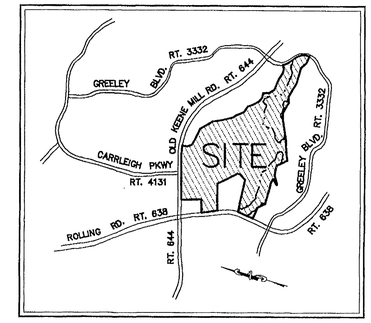
SPECIAL EXCEPTION PLAT

SPRINGFIELD GOLF & COUNTRY CLUB

JANUARY 15, 2007
REV.: JULY 30, 2007
REV.: AUG. 20, 2007



VICINITY MAP
1"=2000'

PROJECT TEAM

OWNER/APPLICANT

SPRINGFIELD GOLF AND COUNTRY CLUB
ATTN. BRIAN MALONEY & DANA EDDY
8301 OLD KEENE MILL ROAD
SPRINGFIELD, VA. 22152
PHONE: (703) 451-8600
FAX: (703) 451-9848

LAND USE ATTORNEY

REED SMITH L.L.P.
ATTN. ROBERT LAWRENCE
3110 FAIRVIEW PARK DRIVE
SUITE 1400
FALLS CHURCH, VA. 22042
PHONE: (703) 641-4200
FAX: (703) 641-4340

ARCHITECT

SAMAHA ASSOCIATES, P.C.
ATTN. SEMON SAMAHA & MARK MANETTI
9990 LEE HIGHWAY
SUITE 350
FAIRFAX, VA. 22030
PHONE: (703) 691-3311
FAX: (703) 691-3316

CIVIL ENGINEER

TRI-TEK ENGINEERING, INC.
ATTN. TED BRITT
690 CENTER STREET
SUITE 300
HERNDON, VA. 20170
PHONE: (703) 481-5900
FAX: (703) 481-5901

Application No. SE 2007-SP-006 Staff PB
APPROVED (SE) SP PLAN
SEE DEV CONDS DATED
Date of (BOS) (BZA) approval 9/24/07
Sheet 1 of 14

SHEET INDEX

1) COVER SHEET
2) SPECIAL EXCEPTION PLAT - PHASE 1
3) SPECIAL EXCEPTION PLAT - PHASE 2
4) NOTES & DETAILS
5) OVERALL PLAN
6) OVERALL PLAN
7) STORMWATER MANAGEMENT
8) STORMWATER OUTFALL SECTIONS
9) BMP COMPUTATIONS AND DETAILS
10) BUILDING CROSS SECTIONS
11) SPORTS ILLUMINATION PLAN - PHASE 1
12) SPORTS ILLUMINATION PLAN - PHASE 2
13) LIGHTING DETAILS
14) EXISTING CONDITIONS AND VEGETATION MAP

RECEIVED
Department of Planning & Zoning
AUG 21 2007
Zoning Evaluation Division

TRI-TEK ENGINEERING
CIVIL
ENVIRONMENTAL
LAND PLANNING
SURVEYING
690 Center Street
Suite 300
Herndon, Virginia 20170
V: (703) 481-5900
F: (703) 481-5901
info@tritekinc.com

COMMONWEALTH OF VIRGINIA
THEODORE H. BRITT
No. 023804
8.20.07
PROFESSIONAL ENGINEER

SPRINGFIELD GOLF & COUNTRY CLUB
SPRINGFIELD DISTRICT
FAIRFAX COUNTY, VIRGINIA

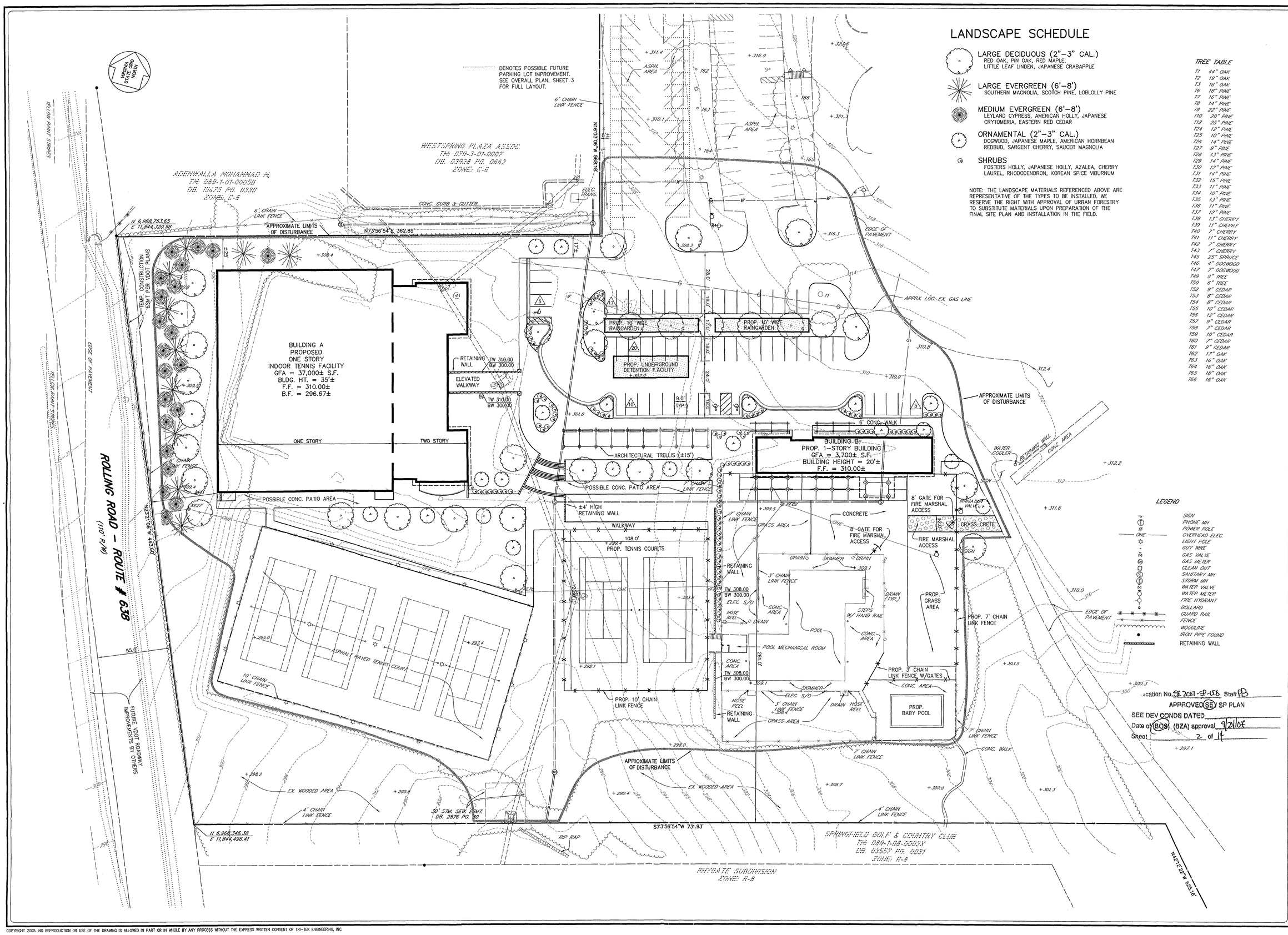
COVER SHEET

DATE	REVISION
7-30-07	PER COUNTY COMMENTS
8-20-07	PER CLIENT REQUEST

PM: TDB SCALE: NONE
PE: TDB DATE: 1/15/07
CO: MSO SHEET 1 OF 14

COPYRIGHT 2005. NO REPRODUCTION OR USE OF THE DRAWING IS ALLOWED IN PART OR IN WHOLE BY ANY PROCESS WITHOUT THE EXPRESS WRITTEN CONSENT OF TRI-TEK ENGINEERING, INC.

F-2247



LANDSCAPE SCHEDULE

LARGE DECIDUOUS (2"–3" CAL.)
RED OAK, PIN OAK, RED MAPLE, LITTLE LEAF LINDEN, JAPANESE CRABAPPLE

LARGE EVERGREEN (6'–8')
SOUTHERN MAGNOLIA, SCOTCH PINE, LOBLOLLY PINE

MEDIUM EVERGREEN (6'–8')
LEYLAND CYPRESS, AMERICAN HOLLY, JAPANESE CRYTOMERIA, EASTERN RED CEDAR

ORNAMENTAL (2"–3" CAL.)
DOGWOOD, JAPANESE MAPLE, AMERICAN HORNBEAN REDBUD, SARGENT CHERRY, SAUCER MAGNOLIA

SHRUBS
FOSTERS HOLLY, JAPANESE HOLLY, AZALEA, CHERRY LAUREL, RHODODENDRON, KOREAN SPICE VIBURNUM

NOTE: THE LANDSCAPE MATERIALS REFERENCED ABOVE ARE REPRESENTATIVE OF THE TYPES TO BE INSTALLED. WE RESERVE THE RIGHT WITH APPROVAL OF URBAN FORESTRY TO SUBSTITUTE MATERIALS UPON PREPARATION OF THE FINAL SITE PLAN AND INSTALLATION IN THE FIELD.

TREE TABLE

T1	44" OAK
T2	19" OAK
T3	18" OAK
T6	18" PINE
T7	16" PINE
T8	14" PINE
T9	22" PINE
T10	20" PINE
T12	25" PINE
T24	12" PINE
T25	10" PINE
T26	14" PINE
T27	9" PINE
T28	13" PINE
T29	14" PINE
T30	12" PINE
T31	14" PINE
T32	15" PINE
T33	11" PINE
T34	10" PINE
T35	13" PINE
T36	11" PINE
T37	12" PINE
T38	13" CHERRY
T39	11" CHERRY
T40	7" CHERRY
T41	11" CHERRY
T42	7" CHERRY
T43	7" CHERRY
T45	25" SPRUCE
T46	4" DOGWOOD
T47	7" DOGWOOD
T49	9" TREE
T50	6" TREE
T52	9" CEDAR
T53	8" CEDAR
T54	8" CEDAR
T55	10" CEDAR
T56	12" CEDAR
T57	9" CEDAR
T58	7" CEDAR
T59	10" CEDAR
T60	7" CEDAR
T61	9" CEDAR
T62	17" OAK
T63	16" OAK
T64	16" OAK
T65	18" OAK
T66	16" OAK

LEGEND

SIGN
PHONE MH
POWER POLE
OVERHEAD ELEC.
LIGHT POLE
GUY WIRE
GAS VALVE
GAS METER
CLEAN OUT
SANITARY MH
STORM MH
WATER VALVE
WATER METER
FIRE HYDRANT
BOLLARD
GUARD RAIL
FENCE
WOODLINE
IRON PIPE FOUND
RETAINING WALL

...ication No. SE 2007-SP-006 Staff: PB
APPROVED (SE) SP PLAN
SEE DEV CONDS DATED _____
Date of (BOS) (BZA) approval 9/24/07
Sheet 2 of 14

TRI-TEK ENGINEERING
CIVIL
ENVIRONMENTAL
LAND PLANNING
SURVEYING
690 Center Street
Suite 300
Herndon, Virginia 20170
V: (703) 481-5900
F: (703) 481-5901
info@tritekinc.com

COMMONWEALTH OF VIRGINIA
THEODORE B. BRIDGE
NO. 023803
8.20.07
PROFESSIONAL ENGINEER

SPRINGFIELD GOLF & COUNTRY CLUB

FAIRFAX COUNTY, VIRGINIA

SPRINGFIELD DISTRICT

SPECIAL EXCEPTION PLAT PHASE 1

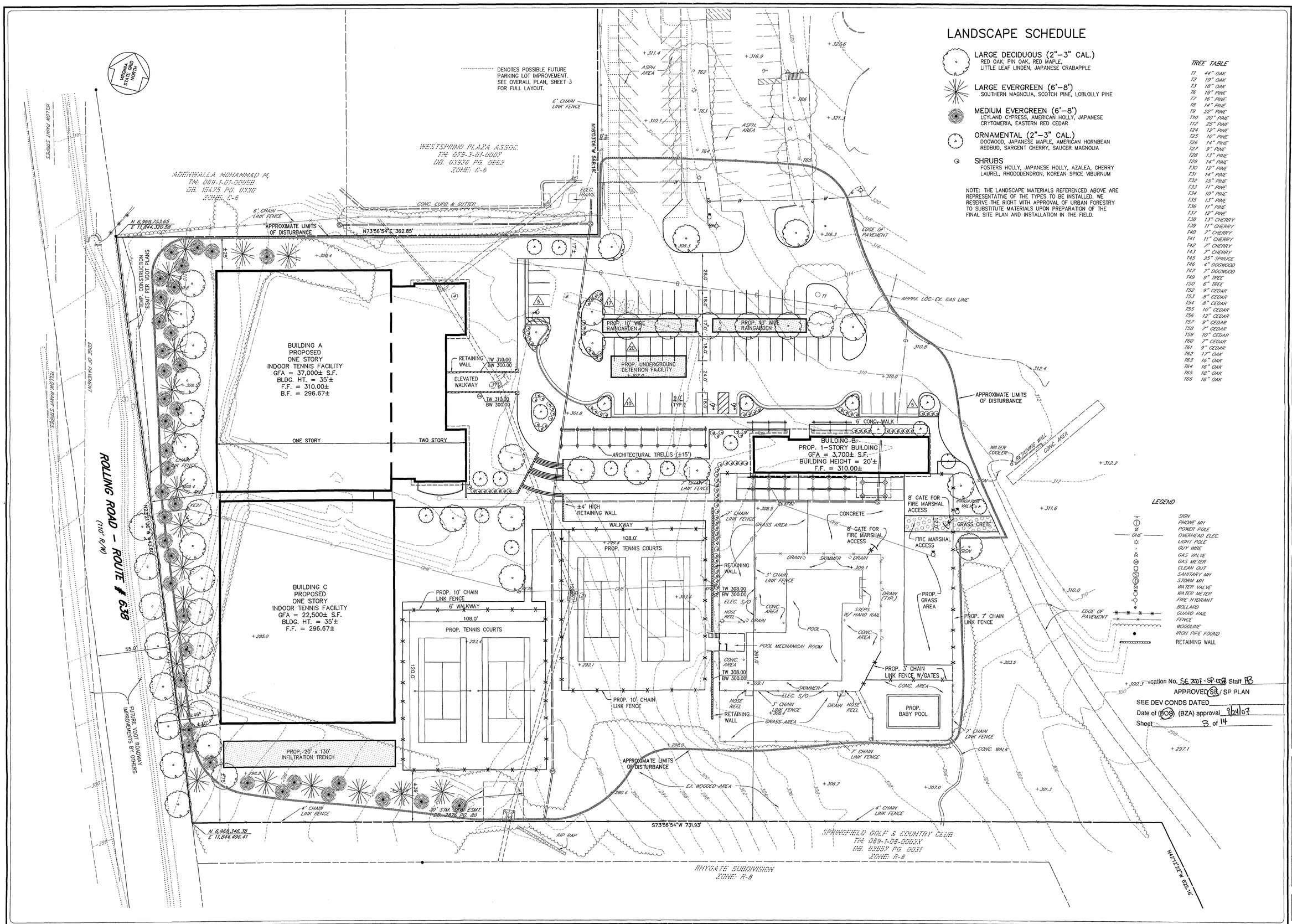
DATE	REVISION
7-30-07	PER COUNTY COMMENTS
8-20-07	PER CLIENT REQUEST

PM: TDB SCALE: 1"=30'
PE: TDB DATE: 1/15/07
CO: MSO SHEET 2 OF 14

F-2247

COPYRIGHT 2005. NO REPRODUCTION OR USE OF THE DRAWING IS ALLOWED IN PART OR IN WHOLE BY ANY PROCESS WITHOUT THE EXPRESS WRITTEN CONSENT OF TRI-TEK ENGINEERING, INC.

C:\drawings\F-2247\DGS\SPRVD247-SPP-02-PLAN.dwg, 8/20/2007 2:18:10 PM, SOlsson, 6204 Wide Format HDI.pc3, 1:1, TRI-TEK Engineering, Inc.



LANDSCAPE SCHEDULE

LARGE DECIDUOUS (2"–3" CAL.)
RED OAK, PIN OAK, RED MAPLE, LITTLE LEAF LINDEN, JAPANESE CRABAPPLE

LARGE EVERGREEN (6'–8')
SOUTHERN MAGNOLIA, SCOTCH PINE, LOBLOLLY PINE

MEDIUM EVERGREEN (6'–8')
LEYLAND CYPRESS, AMERICAN HOLLY, JAPANESE CRYTOMERIA, EASTERN RED CEDAR

ORNAMENTAL (2"–3" CAL.)
DOGWOOD, JAPANESE MAPLE, AMERICAN HORNBEAN REDBUD, SARGENT CHERRY, SAUCER MAGNOLIA

SHRUBS
FOSTERS HOLLY, JAPANESE HOLLY, AZALEA, CHERRY LAUREL, RHODODENDRON, KOREAN SPICE VIBURNUM

NOTE: THE LANDSCAPE MATERIALS REFERENCED ABOVE ARE REPRESENTATIVE OF THE TYPES TO BE INSTALLED. WE RESERVE THE RIGHT WITH APPROVAL OF URBAN FORESTRY TO SUBSTITUTE MATERIALS UPON PREPARATION OF THE FINAL SITE PLAN AND INSTALLATION IN THE FIELD.

