themselves) from coming in contact with the materials to be retained.
 - C. Contractor shall protect the materials from damage and exposure to sunlight. Damaged materials shall not be incorporated into the retaining wall structure and backfill.
- 1.04 Quality Assurance
- A. Owner will be responsible for soil testing and construction observations for quality control during earthwork and retaining wall construction operations.
- PART 2: MATERIALS**
- 2.01 Definitions
- A. Modular Wall Units - KEYSTONE or equivalent modular concrete facing and corner units, machine made from portland cement, water, and mineral aggregates.
 - B. Structural Geogrid - a structural geogrid formed by a regular network of inelastic connected tensile elements with apertures of sufficient size to allow interlocking with surrounding soil, rock, or earth and function primarily as reinforcement.
 - C. Unit Fill/Drainage Aggregate - drainage aggregate, such as No. 57 Stone, which is placed within the cells of the modular concrete units and immediately behind the units to a width of at least 12 inches.
 - D. Reinforced Backfill - Composed soil which is within the reinforced soil volume as shown on the plans.
 - E. Excavation Face - The interface between the reinforced backfill and the retained fill. During construction, measures shall be taken to avoid developing a shear plane at this interface.
 - F. Retained Backfill - On-site material located behind the reinforced zone of soil.
- 2.02 Concrete Units
- A. Concrete segmental units shall conform to the requirements of NSCA TEK 2-4 and have a minimum 28-day compression strength of 4,000 psi. The units shall also pass 150 freeze thaw cycles in water with less than 1% weight loss for samples tested in accordance with ASTM C-1282.
 - B. Wall Face Units for general wall construction shall be KEYSTONE Standard II Units or equivalent. Sculptured face or straight (flat) face may be used.
 - C. Top of wall Cop Units shall be KEYSTONE Cop Units or equivalent with fiberglass connecting pins.
- 2.03 Fiberglass Connecting Pins
- A. Connecting pins shall be 1/2" diameter thermoset isophthalic polyester resin-pultruded fiberglass reinforcement rods supplied by the unit manufacturer.
- 2.04 Construction Adhesive
- A. Construction adhesive for top of wall cop blocks shall be KEYSTONE KapSealTM or an approved equivalent construction adhesive. Material shall conform to ASTM 2330 and shall be supplied by the block unit supplier.
- 2.05 Soil Fill Materials
- A. Base Leveling and Pad Material
 - 1. Material shall consist of crushed stone (GA S/D) as shown on the construction drawing. The leveling pad shall be, at a minimum, 6-inches thick. MSMA No. 57 Stone or pea gravel is not permitted.
 - B. Unit Fill/Drainage Aggregate
 - 1. Fill for units shall be free draining crushed stone or gravel, with a maximum aggregate size of 1 1/2" to 3/4" and no more than 5% passing the No. 50 sieve and conforming to ASTM D 448. Gradation of the unit fill shall be approved by the Geotechnical Engineer. Pea gravel shall not be used. MSMA No. 57 stone may be used.
 - C. Reinforced Backfill
 - 1. Material shall consist of soil classified as ML, SM, SC or more granular soils per USCS with minimum soil parameters as indicated under design parameters. The backfill material shall contain no particles greater than 2.5 inches in diameter. The backfill material shall contain at least 30 percent by weight retained on the US Standard No. 200 sieve. Other backfill materials may be approved by the Geotechnical Engineer.
 - D. Sample Submittal
 - 1. The contractor shall submit samples and material specifications of the proposed backfill soils (unit fill, pad material, reinforced backfill) to the Geotechnical Engineer for approval.
 - 2. Soil must meet or exceed the friction angle specified in design parameters.
 - 3. Direct shear testing is required for all soil samples used for Reinforced Backfill.
- 2.06 Structural Geogrid
- A. The geogrid identified for the retaining wall consists of the following:
 - Tensar UXK140065
 - Tensar UXK150060
 - Tensar UXK160060
 - B. Other geogrid may be utilized provided the materials meet or exceed the minimum strength with similar or better strain characteristics of the Tensar geogrid and are approved by the Geotechnical Engineer for use with soil backfill. The material shall be protected from sunlight and weather while stored on site in accordance with the manufacturer's recommendation.
- 2.07 Geotextile
- A. A non-woven geotextile shall be utilized as shown on the plans to provide a filter between the unit fill/drainage aggregate and the reinforced backfill. The geotextile shall conform to the criteria for a Geotextile Class A or Class B (depending on the reinforced backfill material used) according to the Maryland Department of Transportation Standards and Specifications for Construction and Materials, Section 521.02.
 - B. Where geogrids are located, the geotextile shall be placed as illustrated on the plans. At junctions and ends, the geotextile shall be overlapped at least 12 inches. The geotextile shall be placed so that intimate contact is made between the geotextile and the backfill material.
 - C. Ripped or otherwise damaged material shall not be used. The material shall be protected from sunlight and weather while stored on site in accordance with the manufacturer's recommendation.

LEGEND

- EX CURB & GUTTER
- EX MAJOR CONTOURS
- EX MINOR CONTOURS
- PROP. STORM DRAIN
- PROP. SEWER
- PROP. WATER
- EX STORM DRAIN
- EX SEWER
- EX WATER
- PARKING COUNT LABELS
- CONCRETE SIDEWALKS
- STANDARD CURB
- REVERSE CURB
- HANDICAP SYMBOLS
- HANDICAP RAMPS
- MANHOLE & INLET LABELS
- EX MANHOLE & INLET LABELS
- DETAIL CALL OUTS
- PROP. LIGHT FIXTURE
- WETLAND BUFFER
- STREAM BUFFER
- 100-YEAR FLOOD PLAIN
- FENCE

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. 26569, Expiration Date: 7-18-21



MAIL TRAILER RAMP DETAIL
Scale 1" = 20'

NOTE: GRADING WILL NOT BE REVISED FOR REMOVAL AND INSTALLATION OF PROPOSED TRAFFIC BARRIERS.
CONTRACTOR TO SET TOP OF NEW BARRIERS TO MATCH EXISTING MACADAM SURFACE GRADE.

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. 26560, Expiration Date 7-18-15

DATE	NO.	REVISION DESCRIPTION
01-14-11	1	ADD THE DUAL ELECTRIC CHARGING STATIONS TO LOT A-11 NORTH AND SOUTH SIDE.
02-11-15	1	REMOVE AND REPLACE EXISTING TRAFFIC BARRIERS
		REVISION DESCRIPTION

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING

[Signature] 10/21/00 DATE
CHIEF DEVELOPMENT ENGINEERING DIVISION

[Signature] 11/8/00 DATE
CHIEF DIVISION OF LAND DEVELOPMENT

[Signature] 11/8/00 DATE
DIRECTOR

Date	No.	Revision Description
9/10/01	1	ELIM A12 FROM PLAN. SEE SDP 01-92
11/14/03	2	FOR REV A-12
11/14/05	4	REV. ENTRANCE & GRADING, MAIL TRAILER LOCATION & ACCESS

Troy Hill Corporate Center
Lots: A-10, A-11 & A-12

OWNER: TROY HILL BUSINESS PARK PARTNERSHIP
C/O MANEK CORPORATION
7165 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046
(410) 290-1400

DEVELOPER: C & S TROY HILL LLC
925 FELL STREET
BALTIMORE, MARYLAND 21231
(410) 534-6360

DMW
Daft-McCune-Walker, Inc.
300 East Pennsylvania Avenue
Towson, Maryland 21286
(410) 296-3333
Fax 296-4705

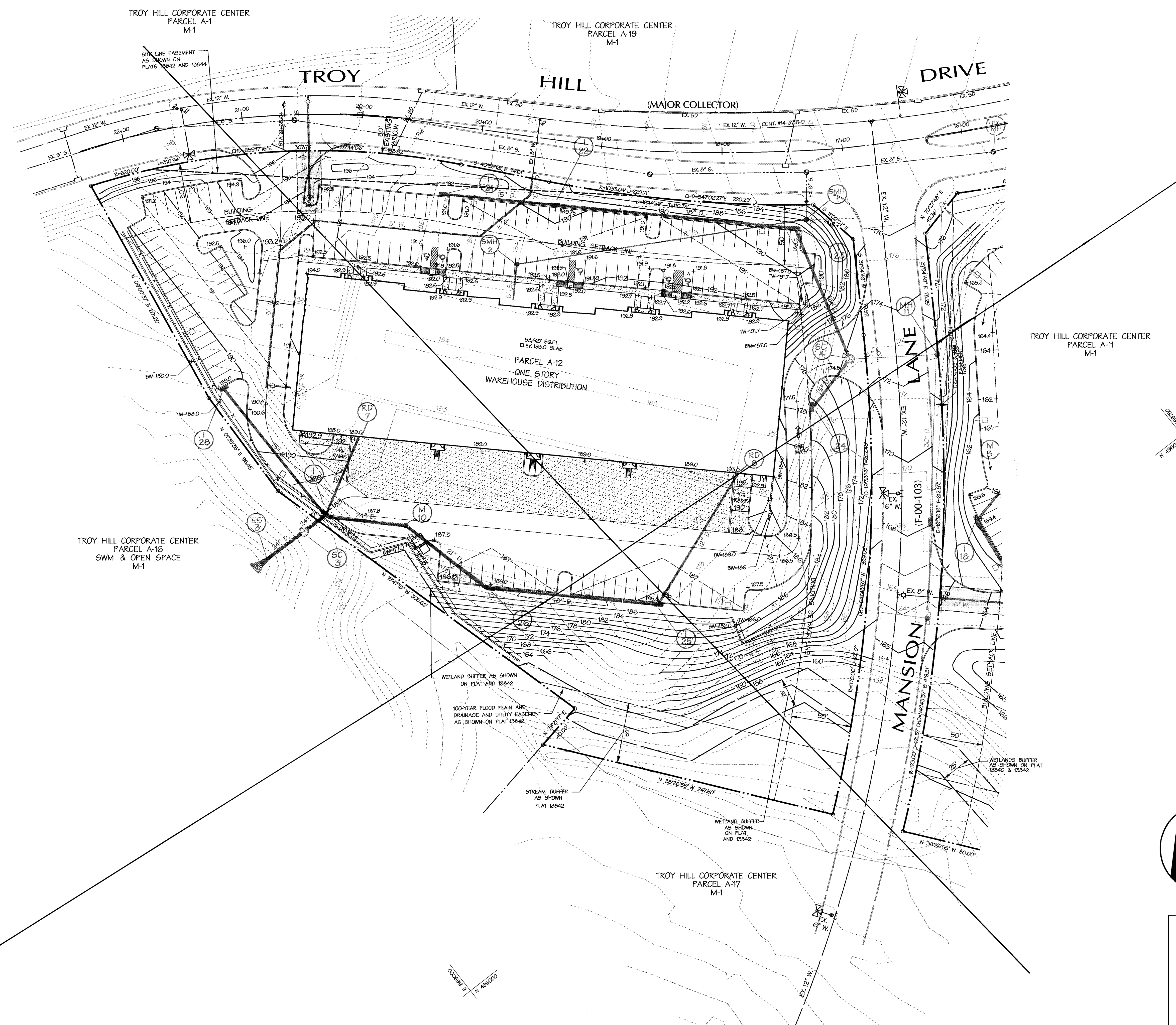
A Team of Land Planners, Landscape Architects, Golf Course Architects, Engineers, Surveyors & Environmental Professionals

10/18/00 Date

SUBDIVISION NAME	SECTION/AREA	LOT/PARCEL
TROY HILL CORPORATE CENTER		A-10, A-11, A-12
PLAT OR LTR RECORD NUMBER	TAX/ZONE MAP	ELECT DISTRICT
1517-1598	37	1
WATER CODE	SEWER CODE	CENSUS TRACT
A03	2152200	601102

TITLE: **GRADING PLAN**
LOT A-11

Drn. By: ADL Scale: 1" = 40' Proj. No. 99058-A
Des. By: DJA Date: 9-20-00
Chk. By: Approved: 6 of 30



LEGEND

- EX. CURB & GUTTER
- EX. MAJOR CONTOURS
- EX. MINOR CONTOURS
- PROP. STORM DRAIN
- PROP. SEWER
- PROP. WATER
- EX. STORM DRAIN
- EX. SEWER
- EX. WATER
- PARKING COUNT LABELS
- CONCRETE SIDEWALKS
- STANDARD CURB
- REVERSE CURB
- HANDICAP SYMBOLS
- HANDICAP RAMPS
- MANHOLE & INLET LABELS
- EX. MANHOLE & INLET LABELS
- DETAIL CALL OUTS
- PROP. LIGHT FIXTURE
- WETLAND BUFFER
- STREAM BUFFER
- 100-YEAR FLOOD PLAN
- FENCE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING

Howard D. ... 10/3/10
 CHIEF, DEVELOPMENT ENGINEERING DIVISION, CC DATE

Christa ... 11/1/10
 CHIEF, DIVISION OF LAND DEVELOPMENT, DATE

... 11/18/10
 DIRECTOR, DATE

9/07/01 1 ELIM. A-12 FROM PLAN SEE SDP 01-92
 FOR REV. A-12.

Date	No.	Revision Description

Troy Hill Corporate Center
 Lots: A-10, A-11 & A-12

OWNER:
 TROY HILL BUSINESS PARK PARTNERSHIP
 C/O MANEKIN CORPORATION
 7165 COLUMBIA GATEWAY DRIVE
 COLUMBIA, MARYLAND 21046
 (410) 290-1400

DEVELOPER:
 C & S TROY HILL LLC
 925 FELL STREET
 BALTIMORE, MARYLAND 21231
 (410) 534-6350

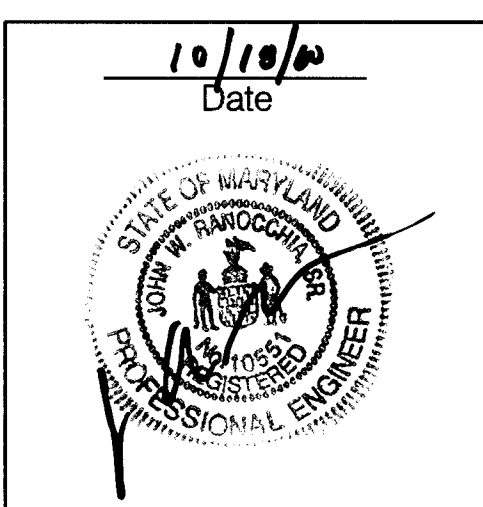
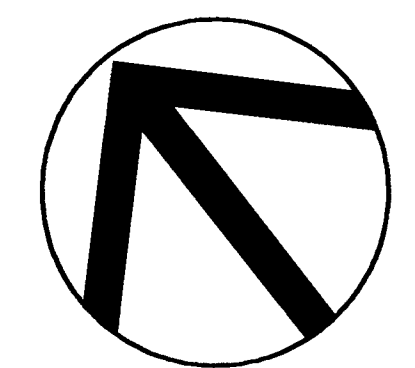
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A Team of Land Planners,
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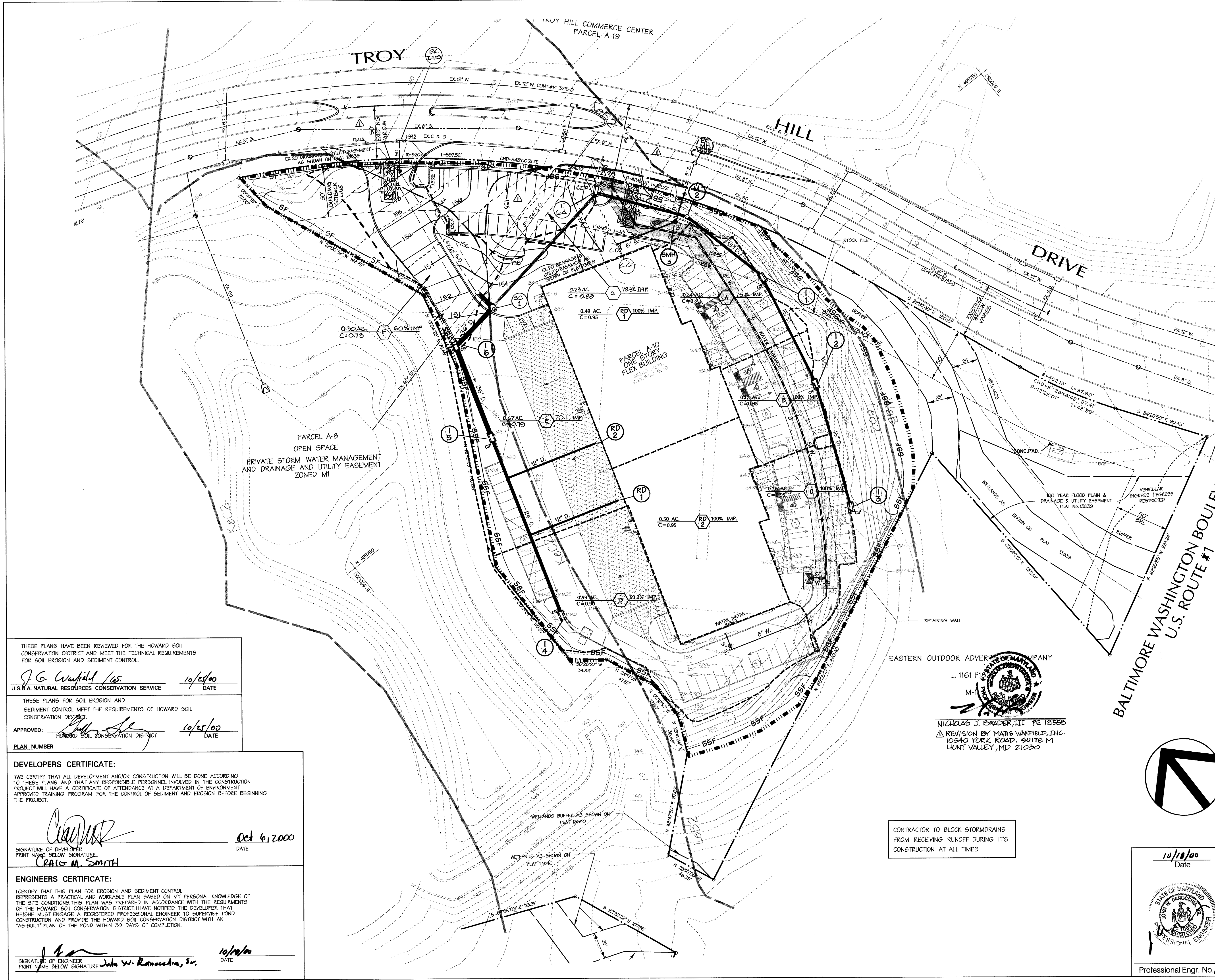
SUBMISSION NAME TROY HILL CORPORATE CENTER	SECTION/AREA 1	LOT/PARCELS A-10, A-11, A-12
PLAT OR L/P BLOCK 157-4518	TAX/ZONE MAP 37	ELECT. DISTRICT 1
WATER CODE A03	SEWER CODE 2152200	CENSUS TRACT 601102

GRADING PLAN
 -LOT A-12-

Drn. By: ADL Scale: 1" = 40' Proj. No. 99058.A
 Des. By: DJA Date: 9-20-00
 Chk. By: Approved: **7 of 30**



Professional Engr. No. 10551



LEGEND

DRAINAGE AREA LINES: - - - - - L.O.D.

LIMIT OF DISTURBANCE: ■■■■■■■■■■ L.O.D.

SUPER SILT FENCE: — SSF — SSF

SILT FENCE: — SF — SF

CURB INLET PROTECTION: CIP

DRAINAGE AREA LABELS: 0.28 AC. RD 100% IMP. C=0.86

STABILIZED CONSTRUCTION ENTRANCE: SCE

SOILS: KeB2

WETLAND BUFFER: _____

STREAM BUFFER: _____

100-YEAR FLOOD PLAIN: _____

POND#1 SUMMARY TABLE

DRAINAGE AREA: 52.3 ACRES
 WATER QUALITY PROVIDED BY STORMCEPTORS AND EXTENDED DETENTION.
 PEAK MANAGEMENT PROVIDED BY DETENTION.

STORM	2-YR	10-YR	100-YR
INFLOW (C.F.S.)	14778	25936	39126
DISCHARGE (C.F.S.)	1274	37.61	153.23
H.W. ELEV. (AC-FT.)	144.29	146.99	148.91
STORAGE PROVIDED (AC-FT.)	5.6	9.5	13.0
ALLOWABLE RELEASE RATE	66.87	164.47	N/A

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.

J.G. Washfield 10/25/00
 U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICE DATE

THESE PLANS FOR SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF HOWARD SOIL CONSERVATION DISTRICT.

APPROVED: *[Signature]* 10/25/00
 HOWARD SOIL CONSERVATION DISTRICT DATE

PLAN NUMBER

DEVELOPERS CERTIFICATE:

I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS 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.

[Signature] Oct 6, 2000
 SIGNATURE OF DEVELOPER DATE
 PRINT NAME BELOW SIGNATURE: CRAIG M. SMITH

ENGINEERS CERTIFICATE:

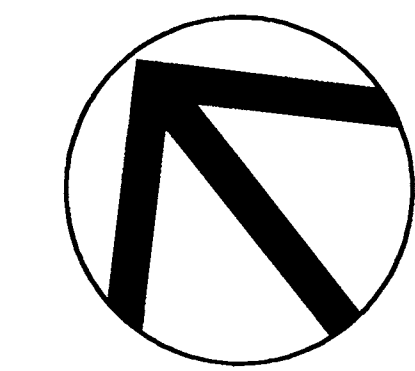
I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

[Signature] 10/16/00
 SIGNATURE OF ENGINEER DATE
 PRINT NAME BELOW SIGNATURE: John W. Ranocchia, Sr.

EASTERN OUTDOOR ADVERTISING COMPANY
 L. 1161 FID
 M-1
 NICHOLAS J. BRADER, III PE 12558
 REVISION BY MATIS WARKFIELD, INC.
 10540 YORK ROAD, SUITE M
 HUNT VALLEY, MD 21030

CONTRACTOR TO BLOCK STORMDRAINS FROM RECEIVING RUNOFF DURING IT'S CONSTRUCTION AT ALL TIMES

BALTIMORE WASHINGTON BOULEVARD
 U.S. ROUTE #1



10/19/00
 Date

Professional Engr. No. 10551

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING

[Signature] 10/25/00
 CHIEF DEVELOPMENT ENGINEERING DIVISION DATE

[Signature] 11/8/00
 CHIEF DIVISION OF LAND DEVELOPMENT DATE

[Signature] 11/8/00
 DIRECTOR DATE

Date	No.	Revision Description
12/22/00	1	MATIS WARKFIELD - CHANGED ENTRANCE LOCATIONS, SCE'S, CHANGED DRAINAGE AREAS FOR NEW CONFIGURATION.
9/17/01	2	ELIM A-12 FROM PLAN. SEE SDP 01-92 FOR REVISED A-12.

Troy Hill Corporate Center
 Lots: A-10, A-11 & A-12

OWNER: TROY HILL BUSINESS PARK PARTNERSHIP
 C & S TROY HILL LLC
 765 COLUMBIA GATEWAY DRIVE
 BALTIMORE, MARYLAND 21046
 (410) 290-1400

DEVELOPER: C & S TROY HILL LLC
 925 FELL STREET
 BALTIMORE, MARYLAND 21231
 (410) 534-6350

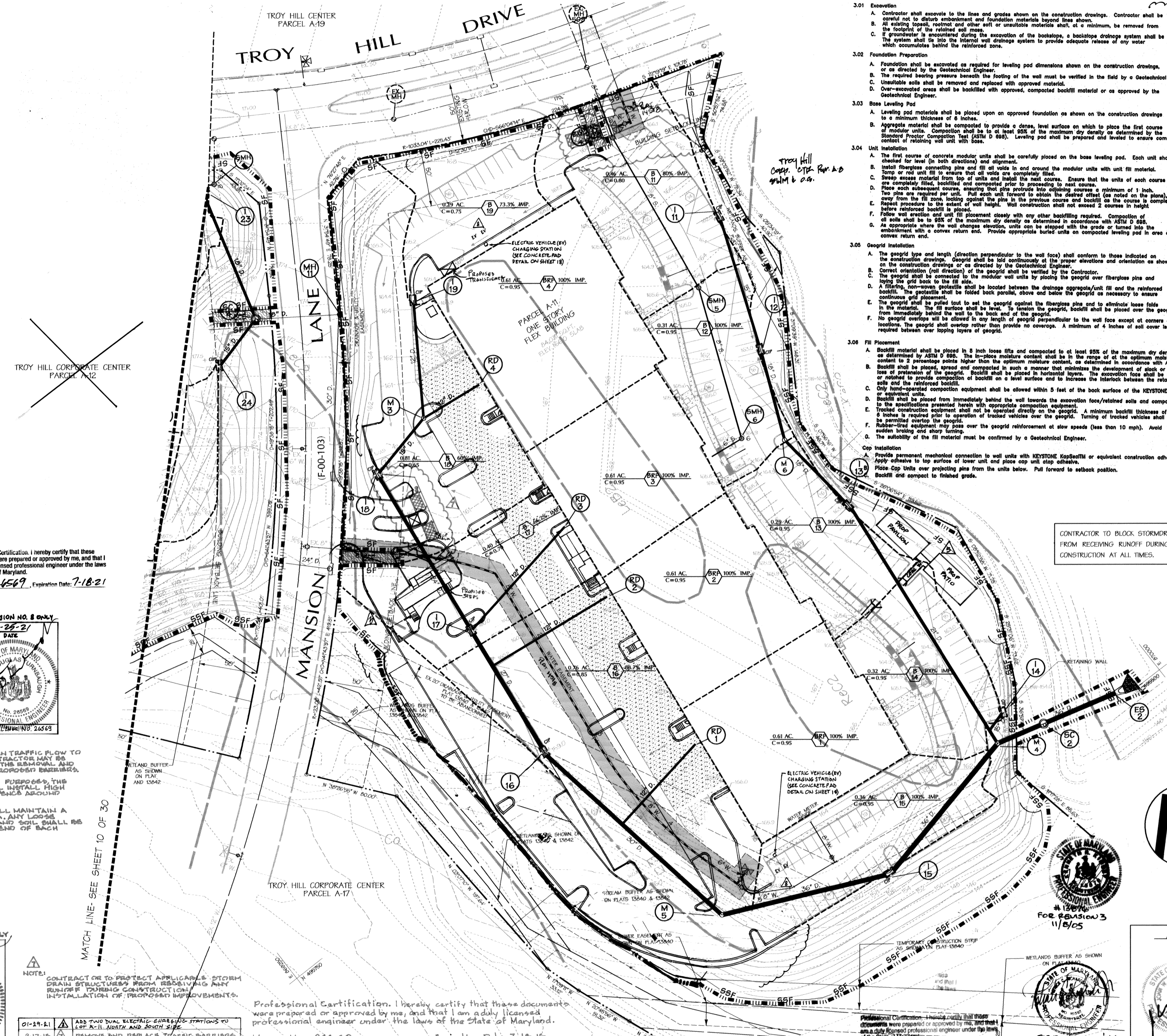
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A Team of Land Planners, Landscape Architects, Golf Course Architects, Engineers, Surveyors & Environmental Professionals

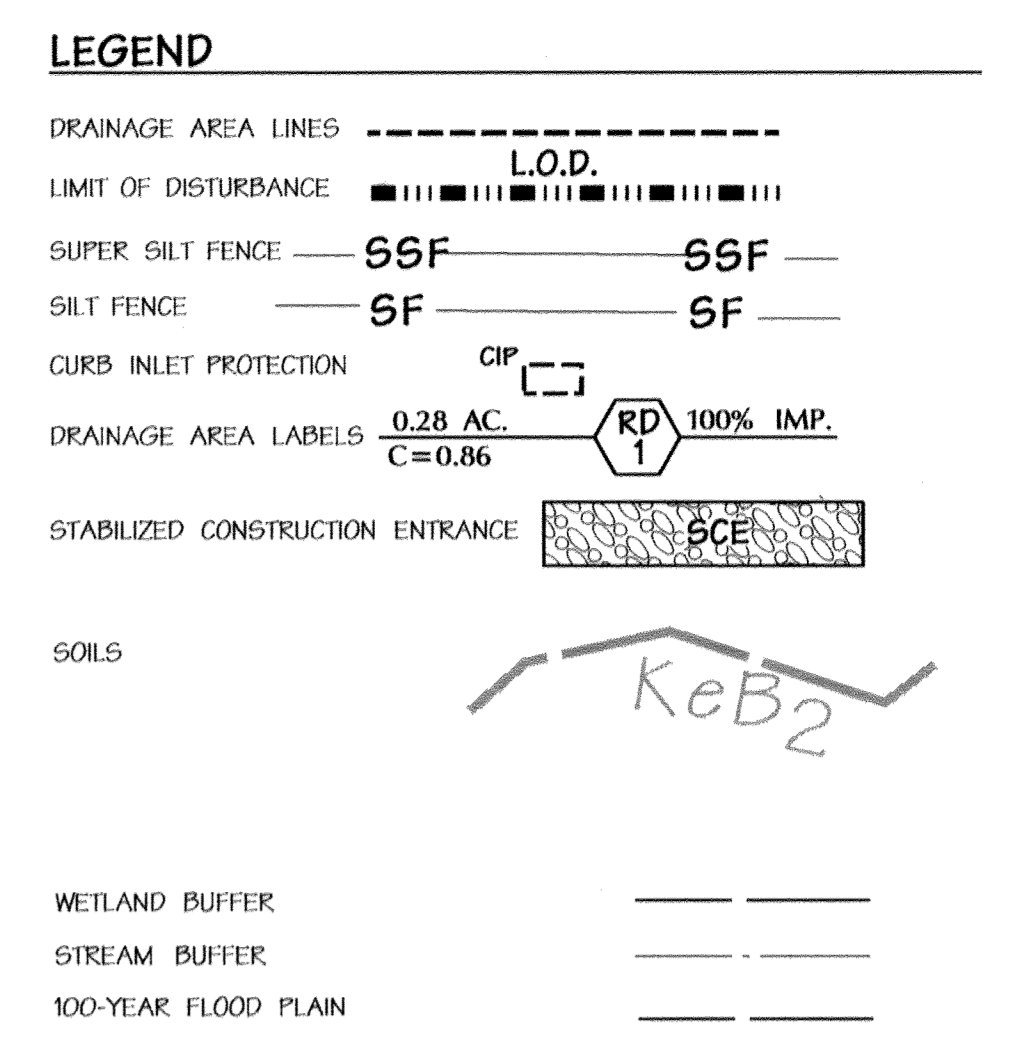
SUBDIVISION NAME	SECTION/AREA	LOT/PARCEL#
TROY HILL CORPORATE CENTER	1	A-10, A-11, A-12
PLAT OR LOT BLOCK/ZONE	TAX/ZONE MAP	ELECT. DISTRICT
1517-14518	M-1	37
WATER CODE	SEWER CODE	CENSUS TRACT
A03	2152200	6011.02

TITLE: DRAINAGE AREA MAP & SEDIMENT CONTROL PLAN
 LOT A-10

Drn. By: ADL Scale: 1" = 40' Proj. No. 99058.A
 Des. By: RBW Date: 10-06-00
 Chk. By: Approved: 8 of 30



- 3.01 Excavation**
- A. Contractor shall excavate to the lines and grades shown on the construction drawings. Contractor shall be careful not to disturb embankment and foundation materials beyond lines shown.
 - B. All existing topsoil, roommat and other soft or unsuitable materials shall, at a minimum, be removed from the footprint of the retained soil mass.
 - C. If groundwater is encountered during the excavation of the backslope, a backslope drainage system shall be utilized. The system shall be into the internal wall drainage system to provide adequate release of any water which accumulates behind the reinforced zone.
- 3.02 Foundation Preparation**
- A. Foundation shall be excavated as required for leveling pad dimensions shown on the construction drawings, or as directed by the Geotechnical Engineer.
 - B. The required bearing pressure beneath the footing of the wall must be verified in the field by a Geotechnical Engineer.
 - C. Unsuitable soils shall be removed and replaced with approved material.
 - D. Over-excavated areas shall be backfilled with approved, compacted backfill material or as approved by the Geotechnical Engineer.
- 3.03 Base Leveling Pad**
- A. Leveling pad materials shall be placed upon an approved foundation as shown on the construction drawings to a minimum thickness of 8 inches.
 - B. Aggregate material shall be compacted to provide a dense, level surface on which to place the first course of modular units. Compaction shall be to at least 95% of the maximum dry density as determined by the Standard Proctor Compaction Test (ASTM D 698). Leveling pad shall be prepared and leveled to ensure complete contact of retaining wall unit with base.
- 3.04 Unit Installation**
- A. The first course of concrete modular units shall be carefully placed on the base leveling pad. Each unit shall be checked for level (in both directions) and for alignment.
 - B. Install fiberglass connecting pins and fill all voids in and around the modular units with unit fill material. Tamp or rod unit fill to ensure that all voids are completely filled.
 - C. Sweep excess material from top of units and install the next course. Ensure that the units of each course are completely filled, backfilled and compacted prior to proceeding to next course.
 - D. Place each subsequent course, ensuring that pins protrude into adjoining courses a minimum of 1 inch. Two pins are required per unit. Pull each unit (see notes on the plans), away from the fill zone, locking against the pins in the previous course and backfill as the course is completed.
 - E. Repeat procedure to the extent of wall height. Wall construction shall not exceed 2 courses in height before reinforced backfill is placed.
 - F. Follow wall erection and unit fill placement closely with any other backfilling required. Compaction of all soils shall be to 95% of the maximum dry density as determined in accordance with ASTM D 698.
 - G. As appropriate where the wall changes elevation, units can be stepped with the grade or turned into the embankment with a convex return end. Provide appropriate buried units on compacted leveling pad in area of convex return end.
- 3.05 Geogrid Installation**
- A. The geogrid type and length (direction perpendicular to the wall face) shall conform to those indicated on the construction drawings. Geogrid shall be laid continuously at the proper elevations and orientation as shown on the construction drawings or as directed by the Geotechnical Engineer.
 - B. Correct orientation (roll direction) of the geogrid shall be verified by the Contractor.
 - C. The geogrid shall be connected to the modular wall units by placing the geogrid over fiberglass pins and laying the grid back to the fill side.
 - D. A filtering, non-woven geotextile shall be located between the drainage aggregate/unit fill and the reinforced backfill. The geotextile shall be folded back parallel, above and below the geogrid as necessary to ensure continuous grid placement.
 - E. The geogrid shall be pulled taut to set the geogrid against the fiberglass pins and to eliminate loose folds in the material. The fill surface shall be level - to tension the geogrid, backfill shall be placed over the geogrid from immediately behind the wall to the back end of the geogrid.
 - F. No geogrid overlaps will be allowed in any length of geogrid perpendicular to the wall face except at corners or angled locations. The geogrid shall overlap rather than provide no coverage. A minimum of 4 inches of soil cover is required between overlapping layers of geogrid.
- 3.06 Fill Placement**
- A. Backfill material shall be placed in 8 inch loose lifts and compacted to at least 95% of the maximum dry density as determined by ASTM D 698. The in-place moisture content shall be in the range of the optimum moisture content to 2 percentage points higher than the optimum moisture content, as determined in accordance with ASTM D 698.
 - B. Backfill shall be placed, spread and compacted in such a manner that minimizes the development of slacks or loss of pretension of the geogrid. Backfill shall be placed in horizontal layers. The excavation face shall be stepped or retained to provide compaction of backfill on a level surface and to increase the interlock between the retained soils and the reinforced backfill.
 - C. Only hand-operated compaction equipment shall be allowed within 5 feet of the back surface of the KEYSTONE or equivalent units.
 - D. Backfill shall be placed from immediately behind the wall towards the excavation face/retained soils and compacted to the specifications presented herein with appropriate compaction equipment.
 - E. Tracked construction equipment shall not be operated directly on the geogrid. A minimum backfill thickness of 6 inches is required prior to operation of tracked vehicles over the geogrid. Turning of tracked vehicles shall not be permitted over the geogrid.
 - F. Rubber-tired equipment may pass over the geogrid reinforcement at slow speeds (less than 10 mph). Avoid sudden braking and sharp turning.
 - G. The suitability of the fill material must be confirmed by a Geotechnical Engineer.
- Cop Installation**
- A. Provide permanent mechanical connection to wall units with KEYSTONE KapSealTM or equivalent construction adhesive. Apply adhesive to top surface of lower unit and place cap unit stop adhesive.
 - B. Place Cop Units over projecting pins from the units below. Pull forward to setback position.
 - C. Backfill and compact to finished grade.



THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

D.G. Wolford / CS 10/25/00
 U.S.D. NATIONAL RESOURCES CONSERVATION SERVICE DATE

THESE PLANS FOR SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF HOWARD SOIL CONSERVATION DISTRICT.

APPROVED: *[Signature]* 10/25/00
 HOWARD SOIL CONSERVATION DISTRICT DATE

PLAN NUMBER

DEVELOPERS CERTIFICATE:

I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS 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.

[Signature] 10/26/00
 SIGNATURE OF DEVELOPER DATE
 PRINT NAME BELOW SIGNATURE
CAROL M. SMITH

ENGINEERS CERTIFICATE:

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. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTICED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE FOND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE FOND WITHIN 30 DAYS OF COMPLETION.

[Signature] 10/26/00
 SIGNATURE OF ENGINEER DATE
 PRINT NAME BELOW SIGNATURE
John W. Rappach, Jr.

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING

[Signature] 10/23/00
 CHIEF DEVELOPMENT ENGINEERING DIVISION DATE

[Signature] 11/8/00
 CHIEF DIVISION OF LAND DEVELOPMENT DATE

[Signature] 11/8/00
 DIRECTOR DATE

Date	No.	Revision Description
9/07/01	1	BLIM A-12 FROM PLAN. SEE SPP 01-12 FOR REVISED A-12.
10/04/01	3	1/2% LOT L.O.D. & SED CONTROL
10/15/01	5	ADD PAVILION & PATIO
10/20/01	6	ADD TRANSFORMER, STREETSIDE WALL, SIDEWALK & FENCE

Troy Hill Corporate Center
 Lots: A-10, A-11 & A-12

OWNER:
 TROY HILL BUSINESS PARK PARTNERSHIP
 C/O MANEKIN CORPORATION
 7165 COLUMBIA GATEWAY DRIVE
 COLUMBIA, MARYLAND 21046
 (410) 290-1400

DEVELOPER:
 TROY HILL LLC
 925 FELL STREET
 BALTIMORE, MARYLAND 21231
 (410) 534-6360

DMW
 Daft-McCune-Walker, Inc.
 200 East Pennsylvania Avenue
 Towson, Maryland 21286
 (410) 296-3535
 Fax 296-4705

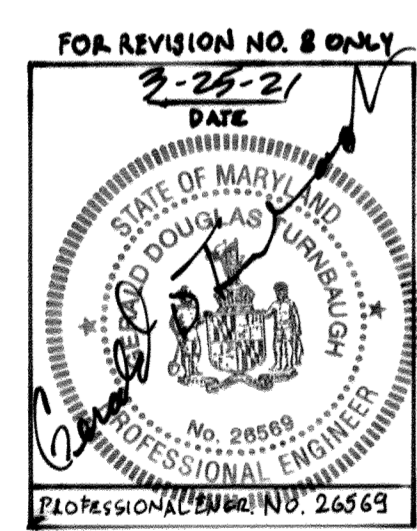
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals

SUBDIVISION NAME	SECTION/AREA	LOT/PARCELS
TROY HILL CORPORATE CENTER	ON PLAT 13840	10, 11, 12
TRACT OR LOT/BLK/ZONE	TAX/ZONE MAP	ELECT DISTRICT
1517-1518	10 M-1	37
WATER CODE	SEWER CODE	DENSITY
A03	2192200	601.02

TITLE: **DRAINAGE AREA MAP & SEDIMENT CONTROL PLAN**
 LOT A-11

Drn. By: ADL Scale: 1" = 40' Proj. No. 99058-A
 Des. By: RBW Date: 10-06-00
 Chk. By: Approved: **9 of 30**

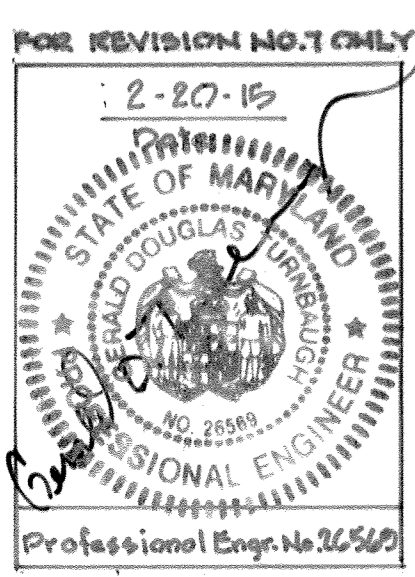
Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
 License No. 26569, Expiration Date: 7-18-21



IN ORDER TO MAINTAIN TRAFFIC FLOW TO AND FROM SITES, CONTRACTOR MAY BE REQUIRED TO STAGE THE REMOVAL AND INSTALLATION OF PROPOSED BARRIERS.

FOR PUBLIC SAFETY PURPOSES, THE CONTRACTOR SHALL INSTALL HIGH VISIBLE SAFETY FENCE AROUND DAILY WORK AREA.

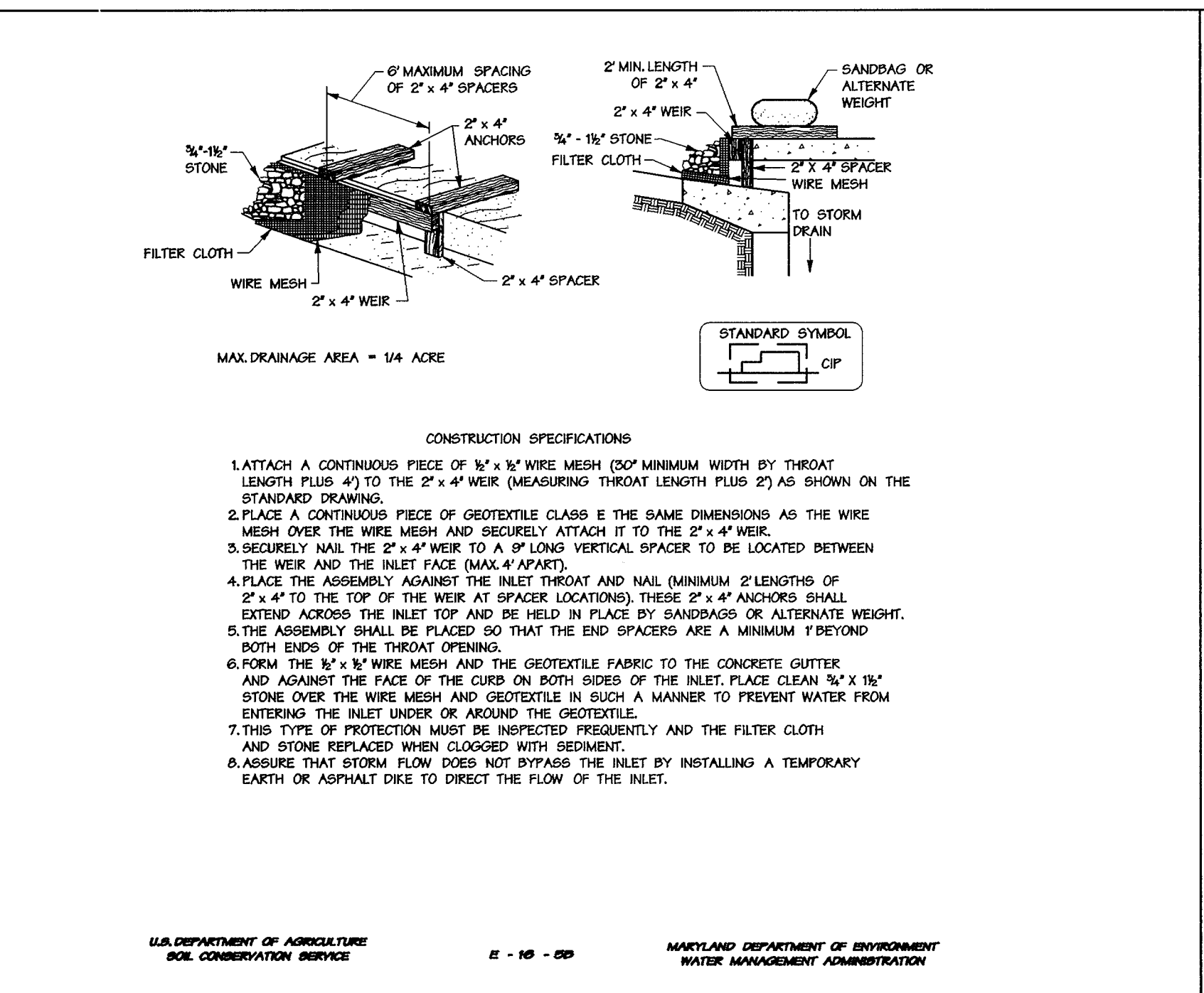
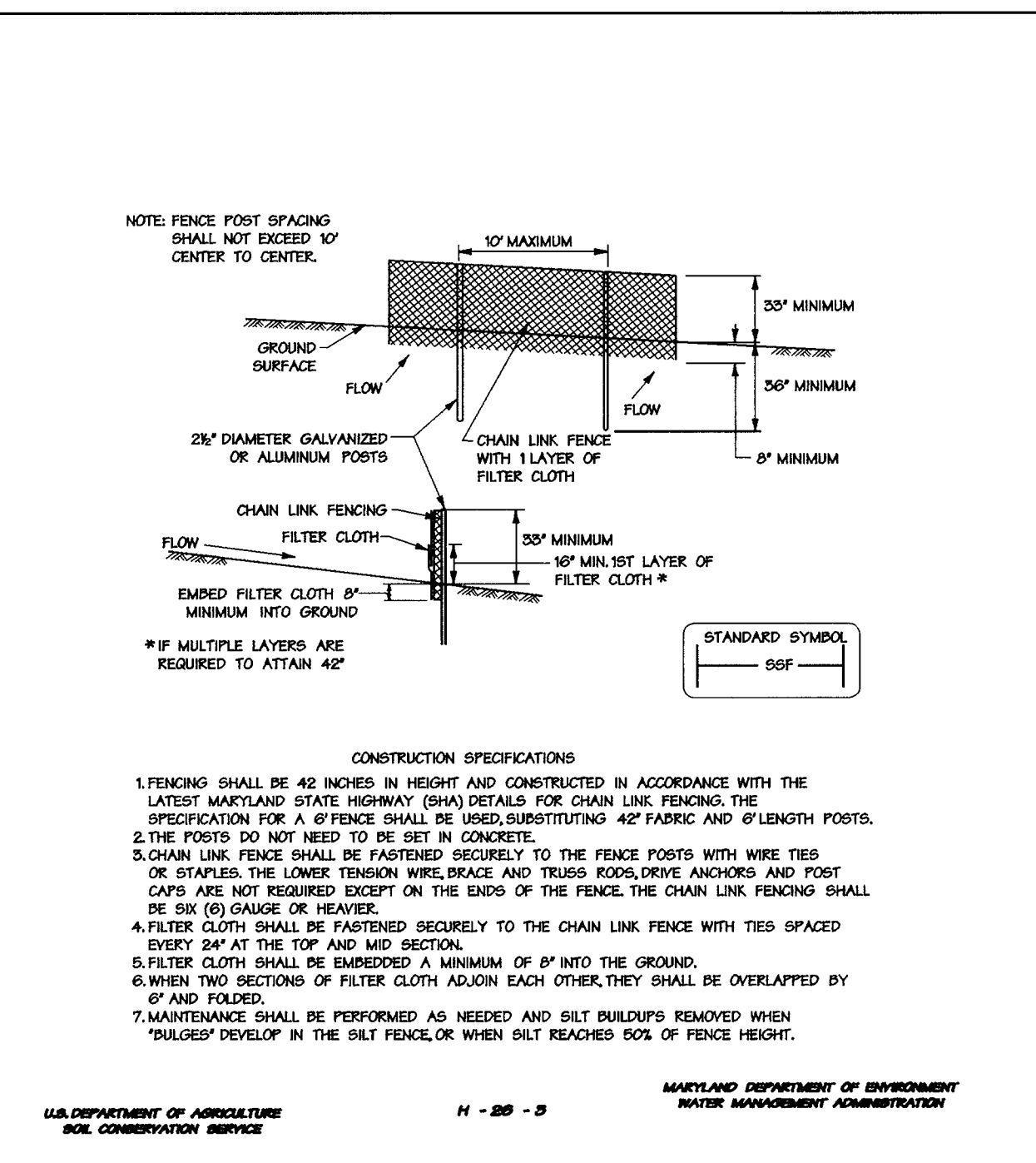
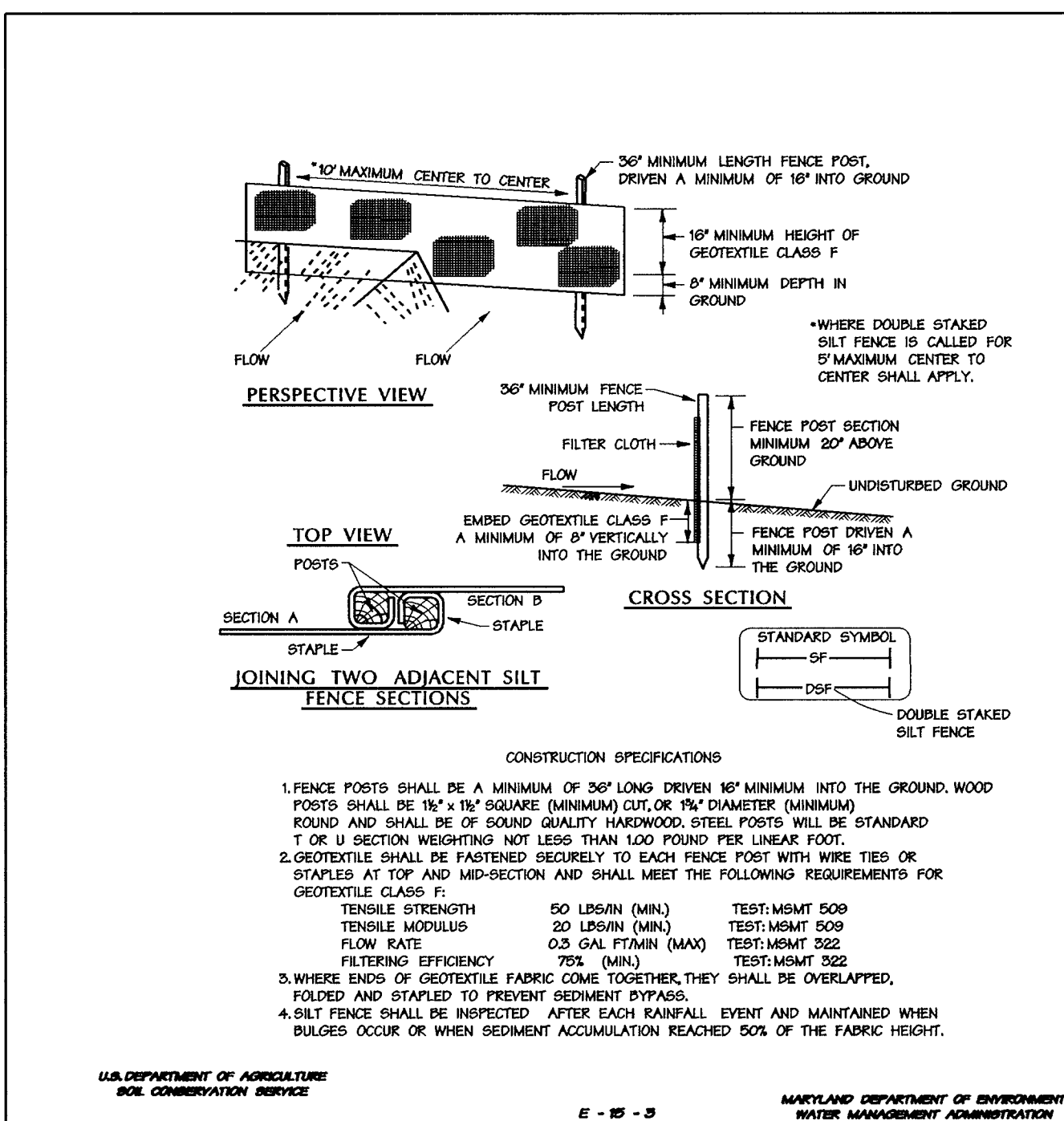
CONTRACTOR SHALL MAINTAIN A CLEAN WORK AREA. ANY LOOSE MACADAM, STONES, AND SOIL SHALL BE REMOVED AT THE END OF EACH WORKING DAY.



