CERTIFICATE OF AUTHENTICITY

THIS IS TO CERTIFY THAT THE FOLLOWING ELECTRONIC RECORDS ARE TRUE AND ACCURATE REPRODUCTIONS OF THE ORIGINAL RECORDS OF JAMES CITY COUNTY GENERAL SERVICES DEPARTMENT- STORMW ATER DIVISION; WERE SCANNED IN THE REGULAR COURSE OF BUSINESS PURSUANT TO GUIDELINES ESTABLISHED BY THE LIBRARY OF VIRGINIA AND ARCHIVES; AND HAVE BEEN VERIFIED IN THE CUSTODY OF THE INDIVIDUAL LISTED BELOW.

BMP NUMBER: **88013**

DATE VERIFIED: **January 7, 2022**

QUALITY ASSURANCE TECHNICIAN: **Charles E. Lovett II**

Charles E. Lovett II

LOCATION: WILLIAMSBURG, VIRGINIA

NOTES: CERTIFY & UPLOAD CONSTRUCTION CERTIFICATION

1. Maintenance Agreement

2. Deeds/Easements/ Agreements/Property Records

3. Construction Certificate

Stormwater Conveyance and Stormwater Management / BMP Facilities Record Drawing and Construction Certification Forms

Standard Forms and Instructions

Contents | Page

Record Drawing and Construction Certification Forms

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Engineering & Resource Protection
OCT 13 2016
RECEIVED

Issue Date: February 1, 2001
Revised: July 1, 2014

Storm System

Stormwater Conveyance and Stormwater Management / BMP Facilities Record Drawing and Construction Certification Forms

Note: In accordance with the Subdivision and Zoning ordinances of the County Code, plans of development have requirements to ensure that at the completion of the project and prior to release of surety, certified record drawings (as-builts) and construction certifications by a registered Professional Engineer, must be provided for constructed stormwater conveyance/drainage system and stormwater management/Best Management Practice (BMP) facilities. In addition, Sections 8-25 and 8-26 of Article II of Chapter 8 of the County Code, require the submission of construction record drawings and construction certifications for permanent stormwater management/BMP facilities and permanent stormwater conveyance systems such as inlets, pipes and channels. In addition, for stormwater management/BMP facilities involving the construction of an impounding structure or dam embankment, certification is required by a professional engineer who performed inspections during construction of the facility.

Section 1 - Site Information:

Project Name: White Hall Section 4
Structure/BMP Name: Storm System
Project Location: 3401 Rochambeau Drive
BMP Location: Storm system within Section 4 of White Hall
County Plan No.: SP-0074-2014 & S-0043-2014 VAHU6 HUC Code: _____

Project Type:
- ☑ Residential
- ☐ Business
- ☐ Commercial
- ☐ Office
- ☐ Institutional
- ☐ Industrial
- ☐ Public
- ☐ Roadway
- ☐ Other _____

Tax Map/Parcel No.: 1220100014A
County BMP ID Code (if known): _____
Zoning District: R2
Land Use: Residential
Site Area (sf or acres): 36.66 Acres

Brief Description of Stormwater Conveyance and/or Stormwater Management/BMP Facility:
Storm piping within Section 4 of White Hall

Nearest Visible Landmark to SWM/BMP Facility: Williamsburg Christian Academy

Nearest Vertical Ground Control (if known):

☐ JCC Geodetic Ground Control ☐ USGS ☐ Temporary ☐ Arbitrary ☐ Other

Station Number or Name: _____
Datum or Reference Elevation: _____
Control Description: _____
Control Location from Subject Facility:

Section 2 – Construction Information

Section 2A - Stormwater Conveyance System Construction Information (Pipes, Channels, etc.):

Pre-Construction Meeting Held: ☑ Yes ☐ No ☐ Unknown
Approx. Construction Start Date for System: Winter 2015
System Milestone Inspection(s) by County Representative during Construction: ☑ Yes ☐ No ☐ Unknown
Name of Site Work Contractor Who Constructed System: George Nice & Sons
Name of Professional Firm Who Monitored Construction: GET
Date of Completion of System: Spring 2016
Date of Record Drawing/Construction Certification Submittal: May 2016

Section 2B - Stormwater Management / BMP Facility Construction Information: N/A

Pre-Construction Meeting Held for Construction of SWM/BMP Facility: ☐ Yes ☐ No ☐ Unknown
Approx. Construction Start Date for SWM/BMP Facility: _____
Facility Monitored by County Representative during Construction: ☐ Yes ☐ No ☐ Unknown
Name of Site Work Contractor Who Constructed Facility: _____
Name of Professional Firm Who Monitored Construction: _____
Date of Completion for SWM/BMP Facility: _____
Date of Record Drawing/Construction Certification Submittal: _____

(Note: Record drawings and construction certifications are required within thirty (30) days of the completion of the stormwater conveyance system and/or stormwater management/ BMP facility construction. Record drawings and construction certifications must be reviewed and approved by the VESCP/VSMP authority prior to final inspection, acceptance, and surety release or reduction.)

Section 3 - Owner/Designer/Contractor Information:

Owner/Developer: *(Note: Site owner, operator, applicant or permittee responsible for development of the project.)*

Name: HHHunt Communities
Mailing Address: 11237 Nuckols Road
Glen Allen, VA 23059
Business Phone: (804) 762-4800 Fax: _____
Email: cbshelton@hhhunt.com
Contact Person: Craige Shelton Title: Project Manager

Design Professional: *(Note: Professional Engineer, Certified Land Surveyor or other qualified professional responsible for the design and preparation of plans and specifications for the stormwater conveyance system and/or stormwatermanagement/BMP facility.)*

Firm Name: AES Consulting Engineers
Mailing Address: 5248 Olde Towne Road, Suite 1
Business Phone/Fax: (757) 253-0040
Email: ryan.stephenson@aesva.com
Name of Responsible Plan Preparer: T.Ryan Stephenson, P.E.
Title: Project Manager
Plan Name: White Hall Section 4
Firm's Project No. 9048-20B
Plan/Revision Date: July 6, 2015
Plan Sheet No.'s Applicable: 1 / 12 / 13 / 14 / 15 / ____ /

Site/Utility Contractor: *(Note: Contractor directly responsible for construction of the stormwater conveyance system and/or stormwater management/BMP facility.)*

Firm Name: George Nice & Sons
Mailing Address: 129 Industrial Blvd.
Toano, VA 23168
Business Phone/Fax: (757) 565-2885
Email: mnice@gniceandsons.com
Contact Person: Mike Nice
Site Foreman/Supervisor:
Specialty Subcontractors and Purpose:
GET (Geotechnical)

Section 4 - Professional Certifications:

Certifying Professionals: *(Note: A Registered Professional Engineer or Certified Land Surveyor is responsible for preparation of a record drawing, sometimes referred to as an as-built drawing, for the stormwater conveyance system for the project including any stormwater management/BMP facilities. A Registered Professional Engineer is responsible for the inspection, monitoring, and certification of stormwater conveyance systems and/or stormwater management / BMP facilities during its construction. See next page for the "simple" County provided certification form that can be used by qualified professionals to provide this information.)*

STANDARD CERTIFICATION FORM

Record Drawing Certification

Firm Name: AES Consulting Engineers
Mailing Address: 5248 Olde Towne Road, Suite 1
Williamsburg, VA 23188
Business Phone: (757) 253-0040
Fax: (757) 220-8994
Name: T.Ryan Stephenson
Title: Project Manager
Signature:
Date: 10/13/16

I hereby certify to the best of my knowledge and belief that this record drawing represents the actual condition of the,

- ☒ Stormwater conveyance system
- ☐ Stormwater management / BMP facility

and the facility appears to conform to the provisions of the approved design plan, specifications, and stormwater management plan, except as specifically noted here.

COMMONWEALTH OF VIRGINIA
T. RYAN STEPHENSON
Lic. No. 044405
10/13/16
PROFESSIONAL ENGINEER

(Seal)

Virginia Registered Professional Engineer or Certified Land Surveyor

Construction Certification

Firm Name: GET Solutions, Inc.
Mailing Address: 1592-E Penniman Road
Williamsburg, VA 23185
Business Phone: (757) 564-6452
Fax: (757) 564-6453
Name: Philip A. Wunderly
Title: Project Engineer
Signature:
Date: 10/13/2016

I hereby certify to the best of my knowledge and belief that this,

- ☒ Stormwater conveyance system
- ☐ Stormwater management / BMP facility

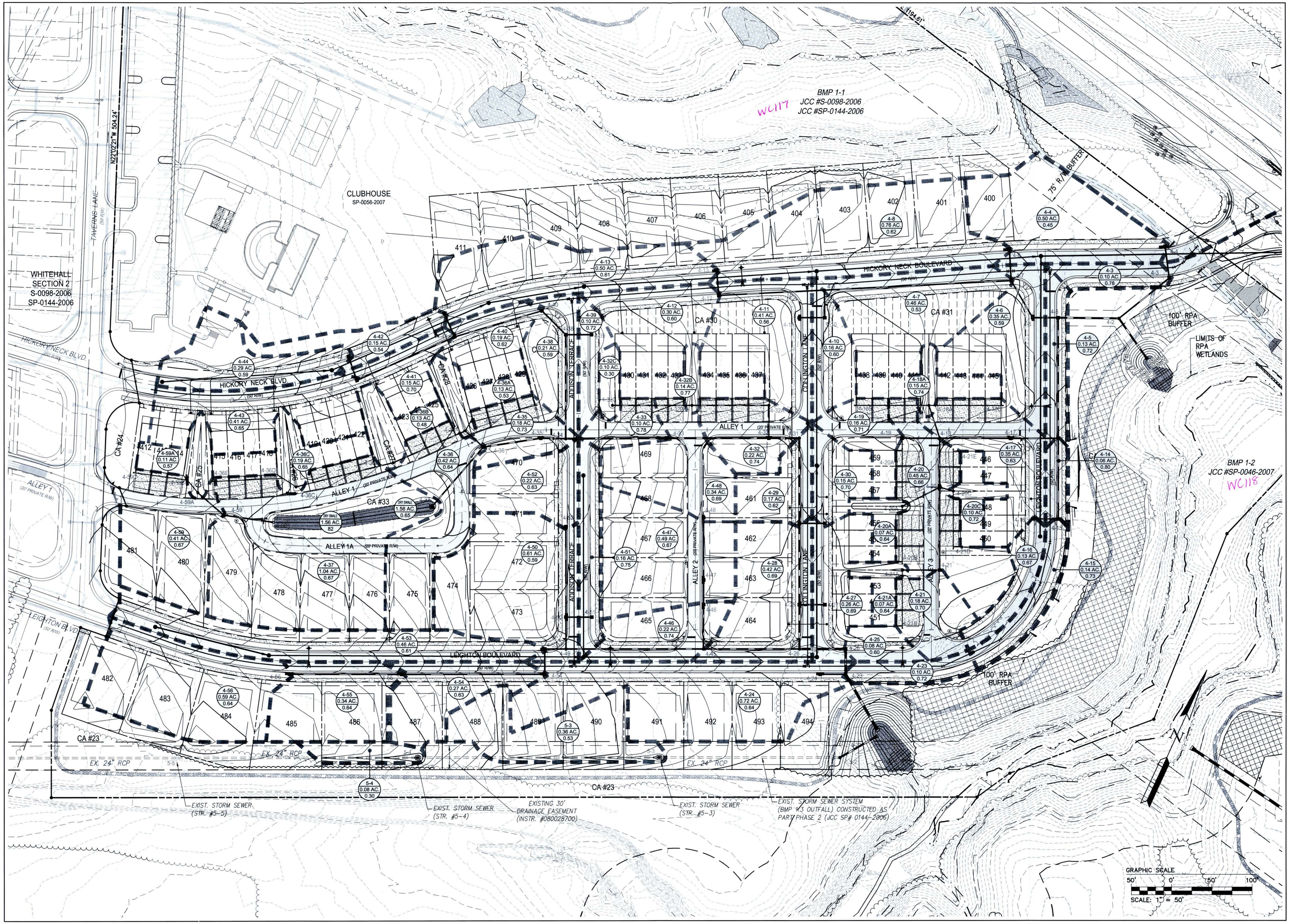
was monitored and constructed in accordance with the provisions of the approved plan, specifications, and stormwater management plan, except as specifically noted here.

COMMONWEALTH OF VIRGINIA
PHILIP A. WUNDERLY
Lic. No. 47135
10/13/16
PROFESSIONAL ENGINEER

(Seal)

Virginia Registered Professional Engineer

4. Record Drawings (As Builts)



Rev.	Date	Description	Revised By
3	06/26/15	REVISED PER COUNTY COMMENTS	TRS
2	05/15/15	REVISED PER COUNTY COMMENTS	TRS
1	01/12/15	REVISED PER COUNTY COMMENTS	TRS

COMMONWEALTH OF VIRGINIA
R. RYAN STEPHENSON
Lic. No. 044405
06/26/15
PROFESSIONAL ENGINEER

AES CONSULTING ENGINEERS
5248 Olde Towne Road, Suite 1
Williamsburg, Virginia 23188
Phone: (757) 253-0040
Fax: (757) 220-5994
www.aesva.com
Hampton Roads | Central Virginia | Middle Peninsula

SECTION 4
WHITE HALL

DEVELOPER: HHHUNT COMMUNITIES

STONEHOUSE DISTRICT JAMES CITY COUNTY VIRGINIA

Project Contacts:	HWP/TRS
Project Number:	9048-20B
Scale: 1"=50'	Date: AUG. 20, 2014

Sheet Title:
POST-DEVELOPMENT DRAINAGE AREA MAP

Sheet Number
DA-2

S-0043-2014 / SP-0074-2014

County of James City
Subdivision Construction Plan
DATE of APPROVAL 8/10/15
Does not constitute final plat approval

White Hall

JAMES CITY COUNTY

SECTION 4

HHHUNT
Another HHHunt Community.

STONEHOUSE DISTRICT
JAMES CITY COUNTY, VIRGINIA

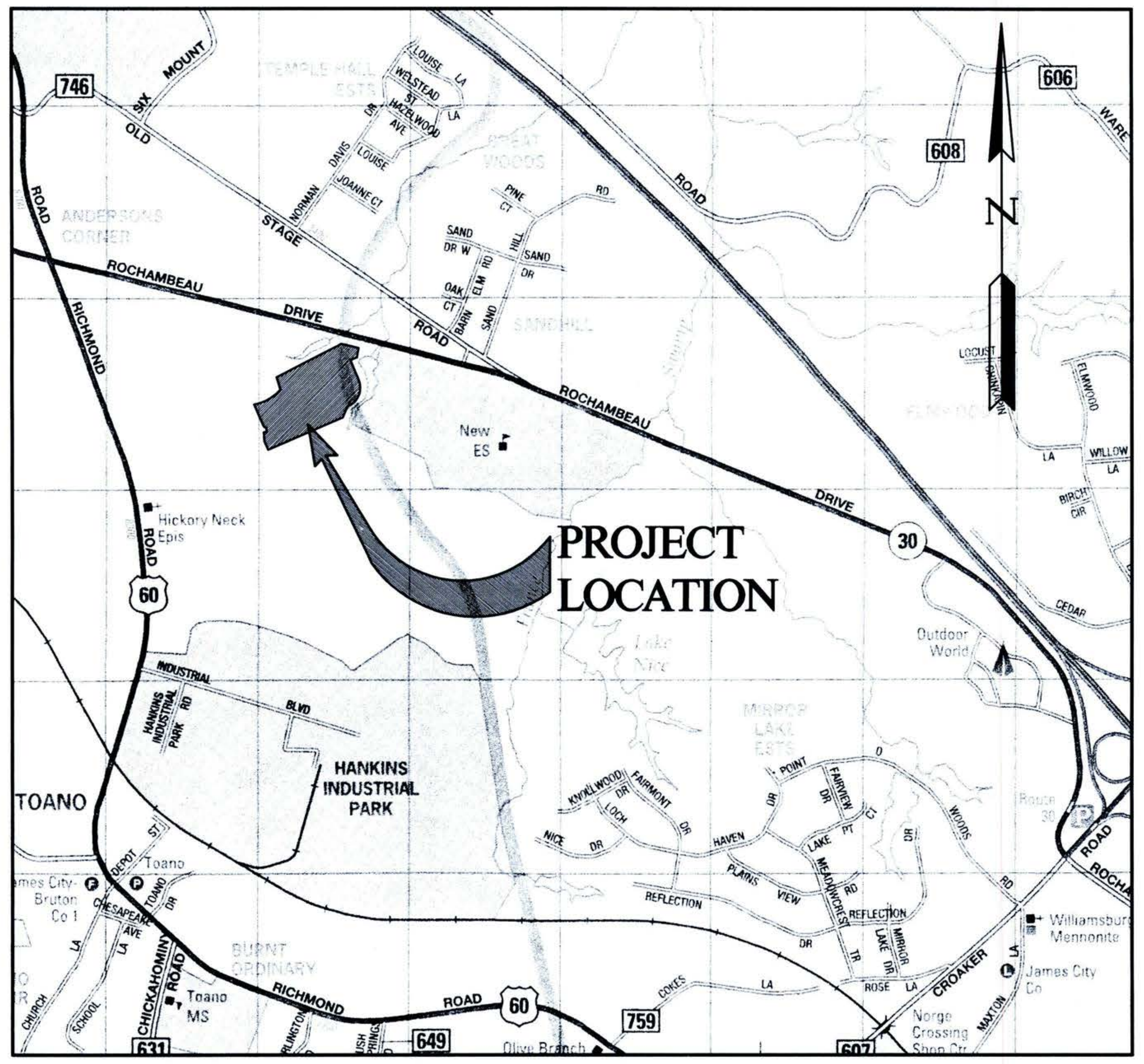
LEGEND

EXISTING — PROPOSED

- WATER
- SANITARY SEWER
- STORM SEWER
- FORCE MAIN
- MANHOLE
- CURB DROP INLET
- YARD DROP INLET
- FLARED END SECTION
- VALVE
- FIRE HYDRANT ASSEMBLY
- BLOW-OFF VALVE
- AIR RELEASE ASSEMBLY
- CLEAN OUT
- WATER METER
- STREETLIGHT
- CENTERLINE/BASELINE
- RIGHT OF WAY
- PROPERTY LINE
- ℄ DITCH/SWALE
- CONCRETE LINED DITCH
- EC-3 LINED DITCH
- EXISTING TREELINE
- LIMITS OF CLEARING
- SILT FENCE
- INLET PROTECTION
- CHECK DAM
- STRAW BALE BARRIER
- RIP RAP
- ROLL TOP GUTTER
- REVERSE ROLL TOP GUTTER
- GROUND ELEVATION (FG25.1)
- PROPOSED TOP OF CURB ELEV. (TC25.1)
- GRADING LINE TIE-IN
- EXISTING CONTOUR ELEV. (80)
- PROPOSED CONTOUR ELEV. (80)
- PROPOSED CONTOURS (BY OTHERS)

INDEX OF SHEETS

SHEET NO.	SHEET DESCRIPTION
1	COVER SHEET
2	OVERALL DEVELOPMENT
3	ENVIRONMENTAL INVENTORY PLAN
4	PHASE 1 EROSION AND SEDIMENT CONTROL PLAN
5	OVERALL DEVELOPMENT PLAN
5A	OVERALL DEVELOPMENT PLAN
6	PRELIMINARY PLAT
7	PRELIMINARY PLAT
8	PRELIMINARY PLAT
9	ROAD AND UTILITY PLAN
10	ROAD AND UTILITY PLAN
11	ROAD AND UTILITY PLAN
12	GRADING, DRAINAGE AND EROSION & SEDIMENT CONTROL PLAN
13	GRADING, DRAINAGE AND EROSION & SEDIMENT CONTROL PLAN
14	GRADING, DRAINAGE AND EROSION & SEDIMENT CONTROL PLAN
15	OVERALL DRAINAGE PLAN
16	ROAD AND UTILITY PROFILES
17	ROAD AND UTILITY PROFILES
18	ROAD AND UTILITY PROFILES
19	ROAD AND UTILITY PROFILES
20	SANITARY SEWER BRIDGE PLAN AND PROFILE
21	NOTES AND DETAILS
22	NOTES AND DETAILS
23	NOTES AND DETAILS
24	NOTES AND DETAILS
25	LANDSCAPE PLAN
26	LANDSCAPE PLAN
27	LANDSCAPE PLAN
28	TYPICAL TOWNHOME LANDSCAPE PLAN
29	LANDSCAPE NOTES AND DETAILS
30	LIGHTING PLAN



Copyright ADC The Map People permitted use number 21004223

VICINITY MAP
(APPROX. SCALE 1"=2000')

County Project No.: S-0074-2014 / S-0043-2014
Original Submittal Date: August 20, 2014

This project references Z-0011-2005, MP-0008-2005 & SUP -0018-2005

SITE DATA

TAX MAP PARCEL ID:	1220100014A
ADDRESS:	3401 ROCHAMBEAU DRIVE
PROJECT AREA:	36.66 AC.
DISTURBED AREA:	19.13 AC.
PROPOSED IMPERVIOUS AREA:	10.42 AC±.*
FLOOD HAZARD MAP:	THIS PROPERTY LIES IN ZONE X, AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN PER F.I.R.M. #51095C0210C EFFECTIVE DATE 9/28/07.
WATERSHED INFORMATION:	JAMES CITY COUNTY WARE CREEK WATERSHED
HUC CODE:	Y062
NO. OF STREETLIGHTS:	21

* THIS AREA INCLUDES SINGLE FAMILY LOTS AT 80% IMPERVIOUS AREA WITHIN BUILDING ENVELOPE.

PARKING CALCULATIONS

REQUIRED:

47 DETACHED UNITS X 2 SPACES/UNIT	= 94 SPACES
48 TOWNHOME UNITS X 2.5 SPACES/UNIT	= 120 SPACES
TOTAL SPACES REQUIRED:	= 214 SPACES

PROVIDED:

47 DETACHED UNITS X 2 SPACES/UNIT (2 GARAGE)	= 94 SPACES
48 TOWNHOME UNITS X 4 SPACES/UNIT (2 GARAGE, & 2 DRIVEWAY)	= 192 SPACES
TOTAL SPACES PROVIDED	= 286 SPACES

GENERAL NOTES

1. ZONING IS R2, RESIDENTIAL DISTRICT, CLUSTER OVERLAY WITH PROFFERS. CASE # Z-11-05/SUP-18-05/MP-08-05 APPROVED SEPTEMBER 13, 2005.
2. THE MASTER PLAN WAS AMENDED ON MARCH 13, 2007 AND APPROVED BY THE PLANNING DIRECTOR ON MARCH 21, 2007 AS CASE # MP-01-07.
3. ALL PROPOSED UTILITIES SHALL BE PLACED UNDERGROUND PER JAMES CITY COUNTY SUBDIVISION ORDINANCE SECTION 19-33 AND PER THE JCSA.
4. CONTACT MISS UTILITY (1-800-552-7001) FOR EXISTING UTILITY LOCATIONS 48 HOURS PRIOR TO COMMENCING THE WORK.
5. EXISTING UTILITY LOCATIONS INDICATED ARE APPROXIMATE. FIELD VERIFY PRIOR TO COMMENCING THE WORK.
6. THE CONTRACTOR SHALL SATISFY HIMSELF AS TO ALL SITE CONDITIONS PRIOR TO CONSTRUCTION.
7. A LAND DISTURBING PERMIT AND SILTATION AGREEMENT, WITH SURETY ARE REQUIRED FOR THIS PROJECT.
8. VERIFY ALL DIMENSIONS AND NOTIFY JAMES CITY SERVICE AUTHORITY PRIOR TO ANY EXCAVATION OR DEMOLITION WITHIN UTILITY CORRIDORS.
9. NO BUILDING OR STRUCTURE SHALL EXCEED 35 FEET IN HEIGHT FROM GRADE.
10. BUILDINGS MUST BE SET BACK AT LEAST 35' FROM THE PERIMETER BUFFER.
11. ON LOTS WHERE THERE ARE DRAINAGE EASEMENTS PROPOSED THAT ARE GREATER THAN THE BUILDING SETBACK, THE LIMITS OF DRAINAGE EASEMENTS SHALL BE CONSIDERED SETBACK LINES.
12. TOWNHOME UNITS LOCATED IN ROWS OF FOUR (4) OR MORE WILL BE LESS THAN THREE (3) STORIES PER APPROVED MASTER PLAN.
13. CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING AND MAINTAINING ALL LINES AND GRADES REQUIRED.
14. ALL UTILITY AND SURVEY DATA SHOWN ON THE DRAWINGS HAVE BEEN PROVIDED BY AES CONSULTING ENGINEERS. INFORMATION HAS BEEN OBTAINED FROM THE BEST AVAILABLE SOURCES AT THE TIME OF THE SURVEY BUT IS NOT REPRESENTED AS BEING COMPLETE AND ACCURATE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE AND PROTECT EXISTING UTILITIES AND UNDERGROUND STRUCTURES. DAMAGE TO EXISTING UTILITIES AND UNDERGROUND STRUCTURES SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE DEVELOPER.
15. ANY EXISTING UNUSED WELLS SHALL BE ABANDONED IN ACCORDANCE WITH STATE PRIVATE WELL REGULATIONS AND JAMES CITY COUNTY CODE.
16. CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF CONSTRUCTION EFFORTS WITH VIRGINIA NATURAL GAS, DOMINION VIRGINIA POWER, VERIZON TELEPHONE, HAMPTON ROADS SANITATION DISTRICT, APPROPRIATE TELEVISION CABLE COMPANY, AND OTHERS THAT MAY BE REQUIRED.
17. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS FOR THE WORK INDICATED.
18. THE CONTRACTOR SHALL REESTABLISH ALL PROPERTY PINS, MONUMENTS, WATER METERS, DRAINAGE CULVERTS, FENCES, UTILITY POLES, DRIVEWAYS, CURBS, GUTTERS, ETC. DISTURBED DURING CONSTRUCTION AT NO ADDITIONAL COST TO THE DEVELOPER.
19. THE CONTRACTOR SHALL COMPLY WITH ALL PROVISIONS OF THE VIRGINIA UNDERGROUND UTILITY DAMAGE PREVENTION ACT (SECTION 56-265.14 ET. SEQ. CODE OF VIRGINIA, 1950, AS AMENDED) AND HEREBY AGREES TO HOLD THE DEVELOPER AND THE ENGINEER HARMLESS AGAINST ANY LOSS, DAMAGE, OR CLAIMS OF ANY NATURE WHATSOEVER ARISING OUT OF THE CONTRACTOR'S FAILURE TO COMPLY WITH THE REQUIREMENTS OF SAID ACT.
20. THE CONTRACTOR IS REQUIRED TO COMPLY WITH THE VIRGINIA OVERHEAD HIGH VOLTAGE LINE SAFETY ACT (SECTIONS 59.1-406 THROUGH 59.1-414, CODE OF VIRGINIA, 1950, AS AMENDED). THE CONTRACTOR IS REQUIRED TO VISIT THE SITE AND NOTE THE POSITION OF OVERHEAD CABLES PRIOR TO CONSTRUCTION.
21. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING AND MAINTAINING EROSION AND SEDIMENT CONTROL MEASURES AS SHOWN ON THE DRAWINGS AND FOR EXCAVATION STOCKPILES, STAGING AREAS, MOBILIZATION SITES, BEDDING/BACKFILL STOCKPILES AND OTHER LAND DISTURBANCES NOT SPECIFICALLY ADDRESSED IN THE DRAWINGS OR CONTRACT DOCUMENTS. EROSION AND SEDIMENT CONTROL MEASURES SHALL MEET OR EXCEED THE MINIMUM STANDARDS OF THE "VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK" (LATEST PUBLICATION) AND THE REQUIREMENTS OF THE LOCAL GOVERNING AUTHORITY.
22. THE ABSENCE OF THE DEVELOPER OR THE ENGINEER AT THE JOB SITE DOES NOT, IN ANY WAY, RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO PERFORM THE WORK IN ACCORDANCE WITH THE DRAWINGS, CONTRACT DOCUMENTS, ADDENDA, AND WRITTEN AUTHORIZED PLAN REVISIONS.
23. THE CONTRACTOR SHALL INSTALL PIPE, FITTINGS, AND MANHOLES IN DRY TRENCH CONDITIONS AND IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION. THE CONTRACTOR SHALL PROVIDE ALL DEWATERING, WELL POINTING, SHEETING, TRENCH BOXES, AND TRENCH STABILIZATION AS REQUIRED AT NO ADDITIONAL COST TO THE DEVELOPER.
24. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE LAWS, ORDINANCES, RULES, REGULATIONS, AND ORDERS OF ANY BODY HAVING JURISDICTION. THE CONTRACTOR SHALL ERECT AND MAINTAIN, AS REQUIRED BY THE CONDITIONS AND PROGRESS OF THE WORK, ALL NECESSARY SAFEGUARDS FOR SAFETY AND PROTECTION.
25. CONTOUR INTERVAL IS 1 FOOT.
26. THIS PROPERTY LIES IN ZONE X, AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN PER F.I.R.M. #51095C0210C EFFECTIVE DATE 9/29/07.
27. STORM STRUCTURES, SEWER AND BEDDING SHALL CONFORM TO THE VDOT ROAD AND BRIDGE STANDARDS AND VDOT SPECIFICATIONS. ALL PIPE BEDDING SHALL BE IN ACCORDANCE WITH PB-1 AND MANUFACTURER SPECS. AND GUIDELINES, AND STORM SEWER MANHOLES DEEPER THAN 4 FEET SHALL HAVE STEPS (ST-1). ALL REINFORCED CONCRETE PIPE (RCP) SHALL BE CLASS III UNLESS OTHERWISE NOTED.
28. DEVELOPER: HHHUNT COMMUNITIES
    11237 NUCKOLS ROAD
    GLEN ALLEN, VA 23059
    CONTACT: JONATHAN RIDOUT
    PHONE NO.: 804.762.4800
    FAX NO.: 804.762.9769
29. THE PROFESSIONAL WHOSE SEAL IS AFFIXED HEREON SHALL ACT AS THE "RESPONSIBLE LAND DISTURBER" FOR PURPOSES OF PLAN APPROVAL ONLY. PRIOR TO ISSUANCE OF THE LAND DISTURBING PERMIT, THE CONTRACTOR OR DEVELOPER SHALL PROVIDE THE NAME OF A "RESPONSIBLE LAND DISTURBER" WHO SHALL ASSUME RESPONSIBILITY AS THE "RESPONSIBLE LAND DISTURBER" FOR THE CONSTRUCTION PHASE OF THE PROJECT. THE CONTRACTOR OR DEVELOPER SHALL PROVIDE WRITTEN NOTIFICATION SHOULD THE "RESPONSIBLE LAND DISTURBER" CHANGE DURING CONSTRUCTION.
30. CONTRACTOR SHALL BE REQUIRED TO REGISTER FOR A VIRGINIA STORMWATER MANAGEMENT PROGRAM (VSMP) PERMIT.
31. HORIZONTAL DATUM – NAD83 (1192) VIRGINIA STATE PLAIN COORDINATE SYSTEM SOUTH ZONE
    VERTICAL DATUM – NGVD29 VIRGINIA STATE PLAIN COORDINATE SYSTEM SOUTH ZONE.
    JAMES CITY COUNTY MONUMENTS USED – 302, 303, 305, 340
32. STORMWATER MANAGEMENT FOR THIS PROJECT IS TO BE IN COMPLIANCE WITH APPROVED MASTER STORMWATER MANAGEMENT PLAN COUNTY ID SWM-002-06/C-096-06. SPECIFICALLY, RUNOFF FROM THIS SITE DRAINS TO EXISTING BMP # 1-2 (SP-0046-2007).
33. NEW MONUMENTS SHALL BE SET IN ACCORDANCE WITH SECTIONS 19-34 THRU 19-36 OF THE JAMES CITY COUNTY SUBDIVISION ORDINANCE.
34. THE STORMWATER MANAGEMENT/BMP FACILITY AND ASSOCIATED STORMWATER CONVEYANCE SYSTEMS AS PROPOSED FOR THIS PROJECT WILL REQUIRE SUBMISSION, REVIEW, AND APPROVAL OF A RECORD DRAWING (AS-BUILT) AND CONSTRUCTION CERTIFICATION PRIOR TO RELEASE OF THE POSTED BOND/SURETY.
35. ALL PRIVATE ENTRANCES SHALL BE INSTALLED IN ACCORDANCE WITH THE CURRENT VDOT STANDARDS AND SPECIFICATIONS. IT IS THE DEVELOPER'S RESPONSIBILITY TO INSURE THAT BUILDERS HAVE PROPERLY INSTALLED ALL CONCRETE ENTRANCES AND ENTRANCE CULVERTS.
36. ALL STORM DRAINAGE STRUCTURES SHOWN ON SHEETS 12-14 THAT ARE JUNCTIONS ARE TO HAVE STANDARD INLET SHAPING PER VDOT STANDARD IS-1.
37. ALL ALLEYS AND PRIVATE RIGHT-OF-WAYS SHALL NOT BE MAINTAINED BY THE VIRGINIA DEPARTMENT OF TRANSPORTATION OR BY JAMES CITY COUNTY.
38. VDOT SHALL NOT BE RESPONSIBLE FOR MAINTAINING ANY SIDEWALKS LOCATED OUTSIDE OF STATE MAINTAINED RIGHT OF WAY LIMITS.

PLANNING DIVISION
JUL 27 2015
RECEIVED

COUNTY OF JAMES CITY
FINAL SITE PLAN
APPROVALS — DATE
Fire Dept GT/lep 5/21/15
VDOT TC/lep 7/21/15
Planning CMJ 8/10/15
Environ SJT/lep 8/10/15
Zoning Adm. JH 8/10/15
JCSA DW/lep 6/2/15
County Eng.
REA
Other

Engineering & Resource Protection
AUG 11 2015
RECEIVED

Revisions: 1 — REVISED PER COUNTY COMMENTS — TRS; 2 — REVISED PER COUNTY COMMENTS — TRS; 3 — REVISED PER COUNTY COMMENTS — TRS

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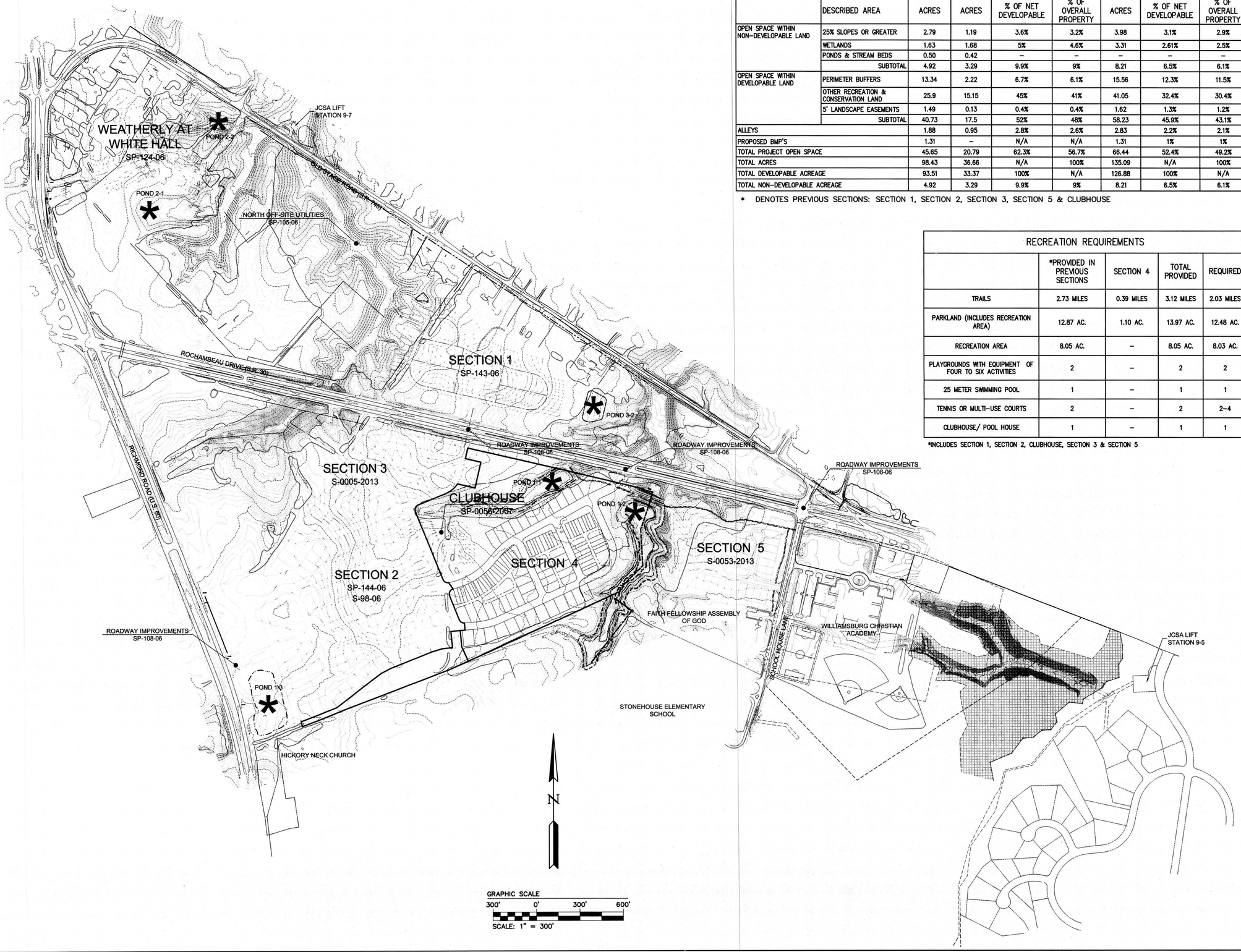
Hampton Roads | Central Virginia | Middle Peninsula

SECTION 4
WHITE HALL
DEVELOPER: HHHUNT COMMUNITIES
STONEHOUSE DISTRICT — JAMES CITY COUNTY — VIRGINIA

Project Contacts:	HWP/TRS
Project Number:	9048-20B
Scale: AS NOTED	Date: AUG. 20, 2014
Sheet Title:	COVER SHEET
Sheet Number	1



OPEN SPACE SUMMARY SECTION 4

		PREV SECS.*	SECTION 4			WHITE HALL TOTAL		
	DESCRIBED AREA	ACRES	ACRES	% OF NET DEVELOPABLE	% OF OVERALL PROPERTY	ACRES	% OF NET DEVELOPABLE	% OF OVERALL PROPERTY
OPEN SPACE WITHIN NON-DEVELOPABLE LAND	25% SLOPES OR GREATER	2.79	1.19	3.6%	3.2%	3.98	3.1%	2.9%
	WETLANDS	1.63	1.68	5%	4.6%	3.31	2.61%	2.5%
	PONDS & STREAM BEDS	0.50	0.42	–	–	–	–	–
	SUBTOTAL	4.92	3.29	9.9%	9%	8.21	6.5%	6.1%
OPEN SPACE WITHIN DEVELOPABLE LAND	PERIMETER BUFFERS	13.34	2.22	6.7%	6.1%	15.56	12.3%	11.5%
	OTHER RECREATION & CONSERVATION LAND	25.9	15.15	45%	41%	41.05	32.4%	30.4%
	5' LANDSCAPE EASEMENTS	1.49	0.13	0.4%	0.4%	1.62	1.3%	1.2%
	SUBTOTAL	40.73	17.5	52%	48%	58.23	45.9%	43.1%
ALLEYS		1.88	0.95	2.8%	2.6%	2.83	2.2%	2.1%
PROPOSED BMP'S		1.31	–	N/A	N/A	1.31	1%	1%
TOTAL PROJECT OPEN SPACE		45.65	20.79	62.3%	56.7%	66.44	52.4%	49.2%
TOTAL ACRES		98.43	36.66	N/A	100%	135.09	N/A	100%
TOTAL DEVELOPABLE ACREAGE		93.51	33.37	100%	N/A	126.88	100%	N/A
TOTAL NON-DEVELOPABLE ACREAGE		4.92	3.29	9.9%	9%	8.21	6.5%	6.1%

* DENOTES PREVIOUS SECTIONS: SECTION 1, SECTION 2, SECTION 3, SECTION 5 & CLUBHOUSE

RECREATION REQUIREMENTS

	*PROVIDED IN PREVIOUS SECTIONS	SECTION 4	TOTAL PROVIDED	REQUIRED
TRAILS	2.73 MILES	0.39 MILES	3.12 MILES	2.03 MILES
PARKLAND (INCLUDES RECREATION AREA)	12.87 AC.	1.10 AC.	13.97 AC.	12.48 AC.
RECREATION AREA	8.05 AC.	–	8.05 AC.	8.03 AC.
PLAYGROUNDS WITH EQUIPMENT OF FOUR TO SIX ACTIVITIES	2	–	2	2
25 METER SWIMMING POOL	1	–	1	1
TENNIS OR MULTI-USE COURTS	2	–	2	2-4
CLUBHOUSE/ POOL HOUSE	1	–	1	1

*INCLUDES SECTION 1, SECTION 2, CLUBHOUSE, SECTION 3 & SECTION 5

3	07/06/15	REVISED PER COUNTY COMMENTS	TRS
2	06/15/15	REVISED PER COUNTY COMMENTS	TRS
1	01/12/15	REVISED PER COUNTY COMMENTS	TRS

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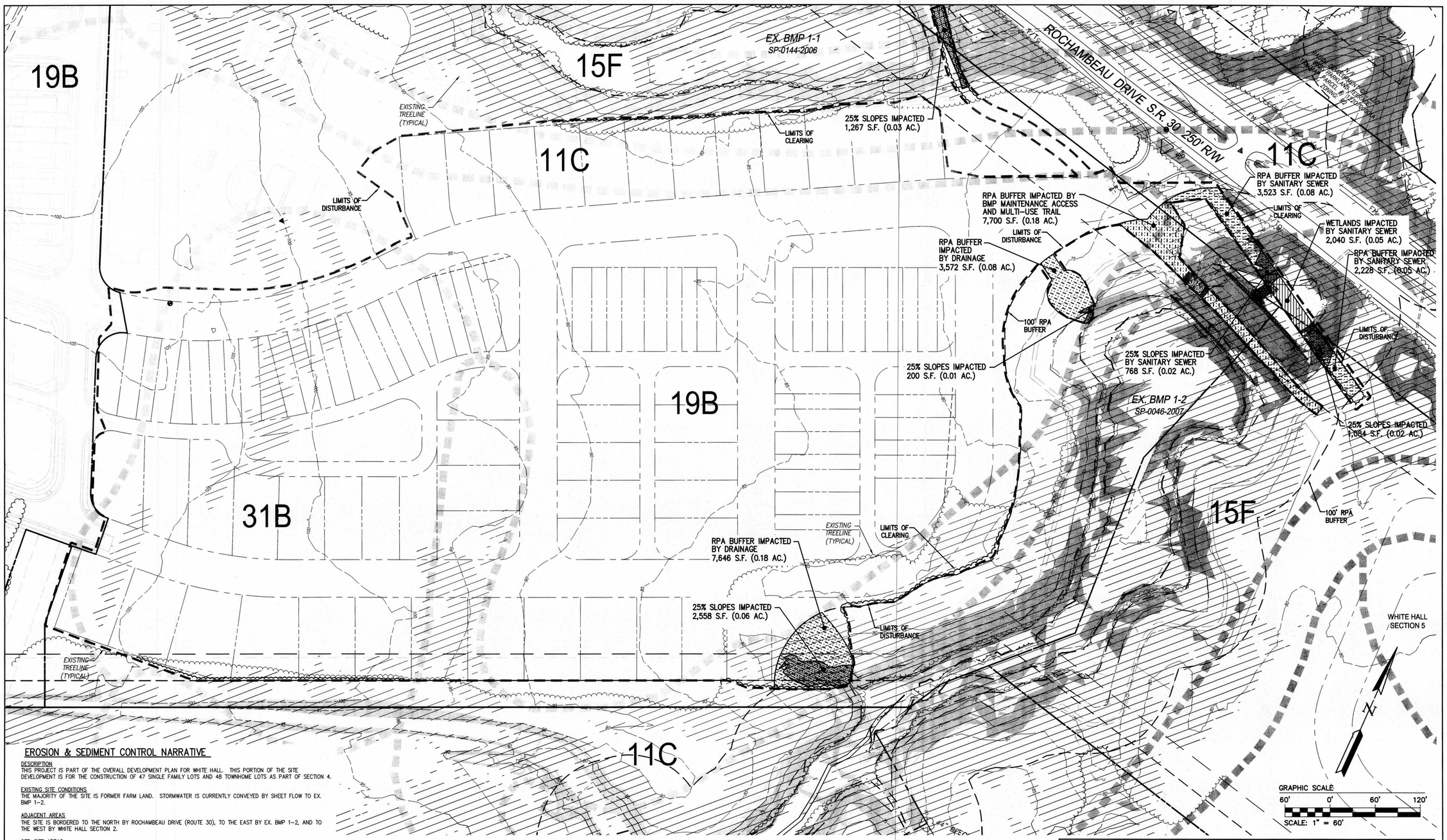
SECTION 4
WHITE HALL
DEVELOPER: HHHUNT COMMUNITIES
STONEHOUSE DISTRICT JAMES CITY COUNTY VIRGINIA

Project Contacts:	HWP/TRS
Project Number:	9048-20B
Scale: 1"=300'	Date: AUG. 20, 2014
Sheet Title: OVERALL DEVELOPMENT	
Sheet Number 2	



3	07/09/15	REVISED PER COUNTY COMMENTS	TRS
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SECTION 4
WHITE HALL
DEVELOPER: HHHUNT COMMUNITIES
STONEHOUSE DISTRICT JAMES CITY COUNTY VIRGINIA

Project Contacts:	HWP/TRS
Project Number:	9048-20B
Scale: 1"=60'	Date: AUG. 20, 2014
Sheet Title:	ENVIRONMENTAL INVENTORY
Sheet Number	3

EROSION & SEDIMENT CONTROL NARRATIVE

DESCRIPTION
THIS PROJECT IS PART OF THE OVERALL DEVELOPMENT PLAN FOR WHITE HALL. THIS PORTION OF THE SITE DEVELOPMENT IS FOR THE CONSTRUCTION OF 47 SINGLE FAMILY LOTS AND 48 TOWNHOME LOTS AS PART OF SECTION 4.

