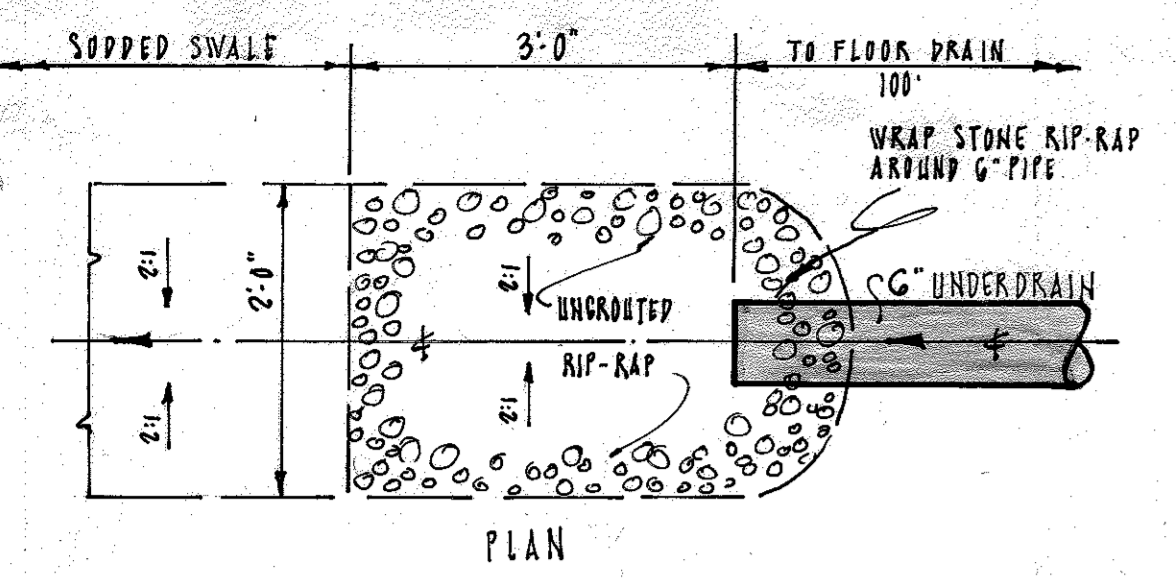
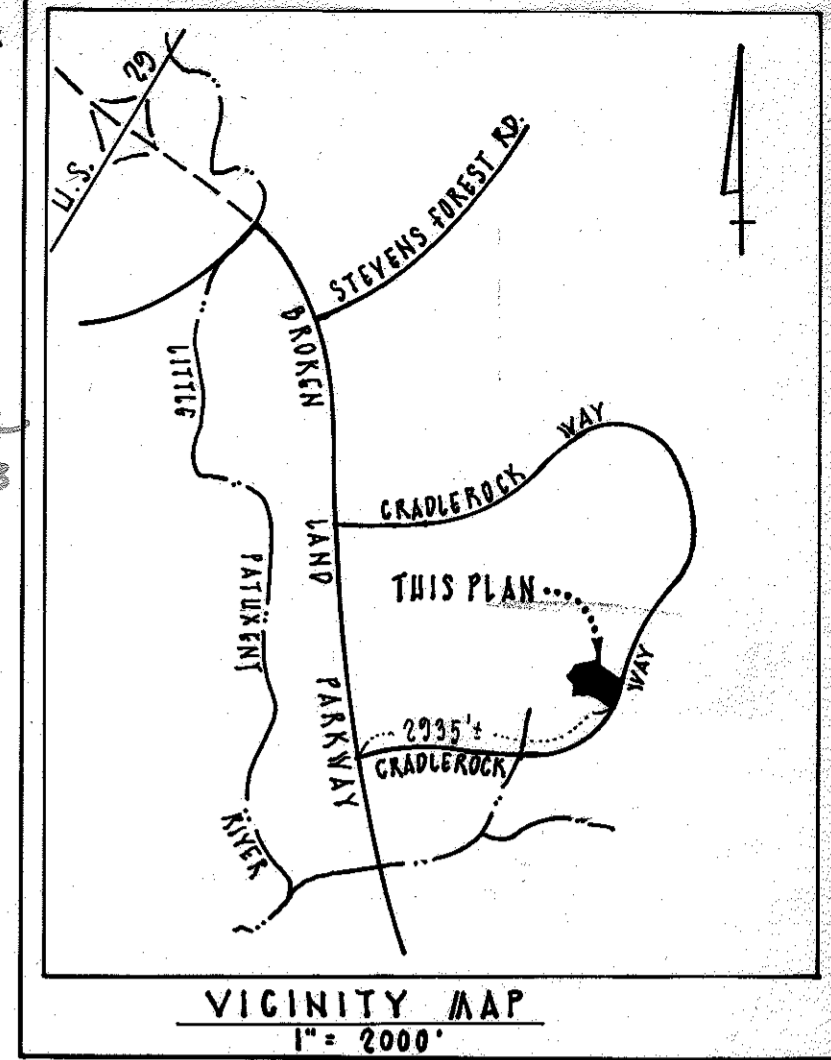
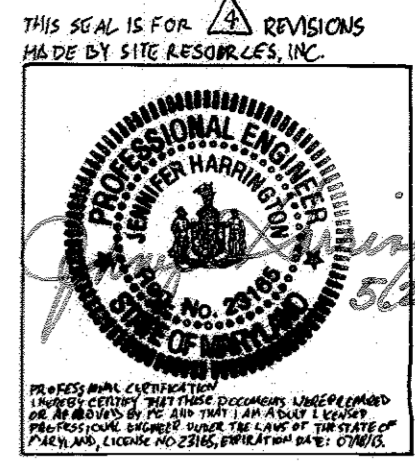
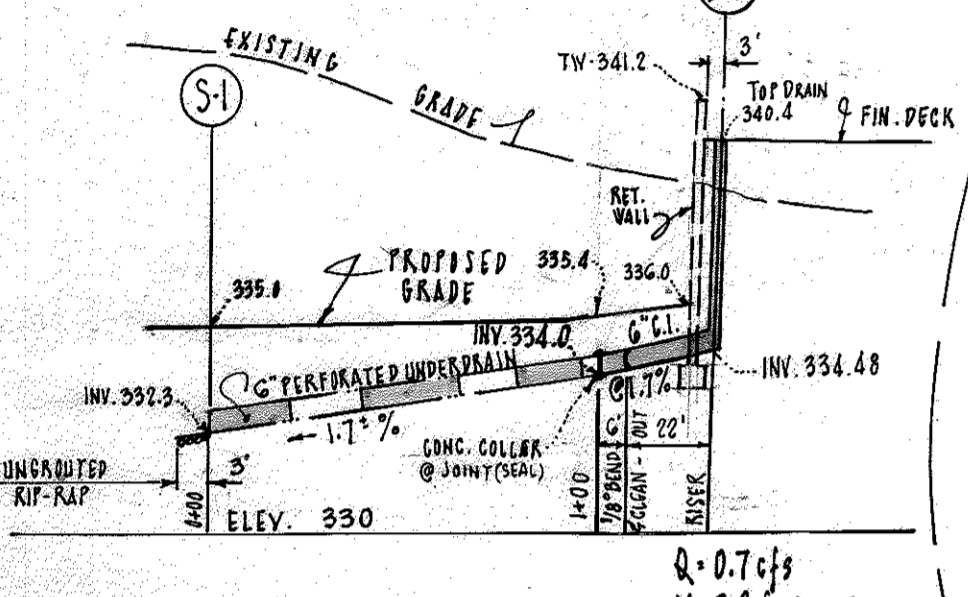


NO	DATE	REVISION
3	5-20-98	ADDED AIR STRUCTURES TO 6 TENNIS COURTS
4	02/13/99	DEMOLISH AND REPLACE EXISTING CLUBHOUSE

THE HOWARD COUNTY PLANNING BOARD APPROVED THE CONSTRUCTION OF 2 AIR SUPPORTED STRUCTURES OVER 5 TENNIS COURTS ON 5-7-98

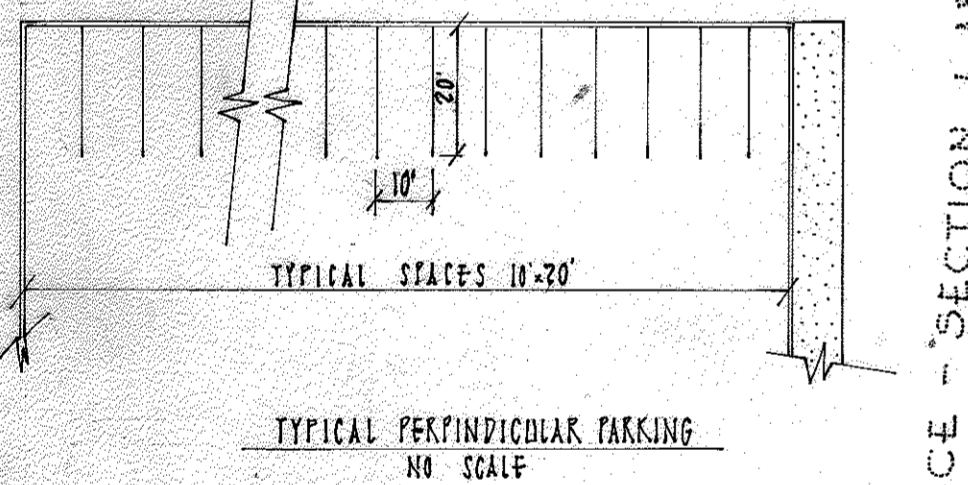


DETAIL AT S-1
NO SCALE
TO CONNECT TO VILLAGE OF OWEN BROWN PATHWAY SYSTEM



PROFILE - DECK DRAIN
SCALE: HOR. 1"=50' VERT. 1"=4'

LOT COVERAGE:
 LOT 4 CLUBHOUSE - 2,856 SF
 STORAGE SHED - 80 SF
 TOTAL LOT COVERAGE FOR LOT 4 - 1.9% (2,936 SF/13,354 ACRES)
 LOT 1-A (SDP 02-B3)
 CHURCH - 4,186 SF
 TOTAL COVERAGE FOR LOT 1-A - 9.5% (9,136 SF/2,102 ACRES)
 COVERAGE REQUIREMENT FOR FOP-150-A-11 - 10% FOR OPEN SPACE AND LAND USES
 TOTAL COVERAGE FOR FOP-150-A-11 - 2.5% (1,678 SF/4,511 ACRES)



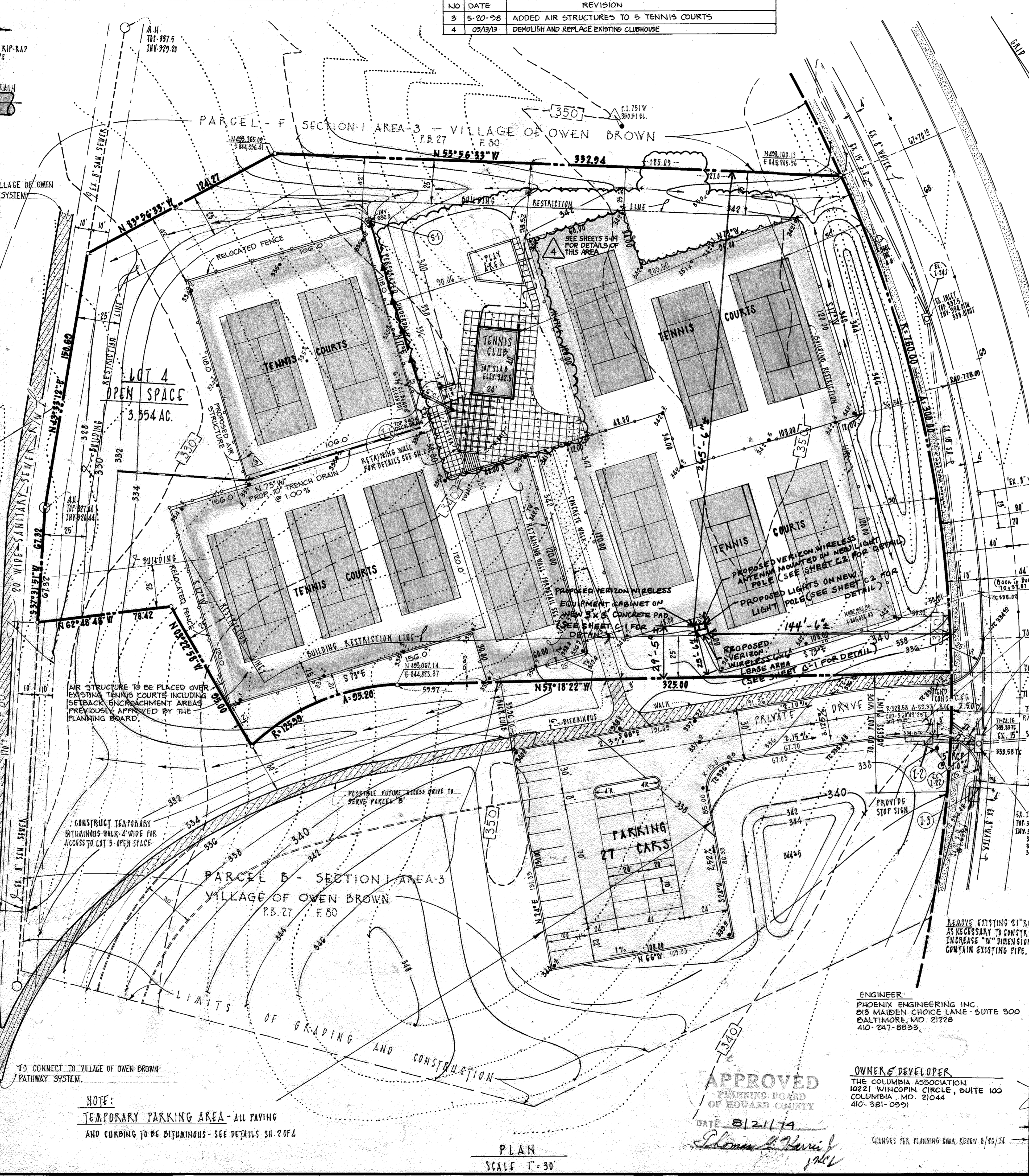
STRUCTURE SCHEDULE				
NO	TYPE	ALLOCATION	REMARKS	
S-1	DECK DRAIN	334.4	334.4	JUSAM 0765 OR EQUAL
I-2	CLASS B-15 INLET	328.2	329.70	HOWARD CO. STD. DWG. G4-P
I-3	CLASS A-10 INLET	*	328.34	HOWARD CO. STD. DWG. G4-A
S-1	RIP-RAP SLOPE PROTECTION	333.13	328.43	SEE DETAIL - THIS SHEET

PIPE SCHEDULE		
SIZE	TYPE	LENGTH
6"	C.I. (STD. WEIGHT)	28'
15"	RCP CLASS IV	26'
6"	HEAVY DUTY TRANSDUCER UNDERDRAIN	100'

APPROVED FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS
 HOWARD COUNTY HEALTH DEPARTMENT
 COUNTY HEALTH OFFICER: [Signature] DATE: 10/28/74

APPROVED - HOWARD COUNTY OFFICE OF PLANNING AND ZONING
 PLANNING DIRECTOR: [Signature] DATE: 10/20/74
 CHIEF DIVISION OF LAND DEVELOPMENT AND TRANSPORTATION PLANNING: [Signature] DATE: 10/24/74

APPROVED FOR PUBLIC WATER AND PUBLIC SEWERAGE STORM DRAINAGE SYSTEMS AND PUBLIC ROADS - HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 DIRECTOR: [Signature] DATE: 10/23/74
 CHIEF BUREAU OF HIGHWAYS: [Signature] DATE: 10/21/74

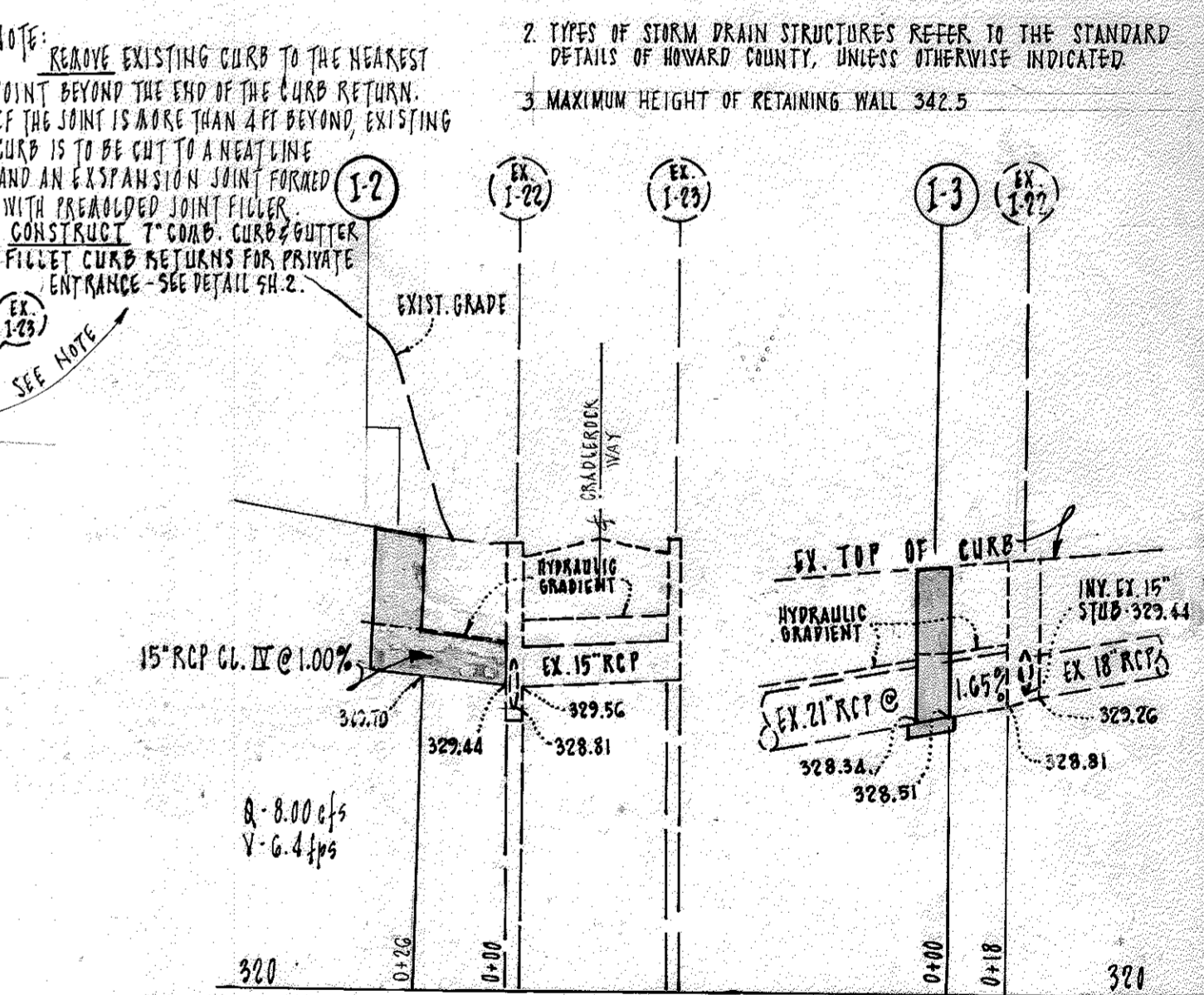


BUILDING PROFILE
1"=20'

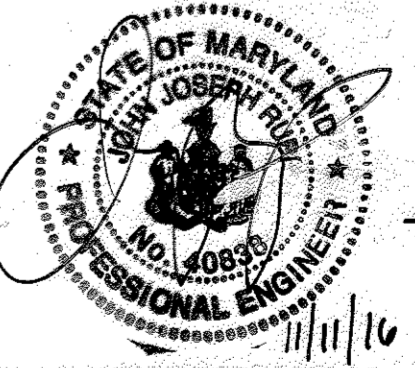
NOTE:
 THE DEPARTMENT OF PLANNING AND ZONING PLANNING DIRECTOR HAS DETERMINED THAT PLANNING BOARD IS NOT REQUIRED FOR THE REDLINE REVISIONS DATED 04/01/99.

RELOCATE EXISTING 15" RCP AND CONSTRUCT NEW 15" RCP IN SABA OPENING AS SHOWN -
RELOCATE EXISTING TOP SLAB, THUS AT AND MASSIFY OF EXIST. I-22 DOWN TO 12" BELOW FINISHED GRADE - CONSTRUCT NEW 8" CONCRETE SLAB, REINFORCED WITH #5 @ 12" O.C. EACH WAY (BOTTOM). SET STD. ANCHOR FRAMES AND COVER TO MEET PROPOSED GRADE.

- LEGEND**
- 1. CONTOUR INTERVAL 2 FT.
 - 2. EXISTING CONTOURS --- (330)
 - 3. PROPOSED CONTOURS --- (330)
 - 4. SPOT ELEVATIONS 336.3
 - 5. PROPOSED STORM DRAIN & INLET
 - 6. DIRECTION OF FLOW
 - 7. FENCE LINE & POSTS
- SITE ANALYSIS**
- ZONING - NEW TOWN
 - AREA - 3.354 AC.
 - PARKING REQUIREMENTS - 27 SPACES
 - PARKING PROVIDED - 27 SPACES
 - RECORDED REFERENCE - PLAT BOOK 27 FOLIO 80
 - FINAL DEVELOPMENT PLAN - PLAT BOOK 28 FOLIO 19-18, #150
 - TOTAL NO. EMPLOYEES - 2
- GENERAL NOTES**
- ALL STORM DRAINAGE AND PAVING SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST DETAILS AND SPECIFICATIONS OF HOWARD COUNTY.
 - TYPES OF STORM DRAIN STRUCTURES REFER TO THE STANDARD DETAILS OF HOWARD COUNTY, UNLESS OTHERWISE INDICATED.
 - MAXIMUM HEIGHT OF RETAINING WALL 342.5



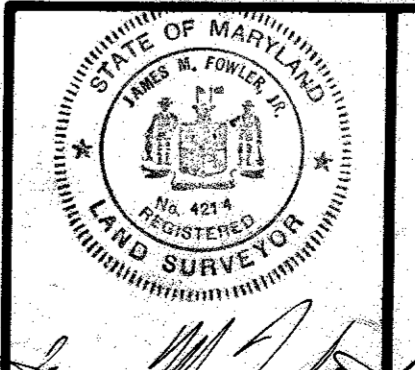
STORM DRAINAGE PROFILES
 SCALE: HOR. 1"=50' VERT. 1"=5'



APPROVED
 PLANNING BOARD
 OF HOWARD COUNTY
 DATE: 8/21/74

ENGINEER:
 PHOENIX ENGINEERING INC.
 815 MILDEN CHOICE LANE - SUITE 300
 BALTIMORE, MD. 21228
 410-247-8829

OWNER & DEVELOPER:
 THE COLUMBIA ASSOCIATION
 10221 WINGOPPIN CIRCLE, SUITE 100
 COLUMBIA, MD. 21044
 410-381-0591

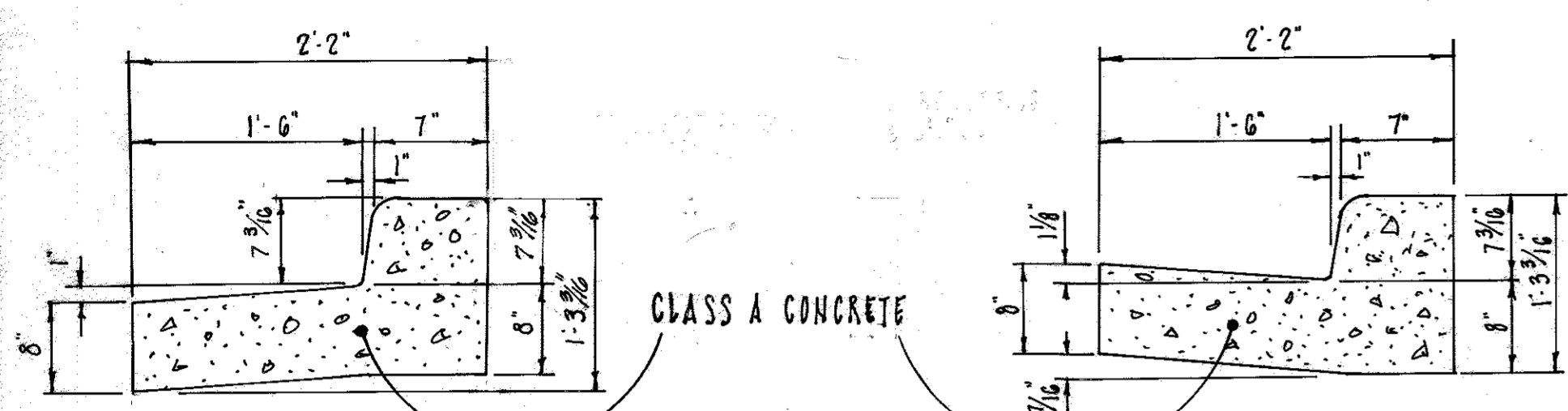


DEVELOPMENT PLAN
 LOT 4, OPEN SPACE
 COLUMBIA
 VILLAGE OF OWEN BROWN
 SECTION I, AREA 3, PLAT BOOK 27 FOLIO 80
 6TH ELECTION DISTRICT, TAX PLATE 3G, HOWARD COUNTY, MD.

REVISIONS		DESIGNED		DRAWN	
NO	DATE BY	J.M.F.	J.R.K.	CHECKED	DATE
I	5/6/74 JMF				
II	7/4/74 JMF				
III	5-20-98 RJW				
IV	02/11/99 SRI				
V	11/25/96 JJR				

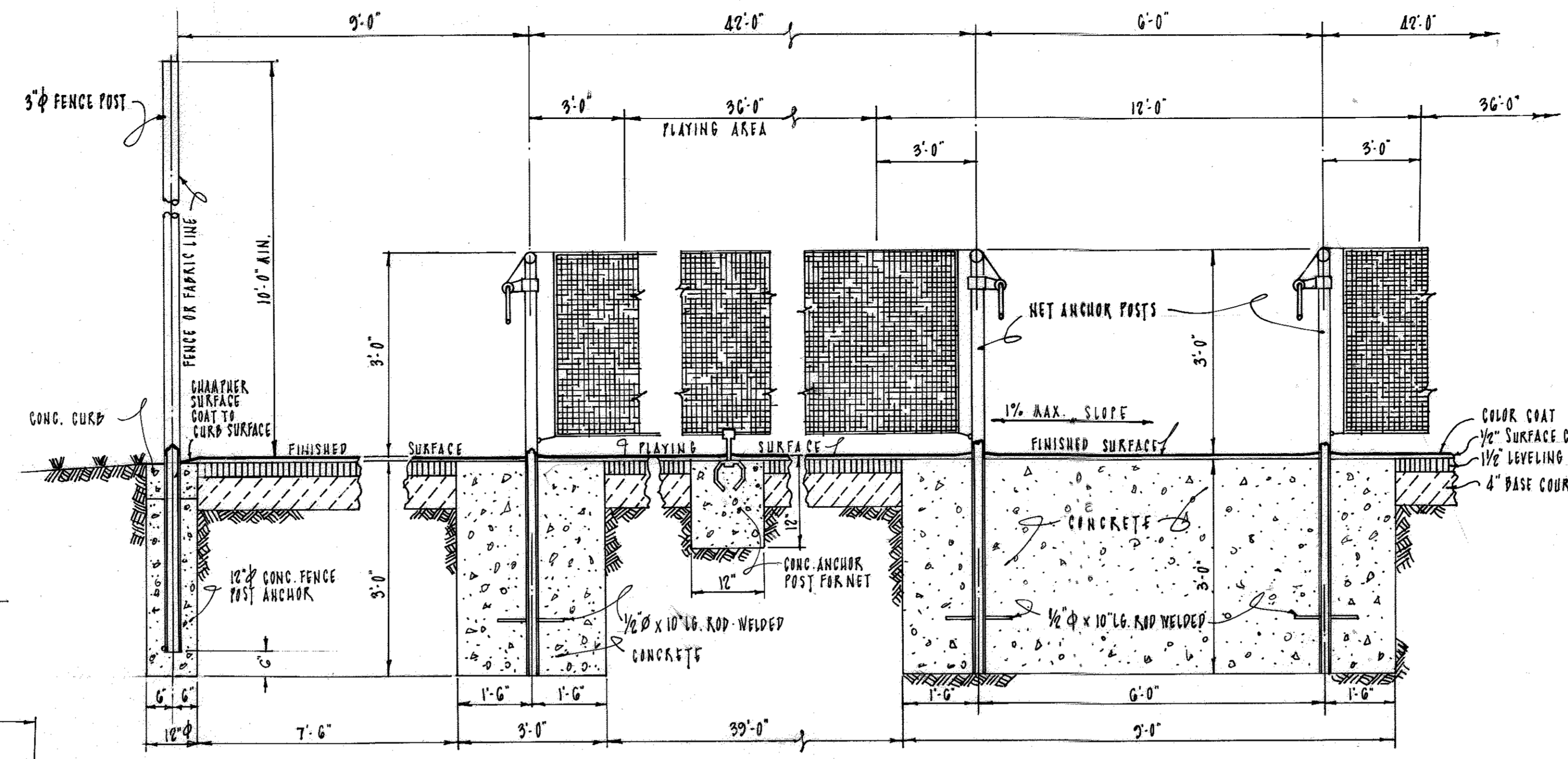
MACRIS-FOWLER ASSOCIATES
 CIVIL-STRUCTURAL ENGINEERS; SURVEYORS; PLANNERS
 817 SILVER SPRING AVE. SILVER SPRING, MD. 20910 (301) 583-0030
 27 W. JEFFERSON ST. ROCKVILLE, MD. 20850 (301) 762-3838

PLAN
 SCALE 1"=30'

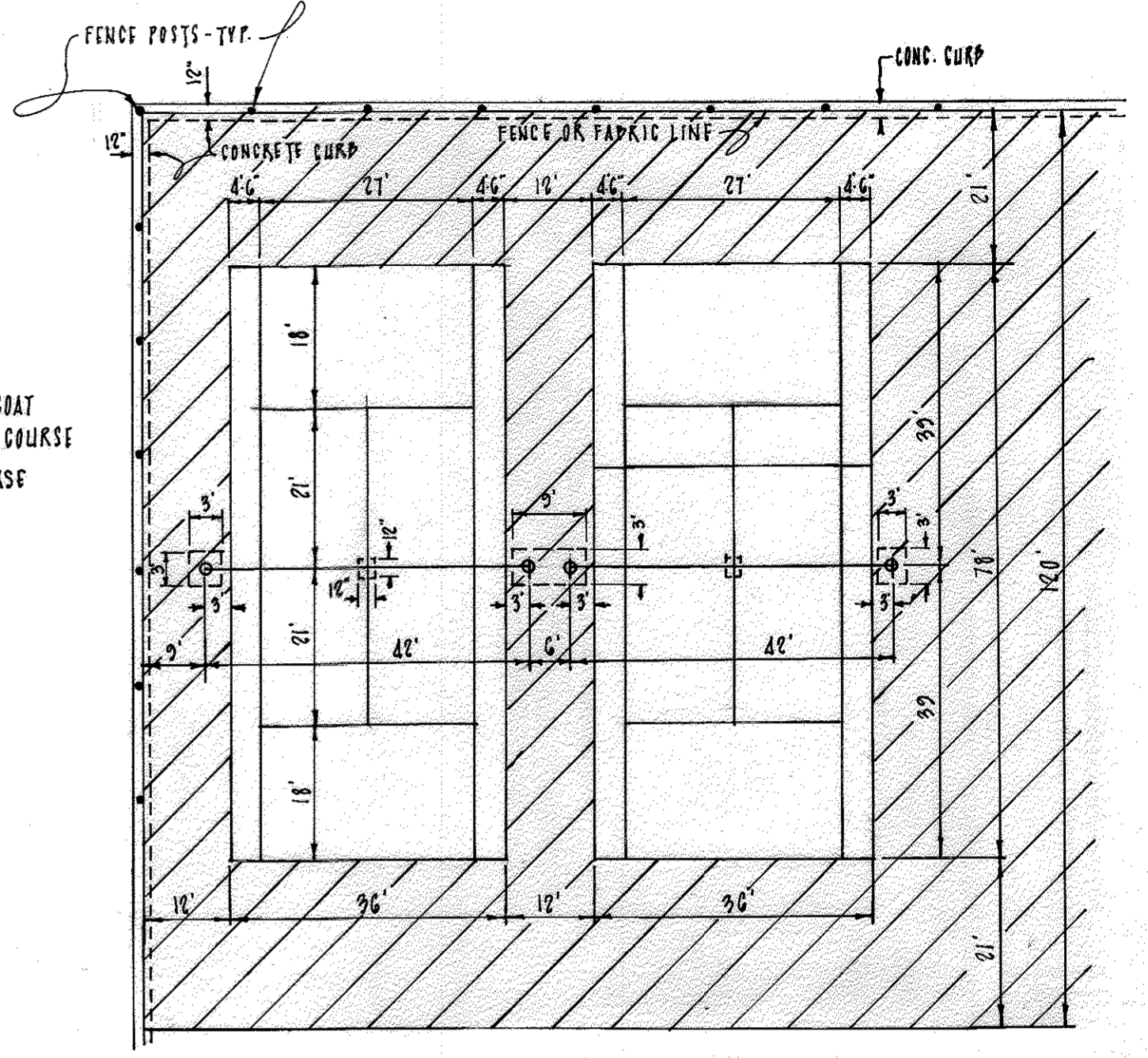


TYPICAL REVERSED T COMBINATION CURB AND GUTTER
NO SCALE

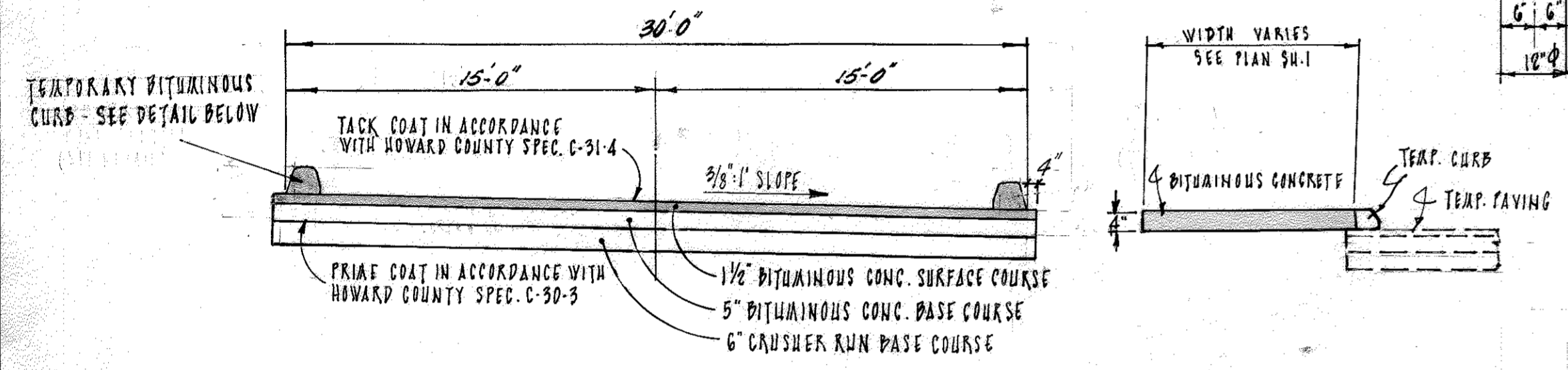
TYPICAL T STD. COMBINATION CURB AND GUTTER
NO SCALE



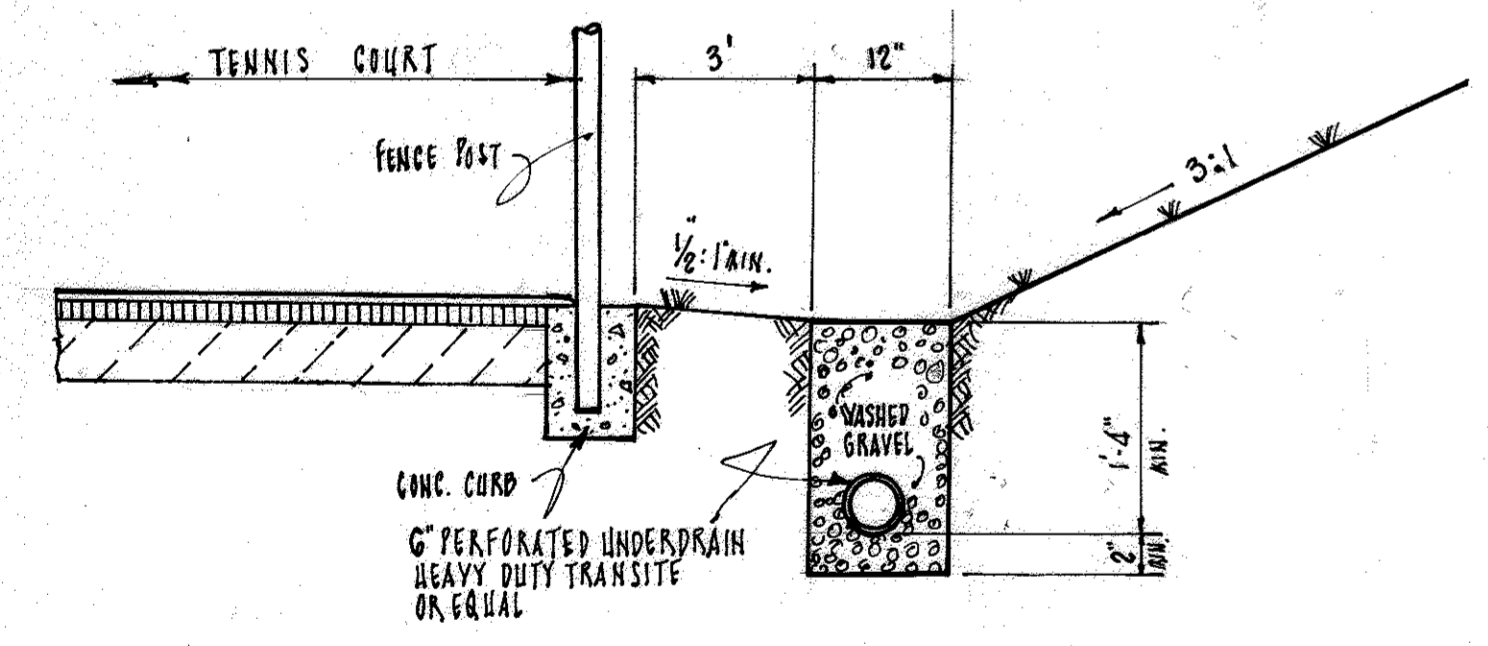
TYPICAL COURT SECTION AT TENNIS NET LINE
NO SCALE



