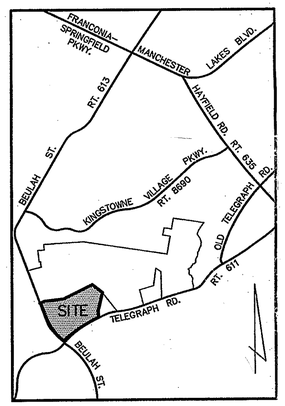
HILLTOP VILLAGE CENTER

Lee & Mount Vernon Districts Fairfax County, Virginia

CONCEPTUAL DEVELOPMENT PLAN / FINAL DEVELOPMENT PLAN

RZ 2008-MD-003



VICINITY MAP
SCALE : 1"= 2,000'

Applicant:

Hilltop Sand and Gravel Company, Inc.
7950 Telegraph Road
Alexandria, VA 22315

Sheet Index

1. COVER SHEET
2. CONCEPTUAL DEVELOPMENT PLAN / FINAL DEVELOPMENT PLAN
2A CDP/FDP ENLARGEMENT
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10. STORMWATER MANAGEMENT

RZ 2008-MD-003
Hilltop Village Center
Conceptual Development Plan /
Final Development Plan

Dewberry

Dewberry & Davis LLC
A Dewberry Company

8401 ARLINGTON BLVD.
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Application No FDP 2008-MD-003 Staff C.LEWIS
APPROVED DEVELOPMENT PLAN
(DP) (GDP (CDP) (FDP)
SEE PROFFERS DATED 3-6-2009
Date of (BOS) (PC) Approval 2-12-2009
Sheet 1 OF 11
Concurrent with RZ 2008-MD-003, Approved by BOS 3-9-2009

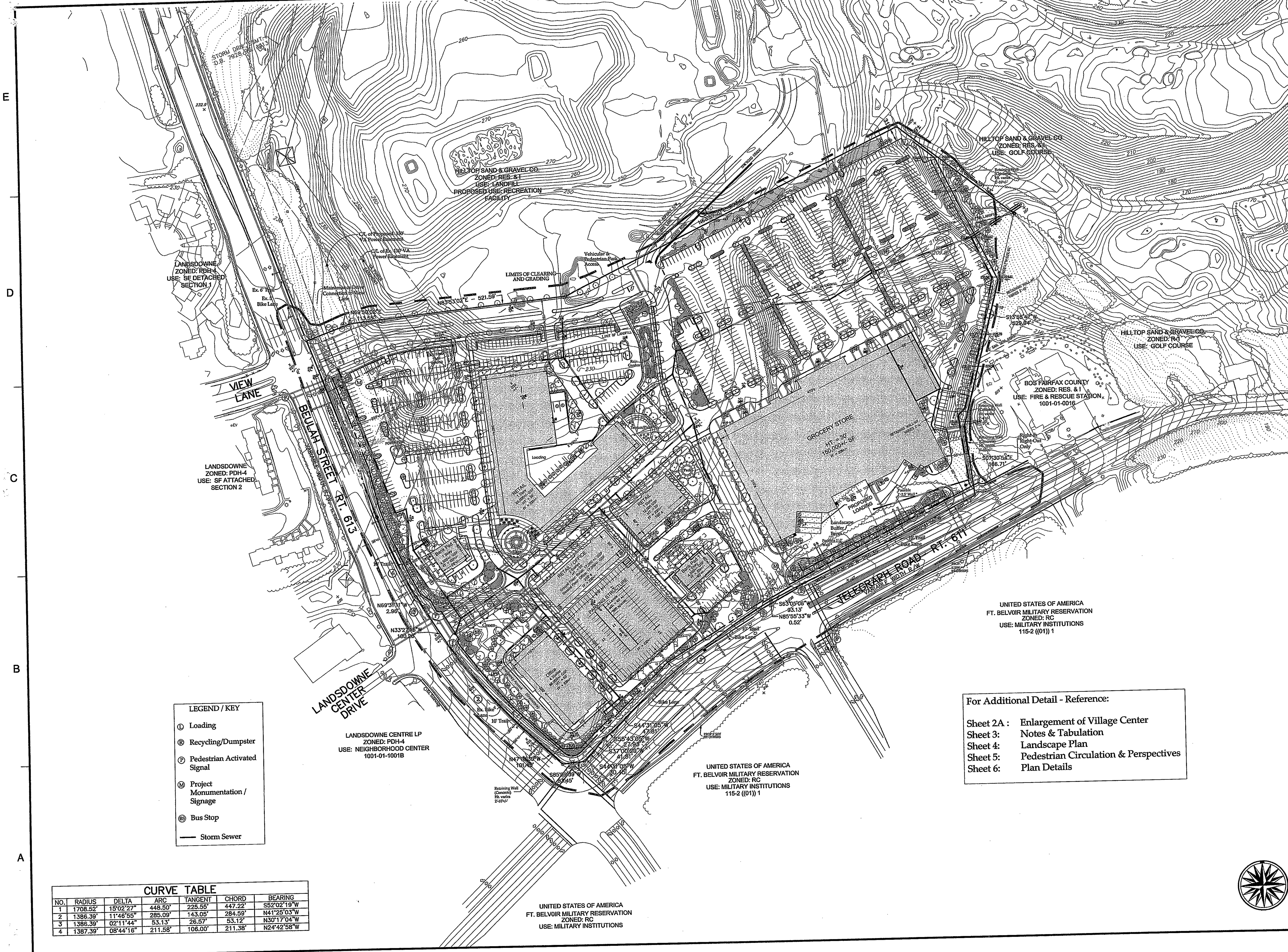
SEAL

COMMONWEALTH OF VIRGINIA
TIMOTHY CHARLES CULLEITON
Lic. No. 20112
1-16-09
PROFESSIONAL ENGINEER

RECEIVED
Department of Planning & Zoning
JAN 21 2009
Zoning Evaluation Division

Revision 01.16.09
Revision 12.02.08
Revision 10.17.08
February 12, 2008

M-10695



LEGEND / KEY

- (L) Loading
- (R) Recycling/Dumpster
- (P) Pedestrian Activated Signal
- (M) Project Monumentation / Signage
- (BS) Bus Stop
- —— Storm Sewer

CURVE TABLE

NO.	RADIUS	DELTA	ARC	TANGENT	CHORD	BEARING
1	1708.52'	15°02'27"	448.50'	225.55'	447.22'	S52°02'19"W
2	1386.39'	11°46'55"	285.09'	143.05'	284.59'	N41°25'03"W
3	1386.39'	02°11'44"	53.13'	26.57'	53.12'	N30°17'04"W
4	1387.39'	08°44'16"	211.58'	106.00'	211.38'	N24°42'58"W

For Additional Detail - Reference:

Sheet 2A :	Enlargement of Village Center
Sheet 3:	Notes & Tabulation
Sheet 4:	Landscape Plan
Sheet 5:	Pedestrian Circulation & Perspectives
Sheet 6:	Plan Details

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HILLTOP VILLAGE CENTER

CONCEPTUAL DEVELOPMENT PLAN / FINAL DEVELOPMENT PLAN
LEE AND MOUNT VERNON DISTRICTS
FAIRFAX COUNTY, VIRGINIA

SEAL
COMMONWEALTH OF VIRGINIA
TIMOTHY CHARLES CULLEITON
Lic. No. 20112
1-16-09
PROFESSIONAL ENGINEER

KEY PLAN

SCALE
0' 100' 200'

No.	DATE	BY	Description
3	01.16.09	DMC	Layout Adjustments
2	12.02.08	DMC	REV LAYOUT/Add. Detail
1	12.04.08	DMC	REV. LAYOUT

REVISIONS

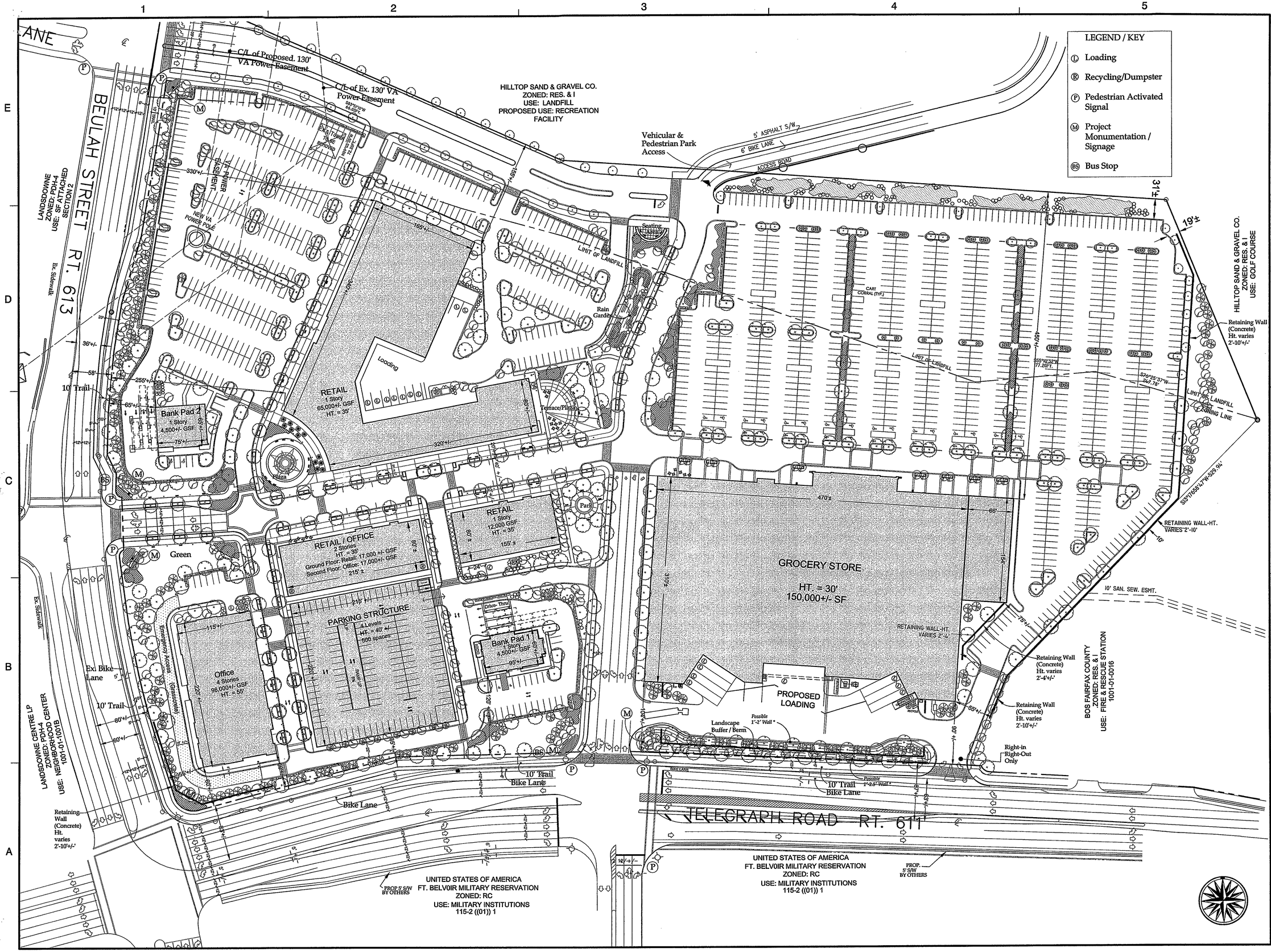
DRAWN BY ARW
APPROVED BY
CHECKED BY LM
DATE February 12, 2008

TITLE
Hilltop Village Center
CDP / FDP

PROJECT NO.

SHEET NO. 2 OF 11

M-10695



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HILLTOP VILLAGE CENTER

CONCEPTUAL DEVELOPMENT PLAN / FINAL DEVELOPMENT PLAN

LEE AND MOUNT VERNON DISTRICTS

FAIRFAX COUNTY, VIRGINIA

SEAL

COMMONWEALTH OF VIRGINIA
TIMOTHY CHARLES CULLEITON
Lic. No. 20112
1-16-09
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KEY PLAN

SCALE

0' 60' 120'

No.	DATE	BY	Description
3	01/16/09	DMC	NEW SHEET
2	12/02/08	DMC	NEW SHEET

REVISIONS

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APPROVED BY

CHECKED BY LM

DATE February 12, 2008

TITLE

Hilltop Village Center
CDP / FDP
60 Scale

PROJECT NO.