EXISTING SITE CONDITIONS
THE MAJORITY OF THE SITE IS FORMER FARM LAND. STORMWATER IS CURRENTLY CONVEYED BY SHEET FLOW TO EX. BMP 1-2.

ADJACENT AREAS
THE SITE IS BORDERED TO THE NORTH BY ROCHAMBEAU DRIVE (ROUTE 30), TO THE EAST BY EX. BMP 1-2, AND TO THE WEST BY WHITE HALL SECTION 2.

OFF-SITE AREAS
THERE ARE NO OFF-SITE LAND DISTURBANCES PROPOSED WITH THIS PROJECT.

CRITICAL AREAS
THERE ARE SOME DISTURBED AREAS (0.14 AC.) TO SLOPES GREATER THAN 25% AND SOME DISTURBED AREAS (0.58 AC.) TO THE RPA BUFFERS ON THE SITE FOR STORM SEWER OUTFALLS AND MULTI-USE TRAILS. THERE ARE MINIMAL IMPACTS TO WETLANDS (0.05 AC.) ON THE SITE FOR A SANITARY SEWER BRIDGE. ALL LAND-DISTURBING ACTIVITIES WILL BE CONTAINED WITHIN THE EROSION AND SEDIMENT MEASURES SHOWN ON THE CONSTRUCTION PLANS.

SOILS
THE PROJECT AREA IS COMPRISED OF VARIOUS SOIL TYPES. THIS SHEET CONTAINS A SOIL TYPE DELINEATION MAP AND TABLE OF ASSOCIATED SOIL CHARACTERISTICS FOR THE SOILS TYPICALLY ENCOUNTERED ON THE SITE.

EROSION AND SEDIMENT CONTROL MEASURES
FOR MAXIMUM EROSION AND SEDIMENT CONTROL PROTECTION, THE FOLLOWING MEASURES WILL BE UTILIZED AND INSTALLED IN ACCORDANCE WITH THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK TO MINIMIZE THE TRANSPORTATION OF SEDIMENT:

- STONE CONSTRUCTION ENTRANCE
- TREE PROTECTION
- DUST CONTROL
- TEMPORARY SEEDING
- DIVERSION DIKE
- SILT FENCE
- INLET PROTECTION
- SAFETY FENCE
- PERMANENT SEEDING

PERMANENT STABILIZATION
PERMANENT SEEDING WILL BE USED TO STABILIZE THE SITE AFTER CONSTRUCTION IS COMPLETE. A SCHEDULE HAS BEEN PROVIDED.

STORMWATER RUNOFF CONSIDERATIONS
STORMWATER GENERATED FROM THE PROJECT SITE WILL BE TREATED BY THE PROPOSED SEDIMENT FOREBAYS AND EXISTING BMP 1-2.

NOTES:

1. WETLANDS SHOWN THROUGHOUT THIS PLAN WERE DELINEATED BY WILLIAMSBURG ENVIRONMENTAL GROUP, INC AND CONFIRMED BY THE U.S. ARMY CORPS OF ENGINEERS BY LETTER DATED 11/22/2005. WETLANDS FLAGS WERE SURVEY LOCATED BY AES CONSULTING ENGINEERS. THE LIMITS OF THE RESOURCE PROTECTION AREA WERE CONFIRMED BY JAMES CITY COUNTY ENVIRONMENTAL DIVISION LETTER DATED 9/12/2006.
2. THIS PROJECT IS SUBJECT TO THE PROVISIONS OF CHESAPEAKE BAY EXCEPTION CBE 06-078 AND OTHERS AS MAY APPLY TO THE OVERALL PROJECT.
3. AN ADDITIONAL 0.24 ACRES OF NATURAL OPEN SPACE HAS BEEN PROVIDED ON SITE TO MITIGATE THE 0.12 ACRE RPA BUFFER IMPACTED BY INSTALLATION OF SANITARY SEWER.

LEGEND:

- 25% SLOPE IMPACT
- RPA BUFFER IMPACT
- RPA WETLANDS IMPACT
- NON-RPA WETLANDS IMPACT

ENVIRONMENTAL INVENTORY IMPACTS

TIDAL WETLANDS:	NONE ON SITE
TIDAL SHORES:	NONE ON SITE
NON-TIDAL WETLANDS IN RPA:	NONE ON SITE
100 FT RPA BUFFER:	0.57 AC.±
NON-TIDAL WETLANDS IN RMA:	0.05 AC.±
25% SLOPES OR GREATER:	0.14 AC.±
100 YEAR FLOOD PLAIN:	NONE ON SITE

PROJECT DESCRIPTION

THE PROJECT CONTAINED WITHIN THESE PLANS WILL BE KNOWN AS WHITE HALL SECTION 4. THIS PROJECT WILL CONSIST OF THE CONSTRUCTION OF A SUBDIVISION OF 36.66 ACRES INTO SINGLE-FAMILY DETACHED RESIDENCES AND TOWNHOMES. THIS SUBDIVISION WILL RESULT IN A YIELD OF 47 SINGLE FAMILY LOTS AND 48 TOWNHOME LOTS. THE PROJECT IS LOCATED BETWEEN ROUTE 30 (ROCHAMBEAU DRIVE) AND WHITE HALL SECTION 2. THE SITE IS PRIMARILY PASTURE LAND, WITH SOME EXISTING WOODLANDS LOCATED WITHIN THE SITES LOWLAND. THE MAJORITY OF THE SITE IS LOCATED IN GENTLY SLOPING TERRAIN.

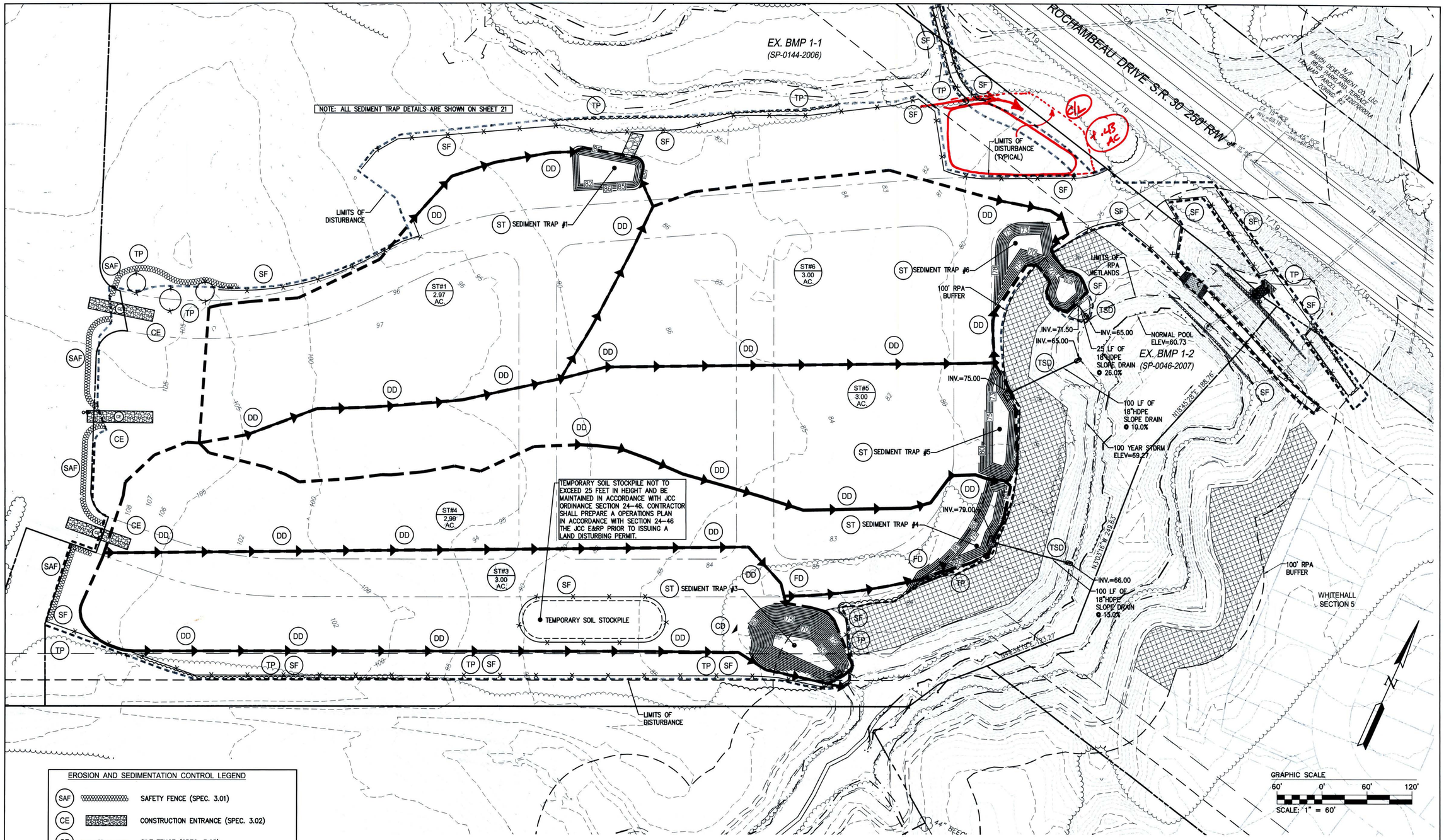
SOIL No.	SOIL NAME	HYDROLOGIC SOIL GROUP	TYPICAL SLOPES	EROSION FACTOR (K)	EROSION FACTOR (T)
11C	CRAVEN – UCHEE COMPLEX	C	6–10%	0.20–0.28	5
15F	EMPORIA COMPLEX	C	25–50%	0.20–0.28	4
19B	KEMPSVILLE–EMPORIA FINE SANDY LOAMS	B	2–6%	0.20–0.28	4
29B	SLAGLE FINE SANDY LOAM	C	2–6%	0.24	3
31B	SUFFOLK FINE SANDY LOAM	B	2–6%	0.17–0.28	4

INFORMATION TAKEN FROM "SOIL SURVEY OF JAMES CITY AND YORK COUNTIES AND THE CITY OF WILLIAMSBURG, VIRGINIA" ISSUED IN APRIL, 1985, BY THE UNITED STATES DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE IN COOPERATION WITH VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY.

SOIL SUSCEPTIBILITY TO EROSION CLASSIFICATION (K)
0.23 AND LOWER – LOW ERODIBILITY
0.23 TO 0.36 – MODERATE ERODIBILITY
0.36 AND UP – HIGH ERODIBILITY
THE MAP SHOWN IS A "BEST FIT MODEL" OF THE SCS MAPS WITH EXISTING BASE INFORMATION.

DENOTES HIGHLY ERODIBLE SOILS/ CRITICAL EROSION AREAS

DENOTES 25% OR GREATER SLOPES



EROSION AND SEDIMENTATION CONTROL LEGEND

SAF	SAFETY FENCE (SPEC. 3.01)
CE	CONSTRUCTION ENTRANCE (SPEC. 3.02)
SF	SILT FENCE (SPEC. 3.05)
IP	INLET PROTECTION (SPEC. 3.07)
DD	DIVERSION DIKE (SPEC. 3.09)
TSD	TEMPORARY SLOPE DRAIN (SPEC. 3.15)
CD	ROCK CHECK DAM (SPEC. 3.20)
PS	PERMANENT SEEDING (SPEC. 3.32)
TP	TREE PROTECTION (SPEC. 3.38)
DC	DUST CONTROL (SPEC. 3.39)

NOTE: SEE VIRGINIA EROSION & SEDIMENT CONTROL HANDBOOK FOR EROSION CONTROL SPECIFICATIONS (SPEC.) AND DETAILS.

NOTE:
THE CONTRACTOR SHALL MONITOR THE DOWNSTREAM BMP'S (BMP 1-1 AND BMP 1-2) AND THEIR OUTFALLS DURING CONSTRUCTION FOR SIGNS OF SEDIMENTATION, SPECIFICALLY AS A RESULT OF CONSTRUCTION ACTIVITIES FROM THIS SITE.

LEGEND:
UNDISTURBED NATURAL OPEN SPACE AND CONSERVATION AREA

3	07/06/15	REVISED PER COUNTY COMMENTS	TRS
2	05/15/15	REVISED PER COUNTY COMMENTS	TRS
1	01/12/15	REVISED PER COUNTY COMMENTS	TRS

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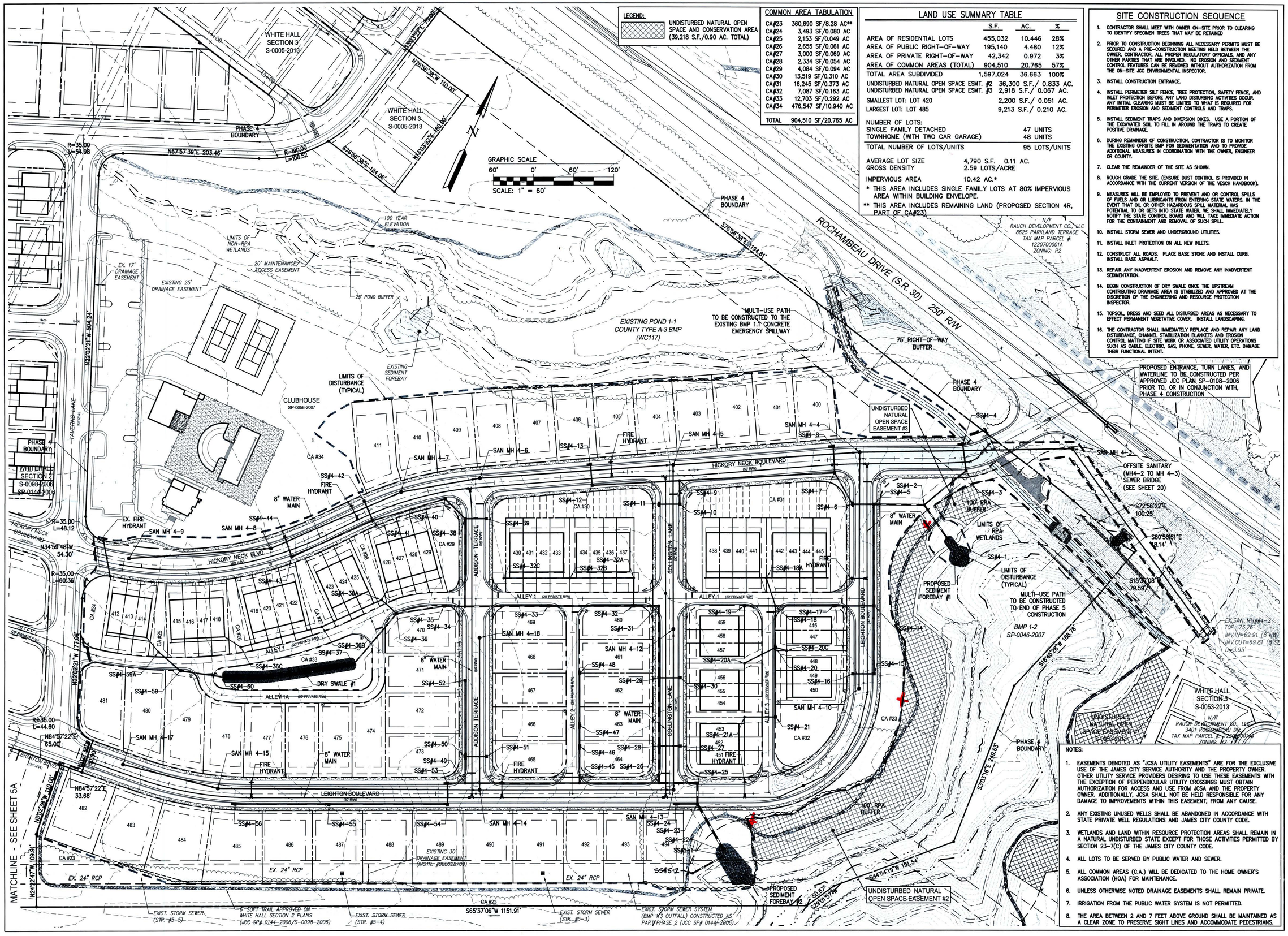
SECTION 4
WHITE HALL
DEVELOPER: HHHUNT COMMUNITIES
STONEHOUSE DISTRICT JAMES CITY COUNTY VIRGINIA

Project Contacts:	HWP/TRS
Project Number:	9048-20B
Scale: 1"=60'	Date: AUG. 20, 2014

Sheet Title:
PHASE 1 EROSION AND SEDIMENT CONTROL PLAN

Sheet Number
4



COMMON AREA TABULATION

CA#23	360,690 SF/8.28 AC**
CA#24	3,493 SF/0.080 AC
CA#25	2,153 SF/0.049 AC
CA#26	2,655 SF/0.061 AC
CA#27	3,000 SF/0.069 AC
CA#28	2,334 SF/0.054 AC
CA#29	4,084 SF/0.094 AC
CA#30	13,519 SF/0.310 AC
CA#31	16,245 SF/0.373 AC
CA#32	7,087 SF/0.163 AC
CA#33	12,703 SF/0.292 AC
CA#34	476,547 SF/10.940 AC
TOTAL	904,510 SF/20.765 AC

LAND USE SUMMARY TABLE

	S.F.	AC.	%
AREA OF RESIDENTIAL LOTS	455,032	10.446	28%
AREA OF PUBLIC RIGHT-OF-WAY	195,140	4.480	12%
AREA OF PRIVATE RIGHT-OF-WAY	42,342	0.972	3%
AREA OF COMMON AREAS (TOTAL)	904,510	20.765	57%
TOTAL AREA SUBDIVIDED	1,597,024	36.663	100%

UNDISTURBED NATURAL OPEN SPACE ESMT. #2 36,300 S.F./ 0.833 AC.
UNDISTURBED NATURAL OPEN SPACE ESMT. #3 2,918 S.F./ 0.067 AC.
SMALLEST LOT: LOT 420 2,200 S.F./ 0.051 AC.
LARGEST LOT: LOT 485 9,213 S.F./ 0.210 AC.

NUMBER OF LOTS:
SINGLE FAMILY DETACHED 47 UNITS
TOWNHOME (WITH TWO CAR GARAGE) 48 UNITS
TOTAL NUMBER OF LOTS/UNITS 95 LOTS/UNITS

AVERAGE LOT SIZE 4,790 S.F. 0.11 AC.
GROSS DENSITY 2.59 LOTS/ACRE

IMPERVIOUS AREA 10.42 AC.*

* THIS AREA INCLUDES SINGLE FAMILY LOTS AT 80% IMPERVIOUS AREA WITHIN BUILDING ENVELOPE.

** THIS AREA INCLUDES REMAINING LAND (PROPOSED SECTION 4R, PART OF CA#23)

SITE CONSTRUCTION SEQUENCE

1. CONTRACTOR SHALL MEET WITH OWNER ON-SITE PRIOR TO CLEARING TO IDENTIFY SPECIMEN TREES THAT MAY BE RETAINED
2. PRIOR TO CONSTRUCTION BEGINNING ALL NECESSARY PERMITS MUST BE SECURED AND A PRE-CONSTRUCTION MEETING HELD BETWEEN THE OWNER, CONTRACTOR, ALL PROPER REGULATORY OFFICIALS, AND ANY OTHER PARTIES THAT ARE INVOLVED. NO EROSION AND SEDIMENT CONTROL FEATURES CAN BE REMOVED WITHOUT AUTHORIZATION FROM THE ON-SITE JCC ENVIRONMENTAL INSPECTOR.
3. INSTALL CONSTRUCTION ENTRANCE.
4. INSTALL PERIMETER SILT FENCE, TREE PROTECTION, SAFETY FENCE, AND INLET PROTECTION BEFORE ANY LAND DISTURBING ACTIVITIES OCCUR. ANY INITIAL CLEARING MUST BE LIMITED TO WHAT IS REQUIRED FOR PERIMETER EROSION AND SEDIMENT CONTROLS AND TRAPS.
5. INSTALL SEDIMENT TRAPS AND DIVERSION DIKES. USE A PORTION OF THE EXCAVATED SOIL TO FILL IN AROUND THE TRAPS TO CREATE POSITIVE DRAINAGE.
6. DURING REMAINDER OF CONSTRUCTION, CONTRACTOR IS TO MONITOR THE EXISTING OFFSITE BMP FOR SEDIMENTATION AND TO PROVIDE ADDITIONAL MEASURES IN COORDINATION WITH THE OWNER, ENGINEER OR COUNTY.
7. CLEAR THE REMAINDER OF THE SITE AS SHOWN.
8. ROUGH GRADE THE SITE. (ENSURE DUST CONTROL IS PROVIDED IN ACCORDANCE WITH THE CURRENT VERSION OF THE VESCH HANDBOOK).
9. MEASURES WILL BE EMPLOYED TO PREVENT AND OR CONTROL SPILLS OF FUELS AND OR LUBRICANTS FROM ENTERING STATE WATERS. IN THE EVENT THAT OIL OR OTHER HAZARDOUS SPILL MATERIAL HAS POTENTIAL TO OR GETS INTO STATE WATER, WE SHALL IMMEDIATELY NOTIFY THE STATE CONTROL BOARD AND WILL TAKE IMMEDIATE ACTION FOR THE CONTAINMENT AND REMOVAL OF SUCH SPILL.
10. INSTALL STORM SEWER AND UNDERGROUND UTILITIES.
11. INSTALL INLET PROTECTION ON ALL NEW INLETS.
12. CONSTRUCT ALL ROADS. PLACE BASE STONE AND INSTALL CURB. INSTALL BASE ASPHALT.
13. REPAIR ANY INADVERTENT EROSION AND REMOVE ANY INADVERTENT SEDIMENTATION.
14. BEGIN CONSTRUCTION OF DRY SWALE ONCE THE UPSTREAM CONTRIBUTING DRAINAGE AREA IS STABILIZED AND APPROVED AT THE DISCRETION OF THE ENGINEERING AND RESOURCE PROTECTION INSPECTOR.
15. TOPSOIL, DRESS AND SEED ALL DISTURBED AREAS AS NECESSARY TO EFFECT PERMANENT VEGETATIVE COVER. INSTALL LANDSCAPING.
16. THE CONTRACTOR SHALL IMMEDIATELY REPLACE AND REPAIR ANY LAND DISTURBANCE, CHANNEL STABILIZATION BLANKETS AND EROSION CONTROL MATTING IF SITE WORK OR ASSOCIATED UTILITY OPERATIONS SUCH AS CABLE, ELECTRIC, GAS, PHONE, SEWER, WATER, ETC. DAMAGE THEIR FUNCTIONAL INTENT.

NOTES:

1. EASEMENTS DENOTED AS "JCSA UTILITY EASEMENTS" ARE FOR THE EXCLUSIVE USE OF THE JAMES CITY SERVICE AUTHORITY AND THE PROPERTY OWNER. OTHER UTILITY SERVICE PROVIDERS DESIRING TO USE THESE EASEMENTS WITH THE EXCEPTION OF PERPENDICULAR UTILITY CROSSINGS MUST OBTAIN AUTHORIZATION FOR ACCESS AND USE FROM JCSA AND THE PROPERTY OWNER. ADDITIONALLY, JCSA SHALL NOT BE HELD RESPONSIBLE FOR ANY DAMAGE TO IMPROVEMENTS WITHIN THIS EASEMENT, FROM ANY CAUSE.
2. ANY EXISTING UNUSED WELLS SHALL BE ABANDONED IN ACCORDANCE WITH STATE PRIVATE WELL REGULATIONS AND JAMES CITY COUNTY CODE.
3. WETLANDS AND LAND WITHIN RESOURCE PROTECTION AREAS SHALL REMAIN IN A NATURAL UNDISTURBED STATE EXCEPT FOR THOSE ACTIVITIES PERMITTED BY SECTION 23-7(C) OF THE JAMES CITY COUNTY CODE.
4. ALL LOTS TO BE SERVED BY PUBLIC WATER AND SEWER.
5. ALL COMMON AREAS (C.A.) WILL BE DEDICATED TO THE HOME OWNER'S ASSOCIATION (HOA) FOR MAINTENANCE.
6. UNLESS OTHERWISE NOTED DRAINAGE EASEMENTS SHALL REMAIN PRIVATE.
7. IRRIGATION FROM THE PUBLIC WATER SYSTEM IS NOT PERMITTED.
8. THE AREA BETWEEN 2 AND 7 FEET ABOVE GROUND SHALL BE MAINTAINED AS A CLEAR ZONE TO PRESERVE SIGHT LINES AND ACCOMMODATE PEDESTRIANS.

Rev.	Date	Description	Revised By
3	07/06/15	REVISED PER COUNTY COMMENTS	TRS
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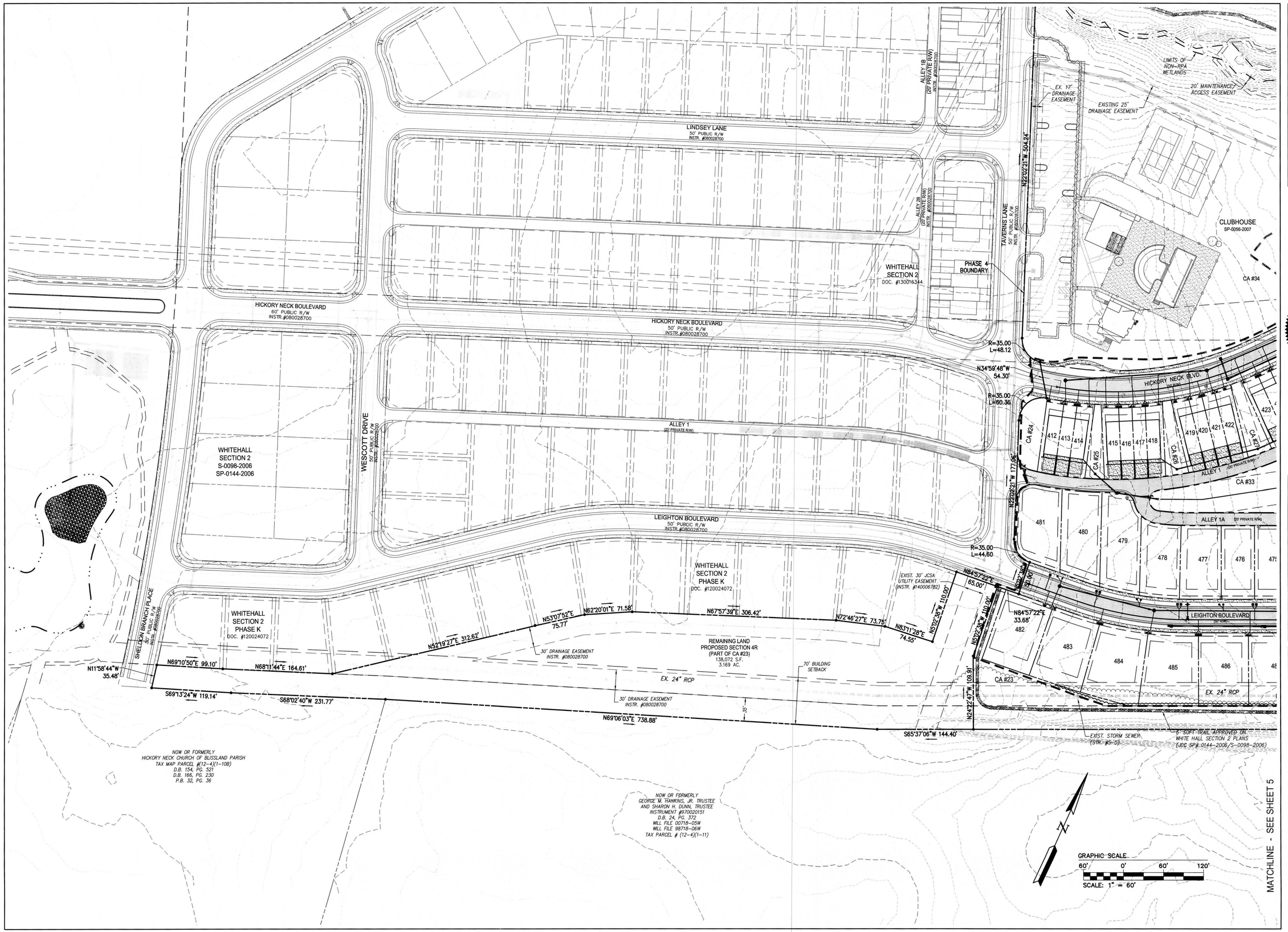
SECTION 4 WHITE HALL

DEVELOPER: HHHUNT COMMUNITIES

STONEHOUSE DISTRICT JAMES CITY COUNTY VIRGINIA

Project Contacts:	HWP/TRS
Project Number:	9048-20B
Scale: 1"=60'	Date: AUG. 20, 2014
Sheet Title:	OVERALL DEVELOPMENT PLAN
Sheet Number	5



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SECTION 4
WHITE HALL

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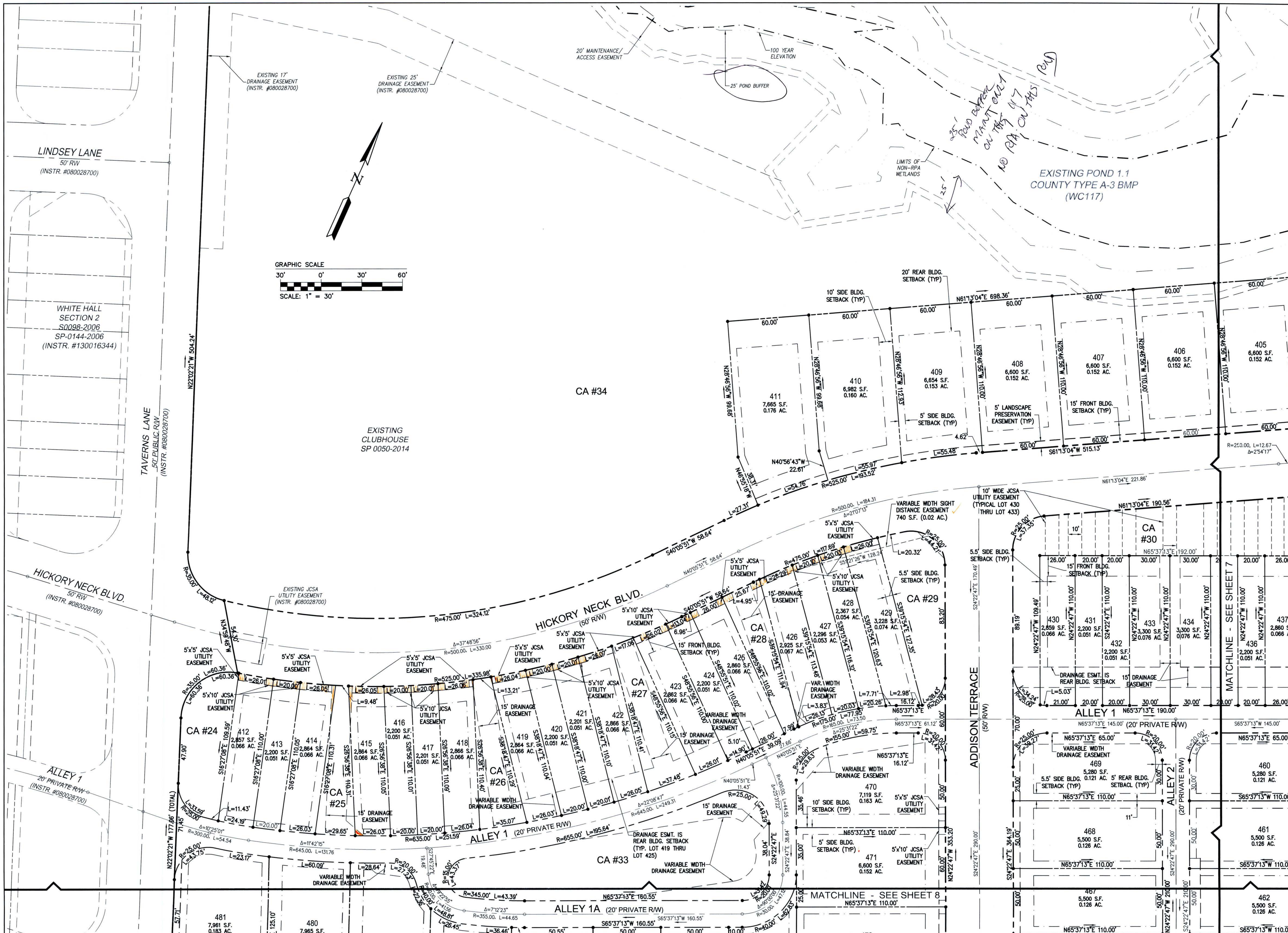
STONEHOUSE DISTRICT JAMES CITY COUNTY VIRGINIA

Project Contacts:	HWP/TRS
Project Number:	9048-20B
Scale: 1"=60'	Date: AUG. 20, 2014

Sheet Title:
OVERALL DEVELOPMENT PLAN

Sheet Number
5A



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SECTION 4
WHITE HALL
DEVELOPER: HHHUNT COMMUNITIES
STONEHOUSE DISTRICT | JAMES CITY COUNTY | VIRGINIA

Project Contacts:	HWP/TRS
Project Number:	9048-20B
Scale: 1"=30'	Date: AUG. 20, 2014

Sheet Title:
PRELIMINARY PLAT

Sheet Number
6

Rev.	Date	Description	Rev. By
3	07/06/15	REVISED PER COUNTY COMMENTS	TRS
2	06/16/15	REVISED PER COUNTY COMMENTS	TRS
1	01/12/15	REVISED PER COUNTY COMMENTS	TRS

GRAPHIC SCALE
30' 0' 30' 60'
SCALE: 1" = 30'

LEGEND:
UNDISTURBED NATURAL OPEN SPACE AND CONSERVATION AREA

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SECTION 4 WHITE HALL

DEVELOPER: HHHUNT COMMUNITIES

STONEHOUSE DISTRICT JAMES CITY COUNTY VIRGINIA

Project Contacts:	HWP/TRS
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Scale: 1"=30'	Date: AUG. 20, 2014
Sheet Title:	PRELIMINARY PLAT
Sheet Number	7

WHITE HALL
SECTION 2
S 0098-2006
SP-0144-2006
(INSTR. #130016344)

ALLEY 1
(20' PRIVATE R/W)

ALLEY 1A
(20' PRIVATE R/W)

CA #33

MATCHLINE - SEE SHEET 6

TAVERNS LANE
50' PUBLIC R/W
(INSTR. #080028700)

LEIGHTON BLVD.
50' PRIVATE R/W
(INSTR. #080028700)

ADDISON TERRACE
(50' R/W)

MATCHLINE - SEE SHEET 7

SEE SHEET 5A

LEIGHTON BLVD.
(50' R/W)

MATCHLINE - SEE INSET BELOW

REMAINING LAND (PART OF CA #23)

CA #23

EXIST. 15' X 20' UTILITY EASEMENT (INSTR. #080028700)

EXIST. 30' JCSA UTILITY EASEMENT (INSTR. #140006782)

EX. 30' DRAINAGE EASEMENT (INSTR. #080028700)

70' BUILDING SETBACK

5' X 10' JCSA UTILITY EASEMENT (TYPICAL)

5' LANDSCAPE EASEMENT

MATCHLINE - SEE SHEET 7

COLLINGTON LANE
(50' R/W)

CA #32

LEIGHTON BLVD.
(60' R/W)

UNDISTURBED NATURAL OPEN SPACE EASEMENT #2

5' LANDSCAPE EASEMENT (TYP)

5' X 10' JCSA UTILITY EASEMENT (TYPICAL)

5' X 5' JCSA UTILITY EASEMENT

15' FRONT BUILDING SETBACK

25' DRAINAGE EASEMENT

VARIABLE WIDTH DRAINAGE AND ACCESS EASEMENT

100' RPA BUFFER

100 YEAR STORM ELEV.=69.27

LIMITS OF RPA WETLANDS

NORMAL POND ELEV.=60.73

35' REAR BLDG. SETBACK (TYP)

EX. 30' DRAINAGE EASEMENT (INSTR. #080028700)

MATCHLINE - SEE THIS SHEET

INSET SCALE: 1"=30'

LEGEND:

UNDISTURBED NATURAL OPEN SPACE AND CONSERVATION AREA

GRAPHIC SCALE

30' 0' 30' 60'

SCALE: 1" = 30'

100' RPA BUFFER

LIMITS OF RPA WETLANDS

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Scale: 1"=30'	Date: AUG. 20, 2014

Sheet Title:
PRELIMINARY PLAT

Sheet Number
8

NOTE:
1. HRPDC & JCSA DETAIL REFERENCE AND JCSA GENERAL NOTES CAN BE FOUND ON SHEET 22.
2. ALL DIMENSIONS ARE TO BACK OF CURB UNLESS OTHERWISE NOTED.
3. ALL WATER METERS AND SANITARY SEWER CLEAN OUTS SHALL MAINTAIN A MINIMUM 18 INCH HORIZONTAL EDGE TO EDGE CLEARANCE FROM DRIVEWAYS AND/OR DRIVE PATHS, SIDEWALKS OR BIKE PATHS.
4. ALL PLASTIC PIPE FOR SANITARY SEWER AND WATER MAINS IS TO BE BEDDED PER HRPDC BEDDING DETAIL EW_01 IN TYPE III BEDDING.
5. ALL DUCTILE IRON PIPE FOR SANITARY SEWER AND WATER MAINS IS TO BE BEDDED PER HRPDC BEDDING DETAIL EW_01 IN TYPE II BEDDING.
6. EXISTING MANHOLES SHALL BE VACUUM TESTED UPON COMPLETION OF NEW CONNECTIONS. EACH TEST IS TO BE WITNESSED BY THE JCSA INSPECTOR.

