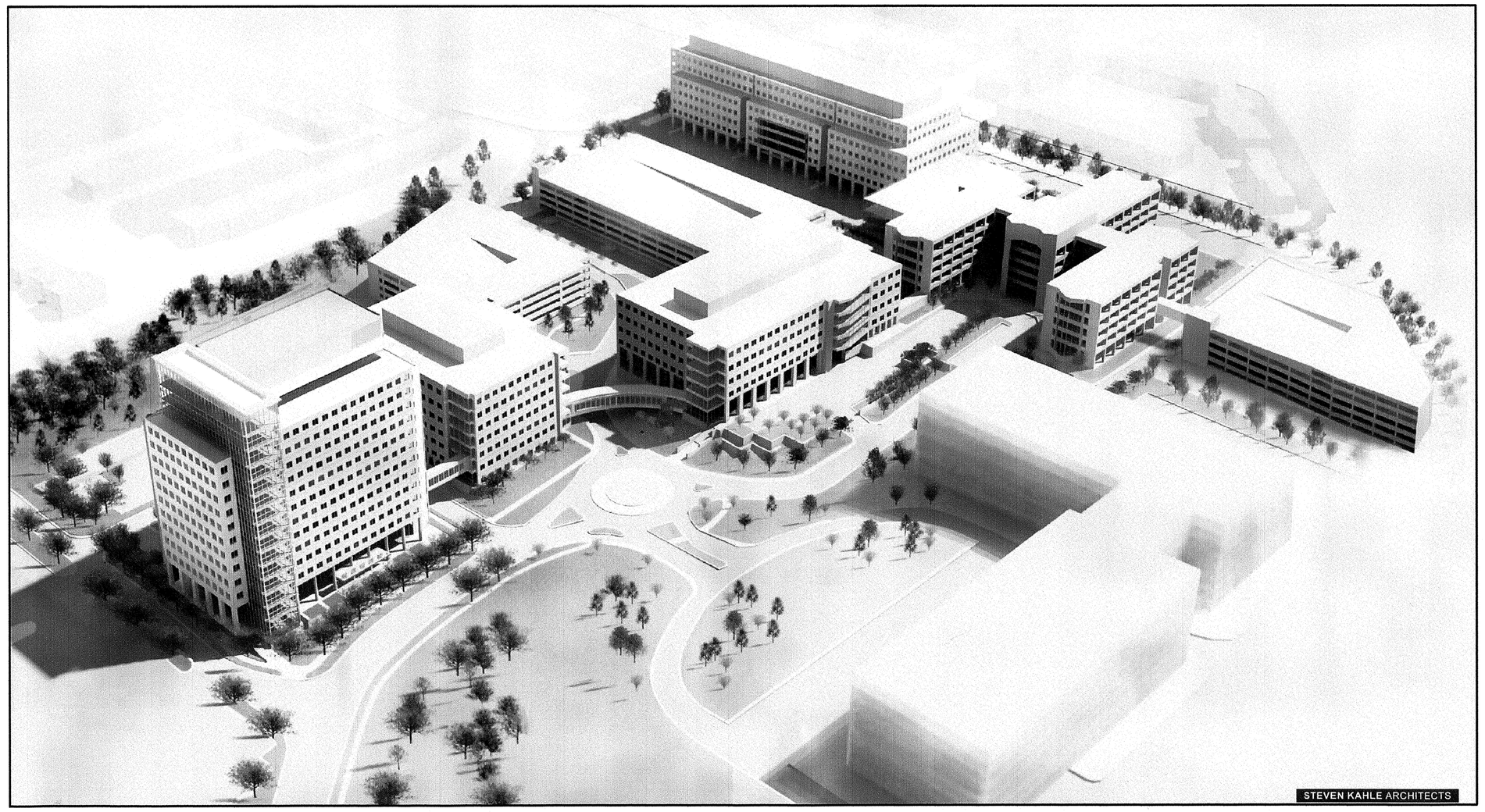
MITRE 5

CONCEPTUAL DEVELOPMENT PLAN / FINAL DEVELOPMENT PLAN
SPECIAL EXCEPTION PLAT
RZ 2010- PR- / SE 10-P-



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COMMONWEALTH OF VIRGINIA
DAVID H. STEIGLER
Lic. No. 609
11/16/10
LANDSCAPE ARCHITECT

COMMONWEALTH OF VIRGINIA
ROBERT A. MUNSE
Lic. No. 15338
11/16/10
PROFESSIONAL ENGINEER

ATTORNEYS:
Cooley LLP
ONE FREEDOM SQUARE
11951 FREEDOM DRIVE
RESTON VA 20190-5601
T 703.456.8609
F 703.456.8100

PLANNING/ARCHITECTURE:
Steven Kahle Architects
47 RANDALL STREET, SUITE 2
ANNAPOLIS MD 21401
T 410.268.7224
F 301.858.5854

OWNER / APPLICANT:
The MITRE Corporation
7515 COLSHIRE DRIVE
McLEAN, VA 22102
T 703.983.6000

PLANNING/CIVIL ENGINEERING/LANDSCAPE ARCHITECTURE:
Patton Harris Rust & Associates
14532 LEE ROAD
CHANTILLY, VIRGINIA 20151-1679
T 703.449.6700
F 703.449.6714

DEVELOPMENT CONSULTANTS
Jones Lang LaSalle Americas, Inc.
1801 K STREET, NW, STE. 10000
WASHINGTON, DC 20006
T 202.719.5711
F 312.416.5380

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SHEET 1 OF 31
P-01-COV
PHR+A FILE # 10022-1-6

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GENERAL NOTES

1. THE AREA SUBJECT TO REZONING IS LOCATED ON FAIRFAX COUNTY TAX ASSESSMENT MAP 30-3 ((28)) PARCEL 3A1 AND PARCEL 4A3, AND IS IN THE NAME OF MITRE CORPORATION AS RECORDED IN DEED BOOK 14774 PAGE 1546. THE PROPERTY CONSISTS OF 19.60 ACRES (854,013 SF) AND IS CURRENTLY ZONED C-3. THIS APPLICATION REQUESTS THE SUBJECT PROPERTY BE REZONED TO PTC, PLANNED TYSONS CORNER URBAN DISTRICT, TO SUPPORT THE PROPOSED FAR FOR NEW OFFICE BUILDING. THIS APPLICATION WILL SUPERSEDE THE PREVIOUS PCA/REZONING (PCA 92 - P - 001 - 05, RZ 2008 - PR - 011) REFERRED TO AS MITRE 4. A SPECIAL EXCEPTION IS INCLUDED WITH THIS APPLICATION TO ALLOW AN INCREASE IN PARKING IN THE PTC DISTRICT ABOVE THE MAXIMUMS SET FORTH IN ARTICLE 6, PART 5.

2. THE SITE IS DEVELOPED WITH EXISTING OFFICE USES.

3. THE SUBJECT PROPERTY IS LOCATED WITHIN A TOD DISTRICT AND THE COLSHIRE SUBDISTRICT OF THE FAIRFAX COUNTY COMPREHENSIVE PLAN FOR TYSONS CORNER URBAN CENTER. THE LAND USE RECOMMENDATION FOR THE SUBJECT PROPERTY IS OFFICE. THE COMPREHENSIVE PLAN SUGGESTS THE CAMPUS COULD BE DEVELOPED AT A DENSITY OF 2.0 FAR.

4. THE COMPREHENSIVE PLAN DOES NOT INDICATE ANY TRAILS ON THE SITE.

5. FIELD SURVEY BY PHR+A, DATED 11-1-01.

6. THE TOPOGRAPHIC INFORMATION IS BASED UPON AVAILABLE INFORMATION FROM PREVIOUS SITE PLANS AND TWO (2) FOOT CONTOUR INTERVALS ARE PROVIDED. EXISTING VEGETATION SHOWN IS FROM AVAILABLE RECORDS AND FIELD REVIEW AND MAY NOT BE INCLUSIVE OF ALL VEGETATION ON THE SITE.

7. THE PLAN HAS BEEN PREPARED WITHOUT THE BENEFIT OF A TITLE REPORT. KNOWN MAJOR UNDERGROUND UTILITY EASEMENTS LOCATED ON THE SUBJECT PROPERTY AND WITH A WIDTH GREATER THAN TWENTY-FIVE (25) FEET ARE SHOWN ON THE PLAN.

8. THE SITE IS IN THE SCOTTS RUN WATERSHED.

9. TO THE BEST OF OUR KNOWLEDGE, NO GRAVE SITE EXISTS ON THIS SITE.

10. TO THE BEST OF OUR KNOWLEDGE, NO HAZARDOUS OR TOXIC SUBSTANCES ARE PRESENT ON SITE AS SET FORTH IN TITLE 40, CODE OF FEDERAL REGULATIONS PARTS 116.4, 302.4, AND 355; ALL HAZARDOUS WASTE AS SET FORTH IN COMMONWEALTH OF VIRGINIA /DEPARTMENT OF WASTE MANAGEMENT REGULATIONS VR 672-10-1- VIRGINIA HAZARDOUS WASTE MANAGEMENT REGULATIONS; AND /OR PETROLEUM PRODUCTS AS DEFINED IN TITLE 40, CODE OF FEDERAL REGULATIONS, PART 280. TO THE BEST OF OUR KNOWLEDGE THE PROPOSED DEVELOPMENT WILL NOT GENERATE, UTILIZE, STORE, TREAT OR DISPOSE OF ANY SUCH SUBSTANCES ON SITE. THE SITE IS A DEVELOPED SITE AND HAS NO SCENIC ASSETS OR NATURAL FEATURES DESERVING OF PROTECTION AND PRESERVATION.

11. NO FLOOD PLAIN RESOURCE PROTECTION AREAS OR ENVIRONMENTAL QUALITY CORRIDORS EXIST ON SITE.

12. PUBLIC UTILITIES EXIST ON THE MITRE CAMPUS. PUBLIC SANITARY SEWER SERVICE AND WATER WILL BE PROVIDED TO THE PROPOSED DEVELOPMENT BY EXTENSION OF EXISTING SANITARY SEWER MAINS. DETAILED DESIGN SHALL BE COMPLETED DURING FINAL SITE PLAN ENGINEERING.

13. INGRESS AND EGRESS TO THE PROPERTY IS VIA COLSHIRE DRIVE.

14. THE BUILDINGS REPRESENTED ON THE CONCEPTUAL DEVELOPMENT PLAN / FINAL DEVELOPMENT PLAN / SPECIAL EXCEPTION PLAT (CDP/FDP/SE) ARE CONCEPTUAL ONLY AND SUBJECT TO VARYING FOOTPRINTS BASED ON MARKET CONDITIONS, FINAL ARCHITECTURE AND ENGINEERING. FINAL ARCHITECTURAL AND STREETSCAPE WILL BE DETERMINED BY THE MITRE CORPORATION AND BE IN SUBSTANTIAL CONFORMANCE WITH THE APPROVED CDP/FDP. FOOTPRINTS MAY CHANGE AS LONG AS MINIMUM BUILDING SETBACKS SHOWN ON THE CDP/FDP/SE AND MAXIMUM FAR ARE MAINTAINED. MINOR MODIFICATIONS TO ALL FEATURES SHOWN ON THE CDP/FDP/SE MAY BE PERMITTED AS DETERMINED BY THE ZONING ADMINISTRATOR IN ACCORDANCE WITH THE PROVISIONS SET FORTH IN PARAGRAPH 5 OF SECTION 18-204 OF THE ZONING ORDINANCE. ADDITIONAL SITE FEATURES SUCH AS ENTRANCE SIGNS, FLAGPOLES, FENCES AND WALLS NOT SHOWN ON THE CDP/FDP MAY BE PROVIDED. FINAL LOCATIONS OF SITE FURNISHINGS, SUCH AS, BUT NOT LIMITED TO , BENCHES, LIGHTS, TRASH RECEPTACLES, WILL BE DETERMINED BY MITRE.

15. PROPOSED SIGNS WILL CONFORM TO ARTICLE 12 OF THE ZONING ORDINANCE OR SEA 2002-PR-031.

16. THE DEVELOPMENT OF THIS PROJECT SHALL COMMENCE AT SUCH TIME AS APPROPRIATE COUNTY APPROVALS HAVE BEEN OBTAINED AND SUBJECT TO OWNER DISCRETION. THE APPLICANT RESERVES THE RIGHT TO PHASE THE DEVELOPMENT AS DETERMINED BY FINAL ENGINEERING AND MARKET CONDITIONS. SURFACE PARKING MAY BE PERMITTED IN THE AREA OF THE ULTIMATE BUILDING FOOTPRINT IF THE BUILDING CONSTRUCTION IS PHASED.

17. LIMITS OF CLEARING AND GRADING EXTEND TO AND GENERALLY COINCIDE WITH THE EXISTING PROPERTY LINES WITH THE EXCEPTION OF UTILITY EXTENSIONS AND TRAIL IMPROVEMENTS THAT MAY REQUIRE WORK OFF-SITE AS DETERMINED BY FINAL ENGINEERING AND DESIGN.

18. BIKE RACKS TO ACCOMMODATE 100± BIKES WILL BE PROVIDED WITHIN THE MITRE CAMPUS AS SHOWN ON THE PARKING PLAN. THE EXISTING MITRE I BUILDING, IMMEDIATELY ADJACENT TO PROPOSED MITRE 5, HAS A FITNESS CENTER WITH SHOWERS AND LOCKERS.

19. DENSITY CREDIT HAS BEEN ESTABLISHED FOR THE SITE BY AN AREA OF COLSHIRE DRIVE RIGHT-OF-WAY AS RECORDED IN DB 12513, PG 0435. THIS AREA IS 1,288 S.F, OR 0.03 ACRES, IN SIZE AND IS APPLIED TO THE OVERALL SITE AREA WHEN CALCULATING FAR.

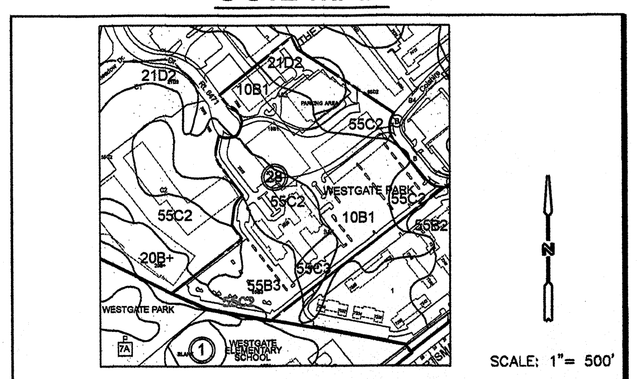
20. BIKE LANES WILL BE ACCOMMODATED IN TRAVEL LANES DUE TO THE LOW VEHICLE SPEEDS WITHIN THE ADJACENT LOCAL ROADS IN CONFORMANCE WITH THE COMPREHENSIVE PLAN.

WAIVERS / MODIFICATIONS:

TO THE BEST OF OUR KNOWLEDGE, THE PROPOSED DEVELOPMENT WILL BE IN CONFORMANCE WITH APPLICABLE ORDINANCES, REGULATIONS, AND ADOPTED STANDARDS; WITH THE EXCEPTION OF THE FOLLOWING:

1. A TRANSITIONAL SCREENING YARD MODIFICATION IS HEREBY REQUESTED ALONG THE SOUTHWEST AND SOUTHEAST BOUNDARIES OF THE SITE TO ALLOW YARD WIDTH, THE EXISTING VEGETATION AND PROPOSED LANDSCAPING AS SHOWN ON THE LANDSCAPE PLAN.

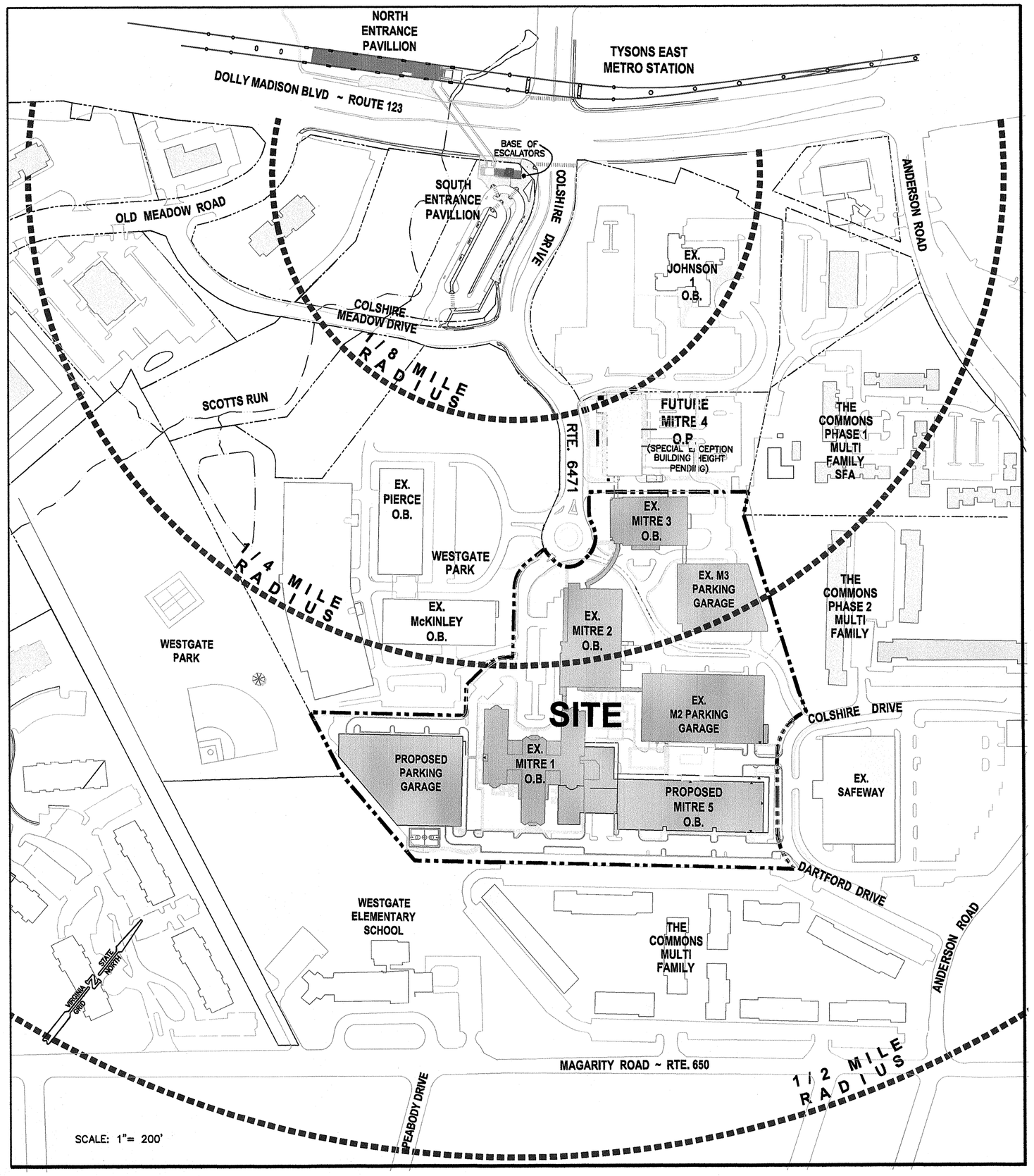
SOIL MAP



SCALE: 1"= 500'

SOIL ID NUMBERS	SERIES NAME	FOUNDATION SUPPORT	SUBSURFACE DRAINAGE	SLOPE STABILITY	ERODABILITY	GEOTECHNICAL REPORT REQD
10	GLENVILLE	FAIR-B,W	MARGINAL-W	GOOD	MODERATE	NO
20	MEADOWVILLE	FAIR-B,W	MARGINAL-W	POOR-W	MODERATE	NO
21	MANOR	GOOD	GOOD	GOOD	HIGH	NO
55	GLENELG	GOOD	GOOD	GOOD	HIGH	NO

VICINITY MAP



SCALE: 1"= 200'

SITE TABULATIONS

EXISTING ZONING: C-3, OFFICE DISTRICT

PROPOSED ZONING: PTC, PLANNED TYSONS CORNER URBAN DISTRICT

USE: OFFICE BUILDINGS

	PERMITTED/REQUIRED	PROVIDED < 1/4 MILE FROM METRO	PROVIDED 1/4 - 1/2 MILE FROM METRO	PROVIDED TOTAL
LOT SIZE REQUIREMENTS:				
MINIMUM LOT AREA:	NO REQUIREMENT FOR EACH USE OR BUILDING			854,013 S.F, OR 19.60 AC.
MINIMUM LOT WIDTH:	NO REQUIREMENT FOR EACH USE OR BUILDING			
LOT 4A3:				
SITE AREA:		136,070 S.F.	23,482 S.F.	159,552 S.F, OR 3.66 AC.
AREA OF DEDICATED ROW FOR DENSITY CREDIT: (DB: 12513 PG: 0435)		1,288 S.F.		1,288 S.F, OR .03 AC.
TOTAL LOT AREA FOR DENSITY CALCULATIONS:		137,358 S.F.	23,482 S.F.	160,840 S.F, OR 3.69 AC.
MINIMUM LOT WIDTH:				420 ± FEET
LOT 3A1:				
SITE AREA:		94,843 S.F.	599,618 S.F.	694,461 S.F, OR 15.94 AC
MINIMUM LOT WIDTH:				390 ± FEET
TOTAL MITRE CAMPUS:				
SITE AREA:		230,913 S.F.	623,100 S.F.	854,013 S.F, OR 19.60 AC
SITE AREA FOR FAR: (SEE NOTE 20, GENERAL NOTES THIS SHEET).		232,201 S.F.	623,100 S.F.	855,301 S.F, OR 19.63 AC
MAXIMUM BUILDING HEIGHT:	SEE FOOTNOTE (1) BELOW			135 FEET
MINIMUM YARD REQUIREMENTS:				
FRONT YARD:	SEE FOOTNOTE (1) BELOW			20' ±
SIDE YARD:	SEE FOOTNOTE (1) BELOW			14.5'
REAR YARD:	SEE FOOTNOTE (1) BELOW			20'
MAXIMUM FLOOR AREA RATIO:	<1/4 MILE: 2.5, 1/4 -1/2 MILE: 2.0			1.60
OPEN SPACE:	SEE FOOTNOTE (1) BELOW			29%
PARKING:	SEE SHEET 13 FOR PARKING PLAN INCLUDING TABULATIONS AND NOTES			

FOOTNOTE:

(1) NO NUMERIC MINIMUM REQUIREMENT BUT TO BE CONSISTENT WITH THE REQUIREMENTS OF THE COMPREHENSIVE PLAN.

GROSS FLOOR AREA TABULATIONS

	NON-CELLAR	CELLAR	< 1/4 MILE FROM METRO	1/4 - 1/2 MILE FROM METRO	TOTAL
EXISTING BUILDING AREA (GFA)					
MITRE 1	255,752 SF	49,860 SF (1)	0	305,612 SF	305,612 SF
MITRE 2	262,110 SF	42,869 SF (1)	212,712 SF	92,267 SF	304,979 SF
MITRE 3	180,000 SF	30,000 SF (1)	210,000 SF	0	210,000 SF
SUBTOTAL	697,862 SF	122,729 SF	422,712 SF	397,879 SF	820,591 SF
PROPOSED BUILDING AREA (GFA)					
MITRE 1	250 SF	0	0	250 SF	250 SF
MITRE 5 (3)	491,500 SF	55,000 SF (2)	0	546,500 SF	546,500 SF
SUBTOTAL	491,750 SF	55,000 SF	0	546,750 SF	546,750 SF
TOTAL FOR MITRE CAMPUS	1,189,612 SF	177,729 SF	422,712 SF	944,629 SF	1,367,341 SF

FOOTNOTES:

(1) MAXIMUM 50% CAN BE USED FOR OFFICES PER PROFFERS.
(2) FOR MECHANICAL SPACE AND OTHER NON-OFFICE USES PER PROFFERS
(3) THE BOARD OF SUPERVISORS APPROVED THE MITRE 4 PCA 92-P-001-05 AND RZ 2008-PR-011 ON OCTOBER 24, 2008. THIS MITRE 5 REZONING APPLICATION REPLACES AND EXPANDS THE USE PROPOSED ON THE PREVIOUS MITRE 4 REZONING.

NO.	DESCRIPTION	DATE	REVS'D	REVW'D	APRV'D	DATE
	REVISION					

PROFESSIONAL SEAL
COMMONWEALTH OF VIRGINIA
DAVID H. STEIGLER
Lic. No. 609
11/16/10
LANDSCAPE ARCHITECT

PROJECT

MITRE 5
CONCEPTUAL DEVELOPMENT PLAN /
FINAL DEVELOPMENT PLAN
SPECIAL EXCEPTION PLAT
PROVIDENCE DISTRICT, FAIRFAX COUNTY, VIRGINIA

TITLE

NOTES & TABULATIONS

Patton Harris Rust & Associates
Engineers. Surveyors. Planners. Landscape Architects.
PHR+A
14532 Lee Road
Chantilly, VA 20151-1679
T 703.449.6700
F 703.449.6714

CO. PLAN #

DESIGN	SURVEY
DRAWN SME	DATE JULY 15, 2010 REVISED NOV. 16, 2010
CHECKED DHS	SCALE
SHEET 2 OF 31	FILE NO. 10022 1-6

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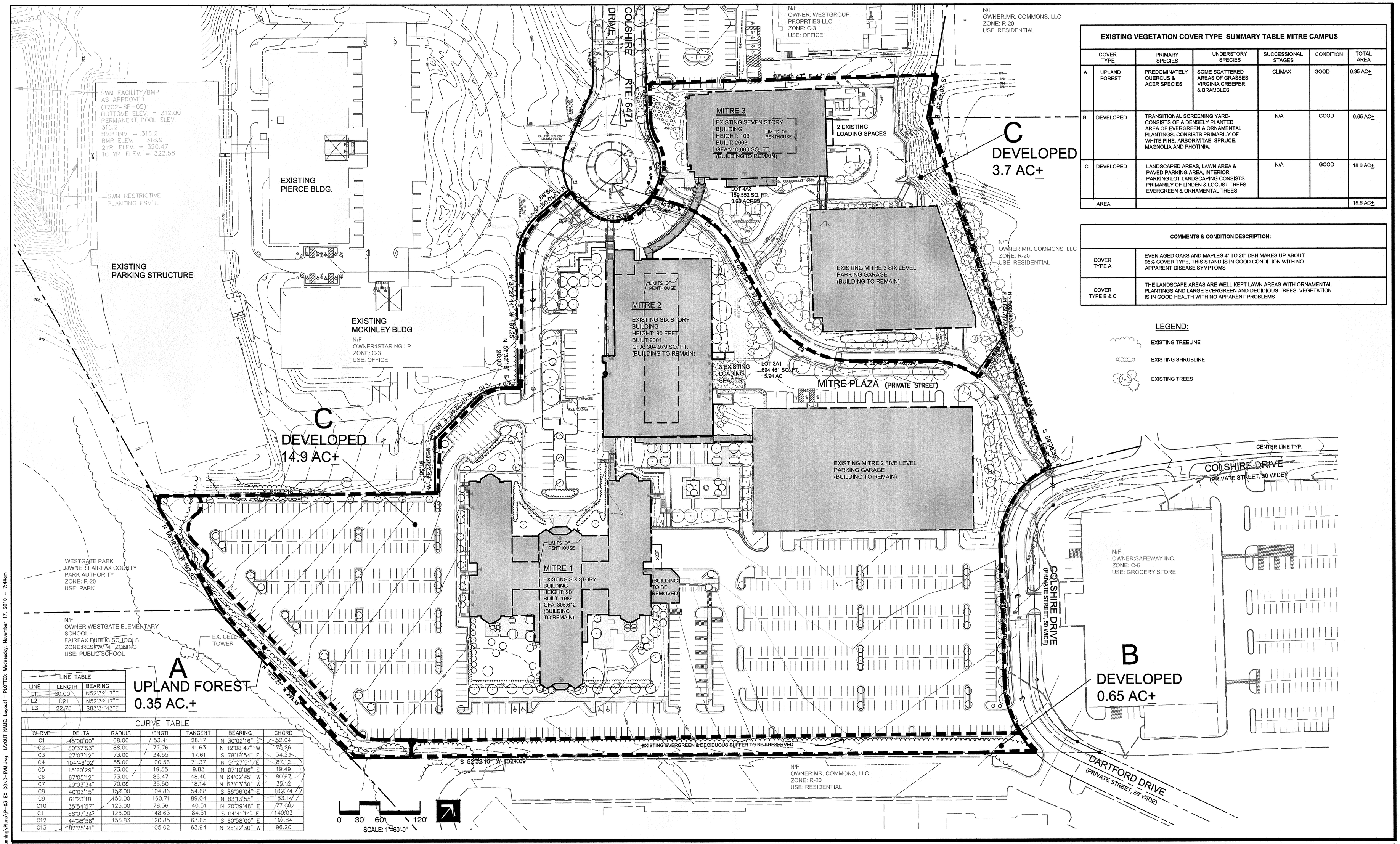

LINE TABLE		
LINE	LENGTH	BEARING
L1	20.00'	N52°32'17"E
L2	1.21'	N52°32'17"E
L3	22.78'	S83°31'43"E

CURVE TABLE

CURVE	DELTA	RADIUS	LENGTH	TANGENT	BEARING	CHORD
C1	45°00'00"	68.00	53.41	28.17	N 30°02'16" E	52.04
C2	50°37'53"	88.00	77.76	41.63	N 12°08'47" W	75.26
C3	27°07'12"	73.00	34.55	17.61	S 78°19'54" E	34.23
C4	104°46'02"	55.00	100.56	71.37	N 51°27'51" E	87.12
C5	15°20'29"	73.00	19.55	9.83	N 07°10'06" E	19.49
C6	67°05'12"	73.00	85.47	48.40	N 34°02'45" W	80.67
C7	29°03'34"	70.00	35.50	18.14	N 53°03'30" W	35.12
C8	40°03'15"	150.00	104.86	54.68	S 86°06'04" E	102.74
C9	61°23'18"	150.00	160.71	89.04	N 83°13'55" E	153.14
C10	35°54'57"	125.00	78.36	40.51	N 70°29'48" E	77.06
C11	68°07'34"	125.00	148.63	84.51	S 04°41'14" E	140.03
C12	44°25'58"	155.83	120.85	63.65	S 60°58'00" E	117.84
C13	82°25'41"		105.02	63.94	N 26°22'30" W	96.20

EXISTING VEGETATION COVER TYPE SUMMARY TABLE MITRE CAMPUS

	COVER TYPE	PRIMARY SPECIES	UNDERSTORY SPECIES	SUCCESSIONAL STAGES	CONDITION	TOTAL AREA
A	UPLAND FOREST	PREDOMINATELY QUERCUS & ACER SPECIES	SOME SCATTERED AREAS OF GRASSES VIRGINIA CREEPER & BRAMBLES	CLIMAX	GOOD	0.35 AC±
B	DEVELOPED	TRANSITIONAL SCREENING YARD- CONSISTS OF A DENSELY PLANTED AREA OF EVERGREEN & ORNAMENTAL PLANTINGS. CONSISTS PRIMARILY OF WHITE PINE, ARBORIVITAE, SPRUCE, MAGNOLIA AND PHOTINIA.		N/A	GOOD	0.65 AC±
C	DEVELOPED	LANDSCAPED AREAS, LAWN AREA & PAVED PARKING AREA, INTERIOR PARKING LOT LANDSCAPING CONSISTS PRIMARILY OF LINDEN & LOCUST TREES, EVERGREEN & ORNAMENTAL TREES		N/A	GOOD	18.6 AC±
	AREA					19.6 AC±

COMMENTS & CONDITION DESCRIPTION:	
COVER TYPE A	EVEN AGED OAKS AND MAPLES 4" TO 20" DBH MAKES UP ABOUT 95% COVER TYPE. THIS STAND IS IN GOOD CONDITION WITH NO APPARENT DISEASE SYMPTOMS
COVER TYPE B & C	THE LANDSCAPE AREAS ARE WELL KEPT LAWN AREAS WITH ORNAMENTAL PLANTINGS AND LARGE EVERGREEN AND DECIDIOUS TREES. VEGETATION IS IN GOOD HEALTH WITH NO APPARENT PROBLEMS

LEGEND:

- EXISTING TREELINE
- EXISTING SHRUBLINE
- EXISTING TREES

NO.	DESCRIPTION	DATE	REVS'D	REVW'D	APRV'D	DATE

REVISION

PROFESSIONAL SEAL
COMMONWEALTH OF VIRGINIA
DAVID H. STEIGLER
Lic. No. 009
11/16/10
LANDSCAPE ARCHITECT

PROJECT

MITRE 5

CONCEPTUAL DEVELOPMENT PLAN / FINAL DEVELOPMENT PLAN SPECIAL EXCEPTION PLAT

PROVIDENCE DISTRICT, FAIRFAX COUNTY, VIRGINIA

TITLE

EXISTING CONDITIONS/ EXISTING VEGETATION MAP

Patton Harris Rust & Associates
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PHR+A
14532 Lee Road
Chantilly, VA 20151-1679
T 703.449.6700
F 703.449.6714

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DESIGN NA	SURVEY NA
DRAWN SME	DATE JULY 15, 2010 REVISED NOV. 16, 2010
CHECKED DHS	SCALE 1" = 60'
SHEET 3 OF 31	FILE NO. 10022 1-6

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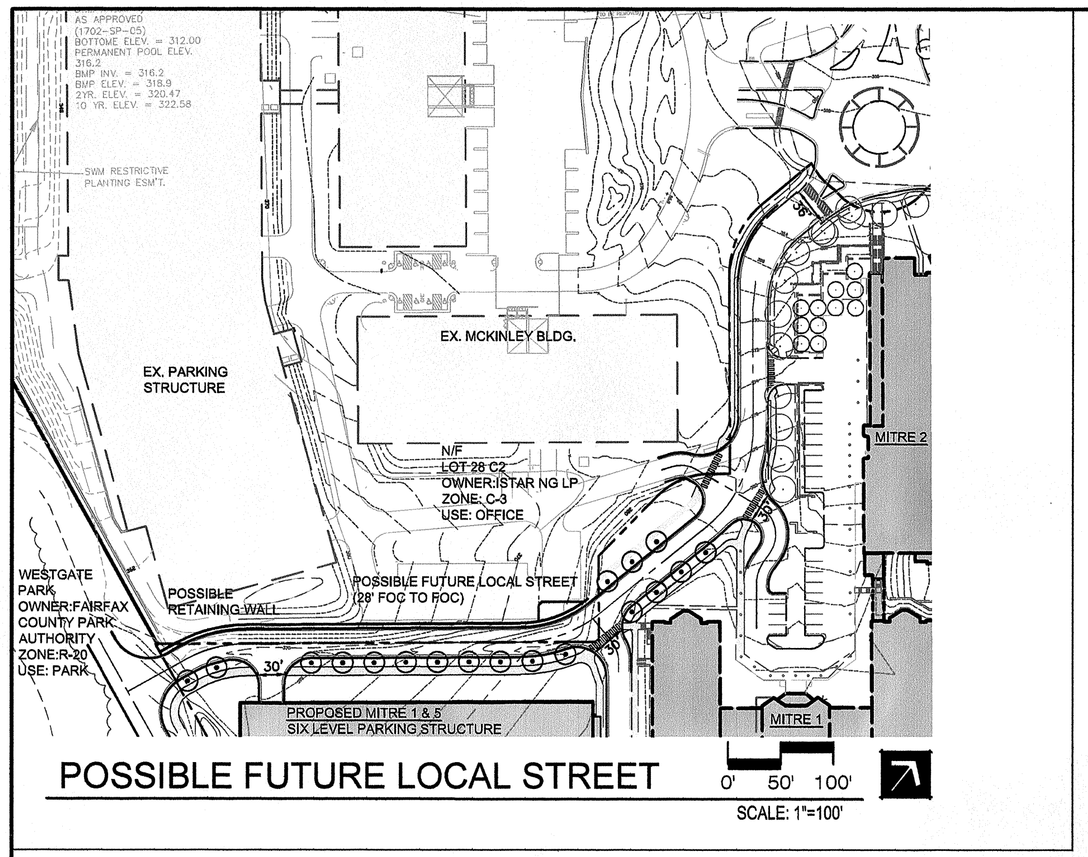

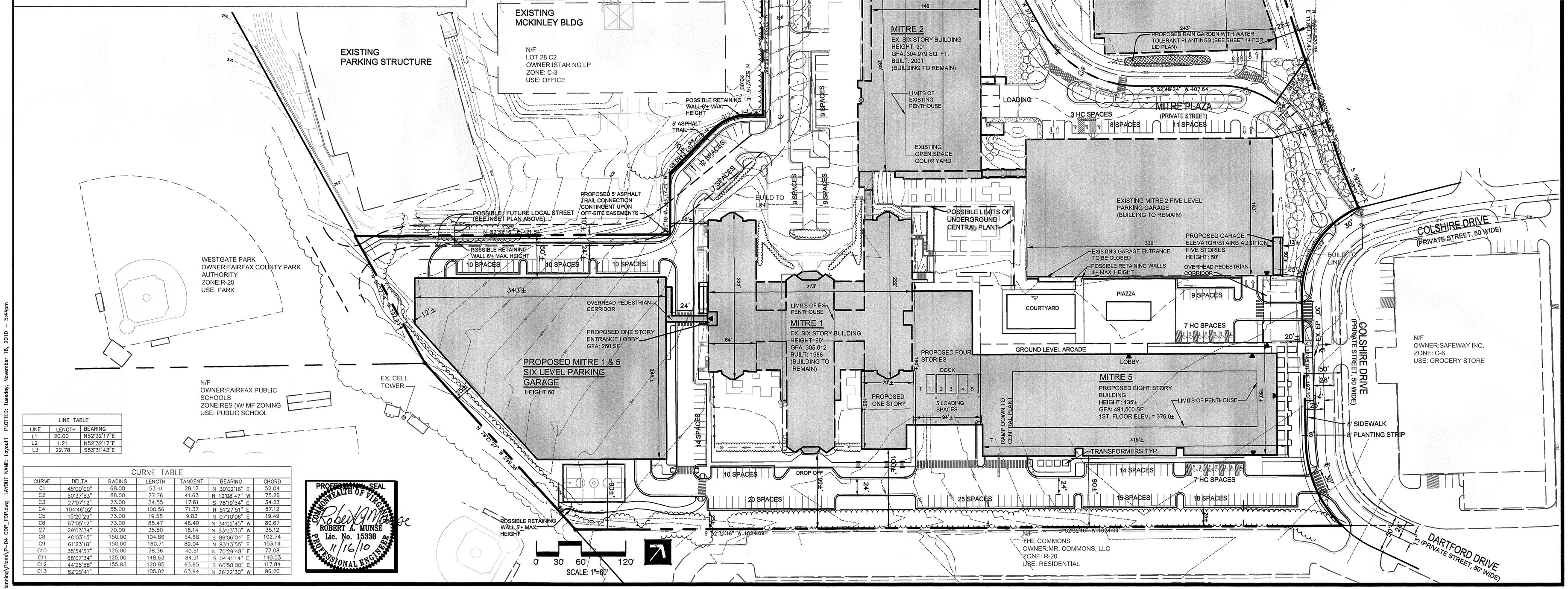

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C6	67°05'12"	73.00	85.47	48.40	N 34°02'45" W	80.67
C7	29°03'34"	70.00	35.50	18.14	N 53°03'30" W	35.12
C8	40°03'15"	150.00	104.86	54.68	S 86°06'04" E	102.74
C9	61°23'18"	150.00	160.71	89.04	N 83°13'55" E	153.14
C10	35°54'57"	125.00	78.36	40.51	N 70°29'48" E	77.08
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PROFESSIONAL SEAL
COMMONWEALTH OF VIRGINIA
ROBERT A. MUNSE
Lic. No. 15338
11/16/10
PROFESSIONAL ENGINEER

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PROFESSIONAL SEAL
COMMONWEALTH OF VIRGINIA
DAVID H. STEIGLER
Lic. No. 809
11/16/10
LANDSCAPE ARCHITECT

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CONCEPTUAL DEVELOPMENT PLAN / FINAL DEVELOPMENT PLAN SPECIAL EXCEPTION PLAT

PROVIDENCE DISTRICT, FAIRFAX COUNTY, VIRGINIA

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PHR+A

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Chantilly, VA 20151-1679
T 703.449.6700
F 703.449.6714

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CHECKED	DHS	SCALE	1" = 60'
SHEET	4 OF 31	FILE NO.	10022 1-6

CO. PLAN #

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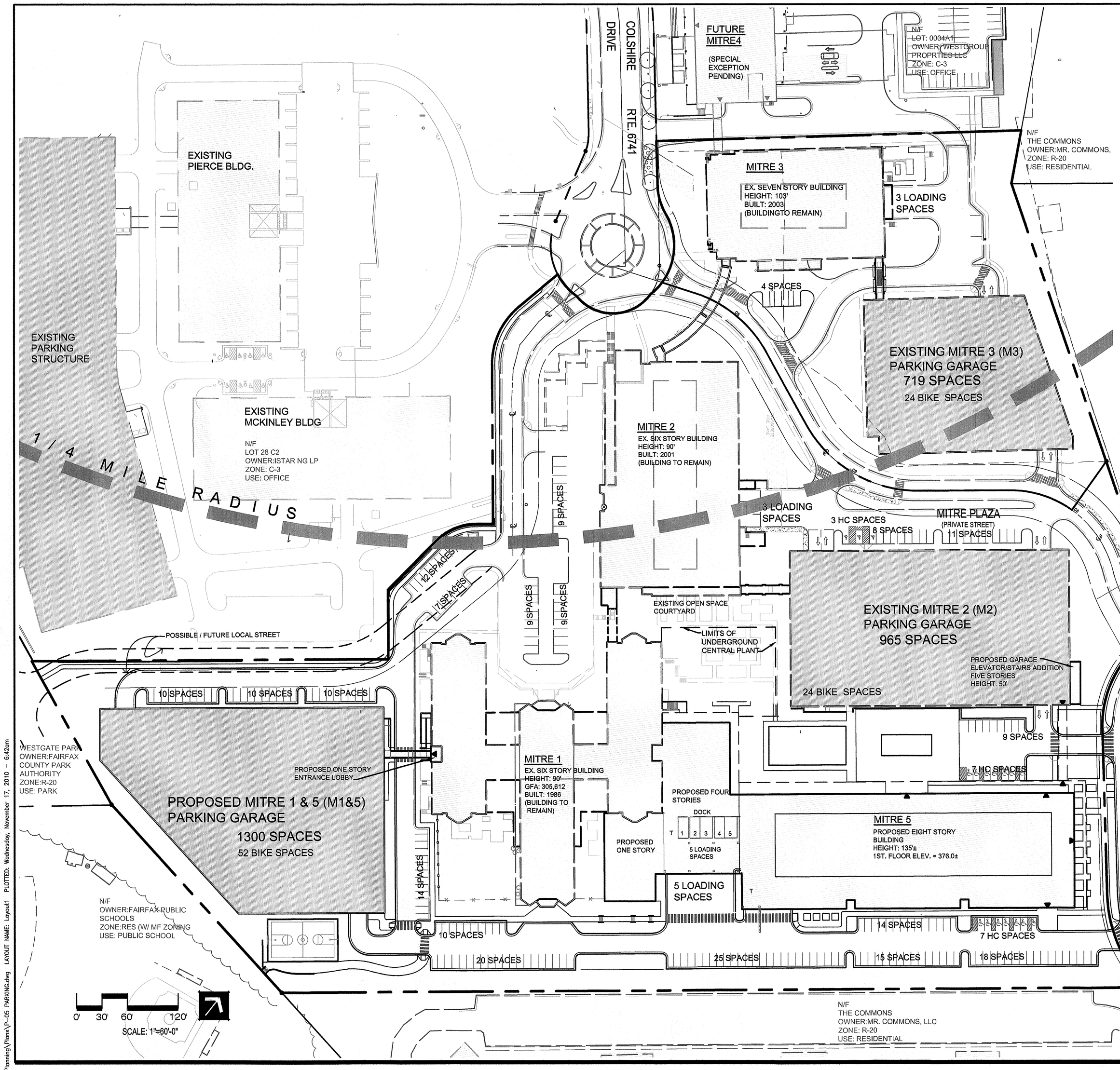

PARKING TABULATIONS

BUILDING	GROSS FLOOR AREA: WITHIN 1/8 - 1/4 MILE OF METRO	GROSS FLOOR AREA: WITHIN 1/4 - 1/2 MILE OF METRO	GROSS FLOOR AREA: TOTAL	REQUIRED MAXIMUM (1): PARKING RATIO (PER 1,000 SF)	REQUIRED MAXIMUM (1): SPACES	PROVIDED: SPACES: GARAGE	PROVIDED: SPACES: SURFACE	PROVIDED: SPACES: TOTAL	PROVIDED: PARKING RATIO (PER 1,000 SF)
MITRE 1	0 SF	305,862 SF		2.2	673	767 (M1&5)	111	878	2.87
MITRE 2	214,644 SF (2)	90,335 SF (2)		2.0 2.2	429 199	965 (M2)	31	996	3.27
MITRE 3	210,000 SF	0 SF		2.0	420	719 (M3)	4	723	3.44
MITRE 5	0 SF	546,500 SF		2.2	1,202	533 (M1&5)	95	628	1.15
TOTAL	424,644 SF	942,697 SF	1,367,341 SF	2.14	2,923	2,984	241	3,225	2.36 (3)

THE TABULATION BELOW IS PROVIDED TO ILLUSTRATE THE OVERALL PARKING RATIO WITH THE INCLUSION OF THE ADJACENT MITRE 4 PROJECT (SEPARATE APPLICATION: SE 2010 PR-023).

MITRE 4	340,000 SF	0 SF		N / A		461	86	547	1.61
TOTAL	764,644 SF	942,697 SF	1,707,341 SF			3,445	327	3,772	2.21

FOOTNOTE:

(1) REQUIRED MAXIMUM PARKING IN ACCORDANCE WITH SECTION 6-509.

(2) MITRE 2 OFFICE BUILDING STRADDLES THE ¼ MILE RADIUS. FOR CALCULATING PARKING, SEPARATE BUILDING FLOOR AREAS ARE PROVIDED FOR EACH PORTION OF THE MITRE 2 BUILDING THAT IS INSIDE AND OUTSIDE THE ¼ MILE RADIUS.