TREE TABLE

T1	44" OAK
T2	19" OAK
T3	18" OAK
T6	18" PINE
T7	16" PINE
T8	14" PINE
T9	22" PINE
T10	20" PINE
T12	25" PINE
T24	12" PINE
T25	10" PINE
T26	14" PINE
T27	9" PINE
T28	13" PINE
T29	14" PINE
T30	12" PINE
T31	14" PINE
T32	15" PINE
T33	11" PINE
T34	10" PINE
T35	13" PINE
T36	11" PINE
T37	12" PINE
T38	13" CHERRY
T39	11" CHERRY
T40	7" CHERRY
T41	11" CHERRY
T42	7" CHERRY
T43	7" CHERRY
T45	25" SPRUCE
T46	4" DOGWOOD
T47	7" DOGWOOD
T49	9" TREE
T50	6" TREE
T52	9" CEDAR
T53	8" CEDAR
T54	8" CEDAR
T55	10" CEDAR
T56	12" CEDAR
T57	9" CEDAR
T58	7" CEDAR
T59	10" CEDAR
T60	7" CEDAR
T61	9" CEDAR
T62	17" OAK
T63	16" OAK
T64	15" OAK
T65	18" OAK
T66	16" OAK

Application No. SE 2007-SP-008 Staff PB
APPROVED SE / SP PLAN
SEE DEV CONDS DATED
Date of (BOS) (BZA) approval 8/24/07
Sheet 3 of 14

TRI-TEK ENGINEERING
CIVIL
ENVIRONMENTAL
LAND PLANNING
SURVEYING
690 Center Street
Suite 300
Herndon, Virginia 20170
V: (703) 481-5900
F: (703) 481-5901
info@tritekinc.com

COMMONWEALTH OF VIRGINIA
THEODORE D. BRITT
NO. 023903
PROFESSIONAL ENGINEER
08.02.07

SPRINGFIELD GOLF & COUNTRY CLUB

FAIRFAX COUNTY, VIRGINIA
SPRINGFIELD DISTRICT

SPECIAL EXCEPTION PLAT PHASE 2

DATE	REVISION
7-30-07	PER COUNTY COMMENTS
8-20-07	PER CLIENT REQUEST

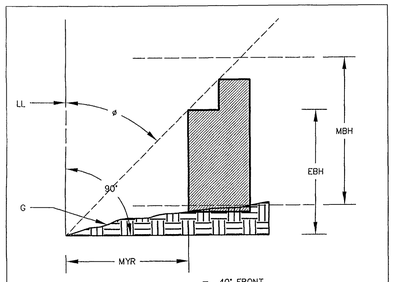
PM: TDB SCALE: 1"=30'
PE: TDB DATE: 1/15/07
CO: MSO SHEET 3 OF 14

COPYRIGHT 2005. NO REPRODUCTION OR USE OF THE DRAWING IS ALLOWED IN PART OR IN WHOLE BY ANY PROCESS WITHOUT THE EXPRESS WRITTEN CONSENT OF TRI-TEK ENGINEERING, INC.

F-2247

BUILDING TABULATION

EXISTING BUILDINGS	YEAR BUILT	HEIGHT	GFA
CLUB HOUSE	1999	30'±	40,553± S.F.
MAINTENANCE BUILDING	2002	20'±	4,735± S.F.
POOL HOUSE	1985	20'±	2,380± S.F.
TENNIS HOUSE	1976	20'±	1,500± S.F.
TENNIS HOUSE STORAGE	1976	20'±	750± S.F.
ENCLOSED TENNIS COURTS	1984	38'±	18,600± S.F.
CHEMICAL STORAGE	1996	10'±	300± S.F.
RESTROOM	1984	10'±	330± S.F.
EQUIPMENT STORAGE	1992	25'±	2,600± S.F.
SERVICE BUILDING	1992	25'±	3,900± S.F.
SUBTOTAL EXISTING/APPROVED:			75,648± S.F.
EXISTING STRUCTURES TO BE REMOVED BY THIS PLAN:			23,230± S.F.
PROPOSED BUILDINGS			
POOL HOUSE		20'±	3,700± S.F.
INDOOR TENNIS COURTS/ PRO SHOP (PHASE 1)		35'±	37,000± S.F.
INDOOR TENNIS COURTS (ULTIMATE)		35'±	22,500± S.F.
SUBTOTAL PROPOSED:			63,200± S.F.
SUBTOTAL EXISTING AND PROPOSED:			115,618± S.F.



ø : ANGLE OF BULK PLANE = 40° FRONT
LL : LOT LINE = 35° SIDE & REAR
MYR : MINIMUM YARD REQUIREMENT = 30' FRONT, 10' SIDE, 25' REAR

MYR = EBH tan ø

EBH : EFFECTIVE BUILDING HEIGHT =
MBH : MAXIMUM BUILDING HEIGHT =
G : GRADE (FINISHED) = 27.5 (AVG.)

$$EBH = \frac{MYR}{\tan ø}$$

PHASE 1	ANGLE PROVIDED	SETBACK PROVIDED	EFFECTIVE BLDG. HT.
FRONT	68.2°	50'	20'
SIDE	38.4°	25'	31.5'
REAR	N/A	N/A	N/A

PHASE 2	ANGLE PROVIDED	SETBACK PROVIDED	EFFECTIVE BLDG. HT.
FRONT	53.7°	30'	22'
SIDE	38.4°	25'	31.5'
REAR	N/A	N/A	N/A

USE: INDOOR TENNIS COURTS
CURRENT ZONING: R-3

ANGLE OF BULK PLANE
(NOT TO SCALE)

SITE DATA

- TAX MAP LOCATION: 89-1-((1))-9
- SITE ADDRESS: 8301 OLD KEENE MILL ROAD
- TOTAL SITE AREA: 157.6± ACRES OR 6,865,056± S.F.
- ZONING: R-3 (155.1± AC.)
  C-5 (2.5± AC.)
  HC (HIGHWAY CORRIDOR OVERLAY DISTRICT)
- PROPOSED USE: COUNTRY CLUB

SITE TABULATIONS

	REQUIRED:	PROPOSED:
• LOT SIZE REQUIREMENTS(*):		
LOT AREA:	11,500 SF	6,865,056 SF
LOT WIDTH:	80 LF	443.6 LF
• BULK REGULATIONS(*):		
BUILDING HEIGHT:	60 FT.	35 FT.
YARD REQUIREMENTS:		
FRONT:	CONTROLLED BY A 40° ANGLE OF BULK PLANE, BUT NOT LESS THAN 30 FT.	±30 FT.
SIDE:	CONTROLLED BY A 35° ANGLE OF BULK PLANE, BUT NOT LESS THAN 10 FT.	±25 FT.
REAR:	CONTROLLED BY A 35° ANGLE OF BULK PLANE, BUT NOT LESS THAN 25 FT.	±25 FT.
F.A.R.:	0.25	0.016

- PARKING SCHEDULE:
  REQUIRED: 208 SPACES (PER PRIOR SPA 76-S-182-6)
  PROVIDED: 282 SPACES PHASE 1
  303 SPACES WITH POSSIBLE FUTURE PARKING LOT IMPROVEMENTS (SEE SHEET 5)
- OPEIN SPACE: 6,634,300 S.F. OR 96%

MODIFICATIONS

1. THE EXISTING FACILITY CONFORMS TO THE PROVISIONS OF ALL APPLICABLE ORDINANCES, REGULATIONS AND ADOPTED STANDARDS OF FAIRFAX COUNTY, EXCEPT THE FOLLOWING:

   A. MODIFICATION OF THE REQUIREMENT TO PROVIDE TRANSITIONAL SCREENING AND BARRIERS ALONG THE NORTH, SOUTH, WEST AND EAST BOUNDARIES IN FAVOR OF THAT SHOWN ON THE SPECIAL PERMIT AMENDMENT PLAT.

   B. MODIFICATION OF SECTION 9.528 IS REQUESTED TO PERMIT STRUCTURES TO BE LOCATED CLOSER THAN 50 FT. TO A LOT LINE.

PHASE 1:

- STRUCTURE A IS LOCATED APPROXIMATELY 25 FT. OFF THE NORTHERLY LINE. THE ADJACENT PROPERTY IS ZONED C-6 AND DEVELOPED WITH COMMERCIAL USES. WE BELIEVE THE SETBACK IS APPROPRIATE GIVEN THE COMMERCIAL ZONING OF THE PROPERTY AND THE LOCATION AND ORIENTATION OF THE STRUCTURES. ALSO, THE COMMERCIALLY ZONED PROPERTY HAS BUFFER REQUIREMENTS TO OUR USE.
- EXISTING TENNIS COURTS – THE EXISTING TENNIS COURTS ARE NOT PROPOSED TO BE ALTERED IN THE FIRST PHASE. A PORTION OF THE COURTS ENCROACH IN THE SETBACK. GIVEN THAT THESE STRUCTURES ARE EXISTING AND THE VEGETATION BETWEEN THEM AND THE LOT LINE WILL BE UNAFFECTED BY THE CONSTRUCTION, WE BELIEVE THE STRUCTURE SHOULD BE PERMITTED TO REMAIN.

PHASE 2

- STRUCTURE C IS LOCATED AT ITS CLOSEST POINT 30 FT. TO THE LOT LINE OF ROLLING ROAD. CURRENTLY THE TRAVEL WAY OF ROLLING ROAD IS APPROXIMATELY 90 FT. FROM THIS POINT AND HEAVILY WOODED. WHEN ROLLING ROAD IS IMPROVED, THE CLOSEST IMPROVEMENT, THE SIDEWALK, IS APPROXIMATELY 46 FT. FROM THE BUILDING. WE HAVE SHOWN PROPOSED PLANTINGS TO BE INSTALLED IN THE R.O.W., IF PERMITTED, TO FURTHER BUFFER AND PROVIDE SEPARATION. ULTIMATELY ROLLING ROAD WILL BE A 4 LANE DIVIDED SECTION CREATING SIGNIFICANT SEPARATION FROM ADJOINING PROPERTIES.
- PROPOSED TENNIS COURTS ARE LOCATED APPROXIMATELY 39 FT. TO THE LOT LINE. SPRINGFIELD GOLF AND COUNTRY CLUB ALSO OWNS ANOTHER STRIP OF LAND ADJACENT TO THE LOT LINE WHICH IN ESSENCE PROVIDES A SEPARATION OF 70 FT. TO THE ADJOINING SUBDIVISION.

GENERAL NOTES

1. THE PROPERTY DELINEATED ON THIS PLAT CONTAINS 157.6± ACRES (6,865,056± S.F.) AND IS LOCATED ON FAIRFAX COUNTY TAX MAP 89-1-((1))-9. THE PROPERTY IS ZONED R-3 AND C-5 AND IS CURRENTLY USED AS A COUNTRY CLUB. THE CURRENT USE IS SUBJECT TO SPECIAL PERMIT AMENDMENT 81-C-027-1.
2. THIS SPECIAL EXCEPTION REQUEST IS SUBMITTED FOR APPROVAL AS A CATEGORY 5 SPECIAL EXCEPTION, COUNTRY CLUB, TO PERMIT THE PHASED CONSTRUCTION OF INDOOR AND OUTDOOR TENNIS COURTS TO REPLACE THOSE THAT CURRENTLY EXIST AND CONSTRUCT A NEW POOL HOUSE TO SERVE THE CLUB.
3. BOUNDARY INFORMATION IS BASED ON AVAILABLE DEEDS AND PLATS OF RECORD AND DOES NOT REPRESENT A FIELD RUN SURVEY BY TRI-TEK ENGINEERING. NO TITLE REPORT HAS BEEN FURNISHED.
4. TOPOGRAPHY INFORMATION SHOWN HEREON IS AT 2 FT. CONTOUR INTERVALS BASED ON A FIELD SURVEY BY TRI-TEK ENGINEERING FOR THAT AREA SUBJECT TO CHANGE PER THIS AMENDMENT. THE REMAINING TOPOGRAPHIC INFORMATION IS BASED ON AN AERIAL SURVEY BY CHESAPEAKE ENVIRONMENTAL MANAGEMENT INC., DATED DEC. 1996.
5. THE PROPERTY DELINEATED ON THIS PLAT IS NOW IN THE NAME OF SPRINGFIELD GOLF AND COUNTRY CLUB, INC. AS RECORDED IN DEED BOOK 2317 AT PAGE 195 AMONG THE LAND RECORDS OF FAIRFAX COUNTY, VIRGINIA.
6. THE SITE IS SERVED BY PUBLIC WATER AND PUBLIC SEWER.
7. OFF STREET PARKING AND LOADING IS PROVIDED IN ACCORDANCE WITH ARTICLE 11 OF THE FAIRFAX COUNTY ZONING ORDINANCE.
8. THIS PLAN IS COMPATIBLE WITH THE ADOPTED COMPREHENSIVE PLAN OF FAIRFAX COUNTY AND ADJACENT DEVELOPMENT AS ITS USE AS A PRIVATE CLUB PROVIDING A RECREATIONAL AMENITY TO THE AREA WHOSE MEMBERS ARE LARGELY FROM THE COMMUNITY IN WHICH IT IS LOCATED.
9. TO THE BEST OF OUR KNOWLEDGE, THE EXISTING FACILITY DOES NOT ADVERSELY AFFECT ADJACENT OR NEIGHBORING PROPERTIES.
10. TO THE BEST OF OUR KNOWLEDGE THERE ARE NO GENERAL AREAS THAT HAVE SCENIC ASSETS OR NATURAL FEATURES DESERVING OF PROTECTION AND PRESERVATION.
11. THIS SITE DOES HAVE AREA SUBJECT TO 100 YEAR FLOODING OR EQC CRITERIA. RPA EXISTS ALONG THE SOUTHERLY PORTION OF THE PROPERTY.
12. PROPOSED CONSTRUCTION WOULD ADD A MINOR AMOUNT OF IMPERVIOUS AREA TO THE SITE. DEVELOPMENT IS THEREFORE ANTICIPATED TO INCREASE STORMWATER RUNOFF BY A MINOR AMOUNT AND WOULD BE CONTROLLED BY AN UNDERGROUND OVERSIZED STORM SEWER PIPE AND/OR RAIN GARDEN/INFILTRATION TRENCH, IF THE ONSITE STORMWATER MANAGEMENT REQUIREMENT IS NOT WAIVED.
13. DEVELOPMENT REQUIRED FOR THIS PROJECT SHALL COMMENCE AT SUCH TIME AS APPROPRIATE COUNTY APPROVALS HAVE BEEN OBTAINED AND SUBJECT TO THE DISCRETION OF THE OWNER. THE OWNER RESERVES THE RIGHT TO CONSTRUCT THE PROJECT IN PHASES AS GENERALLY SET FORTH BY THIS PLAT.
14. TO THE BEST OF OUR KNOWLEDGE AND BELIEF, THERE IS NO EVIDENCE OF ANY GRAVE, OBJECT OR STRUCTURE MARKING A PLACE OF BURIAL.
15. TO THE BEST OF OUR KNOWLEDGE AND BELIEF, THERE ARE NO KNOWN HAZARDOUS OR TOXIC SUBSTANCES THAT ARE TO BE GENERATED, UTILIZED, STORED, TREATED AND/OR DISPOSED OF ON THIS SITE OTHER THAN THOSE WHICH MIGHT BE USED FOR THE POOL AND GOLF COURSE MAINTENANCE AND WILL BE PROVIDED IN A SEPARATE DOCUMENT BY THE APPLICANT.
16. ALL NEW SIGNAGE AND NEW OUTDOOR LIGHTING FIXTURES ONSITE SHALL BE PROVIDED IN ACCORDANCE WITH APPLICABLE STANDARDS SET FORTH BY THE COUNTY OF FAIRFAX.
17. THE PROPERTY WHICH IS THE SUBJECT OF THIS APPLICATION SHALL BE DEVELOPED IN ACCORDANCE WITH THIS PLAT PREPARED BY TRI-TEK ENGINEERING, INC. PROVIDED THAT MINOR MODIFICATIONS SHALL BE PERMITTED PURSUANT TO THE PROVISIONS OF SEC. 9.004. MODIFICATIONS WILL BE DETERMINED AS PART OF THE FINAL ENGINEERING AND SITE PLAN REVIEW BY THE DEPARTMENT OF PUBLIC WORKS AND ENVIRONMENTAL SERVICES (DPWES).
18. THE EXISTING ENTRANCE FROM OLD KEENE MILL ROAD (ROUTE 644) SHALL BE USED TO PROVIDE SITE ACCESS INCLUDING EMERGENCY ACCESS. NO ADDITIONAL ENTRANCES NOR ARE ANY FRONTAGE IMPROVEMENTS PROPOSED FOR THIS PROJECT.
19. THERE ARE NO ENVIRONMENTAL QUALITY CORRIDORS (EQC), 100 YEAR FLOODPLAINS OR RESOURCE PROTECTION AREAS LOCATED WITHIN THE LIMITS OF PROPOSED DISTURBANCE.
20. A WAIVER, TRAIL WAIVER NO. 020612, WAS APPROVED MARCH 16, 1999 AND FUNDS ESCROWED TO PERMIT THE FUTURE CONSTRUCTION OF AN 8 FT. TYPE I ASPHALT TRAIL ALONG THE SITES OLD KEENE MILL ROAD FRONTAGE. SEPARATE JUSTIFICATION HAS BEEN PROVIDED TO SUPPORT THE CONSTRUCTION OF THIS WAIVER.

ication No. SE 2007-SP-008 Staff PB
APPROVED (SE) SP PLAN
SEE DEV CONDS DATED
Date of (BOS) (BZA) approval 9/21/07
Sheet 4 of 14

TRI-TEK ENGINEERING
CIVIL
ENVIRONMENTAL
LAND PLANNING
SURVEYING
690 Center Street
Suite 300
Herndon, Virginia 20170
V: (703) 481-5900
F: (703) 481-5901
info@tritekinc.com