DATE	NO.	REVISION DESCRIPTION
01-24-01	1	ADD TWO DUAL ELECTRICAL CHARGING STATIONS TO LOT A-11, NORTH AND SOUTH SIDE
2-17-15	2	REMOVE AND REPLACE TRAFFIC BARRIERS

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
 License No. 26569, Expiration Date: 7-18-15

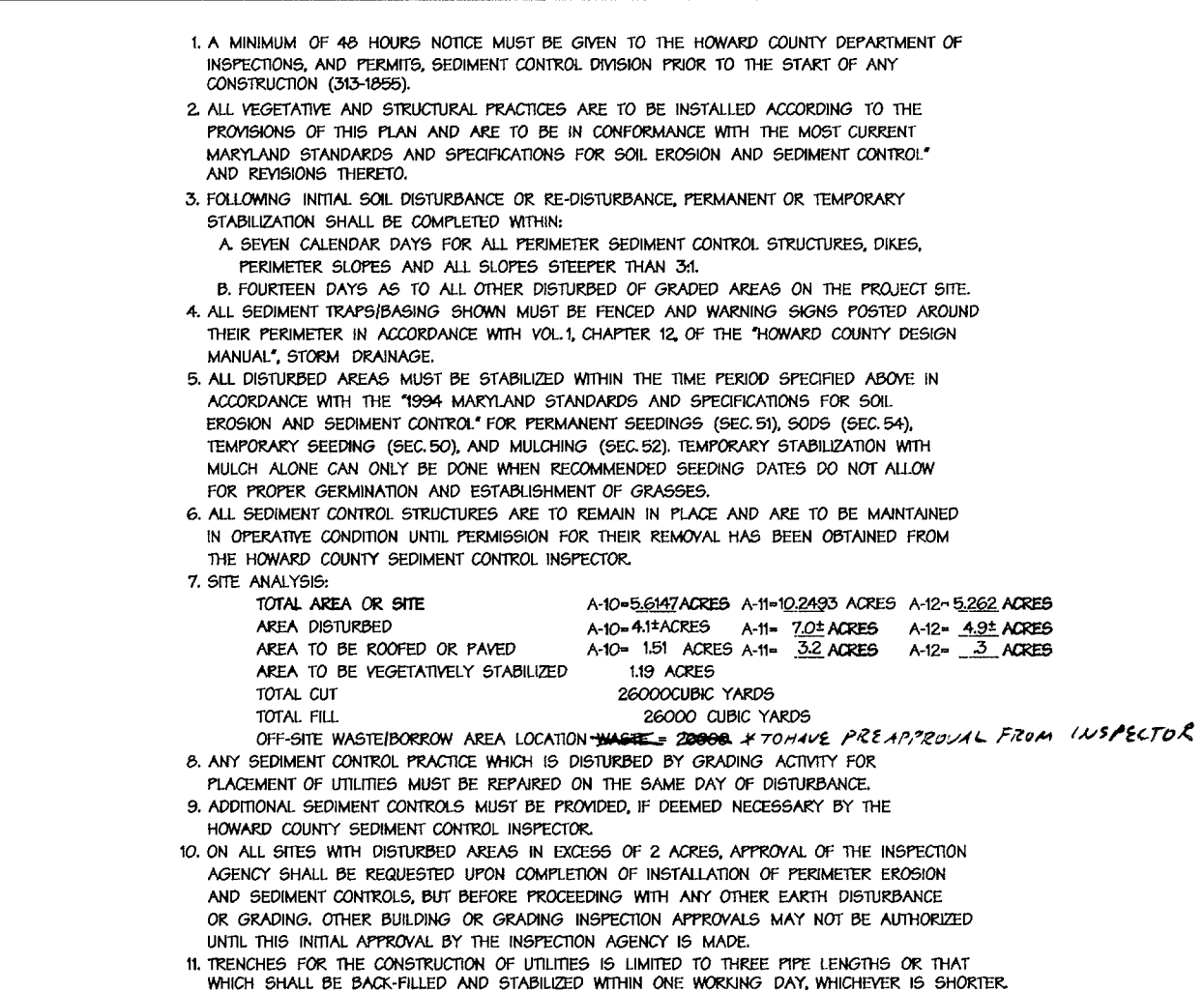
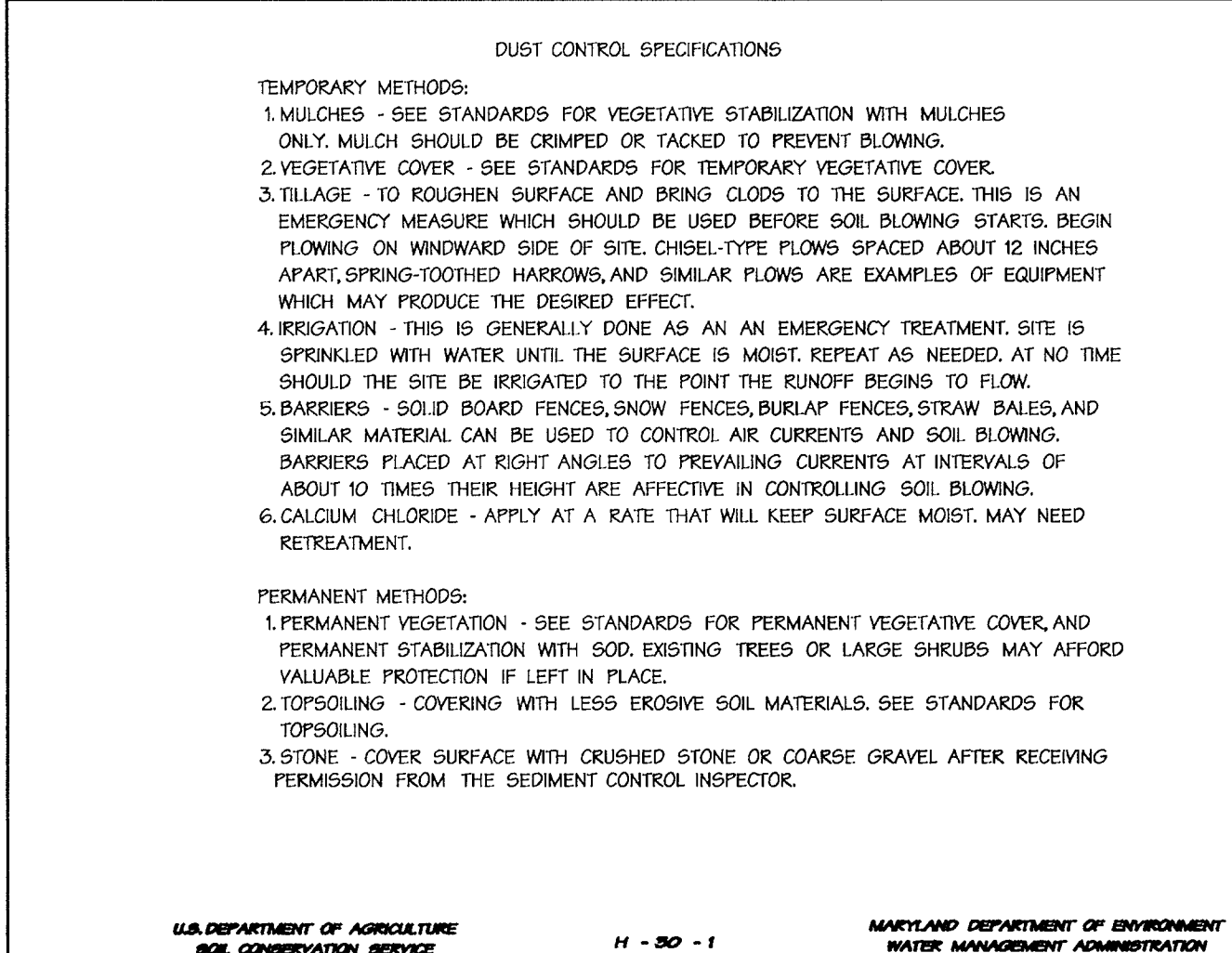
Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
 License No. 16347, Expiration Date: 8/15/11



Silt Fence Not To Scale

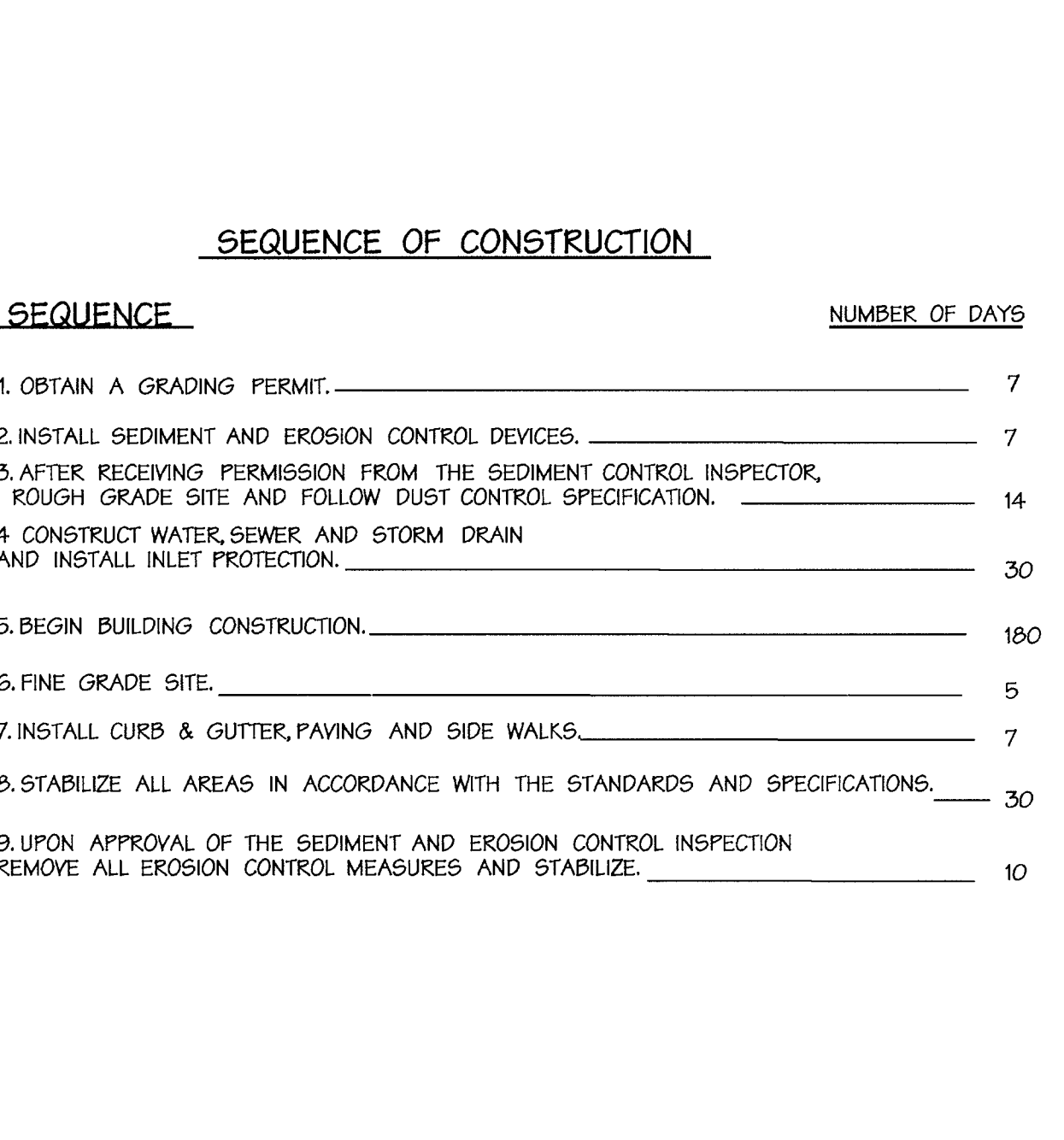
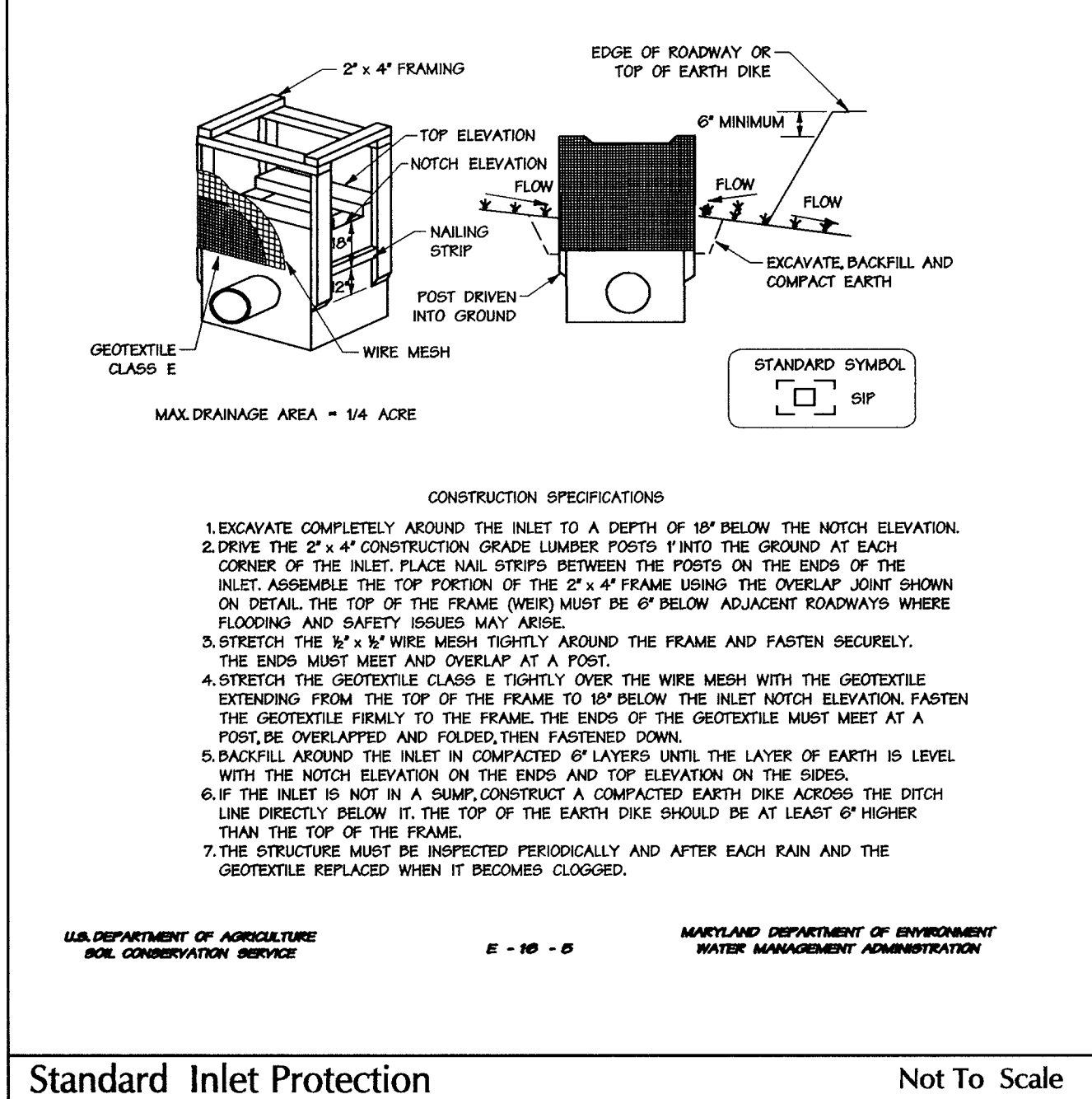
Super Silt Fence Not To Scale

Curb Inlet Protection (COG or COS Inlets) Not To Scale



Dust Control Specifications Not To Scale

Sediment Control General Notes Not To Scale



Standard Inlet Protection Not To Scale

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL, EROSION AND SEDIMENT CONTROL.

U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICE DATE: 10/25/00

THESE PLANS FOR SOIL, EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF HOWARD SOIL CONSERVATION DISTRICT.

APPROVED: [Signature] DATE: 10/25/00

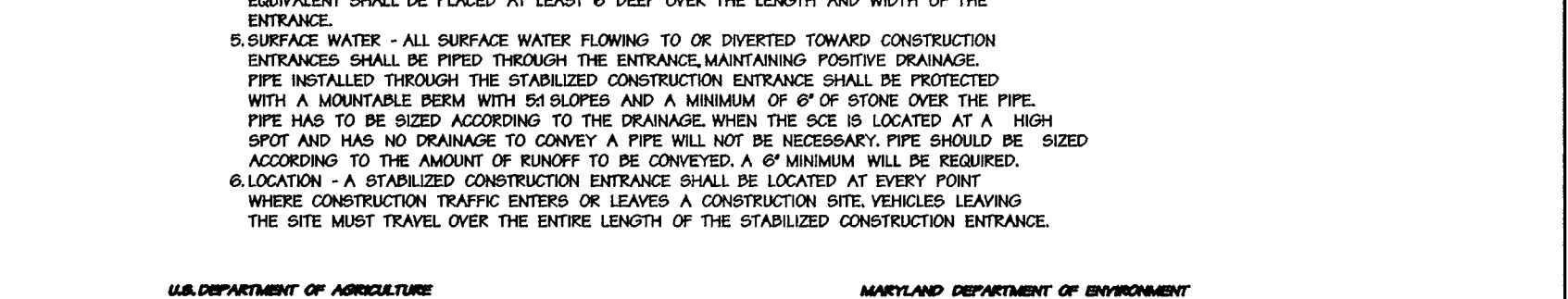
PLAN NUMBER

DEVELOPERS CERTIFICATE:

I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS 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/WE ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

SIGNATURE OF DEVELOPER: [Signature] DATE: Oct 6, 2000

PRINT NAME: CRAIG M. SMITH



Stabilized Construction Entrance Not To Scale

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING

DATE: 10/31/00

CHIEF, DEVELOPMENT ENGINEERING DIVISION

DATE: 11/6/00

CHIEF, DIVISION OF LAND DEVELOPMENT

DATE: 11/8/00

DIRECTOR

DATE: 11/8/00

9/17/01 1 ELIM A-12 FROM PLAN. SEE SEP-01-92 FOR REV. A-12.

Date	No.	Revision Description

Troy Hill Corporate Center
Lots: A-10, A-11 & A-12

OWNER: TROY HILL BUSINESS PARK PARTNERSHIP
C/O MANENON CORPORATION
7165 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046
(410) 290-1400

DEVELOPER: C & S TROY HILL LLC
925 FELL STREET
BALTIMORE, MARYLAND 21231
(410) 634-6350
(410) 290-1400

DMW
Darr-McCune-Walker, Inc.
200 East Pennsylvania Avenue
Towson, Maryland 21286
(410) 296-3333
Fax 296-4705

A Team of Land Planners, Landscape Architects, Golf Course Architects, Engineers, Surveyors & Environmental Professionals

SUBMISSION NAME	SECTION/AREA	LOT/PARCEL
TROY HILL CORPORATE CENTER	1	A-10, A-11, A-12
PLAT # OR L.P. BLOCK #	TAX/ZONE MAP	ELECTR. DISTRICT
447-152	10 M-1	1
WATER CODE	SEWER CODE	CENSUS TRACT
A03	2152200	6011.02

TITLE: **SEDIMENT & EROSION CONTROL DETAILS**

Dwn. By: ADL	Scale: 1"=40'	Proj. No. 99058.A
Des. By: RBW	Date: 10-06-00	
Chk. By:	Approved:	11 of 30

Professional Engr. No. 10551

10/18/00 Date

Professional Engineer

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STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION

Section I - Vegetative Stabilization Methods and Materials

- A. Site Preparation
- I. Install erosion and sediment control structures (either temporary or permanent) such as diversions, grade stabilization structures, berms, waterways or sediment control basins.
 - II. Perform all grading operations at right angles to the slope. Final grading and shaping is not usually necessary for temporary seeding.
 - III. Schedule required soil test to determine soil amendment composition and application rates for sites having disturbed areas over 5 acres.
- B. Soil Amendments (Fertilizer and Lime Specifications)
- I. Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas over 5 acres. Soil analysis may be performed by the University of Maryland or a recognized commercial laboratory. Samples taken for engineering purposes may also be used for chemical analysis.
 - II. Fertilizers shall be uniform in composition, free flowing and suitable for accurate application by approved equipment. Manure may be substituted for fertilizer with prior approval from the appropriate authority. Fertilizers shall all be delivered to the site fully labeled according to the applicable state fertilizer laws and shall bear the name, trade name or trademark and warranty of the producer.
 - III. Lime materials shall be ground limestone (hydrated or burnt lime may be substituted) which contains at least 50% total oxides (calcium oxide plus magnesium oxide). Limestone shall be ground to such fineness that at least 50% will pass through a #100 mesh sieve and 90 - 100% will pass through a #20 mesh sieve.
 - IV. Incorporate lime and fertilizer into the top 3 - 5" of soil by disking or other suitable means.

C. Seeded Preparation

- I. Temporary Seeding
 - a. Seeded preparation shall consist of loosening soil to a depth of 3" - 5" by means of suitable agricultural or construction equipment, such as disc harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened it should not be rolled or dragged smooth but left in the roughened condition.
 - Sloped areas (greater than 3%) should be tracked leaving the surface in an irregular condition with ridges running parallel to the contour of the slope.
 - b. Apply fertilizer and lime as prescribed on the plans.
 - c. Incorporate lime and fertilizer into the top 3 - 5" of soil by disking or other suitable means.
- II. Permanent Seeding
 - a. Minimum soil conditions required for permanent vegetative establishment:
 1. Soil pH shall be between 6.0 and 7.0
 2. Soluble salts shall be less than 500 parts per million (ppm).
 3. The soil shall contain less than 40% clay but enough fine grained material (> 30% silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception is if loesslike or corolla loesslike soil is to be planted then a sandy soil (< 30% silt plus clay) would be acceptable.
 4. Soil shall contain 15% minimum organic matter by weight.
 5. Soil must contain sufficient pore space to permit adequate root penetration.
 6. If these conditions cannot be met by the soils on site, adding topsoil is required in accordance with Section 21 Standard and Specification for the drawings.
 - b. Areas previously graded in conformance with the drawings shall be maintained in a true and even grade, then scarified or otherwise loosened to a depth of 3 - 5" to permit bonding of the topsoil to the surface area and to create horizontal erosion check steps to prevent topsoil from sliding down a slope.
 - c. Apply soil amendments as per soil test or as included on the plans.
 - d. Mix soil amendments into the top 3 - 5" of topsoil by disking or other suitable means. Lawn areas should be raked to smooth the surface, remove large objects like stones and trenches and ready the area for seed application. Where site conditions will not permit normal seeded preparation, loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface. Steep slopes (steeper than 3%) should be tracked by a dozer leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. The top 1 - 3" of soil should be loose and friable. Seeded loosening may not be necessary on newly disturbed areas.

D. Seed Specifications

- I. All seed must meet the requirements of the Maryland State Seed Law. All seed shall be subject to testing by a recognized seed laboratory. All seed used shall have been tested within the 6 months immediately preceding the date of sowing such material on the job.
- Note: Seed tags shall be made available to the inspector to verify type and rate of seed used.
- II. Inoculant - The inoculant for treating legume seed in the seed mixtures shall be a pure culture of nitrogen-fixing bacteria prepared specifically for the species. Inoculants shall not be used later than the date indicated on the container. Add fresh inoculants as directed on package. Use four times the recommended rate when hydroseeding. Note: It is very important to keep inoculants as cool as possible until used. Temperatures above 75-80° F. can weaken bacteria and make the inoculant less effective.

E. Methods of Seeding

- I. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer), broadcast or drop seeder, or a cut-spreader seeder.
 - a. If fertilizer is being applied at the time of seeding the application rates amounts will not exceed the following: nitrogen, maximum of 120 lbs. per acre; total of soluble nitrogen P2O5 (phosphorus): 200 lbs/acre; K2O (potassium): 200 lbs/acre.
 - b. Lime - use only ground agricultural limestone, (up to 3 tons per acre may be applied by hydroseeding) and without interruption.
 - c. Seed and fertilizer shall be mixed on site and seeding shall be done immediately and without interruption.
- II. Dry Seeding: This includes use of conventional/drop or broadcast spreaders.
 - a. Seed spread dry shall be incorporated into the subsoil at the rates prescribed on the Temporary or Permanent Seeding Summaries or Tables 25 or 26. The seeded area shall then be rolled with a weighted roller to provide good seed soil contact.
 - b. Where practical, seed should be applied in two directions perpendicular to each other. Apply half the seeding rate in each direction.
- III. Drill or Cultipacker Seeding: Mechanized seeders that apply and cover seed with soil.
 - a. Cultipacker seeders are required to bury the seed in such a fashion as to provide at least 1/4 inch of soil covering. Seeded must be firm after planting.
 - b. Where practical, seed should be applied in two directions perpendicular to each other. Apply half the seeding rate in each direction.

F. Mulch Specifications (In order of preference)

- I. Straw shall consist of thoroughly threshed wheat, rye or oat straw, reasonably bright in color, and shall not be mossy, moldy, caked, decayed or excessively dirty and shall be free of noxious weed seeds as specified in the Maryland Seed Law.
 - II. Wood Cellulose Fiber Mulch (WCFM)
 - a. WCFM shall consist of specially prepared wood cellulose processed into a uniform fibrous physical state.
 - b. WCFM shall be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the uniformly spread slurry.
 - c. WCFM, including dye, shall contain no germination or growth inhibiting factors.
 - d. WCFM materials shall be manufactured and processed in such a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under agitation and will bond with seed, fertilizer and other additives to form a homogeneous slurry. The mulch material shall form a blotter-like ground cover on application, having moisture absorption and retention characteristics and shall cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedlings.
 - e. WCFM material shall contain no elements or compounds at concentrations levels that will be phytotoxic.
 - f. WCFM must conform to the following physical requirements: fiber length to approximately 1.0 mm; diameter approximately 1 mm; pH range of 4.0 to 8.5, ash content of 1.6% maximum and water holding capacity of 90% minimum.
- Note: Only sterile straw mulch should be used in areas where one species of grass is desired.

G. Mulching Seeded Areas - Mulch shall be applied to all seeded areas where one species of grass is desired.

- I. If grading is completed outside of the seeding season, mulch alone shall be applied as prescribed in this section and maintained until the seeding season returns and seeding can be performed in accordance with these specifications.
- II. When straw mulch is used, it shall be spread over all seeded areas at the rate of 2 tons/acre. Mulch shall be applied in a uniform loose depth of between 1" and 2". Mulch applied shall achieve a uniform distribution and depth so that the soil surface is not exposed. If a mulch anchoring tool is to be used, the rate should be increased to 2.5 tons/acre.
- III. Wood cellulose fiber used as a mulch shall be applied at a net dry weight of 1500 lbs. per acre. The wood cellulose fiber shall be mixed with water, and the mixture shall contain a maximum of 50 lbs. of wood cellulose fiber per 100 gallons of water.
- H. Securing Straw Mulch (Mulch Anchoring shall be performed immediately following mulch application to minimize loss by wind or water. This may be done by one of the following methods (selected by preference), depending upon size of area and erosion hazard:
 - I. A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a minimum of two (2) inches. This practice is most effective on large areas but is limited to flatter slopes where equipment can operate safely. If used on sloping land, this practice should be used on the contour if possible.
 - II. Wood cellulose fiber may be used for anchoring straw. The fiber under shall be applied at a net dry weight of 750 pounds/acre. The wood cellulose fiber shall be mixed with water and the mixture shall contain a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.
 - III. Application of liquid binders should be heavier at the edges where wind catches mulch, such as in valleys or on crest of banks. The remainder of area should appear uniform after binder application. Synthetic binders - such as Acrylic DLR (Agro-Tack), DCA-70, Petroses, Terra Tac II, Terra Tack AK or other approved equal may be used at rates recommended by the manufacturer to anchor mulch.
 - IV. Lightweight plastic netting may be stapled over the mulch according to manufacturer's recommendations. Netting is usually available in rolls 4' to 15' feet wide and 300 to 3,000 feet long.

Section II - Temporary Seeding Vegetation - annual grass or grain used to provide cover on disturbed areas for up to 12 months. For longer duration of vegetative cover, Permanent Seeding is required.

SEED MIXTURE (HARDINESS ZONE)					FERTILIZER RATE (10-10-10)	LIME RATE
NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS		
1	ANNUAL RYEGRASS	50		1/4" - 1/2"	600 LB/AC (15 LB/1000 SF)	2 TONS/AC (100 LB/1000 SF)
2	WEEPING LOVEGRASS	4		1/4" - 1/2"		

Section III - Permanent Seeding Seeding grass and legumes to establish ground cover for a minimum period of one year on disturbed areas generally receiving low maintenance.

SEED MIXTURE (HARDINESS ZONE)					FERTILIZER RATE (10-10-10)	LIME RATE
NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS		
1	ANNUAL RYEGRASS	50		1/4" - 1/2"	600 LB/AC (15 LB/1000 SF)	2 TONS/AC (100 LB/1000 SF)
2	WEEPING LOVEGRASS	4		1/4" - 1/2"		

Section IV - Sod - To provide quick cover on disturbed areas (21 grade or flatter).

- A. General Specifications
- I. Class of turfgrass sod shall be Maryland or Virginia State Certified or Approved. Sod shall be made available to the job foreman and inspector.
 - II. Sod shall be machine cut at a uniform soil thickness of 3/4", plus or minus 1/4", at the time of cutting. Measurement for thickness shall exclude top growth and thatch. Individual pieces of sod shall be cut to the suppliers width and length. Maximum allowable deviation from standard width and length shall be 5 percent. Broken pads and torn or uneven ends will not be acceptable.
 - III. Standard size sections of sod shall be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section.
 - IV. Sod shall not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.
 - V. Sod shall be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period shall be approved by an agronomist or soil scientist prior to its installation.
- B. Sod Installation
- I. During periods of excessively high temperature or in areas having dry subsoil, the subsoil shall be lightly irrigated immediately prior to laying the sod.
 - II. The first row of sod shall be laid in a straight line with subsequent rows placed parallel to and tightly wedged against each other. Lateral joints shall be staggered to promote more uniform growth and strength. Ensure that sod is not stretched or overlapped and that all joints are butted tight in order to prevent voids which would cause air drying of the roots.
 - III. Wherever possible, sod shall be laid with the long edges parallel to the contour and with staggering joints. Sod shall be rolled and tamped, pegged or otherwise secured to prevent slippage or slipping to ensure solid contact between sod roots and the underlying soil surface.
 - IV. Sod shall be watered immediately following rolling or tamping until the underside of the new sod and soil surface below the sod are thoroughly wet. The operations laying, tamping and irrigating for any piece of sod shall be completed within eight hours.
- C. Sod Maintenance
- I. In the absence of adequate rainfall, watering shall be performed daily or as often as necessary during the first week and in sufficient quantities to maintain moist soil to a depth of 4". Watering should be done during the heat of the day to prevent wilting.
 - II. After the first week, sod watering is required as necessary to maintain adequate moisture content.
 - III. The first mowing of sod should not be attempted until the sod is firmly rooted. No more than 1.0" of the grass cut shall be removed by the initial cutting or subsequent cuttings. Grass height shall be maintained between 2" and 3" unless otherwise specified.

Section V - Turfgrass Establishment

Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will receive a medium high level of maintenance. Areas to receive seed shall be tilled by disking or other approved methods to a depth of 2 to 4 inches, leveled and raked to prepare a proper seedbed. Stones and debris over 1/4 inches in diameter shall be removed. The resulting seedbed

- A. Turfgrass Mixtures
- I. Kentucky Bluegrass - Full sun mixture - For use in areas that receive intensive management. Irrigation required in the areas of central Maryland and eastern shore. Recommended Certified Kentucky Bluegrass Cultivars Seeding Rate: 15 to 20 pounds/1000 square feet. A minimum of three bluegrass cultivars should be chosen ranging from a minimum of 10% to a maximum of 35% of the mixture by weight.
 - II. Kentucky Bluegrass/Perennial Ryegrass - Full sun mixture - For use in full sun areas where rapid establishment is necessary and when turf will receive medium to intensive management. Certified Perennial Ryegrass Cultivars/Certified Kentucky Bluegrass Seeding rate: 2 pounds mixture/1000 square feet. A minimum of 3 Kentucky Bluegrass cultivars must be chosen with each cultivar ranging from 10% to 35% of the mixture by weight.
 - III. Tall Fescue/Kentucky Bluegrass - Full sun mixture - For use in drought prone areas and/or for areas receiving low to medium management. In full sun to medium shade. Recommended mixture includes: certified Tall Fescue Cultivars 95 - 100%, certified Kentucky Bluegrass Cultivars 0 - 5%. Seeding rate: 5 to 8 lb/1000 sq. ft. One or more cultivars may be blended.
 - IV. Kentucky Bluegrass/Fine Fescue - Shade Mixture - For use in areas with shade in bluegrass lawns. For establishment in high quality, intensively managed turf areas. Mixture includes: Certified Kentucky Bluegrass 30-40% and certified Fine Fescue and 60-70%. Seeding rate: 1 1/2 - 3 lb/1000 square feet. A minimum of 3 Kentucky Bluegrass cultivars must be chosen, with each cultivar ranging from a minimum of 10% to a maximum of 35% of the mixture by weight.
- Note: Turfgrass varieties should be selected from those listed in the most current University of Maryland Publication, Agronomy Mimeo #77, "Turfgrass Cultivar Recommendations for Maryland."

B. Ideal times of seeding

- Western MD: March 15 - June 1, August 1 - October 15 (Hardiness Zones - 5B-6A)
- Central MD: March 1 - May 15, August 15 - October 15 (Hardiness Zone - 6B)
- Southern MD, Eastern Shore: March 1 - May 15, August 15 - October 15 (Hardiness Zones - 7A, 7b)

C. Irrigation

If soil moisture is deficient, supply new seedlings with adequate water for plant growth (1/2 - 1" every 2 to 4 days depending on soil texture) until they are firmly established. This is especially true when seedlings are made late in the planting season, in alternately dry or hot seasons, or on adverse sites.

D. Repairs and Maintenance

- I. Inspect all seeded areas for failures and make necessary repairs, replacements, and reseeding within the planting season.
- II. Once the vegetation is established, the site shall have 95% groundcover to be considered adequately stabilized.
- III. If the stand provides less than 40% ground coverage, reestablish following original lime, fertilizer, seeded preparation and seeding recommendations.
- IV. If the stand provides between 40% and 94% ground coverage, overseeding and fertilizing using half of the rates originally applied may be necessary.
- V. Maintenance fertilizer rates for permanent seedings are shown in Table 24. For lawns and other medium high maintenance turfgrass areas, refer to the University of Maryland publication "Lawn Care in Maryland" Bulletin No. 17.

Soil test must be performed to determine the exact ratios and application rates.

G - 20 - 1A

VEGETATIVE STABILIZATION

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.

D.G. Wardell / as. 10/25/00 DATE

U.S.D. NATURAL RESOURCES CONSERVATION SERVICE

THESE PLANS FOR SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF HOWARD SOIL CONSERVATION DISTRICT.

APPROVED: *[Signature]* 10/25/00 DATE

HOWARD SOIL CONSERVATION DISTRICT

PLAN NUMBER

DEVELOPERS CERTIFICATE:

I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS 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.

[Signature] DATE

[Signature] DATE

10/25/00 DATE

ENGINEERS CERTIFICATE:

I CERTIFY THAT THIS PLAN FOR SOIL EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

[Signature] DATE

John W. Rancuch, S.E. DATE

10/18/00 DATE

21.0 STANDARD AND SPECIFICATIONS 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 moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.
- Conditions Where Practice Applies
- I. 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 furnish continuing 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.
 - II. For the purpose of these Standards and Specifications, areas having slopes steeper than 2:1 require special consideration and design for stabilization. Areas having slopes steeper than 2:1 shall have the appropriate stabilization shown on the plans.

Construction and Material Specifications

- I. Topsoil salvaged from the existing site may be used provided that it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-SCS in cooperation with Maryland Agricultural Experimental Station.
- II. 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. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Regardless, topsoil shall not be mixture of contrasting textured subsoils and shall contain less than 5% by volume of cinders, stones, slags, coarse fragments, gravel sticks, roots, trash, and other materials larger than 1/2 inch in diameter.
 - II. Topsoil must be free of plants or plant parts such as Bermuda grass, quack grass, 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 (200-800 pounds per 1,000 square feet) prior to the placement of topsoil. Lime shall be distributed uniformly over designated areas and worked into the soil in conjunction with tillage operations as described in the following procedures.
- III. For sites having disturbed areas under 5 acres:
 - I. Place topsoil (if required) and apply soil amendments as specified in 2D.0 Vegetative Stabilization - Section I - Vegetative Stabilization Methods and Materials.
 - II. For sites having disturbed areas over 5 acres:
 - I. On soil meeting Topsoil specifications, obtain test results dictating fertilizer and lime amendments required to bring the soil into compliance with the following:
 - a. pH for topsoil shall be between 6.0 and 7.5. If the tested soil demonstrates a pH of less than 6.0, sufficient lime shall be prescribed to raise the pH to 6.5 or higher.
 - b. Organic contents of topsoil shall be not less than 1.5 percent by weight.
 - c. Topsoil having soluble salt content greater than 500 parts per million shall not be used.
 - II. In the absence of test results, the following shall apply:
 - a. pH for topsoil shall be between 6.0 and 7.5. If the tested soil demonstrates a pH of less than 6.0, sufficient lime shall be prescribed to raise the pH to 6.5 or higher.
 - b. Organic contents of topsoil shall be not less than 1.5 percent by weight.
 - c. Topsoil having soluble salt content greater than 500 parts per million shall not be used.
 - III. For sites having disturbed areas over 5 acres:
 - a. pH for topsoil shall be between 6.0 and 7.5. If the tested soil demonstrates a pH of less than 6.0, sufficient lime shall be prescribed to raise the pH to 6.5 or higher.
 - b. Organic contents of topsoil shall be not less than 1.5 percent by weight.
 - c. Topsoil having soluble salt content greater than 500 parts per million shall not be used.

or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phytotoxic materials.

Note: Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.

II. Place topsoil (if required) and apply soil amendments as specified in 2D.0 Vegetative Stabilization - Section I - Vegetative Stabilization Methods and Materials.

V. Topsoil Application

- I. When topsoiling, maintain needed erosion and sediment control practices such as diversions, Grade Stabilization Structures, Earth Dikes, Silt Fence and Sediment Traps and Basins.
- II. Grades on the areas to be topsoiled, which have been previously established, shall be maintained, albeit 4" - 8" higher in elevation.
- III. 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 sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations shall be corrected in order to prevent the formation of depressions or water pockets.
- IV. Topsoil shall not be placed while the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seeded preparation.

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING

[Signature] DATE 02/10/00

CHIEF, DEVELOPMENT ENGINEERING DIVISION

[Signature] DATE 11/19/00

CHIEF, DIVISION OF LAND DEVELOPMENT

[Signature] DATE 11/16/00

DIRECTOR

9/10/01 | ELIM A12 FROM PLAN. SEE SPP-01-12 FOR REV A-12.

Date	No.	Revision Description

Troy Hill Corporate Center
Lots: A-10, A-11 & A-12

OWNER:
TROY HILL BUSINESS PARK PARTNERSHIP
C/O MANHEIM CORPORATION
7165 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046
(410) 290-1400

DEVELOPER:
C & S TROY HILL LLC.
325 FELL STREET
BALTIMORE, MARYLAND 21231
(410) 534-6350

DMW
Duff McCune Walker, Inc.
200 East Pennsylvania Avenue
Towson, Maryland 21286
(410) 296-3333
Fax: 296-4765

A Team of Land Planners, Landscape Architects, Golf Course Architects, Engineers, Surveyors and Environmental Professionals

SUBDIVISION NAME	SECTION/AREA	LOT/FACILITY
TROY HILL CORPORATE CENTER	1	A-10, A-11, A-12
PLAT OR LOT BLOCK#	ZONE	ELECT DISTRICT
1871-1876 1B M-1	1	601L02
WATER CODE	SEWER CODE	
A03	2152200	

TITLE: **SEDIMENT & EROSION CONTROL DETAILS**

Drn. By: ADL	Scale: 1"=40'	Proj. No. 99058.A
Des. By: RBW	Date: 10-06-00	12 of 30
Chk. By:	Approved:	

Professional Engr. No. 1551

SDP-01-30

STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION

Section I - Vegetative Stabilization Methods and Materials

A. Site Preparation

- I. Install erosion and sediment control structures (either temporary or permanent) such as diversions, grade stabilization structures, berms, waterways, or sediment control basins.
II. Perform all grading operations at right angles to the slope. Final grading and shaping is not usually necessary for temporary seedings.
III. Schedule required soil test to determine soil amendment composition and application rates for sites having disturbed areas over 5 acres.

B. Soil Amendments (Fertilizer and Lime Specifications)

- I. Soil test must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas over 5 acres. Soil analysis may be performed by the University of Maryland or a recognized commercial laboratory.
II. Fertilizers shall be uniform in composition, free flowing and suitable for accurate application by approved equipment.
III. Lime materials shall be ground limestone (hydrated or burnt lime may be substituted) which contains at least 80% total oxide (Calcium oxide plus magnesium oxide).

C. Seeded Preparation

- I. Temporary Seeding
a. Seeded preparation shall consist of loosening soil to a depth of 3" to 5" by means of suitable agricultural or construction equipment.
II. Permanent Seeding
a. Minimum soil conditions required for permanent vegetative establishment:
1. Soil pH shall be between 6.0 and 7.0

G. Mulching Seeded Areas - Mulch shall be applied to all seeded areas where one species of grass is desired.

- I. If grading is completed outside of the seeding season, mulch alone shall be applied as prescribed in this section and maintained until the seeding season returns and seeding can be performed in accordance with these specifications.
II. When straw mulch is used, it shall be spread over all seeded areas at the rate of 2 tons/acre.
III. Wood cellulose fiber used as a mulch shall be applied at a net dry weight of 1500 lbs. per acre.

Section II - Temporary Seeding

Vegetation - annual grasses or grain used to provide cover on disturbed areas for up to 12 months. For longer duration of vegetative cover, Permanent Seeding is required.

Table with columns: NO., SPECIES, APPLICATION RATE (LB/AC), SEEDING DATES, SEEDING DEPTH, FERTILIZER RATE (10-10-10), LIME RATE. Rows include ANNUAL RYEGRASS and WEEPING LOVEGRASS.

Section III - Permanent Seeding

Seeding grass and legumes to establish ground cover for a minimum period of one year on disturbed areas generally receiving low maintenance.

Table with columns: NO., SPECIES, APPLICATION RATE (LB/AC), SEEDING DATES, SEEDING DEPTH, FERTILIZER RATE (10-10-10), LIME RATE. Rows include ANNUAL RYEGRASS and WEEPING LOVEGRASS.

Section IV - Sod - To provide quick cover on disturbed areas (2:1 grade or flatter).

A. General Specifications

- I. Class of turfgrass sod shall be Maryland or Virginia State Certified or Approved Sod labels shall be made available to the job foreman and inspector.
II. Sod shall be machine cut at a uniform soil thickness of 3/4" plus or minus 1/4" at the time of cutting.

B. Sod Installation

- I. During periods of excessively high temperature or in areas having dry subsoil, the subsoil shall be lightly irrigated immediately prior to laying the sod.
II. The first row of sod shall be laid in a straight line with subsequent rows placed parallel to and tightly wedged against each other.

C. Sod Maintenance

- I. In the absence of adequate rainfall, watering shall be performed daily or as often as necessary during the first week and in sufficient quantities to maintain moist soil to a depth of 4".
II. After the first week, sod watering is required as necessary to maintain adequate moisture content.

Section V - Turfgrass Establishment

Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will receive a medium high level of maintenance.

A. Turfgrass Mixtures

- I. Kentucky Bluegrass - Full sun mixture - For use in areas that receive intensive management.
II. Kentucky Bluegrass/Ferretail Rye - Full sun mixture - For use in full sun areas where rapid establishment is necessary and when turf will receive medium to intensive management.

Note: Turfgrass varieties should be selected from those listed in the most current University of Maryland Publication, Agronomy Mimeo #77, 'Turfgrass Cultivar Recommendations for Maryland'.

B. Ideal times of seeding

- Western MD: March 15 - June 1, August 1 - October 1 (Hardness Zones - 5b, 6a)
Central MD: March 1 - May 15, August 15 - October 15 (Hardness Zone - 5b)
Southern MD: Eastern Shore: March 1 - May 15, August 15 - October 15 (Hardness Zones - 7a, 7b)

C. Irrigation

If soil moisture is deficient, supply new seedlings with adequate water for plant growth (1/2" - 1" every 5 to 6 days depending on soil texture) until they are firmly established.

D. Repairs and Maintenance

- I. Inspect all seeded areas for failures and make necessary repairs, replacements, and reseeding within the planting season.
II. Once the vegetation is established, the site shall have 95% groundcover to be considered adequately stabilized.

Soil tests must be performed to determine the exact ratios and

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Conditions Where Practice Applies

I. This practice is limited to areas having 2:1 or flatter slopes where:

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d. The soil is so acidic that treatment with limestone is not feasible.

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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 (60-100 pounds per 1,000 square feet) prior to the placement of topsoil. Lime shall be distributed uniformly over designated areas and worked into the soil in conjunction with tillage operations as described in the following procedures.

II. For sites having disturbed areas under 5 acres:

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V. Topsoil Application

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Topsoil Specifications

Form for soil erosion and sediment control. Includes sections for 'THESE PLANS HAVE BEEN REVIEWED...' and 'THESE PLANS FOR SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF HOWARD SOIL CONSERVATION DISTRICT.' with handwritten signatures and dates.

DEVELOPERS CERTIFICATE: I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF ENVIRONMENT APPROVED TRAINING PROGRAM...

ENGINEERS CERTIFICATE: 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. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT...

Approval table with columns: Date, No., Revision, Description. Includes handwritten signatures and dates.

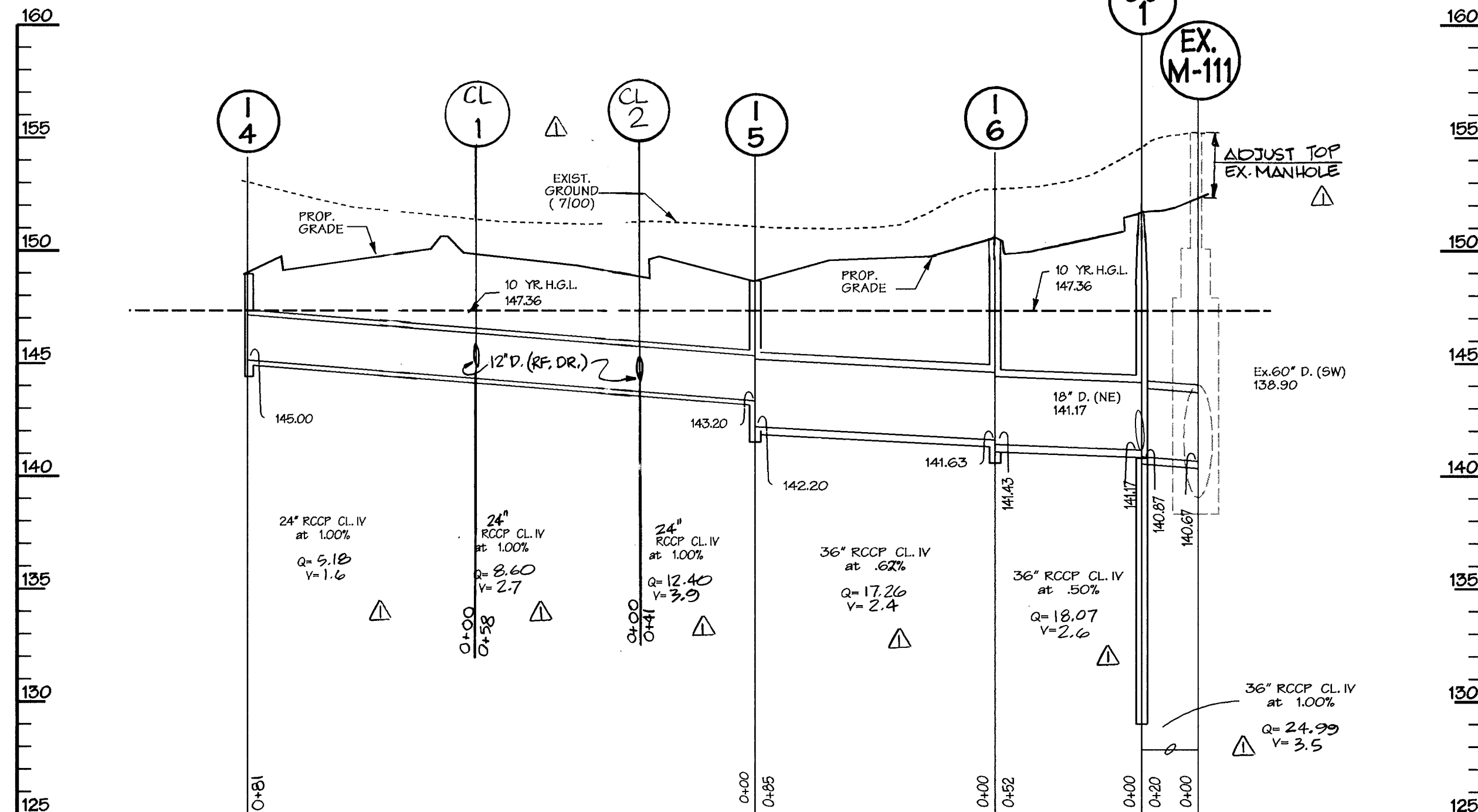
Troy Hill Corporate Center logo and address information: 300 East Pennsylvania Avenue, Towson, Maryland 21286. Includes contact info for DMW and developer Troy Hill Business Park Partnership.

Table for project details: SUBDIVISION NAME (TROY HILL CORPORATE CENTER), SECTION/AREA (1), TAX/ZONE MAP (107-1154), ELEC/DISTRICT (1), CENSUS TRACT (6011.02), TITLE (SEDIMENT & EROSION CONTROL DETAILS).

Table with columns: Drn. By, Scale, Proj. No., Des. By, Date, Chk. By, Approved. Includes handwritten signatures and dates.

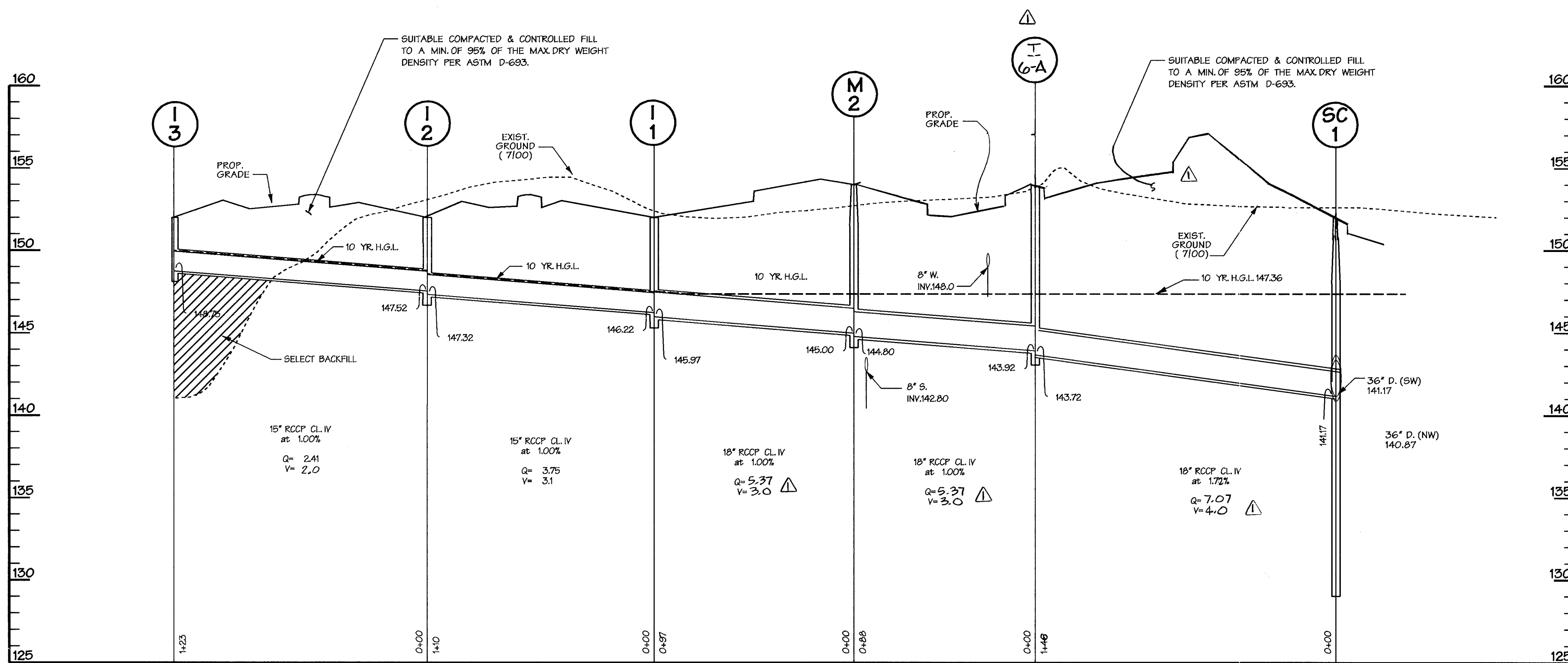
OPERATION AND MAINTENANCE SCHEDULE FOR STORMCEPTOR WATER QUALITY DEVICE

- The Stormceptor water quality structure shall be periodically inspected and cleaned to maintain operation and function. The owner shall inspect the Stormceptor unit yearly at a minimum, utilizing the Stormceptor Inspection/Monitoring Form. Inspection shall be done by using a clear Plexiglass tube ("sludge judge") to extract a water column sample. When the sediment depth exceeds the level specified in Table G of the Stormceptor Technical Manual, the unit must be cleaned.
- The Stormceptor water quality structure shall be checked and cleaned immediately after petroleum spills. The owner shall contact the appropriate regulatory agencies.
- The maintenance of the Stormceptor unit shall be done using a vacuum truck which will remove the water, sediment, debris, floating hydrocarbons and other materials in the unit. Proper cleaning and disposal of the removed materials and liquid must be followed by the owner.
- The inlet and outlet pipes shall be checked for any obstructions at least once every six months. If obstructions are found the owner shall have them removed. Structural parts of the Stormceptor units shall be repaired as needed.
- The owner shall retain and make the Stormceptor Inspection/Monitoring Forms available to the Howard County officials upon their request.