2A

SHEET NO. OF 11

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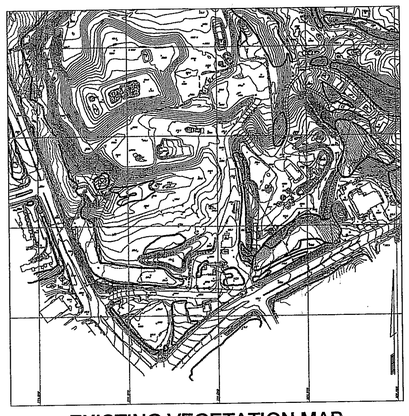
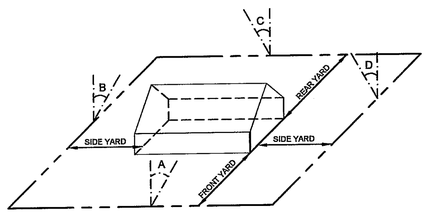


EXISTING VEGETATION MAP

Scale: 1" = 400'

EXISTING VEGETATION INVENTORY

COVER TYPE	PRIMARY SPECIES	SUCCESSIONAL STAGES	CONDITION	ACREAGE	COMMENTS
DEVELOPED LAND	N/A	N/A	N/A	33.0 AC	EXISTING GOLF COURSE / LANDFILL USE
			TOTAL ACREAGE:	33.0 AC	



FRONT YARD : ∠:1 A 45° WITH A BUILDING HEIGHT OF 60', THE FRONT YARD = 60' BUT NOT LESS THAN 40'

SIDE YARD : ∠:1 B NO REQUIREMENT

REAR YARD : ∠:1 C 20'

ANGLE OF BULK PLANE

MINIMUM REQUIRED YARD FOR BUILDING WITH 60' HEIGHT

NOTE:
THERE IS NO ANGLE OF BULK PLANE REQUIREMENT FOR THE PDC DISTRICT. THIS GRAPHIC DEPICTION IS OF THE C-6 DISTRICT CONSIDERATION OF THE PROPOSED RETAIL / COMMERCIAL COMMUNITY AT THE PERIPHERAL BOUNDARY LINES AND THE DESIGN STANDARD SET FORTH IN PAR. 1 OF SECTION 16-102 OF THE ZONING ORDINANCE.

NOTES:

1. THE PROPERTY THAT IS THE SUBJECT OF THE CONCEPTUAL/FINAL DEVELOPMENT PLAN (CDP/FDP) IS IDENTIFIED ON THE FAIRFAX COUNTY TAX MAPS AS 100-1 ((1)) PART 9,11A, 11A1, 14 AND 15.
2. THE APPLICANT PROPOSES TO REZONE THE 33 ACRES FROM THE R-1 AND I-3 DISTRICTS TO THE PDC DISTRICT TO PERMIT THE ESTABLISHMENT OF A MIXED USE DEVELOPMENT WHICH WILL INCLUDE OFFICE AND RETAIL SALES ESTABLISHMENTS, INCLUDING RETAIL SALES ESTABLISHMENT-LARGE.
3. THE CDP/FDP IS COMPRISED OF 113,000 SQUARE FEET OF GROSS FLOOR AREA (GFA) OF OFFICE SPACE AND 253,000 SQUARE FEET OF GFA OF RETAIL SALES ESTABLISHMENTS.
4. THE TOPOGRAPHIC INFORMATION HEREON IS FROM AERIAL SURVEY, AT TWO FOOT CONTOUR ELEVATIONS, FROM VIRGINIA RESOURCE MAPPING FLOWN IN DECEMBER 2007.
5. THE BOUNDARY INFORMATION IS FIELD RUN BY DEWBERRY & DAVIS LLC.
6. A STATEMENT THAT CONFIRMS THE OWNERSHIP OF THE PROPERTY AND THE NATURE OF THE APPLICANT'S INTEREST IN SAME IS PROVIDED IN A SEPARATE ASSOCIATED DOCUMENT.
7. PUBLIC UTILITIES ARE AVAILABLE TO THE SITE AND WILL BE EXTENDED AS REQUIRED BY THE PROJECT.
8. TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO GRAVES ON THE SUBJECT PROPERTY.
9. THERE IS NO FLOODPLAIN, RESOURCE PROTECTION AREA (RPA) OR ENVIRONMENTAL QUALITY CORRIDOR (EQC) ON THE SUBJECT PROPERTY.
10. THERE ARE EXISTING STRUCTURES ON THE SUBJECT PROPERTY AS SHOWN HEREON. NONE OF THESE STRUCTURES ARE REGISTERED AS HAVING HISTORIC OR ARCHITECTURAL SIGNIFICANCE. THESE STRUCTURES WILL BE REMOVED AS PART OF THE DEVELOPMENT PROCESS. THERE IS AN EXISTING BALLFIELD WHICH WILL BE RELOCATED TO THE PROPOSED RECREATION COMPLEX.
11. THERE IS A UTILITY GREATER THAN TWENTY-FIVE (25) FEET ON THE SUBJECT PROPERTY IN THE FORM OF A 130 FOOT VEPCO EASEMENT WHICH HOUSES OVERHEAD TRANSMISSION LINES. THE EXISTING TOWER IN THE NORTHWEST CORNER OF THE SUBJECT PROPERTY IS PROPOSED FOR RELOCATION WHICH WILL RESULT IN ADJUSTMENT TO THE UTILITY EASEMENT ALIGNMENT, AS DEPICTED ON THE GRAPHIC. IN ADDITION, THERE ARE NO MAJOR UNDERGROUND UTILITIES ON THE SUBJECT PROPERTY.
12. STORMWATER MANAGEMENT WILL BE PROVIDED AND WILL COMPLY WITH THE REQUIREMENTS OF THE PUBLIC FACILITIES MANUAL AS DETERMINED BY THE DEPARTMENT OF PUBLIC WORKS AND ENVIRONMENTAL SERVICES (DPWES). IT IS ANTICIPATED THAT THE STORMWATER MANAGEMENT WILL BE CONTROLLED BY TWO (2) WET PONDS ON PROPERTY UNDER THE SAME OWNERSHIP AS THE APPLICANT OF THIS SUBMISSION.
13. ADJACENT PROPERTIES INCLUDE: A PUBLIC FACILITY (FIRE STATION) ON THE EAST, A GOLF COURSE OPERATION ON TOP OF A CLOSED LANDFILL ON THE EAST AND NORTH, AN ACTIVE CONSTRUCTION AND DEMOLITION DEBRIS LANDFILL ALSO ON THE NORTH, THAT WILL BE CLOSED AND IS PROPOSED FOR CONVERSION TO AN ACTIVE RECREATION FACILITY ONCE THE APPROVED GRADES ARE REACHED. THE SOUTHERN AND WESTERN BOUNDARIES ABUT TELEGRAPH ROAD AND BEULAH STREET, RESPECTIVELY.
14. THE ACTIVE RECREATION COMPLEX, ESTABLISHED UPON CLOSURE OF THE LANDFILL WILL CONSIST OF APPROXIMATELY ELEVEN (11) ACRES AND IS PLANNED TO INCLUDE AN ADULT SOCCER FIELD, YOUTH BASEBALL FIELD, OPEN PLAY AREA, TOT LOT, PLAYGROUND, PAVILION AND ACCESSORY PARKING.
15. THE SITE DOES NOT CURRENTLY INCLUDE SCENIC ASSETS WORTHY OF PROTECTION.
16. THE SUBJECT PROPERTY IS IN THE LEHIGH COMMUNITY PLANNING SECTOR (RH-4) IN THE ROSE HILL PLANNING DISTRICT OF AREA IV. THE COMPREHENSIVE PLAN RECOMMENDS PRIVATE RECREATION AND AS AN OPTION RESIDENTIAL USE AT 2-3 DWELLING UNITS PER ACRE, PROVIDED THERE IS SUBSTANTIAL PARCEL CONSOLIDATION AND CONSOLIDATED ACCESS. FURTHER, APPROXIMATELY 4.5 ACRES IS IN ROSE HILL PLANNING DISTRICT IN THE MOUNT VERNON SUPERVISOR DISTRICT. SPECIFICALLY, THAT PORTION OF LAND IS IN THE NEWINGTON COMMUNITY PLANNING SECTOR (S6).THE COMPREHENSIVE PLAN MAP SHOWS THE SUBJECT PROPERTY AT 3-4 DWELLING UNITS PER ACRE AND THE PLAN TEXT IS SILENT WITH RESPECT TO THIS PARTICULAR PARCEL. A COMPREHENSIVE PLAN AMENDMENT HAS BEEN AUTHORIZED BY THE BOARD OF SUPERVISORS WHICH, WHEN APPROVED, WILL RENDER THIS PROPOSAL IN CONFORMANCE WITH THE COMPREHENSIVE PLAN.
17. THE DEVELOPMENT WILL BE CONSTRUCTED IN PHASES. THE EXACT PHASING SCHEDULE WILL BE DICTATED BY MARKET CONDITIONS.
18. THERE ARE PROPOSED IMPROVEMENTS TO THE EXISTING PUBLIC RIGHTS-OF-WAY AS SHOWN HEREON FOR THOSE PORTIONS OF THE ENTIRE PROPERTY THAT HAVE FRONTAGE ON PUBLIC ROADS.
19. A STATEMENT OF THE PUBLIC IMPROVEMENTS PROPOSED AND THE TIMING OF SUCH IMPROVEMENTS WILL BE INCLUDED IN THE PROFFERS.
20. THE COMPREHENSIVE PLAN MAP IDENTIFIES A PEDESTRIAN/BICYCLE TRAIL ALONG THE BEULAH STREET AND TELEGRAPH ROAD FRONTAGES OF THE PROPERTY WHICH ARE AS SHOWN ON THE GRAPHIC.
21. AT A MINIMUM, PARKING WILL BE PROVIDED IN ACCORDANCE WITH THE PROVISIONS OF ARTICLE 11 OF THE FAIRFAX COUNTY ZONING ORDINANCE. THE NUMBER AND LOCATION OF ACCESSIBLE PARKING SPACES WILL BE DETERMINED AT TIME OF SITE PLAN SUBMISSION AND WILL BE IN ACCORDANCE WITH THE PROVISIONS OF ARTICLE 11. THE APPLICANT RESERVES THE RIGHT TO ADD ADDITIONAL PARKING SPACES PROVIDED THE AMOUNT OF OPEN SPACE AND THE DISTANCE TO THE LOT LINES IS NOT DIMINISHED.
22. PURSUANT TO PAR. 9 OF SECT. 9-205 OF THE ZONING ORDINANCE, THE APPLICANT REQUESTS A WAIVER TO PERMIT SITE IMPROVEMENTS, INCLUDING BUT NOT LIMITED TO PARKING, VEHICULAR DRIVES, SIDEWALKS AND LANDSCAPING WITHIN THE LIMITS OF A FORMER LANDFILL PRIOR TO THE STIPULATED TWENTY (20) YEAR PERIOD FROM TERMINATION OF THE LANDFILL OPERATIONS SUBJECT TO THE APPROVAL CRITERIA OF SAID PARAGRAPH 9.
23. PURSUANT TO PAR. 3B OF SECT. 11-202 OF THE ZONING ORDINANCE A MODIFICATION TO THE REQUIRED NUMBER AND DISTRIBUTION OF LOADING SPACES IS HEREBY REQUESTED. LOADING SPACES SHALL BE PROVIDED AS DEPICTED ON THE GRAPHIC. WITH LOADING AREAS FOR THE TWO MAJOR CONCENTRATIONS OF RETAIL SALES ESTABLISHMENTS AUGMENTED BY SERVICING THE STREET SIDE RETAIL AND OFFICE WITH FRONT LOADING AND/OR PROVISIONS WITHIN THE PARKING GARAGE AND A SINGLE OFF STREET LOADING SPACE FOR THE PROPOSED OFFICE BUILDING.
24. PURSUANT TO PAR. 3B OF SECT. 11-202 OF THE ZONING ORDINANCE, A WAIVER OF LOADING SPACES IS HEREBY REQUESTED FOR THE TWO DRIVE-IN BANK FACILITIES.
25. PURSUANT TO PAR 23 OF SECT. 11-104, ANY EATING ESTABLISHMENTS INCLUDED IN THE SHOPPING CENTER, MUST DEMONSTRATE CONFORMANCE TO THE APPLICABLE PARKING STANDARD FOR THAT USE.
26. PURSUANT TO PAR. 1 OF SECT. 13-304 OF THE ZONING ORDINANCE, A WAIVER OF THE TRANSITIONAL SCREENING AND BARRIER REQUIREMENTS BETWEEN THE DIFFERENT USES WITHIN THE SUBJECT PROPERTY IS HEREBY REQUESTED IN FAVOR OF THE LANDSCAPE DEPICTED ON THE GRAPHIC.
27. PURSUANT TO PAR. 1 OF SECT. 13-304 OF THE ZONING ORDINANCE, A WAIVER OF THE TRANSITIONAL SCREENING AND BARRIER REQUIREMENTS TO THE ADJACENT EXISTING LANDFILL AND FUTURE RECREATION FACILITY ON THE WESTERN BOUNDARY AND EXISTING GOLF COURSE AND FIRE STATION OF THE EASTERN BOUNDARY IS HEREBY REQUESTED.
28. THE PROPOSED IMPROVEMENTS TO THE SITE AND BUILDINGS ARE BASED ON PRELIMINARY DESIGN. IT IS TO BE UNDERSTOOD THAT THE FINAL IMPROVEMENTS MAY BE MODIFIED IN ACCORDANCE WITH THE PROVISIONS SET FORTH IN SECT. 16-102 OF THE ZONING ORDINANCE SO LONG AS THE OPEN SPACE REPRESENTED IN THE TABULATION AND THE MINIMUM DIMENSIONS TO THE PERIPHERAL LOT LINES ARE NOT DIMINISHED.
29. PURSUANT TO PAR. 1 OF SECT. 13-304 OF THE ZONING ORDINANCE, A WAIVER OF THE TRANSITIONAL SCREENING AND BARRIER REQUIREMENTS ALONG THE FRONTAGES OF BEULAH STREET (WESTERN BOUNDARY) AND TELEGRAPH ROAD (SOUTHERN BOUNDARY IS HEREBY REQUESTED IN FAVOR OF THE STREETSCAPE/LANDSCAPE TREATMENT DEPICTED ON THE GRAPHIC. THIS TREATMENT IS INCLUSIVE OF STREET TREES, CONTINUOUS HEDGE PLANTING ALONG THOSE SIDES OF THE PARKING AREAS EXPOSED TO THE PUBLIC RIGHTS-OF-WAY AND SUPPLEMENTAL PLANT MATERIAL AS WELL AS THE BERMING, FENCING AND SUPPLEMENTAL SCREEN LANDSCAPING AT THE DEPICTED LOADING AREA ADJACENT TO TELEGRAPH ROAD.
30. ON-SITE FACILITIES INCLUDE URBAN STREETSCAPE FEATURES SUCH AS A CENTRAL MAIN STREET, ATTRACTIVELY LANDSCAPED SIDEWALKS AND STRATEGICALLY PLACED OPEN SPACE THAT SERVE AS GATHERING PLACES FOR THE PATRONS AND TENANTS OF THE VILLAGE CENTER. IT IS TO BE UNDERSTOOD THAT ADDITIONAL SITE FEATURES SUCH AS GAZEBOS, TRELLISES, SIGNS, FLAGPOLES, SIDEWALKS/TRAILS, LIGHT STANDARDS, PASSIVE AND ACTIVE RECREATIONS FACILITIES, WALLS, FENCES, AND /OR UTILITY AND MAINTENANCE STRUCTURES MAY BE PROVIDED AS LONG AS THE RESULTANT PROPOSED DEVELOPMENT IS IN SUBSTANTIAL CONFORMANCE WITH THAT REPRESENTED ON THE GRAPHIC.
31. IT IS TO BE UNDERSTOOD THAT DURING THE PHASED CONSTRUCTION, PROPOSED PARKING GARAGE AND BUILDING SITES MAY BE USED FOR INTERIM SURFACE PARKING AREAS FOR THE ADJACENT USES/BUILDINGS ON SITE.
32. PURSUANT TO SECT. 16-410, PAR. 8 OF THE ZONING ORDINANCE, THE APPLICANT REQUEST A VARIANCE IN THE STRICT APPLICATION OF SECTION 6-206 OF THE ZONING ORDINANCE, TO ALLOW A RETAIL SALES ESTABLISHMENT-LARGE, A SECONDARY USE, TO EXCEED TWENTY-FIVE PERCENT (25%) OF THE GROSS FLOOR AREA OF ALL PRINCIPAL USES IN THE DEVELOPMENT.
33. FINAL ARCHITECTURAL ELEVATIONS ARE NOT AVAILABLE AT THIS TIME. IT IS UNDERSTOOD THAT SCHEMATIC ELEVATIONS AND CONCEPTUAL PERSPECTIVE SKETCHES INCLUDED IN THIS SUBMISSION ARE ILLUSTRATIVE AND MEANT TO CONVEY A SENSE OF SCALE AND DESIGN INTENT ONLY.
34. THE PROPOSED BUILDINGS MAY HAVE A PENTHOUSE DESIGNED IN PART TO SHIELD THE MECHANICAL EQUIPMENT LOCATED ON THE ROOFS. THE HEIGHT AND ROOF AREA COVERAGE OF THE PENTHOUSES WILL BE IN ACCORDANCE WITH THE APPLICABLE PROVISIONS OF THE ZONING ORDINANCE; WILL BE COMPATIBLE WITH THE HEIGHT AND SCALE OF THE BUILDINGS; AND WILL BE CONSTRUCTED OF MATERIALS THAT ARE AN EXTENSION OF OR HARMONIOUS WITH THE ARCHITECTURAL MATERIALS.
35. THE PROPOSED USE WILL NOT GENERATE, UTILIZE, STORE, TREAT OR DISPOSE OF ANY HAZARDOUS OR TOXIC SUBSTANCES AS SET FORTH IN TITLE 40, CODE OF FEDERAL REGULATIONS PARTS 116.4, 302.4 AND 355 WITH THE EXCEPTION OF METHANE GAS, GENERATED BY THE LANDFILL, WHICH WILL BE REGULATED IN ACCORDANCE WITH THE RULES AND POLICIES OF THE VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY AND THE COUNTY FIRE MARSHALL OFFICE; ANY HAZARDOUS WASTE AS SET FORTH IN THE COMMONWEALTH OF VIRGINIA/DEPARTMENT OF WASTE MANAGEMENT VR 672-10-1 – VIRGINIA HAZARDOUS WASTE MANAGEMENT REGULATIONS; AND/OR ANY PETROLEUM PRODUCTS AS DEFINED IN TITLE 40, CODE OF FEDERAL REGULATIONS PART 280.
36. TO THE BEST OF OUR KNOWLEDGE, THE PROPOSED DEVELOPMENT CONFORMS TO ALL CURRENT APPLICABLE LAND DEVELOPMENT ORDINANCES AND ADOPTED STANDARDS EXCEPT AS NOTED HEREON.