COMMONWEALTH OF VIRGINIA
THEODORE D. BRITT
NO. 023603
02.20.07
PROFESSIONAL ENGINEER

SPRINGFIELD GOLF & COUNTRY CLUB

SPRINGFIELD DISTRICT FAIRFAX COUNTY, VIRGINIA

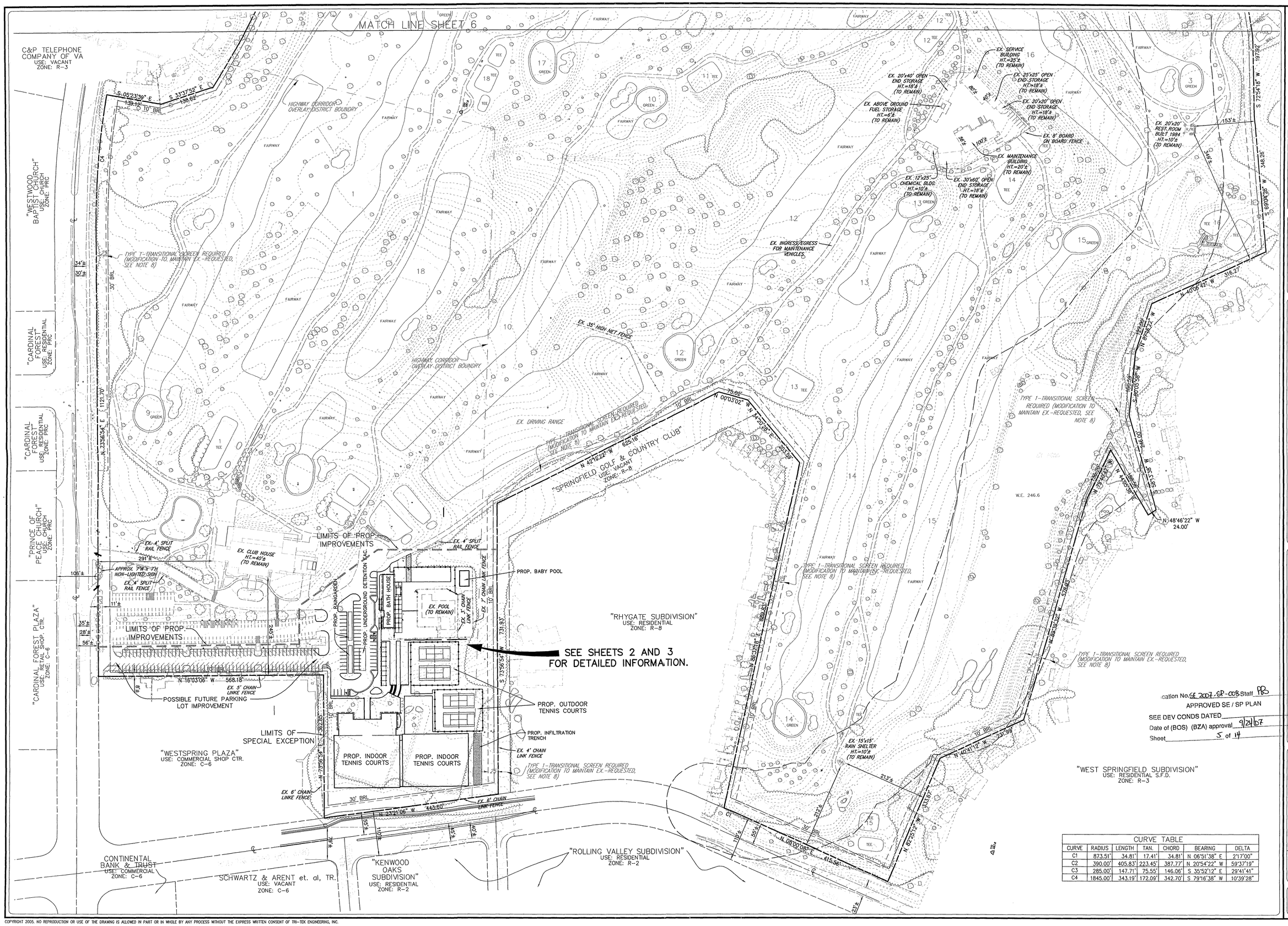
NOTES & DETAILS

DATE	REVISION
7-30-07	PER COUNTY COMMENTS
8-20-07	PER CLIENT REQUEST

PM: TDB SCALE: NONE
PE: TDB DATE: 1/15/07
CO: MSO SHEET 4 OF 14

COPYRIGHT 2005. NO REPRODUCTION OR USE OF THE DRAWING IS ALLOWED IN PART OR IN WHOLE BY ANY PROCESS WITHOUT THE EXPRESS WRITTEN CONSENT OF TRI-TEK ENGINEERING, INC.

F-2247



CURVE TABLE						
CURVE	RADIUS	LENGTH	TAN.	CHORD	BEARING	DELTA
C1	873.51'	34.81'	17.41'	34.81'	N 06°51'38" E	2°17'00"
C2	390.00'	405.83'	223.45'	387.77'	N 20°54'22" W	59°37'19"
C3	285.00'	147.71'	75.55'	146.06'	S 35°52'12" E	29°41'41"
C4	1845.00'	343.19'	172.09'	342.70'	S 79°16'38" W	10°39'28"

TRI-TEK ENGINEERING

CIVIL
ENVIRONMENTAL
LAND PLANNING
SURVEYING

690 Center Street
Suite 300
Herndon, Virginia 20170
V: (703) 481-5900
F: (703) 481-5901
info@tritekinc.com

COMMONWEALTH OF VIRGINIA
THEODORE B. BRITT
NO. 023803
7-30-07
PROFESSIONAL ENGINEER

SPRINGFIELD GOLF & COUNTRY CLUB

SPRINGFIELD DISTRICT — FAIRFAX COUNTY, VIRGINIA

OVERALL PLAN

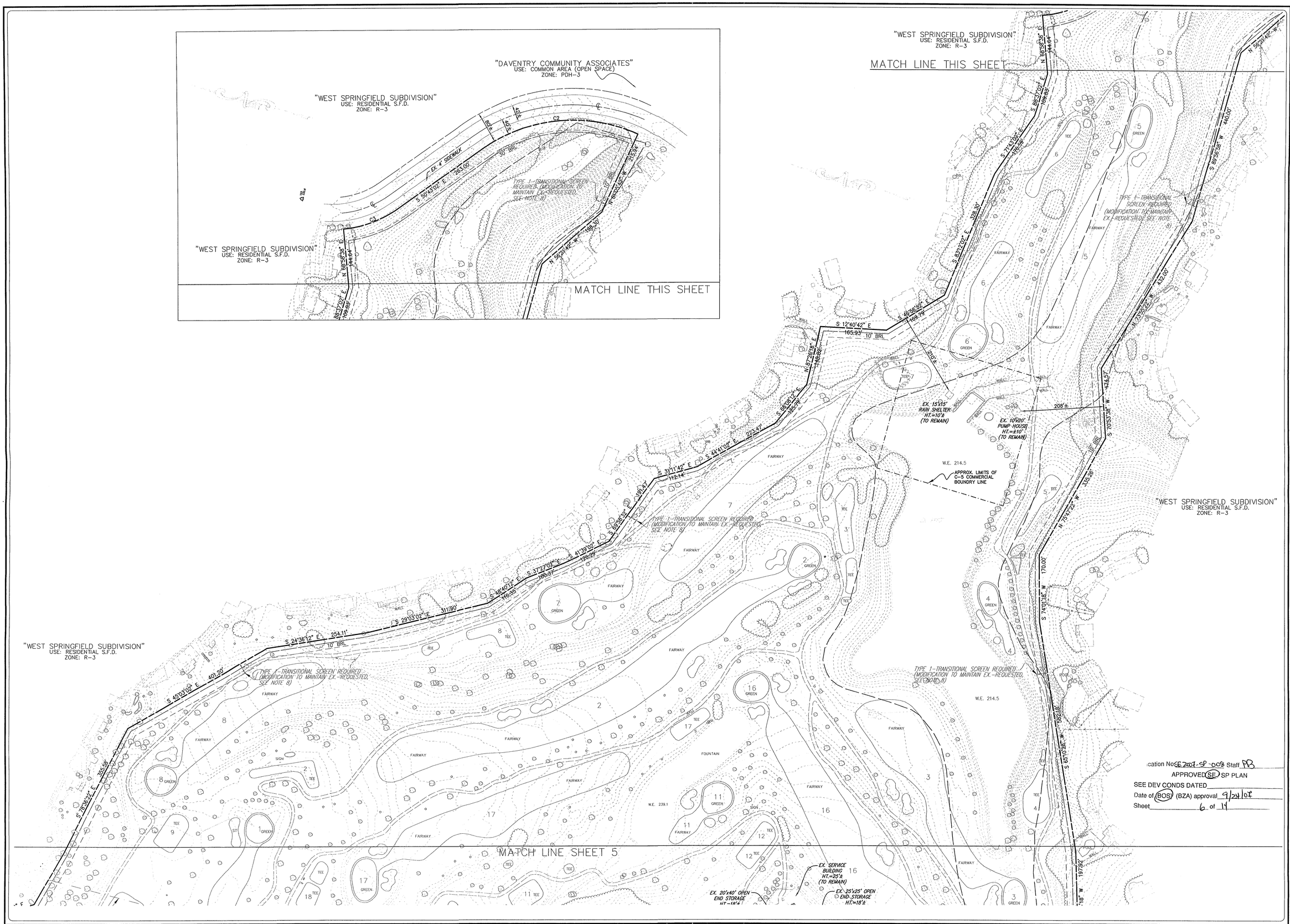
Application No. SE 2007-SP-008 Staff PB
APPROVED SE / SP PLAN
SEE DEV CONDS DATED
Date of (BOS) (BZA) approval 9/24/07
Sheet 5 of 14

DATE	REVISION
7-30-07	PER COUNTY COMMENTS
8-20-07	PER CLIENT REQUEST

PM: TDB SCALE: 1"=100'
PE: TDB DATE: 1/15/07
CO: MSO SHEET 5 OF 14

COPYRIGHT 2005. NO REPRODUCTION OR USE OF THE DRAWING IS ALLOWED IN PART OR IN WHOLE BY ANY PROCESS WITHOUT THE EXPRESS WRITTEN CONSENT OF TRI-TEK ENGINEERING, INC.

F-2247



Application No. SE 2007-SP-008 Staff PB
APPROVED (SE) SP PLAN
SEE DEV CONDS DATED
Date of (BOS) (BZA) approval 9/24/07
Sheet 6 of 14

TRI-TEK ENGINEERING

CIVIL
ENVIRONMENTAL
LAND PLANNING
SURVEYING

690 Center Street
Suite 300
Herndon, Virginia 20170
V: (703) 481-5900
F: (703) 481-5901
info@tritekinc.com

COMMONWEALTH OF VIRGINIA
THEODORE D. BRITT
No. 023803
PROFESSIONAL ENGINEER
8-20-07

SPRINGFIELD GOLF & COUNTRY CLUB

SPRINGFIELD DISTRICT
FAIRFAX COUNTY, VIRGINIA

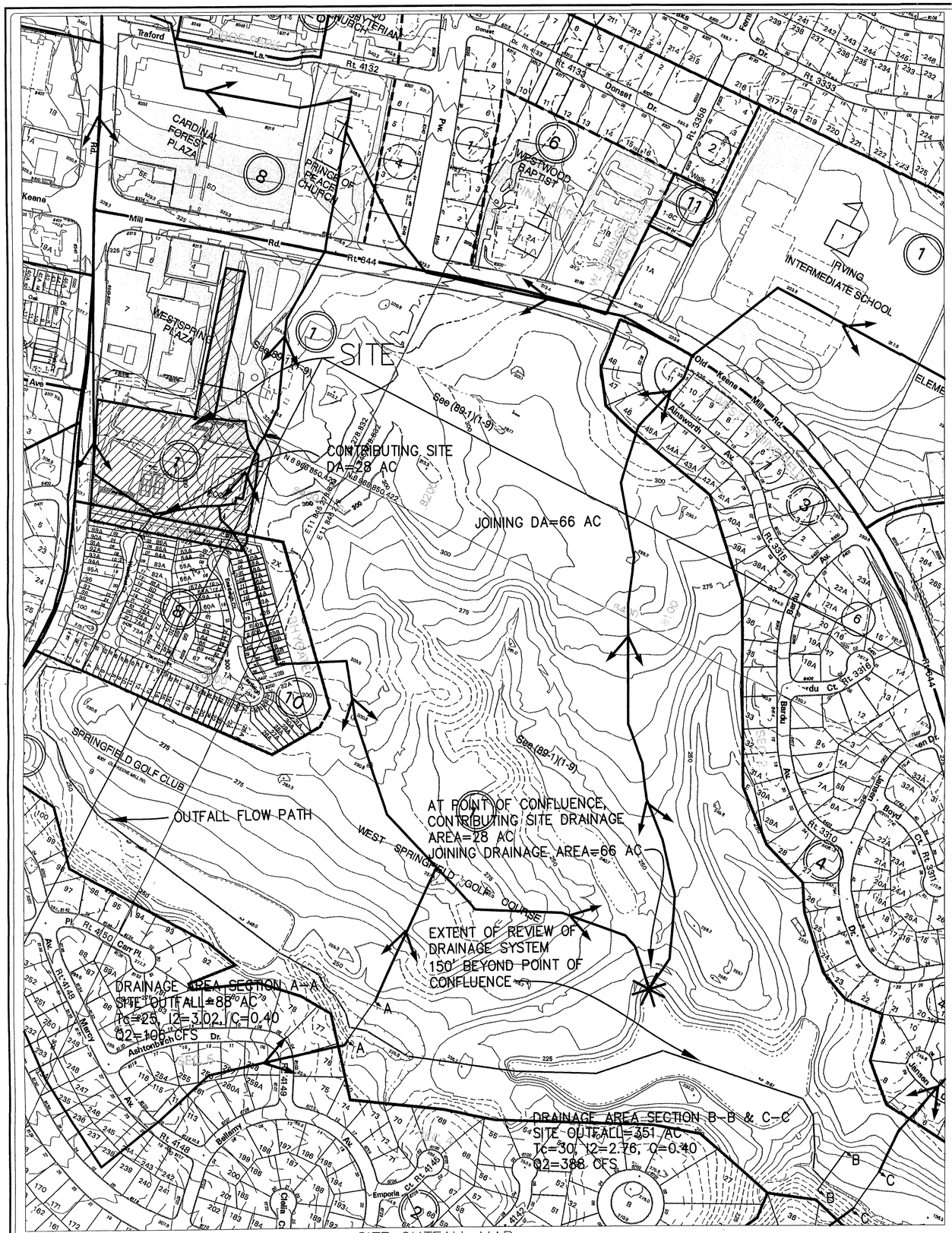
OVERALL PLAN

DATE	REVISION
7-30-07	PER COUNTY COMMENTS
8-20-07	PER CLIENT REQUEST

PM: TDB SCALE: 1"=100'
PE: TDB DATE: 1/15/07
CO: MSO SHEET 6 OF 14

COPYRIGHT 2005. NO REPRODUCTION OR USE OF THE DRAWING IS ALLOWED IN PART OR IN WHOLE BY ANY PROCESS WITHOUT THE EXPRESS WRITTEN CONSENT OF TRI-TEK ENGINEERING, INC.

F-2247



SITE OUTFALL MAP

SCALE 1"=200'

STORM DRAINAGE NARRATIVE:

DRAINAGE FROM THIS SITE PRINCIPALLY FLOWS IN A SOUTHERLY DIRECTION TO AN EXISTING STORM SEWER SYSTEM. THE PIPED OUTFALL CONTINUES TO FLOW SOUTH FROM THE SOUTHERN PROPERTY LINE FOR APPROXIMATELY 900 FEET TO AN UNNAMED TRIBUTARY OF ACCOTINK CREEK. IT THEN FLOWS EAST THROUGH TWO (2) PONDS AND INTO ANOTHER UNNAMED TRIBUTARY OF ACCOTINK CREEK WHICH OUTFALLS INTO ACCOTINK CREEK IN THE ACCOTINK WATERSHED.

STORMWATER OUTFALL NARRATIVE:

STORMWATER FROM THE SITE DRAINS BY OVERLAND SHEET FLOW AND AN ONSITE STORM SEWER. THE PROPOSED SITE OUTFALLS AT THE SOUTHERN PROPERTY LINE TO AN EXISTING STORM SEWER SYSTEM THAT FLOWS SOUTH THROUGH THE ADJACENT PROPERTY, THE RHYGATE SUBDIVISION, AND THROUGH THE SOUTHERN PORTION OF THE SPRINGFIELD GOLF & COUNTRY CLUB PROPERTY. THE STORM SEWER OUTFALLS INTO AN UNNAMED TRIBUTARY THAT FLOWS EAST TO A POND LOCATED ON THE PROPERTY. THIS POINT IS UPSTREAM ON THE SITE, LOCATED AT THE SOUTHEAST CORNER, AND HAS A SURFACE AREA OF APPROXIMATELY 3.20 ACRES WITH AN ESTIMATED AVAILABLE STORAGE CAPACITY OF 13.2 ACRE-FT. THIS POND IS PRINCIPALLY USED FOR IRRIGATION PROPOSES YET PROVIDES AN EXCELLENT SOURCE TO SETTLE POLLUTANTS AND SEDIMENT AND SIGNIFICANTLY DETAIN SITE RUNOFF. STORMWATER CONTINUES WITHIN A RIP-RAP LINED CHANNEL AND FLOWS EAST TO A SECOND POND ALSO LOCATED ON THE PROPERTY. THE SECOND POND, WHICH CONTROLS THE MAJORITY OF THE SITE RUNOFF, HAS AN AREA OF APPROXIMATELY 4.70 ACRES AND AN ESTIMATED 32.9 ACRE-FT. OF AVAILABLE STORAGE CAPACITY. THESE PONDS COLLECTIVELY PROVIDE A TREMENDOUS BMP AND DETENTION FUNCTION THAT MORE THAN ADDRESSES THE INCREASE GENERATED BY THE CLUB. AT THIS POINT, THE STORMWATER FROM THE CONTRIBUTING DRAINAGE AREA OF THE SITE IS JOINED BY ANOTHER BED AND BANKS CHANNEL THAT HAS A DRAINAGE AREA OF APPROXIMATELY 66 ACRES. THIS DRAINAGE AREA IS GREATER THAN 90 PERCENT OF 28 ACRES, THE SIZE OF THE CONTRIBUTING DRAINAGE AREA OF THE SITE. AS SUCH, THE EXTENT OF REVIEW IS 150 FEET DOWNSTREAM OF THE POINT OF CONFLUENCE OF THESE TWO (2) DRAINAGE AREAS. THE CHANNELS WERE LINED WITH RIP-RAP APPROXIMATELY 10 YEARS AGO AND HAVE SOME VEGETATION THAT HAVE GROWN IN THE CHANNELS. AS EVIDENCED BY A SITE VISIT WITH STAFF, THE CHANNELS ARE IN EXCELLENT SHAPE. SEE THIS SHEET FOR OUTFALL CROSS SECTION LOCATIONS AND SHEET 8 FOR CROSS SECTIONS WITH DESCRIPTIONS.