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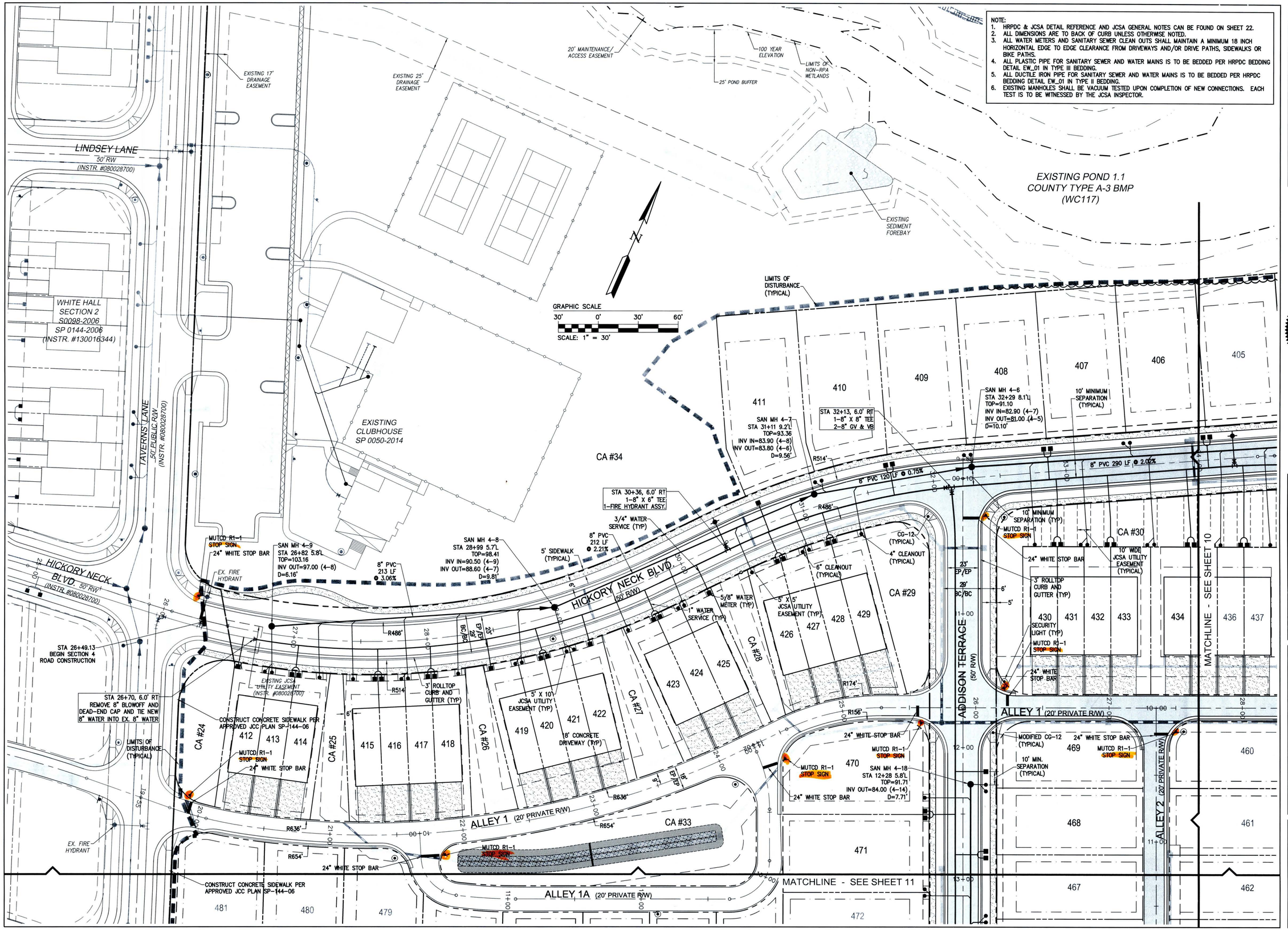
2	05/13/15	REVISED PER COUNTY COMMENTS	TRS
1	01/12/15	REVISED PER COUNTY COMMENTS	TRS



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SECTION 4
WHITE HALL
DEVELOPER: HHHUNT COMMUNITIES

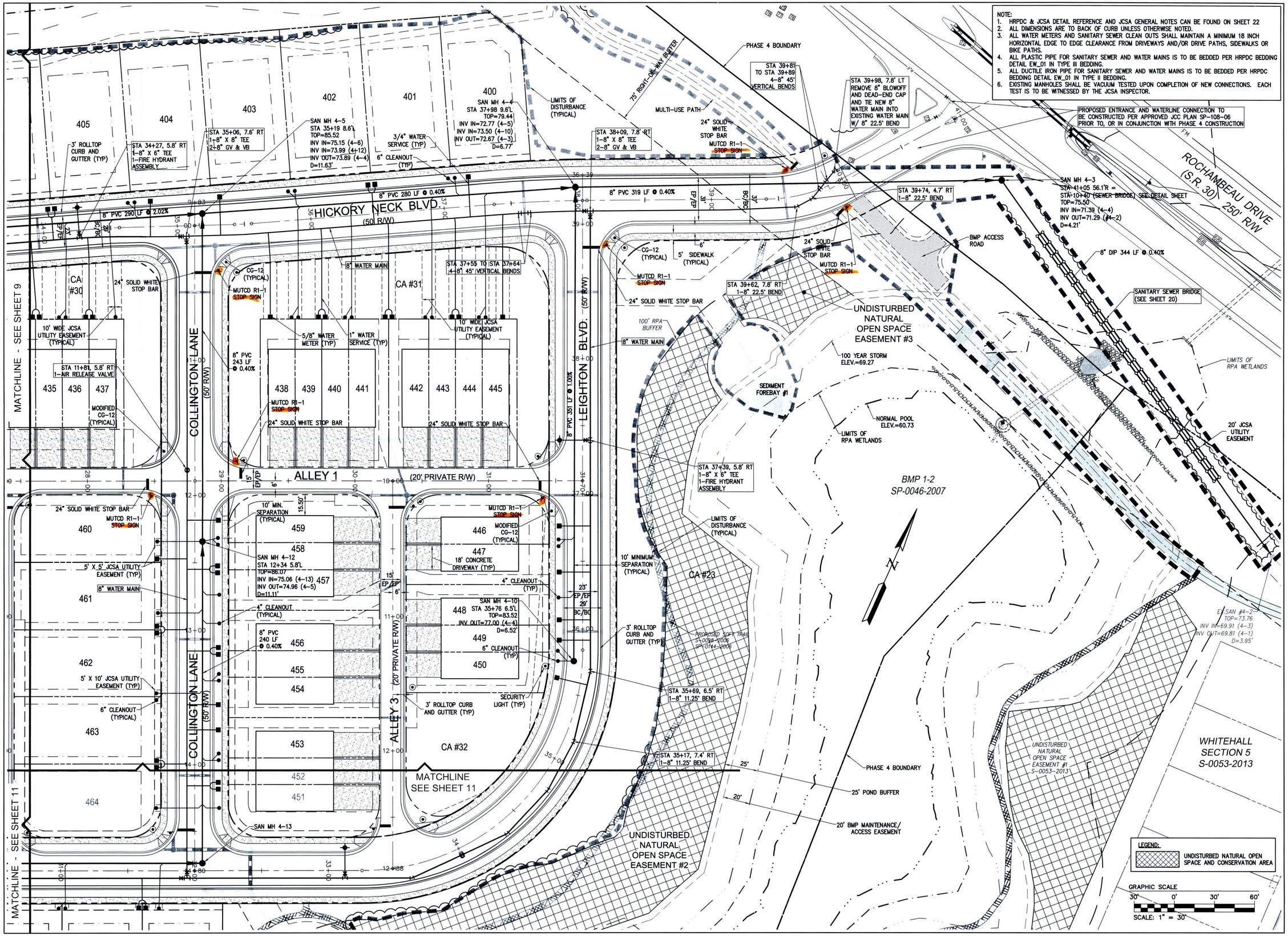
STONEHOUSE DISTRICT JAMES CITY COUNTY VIRGINIA

Project Contacts:	HWP/TRS
Project Number:	9048-20B
Scale: 1"=30'	Date: AUG. 20, 2014

Sheet Title:
ROAD AND UTILITY PLAN

Sheet Number
9

NOTE:
1. HRPDC & JCSA DETAIL REFERENCE AND JCSA GENERAL NOTES CAN BE FOUND ON SHEET 22
2. ALL DIMENSIONS ARE TO BACK OF CURB UNLESS OTHERWISE NOTED.
3. ALL WATER METERS AND SANITARY SEWER CLEAN OUTS SHALL MAINTAIN A MINIMUM 18 INCH HORIZONTAL EDGE TO EDGE CLEARANCE FROM DRIVEWAYS AND/OR DRIVE PATHS, SIDEWALKS OR BIKE PATHS.
4. ALL PLASTIC PIPE FOR SANITARY SEWER AND WATER MAINS IS TO BE BEDDED PER HRPDC BEDDING DETAIL EW_01 IN TYPE III BEDDING.
5. ALL DUCTILE IRON PIPE FOR SANITARY SEWER AND WATER MAINS IS TO BE BEDDED PER HRPDC BEDDING DETAIL EW_01 IN TYPE II BEDDING.
6. EXISTING MANHOLES SHALL BE VACUUM TESTED UPON COMPLETION OF NEW CONNECTIONS. EACH TEST IS TO BE WITNESSED BY THE JCSA INSPECTOR.



LEGEND:
UNDISTURBED NATURAL OPEN SPACE AND CONSERVATION AREA

Rev.	Date	Description	Revised By
3	07/06/15	REVISED PER COUNTY COMMENTS	TRS
2	06/19/15	REVISED PER COUNTY COMMENTS	TRS
1	03/13/15	REVISED PER COUNTY COMMENTS	TRS

COMMONWEALTH OF VIRGINIA
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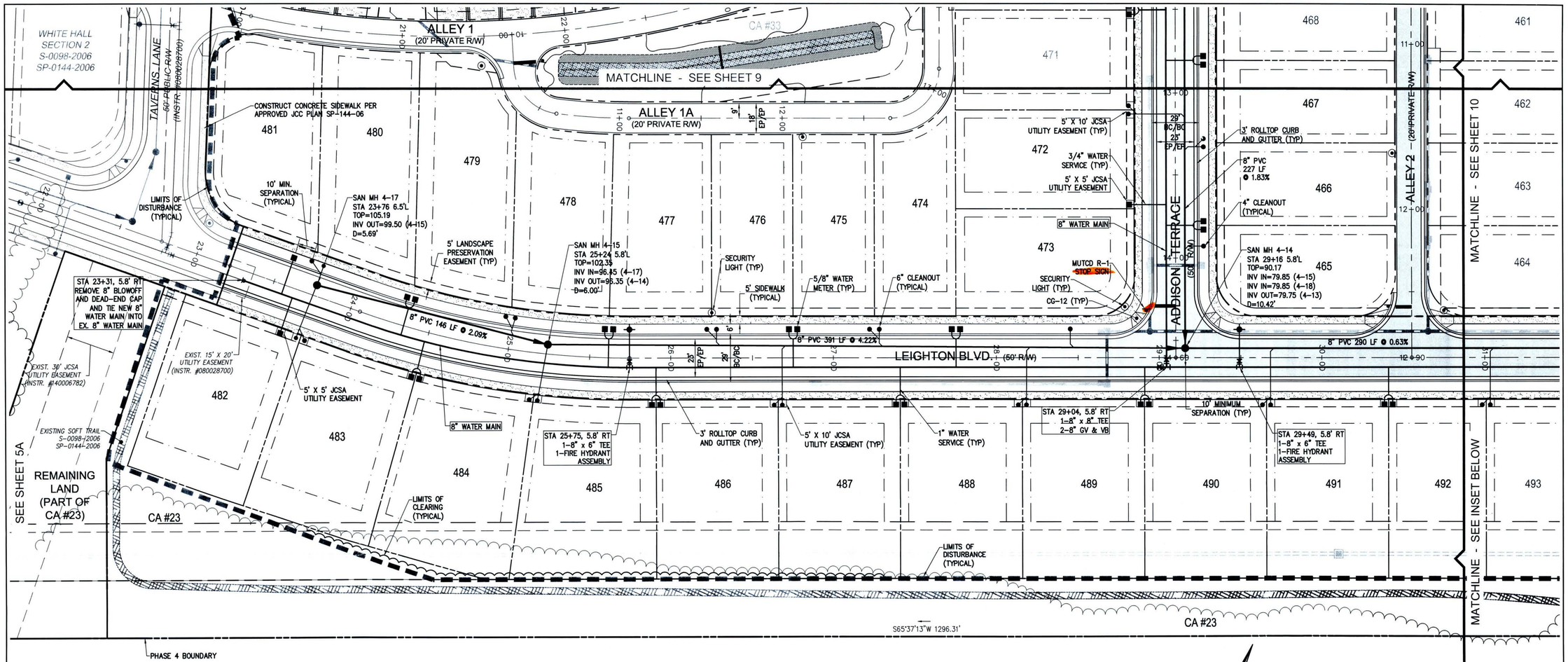
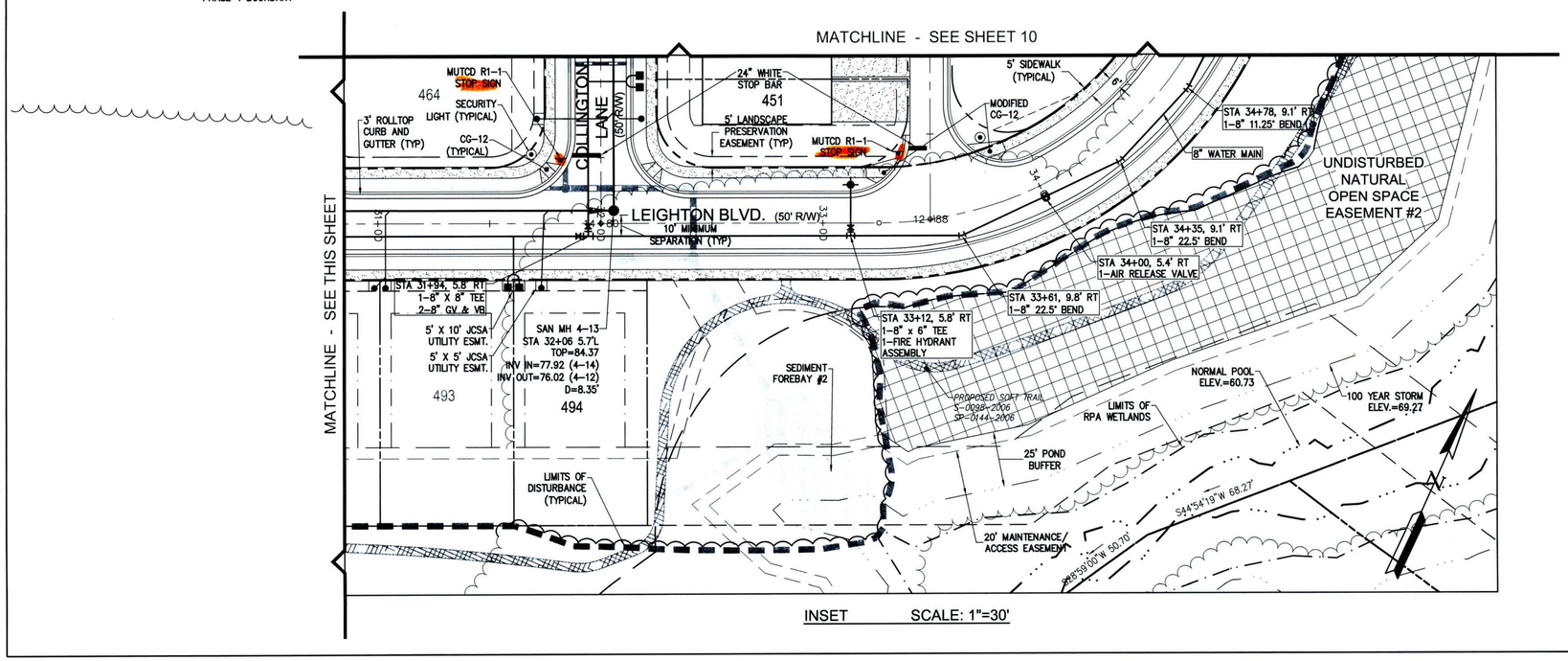
SECTION 4
WHITE HALL
DEVELOPER: HHUNT COMMUNITIES
STONEHOUSE DISTRICT JAMES CITY COUNTY VIRGINIA

Project Contacts:	HWP/TRS
Project Number:	9048-20B
Scale: 1"=30'	Date: AUG. 20, 2014

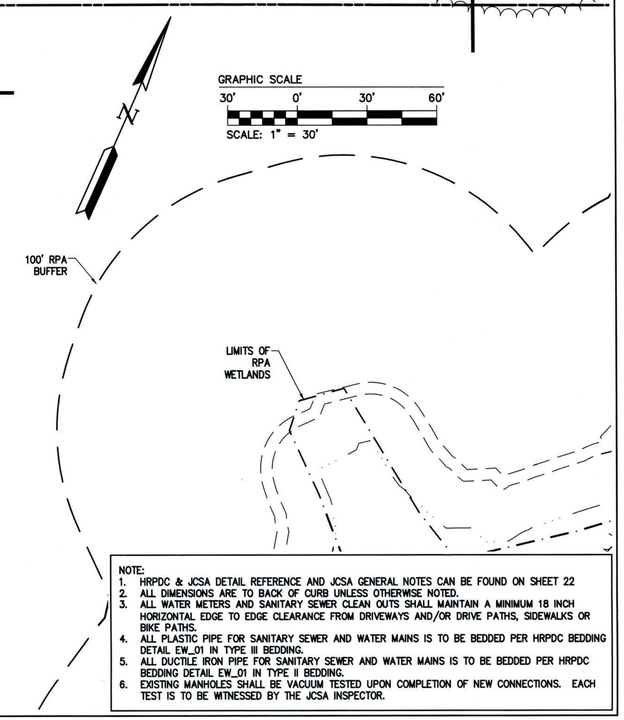
Sheet Title:
ROAD AND UTILITY PLAN

Sheet Number
10





INSET SCALE: 1"=30'



NOTE:
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Rev.	Date	Description	Revised By
3	07/06/15	REVISED PER COUNTY COMMENTS	TRS
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1	01/12/15	REVISED PER COUNTY COMMENTS	TRS

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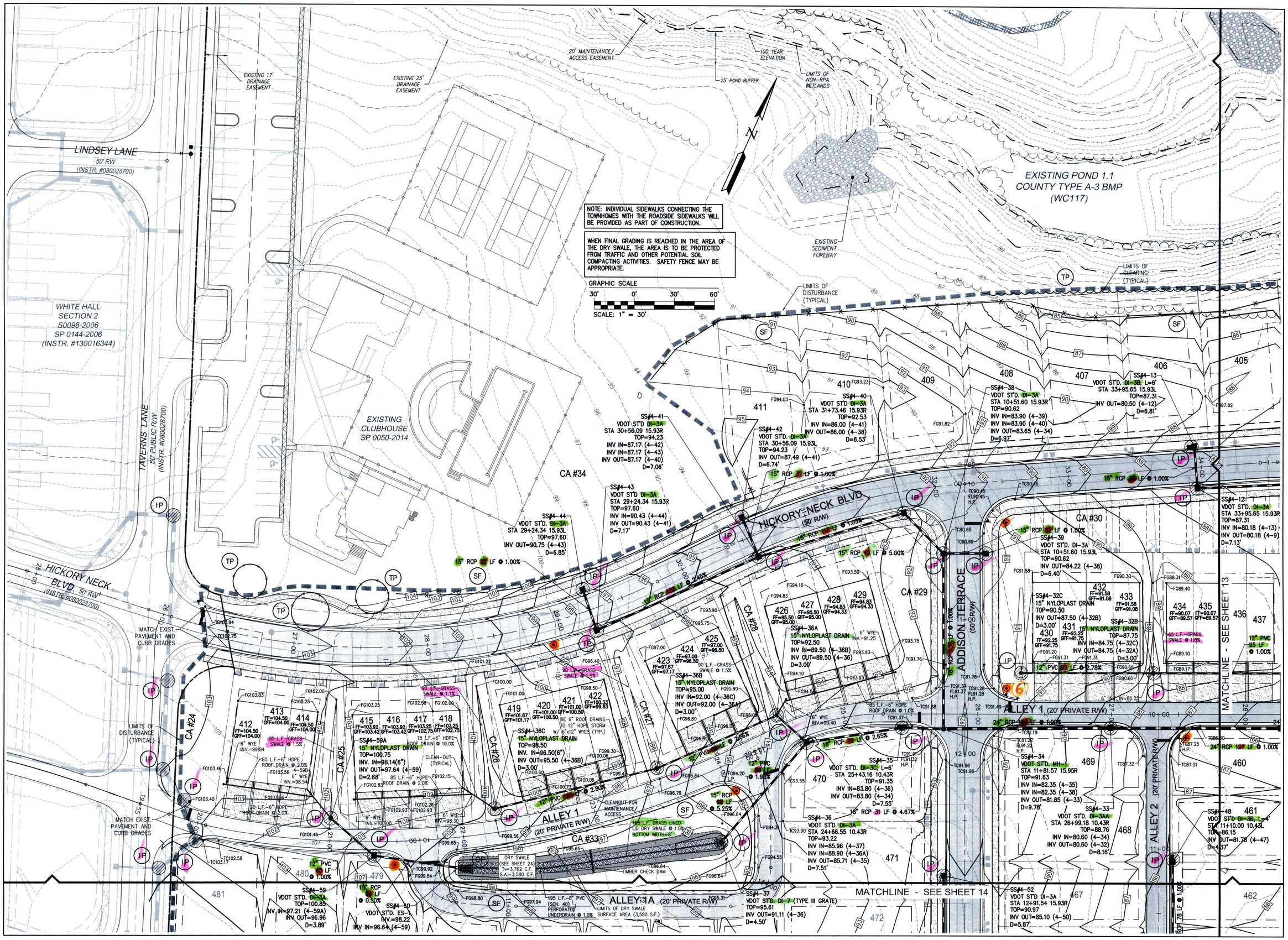
SECTION 4
WHITE HALL
DEVELOPER: HHHUNT COMMUNITIES
STONEHOUSE DISTRICT JAMES CITY COUNTY VIRGINIA

Project Contacts:	HWP/TRS
Project Number:	9048-20B
Scale: 1"=30'	Date: AUG. 20, 2014
Sheet Title:	ROAD AND UTILITY PLAN
Sheet Number	11



Rev.	Date	Description	Revised By
3	07/06/15	REVISED PER COUNTY COMMENTS	TRS
2	05/15/15	REVISED PER COUNTY COMMENTS	TRS
1	01/12/15	REVISED PER COUNTY COMMENTS	TRS

COMMONWEALTH OF VIRGINIA
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SECTION 4
WHITE HALL

DEVELOPER: HHHUNT COMMUNITIES

STONEHOUSE DISTRICT JAMES CITY COUNTY VIRGINIA

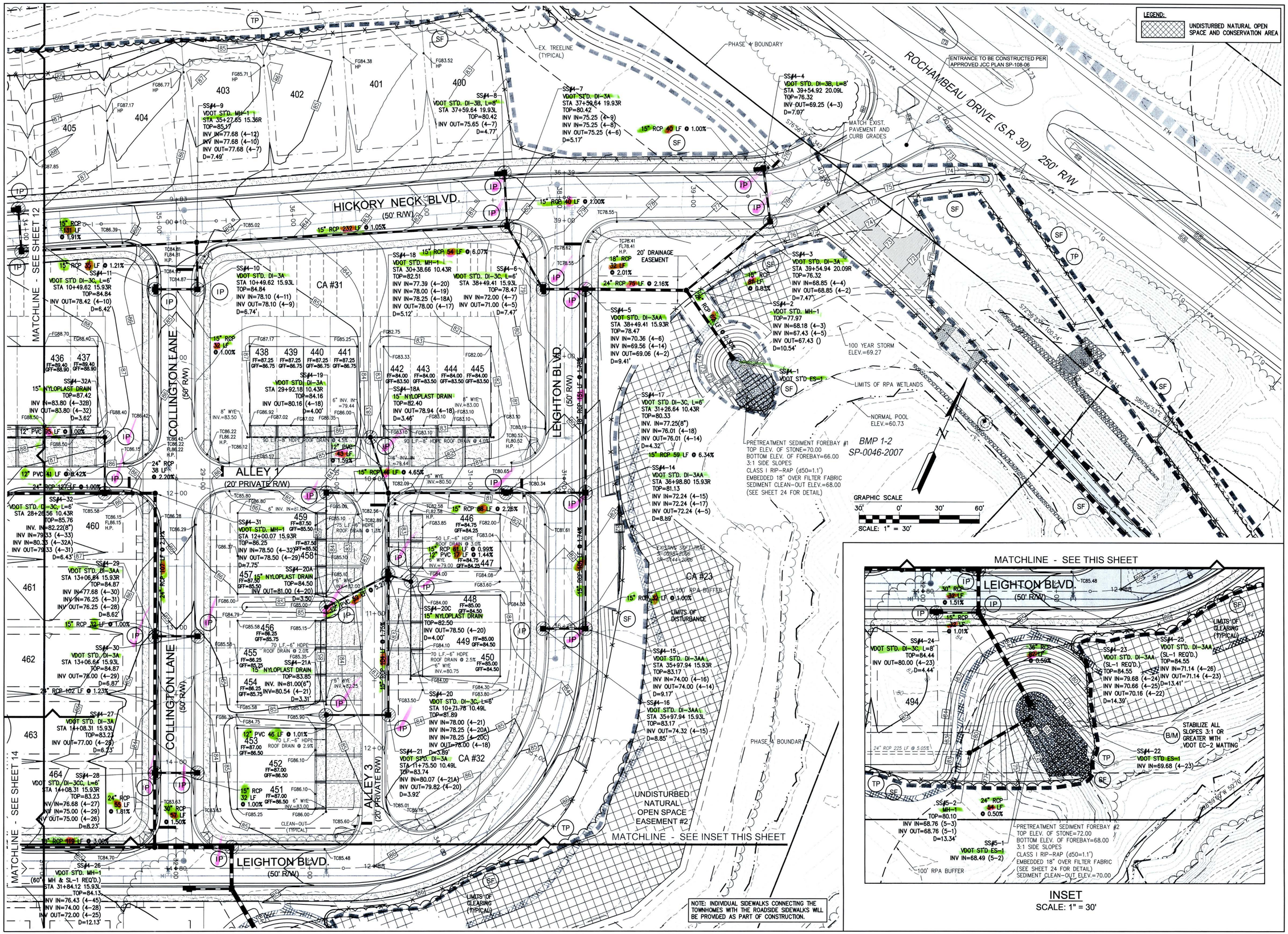
Project Contacts:	HWP/TRS
Project Number:	9048-20B
Scale: 1"=30'	Date: AUG. 20, 2014

Sheet Title:

GRADING, DRAINAGE AND EROSION AND SEDIMENT CONTROL PLAN

Sheet Number

12



Rev.	Date	Description	Revised By
3	07/06/15	REVISED PER COUNTY COMMENTS	TRS
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1	01/12/15	REVISED PER COUNTY COMMENTS	TRS

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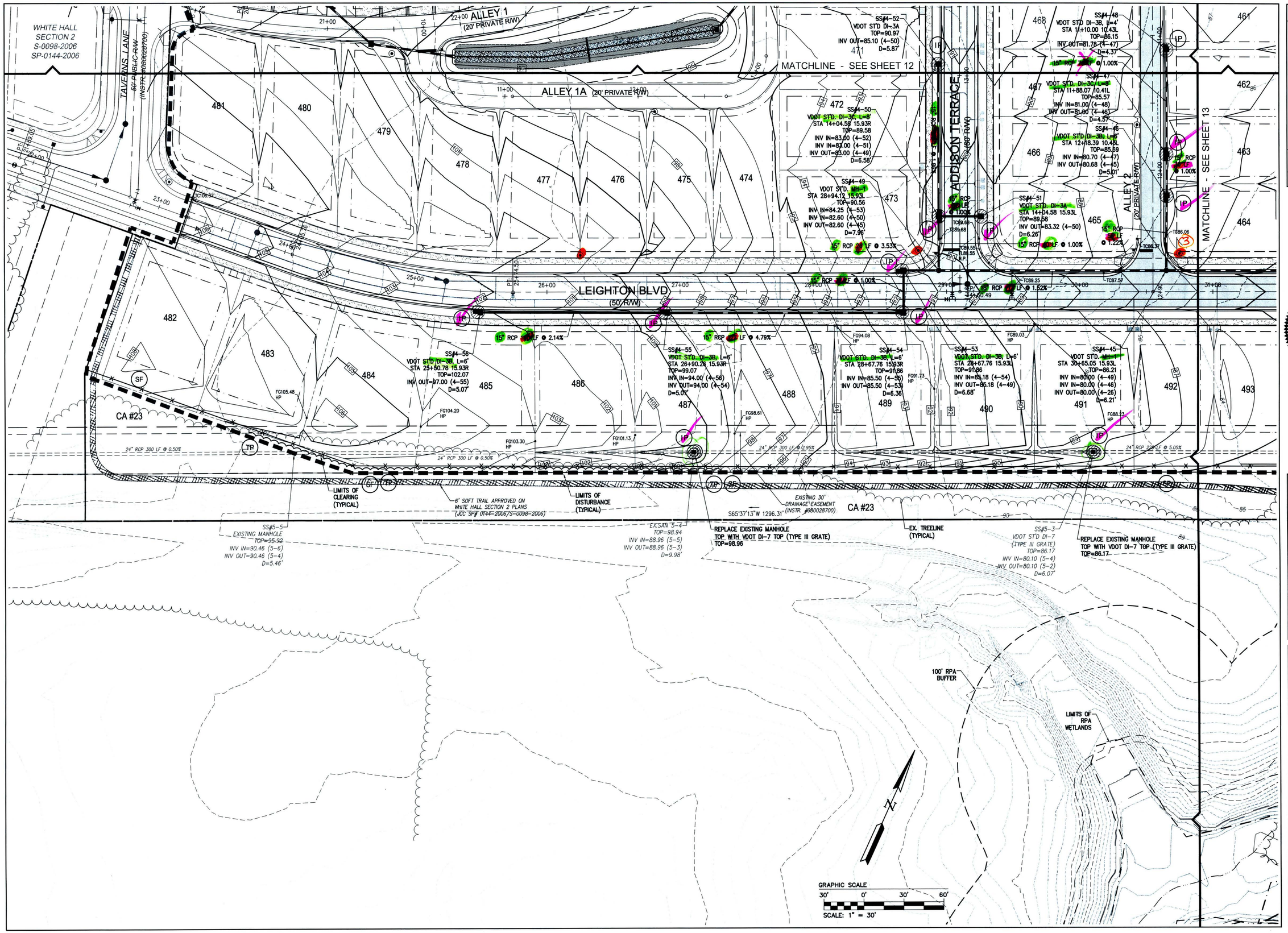
SECTION 4
WHITE HALL
DEVELOPER: HHHUNT COMMUNITIES
STONEHOUSE DISTRICT JAMES CITY COUNTY VIRGINIA

Project Contacts:	HWP/TRS
Project Number:	9048-20B
Scale: 1"=30'	Date: AUG. 20, 2014

Sheet Title:
GRADING, DRAINAGE AND EROSION AND SEDIMENT CONTROL PLAN

Sheet Number
13



Rev.	Date	Description	Revised By
3	07/06/15	REVISED PER COUNTY COMMENTS	TRS
2	06/15/15	REVISED PER COUNTY COMMENTS	TRS
1	01/12/15	REVISED PER COUNTY COMMENTS	TRS

COMMONWEALTH OF VIRGINIA
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SECTION 4
WHITE HALL

DEVELOPER: HHHUNT COMMUNITIES

STONEHOUSE DISTRICT JAMES CITY COUNTY VIRGINIA

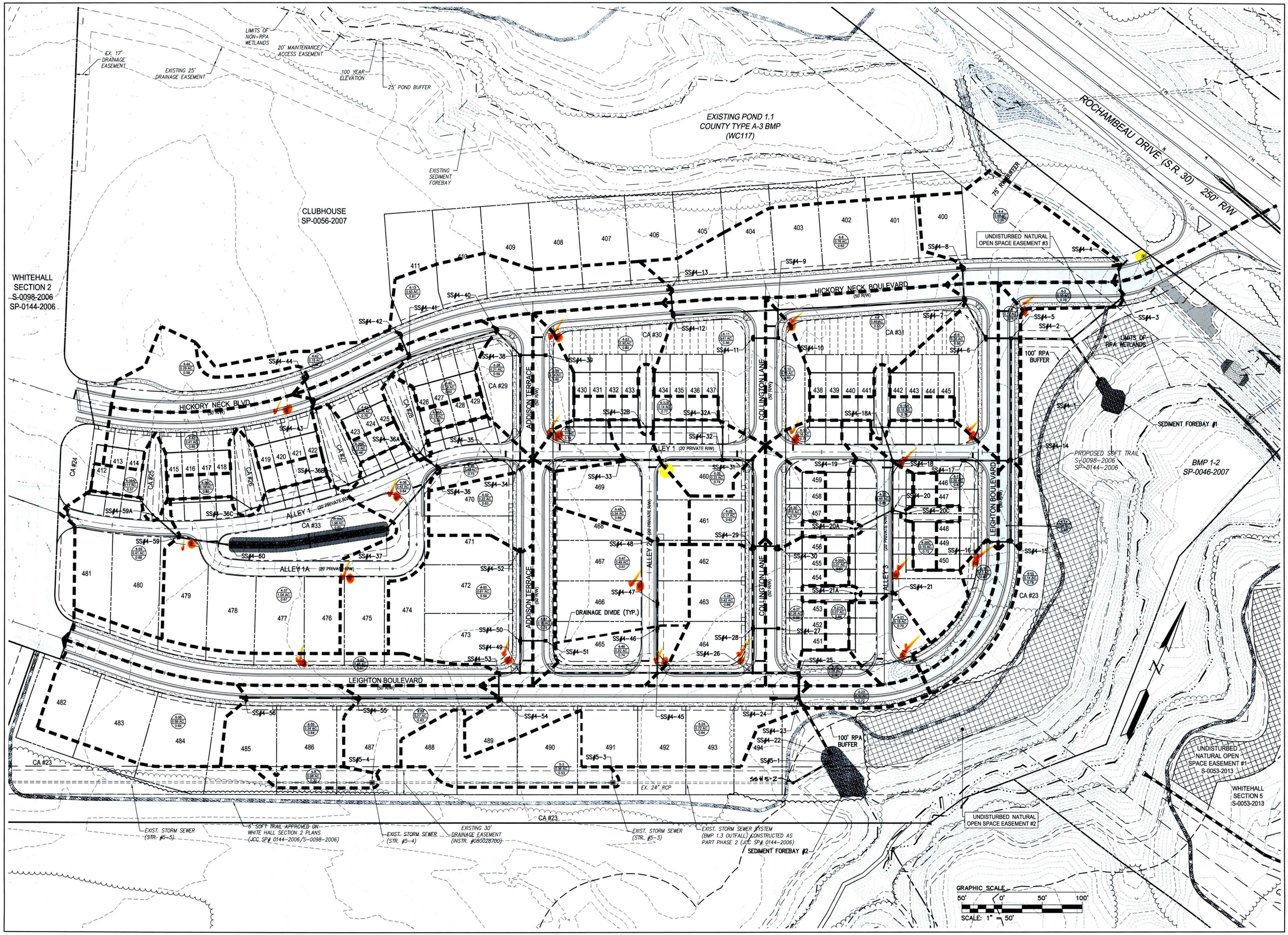
Project Contacts:	HWP/TRS
Project Number:	9048-20B
Scale: 1"=30'	Date: AUG. 20, 2014

Sheet Title:

GRADING, DRAINAGE AND EROSION AND SEDIMENT CONTROL PLAN

Sheet Number

14



Rev.	Date	Description	Revised By
3	07/06/15	REVISED PER COUNTY COMMENTS	TRS
2	05/15/15	REVISED PER COUNTY COMMENTS	TRS
1	01/12/15	REVISED PER COUNTY COMMENTS	TRS