TABULATION:

EXISTING ZONING	R-1 AND I-3
PROPOSED ZONING	PDC
LAND AREA OF THE RZ/FDP	33.0 ± AC
AREA OF REZONING FROM I-3 TO PDC	7.86 ± AC
RETAIL SALES ESTABLISHMENTS (1) (2)	253,000 SF
OFFICE	113,000 SF
TOTAL GROSS FLOOR AREA	366,000 SF
MAXIMUM PERMITTED FLOOR AREA RATIO (FAR)	1.5
MAXIMUM PROPOSED FLOOR AREA RATIO (FAR)	0.255
PARKING SPACES REQUIRED (1)	1362 SP.
OFFICE BUILDING (95,000SF/ 1000 x 3 PER)	288 SP
OFFICE (2ND FLOOR) (17,000 SF / 1000 x 3.6 PER)	62 SP
SHOPPING CENTER (RETAIL) (2) (253,000 SF / 1000 x 4 PER	1012 SP
PARKING SPACES PROVIDED	1855 SP.
STRUCTURED	500 SP
SURFACE	1355 SP
LANDSCAPED OPEN SPACE REQUIRED (15%)	215,622± SF
LANDSCAPED OPEN SPACE PROVIDED (20%)	298,347± SF

(1) TWO (2) DRIVE-IN BANK FACILITIES (4,500 SF EA x 2 = 9,000 SF) ARE INCLUDED IN THE RETAIL SALES ESTABLISHMENT GROSS SQUARE FOOTAGE. DRIVE-IN BANK STACKING SPACES ARE SHOWN ON THE GRAPHIC IN ACCORDANCE WITH THE PAR. 5 OF SECT. 11-104 OF THE ZONING ORDINANCE.

(2) AS CITED IN NOTE 25, PARKING FOR EATING ESTABLISHMENTS IS NOT INCLUDED IN THE SHOPPING CENTER PARKING STANDARD AS IDENTIFIED IN PAR. 23 OF SECT. 11-104 OF THE ZONING ORDINANCE. INCLUSION OF ANY EATING ESTABLISHMENTS IN THE TENANCY OF THE CENTER WILL REQUIRE A DEMONSTRATION OF THE ADEQUACY OF PARKING BASED ON THE APPLICABLE STANDARDS OF SECT. 11-104.

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LEE AND MOUNT VERNON DISTRICTS
FAIRFAX COUNTY, VIRGINIA

SEAL

COMMONWEALTH OF VIRGINIA
TIMOTHY CHARLES CULLEITON
Lic. No. 20112
1-16-09
PROFESSIONAL ENGINEER

KEY PLAN

SCALE

No.	DATE	BY	Description
3	01/16/09	DMC	No Changes- This Sheet
2	12/02/08	DMC	UPDATED
1	10/17/08	DMC	UPDATED

REVISIONS

DRAWN BY ARW
APPROVED BY
CHECKED BY LM
DATE February 12, 2008

TITLE

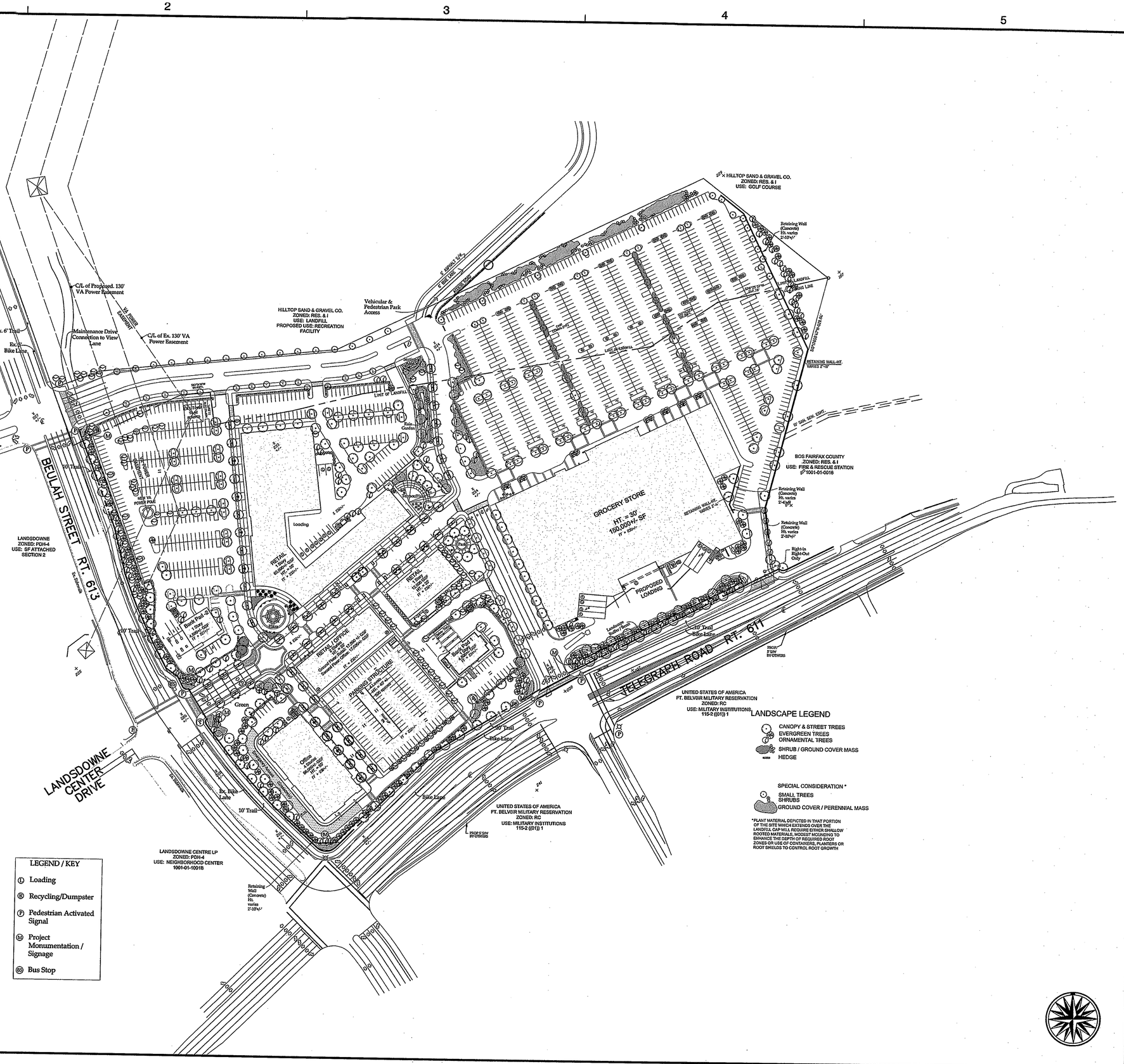
Hilltop Village Center
CDP / FDP
NOTES & TABULATION

PROJECT NO.