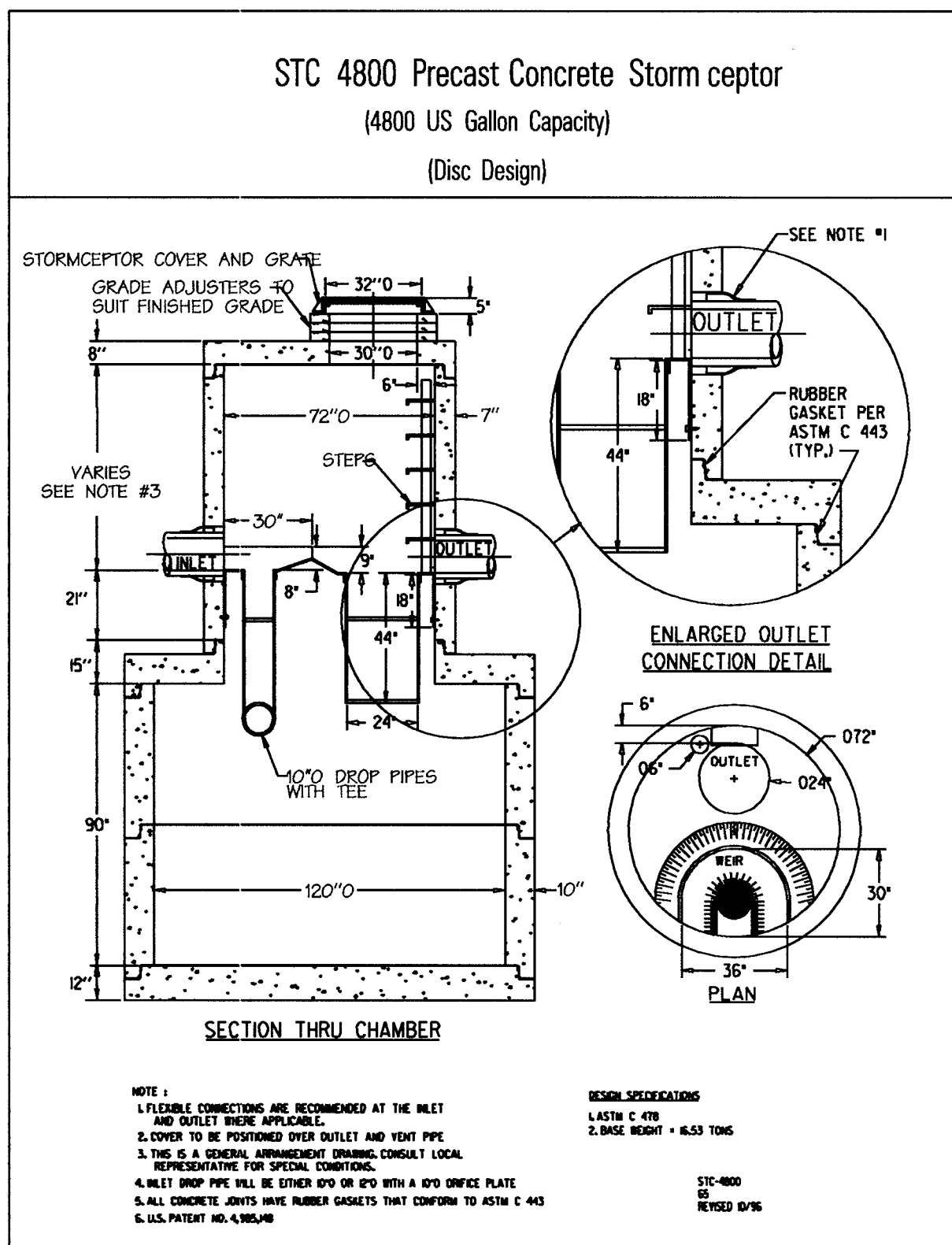
Storm Drain Profile- Lot: A-10

Scale: Horz: 1"=40'
Vert: 1"=5'



Storm Drain Profile- Lot: A-10

Scale: Horz: 1"=40'
Vert: 1"=5'



Stormceptor Detail: Lots A-10

Scale: Not to Scale

Precast Concrete

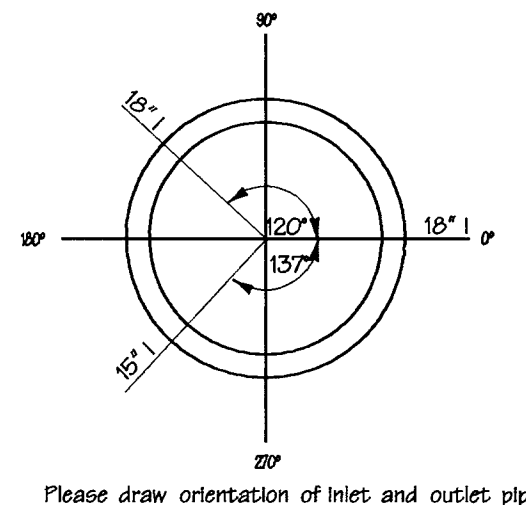
Order Request Form

Contractor Information

Name: KIMBALL CONST.
Address: 9615 PHILADELPHIA RD.
City: BALTIMORE
State: MARYLAND
Zip Code: 21237
Contact: LEWIS KIMBALL
Phone: 410-574-0800
Fax: 410-574-7850

Owner Information

Name: C & S TROY HILL LLC
Phone:
Fax:



Please draw orientation of inlet and outlet pipes on diagram along with the pipe inside diameter (in) and invert elevation (ft). Clearly mark inlet pipes with an "I" and outlet pipes with an "O". Please provide the inlet/outlet pipe angle in degrees.

IMPERVIOUS DRAINAGE AREA FOR THIS UNIT 144 A.C.

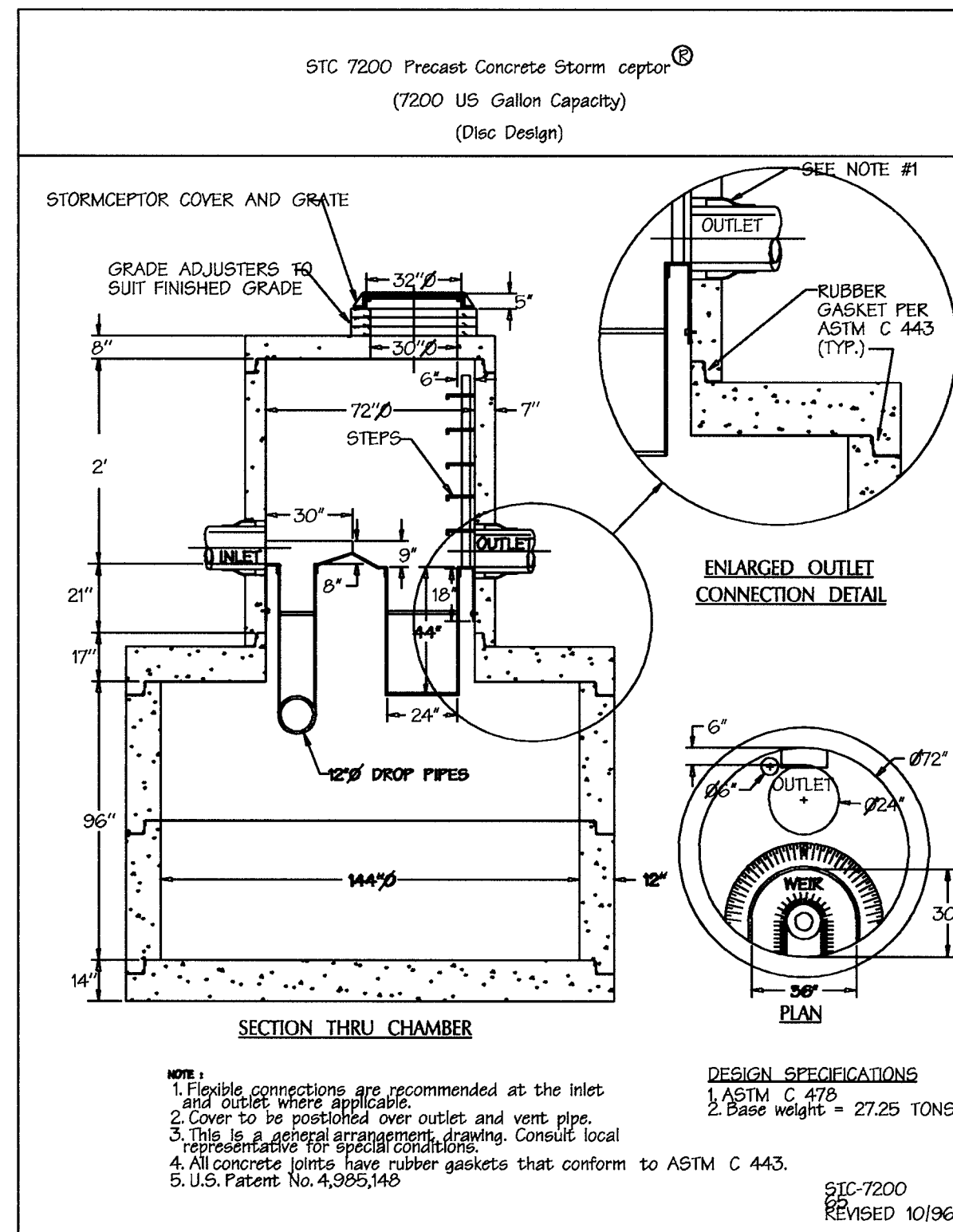
Stormceptor SM	Insert Size
900 <input type="checkbox"/> 3600 <input type="checkbox"/>	DISC <input type="checkbox"/>
1200 <input type="checkbox"/> 4800 <input type="checkbox"/>	22" <input type="checkbox"/>
1800 <input checked="" type="checkbox"/> 6000 <input type="checkbox"/>	32" <input type="checkbox"/>
2400 <input type="checkbox"/> 7200 <input type="checkbox"/>	44" <input checked="" type="checkbox"/>
	CUSTOM <input type="checkbox"/>

Manhole Number	SC4
Top Elevation (ft)	174
Inlet Pipe Invert (ft)	168.90
Outlet Pipe Invert (ft)	168.60
Pipe Type	RCCP CL IV
Inlet Pipe Inside Diameter (ID)	15.75
Inlet Pipe Outside Diameter (OD)	21.4
Outlet Pipe Inside Diameter (ID)	16"
Outlet Pipe Outside Diameter (OD)	24"

Project Name: TROY HILL CORPORATE CENTER
Approximate time frame of delivery (weeks): 8
Delivery Address: Street: TROY HILL DRIVE
City: ELKBRIDGE State: MARYLAND Zip Code: _____
Designer Company: DAFT-McCUNE AND WALKER
Designer Contact: RICK WILLIAMS Phone 410-296-3333 Fax 410-296-4705

PLEASE FILL OUT COMPLETELY AND FAX TO: **CSRI** Hydro Conduit

ATTN: ED O'MALLEY FAX: (703)922-3659, PHONE: (703)971-1900
FOR TECHNICAL ASSISTANCE PLEASE CALL MIKE BARG, PHONE (703)971-1900



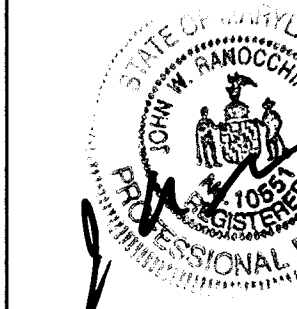
Stormceptor Detail: Lot A-11

Scale: Not to Scale



NICHOLAS J. PRADER, III, PE #18558
REV. MATS WARFIELD, INC.
10540 YORK ROAD, SUITE M
HUNT VALLEY, MD 21030

Date: 10/31/02



Professional Engr. No. 14557

SDP-01-30

STRUCTURE SCHEDULE FOR LOT A-10

NO.	TYPE	INV. OUT	INV. IN	TOP ELEV.	REMARKS	NORTH	EAST
I-1	A-5	145.97	146.22	152.00	HO CO STD. BD 4.01	495,727.2	870,468.6
I-2	A-5	147.32	147.52	152.00	HO CO STD. BD 4.01	495,818.0	870,447.5
I-3	A-5	148.75		152.00	HO CO STD. BD 4.01	495,806.8	870,401.7
I-4	A-10	145.00	145.00	148.00	HO CO STD. BD 4.02	495,594.7	870,324.9
I-5	A-10	142.20	143.80	148.70	HO CO STD. BD 4.02	495,766.8	870,716.9
I-6	A-10	140.60	141.25	143.9	HO CO STD. BD 4.02	495,805.3	870,225.3
I-6A	A-5	143.72	143.92	153.9	HO CO STD. SD 4.01	495,894.4	870,247.7
MH 2	STD. MANHOLE	144.80	145.00	154.00	HO CO STD. G 5.12	495,816.0	870,448.6
BC 1		140.35	140.05	151.82		495,800.5	870,226.6
BC 1		140.35	140.05	151.82		495,800.5	870,226.6

* GRADE AT EDGE OF PAVING, ADD 0.6' FOR TOP OF SLAB.

Precast Concrete

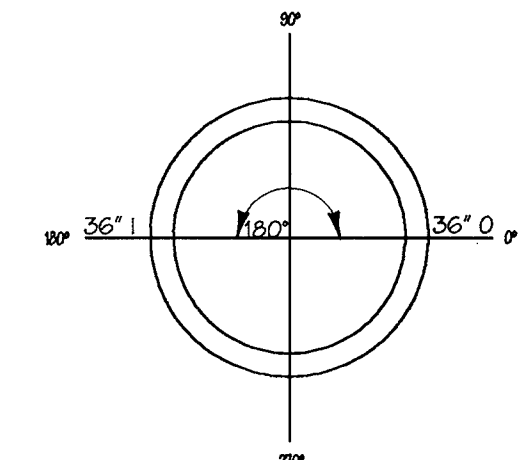
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Owner Information

Name: C & S TROY HILL LLC
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Please draw orientation of inlet and outlet pipes on diagram along with the pipe inside diameter (in) and invert elevation (ft). Clearly mark inlet pipes with an "I" and outlet pipes with an "O". Please provide the inlet/outlet pipe angle in degrees.

IMPERVIOUS DRAINAGE AREA FOR THIS UNIT 6.02 A.C.

Stormceptor SM	Insert Size
900 <input type="checkbox"/> 3600 <input type="checkbox"/>	DISC <input type="checkbox"/>
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1800 <input type="checkbox"/> 6000 <input type="checkbox"/>	32" <input type="checkbox"/>
2400 <input type="checkbox"/> 7200 <input type="checkbox"/>	44" <input checked="" type="checkbox"/>
	CUSTOM <input type="checkbox"/>

Manhole Number	SC2
Top Elevation (ft)	150
Inlet Pipe Invert (ft)	145.06
Outlet Pipe Invert (ft)	144.76
Pipe Type	RCCP CL IV
Inlet Pipe Inside Diameter (ID)	36"
Inlet Pipe Outside Diameter (OD)	42"
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Outlet Pipe Outside Diameter (OD)	42"

Project Name: TROY HILL CORPORATE CENTER
Approximate time frame of delivery (weeks): 8
Delivery Address: Street: TROY HILL DRIVE
City: ELKBRIDGE State: MARYLAND Zip Code: _____
Designer Company: DAFT-McCUNE AND WALKER
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Stormceptor Detail: Lot A-11

Scale: Not to Scale

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING

Chief Development Engineering Division: [Signature] 10/31/02
Date:

Chief Division of Land Development: [Signature] 11/8/02
Date:

Director: [Signature] 11/8/02
Date:

12/21/00 MATS WARFIELD - CHANGE MH 1 TO I-6A, CORRECTED STRUCTURE SCHEDULE, UPDATE PROFILES FOR GRADE & FLOW DATA
9/17/01 2 ELLIM A-12 FROM PLAN. SEE SDP 01-92 FOR REVISED A-12.

Date	No.	Revision Description

Troy Hill Corporate Center

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OWNER: TROY HILL BUSINESS PARK PARTNERSHIP
C/O MANEKIN CORPORATION
7165 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046
(410) 290-1400

DEVELOPER: C & S TROY HILL LLC
925 FELL STREET
BALTIMORE, MARYLAND 21231
(410) 534-6350

DMW
Daft-McCune-Walker, Inc.
200 East Pennsylvania Avenue
Towson, Maryland 21286
(410) 296-3333
(410) 296-4705

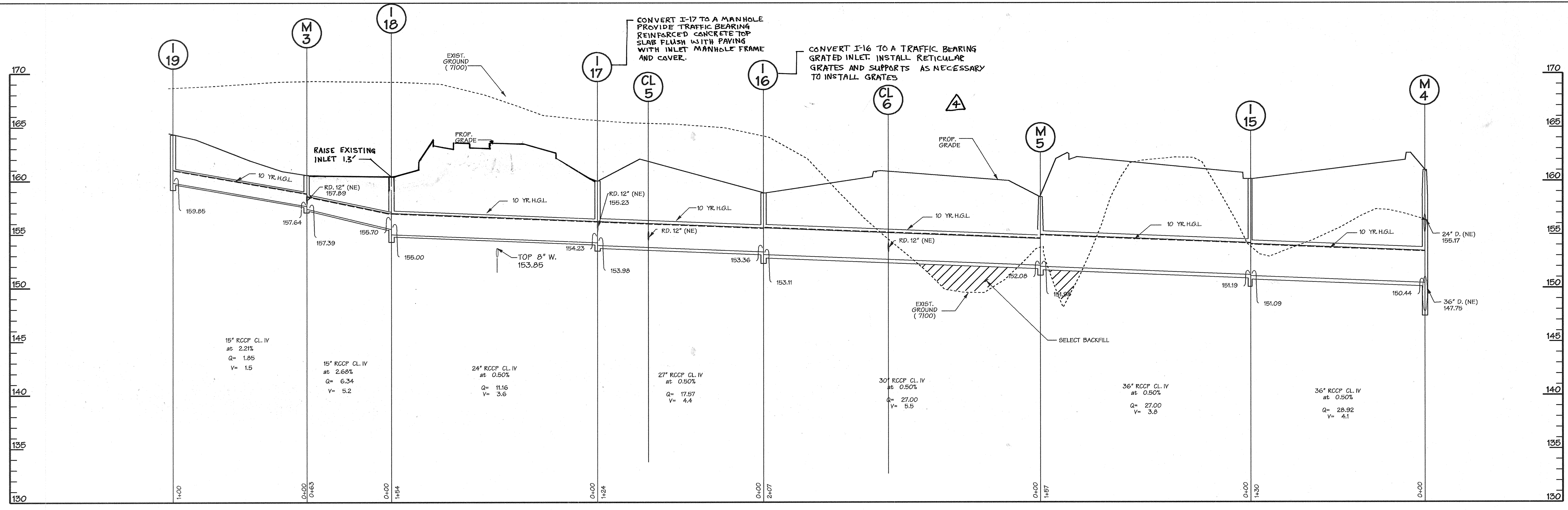
A Team of Land Planners, Landscape Architects, Golf Course Architects, Engineers, Surveyors & Environmental Professionals

SUBDIVISION NAME	SECTION/AREA	LOT/PARCEL
TROY HILL CORPORATE CENTER	1	A-10, A-11, A-12

PLAT OR LFP BLOCK	ZONE	TAX/ZONE MAP	ELECT DISTRICT	DENSITY TRACT
457-145B	1B	M-1	37	601.02

TITLE	DATE	SCALE	PROJ. NO.
STORM DRAIN PROFILES	10/31/02	1" = 40'	99058-A

Des. By: LL Date: 9-20-00
Chk. By: Approved: 13 of 30

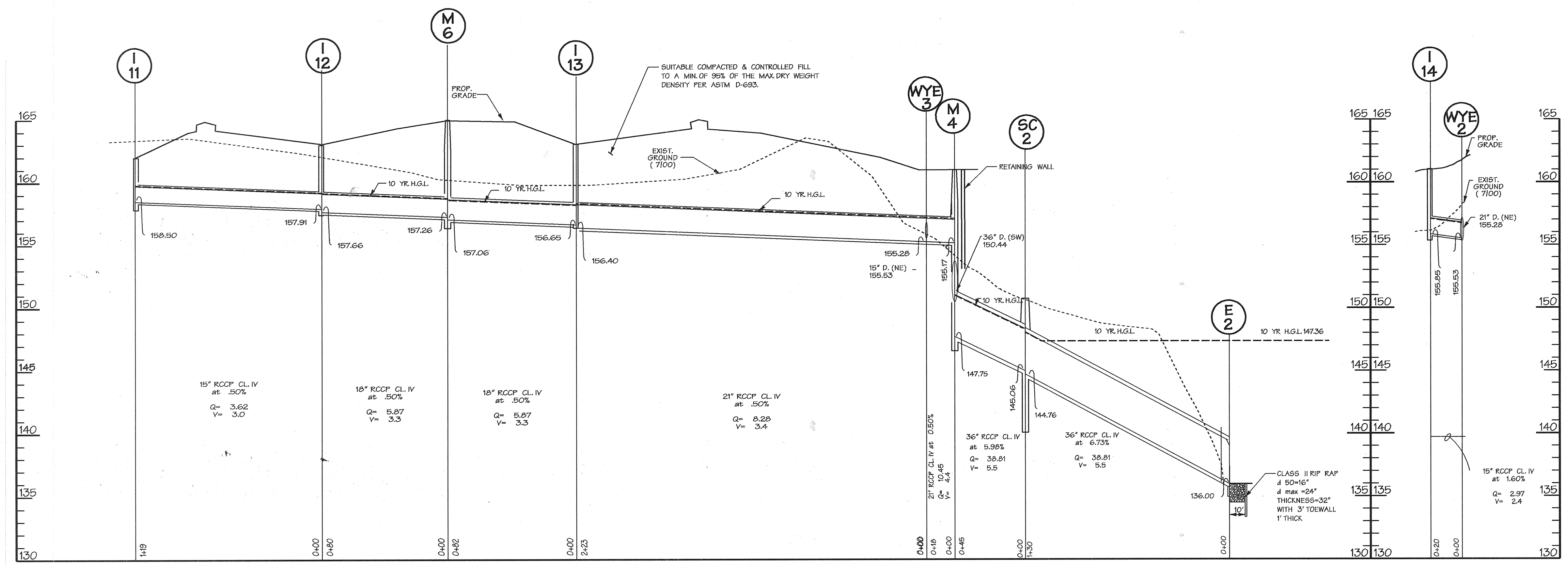


PIPE SCHEDULE

SIZE	CLASS	LF
15"	RCCP CL. IV	798 LF
18"	RCCP CL. IV	1028 LF
21"	RCCP CL. IV	288 LF
24"	RCCP CL. IV	421 LF
27"	RCCP CL. IV	124 LF
30"	RCCP CL. IV	207 LF
36"	RCCP CL. IV	698 LF

Storm Drain Profile- Lot: A-11

Scale: Horiz: 1"=40'
Vert: 1"=5'



Storm Drain Profile- Lot: A-11

Scale: Horiz: 1"=40'
Vert: 1"=5'

STRUCTURE SCHEDULE FOR LOT A-11

NO.	TYPE	INV. OUT	INV. IN	TOP ELEV.	REMARKS	COORDINATES	
						NORTH	EAST
I-11	A-10	158.50		162.00	HO CO STD. SD 4.02	488,041.9	869,941.0
I-12	A-5	157.66	157.91	163.00	HO CO STD. SD 4.01	488,883.7	869,899.9
I-13	A-5	156.40	156.66	163.00	HO CO STD. SD 4.01	488,772.2	869,876.3
I-14	A-5	155.25	155.51	161.00	HO CO STD. SD 4.01	488,655.9	869,871.9
I-15	A-5	151.09	151.19	160.00	HO CO STD. SD 4.01	488,506.0	869,709.1
I-16	A-10	153.11	153.26	159.00	HO CO STD. SD 4.02	488,772.0	869,856.5
I-17	A-5	154.23	153.98	160.00	HO CO STD. SD 4.01	488,881.1	869,853.5
I-18	A-10	155.00	155.70	160.70	HO CO STD. SD 4.02	488,048.3	869,872.7
I-19	A-5	159.85	159.85	164.50	HO CO STD. SD 4.01	488,148.1	869,898.1
MH 3	STD. MANHOLE	157.89	157.84	160.89	HO CO STD. G 5.12	488,022.4	869,882.4
MH 4	STD. MANHOLE	150.44	150.44	161.55	HO CO STD. G 5.11	488,256.4	869,891.1
MH 5	STD. MANHOLE	151.89	152.09	159.80	HO CO STD. G 5.11	488,256.4	869,872.7
MH 6	STD. MANHOLE	157.06	157.26	165.00	HO CO STD. G 5.12	488,816.3	869,872.2
SC 2		169.40	169.10	161.00		488,256.0	869,891.1
SC 2		159.22	161.00			488,256.0	869,891.1
EB 2		136.00	136.00			488,807.6	869,997.8
I-20	PRECAST WR INLET	154.21	N/A	159.7*	HO CO STD. SD 4.38	495,586.0	869,575.0

* TOP OF GRATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING

[Signature] 10/10/10
CHIEF, DEVELOPMENT ENGINEERING DIVISION

[Signature] 11/8/10
CHIEF, DIVISION OF LAND DEVELOPMENT

[Signature] 11/26/10
DIRECTOR

Date	No.	Revision Description
9/07/01	1	ELIM A-12 FROM PLAN. SEE SDP 01-92 FOR REV. A-12
11/14/05	4	RAISE INLET I-18, ADD NOTES FOR I-17 & I-16, ADD INLET 20 TO STRUCTURE SCHEDULE

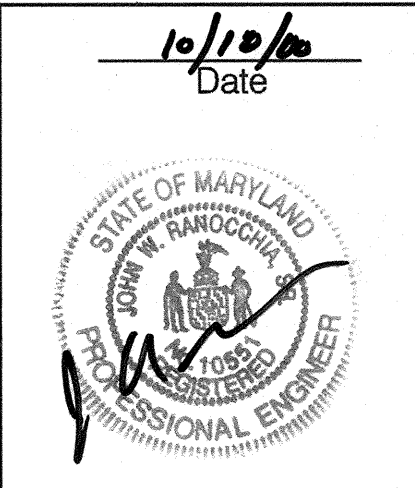
Troy Hill Corporate Center
Lots: A-10, A-11 & A-12

OWNER: TROY HILL CORPORATE CENTER
C & S TROY HILL LLC
CIO MANEKIN CORPORATION
7165 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046
(410) 290-1400

DEVELOPER: C & S TROY HILL LLC
925 FELL STREET
BALTIMORE, MARYLAND 21231
(410) 534-6350

DMW
Dart-McCune-Walker, Inc.
200 East Pennsylvania Avenue
Towson, Maryland 21286
(410) 296-3333
Fax: 296-4705

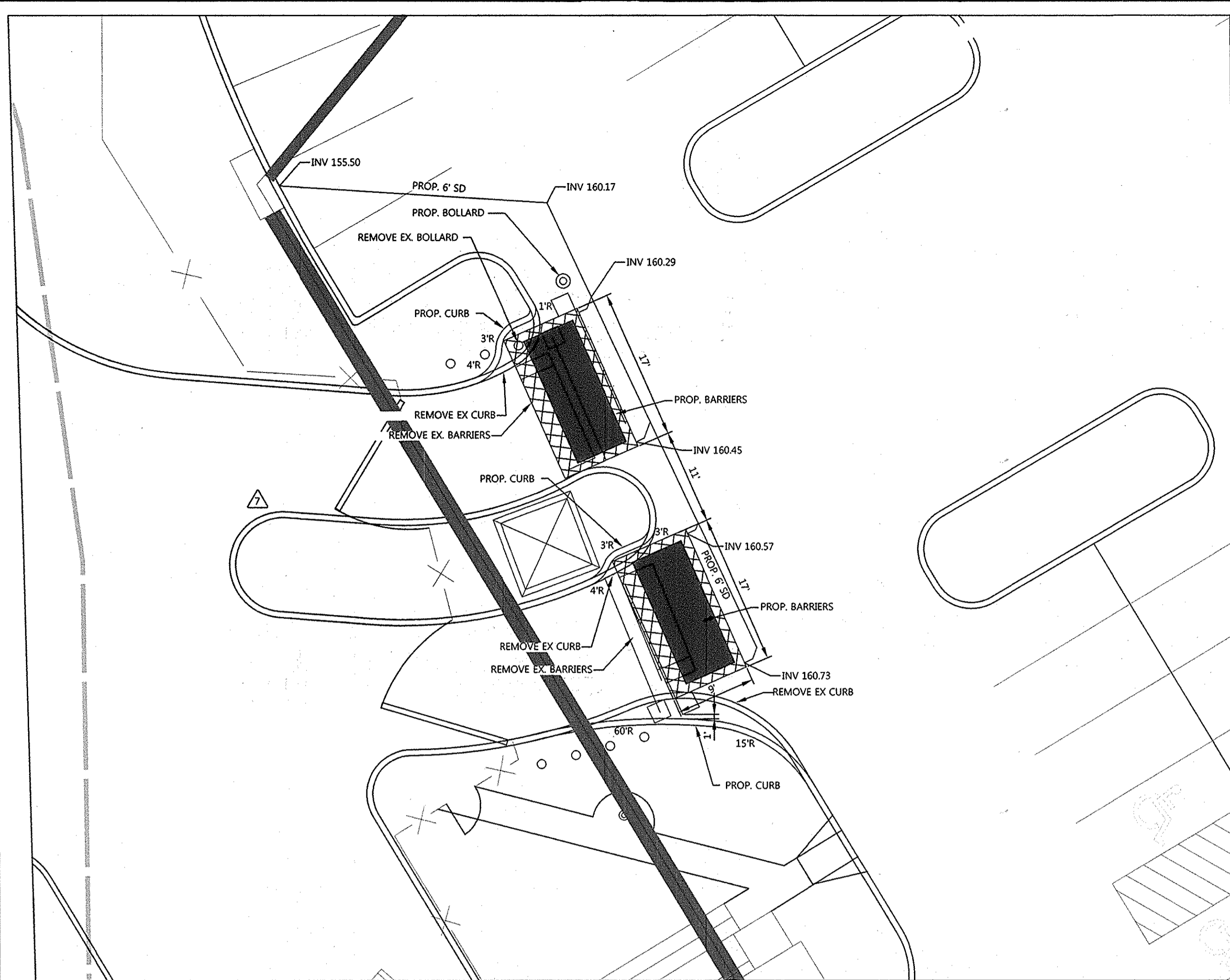
A Team of Land Planners,
Landscape Architects,
Golf Course Architects,
Engineers, Surveyors &
Environmental Professionals



SUBDIVISION NAME	TROY HILL CORPORATE CENTER	SECTION/AREA	1	LOT/PARCEL#	A-10, A-11
PLAT OR RECORD NUMBER	15	TAX/ZONE MAP	37	ELECT. DISTRICT	37
WATER CODE	4517-1576	SEWER CODE	2152200	CENSUS TRACT	6011.02

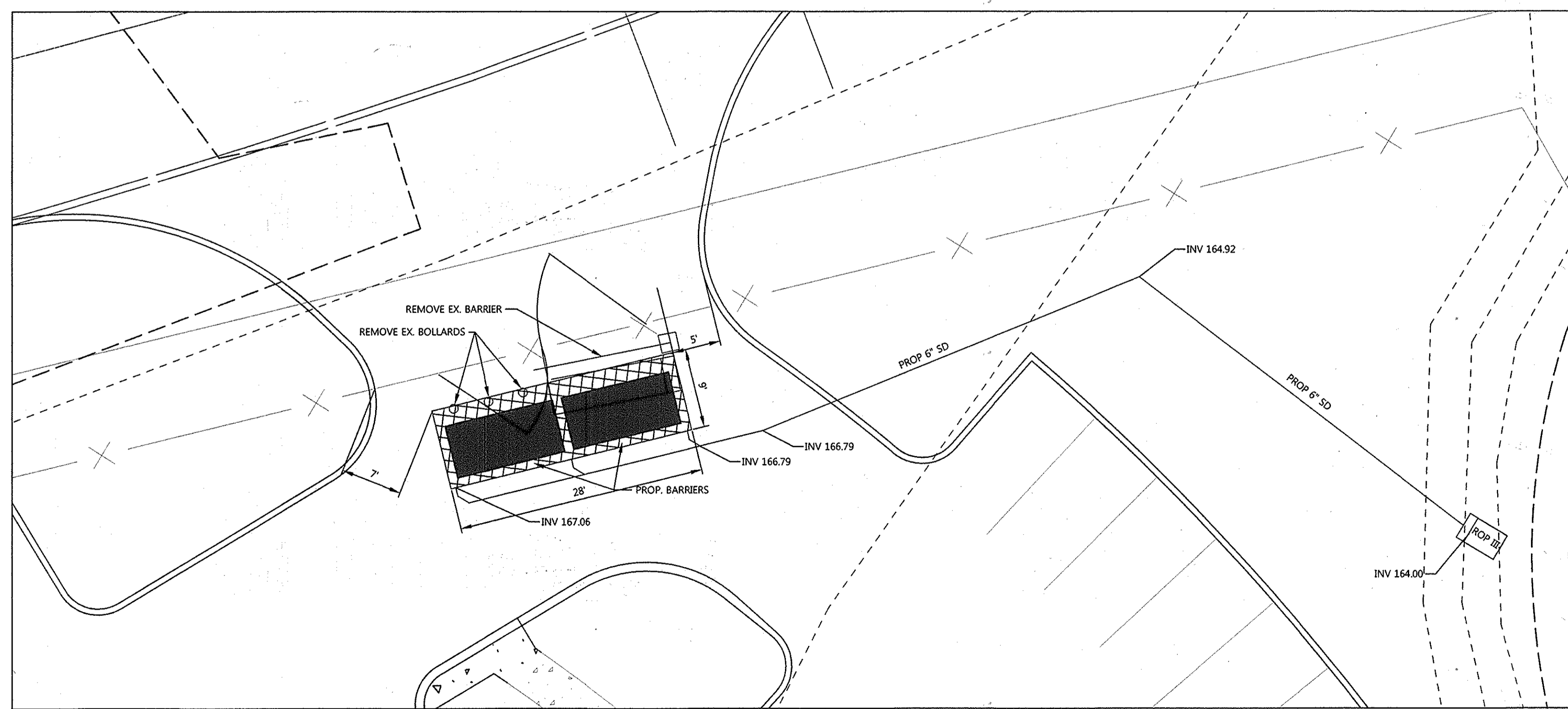
TITLE: **STORM DRAIN PROFILES**
LOT A-11

Drn. By: ADL Scale: 1"=40' Proj. No. 99058.A
Des. By: LL Date: 9-20-00
Professional Engr. No. 10551 Chk. By: Approved: 14 of 30



A INSTALL DETAIL

SCALE: 1" = 10'



B INSTALL DETAIL

SCALE: 1" = 10'

DETAIL D-4-1-C ROCK OUTLET PROTECTION III

STANDARD SYMBOL: ROP III

DISCHARGE TO AN UNCONFINED CHANNEL OR FLAT AREA

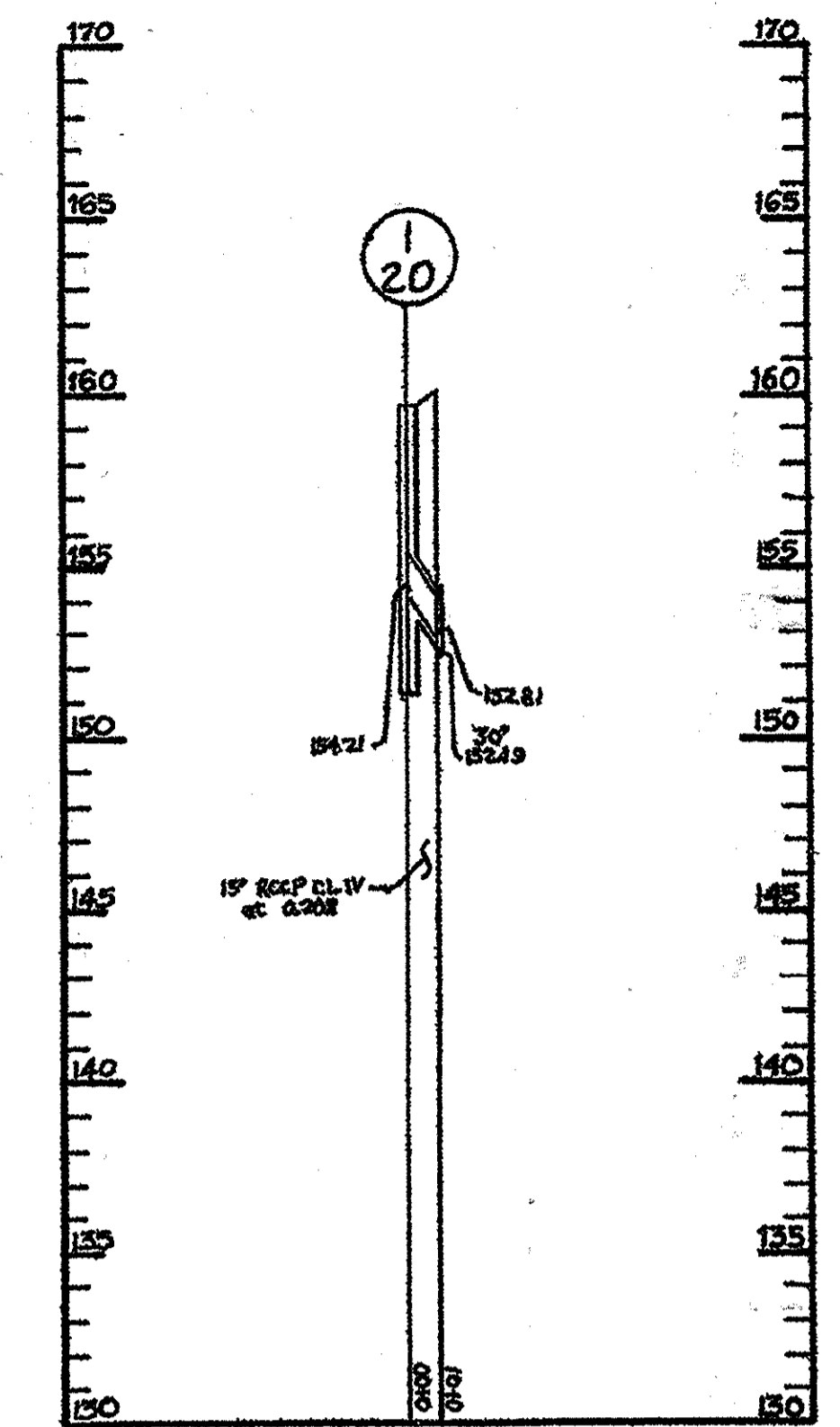
CONSTRUCTION SPECIFICATIONS

- RIPRAP AND STONE MUST CONFORM TO THE SPECIFIED CLASS.
- USE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, AND PROTECT FROM PUNCTURING, CUTTING, OR TEARING. REPAIR ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE BY PLACING ANOTHER PIECE OF GEOTEXTILE OVER THE DAMAGED PART OR BY COMPLETELY REPLACING THE GEOTEXTILE. PROVIDE A MINIMUM OF ONE FOOT OVERLAP FOR ALL REPAIRS AND FOR JOINING TWO PIECES OF GEOTEXTILE TOGETHER.
- PREPARE THE SUBGRADE FOR GEOTEXTILE OR STONE FILTER (3/8 TO 1 1/2 INCH MINIMUM STONE FOR 6 INCH MINIMUM DEPTH) AND RIPRAP TO THE REQUIRED LINES AND GRADES. COMPACT ANY FILL REQUIRED IN THE SUBGRADE TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.
- EXTEND GEOTEXTILE AT LEAST 6 INCHES BEYOND EDGES OF RIPRAP AND EMBED AT LEAST 4 INCHES AT SIDES OF RIPRAP.
- CONSTRUCT RIPRAP OUTLET TO FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. PLACE STONE FOR RIPRAP OUTLET IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENEOUS WITH THE SMALLER STONES AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER STONES. PLACE RIPRAP IN A MANNER TO PREVENT DAMAGE TO THE FILTER BLANKET OR GEOTEXTILE. HAND PLACE TO THE EXTENT NECESSARY.
- WHERE NO ENDWALL IS USED, CONSTRUCT THE UPSTREAM END OF THE APRON SO THAT THE WIDTH IS TWO TIMES THE DIAMETER OF THE OUTLET PIPE, AND EXTEND THE STONE UNDER THE OUTLET BY A MINIMUM OF 18 INCHES.
- CONSTRUCT APRON WITH 0% SLOPE ALONG ITS LENGTH AND WITHOUT OBSTRUCTIONS. PLACE STONE SO THAT IT BLENDS IN WITH EXISTING GROUND.
- MAINTAIN LINE, GRADE, AND CROSS SECTION. KEEP OUTLET FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. AFTER HIGH FLOWS INSPECT FOR SCOUR AND RIPRAP DISLODGED RIPRAP. MAKE NECESSARY REPAIRS IMMEDIATELY.

CLASS	RIPRAP THICKNESS (T)
I	19 IN
II	32 IN
III	46 IN

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



Storm Drain Profile-Lot: A-11

Scale Horiz: 1" = 10'
Vert: 1" = 5'

IN ORDER TO MAINTAIN TRAFFIC FLOW TO AND FROM SITE CONTRACTOR MAY BE REQUIRED TO STAGE THE REMOVAL AND INSTALLATION OF PROPOSED BARRIERS

FOR PUBLIC SAFETY PURPOSES, THE CONTRACTOR SHALL INSTALL TEMPORARY HIGH VISIBLE SAFETY FENCE AROUND DAILY WORK AREA

CONTRACTOR SHALL MAINTAIN A CLEAN WORK AREA ANY LOOSE MACADAM, STONE AND SOIL SHALL BE REMOVED AT THE END OF EACH WORKING DAY

REFER TO HOWARD COUNTY DESIGN MANUAL VOLUME IV - STANDARD SPECIFICATIONS AND DETAILS FOR "UTILITY TRENCH ROADWAY REPAIRING DTL G-4.01" & PIPE TRENCH PLASTIC AND COPPER DTL G-2.12" FOR THE CONSTRUCTION OF THE 6" DEWATERING OUTFALL PIPES.

PURPOSE STATEMENT

THE PURPOSE OF REVISION NO.7 IS TO REMOVE EXISTING TRAFFIC BARRIERS ON PARCEL LOT A-11 AND REPLACE WITH NEW BARRIERS AND ASSOCIATED APURTENANCES.

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 26569, EXPIRATION DATE: 7-18-15

FOR REVISION NO. 7 ONLY

2-20-15 Date

Professional Engr. No. 26569

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING

Chil Adams 4-8-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Keith Schuchman 4-29-15
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Frank A. Coughlin 4/9/15
DIRECTOR DATE

Date	No.	Revision Description
2/17/15	A	REMOVE AND REPLACE TRAFFIC BARRIERS

Troy Hill Corporate Center
LOTS: A-10, A-11 & A-12

OWNER: TROY HILL BUSINESS PARK PARTNERSHIP
210 MANERIN CORPORATION
THREE COLUMBIA GATEWAY DR.
COLUMBIA, MARYLAND 21046
(410) 280-1400

DEVELOPER: C & S TROY HILL LLC
825 FELL STREET
BALTIMORE, MARYLAND 21201
(410) 934-6350

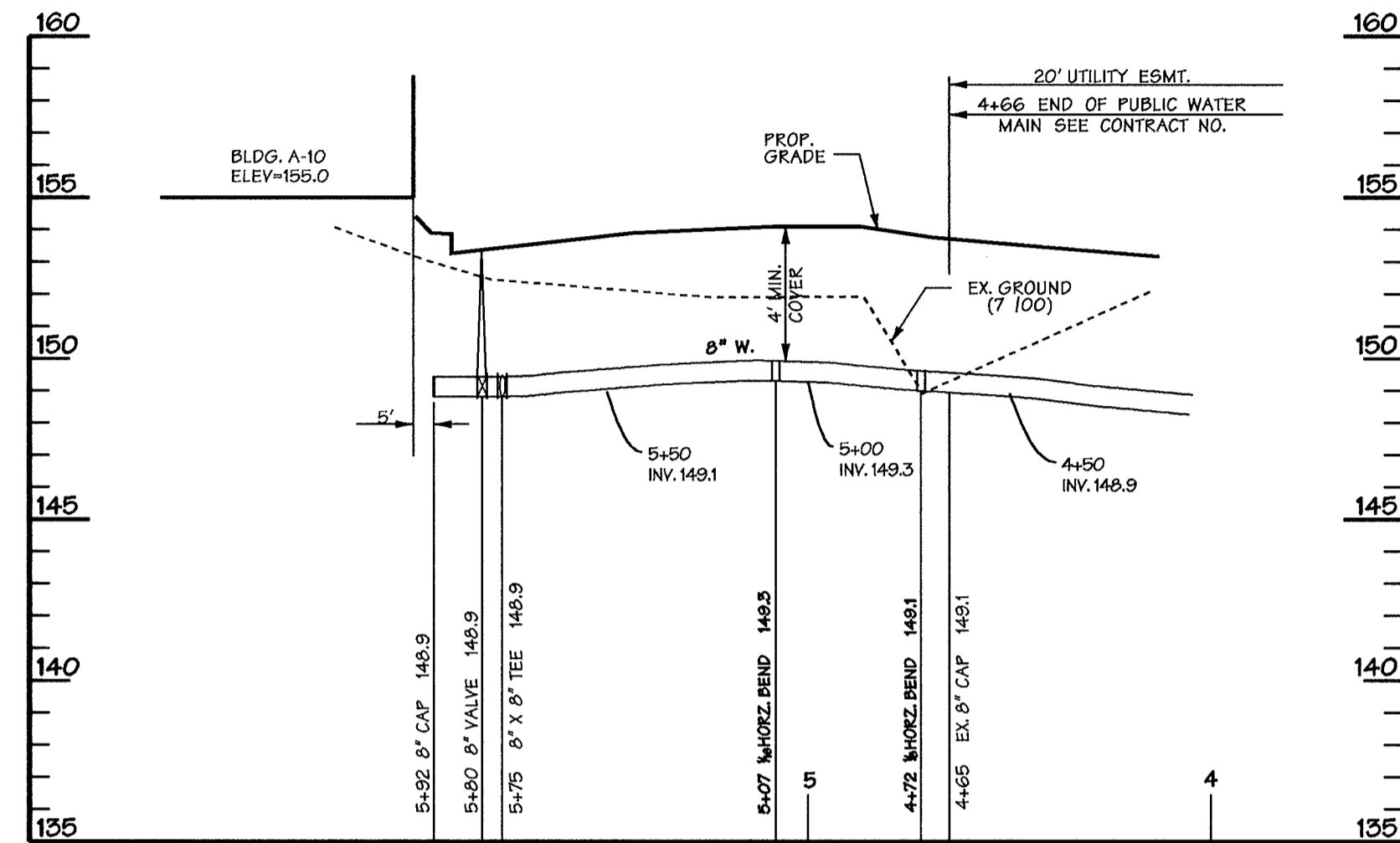
DMW
Daft-McCune Walker, Inc.
200 East Pennsylvania Avenue
Towson, Maryland 21286
(410) 286-3333
Fax 286-4705

A Team of Land Planners, Landscape Architects, Golf Course Architects, Engineers, Surveyors & Environmental Professionals

SUBDIVISION NAME	SECTION AREA	LOT/PARCEL
TROY HILL CORPORATE CENTER		A-12
PLAT OR L.F. BLOCK # ZONE	TAX ZONE MAP#	ELECT. DISTRICT
14502 1B M-1	37	1
WATER CODE	SEWER CODE	CENSUS TRACT
A03	2152200	6012

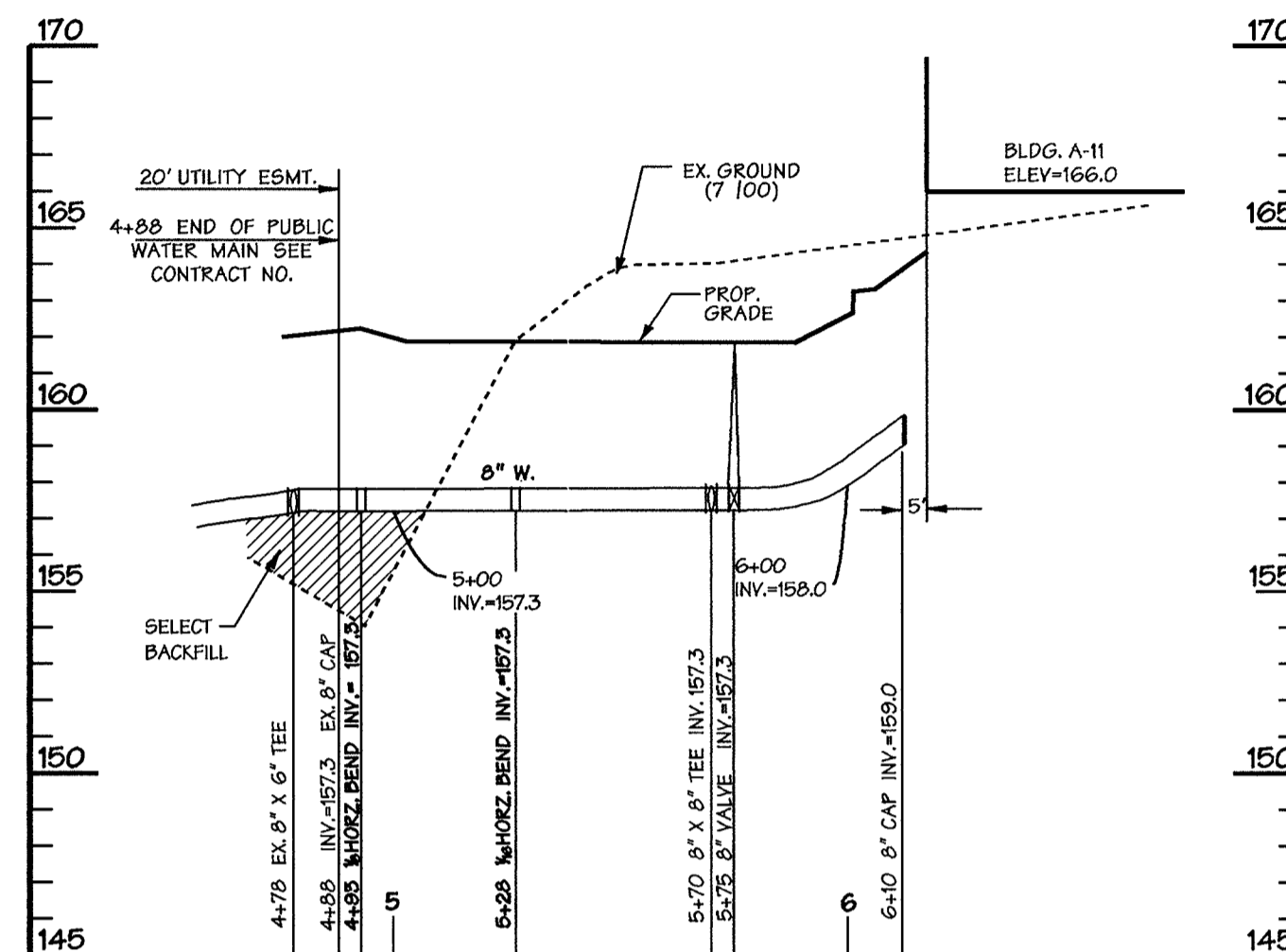
TITLE: STORM DRAIN PROFILES
LOT A-11

Drn. By:	Scale: AS SHOWN	Proj. No. 99058.A
Des. By:	Date: 9-20-00	
Chk. By:	Approved:	15 of 30



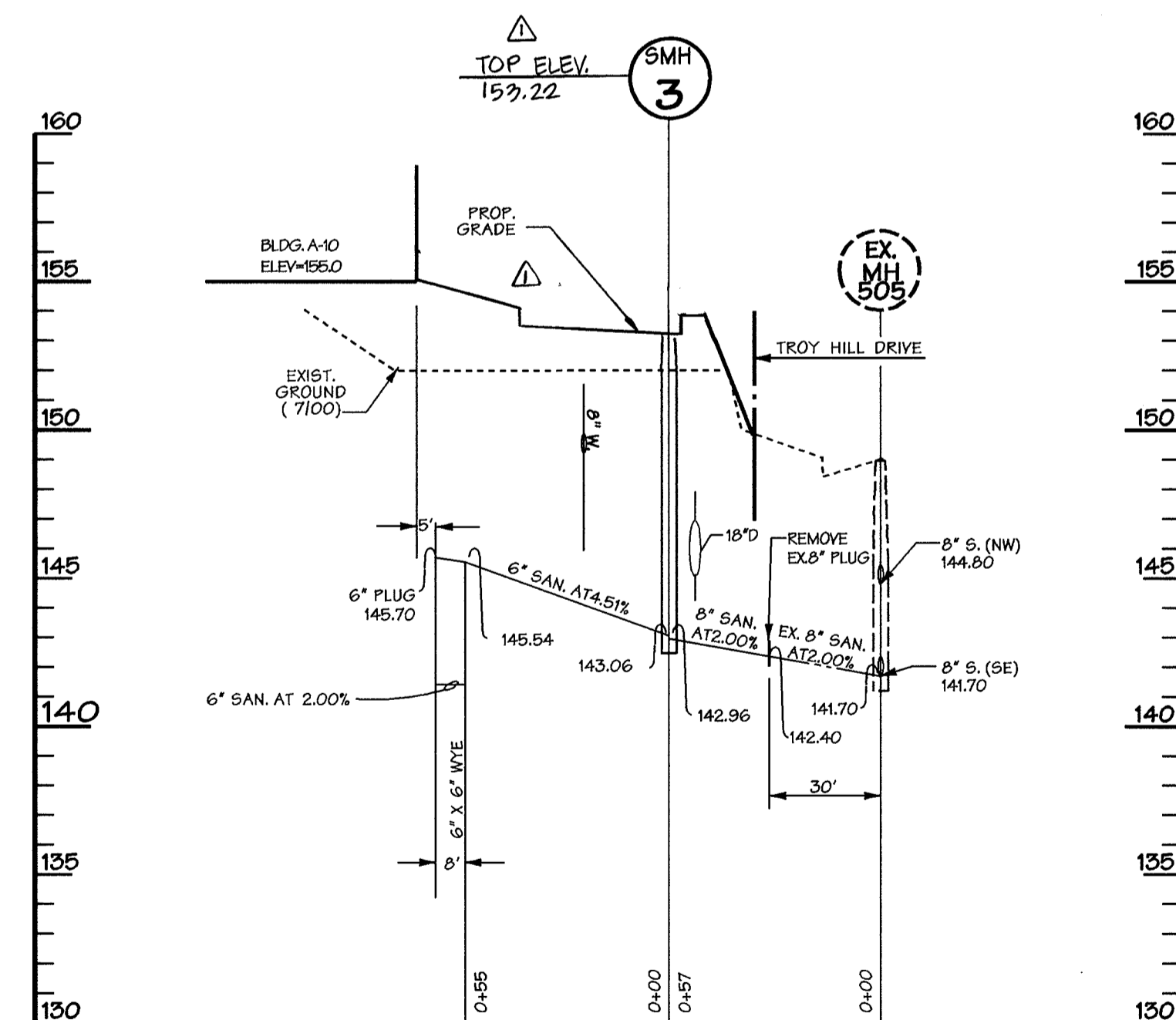
Private 8" Water- Lot: A-10

Scale: Horz: 1"=40'
Vert: 1"=5'



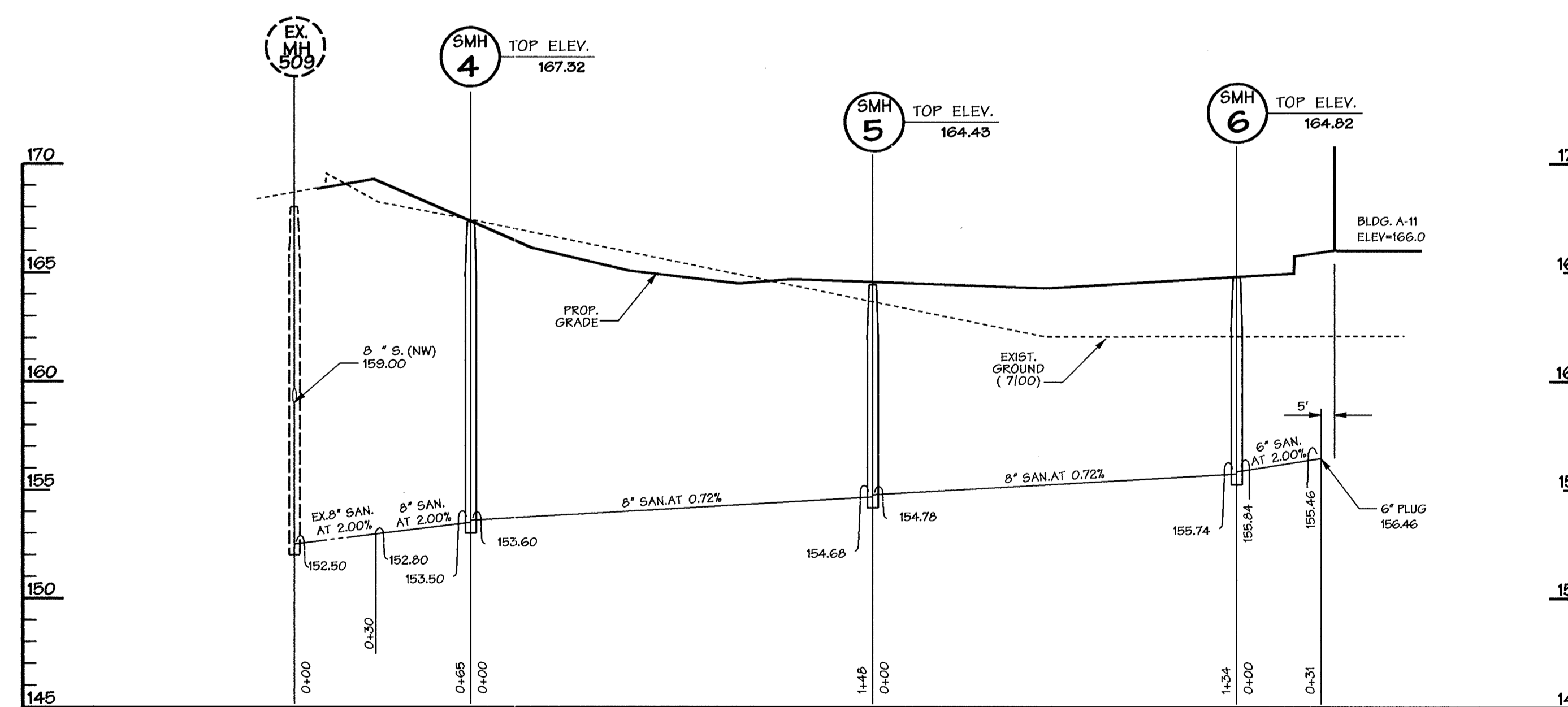
Private 8" Water- Lot: A-11

Scale: Horz: 1"=40'
Vert: 1"=5'



Private San Sewer Profile- Lot: A-10

Scale: Horz: 1"=40'
Vert: 1"=5'



Private San Sewer Profile- Lot: A-11

Scale: Horz: 1"=40'
Vert: 1"=5'



NICHOLAS J. BRADER, III, PE #18558
 REVISION MATIS WARFIELD, INC.
 10540 YORK RD, SUITE M
 HUNT VALLEY, MD 21030

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING	
<i>[Signature]</i>	10/15/00
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE
<i>[Signature]</i>	11/5/00
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE
<i>[Signature]</i>	11/8/00
DIRECTOR	DATE

12/22/00	1	MATIS WARFIELD-CHANGE PROP. GRADES FOR SEWER PROFILE PARCEL A-10, ADD TOP MH ELEV TO SMH 3
9/07/01	2	ELIM A-12 FROM PLAN. SEE DDP 01-92 FOR REV. A-12.