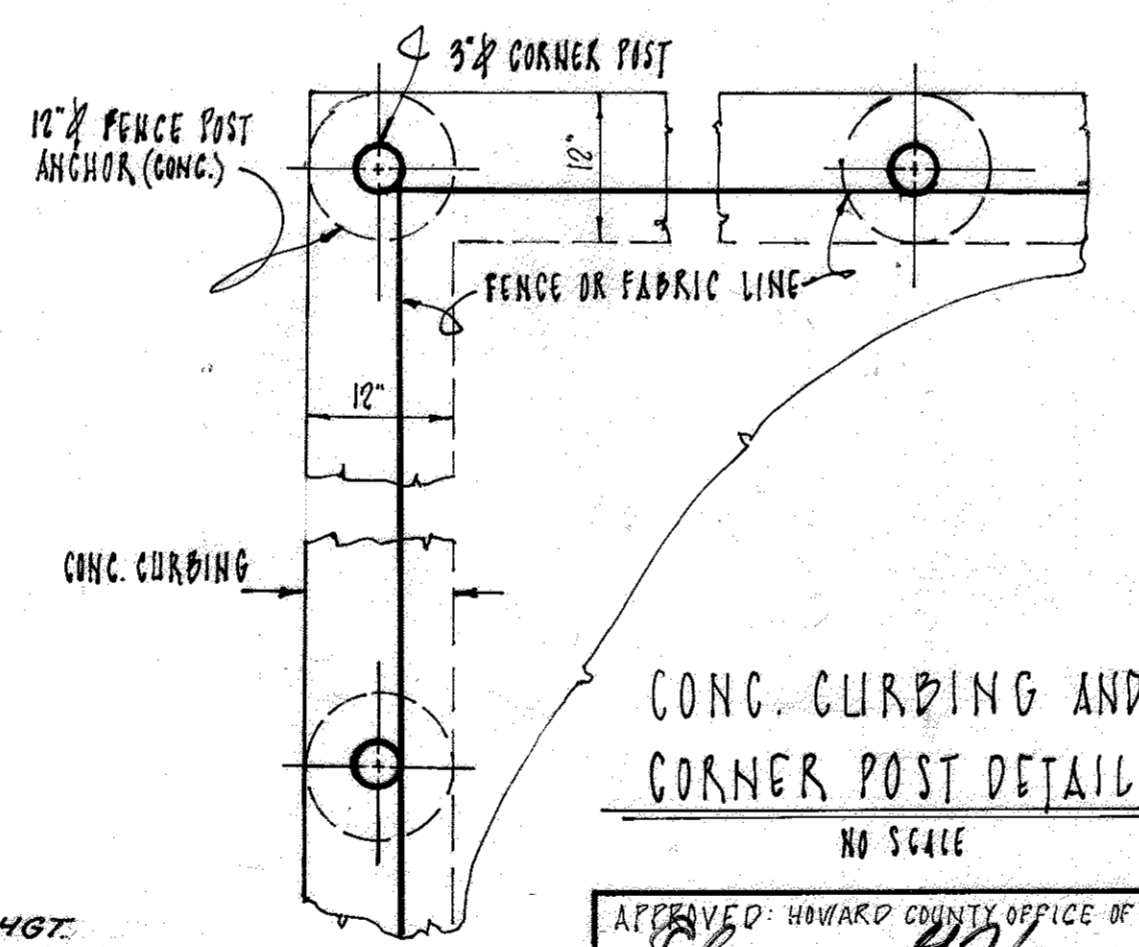
TYPICAL PARALLEL TENNIS COURT LAYOUT AND COLOR SCHEME
NO SCALE



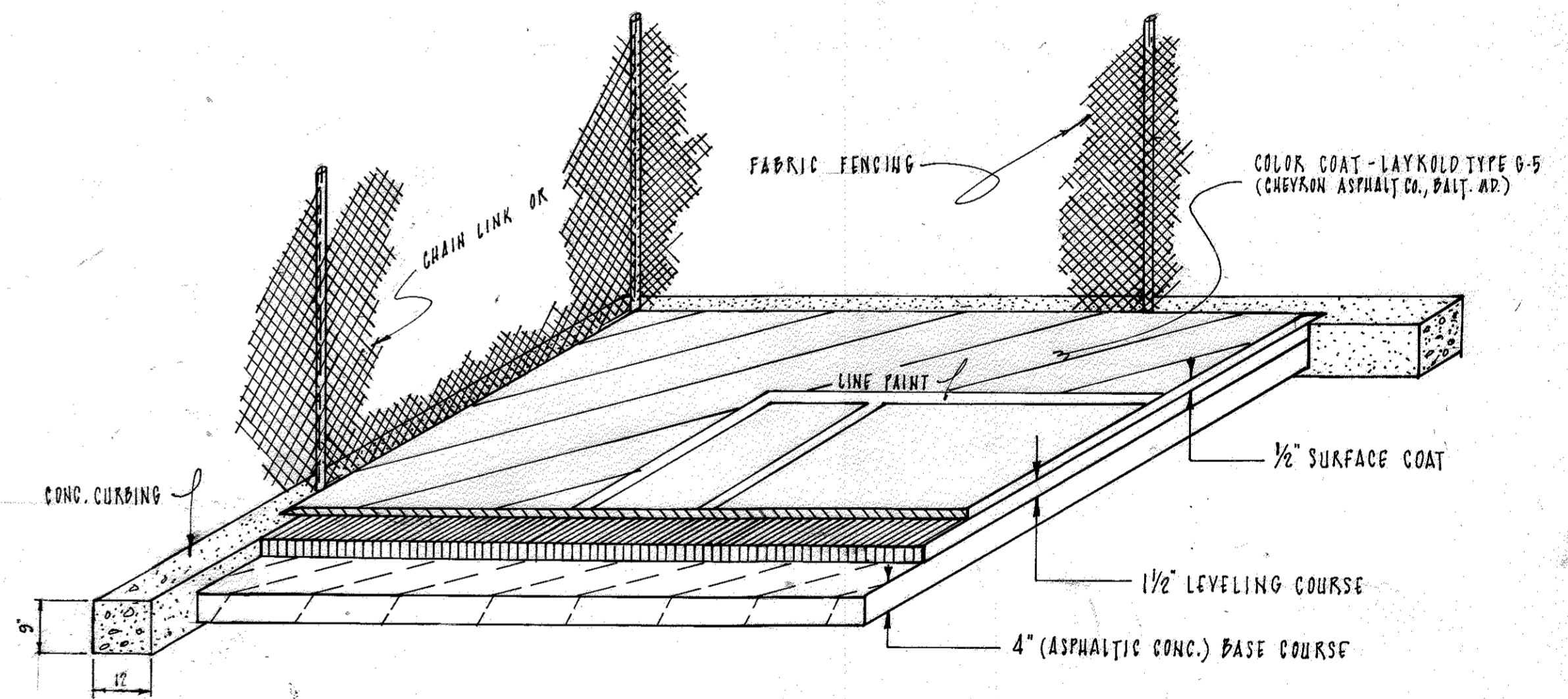
ENTRANCE DRIVE PAVING SECTION & ACCESS WALK (TEMPORARY)
NO SCALE



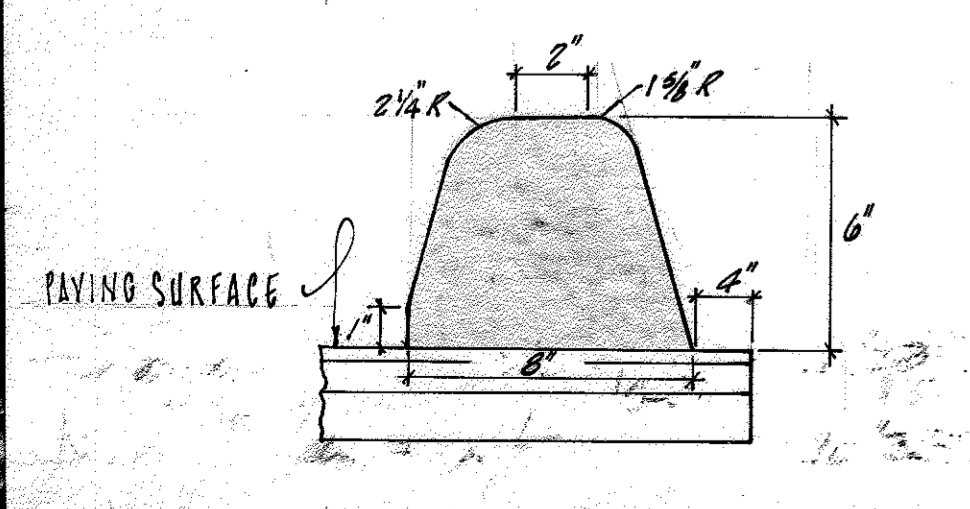
TRENCH DRAIN DETAIL ALONG EDGE OF TENNIS COURT
NO SCALE



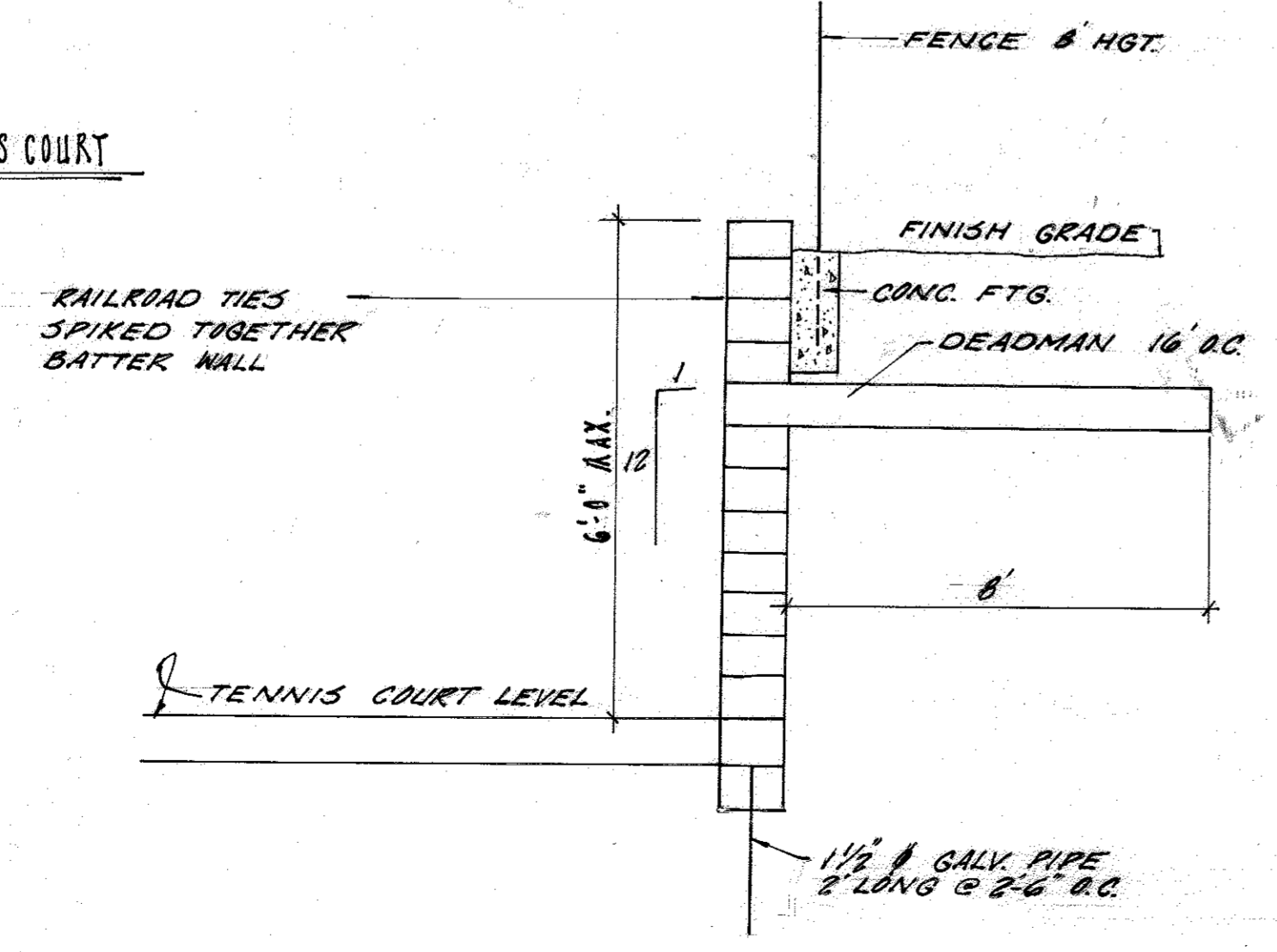
CONC. CURBING AND CORNER POST DETAIL
NO SCALE



TYPICAL TENNIS COURT PAVING (ISOMETRIC)



BITUMINOUS CURB
NO SCALE

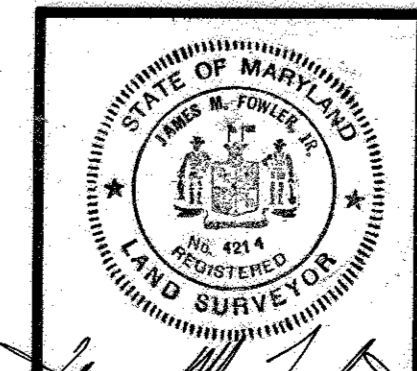


TYPICAL RETAINING WALL SECTION
(FOR ELEVATIONS SEE PLAN-SH-1)
NO SCALE

APPROVED: HOWARD COUNTY OFFICE OF PLANNING AND ZONING
Thomas B. Harris 10/20/74
 PLANNING DIRECTOR DATE
A. H. Lawson 10/20/74
 CHIEF DIVISION OF LAND DEVELOPMENT AND TRANSPORTATION PLANNING DATE
 APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE, STORM DRAINAGE SYSTEMS AND PUBLIC ROADS - HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Will - A. Alt 10/23/74
 DIRECTOR DATE
J. H. H. H. 10/23/74
 CHIEF BUREAU OF HIGHWAYS DATE
 APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS - HOWARD COUNTY HEALTH DEPARTMENT
J. H. H. H. 10/28/74
 COUNTY HEALTH OFFICER DATE

APPROVED
 PLANNING BOARD
 OF HOWARD COUNTY
 DATE: 8/21/74
Thomas B. Harris

OWNER & DEVELOPER
 HOWARD RESEARCH & DEVELOPMENT CORP.
 COLUMBIA, MARYLAND 21046
 CHANGES PER PLANNING COM. REVIEW - 9/20/74

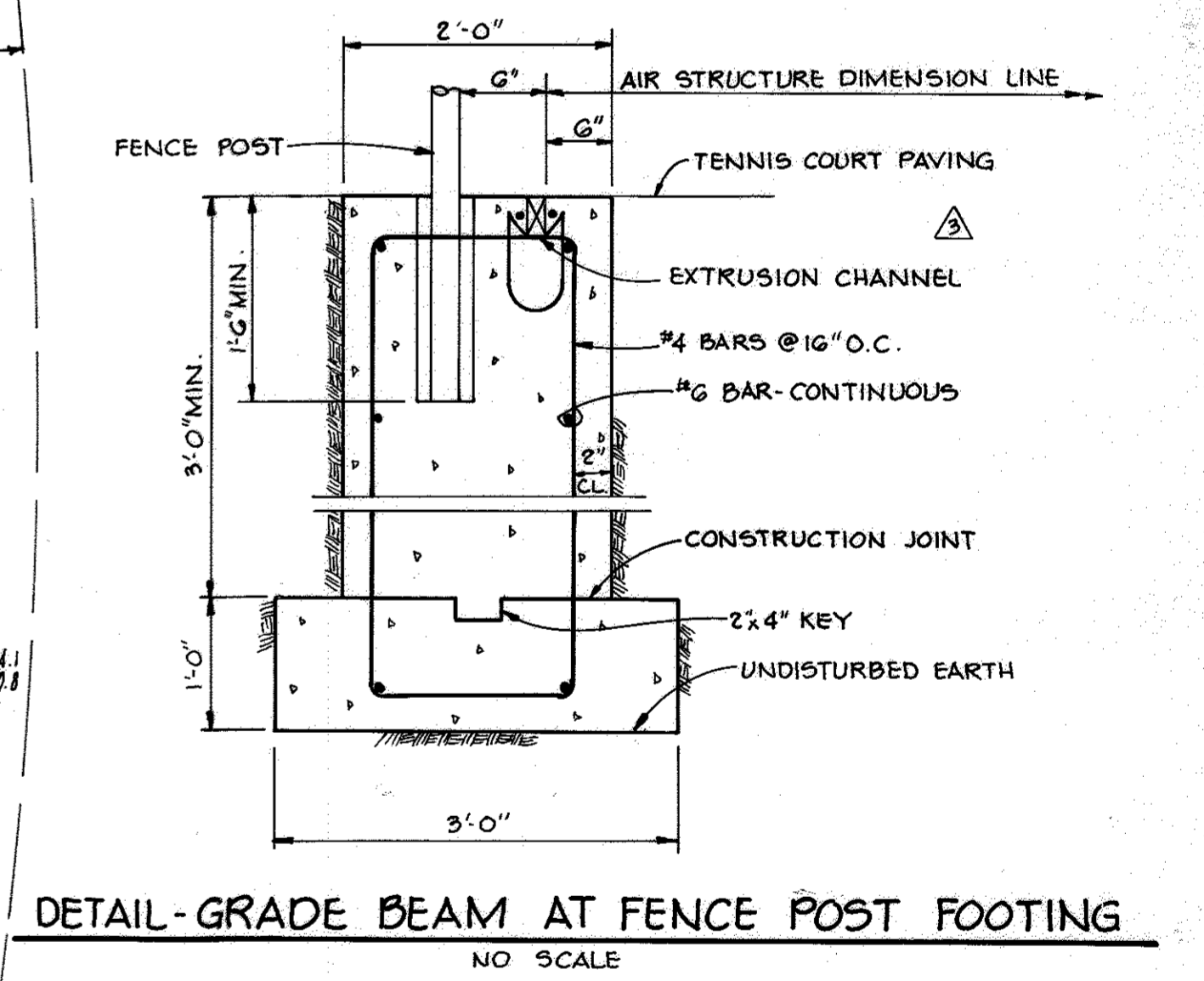
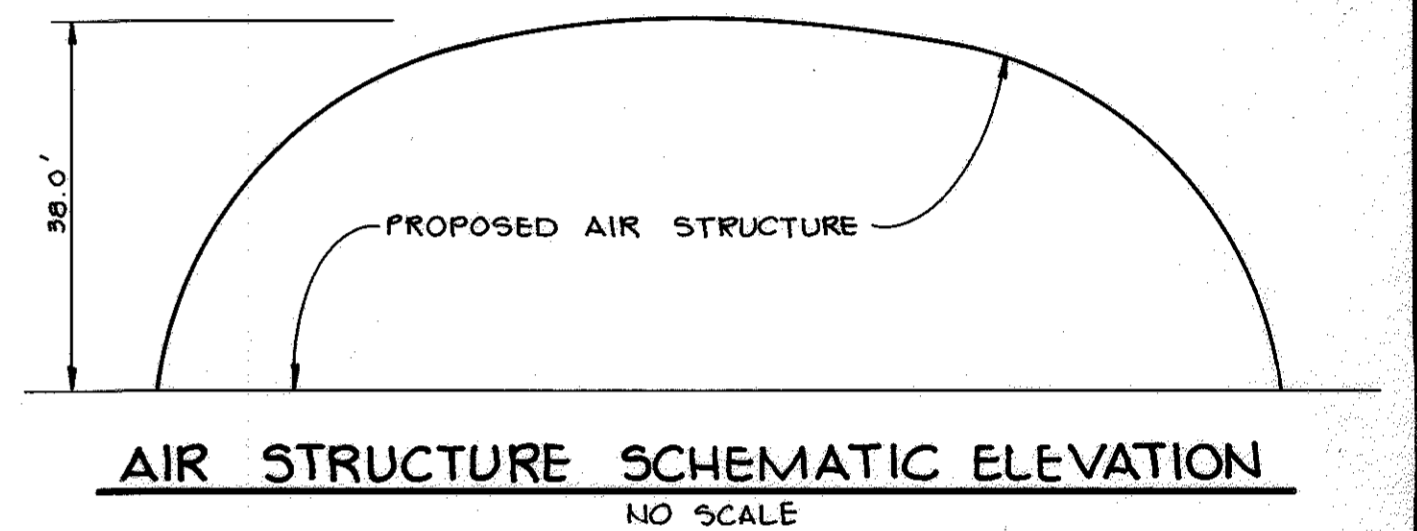
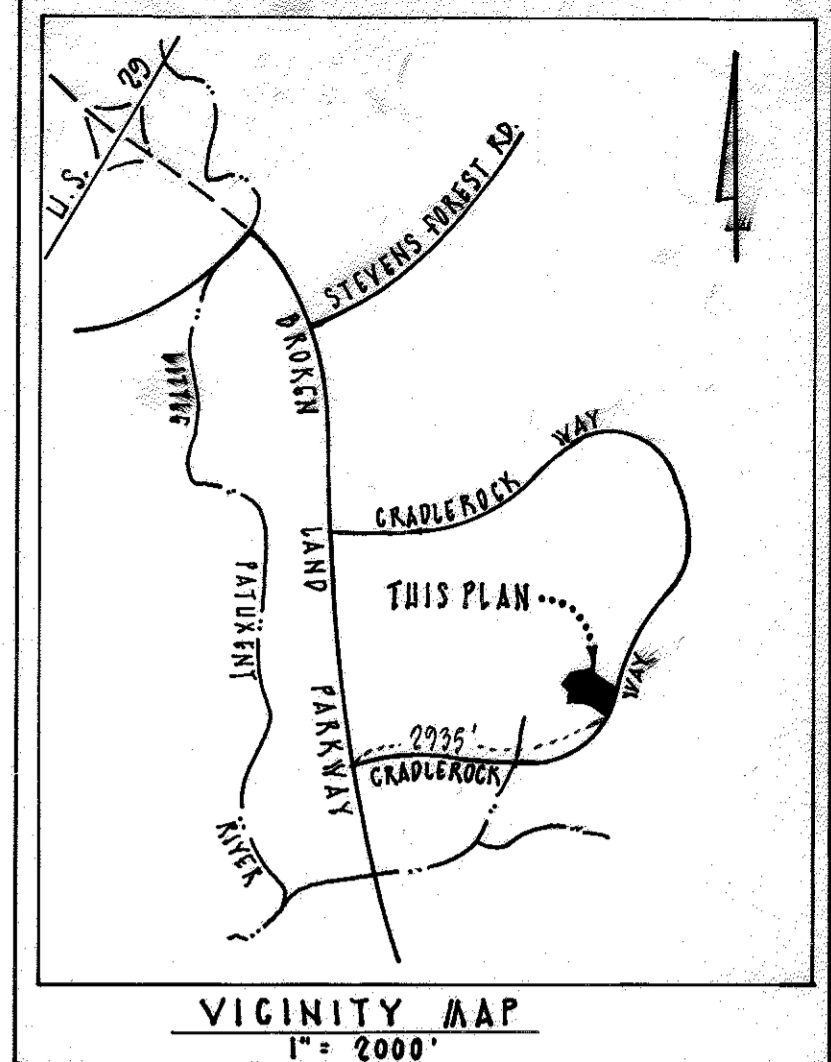
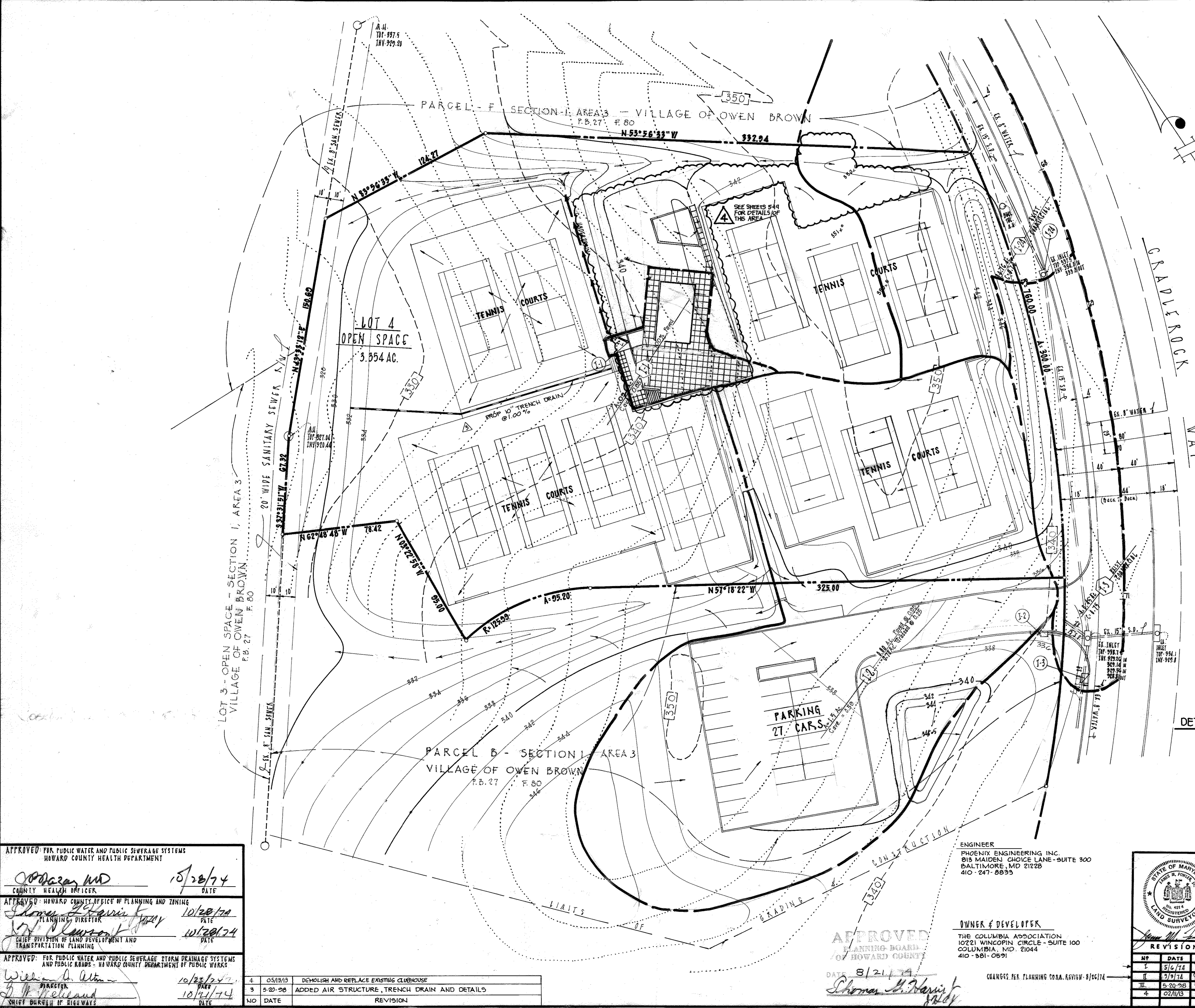


CONSTRUCTION DETAILS
 LOT 4, OPEN SPACE
 COLUMBIA
 VILLAGE OF OWEN BROWN
 SECTION 1, AREA 3, PLAT BOOK 27 F1110 80
 6th ELECTION DISTRICT, TAX PLATE 36, HOWARD COUNTY, MD.

MACRIS-FOWLER ASSOCIATES
 CIVIL-STRUCTURAL ENGINEERS, SURVEYORS, PLANNERS
 27 W. JEFFERSON ST.
 ROCKVILLE, MD. 20850
 (301) 762-2577

NO.	DATE	BY
1	5/6/74	J.M.F.
2	9/9/74	J.M.F.
4	02/1/75	SRI

DESIGNED	J.M.F.	DRAWN	J.R.K.
CHECKED	J.M.F.	DATE	4/29/74
SCALE	AS SHOWN	DWG. NO.	74-504
DRAWING NO.	SH. 2 OF 21		



APPROVED FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS
HOWARD COUNTY HEALTH DEPARTMENT

William A. Altman 10/28/74
COUNTY HEALTH OFFICER DATE

APPROVED: HOWARD COUNTY OFFICE OF PLANNING AND ZONING
PLANNING DIRECTOR 10/28/74
DATE

CHIEF DIVISION OF LAND DEVELOPMENT AND TRANSPORTATION PLANNING
10/28/74
DATE

APPROVED FOR PUBLIC WATER AND PUBLIC SEWERAGE STORM DRAINAGE SYSTEMS AND PUBLIC RIGHTS - BY HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
DIRECTOR 10/28/74
DATE

CHIEF BUREAU OF HIGHWAYS
10/21/74
DATE

NO	DATE	REVISION
4	05/13/73	DEMOLISH AND REPLACE EXISTING CLUBHOUSE
3	5-20-70	ADDED AIR STRUCTURE, TRENCH DRAIN AND DETAILS

ENGINEER
PHOENIX ENGINEERING INC.
818 MAIDEN CHOICE LANE-SUITE 300
BALTIMORE, MD 21228
410-247-8833

OWNER & DEVELOPER
THE COLUMBIA ASSOCIATION
10221 WINGPIN CIRCLE-SUITE 100
COLUMBIA, MD 21044
410-281-0591

APPROVED PLANNING BOARD OF HOWARD COUNTY
DATE 8/21/74
Thomas H. Harist

CHANGES PER PLANNING COMM. REVIEW: 8/14/74

STATE OF MARYLAND
JAMES H. FORTNEY
LEAD SURVEYOR

REVISIONS

NO	DATE	BY
I	5/6/74	WJW
II	5/9/74	WJW
III	5-20-70	WJW
4	02/11/73	SRI

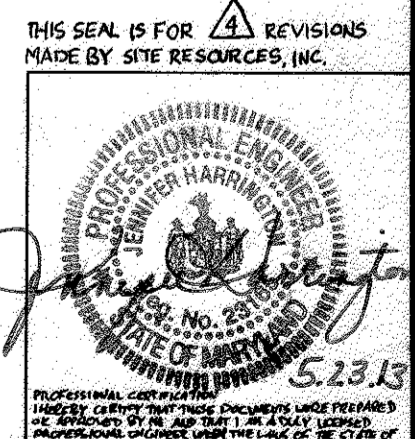
DRAINAGE AREA MAP
LOT 4, OPEN SPACE
COLUMBIA
VILLAGE OF OWEN BROWN
SECTION 1, AREA 3, PLAT BOOK 27 FOLIO 80
6TH ELECTION DISTRICT, TAX PLATE 36, HOWARD COUNTY, MARYLAND

MACRIS-FOWLER
ASSOCIATES
CIVIL-STRUCTURAL ENGINEERS; SURVEYORS; PLANNERS

27 W. JEFFERSON ST.
ROCKVILLE, MD. 20850
(301) 762-3858

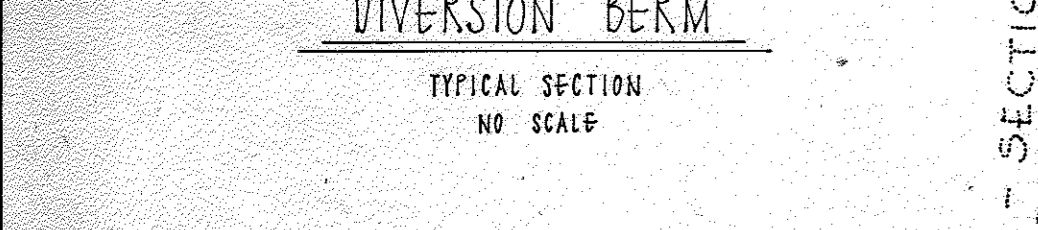
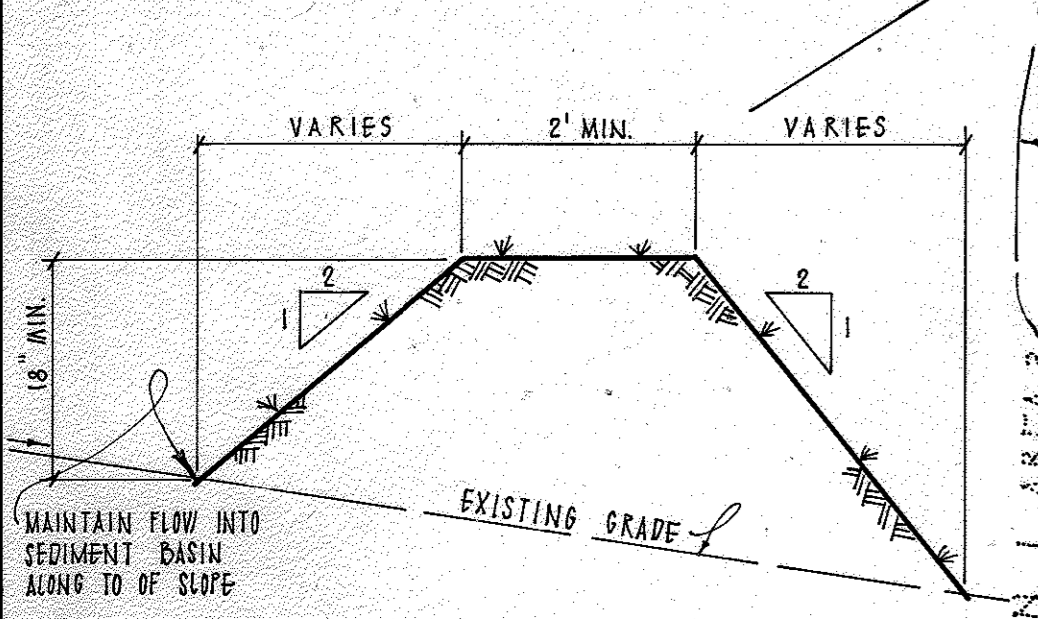
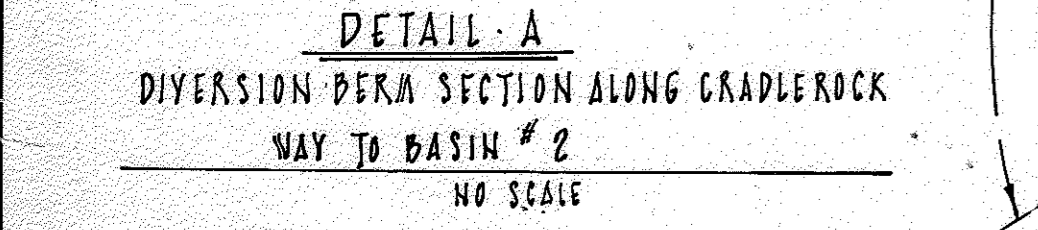
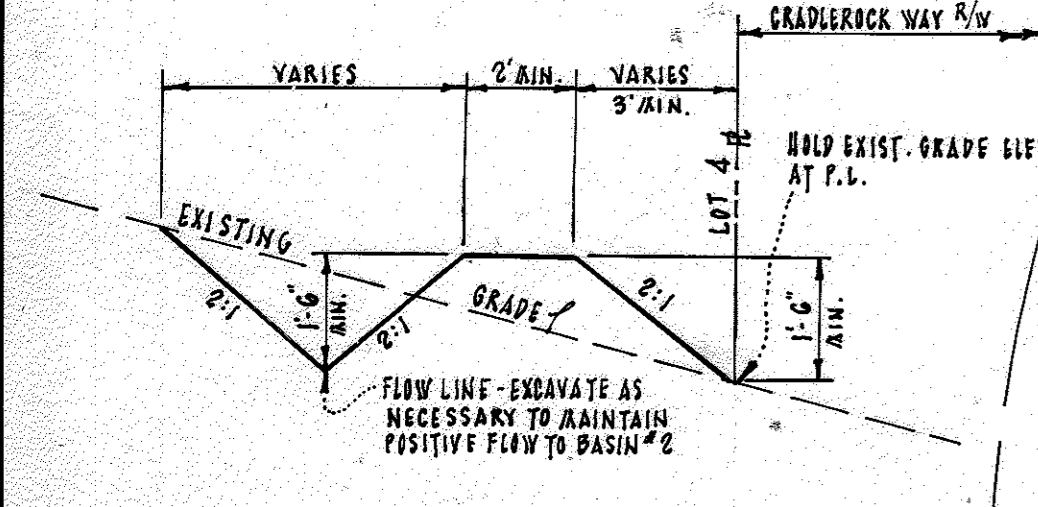
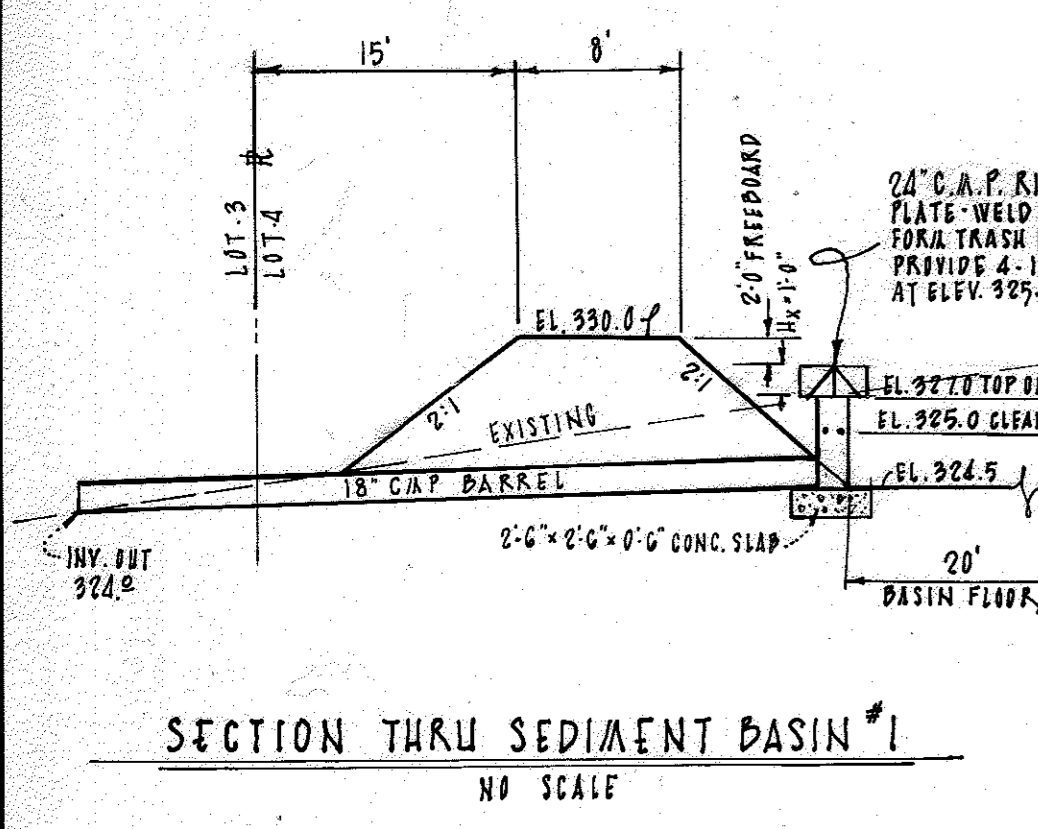
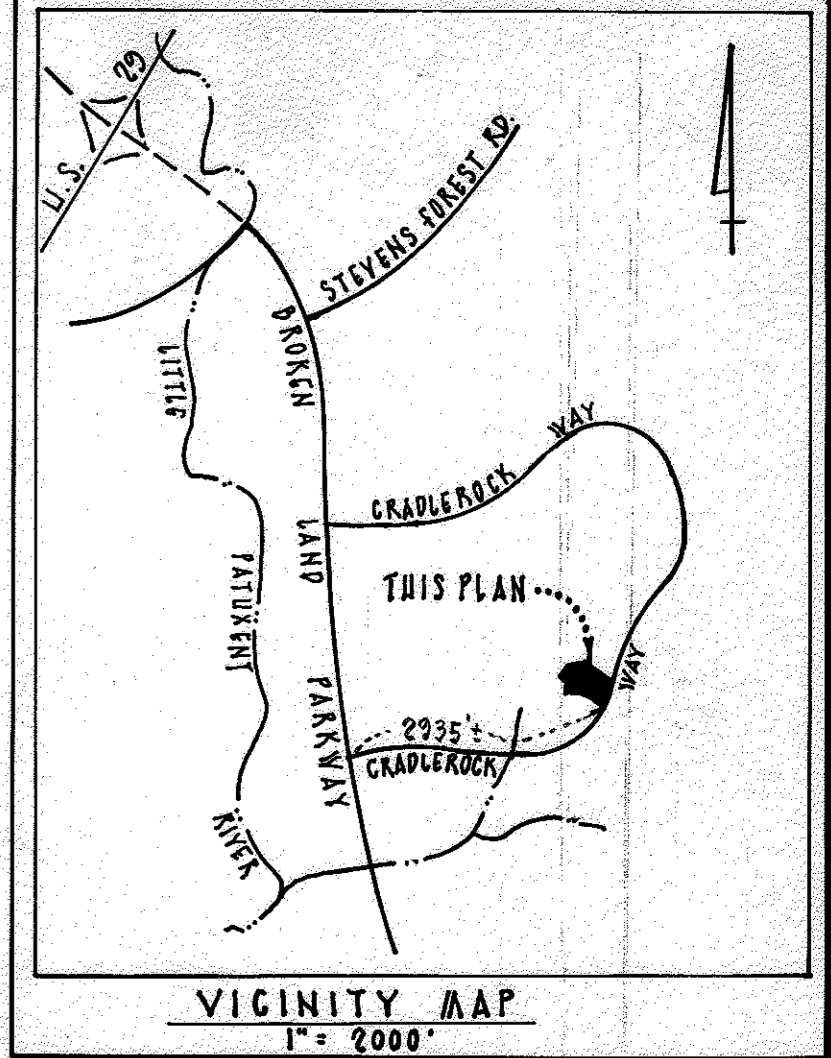
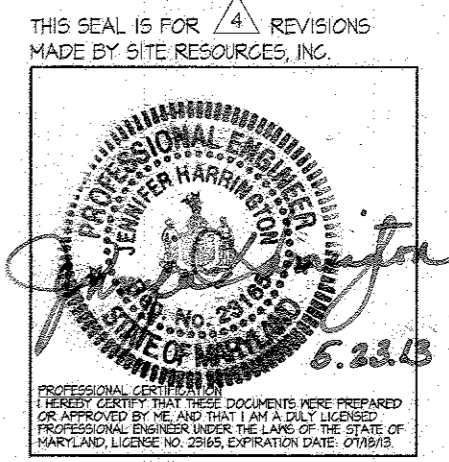
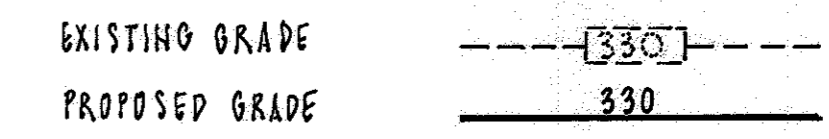
J.M.F.	J.A.K.
<i>WJW</i>	<i>WJW</i>
SCALE 1" = 30'	JOB NO. 74-504
	SH. 3 OF 121