(3) PARKING RATIO PERMITTED BY SPECIAL EXCEPTION

NO.	DESCRIPTION	DATE	REVS'D	REVW'D	APRV'D	DATE

REVISION

PROFESSIONAL SEAL
COMMONWEALTH OF VIRGINIA
DAVID H. STEIGLER
Lic. No. 609
11/10/10
LANDSCAPE ARCHITECT

PROJECT

MITRE 5

CONCEPTUAL DEVELOPMENT PLAN / FINAL DEVELOPMENT PLAN SPECIAL EXCEPTION PLAT

PROVIDENCE DISTRICT, FAIRFAX COUNTY, VIRGINIA

TITLE

PARKING PLAN

Patton Harris Rust & Associates
Engineers. Surveyors. Planners. Landscape Architects.
PHR+A
14532 Lee Road
Chantilly, VA 20151-1679
T 703.449.6700
F 703.449.6714

CO. PLAN #

DESIGN PHR+A	SURVEY NA
DRAWN SME	DATE JULY 15, 2010 REVISED NOV. 16, 2010
CHECKED DHS	SCALE 1" = 60'
SHEET 5 OF 31	FILE NO. 10022 1-6

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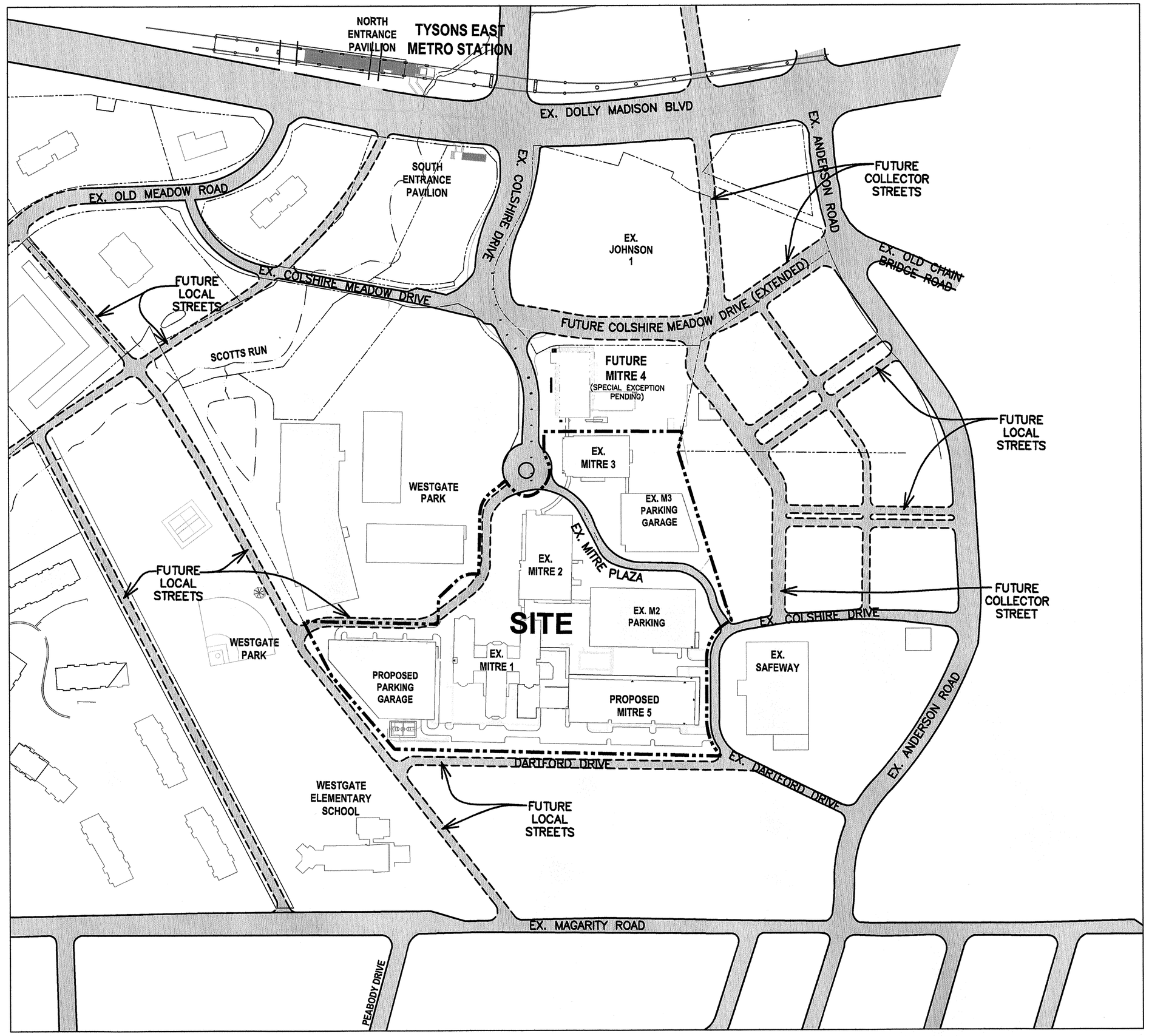

0' 15' 200' 400'

SCALE: 1"=200'-0"

NARRATIVE:

THIS EXHIBIT REFLECTS POSSIBLE LOCATIONS AND CLASSIFICATIONS OF FUTURE STREETS IN ACCORDANCE WITH THE COMPREHENSIVE PLAN AND OTHER KNOWN DEVELOPMENT PLANS ADJACENT TO THE MITRE CAMPUS. FINAL LOCATIONS MAY VARY WITH SUBSEQUENT STUDIES AND FINAL ENGINEERING. BIKE LANES WILL BE ACCOMMODATED IN TRAVEL LANES DUE TO LOW VEHICLE SPEEDS WITHIN THE LOCAL ROADS IN CONFORMANCE WITH THE COMPREHENSIVE PLAN. STREET SECTIONS ARE PROVIDED ON SHEET 7.

NO.	DESCRIPTION	DATE	REVS'D	REVW'D	APRV'D	DATE
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COMMONWEALTH OF VIRGINIA
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Lic. No. 609
11/16/10
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PROJECT

MITRE 5

CONCEPTUAL DEVELOPMENT PLAN / FINAL DEVELOPMENT PLAN SPECIAL EXCEPTION PLAT

PROVIDENCE DISTRICT, FAIRFAX COUNTY, VIRGINIA

TITLE

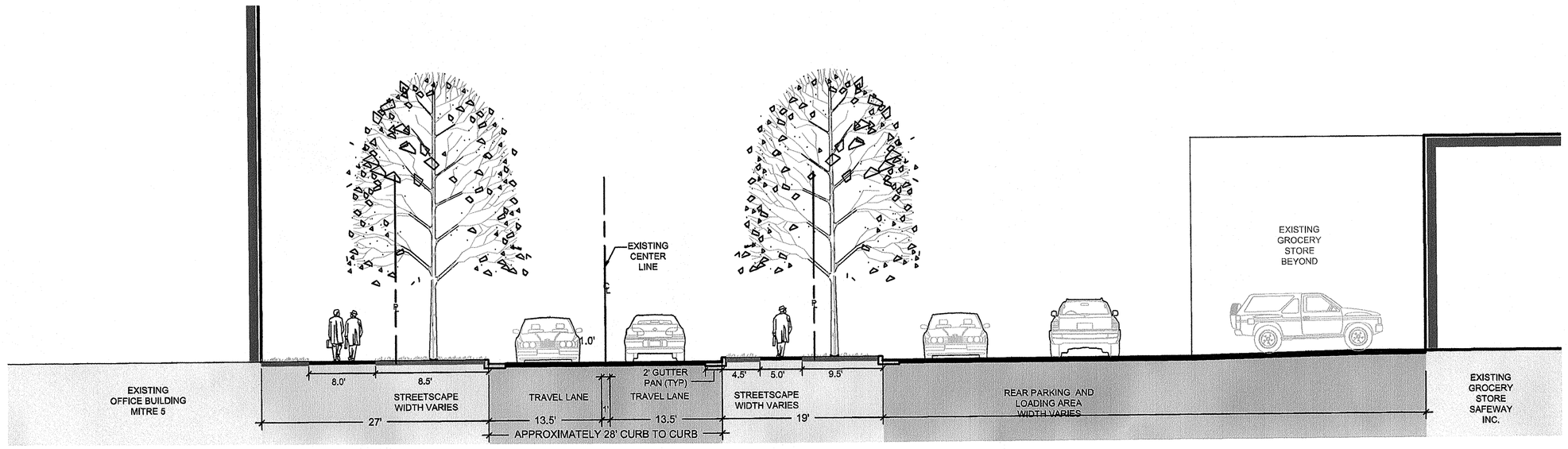
TYSONS URBAN STREET GRID EXHIBIT

Patton Harris Rust & Associates
Engineers. Surveyors. Planners. Landscape Architects.
PHR+A
14532 Lee Road
Chantilly, VA 20151-1679
T 703.449.6700
F 703.449.6714

CO. PLAN #

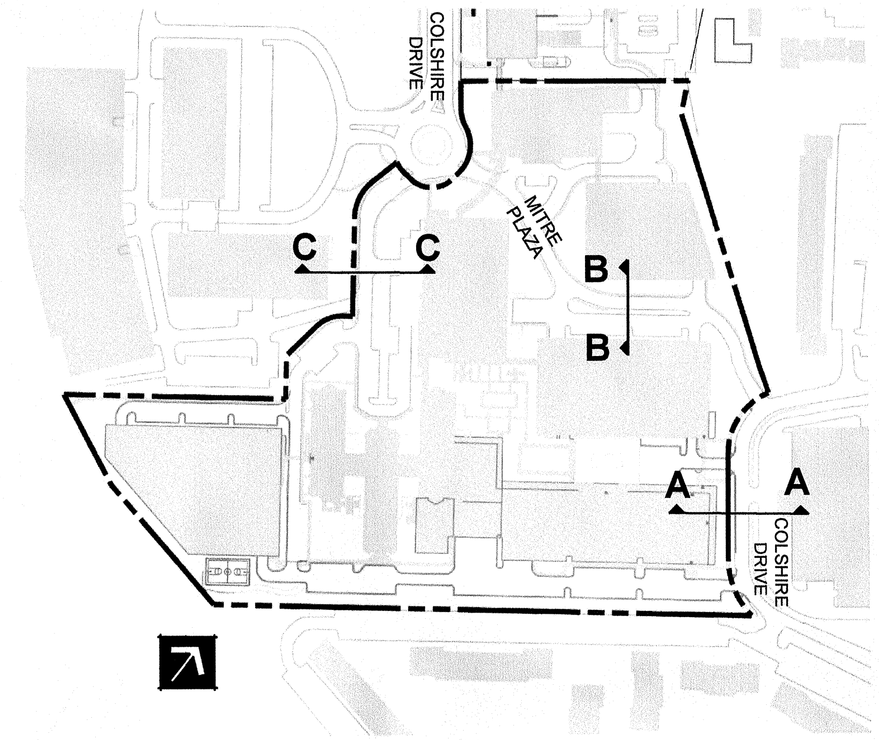
DESIGN PHR+A	SURVEY NA
DRAWN SME	DATE JULY 15, 2010 REVISED NOV. 16, 2010
CHECKED DHS	SCALE 1" = 200'
SHEET 6 OF 31	FILE NO. 10022 1-6

FILE NAME: P:\PROJECT\10022\1-6\Planning\Plans\P-06-07-STR_GRID.dwg LAYOUT NAME: Layout1 PLOTTED: Tuesday, November 16, 2010 - 6:01pm



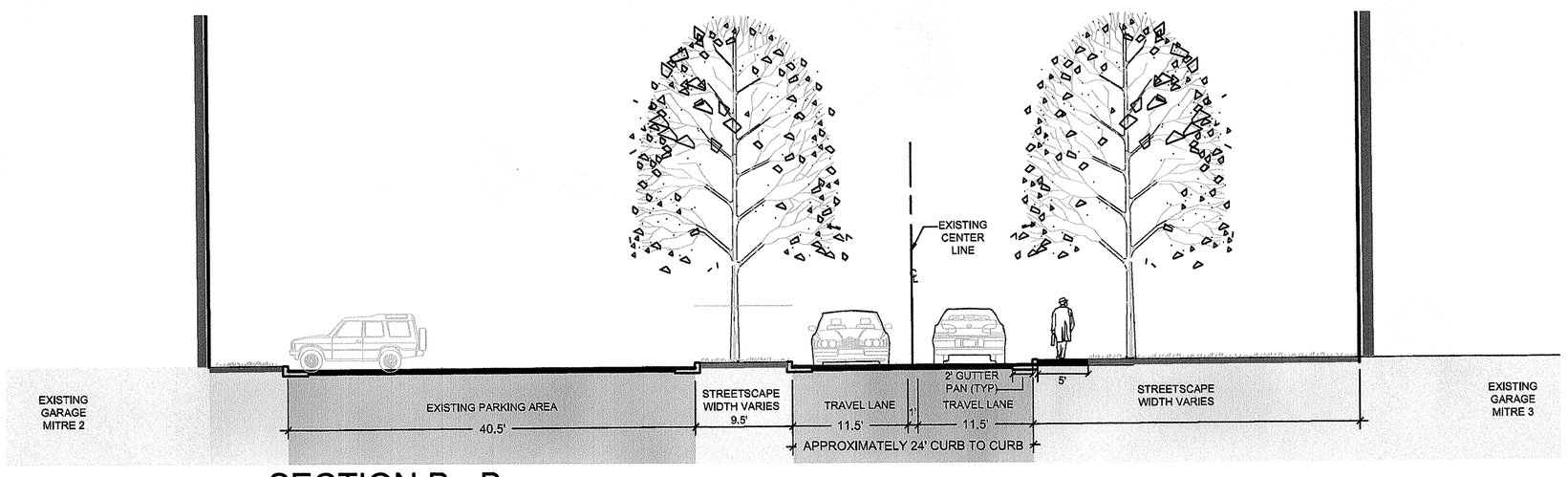
SECTION A - A
EXISTING COLSHIRE DRIVE - PRIVATE STREET

SCALE: 1"=10'-0"



KEY MAP

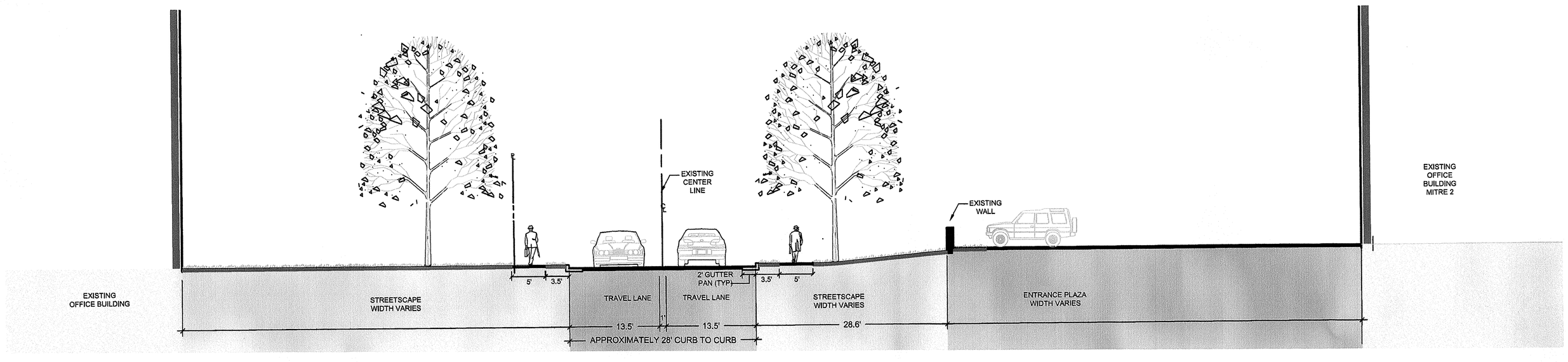
SCALE: 1" = 200'-0



SECTION B - B

SCALE: 1"=10'-0"

EXISTING MITRE PLAZA (PRIVATE STREET)



SECTION C - C
FUTURE LOCAL ROAD (PRIVATE STREET)

SCALE: 1"=10'-0"

NO.	DESCRIPTION	DATE	REVS'D	REVW'D	APRV'D	DATE

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11/10/10
LANDSCAPE ARCHITECT

PROJECT

MITRE 5

CONCEPTUAL DEVELOPMENT PLAN /
FINAL DEVELOPMENT PLAN
SPECIAL EXCEPTION PLAT

PROVIDENCE DISTRICT, FAIRFAX COUNTY, VIRGINIA

TITLE

STREET SECTIONS

Patton Harris Rust & Associates
Engineers. Surveyors. Planners. Landscape Architects.

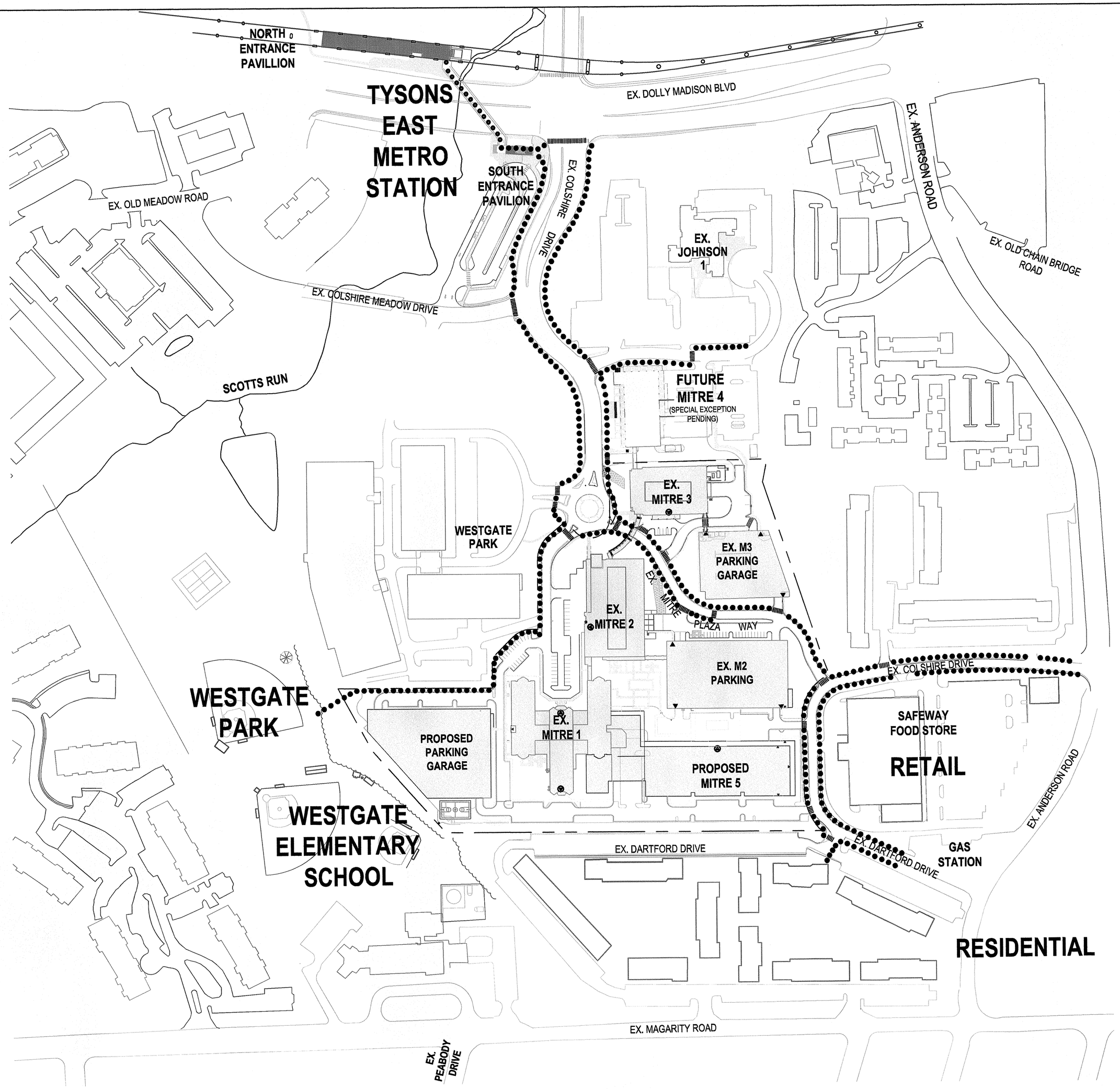
PHR+A

14532 Lee Road
Chantilly, VA 20151-1679
T 703.449.6700
F 703.449.6714

CO. PLAN #

DESIGN PHR+A	SURVEY NA
DRAWN SME	DATE JULY 15, 2010 REVISED NOV. 16, 2010
CHECKED DHS	SCALE 1" = 200'
SHEET 7 OF 31	FILE NO. 10022 1-6

FILE NAME: P:\PROJECT\10022\1-6\Planning\Plans\P-06-07-STR_GRID.dwg LAYOUT NAME: Street_Sect PLOTTED: Tuesday, November 16, 2010 - 5:55pm



NEIGHBORHOOD PEDESTRIAN PLAN

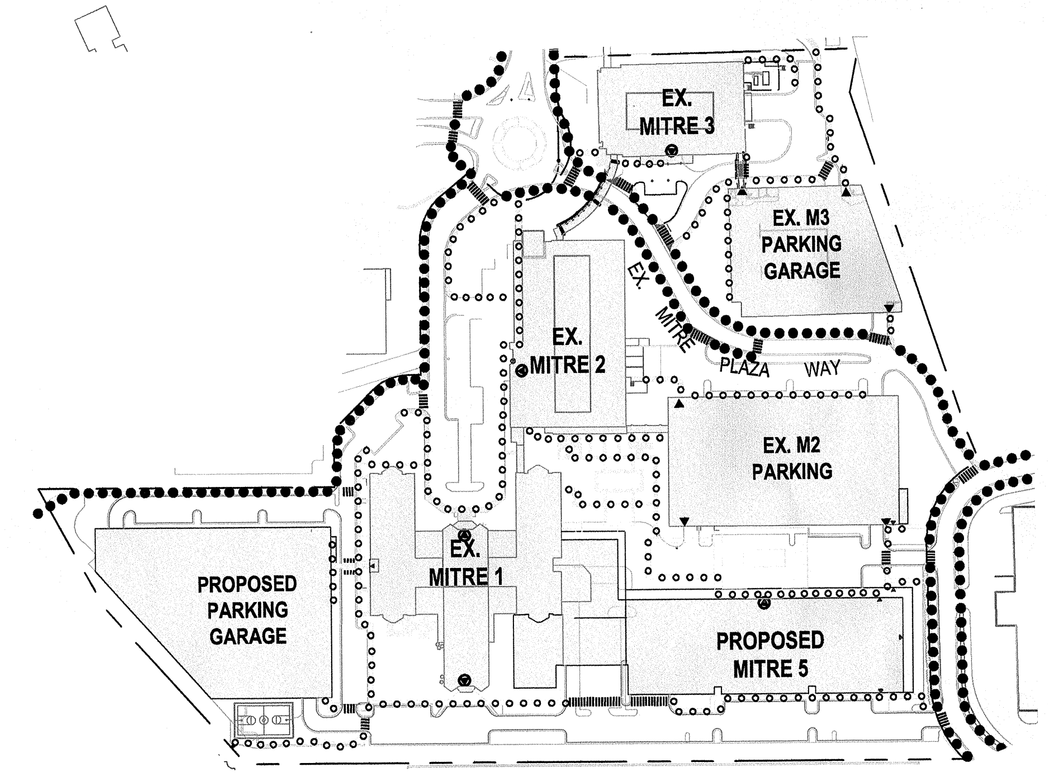
NARRATIVE:

PEDESTRIAN CIRCULATION IS AN IMPORTANT ELEMENT IN SHAPING TYSONS URBAN DESIGN. THE MITRE CAMPUS IS ROUGHLY A 1/4 MILE WALK ALONG COLSHIRE DRIVE FROM THE TYSONS EAST METRO STATION. TWO IMPORTANT PUBLIC PEDESTRIAN LINKS ARE SHOWN THROUGH THE MITRE CAMPUS CONNECTING WITH THE ROUND-ABOUT IN COLSHIRE DRIVE: 1. TO RETAIL AND RESIDENTIAL DESTINATIONS EAST ALONG MITRE PLAZA, AND 2. TO THE WESTGATE ELEMENTARY SCHOOL AND PARK LOCATED TO THE SOUTHWEST OF THE MITRE CAMPUS. THESE PEDESTRIAN ROUTES ARE ILLUSTRATED ON THE NEIGHBORHOOD PEDESTRIAN PLAN ON THIS SHEET. DUE TO THE NATURE OF MITRE'S BUSINESS AND ITS REQUIREMENT FOR SECURITY, ADDITIONAL PUBLIC PEDESTRIAN ROUTES THROUGH THE CAMPUS ARE NOT POSSIBLE.

IN ADDITION TO THE PUBLIC ROUTES THROUGH THE MITRE CAMPUS MENTIONED ABOVE, THERE ARE A NETWORK OF PEDESTRIAN ROUTES PROVIDED THROUGHOUT CAMPUS THAT SUPPORT MITRE'S INTERNAL FUNCTIONS AS SHOWN ON THE CAMPUS PEDESTRIAN PLAN. TO ENHANCE THE EMPLOYEES CONNECTIVITY THROUGHOUT THE CAMPUS, ABOVE-GRADE AND ENCLOSED PEDESTRIAN CORRIDORS ARE PROVIDED BETWEEN OFFICE BUILDINGS AND PARKING STRUCTURES.

LEGEND

- BUS — EXISTING BUS STOP
- ●●●● NEIGHBORHOOD PEDESTRIAN CIRCULATION
- ○○○○ CAMPUS PEDESTRIAN CIRCULATION
- CROSSWALKS
- MAIN BUILDING ENTRANCE
- GARAGE STAIRWAY ENTRANCE



CAMPUS PEDESTRIAN PLAN

0' 75' 150' 300'
SCALE: 1"=150'-0"

NO.	DESCRIPTION	DATE	REVS'D	REVW'D	APRV'D	DATE

REVISION

PROFESSIONAL SEAL
COMMONWEALTH OF VIRGINIA
DAVID H. STEIGLER
Lic. No. 609
11/16/10
LANDSCAPE ARCHITECT

PROJECT
MITRE 5
CONCEPTUAL DEVELOPMENT PLAN / FINAL DEVELOPMENT PLAN SPECIAL EXCEPTION PLAT
PROVIDENCE DISTRICT, FAIRFAX COUNTY, VIRGINIA

TITLE
PEDESTRIAN CIRCULATION PLAN

Patton Harris Rust & Associates
Engineers. Surveyors. Planners. Landscape Architects.
PHR+A
14532 Lee Road
Chantilly, VA 20151-1679
T 703.449.6700
F 703.449.6714

DESIGN PHR+A	SURVEY NA
DRAWN SME	DATE JULY 15, 2010 REVISED NOV. 16, 2010
CHECKED DHS	SCALE 1" = 150'
SHEET 8 OF 31	FILE NO. 10022 1-6

CO. PLAN #

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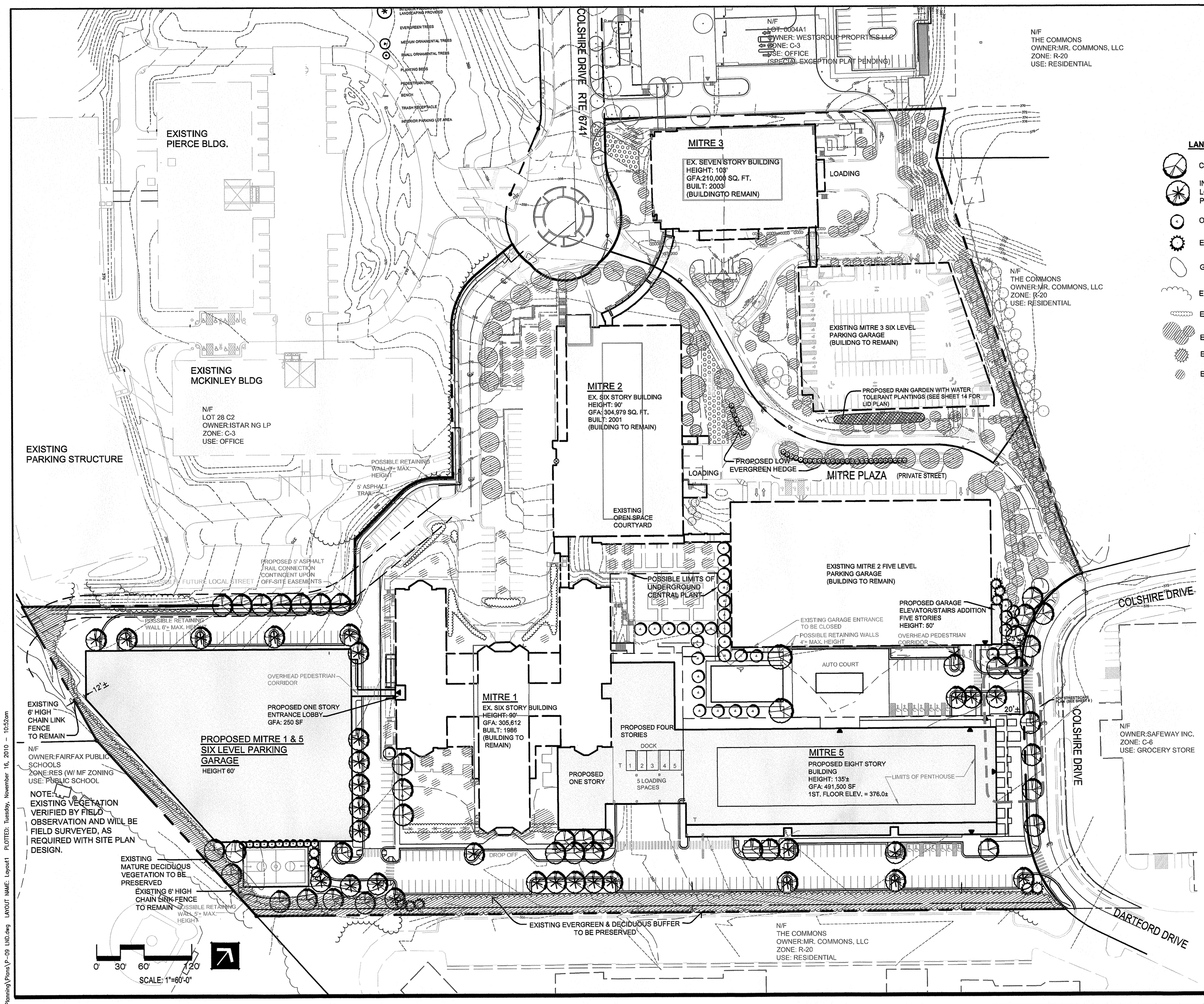


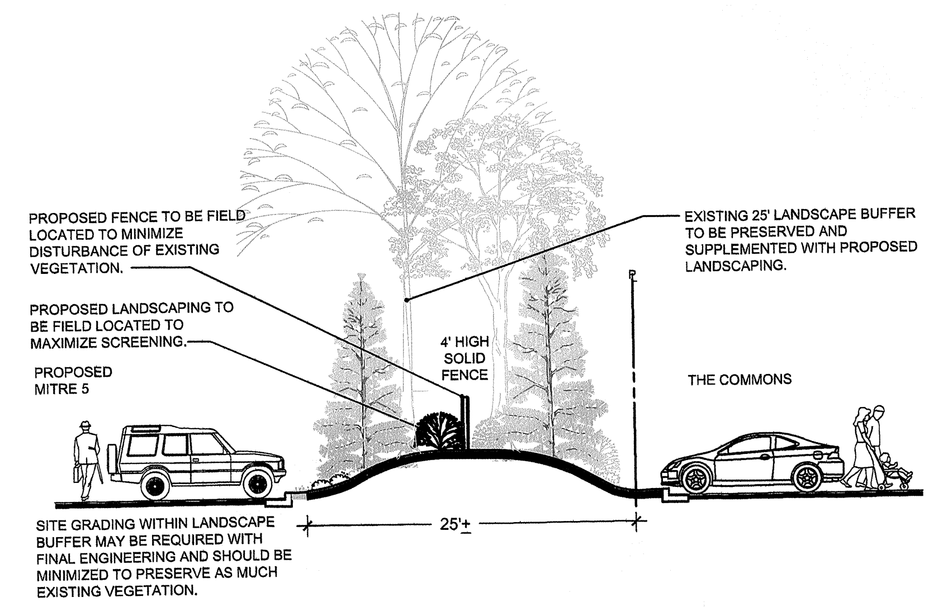
LANDSCAPE LEGEND

- CANOPY TREES
- INTERIOR PARKING LOT LANDSCAPING PROVIDED
- ORNAMENTAL TREES
- EVERGREEN TREES
- GROUNDCOVER/PERENNIALS
- EXISTING TREELINE
- EXISTING SHRUBLINE
- EXISTING CANOPY TREES
- EXISTING EVERGREEN TREES
- EXISTING ORNAMENTAL TREES

PRELIMINARY TREE COVER CALCULATIONS		
SITE AREA		855,301 SF
R.O.W. DEDICATION FROM PREVIOUS SITE PLAN		1,288 SF
ADJUSTED SITE AREA		854,013 SF
MULTIPLY PERCENT REQUIRED		10%
EQUALS TREE COVER TO BE PROVIDED		85,401 SF
EXISTING TREES TO BE PRESERVED		81,990 SF
EX. UPLAND FOREST AREA TO REMAIN = 11,250 SF *1.25= 14,060 SF EX. DEVELOPED TREE COVER TO REMAIN = 67,930 SF		
PROPOSED CREDIT PROVIDED BY PLANTING		24,750 SF
84 CANOPY TREES @ 250 SF = 21,000 SF 16 UNDERSTORY / ORNAMENTAL TREES @ 125 SF = 2,000 SF 14 EVERGREEN TREES @125 SF = 1,750 SF		
TOTAL TREE COVER PROVIDED	12.5%	106,740 SF

INTERIOR PARKING LOT LANDSCAPING	
PAVED AREA WITHIN CONSTRUCTION LIMITS	163,110 SF
INTERIOR LANDSCAPING REQUIRED (5%)	8,156 SF
TOTAL SHADE TREE COVER PROVIDED 5.5% (33 CATEGORY IV DECIDUOUS TREES @250 SF)	8,250 SF

PERIPHERIAL LANDSCAPING WESTERN PROPERTY LINE
7 CANOPY TREES REQUIRED
7 CANOPY TREES PROVIDED



TYPICAL SECTION OF LANDSCAPE BUFFER
N.T.S.

NO.	DESCRIPTION	DATE	REVS'D	REVW'D	APRV'D	DATE

REVISION

PROFESSIONAL SEAL
COMMONWEALTH OF VIRGINIA
DAVID H. STEIGLER
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11/16/10
LANDSCAPE ARCHITECT

PROJECT

MITRE 5

CONCEPTUAL DEVELOPMENT PLAN /
FINAL DEVELOPMENT PLAN
SPECIAL EXCEPTION PLAT

PROVIDENCE DISTRICT, FAIRFAX COUNTY, VIRGINIA

TITLE

LANDSCAPE PLAN

Patton Harris Rust & Associates
Engineers. Surveyors. Planners. Landscape Architects.
PHR+A
14532 Lee Road
Chantilly, VA 20151-1679
T 703.449.6700
F 703.449.6714

CO. PLAN #

DESIGN PHR+A	SURVEY NA
DRAWN SME	DATE JULY 15, 2010 REVISED NOV. 16, 2010
CHECKED DHS	SCALE 1"=60'
SHEET 9 OF 31	FILE NO. 10022 1-6

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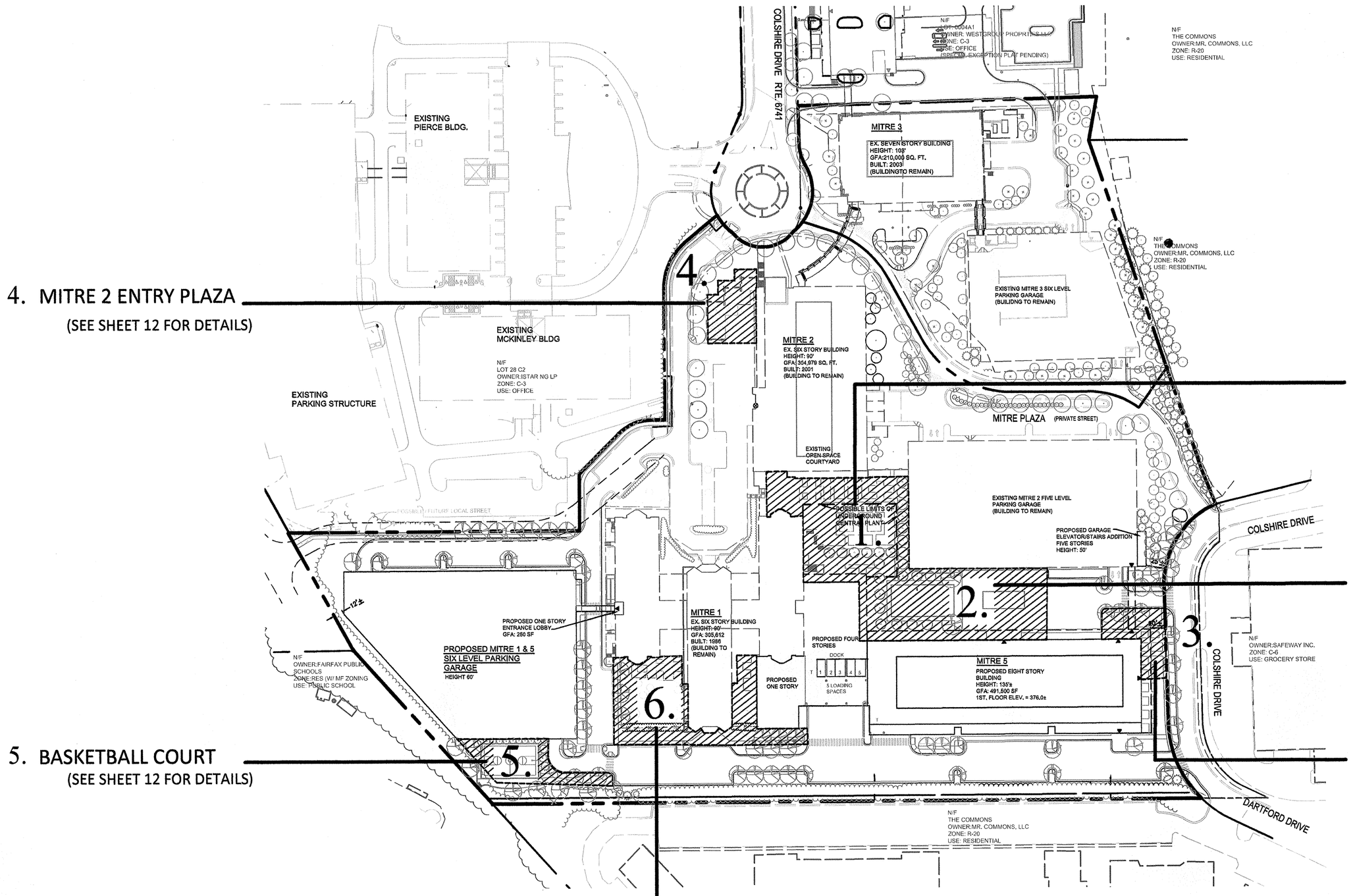

4. MITRE 2 ENTRY PLAZA
(SEE SHEET 12 FOR DETAILS)

1. CENTRAL COURTYARD
(SEE SHEET 11 FOR DETAILS)

2. MITRE 5 COURTYARD AND PIAZZA
(SEE SHEET 11 FOR DETAILS)

3. COLSHIRE DRIVE ENTRY PLAZA
(SEE SHEET 11 FOR DETAILS)

5. BASKETBALL COURT
(SEE SHEET 12 FOR DETAILS)

6. MITRE 1 COURTYARDS
(SEE SHEET 12 FOR DETAILS)

NARRATIVE:

WITHIN THE MITRE CAMPUS, SIX (6) OPEN SPACES HAVE BEEN IDENTIFIED ON THE OPEN SPACE PLAN. DUE TO THE NATURE OF MITRE'S BUSINESS, THESE SPACES ARE PRIMARILY PRIVATE, SERVING THE CAMPUS EMPLOYEES AND THEIR GUESTS. HOWEVER, A NEW PUBLIC POCKET PARK (#3) IS SITUATED ALONG COLSHIRE DRIVE, TO SERVE AS A PEDESTRIAN BYWAY ALONG THE NEW STREETSCAPE ADJACENT TO THE NEW MITRE 5 OFFICE BUILDING. IN ADDITION, A NEW BASKETBALL COURT (#5) IS PROPOSED ON THE EDGE OF THE CAMPUS.

THE CENTRAL COURTYARD AND THE NEW MITRE 5 COURTYARD ARE NEXT TO EACH OTHER AND CREATE A CONTINUOUS STRING OF SPACES FOR GREATER SYNERGY. ALL OPEN SPACES ARE WELL CONNECTED WITH SIDEWALKS AND/OR ACCESS POINTS FROM THE BUILDINGS THEY SERVE. MATERIALS IN THE OPEN SPACES ARE OF HIGH QUALITY AND INCLUDE SEATING, MATURE LANDSCAPING, LIGHTING, AND ART.

FILE NAME: F:\PROJECT\10022\1-6\Planning\Plans\P-10 OS.dwg LAYOUT NAME: Layout1 PLOTTED: Tuesday, November 16, 2010 - 6:48pm

NO.	DESCRIPTION	DATE	REVS'D	REVW'D	APRV'D	DATE
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PROFESSIONAL SEAL
COMMONWEALTH OF VIRGINIA
DAVID H. STEIGLER
Lic. No. 609
11/16/10
LANDSCAPE ARCHITECT

PROJECT
MITRE 5
CONCEPTUAL DEVELOPMENT PLAN / FINAL DEVELOPMENT PLAN SPECIAL EXCEPTION PLAT
PROVIDENCE DISTRICT, FAIRFAX COUNTY, VIRGINIA

TITLE
OPEN SPACE PLAN OVERALL

Patton Harris Rust & Associates
Engineers. Surveyors. Planners. Landscape Architects.
PHR+A
14532 Lee Road
Chantilly, VA 20151-1679
T 703.449.6700
F 703.449.6714

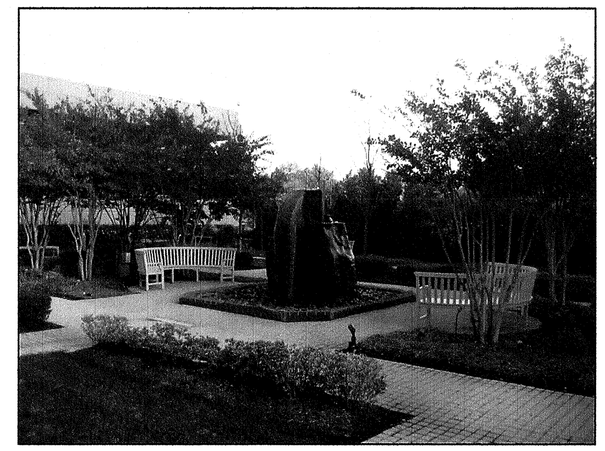
CO. PLAN #

DESIGN PHR+A	SURVEY NA
DRAWN SME	DATE JULY 15, 2010 REVISED NOV. 16, 2010
CHECKED DHS	SCALE 1"=100'
SHEET 10 OF 31	FILE NO. 10022 1-6

1. CENTRAL COURTYARD

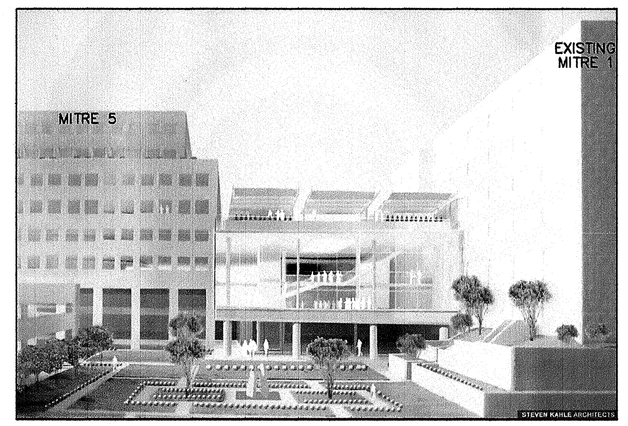
- COMP PLAN CATEGORY: POCKET PARK - PRIVATE
- SIZE: 0.45 ACRES +/-
- DIMENSIONS: 140' +/_ BY 140' +/-
- NARRATIVE:

THIS EXISTING OPEN SPACE IS CENTRALLY LOCATED WITHIN THE MITRE OFFICE CAMPUS AND PROVIDES A SERENE ENVIRONMENT FOR EMPLOYEES DURING OFFICE BREAKS, LUNCHES AND INFORMAL MEETINGS. A WATER SCULPTURE SERVES AS THE COURTYARDS CENTRAL FEATURE AND IS SURROUNDED BY SHADED SEATING NODES AND WALKING PATHS. THE COURTYARD IS LANDSCAPED WITH CANOPY AND ORNAMENTAL TREES, FLOWERING SHRUBS, ORNAMENTAL GRASSES, PERENNIALS, AND LAWN PANELS.