Date	No.	Revision Description
------	-----	----------------------

Troy Hill Corporate Center
 Lots: A-10, A-11 & A-12

OWNER:
 TROY HILL BUSINESS PARK PARTNERSHIP
 C/O MANEIKIN CORPORATION
 7165 COLUMBIA GATEWAY DRIVE
 COLUMBIA, MARYLAND 21046
 (410) 290-1400

DEVELOPER:
 C & S TROY HILL LLC
 925 FELL STREET
 BALTIMORE, MARYLAND 21231
 (410) 534-6350

DMW
 Daft-McCune-Walker, Inc.
 300 East Pennsylvania Avenue
 Towson, Maryland 21286
 (410) 296-3333
 Fax: 296-4705

A Team of Land Planners,
 Landscape Architects,
 Golf Course Architects,
 Engineers, Surveyors &
 Environmental Professionals

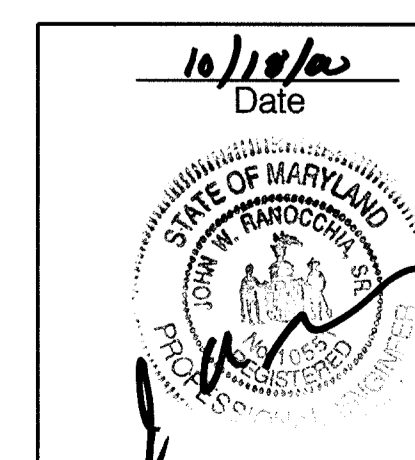
SUBMISSION NAME	SECTION/AREA	LOT/PARCEL #
TROY HILL CORPORATE CENTER	1	A-10, A-11, A-12
PLAT # OR L/P/BLOCK #	TAX/ZONE MAP	ELECT. DISTRICT
1517-1458	M-1	1
WATER CODE	SEWER CODE	CENSUS TRACT
A03	2152200	6011.02

TITLE
UTILITY PROFILES
 LOTS A-10, A-11

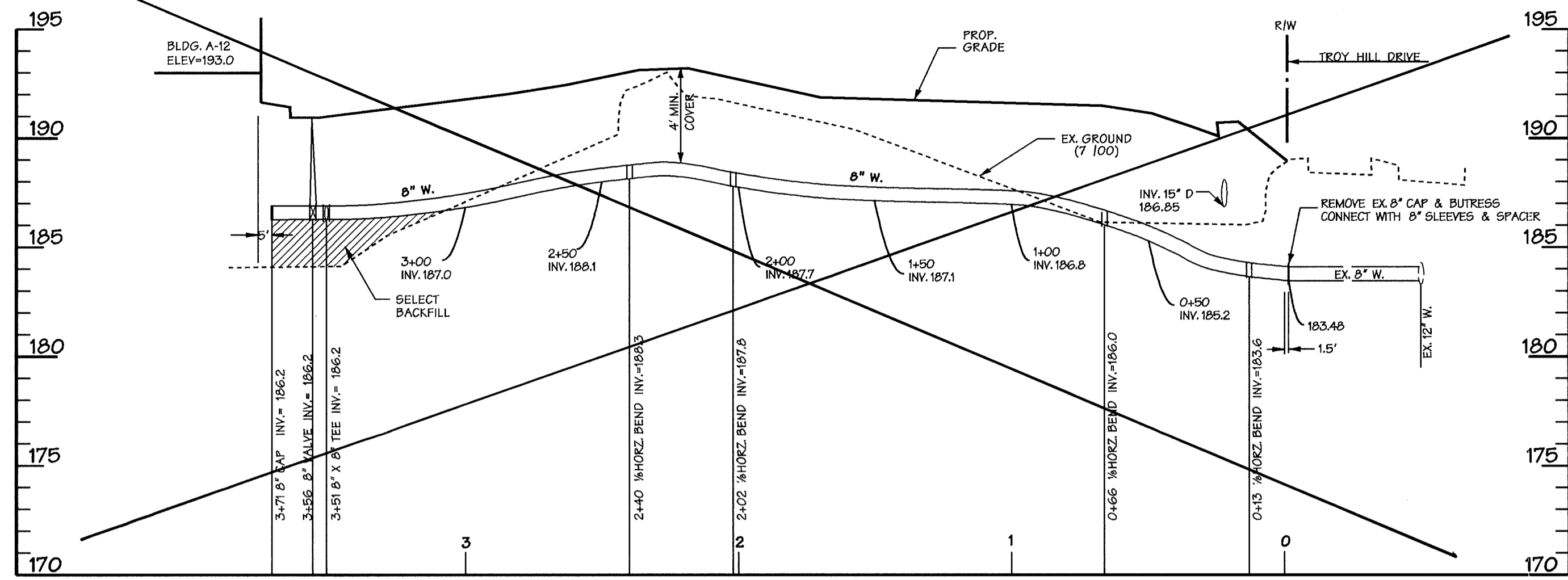
Drn. By: ADL Scale: 1"=40' Proj. No. 99058.A

Des. By: DFM Date: 9-20-00

Chk. By: Approved: 16 of 30

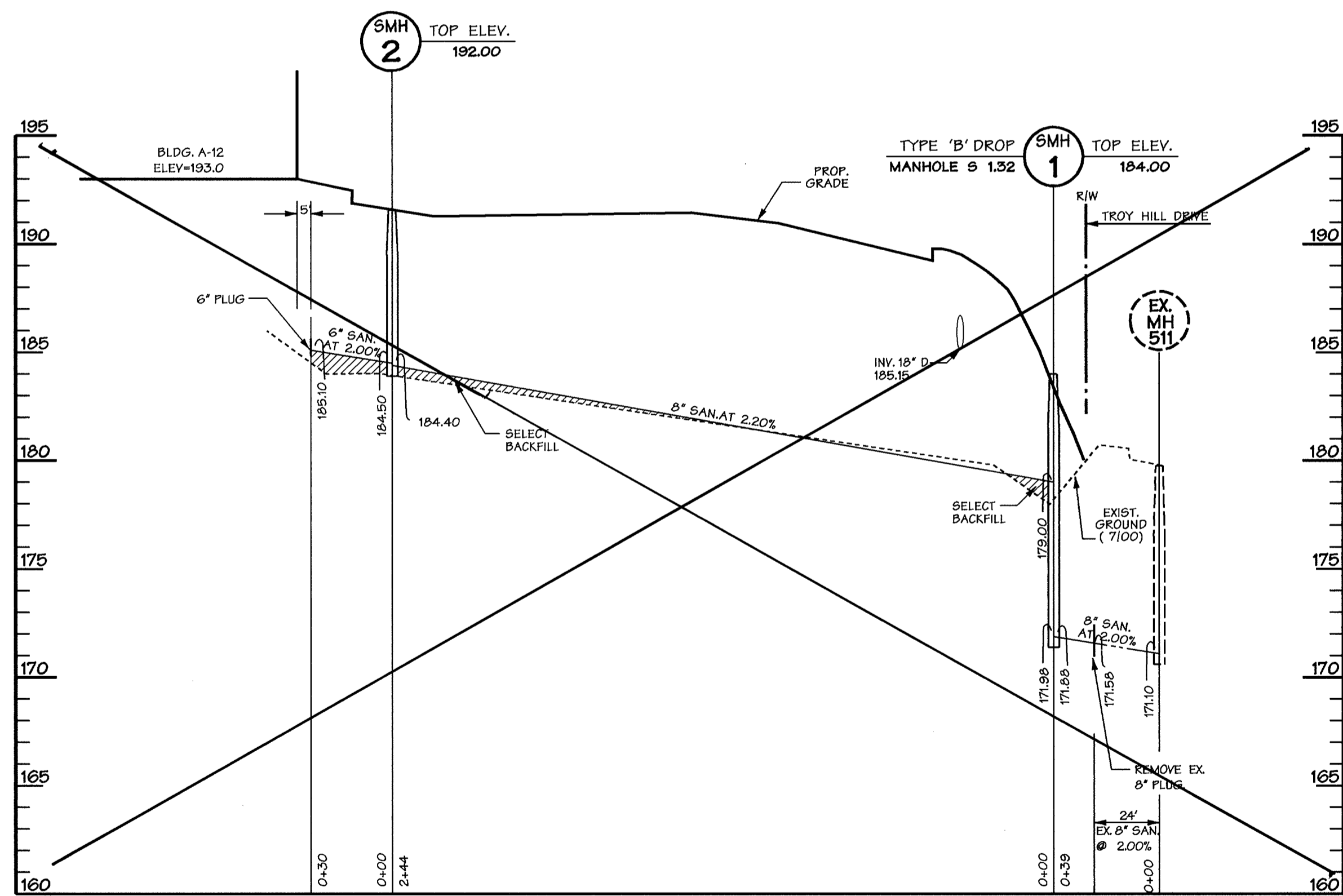


Professional Engr. No. 18557



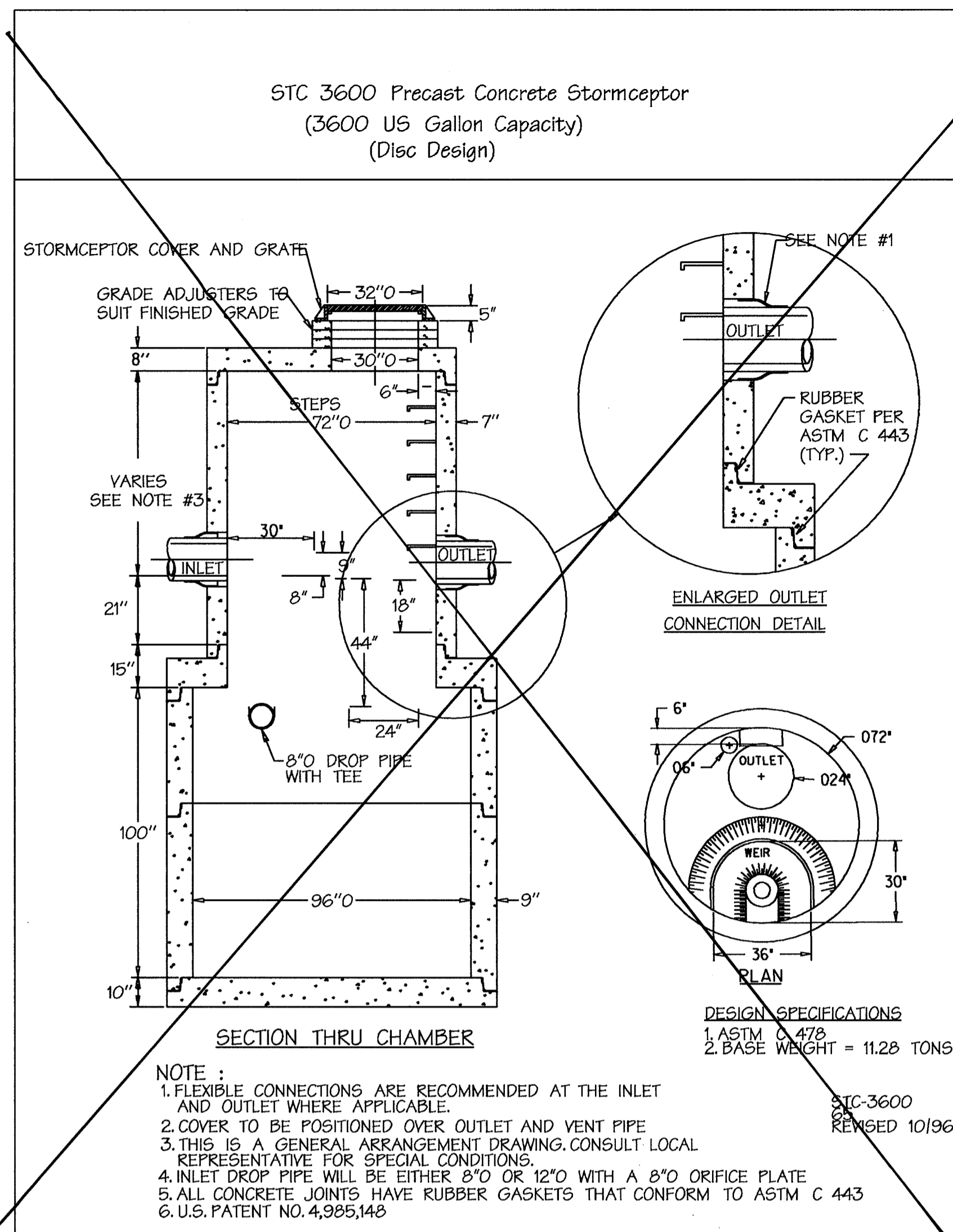
Private 8" Water- Lot: A-12

Scale: Horz: 1"=40'
Vert: 1"=5'



Private San Sewer Profile- Lot: A-12

Scale: Horz: 1"=40'
Vert: 1"=5'



Stormceptor Detail: Lot A-12

Scale: Not to Scale

Precast Concrete Order Request Form

Name: KIMBALL CONST.
Address: 9615 PHILADELPHIA RD.
City: BALTIMORE
State: MARYLAND
Zip Code: 21237
Contact: LEWIS KIMBALL
Phone: 410-574-0800
Fax: 410-574-7850

Name: C & S TROY HILL LLC.
Phone:
Fax:

Manhole Number: SC1
Top Elevation (ft): 151.82
Inlet Pipe Invert (ft): 141.17
Outlet Pipe Invert (ft): 140.87
Pipe Type: RCCP CL IV
Inlet Pipe Inside Diameter (ID): 36" & 18"
Inlet Pipe Outside Diameter (OD): 42" & 24"
Outlet Pipe Inside Diameter (ID): 36"
Outlet Pipe Outside Diameter (OD): 42"

Project Name: TROY HILL CORPORATE CENTER
Approximate time frame of delivery (weeks): 8
Delivery Address: Street: TROY HILL DRIVE
City: ELK RIDGE State: MARYLAND Zip Code:
Designer Company: DAFT-McCUNE AND WALKER
Designer Contact: RICK WILLIAMS Phone: 410-296-3333 Fax: 410-296-4705

PLEASE FILL OUT COMPLETELY AND FAX TO: CSRI Hydro Conduit
ATTN: ED O'MALLEY FAX: (703)922-3659, PHONE: (703)971-1900
FOR TECHNICAL ASSISTANCE PLEASE CALL MIKE BARG, PHONE (703)971-1900

Stormceptor Detail: Lot A-10

Scale: Not to Scale

Precast Concrete Order Request Form

Name: KIMBALL CONST.
Address: 9615 PHILADELPHIA RD.
City: BALTIMORE
State: MARYLAND
Zip Code: 21237
Contact: LEWIS KIMBALL
Phone: 410-574-0800
Fax: 410-574-7850

Name: C & S TROY HILL LLC.
Phone:
Fax:

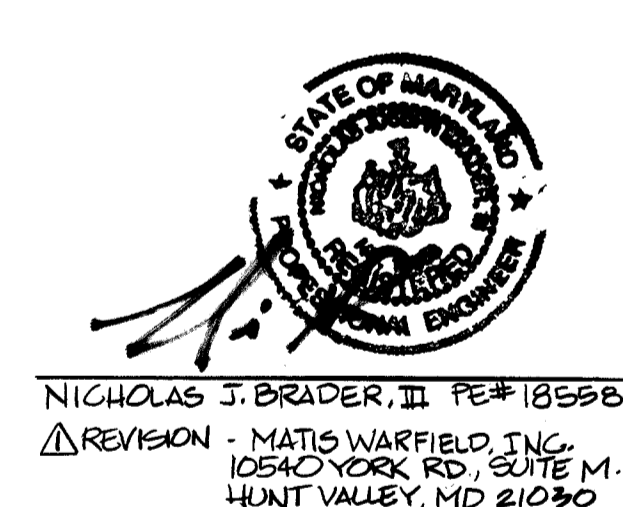
Manhole Number: SC3
Top Elevation (ft): 176.00
Inlet Pipe Invert (ft): 170.00
Outlet Pipe Invert (ft): 170.70
Pipe Type: RCCP CL IV
Inlet Pipe Inside Diameter (ID): 24"
Inlet Pipe Outside Diameter (OD): 30"
Outlet Pipe Inside Diameter (ID): 24"
Outlet Pipe Outside Diameter (OD): 30"

Project Name: TROY HILL CORPORATE CENTER
Approximate time frame of delivery (weeks): 8
Delivery Address: Street: TROY HILL DRIVE
City: ELK RIDGE State: MARYLAND Zip Code:
Designer Company: DAFT-McCUNE AND WALKER
Designer Contact: RICK WILLIAMS Phone: 410-296-3333 Fax: 410-296-4705

PLEASE FILL OUT COMPLETELY AND FAX TO: CSRI Hydro Conduit
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FOR TECHNICAL ASSISTANCE PLEASE CALL MIKE BARG, PHONE (703)971-1900

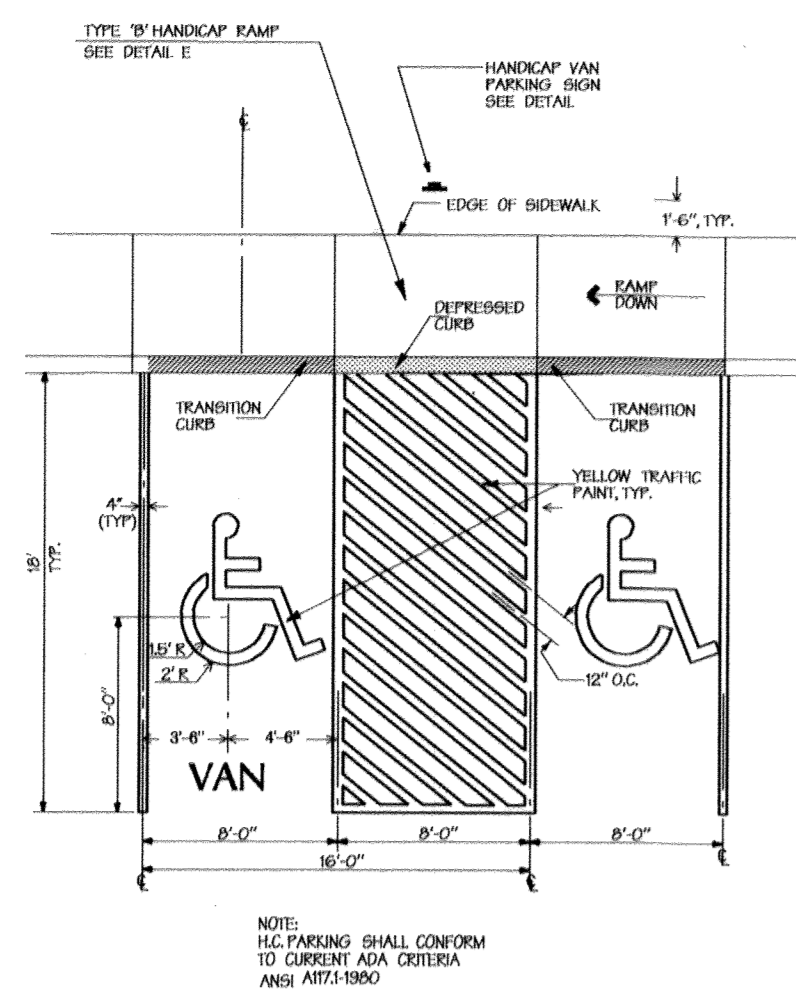
Stormceptor Detail: Lot A-12

Scale: Not to Scale

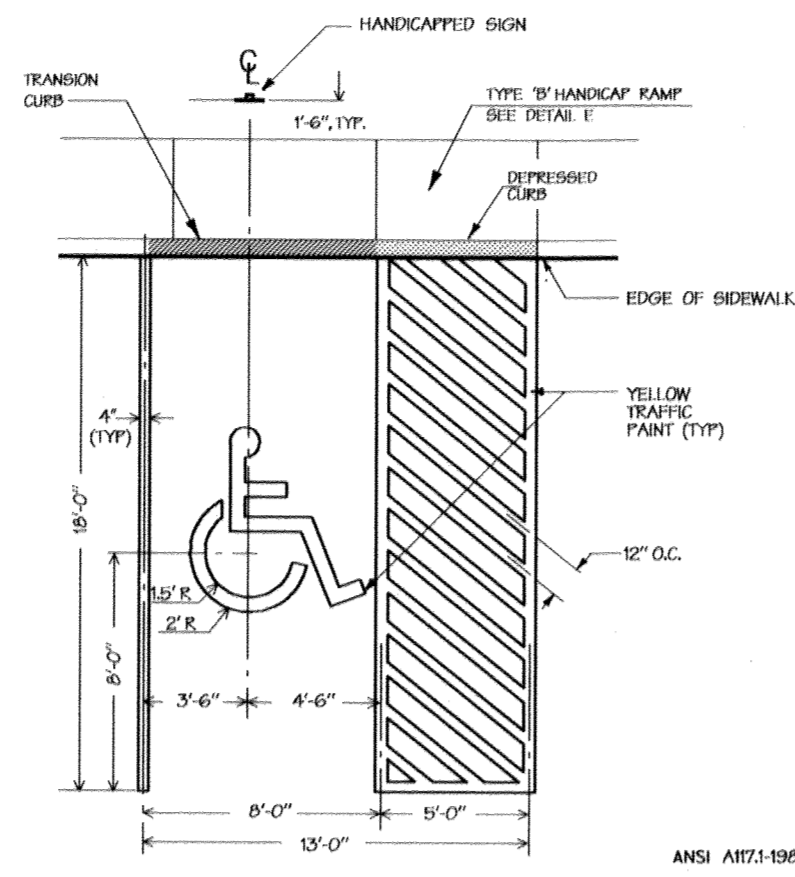


APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING	
<i>[Signature]</i>	10/15/00
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE
<i>[Signature]</i>	11/5/00
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE
<i>[Signature]</i>	11/26/00
DIRECTOR	DATE
12/22/00	1 MATIS WARFIELD CHANGE TO ELEV SC 1
9/10/01	2 ELIM. A-12 FROM PLAN. SEE SDP 01-92 FOR REVISED A-12.

Troy Hill Corporate Center			
Lots: A-10, A-11 & A-12			
OWNER: TROY HILL BUSINESS PARK PARTNERSHIP C/O MANEKIN CORPORATION 7165 COLUMBIA GATEWAY DRIVE COLUMBIA, MARYLAND 21046 (410) 290-1400		DEVELOPER: C & S TROY HILL LLC. 925 FELL STREET BALTIMORE, MARYLAND 21231 (410) 534-6350	
DMW Daft-McCune-Walker, Inc. A Team of Land Planners, Landscape Architects, Golf Course Architects, Engineers, Surveyors & Environmental Professionals 300 East Pennsylvania Avenue Towson, Maryland 21286 (410) 296-3333 Fax 296-4705			
SUBDIVISION NAME: TROY HILL CORPORATE CENTER	SECTION/AREA: 1	LOT/PARCEL: A-10, A-11, A-12	
PLAT OR LTR BLOCK/ZONE: 1517-1521 1B M-1	TAX/ZONE MAP: 37	ELECT. DISTRICT: 1	CENSUS TRACT: 601102
WATER CODE: A03	SEWER CODE: 2152200		
TITLE: UTILITY PROFILES LOT A-12			
Drn. By: ADL	Scale: 1"=40'	Proj. No. 99058.A	
Des. By: DMF	Date: 9-20-00		
Chk. By:	Approved:	17 of 30	

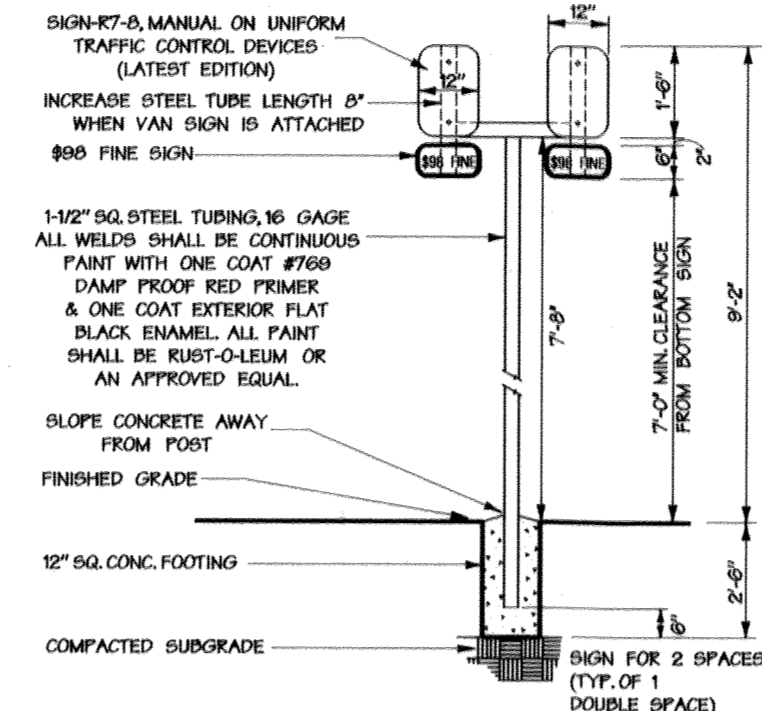


A Handicap Parking: Van & Standard
Not To Scale

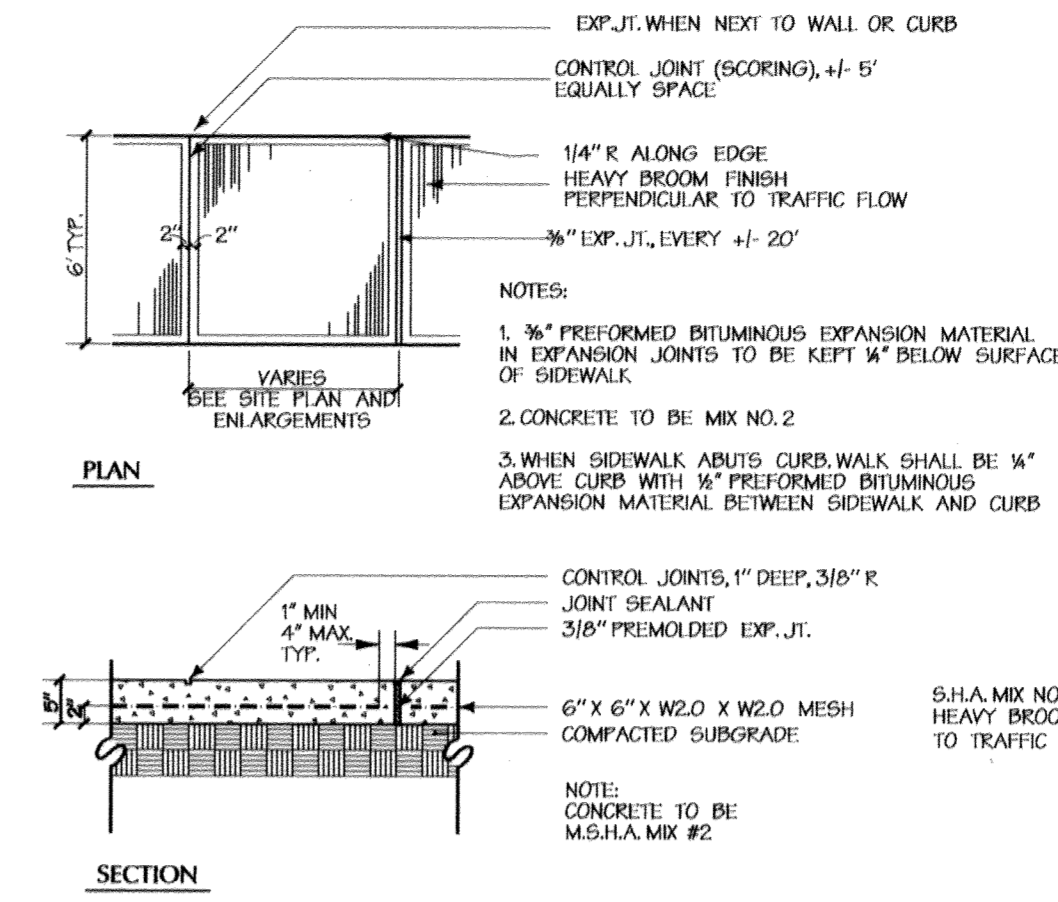


B Handicap Parking Space
Not To Scale

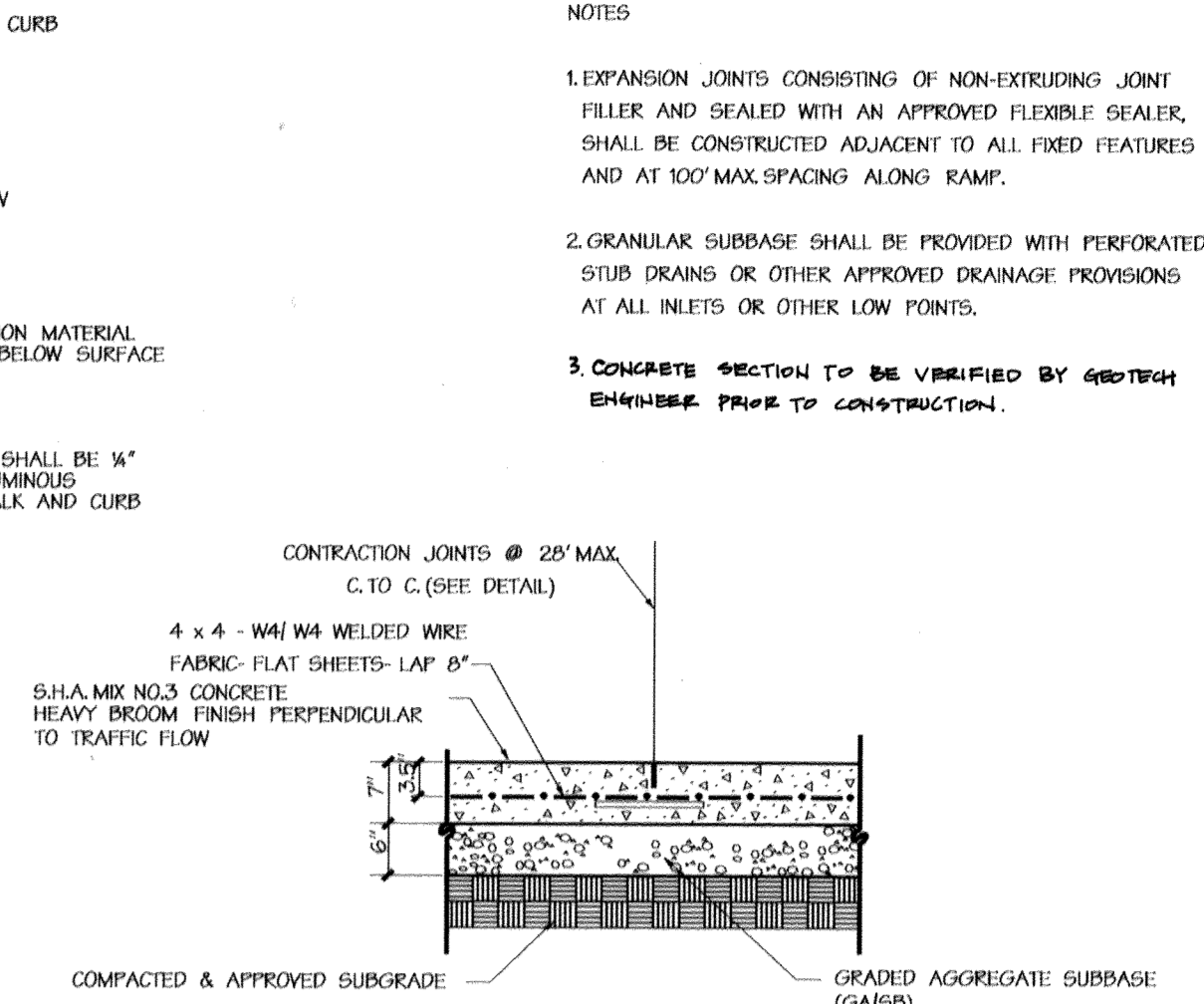
NOTES:
1. DISTANCE FROM GROUND TO BOTTOM OF SIGN SHALL BE 7'.
2. SEE HANDICAPPED PARKING SPACE DETAIL THIS SHEET FOR LOCATION OF HANDICAPPED SIGN.
3. SPACE MARKED "V" SHALL INCLUDE "VAN SIGN" AS REQUIRED.



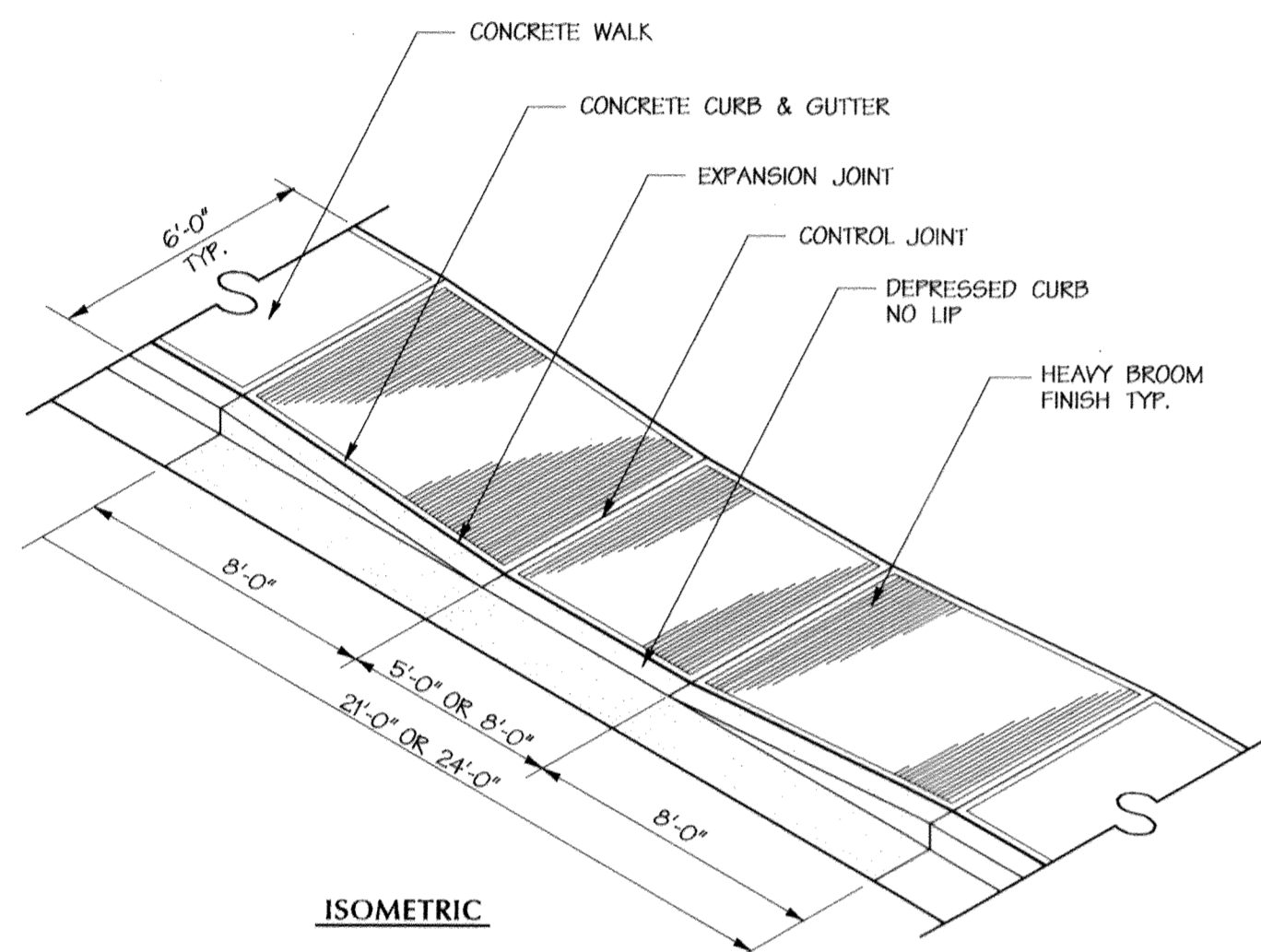
C Handicap Parking Signs
Not To Scale



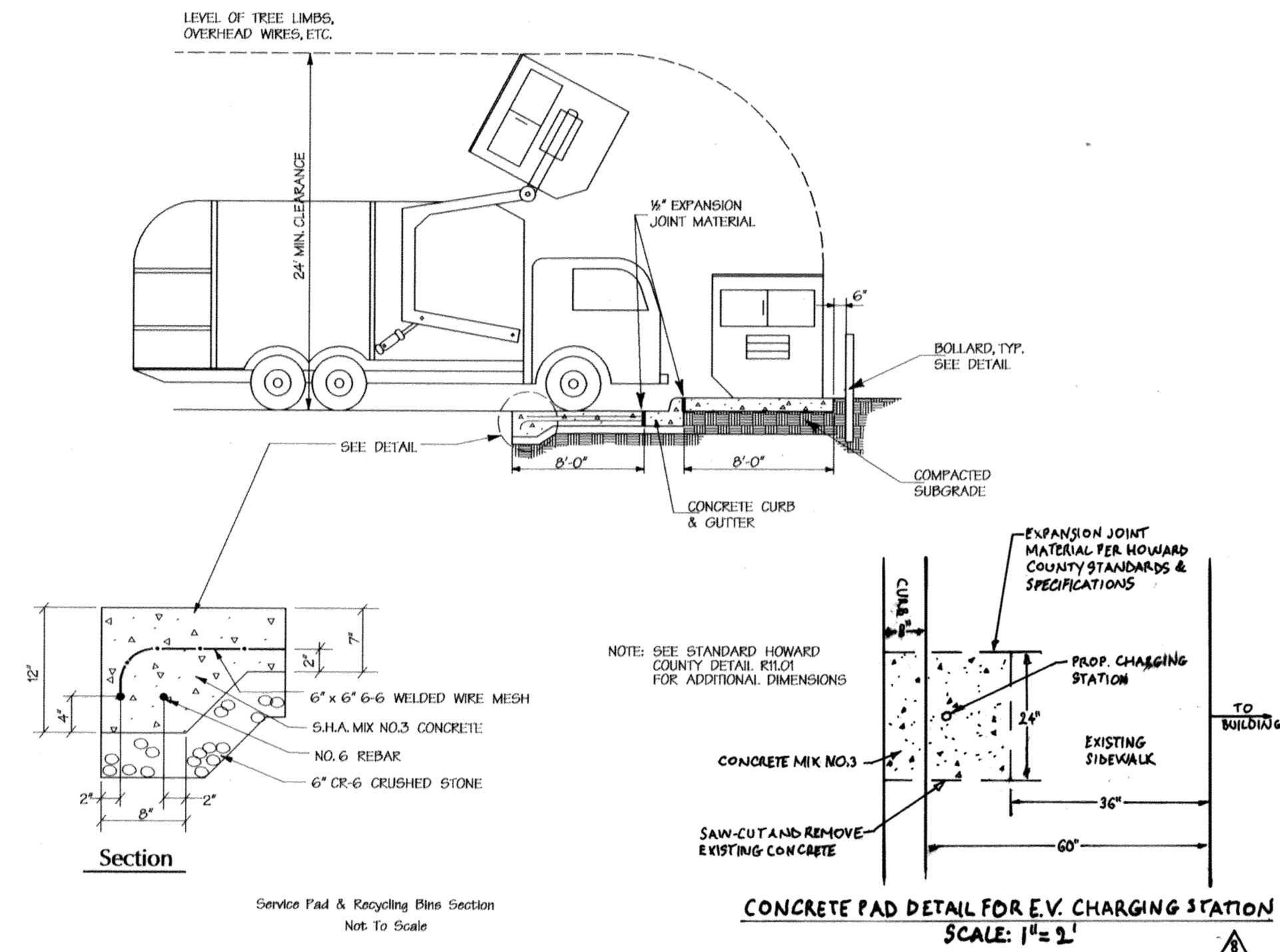
D Concrete Walk
Not To Scale



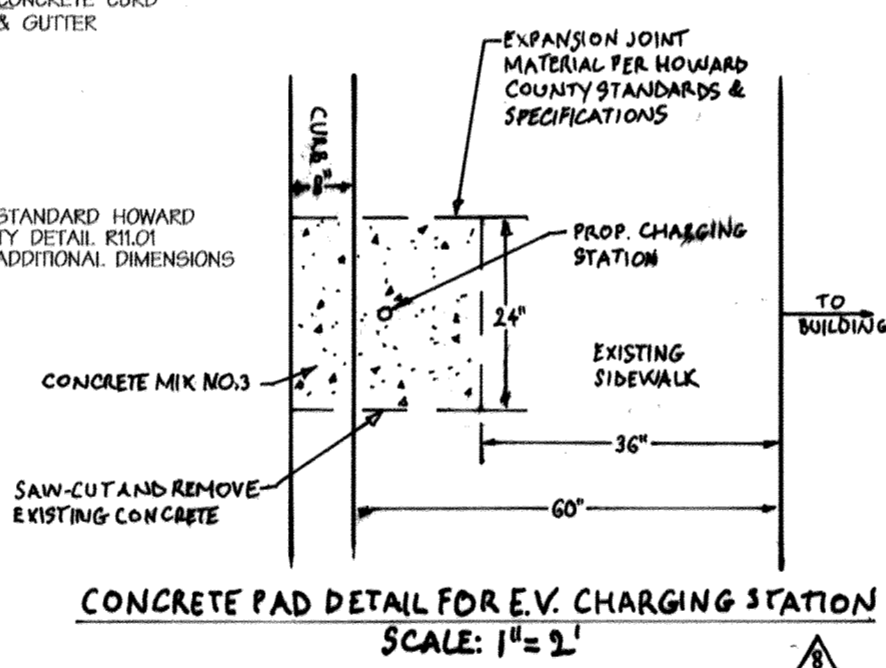
Ramp/Loading Dock Concrete Paving
Not To Scale