SDP-74-117C



NO.	DATE	REVISION
4	05/19/78	DEMOLISH AND REPLACE EXISTING CLUBHOUSE

LEGEND

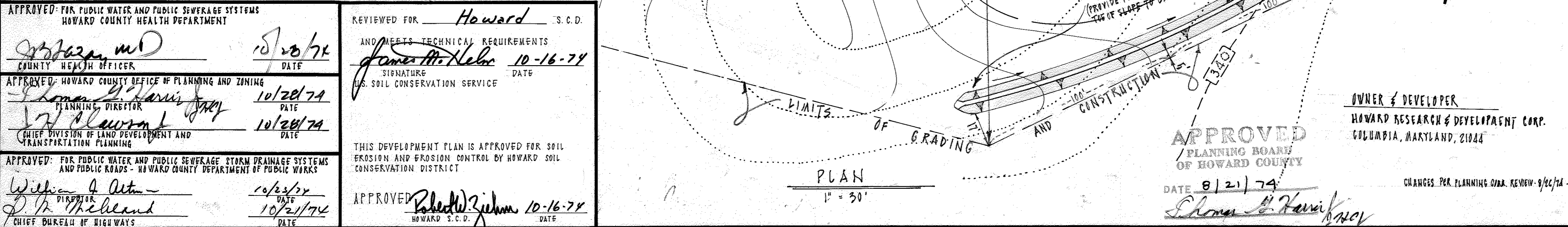


DEVELOPER'S CERTIFICATION
 I HEREBY CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL, AND I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY HOWARD COUNTY SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS THEY DEEM NECESSARY. DEVIATION FROM THIS PLAN WILL NOT BE MADE UNLESS AUTHORIZED BY THE HOWARD COUNTY SOIL CONSERVATION DISTRICT.
 Joseph Handwerker Oct 14, 1974
 SIGNATURE OF DEVELOPER DATE

ENGINEER'S CERTIFICATE
 I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD COUNTY SOIL CONSERVATION DISTRICT.
 John A. Mears # 1849 1-25-74
 SIGNATURE OF ENGINEER DATE

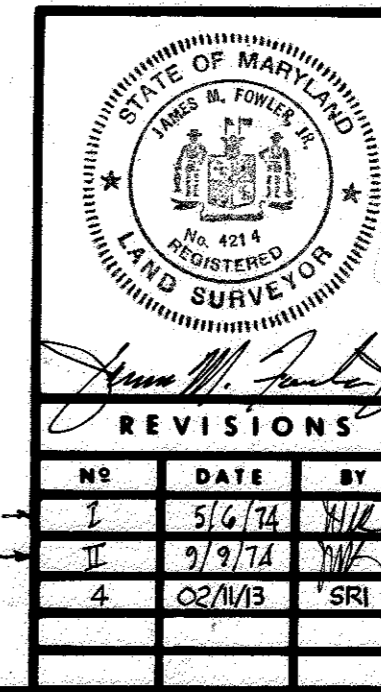
APPROVED FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS
 HOWARD COUNTY HEALTH DEPARTMENT
 COUNTY HEALTH OFFICER
 APPROVED: HOWARD COUNTY OFFICE OF PLANNING AND ZONING
 PLANNING DIRECTOR
 CHIEF DIVISION OF LAND DEVELOPMENT AND TRANSPORTATION PLANNING
 APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE STORM DRAINAGE SYSTEMS AND PUBLIC ROADS - HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 CHIEF BUREAU OF HIGHWAYS

REVIEWED FOR Howard S.C.D.
 AND MEETS TECHNICAL REQUIREMENTS
 SIGNATURE James M. Fowler DATE 10-16-74
 U.S. SOIL CONSERVATION SERVICE
 THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND EROSION CONTROL BY HOWARD SOIL CONSERVATION DISTRICT
 APPROVED Robert W. Johnson DATE 10-16-74
 HOWARD S.C.D.



SOIL EROSION AND SEDIMENT CONTROL NOTES

- STRUCTURAL MEASURES SUCH AS BERMS, DIKES, TRAPS, BASINS, ETC. WILL BE INSTALLED AND STABILIZED ACCORDING TO THIS PLAN PRIOR TO ANY OTHER GRADING, CLEARING, OR DISTURBANCE OF THE EXISTING SURFACE ON THIS SITE.
- ALL STRUCTURAL SEDIMENT CONTROL MEASURES ARE TO REMAIN IN PLACE UNTIL PERMITS FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD SOIL CONSERVATION DISTRICT, PHONE 465-5100 OR 465-5000 EXT. 328.
- NOTIFY THE HOWARD SOIL CONSERVATION DISTRICT AT LEAST 24 HOURS BEFORE STARTING ANY WORK, PHONE 465-5100 OR 465-5000 EXT. 328.
- ALL SEDIMENT BASINS SHALL CONFORM TO THE A.S.C.P. STD.'S AND SPECIFICATIONS NOS. 2.600 TO 2.605, AND AS DETAILED IN THESE PLANS.
- PILES WHEREVER SHOWN SHALL CONFORM TO THE A.S.C.P. STD'S AND SPECIFICATIONS NOS. 2.000 TO 2.001, AND AS DETAILED IN THESE PLANS.
- SAND BAG INLET THROATS UNTIL SUCH TIME THAT PAVING SURFACE IS APPLIED AND OTHER AREAS ARE STABILIZED.
- PROVIDE PERMANENT, SEMI-PERMANENT OR PORTABLE FENCE, A MIN. OF 42" HIGH AROUND ENTIRE PERIMETER OF SEDIMENT BASIN AS INDICATED IN PLAN DURING ENTIRE LIFE OF THIS CONSTRUCTION.
- CONSTRUCTED BERMS, DIKES, DAMS AND ETC. WILL BE COMPLETED BY SEVERAL PASSES WITH THE CONSTRUCTION EQUIPMENT.
- GRADE AREA ADJACENT TO BERMS TO PROVIDE POSITIVE DRAINAGE INTO SEDIMENT BASIN.
- CONTINUED INSPECTION AND MAINTENANCE WILL BE THE RESPONSIBILITY OF THE DEVELOPER.
- SEED OR SOIL ALL EXPOSED SOIL IN GRASS AREAS WITHIN 72 HOURS OF CUTTING OR FILLING TO FINISHED GRADE IN CONFORMANCE WITH A.S.C.P. STANDARDS AND SPECIFICATIONS AND THESE NOTES. LAY BASE COURSE IN PAVED AREAS OR PROTECT WITH BITUMINOUS MULCH OR OTHER METHODS APPROVED BY THE ENGINEER WITHIN 72 HOURS OF FINE GRADING.
- TEMPERARY SEEDING:
 2000 LBS/ACRE - WORK INTO TOP 3" OF SOIL
 1000 LBS/ACRE - 5-10-10
 1500 LBS/ACRE - STRAW (WHEAT PREFERRED)
 40 LBS/ACRE - RYE GRASS
 ASPHALT SPRAY OVER MULCH AT RATE OF 8 GAL. PER 100 SQ. FT.
 HYDROSEED FERTILIZER, SEED & MULCH USING "TURFIBER" OR APPROVED EQUAL
- PERMANENT SEEDING:
 2000 LBS/ACRE - WORK INTO TOP 3" OF SOIL
 1000 LBS/ACRE - 5-10-10
 80% KENTUCKY 31 TALL FESCUE
 15% MEXICAN BLUEGRASS
 5% RYE GRASS
 SEEDING RATE
 BINDER
 200 LBS/ACRE
 HYDROSEED FERTILIZER, SEED AND BINDER ("TURFIBER" OR EQUAL)
- STEEP SLOPES:
 SAME AS TEMPORARY SEEDING EXCEPT ADD 15 LBS/ACRE CROWNVEITCH TO RYE GRASS. IF HYDROSEEDED, APPLY FIBER MULCH AS SECOND STEP.



SOIL EROSION AND SEDIMENT CONTROL
LOT 4, OPEN SPACE
COLUMBIA
 VILLAGE OF OWEN BROWN
 SECTION 1, AREA 3, PLAT BOOK 27 FOLIO 80
 6th ELECTION DISTRICT, TAX PLATE 3G, HOWARD COUNTY, MD.

MACRIS-FOWLER ASSOCIATES
 CIVIL-STRUCTURAL ENGINEERS; SURVEYORS; PLANNERS
 817 SILVER SPRING AVE. SILVER SPRING, MD. 20910
 27 W. JEFFERSON ST. ROCKVILLE, MD. 20850
 (301) 585-0030 (301) 762-3858

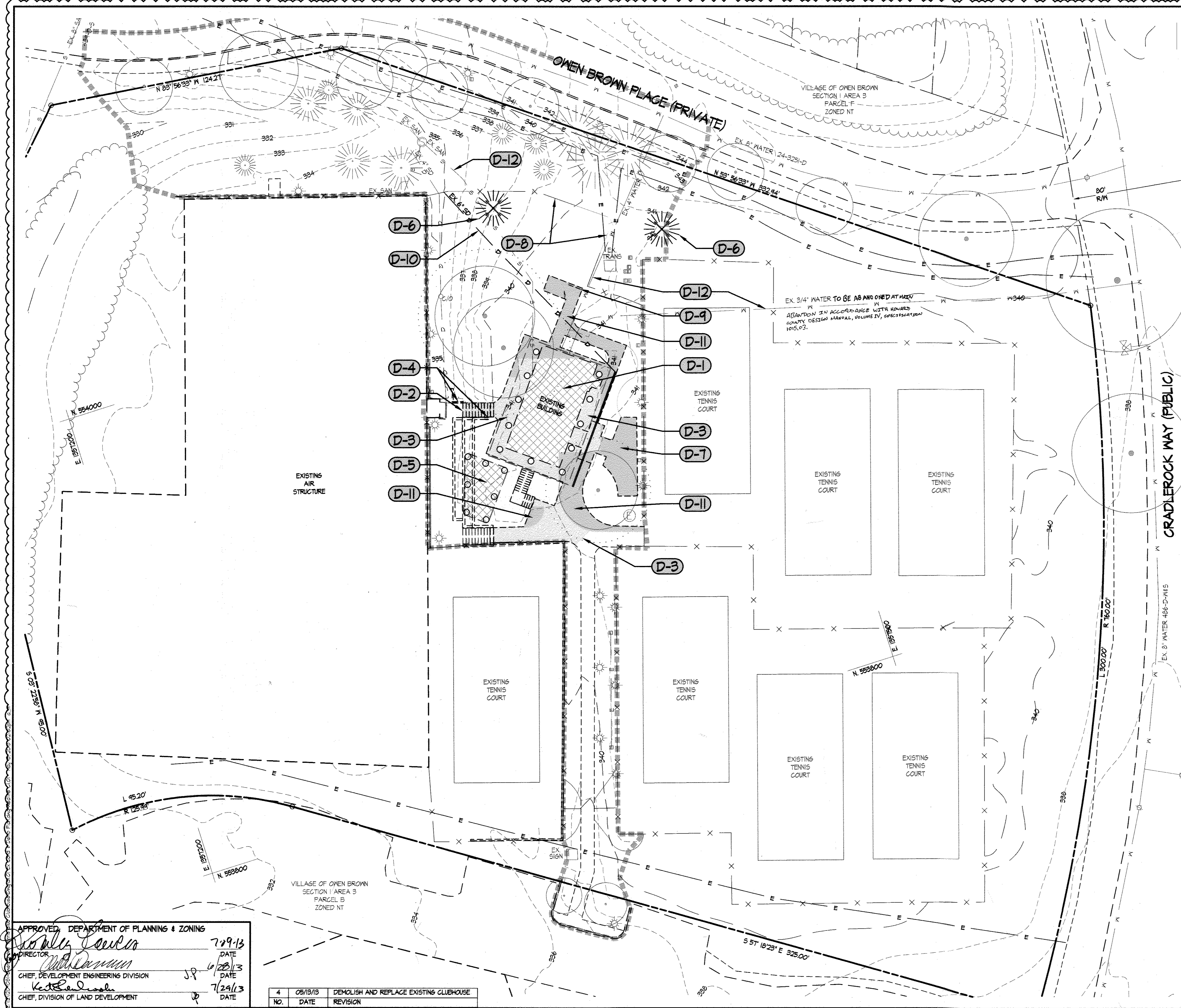
NO.	DATE	BY
1	5/1/74	JMF
2	7/9/74	JMF
4	02/11/78	SRI

DESIGNED J.M.F. DRAWN J.R.K.
 CHECKED J.M.F. DATE 4/23/74
 SCALE AS SHOWN 7/8" = 1'-0"
 DRAWING NO. SH. 4 OF 14

APPROVED PLANNING BOARD OF HOWARD COUNTY
 DATE 8/21/74
 APPROVED James M. Fowler

OWNER & DEVELOPER
 HOWARD RESEARCH & DEVELOPMENT CORP.
 COLUMBIA, MARYLAND, 21044

PLAN
 1" = 30'

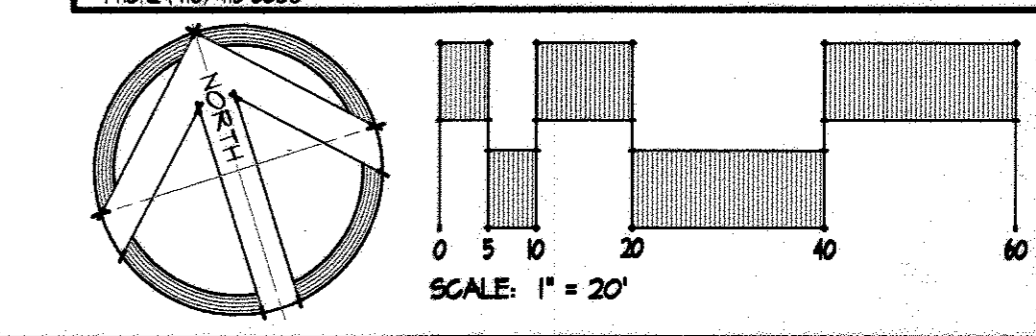


LEGEND

- PROPERTY LINE
- EXISTING CONTOURS
- EXISTING TREELINE TO REMAIN
- EXISTING TREES TO REMAIN
- EXISTING TREES TO BE REMOVED
- EXISTING SHRUBS TO REMAIN
- EXISTING SHRUBS TO BE REMOVED
- EXISTING WALK TO REMAIN
- EXISTING ROAD TO REMAIN
- EXISTING PAVEMENT AND BASE MATERIAL TO BE REMOVED
- EXISTING PAVEMENT TO BE REMOVED LEAVING BASE MATERIAL IN PLACE
- EX 15" SD TO REMAIN
- EX 15" SD TO BE REMOVED
- EX 6" WATER TO REMAIN
- EX 6" WATER TO BE REMOVED
- EX 8" SAN TO REMAIN
- EX 8" SAN TO BE REMOVED
- EX TELE TO REMAIN
- EX ELEC TO REMAIN
- EXISTING LIGHTING TO REMAIN
- EXISTING FENCE TO REMAIN
- EXISTING FENCE TO BE REMOVED
- EXISTING BUILDING TO REMAIN
- EXISTING BUILDING TO BE REMOVED
- FIELD RUN SURVEY LIMITS

- ### DEMOLITION NOTES:
- D-1** DEMOLISH EXISTING BUILDING & MOOD STEPS. SEE ARCHITECTURAL PLANS.
 - D-2** REMOVE EXISTING CONCRETE STAIRS.
 - D-3** REMOVE EXISTING CONCRETE WALK AT NEAREST JOINT, LEAVING BASE MATERIAL IN PLACE.
 - D-4** REMOVE EXISTING RETAINING WALL.
 - D-5** REMOVE EXISTING TRELLIS AND POST FOUNDATIONS. FILL POST FOUNDATION HOLES WITH COMPACTED FILL (SEE SPECS).
 - D-6** REMOVE EXISTING TREE STUMP AND MAJOR ROOTS. FILL HOLE WITH COMPACTED FILL (SEE SPECS).
 - D-7** REMOVE EXISTING BRICK PAVERS AND CAREFULLY REMOVE BASE MATERIAL AND SALVAGE FOR REINSTALLATION.
 - D-8** TEMPORARILY REMOVE PORTION OF EXISTING CHAIN LINK FENCE TO ALLOW CONSTRUCTION ACCESS.
 - D-9** REMOVE & SALVAGE EXISTING BIKE RACK FOR REINSTALLATION.
 - D-10** REMOVE EXISTING ROOF DRAIN PIPE.
 - D-11** REMOVE EXISTING CONCRETE WALK AT NEAREST JOINT AND CAREFULLY REMOVE BASE MATERIAL.
 - D-12** CONTRACTOR TO TEST PIT TO DETERMINE LOCATIONS OF EXISTING UTILITY CONNECTIONS TO BUILDING. CONTRACTOR TO ADJUST UTILITIES AS NECESSARY TO CONNECT TO NEW BUILDING.

ADDRESS / PERMIT INFORMATION
 7150 CRADLEROCK WAY, COLUMBIA, MD 21045
 PARCEL 424, LOT 44, ZONE NT
 TAX MAP NO. 36, DEED REF. 0250450091
 PRO ELECTION DISTRICT 1, CONGRESS TRACT 8067104
 FILE REFERENCE INFORMATION
 SDP-74-117
OWNER:
 COLUMBIA ASSOCIATION INC. 10221 PINCOPIN CIRCLE, COLUMBIA, MARYLAND 21044
 PHONE (410) 715-3000
DEVELOPER:
 COLUMBIA ASSOCIATION INC. 10221 PINCOPIN CIRCLE, COLUMBIA, MARYLAND 21044
 PHONE (410) 715-3000



14315 Arundelville Pkwy • Pikesville, Maryland 21111
 (410) 651-3388 • Fax (410) 651-3389

**7150 CRADLEROCK WAY
 COLUMBIA, MD 21045**

**EXISTING CONDITIONS &
 DEMOLITION PLAN**

**OWEN BROWN
 TENNIS CLUBHOUSE**

COLUMBIA ASSOCIATION

REVISED SITE DEVELOPMENT PLAN

REVISIONS:

SEAL:

DRAWN BY: AM
CHECKED BY: SR1
SCALE: 1" = 20'
DATE: 05/13/13
PROJECT NO.: 12.0236
DRAWING NO.: C1.01
 5 OF 11

SDP-74-117

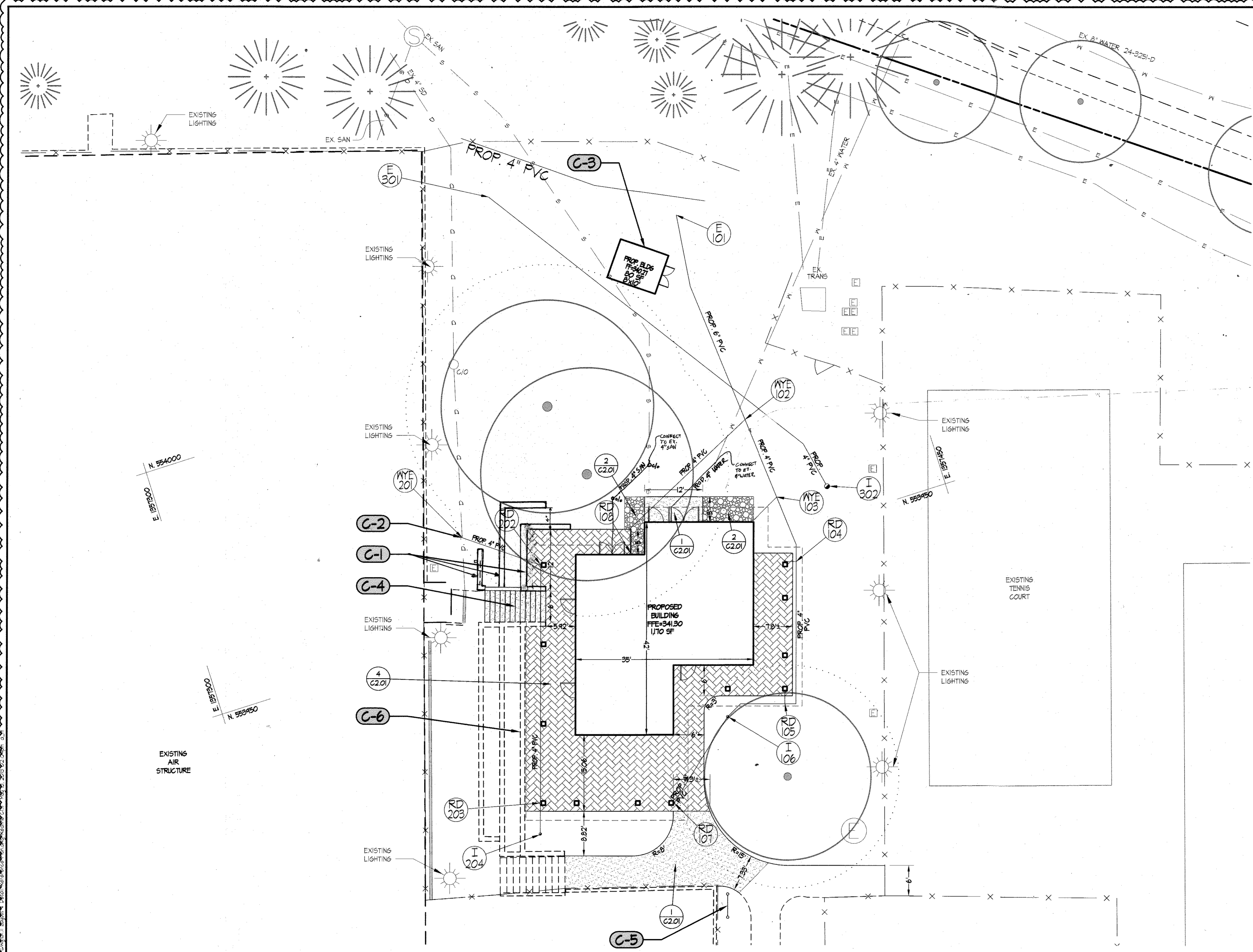
APPROVED: DEPARTMENT OF PLANNING & ZONING

Stephen J. Zick 7/29/13
 DIRECTOR DATE

John J. ... 6/28/13
 CHIEF, DEVELOPMENT ENGINEERS DIVISION DATE

K. ... 7/29/13
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

NO.	DATE	REVISION
4	05/13/13	DEMOLISH AND REPLACE EXISTING CLUBHOUSE

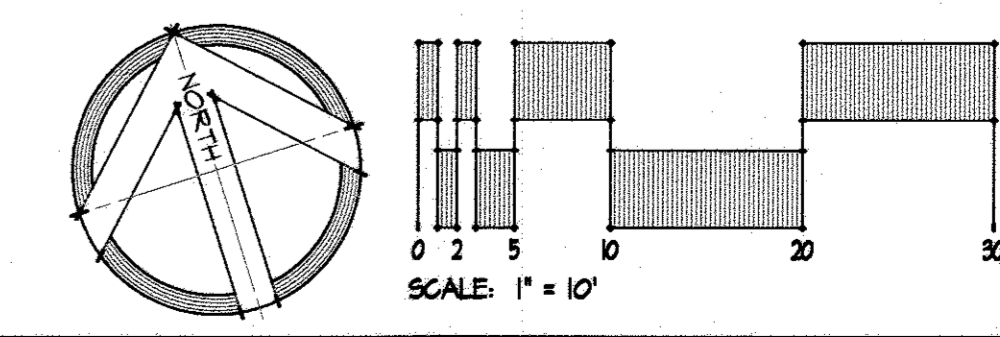


LEGEND

	PROPERTY LINE
	EXISTING TREES
	EXISTING SHRUBS
	EXISTING WALK
	EXISTING ROAD
	EXISTING STORM DRAIN
	EXISTING WATER
	EXISTING SANITARY SEWER
	EXISTING GAS
	EXISTING TELEPHONE
	EXISTING ELECTRIC
	EXISTING LIGHTING
	EXISTING FENCE
	EXISTING BUILDING
	PROPOSED CONCRETE WALK
	PROPOSED PAVERS
	PROPOSED BUILDING
	DETAIL REFERENCE
	PROPOSED STORM DRAIN
	PROPOSED WATER
	PROPOSED SANITARY SEWER
	PROPOSED LIGHTING

PURPOSE:
 THESE DRAWINGS ARE PREPARED TO SUPPORT THE REPLACEMENT OF THE CLUBHOUSE AND ASSOCIATED APPURTENANCES FOR THE OWEN BROWN TENNIS CENTER.

- CONSTRUCTION NOTES:**
- C-1** PROPOSED RETAINING WALL. SEE STRUCTURAL PLANS. WALLS TO ALIGN WITH EXISTING WALLS.
 - C-2** CONNECT PROPOSED 4" ROOF DRAIN TO EXISTING 4" PVC.
 - C-3** PROPOSED EQUIPMENT SHED. SEE ARCHITECTURAL PLANS.
 - C-4** PROPOSED CONCRETE STAIRS. SEE ARCHITECTURAL PLANS.
 - C-5** CLEAN BIKE RACK. APPLY 1 COAT OF GALVANIZING PRIMER AND TWO COATS OF BLACK EXTERIOR ENAMEL. REINSTALL BIKE RACK.
 - C-6** ADD ONE COURSE OF BLOCK TO PLANTER WALL. INSTALL 4" ALLAN BLOCK AB COLLECTION LITE STONE IN EARTHEN BLEND COLOR.



SITE RESOURCES
 Comprehensive Land Planning & Site Design Services
 14215 Annettsville Pike • Pikesville, Maryland 21115
 (410) 885-3300 • Fax (410) 885-3300

**7150 CRADLEROCK WAY
 COLUMBIA, MD 21045
 LAYOUT & DETAIL
 REFERENCE PLAN**

**OWEN BROWN
 TENNIS CLUBHOUSE
 COLUMBIA ASSOCIATION**
 REVISED SITE DEVELOPMENT PLAN

REVISIONS:

SEAL:

DRAWN BY: AM
 CHECKED BY: SRI
 SCALE: 1"=10'
 DATE: 05/13/13
 PROJECT NO: 12.0236
 DRAWING NO:

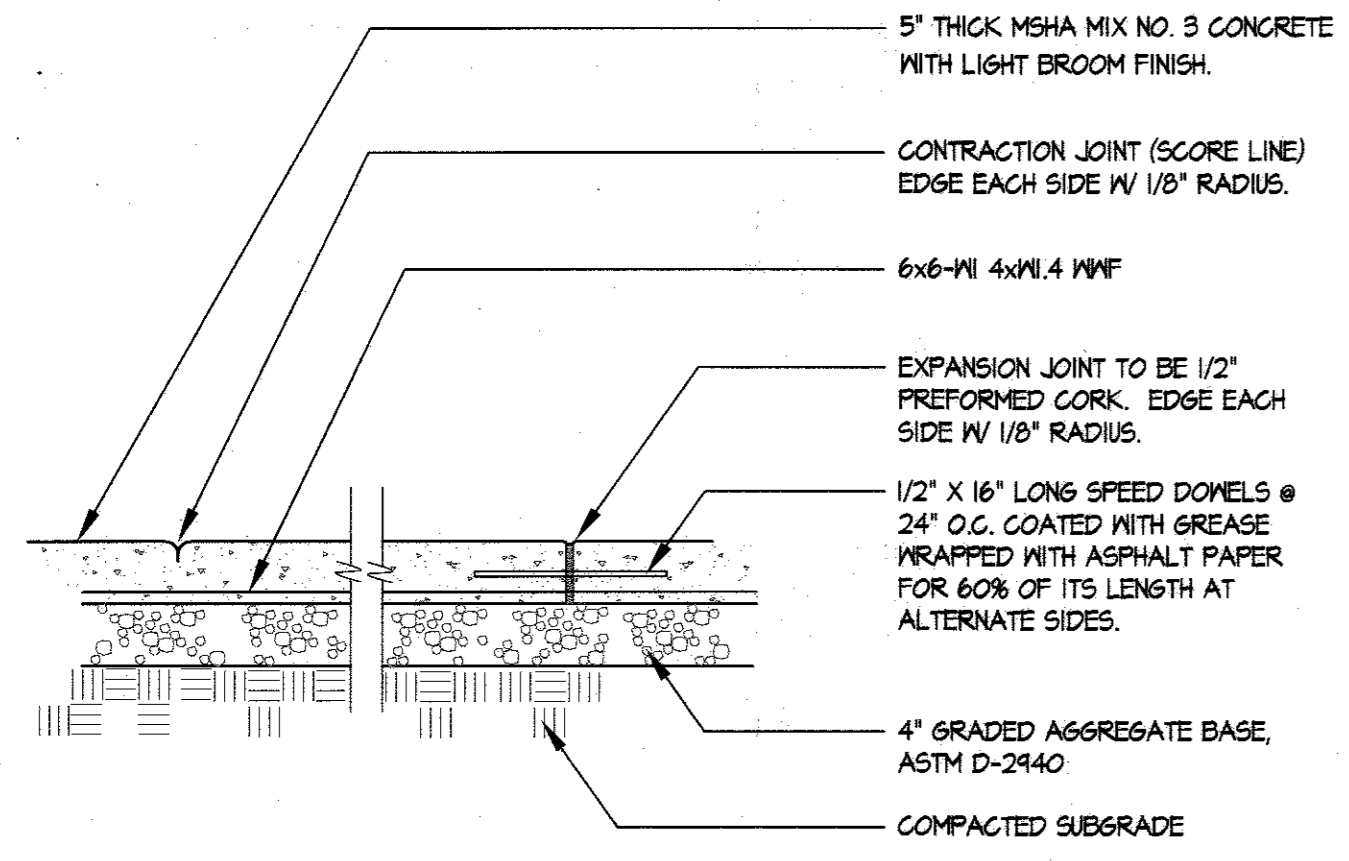
C1.11
 6 OF 14.21

APPROVED: DEPARTMENT OF PLANNING & ZONING

 DIRECTOR
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 CHIEF, DIVISION OF LAND DEVELOPMENT

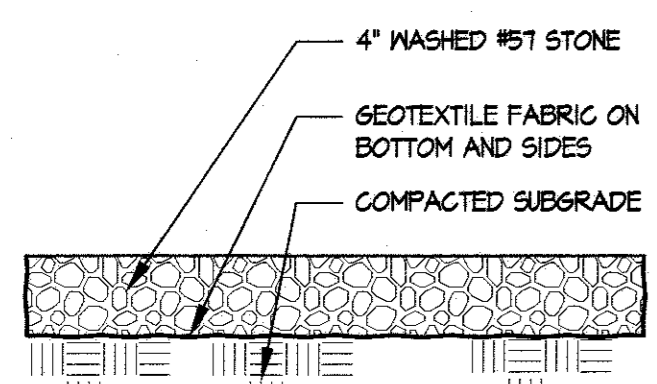
DATE: 7/29/13
 DATE: 6/28/13
 DATE: 7/29/13

NO.	DATE	REVISION
4	05/13/13	DEMOLISH AND REPLACE EXISTING CLUBHOUSE

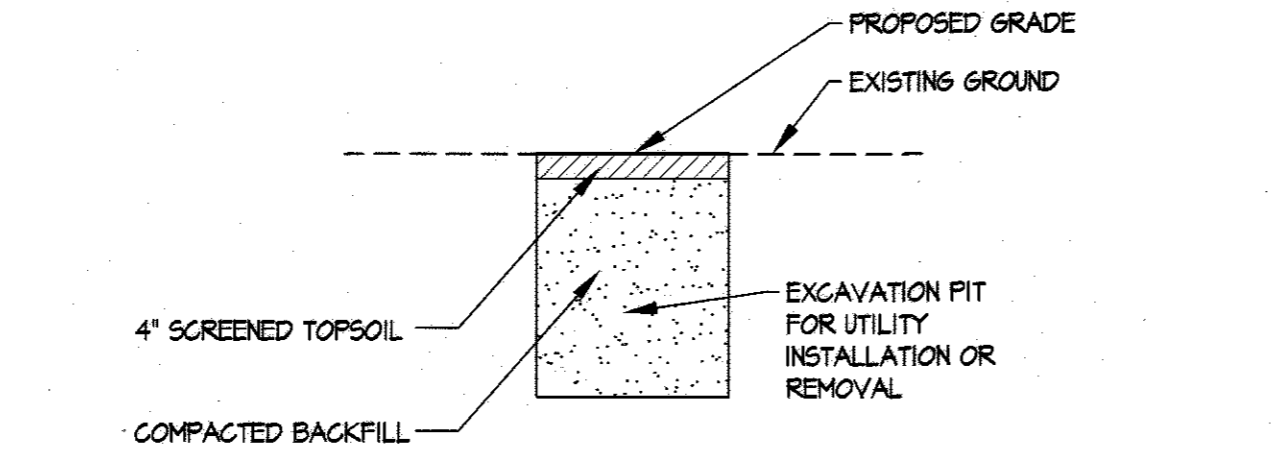


- NOTES:**
1. PLACE EXPANSION JOINTS NOT MORE THAN 20'-25' APART AND AT THE END OF EACH CONTIGUOUS POUR.
 2. PLACE CONTRACTION JOINTS AT INTERVAL MATCHING WIDTH OF SIDEWALK BUT NOT MORE THAN 6' APART.
 3. PROVIDE EXPANSION JOINTS WHERE POUR MEETS EXISTING CONCRETE PAVING OR CURB.
 4. EXPANSION JOINTS TO BE RECESSED 1/4" BELOW SURFACE OF SIDEWALK.
 5. WHEN SIDEWALK ABUTS BACK OF STREET CURB, WALK SHALL BE 1/4" ABOVE TOP OF CURB.
 6. WHEN SIDEWALK ABUTS EXISTING CONCRETE WALK, CORE DRILL AND INSTALL DOWELS PER DETAIL.
 7. MATCH SCORE PATTERN OF ADJACENT SIDEWALK WHERE PRACTICAL.
 8. UNLESS OTHERWISE SHOWN ON PLAN, CONTRACTOR TO SUBMIT LAYOUT OF PROPOSED CONTRACTION EXPANSION JOINTS FOR APPROVAL PRIOR TO POURING CONCRETE.