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SECTION 4
WHITE HALL

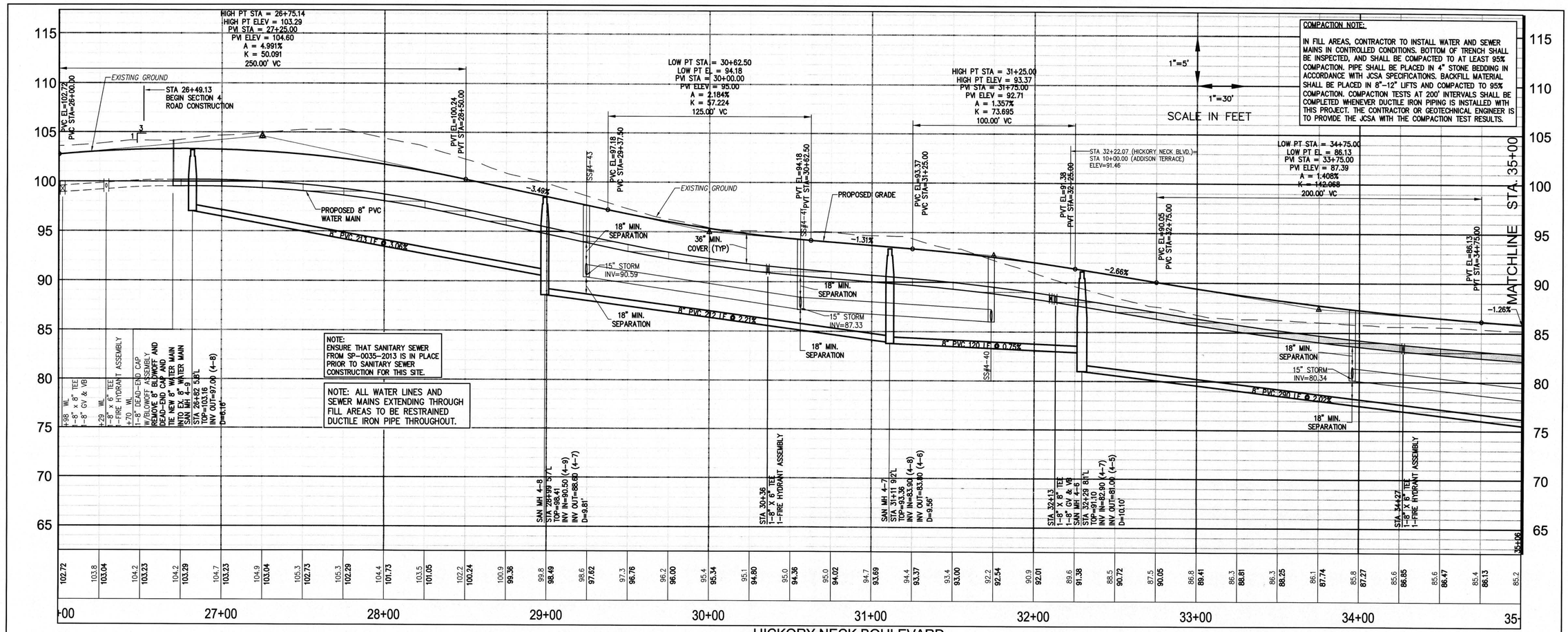
DEVELOPER: HHHUNT COMMUNITIES

STONEHOUSE DISTRICT JAMES CITY COUNTY VIRGINIA

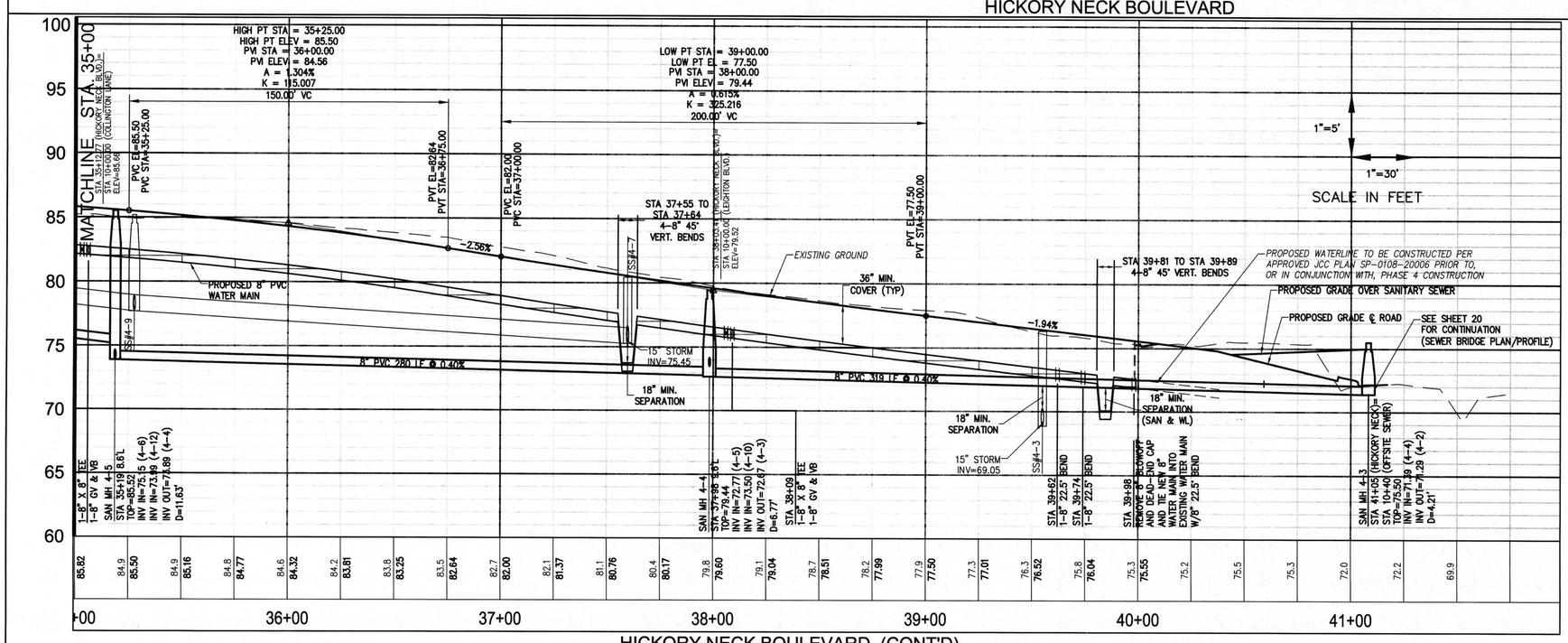
Project Contacts:	HWP/TRS
Project Number:	9048-20B
Scale: 1"=50'	Date: AUG. 20, 2014

Sheet Title:
OVERALL
DRAINAGE PLAN

Sheet Number
15



HICKORY NECK BOULEVARD



HICKORY NECK BOULEVARD (CONT'D)

Rev.	Date	Description	Revised By
3	07/06/15	REVISED PER COUNTY COMMENTS	TRS
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SECTION 4
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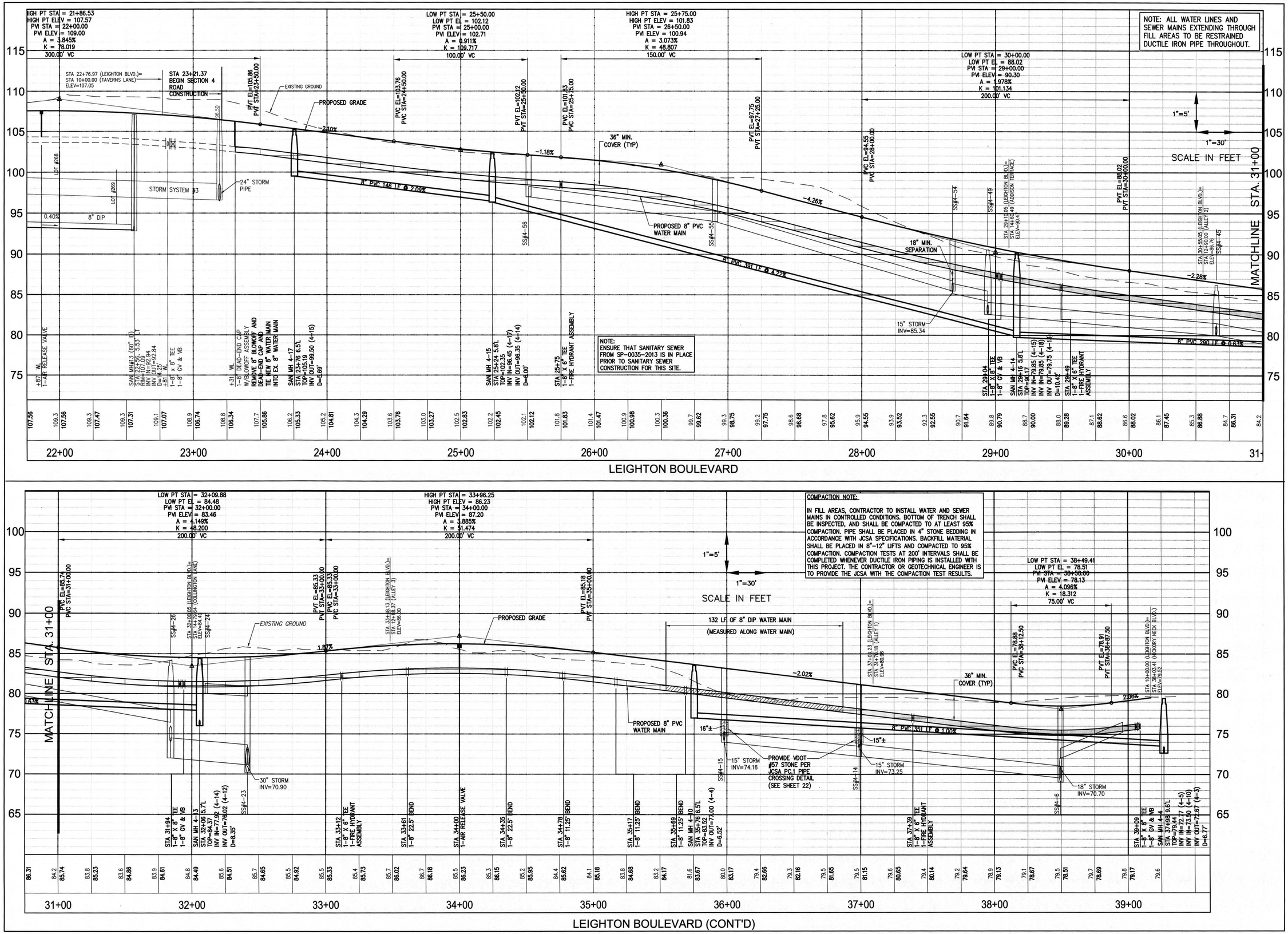
STONEHOUSE DISTRICT JAMES CITY COUNTY VIRGINIA

Project Contacts:	HWP/TRS
Project Number:	9048-20B
Scale: 1"=30'	Date: AUG. 20, 2014

Sheet Title:
ROAD AND
UTILITY PROFILES

Sheet Number
16



Rev.	Date	Description	Revised By
3	07/06/15	REVISED PER COUNTY COMMENTS	TRS
2	06/15/15	REVISED PER COUNTY COMMENTS	TRS
1	01/12/15	REVISED PER COUNTY COMMENTS	TRS

COMMONWEALTH OF VIRGINIA
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SECTION 4
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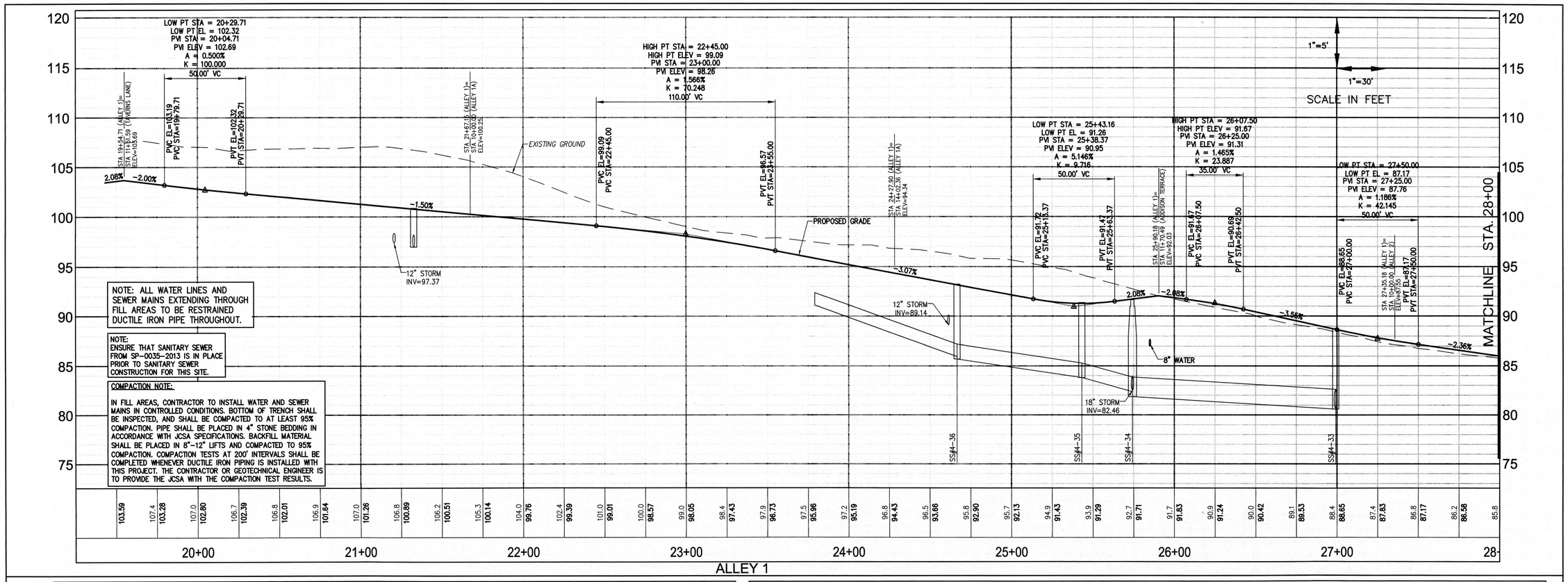
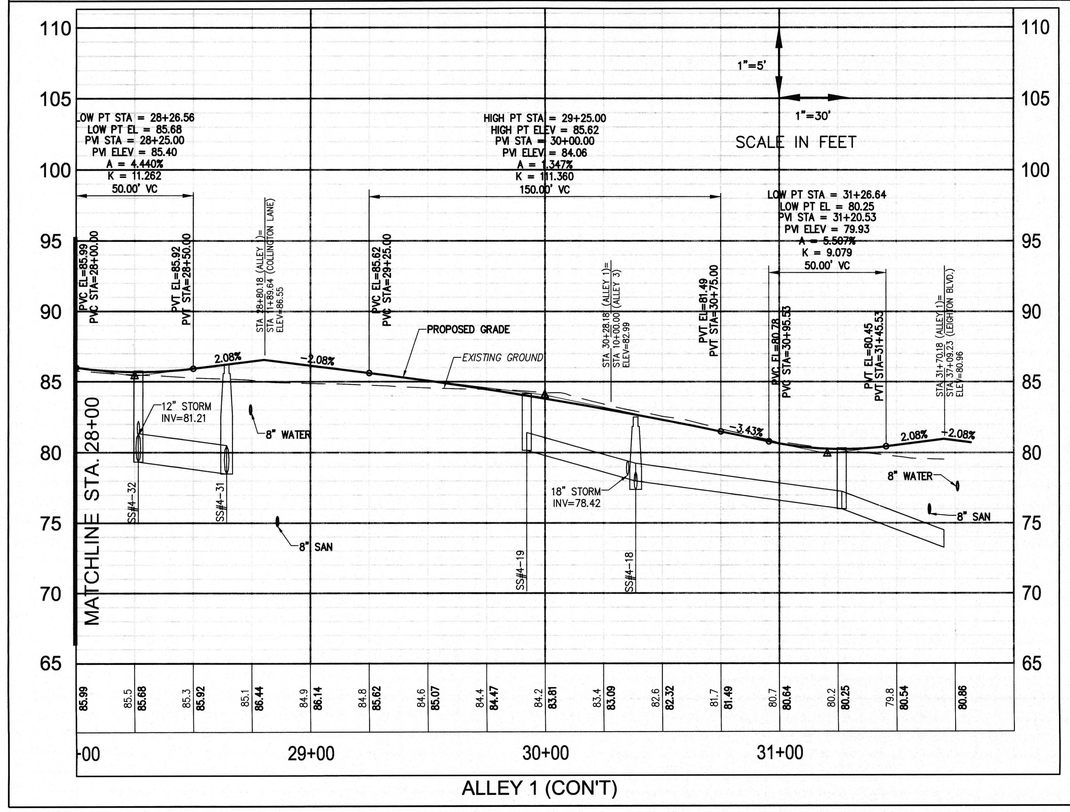
DEVELOPER: HHHUNT COMMUNITIES
STONEHOUSE DISTRICT JAMES CITY COUNTY VIRGINIA

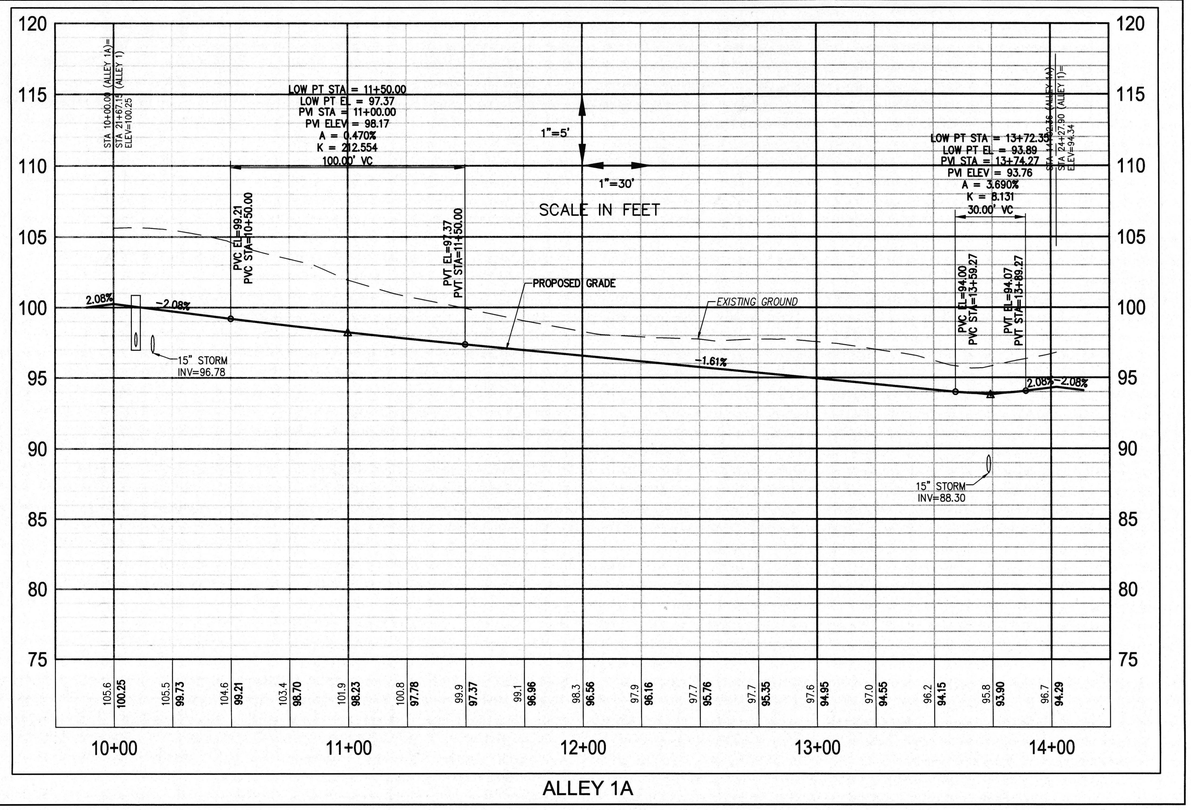
Project Contacts:	HWP/TRS
Project Number:	9048-20B
Scale: 1"=30'	Date: AUG. 20, 2014

Sheet Title:
ROAD AND UTILITY PROFILES

Sheet Number
17







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3	07/06/15	REVISED PER COUNTY COMMENTS	TRS
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1	01/12/15	REVISED PER COUNTY COMMENTS	TRS

COMMONWEALTH OF VIRGINIA
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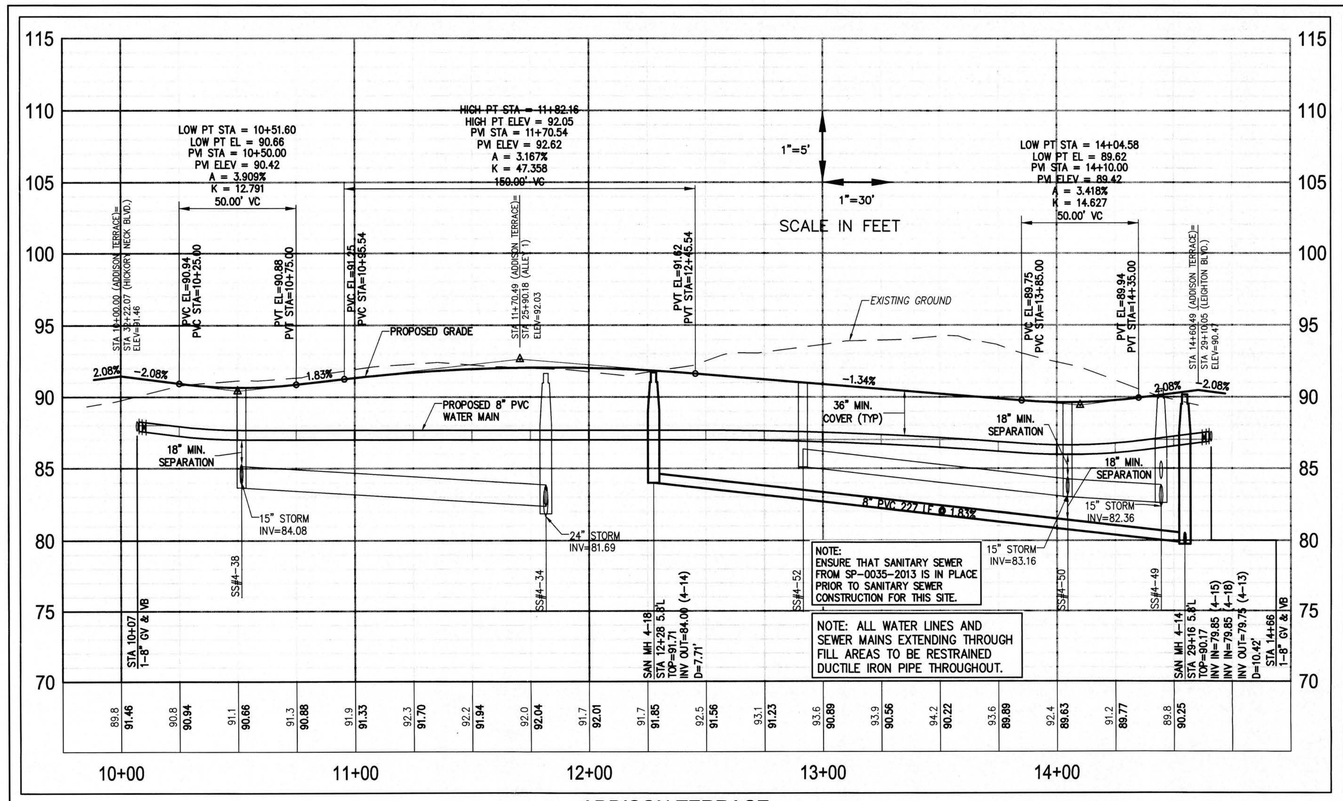
SECTION 4
WHITE HALL
DEVELOPER: HHHUNT COMMUNITIES
STONEHOUSE DISTRICT JAMES CITY COUNTY VIRGINIA

Project Contacts:	HWP/TRS
Project Number:	9048-20B
Scale: 1"=30' (HORIZ.) 1"=5' (VERT.)	Date: AUG. 20, 2014
Sheet Title:	ROAD AND UTILITY PROFILES
Sheet Number	18



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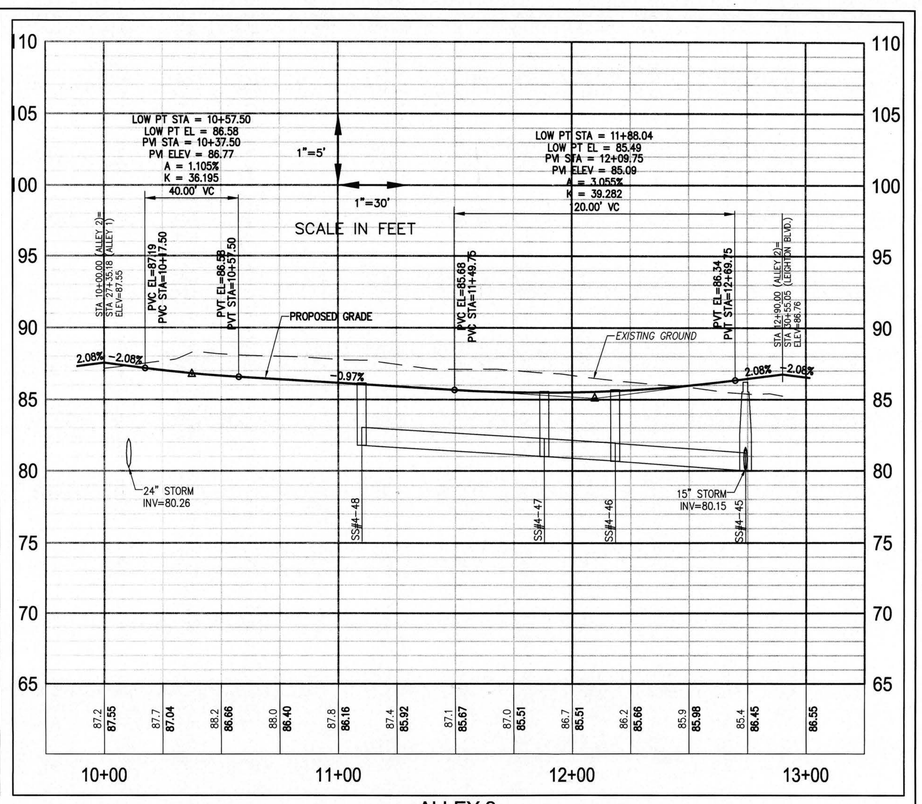
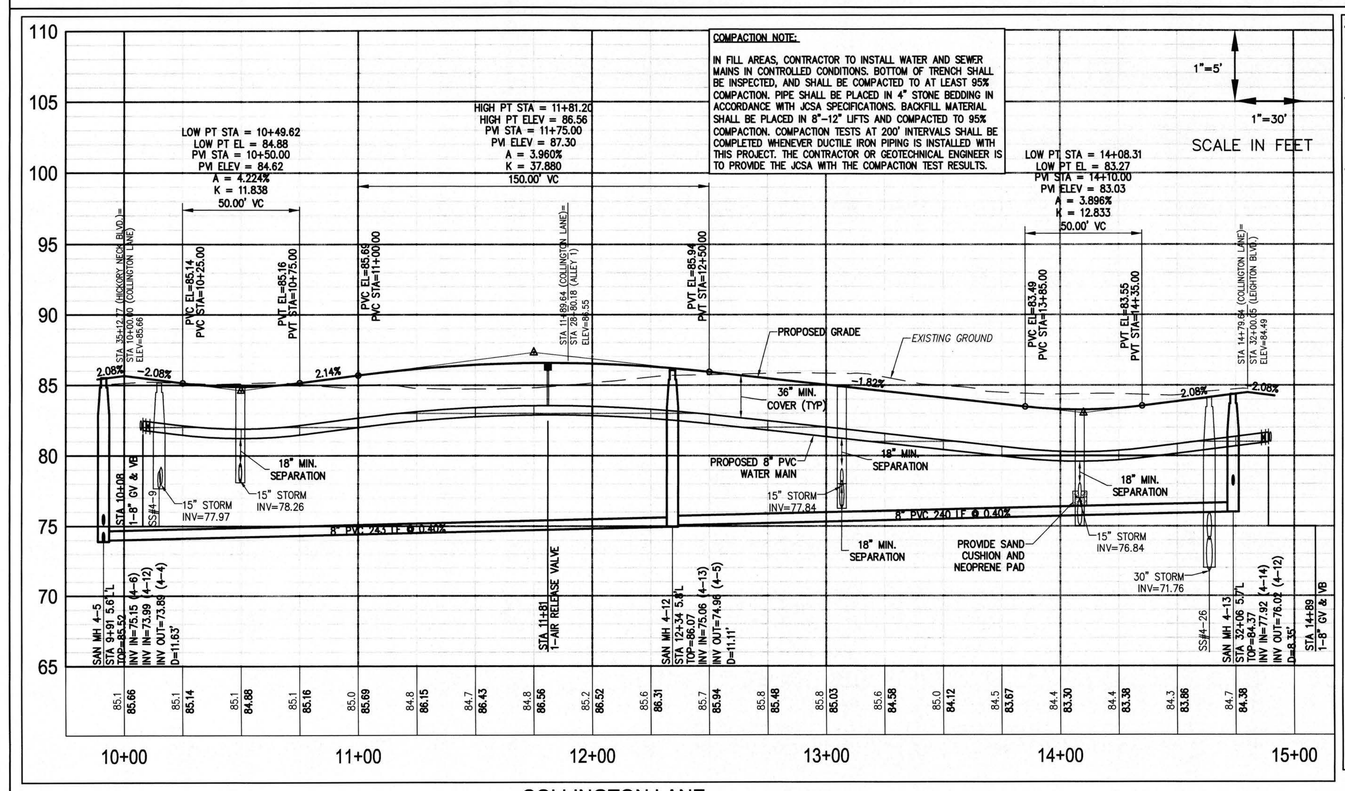
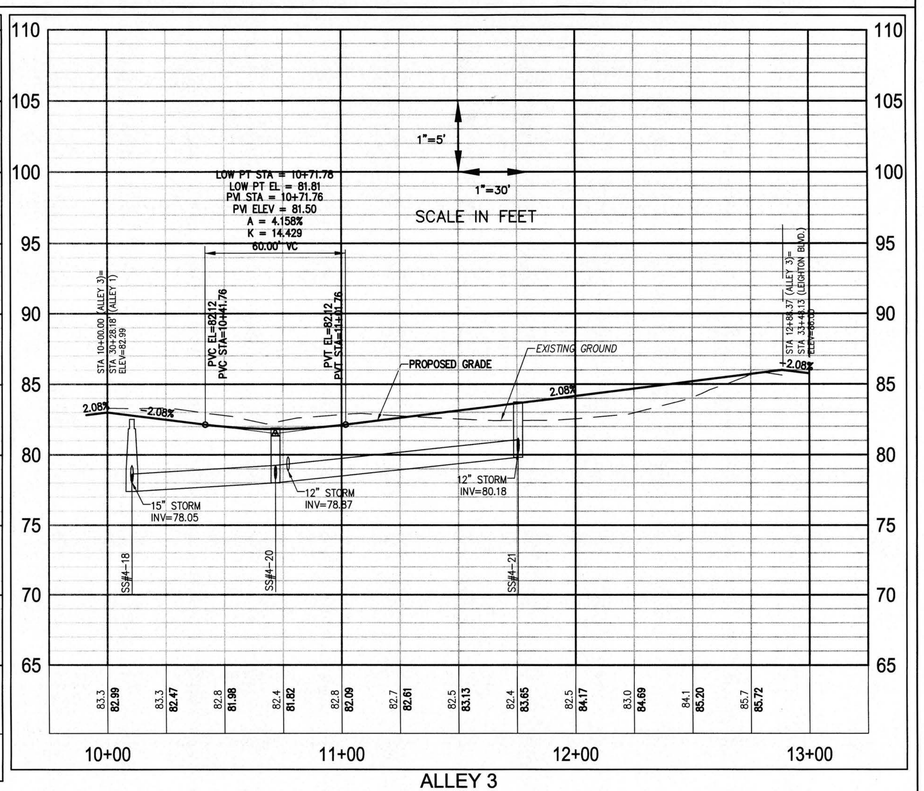


ALLEY 2



COLLINGTON LANE



ALLEY 3

Rev.	Date	Description	Revised By
3	07/06/15	REVISED PER COUNTY COMMENTS	TRS
2	05/15/15	REVISED PER COUNTY COMMENTS	TRS
1	01/12/15	REVISED PER COUNTY COMMENTS	TRS

COMMONWEALTH OF VIRGINIA
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07/06/15

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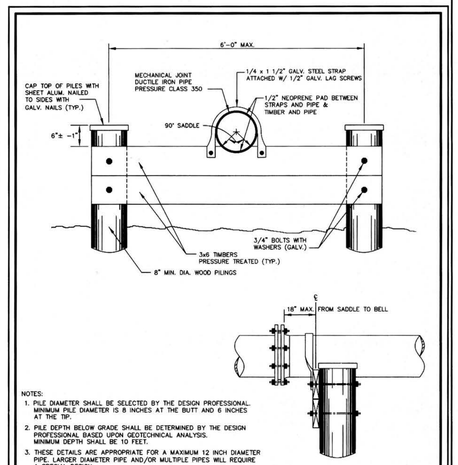
SECTION 4
WHITE HALL
DEVELOPER: HHHUNT COMMUNITIES
STONEHOUSE DISTRICT JAMES CITY COUNTY VIRGINIA

Project Contacts:	HWP/TRS
Project Number:	9048-20B
Scale: 1"=30' (HORIZ.) 1"=5' (VERT.)	Date: AUG. 20, 2014
Sheet Title: ROAD AND UTILITY PROFILES	
Sheet Number	19



NOTES:

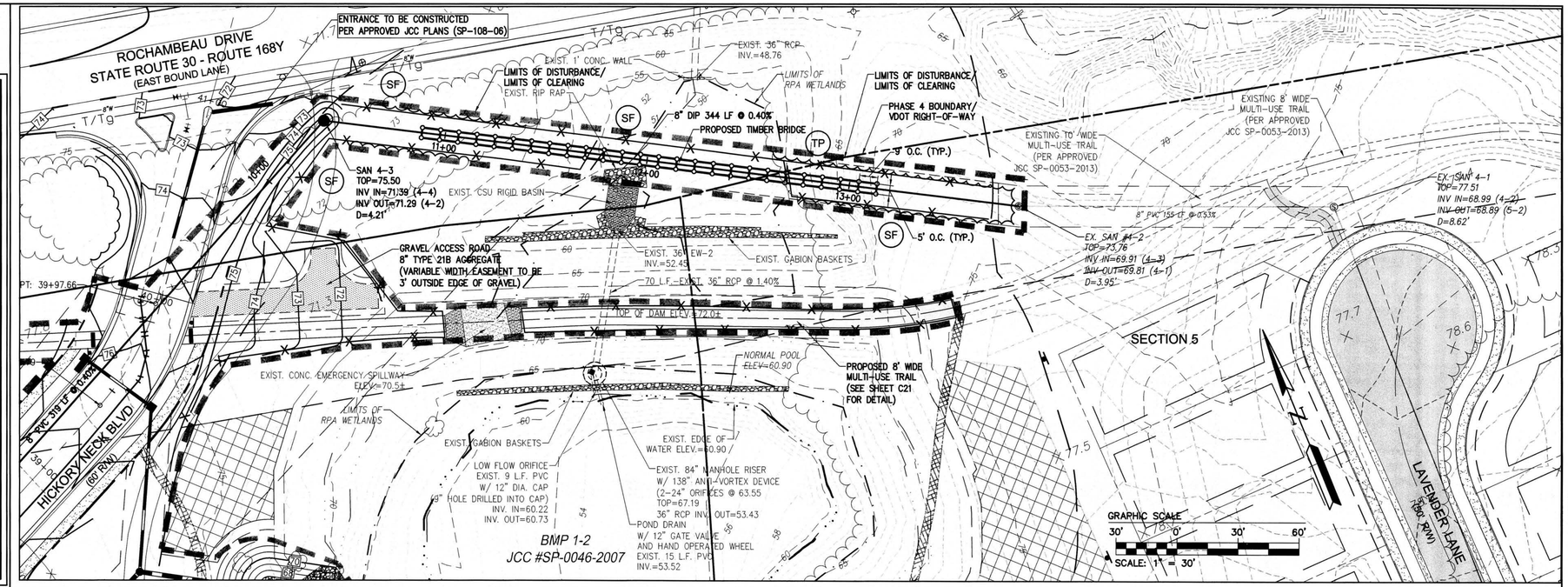
1. PILE DIAMETER SHALL BE SELECTED BY THE DESIGN PROFESSIONAL. MINIMUM PILE DIAMETER IS 8 INCHES AT THE BUTT AND 6 INCHES AT THE TIP.
2. PILE DEPTH BELOW GRADE SHALL BE DETERMINED BY THE DESIGN PROFESSIONAL BASED UPON GEOTECHNICAL ANALYSIS. MINIMUM DEPTH SHALL BE 10 FEET.
3. THESE DETAILS ARE APPROPRIATE FOR A MAXIMUM 12 INCH DIAMETER PIPE. LARGER DIAMETER PIPE AND/OR MULTIPLE PIPES WILL REQUIRE A SPECIAL DESIGN.
4. PIPE BRIDGES FOR PRESSURE PIPE SHALL BE DESIGNED TO ADEQUATELY ACCOMMODATE THRUST RESTRAINTS AS APPLICABLE.
5. PIPE BRIDGE DESIGN CALCULATIONS AND BACK UP DATA SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER LICENSED IN THE COMMONWEALTH OF VIRGINIA AND SUBMITTED TO JCSA FOR RECORD.

REVISION DATE	COMMENT

JCSA JAMES CITY SERVICE AUTHORITY

PIPE BRIDGE
1 OF 3

DWG NO. PB.1	SCALE: NONE
DWN BY: DAW	DATE: JUNE 2004



Rev.	Date	Description	Reviewed By
3	07/09/15	REVISED PER COUNTY COMMENTS	TRS
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1	01/12/15	REVISED PER COUNTY COMMENTS	TRS

COMMONWEALTH OF VIRGINIA
TRACY RYANSTEPHENSON
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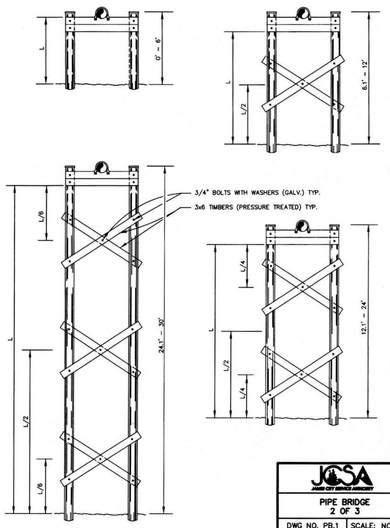
07/06/15
PROFESSIONAL ENGINEER

MINIMUM CROSS BRACING REQUIREMENTS



JCSA JAMES CITY SERVICE AUTHORITY

PIPE BRIDGE
2 OF 3

DWG NO. PB.1	SCALE: NONE
DWN BY: DAW	DATE: JUNE 2004

PILE MATERIALS & MANUFACTURE

A. TIMBER PILES:

1. TIMBER PILES SHALL BE HIGHEST QUALITY, CLEAN-PEELED, ROUND, SOUND, STRAIGHT TIMBERS OF SOUTHERN PINE OR DOUGLAS FIR, CONFORMING TO THE CURRENT "STANDARD SPECIFICATIONS FOR ROUND TIMBER PILES", ASTM DESIGNATION D 25.
2. ALL PILES SHALL BE SAP PILES FOR HIGH RETENTION OF PRESERVATIVE. SOUTHERN PINE TIMBERS SHALL HAVE A MINIMUM SAP RING OF 1.5", AND DOUGLAS FIR TIMBERS SHALL HAVE A MINIMUM SAP RING OF 1.5".
3. ALL PILES SHALL BE FREE FROM ANY DEFECTS WHICH MAY IMPAIR THEIR STRENGTH OR DURABILITY, SUCH AS DECAY, SPLITS, TWISTS OF GRAIN EXCEEDING ONE-HALF OF THE CIRCUMFERENCE IN ANY 20' LENGTH OR SHAKES MORE THAN ONE-THIRD OF THE AVERAGE DIAMETER OF THE PILE.
4. THE MAXIMUM DIAMETER OF A KNOT SHALL NOT EXCEED 4" NOR ONE-THIRD OF THE LEAST DIAMETER OF THE PILE WHERE THE HOLE OCCURS; NUMEROUS HOLES OR SMALL HOLES IN GROUPS WILL NOT BE PERMITTED.
5. TIMBER SHALL HAVE ONE-THIRD OR MORE SUMMERWOOD AND AVERAGE AT LEAST FIVE ANNUAL RINGS PER INCH.

B. MANUFACTURE:

1. PILES SHALL TAPER UNIFORMLY FROM THE POINT OF BUTT MEASUREMENT TO THE TIP.
2. PILES SHALL BE FREE FROM SHORT OR REVERSE BENDS AND FROM CROOKS GREATER THAN ONE-HALF THE DIAMETER OF THE PILE AT THE MIDDLE OF THE BEND; A LINE DRAWN FROM THE CENTER OF THE BUTT TO THE CENTER OF THE TIP SHALL LIE WITHIN THE BODY OF THE PILE.
3. ALL KNOTS AND LIMBS SHALL BE CUT OR TRIMMED SMOOTHLY AND FLUSH WITH THE SURFACE OF THE PILE.
4. PILES SHALL BE PEELED SMOOTH, CLEAN, AND FREE FROM INNER BARK.
5. ENDS MUST BE CUT SQUARE WITH THE AXIS OF THE PILE.
6. EVERY EFFORT SHALL BE MADE TO OBTAIN AIR-SEASONED TIMBERS CUT IN THE FALL OR EARLY WINTER FOR MAXIMUM STRENGTH AND DURABILITY.
7. BARK SHALL BE PEELED AS SOON AS POSSIBLE TO PREVENT DECAY OF SAPWOOD FROM FUNGI AND WORMS.