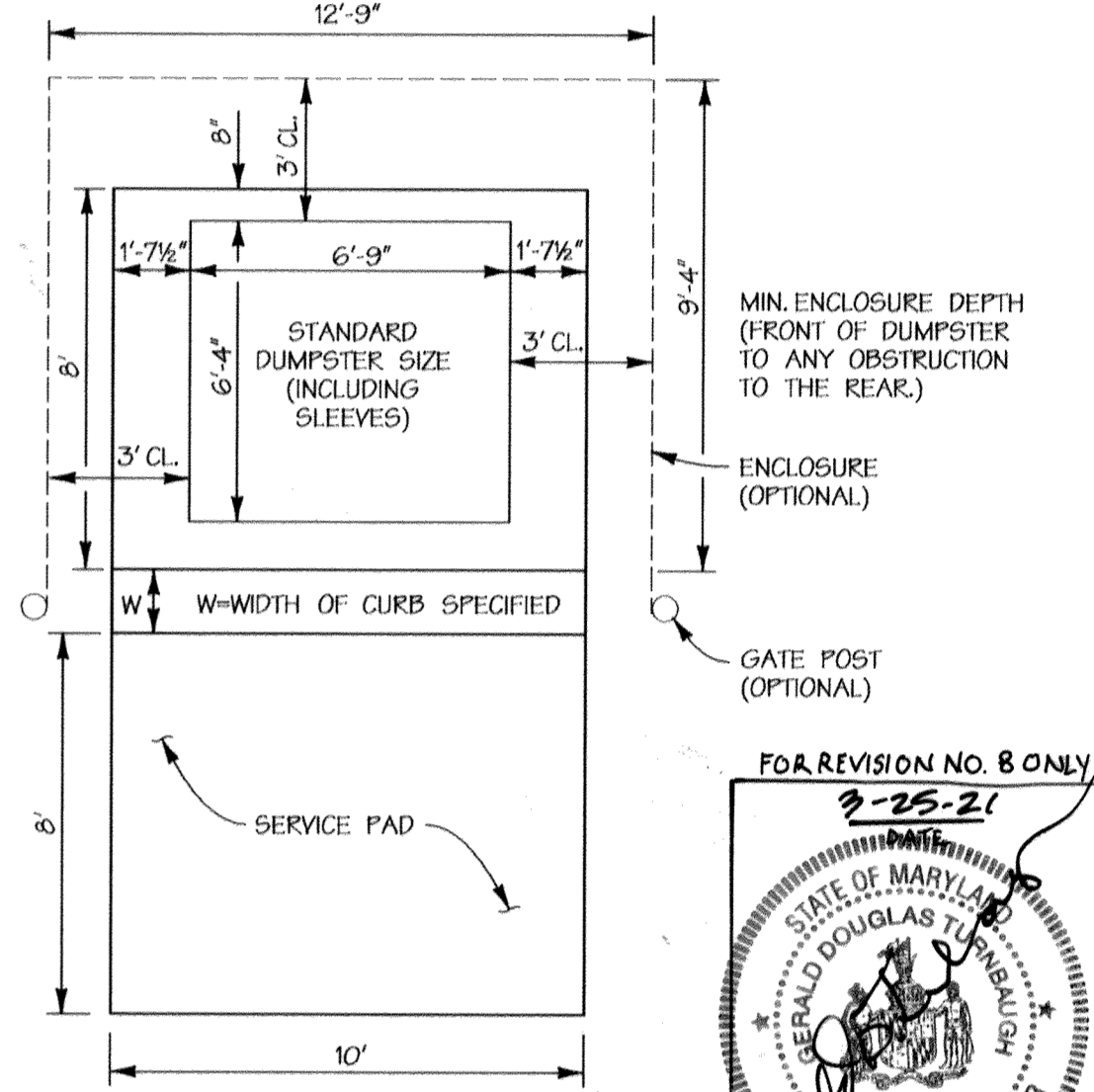
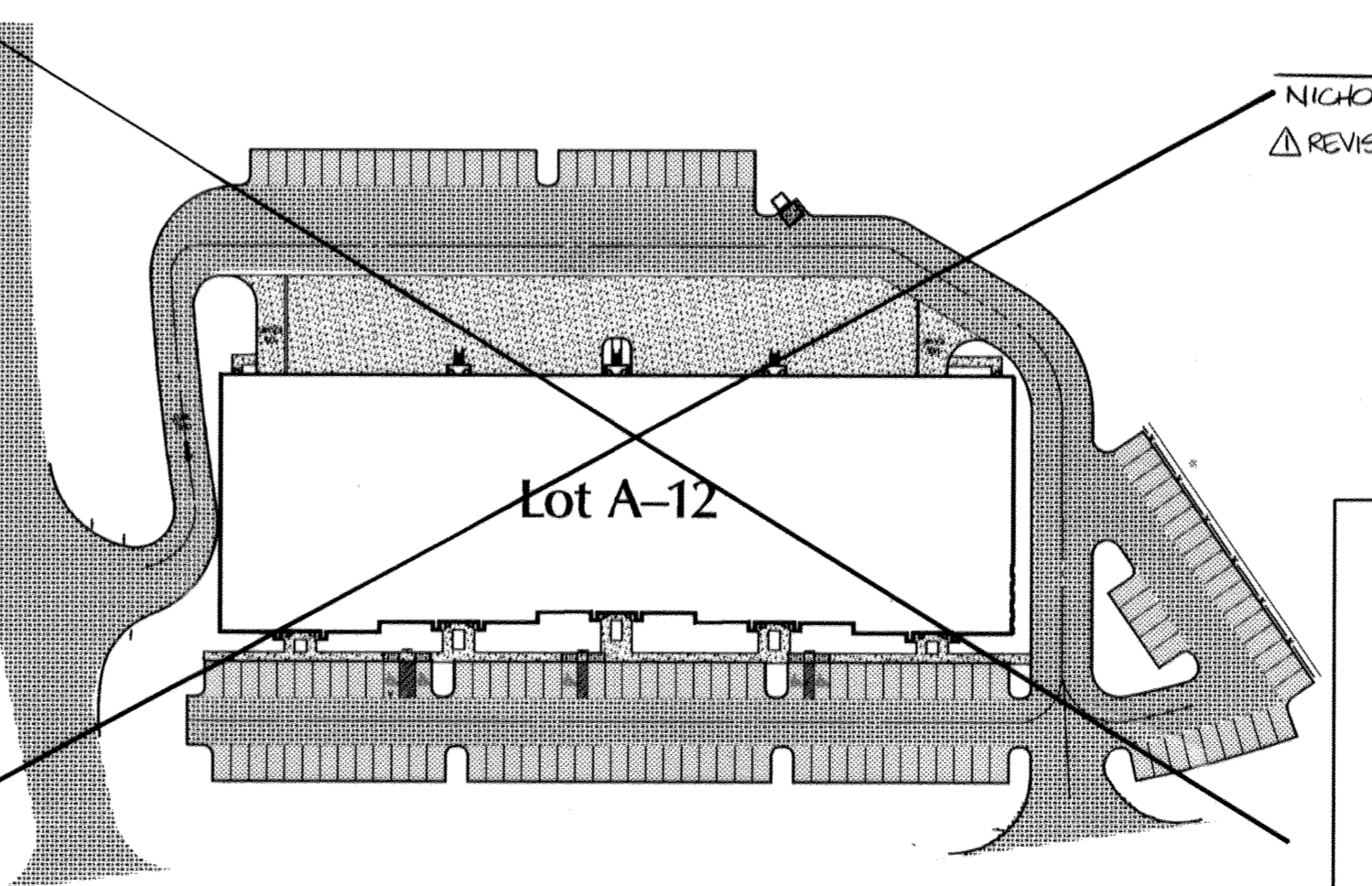
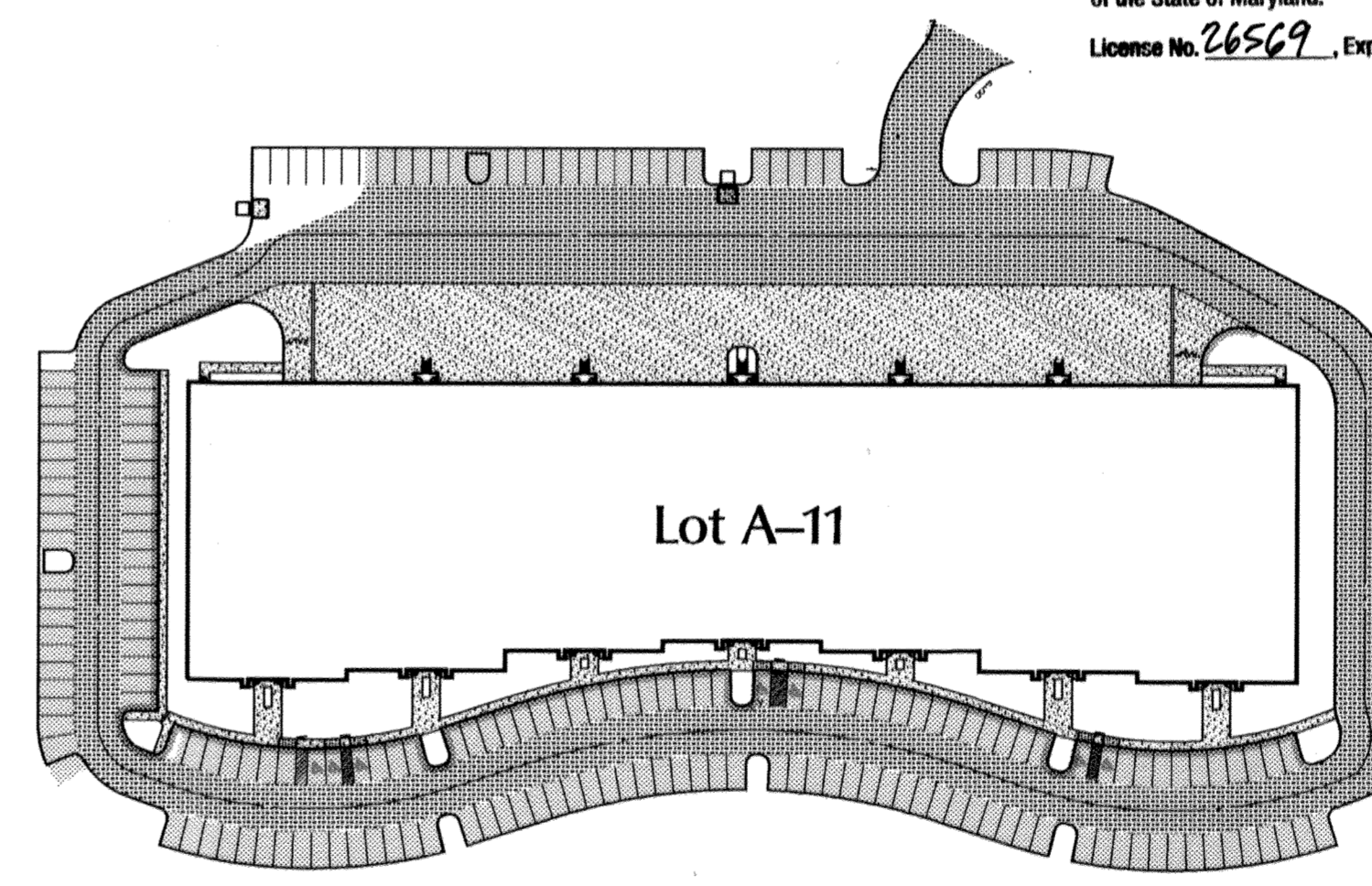
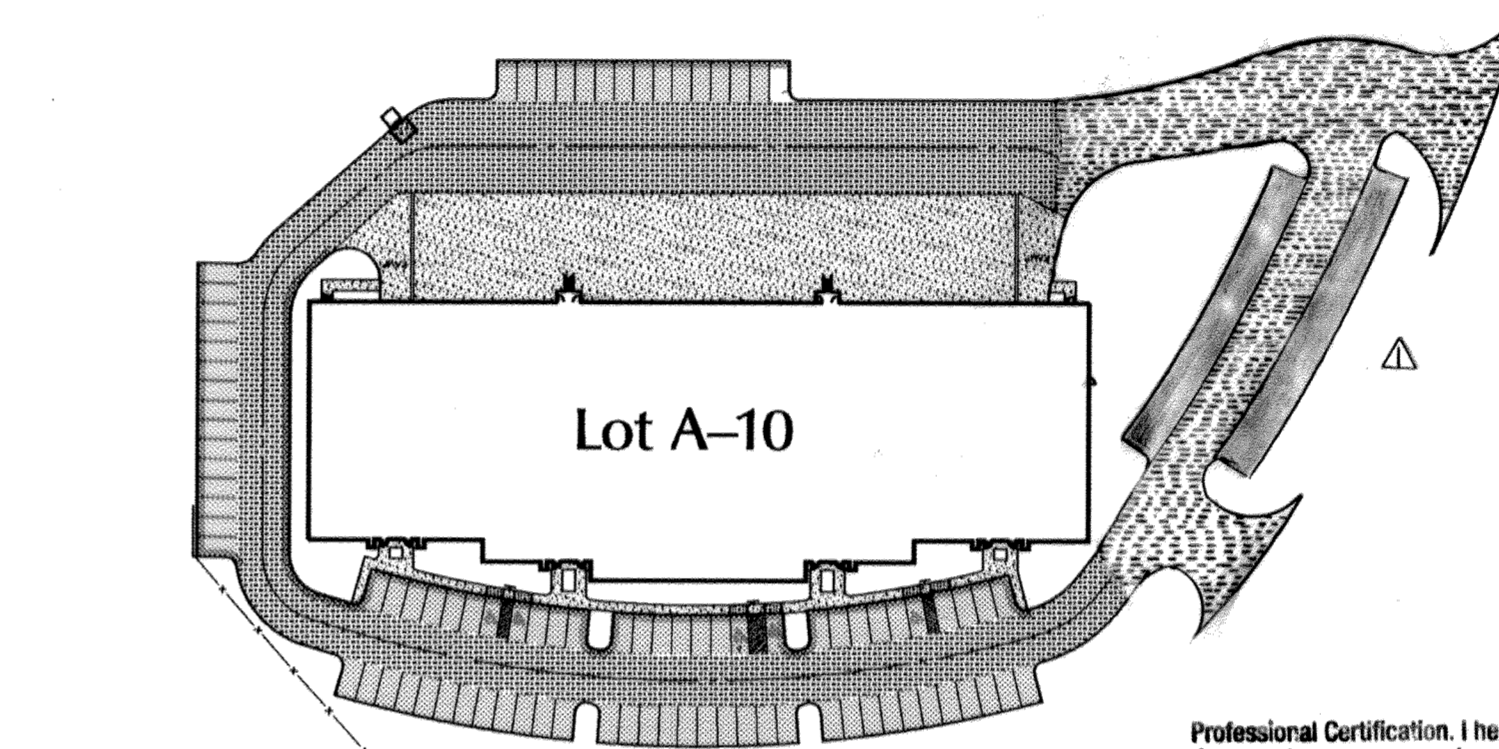
E Type "B" Handicapped Ramp
Not To Scale



F Service Pad & Dumpster Bin
Not To Scale

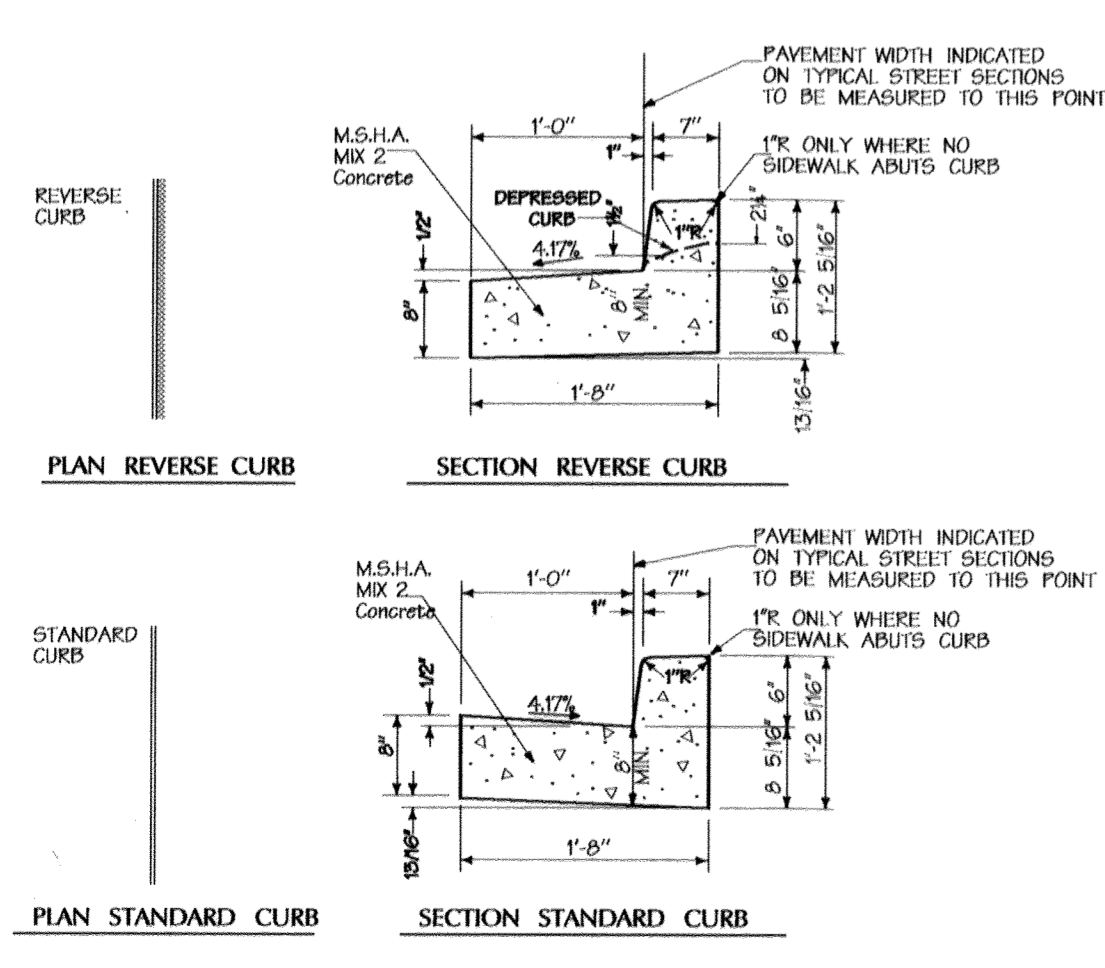
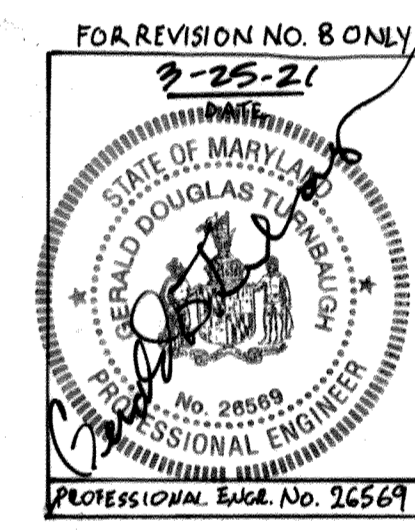


CONCRETE PAD DETAIL FOR E.V. CHARGING STATION
SCALE: 1"=2'

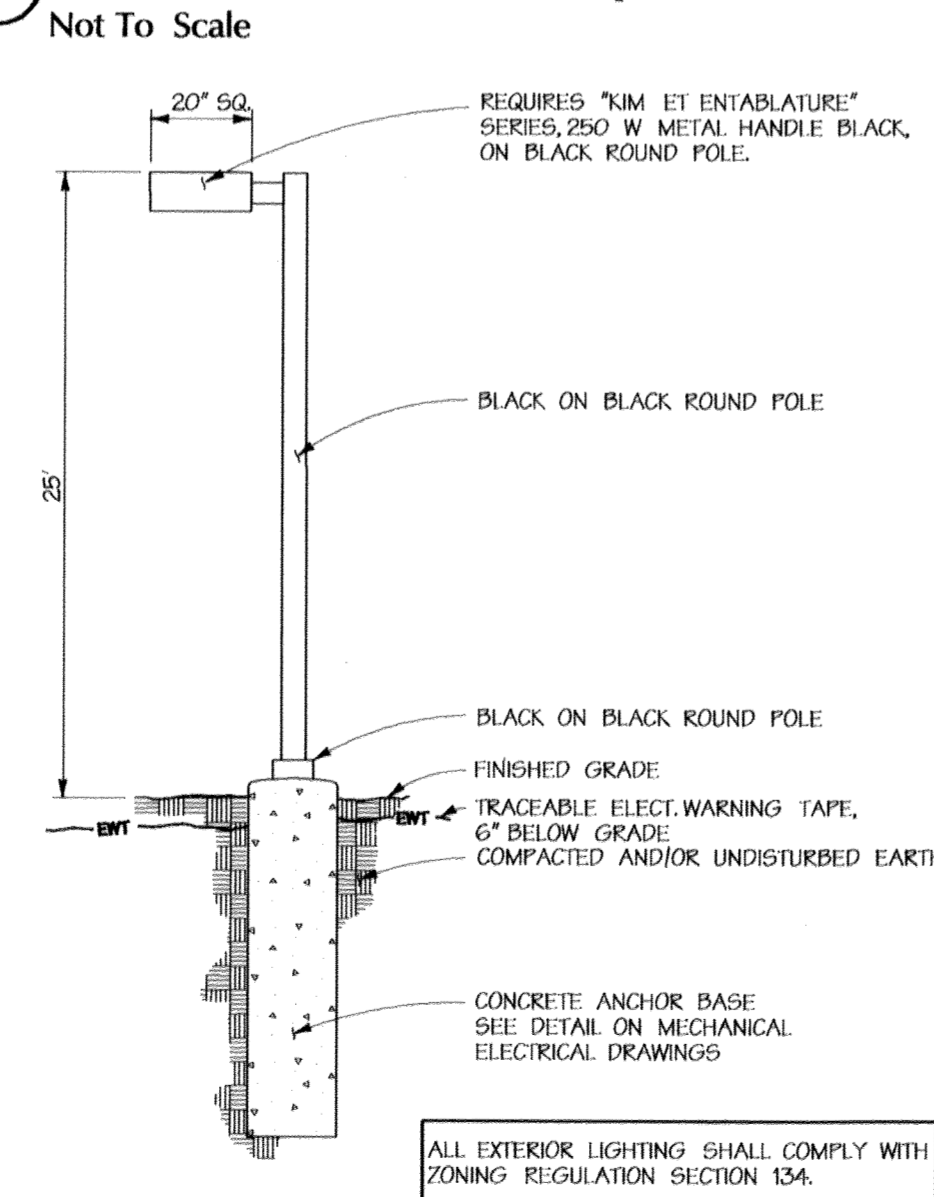


Dumpster Enclosure
Not To Scale

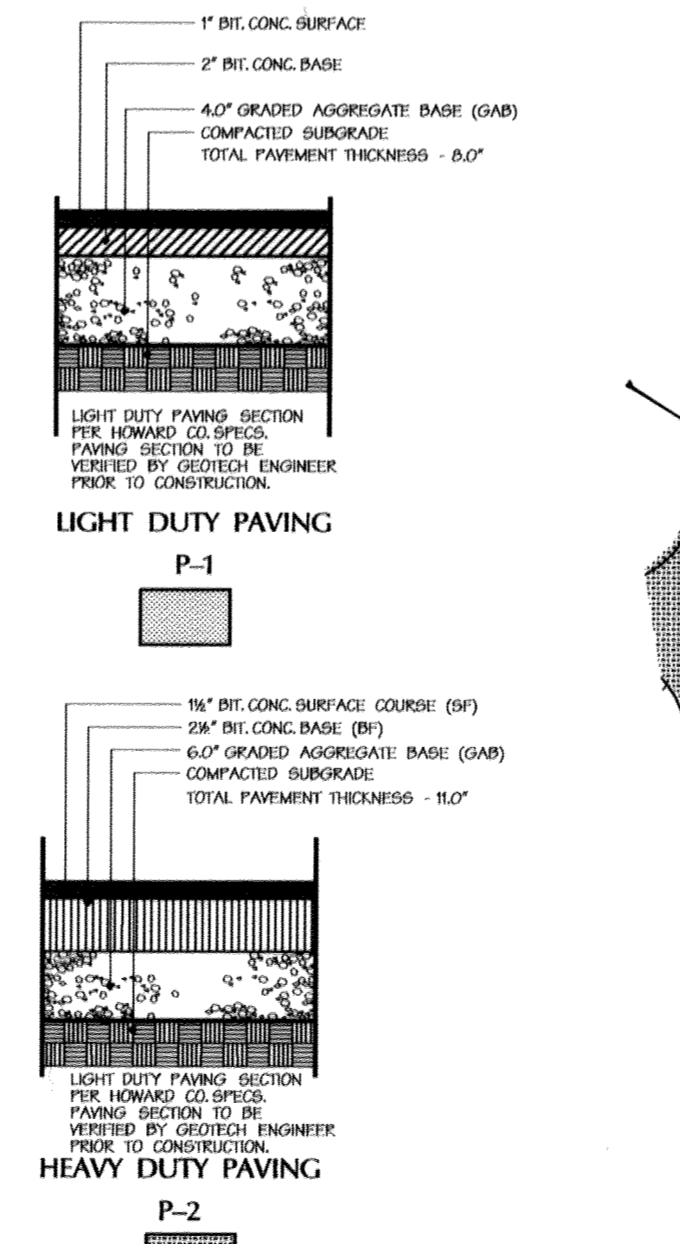
Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. 26569, Expiration Date: 7-18-21



H Concrete Curb, Typical
Not To Scale



I Sharp Cutoff Area Light
Not To Scale



G Paving Detail
Not To Scale

APPROVED:	HOWARD COUNTY DEPT. OF PLANNING & ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION	10/31/20
CHIEF, DIVISION OF LAND DEVELOPMENT	11/16/20
DIRECTOR	11/16/20
Date	No.
10/22/20	1
9/10/20	2
01-21-21	3
Revision Description	
1	MATS WARFIELD - CHANGE PAVING DETAIL LOT A-10 TO REFLECT REVISION 2 ENTRANCE LAYOUT.
2	ELIM A-12 FROM PLAN - SEE SDP-01-92 FOR REVISED A-12.
3	ADD CONCRETE PAD DETAIL FOR E.V. CHARGING STATIONS

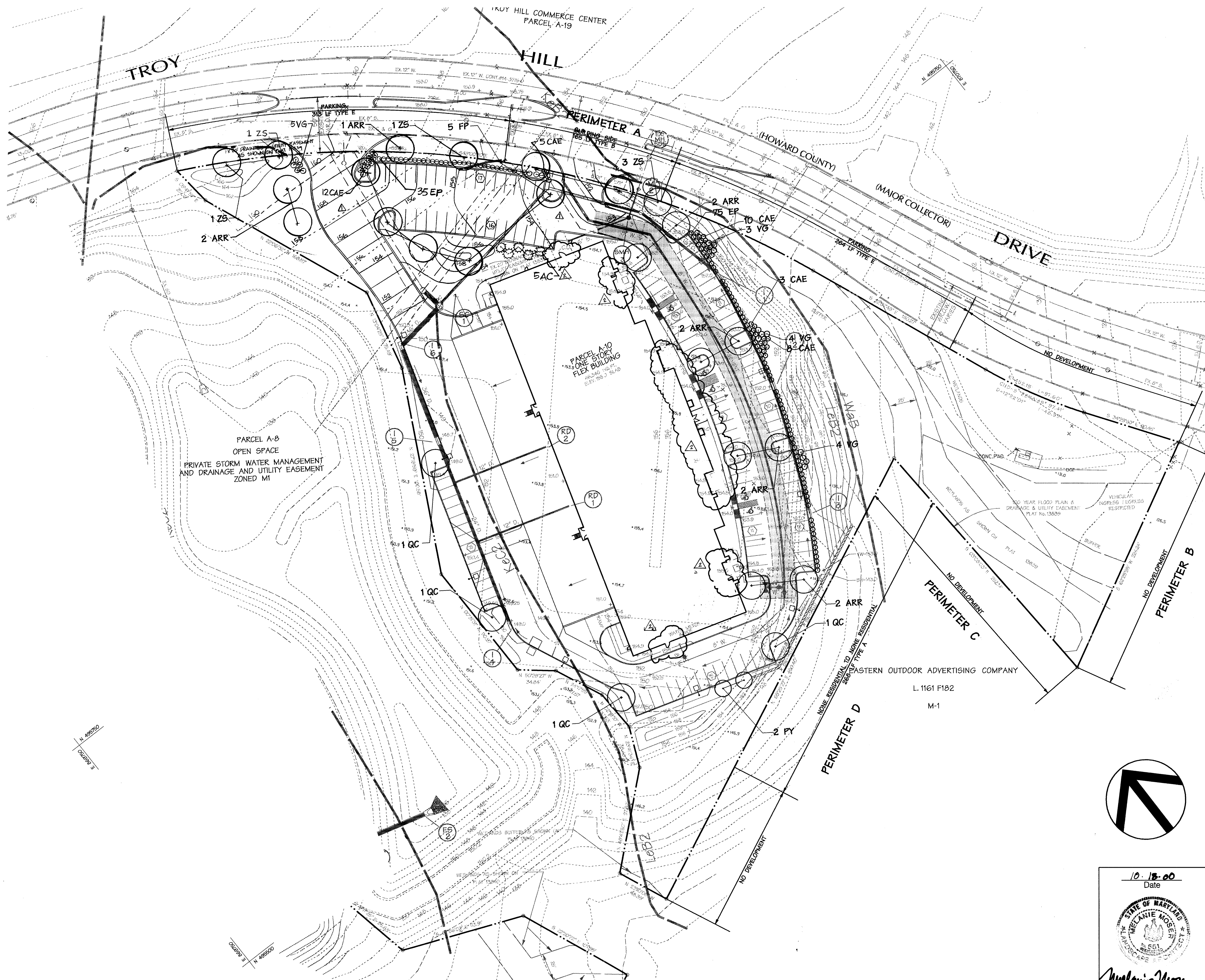
Troy Hill Corporate Center
Lots: A-10, A-11 & A-12

OWNER:
TROY HILL BUSINESS PARK PARTNERSHIP
C/O MANEKIN CORPORATION
7765 GOLUMBER GATEWAY DRIVE
COLUMBIA, MARYLAND 21046
(410) 290-1400

DEVELOPER:
C & S TROY HILL LLC
925 FELL STREET
BALTIMORE, MARYLAND 21231
(410) 534-6360

DMW Dan McCune-Walker, Inc. 200 East Pennsylvania Avenue Touson, Maryland 21086 (410) 296-3333 Fax: 296-4706		A Team of Land Planners, Landscape Architects, Civil/Coastal Architects, Engineers, Surveyors & Environmental Professionals	
SUBDIVISION NAME	SECTION/AREA	TOT/FRACSES	
TROY HILL CORPORATE CENTER	A-10, A-11, A-12		
PLAT OR LOT BLOCK/ZONE	TAX/ZONE MAP	ELECT DISTRICT	CENSUS TRACT
1457-1458	18 M-1	1	6011.02
WATER CODE	SEWER CODE		
A03	2152200		

SITE DETAILS		
Drn. By: ADL	Scale: AS SHOWN	Proj. No. 99058.A
Des. By: ADL	Date: 10-06-00	
Chk. By:	Approved:	18 of 30



- LEGEND**
- EX. MAJOR CONTOURS --- 400 ---
 - EX. MINOR CONTOURS --- 402 ---
 - PROP. STORM DRAIN --- 18" RCCP CL.V ---
 - PROP. SEWER --- 8" S ---
 - PROP. WATER --- 8" W ---
 - EX. STORM DRAIN --- EX. 21" RCP ---
 - EX. SEWER --- EX. 8" S ---
 - EX. WATER --- EX. 8" W ---
 - PARKING COUNT LABELS --- 10 ---
 - CONCRETE SIDEWALKS --- [Symbol] ---
 - STANDARD CURB --- [Symbol] ---
 - REVERSE CURB --- [Symbol] ---
 - HANDICAP SYMBOLS --- [Symbol] ---
 - HANDICAP RAMPS --- [Symbol] ---
 - MANHOLE & INLET LABELS --- [Symbol] ---
 - EX. MANHOLE & INLET LABELS --- [Symbol] ---
 - DETAIL CALL OUTS --- [Symbol] ---
 - PROP. LIGHT FIXTURE --- [Symbol] ---
 - PROP. SHADE TREES --- [Symbol] ---
 - PROP. FLOWERING TREES --- [Symbol] ---
 - PROP. EVERGREEN --- [Symbol] ---
 - PROP. 5' SHRUBS --- [Symbol] ---
 - PROP. 4' SHRUBS --- [Symbol] ---



NICHOLAS J. BRADER, III, PE #18588
 REVISION - MATIS WARFIELD, INC.
 10540 YORK RD, SUITE M
 HUNT VALLEY, MD 21030

NOTE: PLANT LIST & DETAILS SEE SHEET 22

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING

Chief, Development Engineering Division	10/1/00
Chief, Division of Land Development	11/15/00
Director	11/16/00

12/22/00	1	MATIS WARFIELD - RELOCATE PLANTINGS PER NEW ENTRANCE LOCATIONS
9/07/01	2	ELIM A-12 FROM PLAN. SEE SDP 01-92 FOR REV. A-12. AND REV. ENT TO BLDG A-10.

Date	No.	Revision Description
------	-----	----------------------

Troy Hill Corporate Center
 Lots: A-10, A-11 & A-12

OWNER:
 TROY HILL BUSINESS PARK PARTNERSHIP
 C/O MANEKIN CORPORATION
 7165 COLUMBIA GATEWAY DRIVE
 COLUMBIA, MARYLAND 21046
 (410) 290-1400

DEVELOPER:
 C & S TROY HILL LLC
 325 FELL STREET
 BALTIMORE, MARYLAND 21231
 (410) 534-6350

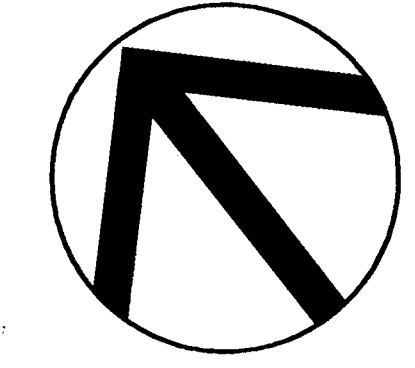
DMW
 DaB-McCune-Walker, Inc.
 200 East Pennsylvania Avenue
 Towson, Maryland 21286
 (410) 296-3333
 Fax 296-4705

A Team of Land Planners,
 Landscape Architects,
 Civil/Storm Architects,
 Engineers, Surveyors &
 Environmental Professionals

SUBDIVISION NAME	TROY HILL CORPORATE CENTER	SECTION/AREA	1	LOT/FACES	A-10, A-11, A-12
PLAT# OR LTR# BLOCK#	157-1518 1B	TAX/ZONE MAP	37	ELECT. DISTRICT	1
WATER CODE	AC3	SEWER CODE	2152200	CENSUS TRACT	6011.02

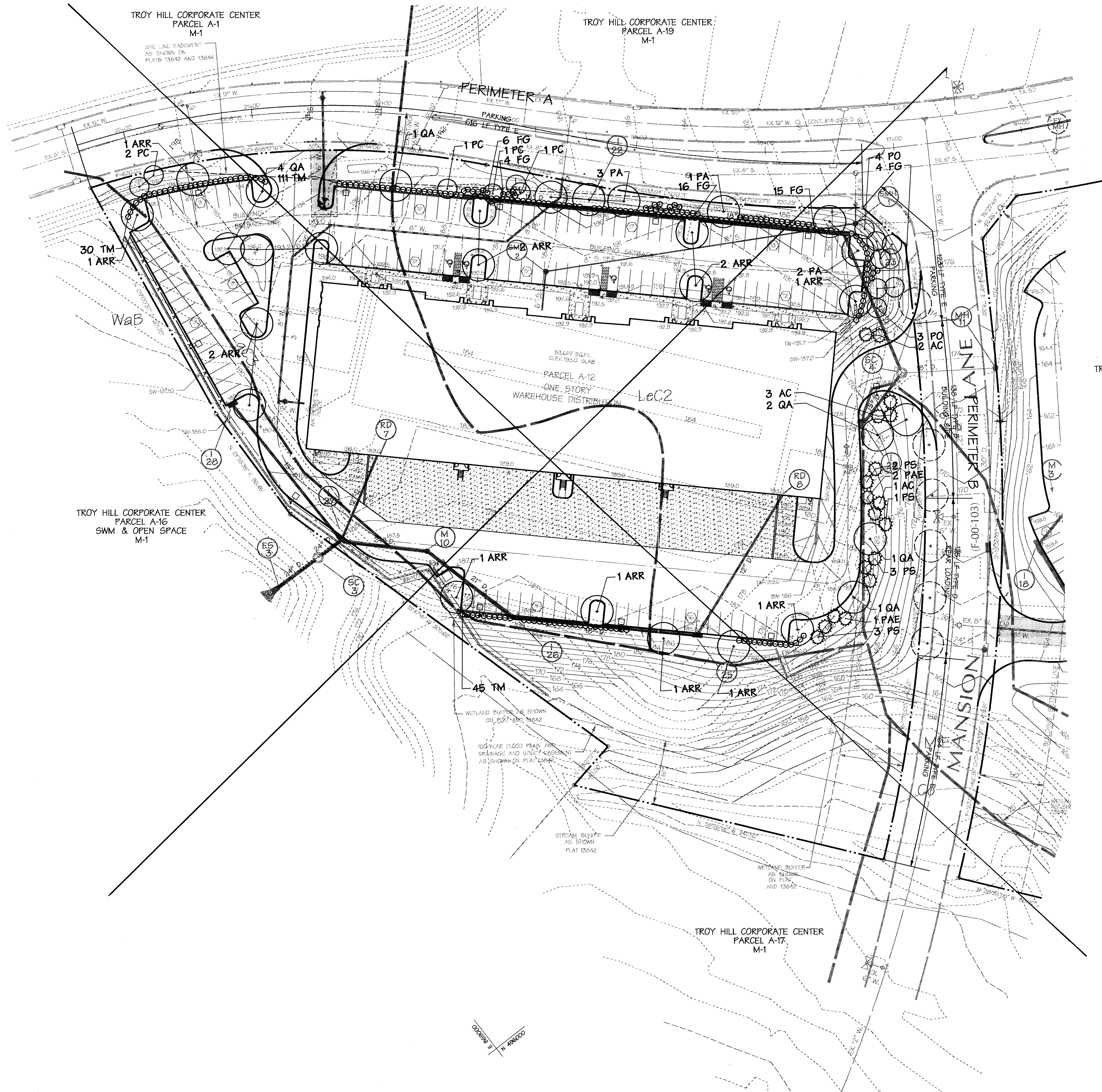
LANDSCAPE PLAN
 LOT A-10

Drn. By: FDK	Scale:	Proj. No. 99058.A
Des. By: MM	Date: 9-20-00	19 of 30
Chk. By:	Approved:	



10-18-00
 Date

Melanie Moon
 Landscape Architect No. 551



LEGEND

- EX. MAJOR CONTOURS --- 400 ---
- EX. MINOR CONTOURS --- 402 ---
- PROP. STORM DRAIN --- 15" RCCP CL. IV
- PROP. SEWER --- 8" S.
- PROP. WATER --- 8" W.
- EX. STORM DRAIN --- EX. 21" RCP
- EX. SEWER --- EX. 8" S.
- EX. WATER --- EX. 8" W.
- PARKING COUNT LABELS (10)
- CONCRETE SIDEWALKS (---)
- STANDARD CURB (---)
- REVERSE CURB (---)
- HANDICAP SYMBOLS (---)
- HANDICAP RAMP (---)
- MANHOLE & INLET LABELS (M 4)
- EX. MANHOLE & INLET LABELS (EX 1)
- DETAIL CALL OUTS (2)
- PROP. LIGHT FIXTURE (□)
- PROP. SHADE TREES (○)
- EX. SHADE TREES (○)
- PROP. FLOWERING TREES (○)
- PROP. EVERGREEN (○)
- PROP. 4' SHRUBS (○)

NOTE: PLANT LIST & DETAILS SEE SHEET 22

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING

John Dammann 10/15/00
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Condy Hester 11/5/00
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Joseph R. Kautz 11/9/00
 DIRECTOR DATE

9/10/01	1	ELIM A-12 FROM PLAN. SEE SDP 01-42 FOR REV. A-12.
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Date No. Revision Description

Troy Hill Corporate Center
 Lots: A-10, A-11 & A-12

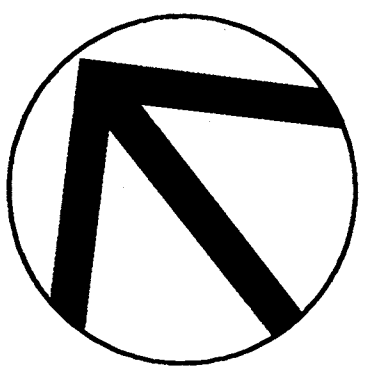
OWNER: TROY HILL BUSINESS PARK PARTNERSHIP
 C/O MANERIN CORPORATION
 7165 COLUMBIA GATEWAY DRIVE
 COLUMBIA, MARYLAND 21046
 (410) 290-1400

DEVELOPER: C & S TROY HILL LLC
 925 FELL STREET
 BALTIMORE, MARYLAND 21231
 (410) 534-6350



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 Datt-McCune-Walker, Inc.
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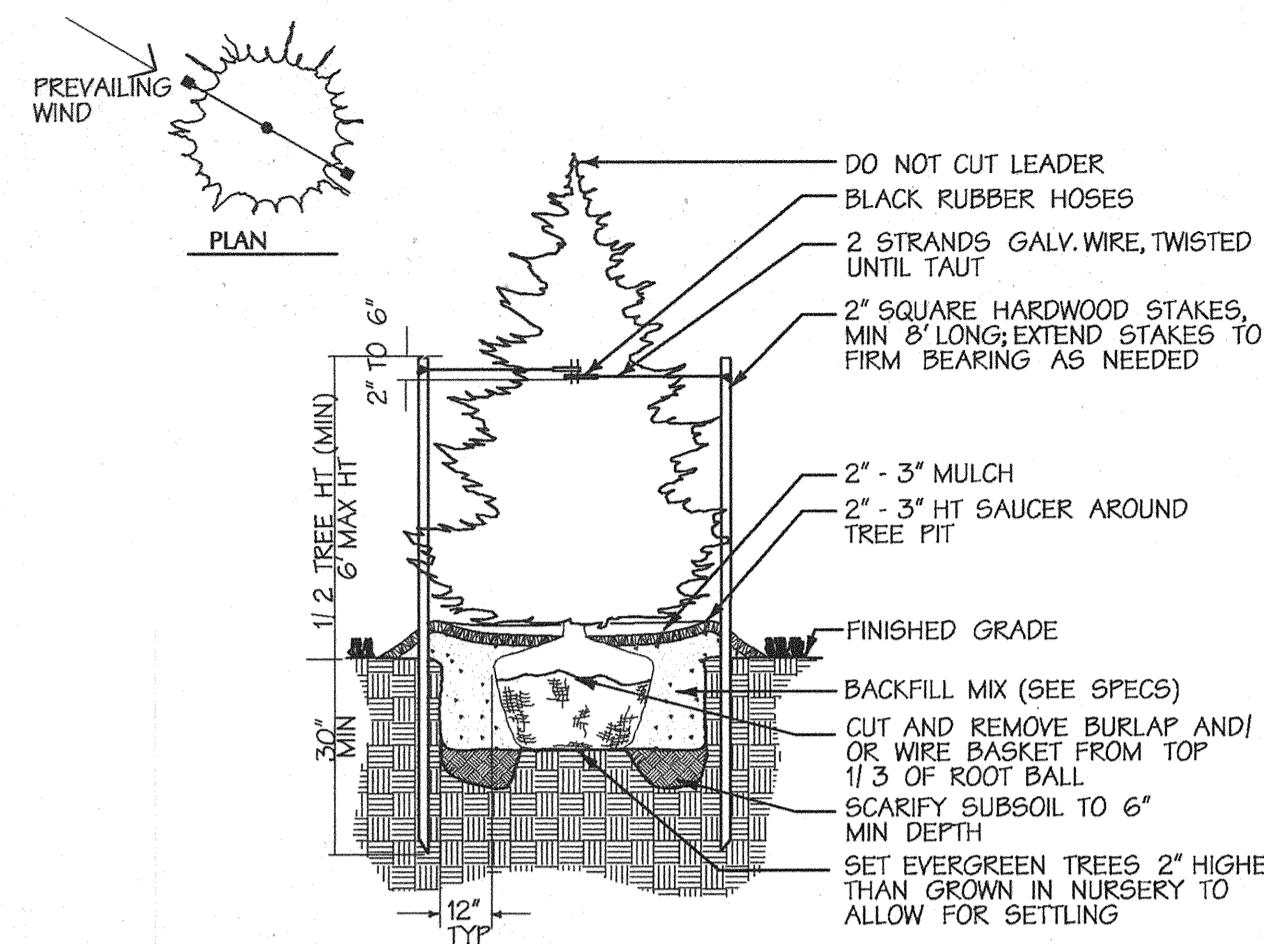


10-15-00
 Date

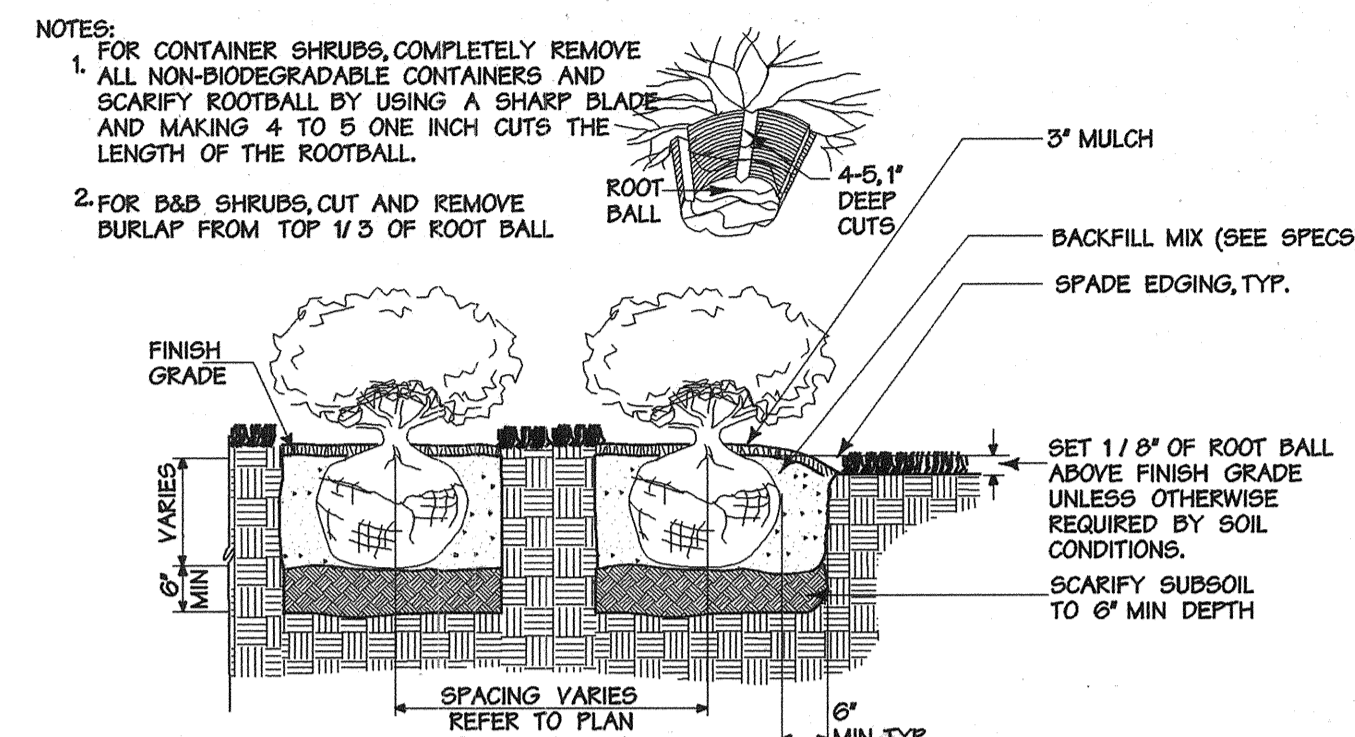


SUBDIVISION NAME	SECTION/AREA	LOT/PARCELS
TROY HILL CORPORATE CENTER	1	A-10, A-11, A-12
PLAT OR L/P BLOCK/ZONE	TAX/ZONE MAP	ELECT. DISTRICT
1457-1458	37	1
WATER CODE	SEWER CODE	CENSUS TRACT
A03	2152200	6011.02

TITLE		
LANDSCAPE PLAN		
-LOT A-12-		
Drn. By: FDK	Scale: 1"=40'	Proj. No. 99058.A
Des. By: MM	Date: 9-20-00	
Chk. By:	Approved:	21 of 30



Evergreen Tree Planting
Not To Scale

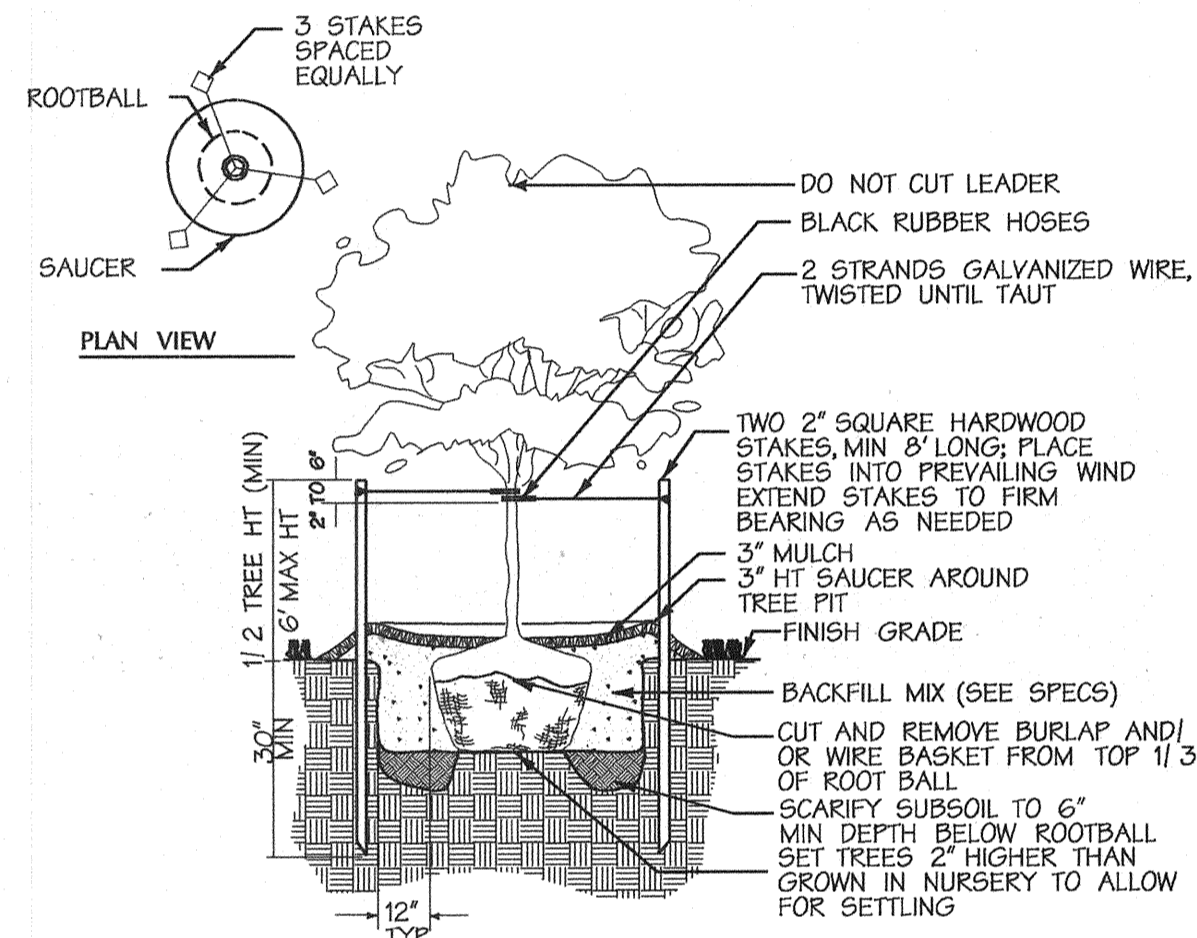


Shrub Bed Planting
Not To Scale

Landscape Notes

- The contractor shall review architectural/engineering plans to become thoroughly familiar with grading and surface utilities.
- All equipment and tools shall be placed so as not to interfere or hinder the pedestrian and vehicular traffic flow. See Seasonal Plant List for planting times of bulbs and seasonal plants.
- The contractor shall coordinate with lighting and irrigation contractors regarding timing of installation of plant material.
- The contractor shall insure that his work does not interrupt established or projected drainage patterns.
- During planting operations, excess waste materials shall be promptly and frequently removed from the site.
- The contractor is advised of the existence of underground utilities on the site. Their exact location shall be verified in the field with the owner or general contractor prior to the commencement of any digging operations. In the event they are uncovered, the contractor shall be held responsible for all damage to utilities and such damage shall not result in any additional expenses to the owner.
- If utility lines are encountered in excavation of tree pits, other locations for trees shall be made by the contractor without additional compensation. No changes of location shall be made without approval of the landscape architect.
- Maintain positive drainage out of planting beds at a minimum 2% slope. All grades, dimensions, and existing conditions shall be verified by the contractor on site before construction begins. Any discrepancies shall be reported to the attention of the landscape architect or owner.
- Every possible safeguard shall be taken to protect building surfaces, equipment, and furnishings. The contractor shall be responsible for any damage or injury to person or property which may occur as a result of his negligence in the execution of the work.
- In the event of variation between quantities shown on the plant list and the plans, the plans shall control. The contractor is responsible for verifying all plant quantities prior to the commencement of work. All discrepancies shall be reported to the landscape architect for clarification prior to bidding. The contractor shall furnish plant material in sizes as specified in plant list.
- The contractor shall stake all material located on the site for review and/or adjustment by the landscape architect prior to planting. All locations are to be approved by the landscape architect before excavation.
- Plants shall conform to current "American Standards for Nursery Stock" by American Association of Nurserymen (AAN), particularly with regard to size, growth, size of ball, and density of branch structure. Plant material shall be tagged at the source by the landscape architect unless this requirement is specifically waived.
- All plants (B&B or container) shall be properly identified by weather-proof labels securely attached thereto before delivery to project site. Labels shall identify plant by name, species, and size. Labels shall not be removed until the final inspection by the landscape architect or agent in charge.
- Any material and/or work may be rejected by the landscape architect if it does not meet the requirements of the specifications. All rejected materials shall be removed from the site by the contractor.
- No substitutions shall be made without written consent of the owner or landscape architect.
- The landscape architect or owner shall have the right, at any stage of the operations, to reject any and all work and material which, in his opinion, does not meet the requirements of these plans and specifications.
- The contractor shall be wholly responsible for stability and conditions of all trees and shrubs and shall be legally liable for any damage caused by instability of any plant materials.

- All proposed trees to be installed either entirely in or entirely out of planting beds. Planting bed lines are not to be obstructed. Mulch shall have been shredded within the last six months.
- All planting beds adjacent to lawn, sod, or seeded areas shall be spade edged.
- Maintenance shall begin after each plant has been installed and shall continue until 90 days after final acceptance by the architect or owner representative. Maintenance includes mowing of turf, watering, pruning, weeding, fertilizing, mulching, replacement of sick or dead plants, and any other care necessary for the proper growth of the plant material. The contractor must be able to provide continued maintenance if requested by the owner.
- Upon completion of all landscaping, an acceptance of the work shall be held. The contractor shall notify the landscape architect or owner for scheduling the inspection at least seven (7) days prior to the anticipated inspection date.
- All trees shall be guaranteed for 12 months from the date of acceptance.
- The contractor is responsible for testing project soils. The contractor is to provide a certified soils report to the owner. The contractor shall verify that the soils on site are acceptable for the proper growth of the proposed plant material. Should the contractor find poor soil conditions, the contractor shall be required to provide soil amendments as necessary. These amendments shall include, but not be limited to, fertilizers, lime, and topsoil. Proper planting soils must be verified prior to planting of materials.
- PLANTING MIX**
a. Planting mix shall be prepared at approved on-site staging area using approved on-site existing soil. Mix minimum quantities of 20 cubic yards or sufficient mix for entire job if less than 20 cubic yards is required.
b. Thoroughly mixed in the following proportions for tree and shrub planting mix:
 - 5 cy existing soil
 - 2 cy sharp sand
 - 3 cy wood residuals
 - 4.5 lbs treble superphosphate
 - 5 lbs dolomite limestone (eliminate for acid loving plants)
- For bed planting, shrubs and groundcover spaces 24 inches or closer, incorporate the following ingredients per 20 of and incorporate into top 6 inches of existing soils by rototilling or similar method of incorporation.
 - 2 cy sharp sand
 - 3 cy organic material
 - 4.5 lbs treble superphosphate
 - 5 lbs dolomite limestone (eliminate for acid loving plants)
- The contractor shall dispose of stumps and major roots of all plants to be removed. Any depressions caused by removal operations shall be refilled with fertile, friable soil placed and compacted so as to reestablish proper grade for new planting and/or lawn areas.
- The contractor shall insure adequate vertical drainage in all plant beds and planters.



Less Than 3" Cal. Tree Planting
Not To Scale

**SCHEDULE A
PERIMETER LANDSCAPE EDGE**

Category	Adjacent to Roadways	Adjacent to Perimeter Properties
Frontage / Perimeter		
Lot A-10	F.A. 577 LF Type E 105 LF Type D	F.D. 260 LF Type A
Lot A-11	F.A. 285 LF Type E 58 LF Type D	
	F.D. 338 LF Type E 150 LF Type D	
	F.A. 616 LF Type E 127 LF Type D	
	F.D. 122 LF Type D 285 LF Type B	
Credit for Existing Vegetation (Yes, No, Linear Feet) (Describe below if needed)	NO	NO
Credit for Wall, Fence or Berm (Yes, No, Linear Feet) (Describe below if needed)	NO	NO
Number of Plants Required	Lot A-10 21 Shade Trees 4 Evergreen 145 Shrubs	
	Lot A-11 20 Shade Trees 17 Evergreen 159 Shrubs	
	Lot A-12 22 Shade Trees 19 Evergreen 221 Shrubs	
Number of Plants Provided	Lot A-10 19 Shade Trees 5 Evergreen 2 Flowering Trees 184 Shrubs	
	Lot A-11 21 Shade Trees 17 Evergreen 181 Shrubs	
	Lot A-12 22 Shade Trees 19 Evergreen 221 Shrubs	

Substitutions: 2 Flowering Trees have been substituted for 1 Shade Tree on Lot A-10
12 Flowering Trees have been substituted for 6 Shade Trees on Lot A-12

**SCHEDULE B
PARKING LOT INTERNAL LANDSCAPING**

Number of Parking Spaces	Lot A-10 124 Lot A-11 404
Number of Trees Required	Lot A-10 6 Lot A-11 21 Lot A-12 7
Number of Trees Provided	Lot A-10 7 Lot A-11 21 Lot A-12 7 Shade Trees
Number of Islands Required @ 1/20 sp.	Lot A-10 6 Lot A-11 21 Lot A-12 7
Number of Islands Provided	Lot A-10 6 Lot A-11 21 Lot A-12 7

Bonding Amount: 85 Shade Trees @ \$500
38 Evergreen Trees @ \$150
520 Shrubs @ \$30
Total: \$48,500

NOTE: FINANCIAL SURETY FOR THE ADDITIONAL LANDSCAPING REQUIRED PER THE REVISED PLAN WILL BE POSTED AS PART OF THE GRADING PERMIT IN THE AMOUNT OF \$3000.00 (6 SHADE TREES @ \$300.00).