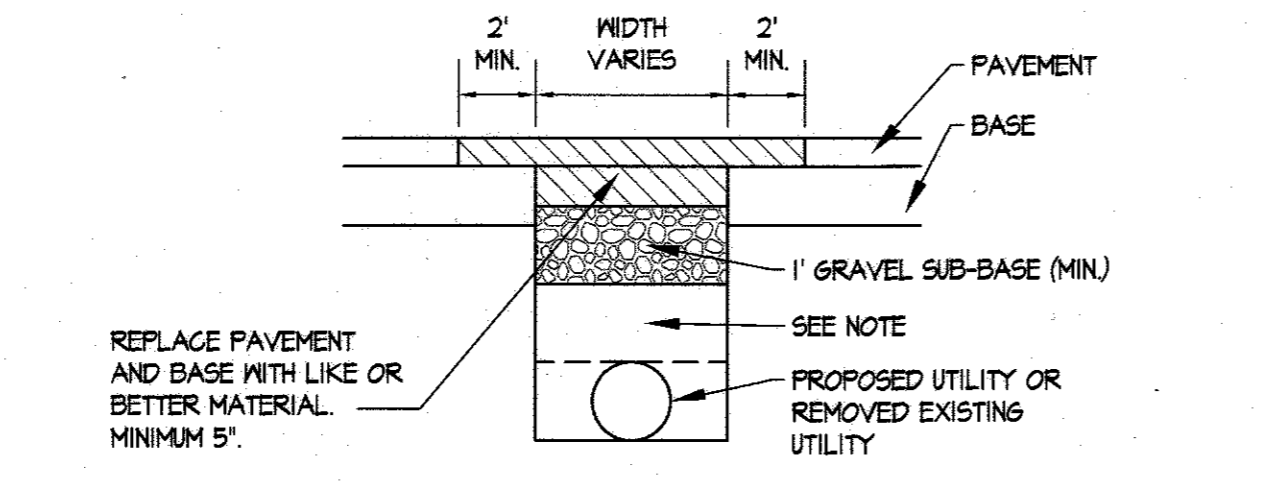
1 CONCRETE WALK
NOT TO SCALE



2 STONE WALK
NOT TO SCALE

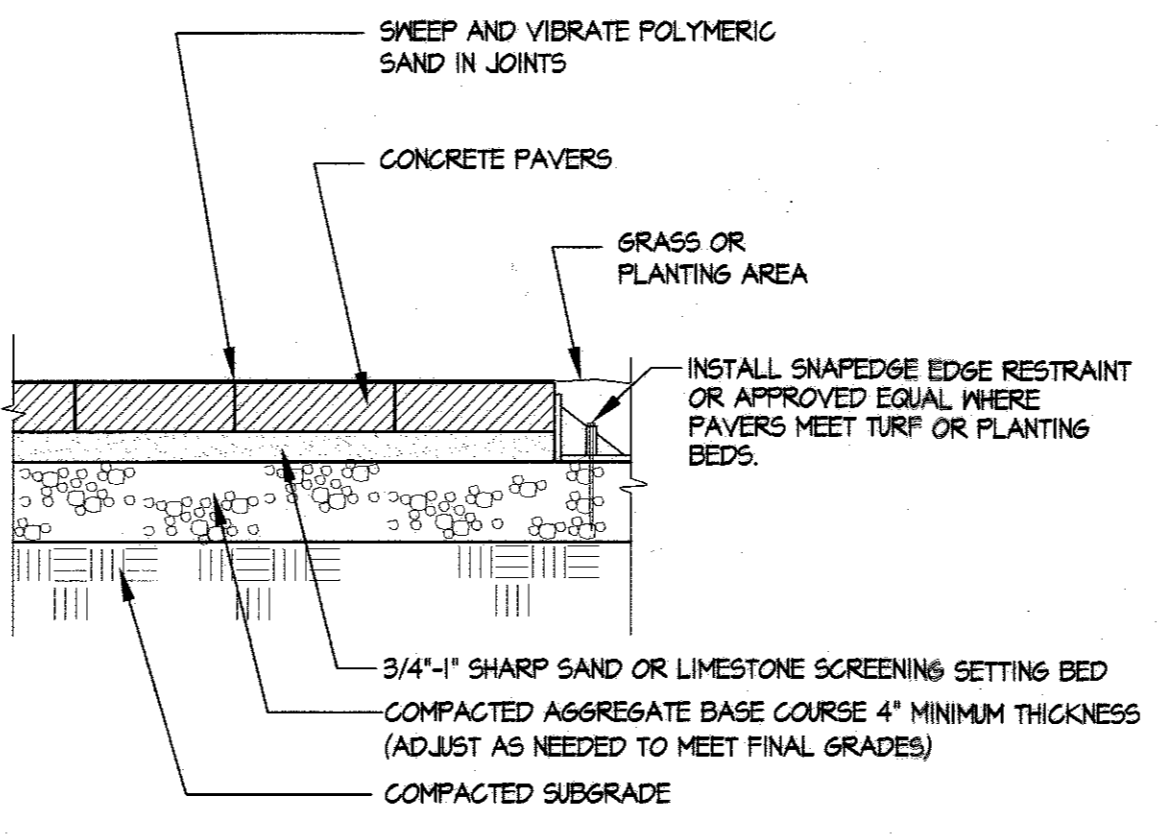


- NOTES:**
1. Backfill shall be in accordance with MSHA specifications and shall be thoroughly compacted in 6" layers by tamping or by some other approved method to within 4" of the proposed grade.
 2. The remaining 4" of depth shall be filled with screened topsoil and permanently seeded using the methods described on the sediment control plans.
 3. Whenever sheeting or shoring is required to prevent cave-ins or heaving due to the depth of the trench or type of material encountered, the sheeting, wherever found necessary, shall remain in place but cut off 1' below the bottom of the replaced surfacing.
 4. All backfill replaced shall be compacted to at least 95% of maximum density in accordance with MSHA specifications and certified by an approved geotechnical testing contractor.

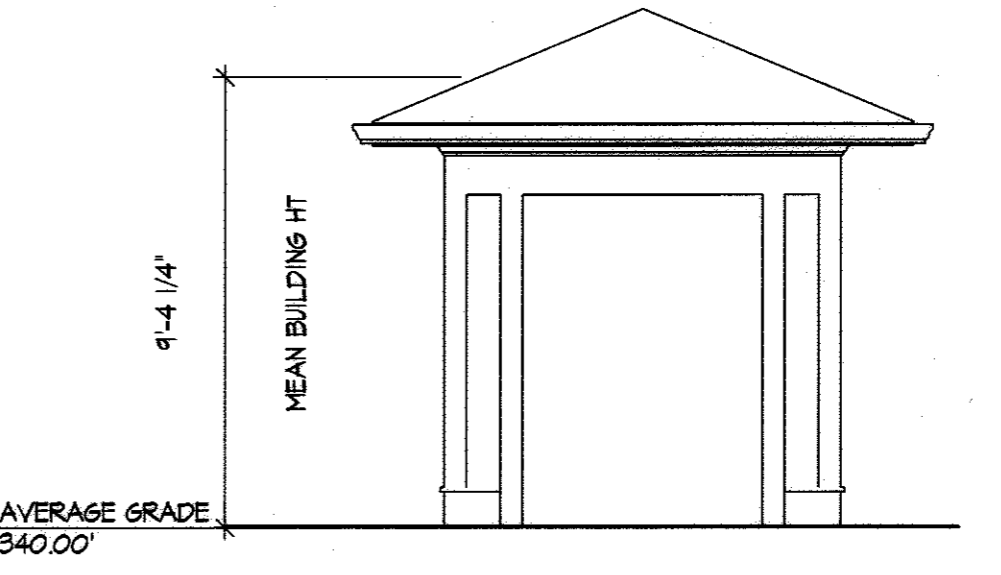


- NOTE:**
Backfill in trenches shall be in accordance with MSHA specifications and shall be thoroughly compacted in 6" layers for the full depth of the trenches by tamping or by some other approved method to within 1' of the top of subgrade. The remaining depth of the trench shall be filled with thoroughly compacted crushed stone, slag or gravel. Whenever sheeting or shoring is required to prevent cave-ins or heaving due to the depth of the trench or type of material encountered, the sheeting, wherever found necessary, shall remain in place but cut off 1' below the bottom of the replaced surfacing. All backfill replaced shall be compacted to at least 95% of maximum density in accordance with MSHA specifications and certified by an approved geotechnical testing contractor. In lieu of controlled fill, flowable fill in accordance with MSHA specifications may be utilized.
- | UTILITY | COVER* |
|-----------------------|----------|
| TELEPHONE & CABLE | 24" MIN. |
| ELECTRIC CABLE | 36" ± |
| SEWER LINE | 48" MIN. |
| WATER LINE | 42" MIN. |
| CONCRETE, STEEL PIPES | 12" MIN. |
- * CHECK THAT MINIMUM COVER MEETS JURISDICTIONAL REQUIREMENTS.

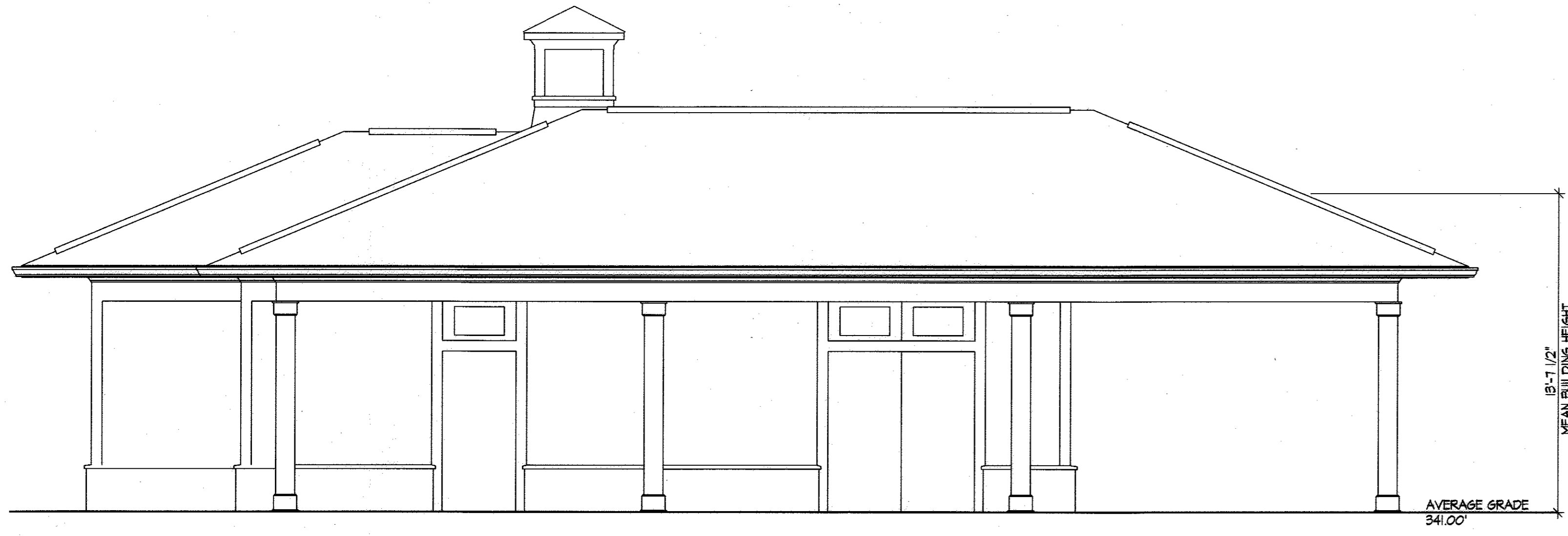
3 SURFACE RESTORATION DETAIL
NOT TO SCALE



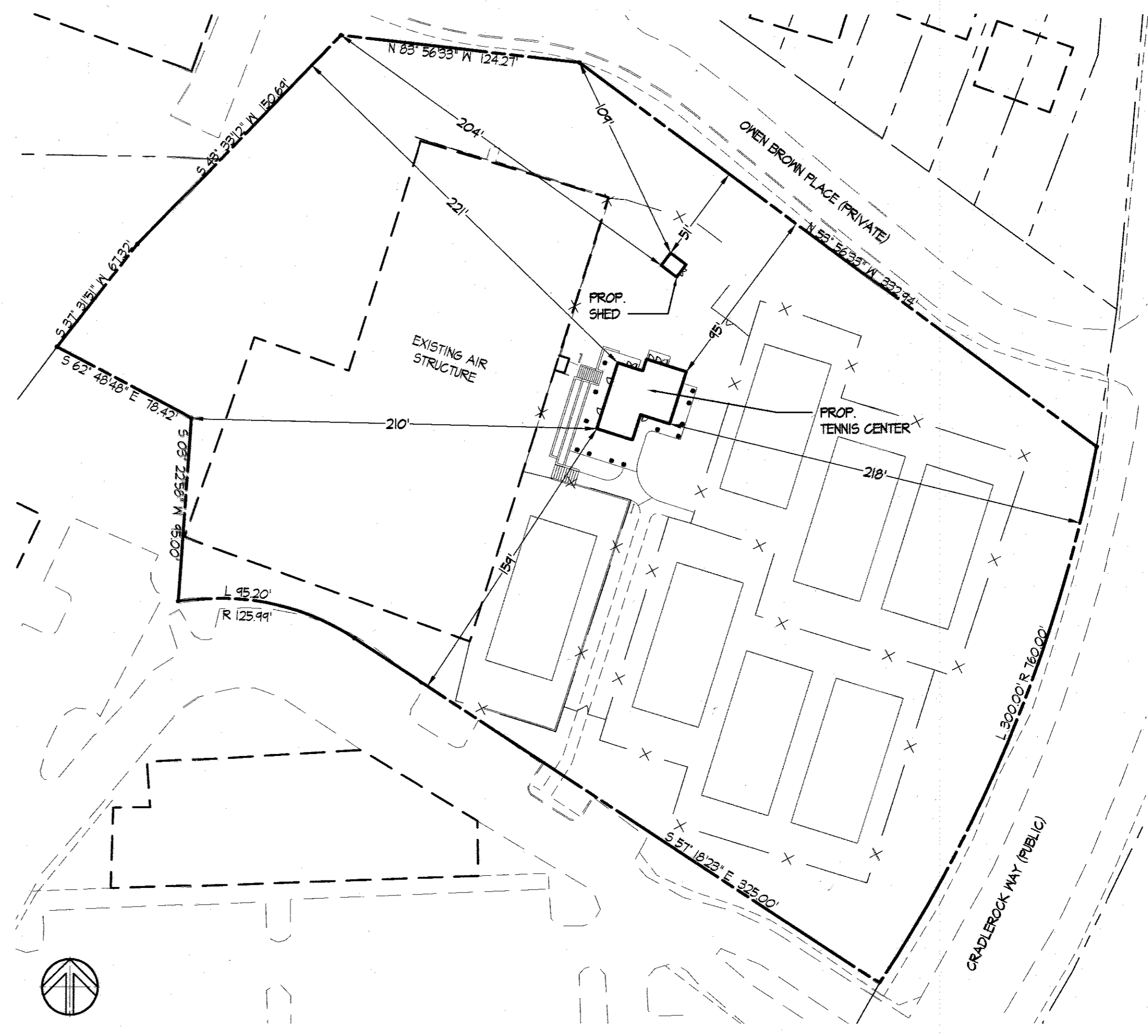
4 CONCRETE PAVERS
NOT TO SCALE



5 SHED ELEVATION DETAIL
SCALE: 1/4" = 1'-0"



6 CLUBHOUSE ELEVATION DETAIL
SCALE: 1/4" = 1'-0"



7 BUILDING LOCATION DIMENSIONS
SCALE: 1" = 50'

SITE RESOURCES
INCORPORATED
Comprehensive Land Planning & Site Design Services
14315 Jarrattville Pike • Plover, Maryland 21131
(410) 893-3388 • Fax (410) 893-3389

7150 CRADLEROCK WAY
COLUMBIA, MD 21045
SITE DETAILS

**OWEN BROWN
TENNIS CLUBHOUSE**
COLUMBIA ASSOCIATION
REVISED SITE DEVELOPMENT PLAN

REVISIONS:

SEAL:
PROFESSIONAL ENGINEER
STATE OF MARYLAND
No. 12549
EXPIRES 05/23/13

DRAWN BY: AM
CHECKED BY: SRI
SCALE: AS NOTED
DATE: 05/13/13
PROJECT NO. 12.0236
DRAWING NO.

C2.01
7 OF 1421

APPROVED: DEPARTMENT OF PLANNING & ZONING
Director: [Signature] DATE: 7/29/13
Chief, Development Engineering Division: [Signature] DATE: 6/20/13
Chief, Division of Land Development: [Signature] DATE: 7/29/13

NO.	DATE	REVISION
4	05/13/13	DEMOLISH AND REPLACE EXISTING CLUBHOUSE

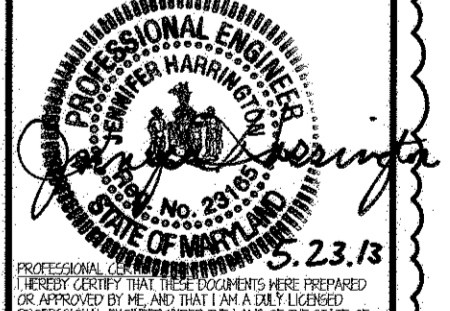


7150 GRADLEROCK WAY
COLUMBIA, MD 21045
WATER, SEWER &
STORM DRAIN PROFILES

OWEN BROWN
TENNIS CLUBHOUSE
COLUMBIA ASSOCIATION
REVISED SITE DEVELOPMENT PLAN

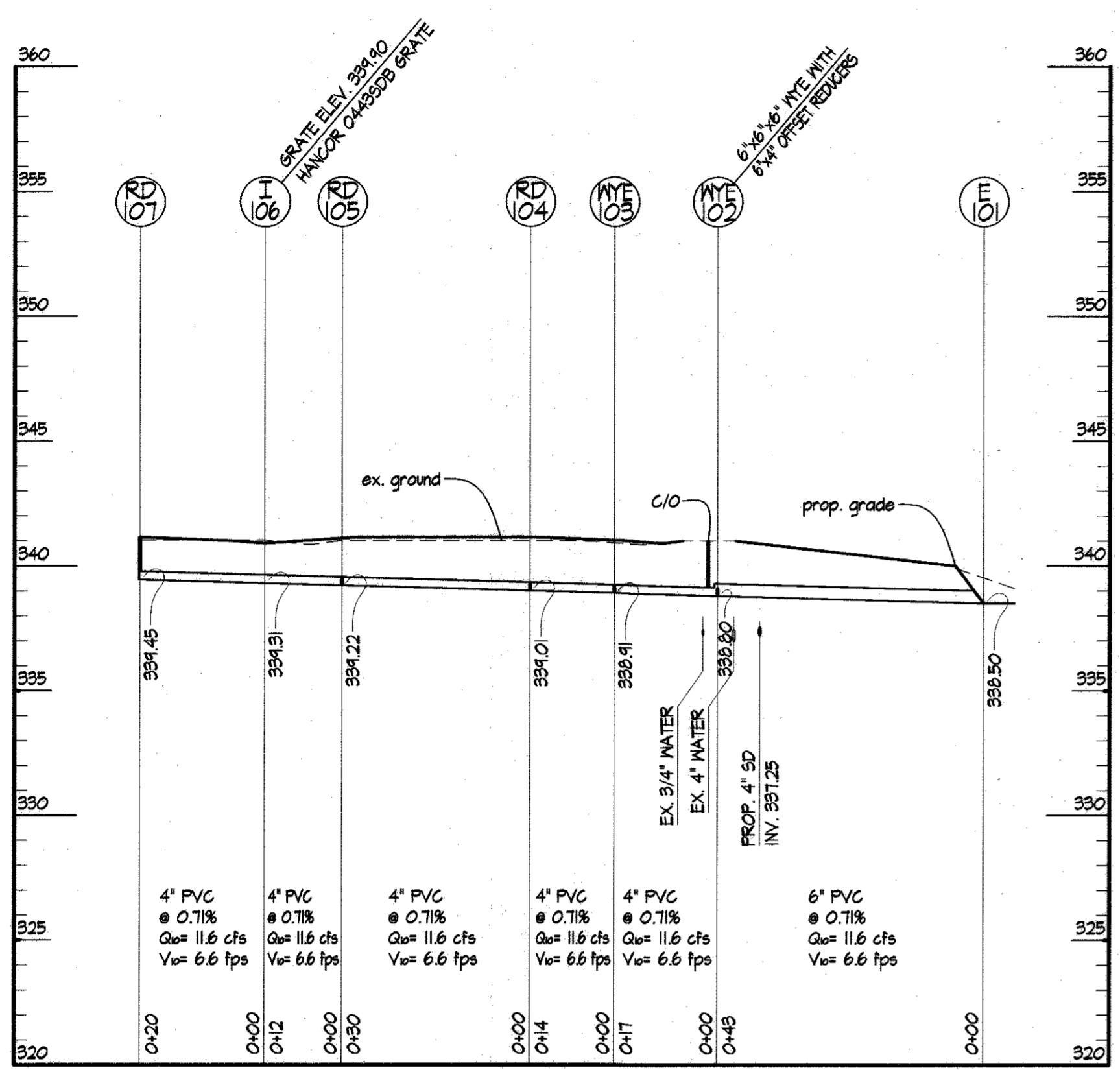
REVISIONS:

SEAL:

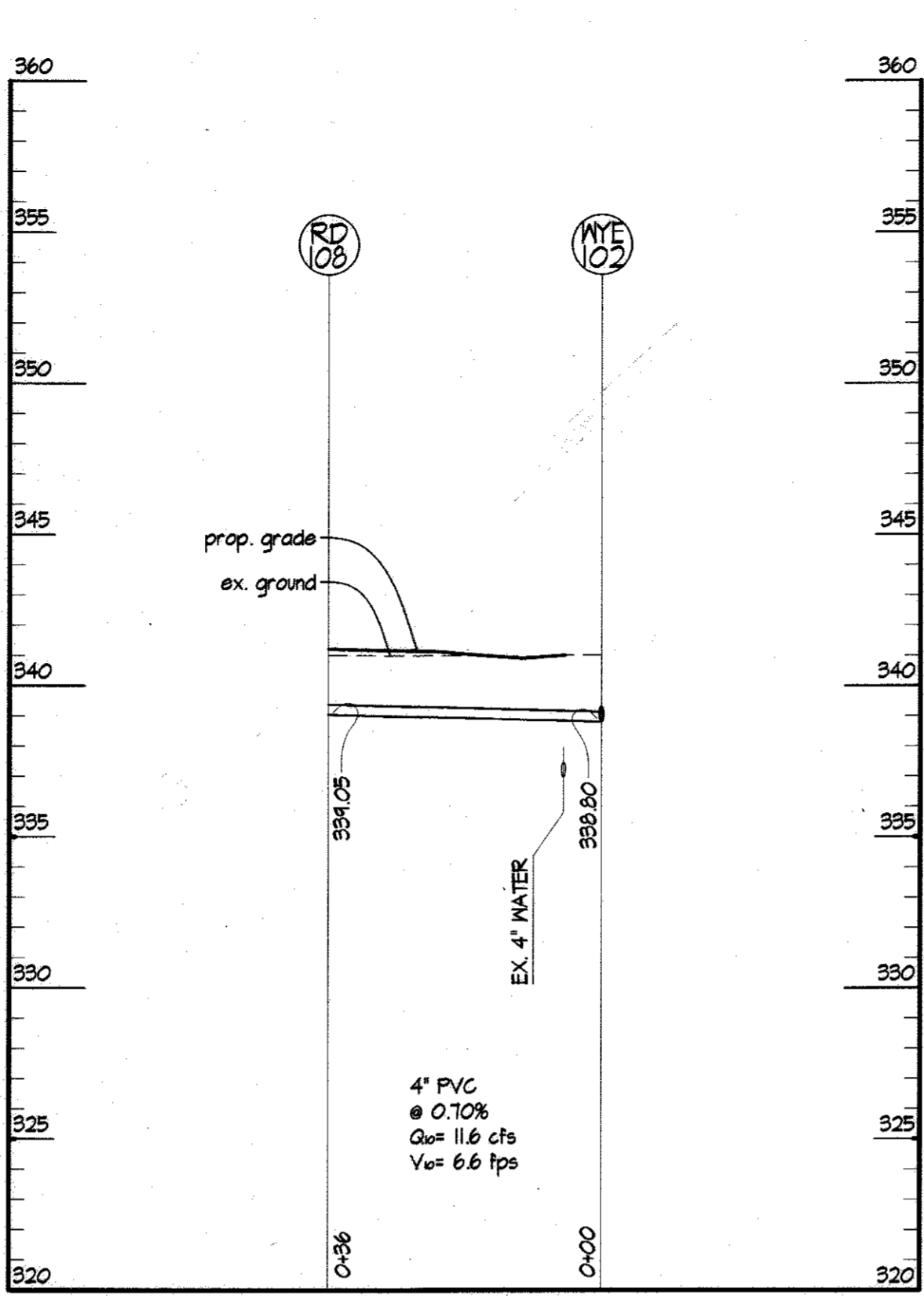


DRAWN BY: SRI
CHECKED BY: SRI
SCALE: AS NOTED
DATE: 05/13/13
PROJECT NO: 12.0236
DRAWING NO:

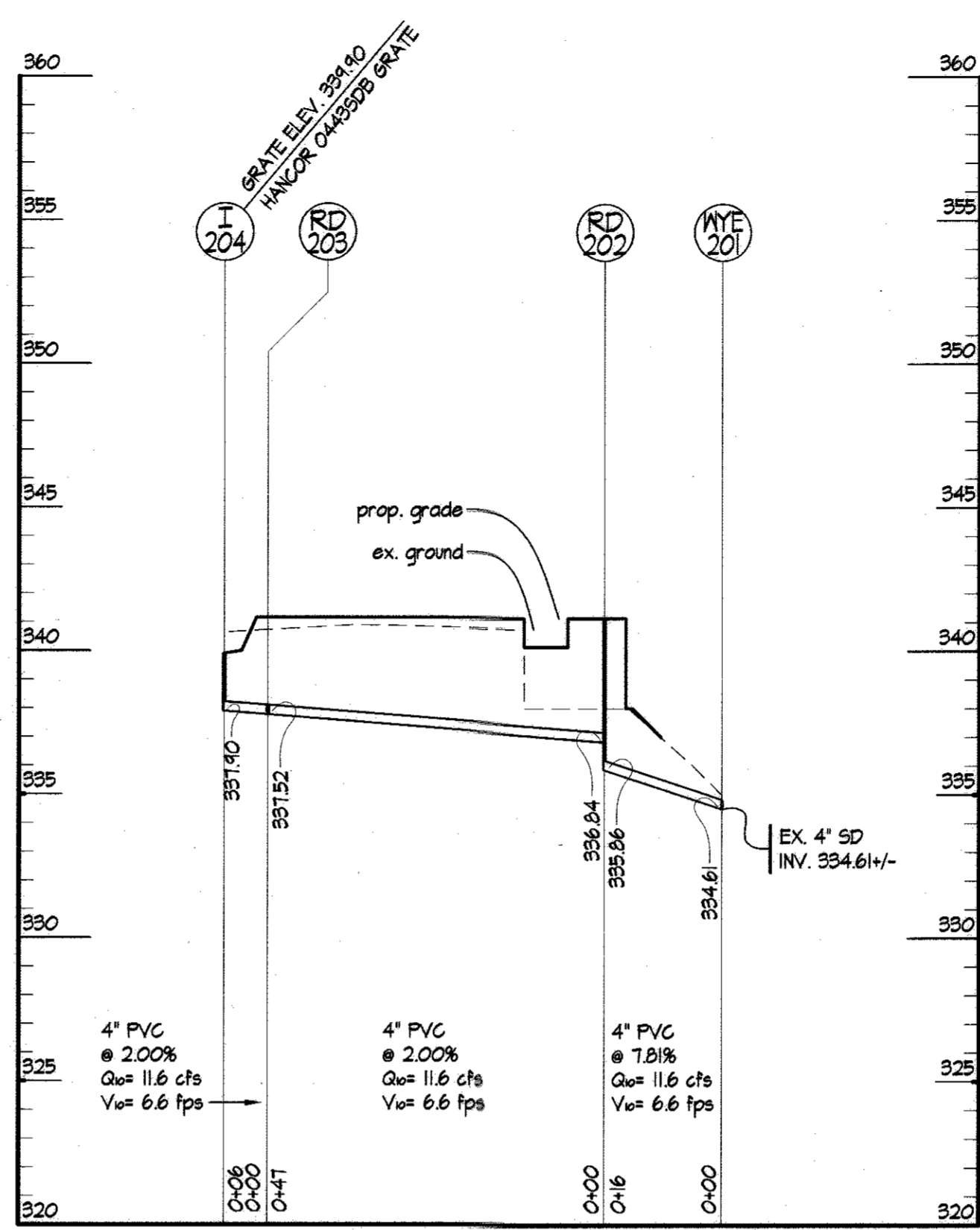
C3.01
8 OF 21



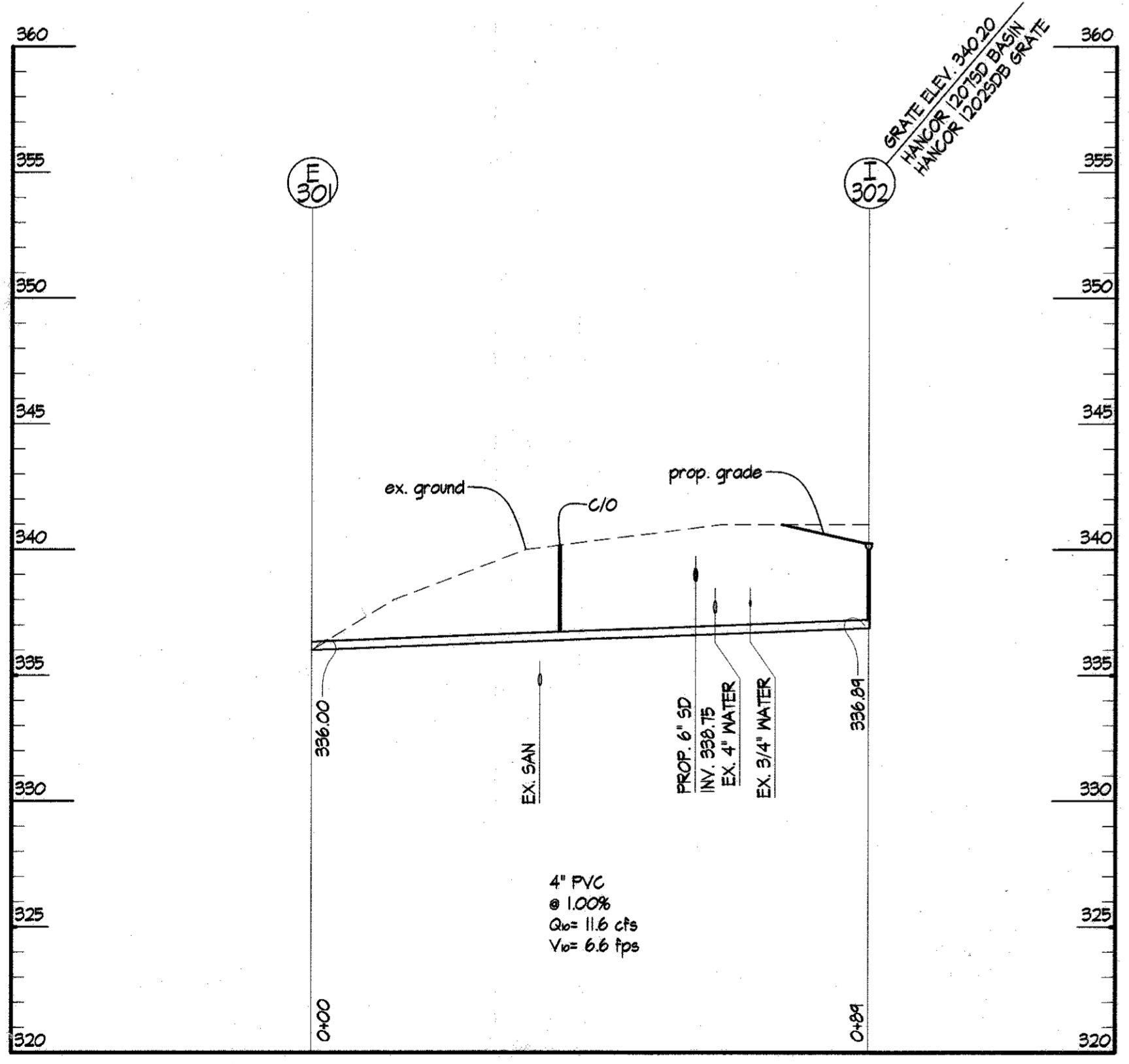
1 PROFILE RD-107 TO E-101
SCALES: HORIZ. 1" = 20'
VERT. 1" = 5'



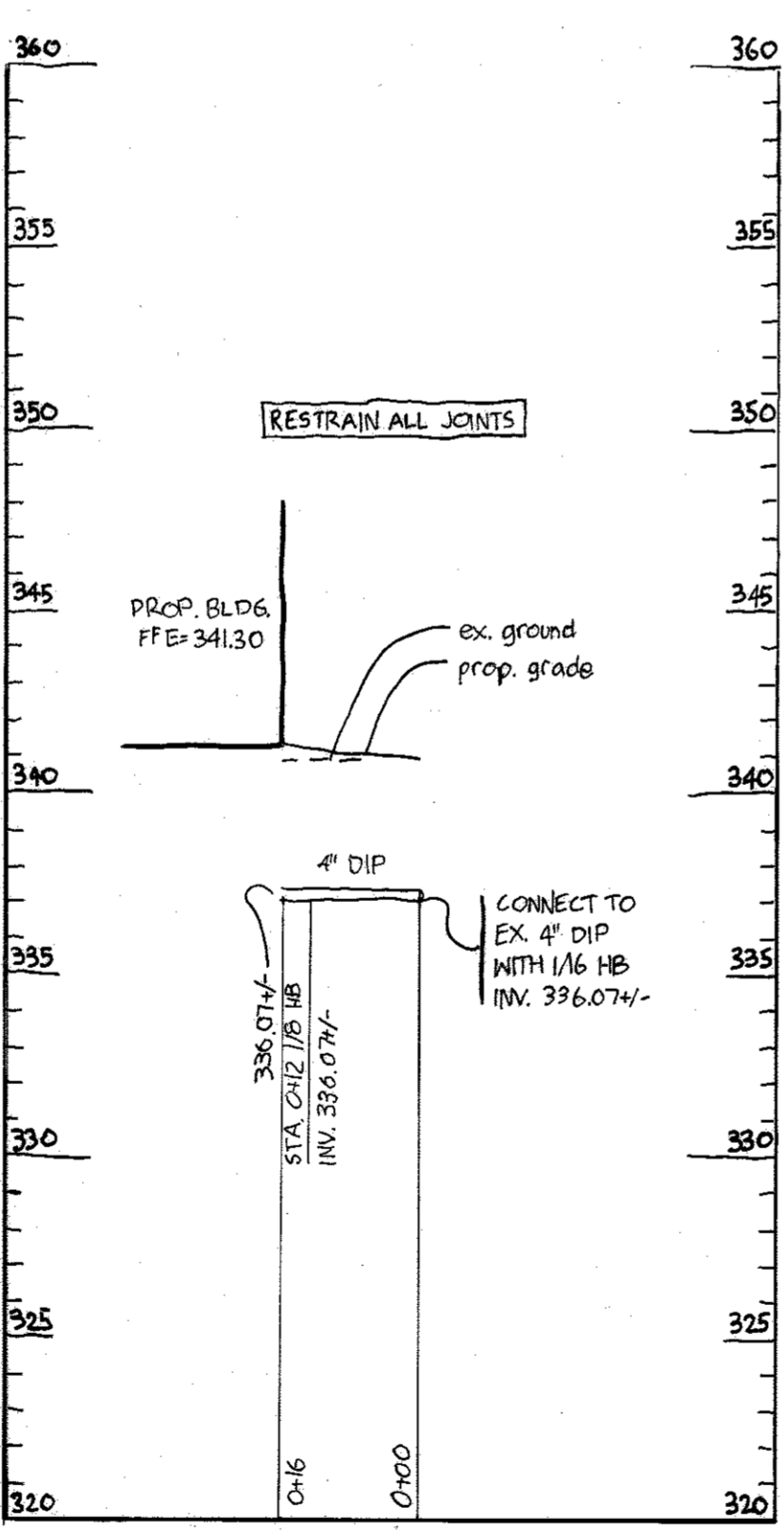
2 PROFILE RD-108 TO WYE-102
SCALES: HORIZ. 1" = 20'
VERT. 1" = 5'