C. TREATMENT:

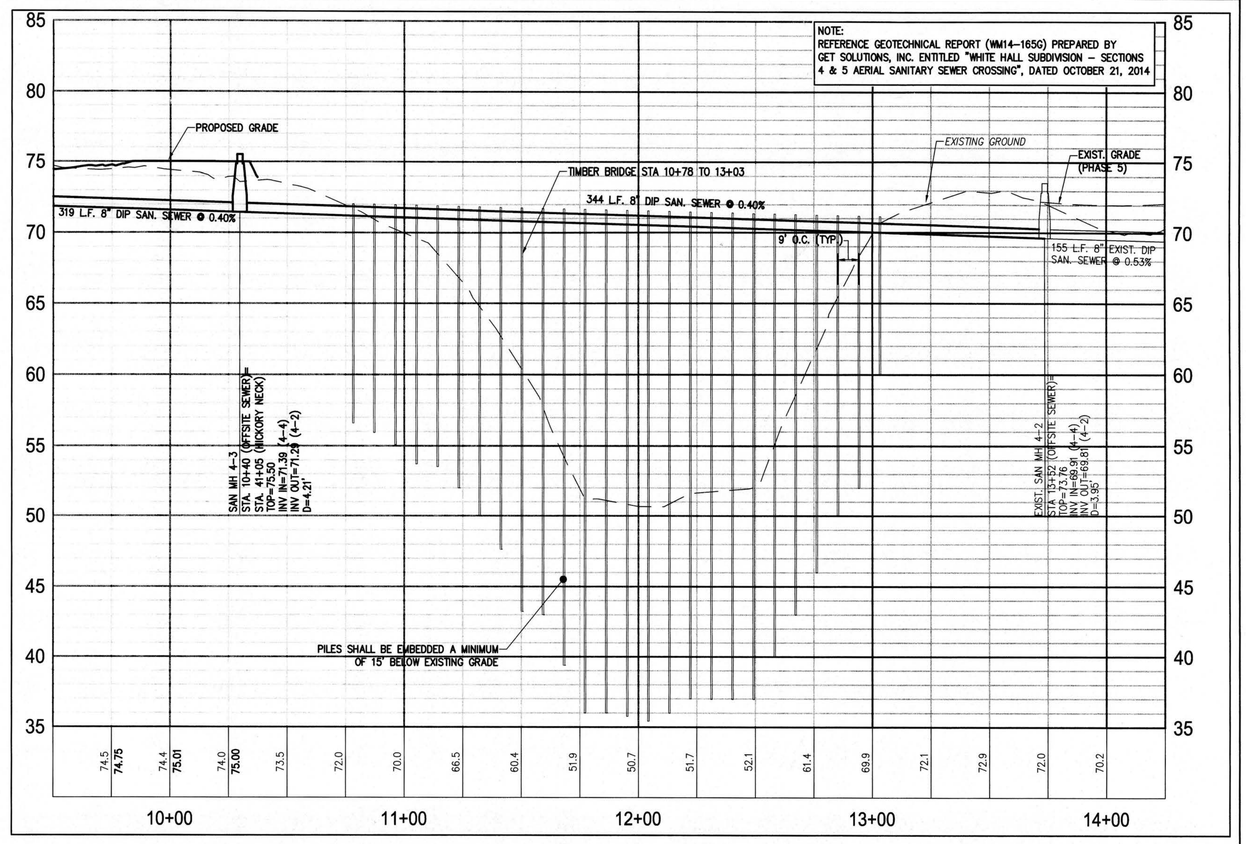
1. ALL PILES SHALL BE TREATED USING THE FULL CELL PROCESS.
2. ALL ADZING, TRIMMING AND CUTTING SHALL BE DONE PRIOR TO TREATMENT.
3. ALL CONDITIONING AND PRESSURE TREATMENT SHALL BE PERFORMED ACCORDING TO CURRENT STANDARDS OF THE AMERICAN WOOD PRESERVERS ASSOCIATION AND BUREAU.
4. PRESERVATIVE TREATMENT OF PILES NOT EXPOSED TO SEAWATER SHALL BE IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS OF AWPA C3.
5. CORRECTION OF DAMAGE OR IMPAIRMENT TO THE PROTECTIVE TREATED SHELL, AS A RESULT OF TRIMMING OR DRIVING THE SLEEVE, SHALL BE IN ACCORDANCE WITH AWPA M4.
6. AFTER PILES HAVE BEEN DRIVEN AND CUT OFF, ALL CUT, BORED, AND TAPPED SURFACES SHALL BE TREATED AS SPECIFIED IN AWPA M4.
7. EACH PILE SHALL BE LEGIBLY MARKED WITH THE AWPB QUALITY MARK INDICATING LP-55, GROUND CONTACT, PRESERVATIVE SYMBOL "C", NAME OF TREATING PLANT AND YEAR TREATED, AND NAME OR TRADEMARK OF SUPERVISING QUALITY CONTROL AGENCY.

JCSA JAMES CITY SERVICE AUTHORITY

PIPE BRIDGE
3 OF 3

DWG NO. PB.1	SCALE: NONE
DWN BY: DAW	DATE: JUNE 2004

NOTE:
REFERENCE GEOTECHNICAL REPORT (WM14-165G) PREPARED BY GET SOLUTIONS, INC. ENTITLED "WHITE HALL SUBDIVISION – SECTIONS 4 & 5 AERIAL SANITARY SEWER CROSSING", DATED OCTOBER 21, 2014



SEWER BRIDGE PROFILE FROM MH #4-3 TO EXISTING MH #4-2 (S-0053-2013)

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SECTION 4
WHITE HALL
DEVELOPER: HHHUNT COMMUNITIES
STONEHOUSE DISTRICT JAMES CITY COUNTY VIRGINIA

Project Contacts:	HWP/TRS
Project Number:	9048-20B
Scale: 1"=30' (HORIZ.) 1"=5' (VERT.)	Date: AUG. 20, 2014

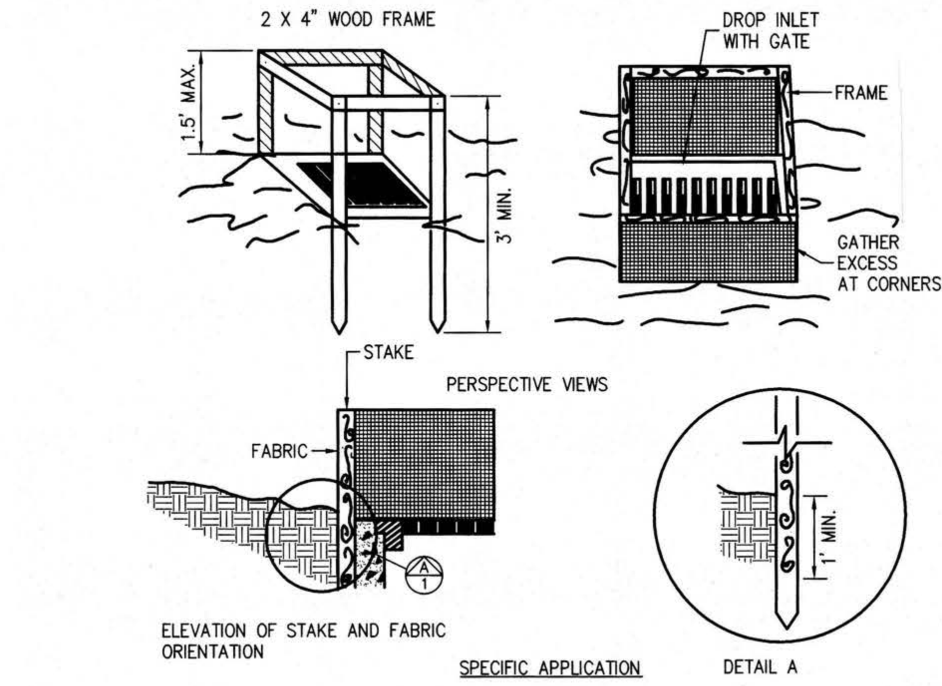
Sheet Title:
OFFSITE SANITARY SEWER PLAN & PROFILE

Sheet Number
20

JAMES CITY COUNTY ENGINEERING AND RESOURCE PROTECTION DIVISION
STANDARD EROSION AND SEDIMENT CONTROL NOTES
REVISED OCTOBER 1, 2009

THE FOLLOWING STANDARD EROSION AND SEDIMENT CONTROL (E&SC) NOTES SHALL BECOME PART OF APPROVED EROSION AND SEDIMENT CONTROL PLANS FOR ALL PLAN OF DEVELOPMENT PROJECTS IN JAMES CITY COUNTY, VIRGINIA.

1. ALL THE PROVISIONS OF VIRGINIA EROSION AND SEDIMENT CONTROL LAW AND REGULATIONS, MINIMUM STANDARDS, HANDBOOKS, AND TECHNICAL BULLETINS AS PUBLISHED BY THE VIRGINIA SOIL & WATER CONSERVATION BOARD AND/OR THE VIRGINIA DEPARTMENT OF CONSERVATION AND RECREATION, DIVISION OF SOIL & WATER CONSERVATION SHALL APPLY TO THE PROJECT.
2. MINIMUM STANDARDS # 1 THROUGH # 19 OF THE VIRGINIA EROSION AND SEDIMENT CONTROL REGULATIONS (4VAC50-30-40) SHALL APPLY TO THE PROJECT.
3. THE OWNER OR APPLICANT SHALL BE RESPONSIBLE TO REGISTER FOR COVERAGE UNDER THE GENERAL PERMIT FOR DISCHARGE OF STORMWATER FROM CONSTRUCTION ACTIVITIES, IN ACCORDANCE WITH CURRENT REQUIREMENTS OF THE VIRGINIA STORMWATER MANAGEMENT PROGRAM (VSMP) AND THE VIRGINIA DEPARTMENT OF CONSERVATION AND RECREATION.
4. THE OWNER OR APPLICANT SHALL PROVIDE THE NAME OF AN INDIVIDUAL HOLDING A VALID RESPONSIBLE LAND DISTURBER (RLD) CERTIFICATE OF COMPETENCE WHO WILL BE RESPONSIBLE FOR THE LAND-DISTURBING ACTIVITY PRIOR TO ENGAGING IN THE LAND-DISTURBING ACTIVITY. THIS WILL BE NECESSARY PRIOR TO ISSUANCE OF A LAND-DISTURBING PERMIT FOR THE PROJECT. THE RLD IS REQUIRED TO ATTEND THE PRECONSTRUCTION CONFERENCE FOR THE PROJECT.
5. THE CONTRACTOR IS RESPONSIBLE TO CONTACT MISS UTILITY (DIAL 811 IN VA OR 1-800-552-7001) PRIOR TO ANY UTILITY OR SITE WORK EXCAVATIONS.
6. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE PLANNED, DESIGNED, IMPLEMENTED, INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE PROVISIONS OF THE LATEST EDITION OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK (VESCH). THE CONTRACTOR SHALL MAINTAIN, INSPECT AND REPAIR ALL EROSION AND SEDIMENT CONTROL MEASURES AS NEEDED THROUGHOUT THE LIFE OF THE PROJECT TO ENSURE CONTINUED ACCEPTABLE PERFORMANCE.
7. A PRECONSTRUCTION CONFERENCE (MEETING) SHALL BE HELD ON SITE BETWEEN THE COUNTY ENGINEERING AND RESOURCE PROTECTION DIVISION, THE OWNER-APPLICANT, THE RESPONSIBLE LAND-DISTURBER (RLD), THE CONTRACTOR AND OTHER RESPONSIBLE AGENCIES, AS APPLICABLE, PRIOR TO ISSUANCE OF A LAND-DISTURBING PERMIT. THE OWNER OR APPLICANT IS REQUIRED TO COORDINATE SCHEDULING OF THE PRECONSTRUCTION CONFERENCE BETWEEN ALL APPLICABLE PARTIES. THE CONTRACTOR SHALL SUBMIT A SEQUENCE OF CONSTRUCTION TO THE COUNTY ENGINEERING AND RESOURCE PROTECTION DIVISION FOR REVIEW AND APPROVAL PRIOR TO THE PRECONSTRUCTION MEETING.
8. ALL PERIMETER EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CONSTRUCTED AS A FIRST STEP IN ANY LAND-DISTURBING ACTIVITY AND SHALL BE MADE FUNCTIONAL BEFORE UPSLOPE LAND DISTURBANCE TAKES PLACE.
9. ADDITIONAL SAFETY FENCE OR DUST CONTROL MEASURES, IN ACCORDANCE WITH THE PROVISIONS OF MINIMUM STANDARDS & SPECS. 3.01 AND 3.39 OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK (VESCH), MAY BE REQUIRED TO BE IMPLEMENTED IN ADDITION TO THAT SHOWN ON THE APPROVED PLAN IN ORDER TO ENSURE ADEQUATE PROTECTION OF THE HEALTH, SAFETY AND WELFARE OF THE PUBLIC OR IF SITE CONDITIONS CHANGE, BECOME APPARENT OR ALTER SIGNIFICANTLY FOLLOWING THE DATE OF PLAN APPROVAL.
10. EROSION AND SEDIMENT CONTROL MEASURES MAY REQUIRE MINOR FIELD ADJUSTMENTS AT OR FOLLOWING TIME OF CONSTRUCTION TO ENSURE THEIR INTENDED PURPOSE IS ACCOMPLISHED, TO ENSURE ADEQUATE PROTECTION OF THE HEALTH, SAFETY AND WELFARE OF THE PUBLIC, OR IF SITE CONDITIONS CHANGE, BECOME APPARENT OR ALTER SIGNIFICANTLY FOLLOWING THE DATE OF PLAN APPROVAL. COUNTY ENGINEERING AND RESOURCE PROTECTION DIVISION APPROVAL SHALL BE REQUIRED FOR ANY DEVIATION OF EROSION AND SEDIMENT CONTROL MEASURES FROM THE APPROVED PLAN.
11. OFF-SITE WASTE OR BORROW AREAS SHALL BE APPROVED BY THE COUNTY ENGINEERING AND RESOURCE PROTECTION DIVISION PRIOR TO THE IMPORT OF ANY BORROW OR EXPORT OF ANY WASTE TO OR FROM THE PROJECT SITE.
12. CULVERT AND STORM DRAIN INLET PROTECTIONS, IN ACCORDANCE WITH THE PROVISIONS OF MINIMUM STANDARDS & SPECS. 3.07 & 3.08 OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK (VESCH), MAY BE REMOVED AT THE DISCRETION OF THE ASSIGNED COUNTY ENGINEERING AND RESOURCE PROTECTION DIVISION INSPECTOR SHOULD PLACEMENT OF THE MEASURE RESULT IN EXCESSIVE ROAD FLOODING OR TRAFFIC HAZARD OR RESULT IN THE REDIRECTION OF DRAINAGE ONTO OR TOWARD EXISTING LOTS, DRIVEWAYS OR STRUCTURES. DECISIONS SHALL BE MADE ON A CASE-BY-CASE BASIS BASED ON FIELD SITUATIONS ENCOUNTERED.
13. DRAINAGE FACILITIES SHALL BE INSTALLED AND FUNCTIONAL WITHIN 30 DAYS FOLLOWING COMPLETION OF ROUGH GRADING AT ANY POINT WITHIN THE PROJECT.
14. NO MORE THAN 300 FEET OF TRENCH MAY BE OPEN AT ONE TIME FOR UNDERGROUND UTILITY LINES, INCLUDING STORM WATER CONVEYANCES. ALL OTHER PROVISIONS OF MINIMUM STANDARD # 16 OF THE VIRGINIA EROSION AND SEDIMENT CONTROL REGULATIONS APPLY.
15. IF DISTURBED AREA STABILIZATION IS TO BE ACCOMPLISHED DURING THE MONTHS OF DECEMBER, JANUARY OR FEBRUARY, STABILIZATION SHALL CONSIST OF MULCHING IN ACCORDANCE WITH MINIMUM STANDARD & SPEC. 3.35 OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK (VESCH). SEEDING WILL THEN TAKE PLACE AS SOON AS THE SEASON PERMITS.
16. THE TERM SEEDING, FINAL VEGETATIVE COVER OR STABILIZATION ON THE APPROVED PLAN SHALL MEAN THE SUCCESSFUL GERMINATION AND ESTABLISHMENT OF A STABLE GRASS COVER FROM A PROPERLY PREPARED SEEDBED, IN ACCORDANCE WITH MINIMUM STANDARDS & SPECS. 3.29 THROUGH 3.37 OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK (VESCH), AS APPLICABLE. IRRIGATION, IF NECESSARY, SHALL COMPLY WITH ALL APPLICABLE OUTDOOR WATER USE RESTRICTIONS OF THE JAMES CITY SERVICE AUTHORITY.
17. TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL NOT BE REMOVED UNTIL ALL DISTURBED AREAS ARE STABILIZED. REMOVAL SHALL NOT OCCUR WITHOUT AUTHORIZATION BY THE COUNTY ENGINEERING AND RESOURCE PROTECTION DIVISION. DISTURBANCES ASSOCIATED WITH THE REMOVAL OF TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE PROPERLY STABILIZED.
18. NO SEDIMENT TRAP OR SEDIMENT BASIN SHALL BE REMOVED UNTIL A) AT LEAST 75 PERCENT OF THE SINGLE-FAMILY LOTS WITHIN THE DRAINAGE AREA TO THE TRAP OR BASIN HAVE BEEN SOLD TO A THIRD PARTY FOR THE CONSTRUCTION OF HOMES (UNRELATED TO THE DEVELOPER); AND/OR, B) 60 PERCENT OF THE SINGLE-FAMILY LOTS WITHIN THE DRAINAGE AREA TO THE TRAP OR BASIN ARE COMPLETED AND STABILIZED. A BULK SALE OF THE LOTS TO ANOTHER BUILDER DOES NOT SATISFY THIS PROVISION. SEDIMENT TRAPS AND SEDIMENT BASINS SHALL NOT BE REMOVED WITHOUT AUTHORIZATION OF THE COUNTY ENGINEERING AND RESOURCE PROTECTION DIVISION.
19. APPLICABLE PROVISIONS OF THE COUNTY BMP MANUAL (JAMES CITY COUNTY GUIDELINES FOR DESIGN AND CONSTRUCTION OF STORMWATER MANAGEMENT BMPS) AND THE VIRGINIA STORMWATER MANAGEMENT HANDBOOK (VSMH) APPLY TO THE PROJECT.
20. DESIGN AND CONSTRUCTION OF PRIVATE-TYPE STORM DRAINAGE SYSTEMS, OUTSIDE VDOT RIGHT-OF-WAY, SHALL BE PERFORMED IN ACCORDANCE WITH THE CURRENT VERSION OF THE JAMES CITY COUNTY ENGINEERING AND RESOURCE PROTECTION DIVISION, STORMWATER DRAINAGE CONVEYANCE SYSTEMS (NON-BMP RELATED), GENERAL DESIGN AND CONSTRUCTION GUIDELINES.
21. RECORD DRAWINGS (AS-BUILTS) AND CONSTRUCTION CERTIFICATIONS ARE REQUIRED FOR ALL STORMWATER FACILITIES INCLUDING STORMWATER MANAGEMENT/BMP FACILITIES AND STORM DRAINAGE CONVEYANCE SYSTEMS. RECORD DRAWINGS AND CONSTRUCTION CERTIFICATIONS MUST MEET ESTABLISHED PROGRAM REQUIREMENTS OF BOTH THE COUNTY ENGINEERING AND RESOURCE PROTECTION AND STORMWATER DIVISIONS.
22. ALL STORMWATER FACILITIES INCLUDING BMPS, STORM DRAINAGE PIPES, STORMWATER CONVEYANCES, INLETS, MANHOLES, OUTFALLS AND ROADSIDE AND OTHER OPEN CHANNELS SHALL BE INSPECTED BY TD ROADSIDE AND OTHER OPEN CHANNELS SHALL BE INSPECTED BY THE JAMES CITY COUNTY COUNTY STORMWATER DIVISION AND GEOTECHNICAL ENGINEER IN ACCORDANCE WITH ESTABLISHED THE JAMES CITY COUNTY STORMWATER DIVISION PROGRAM REQUIREMENTS.

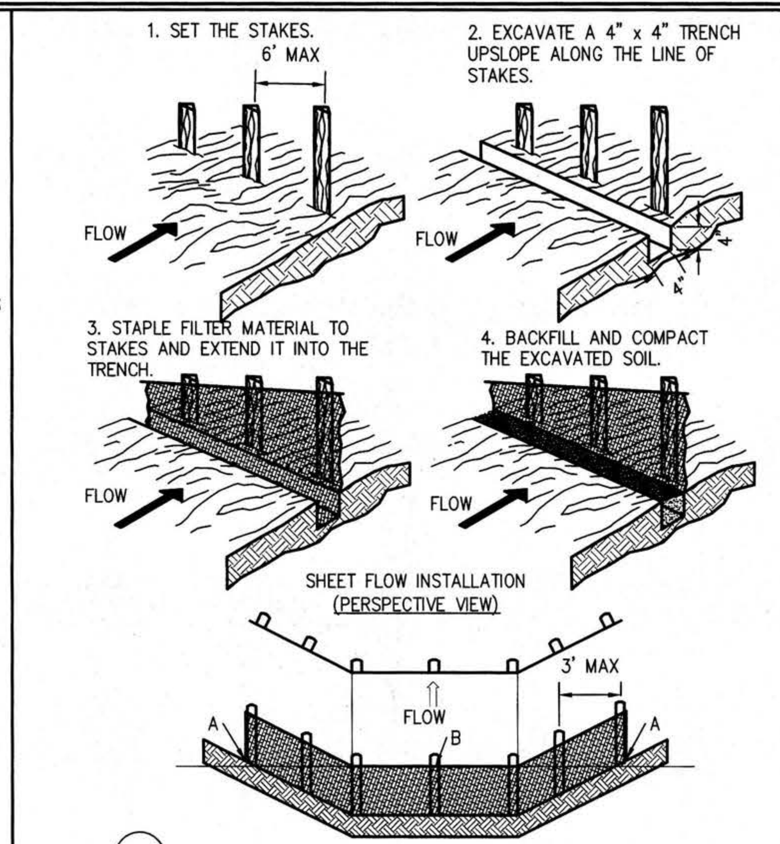


THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE THE INLET DRAINS A RELATIVELY FLAT AREA (SLOPE NO GREATER THAN 5%) WHERE THE INLET SHEET OR OVERLAND FLOWS (NOT EXCEEDING 1 C.F.S.) ARE TYPICAL. THE METHOD SHALL NOT APPLY TO INLETS RECEIVING CONCENTRATED FLOWS, SUCH AS IN STREET OR HIGHWAY MEDIANS.

(IP) SILT FENCE DROP INLET PROTECTION

N.T.S.

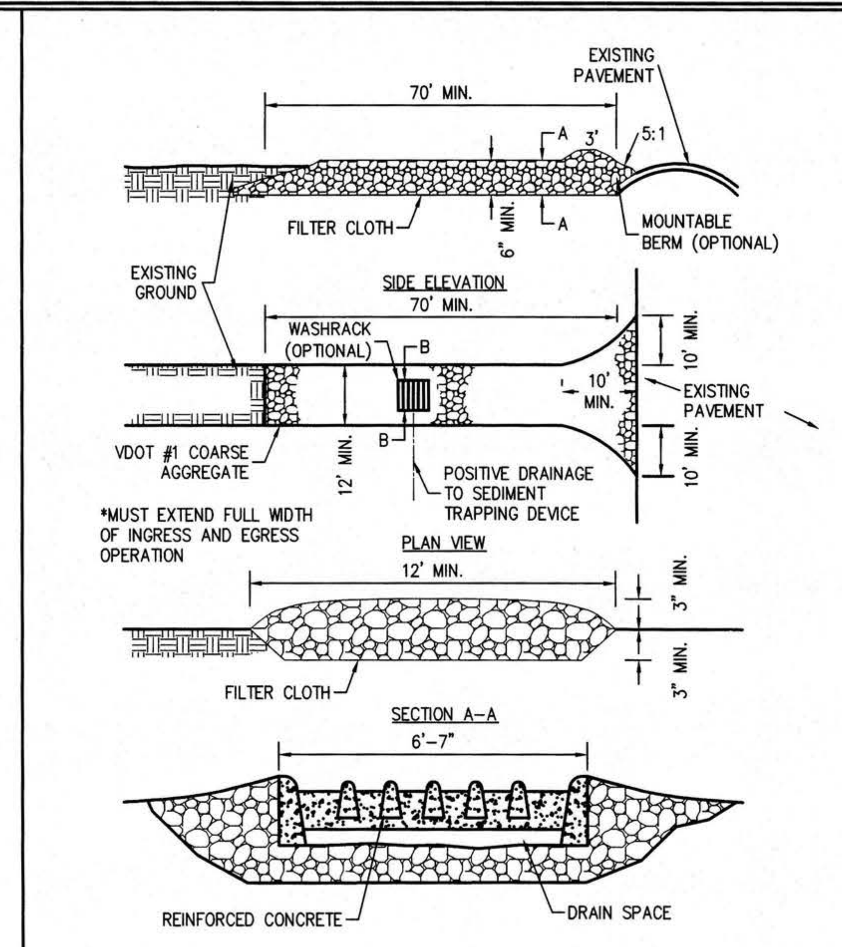
SOURCE: N.C. EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL
PLATE. 3.07-1



SOURCE: VA. DSWC
PLATE. 3.05-2

(SF) CONSTRUCTION OF A SILT FENCE (WITHOUT WIRE SUPPORT)

N.T.S.

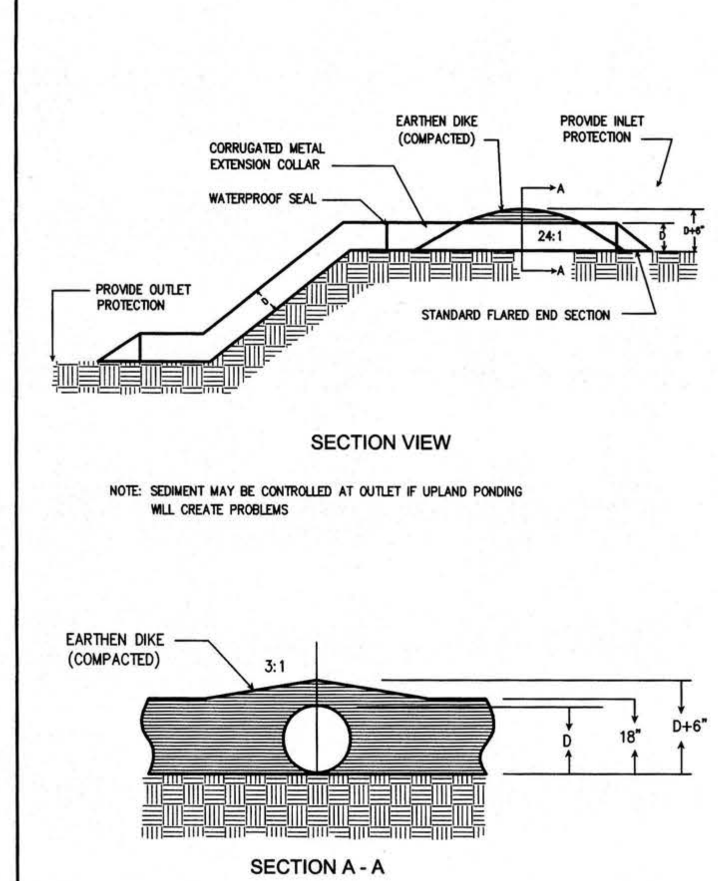


(CE) STONE CONSTRUCTION ENTRANCE

SOURCE: VA. DSWC
PLATE. 3.02-1

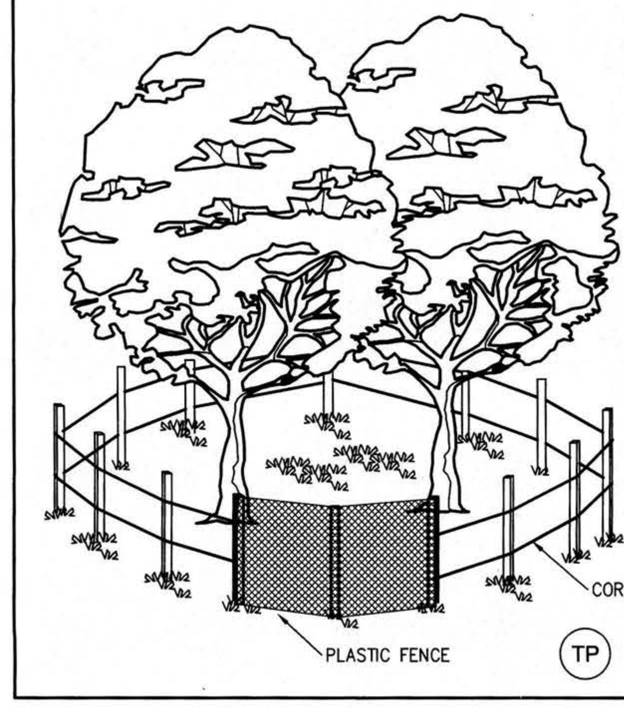
N.T.S.

TEMPORARY SLOPE DRAIN



(TSD)

Plate 3.15-1



PLASTIC FENCING—40" HIGH "INTERNATIONAL ORANGE" PLASTIC (POLYETHYLENE) WEB FENCING SECURED TO CONVENTIONAL METAL "T" OR "U" POSTS DRIVEN TO A MINIMUM DEPTH OF 18" ON 6' MINIMUM CENTERS SHALL BE INSTALLED AT THE LIMITS OF CLEARING. THE FENCE SHALL HAVE THE FOLLOWING MINIMUM PHYSICAL QUALITIES:

TENSILE YIELD: AVERAGE 2,000 LBS. PER 4' WIDTH (ASTM D638)

ULTIMATE TENSILE YIELD: AVERAGE 2,900 LBS. PER 4' WIDTH (ASTM D638)

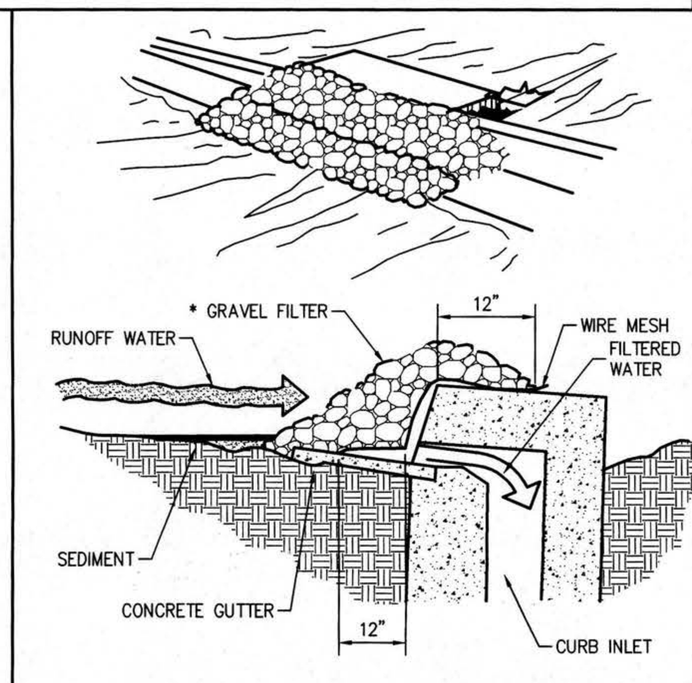
ELONGATION AT BREAK (%): GREATER THAN 1000% (ASTM D638)

CHEMICAL RESISTANCE: INERT TO MOST CHEMICALS AND ACIDS

PLACE FENCE 5' OUTSIDE DRIPLINE

(TP) TREE PROTECTION

N.T.S.



THIS METHOD OF INLET PROTECTION IS APPLICABLE AT CURB INLETS WHERE PONDING IN FRONT OF THE STRUCTURE IS NOT LIKELY TO CAUSE INCONVENIENCE OR DAMAGE TO ADJACENT STRUCTURES AND UNPROTECTED AREAS.

* GRAVEL SHALL BE VDOT #3, #357, OF 5 COARSE AGGREGATE.

(IP) GRAVEL CURB INLET SEDIMENT FILTER

SOURCE: VA. DSWC
PLATE. 3.07-6

N.T.S.

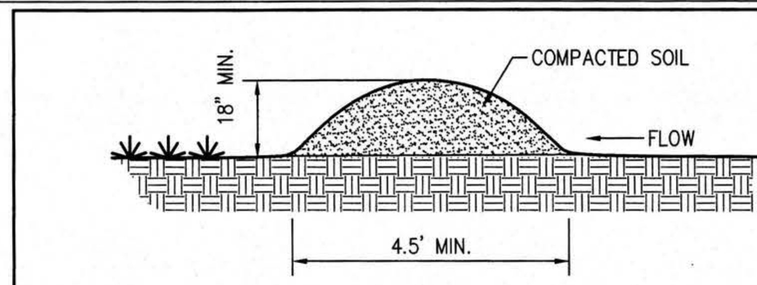
	TOTAL LBS. PER ACRE
MINIMUM CARE LAWN	
COMMERCIAL OR RESIDENTIAL	
-KENTUCKY 31 OR TURF-TYPE TALL FESCUE	175-200 LBS.
OR	
-COMMON BERMUDA GRASS **	75 LBS.
HIGH-MAINTENANCE LAWN	
-KENTUCKY 31 OR TURF-TYPE TALL FESCUE	200-250 LBS.
OR	
-HYBRID BERMUDAGRASS (SEED)**	40 LBS. (UNHALLED)
OR	
-HYBRID BERMUDAGRASS (BY OTHER VEGETATIVE ESTABLISHMENT METHOD, SEE STD. & SPEC. 3.34)	30 LBS. (HULLED)
GENERAL SLOPE (3:1 OR LESS)	
-KENTUCKY 31 FESCUE	128 LBS.
-RED TOP GRASS	2 LBS.
-SEASONAL NURSE CROP *	20 LBS.
	150 LBS.
LOW MAINTENANCE SLOPE (STEEPER THAN 3:1)	
-KENTUCKY 31 TALL FESCUE	93-108 LBS.
-COMMON BERMUDAGRASS **	0-15 LBS.
-RED TOP GRASS	2 LBS.
-SEASONAL NURSE CROP *	20 LBS.
-SERICEA LESPEDEZA **	20 LBS.
	150 LBS.

* USE SEASONAL CROP IN ACCORDANCE WITH SEEDING DATES AS STATED BELOW:
FEBRUARY, MARCH THROUGH APRIL.................ANNUAL RYE
MAY 1ST THROUGH AUGUST.................FOXTAIL MILLET
SEPTEMBER, OCTOBER THROUGH NOVEMBER 15TH.................ANNUAL RYE
NOVEMBER 16TH THROUGH JANUARY.................WINTER RYE

** MAY THROUGH OCTOBER, USE HULLED SEED. ALL OTHER SEEDING PERIODS, USE UNHULLED SEED. WEEPING LOVEGRASS MAY BE ADDED TO ANY SLOPE OR LOW-MAINTENANCE MIX DURING WARMER SEEDING PERIODS; ADD 10-20 LBS./ACRE IN MIXES.

(PS) VA DSWC PG. III - 304

SITE SPECIFIC SEEDING MIXTURES FOR COASTAL PLAIN AREA

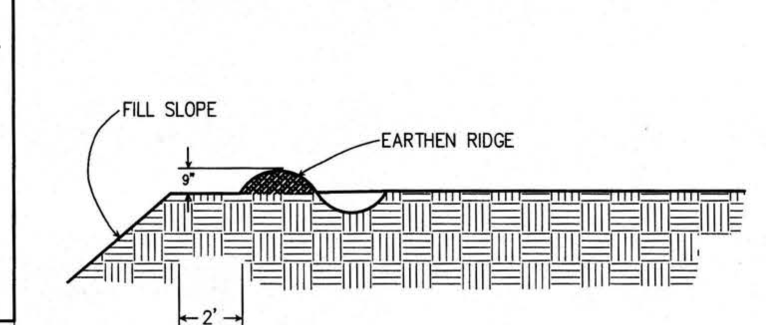


(DD) TEMPORARY DIVERSION DIKE

N.T.S.

SOURCE: VA. DSWC
PLATE. 3.09-1

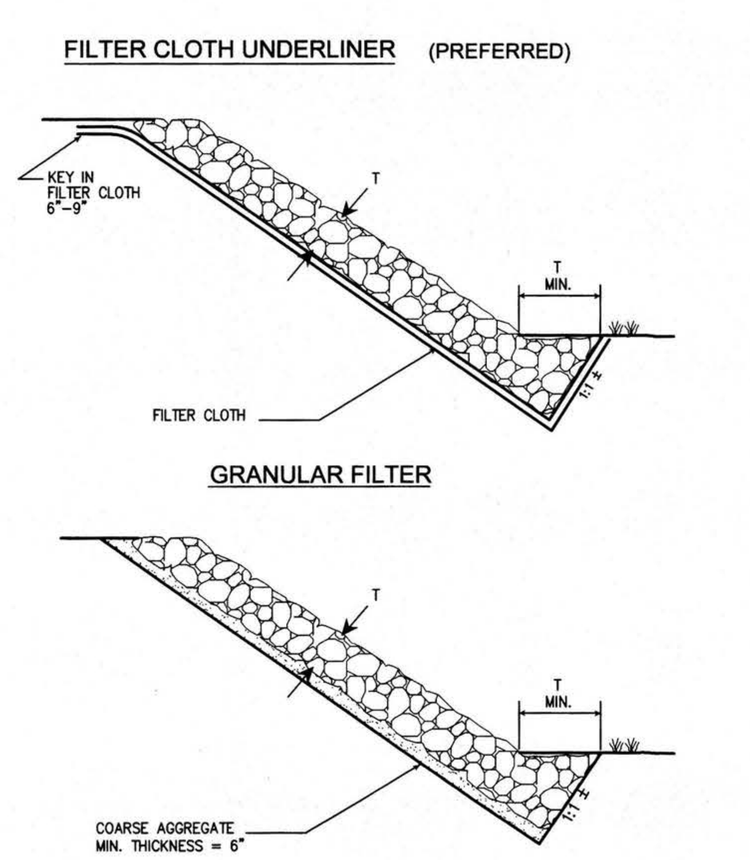
TEMPORARY FILL DIVERSION



(CIP)

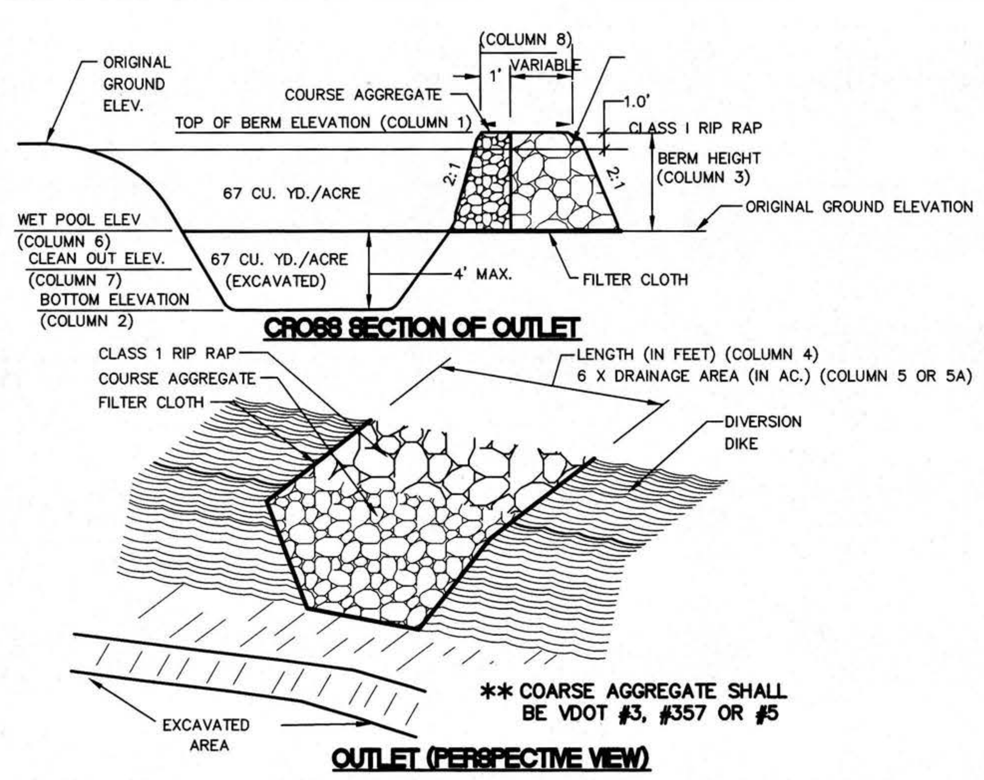
Plate 3.10-1

TOE REQUIREMENTS FOR BANK STABILIZATION



(RR)

Plate 3.19-1



** COARSE AGGREGATE SHALL BE VDOT #3, #357 OR #5

OUTLET (PERSPECTIVE VIEW)

	TOP OF BERM	BOTTOM ELEV.	BERM HEIGHT	SPILLWAY LENGTH	DRAIN AREA-PRE	DRAIN AREA-FINAL	WET POOL ELEV.	CLEAN OUT ELEV.	TOP OF DAM WIDTH
SEDIMENT TRAP #	(1)	(2)	(3)	(4)	(5)	(5A)	(6)	(7)	(8)
1	86.0	82.0	1.7'	18.0'	2.97 AC.	N/A	84.00	83.00	2.5'
3	68.0	64.0	1.7'	18.0'	3.00 AC.	N/A	66.25	65.25	2.5'
4	81.0	76.0	1.8'	18.0'	2.99 AC.	N/A	79.10	77.10	2.5'
5	77.0	73.0	1.5'	18.0'	3.00 AC.	N/A	75.25	74.25	2.5'
6	73.0	69.0	1.3'	18.0'	3.00 AC.	N/A	71.50	70.25	2.5'

(ST) TEMPORARY SEDIMENT TRAP

SPECIES	SEEDING RATE		SOUTH (b)			PLANT CHARACTERISTICS
	ACRE	1000 FT SQ.	2/15 TO 4/30	5/1 TO 9/1	9/2 TO 11/15	
OATS (AVENA SATIVA)	3 BU. (UP TO 100 LBS., NOT LESS THAN 50 LBS.)	2 lbs.	X	–	–	Use spring varieties (e.g., Noble).
RYE (SECALE CEREALE)	2 bu. (up to 110 lbs., not less than 50 lbs.)	2.5 lbs.	X	–	X	Use for late fall seedings, winter cover. Tolerates cold and low moisture.
GERMAN MILLET (SETARIA ITALICA)	50 lbs.	approx. 1 lb.	–	X	–	Warm-season annual. Dies at first frost. May be added to summer mixes.
ANNUAL RYEGRASS (LOLIUM MULTI-FLORUM)	60 lbs.	1-1/2 lbs.	X	–	X	May be added in mixes. Will mow out of most stands.
WEEPING LOVEGRASS (ERAGROTIS CURVULA)	15 lbs.	5-1/2 ozs.	–	X	–	Warm-season perennial. May bunch. Tolerates hot, dry slopes and acid, infertile soils. May be added to mixes.
KOREAN LESPEDEZA (LESPEDEZA STIPULACEA)	25 lbs.	approx. 1-1/2 lbs.	X	X	–	Warm-season annual legume. Tolerates acid soils. May be added to mixes.