3

SHEET NO. OF 11

M-10695



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TIMOTHY CHARLES COLLETON
Lic. No. 20112
1-16-09
PROFESSIONAL ENGINEER

KEY PLAN

SCALE
0' 100' 200'

No.	DATE	BY	Description
3	01/16/09	DMC	Update
2	12/02/08	DMC	Update
1	10/17/08	DMC	New Sheet

REVISIONS

DRAWN BY ARW
APPROVED BY
CHECKED BY LM
DATE February 12, 2008

TITLE

Hilltop Village Center

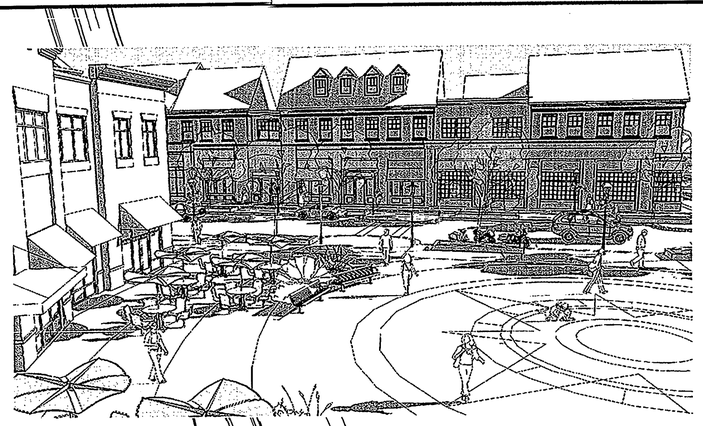
LANDSCAPE PLAN

PROJECT NO.

4

SHEET NO. OF 11

M-10695



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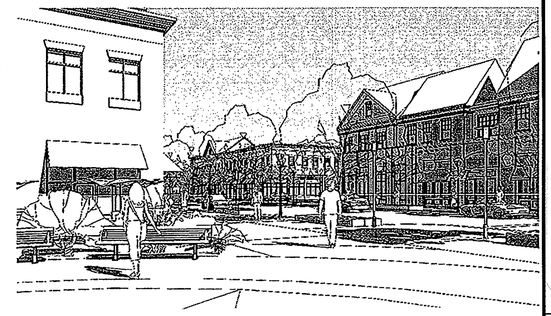

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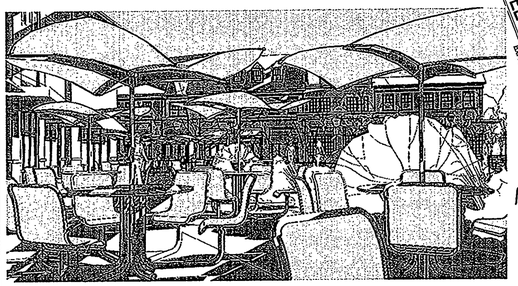

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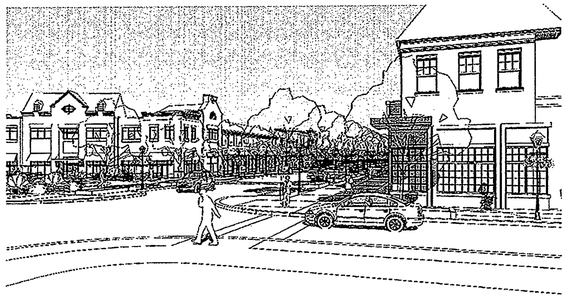

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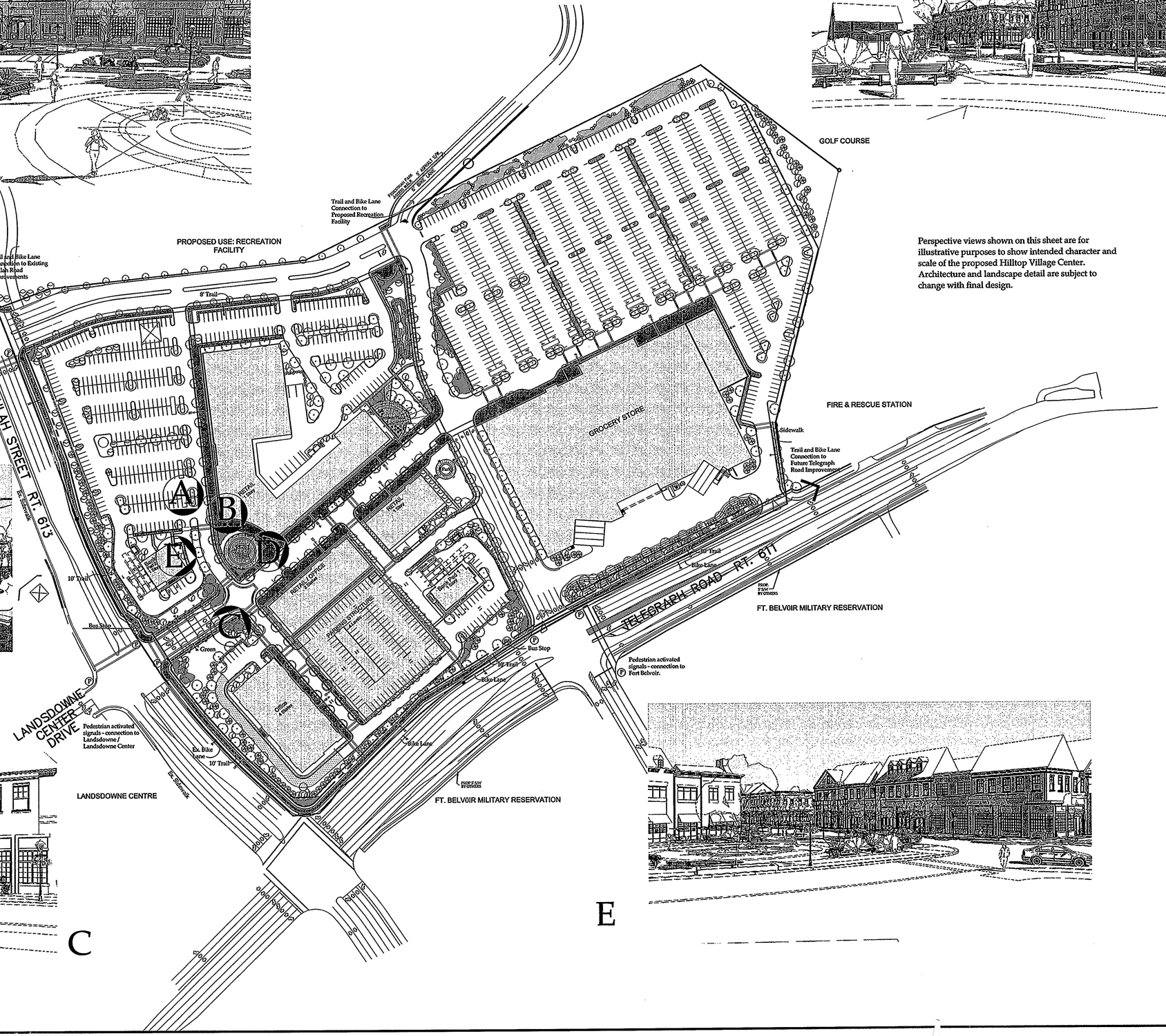

Perspective views shown on this sheet are for illustrative purposes to show intended character and scale of the proposed Hilltop Village Center. Architecture and landscape detail are subject to change with final design.

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Application No FDP 2008-MD-003 Staff C.LEWIS

APPROVED DEVELOPMENT PLAN

(DP) (GDP (CDP) (FDP))

SEE PROFFERS DATED 3-6-2009

Date of (BOS) (PC) Approval 2-12-2009

Sheet 6 OF 11

Concurrent with RZ 2008-MD-003, Approved by BOS 3-9-2009

HILLTOP VILLAGE CENTER

CONCEPTUAL DEVELOPMENT PLAN / FINAL DEVELOPMENT PLAN

LEE AND MOUNT VERNON DISTRICTS
FAIRFAX COUNTY, VIRGINIA

SEAL

COMMONWEALTH OF VIRGINIA
TIMOTHY CHARLES CULLETON
Lic. No. 20112
1-16-09
PROFESSIONAL ENGINEER

KEY PLAN

SCALE

0' 100' 200'

No.	DATE	BY	Description
3	01.16.09	DMC	Update
2	12.02.08	DMC	UPDATE /CORRECTIONS
1	12.04.08	DMC	REV. LAYOUT

REVISIONS

DRAWN BY ARW

APPROVED BY

CHECKED BY LM

DATE February 12, 2008

TITLE

Hilltop Village Center

Pedestrian Circulation & Perspective Views

CDP / FDP

PROJECT NO.

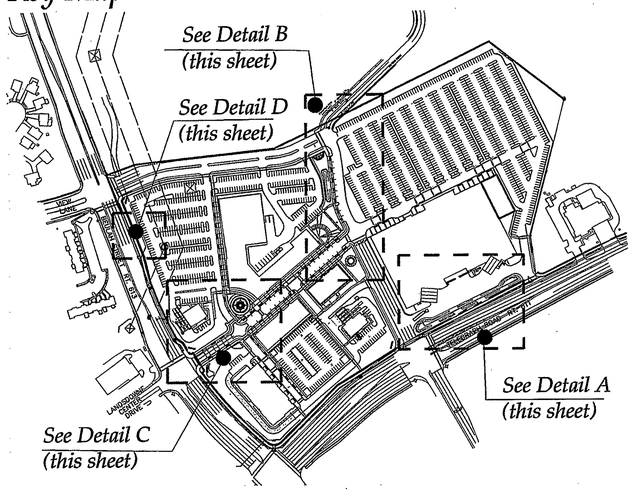
5

SHEET NO. OF 11

M-10695

Key Map

N.T.S.

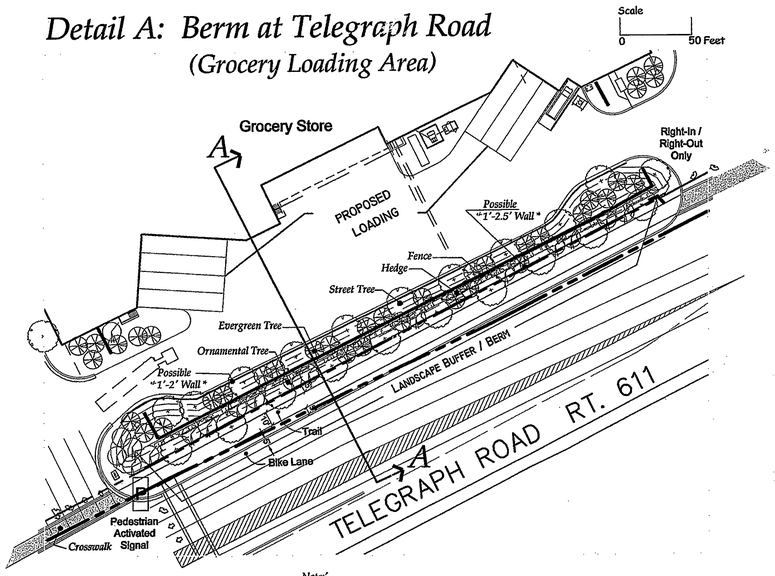


NOTE:.
Detail Plans reflect development/design intent. Specific pavement patterns, textures and placement of plant material, street furniture and streetscape elements subject to coordination with final engineering and architectural design.