STORMWATER MANAGEMENT NARRATIVE:

STORMWATER MANAGEMENT DETENTION, IF REQUIRED IS PROVIDED THROUGH THE USE OF AN OVERSIZED UNDERGROUND STORM SEWER PIPE AND/OR RAIN GARDEN AND AN INFILTRATION TRENCH PROPOSED IN PHASE 2.

MANY OF THE BMP MEASURES PROPOSED WILL PROVIDE A REDUCTION IN PEAK RUNOFF. GIVEN THAT THE INCREASE IN RUNOFF IS VERY MINOR AND THE EFFECTS THE THREE PONDS ON THE PROPERTY PROVIDE TOGETHER WITH THE CHANNEL IMPROVEMENTS INSTALLED AND THE BMP CONTROLS TO BE PROVIDED, WE RESERVE THE RIGHT TO APPLY FOR A WAIVER OF STORMWATER MANAGEMENT FOR CONSIDERATION BY DPWES. ADDITIONAL CONTROLS BEYOND THESE PROVIDED BY VIRTUE OF PROVIDING BMP CONTROLS WILL PROVIDE NO MEASURABLE BENEFIT.

STORMWATER MANAGEMENT COMPUTATIONS:

PREDEVELOPMENT RUNOFF: Q=CIA

Q2 YR, 2 HR:	0.56 x 5.45 IN/HR x 7.47 AC =	22.80 CFS
Q10 YR, 2 HR:	0.56 x 7.27 IN/HR x 7.47 AC =	30.41 CFS
V2 YR, 2 HR:	0.56 x 2"/12" x 7.47 AC =	0.6972 AC-FT

POST-DEVELOPMENT PHASE I RUNOFF: Q=CIA

Q2 YR, 2 HR:	0.61 x 5.45 IN/HR x 7.47 AC =	24.83 CFS
Q10 YR, 2 HR:	0.61 x 7.27 IN/HR x 7.47 AC =	33.13 CFS
V2 YR, 2 HR:	0.61 x 2"/12" x 7.47 AC =	0.7595 AC-FT

POST-DEVELOPMENT PHASE II RUNOFF (ULTIMATE): Q=CIA

Q2 YR, 2 HR:	0.63 x 5.45 IN/HR x 7.47 AC =	25.65 CFS
Q10 YR, 2 HR:	0.63 x 7.27 IN/HR x 7.47 AC =	34.21 CFS
V2 YR, 2 HR:	0.63 x 2"/12" x 7.47 AC =	0.7844 AC-FT

INCREASE DUE TO PHASE I DEVELOPMENT:

Q2 YR, 2 HR:	24.83 CFS - 22.80 CFS =	2.03 CFS
Q10 YR, 2 HR:	33.13 CFS - 30.41 CFS =	2.72 CFS
V2 YR, 2 HR:	0.7595 AC-FT - 0.6972 AC-FT =	0.0623 AC-FT

INCREASE DUE TO PHASE II DEVELOPMENT (ULTIMATE):

Q2 YR, 2 HR:	25.65 CFS - 22.80 CFS =	2.85 CFS
Q10 YR, 2 HR:	34.21 CFS - 30.41 CFS =	3.80 CFS
V2 YR, 2 HR:	0.7844 AC-FT - 0.6972 AC-FT =	0.0872 AC-FT

IF REQUIRED, STORMWATER DETENTION WILL BE PROVIDED BY AN ONSITE UNDERGROUND DETENTION FACILTY (PHASE I) AND AN INFILTRATION TRENCH (PHASE II). RUNOFF WILL BE RELEASED AT PREDEVELOPEMENT LEVELS.

BMP NARRATIVE:

PHASE 1: THE INCREASE IN IMPERVIOUSNESS RESULTING FROM PHASE 1 DEVELOPMENT IS 18.5%, THEREFORE IT QUALIFIES AS A REDEVELOPMENT AND THE EQUATION IN PFM 6-401.2B CAN BE USED. ACCORDINGLY A REDUCTION IN PHOSPHOROUS OF 23.8% IS REQUIRED WITHIN THIS PHASE OF THE DEVELOPMENT. BMP FACILITIES PROPOSED DURING THIS PHASE INCLUDE A RAINGARDEN AND THREE (3) STORMFILTERS.

PHASE 2: THE INCREASE IN IMPERVIOUSNESS RESULTING FROM PHASE 2 IS ANTICIPATED TO BE GREATER THAN 20% OF THE EXISTING SITE IMPERVIOUSNESS AND AS SUCH, THE STANDARD 40% REMOVAL RATE IS REQUIRED. AN INFILTRATION TRENCH AND CONSERVATION AREAS ARE PROPOSED (IN CONJUNCTION WITH THE CONTROLS INSTALLED IN PHASE 1) TO MEET THE 40% CRITERIA.

FUTURE BMP: IN THE FUTURE, WHEN THE "POSSIBLE PARKING LOT IMPROVEMENTS" IDENTIFIED ON SHEET 5 ARE CONSTRUCTED, BMP FACILITIES (FILTERRA UNITS, SOTRMFILTERS OR SIMILAR) SHALL BE INSTALLED.

SUBSTITUTION OF BMP TYPES AND FACILITIES CAN BE MADE AT FINAL ENGINEERING IF SITE CONSTRAINTS INHIBIT THE USE OF DOCUMENTED FACILITIES.

MINIMUM STORMWATER INFORMATION FOR REZONING, SPECIAL EXCEPTION, SPECIAL PERMIT AND DEVELOPMENT PLAN APPLICATIONS

The following information is required to be shown or provided in all zoning applications, or a waiver request of the submission requirement with justification shall be attached. Note: Waivers will be acted upon separately. Failure to adequately address the required submission information may result in a delay in processing this application.

This information is required under the following Zoning Ordinance paragraphs:

Special Permits (8-011 2J & 2L)	Special Exceptions (9-011 2J & 2L)
Cluster Subdivision (9-615 1G & 1N)	Commercial Revitalization Districts (9-622 2A (12) & (14))
Development Plans PRC District (16-302 3 & 4L)	PRC Plan (16-303 1E & 1O)
FDP P Districts (except PRC) (16-502 1F & 1Q)	Amendments (18-202 10F & 10I)

[X] 1. Plat is at a minimum scale of 1"=50' (unless it is depicted on one sheet with a minimum scale of 1"=100').

[X] 2. A graphic depicting the stormwater management facility(ies) and limits of clearing and grading accommodate the stormwater management facility(ies), storm drainage pipe systems and outlet protection, pond spillways, access roads, site outfalls, energy dissipation devices, and stream stabilization measures as shown on Sheet 5.

[X] 3. Provide:

Facility Name/ Type & No.	On-site area served (acres)	Off-site area served (acres)	Drainage area (acres)	Footprint area (sf)	Storage Volume (cf)	If pond, dam height (ft)
UNDERGROUND DETENTION (e.g. dry pond A, infil. trench, underground vault, etc.)	1.00 AC	0.52 AC	1.52 AC	896 SF	2044 CF	N/A
INFILTRATION TRENCH	1.50 AC	0.16 AC	1.66 AC	2600	10547 CF	N/A
Totals	2.50 AC	0.68 AC	3.18 AC	3496 SF	12591 CF	

[X] 4. Onsite drainage channels, outfalls and pipe systems are shown on Sheet 5, 6. Pond inlet and outlet pipe systems are shown on Sheet 5, 6.

[X] 5. Maintenance access (road) to stormwater management facility(ies) are shown on Sheet 5. Type of maintenance access road surface noted on the plat is ASPHALT (asphalt, geoblock, gravel, etc.).

[X] 6. Landscaping and tree preservation shown in and near the stormwater management facility is shown on Sheet 5.

[X] 7. A 'stormwater management narrative' which contains a description of how detention and best management practices requirements will be met is provided on Sheet 7.

[X] 8. A description of the existing conditions of each numbered site outfall extended downstream from the site to a point which is at least 100 times the site area or which has a drainage area of at least one square mile (640 acres) is provided on Sheet 7.

[X] 9. A description of how the outfall requirements, including contributing drainage areas of the Public Facilities Manual will be satisfied is provided on Sheet 7.

[X] 10. Existing topography with maximum contour intervals of two (2) feet and a note as to whether it is an air survey or field run is provided on Sheets 5.

[ ] 11. A submission waiver is requested for NO.

[ ] 12. Stormwater management is not required because N/A.

13

MS-19 NARRATIVE

A) ANALYSIS SHALL BE MADE TO A POINT AT LEAST 150 FEET DOWNSTREAM OF THE POINT WHERE THE RECEIVING PIPE OR CHANNEL IS JOINED BY ANOTHER THAT HAS A DRAINAGE AREA THAT IS AT LEAST 90% OF THE SIZE OF THE FIRST DRAINAGE AREA AT THE POINT OF CONFLUENCE.
-POINT OF CONFLUENCE PROVIDED ON THIS SHEET.

B) NATURAL CHANNEL SHALL BE ANALYZED USING TWO YEAR STORM FOR OVERTOPPING AND EROSIVE VELOCITY.
-THE OUTFALL HAS BEEN ANALYZED, SEE SHEET 8 FOR CROSS SECTION INFORMATION. THE OUTFALL APPEARS TO BE ADEQUATE. THE OUTFALL POINT WILL BE FURTHER ANALYZED FOR THE ABOVE CRITERIA IN FINAL ENGINEERING PLANS.

C) PROVIDE A DETAILED SITE SPECIFIC OUTFALL NARRATIVE.
-OUTFALL NARRATIVE PROVIDED ON THIS SHEET.

D) PROVIDE OUTFALL LOCATION MAP(S) AND ALL DETAILED OUTFALL ANALYSIS COMPUTATIONS.
-SEE THIS SHEET FOR OUTFALL COMPUTATIONS AND OUTFALL MAP

E) AT LEAST 3 TO 5 CROSS SECTIONS, SELECTED AT CRITICAL LOCATIONS SHALL BE USED TO VERIFY THE ADEQUACY OF OUTFALL. CROSS SECTIONAL MUST BE BASED ON FIELD SURVEY DATA OR 2 FT CONTOUR INTERVALS.
-THE OUTFALL HAS BEEN ANALYZED, SEE SHEET 8 FOR CROSS SECTION INFORMATION. THE OUTFALL APPEARS TO BE ADEQUATE. FINAL SURVEYED CROSS SECTIONS AT THE OUTFALL WILL BE INCLUDED IN FINAL ENGINEERING PLANS.

F) CROSS SECTIONS MUST HAVE SAME VERTICAL AND HORIZONTAL SCALE TO GIVE CLEAR PICTURE OF BED & BANKS.
-CROSS SECTIONS ARE SHOWN AT SAME VERTICAL AND HORIZONTAL SCALE.

G) OUTFALL VELOCITIES SHALL BE COMPARED WITH EROSIVE VELOCITIES OF EXISTING CHANNEL.
-OUTFALL VELOCITIES HAVE BEEN ANALYZED. THE OUTFALL POINT WILL BE FURTHER ANALYZED FOR THE ABOVE CRITERIA IN FINAL ENGINEERING PLANS.

H) THE USE OF 1-YR EXTENDED DETENTION IS RECOMMENDED TO REMEDY EXISTING DOWNSTREAM CHANNEL EROSION PROBLEMS.
-IF VELOCITIES ARE FOUND TO BE EROSIVE, METHODS WILL BE EMPLOYED DURING FINAL ENGINEERING DESIGN TO REMEDY EROSION PROBLEMS.

cation No. SE 2007-SP-008 Staff HB
APPROVED SE DSP PLAN
SEE DEV CONDS DATED
Date of BOS, (BZA) approval 9/24/07
Sheet 7 of 14

TRI-TEK ENGINEERING
CIVIL
ENVIRONMENTAL
LAND PLANNING
SURVEYING
690 Center Street
Suite 300
Herndon, Virginia 20170
V: (703) 481-5900
F: (703) 481-5901
info@tritekinc.com

COMMONWEALTH OF VIRGINIA
THEODORE D. BRITT
NO. 023803
8.20.07
PROFESSIONAL ENGINEER

SPRINGFIELD GOLF & COUNTRY CLUB

SPRINGFIELD DISTRICT FAIRFAX COUNTY, VIRGINIA

STORMWATER MANAGEMENT

DATE	REVISION
7-30-07	PER COUNTY COMMENTS
8-20-07	PER CLIENT REQUEST

PM: TDB SCALE: AS SHOWN
PE: TDB DATE: 1/15/07
CO: MSO SHEET 7 OF 14

F-2247

COPYRIGHT 2005. NO REPRODUCTION OR USE OF THE DRAWING IS ALLOWED IN PART OR IN WHOLE BY ANY PROCESS WITHOUT THE EXPRESS WRITTEN CONSENT OF TRI-TEK ENGINEERING, INC.

OUTFALL CROSS SECTION C-C
SCALE H&V 1"=50'
WSEL=198.12

Worksheet for C-C
CL. 1 RIP-RAP LINED CHANNEL ALLOWABLE VELOCITY 10 FPS
Project Description
Friction Method,Manning Formula
Solve For,Normal Depth
Input Data
Channel Slope,0.00960,ft/ft
Discharge,388.00,ft?/s
Section Definitions
Station (ft),Elevation (ft)
0+00,204.00
0+12,200.00
0+32,196.20
0+55,196.20
0+67,199.00
1+74,204.00
Roughness Segment Definitions
Start Station,Ending Station,Roughness Coefficient
(0+00, 204.00),(1+74, 204.00),0.030
Results
Normal Depth,1.92,ft
Elevation Range,196.20 to 204.00 ft
Flow Area,61.63,ft?
Wetted Perimeter,41.71,ft
Top Width,41.30,ft
Normal Depth,1.92,ft
Critical Depth,1.81,ft
Critical Slope,0.01181,ft/ft
Velocity,6.30,ft/s
Velocity Head,0.62,ft
Specific Energy,2.53,ft
Froude Number,0.91
Bentley FlowMaster [08.01.066.00]
Bentley Systems, Inc. Haestad Methods Solution Center
8/2/2007 5:11:32 PM,27 Siemons Company Drive Suite 200 W Watertown, CT 06795 USA +1-203-755-1666,Page,1,of,2

OUTFALL CROSS SECTION A-A
SCALE H&V 1"=50'
WSEL=226.75

Worksheet for Section A-A
CL. 1 RIP-RAP LINED CHANNEL ALLOWABLE VELOCITY 10 FPS
Project Description
Friction Method,Manning Formula
Solve For,Normal Depth
Input Data
Channel Slope,0.00660,ft/ft
Discharge,106.00,ft?/s
Section Definitions
Station (ft),Elevation (ft)
0+00,235.00
0+80,230.00
0+92,228.00
1+02,225.15
1+12,225.00
1+15,228.00
1+43,230.00
1+89,246.00
Roughness Segment Definitions
Start Station,Ending Station,Roughness Coefficient
(0+00, 235.00),(1+89, 246.00),0.030
Results
Normal Depth,1.75,ft
Elevation Range,225.00 to 246.00 ft
Flow Area,22.78,ft?
Wetted Perimeter,18.32,ft
Top Width,17.37,ft
Normal Depth,1.75,ft
Critical Depth,1.45,ft
Critical Slope,0.01350,ft/ft
Velocity,4.65,ft/s
Velocity Head,0.34,ft
Bentley Systems, Inc. Haestad Methods Solution Center
Bentley FlowMaster [08.01.066.00]
7/26/2007 3:12:24 PM,27 Siemons Company Drive Suite 200 W Watertown, CT 06795 USA +1-203-755-1666,Page,1,of,2

OUTFALL CROSS SECTION B-B
SCALE H&V 1"=50'
WSEL=198.31

Worksheet for SectionB-B
CL. 1 RIP-RAP LINED CHANNEL ALLOWABLE VELOCITY 10 FPS
Project Description
Friction Method,Manning Formula
Solve For,Normal Depth
Input Data
Channel Slope,0.00960,ft/ft
2YR Discharge,388.00,ft?/s
Section Definitions
Station (ft),Elevation (ft)
0+00,210.00
0+86,200.00
0+91,199.00
1+05,196.50
1+32,196.50
1+74,218.00
Roughness Segment Definitions
Start Station,Ending Station,Roughness Coefficient
(0+00, 210.00),(1+74, 218.00),0.030
Results
Normal Depth,1.81,ft
Elevation Range,196.50 to 218.00 ft
Flow Area,61.38,ft?
Wetted Perimeter,41.30,ft
Top Width,40.70,ft
Normal Depth,1.81,ft
Critical Depth,1.71,ft
Critical Slope,0.01185,ft/ft
2YR Velocity,6.32,ft/s
Velocity Head,0.62,ft
Specific Energy,2.43,ft
Froude Number,0.91
Bentley FlowMaster [08.01.066.00]
Bentley Systems, Inc. Haestad Methods Solution Center
7/26/2007 3:36:09 PM,27 Siemons Company Drive Suite 200 W Watertown, CT 06795 USA +1-203-755-1666,Page,1,of,2

cation No. SE 2007-S-008 Staff BB
APPROVED (SE) SP PLAN
SEE DEV CONDS DATED
Date of (BOS) (BZA) approval 9/21/07
Sheet 8 of 14

TRI-TEK ENGINEERING
CIVIL
ENVIRONMENTAL
LAND PLANNING
SURVEYING
690 Center Street
Suite 300
Herndon, Virginia 20170
V: (703) 481-5900
F: (703) 481-5901
info@tritekinc.com

COMMONWEALTH OF VIRGINIA
THEODORE D. BRITT
NO. 023803
8.20.07
PROFESSIONAL ENGINEER

SPRINGFIELD GOLF & COUNTRY CLUB
SPRINGFIELD DISTRICT
FAIRFAX COUNTY, VIRGINIA

STORMWATER OUTFALL SECTIONS

DATE	REVISION
7-30-07	PER COUNTY COMMENTS
8-20-07	PER CLIENT REQUEST

PM: TDB SCALE: AS SHOWN
PE: TDB DATE: 1/15/07
CO: MSO SHEET 8 OF 14

COPYRIGHT 2005. NO REPRODUCTION OR USE OF THE DRAWING IS ALLOWED IN PART OR IN WHOLE BY ANY PROCESS WITHOUT THE EXPRESS WRITTEN CONSENT OF TRI-TEK ENGINEERING, INC.