NOTE: FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED AS PART OF THE DPW DEVELOPER AGREEMENT IN THE AMOUNT OF \$49,500.00

NOTE:
This project will be constructed in accordance with the provisions in section 16.124 of the Howard County Landscape Manual.

PLANT LIST LOT A-10

Key Qty.	Botanical Name	Common Name	Size	Condition	Remarks
Major Deciduous Tree:					
ARR 11	Acer rubrum 'Red Sunset'	Red Sunset Red Maple	2 1/2'-3' Cal.	B&B	Full
FP 5	Fraxinus pennsylvanica 'Patrium'	Patrium Green Ash	2 1/2'-3' Cal.	B&B	Full
QC 4	Quercus coccinea	Scarlet Oak	2 1/2'-3' Cal.	B&B	Full
ZS 6	Zelkova serrata 'Village Green'	Village Green Zelkova	2 1/2'-3' Cal.	B&B	Full
Flowering Tree:					
PY 2	Prunus x yedoensis	Yoshino Cherry	8'-10' Ht.	B&B	Full
Evergreen:					
AC 5	Abies concolor	Concolor Fir	6'-8' Ht.	B&B	Full
Shrubs:					
CAE 38	Cornus alba elegantissima	Variiegated Redtwig Dogwood	18'-24' Ht.	Container	4' OC
EP 110	Euonymus patens 'Manhattan'	Evergreen Euonymus	18'-24' Ht.	Container	4' OC
VG 16	Viburnum pragnense	Prague Viburnum	24'-30' Ht.	Container	

DEVELOPER'S/BUILDER'S CERTIFICATE

I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL.
I/WE FURTHER CERTIFY THAT UPON COMPLETION, A CERTIFICATION OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EIGHTY-ONE YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

NAME: CRIST M. SMITH DATE: OCT 6, 2000

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

PROVIDE THE FOLLOWING NOTE ON THE LANDSCAPE PLAN:
THE OWNER, TENANT, AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING, INCLUDING BOTH PLANT MATERIALS AND BERMS, FENCES AND WALLS. ALL PLANT MATERIALS SHALL BE MAINTAINED IN GOOD GROWING CONDITION, AND WHEN NECESSARY, REPLACED WITH NEW MATERIALS TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE REGULATIONS. ALL OTHER REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION, AND WHEN NECESSARY, REPAIRED OR REPLACED.

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING
 [Signature] 10/6/00
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 [Signature] 11/8/00
 CHIEF, DIVISION OF LAND DEVELOPMENT
 [Signature] 11/8/00
 DIRECTOR

Date	No.	Revision Description
9/07/01	1	ELIM A-12 FROM PLAN. SEE SDP 01-92
		FOR REVISED A-12.
8/22/05	3	REVISE LANDSCAPING PER SITE PLAN CHANGES.

Troy Hill Corporate Center
Lots: A-10, A-11 & A-12

OWNER: TROY HILL BUSINESS PARK PARTNERSHIP
C/O MANEKIN CORPORATION
7165 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046
(410) 286-3335

DEVELOPER: C & S TROY HILL LLC
925 FELL STREET
BALTIMORE, MARYLAND 21231
(410) 534-6350

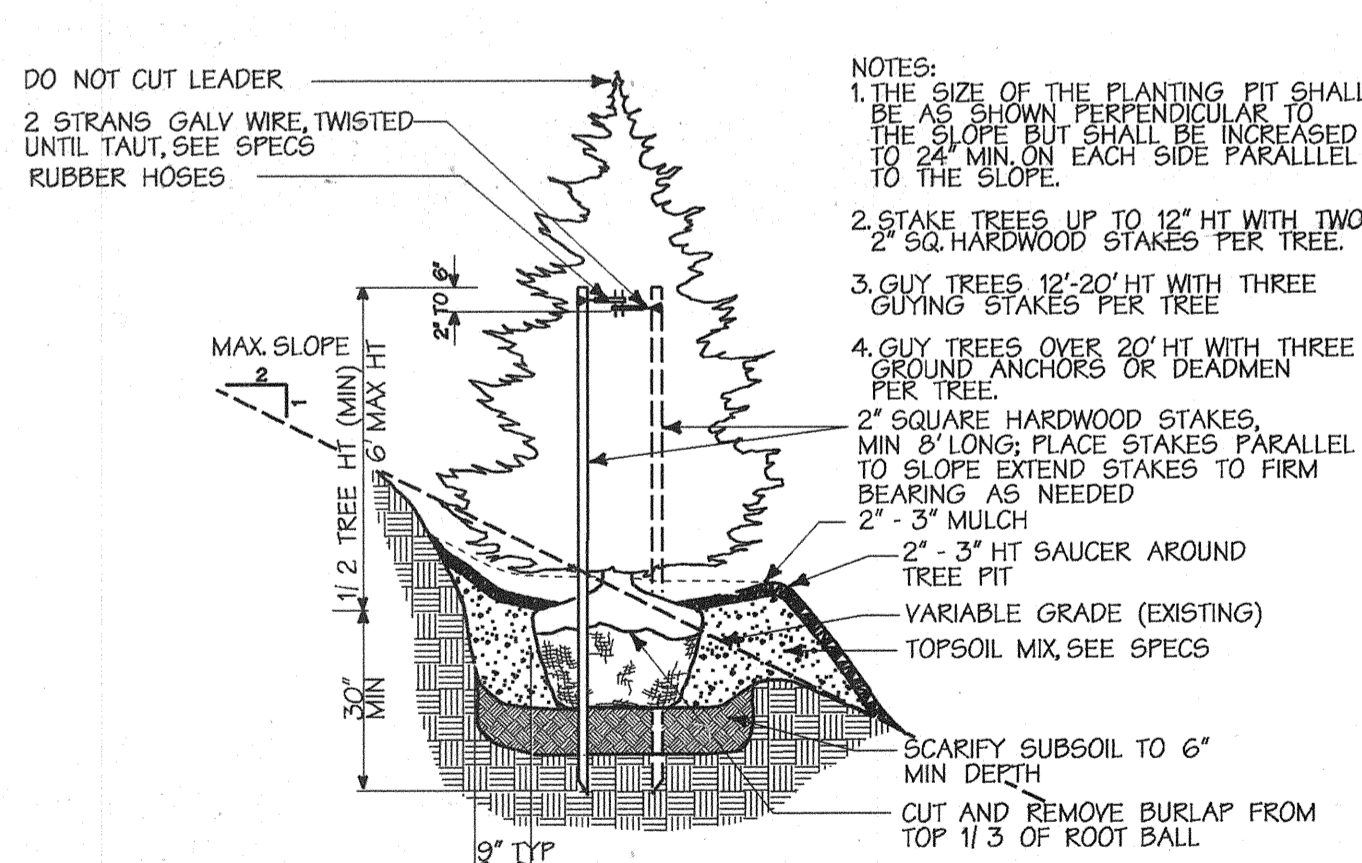
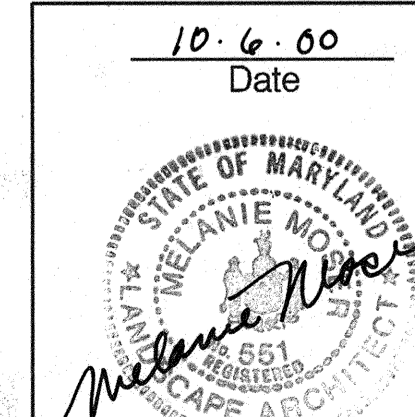
DMW
Duff-McCune-Walker, Inc.
200 East Pennsylvania Avenue
Towson, Maryland 21286
(410) 286-3335
Fax: 396-4705

A Team of Land Planners, Landscape Architects, Golf Course Architects, Engineers, Surveyors & Environmental Professionals

SUBDIVISION NAME: TROY HILL CORPORATE CENTER
SECTION/AREA: 1
LOT/PARCEL#: A-10, A-11, A-12
TAX/ZONE MAP: 37
ELECT DISTRICT: 1
CENSUS TRACT: 6011.02
WATER CODE: A03
SEWER CODE: 2152200

LANDSCAPE NOTES & DETAILS

Drn. By: [Signature] Scale: [] Proj. No. 99058.A
Des. By: [Signature] Date: 9-20-00
Chk. By: [Signature] Approved: [Signature]



Evergreen Tree Planting on Slope
Not To Scale

PLANT LIST LOT A-12

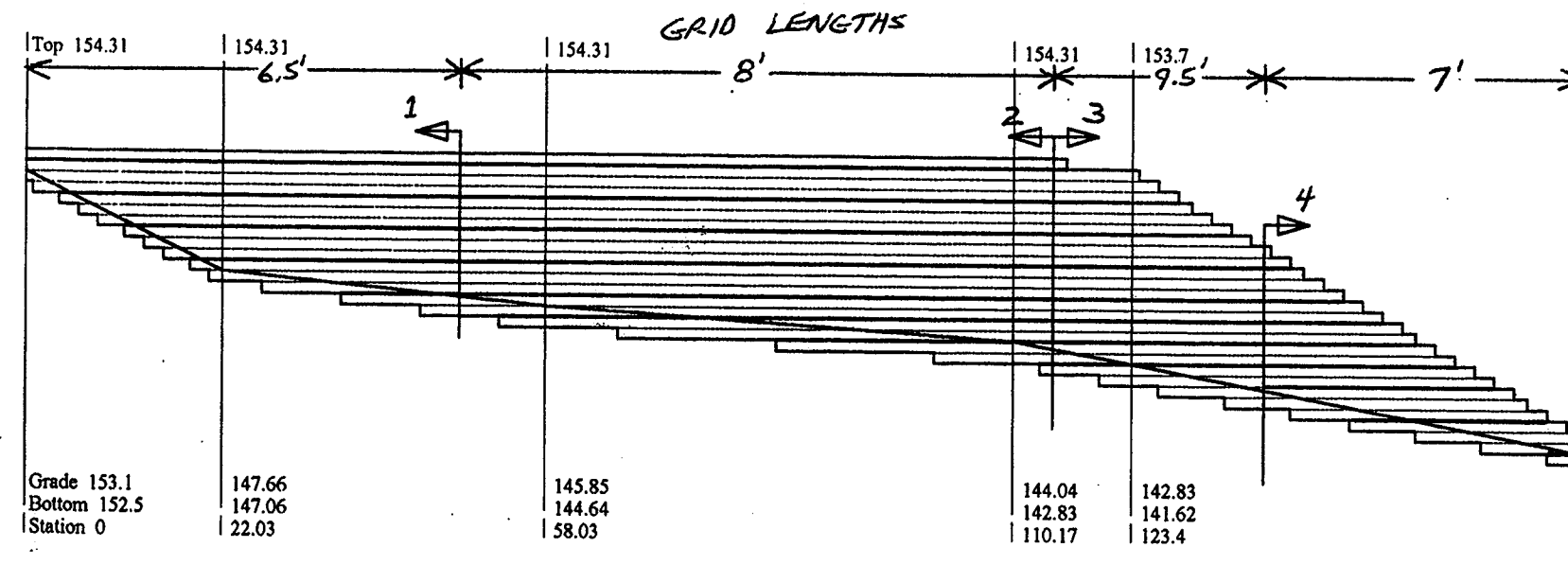
Key Qty.	Botanical Name	Common Name	Size	Condition	Remarks
Major Deciduous Tree:					
ARR 14	Acer rubrum 'Red Sunset'	Red Sunset Red Maple	2 1/2'-3' Cal.	B&B	Full
PAE 6	Platanus acerifolia	London Plane Tree	2 1/2'-3' Cal.	B&B	Full
QA 9	Quercus acutissima	Sawtooth Oak	2 1/2'-3' Cal.	B&B	Full
Flowering Tree:					
PC 5	Prunus cerasifera 'Thundercloud'	Thundercloud Plum	8'-10' Ht.	B&B	Full
FO 7	Fraxinus ornata	Osage Cherry	8'-10' Ht.	B&B	Full
Evergreen:					
AC 6	Abies concolor	Concolor Fir	6'-8' Ht.	B&B	Full
PAE 3	Picea abies excelsa	Norway Spruce	6'-8' Ht.	B&B	Full
PS 9	Pinus strobus	White Pine	6'-8' Ht.	B&B	Full
Shrubs:					
FG 45	Fothergilla gardenii 'Blue Mist'	Blue Mist Fothergilla	24'-30' Ht.	Con. Or B&B	
TM 15	Taxus media 'Wardii'	Wardii Yew	18'-24' Sp.	Container	4' OC

Project Information
Project Name: TROY HILL CORPORATE CENTER
Location: Lot A-10, Howard County, MD
Project Number: DS201207
Wall Number: 1 of 1 (S. of building)
Designer: DKS
Date: 8-21-00



Allan Block Corp.
 7400 Metro Blvd.
 Suite 185
 Edina, MN 55439
 Phone 612/835-5309
 Fax 612/835-0013
 http://www.allanblock.com

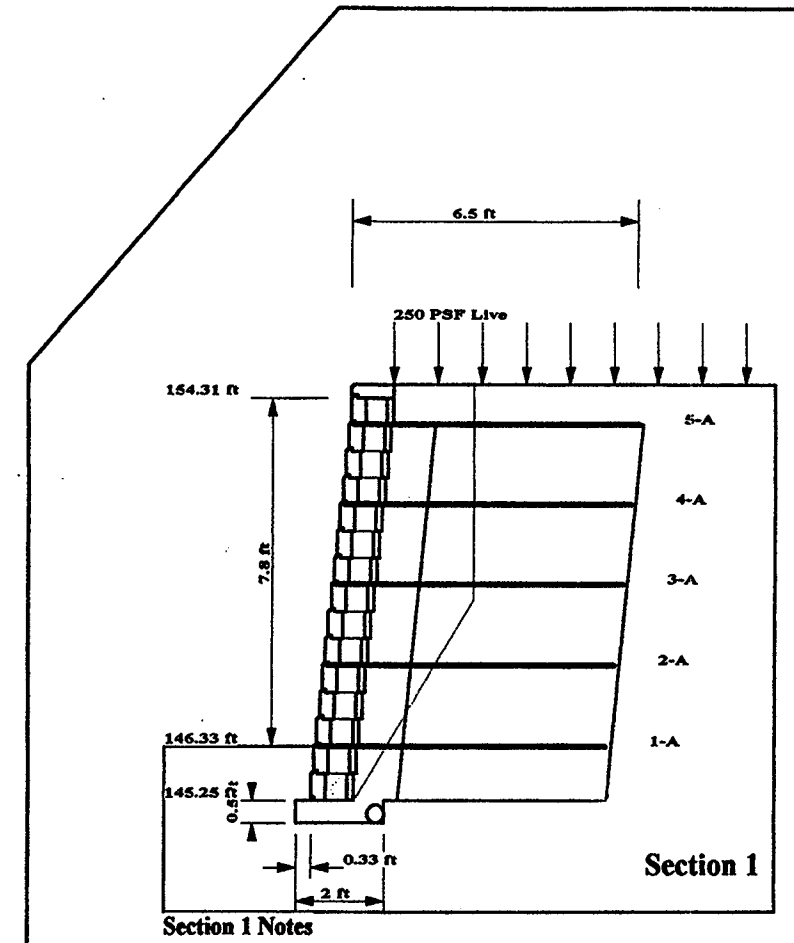
Nitterhouse Masonry Prod.
 859 Cleveland Ave., PO Box 692
 Chambersburg, PA 17201
 717-267-4500
 717-264-7535 - fax



Section	1	2	3	4
Top	154.31	154.31	154.31	149.44
Grade	146.37	143.64	142.64	141.41
Bottom	145.23	142.33	142.23	140.41
Station	48.48	114.58	114.58	139.09

Allan Block Retaining Wall Elevation - 1 of 1 (S. of building)
 Horizontal Scale: 1" = 20'-0" Vertical Scale: 1" = 10'-0"

ABwalls 2000 V.3.1 Allan Block Corporation



Project Name: TROY HILL CORPORATE CENTER
Location: Lot A-10, Howard County, MD
Project Number: DS201207
Wall Number: 1 of 1 (S. of building)
Designer: DKS
Date: 8-21-00

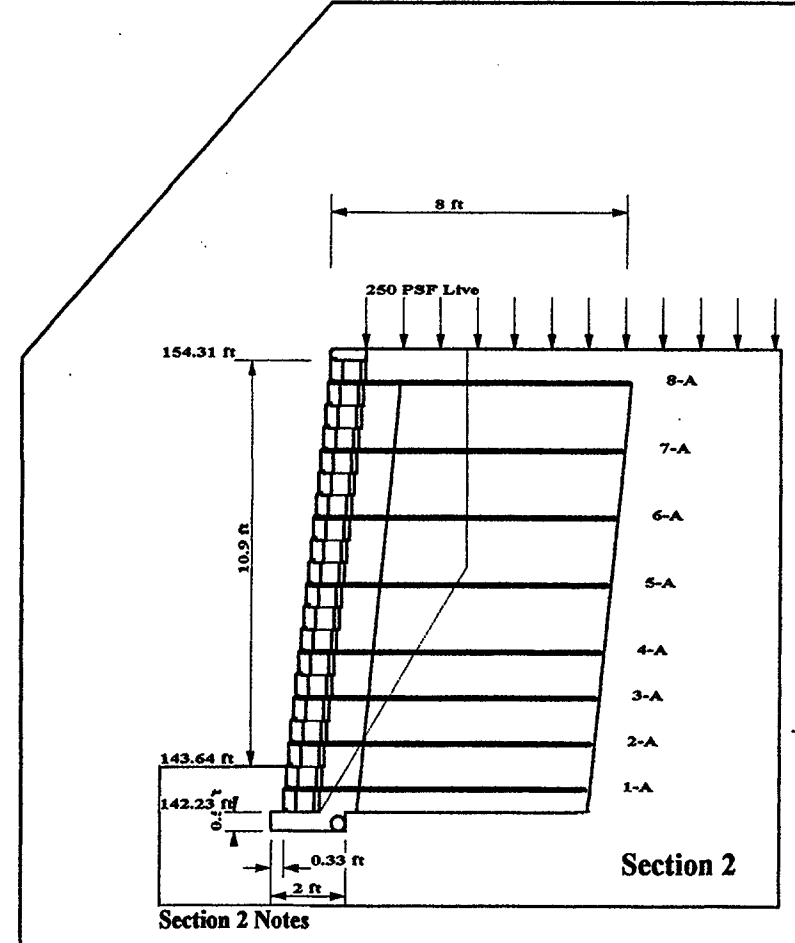
Allan Block provides this software as a service for its clients. The sole purpose of this software is to assist engineers in the design of mechanically stabilized retaining walls. The software uses evaluation techniques and engineering principles found in the Allan Block Engineering Manual. (Refer to ABENG.M5.0196 and supporting references.) It is the responsibility of the engineer or user to determine the propriety and accuracy of input parameters and to review and verify the correctness of the results. Allan Block Corporation, its licensees or agents do not assume any liability or responsibility for damages which may result from the use or misuse of this software. This software only considers on critical failure surface and does not address global and or seismic stability. All potential modes of failure, including proper water management, must be evaluated by the engineer of record.

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 7400 Metro Blvd.
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 Edina, MN 55439
 Phone 612/835-5309
 Fax 612/835-0013
 http://www.allanblock.com

Nitterhouse Masonry Prod.
 859 Cleveland Ave., PO Box 692
 Chambersburg, PA 17201
 717-267-4500
 717-264-7535 - fax



Project Name: TROY HILL CORPORATE CENTER
Location: Lot A-10, Howard County, MD
Project Number: DS201207
Wall Number: 1 of 1 (S. of building)
Designer: DKS
Date: 8-21-00

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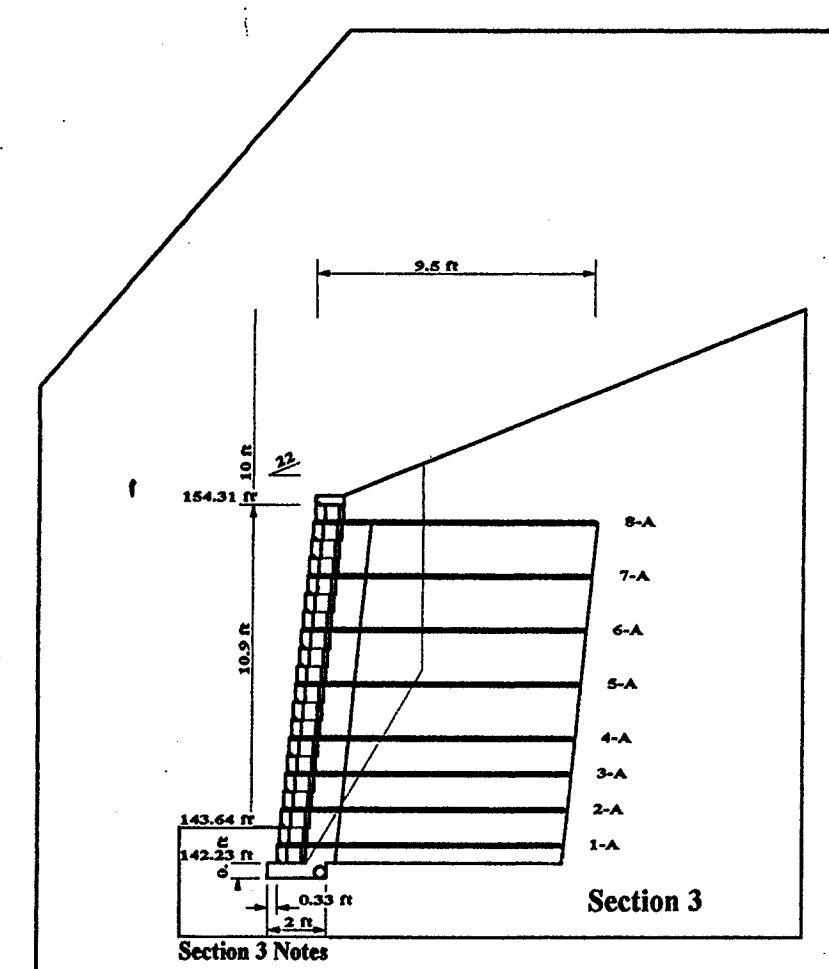
AB Classic	
Total Wall Height	= 12.08 Feet
Block Height	= 0.604 Feet
Angle of Setback	= 6 Deg
Depth of Block	= 0.97 Feet
Length of Block	= 1.469 Feet
Infill Soil	Retained Soil
Friction Angle = 28 Deg	Friction Angle = 28 Deg
Unit Weight = 120 PCF	Unit Weight = 120 PCF
Foundation Soil	Cohesion
Friction Angle = 28 Deg	Cohesion = 50 PSF
Unit Weight = 120 PCF	
Bearing Capacity	
Factor of Safety	= 3.06
Safety Factors Static	
Actual Sliding	= 2.138
Actual Overturning	= 4.414
Safety Factors Seismic	
Actual Sliding	= N.A.
Actual Overturning	= N.A.
Geogrid Legend	
A-Minard 3XT	
B-Minard 5XT	
C-Minard 7XT	
G-Croued Con.	
Min. Length of Geogrid	= 8 Feet

1 of 4

ABwalls 2000 V.3.1 Allan Block Corporation

2 of 4

ABwalls 2000 V.3.1 Allan Block Corporation



Project Name: TROY HILL CORPORATE CENTER
Location: Lot A-10, Howard County, MD
Project Number: DS201207
Wall Number: 1 of 1 (S. of building)
Designer: DKS
Date: 8-21-00

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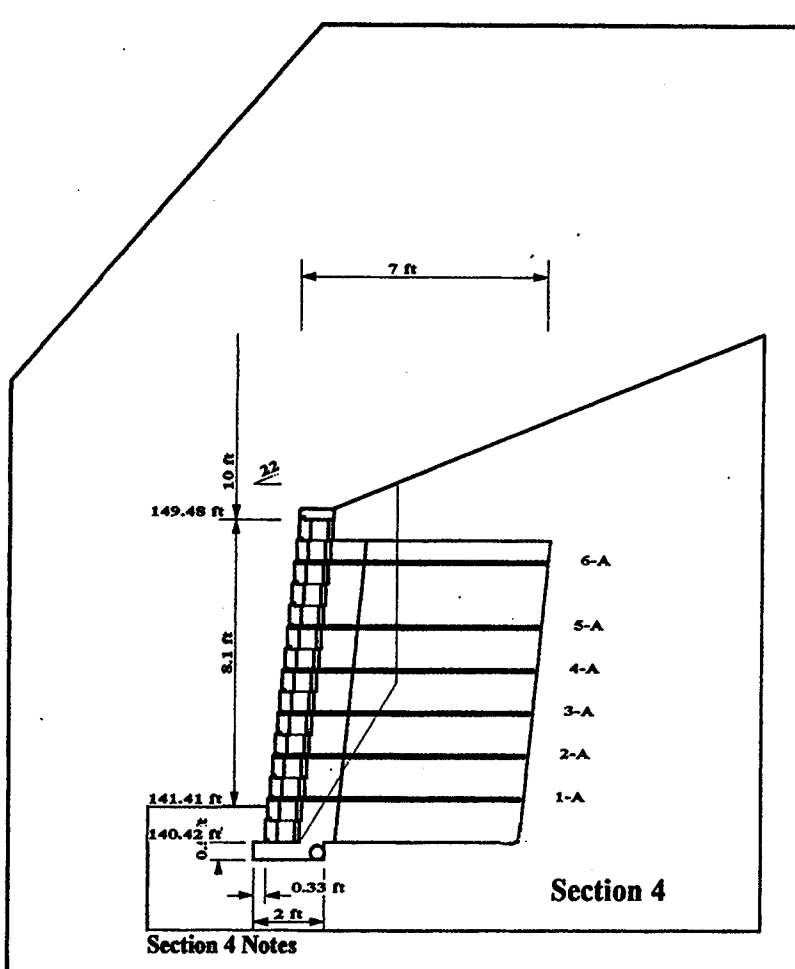
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 Chambersburg, PA 17201
 717-267-4500
 717-264-7535 - fax

AB Classic	
Total Wall Height	= 12.08 Feet
Block Height	= 0.604 Feet
Angle of Setback	= 6 Deg
Depth of Block	= 0.97 Feet
Length of Block	= 1.469 Feet
Infill Soil	Retained Soil
Friction Angle = 28 Deg	Friction Angle = 28 Deg
Unit Weight = 120 PCF	Unit Weight = 120 PCF
Foundation Soil	Cohesion
Friction Angle = 28 Deg	Cohesion = 50 PSF
Unit Weight = 120 PCF	
Bearing Capacity	
Factor of Safety	= 2.29
Safety Factors Static	
Actual Sliding	= 1.628
Actual Overturning	= 3.073
Safety Factors Seismic	
Actual Sliding	= N.A.
Actual Overturning	= N.A.
Geogrid Legend	
A-Minard 3XT	
B-Minard 5XT	
C-Minard 7XT	
G-Croued Con.	
Min. Length of Geogrid	= 9.5 Feet

3 of 4

ABwalls 2000 V.3.1 Allan Block Corporation



Project Name: TROY HILL CORPORATE CENTER
Location: Lot A-10, Howard County, MD
Project Number: DS201207
Wall Number: 1 of 1 (S. of building)
Designer: DKS
Date: 8-21-00

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 717-264-7535 - fax

AB Classic	
Total Wall Height	= 9.06 Feet
Block Height	= 0.604 Feet
Angle of Setback	= 6 Deg
Depth of Block	= 0.97 Feet
Length of Block	= 1.469 Feet
Infill Soil	Retained Soil
Friction Angle = 28 Deg	Friction Angle = 28 Deg
Unit Weight = 120 PCF	Unit Weight = 120 PCF
Foundation Soil	Cohesion
Friction Angle = 28 Deg	Cohesion = 50 PSF
Unit Weight = 120 PCF	
Bearing Capacity	
Factor of Safety	= 3.25
Safety Factors Static	
Actual Sliding	= 1.633
Actual Overturning	= 3.079
Safety Factors Seismic	
Actual Sliding	= N.A.
Actual Overturning	= N.A.
Geogrid Legend	
A-Minard 3XT	
B-Minard 5XT	
C-Minard 7XT	
G-Croued Con.	
Min. Length of Geogrid	= 7 Feet

4 of 4

ABwalls 2000 V.3.1 Allan Block Corporation

SEE THE 8 1/2" X 11" PROJECT MANUAL FOR:
 • INTERNAL AND EXTERNAL CALCULATIONS
 • CROSS SECTIONS & DETAILS
 • RYAN & ASSOCIATES SPECIFICATIONS
 • ALLAN BLOCK SPECIFICATIONS

• Main Office
 7902 Runnymede Dr.
 Frederick, MD 21702-2944
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 Fax (301) 695-9502

PA Office
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 Fax (717) 709-1154

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 ONLINE: WWW.WALLSCAPESINC.COM

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION *10/31/00* DATE

CHIEF, DIVISION OF LAND DEVELOPMENT *11/8/00* DATE

DIRECTOR *1/2/00* DATE

9/10/01	1	ELIM A-12 FROM PLAN. SEE SPP 01-92
		FOR REV. A-12.

Date/No.	Revision Description
	Troy Hill Corporate Center

OWNER: TROY HILL BUSINESS PARK PARTNERSHIP
 C/D MANEKIN CORPORATION
 7165 COLUMBIA GATEWAY DRIVE
 COLUMBIA, MARYLAND 21046
 (410) 290-1400

DEVELOPER: THE CREANEY & SMITH GROUP
 925 FELL STREET
 BALTIMORE, MARYLAND 21231

DMW
 DaftMcCuneWalker, Inc.
 200 East Pennsylvania Avenue
 Towson, Maryland 21286
 (410) 296-3333
 Fax 296-4705

A Team of Land Planners
 Landscape Architects,
 Golf Course Architects,
 Engineers, Surveyors &
 Environmental Professionals

SUBDIVISION NAME	SECTION AREA	LUT/PARCEL
TROY HILL CORPORATE CENTER	A-10	A-11
DATE FOR FILING	TAX ZONE	MMP ELEC. DISTRICT
10/31/00		2011.02
WATER CODE	SEWER CODE	
A03	2152200	

TITLE: ALLAN BLOCK RETAINING WALL DETAILS
 Lots: A-10, A-11 & A-12

Drn. By: DKS	Scale: As Shown	Proj. No. 99058.A
Des. By: DKS	Date: 08-22-00	
Chk. By: WKR	Approved:	23 of 30

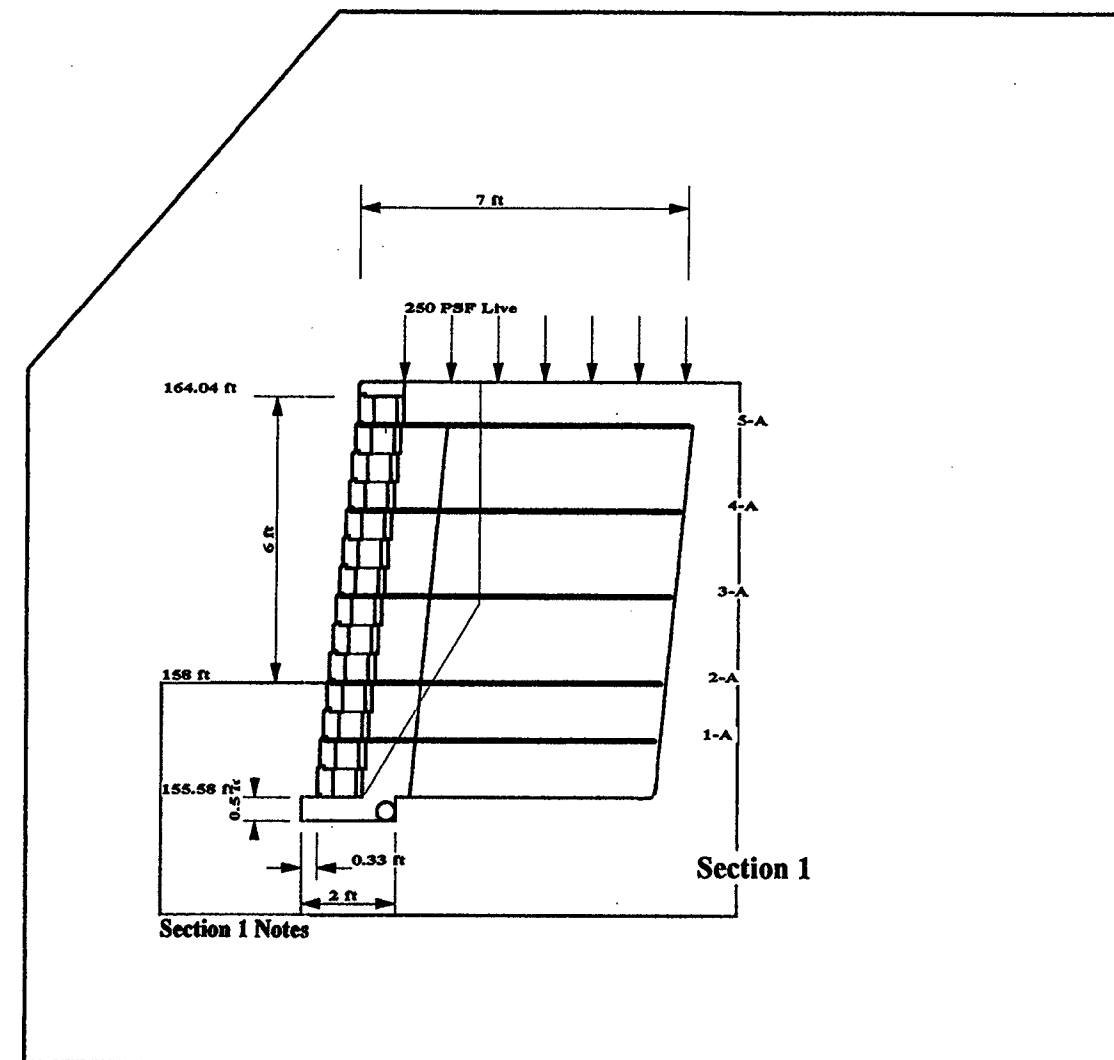
Professional Engr. No.

Project Information
Project Name: TROY HILL CORPORATE CENTER
Location: Lot A-11, Howard County, MD
Project Number: DS201207
Wall Number: 1 Of 2 (E. of building)
Designer: DKS
Date: 8-21-00



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 Fax 612-835-0013
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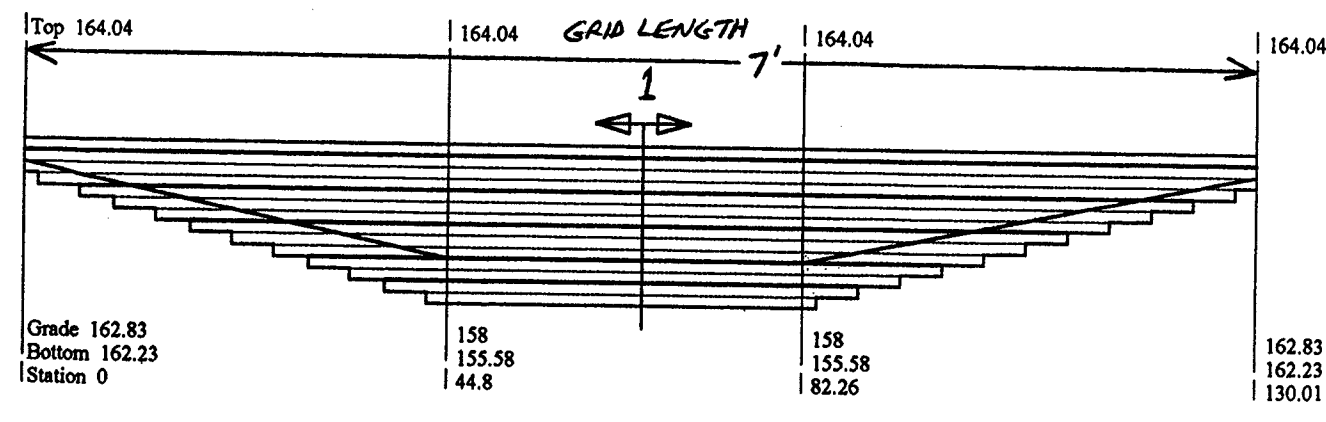
AB Classic	
Total Wall Height	= 8.46 Feet
Block Height	= 0.94 Feet
Angle of Setback	= 6 Deg.
Depth of Block	= 0.97 Feet
Length of Block	= 1.459 Feet
Infill Soil	Retained Soil
Friction Angle	= 28 Deg.
Unit Weight	= 120 PCF
Foundation Soil	Cohesion
Friction Angle	= 28 Deg.
Unit Weight	= 120 PCF
Bearing Capacity	Factor of Safety
	= 6.59
Safety Factors Static	
Actual Sliding	= 2.409
Actual Overturning	= 5.771
Safety Factors Seismic	
Actual Sliding	= N.C.
Actual Overturning	= N.C.
Geogrid Legend	
A-Minamid 33XT	
B-Minamid 52XT	
C-Minamid 7XT	
g-Grated Con.	
Min. Length of Geogrid	= 7 Feet

Project Name: TROY HILL CORPORATE CENTER
Location: Lot A-11, Howard County, MD
Project Number: DS201207
Wall Number: 1 Of 2 (E. of building)
Designer: DKS
Date: 8-21-00

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1 of 1
 ABwalls 2000 V.3.1 Allan Block Corporation



Section	1	2
Top	164.04	164.04
Grade	158	158
Bottom	155.58	155.58
Station	65.37	65.37

Allan Block Retaining Wall Elevation - 1 Of 2 (E. of building)
 Horizontal Scale: 1" = 20'-0" Vertical Scale: 1" = 10'-0"

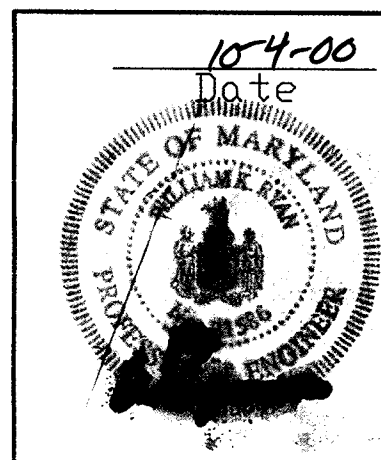
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 • CROSS SECTIONS & DETAILS
 • RYAN & ASSOCIATES SPECIFICATIONS
 • ALLAN BLOCK SPECIFICATIONS

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 PA Office: 6242 Molly Pitcher Hwy, Shippensburg, PA 17257

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 ONLINE: WWW.WALLSCAPESINC.COM



APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING

Chief, Development Engineering Division: *Chris Dammann* 10/31/00
 Chief, Division of Land Development: *Christy Hamilton* 11/1/00
 Director: *Frank Smith* 11/8/00

7/27/01 1 ELIM. A-12 FROM PLAN. SEE SDF 01-92 FOR REVISED A-12.

Date No. Revision Description

Troy Hill Corporate Center

OWNER: TROY HILL BUSINESS PARK PARTNERSHIP
 C/O MANEKIN CORPORATION DEVELOPER: THE CREANEY & SMITH GROUP
 7165 COLUMBIA GATEWAY DRIVE COLUMBIA, MARYLAND 21046 925 FELL STREET
 (410) 290-1400 BALTIMORE, MARYLAND 21231

DMW
 DaftMcCuneWalker, Inc. A Team of Land Planners, Landscape Architects, Golf Course Architects, Engineers, Surveyors & Environmental Professionals

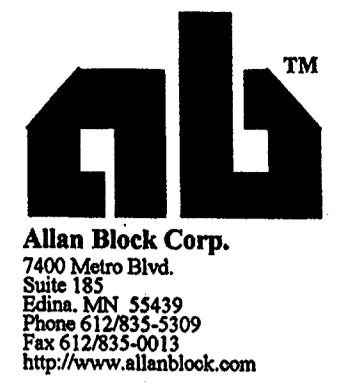
200 East Pennsylvania Avenue Towson, Maryland 21286
 (410) 296-3333 Fax 296-4705

SUBDIVISION NAME	SECTION AREA	LOT/PARCEL
TROY HILL CORPORATE CENTER	1	A-10, A-11, A-12
STATE OF MARYLAND	TAX ZONE	WMP
103-188	18	18
WATER CODE	SEWER CODE	CENSUS TRACT
A03	2152200	8011.02

TITLE: ALLAN BLOCK RETAINING WALL DETAILS
 Lots: A-10, A-11 & A-12

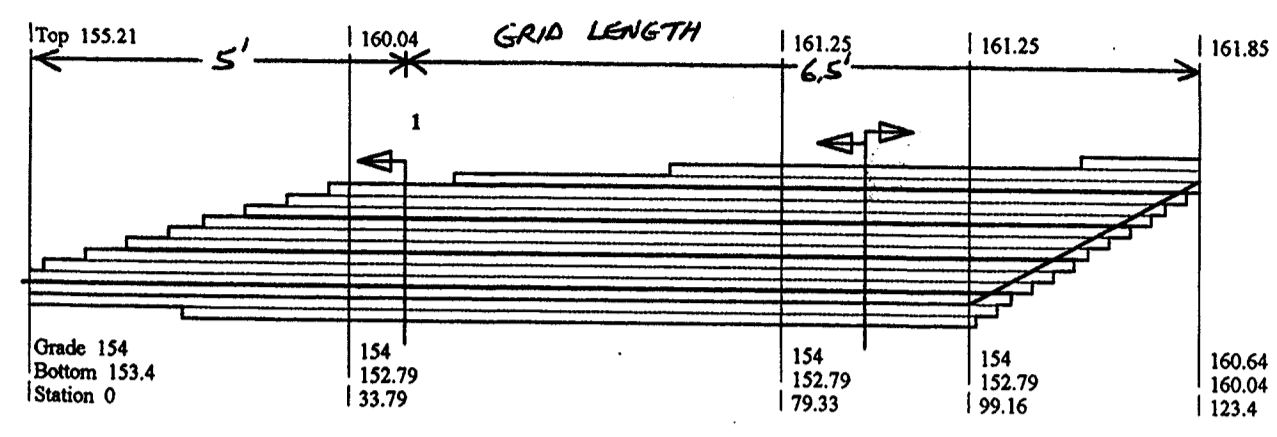
Drn. By: DKS Scale: As Shown Proj. No. 99058.A
 Des. By: DKS Date: 08-22-00
 Chk. By: WKR Approved: 24 of 30

Project Information	
Project Name:	TROY HILL CORPORATE CENTER
Location:	Lot A-11, Howard County, MD
Project Number:	DS201207
Wall Number:	2 of 2 (SE of building)
Designer:	DKS
Date:	8-21-00



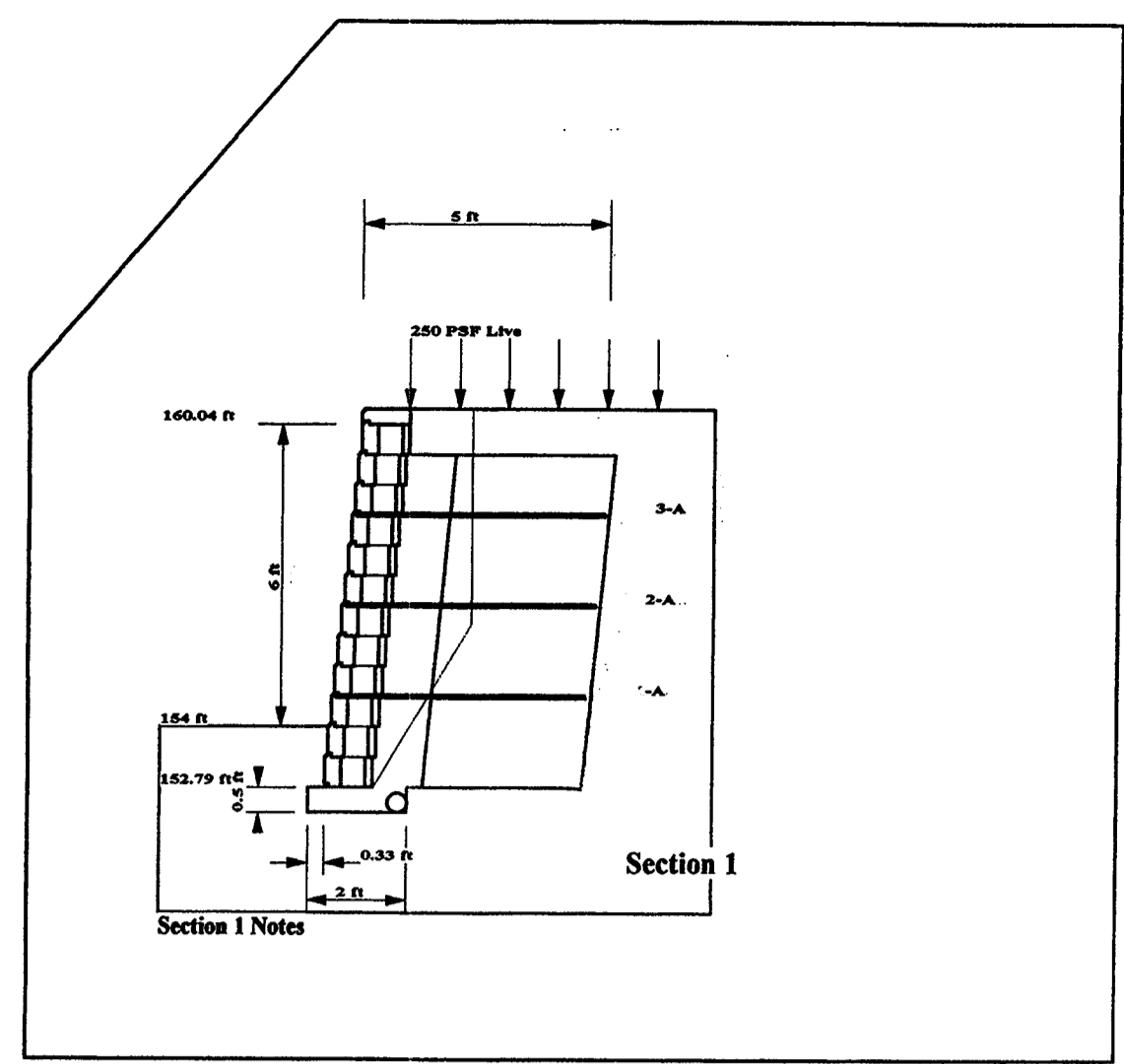
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Section	1	2	3
Top	160.04	161.25	161.85
Grade	154	154	154
Bottom	152.79	152.79	152.79
Station	29.66	48.14	48.14

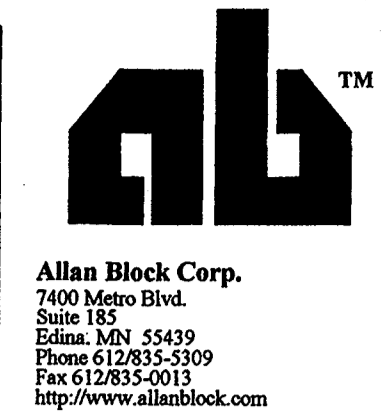
Allan Block Retaining Wall Elevation - 2 of 2 (SE of building)
 Horizontal Scale: 1" = 20'-0" Vertical Scale: 1" = 10'-0"



Project Name: TROY HILL CORPORATE CENTER
Location: Lot A-11, Howard County, MD
Project Number: DS201207
Wall Number: 2 of 2 (SE of building)
Designer: DKS
Date: 8-21-00

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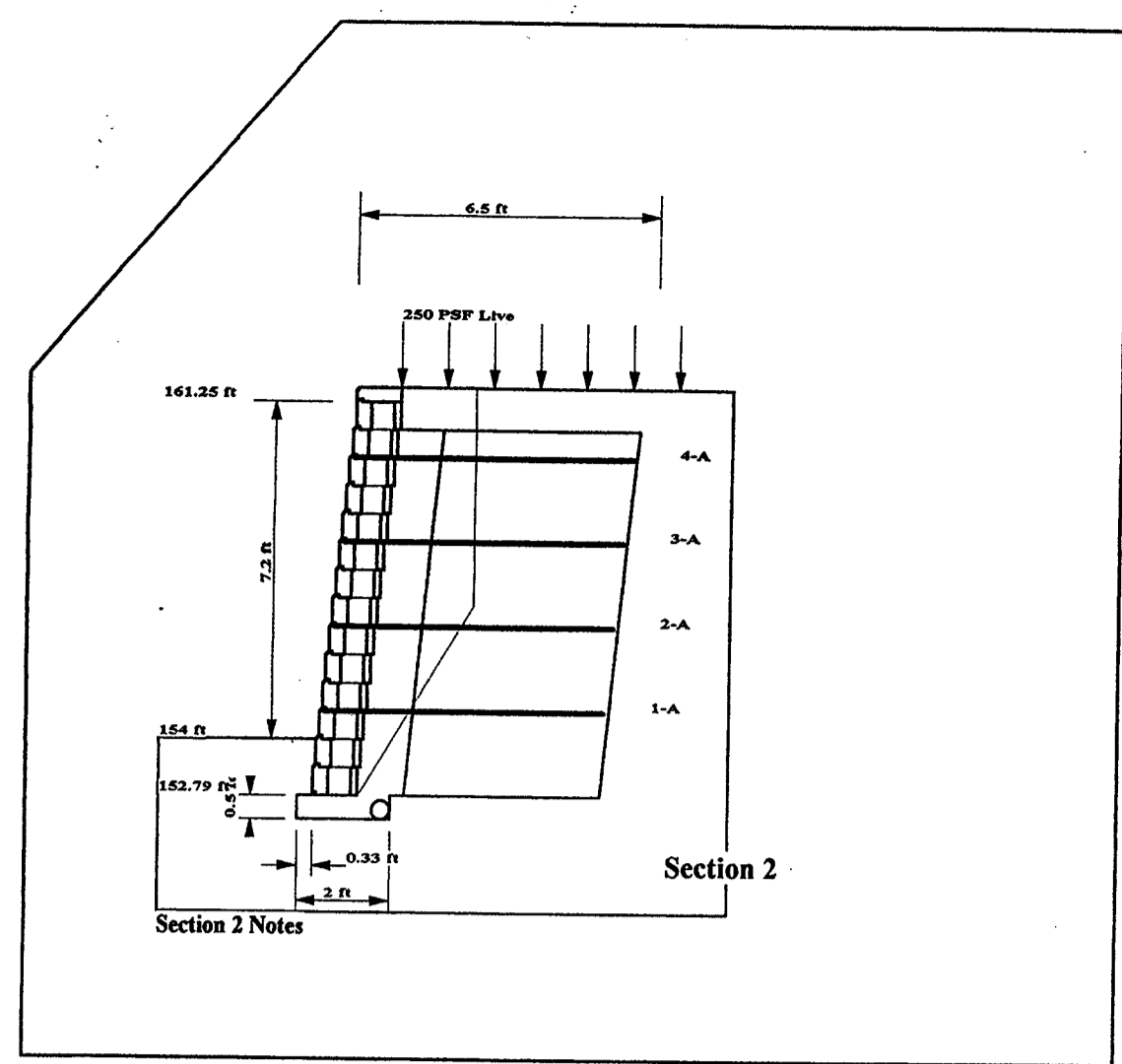
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AB Classic	
Total Wall Height	= 7.53 Feet
Block Height	= 0.604 Feet
Angle of Setback	= 6 Deg
Depth of Block	= 0.97 Feet
Length of Block	= 1.469 Feet
Infill Soil	
Friction Angle	= 28 Deg
Unit Weight	= 120 PCF
Foundation Soil	
Friction Angle	= 28 Deg
Unit Weight	= 120 PCF
Bearing Capacity	
Factor of Safety	= 4.62
Safety Factors Static	
Actual Sliding	= 1.945
Actual Overtuning	= 3.257
Safety Factors Seismic	
Actual Sliding	= N.A.
Actual Overtuning	= N.A.
Geogrid Legend	
A-Minorid 3XT	
B-Minorid 5XT	
C-Minorid 7XT	
g-Crowned Con.	
Min. Length of Geogrid	= 5 Feet

1 of 2

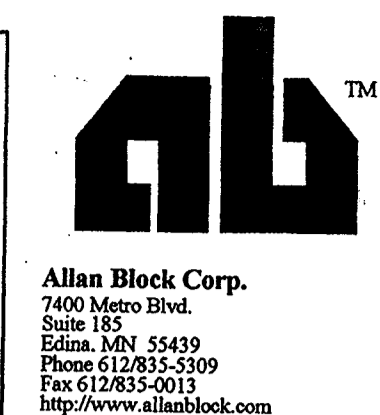
ABwalls 2000 V.3.1 Allan Block Corporation



Project Name: TROY HILL CORPORATE CENTER
Location: Lot A-11, Howard County, MD
Project Number: DS201207
Wall Number: 2 of 2 (SE of building)
Designer: DKS
Date: 8-21-00

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 717-264-7535 - fax

AB Classic	
Total Wall Height	= 8.46 Feet
Block Height	= 0.604 Feet
Angle of Setback	= 6 Deg
Depth of Block	= 0.97 Feet
Length of Block	= 1.469 Feet
Infill Soil	
Friction Angle	= 28 Deg
Unit Weight	= 120 PCF
Foundation Soil	
Friction Angle	= 28 Deg
Unit Weight	= 120 PCF
Bearing Capacity	
Factor of Safety	= 4.54
Safety Factors Static	
Actual Sliding	= 2.251
Actual Overtuning	= 5.068
Safety Factors Seismic	
Actual Sliding	= N.A.
Actual Overtuning	= N.A.
Geogrid Legend	
A-Minorid 3XT	
B-Minorid 5XT	
C-Minorid 7XT	
g-Crowned Con.	
Min. Length of Geogrid	= 6.5 Feet

2 of 2

ABwalls 2000 V.3.1 Allan Block Corporation

SEE THE 8 1/2" X 11" PROJECT MANUAL FOR:

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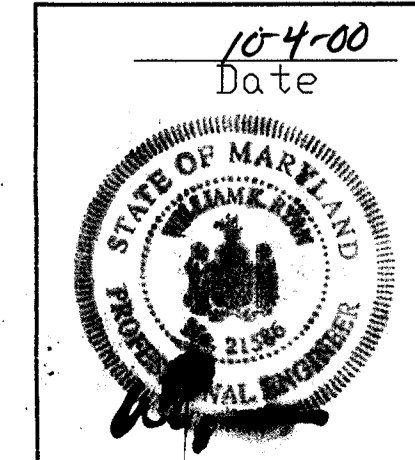
Ryan & Associates

Consulting & Design Engineers



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 ONLINE: WWW.WALLSCAPESINC.COM



APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING

John DeMunnich 10/21/00
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Cindy Hambley 11/8/00
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Frank Sauter 11/8/00
 DIRECTOR DATE

9/07/01	1	ELIM A-12 FROM PLAN. SEE EOP 01-92 FOR REVISED A-12.
---------	---	--

Date No.	Revision Description
	Troy Hill Corporate Center

OWNER: TROY HILL BUSINESS PARK PARTNERSHIP
 C/O MANEKIN CORPORATION
 7165 COLUMBIA GATEWAY DRIVE
 COLUMBIA, MARYLAND 21046
 (410) 290-1400

DEVELOPER: THE CREANEY & SMITH GROUP
 925 FELL STREET
 BALTIMORE, MARYLAND 21231

DMW
 DaftMcCumewalker, Inc.
 200 East Pennsylvania Avenue
 Towson, Maryland 21286
 (410) 296-3353
 Fax 296-4705

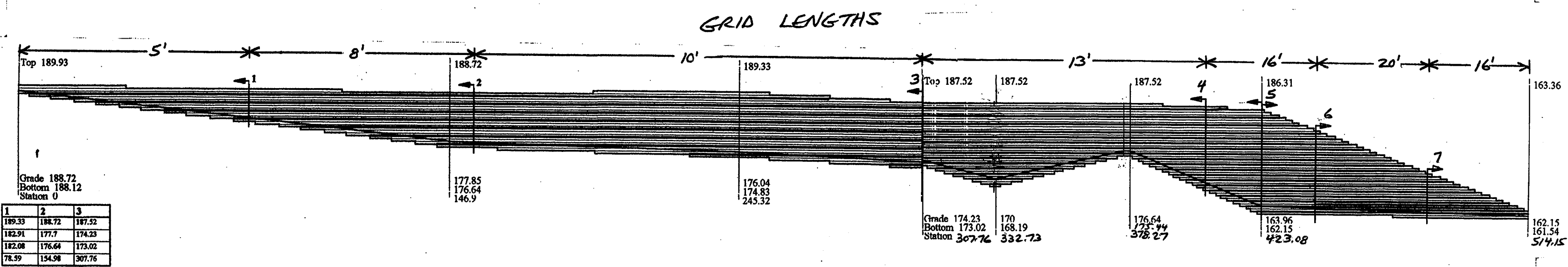
A Team of Land Planners
 Landscape Architects,
 Golf Course Architects,
 Engineers, Surveyors &
 Environmental Professionals

SUBDIVISION NAME	SECTION AREA	LOT/PARCEL
TROY HILL CORPORATE CENTER	1	A-10, A-11, A-12
PLAN FOR T. BLOCK ZONE	TAX ZONE MAP ELECT. DISTRICT	CENSUS TRACT
14617-14518 15		8011.02
WATER CODE	SEWER CODE	
A03	2152200	

TITLE: ALLAN BLOCK RETAINING WALL DETAILS
 Lots: A-10, A-11 & A-12

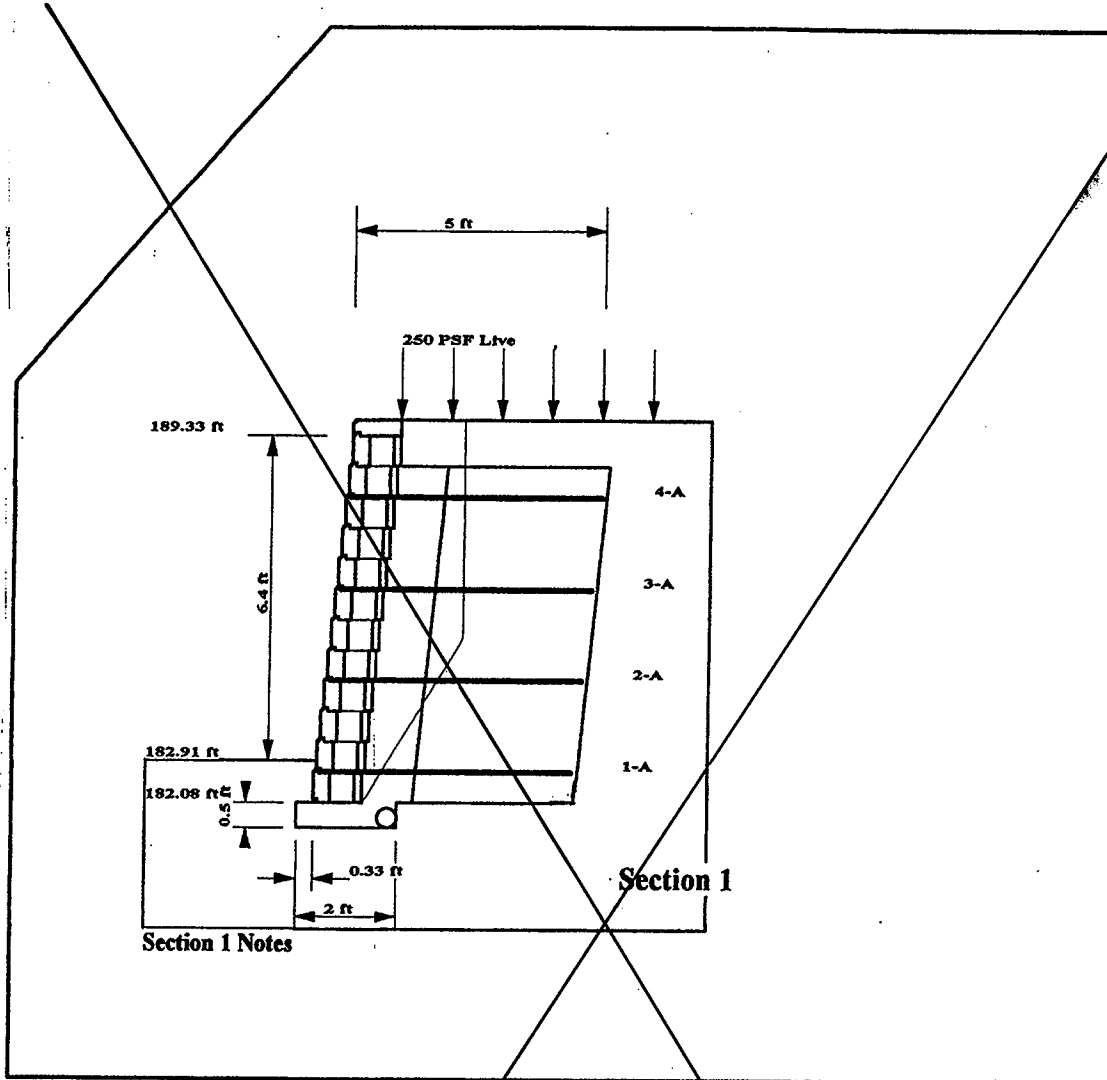
Drn. By: DKS Scale: As Shown Proj. No. 99058.A
 Des. By: DKS Date: 08-22-00
 Chk. By: WKR Approved: 25 of 30

Professional Engr. No.