LANDSCAPE LEGEND

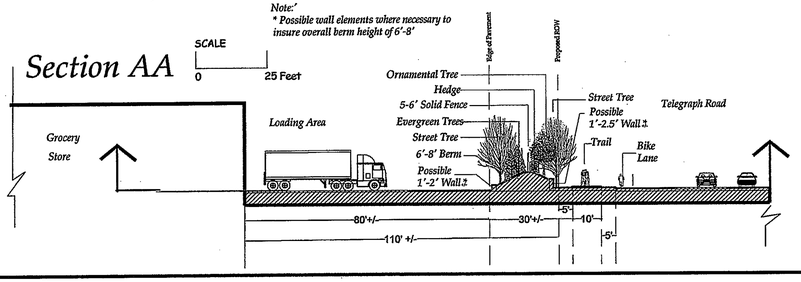
- CANOPY & STREET TREES
- EVERGREEN TREES
- ORNAMENTAL TREES
- SHRUB / GROUND COVER MASS
- HEDGE
- SMALL TREES
- SHRUBS
- GROUND COVER / PERENNIALS

Detail A: Berm at Telegraph Road
(Grocery Loading Area)

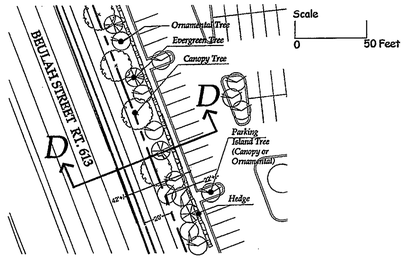


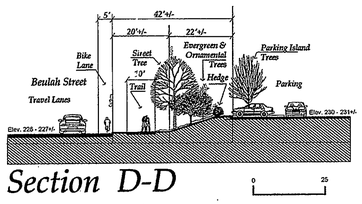
Note:
** Possible wall elements where necessary to insure overall berm height of 6'-8'*

Section AA



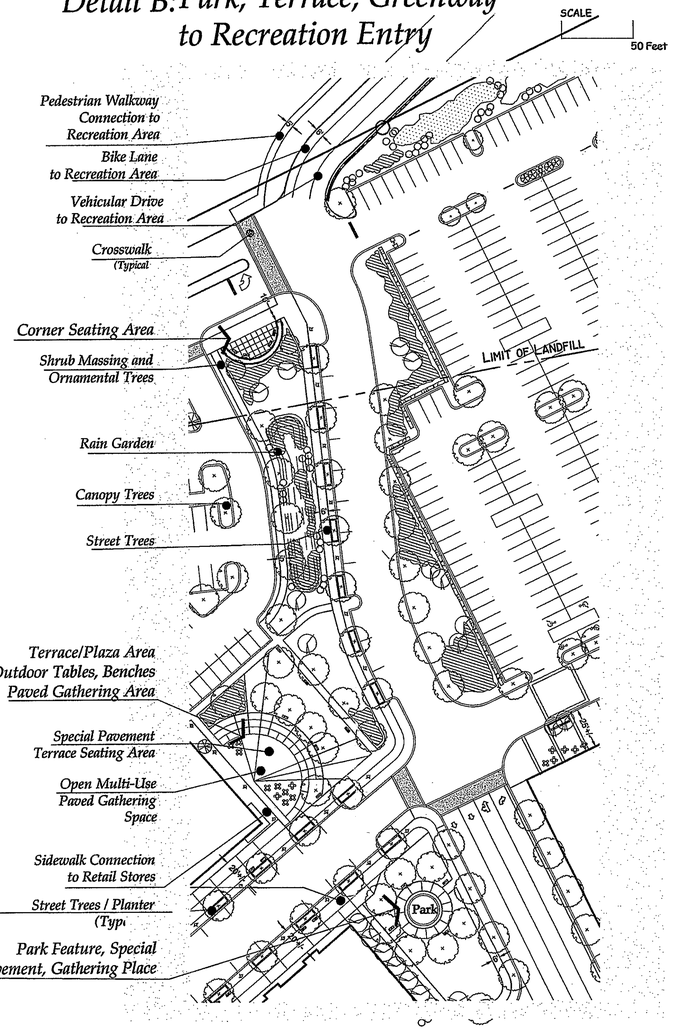
Detail D: Landscape Edge at Parking Beulah Street Frontage



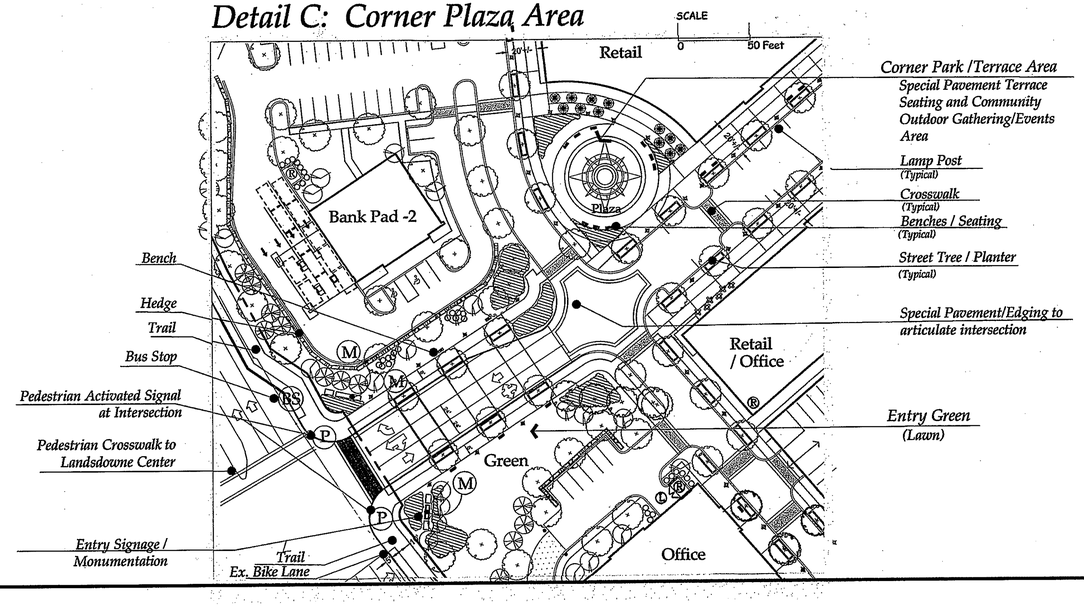


Section D-D

Detail B: Park, Terrace, Greenway to Recreation Entry



Detail C: Corner Plaza Area



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Application No FDP 2008-MD-003 Staff C.LEWIS
APPROVED DEVELOPMENT PLAN
(DP) (GDP (SDP) (FDP)
SEE PROFFERS DATED 3-6-2009
Date of (BOS) (PC) Approval 2-12-2009
Sheet 7 OF 11
Concurrent with RZ 2008-MD-003, Approved by BOS 3-9-2009

HILLTOP VILLAGE CENTER

CONCEPTUAL DEVELOPMENT PLAN / FINAL DEVELOPMENT PLAN

LEE & MOUNT VERNON DISTRICTS
FAIRFAX COUNTY, VIRGINIA

SEAL

COMMONWEALTH OF VIRGINIA
TIMOTHY CHARLES CULLEITON
Lic. No. 20112
1-16-09
PROFESSIONAL ENGINEER

KEY PLAN

SCALE: SEE INDIVIDUAL INSERTS FOR SCALE

No.	DATE	BY	Description
3	01/16/09	DMC	Added Section & Revision
2	12/02/08	DMC	Revisions/Update
1	10/17/08	DMC	New Sheet

REVISIONS

DRAWN BY DMC
APPROVED BY
CHECKED BY DMC
DATE February 12, 2008

TITLE

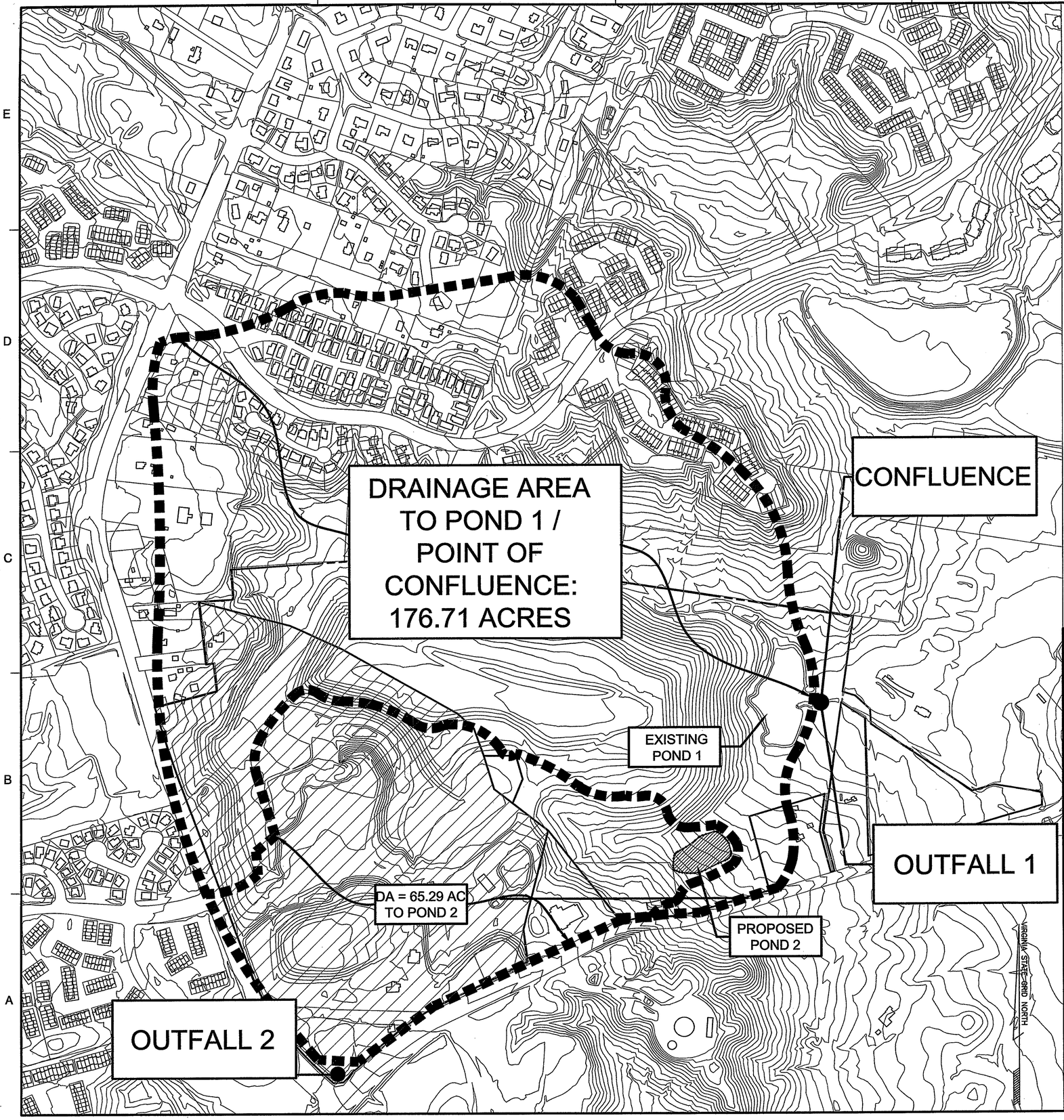
HILLTOP VILLAGE CENTER
CDP / FDP
Details

PROJECT NO.

6

SHEET NO. of 11

M-10695



Hilltop Village Center and Recreation Area Stormwater Management (SWM) AND DRAINAGE OUTFALL Narrative

I. Stormwater Management

The Hilltop Village Center (33± AC) and Recreation Area (35.86 AC) (project site) is a 68.86 acre development located in southeastern Fairfax County predominantly within the Dogue Creek watershed. The project site includes commercial and recreational uses and is a part of the overall Hilltop Sand and Gravel site (151 acres) where existing land use includes an active debris land fill and a nine hole golf course.