PHASE I

Northern Virginia BMP Handbook 11/6/92

BMP Facility Design Calculations

Plan Name: SPRINGFIELD GOLF & COUNTRY CLUB
Plan Number:
Date: 01/15/07
Engineer: B. THOMAS

I. Water Quality Narrative

(SEE SHEET 7 FOR BMP NARRATIVE)

II. Watershed Information

Part 1: List all of the Subareas and "C" Factors used in the BMP Computations

Subarea Designation and Description (1)	"C" (2)	Acres (3)
DA1: TO STORMFILTER 1	0.82	0.55
DA2: TO STORMFILTER 2	0.90	0.85
DA3: TO RAINGARDEN	0.67	0.45
DA4: OFFSITE TO STORMFILTER 1	0.37	0.26
DA5: OFFSITE TO RAINGARDEN	0.53	0.26
DA6: TO STORMFILTER 3	0.75	0.45
DA7: FUTURE BMP	0.69	0.92
DA8: UNCONTROLLED	0.48	4.25

NOTE: Rational formula "C" factors are taken from the general zoning values listed in Appendix 4-1 or 4-2 depending on the location of the BMP facility (Fairfax County Public Facilities Manual Chart A6-19 or Prince William County Design and Construction Standards Manual, Exhibit 1).

Appendix 4-4a
Calculations Worksheet

Northern Virginia BMP Handbook 11/6/92

Part 2: Compute the Weighted Average "C" Factor for the Site

(A) Area of the site (a) 7.47 acres

(B) Subarea Designation (1)	"C" (2)		Acres (3)		Product (4)
DA1: TO STORMFILTER 1	0.82	x	0.55	=	0.45
DA2: TO STORMFILTER 2	0.90	x	0.85	=	0.77
DA3: TO RAINGARDEN	0.67	x	0.45	=	0.30
DA6: STORMFILTER 3	0.75	x	0.45	=	0.34
DA7: FUTURE BMP	0.69	x	0.92	=	0.63
DA8: UNCONTROLLED	0.48	x	4.25	=	2.04
		x		=	
		x		=	
		x		=	
		x		=	
			(b) Total	=	4.53

(C) Weighted average "C" factor (b) / (a) = (c) 0.61

Part 3: Compute the Total Phosphorus Removal for the Site

Subarea Designation (1)	BMP Type (2)	Removal Eff. (%) (3)	Area Ratio (4)	"C" Factor Ratio (5)	Product (6)
DA1	STORMFILTER	50%	x 0.55/7.47	x 0.82/0.61	= 4.95
DA2	STORMFILTER	50%	x 0.85/7.47	x 0.90/0.61	= 8.39
DA3	RAINGARDEN	65%	x 0.45/7.47	x 0.67/0.61	= 4.30
DA4	STORMFILTER	50%	x 0.26/7.47	x 0.37/0.61	= 1.06
DA5	RAINGARDEN	65%	x 0.26/7.47	x 0.53/0.61	= 1.97
DA6	STORMFILTER	50%	x 0.45/7.47	x 0.75/0.61	= 3.70
DA7	FUTURE BMP	50%	x 0.92/7.47	x 0.69/0.61	= 6.97*
			x	x	=
			x	x	=
			x	x	=

(a) Total = 24.37 %

*FUTURE BMP CREDIT HAS NOT BEEN USED IN THE COMPUTATION FOR PHASE I BMP REQUIREMENTS.

Appendix 4-4c
Calculations Worksheet

Northern Virginia BMP Handbook 11/6/92

Part 4: Determine Compliance with Phosphorus Removal Requirement

(A) Select Requirement (a) 23.80

- Water Supply Overlay District (Occoquan Watershed) = 50% (Fairfax County and Prince William County)
- Chesapeake Bay Preservation Area (New Development) = 40% (Fairfax County) 50% (Prince William County)
- Chesapeake Bay Preservation Area (Redevelopment) = [1-0.9 x ("l"pre / "l"post)] x 100 = 23.8 % PER PFM 6-401.2B P(removal)=[1-0.9(.44/.52)]x100 =23.8%

(B) If Line 3(a) 24.37 ≥ Line 4(a) 23.80 then Phosphorus removal requirement is satisfied.

PHOSPHORUS REMOVAL REQUIREMENTS HAVE BEEN MET.

SITE IMPERVIOUSNESS CALCULATIONS:

SITE AREA = 7.47 AC.
EXISTING CONDITIONS = 143,530 SF (3.295 AC.)
PHASE I CONDITIONS = 170,102 SF (3.905 AC.)
PHASE II CONDITIONS = 177,768 SF (4.081 AC.)

CHANGE IN IMPERVIOUSNESS:
PHASE I TO EXISTING = INCREASE 0.61 AC. OR 18.5%
PHASE II TO EXISTING = INCREASE OF 0.79 AC. OR 23.9%

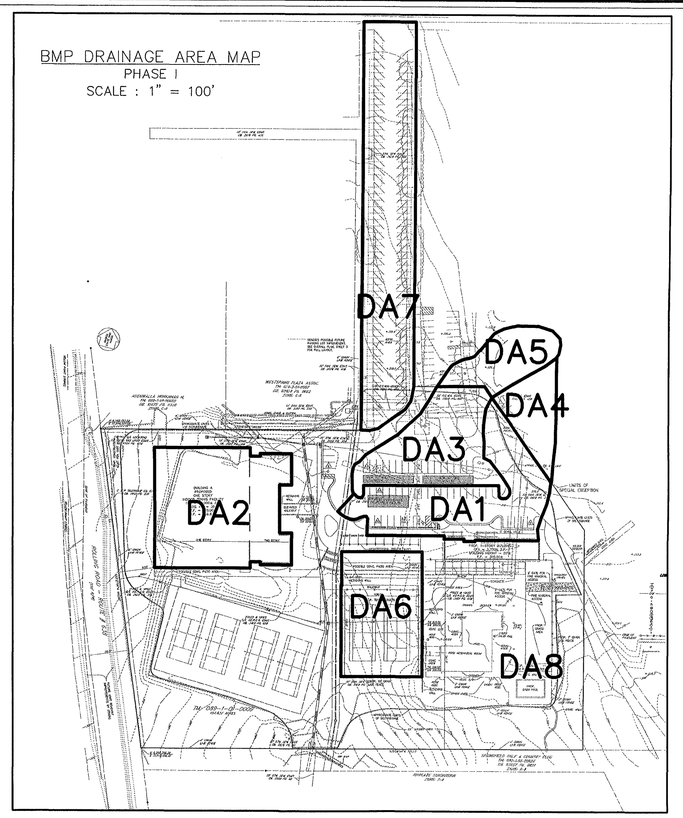
SITE IMPERVIOUS PERCENTAGE:
EXISTING CONDITIONS = 3.295 AC./7.47 AC.= 44%
PHASE I CONDITIONS = 3.905 AC./7.47 AC.= 52%
PHASE II CONDITIONS = 4.081 AC./7.47 AC.= 55%

AS SUCH, THE SITE QUALIFIES AS REDVELOPMENT FOR PHASE I BUT NOT FOR PHASE II.

BMP MAINTENANCE NOTE:

ALL BMP FACILITIES ARE TO BE PRIVATELY MAINTAINED.

BMP DRAINAGE AREA MAP
PHASE I
SCALE : 1" = 100'



PHASE II

Northern Virginia BMP Handbook 11/6/92

BMP Facility Design Calculations

Plan Name: SPRINGFIELD GOLF & COUNTRY CLUB
Plan Number:
Date: 01/15/07
Engineer: B. THOMAS

I. Water Quality Narrative

(SEE SHEET 7 FOR BMP NARRATIVE)

II. Watershed Information

Part 1: List all of the Subareas and "C" Factors used in the BMP Computations

Subarea Designation and Description (1)	"C" (2)	Acres (3)
DA1: TO STORMFILTER 1	0.82	0.55
DA2: TO STORMFILTER 2	0.90	0.85
DA3: TO RAINGARDEN	0.67	0.45
DA4: OFFSITE TO STORMFILTER 1	0.37	0.26
DA5: OFFSITE TO RAINGARDEN	0.53	0.26
DA6: TO STORMFILTER 3	0.75	0.45
DA7: FUTURE BMP	0.69	0.92
DA8: UNCONTROLLED	0.46	2.55
DA9: INFILTRATION TRENCH	0.66	1.50
DA10: OFFSITE TO INFILTRATION TRENCH	0.30	0.16
DA11: CONSERVATION AREA	0.30	0.20

NOTE: Rational formula "C" factors are taken from the general zoning values listed in Appendix 4-1 or 4-2 depending on the location of the BMP facility (Fairfax County Public Facilities Manual Chart A6-19 or Prince William County Design and Construction Standards Manual, Exhibit 1).

Appendix 4-4a
Calculations Worksheet

Northern Virginia BMP Handbook 11/6/92

Part 2: Compute the Weighted Average "C" Factor for the Site

(A) Area of the site (a) 7.47 acres

(B) Subarea Designation (1)	"C" (2)		Acres (3)		Product (4)
DA1: TO STORMFILTER 1	0.82	x	0.55	=	0.45
DA2: TO STORMFILTER 2	0.90	x	0.85	=	0.77
DA3: TO RAINGARDEN	0.67	x	0.45	=	0.30
DA6: STORMFILTER 3	0.75	x	0.45	=	0.34
DA7: FUTURE BMP	0.69	x	0.92	=	0.63
DA8: UNCONTROLLED	0.46	x	2.55	=	1.17
DA9: INFILTRATION TRENCH	0.66	x	1.50	=	0.99
DA11: CONSERVATION AREA	0.30	x	0.20	=	0.06
		x		=	
		x		=	
			(b) Total	=	4.71

(C) Weighted average "C" factor (b) / (a) = (c) 0.63

Part 3: Compute the Total Phosphorus Removal for the Site

Subarea Designation (1)	BMP Type (2)	Removal Eff. (%) (3)	Area Ratio (4)	"C" Factor Ratio (5)	Product (6)
DA1	STORMFILTER	50%	x 0.55/7.47	x 0.82/0.63	= 4.79
DA2	STORMFILTER	50%	x 0.85/7.47	x 0.90/0.63	= 8.13
DA3	RAINGARDEN	65%	x 0.45/7.47	x 0.67/0.63	= 4.16
DA4	STORMFILTER	50%	x 0.26/7.47	x 0.37/0.63	= 1.02
DA5	RAINGARDEN	65%	x 0.26/7.47	x 0.53/0.63	= 1.90
DA6	STORMFILTER	50%	x 0.45/7.47	x 0.75/0.63	= 3.59
DA7	FUTURE BMP	50%	x 0.92/7.47	x 0.69/0.63	= 6.74*
DA9	INFIL. TRENCH	65%	x 1.50/7.47	x 0.66/0.63	= 13.67
DA10	INFIL. TRENCH	65%	x(.2)0.16/7.47	x 0.30/0.63	= 0.13
DA11	CONSERVATION	100%	x 0.20/7.47	x 1.00	= 2.68

(a) Total = 40.07 %

*FUTURE BMP CREDIT HAS NOT BEEN USED IN THE COMPUTATION FOR PHASE II BMP REQUIREMENTS.

Appendix 4-4c
Calculations Worksheet

Northern Virginia BMP Handbook 11/6/92

Part 4: Determine Compliance with Phosphorus Removal Requirement

(A) Select Requirement (a) 40.0

- Water Supply Overlay District (Occoquan Watershed) = 50% (Fairfax County and Prince William County)
- Chesapeake Bay Preservation Area (New Development) = 40% (Fairfax County) 50% (Prince William County)
- Chesapeake Bay Preservation Area (Redevelopment) = [1-0.9 x ("l"pre / "l"post)] x 100 = __%

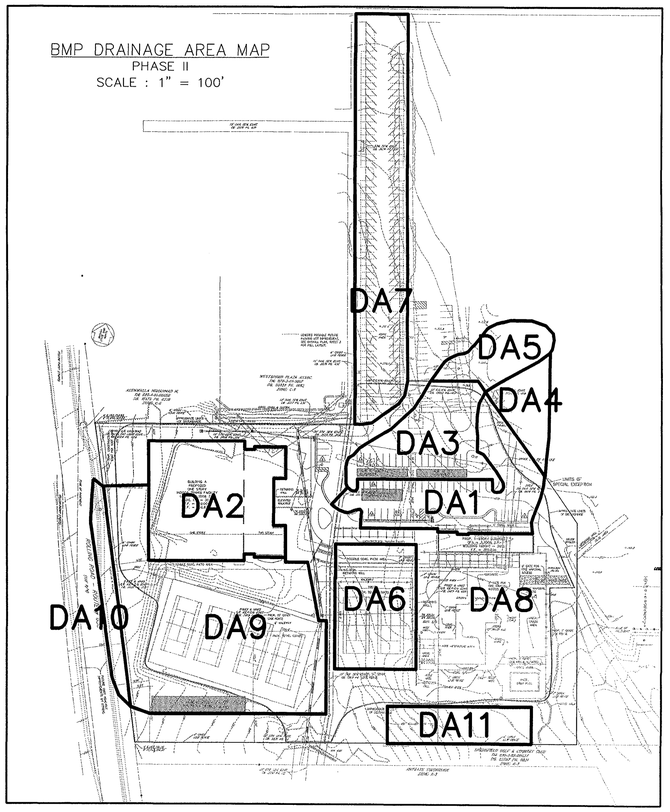
(B) If Line 3(a) 40.07 ≥ Line 4(a) 40.0 then Phosphorus removal requirement is satisfied.

PHOSPHORUS REMOVAL REQUIREMENTS HAVE BEEN MET.

CONSERVATION AREA NOTE:
WATER QUALITY MANAGEMENT AREA. BMP CREDIT ALLOWED FOR OPEN SPACE. NO DISTURBANCE OF THIS AREA IS PERMITTED WITHOUT THE EXPRESS WRITTEN PERMISSION OF THE DIRECTOR OF PUBLIC WORKS AND ENVIRONMENTAL SERVICES.

cation No. SE 2007-SP-008 Staff BB
APPROVED SP/ SP PLAN
SEE DEV CONDS DATED
Date of BOS (BZA) approval 7/24/07
Sheet 9 of 14

BMP DRAINAGE AREA MAP
PHASE II
SCALE : 1" = 100'



TRI-TEK ENGINEERING
CIVIL
ENVIRONMENTAL
LAND PLANNING
SURVEYING
690 Center Street
Suite 300
Herndon, Virginia 20170
V: (703) 481-5900
F: (703) 481-5901
info@tritekinc.com

COMMONWEALTH OF VIRGINIA
THEODORE J. BRITT
NO. 023803
6-20-07
PROFESSIONAL ENGINEER

SPRINGFIELD GOLF & COUNTRY CLUB
FAIRFAX COUNTY, VIRGINIA
SPRINGFIELD DISTRICT

BMP COMPUTATIONS AND DETAILS

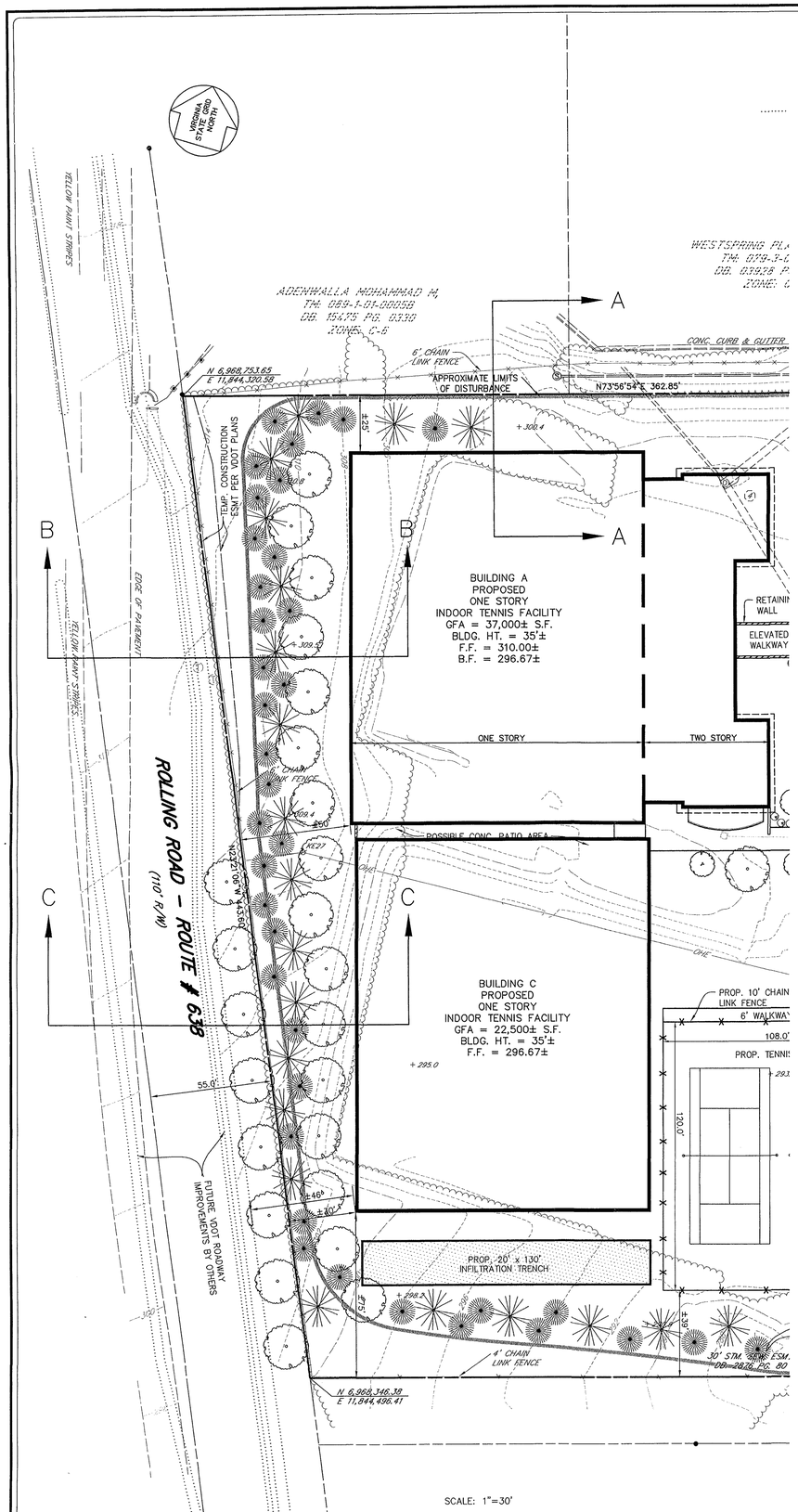
DATE	REVISION
7-30-07	PER COUNTY COMMENTS
8-20-07	PER CLIENT REQUEST