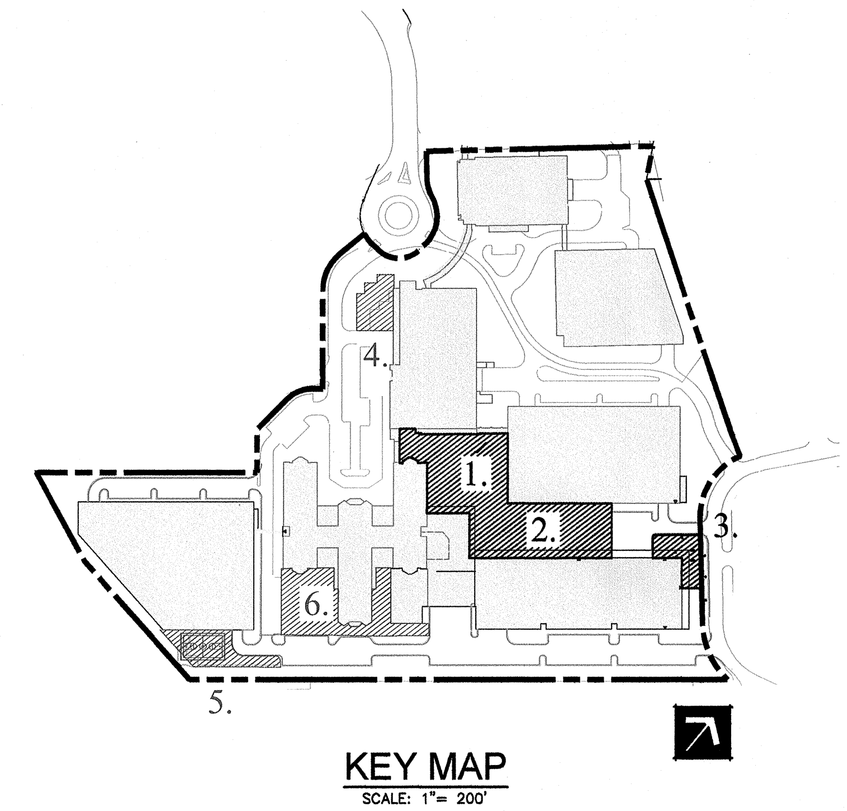


CENTRAL COURTYARD WATER SCULPTURE

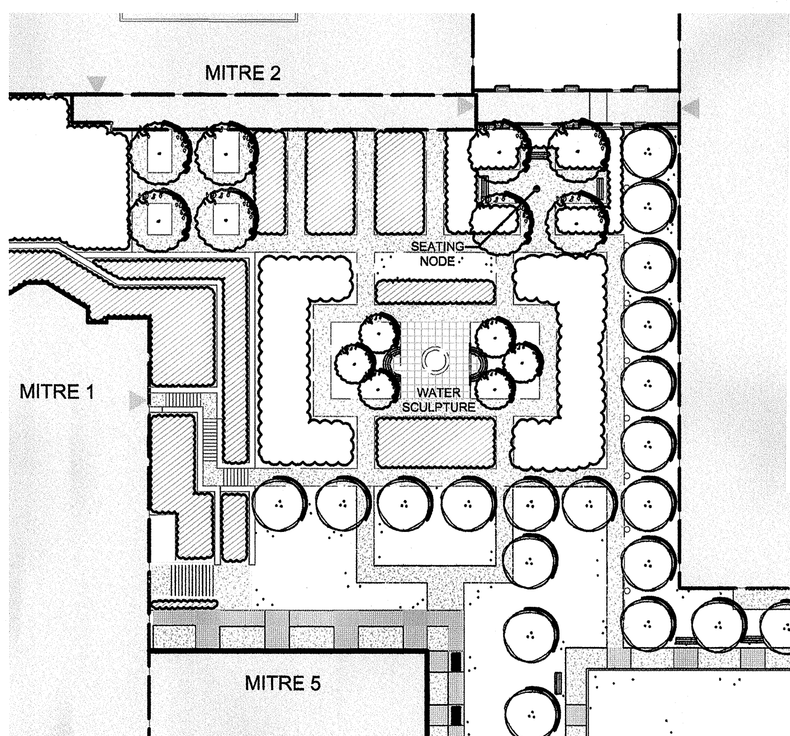
CENTRAL COURTYARD SEATING NODE

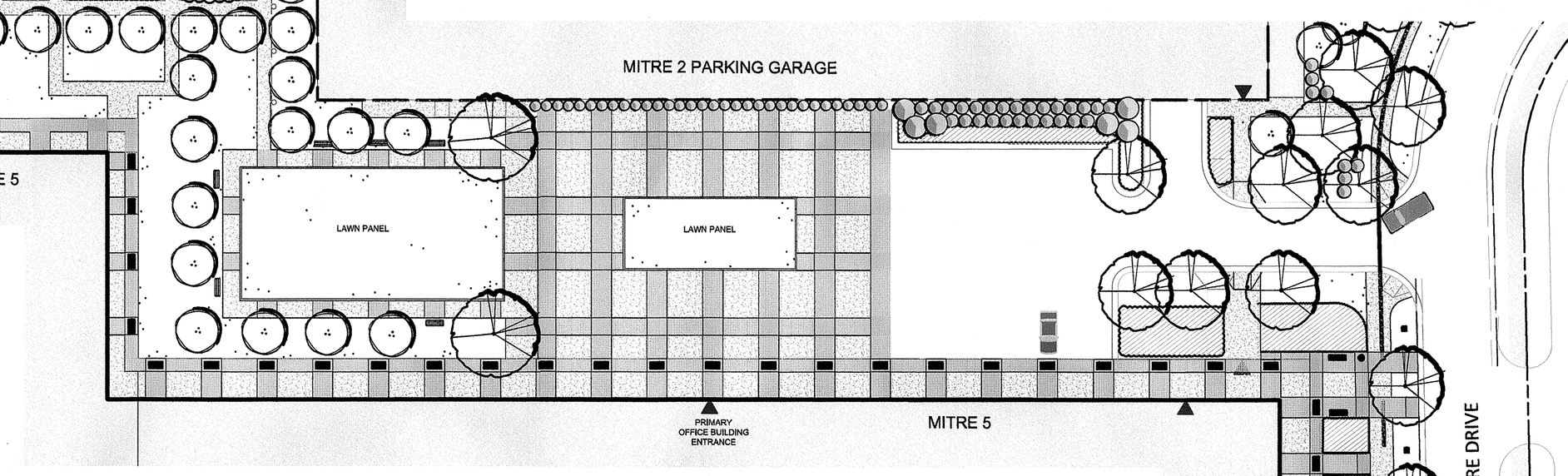


CENTRAL COURTYARD



KEY MAP
SCALE: 1"= 200'





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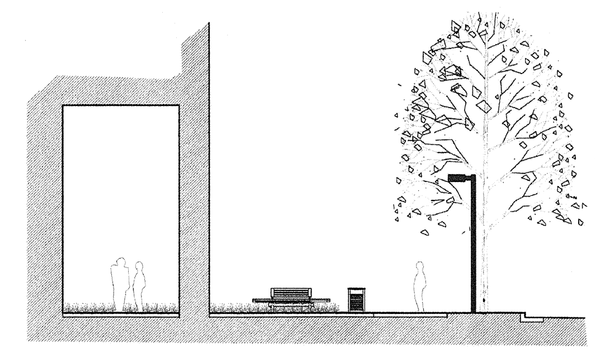
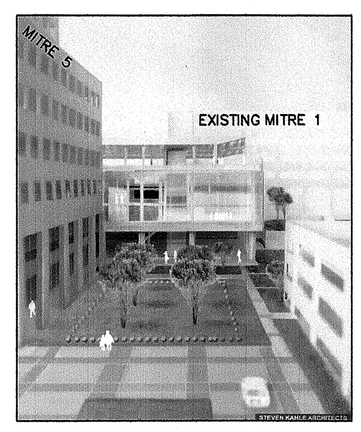


COLSHIRE DRIVE ENTRY PLAZA SECTION

2. MITRE 5 COURTYARD AND PIAZZA

- COMP PLAN CATEGORY: POCKET PARK & PIAZZA - PRIVATE
- SIZE: 0.29 ACRES +/-
- DIMENSIONS: 140' +/_ BY 90' +/-
- NARRATIVE:

EVEN THOUGH THESE SPACES ARE LOCATED IN FRONT OF THE PROPOSED MITRE 5 OFFICE BUILDING, THEY PROVIDE AN IMPORTANT ROLE TO THE CAMPUS'S OVERALL OPEN SPACE PLAN. THE PROPOSED COURTYARD AND PIAZZA ARE LOCATED IN A SERIES WITH THE CENTRAL COURTYARD TO PROVIDE OPEN SPACE CONNECTIVITY FOR PEDESTRIANS USING THE ADJACENT RETAIL TO THE EAST. THE COURTYARD WILL INCLUDE HARD AND SOFT AREAS FOR WALKING AND ENJOYING LAWN ACTIVITIES. BENCHES WILL BE PROVIDED UNDER SHADE TREES ALONG THE PERIPHERY OF THE SPACE. PLANTING BEDS WILL BE WELL LANDSCAPED WITH EVERGREEN AND FLOWERING SHRUBS, PERENNIALS, AND ORNAMENTAL GRASSES TO PROVIDE SEASONAL INTEREST. IN ADDITION TO PATTERNED PAVING, THE PIAZZA WILL INCLUDE A CENTRAL LAWN PANEL TO DIRECT TRAFFIC FLOW FOR A PASSENGER DROP-OFF AREA. THE LAWN PANEL WILL BE EDGED WITH MOUNTABLE CURBING AND THE TURF WILL BE REINFORCED TO ACCOMMODATE FIRE TRUCK LOADING (EMERGENCY VEHICLE TURN-AROUND REQUIRED BY FIRE MARSHAL). THESE SPACES WILL BE WELL LIGHTED FOR SAFE PEDESTRIAN USAGE.



M5 COURTYARD & PIAZZA

3. COLSHIRE DRIVE ENTRY PLAZA

- COMP PLAN CATEGORY: POCKET PARK - PUBLIC
- SIZE: 0.1 ACRES +/-
- DIMENSIONS: 150' +/_ BY 20' +/-
- NARRATIVE:

THIS "POCKET PARK" PROVIDES A REST STATION FOR PEDESTRIANS ON ROUTE ALONG COLSHIRE DRIVE AS WELL AS AN ATTRACTIVE ENTRANCE/GATEWAY TO THIS END OF THE MITRE CAMPUS. SPECIALTY PAVING HARDSCAPE WILL BE PROVIDED THAT WILL RELATE TO THE BUILDING'S ARCHITECTURE AND EXTEND INTO THE STREETSCAPE SIDEWALK. THE PLAZA IS LOCATED AT THE CORNER OF THE MITRE 5 OFFICE BUILDING AND THE CONFLUENCE OF THE BUILDING'S ARCADES, AN IMPORTANT PEDESTRIAN CORRIDOR FOR THE BUILDING AND CAMPUS.

NOTE: THIS GRAPHIC IS PROVIDED TO SHOW THE INTENT, CHARACTER AND QUALITY OF THE PROPOSED DEVELOPMENT. FINAL DESIGN AND MATERIALS WILL BE DETERMINED PRIOR TO ISSUANCE OF BUILDING PERMIT.

NO.	DESCRIPTION	DATE	REVS'D	REVW'D	APRV'D	DATE

REVISION

PROFESSIONAL SEAL
COMMONWEALTH OF VIRGINIA
DAVID H. STEIGLER
Lic. No. 609
11/16/10
LANDSCAPE ARCHITECT

PROJECT

MITRE 5

CONCEPTUAL DEVELOPMENT PLAN / FINAL DEVELOPMENT PLAN SPECIAL EXCEPTION PLAT

PROVIDENCE DISTRICT, FAIRFAX COUNTY, VIRGINIA

TITLE

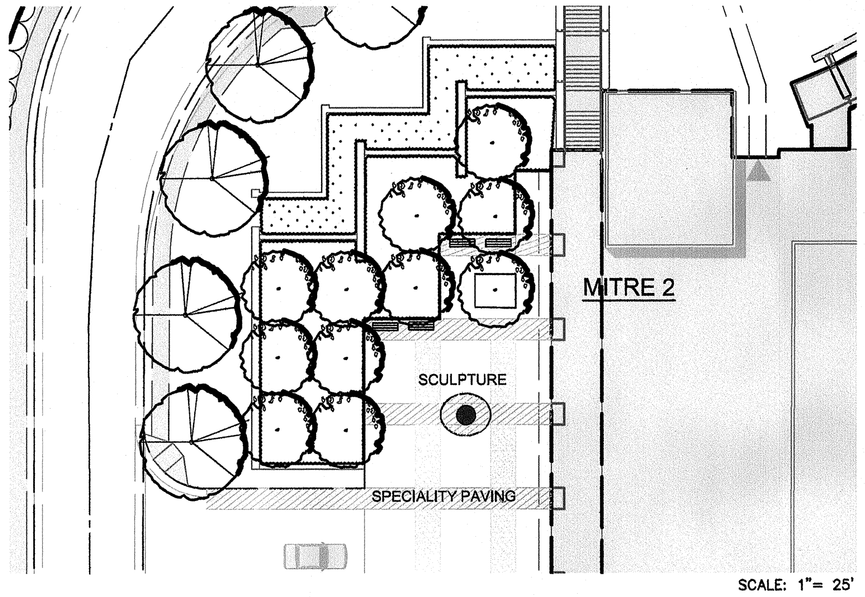
OPEN SPACE PLAN - AREAS 1, 2, & 3

Patton Harris Rust & Associates
Engineers. Surveyors. Planners. Landscape Architects.
PHR+A
14532 Lee Road
Chantilly, VA 20151-1679
T 703.449.6700
F 703.449.6714

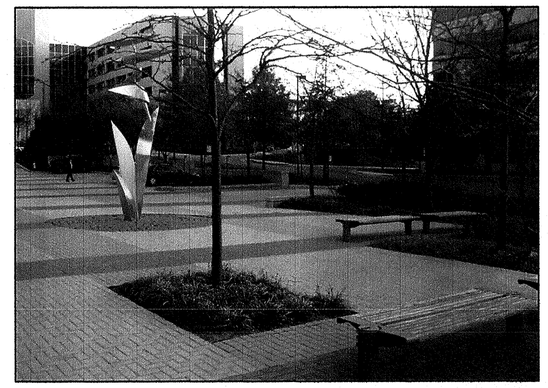
CO. PLAN #

DESIGN	SURVEY
DRAWN SME	DATE JULY 15, 2010 REVISED NOV. 16, 2010
CHECKED DHS	SCALE AS SHOWN
SHEET 11 OF 31	FILE NO. 10022 1-6

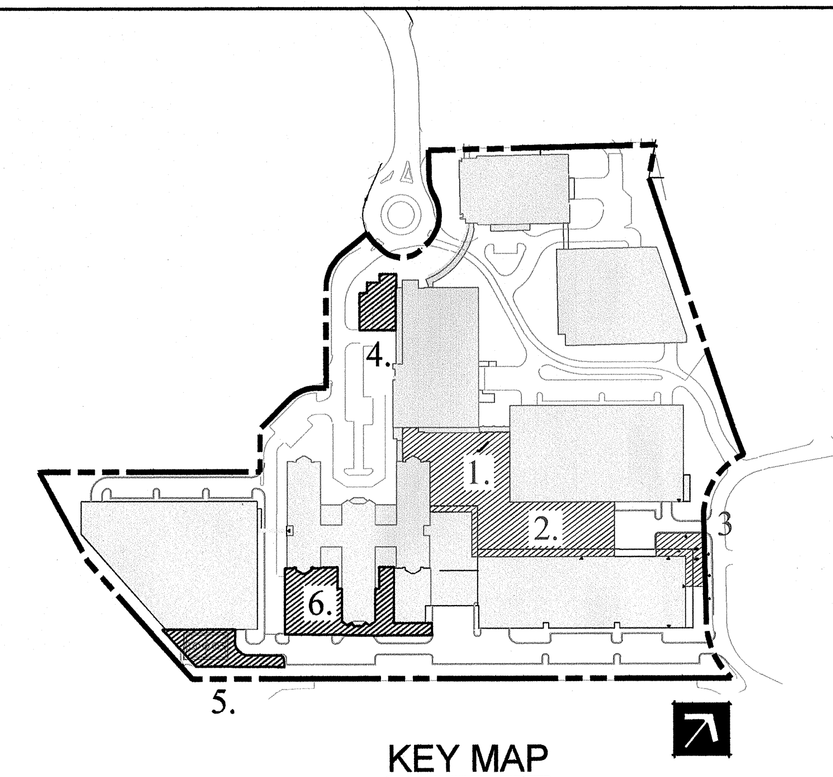
FILE NAME: P:\PROJECT\10022\1-6\Planning\Plans\P-11-12-O-S-AREAS.dwg LAYOUT NAME: sheet 11 PLOTTED: Tuesday, November 16, 2010 - 7:02pm



MITRE 2 ENTRY PLAZA AERIAL



MITRE 2 PLAZA SCULPTURE

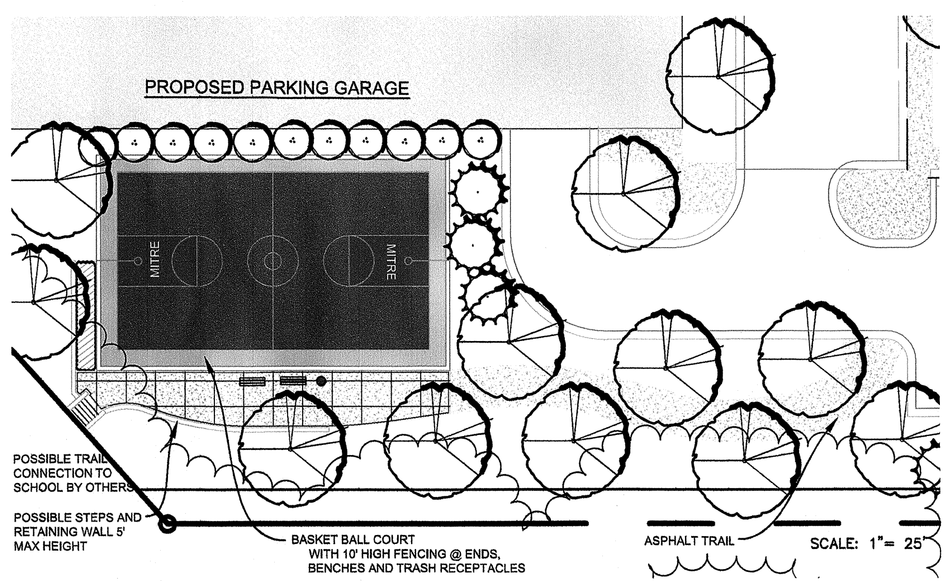


KEY MAP
SCALE: 1"= 200'

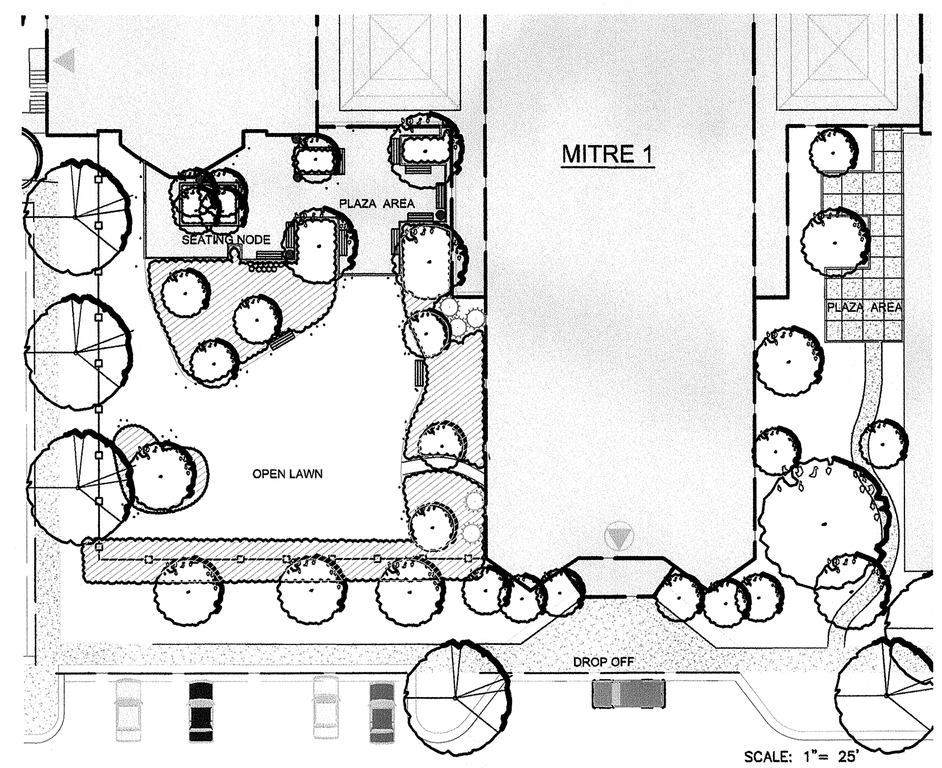
4. MITRE 2 ENTRY PLAZA

- COMP PLAN CATEGORY: POCKET PARK - PRIVATE
- SIZE: 0.14 ACRES +/-
- DIMENSIONS: 100' +/_ BY 65' +/-
- NARRATIVE:

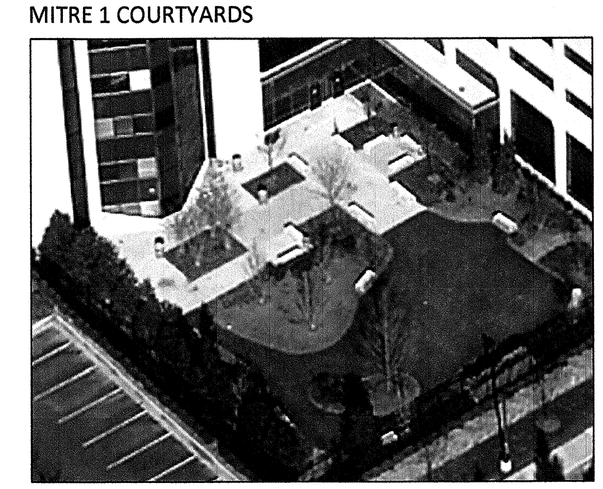
THIS SPACE IS LOCATED AT THE ENTRANCE TO THE MITRE 2 OFFICE BUILDING AND IS ACCESSED BY PEDESTRIANS FROM MULTIPLE DIRECTIONS ON THE CAMPUS. THE SPACE IS DOMINATED BY A DRAMATIC, MOVING SCULPTURE PROPELLED BY THE WIND. BENCHES ARE PROVIDED UNDER THE CANOPY OF MATURE SHADE TREES. THE HARDSCAPE CONSISTS OF A VARIETY OF PAVERS IN A PATTERN THAT ACCENTS THE BUILDING FEATURES AND TIES TOGETHER WITH THE ADJACENT ENTRY DRIVE.



MITRE BASKETBALL COURT



MITRE 1 COURTYARDS



5. BASKETBALL COURT

- COMP PLAN CATEGORY: COURT ACTIVITIES - PRIVATE
- SIZE: 0.20 ACRES +/-
- DIMENSIONS: 100' +/_ BY 65' +/-
- NARRATIVE:

THE BASKETBALL COURT PROVIDES AN ACTIVE RECREATION FACILITY FOR MITRE EMPLOYEES. IN ADDITION TO BASKETBALL, THE COURT CAN SUPPORT OTHER HARD COURT SPORTS SUCH AS VOLLEYBALL. ITS LOCATION IS PROTECTED FROM THE WIND BY THE ADJACENT PARKING STRUCTURE, TOPOGRAPHY AND TREES. BENCHES AND TRASH/RECYCLING RECEPTACLES ARE PROVIDED ADJACENT TO THE COURT.

6. MITRE 1 COURTYARDS

- COMP PLAN CATEGORY: POCKET PARK - PRIVATE
- SIZE: 2.00 ACRES +/-
- DIMENSIONS: 130' +/_ BY 105' +/-
- NARRATIVE:

WITH ACCESS PRIMARILY FROM THE MITRE 1 BUILDING, THESE SPACES PROVIDE OUTDOOR SEATING FOR A CAMPUS CAFETERIA. IN ADDITION TO PATIOS WITH TABLES AND CHAIRS, THE COURTYARDS ARE LANDSCAPED IN A GARDEN-ESQUE STYLE WITH MATURE SHADE AND ORNAMENTAL TREES AND PLANTING BEDS WITH FLOWERING SHRUBS, PERENNIALS AND ORNAMENTAL GRASSES. LAWN PANELS PROVIDE ADDITIONAL OPPORTUNITIES FOR PASSIVE AND ACTIVE USES. WALKING PATHS MEANDER THOUGH THE COURTYARDS WITH BENCHES THROUGH OUT.

NO.	DESCRIPTION	DATE	REVS'D	REVW'D	APRV'D	DATE

REVISION

PROFESSIONAL SEAL
COMMONWEALTH OF VIRGINIA
DAVID H. STEIGLER
Lic. No. 809
11/10/10
LANDSCAPE ARCHITECT

PROJECT

MITRE 5

CONCEPTUAL DEVELOPMENT PLAN /
FINAL DEVELOPMENT PLAN
SPECIAL EXCEPTION PLAT

PROVIDENCE DISTRICT, FAIRFAX COUNTY, VIRGINIA

TITLE

OPEN SPACE PLAN - AREAS 4, 5, & 6

Patton Harris Rust & Associates
Engineers. Surveyors. Planners. Landscape Architects.
PHR+A
14532 Lee Road
Chantilly, VA 20151-1679
T 703.449.6700
F 703.449.6714

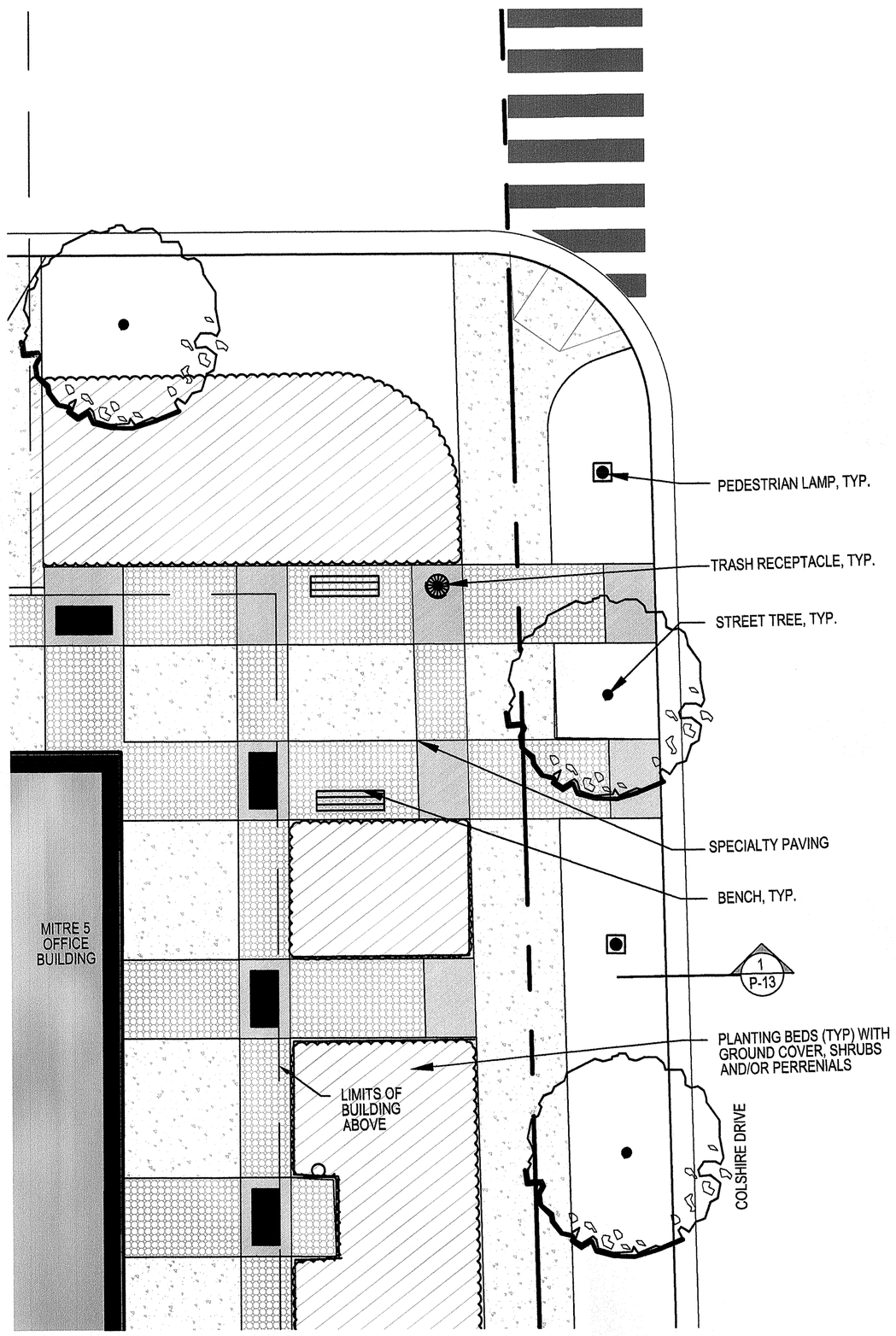
CO. PLAN #

DESIGN	SURVEY
DRAWN SME	DATE JULY 15, 2010 REVISED NOV. 16, 2010
CHECKED DHS	SCALE
SHEET 12 OF 31	FILE NO. 10022 1-6

FILE NAME: P:\PROJECT\10022\1-6\Planning\Plans\P-11-12-0-5-AREAS.dwg LAYOUT NAME: SHEET 12 PLOTTED: Tuesday, November 16, 2010 - 7:06pm

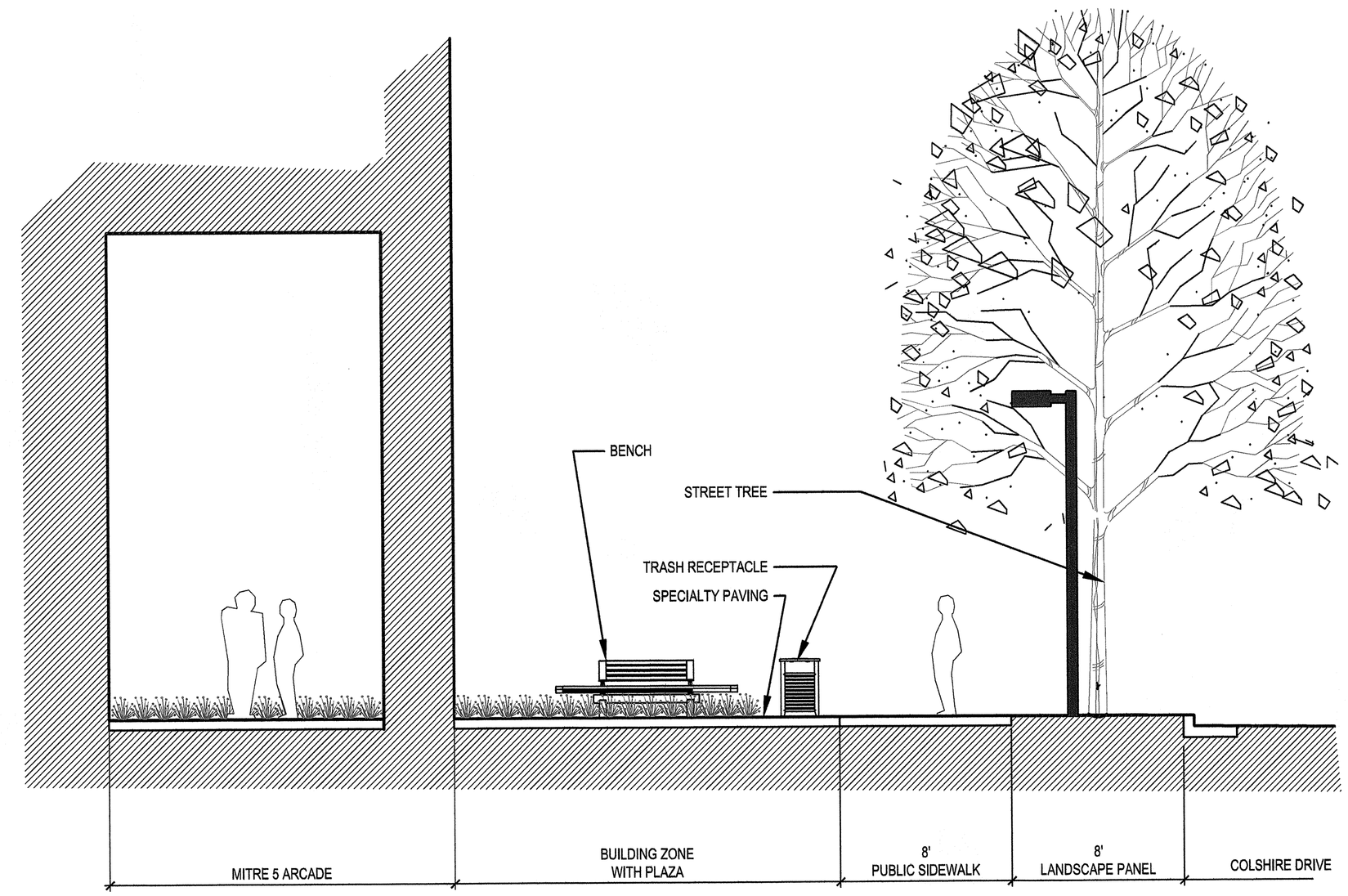
NOTE:

1. THESE RENDERINGS AND SHOW THE INTENT, CHARACTER AND QUALITY OF THE PROPOSED DEVELOPMENT. FINAL DESIGN AND MATERIALS WILL BE DETERMINED PRIOR TO ISSUANCE OF BUILDING PERMIT.



2 CONCEPTUAL STREETSCAPE PLAN

SCALE: 1" = 8'-0"



1 CONCEPTUAL PLAZA AND STREETSCAPE SECTION / ELEVATION

SCALE: 1/4" = 1'-0"

NO.	DESCRIPTION	DATE	REVS'D	REVW'D	APRV'D	DATE

REVISION

PROFESSIONAL SEAL
COMMONWEALTH OF VIRGINIA
DAVID H. STEIGLER
Lic. No. 609
11/16/10
LANDSCAPE ARCHITECT

PROJECT

MITRE 5

CONCEPTUAL DEVELOPMENT PLAN / FINAL DEVELOPMENT PLAN SPECIAL EXCEPTION PLAT

PROVIDENCE DISTRICT, FAIRFAX COUNTY, VIRGINIA

TITLE

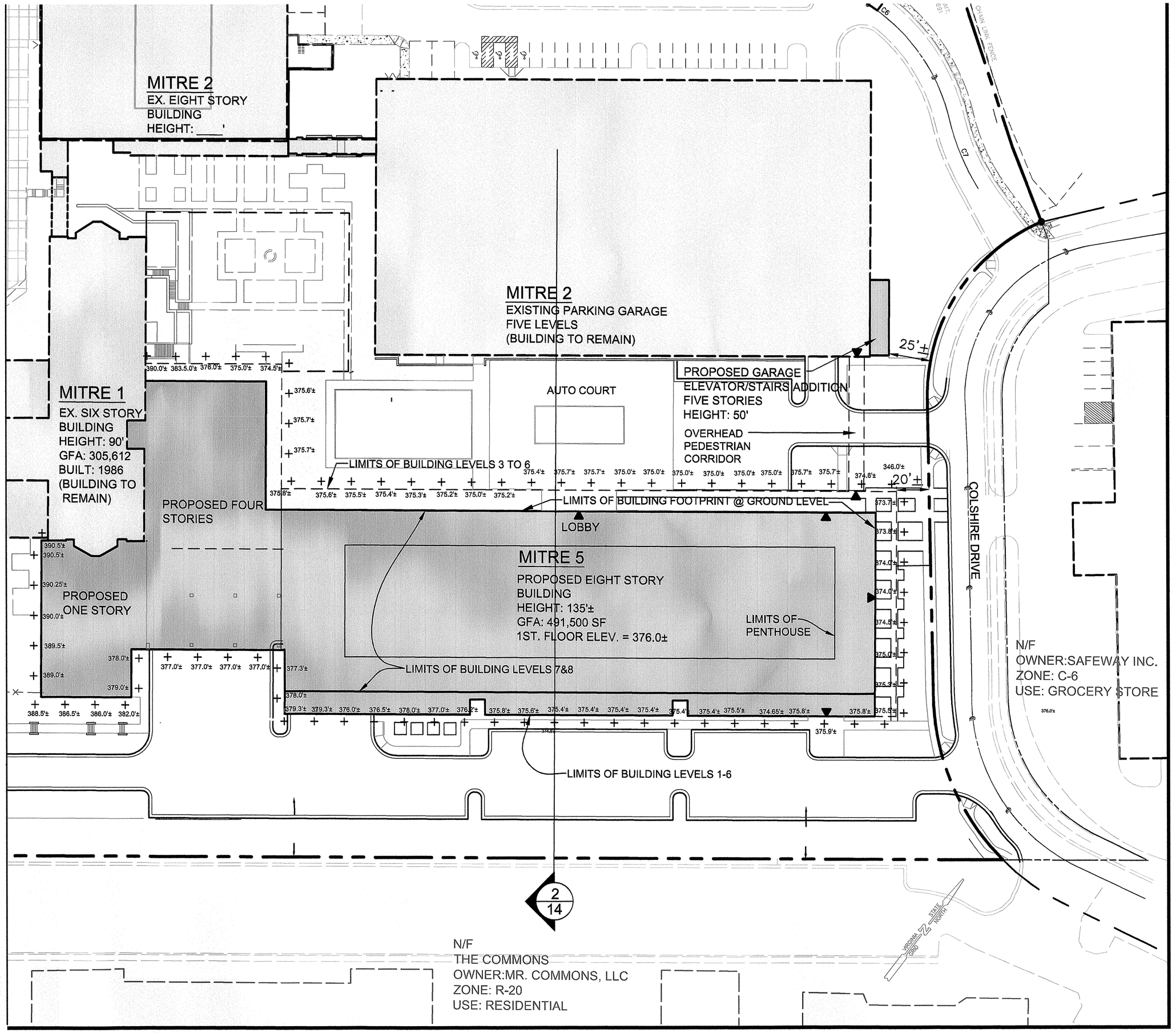
STREETSCAPE PLAN

Patton Harris Rust & Associates
Engineers. Surveyors. Planners. Landscape Architects.
PHR+A
14532 Lee Road
Chantilly, VA 20151-1679
T 703.449.6700
F 703.449.6714

CO. PLAN #

DESIGN PHR+A	SURVEY NA
DRAWN	DATE JULY 15, 2010 REVISED NOV. 16, 2010
CHECKED DHS	SCALE AS SHOWN
SHEET 13 OF 31	FILE NO. 10022 1-6

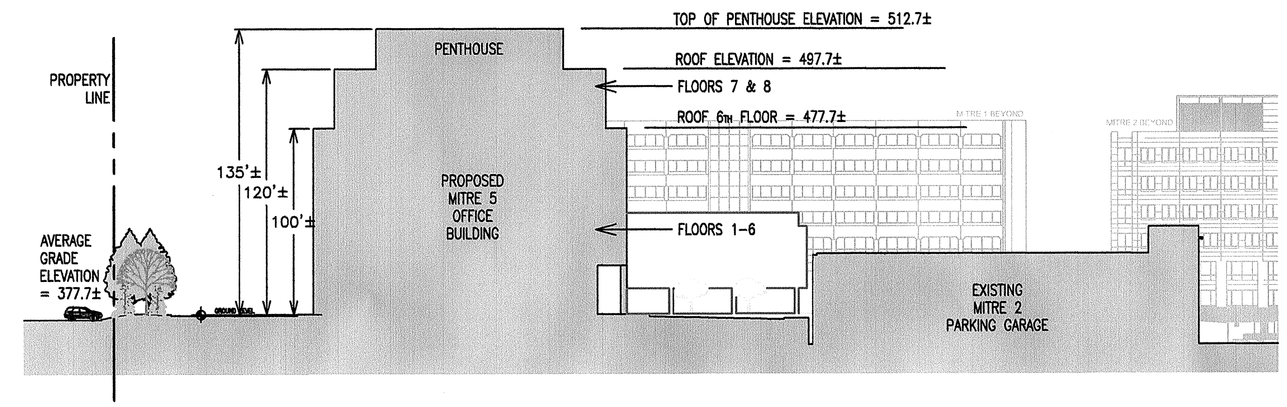
FILE NAME: P:\PROJECT\10022\1-6\Planning\Plans\P-13 LND-DET.dwg LAYOUT NAME: Layout1 PLOTTED: Tuesday, November 16, 2010 - 11:33am



1 AVERAGE GRADE PLAN

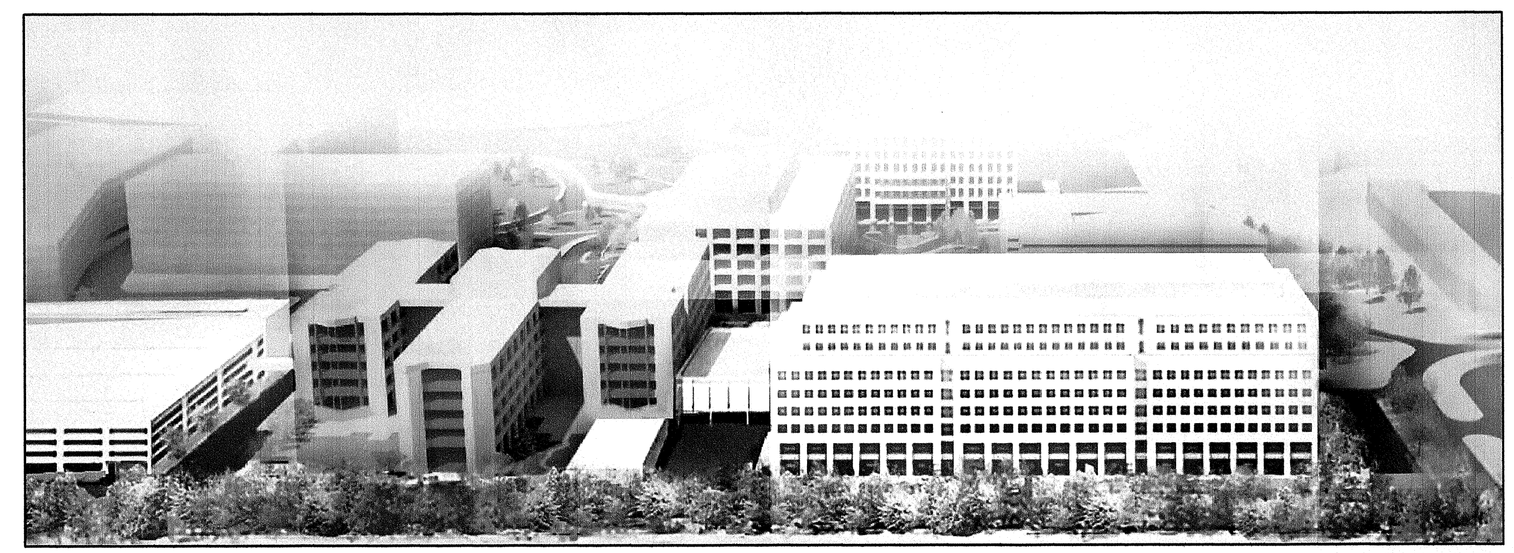
SCALE: 1" = 40'-0

- PROPOSED GRADES MAY VARY WITH FINAL ENGINEERING.
- PENTHOUSE FOOTPRINT AREA IS GREATER THAN 25% OF THE OVERALL BUILDING FOOTPRINT AND THEREFORE INCLUDED IN THE BUILDING HEIGHT.



2 SITE SECTION

SCALE: 1" = 50'-0



3 VIEW OF PROPOSED MITRE 5 FROM THE SOUTH

BUILDING HEIGHT TABULATIONS

AVERAGE GRADE ELEVATION AROUND BUILDING	=	377.7±
BUILDING HEIGHT	=	135.0±
TOP OF BUILDING ELEVATION	=	512.7±

NOTE: THIS GRAPHIC IS PROVIDED TO SHOW THE INTENT, CHARACTER AND QUALITY OF THE PROPOSED DEVELOPMENT. FINAL DESIGN AND MATERIALS WILL BE DETERMINED PRIOR TO ISSUANCE OF BUILDING PERMIT.

NO.	DESCRIPTION	DATE	REVS'D	REVW'D	APRV'D	DATE

REVISION

PROFESSIONAL SEAL
COMMONWEALTH OF VIRGINIA
DAVID H. STEIGLER
Lic. No. 609
11/16/10
LANDSCAPE ARCHITECT

PROJECT

MITRE 5

CONCEPTUAL DEVELOPMENT PLAN /
FINAL DEVELOPMENT PLAN
SPECIAL EXCEPTION PLAT

PROVIDENCE DISTRICT, FAIRFAX COUNTY, VIRGINIA

TITLE

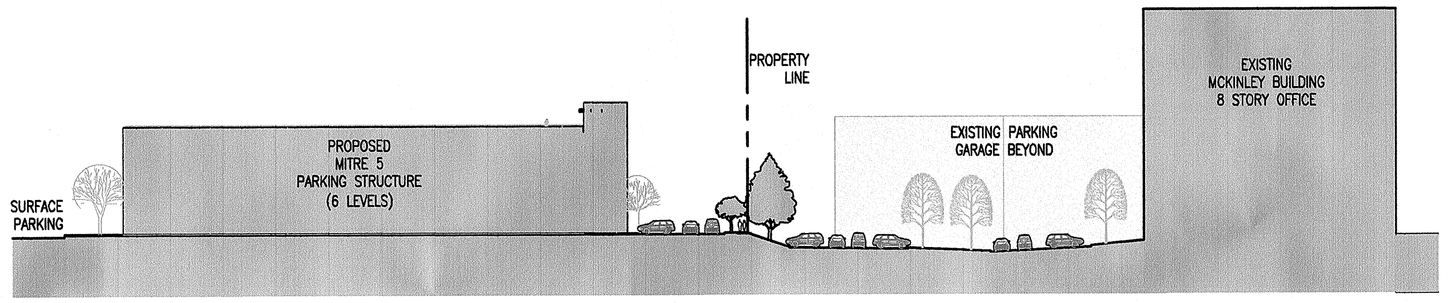
BUILDING HEIGHT

Patton Harris Rust & Associates
Engineers. Surveyors. Planners. Landscape Architects.
PHR+A
14532 Lee Road
Chantilly, VA 20151-1679
T 703.449.6700
F 703.449.6714

CO. PLAN #

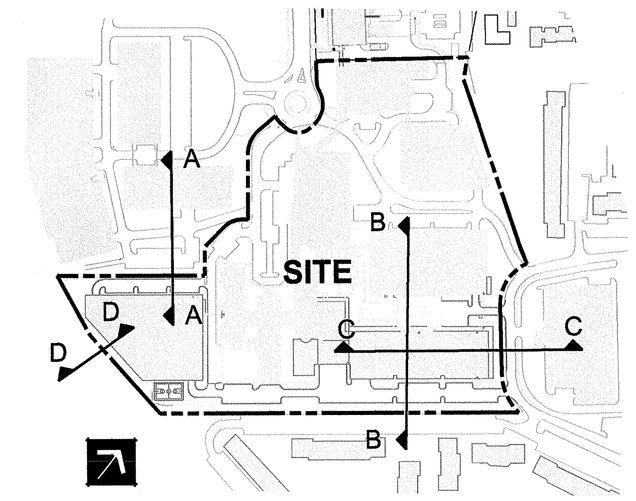
DESIGN PHR+A	SURVEY NA
DRAWN SME	DATE JULY 15, 2010 REVISED NOV. 16, 2010
CHECKED DHS	SCALE AS SHOWN
SHEET 14 OF 31	FILE NO. 10022 1-6

FILE NAME: P:\PROJECT\10022\1-6\Planning\Plans\P-14 BLDG_HT.dwg LAYOUT NAME: Layout1 PLOTTED: Tuesday, November 16, 2010 - 11:44am



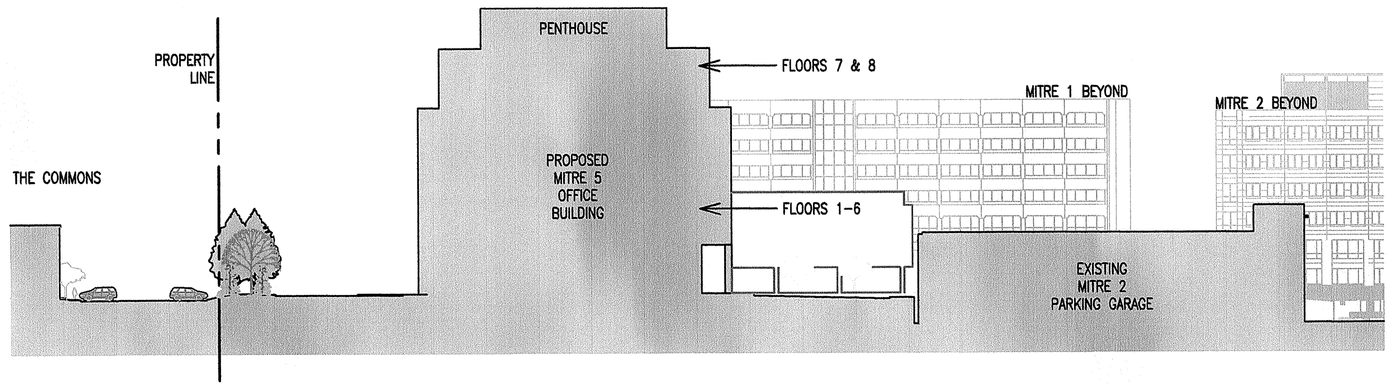
SITE SECTION A-A

SCALE: 1" = 50'-0



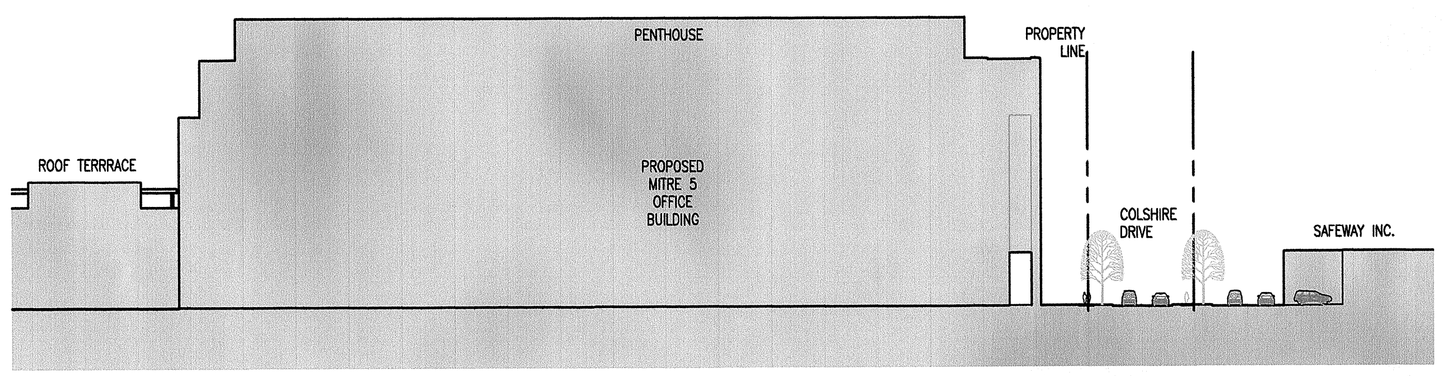
SECTION REFERENCE DIAGRAM

SCALE: 1" = 300'-0



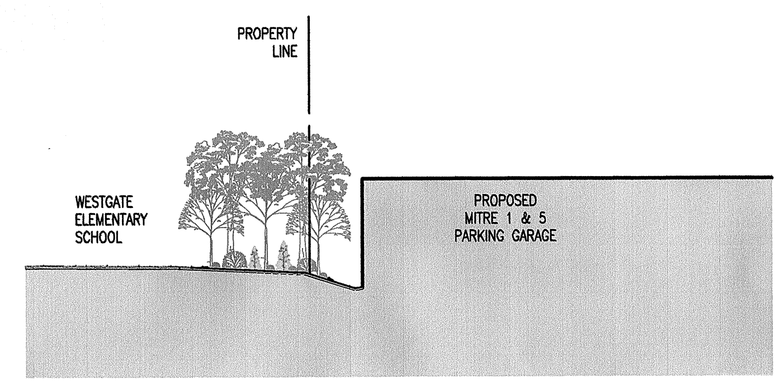
SITE SECTION B-B

SCALE: 1" = 50'-0



SITE SECTION C-C

SCALE: 1" = 50'-0



SITE SECTION D - D

SCALE: 1" = 50'-0

NOTE: THIS GRAPHIC IS PROVIDED TO SHOW THE INTENT, CHARACTER AND QUALITY OF THE PROPOSED DEVELOPMENT. FINAL DESIGN AND MATERIALS WILL BE DETERMINED PRIOR TO ISSUANCE OF BUILDING PERMIT.