The majority of the overall Hilltop Sand and Gravel site, including the proposed Hilltop Village Center and Recreation Area site, drains to an existing stormwater management facility (wet pond) known as existing Pond 1. The drainage area for existing Pond 1 is 242 acres, of which 136 acres comes from the Hilltop Sand and Gravel site and 106 acres comes from the adjacent Kingstowne development. A 1996 site plan for the Hilltop Reclamation Project demonstrated that the existing Pond 1 provides stormwater detention and BMP for that portion of the Hilltop site draining to the facility assuming current land uses (i.e. nine hole golf course and active debris land fill). A small portion of the proposed Hilltop Village Center site (4 acres) located at the intersection of Telegraph Road and Beulah Street does not drain to existing Pond 1 but instead drains to the west into an existing storm sewer system along Telegraph Road, labeled as Outfall 2.

The proposed commercial and recreational uses for the Hilltop Village Center and Recreational Area site will result in increased runoff to Pond 1 which would exceed its original design capacity. Therefore, the majority of the proposed runoff from the 68.86 acre project site will be directed to a proposed new SWM facility (wet pond) referred to as future Pond 2 located 600 feet southwest of Pond 1 outside of the 70 acre project site but within the original Hilltop Sand and Gravel site. In addition, approximately 3 of the 4 acres of the project site that naturally drains to Telegraph Road (Outfall 2) will be directed into Pond 2 to avoid increasing runoff into the existing Telegraph storm sewer system and maintain an adequate drainage outfall. The discharge from Pond 2 will be conveyed via a proposed storm sewer pipe to the outfall immediately downstream of Pond 1. The stormwater detention design for Pond 2 is such that the combined discharge from Ponds 1 and 2 will be less than the predevelopment discharge into the outfall downstream of Pond 1 as shown in the attached computations (HEC–1 model output). The computations for pre–developed runoff and existing Pond 1 are taken from the approved site plan for the Hilltop Reclamation project (County Plan No. 3365–LF–001–1).

The normal pool volume of Pond 2 has been sized to provide 4 times the runoff of the mean storm for the entire acreage of the Hilltop Sand and Gravel site draining to the facility thereby providing a 50% P removal for this area. BMP computations are provided showing that Pond 2 alone will provide the required 40% overall P removal for the 68.86 acre Hilltop Village Center and Recreation Area site.

II. Drainage Outfall

There are two existing drainage outfalls for the 68.86 acre project site.

Outfall No. 1

The majority of the site (65.29 acres) naturally drains to existing Pond 1 which discharges to an engineered drainage channel having a drainage area of approximately 242 acres (minor floodplain). The 242 acres is comprised of the 65.29 site drainage area, as well as an additional 176.71 acres routed through Pond 1, which is more than 90% of the site's 65.29 drainage area and is therefore the point of confluence. This engineered channel was analyzed 150' down stream with three separate cross section to determine no overtopping of the channel occurs, and the 2 year velocity was determined to be non–erosive. See computation sheets for cross sections.

The proposed site design includes construction of a new stormwater management facility (Pond 2) to augment the performance of existing Pond 1. Together these facilities will work in parallel to reduce proposed site runoff for the 2 and 10–year storms to below predevelopment flow rates. Runoff from the majority of the 70 acre project site will be directed to proposed Pond 2 and then into a proposed storm sewer system discharging into the engineered channel downstream of Pond 1, a minor floodplain.

Computations will be provided which demonstrate that the engineered channel and associated roadway culverts between Pond 1 and the major floodplain can adequately convey the combined 2 and 10–year discharges exiting from Ponds 1 and 2. The stream channel within the major floodplain immediately downstream of the confluence with the engineered channel will be evaluated for adequacy to convey the 2–year storm. For the uncontrolled portion of the site directed towards Telegraph Road (U–1) the existing storm sewer system will be evaluated for adequacy to convey the required 10–year design storm. The second portion of the site that is uncontrolled (U–2) will be conveyed to the existing Pond 1 as it does today, and no increase in runoff is expected as the proposed development in that area is vegetated ground cover.

Outfall No.2

The remainder of the site (4 acres identified as U–2) drains to the west into an existing storm sewer system along Telegraph Road. It is proposed that 3 of the 4 acres be diverted to proposed Pond 2 in order that post development flow rates to this outfall are not increased and the existing storm sewer system will have adequate capacity for the 10–year design storm. If this diversion is determined to not be feasible then underground detention will be proposed in this location to attenuate the 2– and 10–year runoff to at or below predevelopment discharge rates such that the existing storm sewer outfall can adequately convey proposed runoff from the project site.

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 (9-011 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 & 1Q)
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 6.

☒ 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)
Wet Pond (e.g. dry pond A, infil, trench, underground, vault, etc.)	48.91	16.38	65.29	82,764	1,075,932	32.0
Totals	48.91	16.38	65.29	82,764	1,075,932	32.0

☒ 4. Onsite drainage channels, outfalls and pipe systems are shown on Sheet 6. Pond inlet and outlet pipe systems are shown on Sheet 6.

☒ 5. Maintenance access (road) to stormwater management facility(ies) are shown on Sheet 6. Type of maintenance access road surface noted on the plat is 6 (e.g. asphalt, geoblock, gravel, etc.).

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

☒ 7. A stormwater management narrative which contains a description of how detention and best management practice requirements will be met is provided on Sheet 5.

☒ 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 5.

☒ 9. A description of how the outfall requirements, including contributing drainage areas of the Public Facilities Manual will be satisfied is provided on Sheet 5.

☒ 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 3,4.

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

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

Industry Letter 05-03 dated 02/02/05

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Application No FDP 2008-MD-003 Staff C.LEWIS

APPROVED DEVELOPMENT PLAN

(DP) (GDP (CBC) (FDP)

SEE PROFFERS DATED 3-6-2009

Date of (BOS) (PC) Approval 2-12-2009

Sheet 8 OF 11

Concurrent with RZ 2008-MD-003, Approved by BOS 3-9-2009

HILLTOP VILLAGE CENTER

CONCEPTUAL DEVELOPMENT PLAN / FINAL DEVELOPMENT PLAN

LEE AND MOUNT VERNON DISTRICTS

FAIRFAX COUNTY, VIRGINIA

SEAL

COMMONWEALTH OF VIRGINIA
TIMOTHY CHARLES CULLETON
Lic. No. 20112
1-16-09
PROFESSIONAL ENGINEER

KEY PLAN

SCALE

0' 250' 500'

No.	DATE	BY	Description
3	01.16.09	DMC	No Change
2	12.02.08	DMC	Outfall
1	12.04.08	DMC	REV. LAYOUT

REVISIONS

DRAWN BY ARW

APPROVED BY

CHECKED BY LM

DATE February 12, 2008

TITLE

Hilltop Village Center

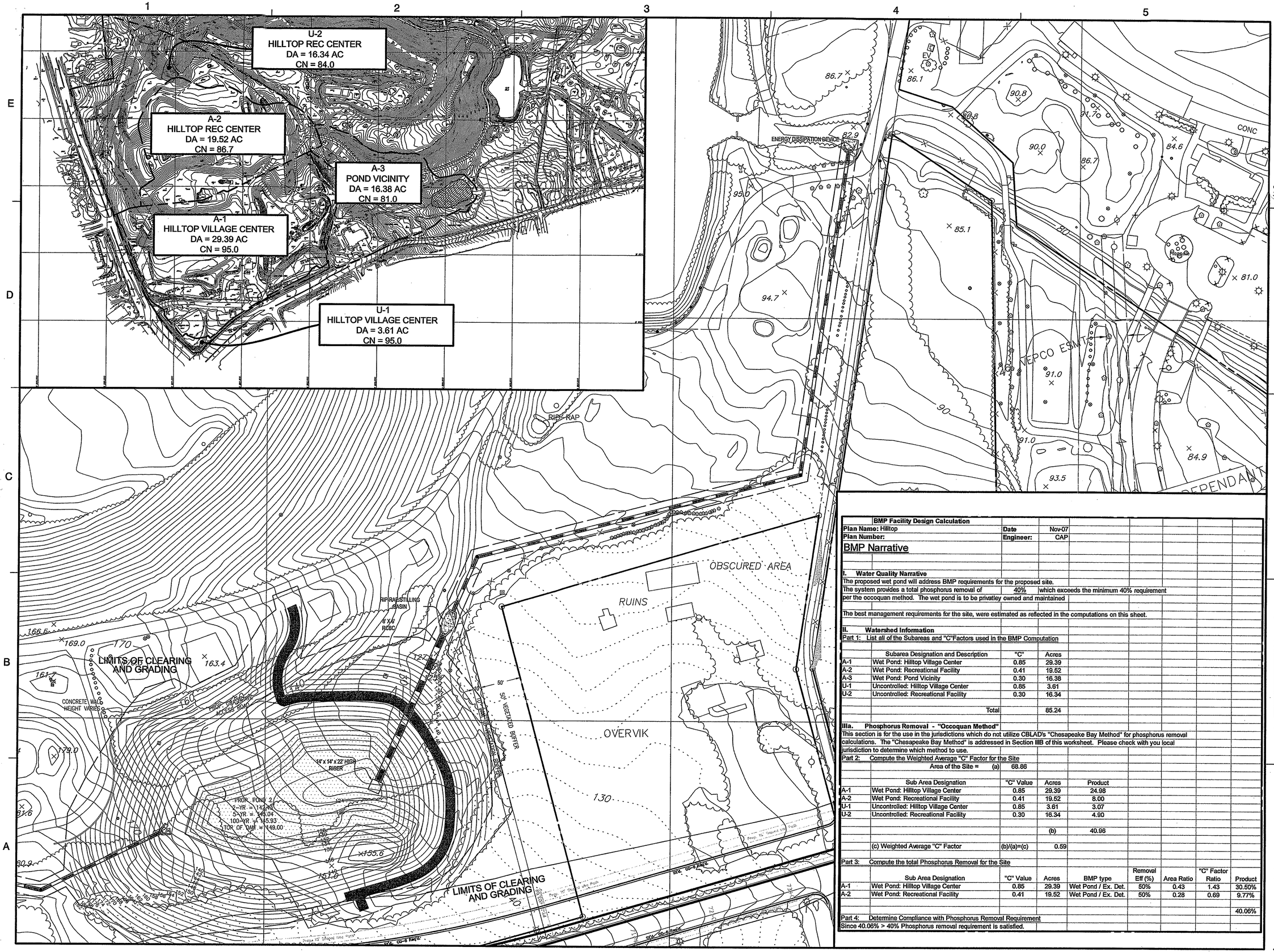
Stormwater Outfall Narrative

PROJECT NO.

7

SHEET NO. OF 11

M-10695



BMP Facility Design Calculation

Plan Name: Hilltop — **Date** Nov-07
Plan Number: — **Engineer:** CAP

BMP Narrative

I. Water Quality Narrative

The proposed wet pond will address BMP requirements for the proposed site.
The system provides a total phosphorus removal of 40% which exceeds the minimum 40% requirement per the occoquan method. The wet pond is to be privatley owned and maintained

The best management requirements for the site, were estimated as reflected in the computations on this sheet.

II. Watershed Information

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

	Subarea Designation and Description	"C"	Acres
A-1	Wet Pond: Hilltop Village Center	0.85	29.39
A-2	Wet Pond: Recreational Facility	0.41	19.52
A-3	Wet Pond: Pond Vicinity	0.30	16.38
U-1	Uncontrolled: Hilltop Village Center	0.85	3.61
U-2	Uncontrolled: Recreational Facility	0.30	16.34
	Total		85.24

IIIa. Phosphorus Removal - "Occoquan Method"

This section is for the use in the jurisdictions which do not utilize CBLAD's "Chesapeake Bay Method" for phosphorus removal calculations. The "Chesapeake Bay Method" is addressed in Section IIIB of this worksheet. Please check with you local jurisdiction to determine which method to use.

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

Area of the Site = (a) 68.86

	Sub Area Designation	"C" Value	Acres	Product
A-1	Wet Pond: Hilltop Village Center	0.85	29.39	24.98
A-2	Wet Pond: Recreational Facility	0.41	19.52	8.00
U-1	Uncontrolled: Hilltop Village Center	0.85	3.61	3.07
U-2	Uncontrolled: Recreational Facility	0.30	16.34	4.90
			(b)	40.96
	(c) Weighted Average "C" Factor	(b)/(a)=(c)	0.59	

Part 3: Compute the total Phosphorus Removal for the Site

	Sub Area Designation	"C" Value	Acres	BMP type	Removal Eff (%)	Area Ratio	"C" Factor Ratio	Product
A-1	Wet Pond: Hilltop Village Center	0.85	29.39	Wet Pond / Ex. Det.	50%	0.43	1.43	30.50%
A-2	Wet Pond: Recreational Facility	0.41	19.52	Wet Pond / Ex. Det.	50%	0.28	0.69	9.77%
								40.06%

Part 4: Determine Compliance with Phosphorus Removal Requirement

Since 40.06% > 40% Phosphorus removal requirement is satisfied.