PM: TDB SCALE: AS SHOWN
PE: TDB DATE: 1/15/07
CO: MSO SHEET 9 OF 14

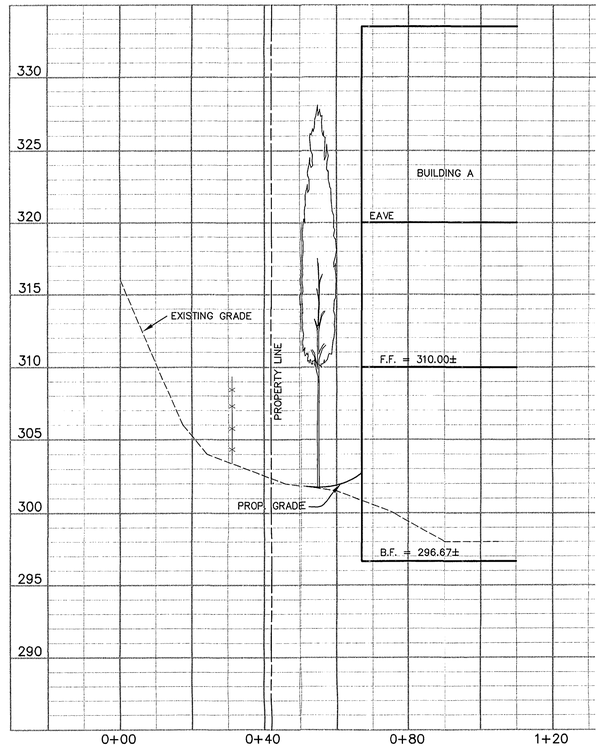
F-2247

COPYRIGHT 2005. NO REPRODUCTION OR USE OF THE DRAWING IS ALLOWED IN PART OR IN WHOLE BY ANY PROCESS WITHOUT THE EXPRESS WRITTEN CONSENT OF TRI-TEK ENGINEERING, INC.

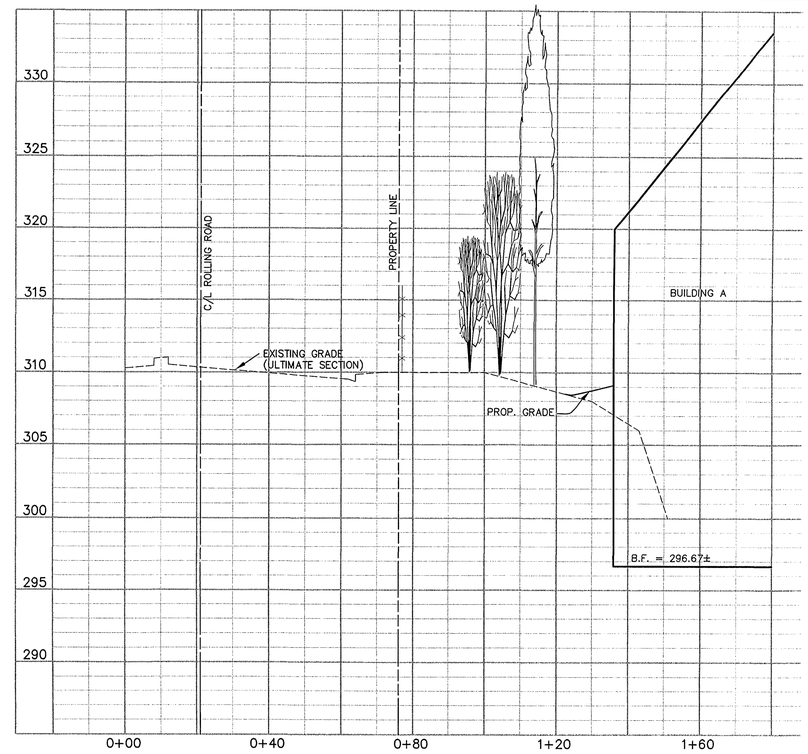
C:\0Drawings\F-2247 (pools)\F-2247-SPP-09-MP.dwg, 8/20/2007 2:13:21 PM, SOlson, 6204 Wide Format HDI.pc3, 1:1, TRI-TEK Engineering, Inc.



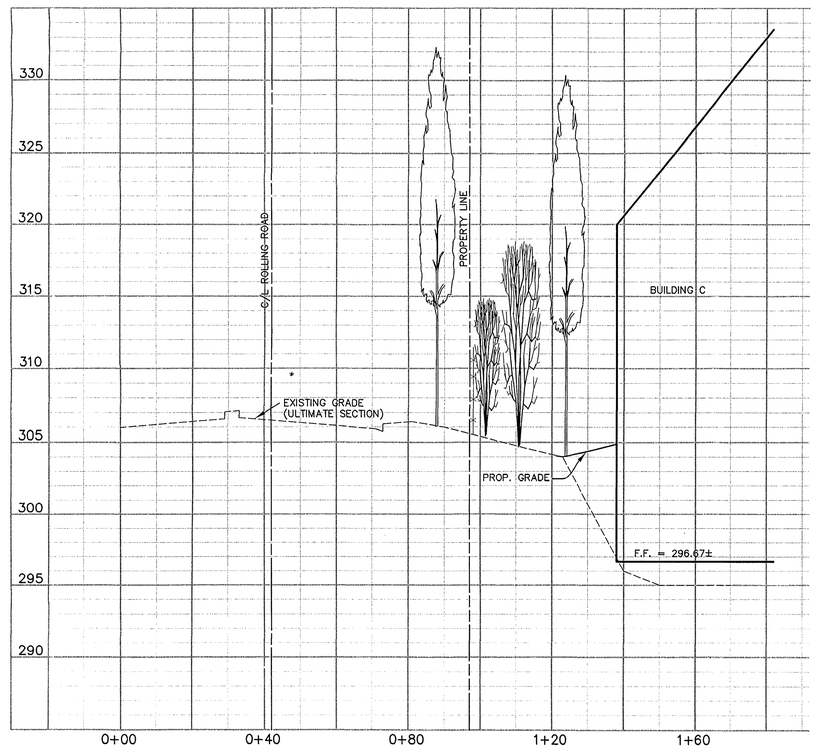
SCALE: 1"=30'



SECTION A–A
SCALE: H. 1"=20' V. 1"=5'



SECTION B–B
SCALE: H. 1"=20' V. 1"=5'



SECTION C–C
SCALE: H. 1"=20' V. 1"=5'

cation No. SE 2007-SP-008 Staff PB
APPROVED (SE)/ SP PLAN
SEE DEV CONDS DATED
Date of (BOS) (BZA) approval 9/24/07
Sheet 10 of 14

TRI-TEK ENGINEERING
CIVIL
ENVIRONMENTAL
LAND PLANNING
SURVEYING
690 Center Street
Suite 300
Herndon, Virginia 20170
V: (703) 481-5900
F: (703) 481-5901
info@tritekinc.com

COMMONWEALTH OF VIRGINIA
THEODORE D. BRITT
NO. 023808
8-20-07
PROFESSIONAL ENGINEER

SPRINGFIELD GOLF & COUNTRY CLUB

SPRINGFIELD DISTRICT
FAIRFAX COUNTY, VIRGINIA

BUILDING CROSS SECTIONS

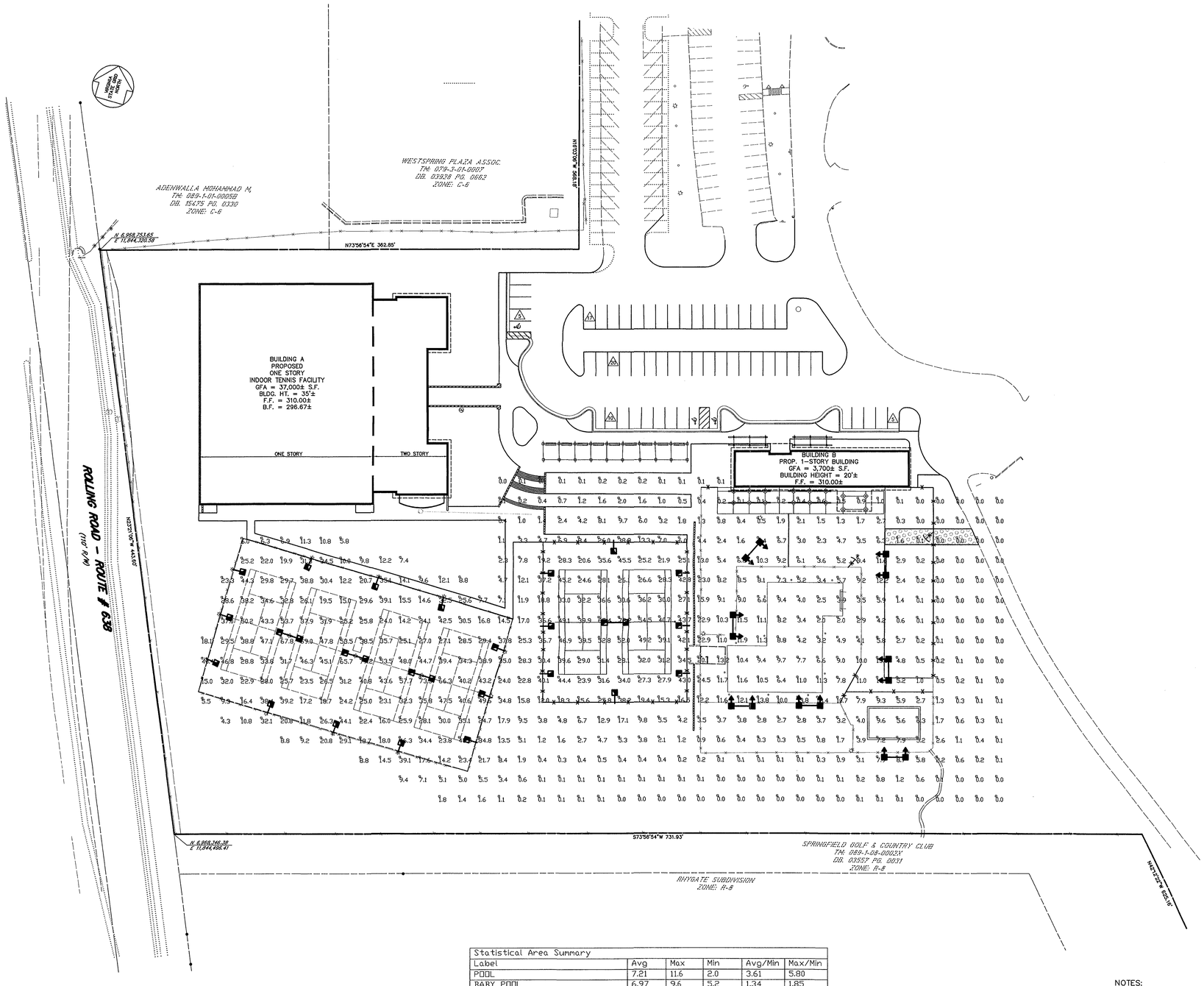
DATE	REVISION
7-30-07	PER COUNTY COMMENTS
8-20-07	PER CLIENT REQUEST

PM: TDB SCALE: AS SHOWN
PE: TDB DATE: 1/15/07
CO: MSO SHEET 10 OF 14

F-2247

COPYRIGHT 2005. NO REPRODUCTION OR USE OF THE DRAWING IS ALLOWED IN PART OR IN WHOLE BY ANY PROCESS WITHOUT THE EXPRESS WRITTEN CONSENT OF TRI-TEK ENGINEERING, INC.

U:\drawings\F-2247\plots\SP-UZ\F-2247-SP-10-X3ELC.dwg, 8/20/2007 2:12:56 PM, SOlson, 6204 Wide Format HDI.pc3, 1:1, TRi-TEK Engineering, Inc.



Statistical Area Summary					
Label	Avg	Max	Min	Avg/Min	Max/Min
POOL	7.21	11.6	2.0	3.61	5.80
BABY POOL	6.97	9.6	5.2	1.34	1.85
TENNIS COURTS	33.19	77.2	6.0	5.53	12.87

Luminaire Schedule						
Symbol	Qty	Label	Arrangement	Lumens	LLF	Description
	7	A	FORWARD-THROW-D180	36000	0.750	WLS-FVM-FP-400-MHR-FG 20' POLE
	4	C	D180°	110000	0.750	CXLS-FT-1000-MH-F 22' MH
	20	D	SINGLE	110000	0.750	CXLS-FT-1000-MH-F 22' MH

NOTES:

1. THE APPLICANT RESERVES THE RIGHT TO MAINTAIN THE EXISTING LIGHTING AT THE POOL UNTIL SUCH TIME THAT THEY ELECT TO REPLACE THE LIGHTING WHICH WILL BE REPLACED IN CONFORMANCE WITH THE APPROVAL PLAN.
2. THE APPLICANT RESERVES THE RIGHT TO MAKE MINOR DEVIATIONS TO THE PLAN SO LONG AS THOSE CHANGES ARE IN SUBSTANTIAL CONFORMANCE WITH THE PLAN AS DETERMINED BY THE COUNTY OF FAIRFAX.
3. THE PHOTOMETRICS FOR THE EXISTING TENNIS COURTS ARE BASED ON THE EXISTING LIGHTS WHICH ARE PROPOSED TO REMAIN.

cation No. SE 2007-SP-008 Staff PB
APPROVED (SE) SP PLAN
SEE DEV CONDS DATED
Date of (BOS) (BZA) approval 9/24/07
Sheet 11 of 14

TRI-TEK ENGINEERING
CIVIL
ENVIRONMENTAL
LAND PLANNING
SURVEYING
690 Center Street
Suite 300
Herndon, Virginia 20170
V: (703) 481-5900
F: (703) 481-5901
info@tritekinc.com

COMMONWEALTH OF VIRGINIA
THEODORE D. BRITT
NO. 023803
8-20-07
PROFESSIONAL ENGINEER

SPRINGFIELD GOLF & COUNTRY CLUB

SPRINGFIELD DISTRICT
FAIRFAX COUNTY, VIRGINIA

SPORTS ILLUMINATION PLAN PHASE 1

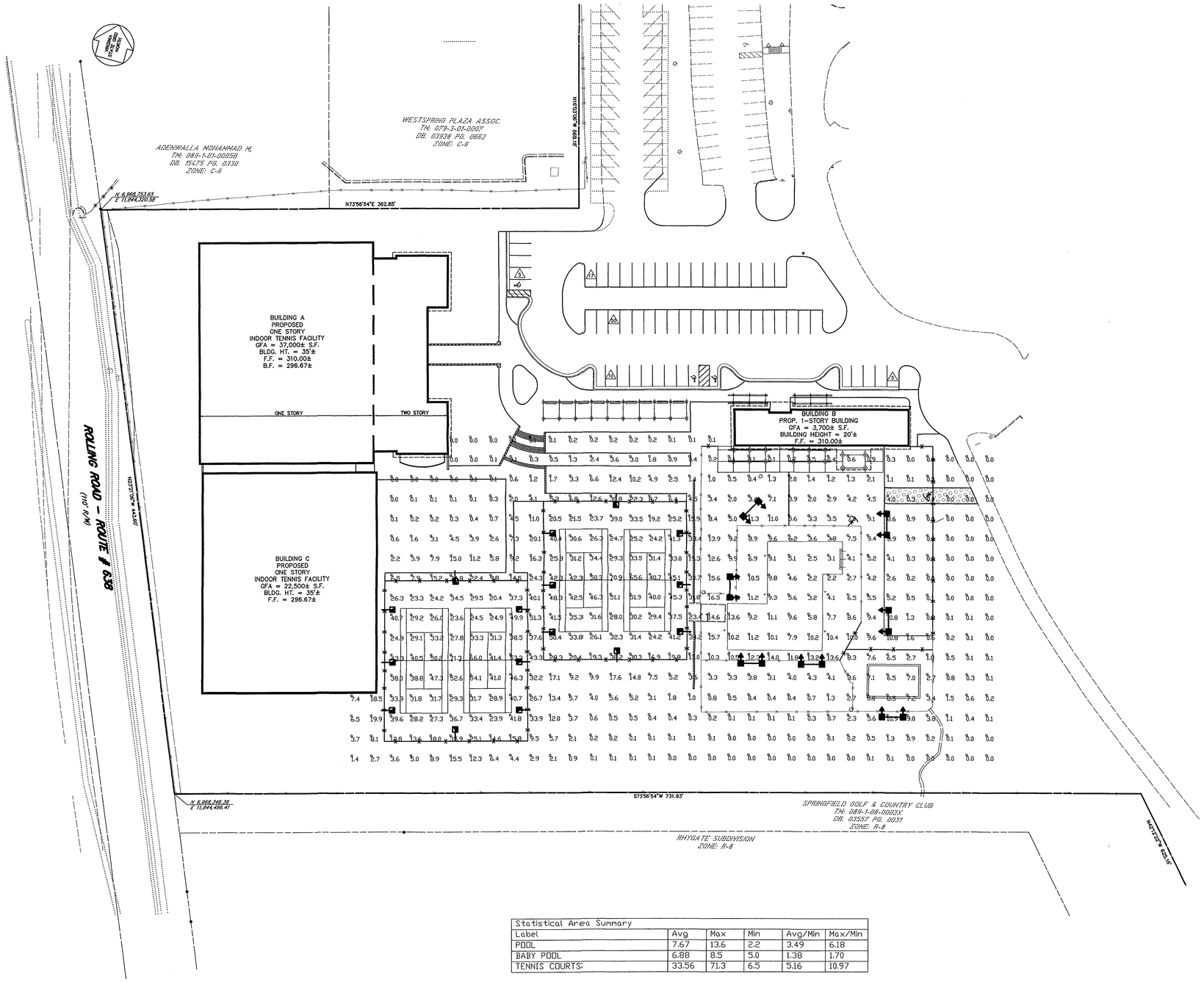
DATE	REVISION
7-30-07	PER COUNTY COMMENTS
8-20-07	PER CLIENT REQUEST

PM: TDB SCALE: 1"=40'
PE: TDB DATE: 1/15/07
CO: MSO SHEET 11 OF 14

F-2247

COPYRIGHT 2005. NO REPRODUCTION OR USE OF THE DRAWING IS ALLOWED IN PART OR IN WHOLE BY ANY PROCESS WITHOUT THE EXPRESS WRITTEN CONSENT OF TRI-TEK ENGINEERING, INC.