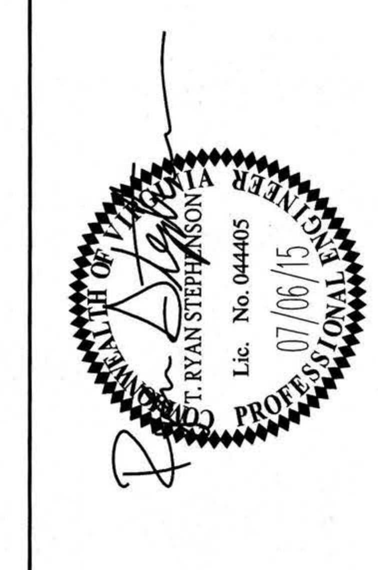
b: SOUTHERN PIEDMONT AND COASTAL PLAIN.
c: MAY BE USED AS A COVER CROP WITH SPRING SEEDING.
d: MAY BE USED AS A COVER CROP WITH FALL SEEDING.
X: MAY BE PLANTED BETWEEN THESE DATES.
–: MAY NOT BE PLANTED BETWEEN THESE DATES.

SOURCE: VA. DSWC
TABLE 3.31-C

(TS) TEMPORARY SEEDING

N.T.S.

Rev.	Date	Description	Revised By
3	07/06/15	REVISED PER COUNTY COMMENTS	TRS
2	05/15/15	REVISED PER COUNTY COMMENTS	TRS
1	01/12/15	REVISED PER COUNTY COMMENTS	TRS



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Hampton Roads | Central Virginia | Middle Peninsula

SECTION 4
WHITE HALL
DEVELOPER: HHHUNT COMMUNITIES
STONEHOUSE DISTRICT JAMES CITY COUNTY VIRGINIA

Project Contacts: HWP/TRS
Project Number: 9048-20B
Scale: NA
Date: AUG. 20, 2014
Sheet Title: NOTES AND DETAILS
Sheet Number 21

VIRGINIA DEPARTMENT OF TRANSPORTATION STANDARD NOTES
HAMPTON ROADS DISTRICT
FEBRUARY 2015

1.0 GENERAL INFORMATION

1.1 THESE PLANS WERE PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF (SELECT ONE):
☒ VDOT SUBDIVISION STREET REQUIREMENTS (SSR)
☐ VDOT SUBDIVISION STREET ACCEPTANCE REQUIREMENTS (SSAR)
☐ N/A

1.2 VDOT APPROVED EXCEPTIONS (SELECT ONE):
☐ ACCESS MANAGEMENT DATE OF APPROVAL _____
☐ SSAR DATE OF APPROVAL _____
☐ OTHER: A: A: _____ DATE OF APPROVAL _____
☒ N/A

1.3 TRIP GENERATION DATA:
USE: RESIDENTIAL
ITE CODE: 210 & 230
TOTAL DAILY TRIPS: 470 + 288 = 758 VPD
AM PEAK HOUR TRIPS: _____ VPH
PM PEAK HOUR TRIPS: _____ VPH

1.4 A LAND USE PERMIT MUST BE OBTAINED FROM VDOT BEFORE ANY CONSTRUCTION IS STARTED WITHIN STATE MAINTAINED RIGHT OF WAY LIMITS. CONTACT THE VDOT DISTRICT OFFICE AT (757) 925-3686 FOR THE PERMIT FEE AND BOND AMOUNT. ALL LAND USE PERMIT APPLICATIONS MUST HAVE ONE (1) SET OF APPROVED PLANS, A COPY OF THE PLAN APPROVAL LETTER, A CHECK FOR THE PROCESSING FEE MADE PAYABLE TO TREASURER OF VIRGINIA, AND SURETY OR BOND IN THE REQUIRED AMOUNT.

1.5 THE VDOT DISTRICT OFFICE IS TO RECEIVE WRITTEN NOTIFICATION 48 HOURS PRIOR TO THE START OF ANY WORK WITHIN STATE MAINTAINED RIGHT OF WAY. A PRE-CONSTRUCTION MEETING SHOULD BE HELD AT LEAST ONE WEEK PRIOR TO ANY LAND DISTURBANCE OR WHEN CONSTRUCTION ACTIVITIES WILL AFFECT TRAFFIC OPERATIONS OF ANY ARTERIAL CORRIDOR.

1.6 ALL CONSTRUCTION METHODS AND MATERIALS WITHIN STATE MAINTAINED RIGHT OF WAY SHALL COMPLY WITH THE CURRENT STANDARDS AND SPECIFICATIONS OF THE VIRGINIA DEPARTMENT OF TRANSPORTATION.

1.7 THE CONTRACTOR SHALL HAVE AVAILABLE A COPY OF THE LAND USE PERMIT(S), FINAL APPROVED PLANS, ANY APPROVED REVISIONS, AND A COPY OF THE APPROVAL LETTER ON SITE.

1.8 ANY ERRORS, CONFLICTS, OR DISCREPANCIES FOUND ON THE APPROVED PLANS SHALL BE REPORTED TO THE DEVELOPER'S ENGINEER. THE VDOT DISTRICT OFFICE SHOULD BE NOTIFIED FOR RESOLUTION BEFORE PROCEEDING FURTHER WITH THE WORK IF THE STATE MAINTAINED RIGHT OF WAY IS AFFECTED.

1.9 THE DEVELOPER IS RESPONSIBLE FOR ANY DAMAGE TO EXISTING ROADS, UTILITIES, AND ANY OTHER INSTALLATIONS ALREADY IN PLACE WHICH OCCUR AS A RESULT OF PROJECT CONSTRUCTION WITHIN OR CONTIGUOUS TO STATE RIGHT OF WAY LIMITS.

1.10 THE COMMONWEALTH TRANSPORTATION BOARD MEMBERS OF THE BOARD, THE COMMONWEALTH AND ALL COMMONWEALTH EMPLOYEES, AGENTS, AND OFFICES, SHALL BE ABSOLVED FROM ALL RESPONSIBILITIES, DAMAGES AND LIABILITIES AS A RESULT OF WORK ARISING FROM THE EXERCISE OF THE PRIVILEGES GRANTED BY PLAN AND/OR PERMIT APPROVAL.

1.11 MATERIALS SHALL NOT BE STOCKPILED WITHIN STATE MAINTAINED RIGHT OF WAY OR EASEMENTS.

1.12 PRIVATE ENTRANCES LOCATED ON STREETS WITH CURB AND GUTTER (CG-6, CG-7) REQUIRE INSTALLATION OF CURB APRONS (CG-9B, CG-9D). PRIVATE ENTRANCES LOCATED ON STREETS WITH ROLLTOP CURB SHALL BE INSTALLED IN ACCORDANCE WITH THE DETAIL ON PAGE B(1)-29 OF THE VDOT ROAD DESIGN MANUAL. SIDEWALK SHALL BE 7" THICK AT DRIVEWAY CROSSINGS AND ADJACENT TO ROLLTOP CURB. INSTALLATION OF PIPE CULVERTS AND STORM SEWERS SHALL CONFORM TO THE CURRENT VDOT STANDARD PB-1. PIPE CULVERTS SHALL HAVE A MINIMUM OF 4" OF COVER UNDER CONCRETE GUTTERS, OR ADJUSTMENT SHALL BE REQUIRED TO CONCRETE GUTTER GRADES IN THE FIELD TO REACH THIS COVER OR AS DIRECTED BY THE VDOT ENGINEER. PRIVATE ENTRANCES LOCATED ON STREETS WITH ROADSIDE DITCHES REQUIRE 9" OF COVER.

2.0 DRAINAGE & EROSION CONTROL

2.1 VDOT SHALL NOT BE RESPONSIBLE FOR THE MAINTENANCE OF ANY STORMWATER MANAGEMENT FACILITY OR OUTFALL STRUCTURE LOCATED OUTSIDE OF STATE MAINTAINED RIGHT OF WAY LIMITS AND SHALL BE ABSOLVED FROM ALL RESPONSIBILITIES, DAMAGES AND LIABILITIES AS A RESULT OF SUCH.

2.2 ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR IN ACCORDANCE WITH THE VIRGINIA EROSION & SEDIMENT CONTROL HANDBOOK AND VIRGINIA STORMWATER MANAGEMENT PROGRAM. AN INDIVIDUAL CERTIFIED BY THE VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY, HOLDING A RESPONSIBLE LAND DISTURBER CERTIFICATION, IS TO BE IN CHARGE OF THE LAND DISTURBING ACTIVITY AND FOR CONTINUED MAINTENANCE OF THE EROSION AND SEDIMENT CONTROL ON THE WORK SITE AT ALL TIMES.

2.3 TEMPORARY DRAINAGE MEASURES SHALL BE INSTALLED DURING CONSTRUCTION TO PREVENT PONDING AND DIVERT SEDIMENT LADEN WATER.

2.4 ALL NECESSARY PRECAUTIONS SHALL BE TAKEN TO ENSURE AGAINST SILTATION OF ADJACENT PROPERTIES, DITCHES, STREAMS, AND CONSTRUCTION VEHICLES TRACKING SILT ONTO ADJACENT ROADWAYS. ADDITIONAL DITCH LININGS OR SILTATION AND EROSION CONTROL MEASURES SHALL BE PROVIDED AS DETERMINED NECESSARY BY VDOT AND/OR THE COUNTY/TOWN DURING FIELD REVIEW. ALL COSTS SHALL BE ASSUMED BY THE DEVELOPER.

2.5 ALL DISTURBED AREAS SHALL BE STABILIZED IMMEDIATELY UPON THE END OF EACH DAY'S WORK AND RESEEDED IN ACCORDANCE WITH VDOT ROAD AND BRIDGE SPECIFICATIONS.

2.6 STRUCTURES EXCEEDING 4' IN DEPTH REQUIRE INSTALLATION OF STEPS IN ACCORDANCE WITH STANDARD ST-1. STRUCTURES EXCEEDING 12' IN DEPTH REQUIRE SAFETY SLABS IN ACCORDANCE WITH STANDARD SL-1. IS-1 IS REQUIRED ON ALL DRAINAGE STRUCTURES.

2.7 ROOF DRAIN CONNECTIONS ARE NOT PERMITTED IN STRUCTURES WITHIN THE VDOT RIGHT OF WAY.

2.8 FOR SAFETY CONCERNS IN RESIDENTIAL SUBDIVISIONS, THE MINIMUM LENGTH OF AN ENTRANCE CULVERT SHOULD BE THE ENTRANCE WIDTH PLUS 8'. FOR EXAMPLE, A 16' WIDE ENTRANCE WOULD REQUIRE A 24' CULVERT. THE LENGTH MAY BE LESSENED WHEN END WALLS ARE USED.

3.0 MATERIALS

3.1 INITIAL PAVEMENT DESIGN PROVIDED IS BASED ON A(N) ASSUMED VALUE. FINAL PAVEMENT DESIGN SHALL BE SUBMITTED IN ACCORDANCE WITH THE PAVEMENT DESIGN GUIDE FOR SUBDIVISION AND SECONDARY ROADS IN VIRGINIA. A COPY OF THE CBR REPORT SHALL BE PROVIDED PRIOR TO CONSTRUCTION. FOR PRIMARY ROADS AND INTERSTATE HIGHWAYS WHERE TRUCK TRAFFIC EXCEEDS 5%, PAVEMENT DESIGN SHALL BE PROVIDED IN ACCORDANCE WITH AASHTO GUIDELINES. TYPICAL PAVEMENT SECTIONS SHALL DEPICT THE PROPOSED PAVEMENT STRUCTURE INCLUDING THE TOP 6" OF THE SUBGRADE IMMEDIATELY UNDER THE PAVEMENT STRUCTURE COMPACTED TO 100% OF THE THEORETICAL MAXIMUM DRY DENSITY.

3.2 WHEN UNSUITABLE MATERIALS ARE ENCOUNTERED DURING CONSTRUCTION, SUCH MATERIALS SHALL BE UNDERCUT AND BACKFILLED WITH VDOT SELECT MATERIAL TYPE II MINIMUM CBR-20 ACCORDING TO VDOT SPECIFICATIONS. THE SOIL LAB TEST REPORTS OF THE PROPOSED SELECT MATERIAL SHALL BE INCLUDED IN THE GEOTECHNICAL SOILS REPORT.

3.3 ASPHALT PAVEMENT WIDENING SHALL CONFORM TO THE CURRENT VDOT STANDARD WP-2.

3.4 THE DEPARTMENT USUALLY PROHIBITS THE OPEN-CUTTING OF HARD-SURFACED ROADS EXCEPT IN EXTENUATING CIRCUMSTANCES. THEREFORE, ALL UNDERGROUND UTILITIES WITHIN STATE MAINTAINED RIGHT OF WAY, AS DETERMINED NECESSARY BY GOOD ENGINEERING PRACTICE TO SERVE THE COMPLETE DEVELOPMENT OF ADJACENT PROPERTIES, SHALL BE INSTALLED DURING THE STREETS INITIAL CONSTRUCTION AND PRIOR TO THE APPLICATION OF ITS FINAL PAVEMENT SURFACE COURSE. THIS SHALL INCLUDE EXTENSIONS OF ALL NECESSARY CROSS-STREET CONNECTIONS OR SERVICE LINES TO AN APPROPRIATE LOCATION BEYOND THE PAVEMENT AND PREFERABLY THE RIGHT OF WAY LINE. IN THE EVENT IT IS NECESSARY TO OPEN THE STREET PAVEMENT TO WORK ON UTILITIES AFTER THE SURFACE HAS BEEN PLACED, ADDITIONAL COMPACTION TESTS AND PAVING AS NECESSARY TO RESTORE THE INTEGRITY AND APPEARANCE OF THE ROADWAY MAY BE REQUIRED.

4.0 RIGHT OF WAY & UTILITIES

4.1 ALL FIXED OBJECTS SUCH AS UTILITY CABINETS, PEDESTALS, AND STREETLIGHTS SHALL BE LOCATED IN ACCORDANCE WITH CLEAR ZONE REQUIREMENTS, AS NOTED IN THE ROAD DESIGN MANUAL OR AASHTO ROADSIDE DESIGN GUIDE. THERE SHALL NOT BE ANY CABINETS, PEDESTALS, OR FIRE HYDRANTS LOCATED ON THE SHOULDER.

4.2 FLOWERS, SHRUBS, AND TREES SHALL NOT BE PLACED WITHIN STATE MAINTAINED RIGHT OF WAY LIMITS WITHOUT AN APPROVED SET OF PLANS AND AN APPROVED PLANTING AGREEMENT. NO IRRIGATION (SPRINKLER) SYSTEMS, BRICK COLUMNS, ENDWALLS, AND/OR BRICK MAILBOXES WILL BE CONSTRUCTED OR INSTALLED WITHIN STATE MAINTAINED RIGHT OF WAY LIMITS WITHOUT A PERMIT. ANY OF THE ABOVE OR OTHER NON-STANDARD ITEMS FOUND IN THE RIGHT OF WAY WITHOUT A PERMIT WILL BE REMOVED, AND ALL COSTS OF THE REMOVAL WILL BE BORNE BY THE OWNER AND/OR DEVELOPER.

4.3 THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND PROTECTING ALL UNDERGROUND AND OVERHEAD UTILITIES, WHETHER OR NOT THEY ARE SHOWN ON THE PLANS, PRIOR TO CONSTRUCTION. THE CONTRACTOR WILL BE RESPONSIBLE FOR REPAIRS AT HIS OWN EXPENSE OF ANY UTILITIES DAMAGED BY HIS CONSTRUCTION METHODS. MISS UTILITY MUST BE CONTACTED AT 811 AT LEAST 72 HOURS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.

4.4 AUTHORIZED UNDERGROUND UTILITY INSTALLATIONS SHALL MAINTAIN A MINIMUM OF 36 INCHES OF COVER.

4.5 OVERHEAD UTILITY INSTALLATIONS WITHIN LIMITED ACCESS AND NON-LIMITED ACCESS RIGHT OF WAY SHALL BE INSTALLED IN ACCORDANCE WITH VDOT LAND USE PERMIT REGULATIONS.

4.6 ALL ROADWAY LIGHTING SHALL BE DESIGNED IN ACCORDANCE WITH IESNA LIGHTING CRITERIA AND INSTALLED IN ACCORDANCE WITH VDOT ROAD AND BRIDGE SPECIFICATIONS. ALL ROADWAY LIGHTING SHALL ADHERE TO THE VIRGINIA LIGHTING LAW.

5.0 TRAFFIC

5.1 THE CONTRACTOR IS RESPONSIBLE FOR THE REPLACEMENT OF ANY PAVEMENT MARKINGS DISTURBED BY CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING PAVEMENT MARKINGS ON FINAL PAVEMENT OVERLAY WITHIN 14 DAYS AFTER COMPLETION OF SURFACE TREATMENT. PAVEMENT MARKINGS SHALL BE INSTALLED AND ERADICATED IN ACCORDANCE WITH VDOT STANDARDS AND SPECIFICATIONS.

5.2 CONTACT TRAFFIC ENGINEERING OPERATIONS AT (757) 925-1659 OR (757) 925-1653 A MINIMUM OF 48 HOURS IN ADVANCE WHENEVER EXCAVATION IS WITHIN 500 FEET OF A TRAFFIC SIGNAL, SO THE LINES CAN BE MARKED. FAILURE TO DO SO COULD BE A COSTLY REPAIR FOR THE DEVELOPER.

5.3 CONTACT ROADWAY LIGHTING OPERATIONS AT (757) 484-9015 OR (757) 484-8940 A MINIMUM OF 48 HOURS IN ADVANCE WHENEVER PLANNED CONSTRUCTION ACTIVITIES ARE LOCATED WITHIN LIMITED ACCESS HIGHWAYS. FAILURE TO DO SO COULD BE A COSTLY REPAIR FOR THE DEVELOPER.

5.4 CONTACT TRAFFIC OPERATIONS CENTER MAINTENANCE MANAGER AT (757) 424-9903 A MINIMUM OF 48 HOURS IN ADVANCE OF ALL CONSTRUCTION ACTIVITIES LOCATED WITHIN LIMITED ACCESS HIGHWAYS. FAILURE TO DO SO COULD BE A COSTLY REPAIR FOR THE DEVELOPER.

5.5 SIGHT DISTANCES AT ENTRANCES AND INTERSECTIONS SHALL BE MAINTAINED AT ALL TIMES DURING AND AFTER CONSTRUCTION. ANY OBJECT OR LANDSCAPING THAT OBSTRUCTS DRIVER VIEW SHALL BE RELOCATED AT THE DEVELOPER'S EXPENSE OR THE ENTRANCE MAY BE CLOSED AT VDOT'S DISCRETION.

5.6 WHEN WORKING WITHIN VDOT RIGHT OF WAY, ALL TRAFFIC CONTROL, WHETHER PERMANENT OR TEMPORARY, SHALL BE IN ACCORDANCE WITH THE CURRENT EDITION OF VDOT'S WORK AREA PROTECTION MANUAL.

5.7 CONTRACTOR IS RESPONSIBLE FOR THE MAINTENANCE OF ALL EXISTING SIGNS AND POSTS IN THE WORK ZONE. THIS INCLUDES, BUT IS NOT LIMITED TO, STOP, YIELD, STREET NAME, AND SPEED LIMIT SIGNS. ANY SIGN OR POST DAMAGED DURING CONSTRUCTION OR MISSING SHALL BE REPLACED BY THE CONTRACTOR AT HIS EXPENSE.

6.0 ENVIRONMENTAL

6.1 THE PERMITTEE IS RESPONSIBLE FOR PURSUING AND OBTAINING ANY AND ALL ENVIRONMENTAL CLEARANCES AND/OR PERMITS, INCLUDING, BUT NOT LIMITED TO, WATER QUALITY, THREATENED AND ENDANGERED SPECIES, HAZARDOUS MATERIALS, AND CULTURAL RESOURCES, REQUIRED TO PURSUE THE PROPOSED ACTIVITY BEFORE ANY CONSTRUCTION IS STARTED WITHIN STATE MAINTAINED RIGHT OF WAY LIMITS. DOCUMENTS RELATED TO THESE ACTIVITIES SHALL BE SUBMITTED WITH THE LAND USE PERMIT APPLICATION.

7.0 PROJECT CLOSEOUT

7.1 INSPECTION DOCUMENTATION FOR STREETS TO BE ACCEPTED FOR STATE MAINTENANCE WILL BE REQUIRED IN ACCORDANCE WITH THE LAND DEVELOPMENT INSPECTION DOCUMENTATION BEST PRACTICES MANUAL. A POST INSTALLATION VISUAL/VIDEO INSPECTION SHALL BE CONDUCTED BY THE CONTRACTOR ON ALL PIPES IDENTIFIED ON THE PLANS AS STORM SEWER PIPE AND A SELECT NUMBER OF PIPE CULVERTS. ADDITIONAL TESTING MAY BE REQUIRED AS DIRECTED BY THE AREA LAND USE ENGINEER OR OTHER REPRESENTATIVE.

7.2 THE PERMITTEE SHALL SUBMIT AN AS-BUILT DRAWING OF THE COMPLETED IMPROVEMENTS WITHIN AND ADJACENT TO THE PUBLIC RIGHT OF WAY UNLESS WAIVED BY VDOT. THE AS-BUILT DRAWING INFORMATION SHALL BE PREPARED USING THE SAME VERTICAL DATUM AS THAT USED TO DEVELOP THE ORIGINAL APPROVED PLAN. THE AS-BUILT DRAWING SHALL BEAR THE SEAL OF A PROFESSIONAL ENGINEER OR LAND SURVEYOR REGISTERED IN VIRGINIA.

7.3 PRIOR TO RETURN OF THE PROJECT SURETY, THE PERMITTEE SHALL, IN A MANNER THAT IS SATISFACTORY TO VDOT, COMPLETE ALL PUNCHLIST ITEMS AS IDENTIFIED BY VDOT IN WRITING. COMPLETION OF ALL PUNCHLIST WORK WITHIN THE RIGHT OF WAY SHALL BE PERFORMED UNDER AN ACTIVE LAND USE PERMIT.

JCSA GENERAL NOTES FOR WATER DISTRIBUTION AND SANITARY SEWER SYSTEMS
(Revised May 2011)

A. ALL COMPONENTS OF THE WATER DISTRIBUTION AND SANITARY SEWER SYSTEM SHALL BE INSTALLED AND TESTED IN ACCORDANCE WITH THE LATEST EDITION OF THE JCSA DESIGN AND ACCEPTANCE CRITERIA FOR WATER DISTRIBUTION AND SANITARY SEWER SYSTEMS, THE HRPDC REGIONAL CONSTRUCTION STANDARDS (FIFTH EDITION WITH AMENDMENTS DATED DECEMBER 2010), AND THE COMMONWEALTH OF VIRGINIA DEPARTMENT OF HEALTH WATERWORKS AND SANITARY SEWERAGE REGULATIONS. THE CONTRACTOR SHALL USE ONLY NEW MATERIALS, PARTS, AND PRODUCTS ON ALL PROJECTS. ALL MATERIALS SHALL BE STORED SO AS TO ASSURE THE PRESERVATION OF THEIR QUALITY AND FITNESS FOR THE WORK. A COPY OF THE JCSA DESIGN AND ACCEPTANCE CRITERIA AND HRPDC REGIONAL CONSTRUCTION STANDARDS MUST BE KEPT ON-SITE BY THE CONTRACTOR DURING TIME OF INSTALLING, TESTING, AND CONVEYING FACILITIES TO JCSA.

B. THE CONTRACTOR/DEVELOPER SHALL ACQUIRE A CERTIFICATE TO CONSTRUCT WATER AND SANITARY SEWER FACILITIES PRIOR TO COMMENCEMENT OF CONSTRUCTION OF ANY WATER OR SANITARY SEWER FACILITIES.

C. A PRECONSTRUCTION MEETING SHALL BE HELD BETWEEN JCSA, THE DEVELOPER, AND THE CONTRACTOR INCLUDING RELEVANT SUBCONTRACTOR, AND THE PROJECT ENGINEER PRIOR TO ISSUANCE OF A JCSA CERTIFICATE TO CONSTRUCT. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO SCHEDULE THIS MEETING WITH JCSA AND COORDINATE WITH THE OTHER ATTENDEES.

D. THE DEVELOPER'S REPRESENTATIVE SHALL SUBMIT SHOP DRAWINGS FOR ALL MATERIALS AND RECEIVE JCSA APPROVAL PRIOR TO COMMENCEMENT OF CONSTRUCTION. ALL MATERIALS ORDERED AND INSTALLED PRIOR TO JCSA'S REVIEW AND ACCEPTANCE WILL BE AT THE CONTRACTOR'S/DEVELOPER'S RISK.

E. PIPE LINES AND SERVICES SHALL BE INSTALLED AFTER GRADING TO WITHIN 6-INCHES OF FINAL GRADE AND PRIOR TO PLACEMENT OF BASE MATERIAL.

F. ALL WATER MAINS SHALL BE FULLY FLUSHED, PRESSURE TESTED, AND DISINFECTED AND SATISFACTORY BACTERIOLOGICAL SAMPLES OBTAINED, IN ACCORDANCE WITH JCSA DESIGN AND ACCEPTANCE CRITERIA. FLUSHING OF WATER MAINS SHALL BE SCHEDULED WITH THE JCSA INSPECTOR MINIMUM 3 BUSINESS DAYS PRIOR TO THE FLUSHING. CONTRACTOR SHALL PROVIDE THE REQUIRED DURATION AND VOLUME TO THE INSPECTOR. FLUSHING WILL BE SCHEDULED ONLY ON MONDAYS, UNLESS AUTHORIZED OTHERWISE BY JCSA, AND WILL BE ON A FIRST COME-FIRST SERVE BASIS.

G. ROUTINE PERIODIC INSPECTIONS DURING CONSTRUCTION WILL BE PROVIDED BY JCSA. THESE INSPECTIONS DO NOT RELIEVE THE DEVELOPER/CONTRACTOR/OWNER FROM HIS OBLIGATION AND RESPONSIBILITY FOR CONSTRUCTING A WATER DISTRIBUTION AND SANITARY SEWER SYSTEM IN STRICT ACCORDANCE WITH THE JCSA DESIGN AND ACCEPTANCE CRITERIA.

H. ANY FIELD MODIFICATIONS OR CHANGES TO THE APPROVED PLANS SHALL BE VERIFIED AND CHECKED BY THE ENGINEER OF RECORD AND APPROVED BY JCSA PRIOR TO ANY FIELD MODIFICATIONS OR CHANGES. ALL APPROVED CHANGES AND FIELD MODIFICATIONS SHALL BE ACCURATELY INDICATED ON THE RECORD DRAWINGS.

I. ALL LOTS SHALL BE PROVIDED WITH WATER SERVICE AND SANITARY SEWER CONNECTIONS. THE CONNECTIONS SHALL BE EXTENDED FROM THE MAIN TO THE PROPERTY LINE OR EASEMENT LINE, AND HALL TERMINATE WITH A YOKE IN A METER BOX, OR AT THE CLEAN OUT, SET AT FINAL FINISHED GRADE. METERS FOR ALL LOTS (UNITS) SHALL BE PAID FOR BY THE DEVELOPER OR BUILDER AND INSTALLED BY JCSA.

J. ANY REQUIRED EASEMENTS, PERMITS AND APPROVALS SHALL BE ACQUIRED BY THE DEVELOPER PRIOR TO COMMENCEMENT OF WATER MAIN AND/OR SANITARY SEWER CONSTRUCTION.

K. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE LAWS, ORDINANCES, RULES, REGULATIONS AND ORDERS OF ANY PUBLIC BODY HAVING JURISDICTION. THE CONTRACTOR SHALL ERECT AND MAINTAIN, AS REQUIRED BY THE CONDITIONS AND PROGRESS OF THE WORK, ALL NECESSARY SAFEGUARDS FOR SAFETY AND PROTECTION. THE CONTRACTOR SHALL ALSO NOTIFY "MISS UTILITY" AT 1-800-552-7001 OR 811 PRIOR TO PERFORMING ANY UNDERGROUND EXCAVATION.

L. WATER METER BOX INSTALLATION SHALL MAINTAIN A MINIMUM 18-INCH HORIZONTAL EDGE-TO-EDGE CLEARANCE FROM DRIVEWAYS AND/ DRIVE PATHS, SIDEWALKS, BIKE PATHS, CURBING AND ADJACENT WATER METER BOXES.

M. ONLY JCSA PERSONNEL ARE AUTHORIZED TO OPERATE VALVES ON EXISTING JCSA WATER MAINS AND SANITARY FORCE MAINS. ONCE A SYSTEM HAS BEEN HYDRAULICALLY ENERGIZED, JCSA WILL BE RESPONSIBLE FOR OPERATING THE VALVES. THE CONTRACTOR SHALL CONTACT JCSA OPERATIONS AT 757-229-7421 IF THERE IS AN EMERGENCY OR NEED TO OPEN/CLOSE A VALVE.

N. ANY EXISTING UNUSED WELL(S) SHALL BE ABANDONED IN ACCORDANCE WITH STATE PRIVATE WELL REGULATIONS AND JAMES CITY COUNTY CODE.

O. BEDDING OF JCSA UTILITIES SHALL BE IN ACCORDANCE WITH HRPDC DETAIL EW_01, TYPE III FOR RIGID PIPE AND TYPE IV FOR PVC PIPE.

P. NO TREES, SHRUBS, STRUCTURES, FENCES, IRRIGATION MAINS, INVISIBLE PET FENCES OR OTHER OBSTACLES SHALL BE PLACED WITHIN AN EASEMENT WHICH WOULD RENDER THE EASEMENT INACCESSIBLE BY EQUIPMENT. SHRUBS SHALL BE A MINIMUM OF 5 FEET, AND TREES A MINIMUM OF 10 FEET, FROM THE CENTER OF WATER AND SANITARY SEWER PIPELINES.

Q. JOINT RESTRAINT SHALL BE PROVIDED IN ACCORDANCE WITH MINIMUM REQUIREMENTS OF JCSA DETAIL JR.1, UNLESS SHOWN OTHERWISE ON THE PLANS. ALL PRESSURE PIPELINES SHALL HAVE JOINT RESTRAINT. FIRE HYDRANTS SHALL BE RESTRAINED AT LEAST ONE FULL JOINT OF PIPE IN EACH DIRECTION ON THE MAINLINE.

R. PROPOSED WATER AND SANITARY SEWER SYSTEMS SHALL MAINTAIN A MINIMUM HORIZONTAL SEPARATION OF 5-FEET FROM OTHER UTILITIES AND STRUCTURES, INCLUDING BUT NOT LIMITED TO STORM SEWERS, STREET LIGHTS, ETC. WATER AND SANITARY SEWER FACILITIES SHALL HAVE A MINIMUM 10-FOOT HORIZONTAL EDGE-TO-EDGE SEPARATION.

S. ANY PROPOSED BACKFLOW PREVENTION DEVICE AND/OR GREASE TRAP MUST BE INSPECTED BY THE JCSA UTILITY SPECIAL PROJECTS COORDINATOR AT (757) 259-4138.

T. THE CONTRACTOR/DEVELOPER SHALL ACQUIRE A CERTIFICATE TO CONSTRUCT WATER AND SANITARY SEWER FACILITIES PRIOR TO COMMENCEMENT OF CONSTRUCTION OF ANY WATER OR SANITARY SEWER FACILITIES. PLUMBING INSIDE OF PROPOSED BUILDINGS MUST BE INSPECTED BY JCSA'S UTILITY SPECIAL PROJECTS COORDINATOR AT (757) 259-4138, FOR POTENTIAL CROSS CONNECTIONS. ANY CROSS CONNECTIONS MUST BE PROTECTED BY THE APPROPRIATE BACKFLOW PREVENTION DEVICE(S)*.

U. EASEMENTS DENOTED AS "JCSA UTILITY EASEMENTS" ARE FOR THE EXCLUSIVE USE OF THE JAMES CITY SERVICE AUTHORITY AND THE PROPERTY OWNER. OTHER UTILITY SERVICE PROVIDERS DESIRING TO USE THESE EASEMENTS WITH THE EXCEPTION OF PERPENDICULAR UTILITY CROSSINGS MUST OBTAIN AUTHORIZATION FOR ACCESS AND USE FROM JCSA AND THE PROPERTY OWNER. ADDITIONALLY, JCSA SHALL NOT BE HELD RESPONSIBLE FOR ANY DAMAGE TO IMPROVEMENTS WITHIN THIS EASEMENT, FROM ANY CAUSE.

V. JCSA SHALL NOT BE HELD RESPONSIBLE FOR ANY PAVEMENT SETTLEMENT DUE TO PIPE BEDDING, BACKFILLING, BACKFILL MATERIALS OR COMPACTION FOR WATER OR SANITARY SEWER FACILITIES FOR THIS PROJECT.

W. FIRE HYDRANTS TO BE INSTALLED WITHIN EXISTING OR PROPOSED VDOT RIGHT-OF-WAYS SHALL BE LOCATED IN ACCORDANCE WITH VDOT REQUIREMENTS.

X. PRIVATELY OWNED UTILITIES, (E.G., WATER AND SEWER LINES AND PRIVATE FIRE SERVICE MAINS), SHOWN ON THIS PLAN ARE REGULATED BY THE VIRGINIA UNIFORM STATEWIDE BUILDING CODE, AND ENFORCED BY THE JAMES CITY COUNTY BUILDING SAFETY AND PERMITS DIVISION. THESE PRIVATELY OWNED UTILITIES MUST COMPLY FULLY WITH THE INTERNATIONAL PLUMBING CODE, THE NATIONAL FIRE PROTECTION ASSOCIATION STANDARD 24, AND THE VIRGINIA STATEWIDE FIRE PREVENTION CODE. CONTRACTORS WORKING FROM THIS SITE PLAN ARE CAUTIONED NOT TO INSTALL OR CONCEAL PRIVATELY OWNED SITE UTILITIES WITHOUT FIRST OBTAINING THE REQUIRED PERMITS AND INSPECTIONS.

Y. SANITARY SEWER LATERALS SHALL NOT CONNECT TO THE MAINLINE WITHIN 5-FEET OF A MANHOLE. LATERALS UPSTREAM AND WITHIN 5-FEET OF THE MANHOLE SHALL CONNECT DIRECTLY INTO THE MANHOLE WHERE NECESSARY.

Z. ALL PRIVATE UNDERGROUND FUEL STORAGE TANKS SHALL HAVE LEAK MONITORS AND SECONDARY CONTAINMENT IN ACCORDANCE WITH VIRGINIA STATE DEPARTMENT OF ENVIRONMENTAL QUALITY REQUIREMENTS.

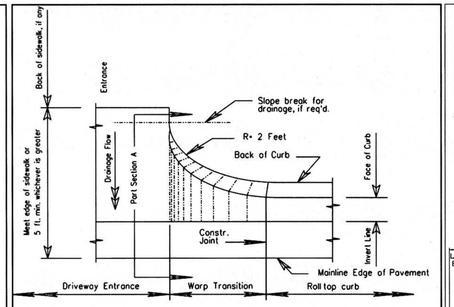


FIGURE 7 - ROLL TOP CURB ENTRANCE DETAIL

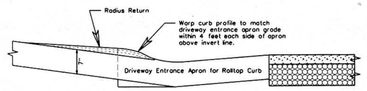


FIGURE 8 ROLLTOP CURB ENTRANCE DETAIL SECTION

HRPDC DETAIL REFERENCES

EARTHWORK (EW)

EW_01 PIPE BEDDING DETAILS (NOTE: ALL PVC PIPE SHALL USE TYPE IV BEDDING, ALL DI PIPE SHALL USE TYPE III BEDDING).

WATER DISTRIBUTION SYSTEMS (WD)

WD_01 SINGLE & DUAL SERVICE CONNECTIONS
WD_05 BLOW-OFF-ASSEMBLY
WD_06 FIRE HYDRANT SETTING (TYPE I) *
WD_09 TEMPORARY MANIFOLD FOR TEST & CHLORINATION

SANITARY SYSTEMS (SS)

SS_01 STANDARD PRECAST CONCRETE MANHOLE W/EXTENDED MONOLITHIC BASE
SS_07 SANITARY SEWER MANHOLE INVERT SHAPING
SS_08 CONNECTION INTO EXISTING MANHOLES
SS_09 SANITARY SEWER MANHOLE CASTING (24")
SS_10 SANITARY SEWER MANHOLE COVER (24")
SS_11 SANITARY SEWER LATERAL CLEAN OUT FRAME AND COVER
SS_12 SANITARY SERVICE LATERAL CLEAN OUT FRAME & COVER FOR HEAVY LOADS
SS_14 SANITARY SEWER SERVICE CONNECTION *
SS_15 DUAL SANITARY SEWER SERVICE CONNECTIONS

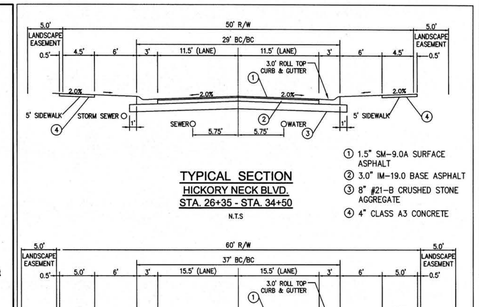
WATER & SANITARY SYSTEMS (WS)

WS_01 STANDARD VALVE BOX FRAME AND COVER
WS_02 VALVE SETTING DETAIL
WS_03 MANUAL AIR VENT ASSEMBLY
WS_05 STANDARD THRUST BLOCKS

JCSA DETAILS

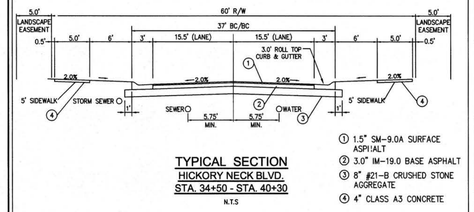
JR.1 JOINT RESTRAINT TABLE
PC.1 PIPE CROSSING DETAIL
W13.0 TYPICAL WATER METER INSTALLATION
W14.0 5/8"X3/4" THRU 1" RESIDENTIAL METER SETTING

* REFER TO SPECIAL PROVISIONS TO THE HRPDC REGIONAL CONSTRUCTION STANDARDS (3RD EDITION) FOUND IN APPENDIX A OF THE JCSA DESIGN AND ACCEPTANCE CRITERIA FOR WATER DISTRIBUTION AND SANITARY SEWER SYSTEMS (MAY 2011 EDITION).