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Application No FDP 2008-MD-003 Staff C.LEWIS
APPROVED DEVELOPMENT PLAN
(DP) (GDP (CDP) (FDP)
SEE PROFFERS DATED 3-6-2009
Date of (BOS) (PC) Approval 2-12-2009
Sheet 9 OF 11
Concurrent with RZ 2008-MD-003, Approved by BOS 3-9-2009

HILLTOP VILLAGE CENTER

CONCEPTUAL DEVELOPMENT PLAN / FINAL DEVELOPMENT PLAN

LEE AND MOUNT VERNON DISTRICTS
FAIRFAX COUNTY, VIRGINIA

SEAL

COMMONWEALTH OF VIRGINIA
TIMOTHY CHARLES CULLETON
Lic. No. 20112
1-16-09
PROFESSIONAL ENGINEER

KEY PLAN

SCALE

No.	DATE	BY	Description
3	01.16.09	DMC	No Change
2	12.02.08	DMC	No Changes
1	10.17.08		

REVISIONS

DRAWN BY ARW
APPROVED BY
CHECKED BY LM
DATE February 12, 2008

TITLE

Hilltop Village Center
CDP / FDP
Stormwater Narratives

PROJECT NO.

8

SHEET NO. OF 11

M-10695

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 *            JUN   1998               *
 *          VERSION 4.1                *
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*                                     *
*   U.S. ARMY CORPS OF ENGINEERS      *
*   HYDROLOGIC ENGINEERING CENTER     *
*        609 SECOND STREET            *
*     DAVIS, CALIFORNIA 95616         *
*         (916) 756-1104              *
*                                     *
***************************************
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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL   LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM
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1                                    HEC-1 INPUT                                          PAGE  1

  LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

              *DIAGRAM
    1         ID  Hilltop Sand & Gravel SWM
    2         ID  Existing Conditions
    3         ID       USING RAINFALL DATA FROM FFX CO PFM AND NRCS TYPE II 24-HR STORM
    4         ID       FILENAME        Existing.IH1
    5         IT       2                       800
    6         IO       5
              *
    7         JR    PREC     3.2     5.2     7.3

    8         KK  PREDEV
    9         KM  Predevelopment Conditions Hydrograph - Open Space in Good Condition
   10         KO                                      21
   11         BA   0.378
   12         IN       6
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   15         PC    .022  .02321  .02442  .02565  .02688  .02813  .02938  .03065  .03192  .03321
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   30         PC  .90175  .90379   .9058  .90779  .90975  .91169   .9136  .91549  .91735  .91919
   31         PC    .921  .92279  .92455  .92629    .928  .92969  .93135  .93299   .9346  .93619
   32         PC  .93775  .93929   .9408  .94229  .94375  .94519   .9466  .94799  .94935  .95069
   33         PC    .952   .9533  .95459  .95588  .95716  .95844  .95971  .96098  .96224   .9635
   34         PC  .96475    .966  .96724  .96848  .96971  .97094  .97216  .97338  .97459   .9758
   35         PC    .977   .9782  .97939  .98058  .98176  .98294  .98411  .98528  .98644  .98760
   36         PC  .98875   .9899  .99104  .99218  .99331  .99444  .99556  .99668  .99779   .9989
   37         PC     1.0
   38         LS              79
   39         UD   0.372
              *

   40         KK  INFLOW
   41         KM  Existing Conditions Inflow to Existing SWM Pond 1 (without Prop Hilltop Villag
   42         KO                                      21
   43         BA   0.378
   44         LS           84.17
   45         UD   0.288
              *
1                                    HEC-1 INPUT                                          PAGE  2

  LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


   46         KK  EXSWM1
   47         KM  Route Through Existing SWM Pond 1 With Existing 12.5' Weir
   48         KO                                      21
   49         RS       1    STOR       0
   50         SV       0    1.34     4.7    8.59   12.79   17.34   18.52
   51         SE      85      86      88      90      92      94    94.5
   52         SQ       0   13.26    37.5   68.89  106.07  148.23  194.86  245.55     300  357.97
   53         SQ  419.26   483.7  551.14  647.96  769.51  908.02 1060.66 1225.77 1402.21 1589.13
   54         SE      85    85.5      86    86.5      87    87.5      88    88.5      89    89.5
   55         SE      90    90.5      91    91.5      92    92.5      93    93.5      94    94.5
   56         ZZ
```

```
1
          SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE     (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

   NO.     (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

    8      PREDEV
             .
             .
   40        .        INFLOW
             .            V
             .            V
   46        .        EXSWM1

 (***) RUNOFF ALSO COMPUTED AT THIS LOCATION
```



```
1***************************************
 *                                     *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1) *
 *            JUN   1998               *
 *          VERSION 4.1                *
 *                                     *
 *  RUN DATE   14JAN08  TIME  11:10:43 *
 *                                     *
 ***************************************
```

```
***************************************
*                                     *
*   U.S. ARMY CORPS OF ENGINEERS      *
*   HYDROLOGIC ENGINEERING CENTER     *
*        609 SECOND STREET            *
*     DAVIS, CALIFORNIA 95616         *
*         (916) 756-1104              *
*                                     *
***************************************
```



```
 *

                 Hilltop Sand & Gravel SWM
                 Existing Conditions
                      USING RAINFALL DATA FROM FFX CO PFM AND NRCS TYPE II 24-HR STORM
                      FILENAME        Existing.IH1

   6 IO       OUTPUT CONTROL VARIABLES
                    IPRNT           5  PRINT CONTROL
                    IPLOT           0  PLOT CONTROL
                    QSCAL          0.  HYDROGRAPH PLOT SCALE

     IT       HYDROGRAPH TIME DATA
                     NMIN           2  MINUTES IN COMPUTATION INTERVAL
                    IDATE      1    0  STARTING DATE
                    ITIME        0000  STARTING TIME
                       NQ         800  NUMBER OF HYDROGRAPH ORDINATES
                   NDDATE      2    0  ENDING DATE
                   NDTIME        0238  ENDING TIME
                    ICENT          19  CENTURY MARK

                COMPUTATION INTERVAL      .03 HOURS
                     TOTAL TIME BASE    26.63 HOURS

          ENGLISH UNITS
               DRAINAGE AREA          SQUARE MILES
               PRECIPITATION DEPTH    INCHES
               LENGTH, ELEVATION      FEET
               FLOW                   CUBIC FEET PER SECOND
               STORAGE VOLUME         ACRE-FEET
               SURFACE AREA           ACRES
               TEMPERATURE            DEGREES FAHRENHEIT

     JP       MULTI-PLAN OPTION
                    NPLAN           1  NUMBER OF PLANS

     JR       MULTI-RATIO OPTION
                  RATIOS OF PRECIPITATION
                   3.20      5.20      7.30

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

              *************
              *           *
   8 KK       *  PREDEV   *
              *           *
              *************

  10 KO       OUTPUT CONTROL VARIABLES
                    IPRNT           5  PRINT CONTROL
                    IPLOT           0  PLOT CONTROL
                    QSCAL          0.  HYDROGRAPH PLOT SCALE
                    IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                     IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2         800  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT        .033  TIME INTERVAL IN HOURS

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

              *************
              *           *
  40 KK       *  INFLOW   *
              *           *
              *************

  42 KO       OUTPUT CONTROL VARIABLES
                    IPRNT           5  PRINT CONTROL
                    IPLOT           0  PLOT CONTROL
                    QSCAL          0.  HYDROGRAPH PLOT SCALE
                    IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                     IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2         800  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT        .033  TIME INTERVAL IN HOURS

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

              *************
              *           *
  46 KK       *  EXSWM1   *
              *           *
              *************

  48 KO       OUTPUT CONTROL VARIABLES
                    IPRNT           5  PRINT CONTROL
                    IPLOT           0  PLOT CONTROL
                    QSCAL          0.  HYDROGRAPH PLOT SCALE
                    IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                     IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2         800  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT        .033  TIME INTERVAL IN HOURS

1

        PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
                       FLOWS IN CUBIC FEET PER SECOND,  AREA IN SQUARE MILES
                                     TIME TO PEAK IN HOURS


                                                      RATIOS APPLIED TO PRECIPITATION

                                                     2-YEAR:   10-YEAR:  100-YR:
OPERATION       STATION     AREA    PLAN             RATIO 1   RATIO 2   RATIO 3
                                                       3.20      5.20      7.30

HYDROGRAPH AT
+               PREDEV       .38      1    FLOW        244.      557.      909.
                                           TIME       12.27     12.27     12.23

HYDROGRAPH AT
+               INFLOW       .38      1    FLOW        370.      755.     1169.
                                           TIME       12.17     12.17     12.17

ROUTED TO
+               EXSWM1       .38      1    FLOW        274.      604.     1038.
                                           TIME       12.33     12.30     12.27

                                     ** PEAK STAGES IN FEET **
                                      1    STAGE      88.76     91.27     92.93
                                           TIME       12.33     12.30     12.27
```

Dewberry

Dewberry & Davis LLC
8403 ARLINGTON BLVD.
FAIRFAX, VA 22031
PHONE: 703.849.0100
FAX: 703.849.0519
www.dewberry.com

Application No FDP 2008-MD-003 Staff C.LEWIS
APPROVED DEVELOPMENT PLAN
(DP) (GDP (CDP) (FDP)
SEE PROFFERS DATED 3-6-2009
Date of (BOS) (PC) Approval 2-12-2009
Sheet 10 OF 11
Concurrent with RZ 2008-MD-003, Approved by BOS 3-9-2009

HILLTOP VILLAGE CENTER

CONCEPTUAL DEVELOPMENT PLAN / FINAL DEVELOPMENT PLAN
LEE AND MOUNT VERNON DISTRICTS
FAIRFAX COUNTY, VIRGINIA

SEAL
COMMONWEALTH OF VIRGINIA
TIMOTHY CHARLES CULLEITON
Lic. No. 20112
1-16-09
PROFESSIONAL ENGINEER

KEY PLAN

SCALE

No.	DATE	BY	Description
3	01.16.09	DMC	No Change
2	12.02.08	DMC	No Change
1	10.17.08		

REVISIONS

DRAWN BY ARW
APPROVED BY
CHECKED BY LM
DATE February 12, 2008

TITLE
Hilltop Village Center
CDP / FDP
Stormwater Management

PROJECT NO.

SHEET NO. **9** OF 11

M-10695

```
1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*             JUN  1998                 *
*           VERSION 4.1                 *
*                                       *
*  RUN DATE   27JAN08  TIME  11:59:31   *
*                                       *
*****************************************
```

```
*****************************************
*                                       *
*   U.S. ARMY CORPS OF ENGINEERS        *
*   HYDROLOGIC ENGINEERING CENTER       *
*        609 SECOND STREET              *
*      DAVIS, CALIFORNIA 95616          *
*        (916) 756-1104                 *
*                                       *
*****************************************
```