O:\drawings\F-2247\plots\SPP-211-LIGH1.dwg, 8/21/2007 11:03:23 AM, SOlson, 6204 Wide Format HP.pc3, 1:1, TRI-TEK Engineering, Inc.



Statistical Area Summary					
Label	Avg	Max	Min	Avg/Min	Max/Min
POOL	7.67	13.6	2.2	3.49	6.18
BABY POOL	6.88	8.5	5.0	1.38	1.70
TENNIS COURTS:	33.56	71.3	6.5	5.16	10.97

Luminaire Schedule						
Symbol	Qty	Label	Arrangement	Lumens	LLF	Description
	7	A	FORWARD-THROW-D180	36000	0.750	WLS-FVM-FP-400-MHR-FG 20' POLE
	2	C	D180°	110000	0.750	CXLS-FT-1000-MH-F 22' MH
	16	D	SINGLE	110000	0.750	CXLS-FT-1000-MH-F 22' MH

...ation No. SE 2007-SP-007 Staff PB

APPROVED (SE) SP PLAN

SEE DEV CONDS DATED _____

Date of (BOS) (BZA) approval 9/21/07

Sheet 12 of 14

TRI-TEK ENGINEERING

CIVIL
ENVIRONMENTAL
LAND PLANNING
SURVEYING

690 Center Street
Suite 300
Herndon, Virginia 20170
V: (703) 481-5900
F: (703) 481-5901
info@tritekinc.com

COMMONWEALTH OF VIRGINIA
THEODORE D. BRITT
NO. 023803
PROFESSIONAL ENGINEER

SPRINGFIELD GOLF & COUNTRY CLUB

SPRINGFIELD DISTRICT

FAIRFAX COUNTY, VIRGINIA

SPORTS ILLUMINATION PLAN PHASE 2

DATE	REVISION
7-30-07	PER COUNTY COMMENTS
8-20-07	PER CLIENT REQUEST

PM: TDB SCALE: 1"=40'
PE: TDB DATE: 1/15/07
CO: MSO SHEET 12 OF 14

COPYRIGHT 2005. NO REPRODUCTION OR USE OF THE DRAWING IS ALLOWED IN PART OR IN WHOLE BY ANY PROCESS WITHOUT THE EXPRESS WRITTEN CONSENT OF TRI-TEK ENGINEERING, INC.

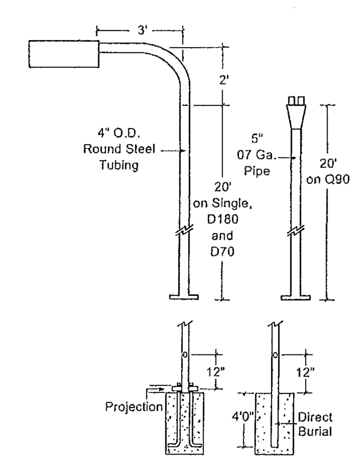
F-2247

COURTSIDER® XL

by LSI Courtsider Sports Lighting

Courtsider Sports Lighting™

POLE AND BRACKET SPECIFICATION

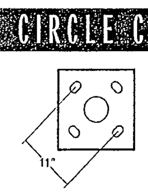


POLES (Straight Round Steel Poles)

- Single, D180 and D70 pole shafts are electro-welded ASTM-A513 4" O.D. round steel tubing.
- Quad pole shaft is 5" 07 Ga. steel tubing.
- Tenon is 2-3/8" O.D. high strength pipe. Tenon is 4-3/4" in length.
- Poles are furnished with anchor bolts with zinc plated double nuts and washers. Galvanized anchor bolts are optional. Anchor bolts conform with ASTM-A36 with a minimum yield strength of 36,000 PSI.
- Base is ASTM-A36 hot-rolled steel plate with a minimum yield strength of 36,000 PSI.
- 3" x 6" oval hand-hole is 12" above pole base.
- Ground lug is standard.
- Weatherproof duplex receptacle is optional.
- Ground fault circuit interrupter is optional.
- Four-inch diameter bracket slipfits pole tenon. Hardware to level the bracket is internally threaded, concealing it from view for a cleaner appearance. One through-bolt secures bracket.
- 4" O.D. steel tubing is approximately 5-1/2 lbs. per ft.
- 5" O.D. 07 Ga. steel tubing is approximately 10 lbs. per ft.
- Two-piece fabricated aluminum base cover is standard for anchor base poles.

EPA's on standard pole configurations are guaranteed up to 80 MPH. Please consult factory for areas with wind ratings higher than 80 MPH. Caution: The Courtsider Sports Lighting guarantee does not apply if the pole/bracket/fixture combination is used to support any other items, such as flags, pennants, or signs, which would add stress to the pole. Courtsider Sports Lighting cannot accept responsibility for harm or damage caused in these situations.

BOLT CIRCLE CHART



Configuration	Anchor Bolt Size	Anchor Bolt Projection	Base Plate Diameter	Base Plate Thickness
Single, D70, D180 (4" O.D.)	3/4" x 30"	3-1/4"	10-1/8" Square	3/4"
Quad (5" O.D.)	1" x 36"	4"	10-1/8" Square	1"

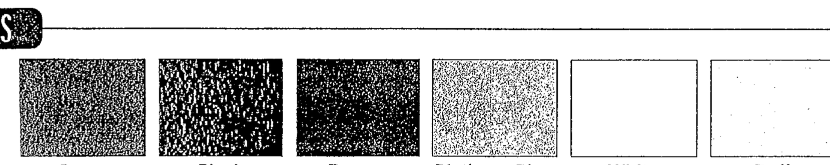
ORDERING CHART

Assembly Type	Line Voltage	Luminaire Finish	Luminaire Options	Pole Options
ANCHOR BASE	MT	GRN – Green	HSS – House Side Shield	ER2 – Weatherproof Duplex Receptacle
CXLS-A-4TBC	480V	BLK – Black	PLS – Polycarbonate Shield	GFI – Ground Fault Circuit Interrupter
CXLS-B-4TBC	220/240V 50HZ	BRZ – Bronze	LL – Less Lamp	GA – Galvanized Anchor Bolts
CXLS-C-4TBC		PLP – Platinum Plus	NO – No Options	HD – Heavy Duty Pole (a)
CXLS-D-4TBC		BUF – Buff		SHD – Super Heavy Duty Pole (b)
DIRECT BURIAL		WHT – White		NO – No Options
CXLS-A-DB				
CXLS-B-DB				
CXLS-C-DB				
CXLS-D-DB				

EXAMPLE OF A TYPICAL ORDER CXLS-A-DB-MT-GRN-NO-ER2

(a) Order for use on types B & C for wind zones of 90 MPH and 100 MPH.
(b) Order for use on Doubles for wind zones between 100 MPH and 120 MPH.
Note: when ordering only fixture, consult factory.

FINISHES



Green Black Bronze Platinum Plus White Buff

LSI Courtsider Sports Lighting
10000 Alliance Road, Cincinnati, Ohio 45242
Phone: (800) 794-3448 • Fax: (800) 373-9998
E-mail: courtsider@lsi-industries.com • www.courtsider.com

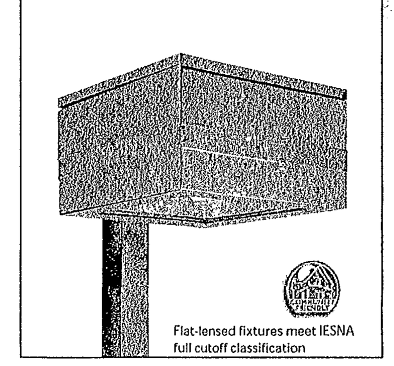
c UL us LISTED

MEMBER U.S. TENNIS COURT AND TRACK BUILDERS ASSOCIATION

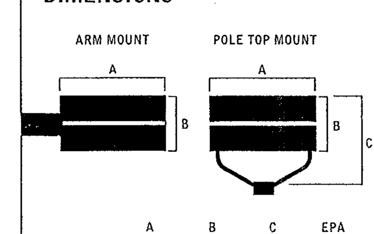
© 2003 LSI Industries Inc.
2510 9/03 5K

WLS LIGHTING SYSTEMS

FV SERIES
VERTICAL LAMP/FLAT GLASS LENS

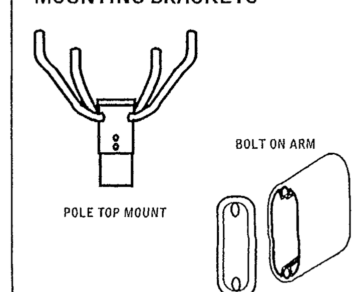


DIMENSIONS



	A	B	C	EPA
FVM	21 5/8"	12 3/4"	21 15/16"	2.8
FVR	21 5/8"	16"	25"	3.5

MOUNTING BRACKETS



Approved By: ______
Project Name: ______
Location: ______
Date: ______

SPECIFICATIONS

HOUSING The FV Series formed aluminum housing is finished to produce a clean, sharp appearance and ensures weather-tight construction. Available in 2 sizes: Medium (reduced envelope 400 Watt Lamp) and Reduced (reduced envelope 1000 Watt Lamp).

LENS/GASKET A flat tempered glass lens is sealed to the housing with an EPDM gasket, preventing entry of moisture and insects. Combined with the vertical burn feature, the flat glass lens provides high performance lighting.

TOP ACCESS Is secured by four captive stainless steel fasteners and provides ease of installation and servicing.

FINISHES Each fixture is finished with a baked-on polyester powder finishing process to give the fixture an exceptionally attractive appearance. Standard finish colors include bronze, buff, black, platinum, white and green. The polyester finish withstands extreme weather changes without cracking or peeling. Consult factory for available custom colors and pinstripe decal options.

REFLECTORS/DISTRIBUTION PATTERNS The FV Series fixture is available in four reflector systems and distribution patterns, all with vertical burn lamps: Type II (2), Type III (3), Type V (5), and Perimeter Forward Throw (FP). Reflectors are field-rotatable, enabling generous flexibility in distribution patterns without fixture movement.

LIGHT SOURCES Designed to operate with Pulse-Start Metal Halide, Super Metal Halide, Metal Halide, Metal Halide Reduced Envelope or High Pressure Sodium.

SOCKETS Porcelain mogul-base sockets with spring-reinforced contacts.

BALLAST Metal Halide, Super Metal Halide, and High Pressure Sodium feature a high-power factor CWA ballast, and are designed for -20 F operation.

BRACKETS Arm Mount: 5 1/2" x 2 1/2" x 12" length shipped standard. (An 8" bracket is available for single or D180 configurations, but must be ordered separately from Options column of the ordering chart.) A Round Pole Plate (RPP) is required for mounting to 3" - 5" round poles. (See Options in Luminaire Ordering Information.) **Pole Top:** Cast aluminum mounting hub conceals the wiring compartment and mounting hardware (consisting of four 11/16" O.D. aluminum rods for medium fixtures and 7/8" O.D. aluminum rods for large fixtures, and high-strength grade-five steel bolt with nylon insert and split lock washer for double locking.)

c UL us listed for wet locations.

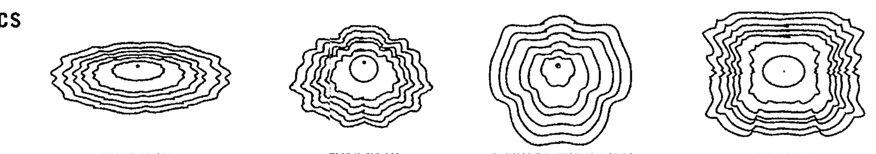
WLS LIGHTING SYSTEMS
MANUFACTURING SINCE 1969

P.O. Box 100519 • Fort Worth, TX 76185
800.633.8711 • Fax: 817.735.4824 • www.wlslighting.com

FV SERIES
VERTICAL LAMP/FLAT GLASS LENS

FIXTURE MOUNTING CONFIGURATIONS

OPTICS



NOTE: Based on 1000 Watt MH vertical burn. Consult factory for accurate optics.

ORDERING INFORMATION SELECT APPROPRIATE CHOICE FROM EACH COLUMN TO FORMULATE ORDER CODE. Refer to example below.

LUMINAIRE PREFIX	DISTRIBUTION	LAMP WATTAGE	LIGHT SOURCE	LENS	LINE VOLTAGE	LUMINAIRE FINISH	OPTIONS
FVM	2 - Type II 3 - Type III FP - Perimeter Forward Throw 5 - Type V	250W 320W 400W	PSMH - Pulse-Start Metal Halide 250, 320 Watt HPS - High Pressure Sodium 250, 400 Watt MHR - Metal Halide Reduced Envelope 400 Watt MH - Metal Halide 250 Watt	FG - Flat Glass	480V MT - Multi Tap[3] TT - Tri Tap[2]	BRZ - Bronze BLK - Black PLT - Platinum BUF - Buff WHT - White GRN - Green CC - Custom Color	LL - Less Lamp GS - Glare Shield 8BK - 8" Bracket RPP - Round Pole Plate BKT-WM - Wall Mount Plate PT - Pole Top SF - Single Fusing DF - Double Fusing AS - Accent Striping PC - Photo Cell NO - No Options
FVR	2 - Type II 3 - Type III FP - Perimeter Forward Throw 5 - Type V AF - Automotive Forward	400W 750W 1000W	MHR - Metal Halide Reduced Envelope 1000 Watt PSMH - Pulse-Start Metal Halide HPS - High Pressure Sodium[1]				

FVR 5 1000 MHR FG MT BRZ NO
(EXAMPLE ORDER)

ORDER:

WLS ____ ____ ____ ____ ____ ____ ____ ____

NOTE:
1. Voltage for 750W High Pressure Sodium must be specified.
2. Consult factory for international voltages. (120, 277, 347 Voltage)
3. MT - Multi Tap is shipped standard unless otherwise specified. (Multi Tap consists of 120V, 208V, 240V, and 277V. Multi Tap is pre-wired for highest voltage. Alternate voltages will require field re-wiring.)

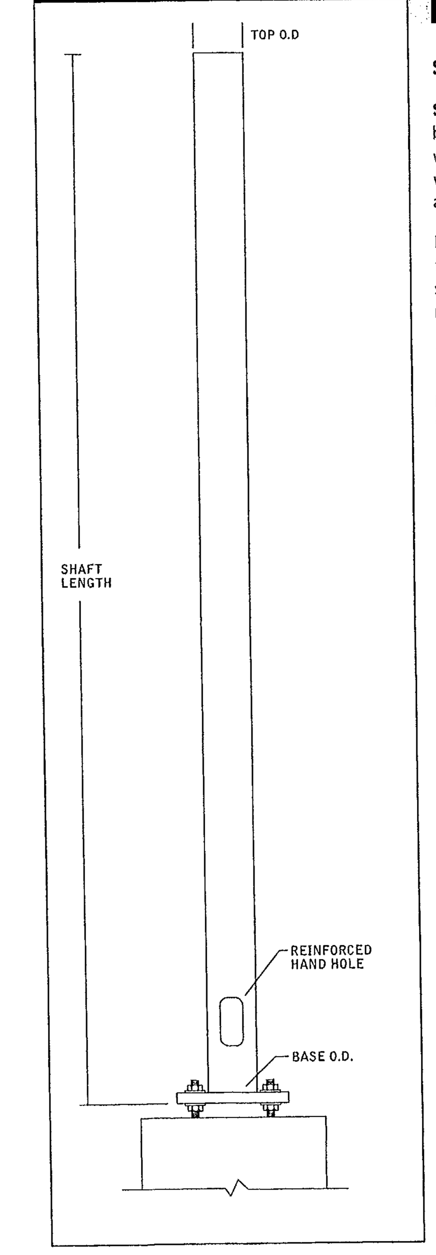
Approved By: ______
Project Name: ______
Location: ______
Date: ______

WLS LIGHTING SYSTEMS
MANUFACTURING SINCE 1969

P.O. Box 100519 • Fort Worth, TX 76185
800.633.8711 • Fax: 817.735.4824 • www.wlslighting.com

WLS LIGHTING SYSTEMS

RNTS SERIES
ROUND NON-TAPERED STEEL



SPECIFICATIONS

STRUCTURAL DESIGN WLS poles are designed for the combined effects of both wind and dead load. The wind load effects have been analyzed with wind velocities ranging from 80 to 120 mph, with a 1.3 gust factor. Due to varying wind effects, height correction factors and drag coefficients have been applied to the entire structure.

POLE SHAFT Each pole shaft is made from a single ply sheet, which is formed into a tubular shape with one or more longitude welds; no welded splices are permitted. The material used for the pole sections meet the requirements of ASTM A572 or ASTM 595 Grade-A.