NO.	DESCRIPTION	DATE	REVS'D	REVW'D	APRV'D	DATE

REVISION

PROFESSIONAL SEAL
COMMONWEALTH OF VIRGINIA
DAVID H. STEIGLER
Lic. No. 609
11/12/10
LANDSCAPE ARCHITECT

PROJECT

MITRE 5

CONCEPTUAL DEVELOPMENT PLAN / FINAL DEVELOPMENT PLAN SPECIAL EXCEPTION PLAT

PROVIDENCE DISTRICT, FAIRFAX COUNTY, VIRGINIA

TITLE

SITE SECTIONS

Patton Harris Rust & Associates
Engineers. Surveyors. Planners. Landscape Architects.
PHR+A
14532 Lee Road
Chantilly, VA 20151–1679
T 703.449.6700
F 703.449.6714

CO. PLAN #

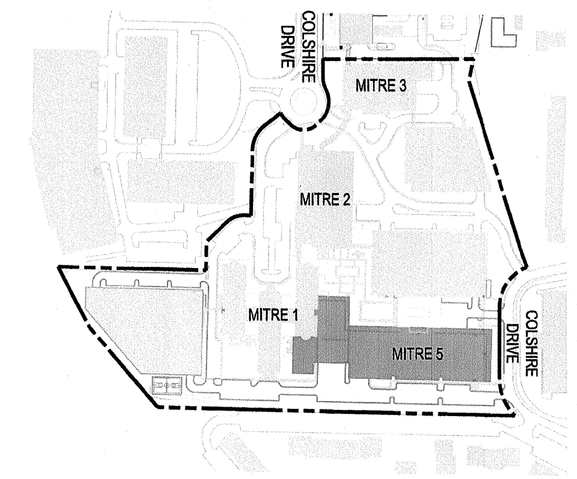
DESIGN PHR+A	SURVEY NA
DRAWN SME	DATE JULY 15, 2010 REVISED NOV. 16, 2010
CHECKED DHS	SCALE P-02-NOTES AS SHOWN
SHEET 15 OF 31	FILE NO. 10022 1–6

1 NORTH ELEVATION

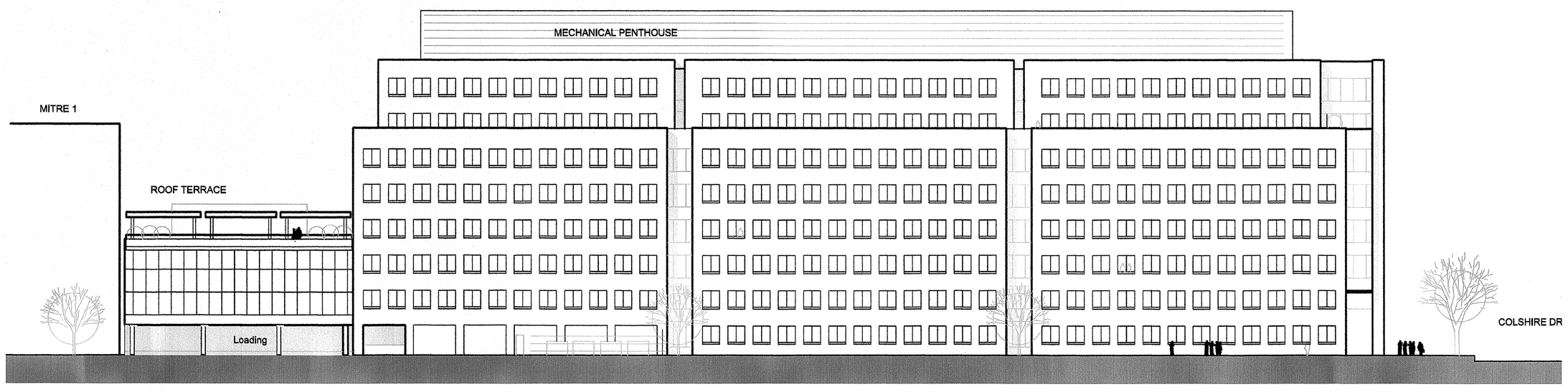
0' 15' 30' 60'
SCALE: 1"=30'-0"

2 EAST ELEVATION

0' 15' 30' 60'
SCALE: 1"=30'-0"

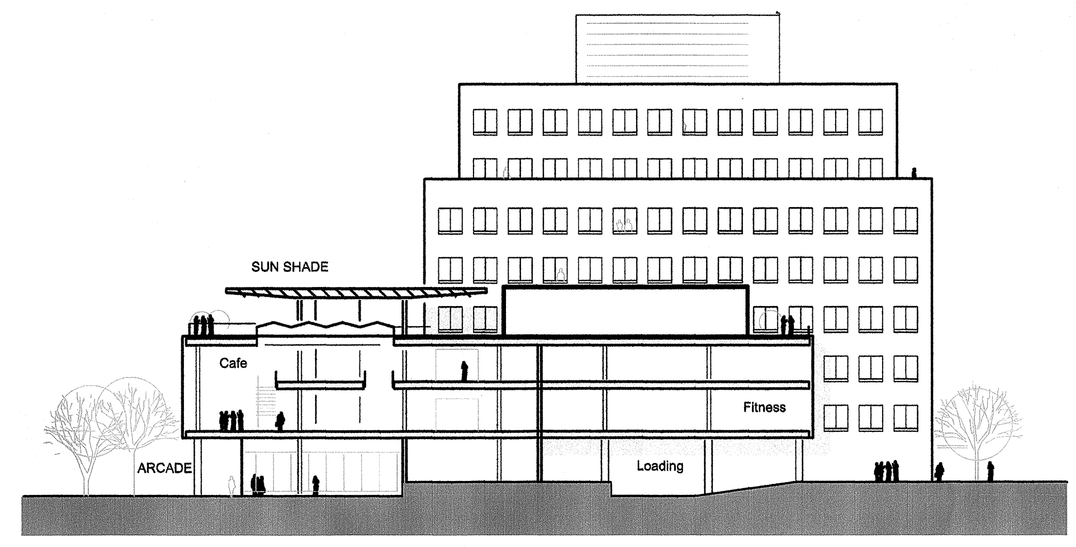


KEY MAP
SCALE: 1" = 300'-0



3 SOUTH ELEVATION

0' 15' 30' 60'
SCALE: 1"=30'-0"



4 WEST ELEVATION

0' 15' 30' 60'
SCALE: 1"=30'-0"

NOTE: THESE ELEVATIONS SHOW THE INTENT, CHARACTER AND QUALITY OF THE PROPOSED DEVELOPMENT. FINAL DESIGN AND MATERIALS WILL BE DETERMINED PRIOR TO ISSUANCE OF BUILDING PERMIT.

NO.	DESCRIPTION	DATE	REVS'D	REVW'D	APRV'D	DATE

REVISION

PROFESSIONAL SEAL
COMMONWEALTH OF VIRGINIA
DAVID H. STEIGLER
Lic. No. 609
11/16/10
LANDSCAPE ARCHITECT

PROJECT

MITRE 5

CONCEPTUAL DEVELOPMENT PLAN /
FINAL DEVELOPMENT PLAN
SPECIAL EXCEPTION PLAT

PROVIDENCE DISTRICT, FAIRFAX COUNTY, VIRGINIA

TITLE

MITRE 5 ELEVATIONS

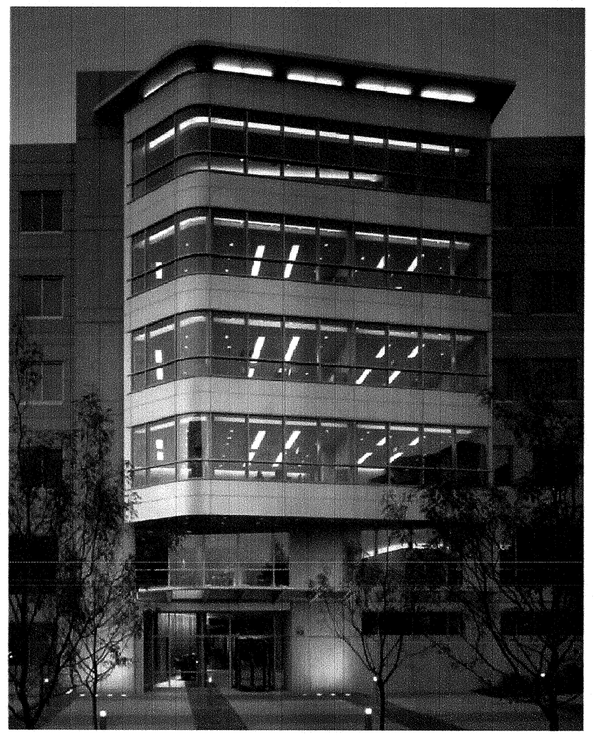
Patton Harris Rust & Associates
Engineers. Surveyors. Planners. Landscape Architects.
PHR+A
14532 Lee Road
Chantilly, VA 20151-1679
T 703.449.6700
F 703.449.6714

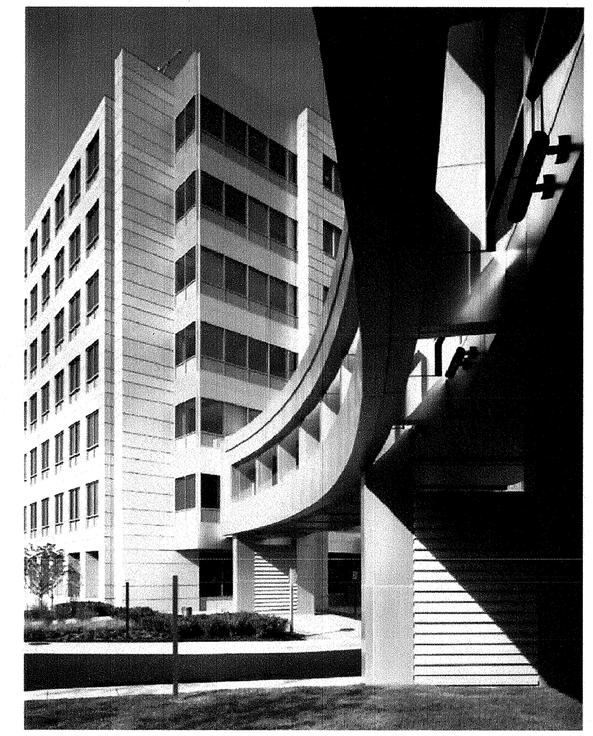
CO. PLAN #

DESIGN PHR+A	SURVEY NA
DRAWN SME	DATE JULY 15, 2010 REVISED NOV. 16, 2010
CHECKED DHS	SCALE AS SHOWN
SHEET 16 OF 31	FILE NO. 10022 1-6

CURTAIN WALL ELEMENTS

COMPOSITE METAL PANEL MECHANICAL PENTHOUSE & BRIDGE

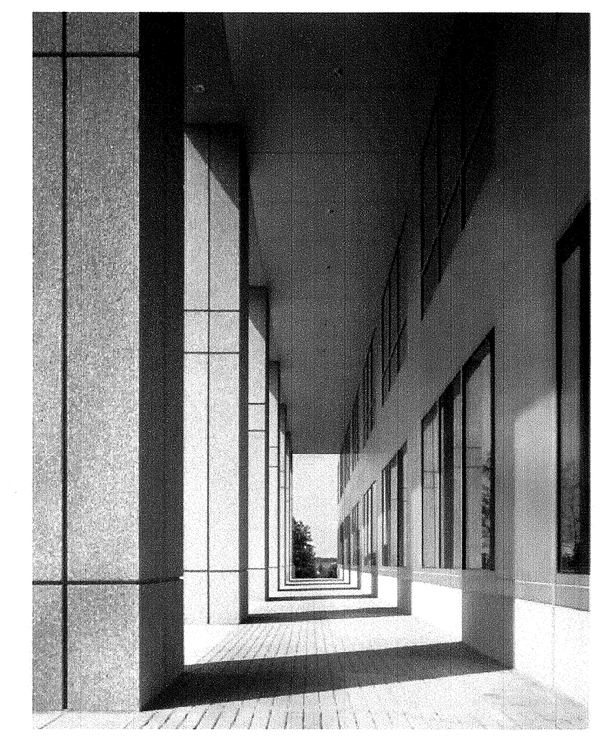




PUNCHED CONCRETE FACADE

PUNCHED WINDOWS

PUNCHED CONCRETE & COMPOSIT METAL PARKING GARAGE



ARCADE

NARRATIVE:

THE DESIGN OF THE BUILDING ADOPTS THE MATERIAL PALETTE, FORMS, AND ARCHITECTURAL VOCABULARY ALREADY PROMINENTLY ESTABLISHED ON THE MITRE CAMPUS. THE BUILDING SKIN SYSTEM WILL BE PRIMARILY A PUNCHED WINDOW SYSTEM UTILIZING THE CAMPUS STANDARD PRE-CAST CONCRETE. AS WITH THE MITRE 2 AND 3 BUILDINGS A CURTAIN-WALL SYSTEM WILL BE UTILIZED IN STRATEGIC LOCATIONS TO ENHANCE THE DESIGN AESTHETIC. THE CURTAIN-WALL WILL BE SIMILAR TO THE SILVER ALUMINUM CURTAIN-WALL SYSTEMS UTILIZED ON THE EXISTING CAMPUS BUILDINGS. THESE IMAGES SHOW THE INTENT, CHARACTER AND QUALITY OF THE PROPOSED DEVELOPMENT. FINAL DESIGN AND MATERIALS WILL BE DETERMINED PRIOR TO ISSUANCE OF BUILDING PERMIT.

NO.	DESCRIPTION	DATE	REVS'D	REVW'D	APRV'D	DATE
	REVISION					

PROFESSIONAL SEAL
COMMONWEALTH OF VIRGINIA
DAVID H. STEIGLER
Lic. No. 609
11/16/10
LANDSCAPE ARCHITECT

PROJECT

MITRE 5

CONCEPTUAL DEVELOPMENT PLAN /
FINAL DEVELOPMENT PLAN
SPECIAL EXCEPTION PLAT

PROVIDENCE DISTRICT, FAIRFAX COUNTY, VIRGINIA

TITLE

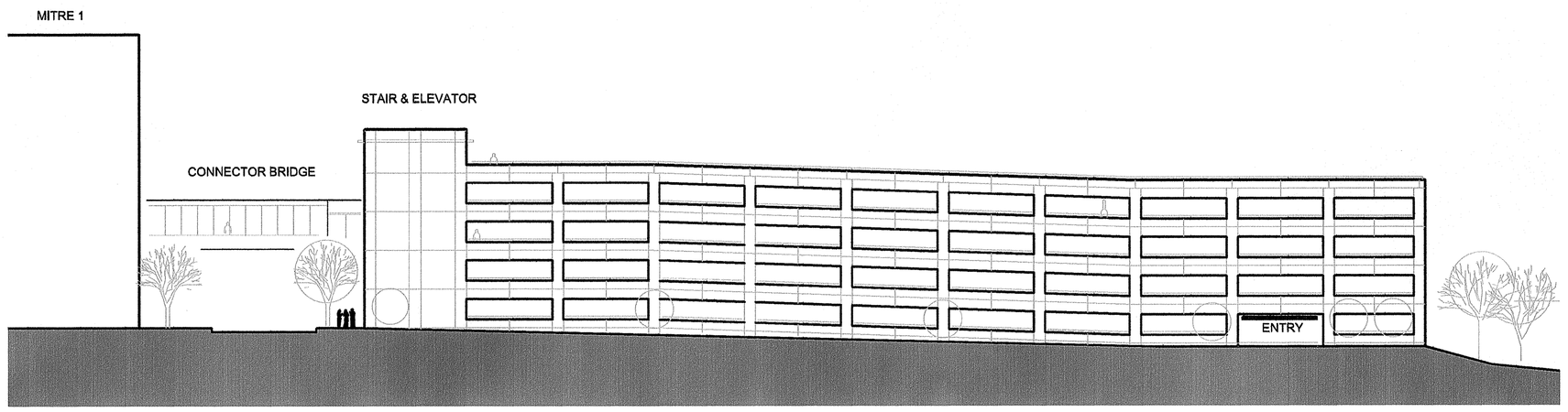
CAMPUS MATERIALS

Patton Harris Rust & Associates
Engineers. Surveyors. Planners. Landscape Architects.
PHR+A
14532 Lee Road
Chantilly, VA 20151-1679
T 703.449.6700
F 703.449.6714

CO. PLAN #

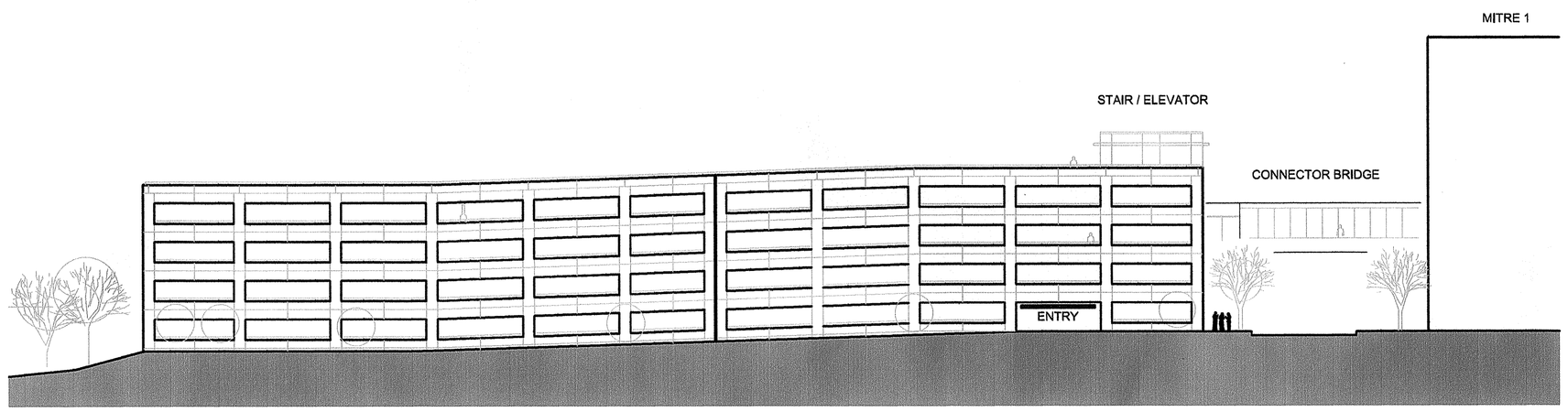
DESIGN PHR+A	SURVEY NA
DRAWN SME	DATE JULY 15, 2010 REVISED NOV. 16, 2010
CHECKED DHS	SCALE AS SHOWN
SHEET 17 OF 31	FILE NO. 10022 1-6

P:\PROJECT\10022\1-6\Planning\Plans\P-17-CAMPUS MATERIALS.dwg, 11/15/2010 3:45:20 PM, CutePDF Writer, ARCH D, 1:1



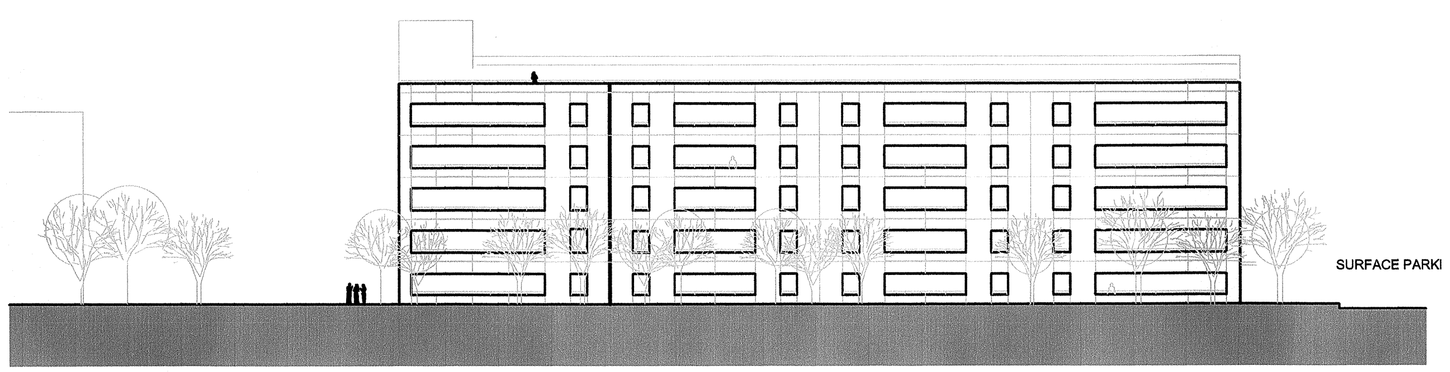
1 NORTH ELEVATION

0' 15' 30' 60'
SCALE: 1"=30'-0"



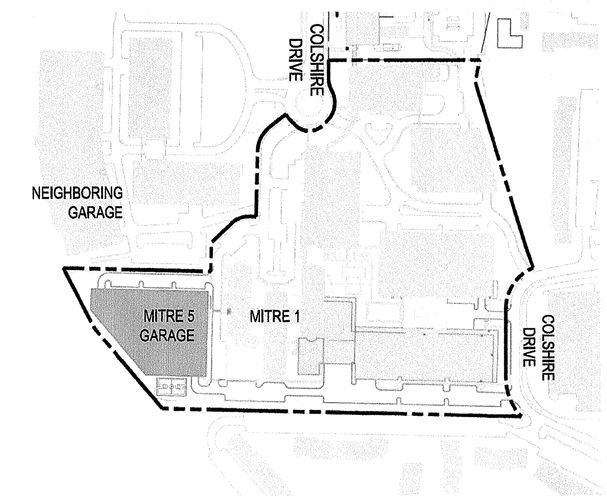
3 SOUTH ELEVATION

0' 15' 30' 60'
SCALE: 1"=30'-0"

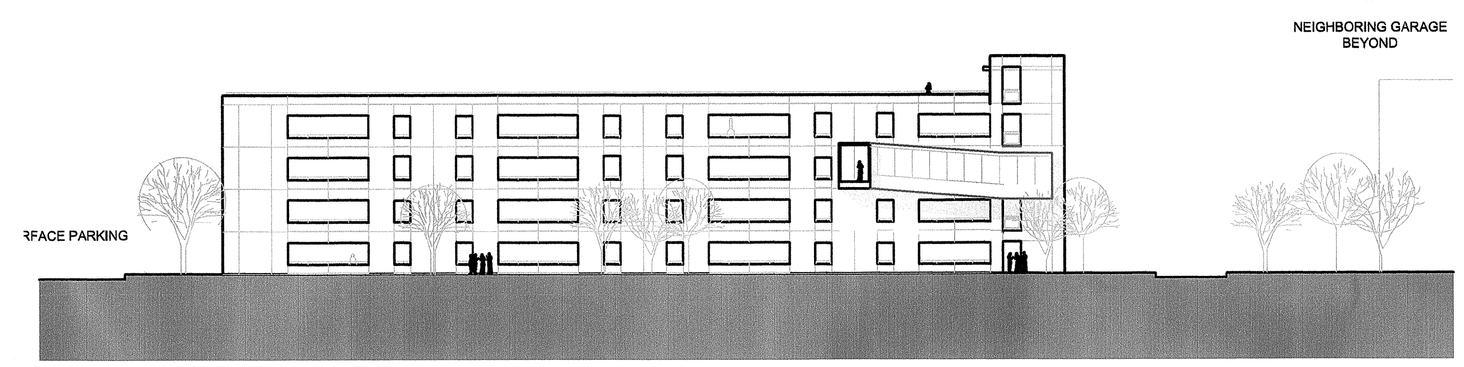


4 WEST ELEVATION

0' 15' 30' 60'
SCALE: 1"=30'-0"



KEY MAP
SCALE: 1" = 300'-0



2 EAST ELEVATION

0' 15' 30' 60'
SCALE: 1"=30'-0"

NOTE: THESE ELEVATIONS SHOW THE INTENT, CHARACTER AND QUALITY OF THE PROPOSED DEVELOPMENT. FINAL DESIGN AND MATERIALS WILL BE DETERMINED PRIOR TO ISSUANCE OF BUILDING PERMIT.

NO.	DESCRIPTION	DATE	REVS'D	REVW'D	APRV'D	DATE
	REVISION					

PROFESSIONAL SEAL
COMMONWEALTH OF VIRGINIA
DAVID H. STEGLER
Lic. No. 609
11/16/10
LANDSCAPE ARCHITECT

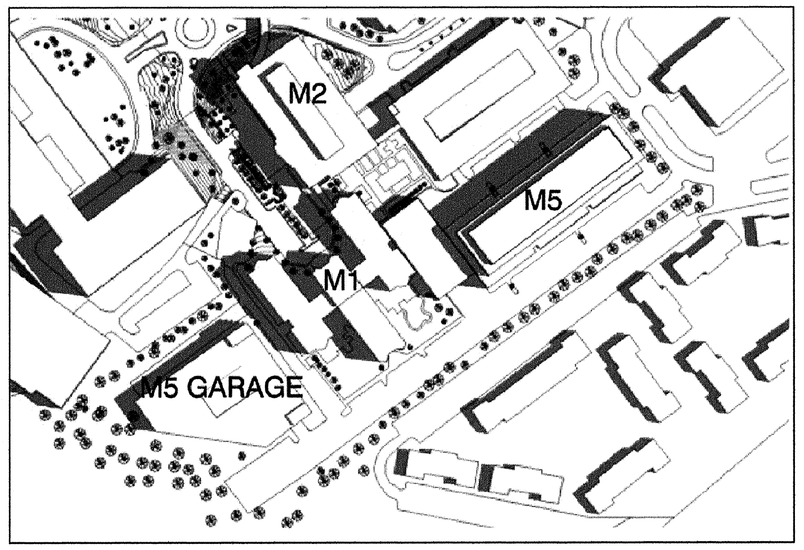
PROJECT
MITRE 5
CONCEPTUAL DEVELOPMENT PLAN / FINAL DEVELOPMENT PLAN
SPECIAL EXCEPTION PLAT
PROVIDENCE DISTRICT, FAIRFAX COUNTY, VIRGINIA

TITLE
GARAGE ELEVATIONS

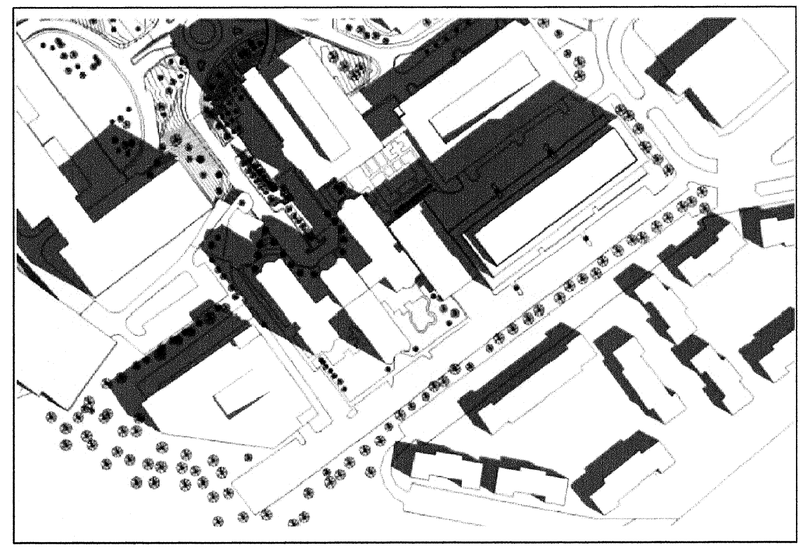
Patton Harris Rust & Associates
Engineers. Surveyors. Planners. Landscape Architects.
PHR+A
14532 Lee Road
Chantilly, VA 20151-1679
T 703.449.6700
F 703.449.6714

CO. PLAN #

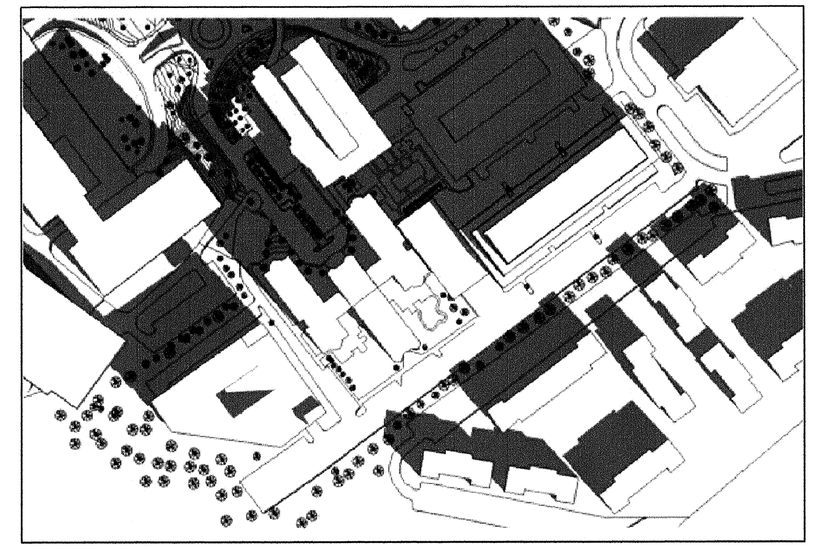
DESIGN PHR+A	SURVEY NA
DRAWN SME	DATE JULY 15, 2010 REVISED NOV. 16, 2010
CHECKED DHS	SCALE AS SHOWN
SHEET 18 OF 31	FILE NO. 10022 1-6



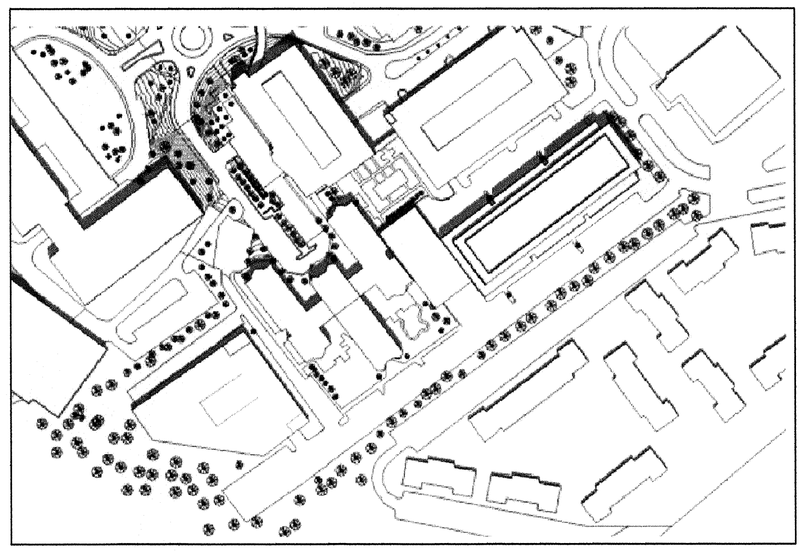
SUMMER SOLSTICE - 9 AM



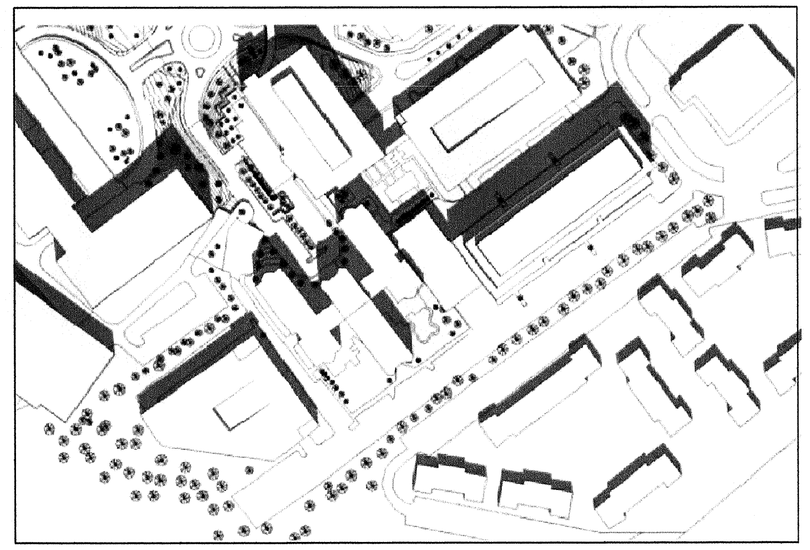
SPRING/FALL EQUINOX - 9 AM



WINTER SOLSTICE - 9 AM

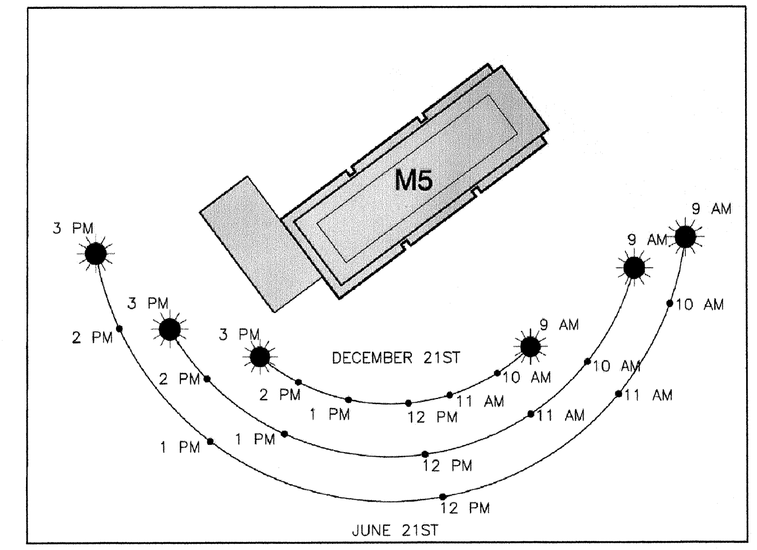


SUMMER SOLSTICE - 12 PM



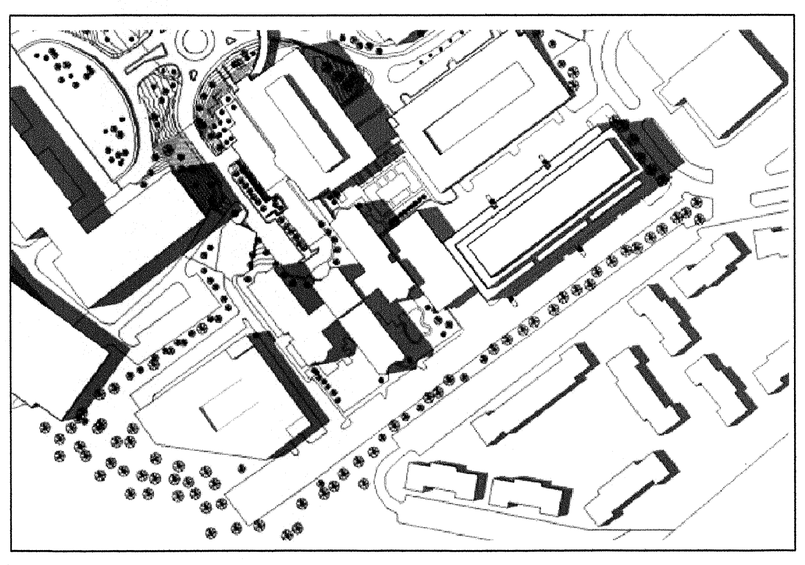
SPRING/FALL EQUINOX - 12 PM

WINTER SOLSTICE - 12 PM



KEY PLAN

NOT TO SCALE



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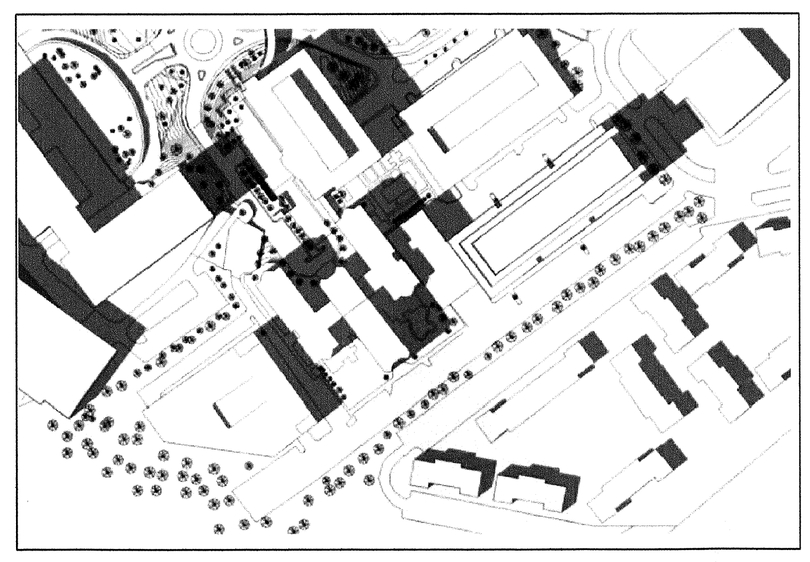
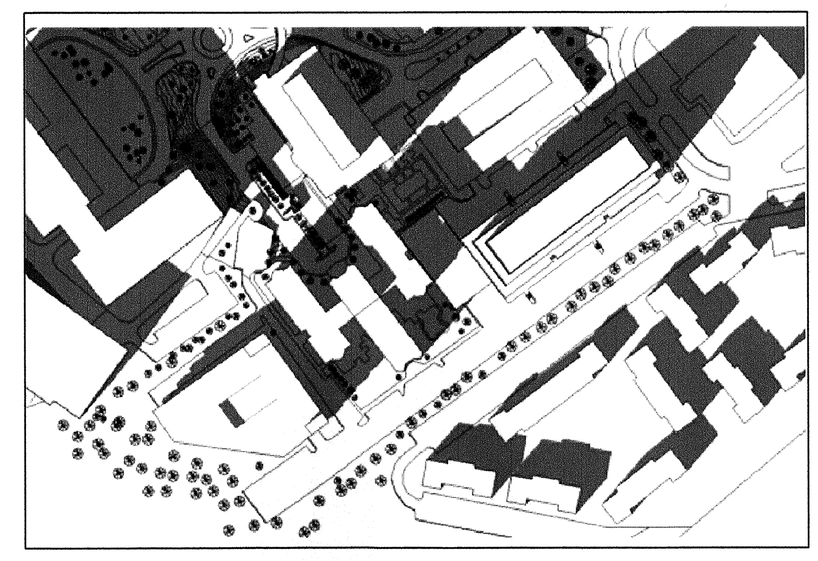


SPRING/FALL EQUINOX - 3 PM



WINTER SOLSTICE - 3 PM

NOTE: THESE EXHIBITS SHOW THE INTENT, CHARACTER AND QUALITY OF THE PROPOSED DEVELOPMENT. FINAL DESIGN AND MATERIALS WILL BE DETERMINED PRIOR TO ISSUANCE OF BUILDING PERMIT.

NO.	DESCRIPTION	DATE	REVS'D	REVW'D	APRV'D	DATE

REVISION

PROFESSIONAL SEAL
COMMONWEALTH OF VIRGINIA
DAVID H. STEIGLER
Lic. No. 609
11/16/10
LANDSCAPE ARCHITECT

PROJECT

MITRE 5

CONCEPTUAL DEVELOPMENT PLAN /
FINAL DEVELOPMENT PLAN
SPECIAL EXCEPTION PLAT

PROVIDENCE DISTRICT, FAIRFAX COUNTY, VIRGINIA

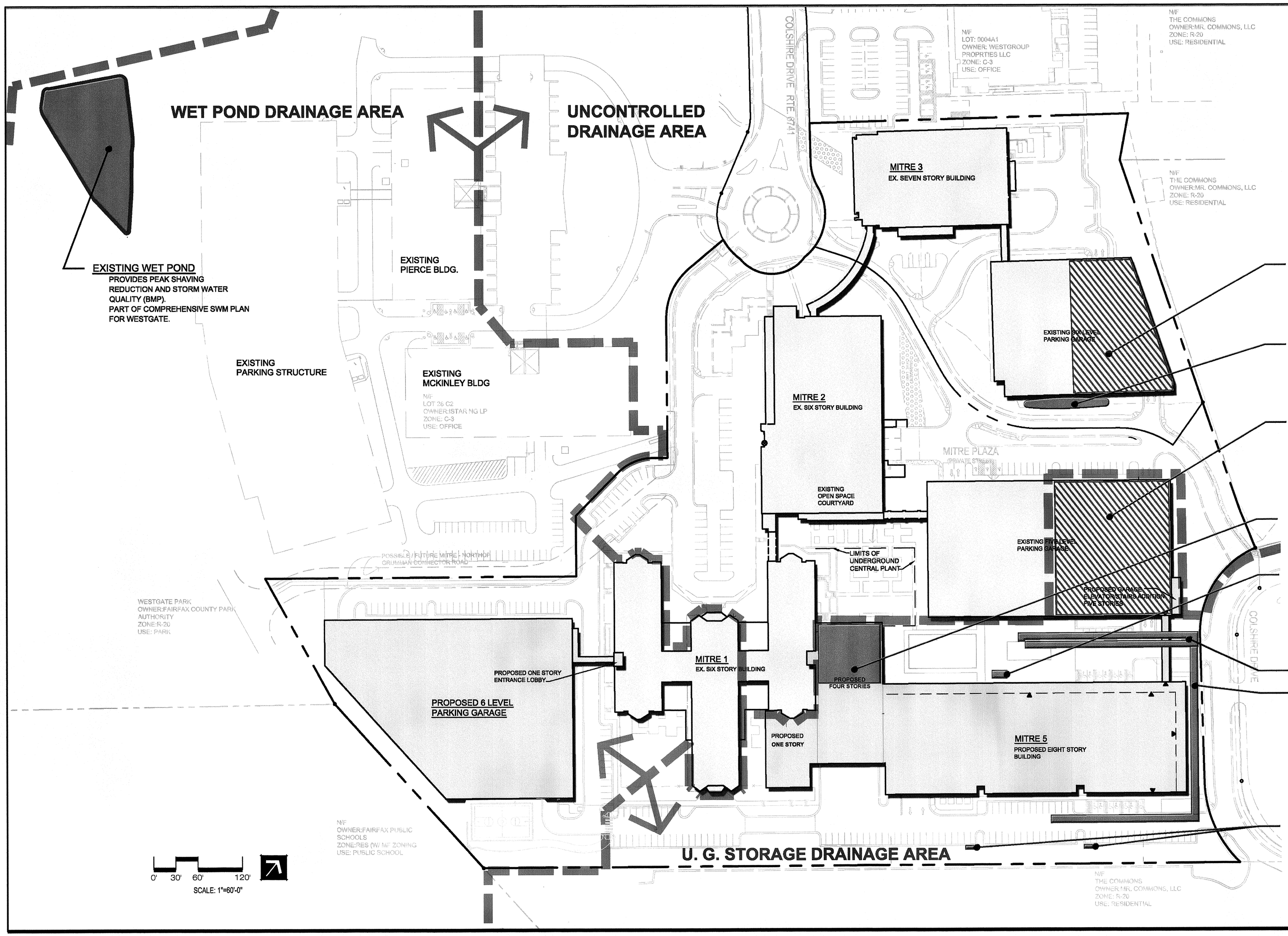
TITLE

SHADOW STUDIES

Patton Harris Rust & Associates
Engineers. Surveyors. Planners. Landscape Architects.
PHR+A
14532 Lee Road
Chantilly, VA 20151-1679
T 703.449.6700
F 703.449.6714

CO. PLAN #

DESIGN PHR+A	SURVEY NA
DRAWN SME	DATE JULY 15, 2010 REVISED NOV. 16, 2010
CHECKED DHS	SCALE NTS
SHEET 19 OF 31	FILE NO. 10022 1-6



NOTES:

1. THE INTENT OF THE FACILITIES SHOWN ON THIS PLAN IS TO SUPPORT THE PRELIMINARY STORMWATER MANAGEMENT PLAN PREPARED FOR THE REZONING APPLICATION. DURING SITE PLAN, EXACT LOCATIONS, SIZES AND FACILITIES MAY VARY WITH FINAL ENGINEERING AS LONG AS THE GOALS (I.E., SWM, BMP) OF THE PROFFERS ARE MET.
2. THIS SHEET SHALL BE USED FOR STORM WATER MANAGEMENT PURPOSES ONLY.

6. RUN-OFF FROM APPR0XIMATE ONE HALF OF EXISTING PARKING STRUCTURE'S TOP LEVEL SHALL BE REDIRECTED TO AND TREATED BY PROPOSED RAINGARDEN.

5. PRPOSED RAIN GARDEN
- TREATS IMPERVIOUS PARKING DECK AREA. (MAX. 50% PHOSPHERIOUS REMOVAL)
- WATER TOLERANT NATIVE PLANTINGS.

2. RUN-OFF FROM APPR0XIMATE ONE HALF OF EXISTING PARKING STRUCTURE'S TOP LEVEL SHALL BE REDIRECTED TO PROPOSED UNDERGROUND STORM WATER FACILITY FOR PEAK SHAVING REDUCTION. THIS AREA CURRENTLY DRAINS INTO SCOTT'S RUN UNTREATED.