```
X     X  XXXXXXX   XXXXX          X
X     X  X       X     X        XX
X     X  X             X       X X
XXXXXXX  XXXX          X    XXXXX  X
X     X  X             X         X
X     X  X       X     X         X
X     X  XXXXXXX   XXXXX          XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1 HEC-1 INPUT PAGE 1

```
LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
   1          *DIAGRAM
   2          ID        HILLTOP VILLAGE CENTER AND RECREATIONAL CENTRE
   3          ID        PROPOSED CONDITIONS
   4          ID        USING RAINFALL DATA FROM FFX PFM AND NRCS TYPE II 24-HR STORM
   5          ID        FILENAME: Prop_Rev.ih1
   6          IT     2                    800
   7          IO     5
              *
   8          JR    PREC     3.2     5.2     7.3   10.95   18.25    8.35
   9          KK  BASIN1
  10          KM  Inflow to Existing SWM Pond 1
  11          KO                                        21
  12          BA   0.281
  13          IN      6
  14          PC     0.0  .00101  .00202  .00305  .00408  .00513  .00618  .00725  .00832  .00941
  15          PC  .01050  .01161  .01272  .01385  .01498  .01613  .01728  .01845  .01962  .02081
  16          PC    .022  .02321  .02442  .02565  .02688  .02813  .02938  .03065  .03192  .03321
  17          PC  .03450  .03581  .03712  .03845  .03978  .04113  .04248  .04385  .04522  .04661
  18          PC    .048  .04941  .05084  .05229  .05376  .05525  .05676  .05829  .05984  .06141
  19          PC    .063  .06461  .06624  .06789  .06956  .07125  .07296  .07469  .07644  .07821
  20          PC     .08  .08181  .08364  .08549  .08736  .08925  .09116  .09309  .09504  .09701
  21          PC    .099  .10101  .10304  .10509  .10716  .10925  .11136  .11349  .11564  .11781
  22          PC     .12  .12225  .12460  .12705  .12960  .13225    .135  .13785  .14080  .14385
  23          PC    .147   .1502  .15340   .1566   .1598    .163  .16628  .16972  .17332  .17708
  24          PC    .181  .18512  .18948  .19408  .19892    .204   .2094   .2152   .2214    .228
  25          PC    .235  .24268  .25132  .26092  .27148    .283  .30684  .35436  .43079  .56786
  26          PC    .663  .68196  .69864  .71304  .72516    .735  .74344  .75136  .75876  .76564
  27          PC    .772  .77796  .78364  .78904  .79416    .799   .8036    .808   .8122   .8162
  28          PC     .82  .82367  .82726  .83079  .83424  .83763  .84094  .84419  .84736  .85047
  29          PC  .85350  .85647  .85936  .86219  .86494  .86763  .87024  .87279  .87526  .87767
  30          PC     .88  .88229  .88455  .88679    .889  .89119  .89335  .89549   .8976  .89969
  31          PC  .90175  .90379   .9058  .90779  .90975  .91169   .9136  .91549  .91735  .91919
  32          PC    .921  .92279  .92455  .92629    .928  .92969  .93135  .93299   .9346  .93619
  33          PC  .93775  .93929   .9408  .94229  .94375  .94519   .9466  .94799  .94935  .95069
  34          PC    .952   .9533  .95459  .95588  .95716  .95844  .95971  .96098  .96224   .9635
  35          PC  .96475    .966  .96724  .96848  .96971  .97094  .97216  .97338  .97459   .9758
  36          PC    .977   .9782  .97939  .98058  .98176  .98294  .98411  .98528  .98644  .98760
  37          PC  .98875   .9899  .99104  .99218  .99331  .99444  .99556  .99668  .99779   .9989
  38          PC     1.0
  39          LS           84.17
  40          UD   0.288
  41          KK  EXSWM1       1
  42          KM  Route Through Existing SWM Pond 1 With Existing 12.5' Weir
  43          KO                                        21
  44          RS       1    STOR       0
  45          SV       0    1.34     4.7    8.59   12.79   17.34   18.52
  46          SE      85      86      88      90      92      94    94.5
  47          SQ       0   13.26    37.5   68.89  106.07  148.23  194.86  245.55     300  357.97
  48          SQ  419.26   483.7  551.14  647.96  769.51  908.02 1060.66 1225.77 1402.21 1589.13
  49          SE      85    85.5      86    86.5      87    87.5      88    88.5      89    89.5
              SE      90    90.5      91    91.5      92    92.5      93    93.5      94    94.5
```

1 HEC-1 INPUT PAGE 2

```
LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
  50          KK  BASIN2
  51          KM  Inflow to Proposed SWM Pond 2
  52          KO                                        21
  53          BA   0.101
  54          LS           90
  55          UD    0.15
  56          KK  PRSWM2
  57          KM  Route Through Proposed SWM Pond 2
  58          KO                                        21
  59          RS       1    ELEV     142                 
  60          SA    0.07    0.16    0.38    0.48    0.57    0.67    0.76    0.98    1.22    1.34
  61          SA    1.47    1.61    1.75     1.9
  62          SE     128     130     132     134     136     138     140     142     144     146
  63          SE     148     150     152     154
  64          SL     142     4.5     0.6     0.5
  65          SS   147.5      56       3     1.5
  66          ST     152     500     2.6     1.5
  67          KK  COMB12
  68          KM  Combine Outflow From SWM Ponds 1 and 2
  69          KO                                        21
  70          HC       2
              *
  71          ZZ
```

PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
FLOWS IN CUBIC FEET PER SECOND, AREA IN SQUARE MILES
TIME TO PEAK IN HOURS

RATIOS APPLIED TO PRECIPITATION

OPERATION	STATION	AREA	PLAN		2-YEAR: RATIO 1 3.20	10-YEAR: RATIO 2 5.20	100-YR: RATIO 3 7.30	FBH 1.5x100 RATIO 4 10.95	SDF 2.5x100 RATIO 5 18.25	NOAA ATLAS 14 RATIO 6 8.35
HYDROGRAPH AT										
+	BASIN1	.28	1	FLOW	275.	562.	869.	1401.	2448.	1022.
				TIME	12.17	12.17	12.17	12.17	12.17	12.17
ROUTED TO										
+	EXSWM1	.28	1	FLOW	200.	433.	727.	1276.	2299.	889.
				TIME	12.33	12.33	12.30	12.23	12.23	12.27
			** PEAK STAGES IN FEET **							
			1	STAGE	88.05	90.11	91.82	93.64	96.40	92.43
				TIME	12.33	12.33	12.30	12.23	12.23	12.27
HYDROGRAPH AT										
+	BASIN2	.10	1	FLOW	169.	308.	452.	700.	1189.	524.
				TIME	12.03	12.03	12.03	12.03	12.03	12.03
ROUTED TO										
+	PRSWM2	.10	1	FLOW	40.	120.	343.	644.	1140.	437.
				TIME	12.37	12.27	12.13	12.10	12.07	12.10
			** PEAK STAGES IN FEET **							
			1	STAGE	145.43	148.04	148.93	149.79	150.95	149.22
				TIME	12.37	12.27	12.13	12.10	12.07	12.10
2 COMBINED AT										
+	COMB12	.38	1	FLOW	240.	547.	967.	1723.	3125.	1190.
				TIME	12.33	12.30	12.23	12.20	12.17	12.20

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION PRSWM2
(PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1 .....

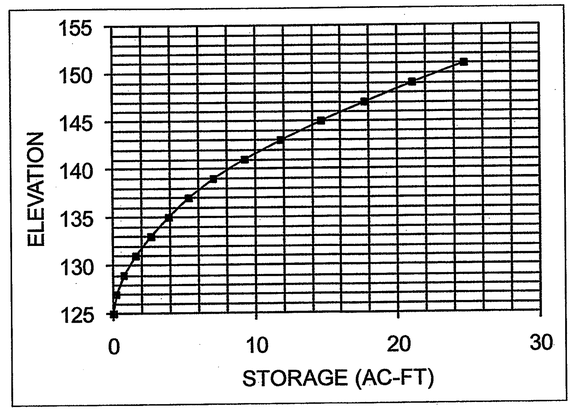
	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	142.00	147.50	152.00
STORAGE	7.	14.	21.
OUTFLOW	0.	51.	1672.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
3.20	145.43	.00	11.	40.	.00	12.37	.00
5.20	148.04	.00	15.	120.	.00	12.27	.00
7.30	148.93	.00	16.	343.	.00	12.13	.00
10.95	149.79	.00	17.	644.	.00	12.10	.00
18.25	150.95	.00	19.	1140.	.00	12.07	.00
8.35	149.22	.00	16.	437.	.00	12.10	.00

*** NORMAL END OF HEC-1 ***

NOTE: A DATUM SHIFT IN THE POND ELEVATION OCCURRED, WHICH REQUIRES THE ELEVATIONS IN THE COMPUTATIONS TO BE REDUCED BY 3 FEET. THE SHAPE OF THE POND HAS BEEN MAINTAINED AND THE STAGE STORAGE CURVE HAS BEEN UPDATED.

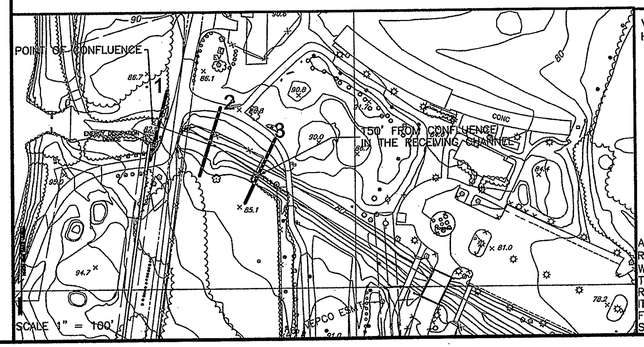
STAGE STORAGE CURVE FOR PROPOSED POND 2



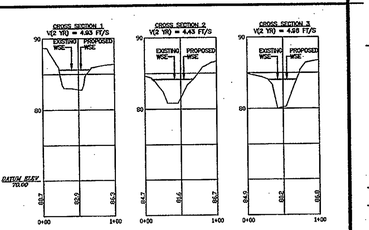
STAGE VS. STORAGE USING CONIC METHOD

PROJECT:	Hilltop Village Center
ENGINEER / DATE:	GLC / 1-26-08

ELEVATION (FEET)	AREA (ACRES)	INCREMENTAL VOLUME (ACRE-FEET)	TOTAL VOLUME (ACRE-FEET)
125	0.07		0.0000
127	0.16	0.2239	0.2239
129	0.38	0.5244	0.7483
131	0.48	0.8581	1.6063
133	0.57	1.0487	2.6550
135	0.67	1.2387	3.8937
137	0.76	1.4291	5.3227
139	0.98	1.7353	7.0581
141	1.22	2.1956	9.2537
143	1.34	2.5591	11.8128
145	1.47	2.8090	14.6218
147	1.61	3.0789	17.7007
149	1.75	3.3590	21.0597
151	1.9	3.6490	24.7087



V: SCALE 1" = 10'
H: SCALE 1" = 100'



AS SHOWN ON THE OUTFALL NARRATIVE SHEET, THE POINT OF CONFLUENCE REPRESENTS THE POINT AT WHICH POND 2 DRAINAGE AREA (65.29 AC) IS COMBINED WITH A DRAINAGE AREA GREATER THAN 90% (176.71 AC). IT IS OF THE OPINION OF THE ENGINEER THAT THE OUTFALL IS ADEQUATE DUE TO THE FACT THAT THE RECEIVING CHANNEL HAS CAPACITY TO CONVEY THE 10 YEAR STORM FLOW WITHIN ITS BANKS AT NON-EROSIVE VELOCITIES FOR THE RIP-RAP LINED CHANNEL. THE FLOW VALUES WERE COMPUTED IN THE HEC MODEL ABOVE. THE CHANNEL IS STABLE AND HEAVILY VEGETATED AS WELL AS HEAVILY COVERED IN RIP-RAP

Dewberry

Dewberry & Davis LLC
8403 ARLINGTON BLVD.
FAIRFAX, VA 22031
PHONE: 703.849.0100
FAX: 703.849.0519
www.dewberry.com

Application No FDP 2008-MD-003 Staff C.LEWIS
APPROVED DEVELOPMENT PLAN
(DP) (GDP (DP) (FDP)
SEE PROFFERS DATED 3-6-2009
Date of (BOS) (PC) Approval 2-12-2009
Sheet 11 OF 11
Concurrent with RZ 2008-MD-003, Approved by BOS 3-9-2009

HILLTOP VILLAGE CENTER

CONCEPTUAL DEVELOPMENT PLAN / FINAL DEVELOPMENT PLAN

LEE AND MOUNT VERNON DISTRICTS FAIRFAX COUNTY, VIRGINIA

SEAL

COMMONWEALTH OF VIRGINIA
TIMOTHY CHARLES CULLETON
Lic. No. 20112
1-16-09
PROFESSIONAL ENGINEER

KEY PLAN

SCALE 0' 100' 200'

No.	DATE	BY	Description
3	01.16.09	DMC	No Change
2	12.02.08	DMC	Outfall X-Sect
1	12.04.08	DMC	REV. LAYOUT

REVISIONS

DRAWN BY ARW
APPROVED BY
CHECKED BY LM
DATE February 12, 2008

TITLE

Hilltop Village Center

Stormwater Management

PROJECT NO.

10

SHEET NO. OF 11

M-10695