BASE PLATE Base plates are integrally welded to the bottom pole section of all anchor base-type assemblies with either a telescopic weld or a full-penetration weld with a back-up-bar. The material used for these plates will conform to either ASTM A36 or ASTM A572.

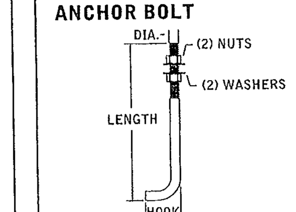
ANCHOR BOLTS All standard anchor bolts, nuts, and washers are not dipped, fully galvanized and meet the requirements of ASTM F1554, Grade 55.

HAND HOLES All hand holes are peripherally reinforced with flat bar which is integrally welded to the pole shaft. Each pole will have a 3"x5" reinforced hand hole located 12" to 18" from the base of the pole. Cover plates are included with all hand holes and are attached to the pole with a back-bar and screw.

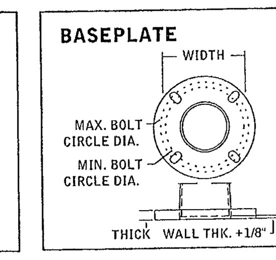
PROTECTIVE COATINGS All WLS poles are galvanized, powder coated, or a combination of the two. Galvanizing is in accordance with the requirements of ASTM A123. All poles are single dipped inside and out. In accordance with the USGA, no pole will be double dipped. Powder coated poles are cured at 400° Fahrenheit with urethane polyester powder covered throughout.

WELDING All welding is performed by AWS certified welders and all welds comply with the most recent edition of the AWS Structural Welding Code.

ANCHOR BOLT



BASEPLATE



WLS LIGHTING SYSTEMS
MANUFACTURING SINCE 1969

P.O. Box 100519 • Fort Worth, TX 76185
800.633.8711 • Fax: 817.735.4824 • www.wlslighting.com

RNTS SERIES
ROUND NON-TAPERED STEEL

ORDERING INFORMATION SELECT APPROPRIATE CHOICE FROM EACH COLUMN TO FORMULATE ORDER CODE. Refer to example below.

CATALOG NUMBER	BASE TYPE	STANDARD DRILLING PATTERNS	STANDARD TENONS	FINISH	STANDARD COLORS
WLS-RNTS-10-4-11 WLS-RNTS-15-4-11 WLS-RNTS-20-5-11 WLS-RNTS-25-5-11 WLS-RNTS-25-4-7 WLS-RNTS-30-5-11 WLS-RNTS-30-5-7	AB - Anchor Base EM - Embedded LAB - Less Anchor Bolts	DM19 - 1 @ 90° DM28 - 2 @ 180° DM29 - 2 @ 90° DM32 - 3 @ 120° DM39 - 3 @ 90° DM49 - 4 @ 90°	TN238 - 2 3/8" O.D. x 5" Length TN278 - 2 7/8" O.D. x 5" Length TN312 - 3 1/2" O.D. x 5" Length	PC - Powder Coated GV - Galvanized GP - Galvanized & Powder Coated	BRZ - Bronze BLK - Black PLT - Platinum BUF - Buff WHT - White GRN - Green CC - Custom Color

(EXAMPLE ORDER)
WLS-RNTS-10-4-11 AB DM19 OR TN238 GV WH
(Pole Height, Base Diameter, Gauge)

ORDER:

WLS-RNTS ____ ____ ____ ____ ____

CATALOG NUMBER	SHAFT LENGTH	SHAFT SIZE	BASE PLATE	BOLT CIRCLE	ANCHOR BOLT SIZE	WT.	80 MPH EPA*	90 MPH EPA*	100 MPH EPA*	110 MPH EPA*	120 MPH EPA*
WLS-RNTS-10-4-11	10'	4"	10"x.75"	9.5"[1]	.75"x30"x4"	97	35	27.5	22.5	18.5	15.5
WLS-RNTS-15-4-11	15'	4"	10.5"x.75"	9.5"[1]	.75"x30"x4"	136	21	16.5	13.5	11	9
WLS-RNTS-20-5-11	20'	5"	10.5"x.75"	10.5"[2]	.75"x30"x4"	218	22.5	18	14.5	11.5	9.5
WLS-RNTS-25-5-11	25'	5"	11"x.75"	10.5"[2]	.75"x30"x4"	265	15	12	9.5	7.5	6
WLS-RNTS-25-5-7	25'	5"	11"x.75"	10.5"[2]	1"x36"x4"	311	18.5	14.5	11.5	9.5	7.5
WLS-RNTS-30-5-11	30'	5"	11"x1"	10.5"[2]	1"x36"x4"	314	10.5	8	6.5	5	4
WLS-RNTS-30-5-7	30'	5"	11"x1"	10.5"[2]	1"x36"x4"	368	13	10	8	6.5	5

*1.3 gust factor [1]Slotted 9"-10" [2]Soltted 10"-11"

POLE SPECIFICATION CRITERIA:

1. POLE HEIGHT – The pole height will be determined by the lighting requirements as specified by the project designer. These lighting requirements will cause variance in the pole height, which is dependent upon fixture types, lighting level and uniformity requirements.

2. POLE DUTY RATING – The pole duty rating should be determined by comparing the system EPA and weight with the EPA and weight capacities listed in the table above. The values detailed in this table reflect the maximum capacities of the respective poles and are based upon a loading centroid located at the top of the pole.

3. POLE BASE – The pole base (Anchor Bolt or Embedded) is typically determined by the project specifications.

4. WIND VELOCITY – The wind velocity shall be determined from either the project specifications or the wind velocity map. This wind velocity map is based upon a 50-year mean recurrence interval. The wind values shown on this map represent wind velocities at 30 feet above the ground. When a project location is sited between adjacent wind zones, the wind zone with the greater wind velocity should be used. Unusual wind conditions may exist around mountainous areas or locations with unique terrain. Special design consideration should be given to such areas.

5. EPA – The EPA (Effective Projected Area) of the system should be computed by summing all of the EPA's of the external appurtenances, which are mounted on the pole. EPA values for WLS fixtures can be found on the appropriate product sheet located in this catalog.

6. WEIGHT – The weight of the system should be computed by summing all of the weights of the external appurtenances mounted on the pole. Weights of fixtures and brackets can be determined from the appropriate lighting fixture manufacturer.

Approved By: ______
Project Name: ______
Location: ______
Date: ______

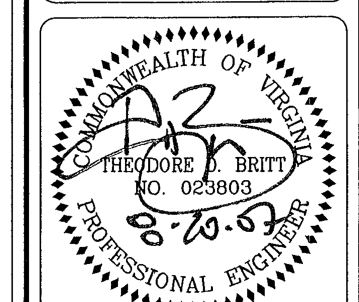
WLS LIGHTING SYSTEMS
MANUFACTURING SINCE 1969

P.O. Box 100519 • Fort Worth, TX 76185
800.633.8711 • Fax: 817.735.4824 • www.wlslighting.com

---

cation No. SE 2007-SP-008 Staff PB
APPROVED (SE) / SP PLAN
SEE DEV CONDS DATED ______
Date of (BOS) (BZA) approval 9/24/07
Sheet 13 of 14

TRI-TEK ENGINEERING
CIVIL
ENVIRONMENTAL
LAND PLANNING
SURVEYING
690 Center Street
Suite 300
Herndon, Virginia 20170
V: (703) 481-5900
F: (703) 481-5901
info@tritekinc.com



SPRINGFIELD GOLF & COUNTRY CLUB

FAIRFAX COUNTY, VIRGINIA

SPRINGFIELD DISTRICT

LIGHTING DETAILS

DATE	REVISION
7-30-07	PER COUNTY COMMENTS
8-20-07	PER CLIENT REQUEST

PM: TDB SCALE: NONE
PE: TDB DATE: 1/15/07
CO: MSO SHEET 13 OF 14

COPYRIGHT 2005. NO REPRODUCTION OR USE OF THE DRAWING IS ALLOWED IN PART OR IN WHOLE BY ANY PROCESS WITHOUT THE EXPRESS WRITTEN CONSENT OF TRI-TEK ENGINEERING, INC.

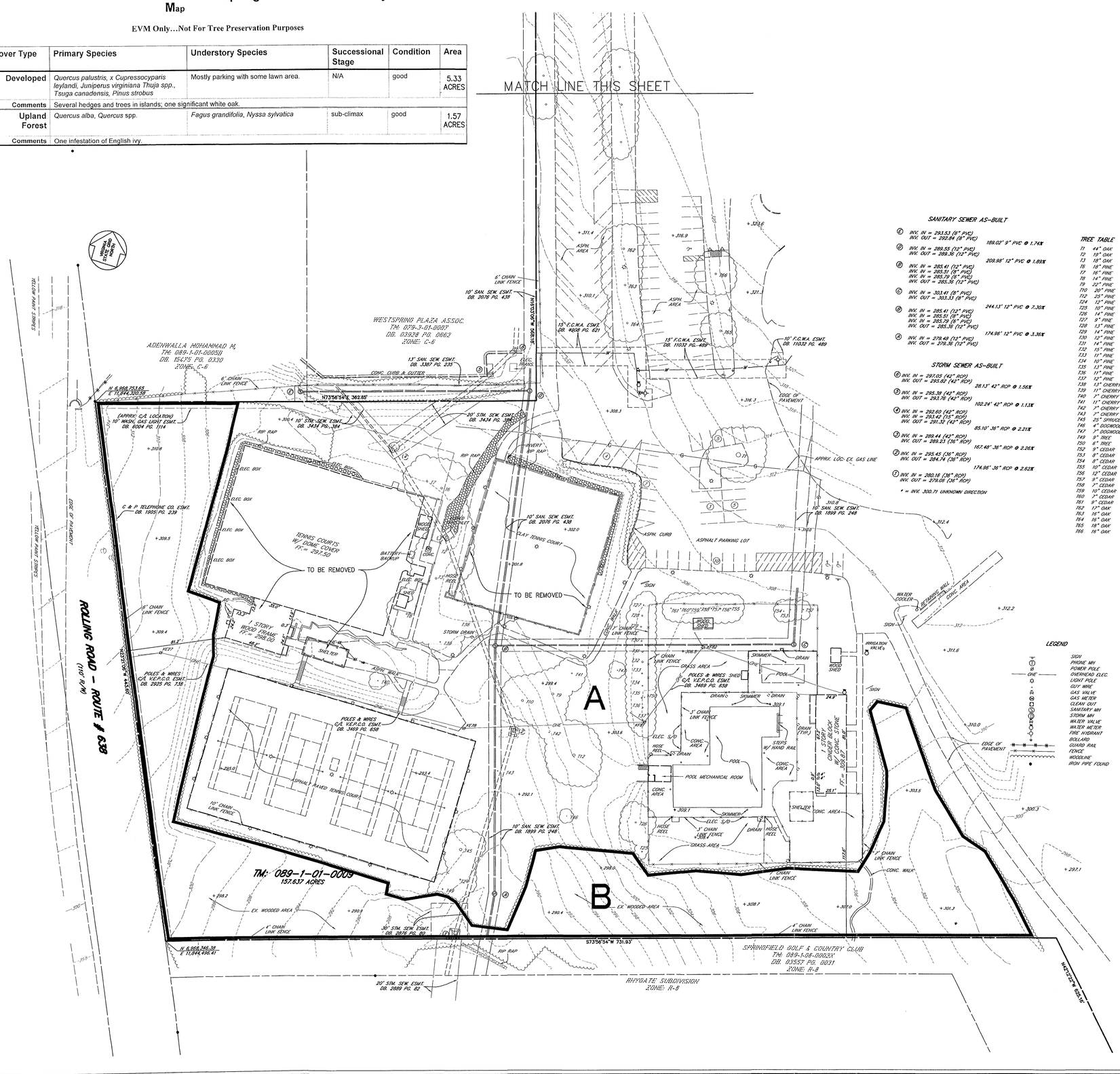
F-2247

Existing Vegetation Map

Springfield Golf and Country Club

EVM Only…Not For Tree Preservation Purposes

	Cover Type	Primary Species	Understory Species	Successional Stage	Condition	Area
A	Developed	*Quercus palustris, x Cupressocyparis leylandi, Juniperus virginiana Thuja spp., Tsuga canadensis, Pinus strobus*	Mostly parking with some lawn area.	N/A	good	5.33 ACRES
	Comments	Several hedges and trees in islands; one significant white oak.				
B	Upland Forest	*Quercus alba, Quercus* spp.	*Fagus grandifolia, Nyssa sylvatica*	sub-climax	good	1.57 ACRES
	Comments	One infestation of English ivy.				



SANITARY SEWER AS-BUILT

ⓔ	INV. IN = 293.53 (6" PVC) INV. OUT = 292.84 (8" PVC)	189.03' 9" PVC @ 1.74%
ⓓ	INV. IN = 289.55 (12" PVC) INV. OUT = 289.36 (12" PVC)	209.98' 12" PVC @ 1.69%
ⓑ	INV. IN = 285.41 (12" PVC) INV. IN = 285.51 (8" PVC) INV. IN = 285.79 (8" PVC) INV. OUT = 285.36 (12" PVC)	
ⓒ	INV. IN = 303.41 (8" PVC) INV. OUT = 303.33 (8" PVC)	244.13' 12" PVC @ 7.30%
ⓐ	INV. IN = 285.41 (12" PVC) INV. IN = 285.51 (8" PVC) INV. IN = 285.79 (8" PVC) INV. OUT = 285.36 (12" PVC)	174.96' 12" PVC @ 3.36%
④	INV. IN = 279.48 (12" PVC) INV. OUT = 279.36 (12" PVC)	

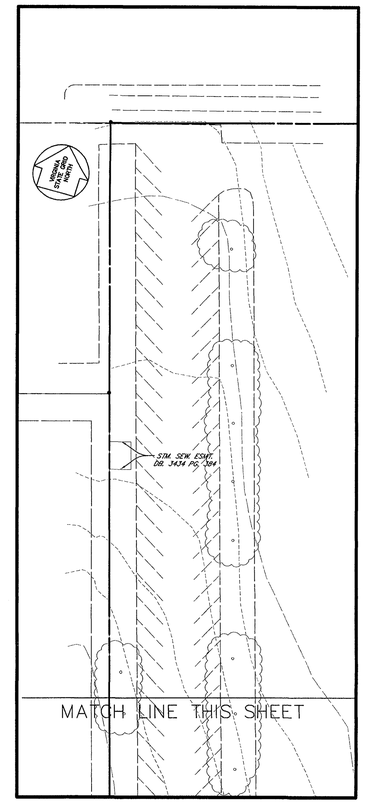
STORM SEWER AS-BUILT

⑥	INV. IN = 297.03 (42" RCP) INV. OUT = 295.62 (42" RCP)	28.13' 42" RCP @ 1.56%
⑤	INV. IN = 295.38 (42" RCP) INV. OUT = 293.76 (42" RCP)	102.24' 42" RCP @ 1.13%
④	INV. IN = 292.60 (42" RCP) INV. IN = 293.42 (15" RCP) INV. OUT = 291.32 (42" RCP)	85.10' 36" RCP @ 2.21%
③	INV. IN = 289.44 (42" RCP) INV. OUT = 289.23 (36" RCP)	167.48' 36" RCP @ 2.26%
②	INV. IN = 285.45 (36" RCP) INV. OUT = 284.74 (36" RCP)	174.96' 35" RCP @ 2.62%
①	INV. IN = 280.18 (36" RCP) INV. OUT = 279.08 (36" RCP)	

* = INV. 300.71 UNKNOWN DIRECTION

TREE TABLE

T1	44" OAK
T2	19" OAK
T3	18" OAK
T6	18" PINE
T7	16" PINE
T8	14" PINE
T9	22" PINE
T10	20" PINE
T12	25" PINE
T24	12" PINE
T25	10" PINE
T26	14" PINE
T27	9" PINE
T28	13" PINE
T29	14" PINE
T30	12" PINE
T31	14" PINE
T32	15" PINE
T33	11" PINE
T34	10" PINE
T35	13" PINE
T36	11" PINE
T37	12" PINE
T38	13" CHERRY
T39	11" CHERRY
T40	7" CHERRY
T41	11" CHERRY
T42	7" CHERRY
T43	7" CHERRY
T45	25" SPRUCE
T46	4" DOGWOOD
T47	7" DOGWOOD
T49	9" TREE
T50	6" TREE
T52	9" CEDAR
T53	8" CEDAR
T54	8" CEDAR
T55	10" CEDAR
T56	12" CEDAR
T57	9" CEDAR
T58	7" CEDAR
T59	10" CEDAR
T60	7" CEDAR
T61	9" CEDAR
T62	12" OAK
T63	16" OAK
T64	16" OAK
T65	18" OAK
T66	16" OAK



Application No. SE 2007-SP-008 Staff TDB
APPROVED (SE) SP PLAN
SEE DEV CONDS DATED
Date of (BOS) (BZA) approval 7/21/07
Sheet 14 of 14

TRI-TEK ENGINEERING
CIVIL
ENVIRONMENTAL
LAND PLANNING
SURVEYING
690 Center Street
Suite 300
Herndon, Virginia 20170
V: (703) 481-5900
F: (703) 481-5901
info@tritekinc.com

COMMONWEALTH OF VIRGINIA
THEODORE D. BRITT
NO. 023803
8.20.07
PROFESSIONAL ENGINEER

SPRINGFIELD GOLF & COUNTRY CLUB
SPRINGFIELD DISTRICT
FAIRFAX COUNTY, VIRGINIA

EXISTING CONDITIONS AND VEGETATION MAP

DATE	REVISION
7-30-07	PER COUNTY COMMENTS
8-20-07	PER CLIENT REQUEST

PM: TDB SCALE: 1"=40'
PE: TDB DATE: 1/15/07
CO: MSO SHEET 14 OF 14

COPYRIGHT 2005. NO REPRODUCTION OR USE OF THE DRAWING IS ALLOWED IN PART OR IN WHOLE BY ANY PROCESS WITHOUT THE EXPRESS WRITTEN CONSENT OF TRI-TEK ENGINEERING, INC.

F-2247