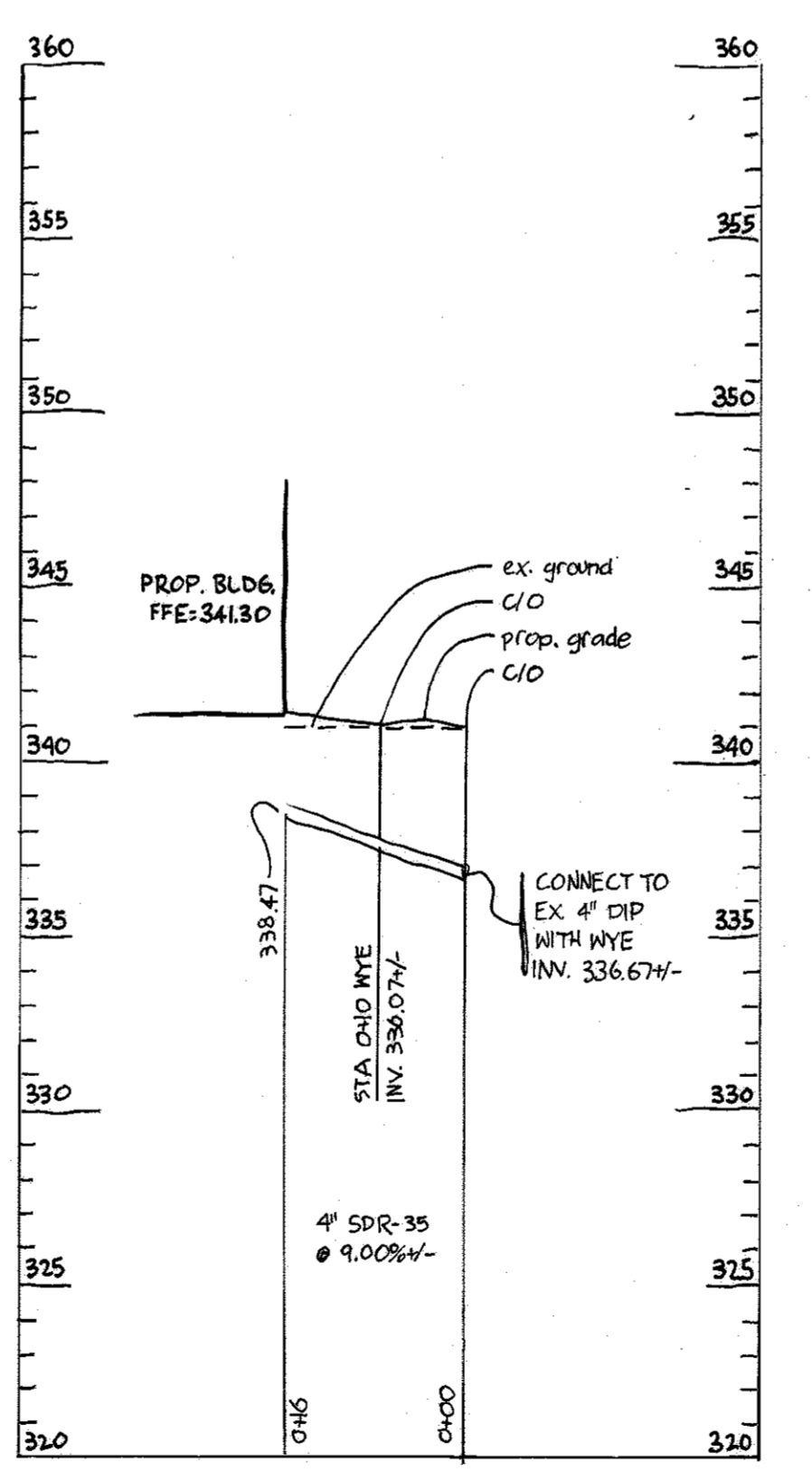
3 PROFILE I-204 TO WYE-201
SCALES: HORIZ. 1" = 20'
VERT. 1" = 5'



4 PROFILE I-302 TO E-301
SCALES: HORIZ. 1" = 20'
VERT. 1" = 5'



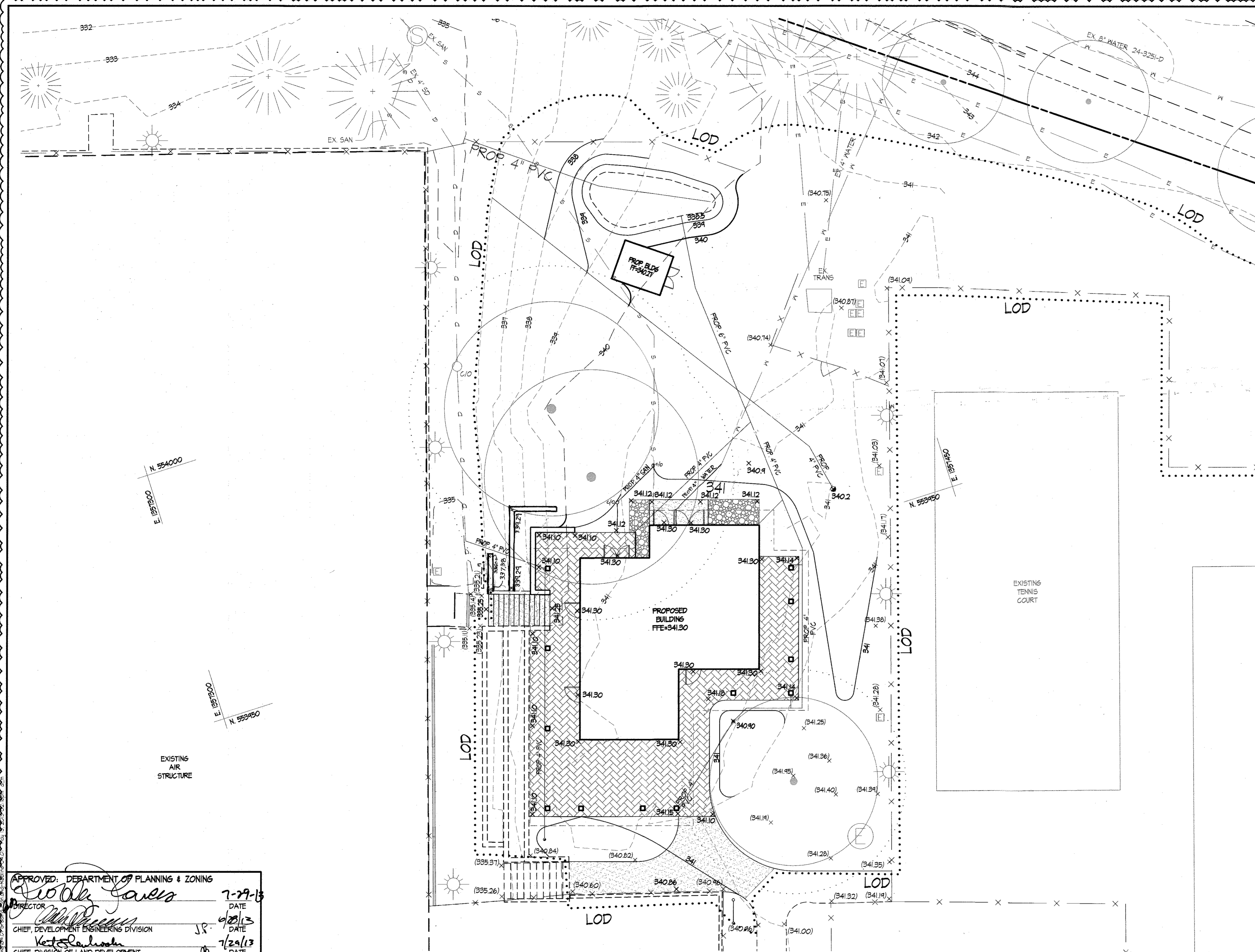
5 PROFILE 4" WATER
SCALES: HORIZ. 1" = 20'
VERT. 1" = 5'



6 PROFILE 4" SEWER
SCALES: HORIZ. 1" = 20'
VERT. 1" = 5'

APPROVED: DEPARTMENT OF PLANNING & ZONING
Director: [Signature] 7-17-13
DATE: 7-17-13
Chief, Development Engineering Division: [Signature] 6/28/13
DATE: 6/28/13
Chief, Division of Land Development: [Signature] 7/24/13
DATE: 7/24/13

NO.	DATE	REVISION
4	05/13/13	DEMOLISH AND REPLACE EXISTING CLUBHOUSE



LEGEND

	PROPERTY LINE
	EXISTING CONTOURS
	EXISTING TREELINE
	EXISTING TREES
	EXISTING SHRUBS
	EXISTING WALK
	EXISTING ROAD
	EXISTING CURB
	EXISTING STORM DRAIN
	EXISTING WATER
	EXISTING SANITARY SEWER
	EXISTING GAS
	EXISTING TELEPHONE
	EXISTING ELECTRIC
	EXISTING LIGHTING
	EXISTING FENCE
	EXISTING BUILDING
	EXISTING SOILS NeB2 GCB2
	PROPOSED WALK
	PROPOSED BUILDING
	PROPOSED CONTOURS
	SPOT ELEVATIONS x (220.8) — EXISTING x 220.8 — PROPOSED
	LIMIT OF DISTURBANCE
	PROPOSED STORM DRAIN
	PROPOSED SANITARY SEWER
	PROPOSED LIGHTING

SITE RESOURCES
INCORPORATED
Comprehensive Land Planning & Site Design Services
14215 Arundelville Pike • Pocomoke, Maryland 21111
(410) 653-3388 • Fax (410) 653-3389

7150 GRADLEROCK WAY
COLUMBIA, MD 21045
GRADING PLAN

**OWEN BROWN
TENNIS CLUBHOUSE**
COLUMBIA ASSOCIATION
REVISED SITE DEVELOPMENT PLAN

REVISIONS:

SEAL:

DRAWN BY: AM
CHECKED BY: SRI
SCALE: 1"=10'
DATE: 05/13/13
PROJECT NO.: 12.0236
DRAWING NO.:

C4.01
9 OF 21

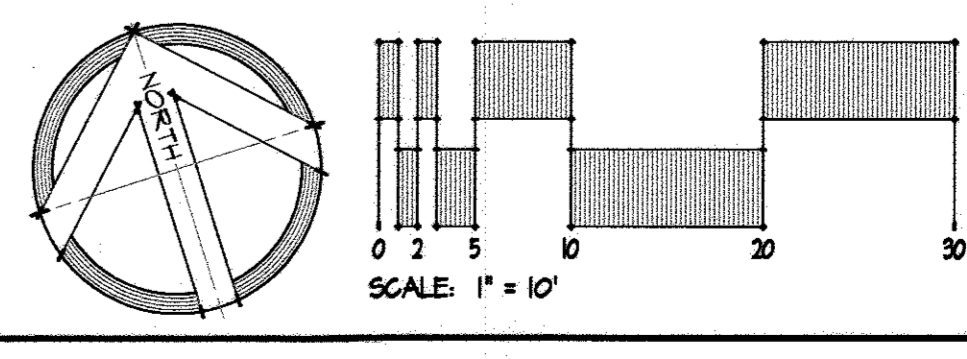
APPROVED: DEPARTMENT OF PLANNING & ZONING
Scott Lewis 7-29-13
DIRECTOR DATE
CHIEF, DEVELOPMENT ENGINEERING DIVISION JR 9/25/13
CHIEF, DIVISION OF LAND DEVELOPMENT VP 7/29/13

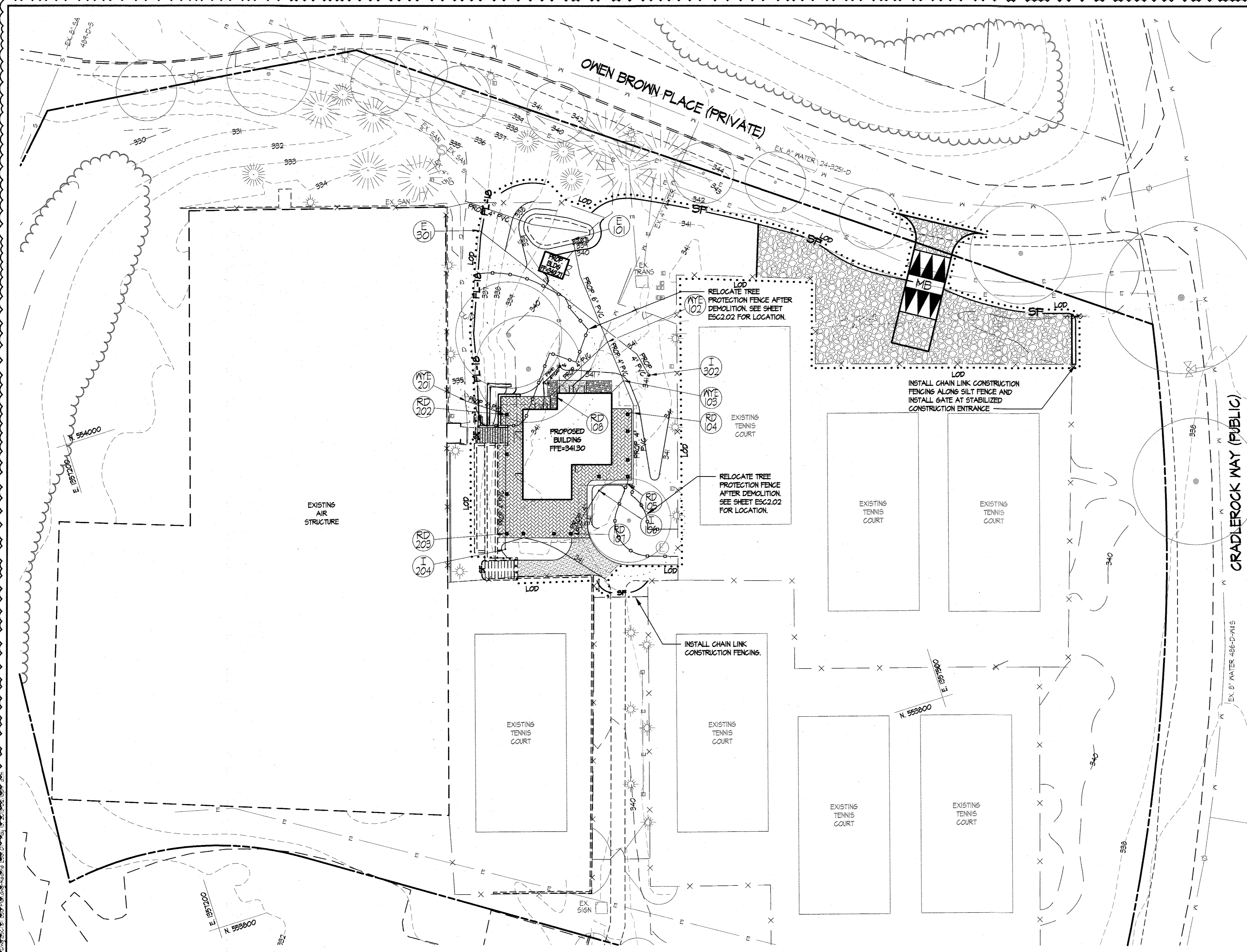
DEVELOPER'S CERTIFICATE
"I/We certify that all development and construction will be done according to this plan for sediment and erosion control, and that all responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspection by the Howard Soil Conservation District."
J. M. Lewis 6-5-13
OWEN BROWN TENNIS CLUB - DEVELOPER DATE

ENGINEER'S CERTIFICATE
"I certify that this plan for sediment and erosion control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."
Jennifer L. Harrington 5.23.13
JENNIFER L. HARRINGTON, P.E. - ENGINEER DATE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
John P. Roberts 6/19/13
HOWARD SOIL CONSERVATION DISTRICT DATE

4	05/13/13	DEMOLISH AND REPLACE EXISTING CLUBHOUSE
NO.	DATE	REVISION





LEGEND

	PROPERTY LINE
	EXISTING CONTOURS
	EXISTING TREELINE
	EXISTING TREES
	EXISTING SHRUBS
	EXISTING WALK
	EXISTING ROAD
	EXISTING CURB
	EXISTING STORM DRAIN
	EXISTING WATER
	EXISTING SANITARY SEWER
	EXISTING GAS
	EXISTING TELEPHONE
	EXISTING ELECTRIC
	EXISTING LIGHTING
	EXISTING FENCE
	EXISTING BUILDING
	EXISTING SOILS
	PROPOSED WALK
	PROPOSED BUILDING
	PROPOSED CONTOURS
	SILT FENCE
	FILTER LOG
	TREE PROTECTION FENCE
	INLET PROTECTION
	STABILIZED CONSTRUCTION ENTRANCE WITH MOUNTABLE BERM
	LIMIT OF DISTURBANCE
	PROPOSED STORM DRAIN
	PROPOSED SANITARY SEWER
	PROPOSED LIGHTING

SITE RESOURCES
 INCORPORATED
 Comprehensive Land Planning & Site Design Services
 14115 Jarrattville Pike • Plover, Maryland 21111
 (410) 883-3300 • fax (410) 883-3309

7150 CRADLEROCK WAY
 COLUMBIA, MD 21045
EROSION AND SEDIMENT CONTROL PLAN

OWEN BROWN TENNIS CLUBHOUSE
 COLUMBIA ASSOCIATION
 REVISED SITE DEVELOPMENT PLAN

REVISIONS:

SEAL:

DRAWN BY: AM
 CHECKED BY: SRI
 SCALE: 1" = 20'
 DATE: 05/13/13
 PROJECT NO: 12.0236
 DRAWING NO:

ESC101
 10 OF 21

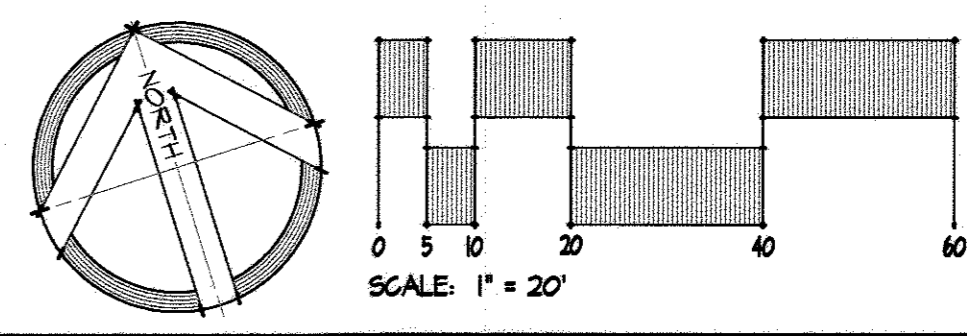
DEVELOPER'S CERTIFICATE
 "I/We certify that all development and construction will be done according to this plan for sediment and erosion control, and that all responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspection by the Howard Soil Conservation District."
 D. Mack
 OWEN BROWN TENNIS CLUB - DEVELOPER
 6.5.13
 DATE

ENGINEER'S CERTIFICATE
 "I certify that this plan for sediment and erosion control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."
 Jennifer L. Harrington
 JENNIFER L. HARRINGTON, P.E. - ENGINEER
 5.23.13
 DATE

APPROVED: DEPARTMENT OF PLANNING & ZONING
 Georgia Jordan
 DIRECTOR
 7/29/13
 DATE
 J.P.
 K. S. Johnson
 CHIEF, DIVISION OF LAND DEVELOPMENT
 7/24/13
 DATE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
 John R. Roberts
 HOWARD SOIL CONSERVATION DISTRICT
 6/18/13
 DATE

4	05/13/13	DEMOLISH AND REPLACE EXISTING CLUBHOUSE
NO.	DATE	REVISION



DETAIL B-1 STABILIZED CONSTRUCTION ENTRANCE

CONSTRUCTION SPECIFICATIONS

- PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SCE. USE MINIMUM LENGTH OF 50 FEET (*50 FEET FOR SINGLE RESIDENCE LOT). USE MINIMUM WIDTH OF 10 FEET. FLARE SCE 10 FEET MINIMUM AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
- PIPE ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD THE SCE UNDER THE ENTRANCE. MAINTAIN POSITIVE DRAINAGE. PROTECT PIPE INSTALLED THROUGH THE SCE WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND A MINIMUM OF 12 INCHES OF STONE OVER THE PIPE. PROVIDE PIPE AS SPECIFIED ON APPROVED PLAN. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY, A PIPE IS NOT NECESSARY. A MOUNTABLE BERM IS REQUIRED WHEN SCE IS NOT LOCATED AT A HIGH SPOT.
- PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS.
- PLACE CRUSHED AGGREGATE (2 TO 3 INCHES IN SIZE) OR EQUIVALENT RECYCLED CONCRETE (WITHOUT REBAR) AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE SCE.
- MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN CLEAN SURFACE. MOUNTABLE BERM, AND SPECIFIED DIMENSIONS. IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLED, DROPPED, OR TRACKED ONTO ADJACENT ROADWAY BY VACUUMING, SCRAPPING, AND/OR SWEEPING. WASHING ROADWAY TO REMOVE MUD TRACKED ONTO PAVEMENT IS NOT ACCEPTABLE UNLESS WASH WATER IS DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE.

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

DETAIL C-8 MOUNTABLE BERM

CONSTRUCTION SPECIFICATIONS

- USE MINIMUM WIDTH OF 10 FEET TO ALLOW FOR VEHICULAR PASSAGE.
- PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, OVER THE EARTH MOUND PRIOR TO PLACING STONE.
- PLACE 2 TO 3 INCH STONE OR EQUIVALENT RECYCLED CONCRETE AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE MOUNTABLE BERM.
- MAINTAIN LINE, GRADE, AND CROSS SECTION. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN SPECIFIED DIMENSIONS. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. MAINTAIN POSITIVE DRAINAGE.

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

DETAIL E-1 SILT FENCE

CONSTRUCTION SPECIFICATIONS

- PRIOR TO INSTALLATION, CLEAR ALL OBSTRUCTIONS INCLUDING ROCKS, CLODS, AND DEBRIS GREATER THAN ONE INCH THAT MAY INTERFERE WITH PROPER FUNCTION OF FILTER LOG.
- FILL LOG NETTING UNIFORMLY WITH COMPOST (IN ACCORDANCE WITH SECTION H-1 MATERIALS), OR OTHER APPROVED BIODEGRADABLE MATERIAL TO DESIRED LENGTH SUCH THAT LOGS DO NOT DEFORM.
- INSTALL FILTER LOGS PERPENDICULAR TO THE FLOW DIRECTION AND PARALLEL TO THE SLOPE WITH THE BEGINNING AND END OF THE INSTALLATION POINTING SLIGHTLY UP THE SLOPE CREATING A "J" SHAPE AT EACH END TO PREVENT BYPASS.
- FOR UNTRENCHED INSTALLATION BLOW OR HAND PLACE MULCH OR COMPOST ON UPHILL SIDE OF THE SLOPE ALONG LOG.
- STAKE FILTER LOG EVERY 4 FEET OR CLOSER ALONG ENTIRE LENGTH OF LOG OR TRENCH LOG INTO GROUND A MINIMUM OF 4 INCHES AND STAKE LOG EVERY 8 FEET OR CLOSER.
- USE STAKES WITH A MINIMUM NOMINAL CROSS SECTION OF 2X2 INCH AND OF SUFFICIENT LENGTH TO ATTAIN A MINIMUM OF 12 INCHES INTO THE GROUND AND 3 INCHES PROTRUDING ABOVE LOG.
- WHEN MORE THAN ONE LOG IS NEEDED, OVERLAP ENDS 12 INCHES MINIMUM AND STAKE.
- REMOVE SEDIMENT WHEN IT HAS ACCUMULATED TO A DEPTH OF 1/2 THE EXPOSED HEIGHT OF LOG AND REPLACE MULCH. REPLACE CLOGGED FILTER LOGS. FOR PERMANENT APPLICATIONS, ESTABLISH AND CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

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

DETAIL E-1 SILT FENCE

CONSTRUCTION SPECIFICATIONS

- USE WOOD POSTS 1 1/2 x 1 1/2 x 1/8 INCH (MINIMUM) SQUARE CUT OF SOUND QUALITY HARDWOOD, AS AN ALTERNATIVE TO WOODEN POST USE STANDARD "T" OR "U" SECTION STEEL POSTS WEIGHING NOT LESS THAN 1 POUND PER LINEAR FOOT.
- USE 3/8 INCH MINIMUM POSTS DRIVEN 16 INCH MINIMUM INTO GROUND NO MORE THAN 6 FEET APART.
- USE WOVEN SILT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS AND FASTEN GEOTEXTILE SECURELY TO UPSLOPE SIDE OF FENCE POSTS WITH WIRE TIES OR STAPLES AT TOP AND MID-SECTION.
- PROVIDE MANUFACTURER CERTIFICATION TO THE AUTHORIZED REPRESENTATIVE OF THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
- EMBED GEOTEXTILE A MINIMUM OF 8 INCHES VERTICALLY INTO THE GROUND. BACKFILL AND COMPACT THE SOIL ON BOTH SIDES OF FABRIC.
- WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN: OVERLAP, TWIST, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL.
- EXTEND BOTH ENDS OF THE SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SILT FENCE.
- REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL FENCE.

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

DETAIL E-2 SILT FENCE ON PAVEMENT

CONSTRUCTION SPECIFICATIONS

- USE NOMINAL 2 INCH X 4 INCH LUMBER.
- USE WOVEN SILT FILM GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS.
- PROVIDE MANUFACTURER CERTIFICATION TO THE AUTHORIZED REPRESENTATIVE OF THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
- SPACE UPRIGHT SUPPORTS NO MORE THAN 10 FEET APART.
- PROVIDE A TWO FOOT OPENING BETWEEN EVERY SET OF SUPPORTS AND PLACE STONE IN THE OPENING OVER GEOTEXTILE.
- KEEP SILT FENCE TAUT AND SECURELY STAPLE TO THE UPSLOPE SIDE OF UPRIGHT SUPPORTS. EXTEND GEOTEXTILE UNDER 2x4.
- WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN: OVERLAP, FOLD, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL. ATTACH LATHE.
- PROVIDE A MASTIC SEAL BETWEEN PAVEMENT, GEOTEXTILE, AND 2x4 TO PREVENT SEDIMENT-LADEN WATER FROM ESCAPING BENEATH SILT FENCE INSTALLATION.
- SECURE BOARDS TO PAVEMENT WITH 40D 5 INCH MINIMUM LENGTH NAILS.
- REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. MAINTAIN WATER TIGHT SEAL ALONG BOTTOM. REPLACE STONE IF DISPLACED.

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

DETAIL E-6 FILTER LOG

CONSTRUCTION SPECIFICATIONS

- PRIOR TO INSTALLATION, CLEAR ALL OBSTRUCTIONS INCLUDING ROCKS, CLODS, AND DEBRIS GREATER THAN ONE INCH THAT MAY INTERFERE WITH PROPER FUNCTION OF FILTER LOG.
- FILL LOG NETTING UNIFORMLY WITH COMPOST (IN ACCORDANCE WITH SECTION H-1 MATERIALS), OR OTHER APPROVED BIODEGRADABLE MATERIAL TO DESIRED LENGTH SUCH THAT LOGS DO NOT DEFORM.
- INSTALL FILTER LOGS PERPENDICULAR TO THE FLOW DIRECTION AND PARALLEL TO THE SLOPE WITH THE BEGINNING AND END OF THE INSTALLATION POINTING SLIGHTLY UP THE SLOPE CREATING A "J" SHAPE AT EACH END TO PREVENT BYPASS.
- FOR UNTRENCHED INSTALLATION BLOW OR HAND PLACE MULCH OR COMPOST ON UPHILL SIDE OF THE SLOPE ALONG LOG.
- STAKE FILTER LOG EVERY 4 FEET OR CLOSER ALONG ENTIRE LENGTH OF LOG OR TRENCH LOG INTO GROUND A MINIMUM OF 4 INCHES AND STAKE LOG EVERY 8 FEET OR CLOSER.
- USE STAKES WITH A MINIMUM NOMINAL CROSS SECTION OF 2X2 INCH AND OF SUFFICIENT LENGTH TO ATTAIN A MINIMUM OF 12 INCHES INTO THE GROUND AND 3 INCHES PROTRUDING ABOVE LOG.
- WHEN MORE THAN ONE LOG IS NEEDED, OVERLAP ENDS 12 INCHES MINIMUM AND STAKE.
- REMOVE SEDIMENT WHEN IT HAS ACCUMULATED TO A DEPTH OF 1/2 THE EXPOSED HEIGHT OF LOG AND REPLACE MULCH. REPLACE CLOGGED FILTER LOGS. FOR PERMANENT APPLICATIONS, ESTABLISH AND CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

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

DETAIL E-6 FILTER LOG

CONSTRUCTION SPECIFICATIONS

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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

DEVELOPER'S CERTIFICATE
"I/We certify that all development and construction will be done according to this plan for sediment and erosion control, and that all responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspection by the Howard Soil Conservation District."

D. Hall 6.5.13
OWEN BROWN TENNIS CLUB - DEVELOPER DATE

ENGINEER'S CERTIFICATE
"I certify that this plan for sediment and erosion control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."

Jennifer L. Harrington 5.23.13
JENNIFER L. HARRINGTON, P.E. - ENGINEER DATE

APPROVED: DEPARTMENT OF PLANNING & ZONING
Shirley Cowles 7.29.13
DIRECTOR DATE

John P. Roberts 6/18/13
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

NO.	DATE	REVISION
4	05/13/13	DEMOLISH AND REPLACE EXISTING CLUBHOUSE

SITE RESOURCES
INCORPORATED
Comprehensive Land Planning & Site Design Services
14215 Arundellville Pike • Plover, Maryland 21131
(410) 663-3388 • Fax (410) 663-3389

7150 GRADLEROCK WAY
COLUMBIA, MD 21045
EROSION AND SEDIMENT CONTROL DETAILS

OWEN BROWN TENNIS CLUBHOUSE
COLUMBIA ASSOCIATION
REVISED SITE DEVELOPMENT PLAN

REVISIONS:

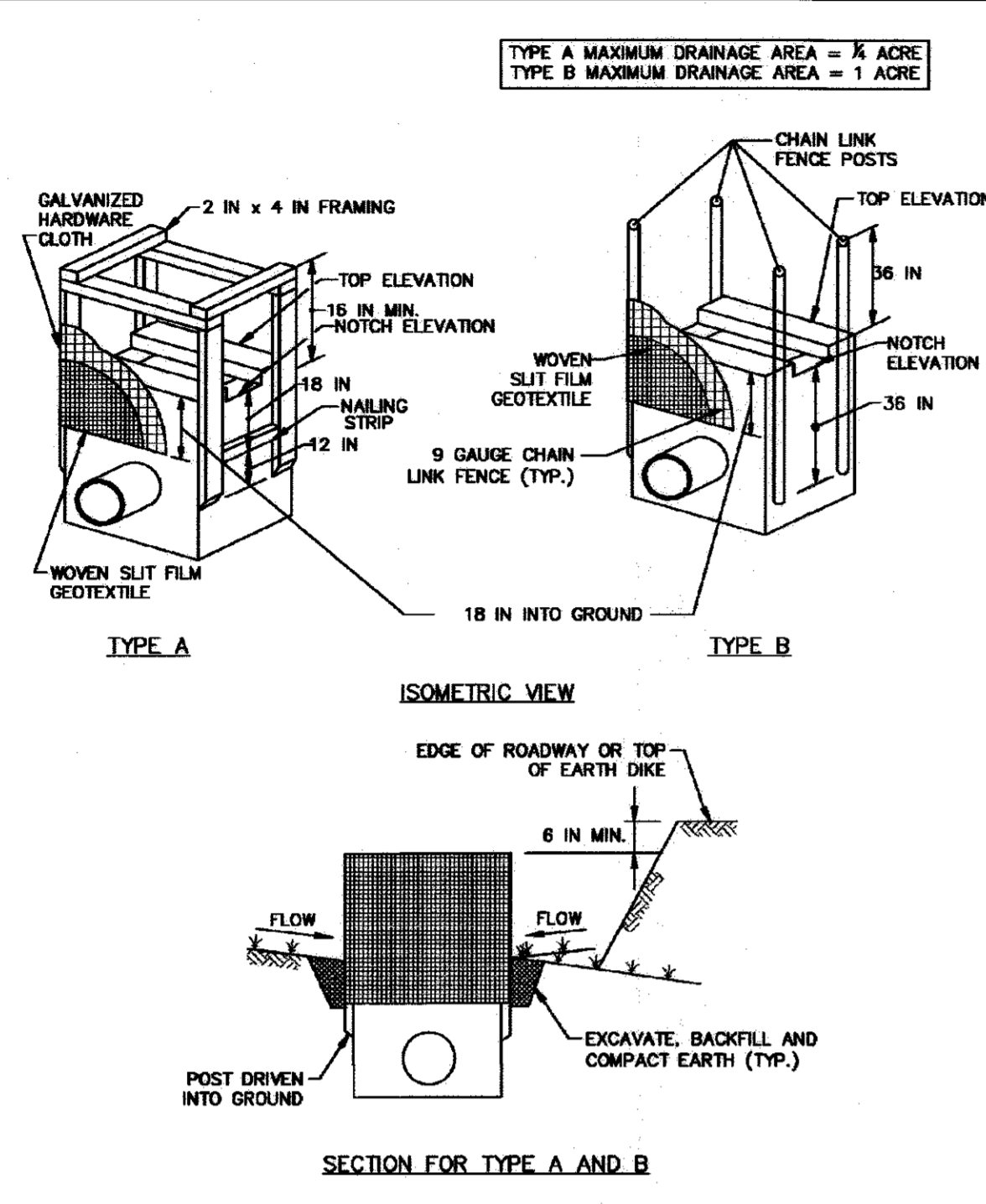
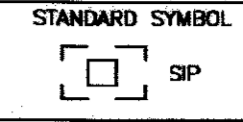
SEAL: PROFESSIONAL ENGINEER IN CIVIL ENGINEERING STATE OF MARYLAND
John P. Roberts 5.23.13
PROFESSIONAL LICENSE NO. 2366, EXPIRES 06/01/2015

DRAWN BY: AM
CHECKED BY: SRI
SCALE: AS NOTED
DATE: 05/13/13
PROJECT NO.: 12.0236
DRAWING NO.:

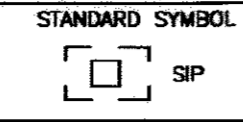
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11 OF 21