4. PROPOSED GREEN ROOF
- 8,000 SF MINIMUM AREA

3. PROPOSED CISTERN
- COLLECTS THE FIRST FLUSH OF ROOF RUN OFF FOR IRRIGATION (RE-USE).

1. PROPOSED UNDERGROUNG STORM WATER MANAGEMENT FACILITY
- PROPOSED RELEASE RATE REDUCTION FROM 10 YEAR TO 2 YEAR STORM.
- EXISTING UNDERGROUND STORAGE TO REMAIN (28,000±CF)
- PROPOSED UNDERGROUND STORAGE (22,000±CF)

7. PROPOSED FILTERRAS OR OTHER BMP FACILITY
- FOR STORM WATER QUALITY TREATMENT

NO.	DESCRIPTION	DATE	REVS'D	REVW'D	APRV'D	DATE

REVISION

PROFESSIONAL SEAL
COMMONWEALTH OF VIRGINIA
DAVID H. STEIGLER
Lic. No. 909
11/16/10
LANDSCAPE ARCHITECT

PROJECT

MITRE 5

CONCEPTUAL DEVELOPMENT PLAN / FINAL DEVELOPMENT PLAN SPECIAL EXCEPTION PLAT

PROVIDENCE DISTRICT, FAIRFAX COUNTY, VIRGINIA

TITLE

LOW IMPACT DEVELOPMENT / STORM WATER MANAGEMENT PLAN

Patton Harris Rust & Associates, pc
Engineers. Surveyors. Planners. Landscape Architects.
PHR+A
14532 Lee Road
Chantilly, VA 20151-1679
T 703.449.6700
F 703.449.6714

CO. PLAN #

DESIGN PHR+A	SURVEY NA
DRAWN SME	DATE JULY 15, 2010 REVISED NOV. 16, 2010
CHECKED DHS	SCALE 1" = 60'
SHEET 20 OF 31	FILE NO. 10022 1-6

STUDY NARRATIVE

EXISTING CONDITIONS:
THE 19.6 ACRE MITRE CAMPUS FALLS WITHIN THE PROPERTY KNOWN AS "WESTGATE INDUSTRIAL PARK", WHICH INCLUDES A COMMERCIAL/OFFICE COMPLEX ALONG COLESHIRE DRIVE AND A CUL-DE-SAC ROADWAY OFF OF CHAIN BRIDGE ROAD (RTE 123). THE WESTGATE INDUSTRIAL PARK (PROPERTY) IS LOCATED APPROXIMATELY 2,500 FEET EAST OF I-495/RTE 123 INTERCHANGE. THE PROPERTY DRAINS NORTHWARD BY WAY OF SCOTT'S RUN (A MAJOR FLOODPLAIN).

THERE ARE TWO DETENTION FACILITIES SERVING THE PROPERTY: A WET-POND AND AN UNDERGROUND DETENTION FACILITY THAT UTILIZES PIPE-STORAGE. A PORTION OF THE PROPERTY IS UNCONTROLLED. DISCHARGE FROM THESE FACILITIES AND THE UNCONTROLLED AREAS OF THE SITE DRAIN TO THE SCOTT'S RUN FLOODPLAIN, WHICH IS REPORTED TO HAVE DRAINAGE-RELATED PROBLEMS. THE INTENT OF THIS STUDY IS TO DETERMINE THE IMPACT OF THE EXISTING AND THE PROPOSED SITE IMPROVEMENTS ON THE SCOTT'S RUN CHANNEL AT A POINT JUST UPSTREAM OF WHERE THE EXISTING CHANNEL CROSSES UNDER RTE 123. IT IS NOTED THAT THE SELECTED STUDY POINT IS AT A LOCATION WHERE THE TOTAL CONTRIBUTING DRAINAGE AREA EXCEEDS 640 AC (1 SQ MI).

WET POND:
A PRIVATELY OWNED AND MAINTAINED WET POND PROVIDES BOTH BMP AND DETENTION FOR 26.87 ACRES OF THE WESTGATE PROPERTY, AND DISCHARGES DIRECTLY INTO THE SCOTT'S RUN FLOODPLAIN AT A POINT APPROXIMATELY 1,000 FEET UPSTREAM OF STUDY POINT. THIS FACILITY WAS DESIGNED AND APPROVED UNDER A SITE PLAN PREPARED BY HUNTLEY NYCE & ASSOCIATES, DATED APRIL 1999 (#1702-SP-05-2). THE SOFTWARE USED IN THE ORIGINAL DESIGN IS CALLED "I.S.W.M. V1.35", RECOGNIZING AN ASSUMED CN-VALUE OF 85, AND A TIME CONCENTRATION OF 0.15 HR.

FOR THE PURPOSES OF THIS STUDY, THE POND IS REANALYZED UNDER THE FOLLOWING SCENARIOS:
1. THE ORIGINAL DESIGN CONDITIONS ARE REPEATED, AS THEY WERE SHOWN WITH THE ORIGINALLY APPROVED PLANS.
2. THE ORIGINAL DESIGNS (SCENARIO #1, ABOVE) ARE REANALYZED USING "TR-55" AND "PONDPACK V.10" SOFTWARE PACKAGES (CURRENT INDUSTRY-STANDARD SOFTWARE PACKAGES). RUNOFF CURVE NUMBERS AND TIMES OF CONCENTRATION ARE RECOMPUTED BASED UPON CURRENT CONDITIONS.
3. THE INFLOW CONDITIONS DETERMINED UNDER "SCENARIO #2" (ABOVE) ARE REANALYZED USING AS-BUILT POND CONDITIONS.

UNDERGROUND DETENTION FACILITY:
A PRIVATELY OWNED AND MAINTAINED UNDERGROUND DETENTION FACILITY NOW SERVES A 11.09 ACRE DRAINAGE AREA. IT WAS DESIGNED AND APPROVED UNDER THE "MITRE AT WESTGATE" SITE PLAN (#1702-SP-07-2), PREPARED BY PATTON HARRIS RUST & ASSOCIATES, DATED MAY 1999. THIS FACILITY UTILIZES PIPE-STORAGE AND WAS DESIGNED TO ACCOMMODATE THE 2-YR AND 10-YR STORM EVENTS (2-HOUR RAINFALL DISTRIBUTION). INFLOW CALCULATIONS WERE BASED ON THE RATIONAL METHOD, AND "POND V.2" WAS USED TO ROUTE THE FLOW. THE FACILITY DISCHARGES THROUGH A STORM PIPE SYSTEM (APPROX 1,920 FEET IN LENGTH) WHICH EVENTUALLY OUTFALLS TO SCOTT'S RUN AT THE STUDY POINT.

A NEW, LARGER UNDERGROUND FACILITY IS NOW PROPOSED WHICH EXPANDS THE TREATED AREA TO ACCOMMODATE APPROXIMATELY HALF OF THE DRAINAGE AREA FROM THE EXISTING MITRE 2 PARKING GARAGE STRUCTURE.

FOR THE PURPOSES OF THIS STUDY, THE UNDERGROUND FACILITY IS REANALYZED AND A NEW DESIGN IS PROPOSED UNDER THE FOLLOWING SCENARIOS:
1. THE ORIGINAL DESIGN CONDITIONS ARE REPEATED, AS THEY WERE SHOWN WITH THE ORIGINALLY APPROVED PLANS.
2. THE ORIGINAL DESIGNS (SCENARIO #1, ABOVE) ARE REANALYZED USING "TR-55" AND "PONDPACK v.10" SOFTWARE PACKAGES (AS WERE USED WHEN REANALYZING THE WET POND, ABOVE). RUNOFF CURVE NUMBERS AND TIMES OF CONCENTRATION ARE RECOMPUTED BASED UPON THE CURRENT CONDITIONS. IT IS NOTED THAT THIS FACILITY WAS NOT ORIGINALLY DESIGNED FOR A 24 HOUR DISTRIBUTION (TR-55), AND IT WILL NOT ACCOMMODATE THE 10 YEAR EVENT. HOWEVER, AND FOR REASONS OF CONSISTENCY IN OUR OVERALL INVESTIGATIONS, WE HOLD TO THE "TR-55 APPROACH".
3. THE INFLOW CONDITIONS DETERMINED UNDER "SCENARIO #2" (ABOVE) ARE REANALYZED USING AS-BUILT CONDITIONS.
4. THE 10-YEAR, 24-HOUR STORM IN POST-DEVELOPMENT CONDITIONS IS DETAINED TO THE 2-YEAR PRE-DEVELOPMENT CONDITIONS RELEASE RATE RECOGNIZING THE INTENDED MITRE 5 DEVELOPMENT CONDITIONS, WHICH WILL REDUCE THE PRESENT ON-SITE IMPERVIOUS COVER.

WITH SCENARIOS #2, #3, AND #4, THE FACILITY IS REROUTED FOR THE 2, 10 & 100YR STORM EVENTS, SHOWING RELEASE RATES THAT DIFFER FROM THE ORIGINALLY APPROVED CONDITIONS. THE DISCREPANCIES ARE ATTRIBUTED TO THE CONSIDERATION OF A 24-HOUR RAINFALL DISTRIBUTION (2-HOUR USED IN ORIGINAL DESIGNS), AND OUR RECALCULATED CN-VALUES AND TIMES OF CONCENTRATION. SCENARIO #4 SHOWS THE PROPOSED DESIGN SUCCESSFULLY OVER-DETAINING 10-YEAR FLOWS TO 2-YEAR CONDITIONS. THIS WOULD BE ACCOMPLISHED BY EXTENDING THE OVERALL LENGTH OF THE UNDERGROUND DETENTION FACILITY.

UNCONTROLLED WESTGATE INDUSTRIAL PARK AREA:
AN AREA OF 22.90 ACRES IS UN-DETAINED AND DISCHARGES DIRECTLY TO SCOTT'S RUN EITHER BY PIPE OR SHEET FLOWS.

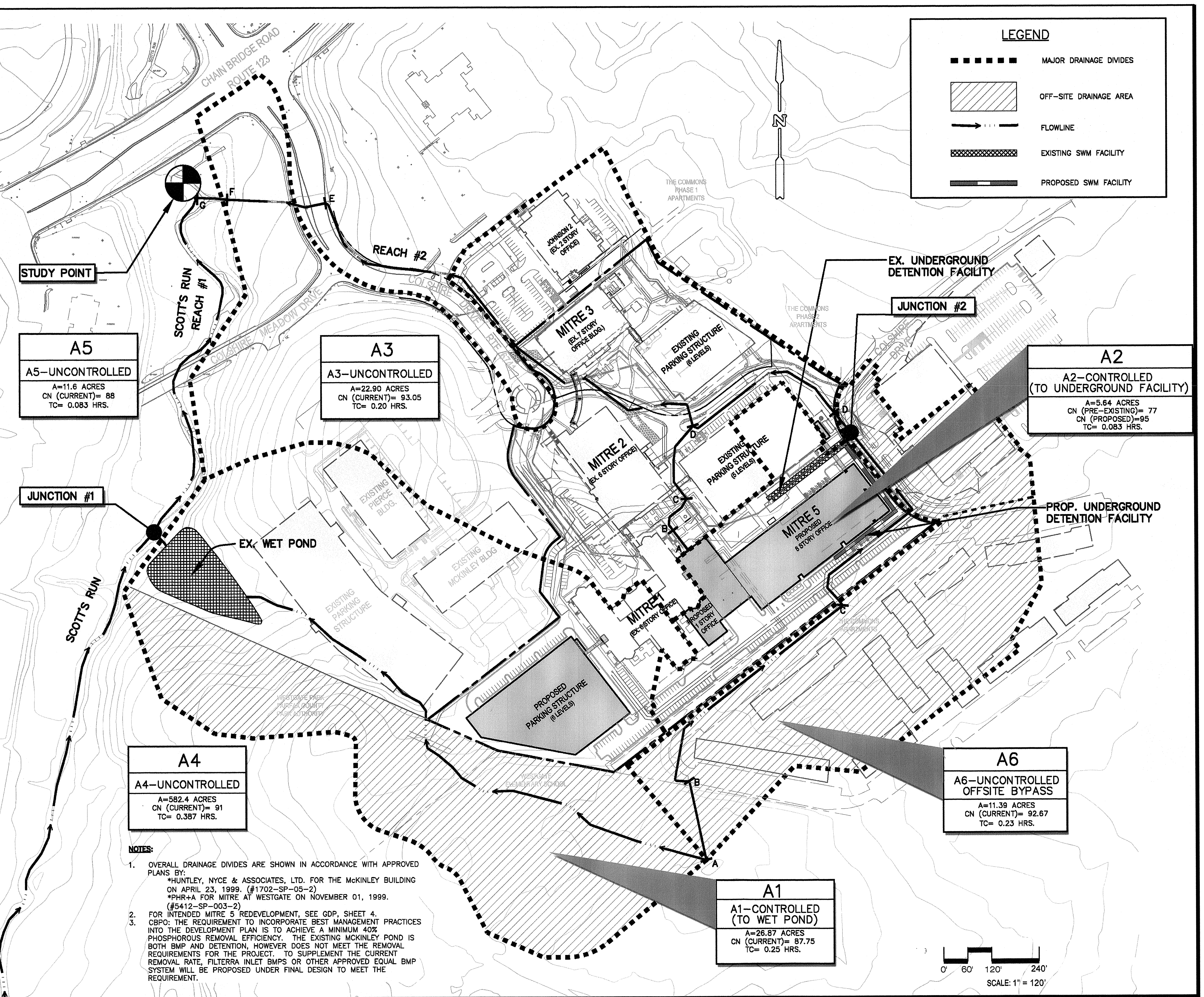
OFF-SITE AREAS UPSTREAM OF THE WESTGATE INDUSTRIAL PARK:
AN UPSTREAM / OFF-SITE AREA TOTALING APPROXIMATELY 594 ACRES (582.4 ACRES ABOVE THE AFOREMENTIONED WET POND'S DISCHARGE POINT INTO SCOTT'S RUN, AND 11.4 ACRES ON THE OTHER SIDE OF SCOTT'S RUN AND ALONG THE WESTGATE PROPERTY) WILL ALSO DRAIN THROUGH THE SCOTT'S RUN FLOOD PLAIN TO THE SUBJECT STUDY POINT. THESE AREAS ARE OF MIXED DEVELOPMENT TYPES, AND WERE PREVIOUSLY CONSIDERED BY FAIRFAX COUNTY AS A PART OF A SIMILAR BUT SEPARATE ZONING APPLICATION. PARAMETERS SUCH AS CURVE NUMBERS AND FLOW RATES FOR THESE OFF-SITE AREAS ARE CONSISTENT WITH THAT PREVIOUS SUBMISSION. THESE FLOWS ARE INCLUDED WHEN ASSESSING THE OVERALL FLOW CONDITIONS AT THE STUDY POINT IN SCOTT'S RUN. THE WESTGATE PROPERTY HAS LITTLE IMPACT ON THE OVERALL PEAK RATE ASSOCIATED WITH THE LARGER UPSTREAM AREA DUE TO A DIFFERENCE IN PEAK FLOW TIMES.

OUTFALL CHANNEL DESCRIPTION:
AT THE OUTFALL OF THE PROPERTY, SCOTT'S RUN IS A MEANDERING CHANNEL APPROXIMATELY 15-20 FEET WIDE AND 4-5 FEET DEEP FROM WATER SURFACE TO TOP OF LOW-FLOW BANKS. DRY CONDITIONS YIELD A 1.0 FOOT WATER DEPTH FOR BASEFLOW AND VERY LOW VELOCITY (<1 FPS). THE CHANNEL HAS SIDE SLOPES CLOSE TO 1:1. THE CHANNEL IS NATURALLY LINED WITH SEDIMENT AND ROCK. EROSION IS OCCURRING BECAUSE PORTIONS OF THE CHANNEL HAVE NEGATIVE SIDE SLOPES, EXPOSED TREE ROOTS, AND DOWNED TREES DUE TO ROOT UNDERCUTTING. THIS IS TAKING PLACE BOTH DOWNSTREAM AND UPSTREAM OF THE PROPERTY. THE OVERBANK CONDITIONS VARY BUT ARE GENERALLY HEAVY BRUSH AND TREED.

STUDY POINT AND SUMMARY:
THE STUDY POINT IS SITUATED IN SCOTT'S RUN, APPROXIMATELY 150 FEET UPSTREAM (SOUTH) OF CHAIN BRIDGE ROAD. THE STUDY POINT IS SITUATED WHERE THE FLOWS FROM ALL THREE OF THE ABOVE-DESCRIBED "WESTGATE" SUB-AREAS AND THE LARGER "OFF-SITE" SUB-AREA CONVERGE. THE HYDROLOGIC SOFTWARE "PONDPACK V.10" IS USED TO MODEL ALL SUB-AREAS DISCHARGING TO THE STUDY POINT, GIVEN AN SCS-TYPE II 24-HOUR RAINFALL DISTRIBUTION, AND CONSIDERING THE 2-YR, 10-YR, AND 100-YR EVENTS. THE SCHEMATIC DIAGRAM SHOWS RELATIVE LOCATIONS OF SUB-AREAS, THEIR PROXIMITY TO THE STUDY POINT, AND THE CN-VALUES USED. THE ROUTED SWM HYDROGRAPHS ARE MODIFIED IN RECOGNITION OF THE FLOW PATHS BETWEEN EACH SWM FACILITY AND THE STUDY POINT, THEN COMBINED INTO A TOTAL FLOW AT THE STUDY POINT. THE EXISTING CHANNEL AT THAT LOCATION IS THEN ANALYZED TO DETERMINE ITS ABILITY TO ACCOMMODATE THE CALCULATED PEAK FLOW CONDITIONS.

CONCLUSION:
BASED ON THE ABOVE ASSUMPTIONS AND OUR NEW COMPUTATIONS, WE BELIEVE THAT THE RECEIVING SCOTT'S RUN CHANNEL IS ADEQUATE FOR THE POST-DEVELOPED FLOWS FROM THE WESTGATE INDUSTRIAL PARK, INCLUDING THE INTENDED IMPROVEMENTS ASSOCIATED WITH THE MITRE 5 PROJECT. THIS IS DUE PRIMARILY TO THE TIME DIFFERENCES BETWEEN THE PEAK FLOWS FROM THE WESTGATE INDUSTRIAL PARK AND THOSE FROM THE LARGER UPSTREAM AREAS WITHIN THE OVERALL CONTRIBUTING DRAINAGE SHED. THE LESSER "WESTGATE" PEAK WILL HAVE PASSED BY THE STUDY POINT BEFORE THE LARGER PEAK.

IT IS OUR UNDERSTANDING THAT DRAINAGE RELATED PROBLEMS HAVE BEEN REPORTED WITHIN THE SCOTT'S RUN FLOOD PLAIN AREA, UP STREAM OF THE WESTGATE PROPERTY. AS SUCH, IT IS THE INTENTION OF THIS PROJECT TO EXPAND THE EXISTING UNDERGROUND DETENTION FACILITY; TO BE REDESIGNED IN A "TR-55 FORMAT", AND TO OVER-DETAIN THE 10 YEAR STORM EVENT - RELEASING THE PEAK 10 YEAR FLOWS AT A 2 YEAR RATE.



NOTES:
1. OVERALL DRAINAGE DIVIDES ARE SHOWN IN ACCORDANCE WITH APPROVED PLANS BY:
*HUNTLEY, NYCE & ASSOCIATES, LTD. FOR THE McKINLEY BUILDING ON APRIL 23, 1999. (#1702-SP-05-2)
*PHR+A FOR MITRE AT WESTGATE ON NOVEMBER 01, 1999. (#5412-SP-003-2)
2. FOR INTENDED MITRE 5 REDEVELOPMENT, SEE GDP, SHEET 4.
3. CBPO: THE REQUIREMENT TO INCORPORATE BEST MANAGEMENT PRACTICES INTO THE DEVELOPMENT PLAN IS TO ACHIEVE A MINIMUM 40% PHOSPHOROUS REMOVAL EFFICIENCY. THE EXISTING MCKINLEY POND IS BOTH BMP AND DETENTION, HOWEVER DOES NOT MEET THE REMOVAL REQUIREMENTS FOR THE PROJECT. TO SUPPLEMENT THE CURRENT REMOVAL RATE, FILTERRA INLET BMPS OR OTHER APPROVED EQUAL BMP SYSTEM WILL BE PROPOSED UNDER FINAL DESIGN TO MEET THE REQUIREMENT.

NO.	DESCRIPTION	DATE	REVS'D	REVW'D	APRV'D	DATE

REVISION

PROFESSIONAL SEAL
COMMONWEALTH OF VIRGINIA
ROBERT A. MUNSE
Lic. No. 15338
11/16/10
PROFESSIONAL ENGINEER

PROJECT
MITRE 5
CONCEPTUAL DEVELOPMENT PLAN / FINAL DEVELOPMENT PLAN
SPECIAL EXCEPTION PLAT
PROVIDENCE DISTRICT, FAIRFAX COUNTY, VIRGINIA

TITLE
DRAINAGE DIVIDES AND STUDY NARRATIVE

Patton Harris Rust & Associates,pc
Engineers. Surveyors. Planners. Landscape Architects.
PHR+A
14532 Lee Road
Chantilly, VA 20151-1679
T 703.449.6700
F 703.449.6714

CO. PLAN #

DESIGN OY/MR	SURVEY N/A
DRAWN PHR+A	DATE JULY 15, 2010 REVISED NOV. 16, 2010
CHECKED SG/RAM	SCALE 1"=120'
SHEET C001EXH 21 OF 31	FILE NO. 10022 1-6

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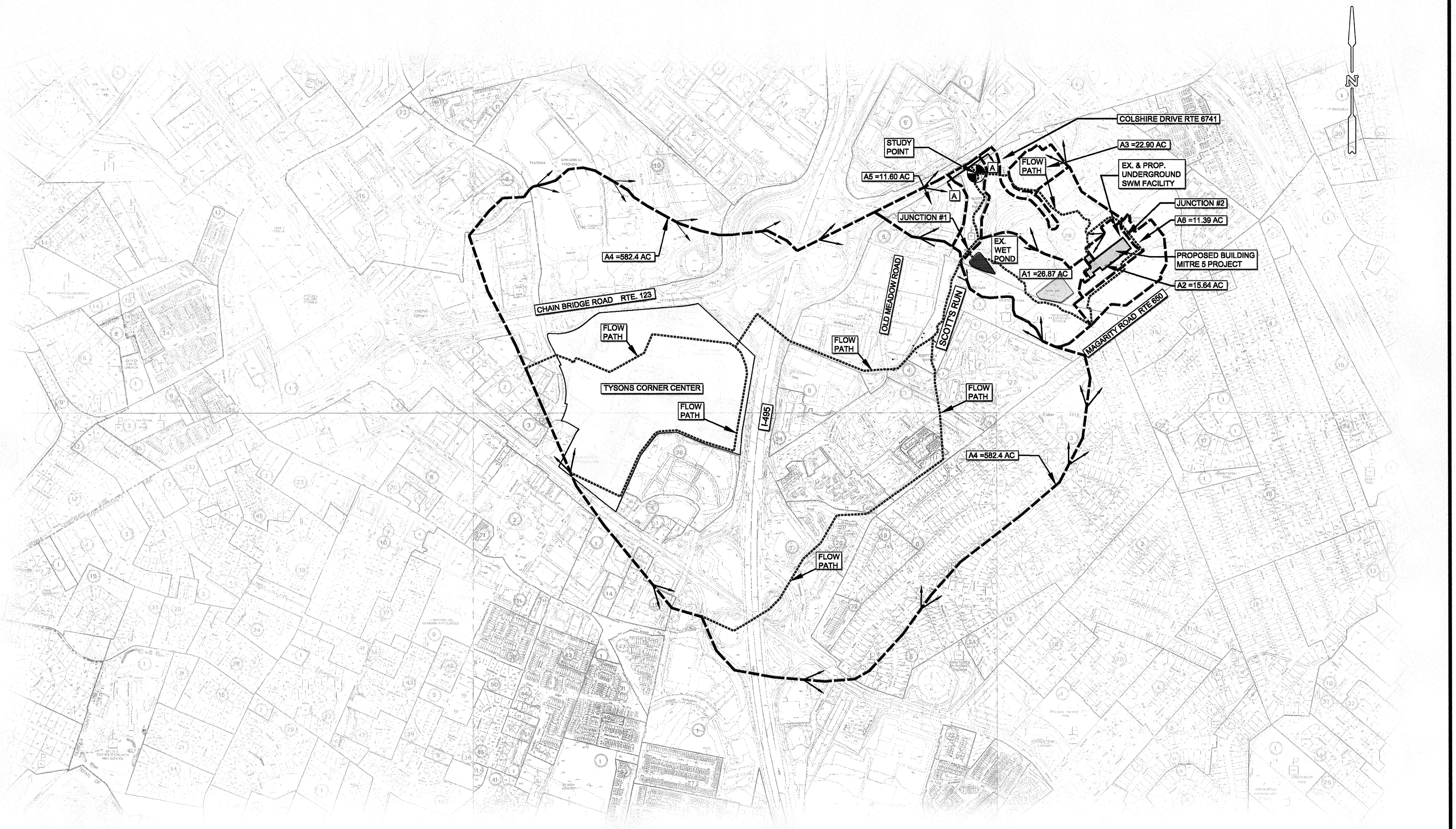


NO.	DESCRIPTION	DATE	REVS'D	REVW'D	APRV'D	DATE

REVISION

PROFESSIONAL SEAL
COMMONWEALTH OF VIRGINIA
ROBERT A. MUNSE
Lic. No. 15838
11/16/10
PROFESSIONAL ENGINEER

PROJECT

MITRE 5

CONCEPTUAL DEVELOPMENT PLAN /
FINAL DEVELOPMENT PLAN
SPECIAL EXCEPTION PLAT

PROVIDENCE DISTRICT, FAIRFAX COUNTY, VIRGINIA

TITLE

OUTFALL DRAINAGE SHED MAP

Patton Harris Rust & Associates, pc
Engineers. Surveyors. Planners. Landscape Architects.

PHR+A

14532 Lee Road
Chantilly, VA 20151-1679
T 703.449.6700
F 703.449.6714

CO. PLAN #

DESIGN OY/MR	SURVEY PHR&A
DRAWN PHR+A	DATE JULY 15, 2010 REVISED NOV. 16, 2010
CHECKED SG/RAM	SCALE 1" = 500'
SHEET C007A 22 OF 31	FILE NO. 10022 1-6

WET POND (McKINLEY POND)

DESIGNED CONDITIONS (SUMMARY TABLE #2)

Type.... Pond Routing Calcs (Total Out) Page 14.31
Name.... MCKINLEY PONDOUT Tag: 2 Event: 2 yr
File.... P:\PROJECT\10022\1-5\Engr\COMPS\WET POND\EXISTING CONDITIONS\Per Original Design\POND 2&10 5-12-2006.PPW
Storm... Typeii 24hr Tag: 2
LEVEL POOL ROUTING CALCULATIONS
HYD Dir = P:\PROJECT\10022\1-5\Engr\COMPS\WET POND\EXISTING CONDITIONS\Per Original Design\
Inflow HYG file = NONE STORED - MCKINLEY PONDIN 2
Outflow HYG file = NONE STORED - MCKINLEY PONDOUT 2

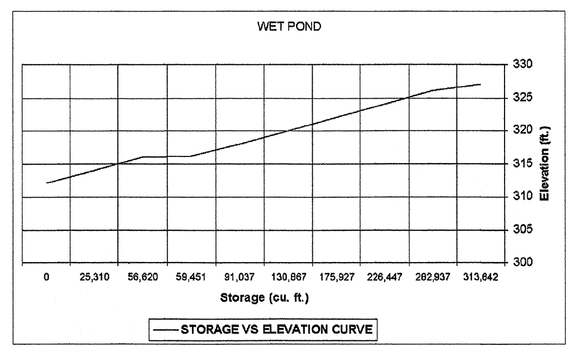
	Time hrs	Inflow cfs	2S/t - O cfs	2S/t + O cfs	Infilt. cfs	Outflow cfs	Storage cu.ft	Elev. ft
	11.5000	4.40	2478.97	2479.53	.00	.28	74378	317.05
	11.5167	4.51	2487.31	2487.88	.00	.29	74628	317.06
	11.5333	4.65	2495.90	2496.48	.00	.29	74886	317.08
	11.5500	4.84	2504.41	2505.39	.00	.29	75153	317.09
	11.5667	5.08	2514.14	2514.73	.00	.29	75433	317.11
	11.5834	5.40	2524.02	2524.62	.00	.30	75730	317.13
	11.6000	5.80	2534.63	2535.23	.00	.30	76048	317.15
	11.6167	6.31	2546.14	2546.74	.00	.30	76393	317.17
	11.6334	6.93	2558.76	2559.37	.00	.31	76772	317.19
	11.6500	7.66	2572.72	2573.35	.00	.31	77191	317.21
	11.6667	8.53	2588.28	2588.91	.00	.32	77658	317.24
	11.6834	9.55	2605.71	2606.36	.00	.32	78181	317.27
	11.7000	10.73	2625.33	2625.98	.00	.33	78770	317.30
	11.7167	12.08	2647.47	2648.15	.00	.34	79434	317.34
	11.7334	13.59	2672.46	2673.15	.00	.34	80184	317.38
	11.7500	15.24	2700.59	2701.29	.00	.35	81028	317.43
	11.7667	17.03	2732.13	2732.86	.00	.36	81975	317.48
	11.7834	19.01	2767.44	2768.18	.00	.37	83034	317.54
	11.8000	21.17	2806.86	2807.62	.00	.38	84217	317.61
	11.8167	23.57	2850.82	2851.60	.00	.39	85537	317.69
	11.8334	26.24	2899.82	2900.63	.00	.40	87007	317.77
	11.8500	29.18	2954.41	2955.24	.00	.42	88646	317.86
	11.8667	32.46	3015.19	3016.05	.00	.43	90469	317.97
	11.8834	36.19	3082.95	3083.84	.00	.44	92502	318.07
	11.9000	40.39	3158.62	3159.53	.00	.46	94772	318.19
	11.9167	44.88	3242.94	3243.89	.00	.47	97303	318.31
	11.9334	49.40	3336.25	3337.22	.00	.49	100102	318.46
	11.9500	53.70	3438.33	3439.34	.00	.51	103165	318.61
	11.9667	57.58	3548.55	3549.61	.00	.53	106473	318.78
	11.9834	60.88	3664.83	3667.01	.00	1.09	109978	318.95
	12.0000	63.46	3783.06	3788.16	.00	3.05	113584	319.13
	12.0167	65.23	3901.72	3911.75	.00	5.01	117202	319.31
Qpeak	12.0334	66.10	4020.18	4033.05	.00	6.43	120799	319.49
Inflow	12.0500	65.99	4137.73	4152.27	.00	7.27	124350	319.67
	12.0667	64.89	4252.60	4268.61	.00	8.01	127819	319.85
	12.0834	62.77	4363.00	4380.26	.00	8.63	131149	320.01
	12.1000	59.71	4467.20	4485.48	.00	9.14	134290	320.15
	12.1167	55.91	4563.68	4582.82	.00	9.57	137198	320.28
	12.1334	51.69	4651.37	4671.29	.00	9.96	139840	320.40
	12.1500	47.36	4727.74	4750.42	.00	11.34	142173	320.50
	12.1667	43.07	4789.29	4818.17	.00	14.44	144112	320.59
	12.1834	38.94	4837.52	4871.29	.00	16.88	145632	320.66
	12.2000	35.08	4874.08	4911.54	.00	18.73	146785	320.71
	12.2167	31.55	4900.59	4940.71	.00	20.06	147620	320.74
	12.2334	28.42	4918.64	4960.56	.00	20.96	148186	320.77
	12.2500	25.77	4928.79	4972.83	.00	21.52	148539	320.78
	12.2667	23.57	4935.51	4979.13	.00	21.81	148720	320.79
	12.2834	21.69	4937.02	4980.78	.00	21.88	148787	320.79
	12.3000	20.07	4935.20	4978.78	.00	21.79	148710	320.79
	12.3167	18.67	4930.80	4973.94	.00	21.57	148572	320.79
	12.3334	17.43	4924.39	4966.89	.00	21.25	148370	320.78
	12.3500	16.33	4916.44	4958.15	.00	20.85	148119	320.77
	12.3667	15.38	4907.36	4948.16	.00	20.40	147833	320.75
	12.3834	14.54	4897.48	4937.29	.00	19.90	147522	320.74
	12.4000	13.78	4887.04	4925.80	.00	19.38	147193	320.72
	12.4167	13.10	4876.23	4913.91	.00	18.84	146852	320.71
	12.4334	12.48	4865.23	4901.80	.00	18.29	146506	320.69
	12.4500	11.91	4854.16	4889.82	.00	17.74	146157	320.68
	12.4667	11.40	4843.14	4877.47	.00	17.17	145810	320.66
	12.4834	10.93	4832.23	4865.46	.00	16.62	145466	320.65
	12.5000	10.48	4821.50	4853.64	.00	16.07	145127	320.63

Type.... Pond Routing Calcs (Total Out) Page 14.92
Name.... MCKINLEY PONDOUT Tag: 10 Event: 10 yr
File.... P:\PROJECT\10022\1-5\Engr\COMPS\WET POND\EXISTING CONDITIONS\Per Original Design\POND 2&10 5-12-2006.PPW
Storm... Typeii 24hr Tag: 10
LEVEL POOL ROUTING CALCULATIONS
HYD Dir = P:\PROJECT\10022\1-5\Engr\COMPS\WET POND\EXISTING CONDITIONS\Per Original Design\
Inflow HYG file = NONE STORED - MCKINLEY PONDIN 10
Outflow HYG file = NONE STORED - MCKINLEY PONDOUT 10

	Time hrs	Inflow cfs	2S/t - O cfs	2S/t + O cfs	Infilt. cfs	Outflow cfs	Storage cu.ft	Elev. ft
	11.3000	7.77	3215.81	3216.74	.00	.47	96489	318.27
	11.3167	7.83	3230.56	3231.51	.00	.47	96831	318.30
	11.3334	8.10	3245.65	3246.60	.00	.47	97384	318.32
	11.3500	8.37	3261.08	3262.01	.00	.48	97946	318.34
	11.3667	8.43	3276.81	3277.76	.00	.48	98519	318.37
	11.3834	8.61	3292.86	3293.85	.00	.48	98801	318.39
	11.4000	8.78	3309.30	3310.27	.00	.48	99294	318.41
	11.4167	8.96	3326.07	3327.04	.00	.49	99797	318.44
	11.4334	9.14	3343.19	3344.17	.00	.49	100311	318.47
	11.4500	9.32	3360.66	3361.65	.00	.49	100835	318.49
	11.4667	9.50	3378.48	3379.48	.00	.50	101370	318.52
	11.4834	9.68	3396.66	3397.66	.00	.50	101915	318.55
	11.5000	9.87	3415.21	3416.21	.00	.50	102469	318.57
	11.5167	10.09	3434.15	3435.16	.00	.51	103040	318.60
	11.5334	10.38	3453.59	3454.61	.00	.51	103623	318.63
	11.5500	10.76	3473.70	3474.73	.00	.51	104227	318.66
	11.5667	11.26	3494.69	3495.72	.00	.52	104856	318.69
	11.5834	11.93	3516.84	3517.88	.00	.52	105517	318.73
	11.6000	12.76	3540.51	3541.56	.00	.53	106231	318.76
	11.6167	13.84	3566.08	3567.13	.00	.53	106998	318.80
	11.6334	15.14	3594.00	3595.06	.00	.53	107836	318.84
	11.6500	16.67	3624.24	3625.31	.00	.54	108769	318.89
	11.6667	18.47	3657.94	3659.89	.00	.98	109798	318.94
	11.6834	20.59	3693.86	3697.01	.00	1.57	110863	319.00
	11.7000	23.05	3733.03	3737.48	.00	2.22	112008	319.06
	11.7167	25.79	3775.98	3781.85	.00	2.94	113368	319.12
	11.7334	28.85	3823.18	3830.62	.00	3.72	114807	319.19
	11.7500	32.16	3875.05	3884.20	.00	4.57	116389	319.27
	11.7667	35.74	3931.91	3942.95	.00	5.52	118123	319.36
	11.7834	39.64	3994.82	4007.29	.00	6.24	120032	319.46
	11.8000	43.89	4064.81	4078.34	.00	6.77	122146	319.56
	11.8167	48.52	4142.60	4157.21	.00	7.30	124468	319.68
	11.8334	53.65	4229.04	4244.77	.00	7.86	127107	319.81
	11.8500	58.22	4325.08	4341.91	.00	8.42	130005	319.96
	11.8667	65.38	4431.71	4449.67	.00	8.98	133221	320.10
	11.8834	72.32	4550.39	4569.41	.00	9.51	136797	320.26
	11.9000	80.08	4682.62	4702.79	.00	10.09	140782	320.44
	11.9167	88.31	4819.11	4851.01	.00	15.95	145052	320.63
	11.9334	96.50	4958.05	5003.91	.00	22.93	149430	320.82
	11.9500	104.18	5098.79	5158.73	.00	29.97	153863	321.02
	11.9667	111.02	5242.53	5313.99	.00	35.73	158348	321.22
	11.9834	116.68	5391.74	5470.22	.00	39.24	162930	321.42
	12.0000	120.86	5544.43	5628.38	.00	42.46	167606	321.63
	12.0167	123.71	5888.19	5788.12	.00	45.46	172310	321.84
	12.0334	124.77	5850.35	5946.57	.00	48.16	176955	322.04
	12.0500	124.04	5988.28	6099.16	.00	50.44	181462	322.22
	12.0667	121.48	6138.89	6243.80	.00	52.46	185741	322.39
Qpeak	12.0834	117.12	6268.79	6377.49	.00	54.35	189695	322.55
Inflow	12.1000	111.07	6377.02	6496.98	.00	56.98	193111	322.68
	12.1167	103.74	6456.37	6591.84	.00	66.73	195754	322.78
	12.1334	95.71	6513.23	6657.82	.00	72.30	197566	322.86
	12.1500	87.52	6545.13	6696.46	.00	75.65	198625	322.90
	12.1667	79.44	6557.78	6712.11	.00	77.16	199049	322.92
	12.1834	71.70	6555.22	6708.93	.00	76.85	199862	322.91
	12.2000	64.51	6541.00	6691.43	.00	75.22	198487	322.89
	12.2167	57.93	6517.87	6663.44	.00	72.80	197720	322.86
	12.2334	52.09	6485.50	6627.90	.00	69.70	196748	322.82
	12.2500	47.17	6454.60	6587.76	.00	66.43	195641	322.78
	12.2667	43.08	6418.63	6545.14	.00	63.26	194457	322.73
	12.2834	39.58	6380.83	6501.28	.00	60.23	193232	322.68
	12.3000	36.56	6341.58	6456.97	.00	57.39	191979	322.64
	12.3167	33.94	6301.21	6412.09	.00	55.44	190700	322.58
	12.3334	31.64	6258.38	6366.79	.00	54.21	189378	322.53
	12.3500	29.61	6212.52	6319.63	.00	53.55	187983	322.48
	12.3667	27.84	6164.31	6269.97	.00	52.83	186514	322.42
	12.3834	26.28	6114.22	6218.43	.00	52.10	184990	322.38
	12.4000	24.88	6062.63	6165.38	.00	51.36	183431	322.30
	12.4167	23.61	6009.93	6111.14	.00	50.61	181817	322.23
	12.4334	22.46	5956.39	6056.00	.00	49.81	180166	322.17
	12.4500	21.43	5902.34	6000.28	.00	48.97	178540	322.10
	12.4667	20.48	5848.00	5944.25	.00	48.12	176884	322.04
	12.4834	19.61	5793.65	5888.09	.00	47.22	175226	321.97
	12.5000	18.79	5739.57	5832.05	.00	46.24	173575	321.90

Type.... Pond Routing Calcs (Total Out) Page 14.26
Name.... MCKINLEY PONDOUT Tag: 100 Event: 100 yr
File.... P:\PROJECT\10022\1-5\Engr\COMPS\WET POND\EXISTING CONDITIONS\Per Original Design\PERDESIGN 100.PPW
Storm... Typeii 24hr Tag: 100
LEVEL POOL ROUTING CALCULATIONS
HYD Dir = P:\PROJECT\10022\1-5\Engr\COMPS\WET POND\EXISTING CONDITIONS\Per Original Design\
Inflow HYG file = NONE STORED - MCKINLEY PONDIN 100
Outflow HYG file = NONE STORED - MCKINLEY PONDOUT 100

	Time hrs	Inflow cfs	2S/t - O cfs	2S/t + O cfs	Infilt. cfs	Outflow cfs	Storage cu.ft	Elev. ft
	11.6500	28.29	7132.46	7173.00	.00	20.27	214583	323.53
	11.6667	30.97	7147.70	7191.72	.00	22.01	215092	323.55
	11.6834	35.08	7165.65	7213.75	.00	24.06	215692	323.57
	11.7000	39.18	7186.94	7239.91	.00	26.48	216403	323.60
	11.7167	43.29	7210.96	7269.41	.00	29.22	217206	323.63
	11.7334	47.39	7237.21	7301.54	.00	32.22	218083	323.67
	11.7500	52.14	7265.79	7336.74	.00	35.47	219038	323.71
	11.7667	58.53	7298.14	7376.46	.00	39.16	220120	323.75
	11.7834	64.93	7333.08	7421.60	.00	44.26	221321	323.80
	11.8000	71.32	7370.02	7469.33	.00	49.66	222590	323.85
	11.8167	77.72	7408.49	7519.06	.00	55.28	223914	323.90
	11.8334	84.87	7448.75	7571.08	.00	61.17	225298	323.95
	11.8500	93.95	7492.33	7627.57	.00	67.62	226799	324.01
	11.8667	103.03	7539.53	7689.32	.00	74.89	228433	324.07
	11.8834	112.11	7589.50	7754.68	.00	82.59	230163	324.13
	11.9000	121.19	7641.57	7822.80	.00	90.61	231966	324.20
	11.9167	129.98	7694.72	7892.74	.00	99.01	233813	324.26
	11.9334	138.06	7746.37	7962.77	.00	108.20	235637	324.33
	11.9500	146.14	7796.37	8030.57	.00	117.10	237404	324.39
	11.9667	154.22	7845.17	8096.74	.00	125.79	239129	324.45
	11.9834	162.30	7892.83	8161.69	.00	134.43	240819	324.51
Qpeak	12.0000	167.85	7936.54	8222.98	.00	143.22	242393	324.56
Inflow	12.0167	167.11	7971.15	8271.51	.00	150.18	243641	324.61
	12.0334	166.38	7994.78	8304.54	.00	154.93	244492	324.64
	12.0500	165.64	8010.59	8326.81	.00	158.11	245061	324.66
	12.0667	164.91	8020.82	8341.15	.00	160.16	245430	324.67
	12.0834	161.77	8025.35	8347.50	.00	161.08	245593	324.68
	12.1000	152.73	8019.89	8339.84	.00	159.98	245397	324.67
	12.1167	143.68	8003.09	8316.30	.00	156.60	244791	324.65
	12.1334	134.64	7978.22	8281.41	.00	151.60	243885	324.62
	12.1500	125.59	7947.57	8238.44	.00	145.44	242791	324.58
	12.1667	116.71	7912.93	8189.88	.00	138.47	241543	324.53
	12.1834	108.24	7875.52	8137.89	.00	131.19	240201	324.49
	12.2000	99.78	7835.43	8083.54	.00	124.05	238785	324.44
	12.2167	91.31	7793.38	8026.51	.00	116.57	237299	324.38
	12.2334	82.84	7749.87	7967.52	.00	108.82	235761	324.33
	12.2500	75.44	7706.08	7908.14	.00	101.03	234214	324.28
	12.2667	70.62	7664.00	7852.13	.00	94.07	232742	324.22
	12.2834	65.80	7624.45	7800.41	.00	87.98	231373	324.17
	12.3000	60.97	7586.86	7751.22	.00	82.18	230072	324.13
	12.3167	56.15	7550.75	7703.98	.00	76.62	228822	324.08
	12.3334	51.94	7516.24	7658.84	.00	71.30	227627	324.04



AS-BUILT CURRENT CONDITIONS (SUMMARY TABLE #3)

Type.... Pond Routing Calcs (Total Out) Page 14.32
Name.... ASBUILT MCKINOUT Tag: 2 Event: 2 yr
File.... P:\PROJECT\10022\1-5\Engr\COMPS\WET POND\EXISTING CONDITIONS\Per As-Built\ORIG-ASBUILT-POND 2&10.PPW
Storm... Typeii 24hr Tag: 2
LEVEL POOL ROUTING CALCULATIONS
HYD Dir = P:\PROJECT\10022\1-5\Engr\COMPS\WET POND\EXISTING CONDITIONS\Per As-Built\
Inflow HYG file = NONE STORED - ASBUILT MCKININ 2
Outflow HYG file = NONE STORED - ASBUILT MCKINOUT 2

	Time hrs	Inflow cfs	2S/t - O cfs	2S/t + O cfs	Infilt. cfs	Outflow cfs	Storage cu.ft	Elev. ft
	11.9000	40.40	3949.37	3950.24	.00	.43	118494	318.04
	11.9167	43.69	4032.56	4033.46	.00	.45	120890	318.15
	11.9334	46.88	4122.20	4123.13	.00	.46	123580	318.27
	11.9500	50.07	4218.20	4219.16	.00	.48	126561	318.40
	11.9667	53.27	4318.52	4321.54	.00	1.51	129801	318.53
	11.9834	56.46	4422.21	4428.25	.00	3.00	133317	318.67
	12.0000	58.75	4528.29	4537.42	.00	4.56	136986	318.82
	12.0167	58.81	4634.04	4645.85	.00	5.91	139199	318.96
	12.0334	58.87	4738.31	4751.71	.00	6.70	142350	319.10
	12.0500	58.92	4841.44	4856.10	.00	7.33	145463	319.24
Qpeak	12.0667	58.98	4943.56	4959.35	.00	7.89	148544	319.37
Inflow	12.0834	58.12	5043.85	5060.67	.00	8.41	151588	319.50
	12.1000	55.01	5139.20	5156.98	.00	8.89	154443	319.63
	12.1167	51.89	5227.51	5246.10	.00	9.30	157104	319.75
	12.1334	48.77	5308.95	5328.17	.00	9.66	159556	319.86
	12.1500	45.66	5383.33	5403.28	.00	9.97	161799	319.96
	12.1667	42.56	5451.06	5471.55	.00	10.24	163839	320.04
	12.1834	39.54	5512.21	5533.16	.00	10.48	165691	320.12
	12.2000	36.51	5566.90	5588.26	.00	10.68	167328	320.19
	12.2167	33.48	5615.17	5636.89	.00	10.86	168781	320.25
	12.2334	30.46	5657.08	5679.11	.00	11.02	170043	320.30
	12.2500	27.81	5693.07	5715.34	.00	11.14	171126	320.35
	12.2667	26.08	5724.46	5746.95	.00	11.25	172072	320.38
	12.2834	24.36	5752.20	5774.88	.00	11.34	172907	320.41
	12.3000	22.61	5775.77	5799.16	.00	11.70	173624	320.45
	12.3167	20.88	5794.16	5819.26	.00	12.55	174201	320.47
	12.3334	19.37	5808.01	5834.40	.00	13.19	174637	320.49
	12.3500	18.37	5818.40	5845.75	.00	13.68	174963	320.50
	12.3667	17.38	5826.08	5854.15	.00	14.03	175204	320.51
	12.3834	16.39	5831.30	5859.85	.00	14.28	175388	320.52
	12.4000	15.39	5834.26	5863.09	.00	14.41	175520	320.52
	12.4167	14.51	5835.24	5864.16	.00	14.46	175491	320.53
	12.4334	13.89	5834.77	5863.65	.00	14.44	175579	320.53
	12.4500	13.27	5833.21	5861.94	.00	14.36	175428	320.52
	12.4667	12.65	5830.65	5859.13	.00	14.24	175347	320.52
	12.4834	12.03	5827.16	5855.33	.00	14.08	175238	320.52
	12.5000	11.47	5822.89	5850.66	.00	13.88	175104	320.51

Qpeak Outflow

Type.... Pond Routing Calcs (Total Out) Page 14.94
Name.... ASBUILT MCKINOUT Tag: 10 Event: 10 yr
File.... P:\PROJECT\10022\1-5\Engr\COMPS\WET POND\EXISTING CONDITIONS\Per As-Built\ORIG-ASBUILT-POND 2&10.PPW
Storm... Typeii 24hr Tag: 10
LEVEL POOL ROUTING CALCULATIONS
HYD Dir = P:\PROJECT\10022\1-5\Engr\COMPS\WET POND\EXISTING CONDITIONS\Per As-Built\
Inflow HYG file = NONE STORED - ASBUILT MCKININ 10
Outflow HYG file = NONE STORED - ASBUILT MCKINOUT 10