Allan Block Retaining Wall Elevation - 1 of 4 (W. of building)
Horizontal Scale: 1" = 30'-0" Vertical Scale: 1" = 20'-0"

Section	1	2	3
Top	189.33	188.72	187.52
Grade	182.91	179.7	174.23
Bottom	172.8	174.64	173.02
Station	78.39	154.38	207.76



Project Name: TROY HILL CORPORATE CENTER
Location: Lot A-12, Howard County, MD
Project Number: DS201207
Wall Number: 1 of 4 (W. of building)
Designer: DKS
Date: 8-21-00

Allan Block provides this software as a service for its clients. The sole purpose of this software is to assist engineers in the design of mechanically stabilized retaining walls. The software uses evaluation techniques and engineering principles found in the Allan Block Engineering Manual. (Refer to ABENG.M5.0196 and supporting references.) It is the responsibility of the engineer or user to determine the propriety and accuracy of input parameters and to review and verify the correctness of the results. Allan Block Corporation, its licensees or agents do not assume any liability or responsibility for damages which may result from the use or misuse of this software. This software only considers on critical failure surface and does not address global and or seismic stability. All potential modes of failure, including proper water management, must be evaluated by the engineer of record.

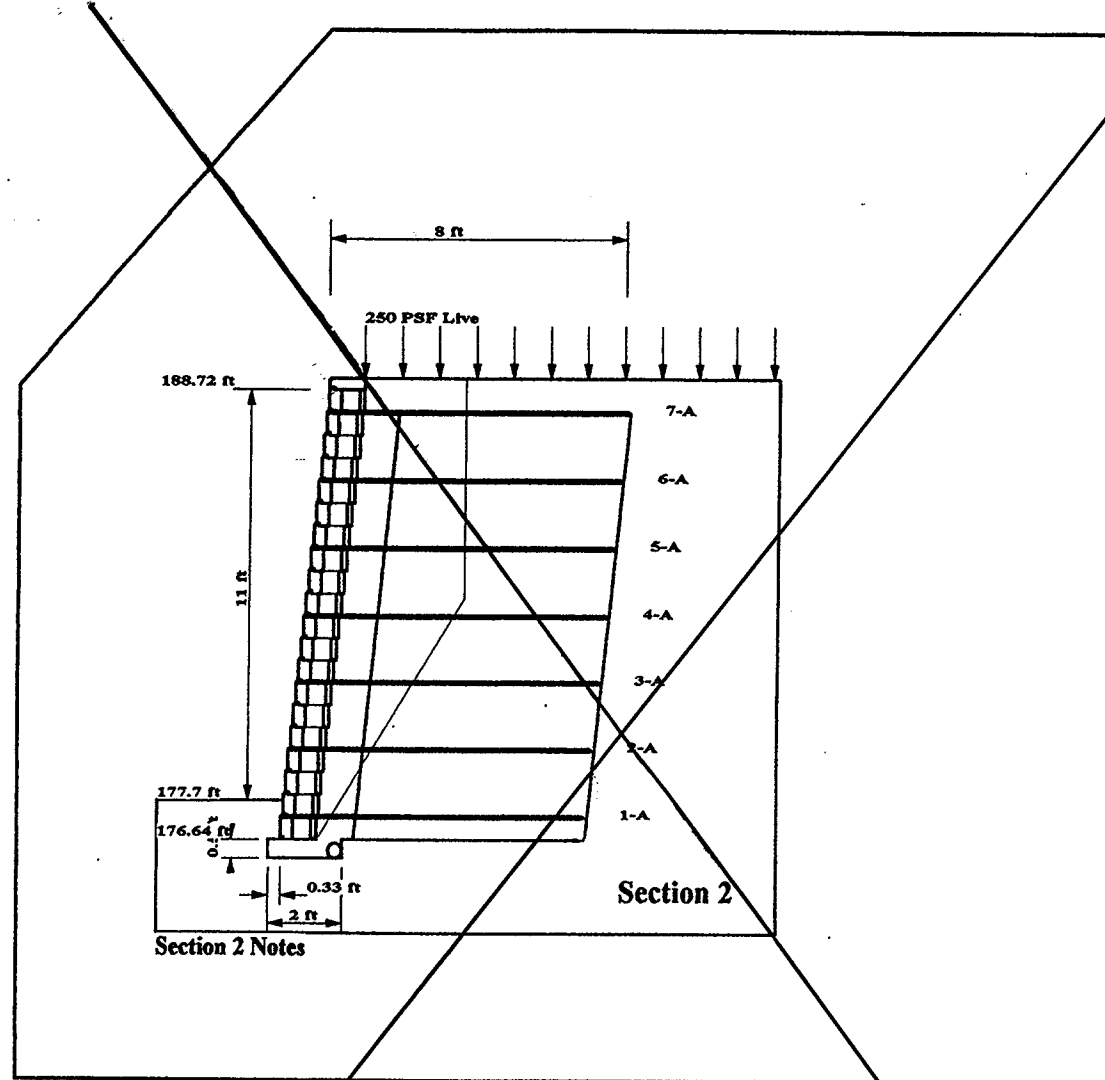
The final design must provide for proper wall drainage to prevent the buildup of hydrostatic pressures over the service life of the structure. In the event additional water is introduced into the general wall area, either above or below grade, any designs from this software would be invalid. All installations must conform to Allan Block installation specifications. (Refer to ABENG.M4.0595)

Allan Block Corp.
7400 Metro Blvd.
Suite 185
Edina, MN 55439
Phone 612/835-5309
Fax 612/835-0013
http://www.allanblock.com

Nitterhouse Masonry Prod.
859 Cleveland Ave, PO Box 692
Chambersburg, PA 17201
717-267-4500
717-264-7535 - fax

AB Classic	Retained Soil
Total Wall Height = 7.25 Feet	Friction Angle = 28 Deg.
Block Height = 0.604 Feet	Friction Angle = 28 Deg.
Anale of Setback = 6 Deg.	Unit Weight = 120 PCF
Depth of Block = 0.97 Feet	Unit Weight = 120 PCF
Length of Block = 1.469 Feet	Cohesion = 50 PSF
Infill Soil	Foundation Soil
Friction Angle = 28 Deg.	Friction Angle = 28 Deg.
Friction Angle = 28 Deg.	Friction Angle = 28 Deg.
Unit Weight = 120 PCF	Unit Weight = 120 PCF
Unit Weight = 120 PCF	Cohesion = 50 PSF
Bearing Capacity	Safety Factors Static
Factor of Safety = 4.07	Actual Sliding = 1.945
Safety Factors Seismic	Actual Sliding = 3.957
Actual Sliding = N.A.	Actual Sliding = N.A.
Actual Overturning = N.A.	Actual Overturning = N.A.
Geogrid Legend	
A-Minward TKT	
B-Minward TKT	
C-Minward TKT	
e-Curved Con.	
Min. Length of Geogrid = 5 Feet	

1 of 7



Project Name: TROY HILL CORPORATE CENTER
Location: Lot A-12, Howard County, MD
Project Number: DS201207
Wall Number: 1 of 4 (W. of building)
Designer: DKS
Date: 8-21-00

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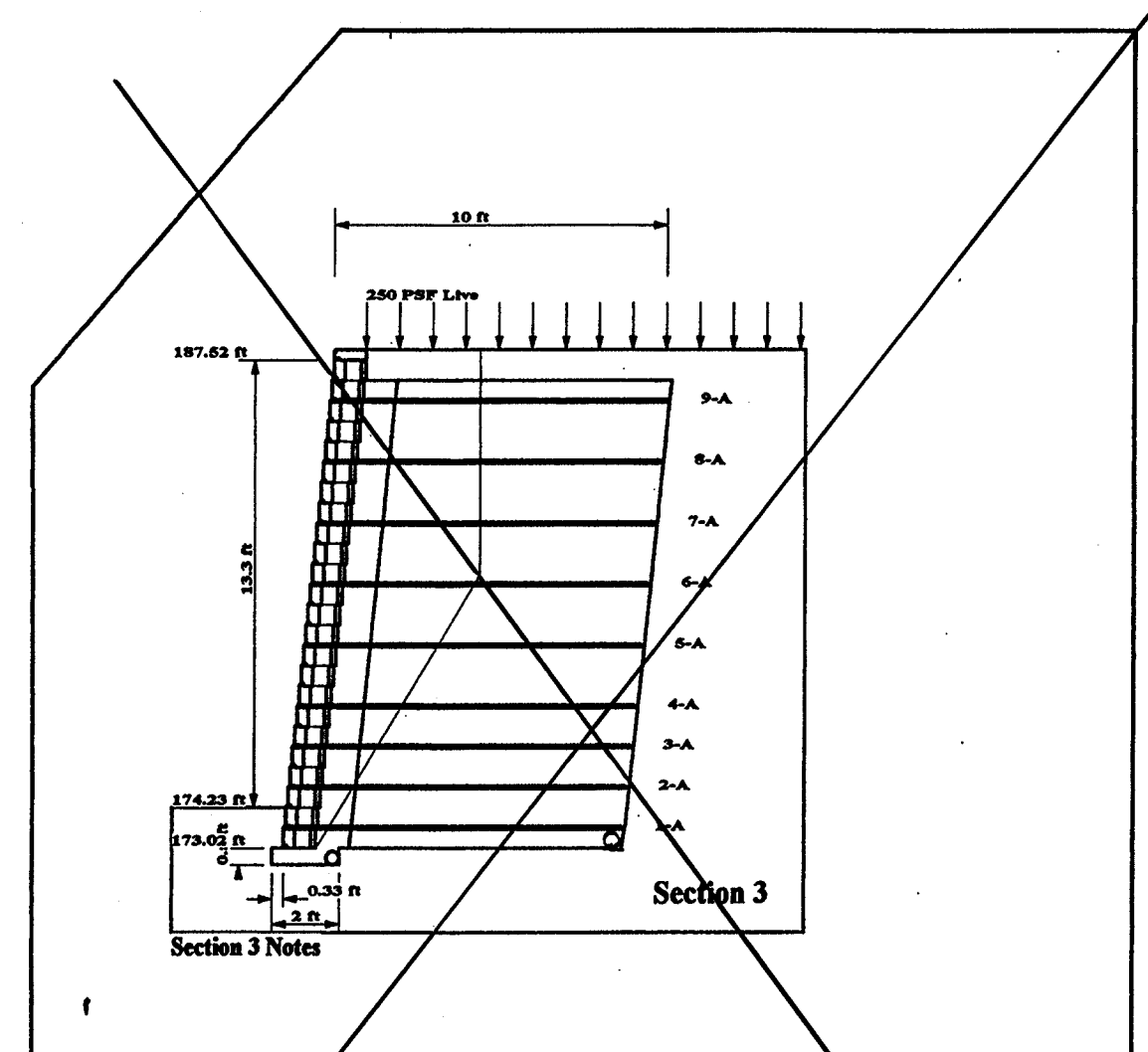
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Chambersburg, PA 17201
717-267-4500
717-264-7535 - fax

AB Classic	Retained Soil
Total Wall Height = 12.08 Feet	Friction Angle = 28 Deg.
Block Height = 0.604 Feet	Friction Angle = 28 Deg.
Anale of Setback = 6 Deg.	Unit Weight = 120 PCF
Depth of Block = 0.97 Feet	Unit Weight = 120 PCF
Length of Block = 1.469 Feet	Cohesion = 50 PSF
Infill Soil	Foundation Soil
Friction Angle = 28 Deg.	Friction Angle = 28 Deg.
Friction Angle = 28 Deg.	Friction Angle = 28 Deg.
Unit Weight = 120 PCF	Unit Weight = 120 PCF
Unit Weight = 120 PCF	Cohesion = 50 PSF
Bearing Capacity	Safety Factors Static
Factor of Safety = 2.92	Actual Sliding = 2.158
Safety Factors Seismic	Actual Sliding = 4.414
Actual Sliding = N.A.	Actual Sliding = N.A.
Actual Overturning = N.A.	Actual Overturning = N.A.
Geogrid Legend	
A-Minward TKT	
B-Minward TKT	
C-Minward TKT	
e-Curved Con.	
Min. Length of Geogrid = 8 Feet	

2 of 7



Project Name: TROY HILL CORPORATE CENTER
Location: Lot A-12, Howard County, MD
Project Number: DS201207
Wall Number: 1 of 4 (W. of building)
Designer: DKS
Date: 8-21-00

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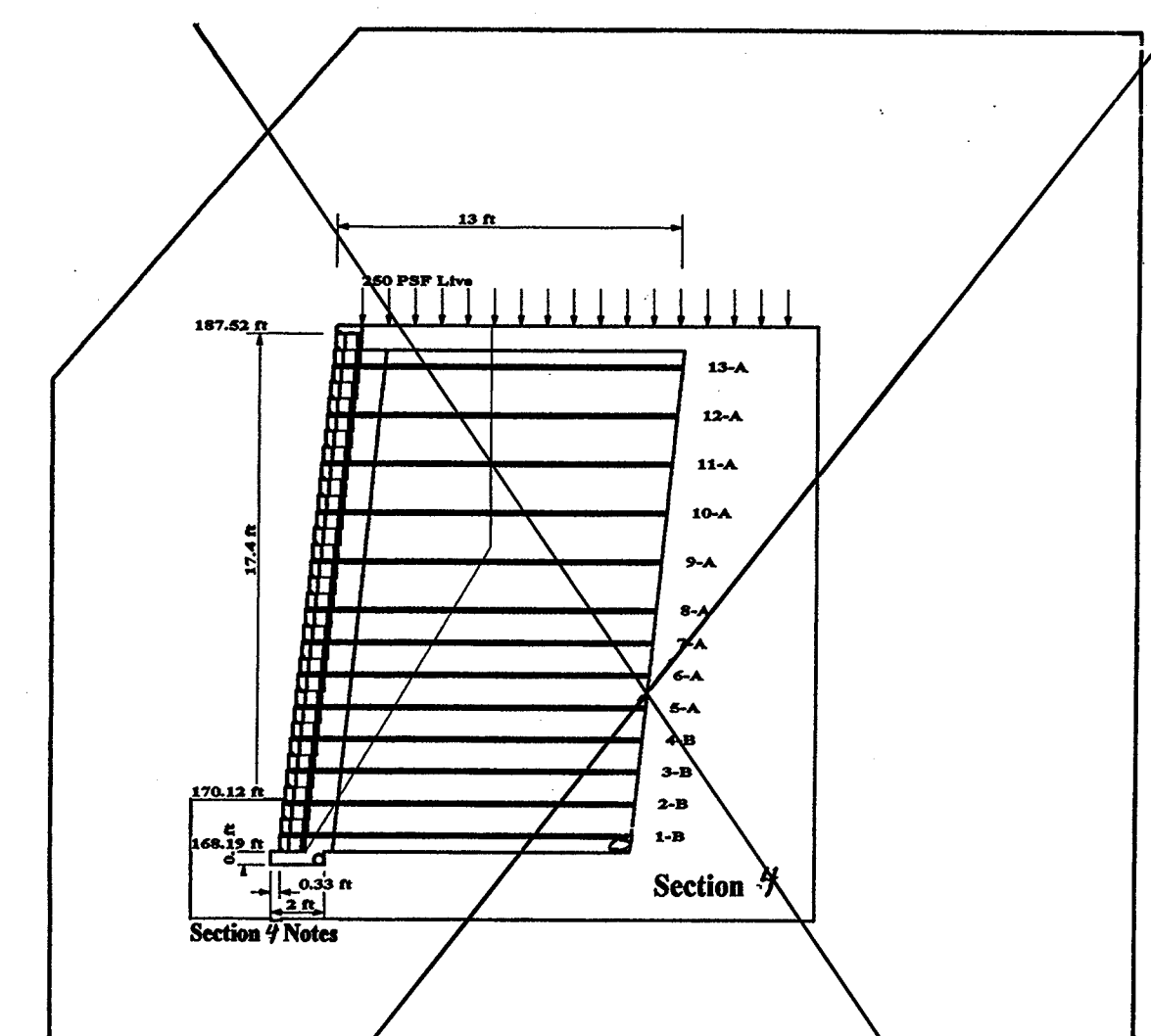
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717-264-7535 - fax

AB Classic	Retained Soil
Total Wall Height = 14.5 Feet	Friction Angle = 28 Deg.
Block Height = 0.604 Feet	Friction Angle = 28 Deg.
Anale of Setback = 6 Deg.	Unit Weight = 120 PCF
Depth of Block = 0.97 Feet	Unit Weight = 120 PCF
Length of Block = 1.469 Feet	Cohesion = 50 PSF
Infill Soil	Foundation Soil
Friction Angle = 28 Deg.	Friction Angle = 28 Deg.
Friction Angle = 28 Deg.	Friction Angle = 28 Deg.
Unit Weight = 120 PCF	Unit Weight = 120 PCF
Unit Weight = 120 PCF	Cohesion = 50 PSF
Bearing Capacity	Safety Factors Static
Factor of Safety = 2.74	Actual Sliding = 4.992
Safety Factors Seismic	Actual Sliding = N.A.
Actual Sliding = N.A.	Actual Sliding = N.A.
Actual Overturning = N.A.	Actual Overturning = N.A.
Geogrid Legend	
A-Minward TKT	
B-Minward TKT	
C-Minward TKT	
e-Curved Con.	
Min. Length of Geogrid = 10 Feet	

3 of 7



Project Name: TROY HILL CORPORATE CENTER
Location: Lot A-12, Howard County, MD
Project Number: DS201207
Wall Number: 1 of 4 (W. of building)
Designer: DKS
Date: 8-21-00

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Chambersburg, PA 17201
717-267-4500
717-264-7535 - fax

AB Classic	Retained Soil
Total Wall Height = 19.33 Feet	Friction Angle = 28 Deg.
Block Height = 0.604 Feet	Friction Angle = 28 Deg.
Anale of Setback = 6 Deg.	Unit Weight = 120 PCF
Depth of Block = 0.97 Feet	Unit Weight = 120 PCF
Length of Block = 1.469 Feet	Cohesion = 50 PSF
Infill Soil	Foundation Soil
Friction Angle = 28 Deg.	Friction Angle = 28 Deg.
Friction Angle = 28 Deg.	Friction Angle = 28 Deg.
Unit Weight = 120 PCF	Unit Weight = 120 PCF
Unit Weight = 120 PCF	Cohesion = 50 PSF
Bearing Capacity	Safety Factors Static
Factor of Safety = 2.6	Actual Sliding = 2.359
Safety Factors Seismic	Actual Sliding = 5.125
Actual Sliding = N.A.	Actual Sliding = N.A.
Actual Overturning = N.A.	Actual Overturning = N.A.
Geogrid Legend	
A-Minward TKT	
B-Minward TKT	
C-Minward TKT	
e-Curved Con.	
Min. Length of Geogrid = 13 Feet	

4 of 7

SEE THE 8 1/2" X 11" PROJECT MANUAL FOR:

- INTERNAL AND EXTERNAL CALCULATIONS
- CROSS SECTIONS & DETAILS
- RYAN & ASSOCIATES SPECIFICATIONS
- ALLAN BLOCK SPECIFICATIONS

Ryan & Associates
Consulting & Design Engineers

Main Office
7902 Runnymede Dr.
Frederick, MD 21702-2944
(301) 695-2542
Fax (301) 695-9502

PA Office
6242 Molly Pitcher Hwy
Shippensburg, PA 17257
(717) 709-1153
Fax (717) 709-1154

WALLSCAPES, INC.
SPECIALIZING IN THE DESIGN AND INSTALLATION OF SEGMENTAL RETAINING WALLS.

505 WYNGATE ROAD • TIMONUM, MARYLAND 21093 • 410-561-8133 FAX 410-561-8134
ONLINE: WWW.WALLSCAPESINC.COM

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION *[Signature]* 10/21/00 DATE

CHIEF, DIVISION OF LAND DEVELOPMENT *[Signature]* 11/8/00 DATE

DIRECTOR *[Signature]* 11/8/00 DATE

9/07/01	1	ELIMA-12 FROM PLAN. SEE SDP 01-92 FOR REVISED A-12.
Date	No.	Revision Description

Troy Hill Corporate Center

OWNER: TROY HILL BUSINESS PARK PARTNERSHIP
C/O MANEKIN CORPORATION
7165 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046
(410) 290-1400

DEVELOPER: THE CREANEY & SMITH GROUP
925 FELL STREET
BALTIMORE, MARYLAND 21231

DMW
DaftMcCuneWalker, Inc. A Team of Land Planners, Landscape Architects, Golf Course Architects, Engineers, Surveyors & Environmental Professionals

200 East Pennsylvania Avenue
Towson, Maryland 21286
(410) 296-3333
Fax 296-4705

SUBDIVISION NAME: TROY HILL CORPORATE CENTER
SECTION AREA: A-10, A-11, A-12
DATE: 10/21/00
DRAWN BY: WKR
CHECKED BY: WKR
SCALE: AS SHOWN
PROJECT NO: 99058.A

TITLE: ALLAN BLOCK RETAINING WALL DETAILS
Lots: A-10, A-11 & A-12

Drn. By: DKS Scale: As Shown Proj. No. 99058.A
Des. By: DKS Date: 08-22-00
Chk. By: WKR Approved: 26 of 30



Allan Block Corp.
7400 Metro Blvd.
Suite 183
Edina, MN 55439
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Fax 612/835-0013
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Nitterhouse Masonry Prod.
859 Cleveland Ave. PO Box 692
Chambersburg, PA 17201
717-267-4500
717-264-7535 - fax

AB Classic
Total Wall Height = 24.16 Feet
Block Height = 0.604 Feet
Angle of Setback = 6 Deg.
Depth of Block = 0.97 Feet
Length of Block = 1.469 Feet

Infill Soil	Retained Soil
Friction Angle = 28 Deg.	Friction Angle = 28 Deg.
Unit Weight = 120 PCF	Unit Weight = 120 PCF

Foundation Soil	Cohesion
Friction Angle = 28 Deg.	Friction Angle = 50 PSF
Unit Weight = 120 PCF	

Bearing Capacity
Factor of Safety = 2.06

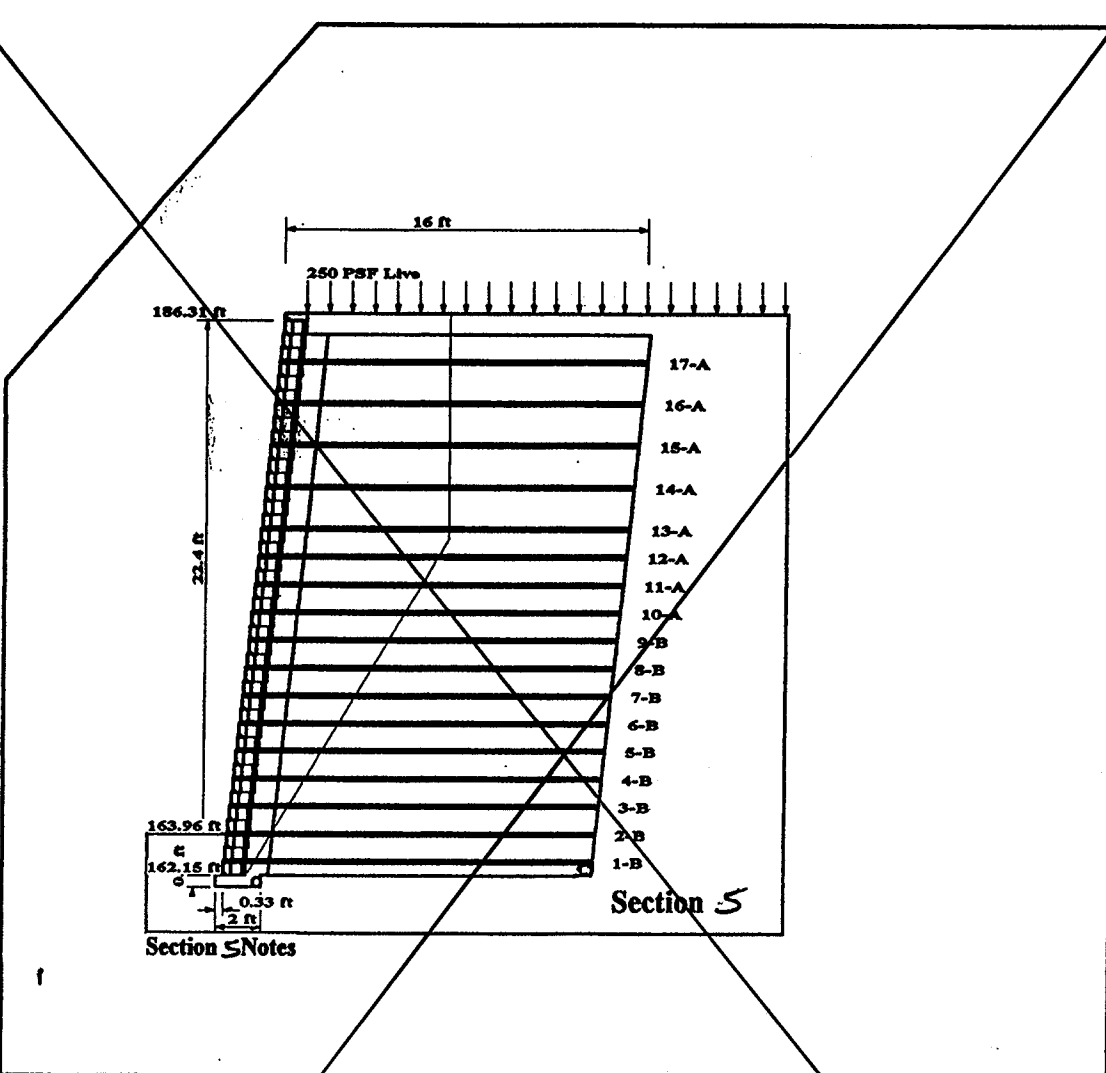
Safety Factors Static
Actual Sliding = 2.44
Actual Overturning = 5.219

Safety Factors Seismic
Actual Sliding = N.A.
Actual Overturning = N.A.

Geogrid Legend
A-Miramid 3XT
B-Miramid 5XT
C-Miramid 7XT
e-Crosst Coe.
Min. Length of Geogrid = 16 Feet

5 of 7

ABwalls 2000 V.3.1 Allan Block Corporation



Project Name: TROY HILL CORPORATE CENTER
Location: Lot A-12, Howard County, MD
Project Number: DS201207
Wall Number: 1 of 4 (W. of building)
Designer: DKS
Date: 8-21-00

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Nitterhouse Masonry Prod.
859 Cleveland Ave. PO Box 692
Chambersburg, PA 17201
717-267-4500
717-264-7535 - fax

AB Classic
Total Wall Height = 19.33 Feet
Block Height = 0.604 Feet
Angle of Setback = 6 Deg.
Depth of Block = 0.97 Feet
Length of Block = 1.469 Feet

Infill Soil	Retained Soil
Friction Angle = 28 Deg.	Friction Angle = 28 Deg.
Unit Weight = 120 PCF	Unit Weight = 120 PCF

Foundation Soil	Cohesion
Friction Angle = 28 Deg.	Friction Angle = 50 PSF
Unit Weight = 120 PCF	

Bearing Capacity
Factor of Safety = 2.56

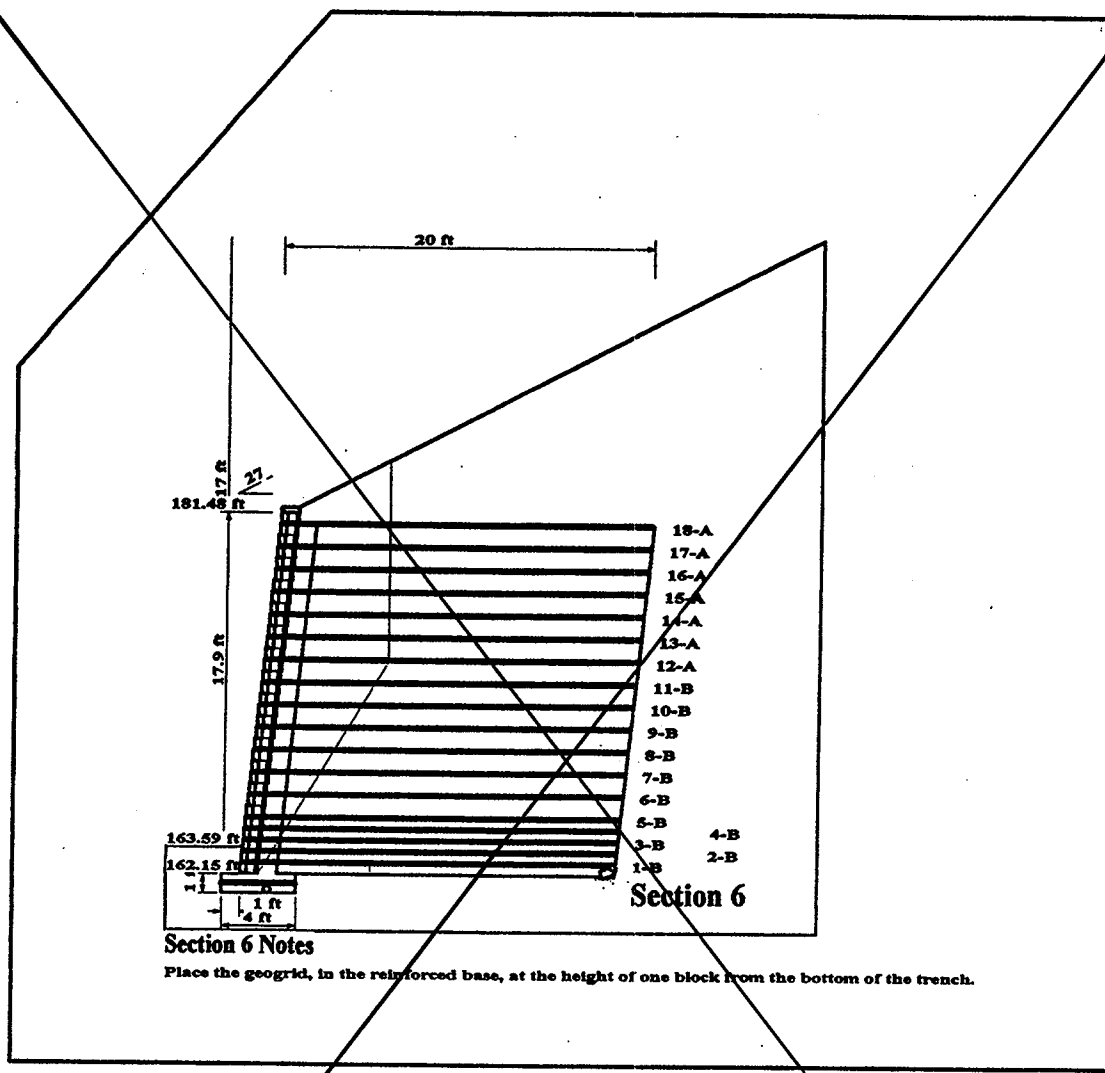
Safety Factors Static
Actual Sliding = 1.693
Actual Overturning = 4.427

Safety Factors Seismic
Actual Sliding = N.A.
Actual Overturning = N.A.

Geogrid Legend
A-Miramid 3XT
B-Miramid 5XT
C-Miramid 7XT
e-Crosst Coe.
Min. Length of Geogrid = 20 Feet

6 of 7

ABwalls 2000 V.3.1 Allan Block Corporation

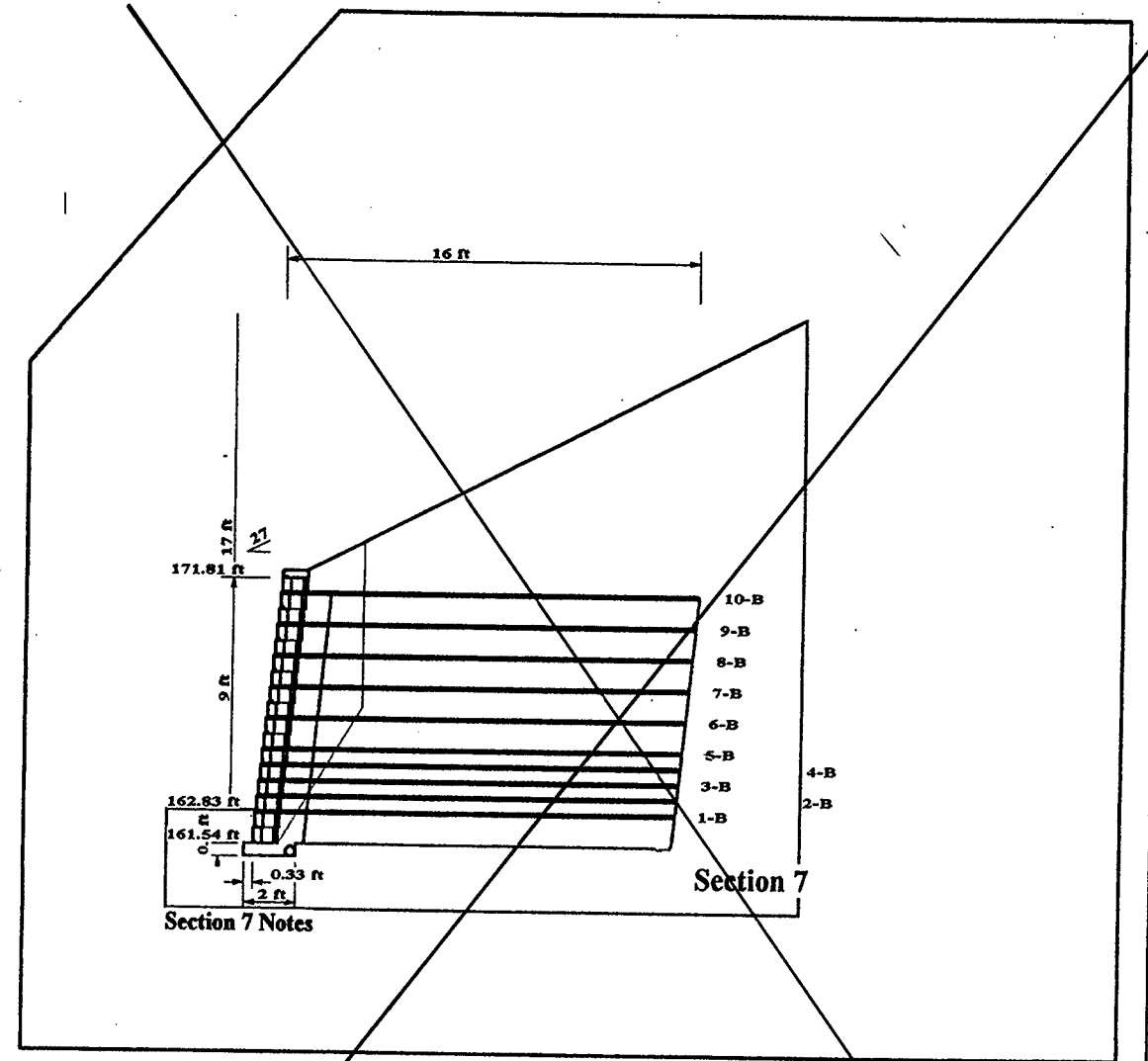


Project Name: TROY HILL CORPORATE CENTER
Location: Lot A-12, Howard County, MD
Project Number: DS201207
Wall Number: 1 of 4 (W. of building)
Designer: DKS
Date: 8-21-00

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Place the geogrid, to the reinforced base, at the height of one block from the bottom of the trench.



Project Name: TROY HILL CORPORATE CENTER
Location: Lot A-12, Howard County, MD
Project Number: DS201207
Wall Number: 1 of 4 (W. of building)
Designer: DKS
Date: 8-21-00

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Chambersburg, PA 17201
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717-264-7535 - fax

AB Classic
Total Wall Height = 10.27 Feet
Block Height = 0.604 Feet
Angle of Setback = 6 Deg.
Depth of Block = 0.97 Feet
Length of Block = 1.469 Feet

Infill Soil	Retained Soil
Friction Angle = 28 Deg.	Friction Angle = 28 Deg.
Unit Weight = 120 PCF	Unit Weight = 120 PCF

Foundation Soil	Cohesion
Friction Angle = 28 Deg.	Friction Angle = 50 PSF
Unit Weight = 120 PCF	

Bearing Capacity
Factor of Safety = 2.8

Safety Factors Static
Actual Sliding = 1.565
Actual Overturning = 5.085

Safety Factors Seismic
Actual Sliding = N.A.
Actual Overturning = N.A.

Geogrid Legend
A-Miramid 3XT
B-Miramid 5XT
C-Miramid 7XT
e-Crosst Coe.
Min. Length of Geogrid = 16 Feet

7 of 7

ABwalls 2000 V.3.1 Allan Block Corporation

SEE THE 8 1/2" X 11" PROJECT MANUAL FOR:

- INTERNAL AND EXTERNAL CALCULATIONS
- CROSS SECTIONS & DETAILS
- RYAN & ASSOCIATES SPECIFICATIONS
- ALLAN BLOCK SPECIFICATIONS

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Fax (301) 695-9502

PA Office
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Shippensburg, PA 17257
(717) 709-1153
Fax (717) 709-1154

Ryan & Associates

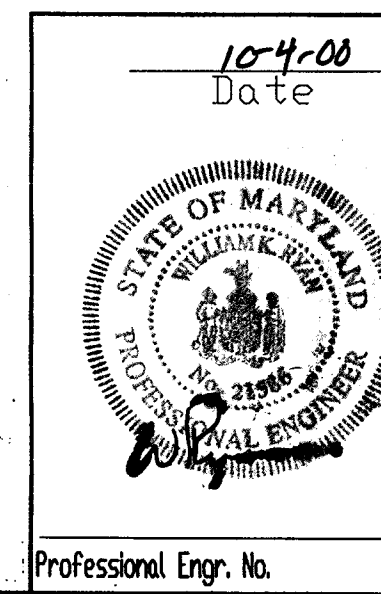
Consulting & Design Engineers



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ONLINE: WWW.WALLSCAPESINC.COM



APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING
[Signature] 10/21/00
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE
[Signature] 11/6/00
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE
[Signature] 11/8/00
 DIRECTOR DATE

9/07/01	1	ELIM A-12 FROM PLAN. SEE SPP 01-92 FOR REVISED A-12
---------	---	---

Date No. Revision Description
 Troy Hill Corporate Center

OWNER:
TROY HILL BUSINESS PARK PARTNERSHIP
C/D MANEKIN CORPORATION
7165 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046
(410) 290-1400

DEVELOPER:
THE CREANEY & SMITH GROUP
925 FELL STREET
BALTIMORE, MARYLAND 21231

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A Team of Land Planners
Landscape Architects,
Golf Course Architects,
Engineers, Surveyors &
Environmental Professionals

SUBDIVISION NAME	SECTION AREA	LOT/PARCEL
TROY HILL CORPORATE CENTER	1	A-10, A-11, A-12
BLDG OR L.F. BLOCK#	ZONE	TAX ZONE MAP
9317-7018	M-1	57
ELECT. DISTRICT	CENSUS TRACT	
	6011.02	
WATER CODE	SEWER CODE	
A03	2152200	

TITLE: ALLAN BLOCK RETAINING WALL DETAILS
 Lots: A-10, A-11 & A-12

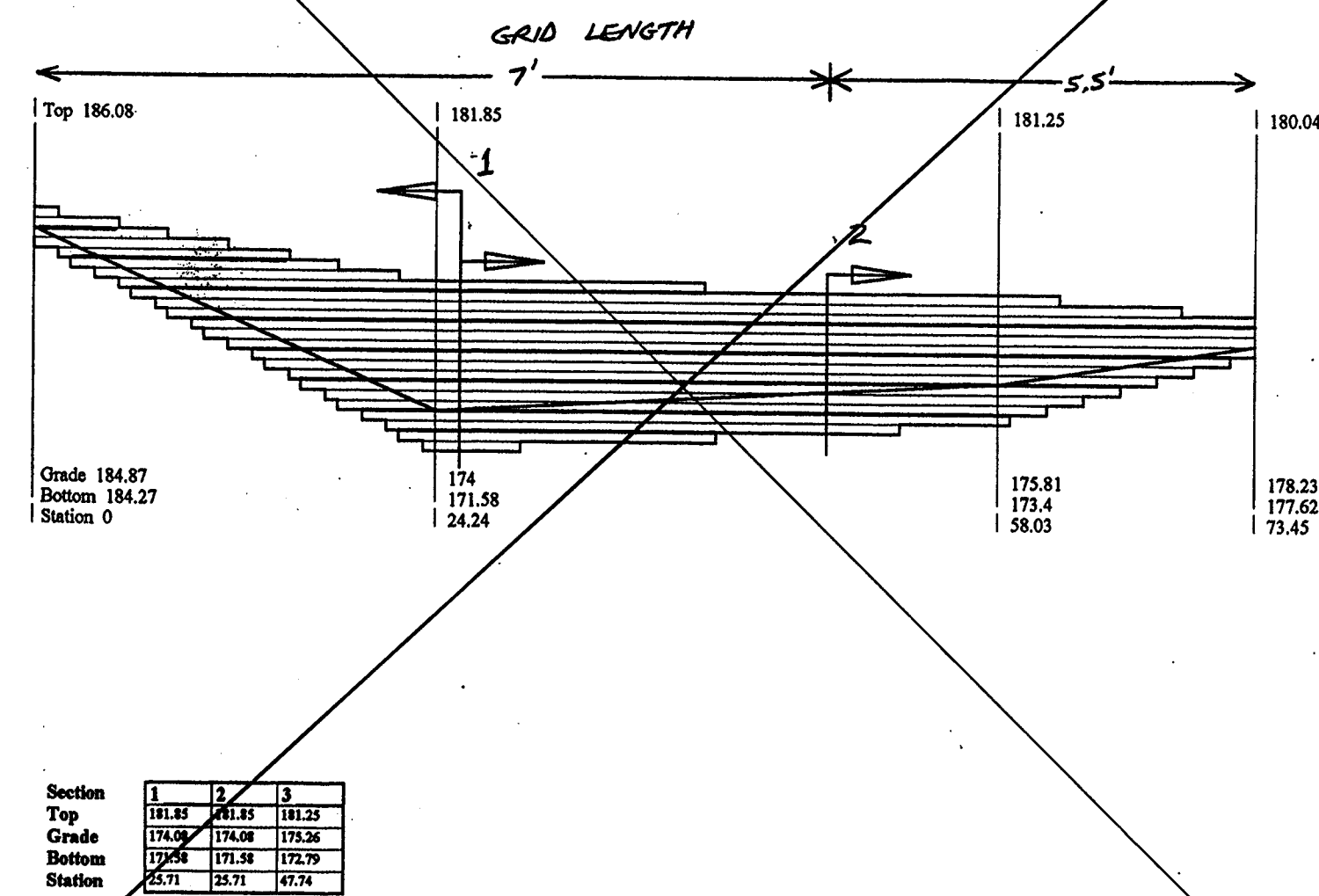
Drn. By: DKS	Scale: As Shown	Proj. No. 99058.A
Des. By: DKS	Date: 08-22-00	
Chk. By: WKR	Approved:	27 of 30

Project Information
 Project Name: TROY HILL CORPORATE CENTER
 Location: Lot A-12, Howard County, MD
 Project Number: DS201207
 Wall Number: 2 of 4 (S. of building)
 Designer: DKS
 Date: 8-21-00

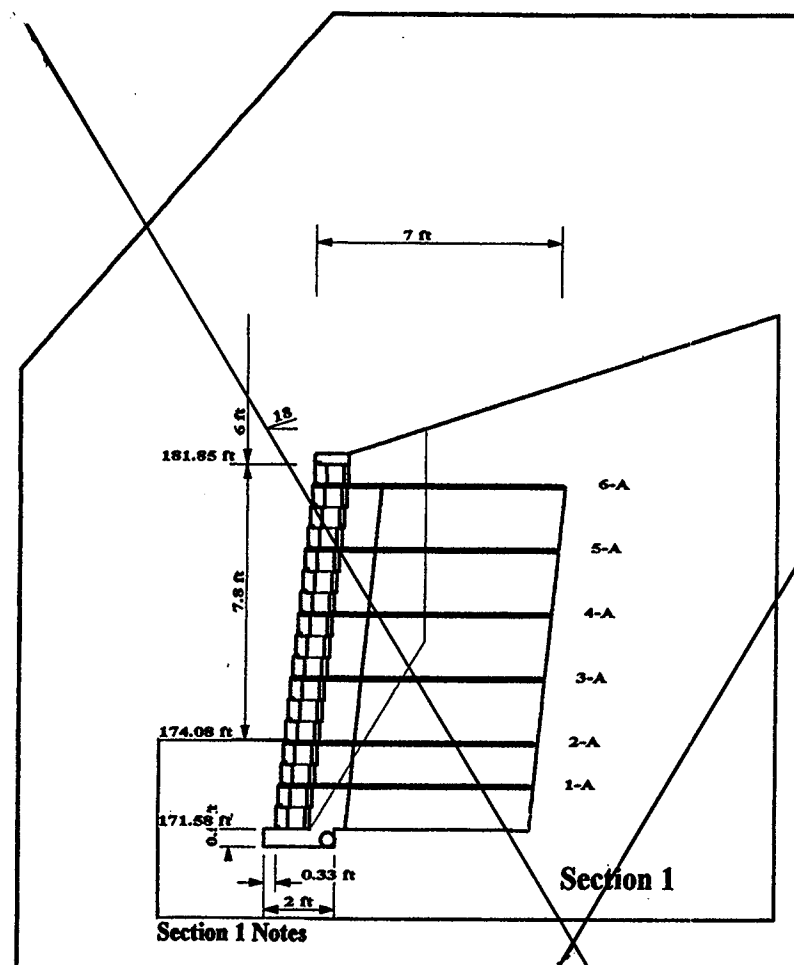


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 717-267-4500
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Allan Block Retaining Wall Elevation - 2 of 4 (S. of building)
 Horizontal Scale: 1" = 10'-0" Vertical Scale: 1" = 10'-0"



Project Name: TROY HILL CORPORATE CENTER
Location: Lot A-12, Howard County, MD
Project Number: DS201207
Wall Number: 2 of 4 (S. of building)
Designer: DKS
Date: 8-21-00

Allan Block provides this software as a service for its clients. The sole purpose of this software is to assist engineers in the design of mechanically stabilized retaining walls. The software uses evaluation techniques and engineering principles found in the Allan Block Engineering Manual. (Refer to ABENG.M5.0196 and supporting references.) It is the responsibility of the engineer or user to determine the propriety and accuracy of input parameters and to review and verify the correctness of the results. Allan Block Corporation, its licensees or agents do not assume any liability or responsibility for damages which may result from the use or misuse of this software. This software only considers on critical failure surface and does not address global and or seismic stability. All potential modes of failure, including proper water management, must be evaluated by the engineer of record.