SDP-74-117

DETAIL E-9-1 STANDARD INLET PROTECTION



DETAIL E-9-1 STANDARD INLET PROTECTION

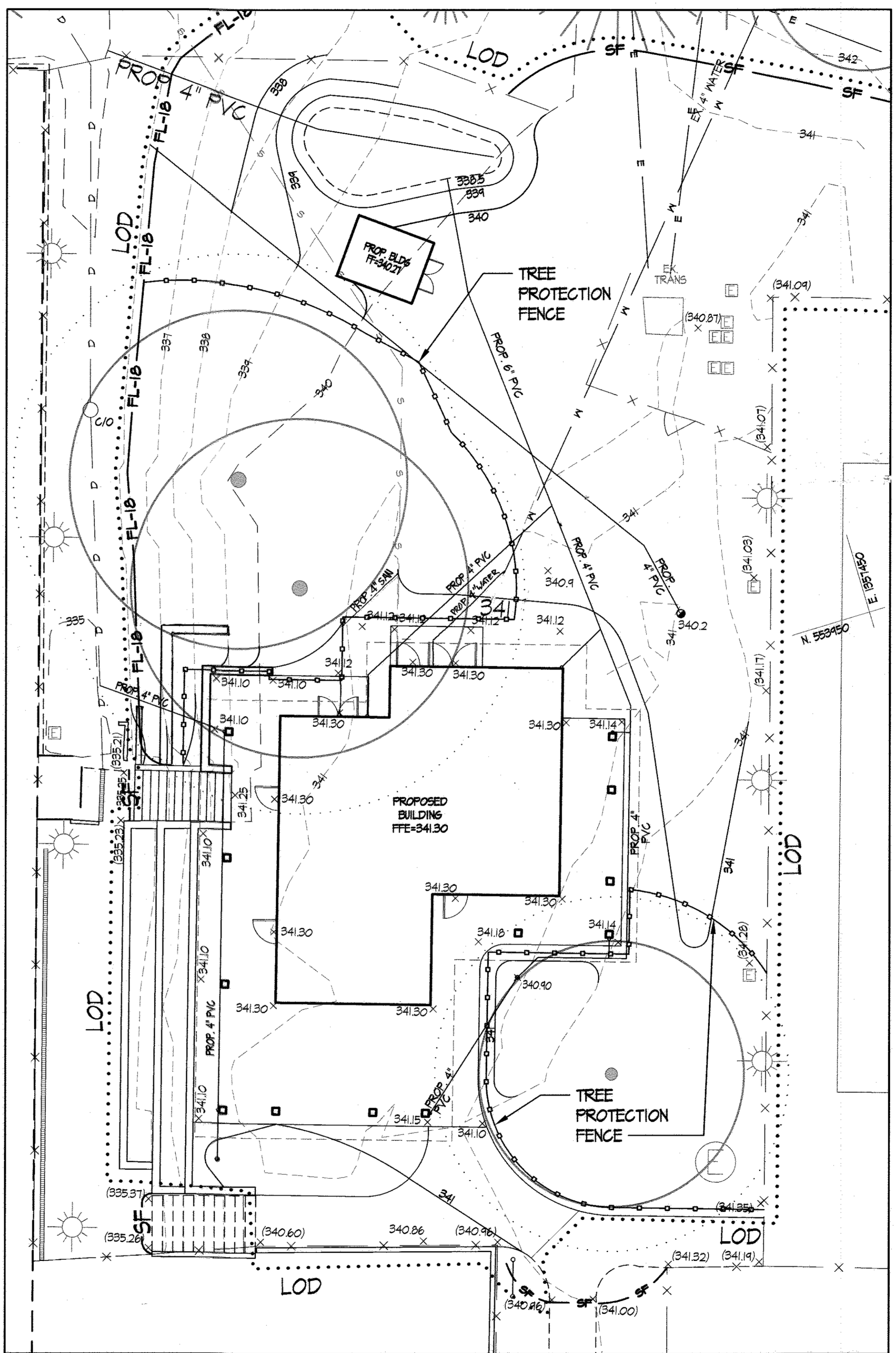
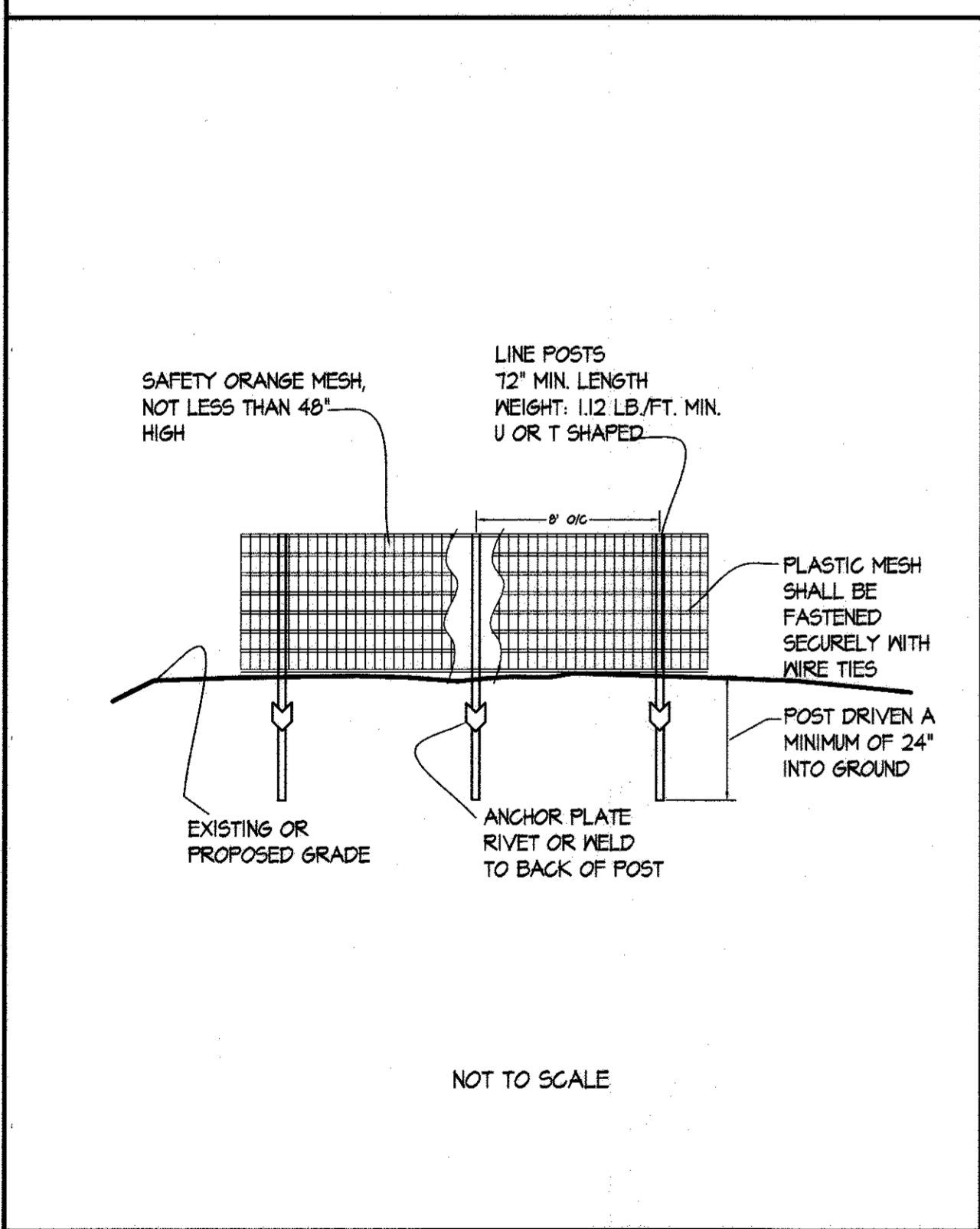


CONSTRUCTION SPECIFICATIONS

- USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.
- EXCAVATE COMPLETELY AROUND THE INLET TO A DEPTH OF 18 INCHES BELOW THE NOTCH ELEVATION.
- FOR TYPE A, USE NOMINAL 2 INCH X 4 INCH CONSTRUCTION GRADE LUMBER POSTS, DRIVEN 1 FOOT INTO THE GROUND AT EACH CORNER OF THE INLET. PLACE WALL STRIPS BETWEEN THE POSTS ON THE ENDS OF THE INLET. ASSEMBLE THE TOP PORTION OF THE 2X4 FRAME AS SHOWN, STRETCH 1/2 INCH GALVANIZED HARDWARE CLOTH TIGHTLY AROUND THE FRAME AND FASTEN SECURELY. FASTEN GEOTEXTILE SECURELY TO THE HARDWARE CLOTH WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND HARDWARE CLOTH A MINIMUM OF 18 INCHES BELOW THE WEIR CREST. THE ENDS OF THE GEOTEXTILE MUST MEET AT A POST, BE OVERLAPPED AND FOLDED, THEN FASTENED TO THE POST.
- FOR TYPE B, USE 2 1/2 INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND 6 FOOT LENGTH DRIVEN A MINIMUM OF 36 INCHES BELOW THE WEIR CREST AT EACH CORNER OF THE STRUCTURE. FASTEN 9 GAUGE OR HEAVIER CHAIN LINK FENCE, 42 INCHES IN HEIGHT, SECURELY TO THE FENCE POSTS WITH WIRE TIES. FASTEN GEOTEXTILE SECURELY TO THE CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 18 INCHES BELOW THE WEIR CREST.
- BACKFILL AROUND THE INLET IN LOOSE 4 INCH LIFTS AND COMPACT UNTIL SOIL IS LEVEL WITH THE NOTCH ELEVATION ON THE ENDS AND TOP ELEVATION ON THE SIDES.
- STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING. IF INLET PROTECTION DOES NOT COMPLETELY DRAIN WITHIN 24 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN, OR REPLACE GEOTEXTILE AND STONE.

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

TREE PROTECTION FENCE



POST DEMOLITION TREE PROTECTION FENCE LOCATIONS

SCALE: 1"=10'

DEVELOPER'S CERTIFICATE
 "I/We certify that all development and construction will be done according to this plan for sediment and erosion control, and that all responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspection by the Howard Soil Conservation District."

D. V. [Signature] 6.5.13 DATE
 OWEN BROWN TENNIS CLUB - DEVELOPER

ENGINEER'S CERTIFICATE
 "I certify that this plan for sediment and erosion control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."

Jennifer L. Harrington, P.E. - ENGINEER 5.23.13 DATE

APPROVED: DEPARTMENT OF PLANNING & ZONING
 [Signature] 7/29/13 DATE
 DIRECTOR
 [Signature] 6/20/13 DATE
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 [Signature] 7/29/13 DATE
 CHIEF, DIVISION OF LAND DEVELOPMENT

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
 [Signature] 6/18/13 DATE
 HOWARD SOIL CONSERVATION DISTRICT

NO.	DATE	REVISION
4	05/13/13	DEMOLISH AND REPLACE EXISTING CLUBHOUSE

SITE RESOURCES
 Incorporated
 Comprehensive Land Planning & Site Design Services
 14155 Inverville Pike • Pikesville, Maryland 21115
 (410) 653-3300 • Fax: (410) 653-3300

7150 GRADLEROCK WAY
 COLUMBIA, MD 21045
EROSION AND SEDIMENT CONTROL DETAILS

OWEN BROWN TENNIS CLUBHOUSE
 COLUMBIA ASSOCIATION
 REVISED SITE DEVELOPMENT PLAN

REVISIONS:

SEAL:

 5-23-13

DRAWN BY: AM
 CHECKED BY: SRI
 SCALE: AS NOTED
 DATE: 05/13/13
 PROJECT NO: 12.0236
 DRAWING NO:

ESC2.02
 12 OF 21

B-4 STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION

Definition
Using vegetation as cover to protect exposed soil from erosion.

Purpose
To promote the establishment of vegetation on exposed soil.

Conditions Where Practice Applies
On all disturbed areas not stabilized by other methods. This specification is divided into sections on incremental stabilization, soil preparation, soil amendments and topsoiling, seeding and mulching, temporary stabilization, and permanent stabilization.

Effects on Water Quality and Quantity
Stabilization practices are used to promote the establishment of vegetation on exposed soil. When soil is stabilized with vegetation, the soil is less likely to erode and more likely to allow infiltration of rainfall, thereby reducing sediment loads and runoff to downstream areas.

Planting vegetation in disturbed areas will have an effect on the water budget, especially on volumes and rates of runoff, infiltration, evaporation, transpiration, percolation, and groundwater recharge. Over time, vegetation will increase organic matter content and improve the water holding capacity of the soil and subsequent plant growth.

Vegetation will help reduce the movement of sediment, nutrients, and other chemicals carried by runoff to receiving waters. Plants will also help protect groundwater supplies by assimilating those substances present within the root zone.

Sediment control practices must remain in place during grading, seedbed preparation, seeding, mulching, and vegetative establishment.

Adequate Vegetative Establishment
Inspect seeded areas for vegetative establishment and make necessary repairs, replacements, and reseeds within the planting season.

1. Adequate vegetative stabilization requires 95 percent groundcover.
2. If an area has less than 40 percent groundcover, restabilize following the original recommendations for lime, fertilizer, seedbed preparation, and seeding.
3. If an area has between 40 and 94 percent groundcover, over-seed and fertilize using half of the rates originally specified.
4. Maintenance fertilizer rates for permanent seeding are shown in Table B.6.

B-4-1 STANDARDS AND SPECIFICATIONS FOR INCREMENTAL STABILIZATION

Definition
Establishment of vegetative cover on cut and fill slopes.

Purpose
To provide timely vegetative cover on cut and fill slopes as work progresses.

Conditions Where Practice Applies
Any cut or fill slope greater than 15 feet in height. This practice also applies to stockpiles.

Criteria
A. Incremental Stabilization - Cut Slopes

1. Excavate and stabilize cut slopes in increments not to exceed 15 feet in height. Prepare seedbed and apply seed and mulch on all cut slopes as the work progresses.
2. Construction sequence example (Refer to Figure B.1):
 - a. Construct and stabilize all temporary swales or dikes that will be used to convey runoff around the excavation.
 - b. Perform Phase 1 excavation, prepare seedbed, and stabilize.
 - c. Perform Phase 2 excavation, prepare seedbed, and stabilize. Overseed Phase 1 areas as necessary.
 - d. Perform final phase excavation, prepare seedbed, and stabilize. Overseed previously seeded areas as necessary.

Note: Once excavation has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any interruptions in the operation or completing the operation out of the seeding season will necessitate the application of temporary stabilization.

B. Incremental Stabilization - Fill Slopes

1. Construct and stabilize fill slopes in increments not to exceed 15 feet in height. Prepare seedbed and apply seed and mulch on all slopes as the work progresses.
2. Stabilize slopes immediately when the vertical height of a lift reaches 15 feet, or when the grading operation ceases as prescribed on the plans.
3. At the end of each day, install temporary water conveyance practice(s), as necessary, to intercept surface runoff and convey it down the slope in a non-erosive manner.
4. Construction sequence example (Refer to Figure B.2):
 - a. Construct and stabilize all temporary swales or dikes that will be used to divert runoff around the fill. Construct silt fence on low side of fill unless other methods shown on the plans address this area.
 - b. At the end of each day, install temporary water conveyance practice(s), as necessary, to intercept surface runoff and convey it down the slope in a non-erosive manner.
 - c. Place Phase 1 fill, prepare seedbed, and stabilize.
 - d. Place Phase 2 fill, prepare seedbed, and stabilize.
 - e. Place final phase fill, prepare seedbed, and stabilize. Overseed previously seeded areas as necessary.

Note: Once the placement of fill has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any interruptions in the operation or completing the operation out of the seeding season will necessitate the application of temporary stabilization.

B-4-2 STANDARDS AND SPECIFICATIONS FOR SOIL PREPARATION, TOPSOILING AND SOIL AMENDMENTS

Definition
The process of preparing the soils to sustain adequate vegetative stabilization.

Purpose
To provide a suitable soil medium for vegetative growth.

Conditions Where Practice Applies
Where vegetative stabilization is to be established.

Criteria
A. Soil Preparation

1. Temporary Stabilization
 - a. Seedbed preparation consists of loosening soil to a depth of 3 to 5 inches 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 must not be rolled or dragged smooth but left in the roughened condition. Slopes 3:1 or flatter are to be tracked 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 to 5 inches of soil by disking or other suitable means.
2. Permanent Stabilization
 - a. A soil test is required for any earth disturbance of 5 acres or more. The minimum soil conditions required for permanent vegetative establishment are:
 - i. Soil pH between 6.0 and 7.0.
 - ii. Soluble salts less than 500 parts per million (ppm).
 - iii. Soil contains less than 40 percent clay but enough the graded material (greater than 30 percent silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception: if lovegrass will be planted, then a sandy soil (less than 30 percent silt plus clay) would be acceptable.
 - iv. Soil contains 15 percent minimum organic matter by weight.
 - v. Soil contains sufficient pore space to permit adequate root penetration.
 - b. Application of amendments or topsoil is required if on-site soils do not meet the above conditions.
 - c. Graded areas must be maintained in a true and even grade as specified on the approved plan, then scarified or otherwise loosened to a depth of 3 to 5 inches.
 - d. Apply soil amendments as specified on the approved plan or as indicated by the results of a soil test.
 - e. Mix soil amendments into the top 3 to 5 inches of soil by disking or other suitable means. Make lawn areas to smooth the surface, remove large objects like stones and branches, and ready the area for seed application. Loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface where site conditions will not permit normal seedbed preparation. Track slopes 3:1 or flatter with tracked equipment leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. Leave the top 1 to 3 inches of soil loose and friable. Seedbed loosening may be unnecessary on newly disturbed areas.

B. Topsoiling

1. Topsoil is placed over prepared subsoil prior to establishment of permanent vegetation. The purpose is 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.
2. Topsoil salvaged from an existing site may be used provided 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-NRCS.
3. Topsoiling 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.
4. Areas having slopes steeper than 2:1 require special consideration and design.
5. Topsoil Specifications: Soil to be used as topsoil must meet the following criteria:
 - a. Topsoil must be a loam, sandy loam, clay loam, silt loam, sandy clay loam, or loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Topsoil must not be a mixture of contrasting textured subsoils and must contain less than 5 percent by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1 1/2 inches in diameter.
 - b. Topsoil must be free of noxious plants or plant parts such as Bermuda grass, quack grass, Johnson grass, nut sedge, poison ivy, thistle, or others as specified.
 - c. 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.
6. Topsoil Application
 - a. Erosion and sediment control practices must be maintained when applying topsoil.
 - b. Uniformly distribute topsoil in a 5 to 8 inch layer and lightly compact to a minimum thickness of 4 inches. Spreading is to 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 must be corrected in order to prevent the formation of depressions or water pockets.
 - c. Topsoil must not be placed if 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 seedbed preparation.

C. Soil Amendments (Fertilizer and Lime Specifications)

1. Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas of 5 acres or more. Soil analysis may be performed by a recognized private or commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analyses.
2. Fertilizers must be uniform in composition, free flowing and suitable for accurate application by appropriate equipment. Manure may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers must all be delivered to the site fully labeled according to the applicable laws and must bear the name, trade name or trademark and warranty of the producer.
3. Lime materials must be ground limestone (hydrated or burnt lime may be substituted except when hydroseeding) which contains at least 50 percent total oxides (calcium oxide plus magnesium oxide). Limestone must be ground to such fineness that at least 50 percent will pass through a #100 mesh sieve and 98 to 100 percent will pass through a #20 mesh sieve.
4. Lime and fertilizer are to be evenly distributed and incorporated into the top 3 to 5 inches of soil by disking or other suitable means.
5. Where the subsoil is either highly acidic or composed of heavy clays, spread ground limestone at the rate of 4 to 8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil.

B-4-3 STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING

Definition
The application of seed and mulch to establish vegetative cover.

Purpose
To protect disturbed soils from erosion during and at the end of construction.

Conditions Where Practice Applies
To the surface of all perimeter controls, slopes, and any disturbed area not under active grading.

Criteria
A. Seeding

1. Specifications
 - a. All seed must meet the requirements of the Maryland State Seed Law. All seed must be subject to re-testing by a recognized seed laboratory. All seed used must have been tested within the 6 months immediately preceding the date of sowing such material on any project. Refer to Table B.4 regarding the quality of seed. Seed tags must be available upon request to the inspector to verify type of seed and seeding rate.
 - b. Mulch alone may be applied between the fall and spring seeding dates only if the ground is frozen. The appropriate seeding mixture must be applied when the ground thaws.
 - c. Inoculants: The inoculant for treating legume seed in the seed mixtures must be a pure culture of nitrogen fixing bacteria prepared specifically for the species. Inoculants must not be used later than the date indicated on the container. Add fresh inoculants as directed on the package. Use four times the recommended rate when hydroseeding. Note: It is very important to keep inoculant as cool as possible until used. Temperatures above 75 to 80 degrees Fahrenheit can weaken bacteria and make the inoculant less effective.
 - d. Sod or seed must not be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min) to permit dissipation of phytotoxic materials.
2. Application
 - a. Dry Seeding: This includes use of conventional drop or broadcast spreaders.
 - i. Incorporate seed into the subsoil at the rates prescribed on Temporary Seeding Table B.1, Permanent Seeding Table B.3, or site-specific seeding summaries.
 - ii. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction. Roll the seeded area with a weighted roller to provide good seed to soil contact.
 - b. Drill or Gullpacker Seeding: Mechanized seeders that apply and cover seed with soil.
 - i. Gullpacker seeders are required to bury the seed in such a fashion as to provide at least 1/4 inch of soil covering. Seedbed must be firm after planting.
 - ii. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction.
 - c. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer).
 - i. If fertilizer is being applied at the time of seeding, the application rates should not exceed the following: nitrogen, 100 pounds per acre total of soluble nitrogen; P2O5 (phosphorus), 200 pounds per acre; K2O (potassium), 200 pounds per acre.
 - ii. Lime: Use only ground agricultural limestone (up to 3 tons per acre may be applied by hydroseeding). Normally, not more than 2 tons are applied by hydroseeding at any one time. Do not use burnt or hydrated lime when hydroseeding.
 - iii. Mix seed and fertilizer on site and seed immediately and without interruption.
 - iv. When hydroseeding do not incorporate seed into the soil.

B. Mulching

1. Mulch Materials (in order of preference)
 - a. Straw consisting of thoroughly threshed wheat, rye, oat, or barley and reasonably bright in color. Straw is to be free of noxious weed seeds as specified in the Maryland Seed Law and not musty, moldy, caked, decayed, or excessively dusty. Note: Use only sterile straw mulch in areas where one species of grass is desired.
 - b. Wood Cellulose Fiber Mulch (WCFM) consisting of specially prepared wood cellulose processed into a uniform fibrous physical state.
 - i. WCFM is to 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.
 - ii. WCFM, including dye, must contain no germination or growth inhibiting factors.
 - iii. WCFM materials are to 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 blend with seed, fertilizer and other additives to form a homogeneous slurry. The mulch material must form a blotter-like ground cover, on application, having moisture absorption and percolation properties and must cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedlings.
 - iv. WCFM material must not contain elements or compounds at concentration levels that will be phytotoxic.
 - v. WCFM must conform to the following physical requirements: fiber length of approximately 10 millimeters, diameter approximately 1 millimeter, pH range of 4.0 to 8.5, ash content of 1.6 percent maximum and water holding capacity of 90 percent minimum.
2. Application
 - a. Apply mulch to all seeded areas immediately after seeding.
 - b. When straw mulch is used, spread it over all seeded areas at the rate of 2 tons per acre to a uniform loose depth of 1 to 2 inches. Apply mulch to achieve a uniform distribution and depth so that the soil surface is not exposed. When using a mulch anchoring tool, increase the application rate to 2.5 tons per acre.
 - c. Wood cellulose fiber used as mulch must be applied at a net dry weight of 1500 pounds per acre. Mix the wood cellulose fiber with water to attain a mixture with a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.



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(410) 657-3300 • Fax (410) 657-3300

7150 GRADLEROCK WAY
COLUMBIA, MD 21045

OWEN BROWN
TENNIS CLUBHOUSE
COLUMBIA ASSOCIATION
REVISED SITE DEVELOPMENT PLAN

EROSION AND SEDIMENT CONTROL NOTES

DEVELOPER'S CERTIFICATE
"I/We certify that all development and construction will be done according to this plan for sediment and erosion control, and that all responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspection by the Howard Soil Conservation District."

ENGINEER'S CERTIFICATE
"I certify that this plan for sediment and erosion control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."

APPROVED: DEPARTMENT OF PLANNING & ZONING
7-29-13
DATE
6/22/13
DATE
7/29/13
DATE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

NO.	DATE	REVISION
4	05/13/13	DEMOLISH AND REPLACE EXISTING CLUBHOUSE

REVISIONS:

SEAL:

DRAWN BY: AM

CHECKED BY: SRI

SCALE: AS NOTED

DATE: 05/13/13

PROJECT NO. 12.0236

DRAWING NO. ESC2.11

13 OF 21

SDP-74-117

B-4-4 STANDARDS AND SPECIFICATIONS FOR TEMPORARY STABILIZATION

Definition:
To stabilize disturbed soils with vegetation for up to 6 months.

Purpose:
To use fast growing vegetation that provides cover on disturbed soils.

Conditions Where Practice Applies:
Exposed soils where ground cover is needed for a period of 6 months or less. For longer duration of time, permanent stabilization practices are required.

- Criteria:**
- Select one or more of the species or seed mixtures listed in Table B1 for the appropriate Plant Hardness Zone (from Figure B.3), and enter them in the Temporary Seeding Summary below along with application rates, seeding dates and seeding depths. If this Summary is not put on the plan and completed, then Table B1 plus fertilizer and lime rates must be put on the plan.
 - For sites having soil tests performed, use and show the recommended rates by the testing agency. Soil tests are not required for Temporary Seeding.
 - When stabilization is required outside of a seeding season, apply seed and mulch or straw mulch alone as prescribed in Section B-4-3A.1b and maintain until the next seeding season.

TEMPORARY SEEDING SUMMARY

HARDINESS ZONE 6b					
Species	Application Rate (lb./ac.)	Seeding Dates	Seeding Depth	Fertilizer Rate (10-20-20)	Lime Rate
Annual Ryegrass	40 lb./ac.	3/1 - 5/15 7/1 - 10/15	1/2"	436 lb./ac. (10 lb./1000 sq ft)	2 tons/ac. (90 lb./1000 sq ft)
Perennial Millet	50 lb./ac.	5/16 - 7/31	1/2"		

B-4-5 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION

Definition:
To stabilize disturbed soils with permanent vegetation.

Purpose:
To use long-lived perennial grasses and legumes to establish permanent ground cover on disturbed soils.

Conditions Where Practice Applies:
Exposed soils where ground cover is needed for 6 months or more.

- Criteria:**
- A. Seed Mixtures**
- General Use**
 - Select one or more of the species or mixtures listed in Table B.3 for the appropriate Plant Hardness Zone (from Figure B.3) and based on the site condition or purpose found on Table B.2. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The Summary is to be placed on the plan.
 - Additional planting specifications for exceptional sites such as shorelines, stream banks, or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-NRCS Technical Field Office Guide, Section 342 - Critical Area Planting.
 - For sites having disturbed area over 5 acres, use and show the rates recommended by the soil testing agency.
 - For areas receiving low maintenance, apply urea form fertilizer (46-0-0) at 3 1/2 pounds per 1000 square feet (150 pounds per acre) at the time of seeding in addition to the soil amendments shown in the Permanent Seeding Summary.
 - Turfgrass Mixtures**
 - Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will receive a medium to high level of maintenance.
 - Select one or more of the species or mixtures listed below based on the site conditions or purpose. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The summary is to be placed on the plan.
 - 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: 1.5 to 2.0 pounds per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.
 - 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 per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.
 - 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 to 100 percent, Certified Kentucky Bluegrass Cultivars 0 to 5 percent. Seeding Rate: 5 to 8 pounds per 1000 square feet. One or more cultivars may be blended.
 - Kentucky Bluegrass/Fine Fescue: Shade Mixture:** For use in areas with shade in Bluegrass lawns. For establishment in high quality, intensively managed turf area. Mixture includes: Certified Kentucky Bluegrass Cultivars 30 to 40 percent and Certified Fine Fescue and 60 to 70 percent. Seeding Rate: 1 1/2 to 3 pounds per 1000 square feet.

Notes:
Select turfgrass varieties from those listed in the most current University of Maryland Publication, Agronomy Memo #T1, Turfgrass Cultivar Recommendations for Maryland*

Choose certified material. Certified material is the best guarantee of cultivar purity. The certification program of the Maryland Department of Agriculture, Turf and Seed Section, provides a reliable means of consumer protection and assures a pure genetic line.

- Ideal Times of Seeding for Turf Grass Mixtures Western MD:** March 15 to June 1, August 1 to October 1 (Hardiness Zones: 5b, 6a) Central MD: March 1 to May 15, August 15 to October 15 (Hardiness Zone: 6b) Southern MD, Eastern Shore: March 1 to May 15, August 15 to October 15 (Hardiness Zones: 7a, 7b)
- Till areas to receive seed by disking or other approved methods to a depth of 2 to 4 inches, level and rake the areas to prepare a proper seedbed. Remove stones and debris over 1/2 inches in diameter. The resulting seedbed must be in such condition that future mowing of grasses will pose no difficulty.

PERMANENT SEEDING SUMMARY

HARDINESS ZONE 6b				Fertilizer Rate (10-20-20)			Lime Rate
No.	Species	Application Rate (lb./ac.)	Seeding Dates	Seeding Depth	N	P ₂ O ₅	K ₂ O
1	Tall Fescue*	285 lb./ac.**	3/1 - 5/15 8/15 - 10/15	1/4" - 1/2"	45 lb./ac. (1.0 lb./1000 sq ft)	90 lb./ac. (2.0 lb./1000 sq ft)	90 lb./ac. (2.0 lb./1000 sq ft)
2	Kentucky Bluegrass*	15 lb./ac.	3/1 - 5/15 8/15 - 10/15	1/4" - 1/2"			

* Select turfgrass varieties from those listed in the most current University of Maryland publication, Agronomy Memo #T1, Turfgrass Cultivar Recommendations for Maryland.
** For tall fescue choose 3 proven cultivars to be used in equal proportions in the seed mix.

- Sod:** To provide quick cover on disturbed areas (2:1 grade or flatter).
 - General Specifications**
 - Class of turfgrass sod must be Maryland State Certified. Sod labels must be made available to the job foreman and inspector.
 - Sod must be machine cut at a uniform soil thickness of 3/4 inch, plus or minus 1/8 inch, at the time of cutting. Measurement for thickness must exclude top growth and thatch. Broken pads and torn or uneven ends will not be acceptable.
 - Standard size sections of sod must 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.
 - Sod must not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.
 - Sod must be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period must be approved by an agronomist or soil scientist prior to its installation.
 - Sod Installation**
 - During periods of excessively high temperature or in areas having dry subsoil, lightly irrigate the subsoil immediately prior to laying the sod.
 - Lay the first row of sod in a straight line with subsequent rows placed parallel to it and tightly wedged against each other. Stagger lateral joints 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.
 - Wherever possible, lay sod with the long edges parallel to the contour and with staggering joints. Roll and tamp, peg or otherwise secure the sod to prevent slippage on slopes. Ensure solid contact exists between sod roots and the underlying soil surface.
 - Water the sod immediately following rolling and tamping until the underside of the new sod pad and soil surface below the sod are thoroughly wet. Complete the operations of laying, tamping and irrigating for any piece of sod within eight hours.
- Sod Maintenance**
 - In the absence of adequate rainfall, water daily during the first week or as often and sufficiently as necessary to maintain moist soil to a depth of 4 inches. Water sod during the heat of the day to prevent wilting.
 - After the first week, sod watering is required as necessary to maintain adequate moisture content.
 - Do not mow until the sod is firmly rooted. No more than 1/3 of the grass leaf must be removed by the initial cutting or subsequent cuttings. Maintain a grass height of at least 3 inches unless otherwise specified.

SEDIMENT AND EROSION CONTROL NOTES

- A minimum of 48 hours notice must be given to the Howard County Department of Inspections, Licenses and Permits, Sediment Control Division prior to the start of any construction (410-318-1855).
 - All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the most current MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL and revisions thereto.
 - Following initial soil disturbance or re-disturbance, permanent or temporary stabilization shall be completed within: a) 3 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1, b) 7 days as to all other disturbed or graded areas on the project site.
 - All sediment traps/basins shown must be fenced and warning signs posted around their perimeter in accordance with Vol. I, Chapter 12, of the HOWARD COUNTY DESIGN MANUAL, Storm Drainage.
 - All disturbed areas must be stabilized within the time period specified above in accordance with the 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seedings, sod, temporary seeding and mulching. Temporary stabilization with mulch alone can only be done when recommended seeding dates do not allow for proper germination and establishment of grasses.
 - All sediment control structures are to remain in place and are to be maintained in operative conditions until permission for their removal has been obtained from the Howard County Sediment Control Inspector.
- 7. SITE ANALYSIS:**
- | | |
|-------------------------------------|--------------|
| Total Area of Site: | 3.35 Acres |
| Area Disturbed: | 0.41 Acres |
| Area to be roofed or paved: | 0.07 Acres |
| Area to be vegetatively stabilized: | 0.24 Acres |
| Total Cut: | 215 Cu. Yds. |
| Total Fill: | 156 Cu. Yds. |
- Offsite Waste/Borrow Area Location:
- Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
 - Additional sediment control must be provided, if deemed necessary by the Howard County Sediment Control Inspector.
 - On all sites with disturbed areas in excess of 2 acres, approval of the inspection agency shall be requested upon completion of installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading. Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made.
 - Trenches for the construction of utilities is limited to three pipe lengths or that which shall be back-filled and stabilized by the end of each work day, whichever is shorter.

SEQUENCE OF CONSTRUCTION

- Assure that Grading Permit and all other necessary permits are obtained from owner.
- Notify Howard County Department of Public Works at least 48 hours before start of work. Contact Miss Utility at 1-800-251-7777 at least three days in advance of starting work shown on plans.
- With the approval of the sediment control inspector, clear and grub for and install sediment controls including silt fence, filter logs, inlet protection, and tree protection fencing. Construct stabilized construction entrance (SCE).
- Notify Howard County sediment control inspector upon completion of the installation and receive approval to begin construction.
- Demolish existing building. Remove existing steps, retaining wall, trellis, sidewalks and existing storm drain inlets and drain pipe as shown on the demolition plan.
- Do not disturb any utilities to remain.
- Install storm drain structures and connecting pipes. Install inlet protection on new inlets.
- Begin foundation construction for and construct proposed building addition. Construct retaining wall, steps, and new walkways. Construct equipment shed.
- Do not begin installation of micro-bioretenement facility until all areas draining to the facility are stabilized. Once these areas are stabilized, construct micro-bioretenement facility in accordance with the approved Stormwater Management plans.
- Fine grade all remaining areas.
- Provide landscaping installation per the Landscape plans.
- Permanently stabilize all remaining areas within the LOD according to the stabilization notes and the specifications.
- Upon stabilization of the site with established vegetation and with the permission of the sediment control inspector, remove sediment control measures and stabilize those areas disturbed by this process.

DEVELOPER'S CERTIFICATE

"I/We certify that all development and construction will be done according to this plan for sediment and erosion control, and that all responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspection by the Howard Soil Conservation District."

D. Neff
OWEN BROWN TENNIS CLUB - DEVELOPER

6.5.13
DATE

ENGINEER'S CERTIFICATE

"I certify that this plan for sediment and erosion control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."

Jennifer L. Harrington
JENNIFER L. HARRINGTON, P.E. - ENGINEER

5.23.13
DATE

APPROVED: DEPARTMENT OF PLANNING & ZONING

Shirley Lewis 7-22-13
DIRECTOR DATE

John R. Roberts 6/18/13
CHIEF, DEVELOPMENT ENGINEERING DIVISION JR. DATE

John R. Roberts 6/18/13
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

6/18/13
DATE

4	05/13/13	DEMOLISH AND REPLACE EXISTING CLUBHOUSE
NO.	DATE	REVISION

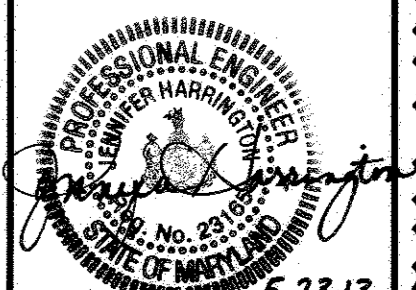


7150 GRADLEROCK WAY
COLUMBIA, MD 21045
EROSION AND SEDIMENT CONTROL NOTES

OWEN BROWN TENNIS CLUBHOUSE
COLUMBIA ASSOCIATION
REVISED SITE DEVELOPMENT PLAN

REVISIONS:

SEAL:

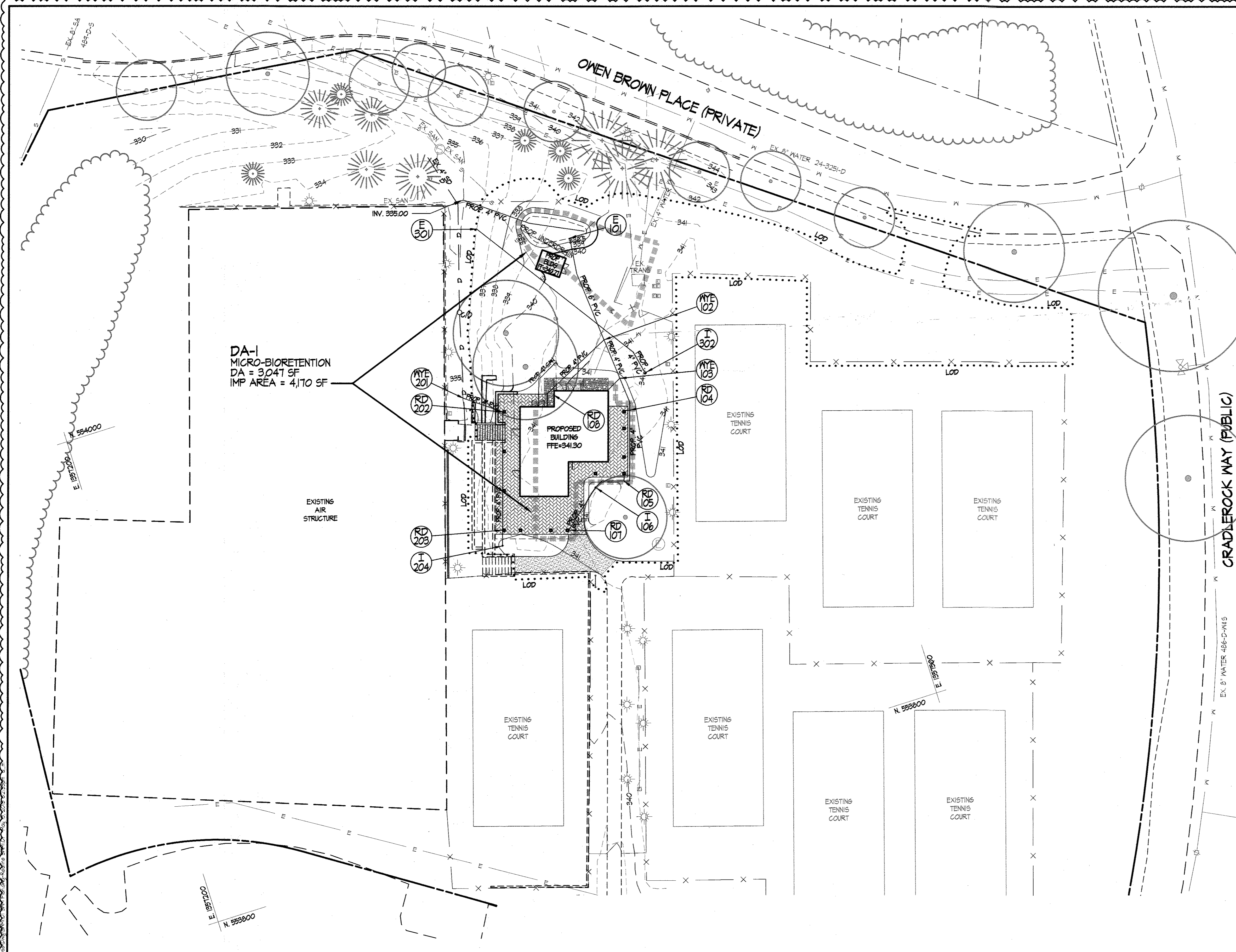


5.23.13
DATE

DRAWN BY: AM
CHECKED BY: SRI
SCALE: AS NOTED
DATE: 05/13/13
PROJECT NO: 12.0236
DRAWING NO:

ESC2.12
14 OF 21

SDP-74-117



LEGEND

	PROPERTY LINE
	EXISTING CONTOURS
	EXISTING TREELINE
	EXISTING TREES
	EXISTING SHRUBS
	EXISTING WALK
	EXISTING ROAD
	EXISTING CURB
	EXISTING 15" SD
	EXISTING 6" WATER
	EXISTING 8" SAN
	EXISTING 2" GAS
	EXISTING TELE
	EXISTING ELEC
	EXISTING LIGHTING
	EXISTING FENCE
	EXISTING BUILDING
	EXISTING SOILS
	PROPOSED WALK
	PROPOSED BUILDING
	PROPOSED CONTOURS
	LIMIT OF DISTURBANCE
	PROPOSED 15" SD
	PROPOSED 6" WATER
	PROPOSED 8" SAN
	PROPOSED 2" GAS
	PROPOSED TELE
	PROPOSED ELEC
	PROPOSED LIGHTING
	DRAINAGE AREA

SITE RESOURCES
 INCORPORATED
 Comprehensive Land Planning & Site Design Services
 14315 Arrettsville Pike • Phoenix, Maryland 21131
 (410) 493-3388 • Fax (410) 493-3389

**7150 CRADLEROCK WAY
 COLUMBIA, MD 21045
 STORMWATER
 MANAGEMENT PLAN**

**OWEN BROWN
 TENNIS CLUBHOUSE
 COLUMBIA ASSOCIATION**
 REVISED SITE DEVELOPMENT PLAN

REVISIONS:

NO.	DATE	REVISION

SEAL:

 PROFESSIONAL ENGINEER
 JAMES M. AMODEO
 LICENSE NO. 23,133
 STATE OF MARYLAND

DRAWN BY: AM
 CHECKED BY: SRI
 SCALE: 1" = 20'
 DATE: 05/13/13
 PROJECT NO. 12.0236
 DRAWING NO.