	Time hrs	Inflow cfs	2S/t - O cfs	2S/t + O cfs	Infilt. cfs	Outflow cfs	Storage cu.ft	Elev. ft
	11.8500	61.20	5097.37	5114.74	.00	8.68	153182	319.58
	11.8667	67.35	5207.51	5225.92	.00	9.21	156502	319.72
	11.8834	73.50	5328.87	5348.36	.00	9.76	160159	319.88
	11.9000	79.65	5461.45	5482.02	.00	10.28	164152	320.06
	11.9167	85.65	5605.10	5626.74	.00	10.82	168478	320.24
	11.9334	91.26	5759.27	5782.00	.00	11.36	173120	320.43
	11.9500	96.87	5917.41	5942.67	.00	17.99	177883	320.62
	11.9667	102.48	6080.88	6110.75	.00	24.94	182575	320.82
	11.9834	108.09	6208.03	6271.46	.00	31.71	187192	321.01
Qpeak	12.0000	113.70	6324.31	6428.12	.00	36.90	191737	321.20
Inflow	12.0167	111.89	6498.01	6578.01	.00	40.00	196140	321.38
	12.0334	111.39	6635.67	6721.09	.00	42.71	200332	321.55
	12.0500	111.08	6767.83	6858.15	.00	45.16	204390	321.72
	12.0667	110.78	6895.02	6989.70	.00	47.34	208271	321.88
	12.0834	108.82	7016.02	7114.62	.00	49.30	211960	322.03
	12.1000	102.82	7125.98	7227.66	.00	50.85	215305	322.16
	12.1167	96.81	7221.20	7325.58	.00	52.19	218202	322.26
	12.1334	90.80	7302.25	7409.81	.00	53.38	220566	322.36
	12.1500	84.79	7369.51	7477.84	.00	54.17	222711	322.43
	12.1667	78.88	7423.38	7533.17	.00	54.90	224349	322.49
	12.1834	73.19	7464.43	7575.45	.00	55.41	225601	322.54
	12.2000	67.50	7492.41	7605.32	.00	56.45	226466	322.57
	12.2167	61.81	7507.66	7621.72	.00	57.03	226841	322.59
	12.2334	56.12	7511.26	7625.59	.00	57.17	227053	322.59
	12.2500	51.15	7504.69	7618.53	.00	56.92	226849	322.59
	12.2667	47.91	7490.95	7603.75	.00	56.40	226421	322.57
	12.2834	44.68	7472.15	7583.52	.00	55.69	225838	322.55
	12.3000	41.42	7447.83	7558.23	.00	55.20	225091	322.52
	12.3167	38.17	7417.78	7527.42	.00	54.82	224179	322.49
	12.3334	35.34	7382.61	7491.30	.00	54.34	223109	322.45
	12.3500	33.49	7343.80	7451.44	.00	53.82	221929	322.40
	12.3667	31.64	7302.37	7408.93	.00	53.28	220670	322.36
	12.3834	29.79	7258.38	7363.80	.00	52.71	219333	322.31
	12.4000	27.93	7211.98	7316.10	.00	52.06	217922	322.25

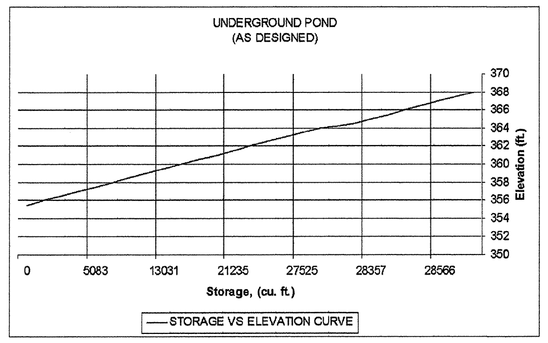
Qpeak Outflow

Type.... Pond Routing Calcs (Total Out) Page 14.25
Name.... ASBUILT MCKINOUT Tag: 100 Event: 100 yr
File.... P:\PROJECT\10022\1-5\Engr\COMPS\WET POND\EXISTING CONDITIONS\Per As-Built\ORIG-ASBUILT-POND 100.PPW
Storm... Typeii 24hr Tag: 100
LEVEL POOL ROUTING CALCULATIONS
HYD Dir = P:\PROJECT\10022\1-5\Engr\COMPS\WET POND\EXISTING CONDITIONS\Per As-Built\
Inflow HYG file = NONE STORED - ASBUILT MCKININ 100
Outflow HYG file = NONE STORED - ASBUILT MCKINOUT 100

	Time hrs	Inflow cfs	2S/t - O cfs	2S/t + O cfs	Infilt. cfs	Outflow cfs	Storage cu.ft	Elev. ft
	11.8000	71.32	8820.31	8718.79	.00	49.24	260087	323.83
	11.8167	77.72	8859.42	8769.35	.00	54.97	261433	323.88
	11.8334	84.87	8700.14	8822.01	.00	60.93	262833	323.93
	11.8500	93.95	8744.19	8878.97	.00	67.39	264348	323.99
	11.8667	103.03	8773.36	8941.18	.00	83.91	265719	324.11
	11.8834	112.11	8791.39	8988.50	.00	98.56	266899	324.22
	11.9000	121.19	8803.82	9024.89	.00	110.44	267428	324.30
	11.9167	129.98	8813.48	9054.99	.00	120.76	268028	324.38
	11.9334	138.06	8821.94	9081.53	.00	129.79	268552	324.42
	11.9500	146.14	8829.79	9106.15	.00	138.18	269040	324.47
	11.9667	154.22	8836.76	9130.16	.00	146.69	269505	324.53
	11.9834	162.30	8842.88	9153.30	.00	155.21	269943	324.57
Qpeak	12.0000	167.85	8848.09	9173.03	.00	162.47	270318	324.61
Inflow	12.0167	167.11	8850.74	9183.06	.00	168.18	270507	324.64
	12.0334	166.38	8851.05	9184.93	.00	166.58	270530	324.64
	12.0500	165.64	8850.74	9183.07	.00	166.16	270508	324.64
	12.0667	164.91	8850.27	9181.30	.00	165.51	270474	324.63
	12.0834	161.77

UNDERGROUND SWM FACILITY

DESIGNED CONDITIONS (SUMMARY TABLE #2)



Type..... Pond Routing Calcs (Total Out) Page 14.59
Name..... UG POND OUT Tog: Pre 2 Event: 2 yr
File..... P:\PROJECT\10022\1-5\Engr\COMPS\UNDERGRND POND\PER DESIGN\MITRE IV_TR55.PPW
Storm... Type II 24hr Tog: Pre 2

LEVEL POOL ROUTING CALCULATIONS

HYG Dir = P:\PROJECT\10022\1-5\Engr\COMPS\UNDERGRND POND\PER DESIGN\
Inflow HYG file = NONE STORED - UG POND IN Pre 2
Outflow HYG file = NONE STORED - UG POND OUT Pre 2

	Time min	Inflow cfs	2S/t - O cfs	2S/t + O cfs	Infilt. cfs	Outflow cfs	Storage cu.ft	Elev. ft
	710.00	19.34	652.15	657.90	.00	2.88	9825	358.73
	710.50	20.39	685.96	691.88	.00	2.96	10334	358.85
	711.00	21.45	721.75	727.80	.00	3.03	10870	358.98
	711.50	22.49	759.54	765.69	.00	3.08	11439	359.12
	712.00	23.53	799.23	805.56	.00	3.17	12036	359.26
	712.50	24.58	840.86	847.34	.00	3.24	12661	359.41
	713.00	25.62	884.47	891.05	.00	3.29	13316	359.57
	713.50	26.66	929.85	936.74	.00	3.39	14000	359.73
	714.00	27.70	977.42	984.32	.00	3.45	14713	359.90
Qpeak	714.50	(27.51)	1025.53	1032.83	.00	3.55	15436	360.07
	715.00	27.30	1073.10	1080.35	.00	3.62	16151	360.24
Inflow	715.50	27.09	1120.09	1127.48	.00	3.69	16857	360.41
	716.00	26.87	1166.51	1174.05	.00	3.77	17554	360.58
	716.50	26.66	1212.38	1220.04	.00	3.83	18243	360.75
	717.00	26.45	1257.69	1265.49	.00	3.90	18924	360.92
	717.50	25.95	1302.12	1310.08	.00	3.98	19591	361.08
	718.00	25.45	1345.47	1353.52	.00	4.03	20242	361.25
	718.50	24.95	1387.66	1395.86	.00	4.10	20876	361.41
	719.00	24.45	1428.72	1437.06	.00	4.17	21493	361.57
	719.50	23.94	1468.68	1477.11	.00	4.21	22093	361.73
	720.00	23.44	1507.50	1516.07	.00	4.29	22677	361.89
	720.50	22.19	1544.43	1553.13	.00	4.35	23232	362.04
	721.00	20.92	1578.75	1587.54	.00	4.39	23747	362.19
	721.50	19.64	1610.47	1619.31	.00	4.42	24223	362.33
	722.00	18.37	1639.50	1648.49	.00	4.49	24663	362.46
	722.50	17.10	1665.89	1674.98	.00	4.54	25056	362.58
	723.00	15.83	1689.67	1698.83	.00	4.58	25414	362.70
	723.50	14.57	1710.88	1720.08	.00	4.60	25732	362.81
	724.00	13.31	1728.47	1738.76	.00	4.65	26012	362.90
	724.50	12.05	1745.45	1754.82	.00	4.69	26262	362.98
	725.00	10.79	1758.87	1768.28	.00	4.71	26453	363.06
	725.50	9.52	1769.71	1779.18	.00	4.73	26617	363.13
	726.00	8.26	1778.00	1787.50	.00	4.75	26741	363.18
	726.50	7.79	1784.54	1794.06	.00	4.76	26839	363.22
	727.00	7.33	1790.12	1799.66	.00	4.77	26923	363.25
	727.50	6.88	1794.78	1804.33	.00	4.78	26993	363.28
	728.00	6.42	1798.51	1808.07	.00	4.78	27049	363.30
	728.50	5.96	1801.32	1810.89	.00	4.78	27092	363.32
	729.00	5.50	1803.22	1812.79	.00	4.79	27120	363.33
	729.50	5.32	1804.47	1814.04	.00	4.79	27139	363.34
	730.00	5.13	1805.34	1814.92	.00	4.79	27152	363.35 Qpeak
	730.50	4.95	1805.85	1815.43	.00	4.79	27159	363.35 Outflow
	731.00	4.77	1805.99	1815.57	.00	4.79	27162	363.35
	731.50	4.58	1805.77	1815.34	.00	4.79	27158	363.35
	732.00	4.40	1805.18	1814.75	.00	4.79	27149	363.35
	732.50	4.31	1804.31	1813.89	.00	4.79	27136	363.34
	733.00	4.21	1803.28	1812.83	.00	4.79	27121	363.33
	733.50	4.12	1802.02	1811.59	.00	4.78	27102	363.33
	734.00	4.02	1800.60	1810.16	.00	4.78	27081	363.32
	734.50	3.93	1798.99	1808.55	.00	4.78	27056	363.31
	735.00	3.83	1797.19	1806.75	.00	4.78	27029	363.30
	735.50	3.78	1795.25	1804.80	.00	4.78	27000	363.28
	736.00	3.72	1793.20	1802.75	.00	4.77	26970	363.27
	736.50	3.67	1791.04	1800.59	.00	4.77	26937	363.26
	737.00	3.61	1788.78	1798.32	.00	4.77	26903	363.24
	737.50	3.55	1786.41	1795.94	.00	4.76	26868	363.23

Type..... Pond Routing Summary Page 14.73
Name..... UG POND OUT Tog: Pre 10 Event: 10 yr
File..... P:\PROJECT\10022\1-5\Engr\COMPS\UNDERGRND POND\PER DESIGN\MITRE IV_TR55.PPW
Storm... Type II 24hr Tog: Pre 10

LEVEL POOL ROUTING SUMMARY

HYG Dir = P:\PROJECT\10022\1-5\Engr\COMPS\UNDERGRND POND\PER DESIGN\
Inflow HYG file = NONE STORED - UG POND IN Pre 10
Outflow HYG file = NONE STORED - UG POND OUT Pre 10

Pond Node Data = UG POND
Pond Volume Data = UG POND
Pond Outlet Data = Outlet 1

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 355.44 ft
Starting Volume = 0 cu.ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .50 min

INFLOW/OUTFLOW HYDROGRAPH SUMMARY

Peak Inflow = 46.95 cfs at 714.00 min
Peak Outflow = 47.34 cfs at 714.50 min

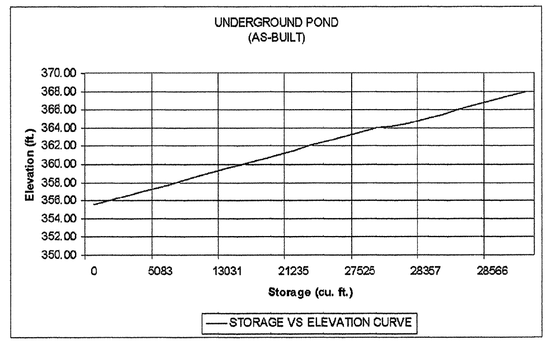
Peak Elevation = 366.10 ft
Peak Storage = 28472 cu.ft

MASS BALANCE (cu.ft)

+ Initial Vol = 0
+ HYG Vol IN = 125550
- Infiltration = 0
- HYG Vol OUT = 125331
- Retained Vol = 320

Unrouted Vol = - cu.ft (.000% of Inflow Volume)

AS-BUILT CURRENT CONDITIONS (SUMMARY TABLE #3)



Type..... Pond Routing Calcs (Total Out) Page 14.59
Name..... UG POND OUT Tog: Pre 2 Event: 2 yr
File..... P:\PROJECT\10022\1-5\Engr\COMPS\UNDERGRND POND\PER AS-BUILT\As-Built EX\MITRE IV AS-BUILT TR55.PPW
Storm... Type II 24hr Tog: Pre 2

LEVEL POOL ROUTING CALCULATIONS

HYG Dir = P:\PROJECT\10022\1-5\Engr\COMPS\UNDERGRND POND\PER AS-BUILT\As-Built EX\
Inflow HYG file = NONE STORED - UG POND IN Pre 2
Outflow HYG file = NONE STORED - UG POND OUT Pre 2

	Time min	Inflow cfs	2S/t - O cfs	2S/t + O cfs	Infilt. cfs	Outflow cfs	Storage cu.ft	Elev. ft
	710.00	19.34	664.63	670.37	.00	2.87	10012	358.77
	710.50	20.39	698.47	704.36	.00	2.95	10521	358.90
	711.00	21.45	734.28	740.31	.00	3.02	11059	359.03
	711.50	22.49	772.08	778.21	.00	3.07	11627	359.16
	712.00	23.53	811.80	818.10	.00	3.15	12224	359.31
	712.50	24.58	853.45	859.91	.00	3.23	12850	359.46
	713.00	25.62	897.09	903.64	.00	3.28	13505	359.61
Qpeak	713.50	(26.66)	942.60	949.37	.00	3.38	14190	359.78
	714.00	27.70	990.07	996.96	.00	3.45	14903	359.95
Inflow	714.50	27.51	1038.21	1045.28	.00	3.54	15626	360.12
	715.00	27.30	1085.78	1093.02	.00	3.62	16341	360.29
	715.50	27.09	1132.82	1140.18	.00	3.68	17048	360.46
	716.00	26.87	1179.25	1186.78	.00	3.76	17745	360.63
	716.50	26.66	1225.14	1232.78	.00	3.82	18434	360.80
	717.00	26.45	1270.48	1278.24	.00	3.88	19116	360.96
	717.50	25.95	1314.93	1322.87	.00	3.97	19783	361.13
	718.00	25.45	1358.28	1366.33	.00	4.02	20435	361.30
	718.50	24.95	1400.49	1408.68	.00	4.09	21070	361.46
	719.00	24.45	1441.56	1449.88	.00	4.16	21686	361.62
	719.50	23.94	1481.53	1489.95	.00	4.21	22286	361.78
	720.00	23.44	1520.35	1528.91	.00	4.28	22870	361.94
	720.50	22.19	1557.30	1565.98	.00	4.34	23425	362.10
	721.00	20.92	1591.62	1600.40	.00	4.39	23940	362.25
	721.50	19.64	1623.34	1632.18	.00	4.42	24416	362.39
	722.00	18.37	1652.38	1661.36	.00	4.49	24853	362.52
	722.50	17.10	1678.78	1687.86	.00	4.54	25250	362.65
	723.00	15.83	1702.56	1711.71	.00	4.58	25607	362.77
	723.50	14.57	1723.77	1732.98	.00	4.60	25925	362.87
	724.00	13.31	1742.36	1751.65	.00	4.64	26208	362.97
	724.50	12.05	1758.34	1767.72	.00	4.69	26445	363.08
	725.00	10.79	1771.75	1781.18	.00	4.71	26647	363.14
	725.50	9.52	1782.59	1792.08	.00	4.74	26810	363.21
	726.00	8.26	1790.88	1800.38	.00	4.75	26934	363.26
	726.50	7.79	1797.40	1806.93	.00	4.76	27032	363.30
	727.00	7.33	1802.98	1812.52	.00	4.77	27116	363.33
	727.50	6.88	1807.63	1817.19	.00	4.78	27186	363.36
	728.00	6.42	1811.36	1820.93	.00	4.78	27242	363.38
	728.50	5.96	1814.17	1823.75	.00	4.78	27284	363.40
	729.00	5.50	1816.07	1825.64	.00	4.79	27313	363.41 Qpeak
	729.50	5.32	1817.31	1826.89	.00	4.79	27332	363.42 Outflow
	730.00	5.13	1818.18	1827.76	.00	4.79	27346	363.43
	730.50	4.95	1818.68	1828.26	.00	4.79	27354	363.43
	731.00	4.77	1818.82	1828.40	.00	4.79	27356	363.43
	731.50	4.58	1818.59	1828.17	.00	4.79	27353	363.43
	732.00	4.40	1818.00	1827.58	.00	4.79	27343	363.43
	732.50	4.31	1817.13	1826.71	.00	4.79	27330	363.42
	733.00	4.21	1816.07	1825.65	.00	4.79	27313	363.41
	733.50	4.12	1814.83	1824.40	.00	4.79	27294	363.40
	734.00	4.02	1813.40	1822.97	.00	4.78	27273	363.40
	734.50	3.93	1811.79	1821.35	.00	4.78	27248	363.39
	735.00	3.83	1809.99	1819.55	.00	4.78	27221	363.38
	735.50	3.78	1808.04	1817.60	.00	4.78	27192	363.36

Type..... Pond Routing Summary Page 2.60
Name..... UG POND OUT Tog: Pre 10 Event: 10 yr
File..... P:\PROJECT\10022\1-5\Engr\COMPS\UNDERGRND POND\PER AS-BUILT\As-Built PROP\MITRE IV AS-BUILT PROP_BUILDING CHANGE.PPW
Storm... Type II 24hr Tog: Pre 10

LEVEL POOL ROUTING SUMMARY

HYG Dir = P:\PROJECT\10022\1-5\Engr\COMPS\UNDERGRND POND\PER AS-BUILT\As-Built PROP\
Inflow HYG file = NONE STORED - UG POND IN Pre 10
Outflow HYG file = NONE STORED - UG POND OUT Pre 10

Pond Node Data = UG POND
Pond Volume Data = UG POND
Pond Outlet Data = Outlet 1

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 355.51 ft
Starting Volume = 0 cu.ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .50 min

INFLOW/OUTFLOW HYDROGRAPH SUMMARY

Peak Inflow = 45.66 cfs at 714.00 min
Peak Outflow = 46.89 cfs at 715.50 min

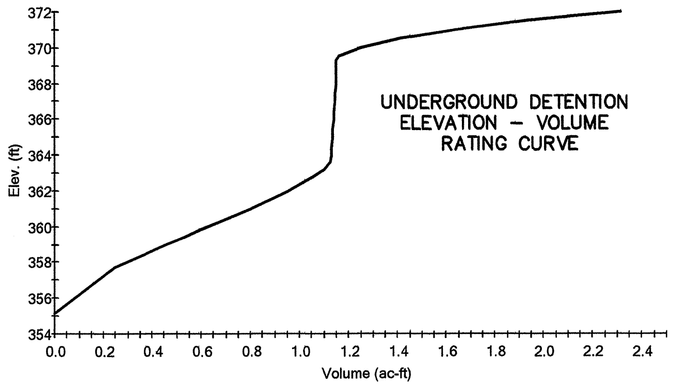
Peak Elevation = 366.32 ft
Peak Storage = 28495 cu.ft

MASS BALANCE (cu.ft)

+ Initial Vol = 0
+ HYG Vol IN = 119480
- Infiltration = 0
- HYG Vol OUT = 119096
- Retained Vol = 384

Unrouted Vol = - cu.ft (.000% of Inflow Volume)

NEW PROPOSED CONDITIONS (SUMMARY TABLE #4)



2-YEAR ROUTING

LEVEL POOL ROUTING CALCULATIONS

HYG Dir = P:\PROJECT\10022\1-6\Engr\Comp\TR-20_STUDY_POINT\APRIL REVISIONS\Marco\
Inflow HYG file = NONE STORED - UNDERGROUND IN Dev 2
Outflow HYG file = NONE STORED - UNDERGROUND OUT Dev 2

	Time hrs	Inflow cfs	2S/t - O cfs	2S/t + O cfs	Infilt. cfs	Outflow cfs	Storage ac-ft	Elev. ft
	10.7000	.80	57.49	58.31	.00	.41	.120	356.37
	10.7500	.84	58.27	59.13	.00	.43	.121	356.39
	10.8000	.87	59.07	59.97	.00	.45	.123	356.41
	10.8500	.90	59.89	60.84	.00	.47	.125	356.42
	10.9000	.93	60.74	61.73	.00	.50	.127	356.44
	10.9500	.97	61.60	62.64	.00	.52	.128	356.46
	11.0000	1.00	62.48	63.57	.00	.54	.130	356.48
	11.0500	1.05	63.40	64.53	.00	.57	.132	356.50
	11.1000	1.10	64.37	65.55	.00	.59	.134	356.52
	11.1500	1.17	65.40	66.64	.00	.62	.136	356.55
	11.2000	1.25	68.52	67.83	.00	.65	.139	356.57
	11.2500	1.33	67.73	69.10	.00	.68	.141	356.60
	11.3000	1.41	69.03	70.47	.00	.72	.144	356.63
	11.3500	1.49	70.41	71.92	.00	.76	.147	356.66
	11.4000	1.57	71.87	73.46	.00	.80	.150	356.69
	11.4500	1.65	73.41	75.08	.00	.84	.153	356.72
	11.5000	1.74	75.03	76.79	.00	.88	.157	356.76
	11.5500	2.47	77.35	79.24	.00	.94	.162	356.81
	11.6000	3.40	81.13	83.22	.00	1.05	.170	356.89
	11.6500	5.05	87.17	89.58	.00	1.21	.183	357.02
	11.7000	6.95	95.38	99.16	.00	1.39	.200	357.20
	11.7500	9.26	109.49	112.59	.00	1.55	.221	357.42
	11.8000	11.76	126.98	130.50	.00	1.76	.252	357.72
	11.8500	14.31	150.96	155.06	.00	2.05	.316	358.12
Qpeak	11.9000	(21.48)	184.19	188.76	.00	2.28	.383	358.54
Inflow	11.9500	20.36	223.60	226.04	.00	2.44	.461	359.00
	12.0000	17.40	253.24	258.72	.00	2.74	.529	359.40
	12.0500	11.77	276.67	282.41	.00	2.87	.577	359.69
	12.1000	5.40	287.97	293.84	.00	2.93	.600	359.82
	12.1500	3.61	291.09	296.99	.00	2.95	.607	359.85
	12.2000	3.06	291.86	297.77	.00	2.95	.609	359.87 Qpeak
	12.2500	2.79	291.80	297.71	.00	2.95	.608	359.87 Outflow
	12.3000	2.58	291.26	297.17	.00	2.95	.607	359.86
	12.3500	2.38	290.34	296.23	.00	2.95	.605	359.85
	12.4000	2.18	289.03	294.90	.00	2.94	.603	359.84
	12.4500	1.99	287.34	293.20	.00	2.93	.599	359.82
	12.5000	1.79	285.28	291.11	.00	2.92	.595	359.79
	12.5500	1.65	282.91	288.71	.00	2.90	.590	359.76
	12.6000	1.52	280.29	286.07	.00	2.89	.584	359.73
	12.6500	1.45	277.52	283.27	.00	2.87	.578	359.70
	12.7000	1.41	274.67	280.38	.00	2.86	.573	359.66
	12.7500	1.36	271.75	277.43	.00	2.84	.567	359.63
	12.8000	1.31	268.77	274.42	.00	2.82	.561	359.59
	12.8500	1.27	265.74	271.35	.00	2.81	.554	359.55
	12.9000	1.22	262.65	268.23	.00	2.79	.548	359.52
	12.9500	1.18	259.50	265.05	.00	2.77	.542	359.48
	13.0000	1.13	256.30	261.81	.00	2.75	.535	359.44

10-YEAR RELEASE RATE SUMMARY

Type..... Pond Routing Summary Page 7.164
Name..... UNDERGROUND OUT Tog: Dev 10 Event: 10 yr
File..... P:\PROJECT\10022\1-6\Engr\Comp\TR-20_STUDY_POINT\APRIL REVISIONS\Marco\SCOTTS-RUN-PROP.PPW
Storm... Type II 24hr Tog: Dev 10

LEVEL POOL ROUTING SUMMARY

HYG Dir = P:\PROJECT\10022\1-6\Engr\Comp\TR-20_STUDY_POINT\APRIL REVISIONS\Marco\
Inflow HYG file = NONE STORED - UNDERGROUND IN Dev 10
Outflow HYG file = NONE STORED - UNDERGROUND OUT Dev 10

Pond Node Data = UNDERGROUND
Pond Volume Data = UNDERGROUND
Pond Outlet Data = Undegrd-Out

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 355.13 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0500 hrs

INFLOW/OUTFLOW HYDROGRAPH SUMMARY

Peak Inflow = 36.40 cfs at 11.9000 hrs
Peak Outflow = 4.04 cfs at 12.3000 hrs

Peak Elevation = 362.66 ft
Peak Storage = 1.041 ac-ft

MASS BALANCE (ac-ft)

+ Initial Vol = .000
+ HYG Vol IN = 2.168
- Infiltration = .000
- HYG Vol OUT = 2.094
- Retained Vol = .075

Unrouted Vol = .000 ac-ft (.000% of Inflow Volume)

UNDERGROUND POND SUMMARY TABLE

EXISTING UNDERGROUND FACILITY Approved 1999 FFX#5412-SP-03 Maximum Release (MR): 2-YEAR ALLOWABLE RELEASE=5.31 CFS 10-YEAR ALLOWABLE RELEASE=16.74 CFS	Drainage Area (Ac)	Coefficient	CN-Value	Time of Concentration (Tc), Hrs	2-year PEAK INFLOW (CFS)	2-year PEAK RELEASE RATE / WSE	(Comparison to approved MR)	10-year PEAK INFLOW (CFS)	10-year PEAK RELEASE RATE / WSE	(Comparison to approved MR)	100-year PEAK INFLOW (CFS)	100-year PEAK RELEASE RATE / WSE
#1 *Original/Approved* ***DESIGN*** by PHR+A (Using Pond-2 Ver 5.20 & Rational Method) Per Plan # 1702-SP-07-2	7.49	0.827	-	0.083	33.43	5.15 / 363.56	(-)	44.6	16.00 / 364.95	(-)	NO DATA	NO DATA
#2 ***Designed Conditions*** Recreated Hydrological Model by PHR+A / May 2006 (Using PondPack Ver 10.0 & TR-55)	7.49	-	95.42	0.083	27.7	4.79 / 363.35	(90.21%)	46.95	47.34 / 366.10*	(262.80%)	-	-
#3 ***As-Built, Existing Conditions*** Recreated Hydrological Model by PHR+A / May 2006 (Using PondPack Ver 10.0 & TR-55	7.49	-	95.42	0.0833	27.7	4.79 / 363.43	(90.21%)	46.95	51.40 / 367.57*	(307.05%)	-	-
#4 ***New, Proposed Conditions*** Recreated Hydrological Model by PHR+A / April 2010 (Using PondPack Ver 10.0 & TR-55)	5.64	-	95	0.0833	21.48	2.95 / 359.87	(55.59%)	36.40	4.04 / 362.66**	(24.13%)	-	-

*UNDERGROUND POND WAS ORIGINALLY DESIGNED USING RATIONAL METHOD AND A 2-HOUR RAINFALL EVENT. ANALYSIS IS BASED ON TR-55 (24-HOUR EVENT, TYPE II SCS)

**UNDERGROUND POND DETAINING 24-HOUR RAINFALL 10-YEAR EVENT CALCULATED USING TR-55 TO 2-YEAR PRE-DEVELOPMENT CONDITIONS

New Allowable Release Q_2= 5.41 cfs
New Allowable Release Q_{10}= 5.41 cfs

ALLOWABLE RELEASE NOTE:

ALLOWABLE RELEASE RATES DETERMINED BY TR-55 ANALYSIS OF EXISTING CONDITIONS SET AS "WOODS IN GOOD CONDITION". THE TR-55 ANALYSIS IS BASED ON A SCS 24-HR TYPE II SYNTHETIC CURVE WITH P=3.2 INCHES FOR THE 2-YEAR EVENT AND P=5.2 INCHES FOR THE 10-YEAR EVENT. THE FOLLOWING FACTORS WERE USED IN THE PRE-DEVELOPMENT ANALYSIS: AREA= 5.64 ACRES, HYDROLOGIC SOIL GROUP "D", CN VALUE OF 77, AND TC OF 0.47 HOURS. THIS ANALYSIS DETERMINED THAT THE PRE-DEVELOPMENT RELEASE RATE FOR THE SITE IS 5.41 CFS FOR THE 2-YEAR EVENT AND 13.31 FOR THE 10-YEAR EVENT. THE ALLOWABLE RELEASE RATES FOR THE 2 AND 10 YEAR STORM EVENTS ARE BOTH SET TO THE 2-YEAR PRE-DEVELOPMENT RELEASE RATE FROM THE SITE. THEREFORE ALLOWABLE RELEASE RATES ARE 5.41 CFS FOR THE 2-YEAR AND 5.41 FOR THE 10-YEAR STORM EVENTS.

NO.	DESCRIPTION	DATE	REVS'D	REVW'D	APRV'D	DATE

REVISION

PROFESSIONAL SEAL
COMMONWEALTH OF VIRGINIA
ROBERT A. MUNSE
Lic. No. 15338
11/16/10
PROFESSIONAL ENGINEER

PROJECT

MITRE 5

CONCEPTUAL DEVELOPMENT PLAN /
FINAL DEVELOPMENT PLAN
SPECIAL EXCEPTION PLAT

PROVIDENCE DISTRICT, FAIRFAX COUNTY, VIRGINIA

TITLE

UNDERGROUND SWM FACILITY ANALYSIS/TR-55

Patton Harris Rust & Associates
Engineers. Surveyors. Planners. Landscape Architects.
PHR+A
14532 Lee Road
Chantilly, VA 20151-1679
T 703.449.6700
F 703.449.6714

CO. PLAN #

DESIGN: MBR	SURVEY: N/A
DRAWN: PHR+A	DATE JULY 15, 2010 REVISED NOV. 16, 2010
CHECKED: CN/SG	SCALE: N/A
SHEET C003EXH 24 OF 31	FILE NO. 10022 1-6

FILE NAME: P:\PROJECT\10022\1-6\Planning\Plans\P-24-C003.dwg LAYOUT NAME: PLOT PLOTTED: Tuesday, November 16, 2010 - 7:56am

MASTER DESIGN STORM SUMMARY

Return Event	Total Depth in	Rainfall Type	RNF ID
Pre 2	3.2000	Synthetic Curve	TypeII 24hr
Pre 10	5.2000	Synthetic Curve	TypeII 24hr
Pre100	7.3000	Synthetic Curve	TypeII 24hr

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
A1	AREA	2	4.468		12.0500	64.41		
A1	AREA	10	8.634		12.0500	121.14		
A1	AREA	100	13.167		12.0500	180.44		
A2	AREA	2	1.647		11.9000	28.49		
A2	AREA	10	2.876		11.9000	48.27		
A2	AREA	100	4.176		11.9000	68.78		
A3	AREA	2	4.808		12.0000	72.48		
A3	AREA	10	8.639		12.0000	128.04		
A3	AREA	100	12.716		12.0000	181.48		
A4	AREA	2	109.470		12.1000	1265.62		
A4	AREA	10	202.456		12.1000	2284.25		
A4	AREA	100	302.203		12.1000	3341.57		
A5	AREA	2	1.929		11.9000	34.88		
A5	AREA	10	3.727		11.9000	66.26		
A5	AREA	100	5.684		11.9000	99.11		
A6	AREA	2	1.732		12.0000	24.83		
A6	AREA	10	3.158		12.0000	44.01		
A6	AREA	100	4.680		12.0000	63.88		
JUNCTION-1	JCT	2	114.026		12.1000	1274.43		
JUNCTION-1	JCT	10	211.176		12.1000	2340.53		
JUNCTION-1	JCT	100	315.454		12.1000	3487.27		
JUNCTION-2	JCT	2	3.359		12.0500	36.62		
JUNCTION-2	JCT	10	6.013		11.9500	91.13		
JUNCTION-2	JCT	100	8.835		12.0000	120.71		
MCKINLEY PONDIN	POND	2	4.468		12.0500	64.41		
MCKINLEY PONDIN	POND	10	8.634		12.0500	121.14		
MCKINLEY PONDIN	POND	100	13.167		12.0500	180.44		
MCKINLEY PONDOUT	POND	2	4.556	L	12.3500	18.19	320.38	3.948
MCKINLEY PONDOUT	POND	10	8.720	L	12.2000	68.06	322.50	5.157
MCKINLEY PONDOUT	POND	100	13.251	L	12.1000	145.70	323.55	5.798
*STUDY POINT	JCT	2	124.119		12.1500	1307.10		
*STUDY POINT	JCT	10	229.552		12.1500	2348.20		
*STUDY POINT	JCT	100	342.686		12.1500	3523.25		
UNDERGROUND IN	POND	2	1.647		11.9000	28.49		
UNDERGROUND IN	POND	10	2.876		11.9000	48.27		
UNDERGROUND IN	POND	100	4.176		11.9000	68.78		
UNDERGROUND OUT	POND	2	1.627		12.0500	11.86	365.12	.621
UNDERGROUND OUT	POND	10	2.856		11.9500	51.71	367.76	.627
UNDERGROUND OUT	POND	100	4.155		12.0000	56.83	369.90	.711

COMPOSITE CHANNEL SECTION

Slope = .008500 ft/ft
Elev.Constant= 10.37 ft

GROUND ELEVATION POINTS

Lowest Elev. = 306.37 ft

X Distance (ft)	Y Elev (ft)	Y+Constant (ft)
20.00	304.80	315.17
40.00	303.40	313.77
80.00	302.40	312.77
180.00	301.30	311.67
190.00	300.70	311.07
200.00	298.00	308.37
226.00	296.00	306.37
230.00	300.20	310.57
240.00	301.30	311.67
300.00	302.70	313.07
360.00	304.80	315.17

THE INFORMATION BELOW WAS USED TO COMPUTE FLOW RATE SEPARATELY FOR EACH SEGMENT.

CROSS SECTION SUBDIVIDED INTO DIFFERENT SEGMENTS

Segment	X Left (ft)	X Right (ft)	Ground n	Descr.
1	20.00	180.00	0.06000	Left Overbank
2	180.00	240.00	0.05000	Main Channel
3	240.00	360.00	0.08000	Right Overbank

Solution to Mannings Open Channel Flow Equation
(Computed values are based on normal depth.)

IRREGULAR CROSS SECTION

Slope = .008500 ft/ft

Reach #1 Rating Table

Elev (ft)	Max. Depth (ft)	Discharge (cfs)	Channel Vel. (ft/s)	Flood Plain Vel. (ft/s)
306.38	0.01	0.03	0.13	
306.55	0.18	4.09	0.86	
306.73	0.36	13.00	1.36	
306.91	0.54	25.58	1.77	
307.09	0.72	41.37	2.12	
307.27	0.90	60.10	2.44	
307.45	1.08	81.58	2.73	
307.63	1.26	105.67	3.00	
307.81	1.44	132.28	3.26	
307.99	1.66	161.32	3.49	
307.17	1.80	192.73	3.72	
308.35	1.98	226.47	3.94	
308.53	2.16	262.47	4.14	
308.71	2.34	300.73	4.34	
308.89	2.52	341.21	4.53	
309.07	2.70	383.89	4.71	
309.25	2.88	428.74	4.89	
309.43	3.06	475.77	5.06	
309.61	3.24	524.95	5.23	
309.79	3.42	576.29	5.39	
309.97	3.6	629.77	5.55	
310.15	3.78	685.39	5.7	
310.33	3.96	743.16	5.85	
310.51	4.14	803.07	5.99	
310.69	4.32	853.18	6.05	
310.87	4.5	900.74	6.06	
311.05	4.68	952	6.09	
311.23	4.86	978.74	5.94	
311.41	5.04	1011.37	5.82	
311.59	5.22	1052.96	5.73	
311.77	5.4	1131.94	5.82	0.31
311.95	5.58	1241.56	6.03	0.62
312.13	5.76	1360.89	6.24	0.86
312.31	5.94	1492.17	6.44	1.07
312.49	6.12	1637.4	6.65	1.26
312.67	6.3	1798.37	6.85	1.44
312.85	6.48	1979	7.04	1.65
313.03	6.66	2180.38	7.24	1.88
313.21	6.84	2401.62	7.43	2.09
313.39	7.02	2641.67	7.62	2.28
313.57	7.2	2900.41	7.81	2.46
313.75	7.38	3178.15	7.99	2.63
313.93	7.56	3484.35	8.17	2.84
314.11	7.74	3811.17	8.35	3.05
314.29	7.92	4157.52	8.53	3.24
314.47	8.1	4523.3	8.71	3.43
314.65	8.28	4908.66	8.88	3.61
314.83	8.46	5313.68	9.06	3.79
315.01	8.64	5738.54	9.23	3.95
315.17	8.8	6132.79	9.38	4.1

REACH #1 1120' OPEN CHANNEL RATING TABLE

LEVEL POOL ROUTING CALCULATIONS

Inflow HYG file = NONE STORED - MCKINLEY PONDIN Pre100
Outflow HYG file = NONE STORED - MCKINLEY PONDOUT Pre100

Time hrs	Inflow cfs	2S/t - O cfs	2S/t + O cfs	Infilt. cfs	Outflow cfs	Storage ac-ft	Elev. ft
11.6500	26.89	1678.05	1694.49	.00	8.22	3.484	319.51
11.7000	36.51	1723.59	1741.45	.00	8.93	3.580	319.70
11.7500	50.68	1790.80	1810.78	.00	9.99	3.721	319.97
11.8000	68.11	1876.05	1909.59	.00	16.77	3.911	320.31
11.8500	91.63	1983.73	2035.79	.00	26.03	4.152	320.75
11.9000	122.02	2123.75	2197.38	.00	36.81	4.464	321.31
11.9500	155.31	2301.84	2401.08	.00	49.62	4.858	322.02
12.0000	178.59	2483.45	2635.74	.00	76.14	5.288	322.72
12.0500	180.44	2609.22	2842.48	.00	116.63	5.632	323.28
12.1000	162.18	2660.43	2951.84	.00	145.70	5.798	323.55
12.1500	128.57	2660.12	2951.18	.00	145.53	5.797	323.54
12.2000	95.93	2628.95	2884.62	.00	127.84	5.696	323.38
12.2500	71.36	2587.56	2796.24	.00	104.34	5.562	323.16
12.3000	55.03	2543.98	2713.95	.00	84.98	5.432	322.95
12.3500	44.74	2489.66	2643.76	.00	77.05	5.303	322.74
12.4000	37.32	2433.90	2571.72	.00	68.91	5.171	322.53
12.4500	32.07	2380.95	2503.30	.00	61.17	5.046	322.32
12.5000	27.96	2332.71	2440.97	.00	54.13	4.931	322.14
12.5500	24.69	2288.68	2385.38	.00	48.34	4.829	321.97
12.6000	21.98	2244.80	2335.35	.00	45.27	4.732	321.79
12.6500	19.80	2202.02	2286.59	.00	42.28	4.637	321.62
12.7000	18.12	2161.10	2239.95	.00	39.42	4.547	321.46
12.7500	16.90	2122.65	2196.13	.00	36.74	4.462	321.31
12.8000	15.98	2087.03	2155.53	.00	34.25	4.383	321.16
12.8500	15.28	2054.35	2118.29	.00	31.97	4.311	321.03
12.9000	14.66	2025.12	2084.29	.00	29.59	4.245	320.92
12.9500	14.09	1999.16	2053.87	.00	27.36	4.187	320.81
13.0000	13.56	1976.07	2026.81	.00	25.37	4.135	320.72
13.0500	13.05	1955.48	2002.69	.00	23.60	4.089	320.63
13.1000	12.58	1937.08	1981.11	.00	22.02	4.048	320.56
13.1500	12.14	1920.59	1961.80	.00	20.60	4.011	320.49
13.2000	11.76	1905.83	1944.49	.00	19.33	3.978	320.43
13.2500	11.41	1892.61	1929.00	.00	18.19	3.948	320.38
13.3000	11.10	1880.77	1915.12	.00	17.18	3.921	320.33
13.3500	10.81	1870.15	1902.68	.00	16.26	3.898	320.29
13.4000	10.53	1860.60	1891.49	.00	15.44	3.876	320.25
13.4500	10.25	1851.98	1881.38	.00	14.70	3.857	320.22
13.5000	9.98	1844.16	1872.22	.00	14.03	3.839	320.18
13.5500	9.72	1837.03	1863.86	.00	13.42	3.823	320.16
13.6000	9.46	1830.51	1856.21	.00	12.85	3.809	320.13
13.6500	9.22	1824.51	1849.19	.00	12.34	3.795	320.10
13.7000	8.99	1818.99	1842.72	.00	11.86	3.783	320.08

WET POND 100YR ROUTING

MODIFIED PULS REACH ROUTING CALCULATIONS

Inflow HYG file = NONE STORED - JUNCTION-1 Pre100
Outflow HYG file = NONE STORED - REACH 1 Pre100

Time hrs	Inflow cfs	2S/t - O cfs	2S/t + O cfs	Infilt. cfs	Outflow cfs	Storage ac-ft
10.6000	164.58	409.75	727.44	.00	158.85	1.175
10.6500	169.79	416.31	744.11	.00	163.90	1.199
10.7000	175.35	422.91	761.44	.00	169.27	1.223
10.7500	181.32	429.81	779.57	.00	174.88	1.249
10.8000	187.72	437.15	798.85	.00	180.85	1.277
10.8500	194.53	444.98	819.41	.00	187.21	1.306
10.9000	201.68	453.18	841.19	.00	194.01	1.337
10.9500	209.13	461.33	863.99	.00	201.33	1.369
11.0000	216.80	469.65	887.26	.00	208.80	1.402
11.0500	224.82	478.24	911.27	.00	216.52	1.435
11.1000	233.28	487.20	936.34	.00	224.57	1.471
11.1500	242.66	496.34	963.15	.00	233.40	1.508
11.2000	253.11	506.09	992.11	.00	243.01	1.548
11.2500	265.12	516.92	1024.32	.00	253.70	1.592
11.3000	278.53	528.93	1060.57	.00	265.82	1.642
11.3500	293.48	541.72	1100.94	.00	279.61	1.697
11.4000	309.45	555.58	1144.66	.00	294.54	1.756
11.4500	326.55	569.94	1191.59	.00	310.83	1.820
11.5000	344.99	584.86	1241.48	.00	328.31	1.887
11.5500	370.43	602.07	1300.27	.00	349.10	1.965
11.6000	411.22	625.62	1383.71	.00	379.05	2.076
11.6500	485.11	662.66	1521.65	.00	429.64	2.257
11.7000	605.53	719.51	1753.31	.00	516.90	2.555
11.7500	788.45	797.62	2113.48	.00	657.93	3.007
11.8000	1049.82	911.50	2635.89	.00	862.20	3.665
11.8500	1403.89	1242.16	3365.21	.00	1061.52	4.760
11.9000	1853.46	1611.84	4499.51	.00	1443.84	6.313
11.9500	2374.93	2178.05	5840.23	.00	1831.09	8.283
12.0000	2899.44	2860.22	7452.42	.00	2296.10	10.654
12.0500	3309.38	3499.97	9069.04	.00	2784.54	12.984
12.1000	3487.27	3963.65	10296.62	.00	3166.49	14.732
12.1500	3387.05	4153.29	10837.97	.00	3342.34	15.487
12.2000	3063.01	4071.52	10603.34	.00	3265.91	15.160
12.2500	2623.41	3761.92	9757.93	.00	2998.01	13.987
12.3000	2177.58	3304.63	8562.91	.00	2629.14	12.260
12.3500	1793.47	2787.97	7275.68	.00	2243.86	10.398
12.4000	1484.05	2276.09	6065.48	.00	1894.70	8.617
12.4500	1246.81	1819.23	5006.95	.00	1593.86	7.052
12.5000	1062.23	1471.45	4128.27	.00	1328.41	5.785
12.5500	914.20	1265.66	3447.88	.00	1091.11	4.869
12.6000	795.51	1039.54	2975.37	.00	967.91	4.148
12.6500	698.92	882.24	2533.97	.00	825.87	3.529
12.7000	619.93	815.06	2201.09	.00	693.01	3.116
12.7500	555.83	772.29	1990.82	.00	609.26	2.854
12.8000	504.19	737.59	1832.31	.00	547.36	2.655
12.8500	462.36	707.79	1704.14	.00	498.17	2.492
12.9000	428.02	681.88	1598.16	.00	458.14	2.355
12.9500	399.45	659.34	1509.35	.00	425.00	2.240
13.0000	375.07	639.21	1433.86	.00	397.33	2.142

REACH-1 100YR ROUTING

LEVEL POOL ROUTING CALCULATIONS

Inflow HYG file = NONE STORED - UNDERGROUND IN Pre100
Outflow HYG file = NONE STORED - UNDERGROUND OUT Pre100

Time hrs	Inflow cfs	2S/t - O cfs	2S/t + O cfs	Infilt. cfs	Outflow cfs	Storage ac-ft	Elev. ft
11.0000	3.58	78.98	83.44	.00	2.23	.166	358.04
11.0500	3.74	81.74	86.30	.00	2.28	.173	358.12
11.1000	3.92	84.76	89.40	.00	2.32	.180	358.19
11.1500	4.15	88.11	92.83	.00	2.36	.186	358.27
11.2000	4.41	91.88	96.67	.00	2.41	.194	358.36
11.2500	4.66	96.02	100.93	.00	2.46	.202	358.46
11.3000	4.92	100.58	105.60	.00	2.51	.212	358.56
11.3500	5.18	105.54	110.68	.00	2.57	.222	358.68
11.4000	5.44	110.90	116.16	.00	2.63	.234	358.80
11.4500	5.70	116.63	122.03	.00	2.70	.246	358.93
11.5000	5.98	122.76	128.31	.00	2.77	.259	359.08
11.5500	8.47	131.49	137.22	.00	2.86	.278	359.27
11.6000	11.60	145.55	151.55	.00	3.00	.307	359.58
11.6500	17.08	167.79	174.23	.00	3.22	.353	360.08
11.7000	23.28	201.12	208.16	.00	3.52	.423	360.84
11.7500	30.88	247.21	255.08	.00	3.94	.520	361.98
11.8000	38.55	285.51	316.45	.00	15.47	.622	365.43
11.8500	52.83	265.57	376.89	.00	55.66	.632	369.37
11.9000	68.78	275.23	387.19	.00	55.98	.643	369.52
11.9500	64.62	295.35	408.63	.00	56.64	.696	369.81
12.0000	54.83	301.13	414.79	.00	56.83	.711	369.90
12.0500	36.95	280.61	392.92	.00	56.16	.657	369.60
12.1000	16.91	268.48	334.47	.00	32.99	.623	365.94
12.1500	11.30	287.91	296.70	.00	4.39	.609	363.37
12.2000	9.57	291.36	308.78	.00	8.71	.620	364.72
12.2500	8.69	290.79	309.63	.00	9.42	.620	364.81
12.3000	8.05	292.22	307.53	.00	7.65	.619	364.58
12.3500	7.43	292.10	307.70	.00	7.80	.619	364.60
12.4000	6.81	293.03	306.34	.00	6.65	.619	364.46
12.4500	6.19	293.25	306.02	.00	6.39	.619	364.42
12.5000	5.57	293.94	305.00	.00	5.53	.619	364.31
12.5500	5.12	294.19	304.64	.00	5.22	.619	364.27
12.6000	4.73	294.59	304.05	.00	4.73	.618	364.21
12.6500	4.53	294.60	303.85	.00	4.62	.618	364.13
12.7000	4.37	294.27	303.50	.00	4.61	.618	364.09
12.7500	4.23	293.68	302.87	.00	4.59	.618	364.02
12.8000	4.08	292.86	301.99	.00	4.57	.618	363.93
12.8500	3.94	291.83	300.88	.00	4.53	.618	363.82
12.9000	3.80	290.59	299.57	.00	4.49	.617	363.68
12.9500	3.66	289.18	298.05	.00	4.44	.613	363.52
13.0000	3.52	287.59	296.35	.00	4.38	.608	363.34

UNDERGROUND 100YR ROUTING

MODIFIED PULS REACH ROUTING CALCULATIONS

Inflow HYG file = NONE STORED - JUNCTION-2 Pre100
Outflow HYG file = NONE STORED - REACH 2 Pre100

Time hrs	Inflow cfs	2S/t - O cfs	2S/t + O cfs	Infilt. cfs	Outflow cfs	Storage ac-ft
11.2000	6.69	12.23	25.13	.00	6.45	.039
11.2500	6.99	12.48	25.91	.00	6.71	.040
11.3000	7.31	12.76	26.77	.00	7.00	.041
11.3500	7.64	13.07	27.71	.00	7.32	.042
11.4000	7.99	13.39	28.70	.00	7.65	.043
11.4500	8.35	13.73	29.73	.00	8.00	.045
11.5000	8.71	14.06	30.79	.00	8.37	.046
11.5500	9.40	14.47	32.17	.00	8.85	.048
11.6000	10.90	15.23	34.76	.00	9.77	.052
11.6500	13.59	16.59	39.72	.00	11.57	.058
11.7000	17.88	18.67	48.06	.00	14.70	.069
11.7500	23.57	21.25	60.12	.00	19.43	.084
11.8000	41.75	25.62	86.57	.00	30.47	.116
11.8500	90.43	32.14	157.80	.00	62.83	.196
11.9000	101.92	34.76	224.49	.00	94.87	.268
11.9500	114.10	36.09	250.78	.00	107.64	.296
12.0000	120.71	36.09	270.30	.00	117.11	.317
12.0500	119.11	36.28	275.91	.00	119.81	.323
12.1000	86.76	35.25	242.15	.00	103.45	.287
12.1500	45.63	32.66	167.63	.00	67.48	.207
12.2000	38.52	29.11	116.81	.00	43.85	.151
12.2500	31.36	27.22	98.99	.00	35.88	.130
12.3000	24.65	25.17	83.24	.00	29.04	.112
12.3500	21.65	23.32	71.47	.00	24.08	.098
12.4000	18.34	21.86	63.31	.00	20.73	.088
12.4500	16.48	20.56	56.69	.00	18.06	.080
12.5000	14.41	19.45	51.45	.00	16.00	.073
12.5500	13.09	18.40	46.94	.00	14.27	.068
12.6000	11.77	17.52	43.26	.00	12.87	.063
12.6500	11.02	16.74	40.31	.00	11.78	.059
12.7000	10.52	16.21	38.28	.00	11.04	.056
12.7500	10.15	15.84	36.88	.00	10.52	.054
12.8000	9.86	15.54	35.84	.00	10.15	.053
12.8500	9.60	15.30	35.00	.00	9.85	.052
12.9000	9.38	15.08	34.25	.00	9.59	.051
12.9500	9.13	14.87	33.56	.00	9.34	.050

REACH-2 100YR ROUTING

Type.... Node: Addition Summary Page 9.68
Name.... STUDY POINT Event: 100 yr
File.... P:\PROJECT\10022\1-6\Engr\Comp\TR-20_STUDY_POINT\APRIL
EVISIONS\Marco\SCOTTS-RUN-EX.PPW
Storm... TypeII 24hr Tag: Pre100

SUMMARY FOR HYDROGRAPH ADDITION
at Node: STUDY POINT

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
REACH 1	JUNCTION-1		REACH 1	Pre100
ADDLINK 3	A3		A3	Pre100
REACH 2	JUNCTION-2		REACH 2	Pre100
ADDLINK 5	A5		A5	Pre100

INFLOWS TO: STUDY POINT

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	'eak Flow cfs
	REACH 1	Pre100	315.450	12.1500	3342.34
	A3	Pre100	12.716	12.0000	181.48
	REACH 2	Pre100	8.835	12.0500	119.81
	A5	Pre100	5.684	11.9000	99.11

TOTAL FLOW INTO: STUDY POINT

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	'eak Flow cfs
	STUDY POINT	Pre100	342.686	12.1500	3523.25

TOTAL NODE INFLOW...
HYG file =
HYG ID = STUDY POINT
HYG Tag = Pre100

Peak Discharge = 3523.25 cfs
Time to Peak = 12.1500 hrs
HYG Volume = 342.686 ac-ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0500 hrs
Time on left represents time for first value in each row.