The final design must provide for proper wall drainage to prevent the buildup of hydrostatic pressures over the service life of the structure. In the event additional water is introduced into the general wall area, either above or below grade, any designs from this software would be invalid. All installations must conform to Allan Block installation specifications. (Refer to ABENG.M4.0595)



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 7400 Metro Blvd.
 Suite 185
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 Phone 612/835-5309
 Fax 612/835-0013
 http://www.allanblock.com

Nitterhouse Masonry Prod.
 859 Cleveland Ave. PO Box 692
 Chambersburg, PA 17201
 717-267-4500
 717-264-7535 - fax

AB Classic
 Total Wall Height = 10.27 Feet
 Block Height = 0.604 Feet
 Angle of Setback = 6 Deg.
 Depth of Block = 0.97 Feet
 Length of Block = 1.469 Feet

Fill Soil
 Friction Angle = 28 Deg.
 Unit Weight = 120 PCF

Retained Soil
 Friction Angle = 28 Deg.
 Unit Weight = 120 PCF

Foundation Soil
 Friction Angle = 28 Deg.
 Cohesion = 50 PSF
 Unit Weight = 120 PCF

Bearing Capacity
 Factor of Safety = 4.78

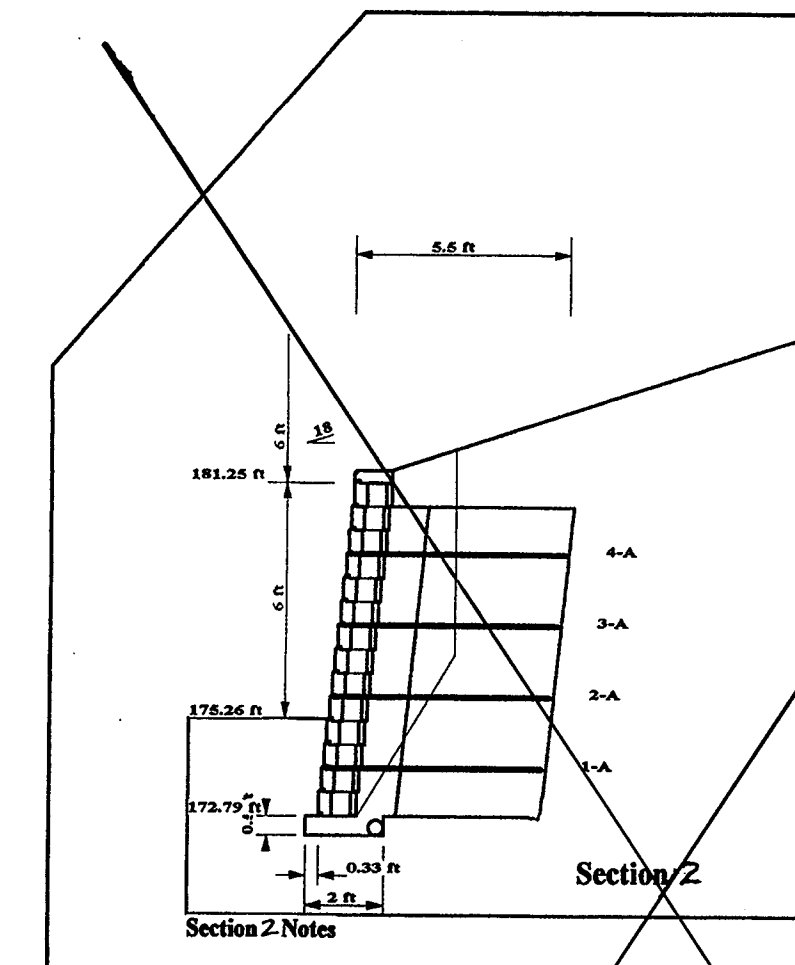
Safety Factors Static
 Actual Sliding = 1.881
 Actual Overturning = 4.014

Safety Factors Seismic
 Actual Sliding = N.A.
 Actual Overturning = N.A.

Geogrid Legend
 A-Minorized 3XT
 B-Minorized 5XT
 C-Minorized 7XT
 e-Grouted Con.
 Min. Length of Geogrid = 7 Feet

1 of 2

ABwalls 2000 V.3.1 Allan Block Corporation



Project Name: TROY HILL CORPORATE CENTER
Location: Lot A-12, Howard County, MD
Project Number: DS201207
Wall Number: 2 of 4 (S. of building)
Designer: DKS
Date: 8-21-00

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 Chambersburg, PA 17201
 717-267-4500
 717-264-7535 - fax

AB Classic
 Total Wall Height = 8.46 Feet
 Block Height = 0.604 Feet
 Angle of Setback = 6 Deg.
 Depth of Block = 0.97 Feet
 Length of Block = 1.469 Feet

Fill Soil
 Friction Angle = 28 Deg.
 Unit Weight = 120 PCF

Retained Soil
 Friction Angle = 28 Deg.
 Unit Weight = 120 PCF

Foundation Soil
 Friction Angle = 28 Deg.
 Cohesion = 50 PSF
 Unit Weight = 120 PCF

Bearing Capacity
 Factor of Safety = 5.33

Safety Factors Static
 Actual Sliding = 1.739
 Actual Overturning = 3.588

Safety Factors Seismic
 Actual Sliding = N.A.
 Actual Overturning = N.A.

Geogrid Legend
 A-Minorized 3XT
 B-Minorized 5XT
 C-Minorized 7XT
 e-Grouted Con.
 Min. Length of Geogrid = 5.5 Feet

2 of 2

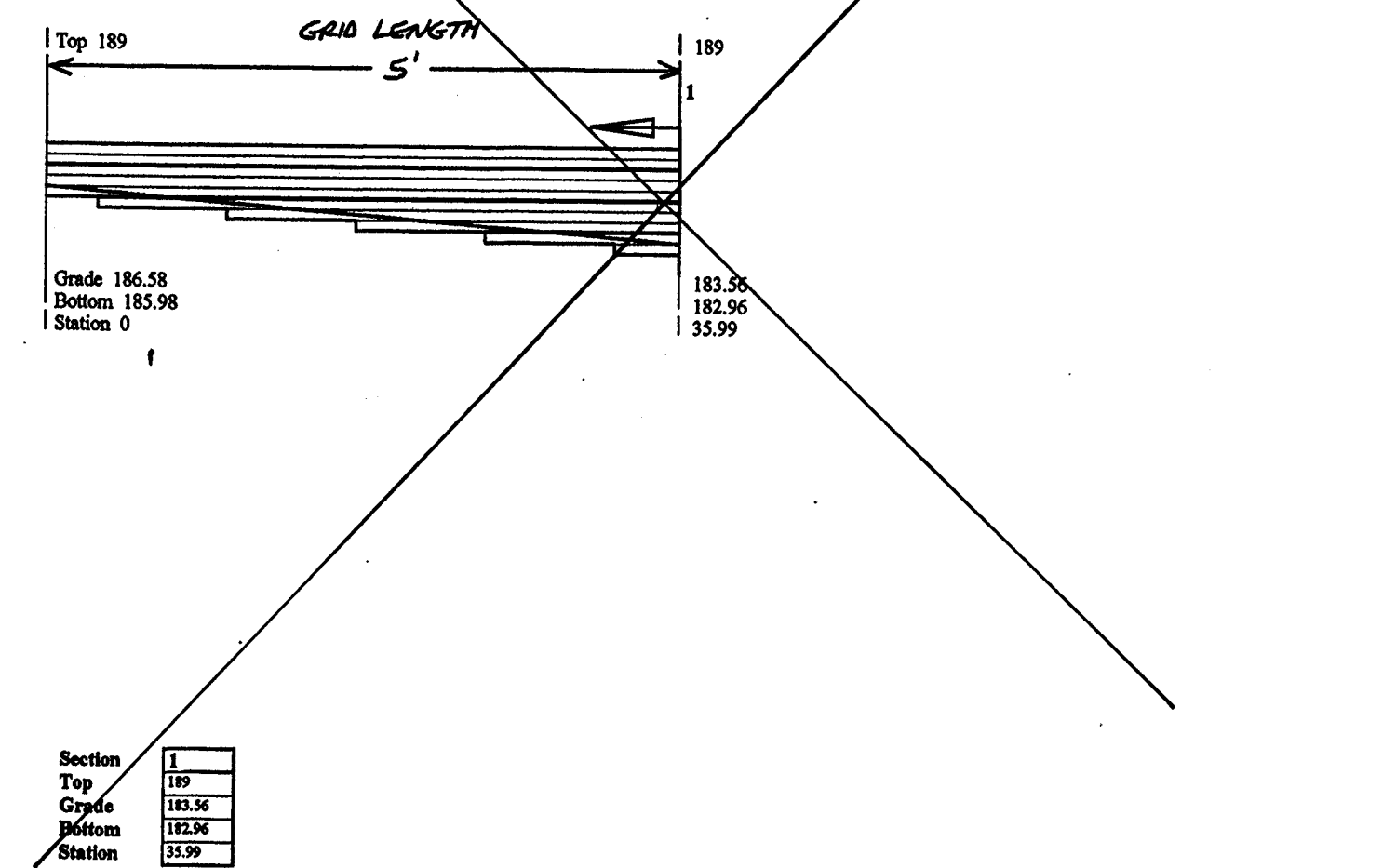
ABwalls 2000 V.3.1 Allan Block Corporation

Project Information
 Project Name: TROY HILL CORPORATE CENTER
 Location: Lot A-12, Howard County, MD
 Project Number: DS201207
 Wall Number: 3 of 4 (SW corner of building)
 Designer: DKS
 Date: 8-21-00

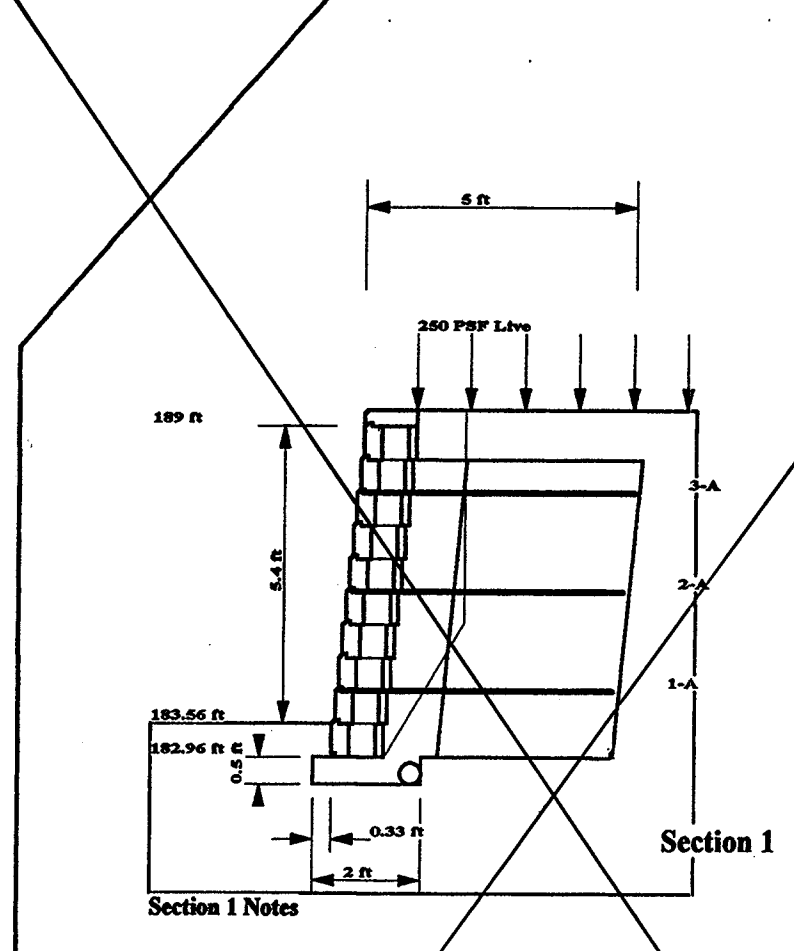


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 717-267-4500
 717-264-7535 - fax



Allan Block Retaining Wall Elevation - 3 of 4 (SW corner of building)
 Horizontal Scale: 1" = 10'-0" Vertical Scale: 1" = 10'-0"



Project Name: TROY HILL CORPORATE CENTER
Location: Lot A-12, Howard County, MD
Project Number: DS201207
Wall Number: 3 of 4 (SW corner of building)
Designer: DKS
Date: 8-21-00

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 717-264-7535 - fax

AB Classic
 Total Wall Height = 6.04 Feet
 Block Height = 0.604 Feet
 Angle of Setback = 6 Deg.
 Depth of Block = 0.97 Feet
 Length of Block = 1.469 Feet

Fill Soil
 Friction Angle = 28 Deg.
 Unit Weight = 120 PCF

Retained Soil
 Friction Angle = 28 Deg.
 Unit Weight = 120 PCF

Foundation Soil
 Friction Angle = 28 Deg.
 Cohesion = 50 PSF
 Unit Weight = 120 PCF

Bearing Capacity
 Factor of Safety = 4.98

Safety Factors Static
 Actual Sliding = 2.153
 Actual Overturning = 5.023

Safety Factors Seismic
 Actual Sliding = N.A.
 Actual Overturning = N.A.

Geogrid Legend
 A-Minorized 3XT
 B-Minorized 5XT
 C-Minorized 7XT
 e-Grouted Con.
 Min. Length of Geogrid = 5 Feet

1 of 1

ABwalls 2000 V.3.1 Allan Block Corporation

SEE THE 8 1/2" X 11" PROJECT MANUAL FOR:
 • INTERNAL AND EXTERNAL CALCULATIONS
 • CROSS SECTIONS & DETAILS
 • RYAN & ASSOCIATES SPECIFICATIONS
 • ALLAN BLOCK SPECIFICATIONS

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 • Fax (301) 695-9502

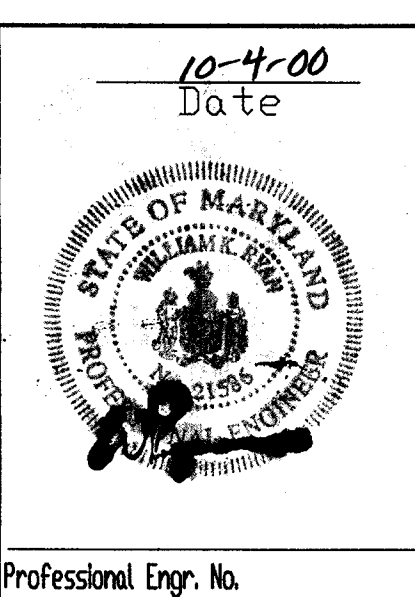
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Ryan & Associates
 Consulting & Design Engineers

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 ONLINE: WWW.WALLSCAPESINC.COM



APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING

[Signature] 10/21/00
 CHIEF DEVELOPMENT ENGINEERING DIVISION DATE

[Signature] 11/8/00
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 11/8/00
 DIRECTOR DATE

Date	No.	Revision Description
9/07/01	1	ELIM A-12 FROM PLAN. SEE GDP 01-92 FOR REV. A-12.

Date No. Revision Description

Troy Hill Corporate Center

OWNER: TROY HILL BUSINESS PARK PARTNERSHIP
 C/O MANEKIN CORPORATION
 7165 COLUMBIA GATEWAY DRIVE
 COLUMBIA, MARYLAND 21046
 (410) 290-1400

DEVELOPER: THE CREANEY & SMITH GROUP
 925 FELL STREET
 BALTIMORE, MARYLAND 21231

DMW
 DaftMcCuneWalker, Inc.
 200 East Pennsylvania Avenue
 Towson, Maryland 21286
 (410) 296-3333
 Fax 296-4705

A Team of Land Planners
 Landscape Architects,
 Golf Course Architects,
 Engineers, Surveyors &
 Environmental Professionals

SUBDIVISION NAME	SECTION AREA	LOT/PARCEL
TROY HILL CORPORATE CENTER	1	A-10, A-11, A-12

PLAN REVISION	DATE	BY	REASON
10/21/00	10/21/00	TS	10/21/00

WATER CODE	SEWER CODE	TAX ZONE	MAP ELEC. DISTRICT	CENSUS TRACT
A03	215E200			8011.02

TITLE: ALLAN BLOCK RETAINING WALL DETAILS
 Lots: A-10, A-11 & A-12

Drn. By:	Scale:	Proj. No.:
DKS	As Shown	99058.A

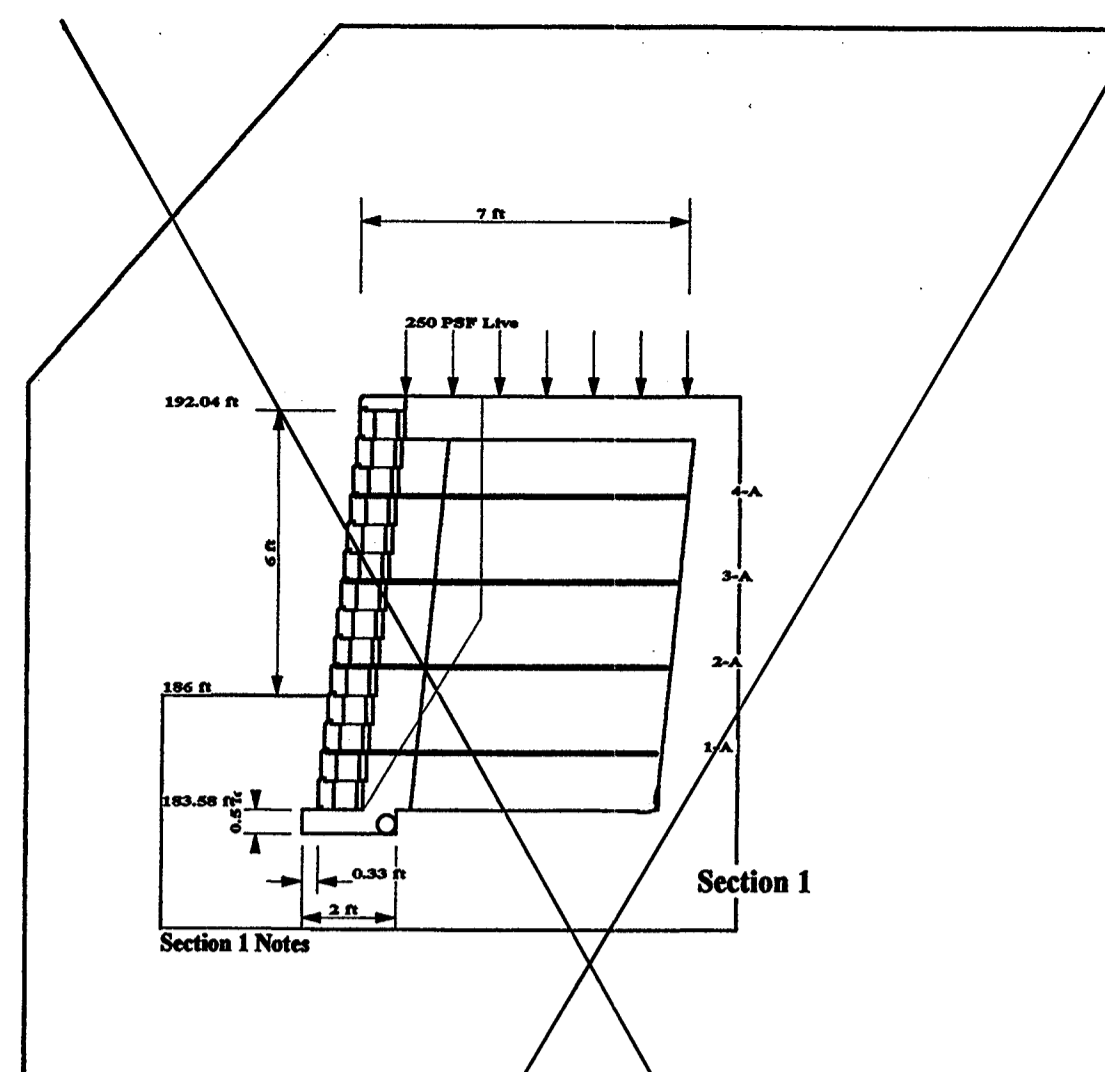
Des. By:	Date:
DKS	08-22-00

Chk. By:	Approved:
WKR	[Signature]

28 of 30

Project Information
 Project Name: TROY HILL CORPORATE CENTER
 Location: Lot A-12, Howard County, MD
 Project Number: DS201207
 Wall Number: 4 of 4 (SE corner of building)
 Designer: DKS
 Date: 8-21-00

ab
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 Fax 612-835-5013
 http://www.allanblock.com
 Nitterhouse Masonry Prod
 859 Cleveland Ave. PO Box 692
 Chambersburg, PA 17201
 717-267-4500
 717-264-7535 - fax



Project Name: TROY HILL CORPORATE CENTER
Location: Lot A-12, Howard County, MD
Project Number: DS201207
Wall Number: 4 of 4 (SE corner of building)
Designer: DKS
Date: 8-21-00

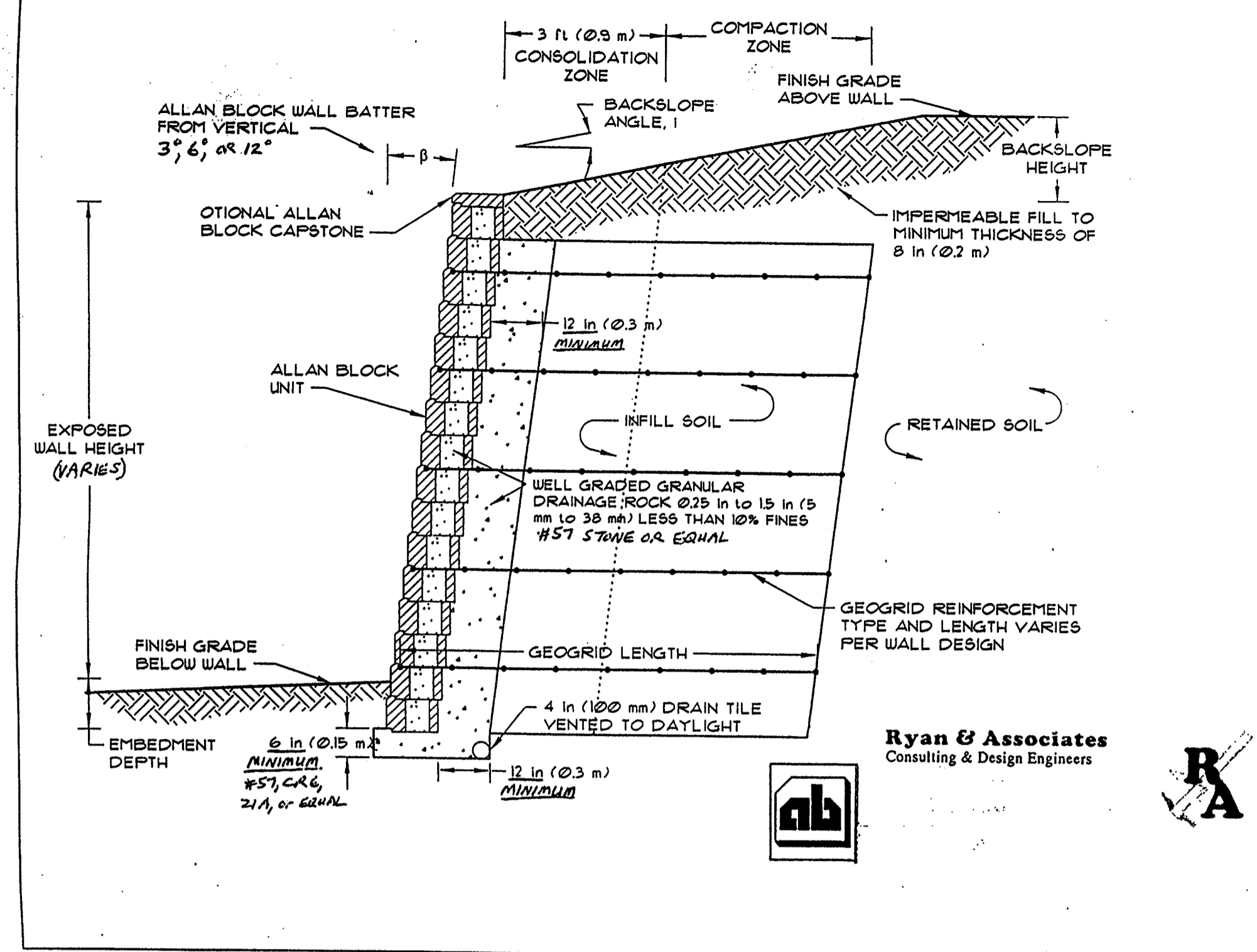
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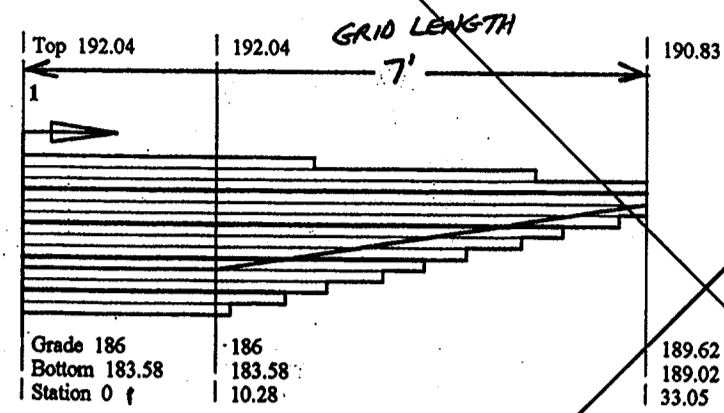
ab
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 859 Cleveland Ave. PO Box 692
 Chambersburg, PA 17201
 717-267-4500
 717-264-7535 - fax

AB Classic	
Total Wall Height	= 8.46 Feet
Block Height	= 0.604 Feet
Angle of Setback	= 6 Deg.
Depth of Block	= 0.97 Feet
Length of Block	= 1.462 Feet
Backfill Soil	
Friction Angle	= 28 Deg.
Unit Weight	= 120 PCF
Foundation Soil	
Friction Angle	= 28 Deg.
Unit Weight	= 120 PCF
Bearing Capacity	
Factor of Safety	= 6.59
Safety Factors Static	
Actual Sliding	= 2.405
Actual Overturning	= 5.771
Safety Factors Seismic	
Actual Sliding	= N.A.
Actual Overturning	= N.A.
Geogrid Legend	
A-Mirafix 3XT	
B-Mirafix 5XT	
C-Mirafix 7XT	
d-Spined Con.	
Min. Length of Geogrid	= 7 Feet

1 of 1
 ABwalls 2000 V.3.1 Allan Block Corporation



Ryan & Associates
 Consulting & Design Engineers



Section
 Top 192.04
 Grade 186
 Bottom 183.58
 Station 0

Allan Block Retaining Wall Elevation - 4 of 4 (SE corner of building)
 Horizontal Scale: 1" = 10'-0" Vertical Scale: 1" = 10'-0"

Project Information
 Project Name: TROY HILL CORPORATE CENTER
 Location: Howard County, MD
 Project Number: DS201207
 Wall Number: Lots A-10, A-11, and A-12
 Designer: DKS
 Date: 8-21-00

ab
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 Fax 612-835-5013
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 Chambersburg, PA 17201
 717-267-4500
 717-264-7535 - fax

General Notes

- If water is encountered in the area of the wall during excavation or construction, a drainage system (chimney, composite or blanket) must be installed as directed by the geotechnical or site engineer.
 - Soil compaction tests shall be taken at 25%, 50%, 75%, and 100% of the wall height or as specified by the site geotechnical engineer. Bearing capacity of the footer shall be verified prior to installation of stone. The minimum bearing capacity allowed for this project is 3,000 PSF. On Lot A-12, Wall 1 only, a spread footer will be required on the area of this wall represented by Sections 5 and 6 unless the allowable bearing capacity is found to exceed 3,500 PSF. This is because the bearing pressure exerted is greater than 3,000 PSF. The dimensions of this footer shall be 1' deep X 2' wide and it shall have a layer of grid centered within it.
 - The geo-grid used in this design of these walls is Mirafix 3XT which has a LTDS of 1328 and Mirafix 5XT which has a LTDS of 1732 (on Lot A-12 Wall 1 only). Ryan & Associates shall be notified before any substitutions are made in the field.
 - An internal angle of friction of 28 was used for the site soil in this design. No CH (fat clay), MH (fat silt), or OH (organic) soils may be used within the impact area of the wall (an area defined as the reinforced geo-grid area and an area extending to twice the wall height behind the wall). If these soils are encountered they shall be removed and replaced with soils that meet or exceed a friction angle of 28. The on site geo-technical engineer shall verify this during the construction process.
 - This design accounts for live load surcharges of 250 PSF on all walls that have paved areas or roadways above. Slopes of 2:1, 2.5:1, and 3:1 also apply to several walls. See the specific cross sections for actual applied loads and slopes.
 - Any proposed fences, rails, or light posts to be placed behind these walls after completion must be kept back a minimum of 3' from the walls to eliminate loading of the walls. VEHICULAR LOADING: Open fences or rails not subject to vehicular loading may be placed directly behind the walls only if car stops or curb and gutter prohibit vehicles from impacting the fence or rail. WIND LOADING: Solid and semi-solid fences that are subject to wind loads will require additional analyses to determine a method of stabilization when installed closer than the 3' minimum. These services can be provided by Ryan & Associates for an additional cost.
 - The scales shown on the elevations are approximate due to the various printers that print the output of this software. Please verify and adjust accordingly.
- Surface Drainage Notes**
- If water is encountered in the area of the wall during excavation or construction, a drainage system (chimney, composite or blanket) must be installed as directed by the geotechnical or site engineer.
 - 4" perforated drain tiles must be installed in the footers of these walls and be vented to daylight at the end(s) of the wall or under the footer at a central low point. If this is not possible, vent to daylight through the wall, above finished grade, at maximum 30' intervals.
 - At the end of each day's construction and at final completion, grade the backfill to avoid water accumulation behind wall or in the reinforced zone.
 - Surface water must not be allowed to pond or be trapped in the area above the wall or at the toe of the wall.

- Establish final grade with a positive gradient away from the wall structure. Concentrations of surface water runoff should be managed by providing necessary structures, such as paved ditches, drainage swales, catchbasins, etc.
- All roof eaves should be guttered, with the outlets from the downspouts provided with adequate capacity to carry storm water from the structure to reduce the possibility of soil saturation and or erosion. The connection should be in a closed conduit, which discharges at an approved location away from the wall structure.
- Cut and fill slopes shall be constructed so that surface water will not be allowed to drain over the top of the slope face and or wall. This may require berms along the top of fill slopes and surface drainage ditches above cut slopes.
- Irrigation activities at the site should be done in a controlled and reasonable manner.
- The consulting geotechnical or site engineer for the project must address any design drainage features or site features, discovered during excavation.
- Contain sources of concentrated water flow such as roof scuppers, drainage swales, parking lots, etc., and route around wall.
- STORM WATER PIPES:** Storm water pipes pass under the wall on Lot A-11/ Wall #2 at approximate station 0+27 and on Lot A-12/ Wall #1 at approximate station 3+00. If the top of these pipes are a minimum of 18" below the bottom of wall (12" below the bottom of the stone footing), then #57 stone may be used to bridge the pipe. If the top of the pipe is closer than 18" to the bottom of the stone footing then a grade beam shall be constructed to bridge the pipe. The grade beam shall be 3,000 PSI concrete and be 1'D X 2'W X 4'L and have two #5 bars (grade 60) 4" up from the bottom and 3" in from the sides.

SEE THE 8 1/2" X 11" PROJECT MANUAL FOR:

- INTERNAL AND EXTERNAL CALCULATIONS
- CROSS SECTIONS & DETAILS
- RYAN & ASSOCIATES SPECIFICATIONS
- ALLAN BLOCK SPECIFICATIONS

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 ONLINE: WWW.WALLSCAPESINC.COM

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING
 [Signature] DATE 10/21/00
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 [Signature] DATE 11/8/00
 CHIEF, DIVISION OF LAND DEVELOPMENT
 [Signature] DATE 11/8/00
 DIRECTOR

9/27/01 1 ELIM A-12 FROM PLAN. SEE SDP 01-92 FOR REV. A-12.

Date No. Revision Description
 Troy Hill Corporate Center

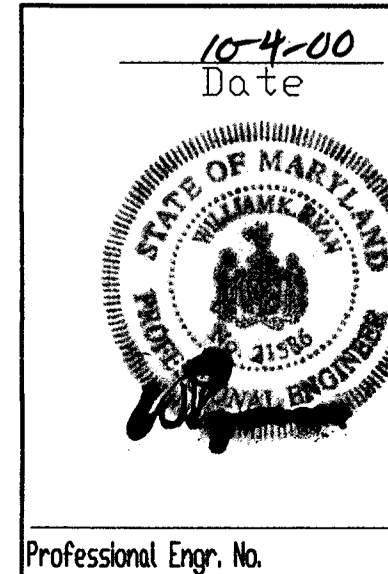
OWNER:
 TROY HILL BUSINESS PARK PARTNERSHIP
 C/O MANEKIN CORPORATION DEVELOPER:
 7165 COLUMBIA GATEWAY DRIVE THE CREANEY & SMITH GROUP
 COLUMBIA, MARYLAND 21046 925 FELL STREET
 (410) 290-1400 (410) 290-1400 BALTIMORE, MARYLAND 21231

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 DaftMcCuneWalker, Inc.
 800 East Pennsylvania Avenue
 Towson, Maryland 21286
 (410) 296-3333
 Fax 296-4705
 A Team of Land Planners
 Landscape Architects,
 Golf Course Architects,
 Engineers, Surveyors &
 Environmental Professionals

SUBDIVISION NAME SECTION AREA LOT PARCELS
 TROY HILL CORPORATE CENTER 1 A-10, A-11, A-12
 PLATE DR L F BLOCK MAP TAX ZONE MAP ELECT. DISTRICT CENSUS TRACT
 1/1577-15/18 M-1 37 1 6011.02
 WATER CODE A03 SEWER CODE 2152200

TITLE ALLAN BLOCK RETAINING WALL DETAILS
 Lots: A-10, A-11 & A-12

Drn. By: DKS Scale: As Shown Proj. No. 99058.A
 Des. By: DKS Date: 08-22-00
 Chk. By: WKR Approved: 29 of 30



SPECIFICATION FOR SEGMENTAL RETAINING WALL SYSTEMS

PART 1: GENERAL

- 1.01 Description
 - A. Work includes furnishing and installing segmental retaining wall (SRW) units to the lines and grades designated on the construction drawings. Also included is furnishing and installing appurtenant materials required for construction of the retaining wall as shown on the construction drawings.
- 1.02 Reference Standards
 - A. Segmental Retaining Wall Units
 - 1. ASTM C 140 - Sampling and Testing Concrete Masonry Units
 - B. Geosynthetic Reinforcement
 - 1. ASTM D 4595 - Tensile Properties of Geotextiles by the Wide-Width Strip Method.
 - 2. ASTM D 5262 - Test Method for Evaluating the Unconfined Creep Behavior of Geosynthetics
 - 3. GRI:GG1 - Single Rib Geogrid Tensile Strength
 - 4. GRI:GG5 - Geogrid Pullout
 - C. Soils
 - 1. ASTM D 698 - Moisture Density Relationship for Soils, Standard Method
 - 2. ASTM D 422 - Gradation of Soils
 - 3. ASTM 4318 - Aterberg Limits of Soil
 - D. Drainage Pipe
 - 1. ASTM 3034 - Specification for Polyvinyl Chloride (PVC) Plastic Pipe
 - 2. ASTM D1248 - Specification for Corrugated Plastic Pipe
 - E. Where Allan Block specifications and reference documents conflict with these specifications, these specifications hold precedence.

PART 2: MATERIALS

- 2.01 Segmental Retaining Wall Units
 - A. SRW units shall be machine formed, Portland Cement concrete blocks specifically designed for retaining wall applications. SRW unit currently approved for this project is:

Allan Block Retaining Wall Units as manufactured by Nitterhouse Masonry Products.
 - B. SRW units shall be capable of being erected with the horizontal gap between adjacent units not exceeding 1/8 inches.
 - C. SRW units shall have a minimum 4" overlap of units on each successive course so that walls are interlocked and continuous.

- D. SRW units shall be sound and free of cracks or other defects that would interfere with the proper placing of the unit or significantly impair the strength or permanence of the structure. Cracking or excessive chipping may be grounds for rejection. Units showing cracks longer than 1/2" shall not be used within the wall. Units showing chips visible at a distance of 30 feet from the wall shall not be used within the wall.
 - E. Concrete used to manufacture SRW units shall have a minimum 28 days compressive strength of 3,000 psi and a maximum moisture absorption rate, by weight, of 8% as determined in accordance with ASTM C 140. Compressive strength test specimens shall conform to the saw-cut coupon provisions of Section 5.2.4 of ASTM C140 with the following exception: Coupon shall be taken from the least dimension of the unit of a size and shape representing the geometry of the unit as a whole.
 - F. SRW units' molded dimensions shall not differ more than ± 1/8 inch from that specified, except height which shall be ± 1/16 inch as measured in accordance with ASTM C140.
- 2.02 Geosynthetic Reinforcement
 - A. Geosynthetic reinforcement shall consist of geogrids or geotextiles as indicated on the design plans. No grid substitutions shall be permitted without approval of Ryan & Associates.
 - 2.03 Leveling Pad
 - A. Material for leveling pad shall consist of compacted sand, gravel, or combination thereof and shall be a minimum of 6 inches in depth. Lean concrete with strength of 200-300 psi and three inches thick maximum may also be used as a leveling pad material. The leveling pad should extend laterally at least a distance of 6 inches from the toe and heel of the lowermost SRW unit. Install geosynthetic grid in level pads as directed in the design plans.
 - 2.04 Drainage Aggregate
 - A. Drainage aggregate shall be angular, clean stone or granular fill meeting the following gradation as determined in accordance with ASTM D422

Sieve Size	Percent Passing
1 inch	100
3/4 inch	75-100
No. 4	0-60
No. 40	0-50
No. 200	0-5
 - 2.05 Drainage Pipe
 - A. The drainage collection pipe shall be a 4" perforated or slotted PVC, or corrugated HDPE pipe. The drainage pipe may be wrapped with a geotextile to function as a filter.
 - B. Drainage pipe shall be manufactured in accordance with ASTM D 3034 and/or ASTM D 1248
 - C. A drain pipe to daylight is mandatory on all walls 4' exposed height or taller.
 - 2.06 Reinforced (Infill) Soil

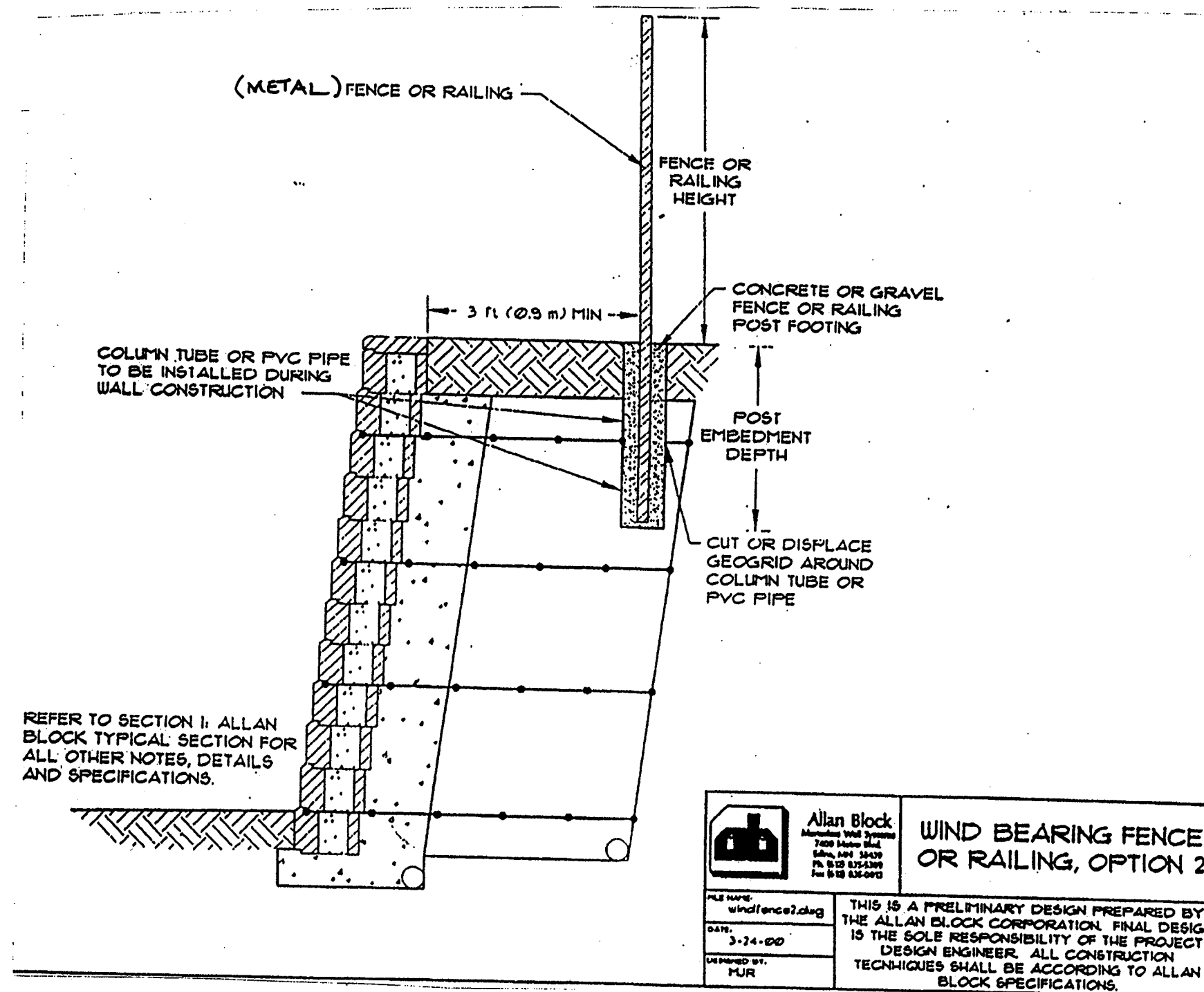
- A. The reinforced soil material shall be free of debris. Unless otherwise noted on the plans, the reinforced material shall consist of the inorganic USCS soil types GP, GW, GM, GC, SW, SP, SM, SC meeting the following gradation, as determined in accordance with ASTM D422:
- | Sieve Size | Percent Passing |
|------------|-----------------|
| 4 inch | 100 |
| No. 4 | 20-100 |
| No. 40 | 0-60 |
| No. 200 | 0-35 |
- B. The maximum particle size of poorly graded gravels (GP) (no fines) should not exceed 3/4 inch unless geosynthetic strength is reduced to account for additional installation damage from particles larger than this maximum.
 - C. The plasticity index of the fine fraction shall be less than 20, with the liquid limit less than 50.
- PART 3: DESIGN PARAMETERS**
- 3.01 Soil
 - A. Should the actual soil conditions observed during construction differ from those used for the design (as indicated on the plans), the site geotechnical engineer and the design engineer (Ryan & Associates) must be notified.
 - 3.02 Design
 - A. Scope: The retaining wall design engineer (Ryan & Associates) scope consists of: reviewing the design provided by the block manufacturer or the Allan Block Corporation; or preparing the entire wall design themselves and professionally sealing to enable the contractor to obtain the necessary permits. The design considers the internal and local stability of the reinforced soil mass and shall be in accordance with acceptable engineering practice and these specifications. Services outside this scope such as responding to the owners engineering firm (civil, structural, geotechnical or otherwise), provision of quality control testing & inspection, investigation of failed or non-conforming walls or any other services may be provided time & materials or for a negotiated fee.
 - B. For constructability considerations, maximum vertical spacing between geogrid layers shall be three courses on 3 and 6 degree walls and four courses on 12 degree walls.
 - C. Stormwater Management: The segmental retaining wall is not a stormwater management structure. Therefore, it is absolutely essential that surface water be prevented from entering the reinforced zone. This is usually accomplished by the site engineer (owner's civil engineer) grading the surface behind the wall to direct surface water to swales that issue the water around the wall ends, to inlets or over the top of the wall through scuppers. If water is directed to the wall, the top six inches of compacted fill over the reinforced zone must have impermeable soil such as GC, SC, CL or an underlying geomembrane (geosynthetic liner).
- PART 4: CONSTRUCTION**
- 4.01 Inspection
 - A. The Owner or Owner's Representative is responsible for verifying that the contractor meets all the requirements of the specification. This includes all submittals for materials and design, qualifications,

- and proper installation of wall system.
 - B. Contractor's field construction supervisor shall have demonstrated experience and be qualified to direct all work at the site.
- 4.02 Excavation
 - A. Contractor shall excavate to the lines and grades shown on the project plans. Contractor shall take precautions to minimize over-excavation. Over-excavation shall be filled with compacted infill material or as directed by the Geotechnical Engineer.
 - B. Contractor shall verify location of existing structures and utilities prior to excavation. Contractor shall ensure all surrounding structures are protected from the effects of wall excavation. Excavation support (shoring), if required, is the responsibility of the Contractor.
 - 4.03 Foundation Preparation
 - A. Following the excavation, the foundation soil shall be examined by the Owner's Geotechnical Engineer to assure actual foundation soil strength meets or exceeds the assumed design bearing strength. Soils not meeting the required strength shall be removed and replaced with select structural fill approved by the Owner's Geotechnical Engineer.
 - B. Foundation soil shall be proctorrolled and compacted to 95% standard Proctor density and inspected by the Owner's Geotechnical Engineer prior to placement of leveling pad materials.
 - 4.04 Leveling Pad Construction
 - A. Leveling pad shall be placed as shown on the construction drawings with a minimum thickness of 6 inches. The leveling pad should at a minimum extend laterally at least a distance of 6 inches from the toe and heel of the lowermost SRW Unit.
 - B. Soil leveling pad material shall be compacted with a vibratory plate compactor to provide a firm, level-bearing surface on which to place the first course of units. Well-graded sand can be used to smooth the top 1/2 to 1/4 inch of the leveling pad. Compaction will be with mechanical plate compactors to achieve 95% of maximum standard Proctor density (ASTM D 698).
 - 4.05 SRW Unit Installation
 - A. All SRW units shall be installed at the proper elevation and orientation as shown on the wall profiles and details on the construction plans. The SRW units shall be installed in general accordance with the manufacturer's recommendations. The design engineer of record (Ryan & Associates) specifications and drawings shall govern in any conflict between the two requirements.
 - B. First course of SRW units shall be placed on the leveling pad. The units shall be leveled side-to-side, front-to-rear and with adjacent units, and aligned to ensure intimate contact with the leveling pad. The first course is the most important to ensure accurate and acceptable results. No gaps shall be left between the front of adjacent units. Alignment may be done by means of a string line or offset from base line to the back of the units.
 - C. Clean all excess debris from top of units and install next course.
 - D. Lay out of curves and corners shall be installed in accordance with the plan details or in general

- accordance with SRW manufacturer's installation guidelines. Walls shall be interlocked by overlapping successive courses.
 - E. Repeat procedures to extent of wall height.
 - F. The wall face cant shall not differ more than ± 2 degrees from that specified.
- 4.06 Geosynthetic Reinforcement Placement
 - A. All geosynthetic reinforcement shall be installed at the proper elevation and orientation as shown on the wall profiles and details on the final construction plans. Partial grid coverage is not acceptable- no gaps shall be present between grid sections.
 - B. At the elevations shown on the plans, the geosynthetic reinforcement shall be laid horizontally on compacted infill and on top of the concrete SRW units. Embedment of the geosynthetic in the SRW units shall be consistent with SRW manufacturer's recommendations. Correct orientation of the geosynthetic reinforcement shall be verified by the Contractor to be in accordance with the geosynthetic manufacturer's recommendations. The highest strength direction of the geosynthetic must be perpendicular to the wall face.
 - C. Geosynthetic reinforcement layers shall be one continuous piece for their entire embedment length. Overlap of the geosynthetic in the design strength direction (perpendicular to the wall face) is not permitted.
 - D. Tracked construction equipment shall not be operated directly on the geosynthetic reinforcement. A minimum of 6 inches of backfill is required prior to operation of tracked vehicles over the geosynthetic. Turning should be kept to a minimum. Rubber-tired equipment may pass over the geosynthetic reinforcement at slow speeds (less than 5 mph).
 - E. The geosynthetic reinforcement shall be in tension and free of wrinkles prior to placement of soil fill. The nominal tension shall be applied to the reinforcement and secured in place with staples, stakes or by hand tensioning until reinforcement is covered by six inches of fill.
 - 4.07 Drainage Materials
 - A. Drainage aggregate shall be installed to the line, grades, and sections shown on the final plans. Drainage fill shall be placed to the minimum thickness shown on the construction plans between and behind units.
 - B. Drainage collection pipes shall be installed to maintain gravity flow of water outside the reinforced soil zone. The drainage collection pipe shall daylight into a storm sewer manhole or along a slope at an elevation lower than the lowest point of the pipe within the aggregate drain.
 - 4.08 Backfill Placement
 - A. The reinforced backfill shall be placed as shown in the construction plans in the maximum compacted lift thickness of 10 inches and shall be compacted to a minimum of 95% of standard Proctor density (ASTM D 698) at a moisture content within 2% of optimum. The backfill shall be placed and spread in such a manner as to eliminate wrinkles or movement of the geosynthetic reinforcement and the SRW units. Compaction testing shall be done at 25%, 50%, 75%, and 100% of the wall height or as specified by the site geotechnical engineer.

- B. Only a vibratory plate or small-scale vibratory smooth drum compactor equipment shall be allowed within 3 feet of the front of the wall face. Compaction within the 3 feet behind the wall face shall be achieved by at least three (3) passes of the lightweight mechanical plate compactor or roller.
 - C. At the end of each day's operation, the Contractor shall slope the last level of backfill away from the wall facing to direct water runoff away from the wall face.
 - D. At completion of wall construction, backfill shall be placed level with final top of wall elevation. If final grading, paving, landscaping, and/or storm drainage installation adjacent to the wall is not placed immediately after wall completion, temporary surface drainages shall be provided to ensure water runoff is not directed at the wall nor allowed to collect or pond behind the wall until final construction adjacent to the wall is completed.
- 4.09 SRW Caps
 - A. SRW caps shall be properly aligned and glued to underlying units with a flexible, high-strength concrete adhesive. Rigid adhesive or mortar is not acceptable.
 - 4.10 Construction Adjacent to Completed Wall
 - A. The Owner or Owner's Representative is responsible for ensuring that construction adjacent to the wall by others does not disturb the wall or place temporary construction loads on the wall that exceed design loads, including loads such as water pressure, temporary grades, or equipment loading. Heavy paving or grading equipment shall be kept a minimum of three feet behind the back of the wall face. Equipment with wheel loads in excess of 150 psf live load shall not be operated within 10 feet of the face of the retaining wall during construction adjacent to the wall. Care should be taken by the General Contractor to ensure water runoff is directed away from the wall structure until final grading and surface drainage collection systems are completed.

END OF SECTION



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Ryan & Associates

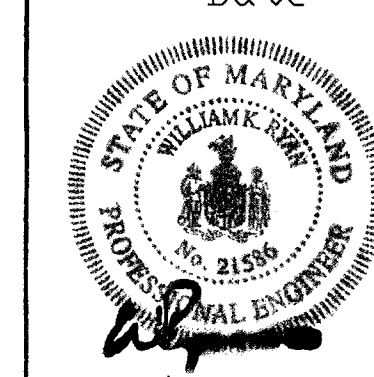
Consulting & Design Engineers

WALLSCAPES, INC.

SPECIALIZING IN THE DESIGN AND INSTALLATION OF SEGMENTAL RETAINING WALLS.

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10-4-00
Date



APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING	
Chief, Development Engineering Division	10/31/00
Chief, Division of Land Development	11/5/00
Director	11/6/00
7/07/01	ELIM. A-12 FROM PLAN. SEE SPP 01-92 FOR REV. A-12.
Date No. Revision Description	
Troy Hill Corporate Center	
OWNER: TRDY HILL BUSINESS PARK PARTNERSHIP DEVELOPER: THE CREANEY & SMITH GROUP	
7155 COLUMBIA GATEWAY DRIVE 925 FELL STREET	
COLUMBIA, MARYLAND 21046 BALTIMORE, MARYLAND 21231	
DMW DaFMcCuneWalker, Inc. A Team of Land Planners 200 East Pennsylvania Avenue Landscape Architects, Towson, Maryland 21286 Golf Course Architects, (410) 296-3333 Engineers, Surveyors & Fax 296-4705 Environmental Professionals	
SUBDIVISION NAME: TROY HILL CORPORATE CENTER	SECTION AREA: 1
LIT/PARCEL: A-10, A-11, A-12	
TAX ZONE MAP: W-1	ELECT. DISTRICT: 2011.02
CENSUS TRACT: 2011.02	
TITLE: ALLAN BLOCK RETAINING WALL DETAILS	
Lots: A-10, A-11 & A-12	
Drn. By: DKS	Scale: As Shown
Des. By: DKS	Date: 08-22-00
Proj. No. 99058.A	
Chk. By: WKR	Approved: 30 of 30
Professional Engr. No.	