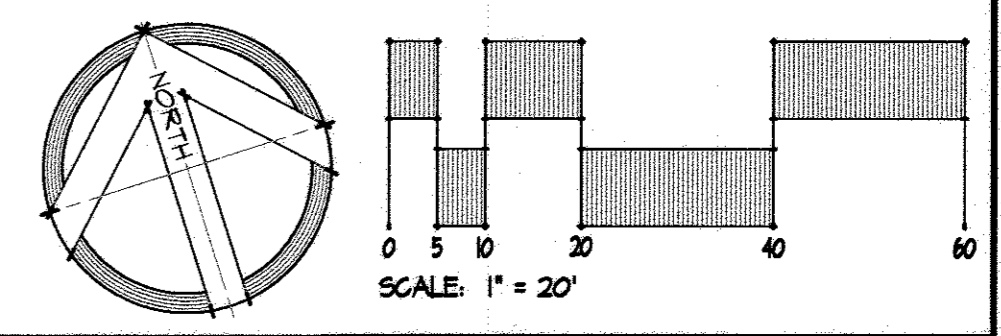
SWM1.01
 15 OF 21

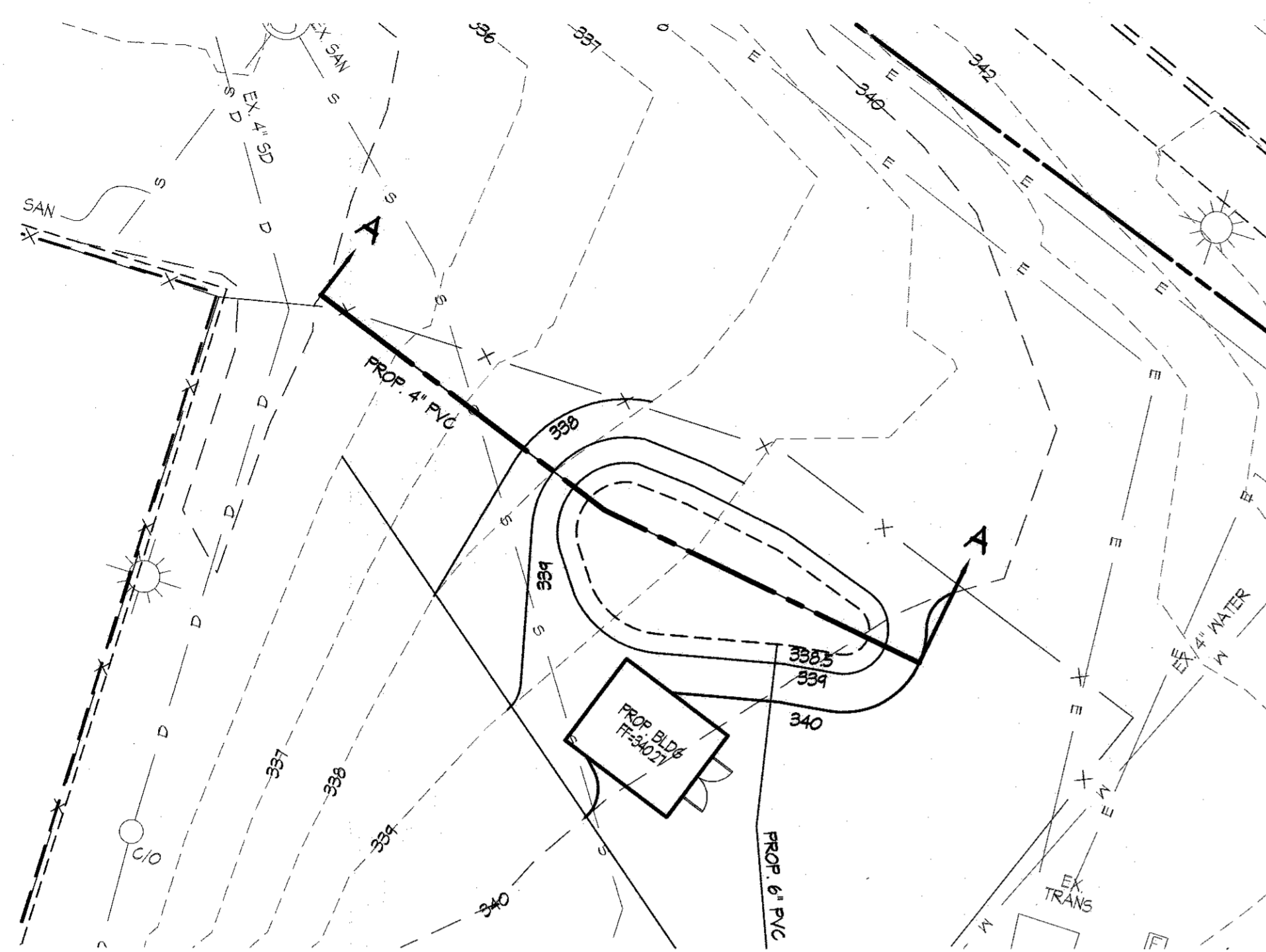
APPROVED: DEPARTMENT OF PLANNING & ZONING

 DIRECTOR
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 CHIEF, DIVISION OF LAND DEVELOPMENT

7-29-13
 DATE
 6/28/13
 DATE
 7/24/13
 DATE

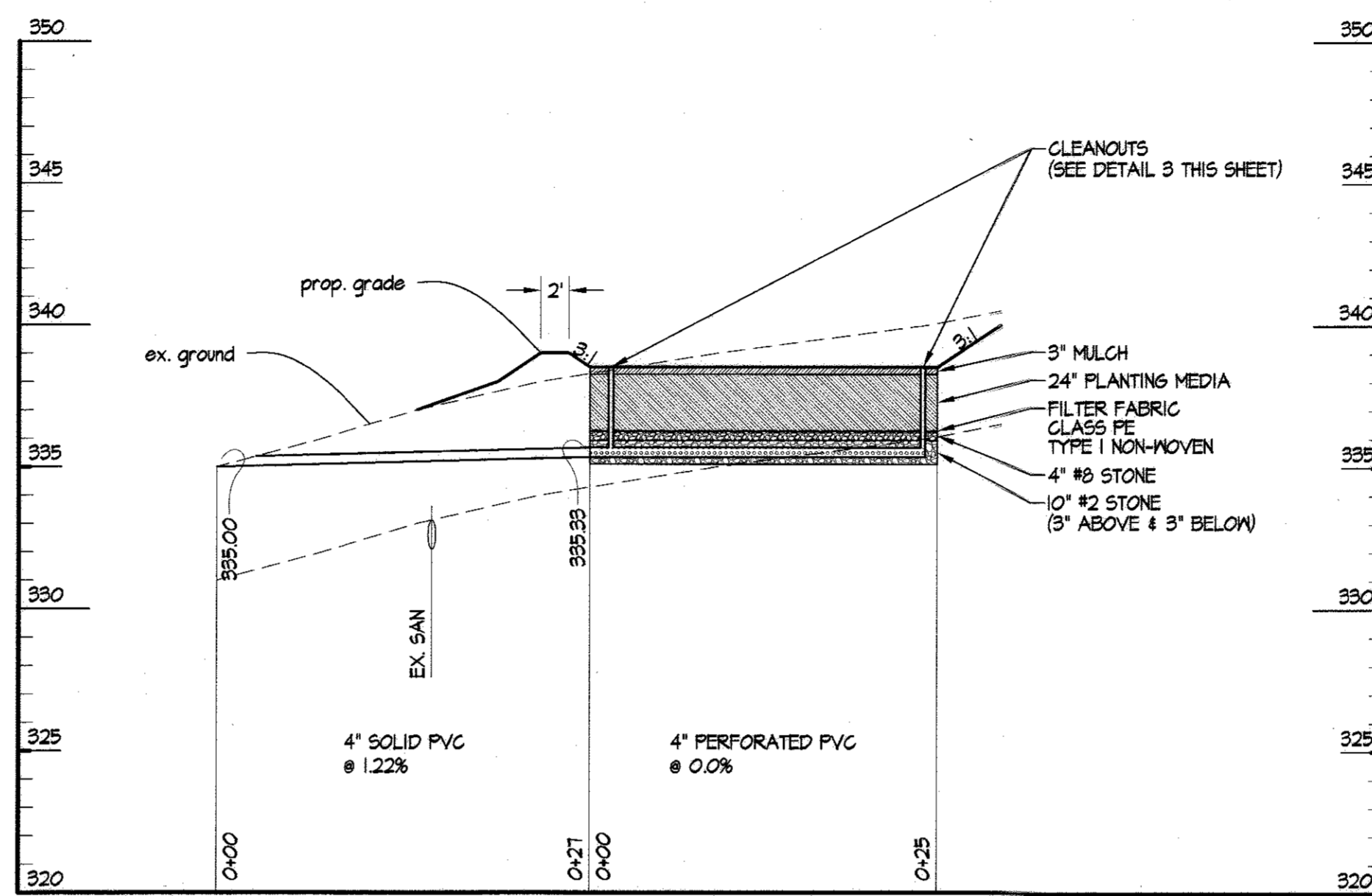
4	05/13/13	DEMOLISH AND REPLACE EXISTING CLUBHOUSE
NO.	DATE	REVISION





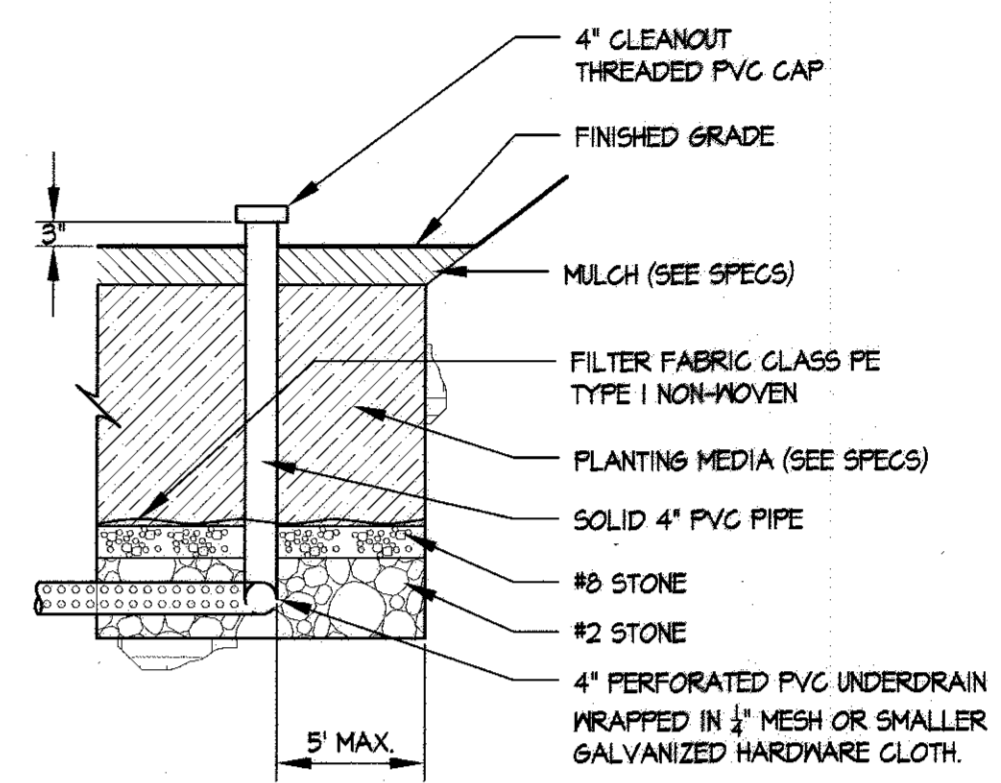
1 MICRO-BIORETENTMENT ENLARGEMENT

SCALE: 1"=10'



2 SECTION A-A

SCALE: HORIZ. 1" = 10'
VERT. 1" = 5'



3 4" CAPPED CLEANOUT

NOT TO SCALE

D. W. KOZERA, INC. Baltimore, Maryland PROFESSIONAL ENGINEERS & GEOLOGISTS		TEST BORING LOG		Boring No.: B-3					
Project: Owen Brown Tennis Club Addition		Location: Columbia, Maryland		Contract No.: 12144.D					
Groundwater Observations		Date Started: 12-24-12		Date Completed: 12-24-12					
Encountered	12-24 01:00	---	---	---					
Completion	12-24 01:01	---	---	---					
Casing Pulled	12-24 01:05	Dry	7.6	---					
	12-25 09:40	Dry	7.5	---					
Contractor: Free State Drilling, Inc.	Driller: Joe/John/Charlie	Rig: cme 55	Drill Method: HSA	Inspector: A. MacLeod					
Depth (ft)	Surf. Elev. 338.0	Blow Counts	"N" Value	Water Level	Graphic USCS	Description	Formation	Stratum	Remarks
0		1	5-2-4	6		Silty Sand, FILL, moist, brown	Fill	A	Topsoil = 4"
3-35		2	3-3-4	7		SANDY SILT with mica, moist, tan	Fill	B	
5		3	5-4-8	14		ML	Residual		
3-30		4	4-6-7	13					
10						Bottom of Test Boring @ 10.0'			
3-25		5							
3-20		6							

APPROVED: DEPARTMENT OF PLANNING & ZONING
 Director: [Signature] 7-29-13
 Chief, Development Engineering Division: [Signature] 7-29-13
 Chief, Division of Land Development: [Signature] 7-29-13

NO.	DATE	REVISION
4	05/13/13	DEMOLISH AND REPLACE EXISTING CLUBHOUSE

SITE RESOURCES
 INCORPORATED
 Comprehensive Land Planning & Site Design Services
 1415 Annettsville Pike • Pikesville, Maryland 21118
 (410) 653-3300 • Fax (410) 653-3300

7150 CRADLEROCK WAY
 COLUMBIA, MD 21045
STORMWATER MANAGEMENT DETAILS

OWEN BROWN TENNIS CLUBHOUSE
COLUMBIA ASSOCIATION
 REVISED SITE DEVELOPMENT PLAN

REVISIONS:

SEAL:
 PROFESSIONAL ENGINEER
 STATE OF MARYLAND
 No. 25113
 5.23.13

DRAWN BY: SRI
 CHECKED BY: SRI
 SCALE: AS NOTED
 DATE: 05/13/13
 PROJECT NO.: 12.0236
 DRAWING NO.:

SWM2.01
 16 OF 21

OPERATION AND MAINTENANCE SCHEDULE

- MICRO BIO-RETENTION AREAS (M-6) & BIO-SMALES (M-8)**
- Annual maintenance of plant material, mulch layer and soil layer is required. Maintenance of mulch and soil is limited to correcting areas of erosion or wash out. Any mulch replacement shall be done in the spring. Plant material shall be checked for disease and insect infestation and maintenance will address dead material and pruning.
 - Schedule of plant inspection will be twice a year in spring and fall. This inspection will include removal of dead and diseased vegetation considered beyond treatment, treatment of all diseased trees and shrubs and replacement of all deficient stakes and wires.
 - Mulch shall be inspected each spring. Remove previous mulch layer before applying new layer once every 2 to 3 years.
 - Soil erosion to be addressed on an as needed basis, with a minimum of once per month and after heavy storm events.

CONSTRUCTION SPECIFICATIONS FOR SAND FILTERS, BIORETENTION AND OPEN CHANNELS

B.4.C SPECIFICATIONS FOR MICRO-BIORETENTION, RAIN GARDENS, LANDSCAPE INFILTRATION AND INFILTRATION BERMS

1. Material Specifications
The allowable materials to be used in these practices are detailed in Table B.4.1.

2. Filtering Media or Planting Soil
The soil shall be a uniform mix, free of stones, stumps, roots or other similar objects larger than two inches. No other materials or substances shall be mixed or dumped within the micro-bioretenion practice that may be harmful to plant growth, or prove a hindrance to the planting or maintenance operations. The planting soil shall be free of Bermuda grass, Quackgrass, Johnson grass, or other noxious weeds as specified under COMAR 15.08.01.05.

The planting soil shall be tested and shall meet the following criteria:

- Soil Component - Loamy Sand or Sandy Loam (USDA Soil Textural Classification)
- Organic Content - Minimum 10% by dry weight (ASTM D 2474). In general, this can be met with a mixture of loamy sand (60%-65%) and compost (35% to 40%) or sandy loam (30%), coarse sand (30%), and compost (40%).
- Clay Content - Media shall have a clay content of less than 5%.
- pH Range - Should be between 5.5 - 7.0. Amendments (e.g., lime, iron sulfate plus sulfur) may be mixed into the soil to increase or decrease pH.

There shall be at least one soil test per project. Each test shall consist of both the standard soil test for pH, and additional tests of organic matter, and soluble salts. A textural analysis is required from the site stockpiled topsoil. If topsoil is imported, then a texture analysis shall be performed for each location where the topsoil was excavated.

3. Compaction
It is very important to minimize compaction of both the base of bioretention practices and the required backfill. When possible, use excavation hoists to remove original soil. If practices are excavated using a loader, the contractor should use wide track or marsh track equipment, or light equipment with turf type tires. Use of equipment with narrow tracks or narrow tires, rubber tires with large lugs, or high-pressure tires will cause excessive compaction resulting in reduced infiltration rates and is not acceptable. Compaction will significantly contribute to design failure.

Compaction can be alleviated at the base of the bioretention facility by using a primary tilling operation such as a chisel plow, ripper, or subsoiler. These tilling operations are to restructure the soil profile through the 12 inch compaction zone. Substitute methods must be approved by the engineer. Rototillers typically do not till deep enough to reduce the effects of compaction from heavy equipment.

Rototill 2 to 3 inches of sand into the base of the bioretention facility before backfilling the optional sand layer. Pump any ponded water before preparing (rototilling) base.

When backfilling the topsoil over the sand layer, first place 3 to 4 inches of topsoil over the sand, then rototill the sand/topsoil to create a gradation zone. Backfill the remainder of the topsoil to final grade.

When backfilling the bioretention facility place soil in lifts 12" to 18". Do not use heavy equipment within the bioretention basin. Heavy equipment can be used around the perimeter of the basin to supply soils and sand. Grade bioretention materials with light equipment such as a compact loader or a dozer/loader with marsh tracks.

4. Plant Material
Recommended plant material for micro-bioretenion practices can be found in Appendix A, Section A.2.3.

5. Plant Installation
Compost is a better organic material source, is less likely to float, and should be placed in the invert and other low areas. Mulch should be placed in surrounding to a uniform thickness of 2" to 3". Shredded or chipped hardwood mulch is the only accepted mulch. Fine mulch and wood chips will float and move to the perimeter of the bioretention area during a storm event and are not acceptable. Shredded mulch must be well aged (6 to 12 months) for acceptance.

Rootstock of the plant material shall be kept moist during transport and on-site storage. The plant root ball should be planted so 1/8th of the ball is above final grade surface. The diameter of the planting pit shall be at least six inches larger than the diameter of the planting ball. Set and maintain the plant straight during the entire planting process. Thoroughly water ground bed cover after installation.

Trees shall be braced using 2" by 2" stakes only as necessary and for the first growing season only. Stakes are to be equally spaced on the outside of the tree ball.

Grasses and legume seed should be drilled into the soil to a depth of at least one inch. Grass and legume plugs shall be planted following the non-grass ground cover planting specifications.

The topsoil specifications provide enough organic material to adequately supply nutrients from natural cycling. The primary function of the bioretention structure is to improve water quality. Adding fertilizers defeats, or at a minimum, impedes this goal. Only add fertilizer if wood chips or mulch are used to amend the soil. Rototill urea fertilizer at a rate of 2 pounds per 1000 square feet.

6. Underdrains
Underdrains should meet the following criteria:
- Pipe - Should be 4" to 6" diameter, slotted or perforated rigid plastic pipe (ASTM F 758, Type PS 28, or AASHTO-M-218) in a gravel layer. The preferred material is slotted, 4" rigid pipe (e.g., PVC or HDPE).
 - Perforations - If perforated pipe is used, perforations should be 1/2" diameter located 6" on center with a minimum of four holes per row. Pipe shall be wrapped with a 1/2" (No. 4 or 4x4) galvanized hardware cloth.
 - Gravel - The gravel layer (No. 57 stone preferred) shall be at least 3" thick above and below the underdrain.
 - The main collector pipe shall be at a minimum 0.5% slope.
 - A rigid, non-perforated observation well must be provided (one per every 1,000 square feet) to provide a clean-out port and monitor performance of the filter.
 - A 4" layer of pea gravel (1/2" to 3/4" stone) shall be located between the filter media and underdrain to prevent migration of fines into the underdrain. This layer may be considered part of the filter bed when bed thickness exceeds 24".

The main collector pipe for underdrain systems shall be constructed at a minimum slope of 0.5%. Observation wells and/or clean-out pipes must be provided (one minimum per every 1,000 square feet of surface area).

7. Miscellaneous
These practices may not be constructed until all contributing drainage area has been stabilized.

TABLE B.4.1 MATERIAL SPECIFICATIONS FOR MICRO-BIORETENTION, RAIN GARDENS & LANDSCAPE INFILTRATION

MATERIAL	SPECIFICATION	SIZE	NOTES
PLANTINGS	SEE APPENDIX A, TABLE A.4	N/A	PLANTINGS ARE SITE-SPECIFIC
PLANTING SOIL (2" TO 4" DEEP)	LOAMY SAND (60-65%) & COMPOST (35-40%) OR SANDY LOAM (30%), COARSE SAND (30%) & COMPOST (40%)	N/A	USDA SOIL TYPES LOAMY SAND OR SANDY LOAM; CLAY CONTENT < 5%
ORGANIC CONTENT	MIN. 10% BY DRY WEIGHT (ASTM D 2474)		
MULCH	SHREDDED HARDWOOD		AGED 6 MONTHS, MINIMUM; NO FINE OR WOOD CHIPS
PEA GRAVEL DIAPHRAGM	PEA GRAVEL: ASTM-D-448	NO. 5 OR NO. 9 (1/8" TO 3/8")	
CURTAIN DRAIN	ORNAMENTAL STONE, WASHED COBBLES	STONE: 2" TO 5"	
GEOTEXTILE	N/A	N/A	PE TYPE I NONWOVEN
GRAVEL (UNDERDRAINS AND INFILTRATION BERMS)	AASHTO M-43	NO. 5 (BRIDGING LAYER) NO. 2 (BEDDING LAYER)	
UNDERDRAIN PIPING	F 758, TYPE PS 28 OR AASHTO M-218	4" TO 6" RIGID SCHEDULE 40 PVC OR SDR 35	SLOTTED OR PERFORATED PIPE 3/8" PERF. @ 6" ON CENTER, 4 HOLES PER ROW, MINIMUM OF 3" OF GRAVEL OVER PIPES, NOT NECESSARY UNDERNEATH PIPES. PERFORATED PIPE SHALL BE WRAPPED WITH 1/4" INCH GALVANIZED HARDWARE CLOTH.
POURED IN PLACE CONCRETE (IF REQUIRED)	MSHA MIX NO. 3; F _c = 3500 PSI @ 28 DAYS, NORMAL WEIGHT, AIR-ENTRAINED, REINFORCING TO MEET ASTM-615-60.	N/A	ON-SITE TESTING OF POURED-IN-PLACE CONCRETE REQUIRED: 28 DAY STRENGTH AND SLUMP TEST; ALL CONCRETE DESIGN (CAST-IN-PLACE OR PRE-CAST) NOT BEING PREVIOUSLY APPROVED STATE OR LOCAL STANDARDS REQUIRES DESIGN DRAWINGS SEALED AND APPROVED BY A PROFESSIONAL STRUCTURAL ENGINEER LICENSED IN THE STATE OF MARYLAND - DESIGN TO INCLUDE MEETING ACI CODE 350 R/04, VERTICAL LOADINGS (H-10 OR H-20); ALLOWABLE HORIZONTAL LOADINGS (BASED ON SOIL PRESSURES); AND ANALYSIS OF POTENTIAL CRACKING.
SAND	AASHTO-M-6 OR ASTM-C-33	0.02" TO 0.04"	SAND SUBSTITUTIONS SUCH AS DIABASE AND GRAYSTONE (AASHTO) #10 ARE NOT ACCEPTABLE. NO CALCIUM CARBONATE OR DOLOMITIC SAND SUBSTITUTIONS ARE ACCEPTABLE. NO "ROCK DUST" CAN BE USED FOR SAND.



7150 CRADLEROCK WAY
COLUMBIA, MD 21045
STORMWATER MANAGEMENT NOTES

OWEN BROWN
TENNIS CLUBHOUSE
COLUMBIA ASSOCIATION
REVISED SITE DEVELOPMENT PLAN

These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements for small pond construction, soil erosion and sediment control.

USDA - Natural Resources Conservation Service Date
John C. Roberts 6/18/13
Howard Soil Conservation District Date

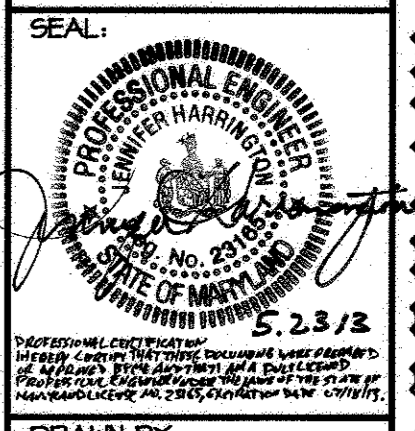
BY THE ENGINEER:
I certify that this plan for pond construction, erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions. This plan was prepared in accordance with the requirements of the Howard Soil Conservation District. I have notified 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.

Jennifer Harrington 5.23.13
Signature of Engineer Date
Jennifer Harrington
Printed Name of Engineer

BY THE DEVELOPER:
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 the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I shall 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. I also authorize periodic on-site inspections by the Howard Soil Conservation District.

Dennis Matley 5.31.13
Signature of Developer Date
Dennis Matley
Printed Name of Developer

REVISIONS:



DRAWN BY: SRI
CHECKED BY: SRI
SCALE: AS NOTED
DATE: 05/13/13
PROJECT NO: 12.0236
DRAWING NO:

SWM2.11
17 OF 21

APPROVED: DEPARTMENT OF PLANNING & ZONING
Roberta Lawrence 7-29-13
DIRECTOR DATE
CHIEF, DEVELOPMENT ENGINEERS DIVISION 9/29/13
DATE
K. J. Schaefer 7-29-13
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

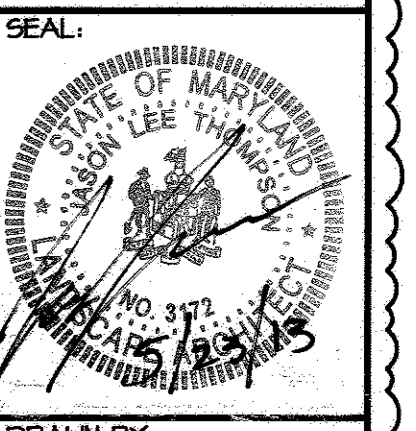
NO.	DATE	REVISION
4	05/13/13	DEMOLISH AND REPLACE EXISTING CLUBHOUSE



7150 GRADLEROCK WAY
COLUMBIA, MD 21045
PLANTING PLAN

**OWEN BROWN
TENNIS CLUBHOUSE**
COLUMBIA ASSOCIATION
REVISED SITE DEVELOPMENT PLAN

REVISIONS:

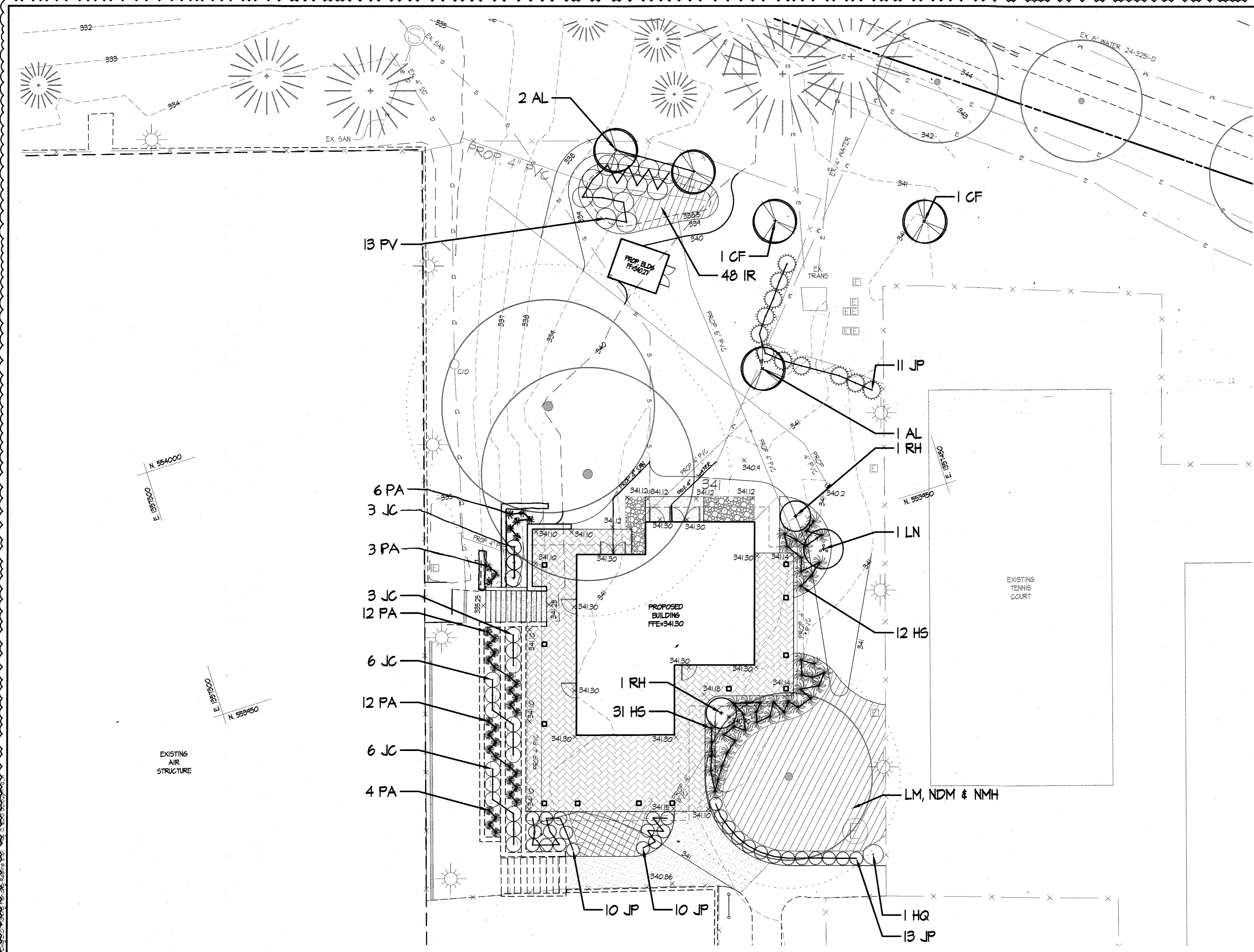


DRAWN BY:	AM
CHECKED BY:	SRI
SCALE:	1"=10'
DATE:	05/13/13
PROJECT NO.:	12.0236
DRAWING NO.:	L1.01

L1.01
18 OF 21

LEGEND

	PROPERTY LINE
	EXISTING CONTOURS
	EXISTING TREES
	EXISTING SHRUBS
	EXISTING WALK
	EXISTING ROAD
	EXISTING STORM DRAIN
	EXISTING WATER
	EXISTING SANITARY SEWER
	EXISTING GAS
	EXISTING ELECTRIC
	EXISTING LIGHTING
	EXISTING FENCE
	EXISTING BUILDING
	PROPOSED CONCRETE WALK
	PROPOSED PAVERS
	PROPOSED BUILDING
	PROPOSED STORM DRAIN
	PROPOSED WATER
	PROPOSED SANITARY SEWER
	PROPOSED GAS
	PROPOSED TELEPHONE
	PROPOSED ELECTRIC
	PROPOSED LIGHTING
	PROPOSED SHADE TREE
	PROPOSED EVERGREEN TREE
	PROPOSED ORNAMENTAL TREE
	PROPOSED MULTI-STEM TREE
	PROPOSED SHRUBS
	PROPOSED PERENNIALS
	PROPOSED ORNAMENTAL GRASSES
	PROPOSED GROUNDCOVER



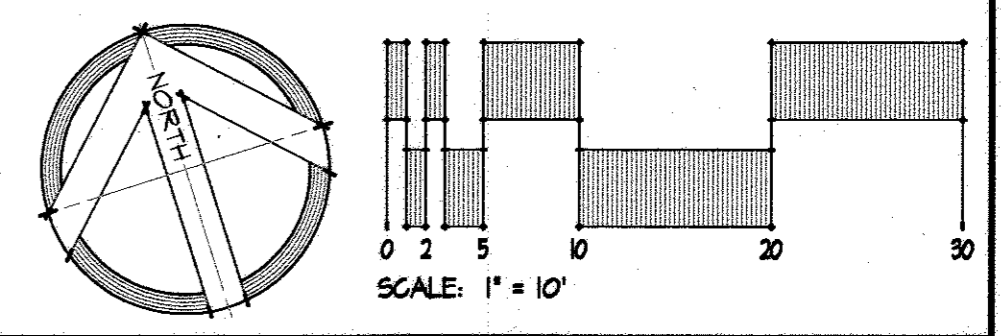
APPROVED: DEPARTMENT OF PLANNING & ZONING

Rosemary Louwers 7-29-13
DIRECTOR DATE

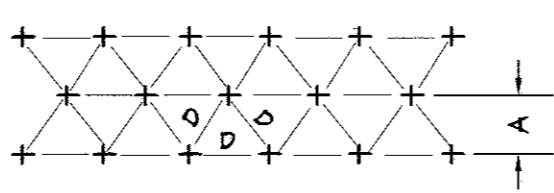
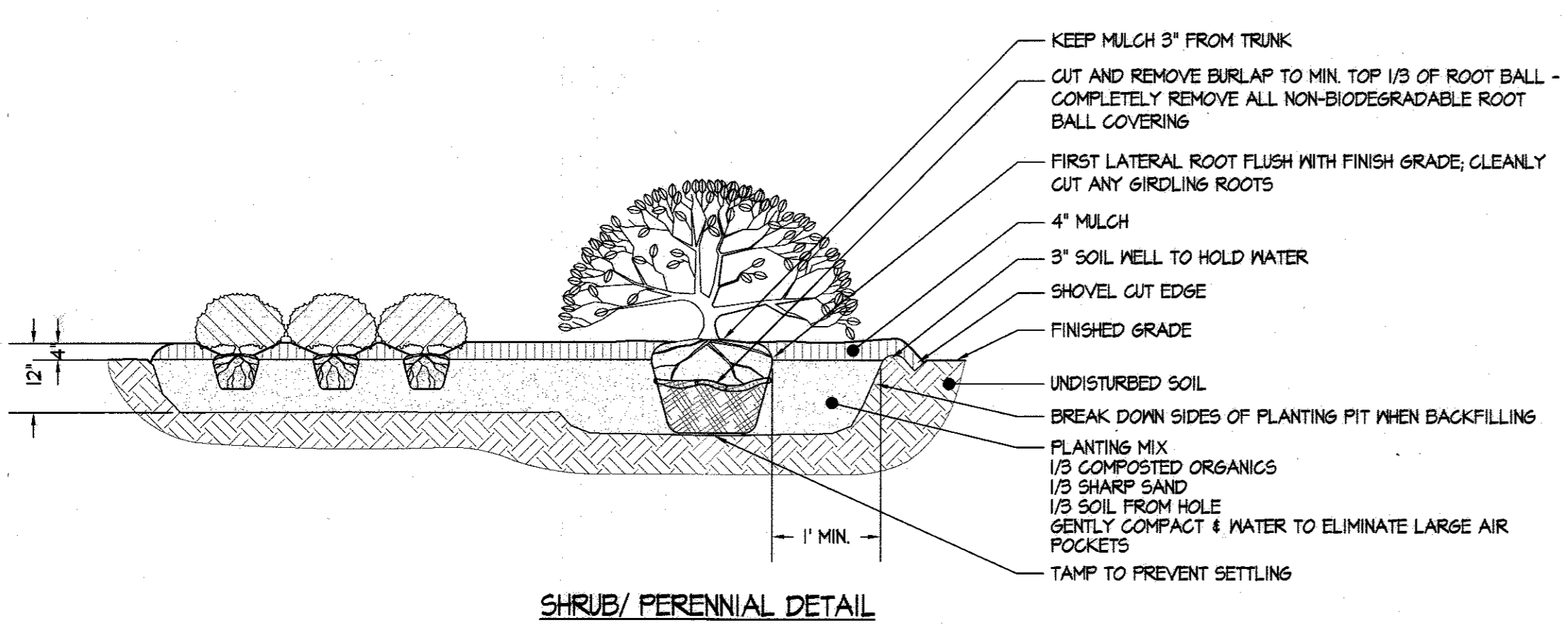
John P. ... 6/20/13
CHIEF, DEVELOPMENT ENGINEERING DIVISION J.P. DATE

Katherine ... 7/24/13
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

4	05/13/13	DEMOLISH AND REPLACE EXISTING CLUBHOUSE
NO.	DATE	REVISION



NOTES:
1. CONTRACTOR SHALL LOOSEN ROOTS OF ALL CONTAINER GROWN MATERIAL TO ENCOURAGE LATERAL GROWTH OF ROOTS.
2. CONTRACTOR SHALL SCARIFY SIDES OF SHRUB PIT TO ELIMINATE SPADE GLAZING.
3. PERENNIALS SHALL BE PLANTED IN 12" DEPTH



PLANT SPACING CHART

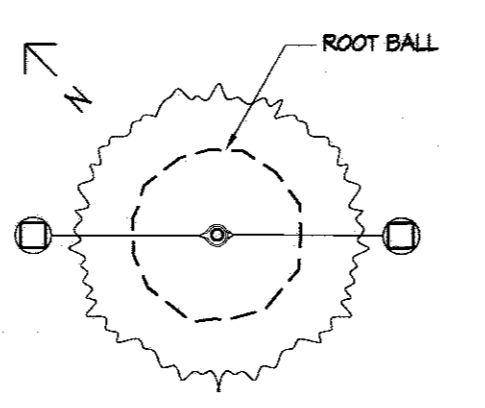
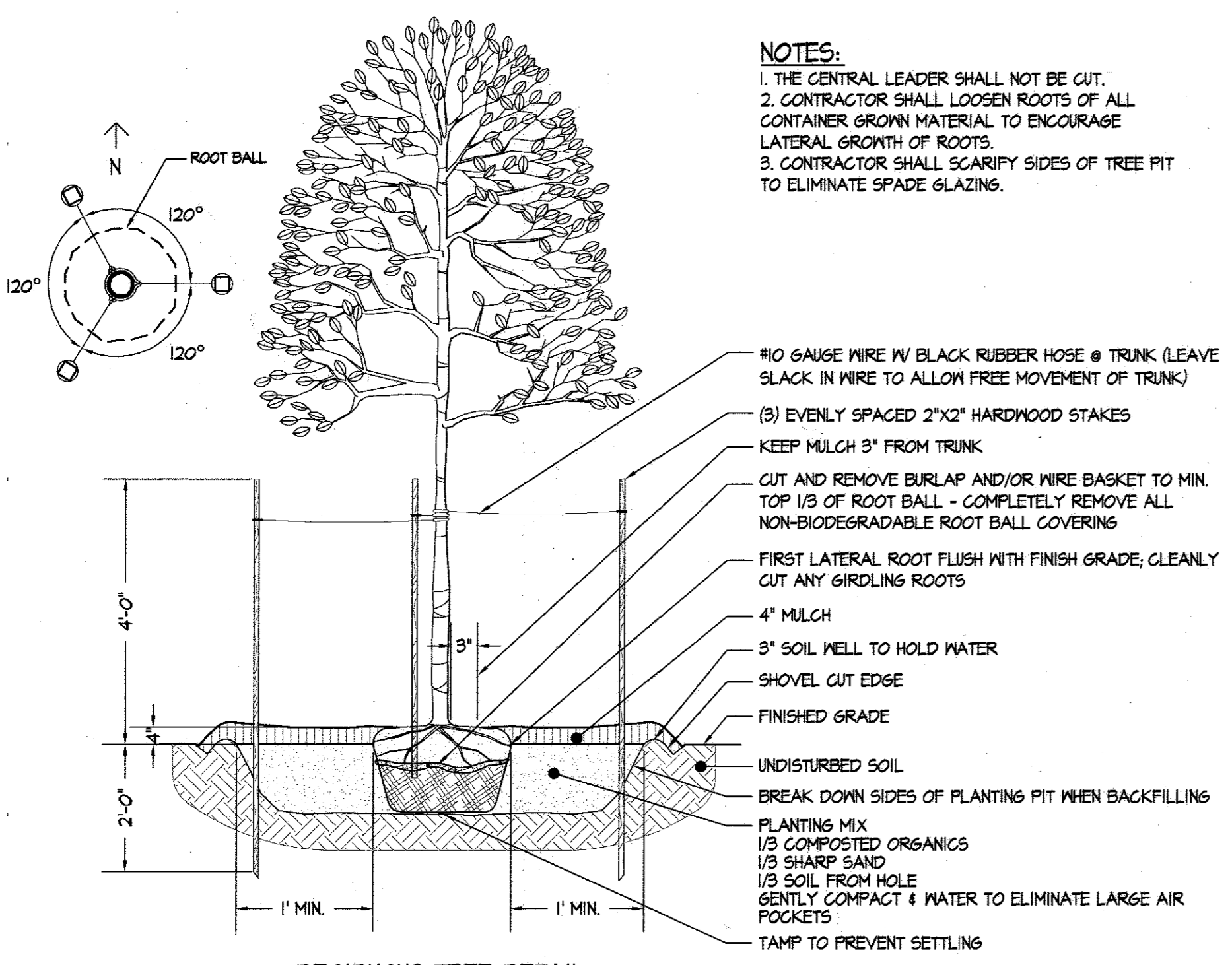
SPACING 'D'	ROW 'A'	PLANTS / S.F.
6" O.C.	5.20'	4.61
8" O.C.	6.93'	2.60
10" O.C.	8.66'	1.66
12" O.C.	10.40'	1.15
15" O.C.	13.00'	.78
18" O.C.	15.60'	.52
24" O.C.	20.80'	.24
30" O.C.	26.00'	.15
36" O.C.	30.00'	.12

NOTE:
FOR USE ONLY WHEN PLANTS ARE SPACED EQUIDISTANT FROM EACH OTHER AS SHOWN, AND SPECIFIED IN THE PLANT LIST.