Time hrs					
9.1500	98.60	100.48	102.22	103.77	105.14
9.4000	106.32	107.35	108.24	109.06	109.85
9.6500	110.72	111.74	112.99	114.55	116.44
9.9000	118.73	121.28	124.11	127.17	130.43
10.1500	133.87	137.50	141.33	145.40	149.88
10.4000	154.47	159.19	164.06	169.09	174.30
10.6500	179.86	185.77	191.96	198.54	205.53
10.9000	212.96	220.93	229.07	237.55	246.46
11.1500	256.31	267.12	279.09	292.62	307.85
11.4000	324.27	342.06	361.19	387.65	427.31
11.6500	495.07	606.75	779.17	1025.91	1303.58
11.9000	1775.89	2202.35	2675.29	3128.69	3430.86
12.1500	3523.25	3390.46	3095.83	2708.80	2311.18
12.4000	1953.31	1645.63	1374.44	1132.51	1005.46
12.6500	860.61	725.76	640.52	577.42	527.20
12.9000	486.19	452.14	423.55	398.73	376.91
13.1500	357.76	341.19	326.77	314.54	303.76
13.4000	293.98	284.99	276.76	268.94	261.43
13.6500	254.25	247.39	241.00	234.91	229.04
13.9000	223.41	218.02	212.89	208.05	203.49
14.1500	199.07	194.88	191.01	187.48	184.32
14.4000	181.49	178.95	176.63	174.54	172.57
14.6500	170.67	168.82	167.01	165.24	163.49
14.9000	161.77	160.05	158.35	156.65	154.97
15.1500	153.29	151.60	149.93	148.25	146.58
15.4000	144.90	143.27	141.65	139.99	138.33
15.6500	136.66	134.99	133.31	131.64	129.96
15.9000	128.29	126.61	124.93	123.26	121.62
16.1500	120.02	118.50	117.08	115.78	114.65

CUMULATIVE 100YR HYDROGRAPH AT STUDY POINT

Solution to Mannings Open Channel Flow Equation
(Computed values are based on normal depth.)

CIRCULAR CROSS SECTION

Slope = .021430 ft/ft
Mannings n = 0.01300
Invert Elev. = 354.52 ft
Top of Channel = 358.02 ft
Diameter = 3.5000 ft

Elev. (ft)	Depth (ft)	Flow (cfs)	Vel. (ft/sec)	Area (sq.ft)	Top W. (ft)	Wet.P. (ft)	Hd No.	Froude
354.520	.00	.00	.00	.0000	.00	.00	.00	0.00
354.590	.07	.10	2.16	.0459	.98	.99	.05	1.76
354.660	.14	.44	3.40	.1291	1.37	1.41	.09	1.95
354.730	.21	1.04	4.43	.2357	1.66	1.73	.14	2.07
354.800	.28	1.92	5.33	.3606	1.90	2.01	.19	2.16
354.870	.35	3.07	6.14	.5007	2.10	2.25	.24	2.22
354.940	.42	4.50	6.89	.6540	2.27	2.48	.29	2.26
355.010	.49	6.21	7.58	.8187	2.43	2.68	.34	2.30
355.080	.56	8.18	8.23	.9936	2.57	2.88	.39	2.33
355.150	.63	10.41	8.84	1.1777	2.69	3.07	.44	2.35
355.220	.70	12.90	9.42	1.3699	2.80	3.25	.49	2.37
355.290	.77	15.63	9.96	1.5694	2.90	3.42	.54	2.39
355.360	.84	18.60	10.48	1.7756	2.99	3.58	.59	2.40
355.430	.91	21.80	10.97	1.9877	3.07	3.75	.65	2.40
355.500	.98	25.22	11.44	2.2053	3.14	3.90	.70	2.41
355.570	1.05	28.84	11.88	2.4275	3.21	4.06	.76	2.41
355.640	1.12	32.66	12.30	2.6541	3.27	4.21	.81	2.41
355.710	1.19	36.66	12.71	2.8846	3.32	4.36	.87	2.40
355.780	1.26	40.83	13.09	3.1183	3.36	4.50	.93	2.40
355.850	1.33	45.16	13.46	3.3548	3.40	4.65	.99	2.39
355.920	1.40	49.63	13.81	3.5938	3.43	4.79	1.05	2.38
355.990	1.47	54.23	14.14	3.8348	3.45	4.94	1.11	2.37
356.060	1.54	58.95	14.46	4.0774	3.47	5.08	1.17	2.35
356.130	1.61	63.76	14.76	4.3210	3.49	5.22	1.24	2.34
356.200	1.68	68.67	15.04	4.5656	3.50	5.36	1.31	2.32
356.270	1.75	73.64	15.31	4.8106	3.50	5.50	1.37	2.30
356.340	1.82	78.66	15.56	5.0555	3.50	5.64	1.45	2.28
356.410	1.89	83.72	15.80	5.3001	3.49	5.78	1.52	2.26
356.480	1.96	88.80	16.02	5.5438	3.47	5.92	1.60	2.24
356.550	2.03	93.88	16.22	5.7864	3.45	6.06	1.67	2.21
356.620	2.10	98.95	16.42	6.0274	3.43	6.20	1.76	2.18
356.690	2.17	103.97	16.59	6.2664	3.40	6.35	1.84	2.15
356.760	2.24	108.94	16.75	6.5029	3.36	6.49	1.94	2.12
356.830	2.31	113.84	16.90	6.7366	3.32	6.64	2.03	2.09
356.900	2.38	118.63	17.03	6.9670	3.27	6.79	2.13	2.06
356.970	2.45	123.30	17.14	7.1936	3.21	6.94	2.24	2.02
357.040	2.52	127.83	17.24	7.4159	3.14	7.09	2.36	1.98
357.110	2.59	132.19	17.32	7.6334	3.07	7.25	2.49	1.94
357.180	2.66	136.35	17.38	7.8456	2.99	7.41	2.62	1.89
357.250	2.73	140.28	17.42	8.0518	2.90	7.58	2.78	1.84
357.320	2.80	143.96	17.45	8.2513	2.80	7.75	2.95	1.79
357.390	2.87	147.33	17.45	8.4435	2.69	7.93	3.14	1.74
357.460	2.94	150.38	17.43	8.6275	2.57	8.11	3.36	1.68
357.530	3.01	153.04	17.39	8.8024	2.43	8.31	3.62	1.61
357.600	3.08	155.26	17.31	8.9671	2.27	8.52	3.94	1.54
357.670	3.15	156.96	17.21	9.1204	2.10	8.74	4.34	1.46
357.740	3.22	158.07	17.07	9.2606	1.90	8.99	4.88	1.36
357.804	3.28	158.42	16.90	9.3749	1.69	9.24	5.56	1.26
357.810	3.29	158.42	16.88	9.3855	1.66	9.26	5.65	1.25
357.880	3.36	157.79	16.62	9.4920	1.37	9.59	6.92	1.11
357.950	3.43	155.62	16.25	9.5752	.98	10.00	9.77	0.92
358.020	3.50	147.27	15.31	9.6211	.00	11.00	****	****

REACH #2 2000' PIPED RATING TABLE

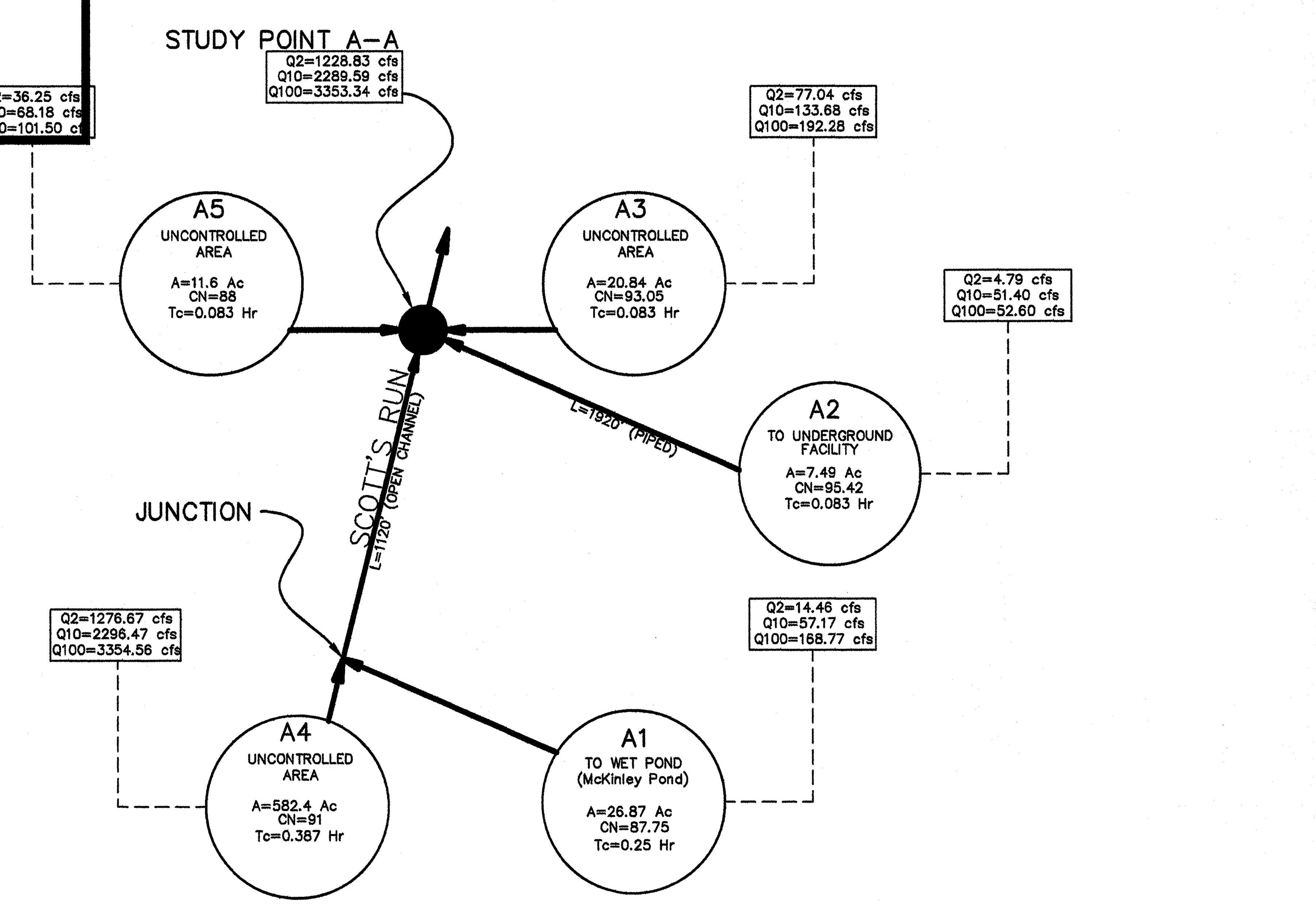
DRAINAGE SHED DETAIL: EXISTING CONDITIONS

	Drainage Area/Description	Area*	CN-Value (HSG**)	Land Use
A1 (@ Wet Pond Outfall)				
ONSITE	McKinley Bldg	11.83 Ac	92	(Commercial)
ONSITE	Wet Pond Location - Open Space	1.52 Ac	67.65	(B & D-soils: Open Space- Good Cond)
ONSITE	Part of Hayes Bldg (*Incl Mitre I Bldg*)***	1.91 Ac	92	(Commercial)
ONSITE	Mitre I Parking Lot	2.43 Ac	98	Impervious Area
OFFSITE	School	6.22 Ac	92	(Commercial)
OFFSITE	Park	2.96 Ac	61	(Open Space- Good Cond)
	TOTAL SUB-AREA=	26.87 Ac		
	$CN_{effective}$=	88		
A2 (@ Underground Detention)				
ONSITE	Mitre 2 Parking Lot	4.26 Ac	98	(D-soils: Impervious Area)
OFFSITE	Safeway (Passes through)	3.22 Ac	92	(Commercial)
	TOTAL SUB-AREA=	7.48 Ac		
	$CN_{effective}$=	95		
A3 (Rest of Drainage Area-UNCONTROLLED)				
ONSITE	Pierce Bldg	5.94 Ac	93.35	(B & D-soils: Commercial)
ONSITE	Johnson Bldg	9.6 Ac	93.14	(B & C-soils: Commercial)
ONSITE	Part of Hayes Bldg (*Incl Mitre I Bldg*)***	8.06 Ac	92.58	(B & C-soils: Commercial)
	TOTAL SUB-AREA=	23.6 Ac		
	$CN_{effective}$=	93		
A6 (Offsite Bypass Area-UNCONTROLLED)				
OFFSITE	Common's Village	8.85 Ac	92	(D-soils: Residential townhouses)
	TOTAL SUB-AREA=	8.85 Ac		
	$CN_{effective}$=	92		

*Approximate values only.

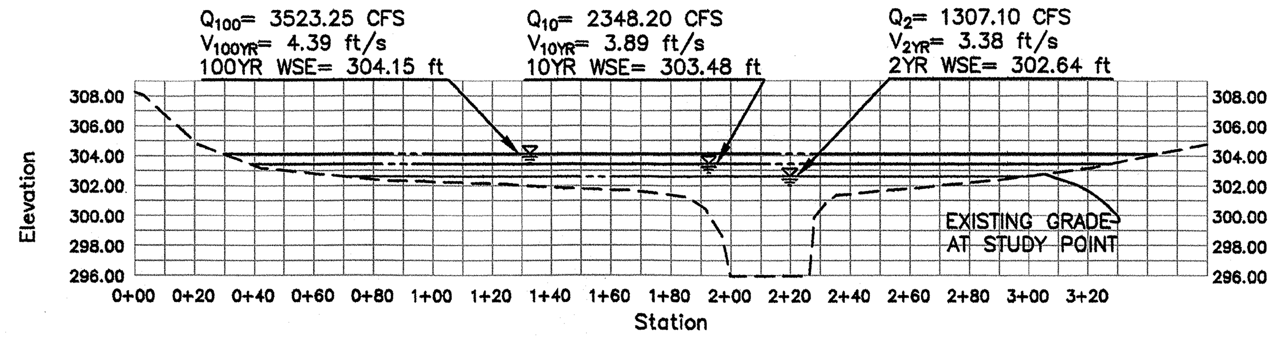
**Assumed to be 'D-soils', unless otherwise noted in combination with other soils type (See exhibit sheet 6 of 9).

***Per subsequent development of Mitre and more detailed divides delineation, approx 2.0 Acre of Mitre I Bldg drains to the existing wet pond.



TR-20 SCHEMATIC DIAGRAM: EXISTING CONDITIONS
(N.T.S.)

SECTION A-A. AT STUDY POINT



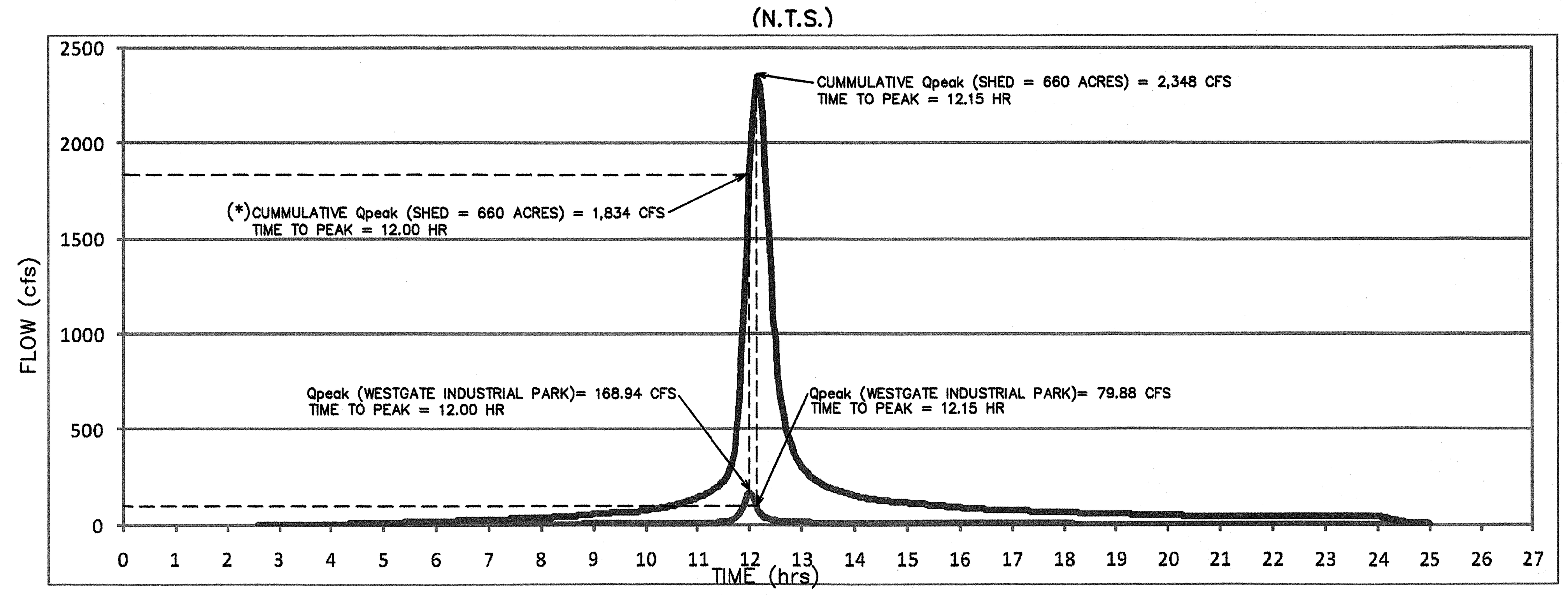
TWO DIFFERENT PEAK EVENTS WERE STUDIED:

FLOWS SHOWN ON THE ABOVE CROSS SECTION ARE FOR TOTAL COMBINED CUMALITIVE FLOW AT THE OUTFALL AT THE TIME OF PEAK (12.15 HRS)

BELOW ARE THE TOTAL COMBINED CUMALITIVE FLOWS AT THE OUTFALL AT THE TIME OF PEAK FOR THE WESTGATE INDUSTRIAL PARK PROPERTY (12.00 HRS):

2-YR EVENT: Q2 = 1,017 CFS
V2 = 5.80 FPS
(WITHIN EX BED & BANKS)

10-YR EVENT: Q10 = 1,834 CFS
WSE = 303.11 FT



10-YEAR PEAK AT STUDY POINT

NO.	DESCRIPTION	DATE	REVS'D	REW'D	APRV'D	DATE

REVISION

PROFESSIONAL SEAL
COMMONWEALTH OF VIRGINIA
ROBERT A. MUNSE
Lic. No. 15338
11/16/10
PROFESSIONAL ENGINEER

PROJECT
MITRE 5
CONCEPTUAL DEVELOPMENT PLAN /
FINAL DEVELOPMENT PLAN
SPECIAL EXCEPTION PLAT
PROVIDENCE DISTRICT, FAIRFAX COUNTY, VIRGINIA

TITLE
EXISTING HYDROLOGIC MODELING AT SCOTTS RUN STUDY POINT

Patton Harris Rust & Associates
Engineers. Surveyors. Planners. Landscape Architects.
PHR+A
14532 Lee Road
Chantilly, VA 20151-1679
T 703.449.6700
F 703.449.6714

DESIGN	MBR	SURVEY	N/A
DRAWN	MBR	DATE	JULY 15, 2010 REVISED NOV. 16, 2010
CHECKED	RAM/CN	SCALE	N/A
SHEET	C004EXH 25 OF 31	FILE NO.	10022 1-6

CO. PLAN #

MASTER DESIGN STORM SUMMARY

Return Event	Total Depth in	Rainfall Type	RNF ID	
Dev 2	3.2000	Synthetic Curve	Type# 24hr	
Dev 10	5.2000	Synthetic Curve	Type# 24hr	
Dev100	7.3000	Synthetic Curve	Type# 24hr	

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Mode=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft	
A1	AREA	2	4.468		12.0500	64.41			
A1	AREA	10	8.634		12.0500	121.14			
A1	AREA	100	13.167		12.0500	180.44			
A2	AREA	2	1.242		11.9000	21.48			
A2	AREA	10	2.168		11.9000	36.40			
A2	AREA	100	3.148		11.9000	51.86			
A3	AREA	2	4.666		12.0000	70.33			
A3	AREA	10	8.382		12.0000	122.30			
A3	AREA	100	12.339		12.0000	176.10			
A4	AREA	2	109.470		12.1000	1265.62			
A4	AREA	10	202.456		12.1000	2284.25			
A4	AREA	100	302.203		12.1000	3341.57			
A5	AREA	2	1.929		11.9000	34.88			
A5	AREA	10	3.727		11.9000	66.26			
A5	AREA	100	5.684		11.9000	99.11			
A6	AREA	2	2.320		12.0000	33.00			
A6	AREA	10	4.168		12.0000	57.57			
A6	AREA	100	6.135		12.0000	83.01			
JUNCTION #2	JCT	2	3.487		12.0000	35.74			
JUNCTION #2	JCT	10	6.261		12.0000	91.21			
JUNCTION #2	JCT	100	9.208		12.0000	137.22			
JUNCTION-1	JCT	2	114.026		12.1000	1274.43			
JUNCTION-1	JCT	10	211.176		12.1000	2340.53			
JUNCTION-1	JCT	100	315.454		12.1000	3487.27			
MCKINLEY PONDIN	POND	2	4.468		12.0500	64.41			
MCKINLEY PONDIN	POND	10	8.634		12.0500	121.14			
MCKINLEY PONDIN	POND	100	13.167		12.0500	180.44			
MCKINLEY PONDOUT	POND	2	4.556	L	12.3500	18.19	320.36		3.948
MCKINLEY PONDOUT	POND	10	8.720	L	12.2000	68.06	322.50		5.157
MCKINLEY PONDOUT	POND	100	13.251	L	12.1000	145.70	323.55		5.798
*STUDY POINT	JCT	2	124.104		12.1500	1306.89			
*STUDY POINT	JCT	10	228.544		12.1500	2349.79			
*STUDY POINT	JCT	100	342.682		12.1500	3529.54			
UNDERGROUND IN	POND	2	1.242		11.9000	21.48			
UNDERGROUND IN	POND	10	2.168		11.9000	36.40			
UNDERGROUND IN	POND	100	3.148		11.9000	51.86			
UNDERGROUND OUT	POND	2	1.167		12.2000	2.95	359.87		.609
UNDERGROUND OUT	POND	10	2.094		12.3000	4.04	362.66		1.041
UNDERGROUND OUT	POND	100	3.074		12.0000	54.21	369.19		1.149

FOR REACH #1 AND #2 RATING TABLES SEE SHEET 12 DRAWING C004EXH

LEVEL POOL ROUTING CALCULATIONS

Inflow HYG file = NONE STORED -- MCKINLEY PONDIN Dev100
Outflow HYG file = NONE STORED -- MCKINLEY PONDOUT Dev100

Time hrs	Inflow cfs	2S/t - O cfs	2S/t + O cfs	Infilt. cfs	Outflow cfs	Storage ac-ft	Elev. ft
11.8500	26.89	1678.05	1694.49	.00	8.22	3.484	319.51
11.7000	38.51	1723.59	1741.45	.00	8.93	3.580	319.70
11.8500	50.68	1790.80	1810.78	.00	9.99	3.721	319.97
11.8000	68.11	1876.05	1908.59	.00	16.77	3.911	320.31
11.8500	91.63	1983.73	2035.79	.00	26.03	4.152	320.75
11.9000	122.02	2123.75	2197.38	.00	36.81	4.464	321.31
11.9500	155.31	2301.84	2401.08	.00	49.62	4.858	322.02
12.0000	189.59	2483.45	2635.74	.00	76.14	5.288	322.72
12.0500	189.49	2609.22	2842.48	.00	116.63	5.532	323.08
12.1000	162.18	2660.43	2951.84	.00	145.76	5.798	323.55
12.1500	128.57	2660.12	2951.18	.00	145.53	5.797	323.54
12.2000	95.93	2626.95	2884.62	.00	127.84	5.698	323.38
12.2500	71.36	2587.56	2798.24	.00	104.34	5.562	323.16
12.3000	55.03	2543.98	2713.95	.00	84.98	5.432	322.95
12.3500	44.74	2489.66	2643.76	.00	77.05	5.303	322.74
12.4000	37.32	2433.90	2571.72	.00	68.91	5.171	322.52
12.4500	32.07	2380.95	2503.30	.00	61.17	5.046	322.32
12.5000	27.98	2332.71	2440.97	.00	54.13	4.931	322.14
12.5500	24.69	2288.68	2385.36	.00	48.34	4.829	321.97
12.6000	21.98	2244.80	2335.35	.00	45.27	4.732	321.79
12.6500	19.80	2202.02	2286.59	.00	42.28	4.637	321.62
12.7000	18.12	2161.10	2239.95	.00	39.42	4.547	321.46
12.7500	16.90	2122.65	2196.13	.00	36.74	4.462	321.31
12.8000	15.98	2087.03	2155.53	.00	34.25	4.383	321.16
12.8500	15.28	2054.35	2118.29	.00	31.97	4.311	321.03
12.9000	14.66	2025.12	2084.29	.00	29.89	4.245	320.92
12.9500	14.09	1999.16	2053.87	.00	27.96	4.187	320.81
13.0000	13.56	1976.07	2026.81	.00	26.17	4.135	320.72
13.0500	13.05	1955.48	2002.89	.00	23.60	4.089	320.63
13.1500	12.58	1937.08	1981.11	.00	22.02	4.048	320.56
13.1500	12.14	1920.59	1961.80	.00	20.80	4.011	320.49
13.2000	11.76	1905.83	1944.49	.00	19.33	3.978	320.43
13.2500	11.41	1892.81	1929.00	.00	18.19	3.948	320.38
13.3000	11.10	1880.77	1915.12	.00	17.18	3.921	320.33
13.3500	10.81	1870.15	1902.68	.00	16.28	3.898	320.29
13.4000	10.53	1860.60	1891.49	.00	15.44	3.878	320.25
13.4500	10.25	1851.98	1881.38	.00	14.70	3.857	320.22
13.5000	9.98	1844.16	1872.22	.00	14.03	3.839	320.18
13.5500	9.72	1837.03	1863.86	.00	13.42	3.823	320.16
13.6000	9.46	1830.51	1856.21	.00	12.85	3.809	320.13
13.6500	9.22	1824.51	1849.19	.00	12.34	3.795	320.10
13.7000	8.99	1818.99	1842.72	.00	11.86	3.783	320.08

WET POND 100YR ROUTING

MODIFIED PULS REACH ROUTING CALCULATIONS

Inflow HYG file = NONE STORED -- JUNCTION-1 Dev100
Outflow HYG file = NONE STORED -- REACH 1 Dev100

Time hrs	Inflow cfs	2S/t - O cfs	2S/t + O cfs	Infilt. cfs	Outflow cfs	Storage ac-ft
10.8000	164.58	408.75	727.44	.00	158.85	1.175
10.6500	169.79	416.31	744.11	.00	163.90	1.199
10.7000	175.35	422.91	761.44	.00	169.27	1.223
10.7500	181.32	428.81	778.57	.00	174.88	1.249
10.8000	187.72	437.15	798.85	.00	180.85	1.277
10.8500	194.53	444.98	819.41	.00	187.21	1.306
10.9000	201.68	453.18	841.19	.00	194.01	1.337
10.9500	209.13	461.33	863.99	.00	201.33	1.369
11.0000	216.80	469.65	887.26	.00	208.80	1.402
11.0500	224.82	478.24	911.27	.00	216.52	1.435
11.1000	233.28	487.20	936.34	.00	224.57	1.471
11.1500	242.66	496.34	963.15	.00	233.40	1.508
11.2000	253.11	506.09	992.11	.00	243.01	1.546
11.2500	265.12	516.92	1024.32	.00	253.70	1.592
11.3000	278.53	528.83	1060.57	.00	265.82	1.642
11.3500	293.48	541.72	1100.94	.00	279.61	1.697
11.4000	309.45	555.58	1144.66	.00	294.54	1.756
11.4500	326.55	569.94	1191.59	.00	310.83	1.820
11.5000	344.99	584.86	1241.46	.00	328.31	1.887
11.5500	370.43	602.07	1300.27	.00	349.10	1.965
11.6000	411.22	625.62	1363.71	.00	379.05	2.076
11.6500	485.11	662.66	1521.95	.00	429.84	2.257
11.7000	605.53	719.51	1753.31	.00	516.90	2.555
11.7500	788.45	797.92	2113.46	.00	657.93	3.007
11.8000	1049.82	911.50	2635.89	.00	882.20	3.665
11.8500	1403.89	1242.16	3365.21	.00	1061.52	4.760
11.9000	1853.46	1611.84	4489.51	.00	1443.84	6.313
11.9500	2374.93	2178.05	5840.23	.00	1831.09	8.283
12.0000	2899.44	2860.22	7452.42	.00	2298.10	10.654
12.0500	3309.38	3499.97	9059.04	.00	2784.54	12.994
12.1000	3407.27	3963.65	10298.82	.00	3166.49	14.732
12.1500	3397.05	4153.26	10637.87	.00	3334.54	15.487
12.2000	3063.01	4071.52	10603.41	.00	3265.14	15.160
12.2500	2623.41	3761.92	9757.93	.00	2998.01	13.967
12.3000	2177.58	3304.43	8562.91	.00	2629.14	12.280
12.3500	1793.47	2787.97	7275.68	.00	2243.86	10.386
12.4000	1484.05	2276.09	6065.46	.00	1894.70	8.617
12.4500	1246.81	1819.23	5006.95	.00	1593.86	7.052
12.5000	1062.23	1471.45	4128.57	.00	1328.41	5.785
12.5500	914.20	1265.66	3447.88	.00	1091.11	4.869
12.6000	795.51	1039.54	2975.37	.00	957.91	4.148
12.6500	698.92	882.24	2533.97	.00	825.87	3.529
12.7000	619.93	815.06	2201.09	.00	693.01	3.116
12.7500	555.83	772.29	1990.82	.00	609.28	2.854
12.8000	504.19	737.59	1832.31	.00	547.36	2.655
12.8500	462.36	707.79	1704.14	.00	498.17	2.492
12.9000	428.02	681.88	1598.16	.00	458.14	2.355
12.9500	399.45	659.34	1509.35	.00	425.07	2.240
13.0000	375.07	639.21	1433.86	.00	397.33	2.142

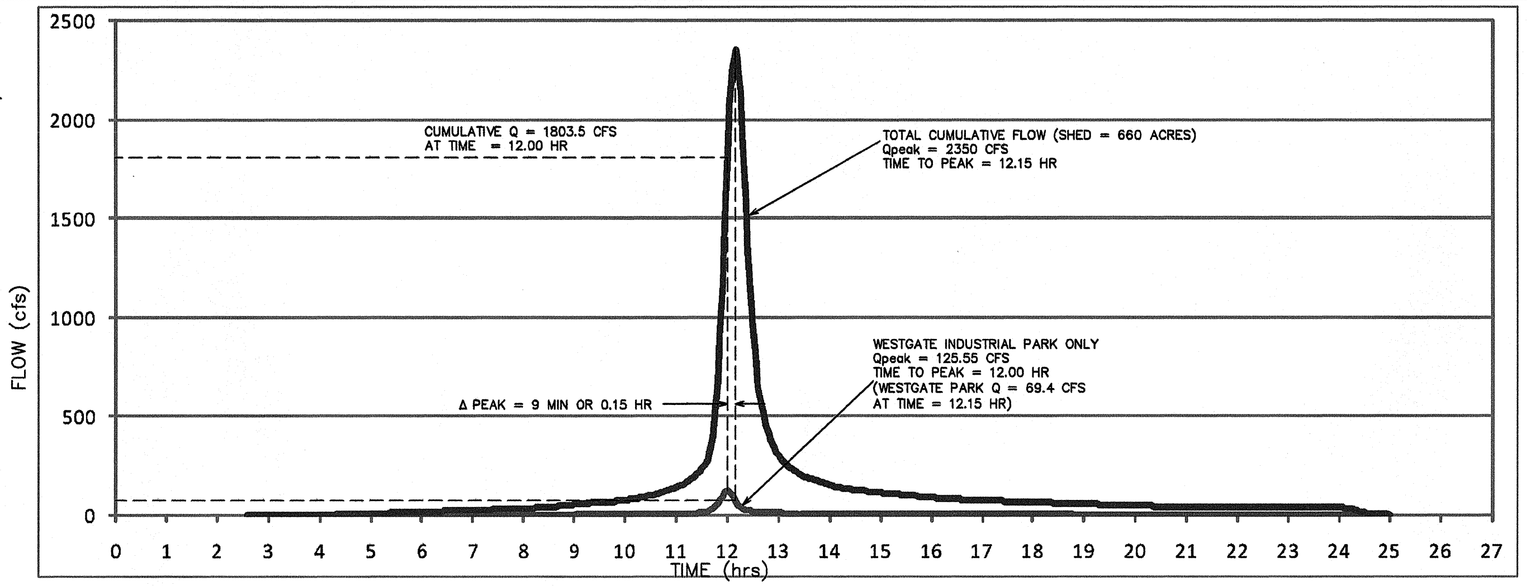
REACH-1 100YR ROUTING

LEVEL POOL ROUTING CALCULATIONS

Inflow HYG file = NONE STORED -- UNDERGROUND IN Dev100
Outflow HYG file = NONE STORED -- UNDERGROUND OUT Dev100

Time hrs	Inflow cfs	2S/t - O cfs	2S/t + O cfs	Infilt. cfs	Outflow cfs	Storage ac-ft	Elev. ft
11.0000	2.70	109.77	112.87	.00	1.55	.222	357.43
11.0500	2.82	112.13	115.29	.00	1.58	.225	357.47
11.1000	2.96	114.68	117.90	.00	1.61	.229	357.51
11.1500	3.13	117.48	120.77	.00	1.64	.234	357.56
11.2000	3.32	120.57	123.94	.00	1.68	.239	357.61
11.2500	3.52	123.97	127.41	.00	1.72	.244	357.67
11.3000	3.71	127.66	131.19	.00	1.77	.253	357.73
11.3500	3.91	131.65	135.28	.00	1.81	.264	357.80
11.4000	4.10	135.92	139.85	.00	1.87	.276	357.87
11.4500	4.30	140.48	144.32	.00	1.92	.288	357.94
11.5000	4.51	145.33	149.29	.00	1.98	.301	358.02
11.5500	6.39	152.11	156.23	.00	2.06	.319	358.14
11.8000	8.74	162.97	167.24	.00	2.13	.340	358.27
11.6500	12.88	180.09	184.60	.00	2.26	.375	358.49
11.7000	17.55	205.65	210.52	.00	2.44	.429	358.81
11.7500	23.14	241.00	246.34	.00	2.67	.503	359.25
11.8000	29.07	287.35	293.21	.00	2.93	.599	359.82
11.8500	34.64	340.73	348.73	.00	3.38	.730	360.58
11.9000	51.86	434.04	441.43	.00	3.69	.907	361.69
11.9500	48.72	524.26	534.63	.00	5.18	1.095	363.14
12.0000	41.34	505.91	614.33	.00	54.21	1.119	369.19
12.0500	27.86	518.85	575.11	.00	28.08	1.130	364.34
12.1000	12.75	522.81	559.57	.00	16.38	1.128	363.82
12.1500	8.52	523.71	544.09	.00	10.19	1.113	363.40
12.2000	7.22	523.88	539.45	.00	7.74	1.100	363.27
12.2500	6.55	524.08	537.75	.00	6.84	1.103	363.23
12.3000	6.07	524.14	536.70	.00	6.28	1.100	363.20
12.3500	5.80	524.19	535.81	.00	5.81	1.098	363.17
12.4000	5.13	524.25	534.93	.00	5.34	1.095	363.15
12.4500	4.87	524.11	534.04	.00	4.97	1.093	363.13
12.5000	4.20	523.28	532.97	.00	4.85	1.091	363.11
12.5500	3.88	522.02	531.34	.00	4.66	1.088	363.08
12.6000	3.57	520.55	529.45	.00	4.45	1.085	363.05
12.6500	3.41	519.07	527.53	.00	4.23	1.081	363.01
12.7000	3.30	517.48	525.78	.00	4.15	1.078	362.98
12.7500	3.15	515.92	523.98	.00	4.14	1.075	362.95
12.8000	3.08	513.89	521.95	.00	4.13	1.072	362.92
12.8500	2.97	511.51	519.74	.00	4.12	1.068	362.88
12.9000	2.87	509.15	517.35	.00	4.10	1.064	362.84
12.9500	2.76	506.60	514.77	.00	4.09	1.059	362.80
13.0000	2.65	503.87	512.01	.00	4.07	1.054	362.76

UNDERGROUND 100YR ROUTING



10-YEAR PEAK AT STUDY POINT

MODIFIED PULS REACH ROUTING CALCULATIONS

Inflow HYG file = NONE STORED -- JUNCTION #2 Dev100
Outflow HYG file = NONE STORED -- REACH 2 Dev100

Time hrs	Inflow cfs	2S/t - O cfs	2S/t + O cfs	Infilt. cfs	Outflow cfs	Storage ac-ft
10.9500	6.17	11.72	23.67	.00	5.97	.037
11.0000	6.36	11.93	24.34	.00	6.16	.037
11.0500	6.56	12.13	24.84	.00	6.35	.038
11.1000	6.78	12.33	25.46	.00	6.56	.039
11.1500	7.04	12.56	26.16	.00	6.80	.040
11.2000	7.36	12.82	26.96	.00	7.07	.041
11.2500	7.71	13.13	27.89	.00	7.38	.042
11.3000	8.10	13.47	28.95	.00	7.74	.044
11.3500	8.51	13.85	30.09	.00	8.12	.045
11.4000	8.93	14.21	31.29	.00	8.54	.047
11.4500	9.37	14.58	32.51	.00	8.97	.049
11.5000	9.81	14.92	33.74	.00	9.41	.050
11.5500	10.66	15.41	35.39	.00	9.99	.052
11.6000	12.63	16.29	38.60	.00	11.15	.057
11.6500	15.89	17.87	44.71	.00	13.42	.065
11.7000	21.29	20.21	55.04	.00	17.42	.078
11.7500	28.40	23.04	69.90	.00	23.43	.096
11.8000	37.31	25.93	86.76	.00	31.42	.118
11.8500	46.87	28.64	111.91	.00	41.64	.145
11.9000	63.58	31.08	140.88	.00	54.90	.178
11.9500	79.95	33.00	174.61	.00	70.81	.214
12.0000	137.22	35.47	250.17	.00	107.35	.295
12.0500	109.80	36.53	292.50	.00	122.99	.330
12.1000	86.12	35.04	234.45	.00	99.71	.278
12.1500	63.65	33.51	186.80	.00	76.64	.228
12.2000	46.37	31.26	143.53	.00	58.14	.181
12.2500	35.28	28.73	112.89	.00	42.08	.146
12.3000	28.30	26.40	92.29	.00	32.95	.123
12.3500	23.75	24.44	78.45	.00	27.01	.106
12.4000	20.47	22.63	68.66	.00	22.91	.095
12.4500	18.43	21.48	61.33	.00	19.92	.086
12.5000	16.33	20.38	55.84	.00	17.73	.079
12.5500	14.84	19.20	51.55	.00	16.04	.073
12.6000	13.55	18.62	47.86	.00	14.62	.069
12.6500	12.50	17.88	44.67	.00	13.41	.065
12.7000	11.79	17.23	42.15	.00	12.46	.061

REACH-2 100YR ROUTING

Type... Node: Addition Summary Page 9.70
Name... STUDY POINT Event: 100 yr
File... P:\PROJECT\10022\1-6\Eng\Comp\TR-20_STUDY_POINT\APRIL
RIVERSONS\Micro2000\Sb-RUN-PROJ.PRW
Storm... Type# 24hr Tag: Dev100

SUMMARY FOR HYDROGRAPH ADDITION
at Node: STUDY POINT

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
REACH 2	JUNCTION #2		REACH 2	Dev100
ADDLINK 3	A3		A3	Dev100
REACH 1	JUNCTION-1		REACH 1	Dev100
ADDLINK 5	A5		A5	Dev100

INFLOWS TO: STUDY POINT

Peak Flow HYG file	HYG ID	HYG tag	ac-ft	Volume hrs	Peak Time cfs
	REACH 2	Dev100	9.208	12.0500	122.99
	A3	Dev100	12.339	12.0000	176.10
	REACH 1	Dev100	315.450	12.1500	3342.34
	A5	Dev100	5.684	11.9000	99.11

TOTAL FLOW INTO: STUDY POINT

Peak Flow HYG file	HYG ID	HYG tag	ac-ft	Volume hrs	Peak Time cfs
	STUDY POINT	Dev100	342.682	12.1500	3529.54

TOTAL NODE INFLOW...
HYG file =
HYG ID = STUDY POINT
HYG Tag = Dev100

Peak Discharge = 3529.54 cfs
Time to Peak = 12.1500 hrs
HYG Volume = 342.682 ac-ft

HYDROGRAPH ORDINATES (cfs)
Output Time Increment = .0500 hrs
Time on left represents time for first value in each row.