TYPICAL SECTION
HICKORY NECK BLVD.
STA. 26+35 - STA. 34+50
N.T.S

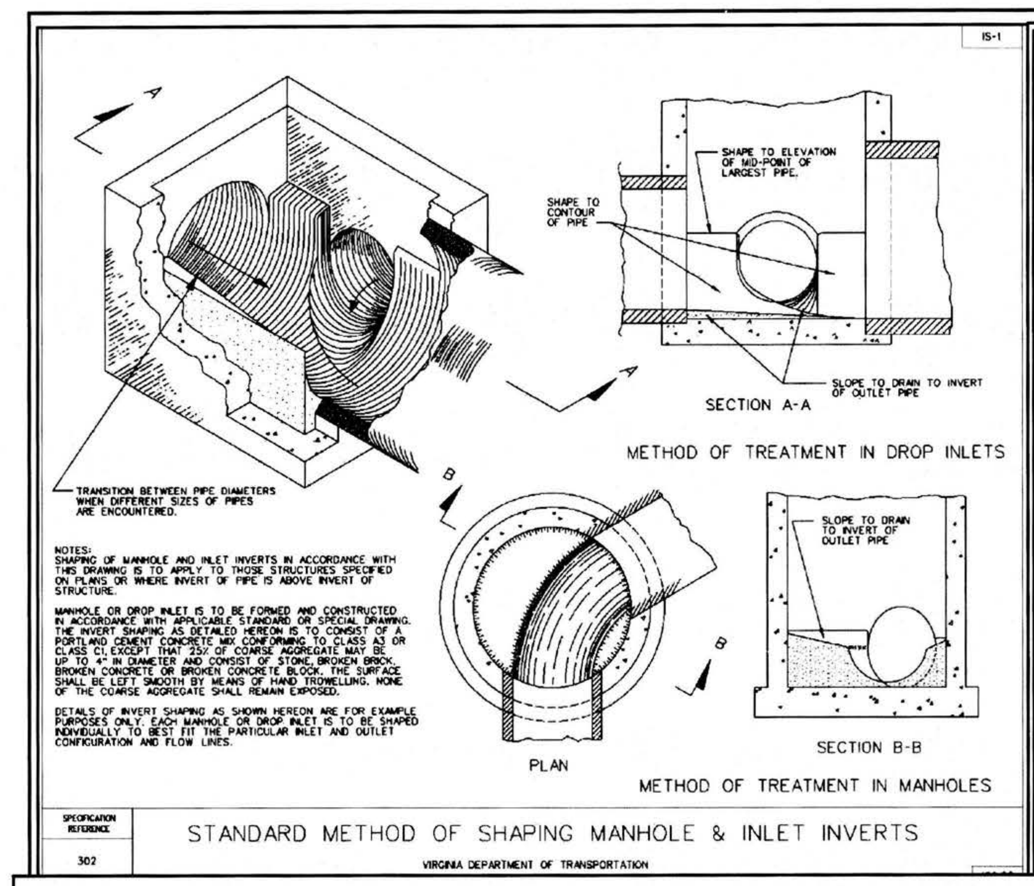
① 1.5" SM-9.0A SURFACE ASPHALT
② 3.0" IM-19.0 BASE ASPHALT
③ 8" #21-B CRUSHED STONE AGGREGATE
④ 4" CLASS A3 CONCRETE

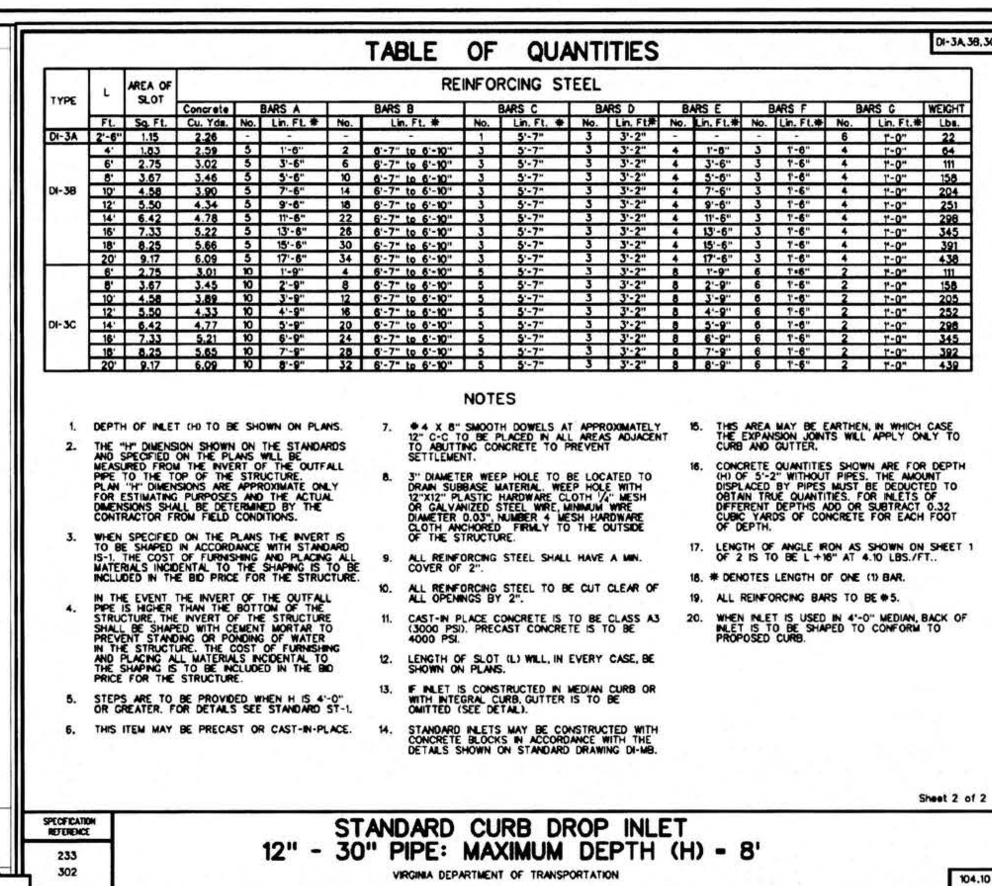


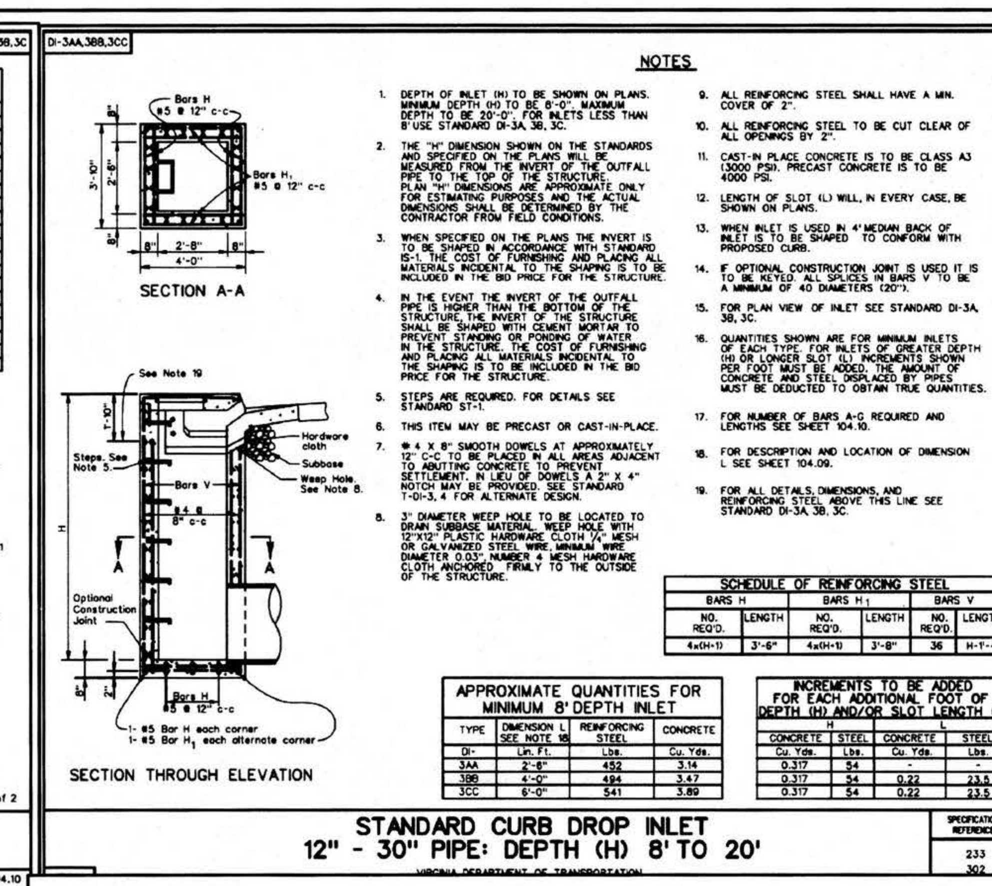
TYPICAL SECTION
HICKORY NECK BLVD.
STA. 34+50 - STA. 40+30
N.T.S

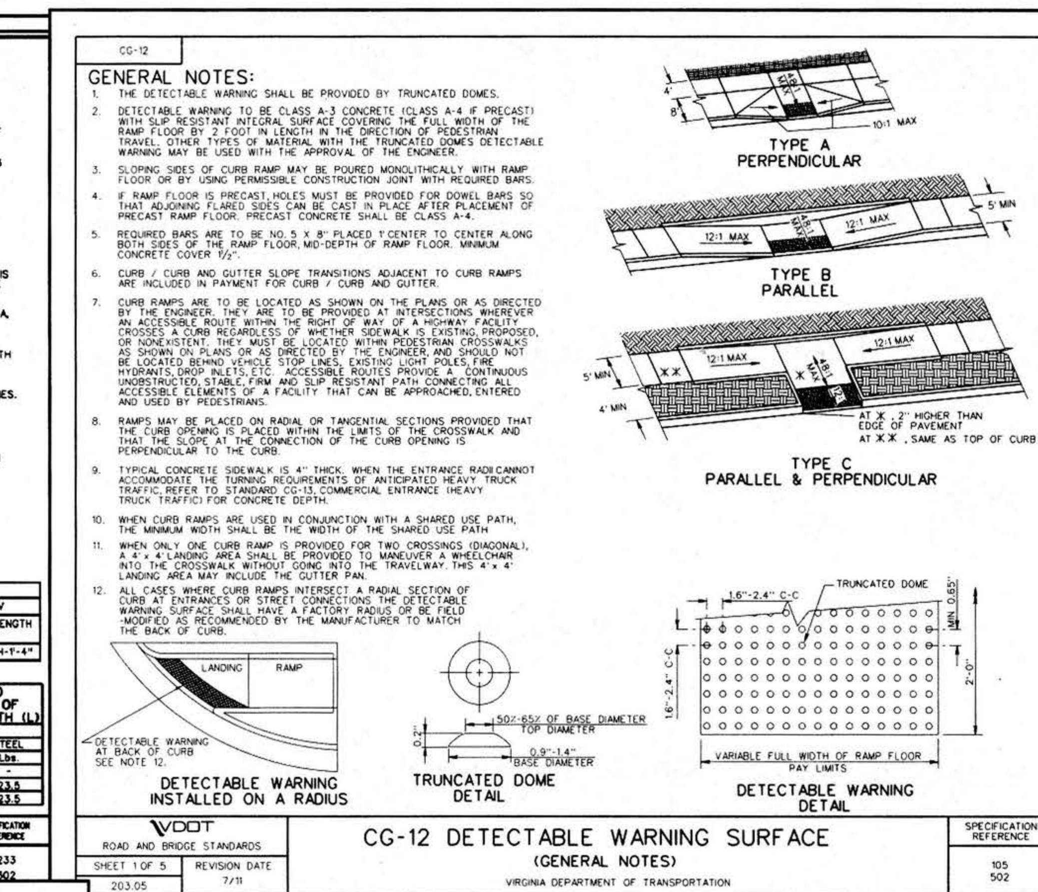
① 1.5" SM-9.0A SURFACE ASPHALT
② 3.0" IM-19.0 BASE ASPHALT
③ 8" #21-B CRUSHED STONE AGGREGATE
④ 4" CLASS A3 CONCRETE

NOTES:
1. THE TOP 6" OF THE SUBGRADE FOR PROPOSED VDOT STREETS SHALL BE COMPACTED TO 100% MAXIMUM DRY DENSITY.
2. SIDEWALKS SHALL BE PLACED ON COMPRESSED SUBGRADE (95% MAX DRY DENSITY) PER ASTM D698.
3. ANY UNSUITABLE MATERIAL ENCOUNTERED DURING CONSTRUCTION SHALL BE REMOVED AND REPLACED WITH SELECT MATERIAL TYPE II MINIMUM CBR-20 IN ACCORDANCE WITH VDOT SPECIFICATIONS.
4. SUBGRADE STABILIZATION FABRIC S







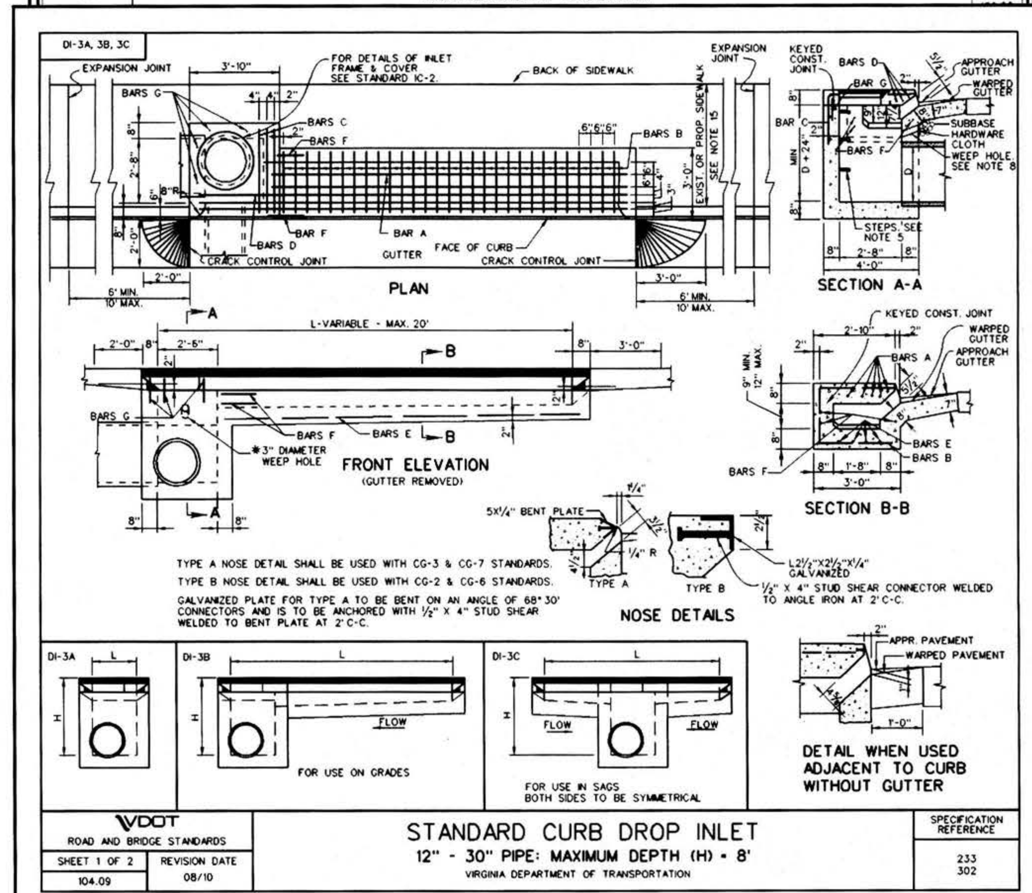


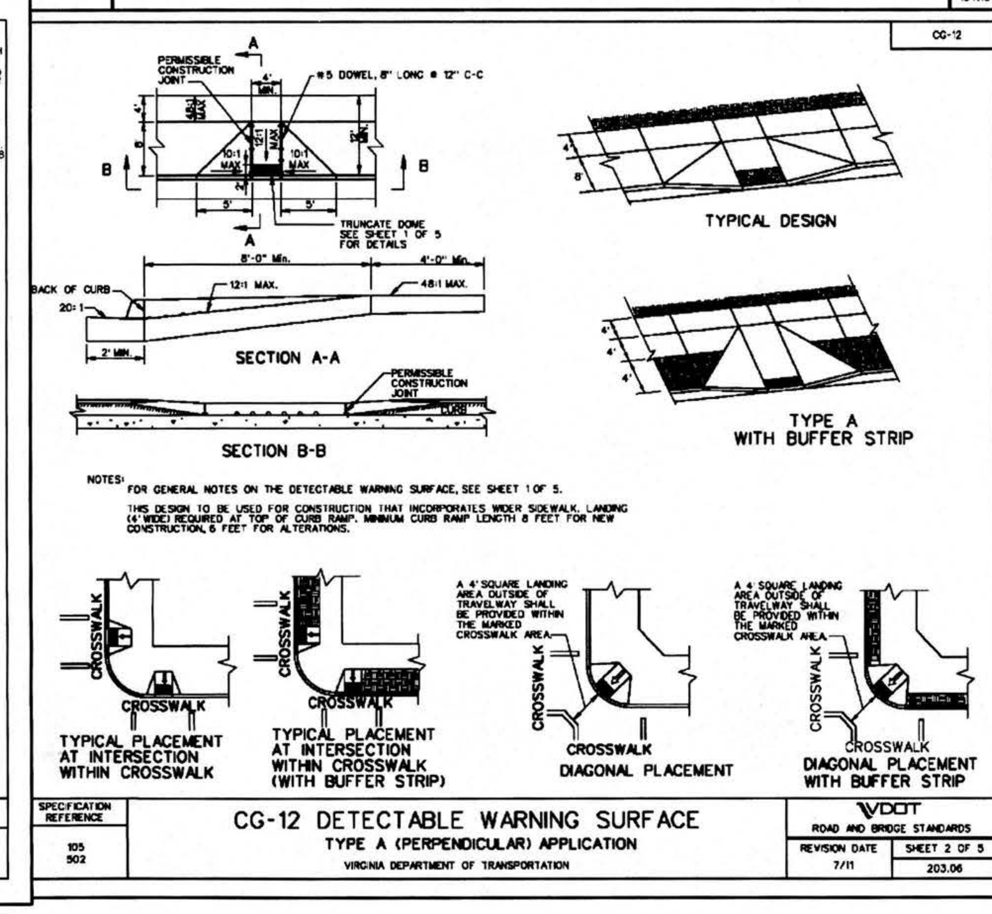
CONSERVATION EASEMENT SIGN DETAIL

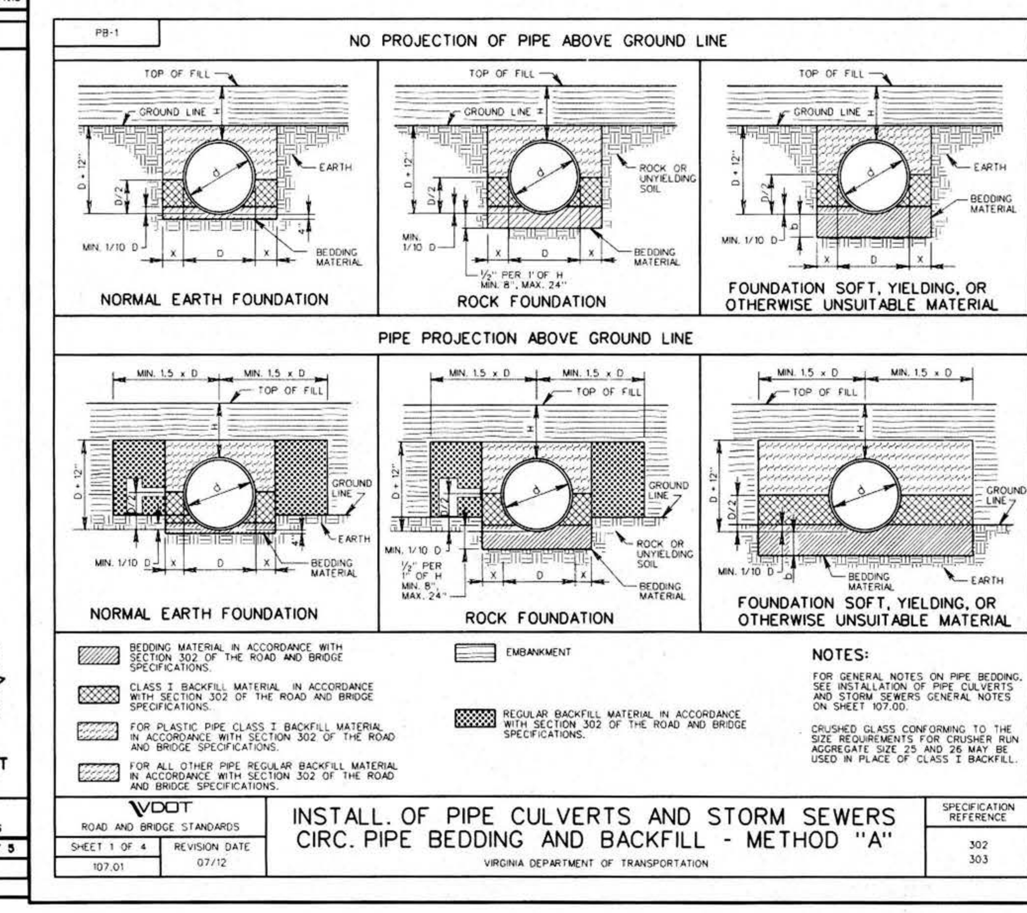
NOT TO SCALE

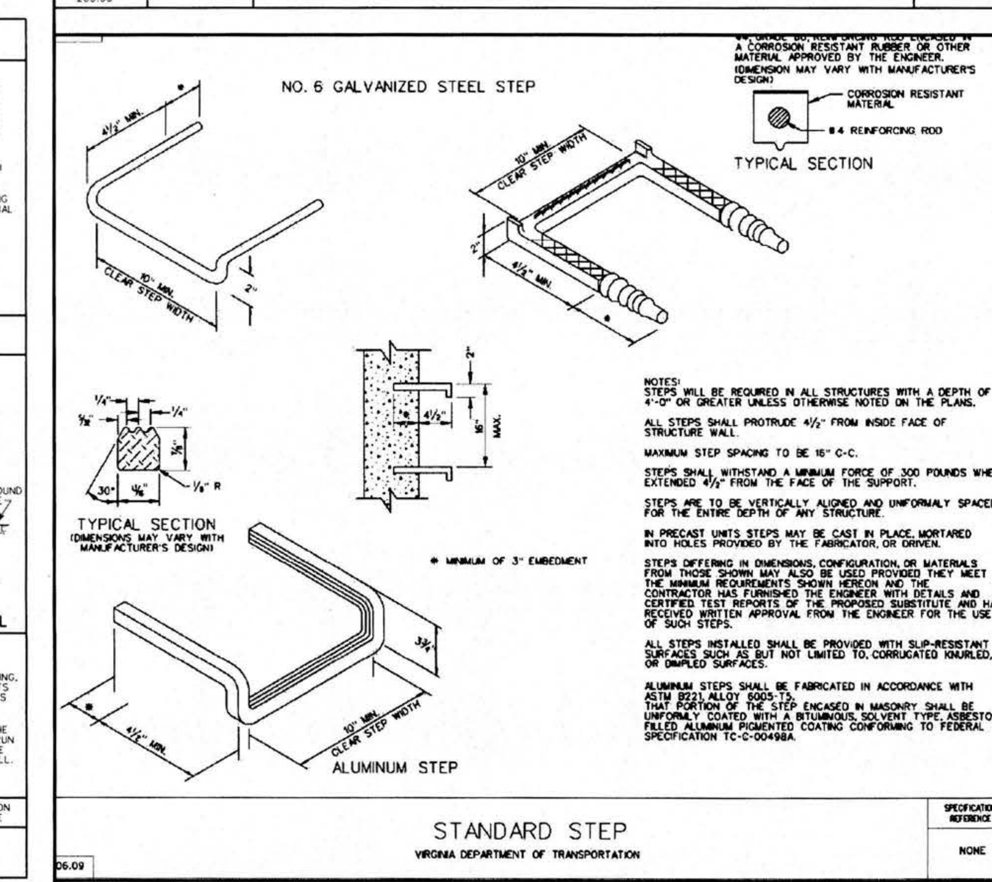
RPA BUFFER SIGN DETAIL

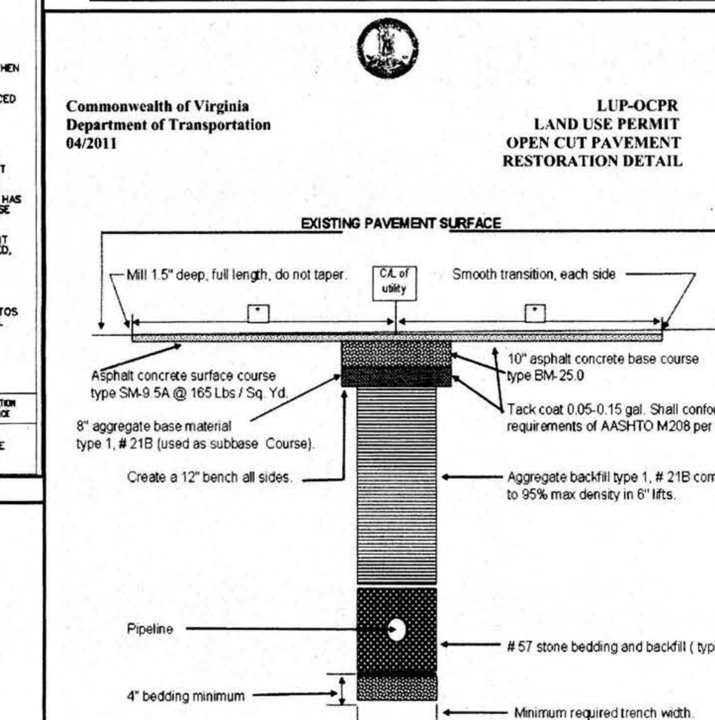
NOT TO SCALE



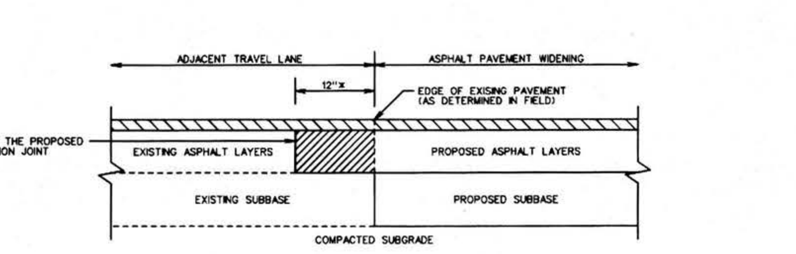








Notes: All pavement markings damaged or destroyed by trench excavation activity shall be replaced by the permittee in accordance with current VDOT Standards & Specifications
This detail applies to highways with existing asphlat pavement sections
The extent of pavement restoration for all other pavements types shall be determined by the District Administrator's designee.
* Width of travel lane, minimum full pavement width restoration for open cut trenching along the road centerline or 25' (minimum) for perpendicular crossing.



CONSTRUCTION JOINT DETAIL

REMOVE EXISTING ASPHALT LAYERS TO EXISTING SUBBASE AND REPLACE WITH PROPOSED ASPHALT WIDENING LAYERS

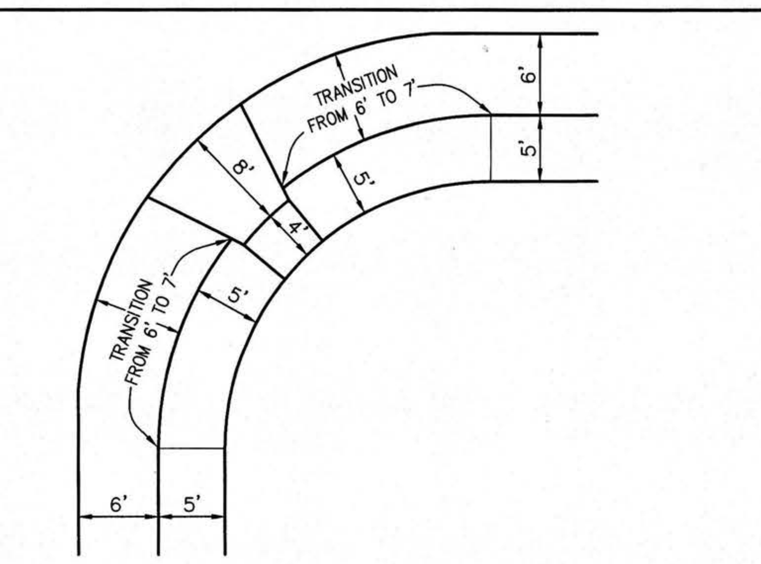
PROPOSED MINIMUM 1½ INCH THICK ASPHALT SURFACE COURSE (SEE NOTE 5)

x MINIMUM 12 INCHES, OR GREATER AS NECESSARY TO ABUT THE FULL THICKNESS OF EXISTING ASPHALT LAYERS AS DETERMINED BY CORES (SEE NOTE 3)

NOTES:

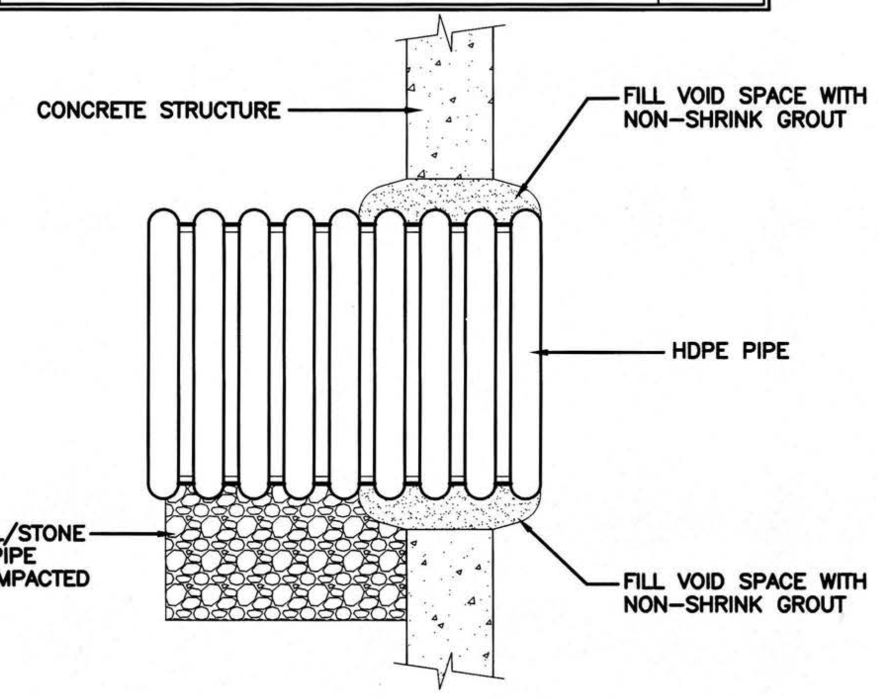
1. ASPHALT PAVEMENT WIDENING SHALL HAVE A PAVEMENT DESIGN IN ACCORDANCE WITH CURRENT VDOT PROCEDURES AND BE APPROVED BY THE ENGINEER.
2. THE PAVEMENT DESIGN FOR ASPHALT PAVEMENT WIDENING SHALL MEET OR EXCEED THE DEPTHS AND TYPES OF THE LAYERS OF EXISTING PAVEMENT. SUBSURFACE DRAINAGE OF THE EXISTING AND PROPOSED PAVEMENT SHALL BE ADDRESSED IN THE PAVEMENT DESIGN.
3. A MINIMUM OF THREE CORES SHALL BE TAKEN ALONG THE CENTER OF THE ADJACENT TRAVEL LANE TO DETERMINE THE TYPE AND THICKNESS OF EXISTING PAVEMENT LAYERS. THESE CORES SHALL BE SPACED NO MORE THAN 500 FEET APART.
4. THE ADJACENT TRAVEL LANE SHALL BE MILLED A MINIMUM DEPTH OF 1½ INCHES AND REPLACED WITH AN ASPHALT SURFACE COURSE TO MATCH THE PROPOSED PAVEMENT WIDENING SURFACE COURSE, UNLESS WAIVED BY THE ENGINEER.
5. THE ENGINEER MAY REQUIRE THE MILLING DEPTH OF THE EXISTING PAVEMENT TO BE ADJUSTED TO ACHIEVE AN ACCEPTABLE PAVEMENT CROSS-SLOPE AND EFFECTIVE SURFACE DRAINAGE.
6. EXISTING PAVEMENT MARKINGS AND MARKERS WITHIN THE PROJECT LIMITS SHALL BE RESTORED SUBJECT TO THE APPROVAL OF THE ENGINEER.
7. FINAL TRANSVERSE PAVEMENT TIE-IN SHALL CONFORM TO THE REQUIREMENTS OF SECTION 315.05(c) OF THE SPECIFICATIONS EXCEPT THAT ALL JOINTS AT TIE-IN LOCATIONS SHALL BE TESTED USING A 10 FOOT STRAIGHTEDGE IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 315.07(a) OF THE SPECIFICATIONS.

VDOT ROAD AND BRIDGE STANDARDS	PAVEMENT WIDENING	SPECIFICATION REFERENCE
SHEET 1 OF 1 / REVISION DATE / 303.02	VIRGINIA DEPARTMENT OF TRANSPORTATION	315



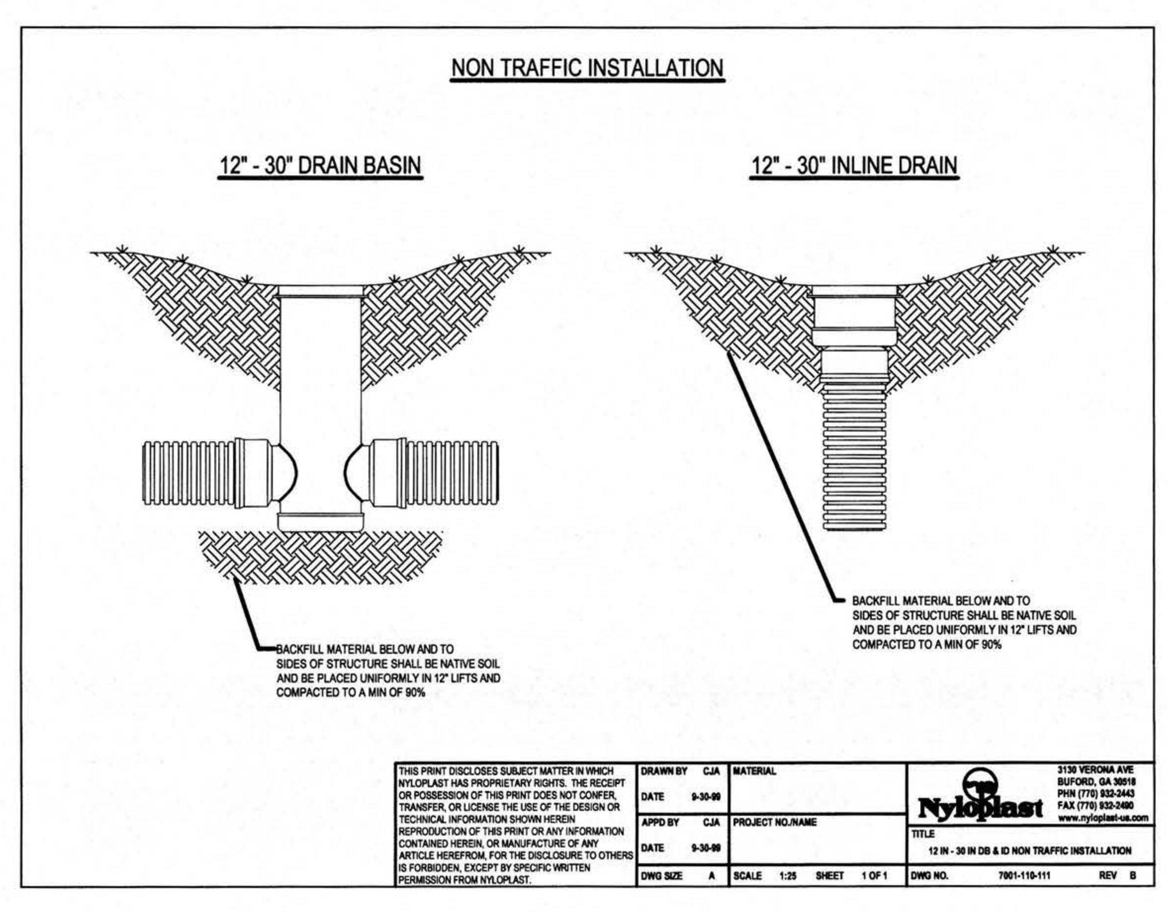
TYPICAL CG-12 CONNECTION TO 5' SIDEWALKS @ CORNERS

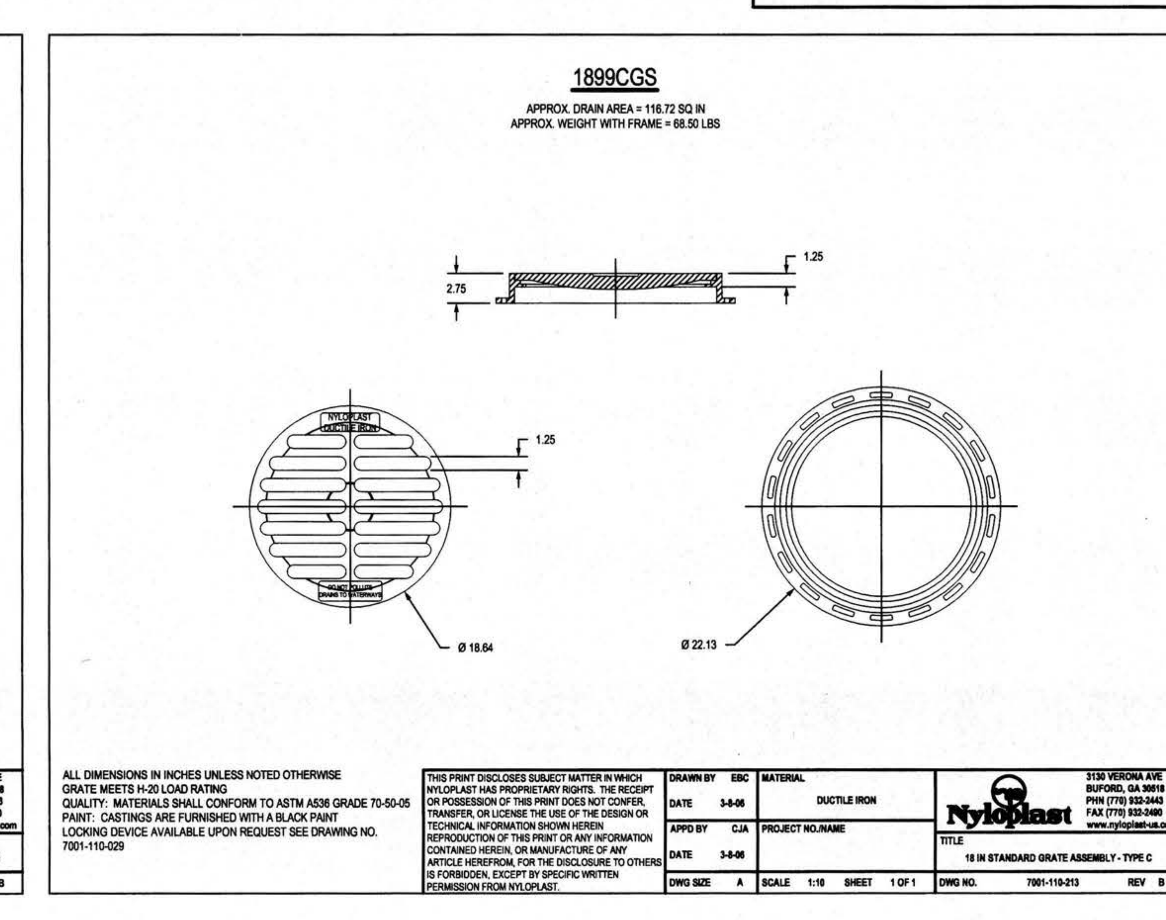
N.T.S.