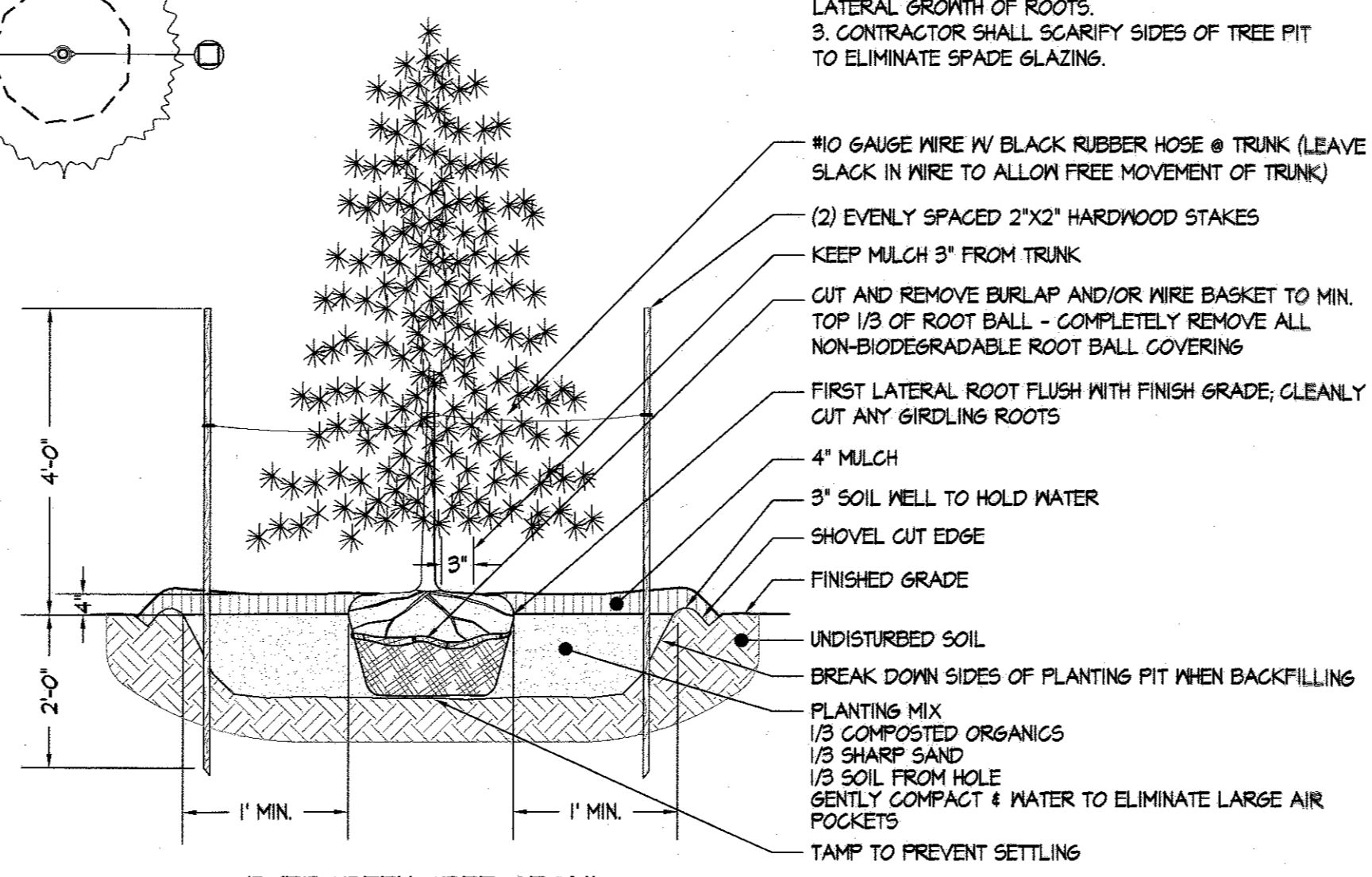
SHRUB/ PERENNIAL DETAIL

PLANT SPACING CHART

NOTES:
1. THE CENTRAL LEADER SHALL NOT BE CUT.
2. CONTRACTOR SHALL LOOSEN ROOTS OF ALL CONTAINER GROWN MATERIAL TO ENCOURAGE LATERAL GROWTH OF ROOTS.
3. CONTRACTOR SHALL SCARIFY SIDES OF TREE PIT TO ELIMINATE SPADE GLAZING.



NOTES:
1. THE CENTRAL LEADER SHALL NOT BE CUT.
2. CONTRACTOR SHALL LOOSEN ROOTS OF ALL CONTAINER GROWN MATERIAL TO ENCOURAGE LATERAL GROWTH OF ROOTS.
3. CONTRACTOR SHALL SCARIFY SIDES OF TREE PIT TO ELIMINATE SPADE GLAZING.



DECIDUOUS TREE DETAIL

EVERGREEN TREE DETAIL

LANDSCAPE NOTES

- (THESE NOTES APPLY TO ALL PLANTING IN THIS CONTRACT)
- QUANTITIES SHOWN ON THE PLANT LIST ARE FOR THE CONTRACTOR'S CONVENIENCE ONLY. SYMBOLS ON THE PLAN SHALL TAKE PRECEDENCE. CONTRACTOR SHALL VERIFY ALL PLANT QUANTITIES TO HIS OWN SATISFACTION.
 - PLANT MATERIAL SUBSTITUTIONS ARE SUBJECT TO APPROVAL BY THE PROJECT LANDSCAPE ARCHITECT.
 - PLANT MATERIAL SHALL BE TAGGED AT THE SOURCE BY THE LANDSCAPE ARCHITECT OR OWNER'S REPRESENTATIVE UNLESS THE REQUIREMENT IS SPECIFICALLY WAIVED.
 - LOCATIONS OF ALL PLANT MATERIAL SHALL BE STAKED FOR APPROVAL BY THE PROJECT LANDSCAPE ARCHITECT.
 - ALL SHRUB AND GROUND COVER AREAS SHALL BE PLANTED IN CONTINUOUS PREPARED BEDS MULCHED WITH COMPOSTED HARDWOOD MULCH AS DETAILED AND SPECIFIED.
 - PLANTING BEDS SHALL HAVE POSITIVE DRAINAGE WITH A MINIMUM 2% SLOPE.
 - CONTRACTOR SHALL VERIFY ACCURACY OF BASE INFORMATION AND EXISTING CONDITIONS AND UTILITIES IN THE FIELD TO HIS OWN SATISFACTION. UTILITIES BID SHALL BE BASED ON ACTUAL SITE CONDITIONS. NO EXTRA PAYMENT SHALL BE MADE FOR WORK ARISING FROM SITE CONDITIONS DIFFERING FROM THOSE INDICATED ON DRAWINGS AND SPECIFICATIONS.
 - THE CONTRACTOR SHALL NOTIFY MISS UTILITY AT 1-800-251-TTTT A MINIMUM OF TWO WORKING DAYS PRIOR TO BEGINNING PLANTING AND CONSTRUCTION.
 - DAMAGE TO EXISTING CONDITIONS AND UTILITIES SHALL BE REPAIRED AND RESTORED AT THE EXPENSE OF THE CONTRACTOR.
 - ALL PLANT MATERIAL SHALL BE NURSERY GROWN AND SHALL CONFORM TO AMERICAN NURSERY & LANDSCAPE ASSOCIATION'S AMERICAN STANDARD FOR NURSERY STOCK, ANSI Z601.

MINIMUM LANDSCAPE MAINTENANCE REQUIREMENTS

- LAWN AREAS SHALL BE MOVED TO A HEIGHT OF 2 TO 3 INCHES AND NOT ALLOWED TO REACH A HEIGHT OF 4 INCHES BEFORE MOWING.
- ALL CURBS AND WALKS SHALL BE EDGED AS NEEDED.
- ALL LAWN AREAS ADJACENT TO BUILDING FACES OR STRUCTURES SHALL BE TRIMMED.
- A SLOW RELEASE NITROGEN BALANCED FERTILIZER WITH A 2-1-1 RATIO SHALL BE APPLIED AT A RATE OF 2 POUNDS OF NITROGEN PER 1000 SQUARE FEET IN SEPTEMBER, OCTOBER, AND FEBRUARY.
- LIME SHALL BE APPLIED AT THE RATE DETERMINED BY A SOILS REPORT.
- IT IS RECOMMENDED THAT LAWN AREAS BE TREATED IN MID-MARCH TO EARLY APRIL WITH PRE-EMERGENT HERBICIDE (BETASAN) OR EQUAL APPLIED AT THE MANUFACTURER'S RECOMMENDED RATE.
- A POST-EMERGENT HERBICIDE (TRIMEC) OR EQUAL IS RECOMMENDED TO BE SPRAYED ON LAWN AREAS IN THE LATE SPRING OR THE EARLY FALL. FOLLOW MANUFACTURER'S RATES AND RECOMMENDATIONS.
- INSECTICIDES AND FUNGICIDES ARE RECOMMENDED FOR INSECT AND DISEASE CONTROL.
- RESEED BARE AREAS OF LAWN AS NECESSARY. YEARLY AERATION IS RECOMMENDED.
- ALL TRASH, LITTER, AND DEBRIS SHALL BE REMOVED FROM LAWN AREAS, PARKING LOTS, AND SHRUB BEDS AS NEEDED.
- MULCH ALL SHRUB AND GROUNDCOVER BEDS YEARLY WITH 3 INCHES OF SHREDDED HARDWOOD BARK.
- PERMIT SHRUBS AND TREES TO GROW AND ENLARGE TO THEIR DESIGN SIZE. CONSULT PROJECT LANDSCAPE ARCHITECT FOR DETAILS.
- PRUNE TREES IN ACCORDANCE WITH LANDSCAPE CONTRACTORS ASSOCIATION GUIDELINES.

PLANTING DETAILS

NOT TO SCALE

PLANTING SCHEDULE

QTY	KEY	BOTANICAL NAME	COMMON NAME	SIZE	COMMENTS
ORNAMENTAL TREES					
3	AL	AMELANCHIER LAEVIS	ALLEGHANY SERVICEBERRY	8' HT.	MULTI-STEM; 3 STEM MIN.
2	GF	CERCIS CANADENSIS 'FOREST PANSY'	FOREST PANSY REDBUD	2' CAL.	SINGLE STEM
1	LN	LASERSTROEMIA INDICA 'TUSCARORA'	TUSCARORA GRAPEMYRTLE	10' HT.	MULTI-STEM; 3 STEM MIN, HEAVY FOLIAGE
SHRUBS					
1	HQ	HYDRANSEA QUERCIFOLIA 'SNOW QUEEN'	SNOW QUEEN OAKLEAF HYDRANGEA	9' HT.	5 CANE MIN.
18	JC	JUNIPERUS CONFERTA 'BLUE PACIFIC'	SHORE JUNIPER	2' SPR.	PLANT 24" O.C., 5 CANE MIN.
44	JP	JUNIPERUS DAURICICA 'PARSONII'	PARSONS JUNIPER	2' SPR.	PLANT 36" O.C., 5 CANE MIN.
12	PL	PRUNUS LAUROCERASUS 'SCHIPKEANGIS'	SKIP CHERRY LAUREL	3' HT.	PLANT 48" O.C., 5 CANE MIN.
3	RH	RHODODENDRON CATAWBIENSE 'ENGLISH ROSEUM'	HYBRID RHODODENDRON	3' HT.	5 CANE MIN.
PERENNIALS / ORNAMENTAL GRASSES					
48	HS	HOSTA SEIBOLDIANA 'FRANCES WILLIAMS'	FRANCES WILLIAMS HOSTA	1 QT.	PLANT 18" O.C.
48	IR	IRIS VERSICOLOR	BLUE FLAG IRIS	4" POT	PLANT 18" O.C.
-	LM	LIRIOPE MISCARI 'BIG BLUE'	BIG BLUE LIRIOPE	4" POT	PLANT 12" O.C.
-	NDM	NARCISSUS 'DUTCH MASTER'	DUTCH MASTER DAFFODIL	TOP SIZE	PLANT 30" O.C.
-	NMH	NARCISSUS 'MOUNT HOOD'	MOUNT HOOD DAFFODIL	TOP SIZE	PLANT 30" O.C.
37	PA	PENNISETUM ALOPECUROIDES 'HAMELN'	DWARF FOUNTAIN GRASS	1 QT.	PLANT 12" O.C.
13	FV	PANICUM VIRGATUM 'SHENANDOAH'	SHENANDOAH SWITCHGRASS	1 GAL.	PLANT 30" O.C.

APPROVED: DEPARTMENT OF PLANNING & ZONING
 [Signature]
 DIRECTOR
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 [Signature]
 CHIEF, DIVISION OF LAND DEVELOPMENT

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 Subdivision and Land Development Regulations and the Landscape Manual. I/We further certify that upon completion a letter of Landscape Installation, accompanied by an executed one year guarantee of plant materials, will be submitted to the Department of Planning and Zoning.
 [Signature] 7-29-13
 DATE
 [Signature] 6/20/13
 DATE
 [Signature] 7/29/13
 DATE

PREPARED BY: JASON L. THOMPSON, PLA
 STATE OF MARYLAND
 REGISTERED LANDSCAPE ARCHITECT
 REGISTRATION NO. 3172
 [Signature]
 NAME

REVISIONS:

SEAL:

 DRAWN BY: AM

CHECKED BY: RT
 SCALE: 1"=20'
 DATE: 05/13/13
 PROJECT NO. 12.0236
 DRAWING NO.

L2.01
 19 OF 21

NO.	DATE	REVISION
4	05/13/13	DEMOLISH AND REPLACE EXISTING CLUBHOUSE

APPROVED FOR PUBLIC WATER & SEWERAGE SYSTEMS, HOWARD CO. HEALTH DEPT.

~~_____~~ COUNTY HEALTH OFFICER ~~_____~~ DATE

APPROVED HOWARD CO. OFFICE OF PLANNING AND ZONING.

Nathan J. Miller 11-20-16
PLANNING DIRECTOR DATE

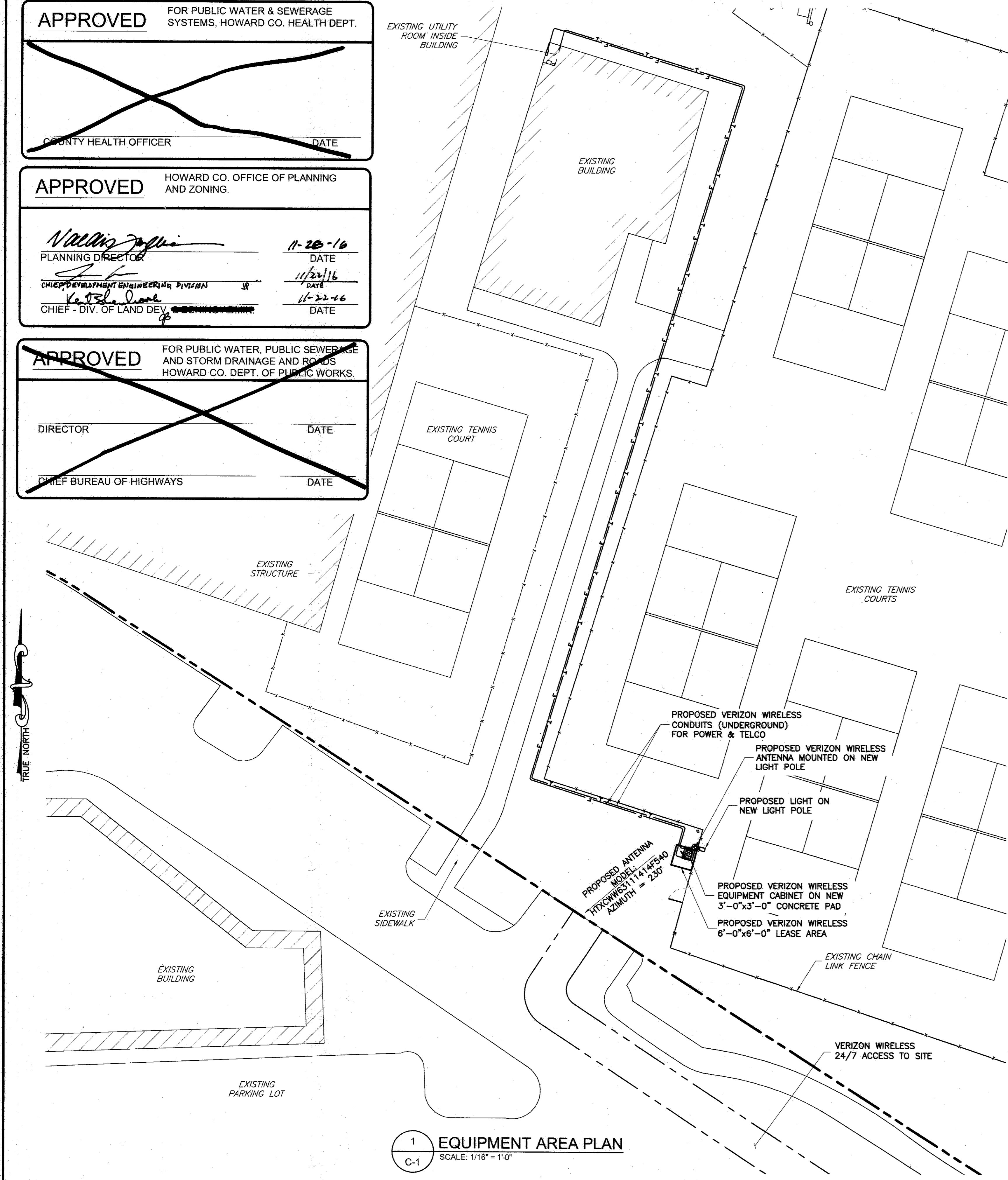
Jeffrey J. ... 11/22/16
CHIEF DEVELOPMENT ENGINEERING DIVISION DATE

... .. 11-22-16
CHIEF - DIV. OF LAND DEV. & ZONING ADMIN. DATE

APPROVED FOR PUBLIC WATER, PUBLIC SEWERAGE AND STORM DRAINAGE AND ROADS HOWARD CO. DEPT. OF PUBLIC WORKS.

~~_____~~ DIRECTOR ~~_____~~ DATE

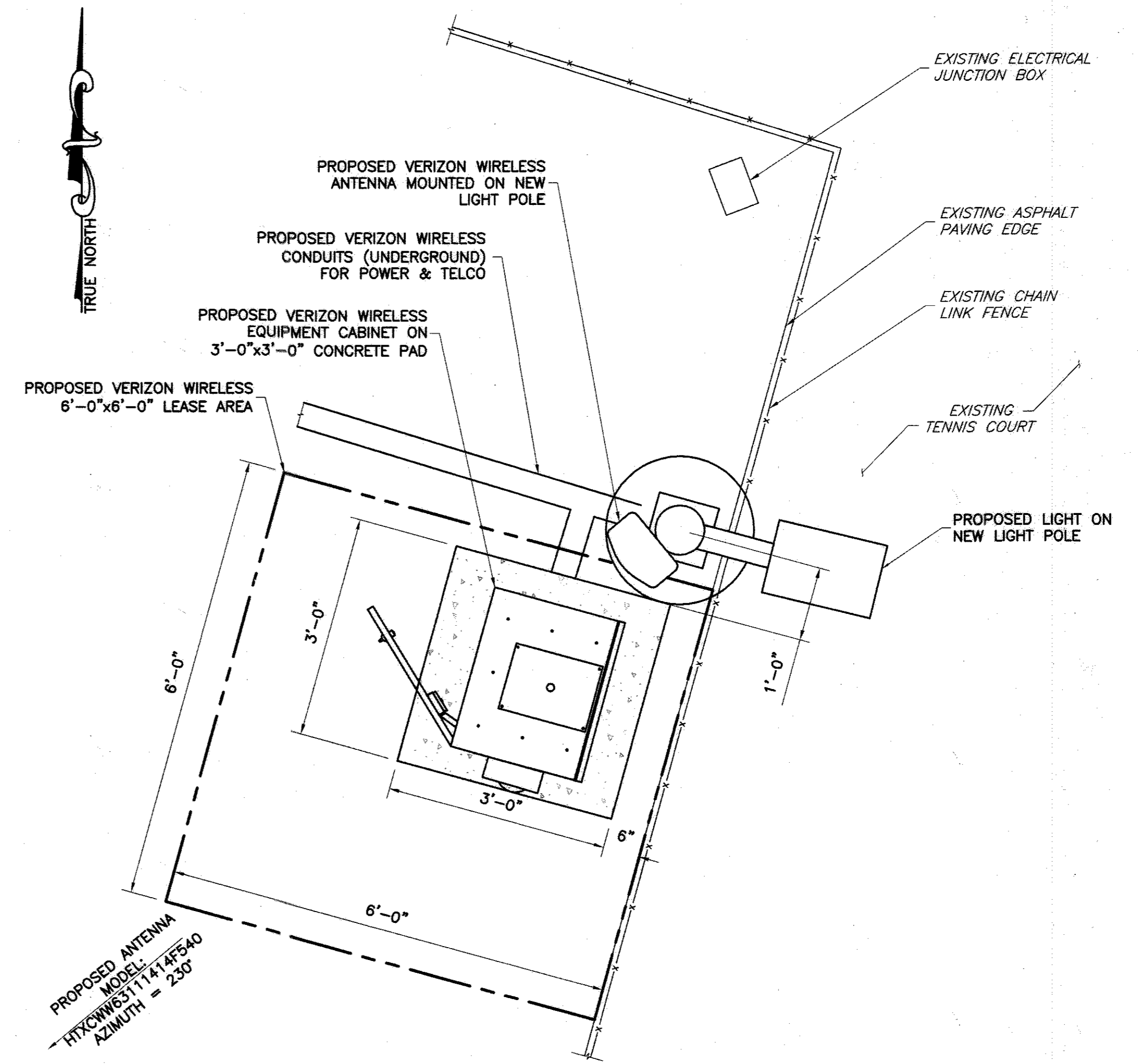
~~_____~~ CHIEF BUREAU OF HIGHWAYS ~~_____~~ DATE



1 EQUIPMENT AREA PLAN
SCALE: 1/16" = 1'-0"

GRAPHIC SCALE
(IN FEET)
1/16 inch = 1 ft.

- GENERAL NOTES**
1. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE CODES ORDINANCES, LAWS AND REGULATIONS OF ALL MUNICIPALITIES, UTILITIES COMPANY OR OTHER PUBLIC AUTHORITIES.
 2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS THAT MAY BE REQUIRED BY ANY FEDERAL, STATE, COUNTY OR MUNICIPAL AUTHORITIES.
 3. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER, IN WRITING, OF ANY CONFLICTS, ERRORS OR OMISSIONS PRIOR TO THE SUBMISSION OF BIDS OR PERFORMANCE OF WORK. MINOR OMISSIONS OR ERRORS IN THE BID DOCUMENTS SHALL NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY FOR THE OVERALL INTENT OF THESE DRAWINGS.
 4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING SITE IMPROVEMENTS PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED AS A RESULT OF CONSTRUCTION OF THIS FACILITY.
 5. THE SCOPE OF WORK FOR THIS PROJECT SHALL INCLUDE PROVIDING ALL MATERIALS, EQUIPMENT AND LABOR REQUIRED TO COMPLETE THIS PROJECT. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
 6. THE CONTRACTOR SHALL VISIT THE PROJECT SITE PRIOR TO SUBMITTING A BID TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
 7. CONTRACTOR SHALL VERIFY ANTENNA ELEVATION AND AZIMUTH WITH RF ENGINEERING PRIOR TO INSTALLATION.
 8. TRANSMITTER EQUIPMENT AND ANTENNAS ARE DESIGNED TO MEET ANSI/EIA/TIA 222-G REQUIREMENTS.
 9. ALL STRUCTURAL ELEMENTS SHALL BE HOT DIPPED GALVANIZED STEEL.
 10. CONTRACTOR SHALL MAKE A UTILITY "ONE CALL" TO LOCATE ALL UTILITIES PRIOR TO EXCAVATING.
 11. IF ANY UNDERGROUND UTILITIES OR STRUCTURES EXIST BENEATH THE PROJECT AREA, CONTRACTOR MUST LOCATE IT AND CONTACT THE APPLICANT & THE OWNER'S REPRESENTATIVE.
 12. OCCUPANCY IS LIMITED TO PERIODIC MAINTENANCE AND INSPECTION BY TECHNICIANS APPROXIMATELY 2 TIMES PER MONTH.
 13. THIS PLAN IS SUBJECT TO ALL EASEMENTS AND RESTRICTIONS OF RECORD.
 14. NO SIGNIFICANT NOISE, SMOKE, DUST, OR ODOR WILL RESULT FROM THIS FACILITY.
 15. THE FACILITY IS UNMANNED AND NOT INTENDED FOR HUMAN HABITATION (NO HANDICAP ACCESS REQUIRED).
 16. THE FACILITY IS UNMANNED AND DOES NOT REQUIRE POTABLE WATER OR SANITARY SERVICE.
 17. POWER TO THE FACILITY WILL BE MONITORED BY A SEPARATE METER.
 18. PAINT ALL EQUIPMENT TO MATCH EXISTING ENVIRONMENT.



2 EQUIPMENT PLAN
SCALE: 3/4" = 1'-0"

GRAPHIC SCALE
(IN FEET)
3/4 inch = 1 ft.

ENGINEER	NB+C TOTALLY COMMITTED. NB+C ENGINEERING SERVICES, LLC. 6585 MARSHALL DRIVE SUITE 300 ELK RIDGE, MD 21075 (410) 712-7092								
APPLICANT	verizon 7600 MONTPELIER ROAD LAUREL, MD 20723 (301) 617-4210								
SITE INFORMATION	SHELL 893 CRADLEROCK SC 7150 CRADLEROCK WAY COLUMBIA, MD 21045 HOWARD COUNTY								
DESIGN RECORD	<p>REVISIONS</p> <table border="1"> <thead> <tr> <th>REV</th> <th>DATE</th> <th>DESCRIPTION</th> <th>BY</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>10/05/16</td> <td>FINAL</td> <td>JIK</td> </tr> </tbody> </table>	REV	DATE	DESCRIPTION	BY	0	10/05/16	FINAL	JIK
REV	DATE	DESCRIPTION	BY						
0	10/05/16	FINAL	JIK						
PROFESSIONAL STAMP									
ENGINEER	JOHN RUPP, P.E. MD PROFESSIONAL ENGINEER LIC. #40838								
SHEET TITLE	<p>EQUIPMENT AREA & EQUIPMENT PLAN</p>								
SHEET NUMBER	<p>C-1 SHEET 20 OF 21</p>								

APPROVED FOR PUBLIC WATER & SEWERAGE SYSTEMS, HOWARD CO. HEALTH DEPT.

~~COUNTY HEALTH OFFICER~~ ~~DATE~~

APPROVED HOWARD CO. OFFICE OF PLANNING AND ZONING.

William J. Jolly 11-20-16
PLANNING DIRECTOR DATE

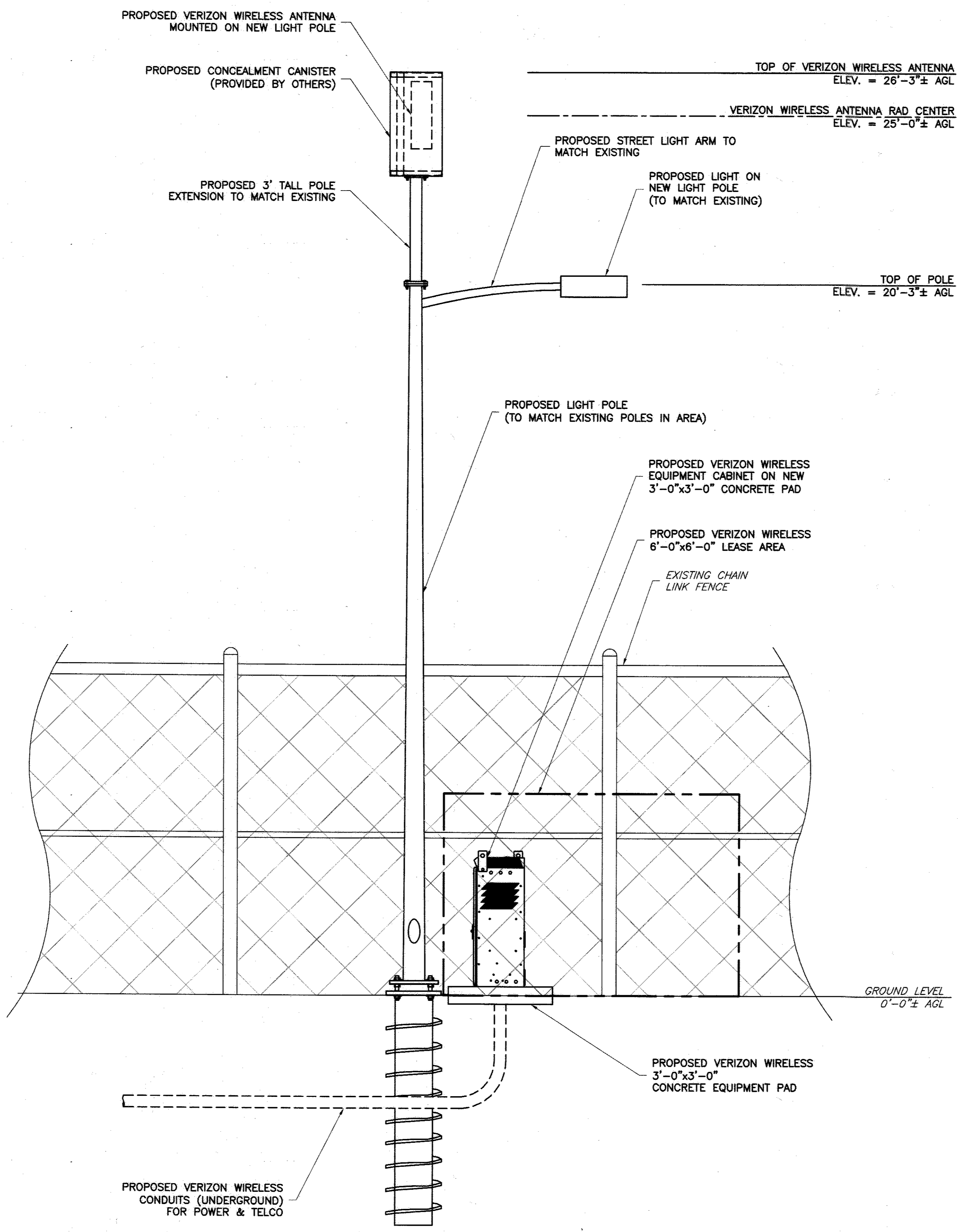
[Signature] 11/22/16
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

[Signature] 11-22-16
CHIEF - DIV. OF LAND DEV. DATE

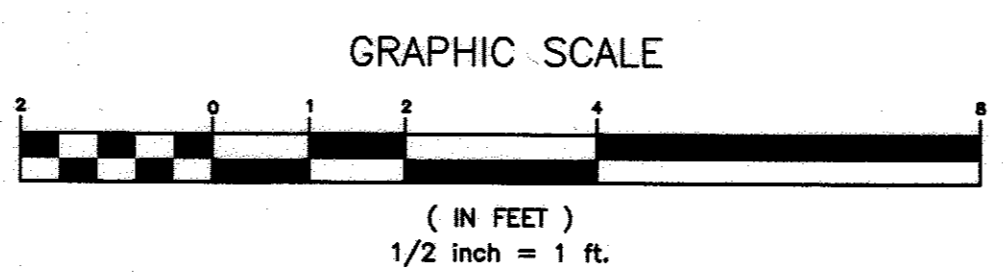
APPROVED FOR PUBLIC WATER, PUBLIC SEWERAGE AND STORM DRAINAGE AND ROADS HOWARD CO. DEPT. OF PUBLIC WORKS.

~~DIRECTOR~~ ~~DATE~~

~~CHIEF BUREAU OF HIGHWAYS~~ ~~DATE~~



1 ELEVATION
C-2 SCALE: 1/2" = 1'-0"



ENGINEER

NB+C
TOTALLY COMMITTED.

NB+C ENGINEERING SERVICES, LLC.
8095 MARSHALLE DRIVE, SUITE 300
ELK RIDGE, MD 21075
(410) 712-7092

APPLICANT

verizon

7600 MONTEPELIER ROAD
LAUREL, MD 20723
(301) 617-4210

SITE INFORMATION

SHELL 893 CRADLEROCK SC
7150 CRADLEROCK WAY
COLUMBIA, MD 21045
HOWARD COUNTY

DESIGN RECORD

REVISIONS

REV	DATE	DESCRIPTION	BY
0	10/05/16	FINAL	JIK

PROFESSIONAL STAMP

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. 40838, EXPIRATION DATE 06/18/2017

ENGINEER

JOHN RUPP, P.E.
MD PROFESSIONAL ENGINEER LIC. #40838

SHEET TITLE

ELEVATION

SHEET NUMBER

C-2
SHEET 21 OF 21