Time hrs					
9.1500	98.63	100.51	102.24	103.80	105.16
9.4000	106.35	107.37	108.26	109.07	109.87
9.6500	110.73	111.75	113.00	114.56	116.45
9.9000	118.75	121.30	124.13	127.20	130.45
10.1500	133.90	137.54	141.39	145.46	149.98
10.4000	154.58	159.33	164.22	169.26	174.47
10.6500	180.03	185.94	192.14	198.72	205.70
10.9000	213.15	221.12	229.26	237.75	246.67
11.1500	256.55	267.37	279.38	292.95	308.22
11.4000	324.72	342.57	361.73	388.24	428.01
11.6500	496.01	608.18	781.39	1024.51	1279.30
11.9000	1731.83	2106.49	2660.15	3126.82	3423.08
12.1500	3529.54	3400.77	3100.57	2711.57	2313.15
12.4000	1954.67	1646.76	1375.52	1133.70	1006.69
12.6500	861.76	726.73	641.37	578.17	527.91
12.9000	486.87	452.80	424.22	399.40	377.58
13.1500	358.40	341.81	327.36	315.10	304.31
13.4000	294.51	285.50	277.26	269.43	261.91
13.6500	254.73	247.88	241.46	235.37	229.49
13.9000	223.86	218.46	213.33	208.48	203.92
14.1500	199.50	195.30	191.42	187.90	184.74
14.4000	181.91	179.37	177.06	174.97	173.01
14.6500	171.11	169.26	167.46	165.69	163.95
14.9000	162.22	160.51	158.81	157.12	155.44
15.1500	153.76	152.08	150.41	148.74	147.07
15.4000	145.39	143.77	142.15	140.50	138.83
15.6500	137.17	135.50	133.83	132.15	130.48
15.9000	128.81	127.14	125.46	123.80	122.17

CUMULATIVE 100YR HYDROGRAPH AT STUDY POINT

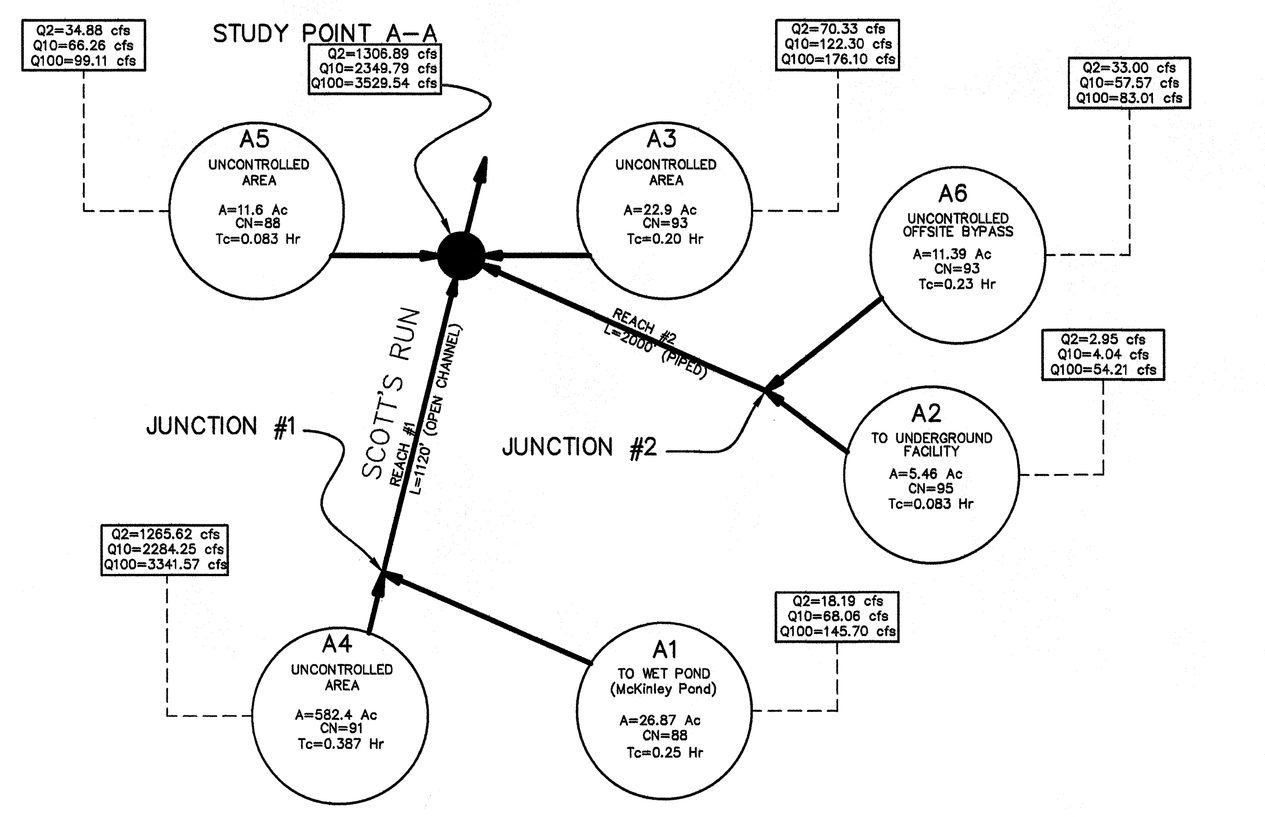
DRAINAGE SHED DETAIL: POST-DEVELOPED CONDITIONS

	Drainage Area/Description	Area*	CN-Value (HSG**)	Land Use
A1 (@ Wet Pond Outfall)				
ONSITE	McKinley Bldg	11.83 Ac	92	(Commercial)
	Wet Pond Location - Open Space	1.52 Ac	67.65	(B & D-soils: Open Space- Good Cond)
	Part of Hayes Bldg *(Incl Mitre I Bldg)****	1.91 Ac	92	(Commercial)
	Mitre I Parking Lot	2.43 Ac	98	Impervious Area
OFFSITE	School	6.22 Ac	92	(Commercial)
	Park	2.96 Ac	61	(Open Space- Good Cond)
	TOTAL SUB-AREA=	26.87 Ac		
	$CN_{effective}$=	88		
A2 (@ Underground Detention)				
ONSITE	Proposed Mitre 4 Bldg & Garage	.7 Ac	95	(Commercial)
	Proposed Mitre 3 Parking Deck East half	1.5 Ac	95	(Commercial)
	South Parking Lot	3.44 Ac	95	(Commercial)
	TOTAL SUB-AREA=	5.64 Ac		
	$CN_{effective}$=	95		
A3 (Rest of Drainage Area-UNCONTROLLED)				
ONSITE	Pierce Bldg	5.94 Ac	93.35	(B & D-soils: Commercial)
	Johnson Bldg	9.6 Ac	93.14	(B & C-soils: Commercial)
	Part of Hayes Bldg *(Incl Mitre I Bldg)****	7.36 Ac	92.58	(B & C-soils: Commercial)
	TOTAL SUB-AREA=	22.9 Ac		
	$CN_{effective}$=	93		
A6 (Offsite Bypass Area-UNCONTROLLED)				
OFFSITE	Safeway	2.54 Ac	95	(D-soils: Commercial)
	Common's Village	8.85 Ac	92	(D-soils: Residential townhouses)
	TOTAL SUB-AREA=	11.39 Ac		
	$CN_{effective}$=	93		

*Approximate values only.

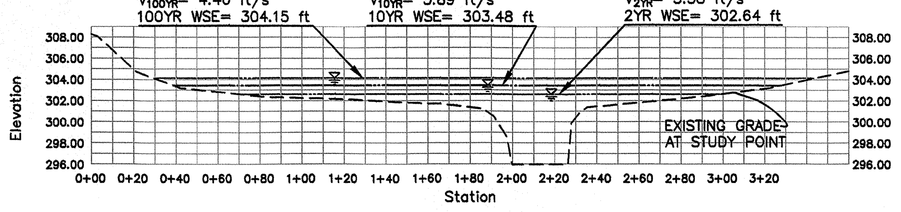
**Assumed to be 'D-soils', unless otherwise noted in combination with other soils type (See exhibit sheet 6 of 9).

***Per subsequent development of Mitre and more detailed divides delineation, approx 2.0 Acre of Mitre I Bldg drains to the existing wet pond.



POND-PACK SCHEMATIC DIAGRAM: PROPOSED CONDITIONS (N.T.S.)

SECTION A-A, AT STUDY POINT



TWO DIFFERENT PEAK EVENTS WERE STUDIED:

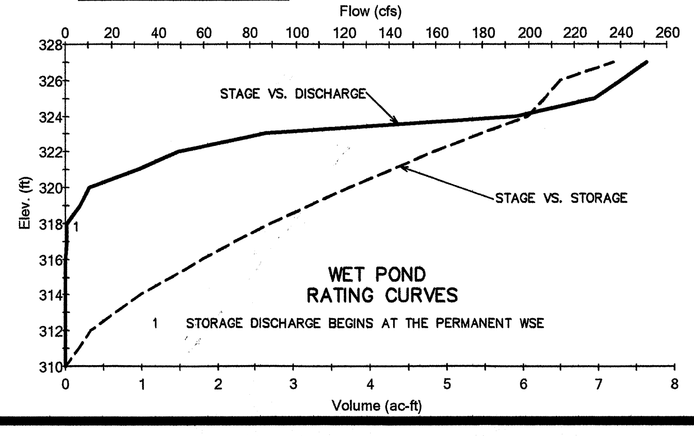
FLOWS SHOWN ON THE ABOVE CROSS SECTION ARE FOR TOTAL COMBINED CUMALITIVE FLOW AT THE OUTFALL AT THE TIME OF PEAK (12.15 HRS)

BELOW ARE THE TOTAL COMBINED CUMALITIVE FLOWS AT THE OUTFALL AT THE TIME OF PEAK FOR THE WESTGATE INDUSTRIAL PARK PROPERTY (12.00 HRS):

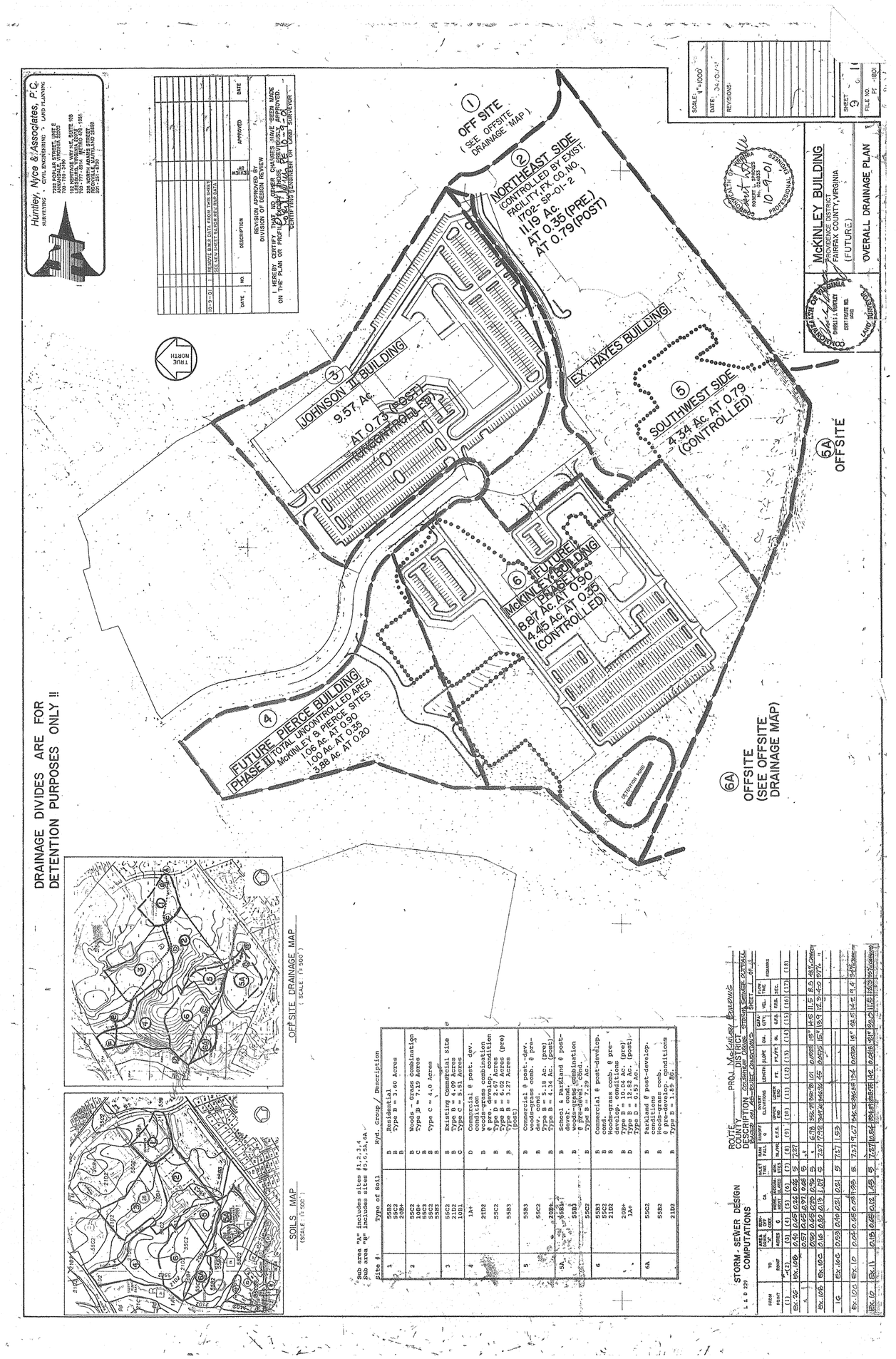
2-YR EVENT: Q2 = 1,021 CFS
V2 = 5.79 FPS
(WITHIN EX BED & BANKS)

10-YR EVENT: Q10 = 1,803 CFS
WSE = 303.09 FT

Wet Pond Rating Table		
Elev (ft.)	Discharge (cfs)	Storage (Ac-ft)
310.00	0.00	0.000
311.00	0.00	0.166
312.00	0.00	0.330
313.00	0.00	0.663
314.00	0.00	0.993
315.00	0.00	1.387
316.00	0.00	1.781
317.00	0.26	2.235
318.00	0.43	2.697
319.00	6.22	3.217
320.00	10.11	3.737
321.00	31.38	4.292
322.00	48.92	4.847
323.00	86.85	5.462
324.00	194.64	6.077
325.00	228.55	6.286
326.00	240.09	6.495
327.00	251.10	7.200



UG Rating Table		
Elev (ft.)	Discharge (cfs)	Storage (Ac-ft)
355.13	0.00	0.000
355.90	0.00	0.074
356.13	0.11	0.096
357.13	1.34	0.193
358.13	2.05	0.318
359.13	2.



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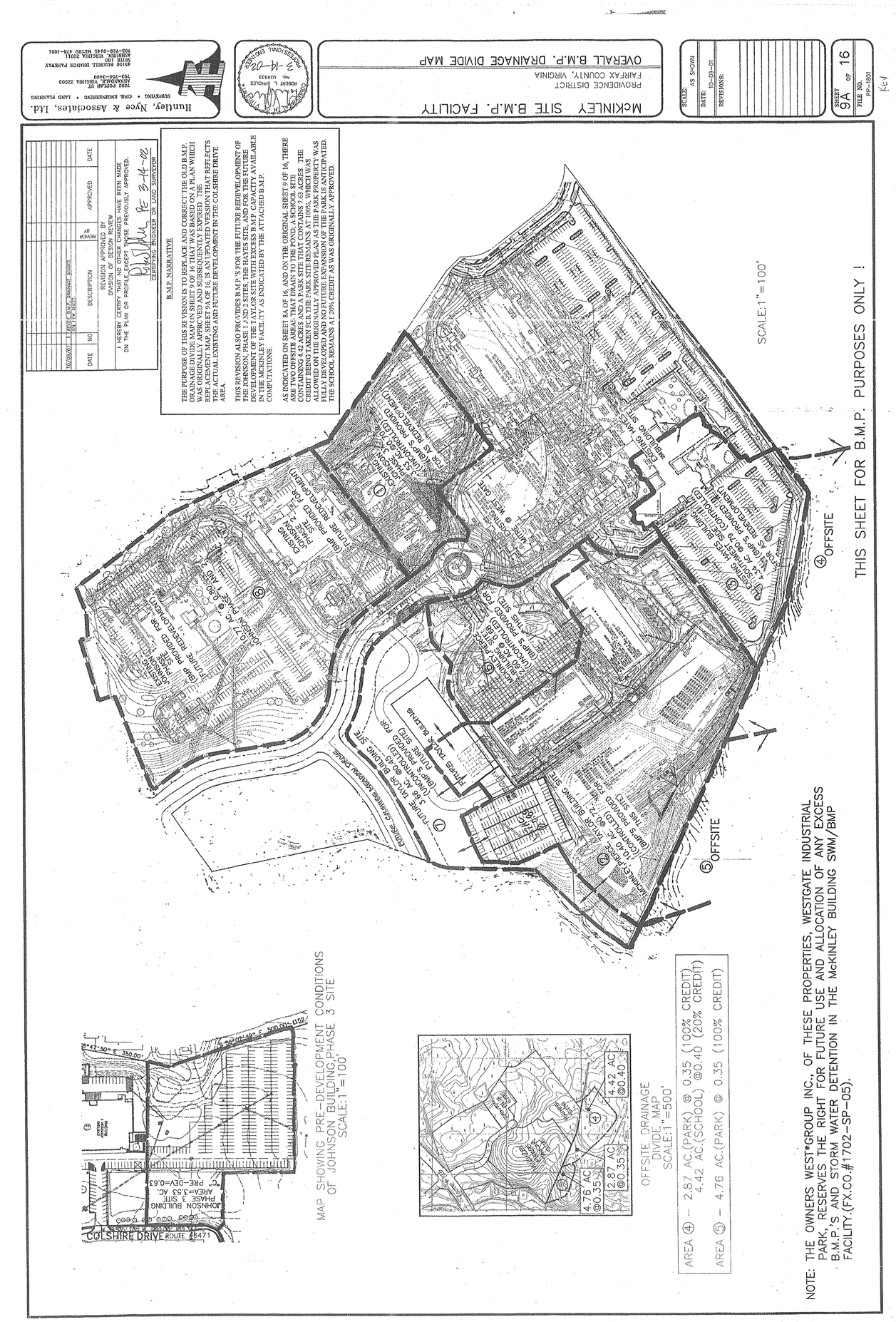

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PROFESSIONAL SEAL
COMMONWEALTH OF VIRGINIA
ROBERT A. MUNSE
Lic. No. 15338
11/16/10
PROFESSIONAL ENGINEER

PROJECT

MITRE 5

CONCEPTUAL DEVELOPMENT PLAN / FINAL DEVELOPMENT PLAN
SPECIAL EXCEPTION PLAT

PROVIDENCE DISTRICT, FAIRFAX COUNTY, VIRGINIA

TITLE

SITE RUNOFF ANALYSIS PREVIOUSLY APPROVED PLAN

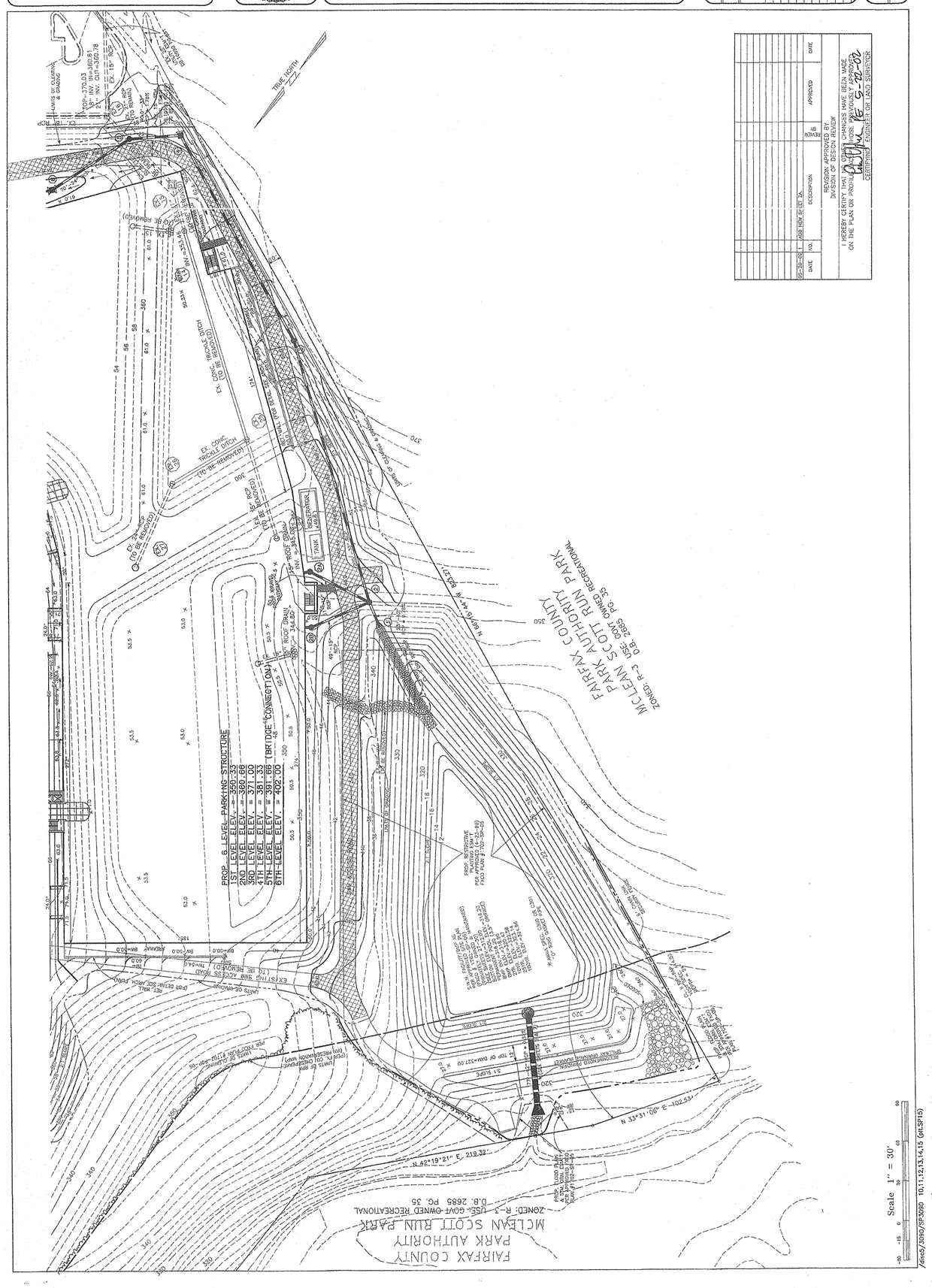
Patton Harris Rust & Associates
Engineers. Surveyors. Planners. Landscape Architects.

PHR+A

14532 Lee Road
Chantilly, VA 20151-1679
T 703.449.6700
F 703.449.6714

CO. PLAN #

DESIGN HUNTLEY, NYCE & ASSOC.	SURVEY HUNTLEY, NYCE & ASSOC.
DRAWN	DATE JULY 15, 2010 REVISED NOV. 16, 2010
CHECKED RAM	SCALE N/A
SHEET C001FYI 27 OF 31	FILE NO. 10022 1-6



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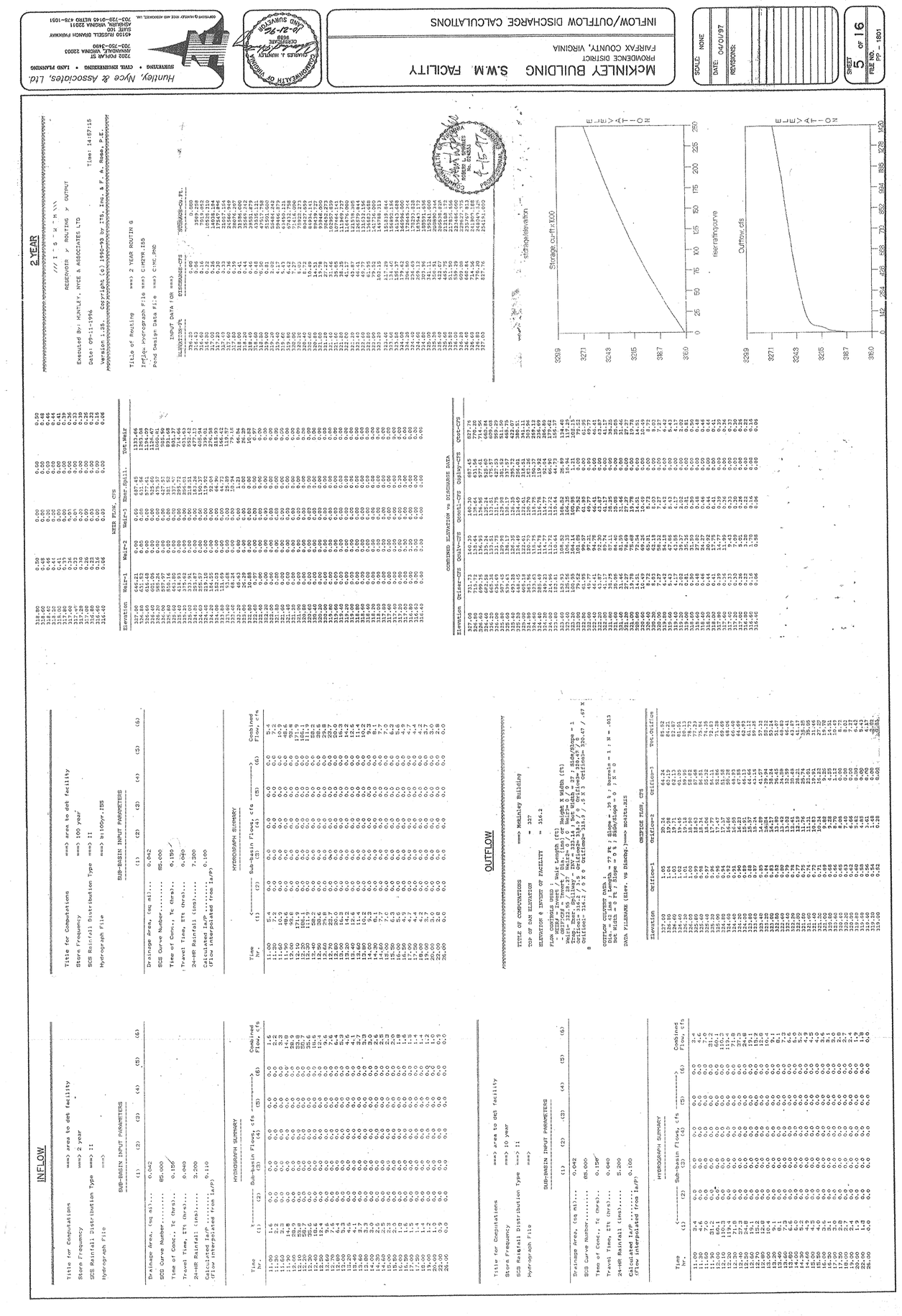

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T 703.449.6700
F 703.449.6714

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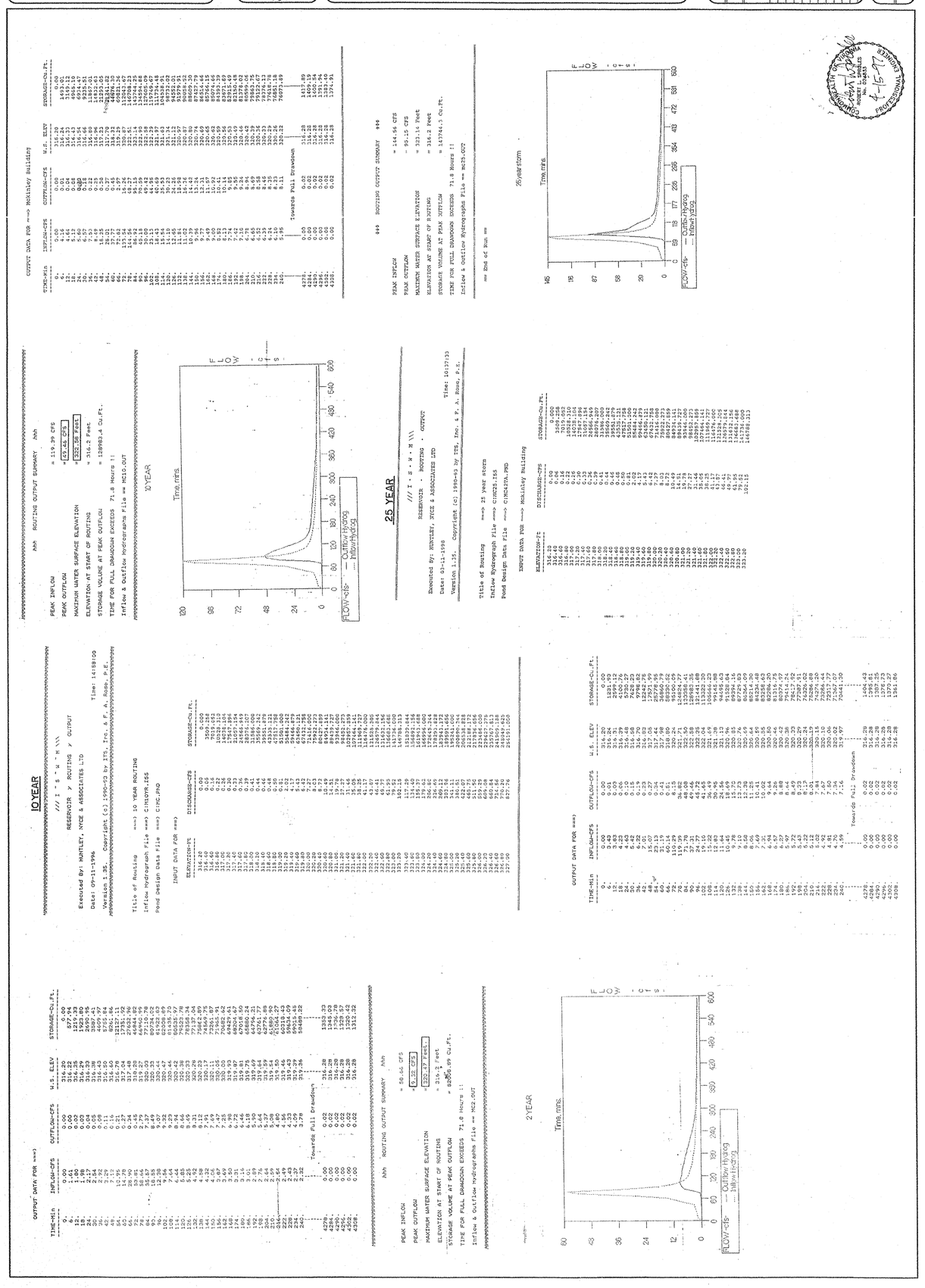
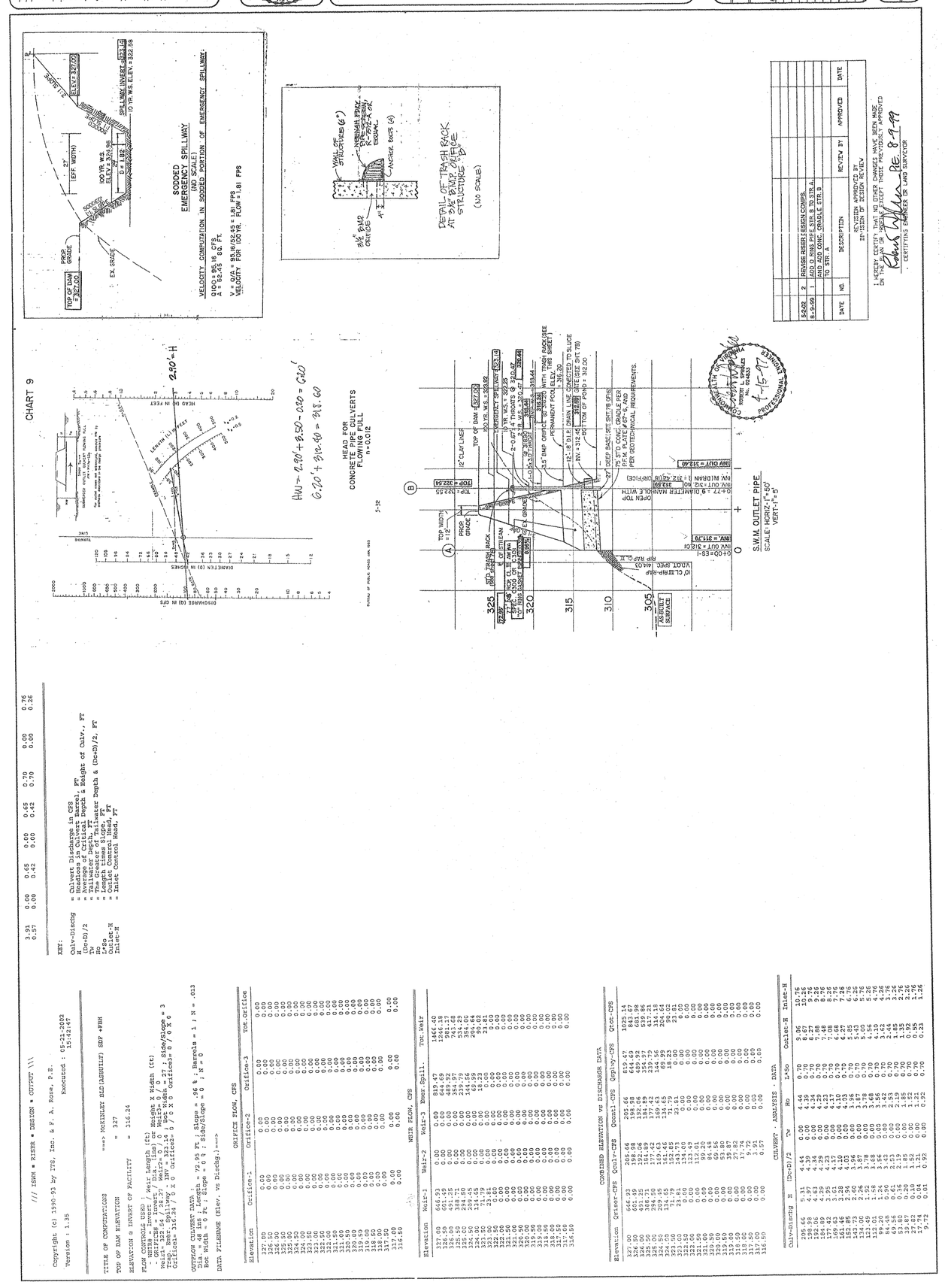
SHEET C002FYI 28 OF 31	FILE NO. 10022 1–6





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Lic. No. 15336
11/16/10
PROFESSIONAL ENGINEER

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PHR+A

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Chantilly, VA 20151-1679
T 703.449.6700
F 703.449.6714

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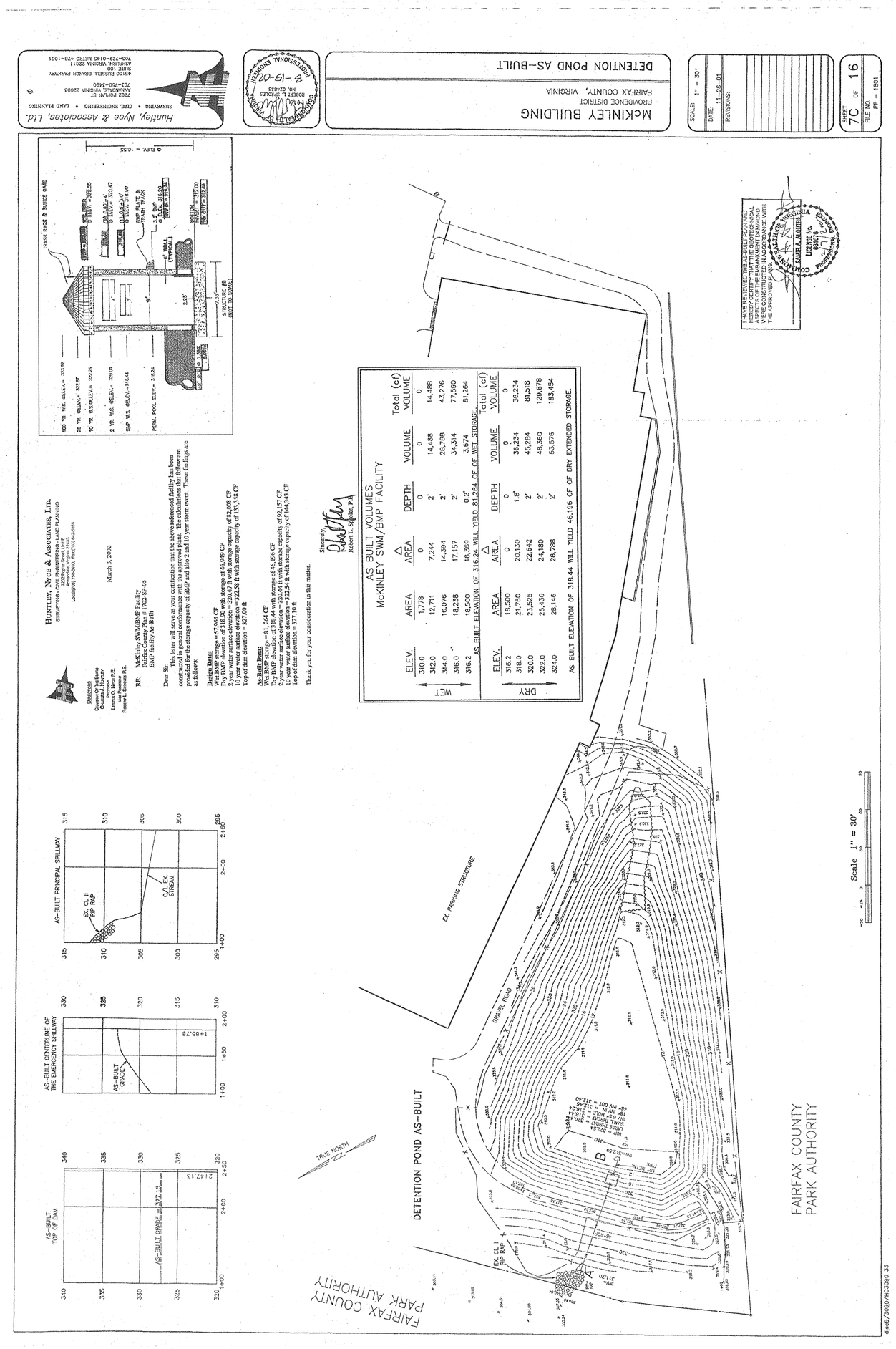
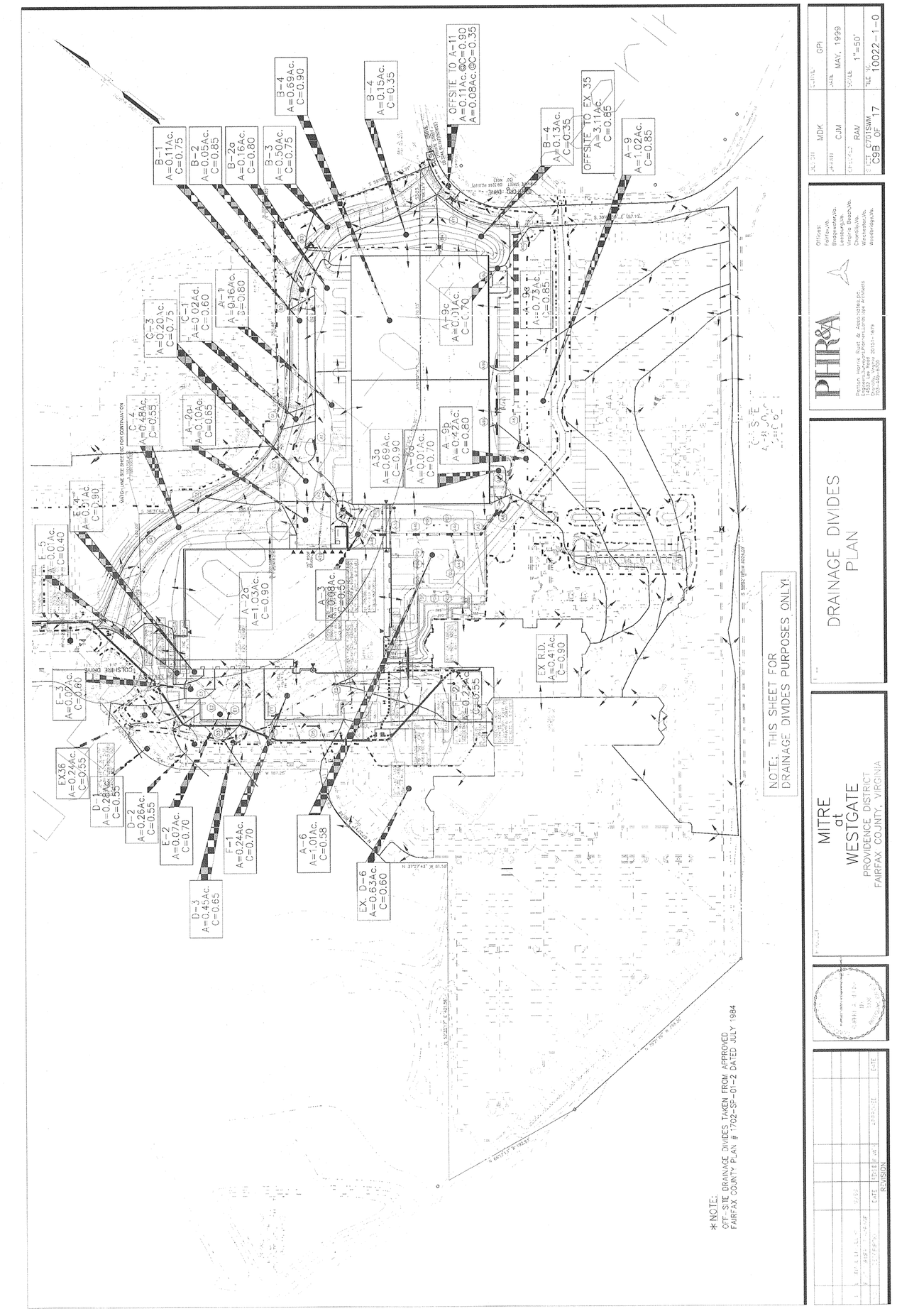
SHEET C003FYI 29 OF 31	FILE NO. 10022 1-6



EXISTING POND FACILITY
FYI SHEET



EXISTING DRAINAGE DIVIDES
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Chantilly, VA 20151-1679
T 703.449.6700
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SHEET C004FYI 30 OF 31	FILE NO. 10022 1-6

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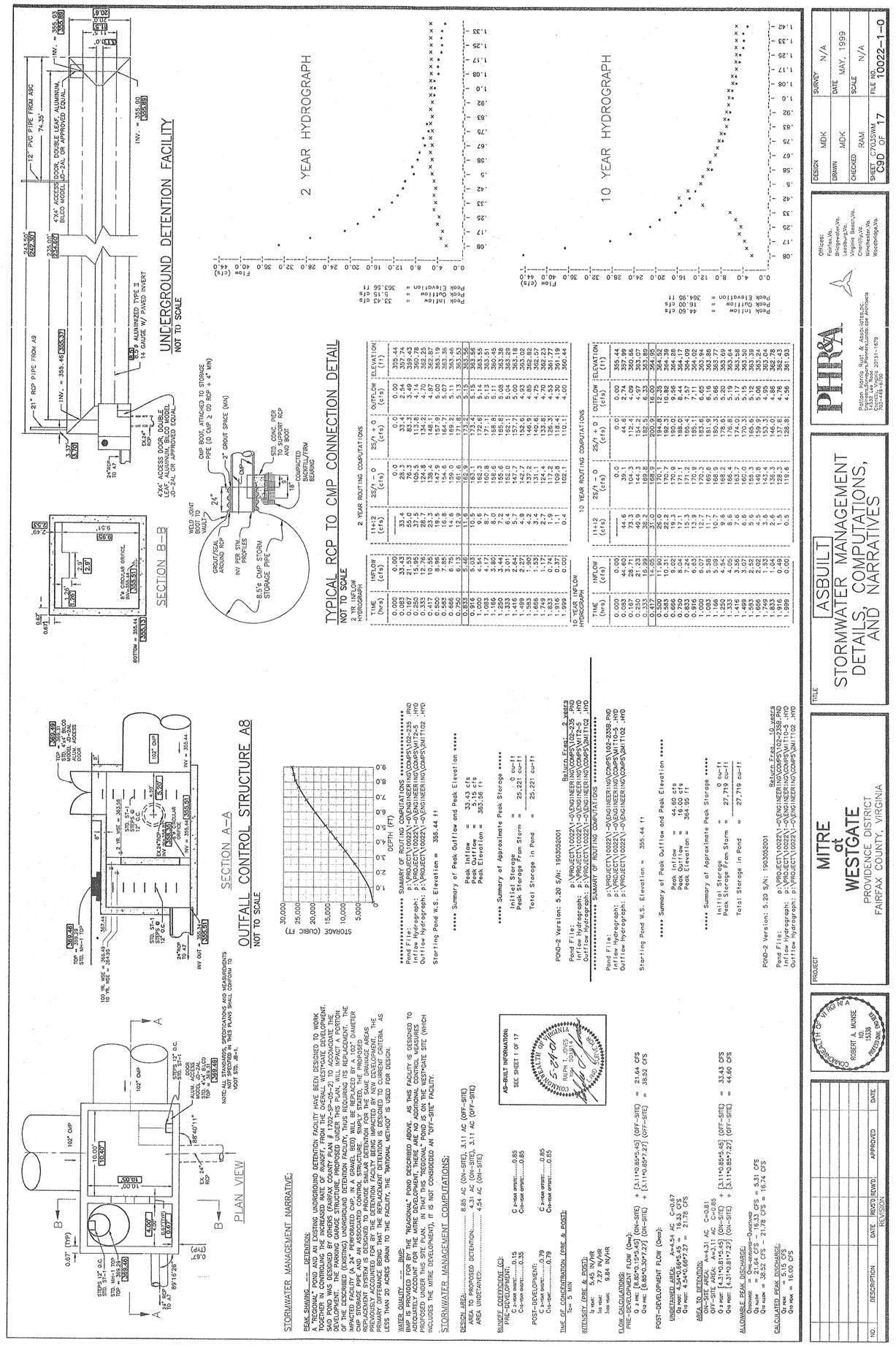

AS-BUILT STORM WATER MANAGEMENT DETAILS, COMPUTATIONS, AND NARRATIVES SHEET FOR INFORMATION ONLY. PHR+A SEALING FOR AUTHENTICITY ONLY.

SWM CHECKLIST

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)

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

☑ 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 4,14,15,16

☑ 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)
McKinley Pond (e.g. dry pond A, infil. trench, underground vault, etc.) (Wet Pond–Private)	17.69	9.18	26.87	32,658	313,642	14.60
Mitre Underground Pond (Private)	4.27	3.22	7.49	4,924	27,365	N/A
Totals	21.96	12.40	34.36	37,582	341,007	14.60

☑ 4. Onsite drainage channels, outfalls and pipe systems are shown on Sheet 15.
Pond inlet and outlet pipe systems are shown on Sheet 22,23,24

☑ 5. Maintenance access (road) to stormwater management facility(ies) are shown on Sheet 15.
Type of maintenance access road surface noted on the plat is N/A (asphalt, geoblock, gravel, etc.).

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

☑ 7. A 'stormwater management narrative' which contains a description of how detention and best management practices requirements will be met is provided on Sheet 15.

☑ 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 15.

☑ 9. A description of how the outfall requirements, including known changes to contributing drainage areas (i.e. drainage diversions), of the Public Facilities Manual will be satisfied is provided on Sheet 15,16,17,18,19,20.

☑ 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 15,17,18.

☑ 11. A submission waiver is requested for N/A.

☑ 12. Stormwater management is not required because N/A.

Revised 2-21-2006

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MITRE 5
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PROVIDENCE DISTRICT, FAIRFAX COUNTY, VIRGINIA

TITLE
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T 703.449.6700
F 703.449.6714

CO. PLAN #

DESIGN OBY	SURVEY PHR&A
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CHECKED RAM	SCALE N/A
SHEET C0010FYI 31 OF 31	FILE NO. 10022 1–6