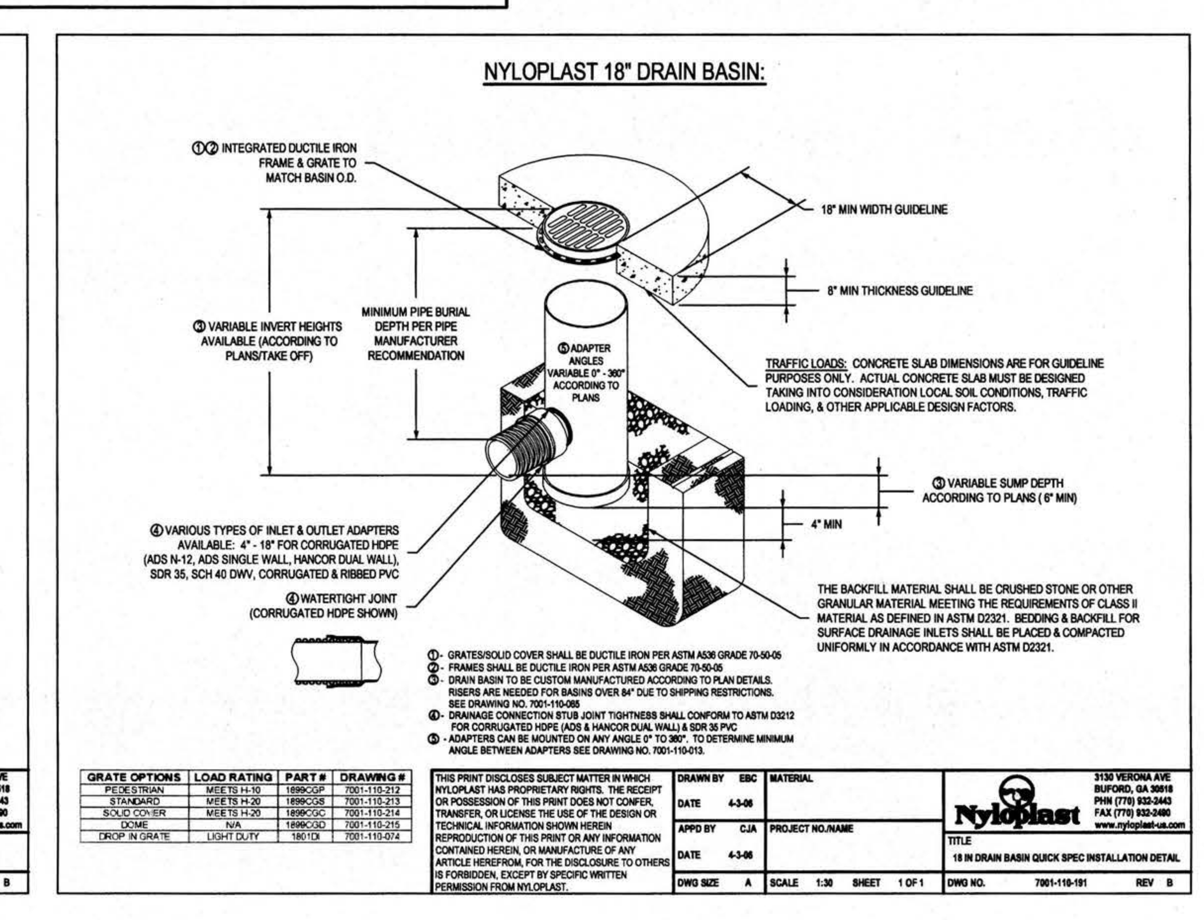


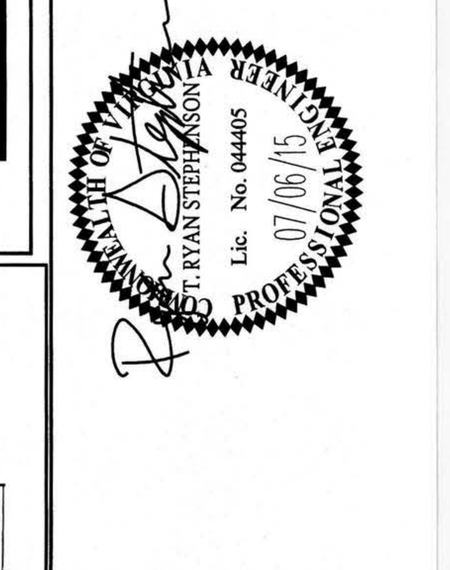
HDPE PIPE /STRUCTURE CONNECTION DETAIL

NOT TO SCALE









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SECTION 4 WHITE HALL

DEVELOPER: HHHUNT COMMUNITIES

STONEHOUSE DISTRICT JAMES CITY COUNTY VIRGINIA

Project Contacts:	HWP/TRS
Project Number:	9048-20B
Scale: NA	Date: AUG. 20, 2014

Sheet Title:
NOTES AND DETAILS

Sheet Number
23

DRY SWALE SEQUENCE OF CONSTRUCTION

NOTE: THE LOCATION OF THE DRY SWALE MUST NOT BE USED FOR EROSIONS AND SEDIMENT CONTROL PROTECTION DURING CONSTRUCTION.

1. ONCE THE CONTRIBUTING DRAINAGE AREAS FOR THE DRY SWALE IS COMPLETELY STABILIZED AND THE TEMPORARY SEDIMENT TRAP HAS BEEN REMOVED, BEGIN CONSTRUCTION OF THE DRY SWALE.
2. REMOVE ALL ACCUMULATED SEDIMENT AND EXCAVATE DRY SWALE TO PROPOSED DEPTH. USE RELATIVELY LIGHT, TRACKED EQUIPMENT TO AVOID COMPACTION OF THE BASIN FLOOR WITH ROTARY TILLERS OR DISC HARROWS TO PROVIDE A WELL-AREATED, HIGHLY POROUS SURFACE TEXTURE.
3. INSTALL DI-7 OVERFLOW STRUCTURE AND IT'S OUTFALL.
4. INSTALL NON-WOVEN GEOTEXTILE FABRIC AND 6" PERFORATED UNDERDRAIN. INSTALL 8" GRAVEL JACKET AND REMAINDER OF NON-WOVEN GEOTEXTILE FABRIC.
5. AFTER CONFIRMATION THAT THE SOIL MEETS SPECIFICATIONS BY PERFORMING THE REQUISITE GRADATION AND CHEMICAL TESTS, FILL THE DRY SWALE WITH THE PLANTING SOIL AS SHOWN ON THE PLANS AND DETAILED IN THE SPECIFICATIONS.
6. INSTALL VEGETATION AND GROUND COVER SPECIFIED FOR DRY SWALE. INSTALL MULCH LAYER AS CALLED FOR ON THE PLANS.
7. UPON INSPECTION AND APPROVAL OF THE DRY SWALE FROM THE JAMES CITY COUNTY ENVIRONMENTAL DIVISION, REMOVAL ALL EROSION AND SEDIMENT CONTROLS AND STABILIZE ALL DISTURBED AREAS.

DRY SWALE SOIL SPECIFICATIONS

1. PLANTING SOIL

THE DRY SWALE SHALL CONTAIN A PLANTING SOIL MIXTURE OF 50% SAND, 30% LEAF COMPOST (FULLY COMPOSTED, NOT PARTIALLY ROTTED LEAVES), AND 25% TOPSOIL. TOPSOIL SHALL BE SANDY LOAM OR LOAMY SAND OF UNIFIED COMPOSITION, CONTAINING NO MORE THAN 5% CLAY, FREE OF STONES, STUMPS, ROOTS, OR SIMILAR OBJECTS GREATER THAN ONE INCH, BRUSH, OR ANY OTHER MATERIAL OR SUBSTANCE WHICH MAY BE HARMFUL TO PLANT GROWTH, OE A HINDERANCE TO PLANT GROWTH OR MAINTENANCE.

THE TOPSOIL SHALL BE FREE OF PLANTS OR PLANT PARTS OF BURMUDAGRASS, QUACK GRASS, JOHNSON GRASS, MUGWORT, NUTSEDGE, POISON IVY, CANANDIAN THISTLE OR OTHERS AS SPECIFIED. IT SHALL NOT CONTAIN TOXIC SUBSTANCES HARMFUL TO PLANT GROWTH.

TOPSOIL SHALL BE TESTED AND MEE THE FOLLOWING CRITERIA:

pH RANGE:	5.0 - 7.0
ORGANIC MATTER:	GREATER THAN 1.5
MAGNESIUM (Mg):	100+ UNITS
PHOSPHOROUS (P_2O5):	150+ UNITS
POTASSIUM (K_2O):	120+ UNITS
SOLUBLE SALTS:	NOT TO EXCEED 900 ppm/.9 MMHOS/CM (SOIL)
	NOT TO EXCEED 3,000 ppm/2.5 MMHOS/CM (ORGANIC MIX)

THE FOLLOWING TESTING FREQUENCIES SHALL APPLY TO THE ABOVE CONSTITUENTS:

pH, ORGANIC MATTER: ONE (1) TEST PER 90 CUBIC YARDS, BUT NO MORE THAN ONE (1) PER DRY SWALE.

MAGNESIUM, PHOSPHOROUS, POTASSIUM, SOLUABLE SALTS:

ONE (1) TEST PER 90 CUBIC YARDS, BUT NO MORE THAN ONE (1) PER DRY SWALE.

ONE GRAIN SIZE ANALYSIS SHALL BE PERFORMED PER 90 CUBIC YARDS OF PLANTING SOIL, BUT NO LESS THAN ONE (1) TEST PER DRY SWALE. SOIL TESTS MUST BE VERIFIED BY A QUALIFIED PROFESSIONAL.

2. MULCH

A MULCH LAYER SHALL BE PROVIDED ON TOP OF THE PLANTING SOIL. AN ACCEPTABLE MULCH LAYER SHALL INCLUDE SHREDDED HARDWOOD OR SHREDDED WOOD CHIPS OR OTHER SIMILAR PRODUCT.

OF THE APPROVED MULCH PRODUCTS ALL MUST BE WELL AGED, UNIFORM IN COLOR, AND FREE OF FOREIGN MATERIAL, INCLUDING PLANT MATERIAL.

3. SAND

THE SAND FOR DRY SWALE WHEN UTILIZED SHALL BE ASTM C-33 CONCRETE SAND AND FREE OF DELETERIOUS MATERIAL.

4. COMPACTION

SOIL SHALL BE PLACED IN LIFTS LESS THAN 18 INCHES AND LIGHTLY COMPACTED (MINIMAL COMPACTIVE EFFORT) BY TAMPING OR ROLLED WITH A HAND-OPERATED LANDSCAPE ROLLER.

DRT SWALE MAINTENANCE

1. PLANTING SOIL

URBAN PLANT COMMUNITIES TEND TO BECOME VERY ACIDIC DUE TO PRECIPITATION AS WELL AS THE INFLUENCES OF STORMWATER RUNOFF. FOR THIS REASON, IT IS RECOMMENDED THAT THE APPLICATION OF ALKALINE, SUCH AS LIMSTONE, BE CONSIDERED ONCE TO TWICE A YEAR. TESTING OF THE pH OF THE ORGANIC LAYER AND SOIL, SHOULD PRECEED THE LIMESTONE APPLICATION TO DETERMINE THE AMOUNT OF LIMESTONE REQUIRED.

SOIL TESTING SHOULD BE CONDUCTED ANNUALLY SO THAT THE ACCUMULATION OF TOXINS AND HEAVY METALS CAN BE DETECTED OR PREVENTED. OVER A PERIOD OF TIME, HEAVY METALS AND OTHER TOXIC SUBSTANCES WILL TEND TO ACCUMULATE IN THE SOIL AND THE PLANTS.

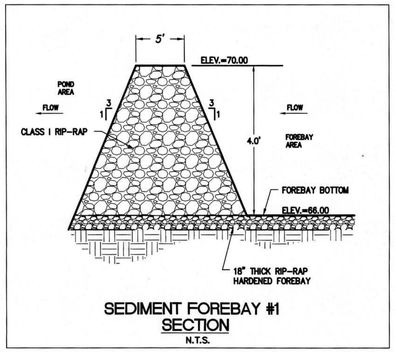
AS THE TOXIC SUBSTANCES ACCUMULATE, THE PLANT BIOLOGIC FUNCTIONS MAY BECOME IMPARED, AND THE PLANT MAY EXPERIENCE DWARFED GROWTH FOLLOWED BY MORTALITY. THE BIODATA WITHIN THE SOIL CAN ALSO BECOME VOID AND THE NATURAL SOIL CHEMISTRY BE ALTERED. THE PREVENTATIVE MEASURES WOULD INCLUDE THE REMOVAL OF THE CONTAMINATED SOIL. IN SOME CASES, REMOVAL AND DISPOSAL OF THE ENTIRE SOIL BASE AS WELL AS THE PLANT MATERIAL MAY BE REQUIRED.

2. PLANT MATERIALS

ONGOING MONITORING AND MAINTENANCE IS VITAL TO THE OVERALL SUCCESS OF DRY SWALE. ANNUAL MAINTENANCE WILL BE REQUIRED FOR PLANT MATERIAL AND SOIL LAYER. A MAINTENANCE SCHEDULE SHOULD INCLUDE ALL OF THE MAIN CONSIDERATIONS LISTED IN THE MAINTENANCE SCHEDULE SHOWN ON THIS SHEET. THE MAINTENANCE SCHEDULE USUALLY INCLUDES MAINTENANCE AS PART OF THE CONSTRUCTION PHASE OF THE PROJECT AND FOR THE LIFE OF THE DESIGN.

3. CONTROL OF SEDIMENTS ON THE DRAINAGE SHED

CARE MUST BE TAKEN TO PROTECT THE DRY SWALE FROM EXCESSIVE SEDIMENTS FROM THE DRAINAGE SHED. WHENEVER ADDITIONAL LAND DISTURBING ACTIVITY TAKES PLACE IN THE AREA DRAINING TO THE BASIN, EFFECTIVE EROSION AND SEDIMENT CONTROL MEASURES MUST FIRST BE PUT INTO PLACE TO PREVENT SEDIMENTS FROM ENTERING THE BASIN. PERFORMANCE BASED MEASURES OVER AND ABOVE THOSE SPECIFIED IN THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION, MAY BE REQUIRED TO ASSURE THAT THE DRY SWALE IS NOT DAMAGED BY SUCH LAND DISTURBANCE. WHEN SAND OR OTHER STREET ABRASIVES ARE USED DURING SNOW OR ICING CONDITIONS TO PROVIDE TRACTION ON ROADWAYS OR PARKING LOTS DRAINING TO DRY SWALE, THE PAVEMENT SHOULD BE POWER/VACUUM SWEPT AS SOON AS FREEZING WEATHER ABATES TO PREVENT DAMAGE TO THE BASINS.



SEDIMENT FOREBAY #1 SECTION
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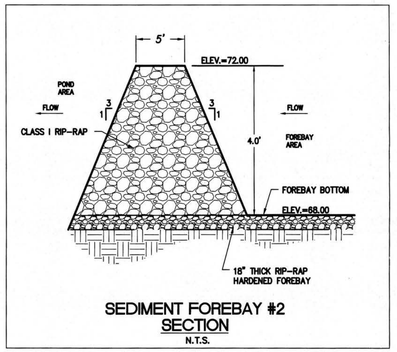

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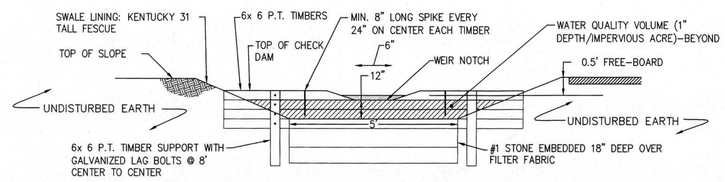
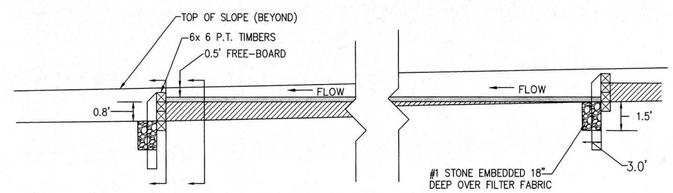


DRY SWALE CROSS-SECTION
NOT TO SCALE



DRY SWALE LONGITUDINAL SECTION
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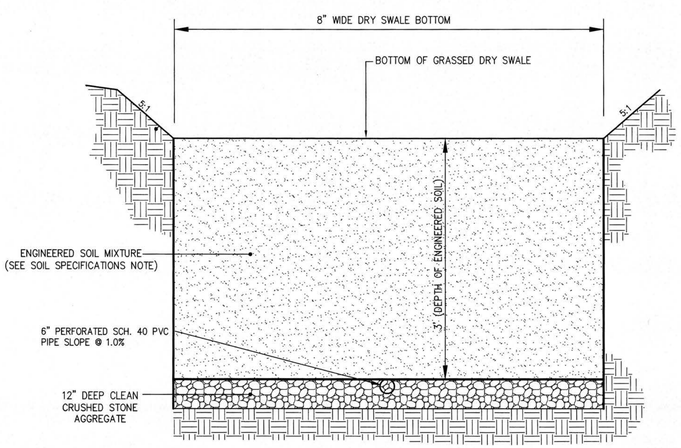

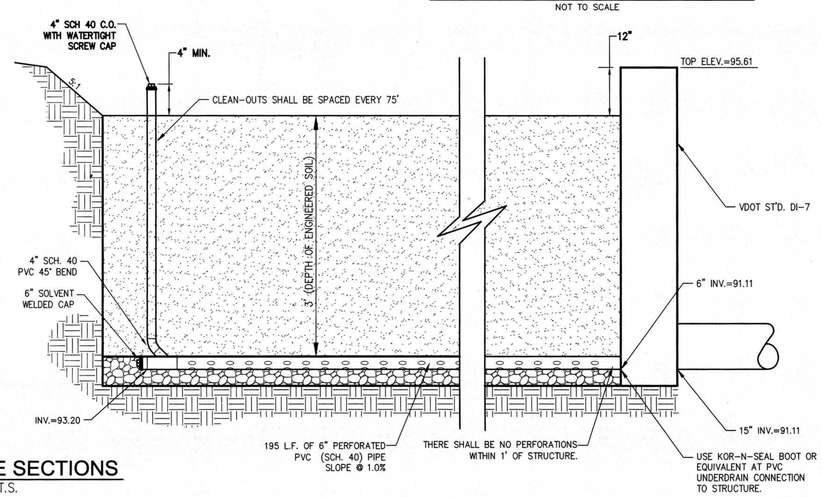

DRY SWALE SECTIONS
N.T.S.

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3	07/06/15	REVISED PER COUNTY COMMENTS	TRS
2	06/18/15	REVISED PER COUNTY COMMENTS	TRS
1	01/12/15	REVISED PER COUNTY COMMENTS	TRS

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SECTION 4
WHITE HALL
DEVELOPER: HHHUNT COMMUNITIES
STONEHOUSE DISTRICT JAMES CITY COUNTY VIRGINIA

Project Contacts:	HWP/TRS
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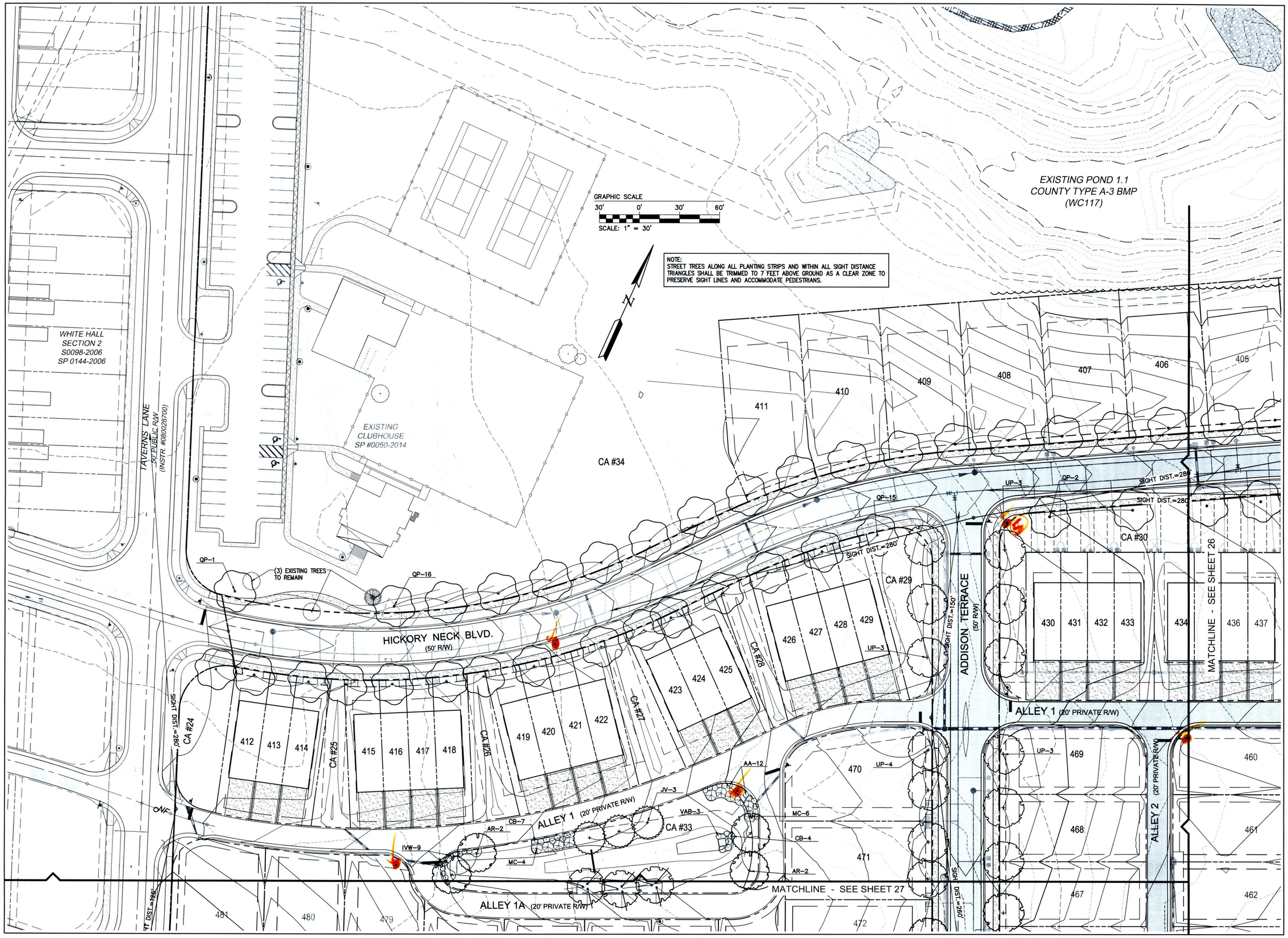

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Project Number:	9048-20B
Scale: 1"=30'	Date: AUG. 20, 2014

Sheet Title:
LANDSCAPE PLAN

Sheet Number
25

NOTE:
STREET TREES ALONG ALL PLANTING STRIPS AND WITHIN ALL SIGHT DISTANCE TRIANGLES SHALL BE TRIMMED TO 7 FEET ABOVE GROUND AS A CLEAR ZONE TO PRESERVE SIGHT LINES AND ACCOMMODATE PEDESTRIANS.

GRAPHIC SCALE
30' 0' 30' 60'
SCALE: 1" = 30'

BMP 1-1
SP-0144-2006
(WC117)

75' RIGHT OF WAY BUFFER

ROCHAMBEAU DRIVE (S.R. 30)
(250' R/W)

HICKORY NECK BLVD.
(60' R/W)

COLLINGTON LANE
(50' R/W)

LEIGHTON BLVD.
(50' R/W)

ALLEY 1
(20' PRIVATE R/W)

ALLEY 2
(20' PRIVATE R/W)

ALLEY 3
(20' PRIVATE R/W)

MATCHLINE - SEE SHEET 25

MATCHLINE SEE SHEET 27

MATCHLINE SEE SHEET 27

BMP 1-2
SP-0046-2007

UNDISTURBED NATURAL OPEN SPACE EASEMENT #1
S-0053-2013

WHITEHALL SECTION 5
S-0053-2013

UNDISTURBED NATURAL OPEN SPACE EASEMENT #2

CA #23
CA #30
CA #31
CA #32

SIGHT DIST.=280'
SIGHT DIST.=170'
SIGHT DIST.=190'
SIGHT DIST.=270'
SIGHT DIST.=230'

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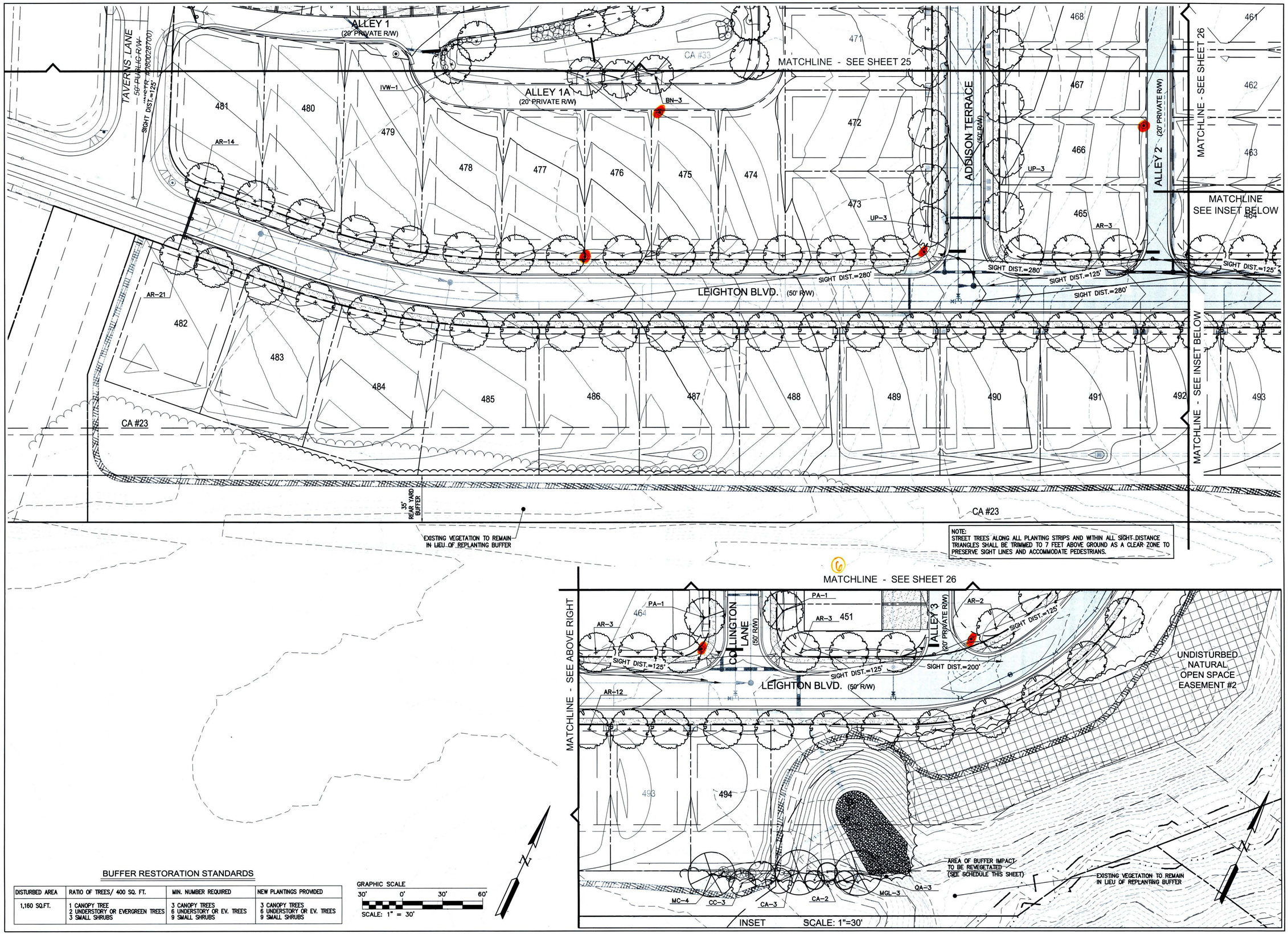

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BUFFER RESTORATION STANDARDS

DISTURBED AREA	RATIO OF TREES/ 400 SQ. FT.	MIN. NUMBER REQUIRED	NEW PLANTINGS PROVIDED
1,160 SQ.FT.	1 CANOPY TREE 2 UNDERSTORY OR EVERGREEN TREES 3 SMALL SHRUBS	3 CANOPY TREES 6 UNDERSTORY OR EV. TREES 9 SMALL SHRUBS	3 CANOPY TREES 6 UNDERSTORY OR EV. TREES 9 SMALL SHRUBS

GRAPHIC SCALE
30' 0' 30' 60'
SCALE: 1" = 30'

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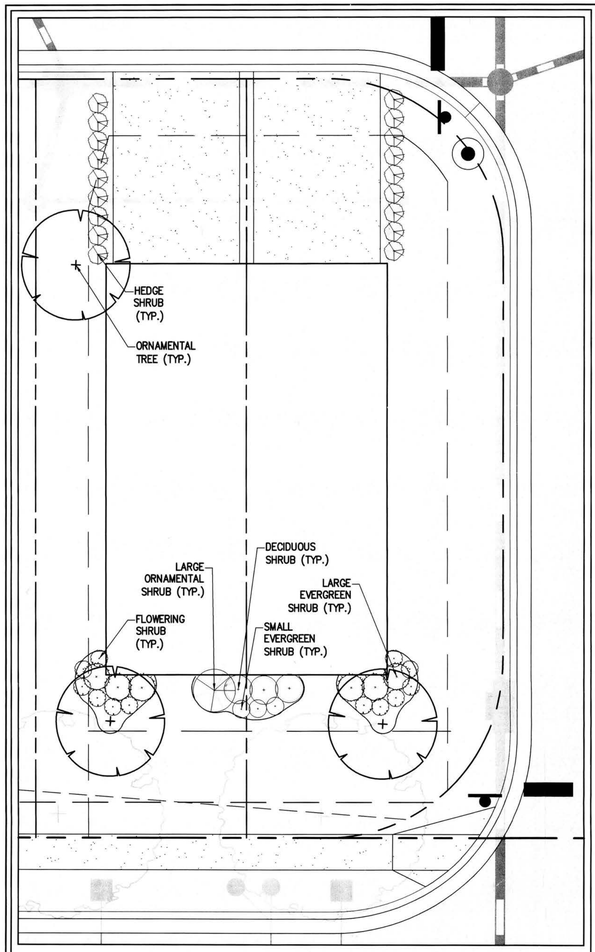
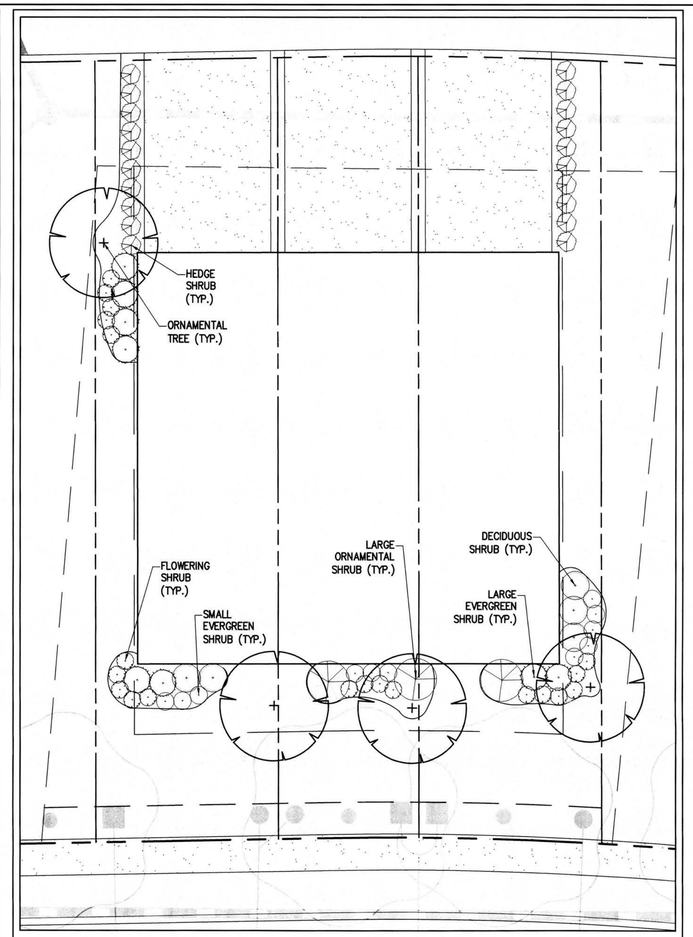
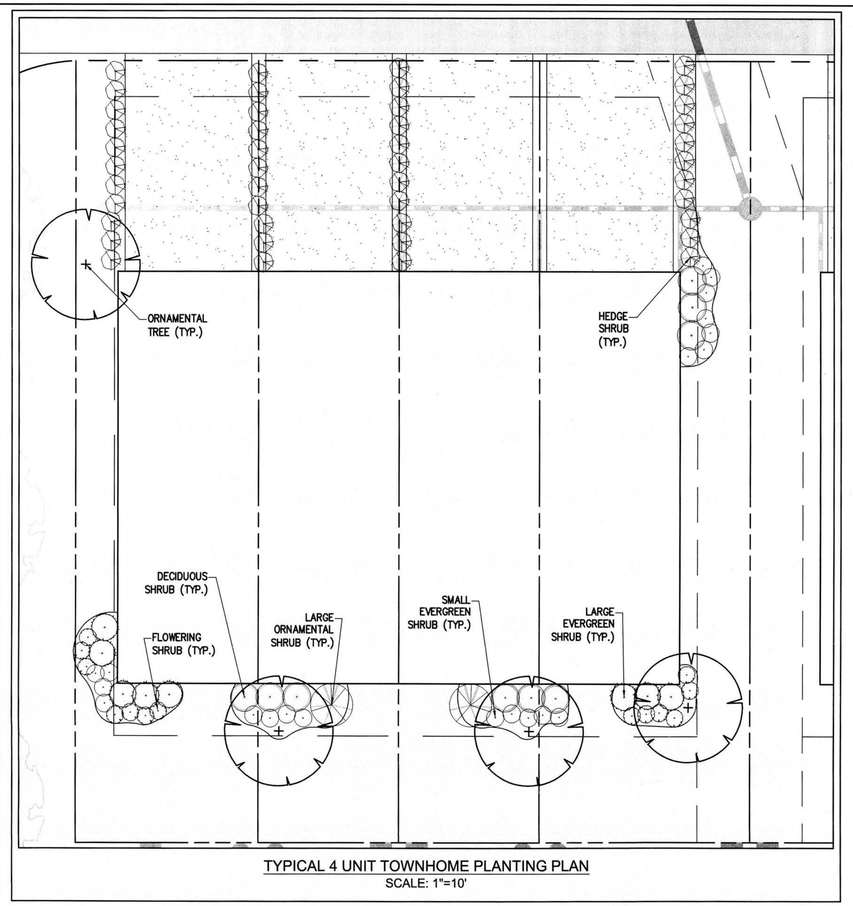
Sheet Number
27



2 UNIT TOWNHOME PLANTING PLAN
SCALE: 1"=10'



TYPICAL 3 UNIT TOWNHOME PLANTING PLAN
SCALE: 1"=10'



TYPICAL 4 UNIT TOWNHOME PLANTING PLAN
SCALE: 1"=10'

SCHEMATIC BUILDING PERIMETER PLANT SCHEDULE

ORNAMENTAL TREES
CERCIS CANADENSIS / EASTERN REDBUD
CORNUS KOUSA / KOUSA DOGWOOD
LAGERSTROEMIA INDICA / CRAPE MYRTLE
MAGNOLIA GRANDIFLORA 'LITTLE GEM' / DWARF SOUTHERN MAGNOLIA
PRUNUS X YEDOENSIS / YOSHINO CHERRY

DECIDUOUS SHRUBS
ARONIA ARBUTIFOLIA / RED CHOKEBERRY
CORNUS BAILEYI / BAILEY'S RED–TWIG DOGWOOD
ILEX VERTICILLATA / WINTERBERRY
ITEA VIRGINICA 'HENRY'S GARNET' / HENRY'S GARNET SWEETSPIRE *
VIBURNUM DAVIDII / DAVID VIBURNUM

LARGE ORNAMENTAL SHRUBS
COTINUS COGGYGRIA / SMOKE TREE
LAGERSTROEMIA INDICA / CRAPE MYRTLE
LOROPETALUM CHINENSE RUBRUM 'BURGUNDY' / BURGUNDY LOROPETALUM
MYRICA CERIFERA / WAX MYRTLE
VITEX AGNUS–CASTUS / CHASTE TREE

HEDGE SHRUBS
ABELIA X GRANDIFLORA 'EDWARD GOUCHER' / GLOSSY ABELIA
ILEX CORNUTA 'BURFORDII NANA' / DWARF BURFORD HOLLY
ILEX CRENATA 'HETZI' / HETZII JAPANESE HOLLY
NANDINA DOMESTICA / HEAVENLY BAMBOO
OSMANTHUS HETEROPHYLLUS 'GULFTIDE' / GULFTIDE OSMANTHUS

SMALL EVERGREEN SHRUBS
ILEX CRENATA 'HOOGENDOORN' / HOOGENDOORN JAPANESE HOLLY
ILEX VOMITORIA 'BORDEAUX' / BORDEAUX HOLLY
JUNIPERUS CHINENSIS 'NICK'S COMPACT' / 'NICK'S COMPACT' JUNIPER
NANDINA DOMESTICA 'FIRE POWER' / FIREPOWER NANDINA

FLOWERING SHRUBS
AZALEA ENCORE TM / ENCORE AZALEA
BUDDLEJA DAVIDII 'BLACK KNIGHT' / BLACK KNIGHT BUTTERFLY BUSH
FORSYTHIA X INTERMEDIA / GOLDEN–BELLS
VIBURNUM CARLESII 'COMPACTUM' / KOREAN SPICE VIBURNUM
VIBURNUM DENTATUM 'BLUE MUFFIN' / SOUTHERN ARROWWOOD

LARGE EVERGREEN SHRUBS
ABELIA X GRANDIFLORA / GLOSSY ABELIA
ILEX CRENATA 'HETZI' / HETZII JAPANESE HOLLY
NANDINA DOMESTICA / HEAVENLY BAMBOO
RHODODENDRON AZALEA 'GEORGE L. TABER' / LARGE PINK AZALEA

NOTE:
PLANT SCHEDULE AND PLANT LOCATIONS ARE SCHEMATIC DUE TO THE PRELIMINARY STATUS OF ARCHITECTURAL DRAWINGS. THE LANDSCAPE ARCHITECT IS NOT RESPONSIBLE FOR ANY CONFLICTS BETWEEN THE SCHEMATIC DESIGN AND FINAL BUILDING PLANS (I.E. WINDOW LOCATIONS, A/C UNIT LOCATIONS, PEDESTRIAN CONNECTION POINTS, ETC.)

JAMES CITY COUNTY BUILDING PERIMETER LANDSCAPE REQUIREMENTS

AREAS		TREES AND SHRUBS			
LANDSCAPE YARD	COUNTY REQ.	PLANTING RATIO	PLANTS REQUIRED	EXISTING PLANTS TO REMAIN*	NEW PLANTS PROVIDED
10' BLDG PERIMETER 2 UNIT TOWNHOME	2,320 SF	1 TREE OR 5 SHRUBS: 200 SQ.FT	12 TREES OR 58 SHRUBS	-- TREES AND -- SHRUBS	3 TREES AND 43 SHRUBS
10' BLDG PERIMETER 3 UNIT TOWNHOME	3,480 SF	1 TREE OR 5 SHRUBS: 200 SQ.FT	17 TREES OR 87 SHRUBS	-- TREES AND -- SHRUBS	4 TREES AND 67 SHRUBS
10' BLDG PERIMETER 4 UNIT TOWNHOME	4,640 SF	1 TREE OR 5 SHRUBS: 200 SQ.FT	23 TREES OR 116 SHRUBS	-- TREES AND -- SHRUBS	4 TREES AND 96 SHRUBS

Rev.	Date	Description	Reviewed By
3	07/06/15	REVISED PER COUNTY COMMENTS	TRS
2	06/15/15	REVISED PER COUNTY COMMENTS	TRS
1	01/12/15	REVISED PER COUNTY COMMENTS	TRS

COMMONWEALTH OF VIRGINIA
GAVIN R. ROBEY
Lic. No. 001299
07/06/15
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Hampton Roads | Central Virginia | Middle Peninsula

SECTION 4
WHITE HALL
DEVELOPER: HHHUNT COMMUNITIES
STONEHOUSE DISTRICT JAMES CITY COUNTY VIRGINIA

Project Contacts:	HWP/TRS
Project Number:	9048-20B
Scale: AS SHOWN	Date: AUG. 20, 2014

Sheet Title:
TYPICAL TOWNHOME LANDSCAPE PLAN

Sheet Number
28

Ⓔ STREETWORKS™

DESCRIPTION

The Lexington tastefully compliments communities, parks and residential roadways.

Catalog #		Type
Project		
Comments		Date
Prepared by		

SPECIFICATION FEATURES

Construction
TOP: Hinged die cast aluminum top with cupola cover. SCREWS: Captive retaining screw. HOUSING: Die cast aluminum base housing. Standard color is black. Other finish colors available. Consult your Streetworks Representative. 1" ANSI wattage source label. CHIMNEY: Decorative glass chimney and brass holder.

Electrical
STARTER: Plug-in starter. TERMINAL BLOCK: Terminal block standard.

Optical
REFLECTOR: Anodized aluminum reflector with field adjustable sockets. REFRACTOR: Clear acrylic refractor panels.

Mounting
Self-aligning pole-top fitter fits 2 3/8" and 3" O.D. tenons. Square headed 1 1/4" polymer coated mounting bolts.

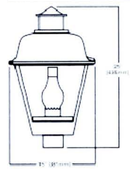
LXD
DAYFORM
LEXINGTON

70 - 175W
Pulse Start Metal Halide
High Pressure Sodium
Metal Halide

DECORATIVE LUMINAIRE

DARK SKY COMPLIANT CO

DIMENSIONS



LIGHT BULB WILL BE LOCATED WITHIN THE HOOD PER MANUFACTURE'S SPECS.

EPA
Effective Projected Area
(1.9 Square Feet)

SHIPPING DATA
Approximate Net Weight:
(35 lbs. / 15.9 kgs.)

COOPER Lighting
www.cooperlighting.com

ACW080463
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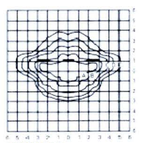
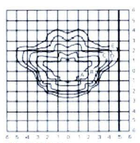
LXD DAYFORM LEXINGTON

PHOTOMETRICS (Complete IES files available at www.cooperlighting.com)



LXD10522 IES
100 Watt HPS
9,500 Lumen Lamp
Type II



LXD10533 IES
100 Watt HPS
9,500 Lumen Lamp
Type III

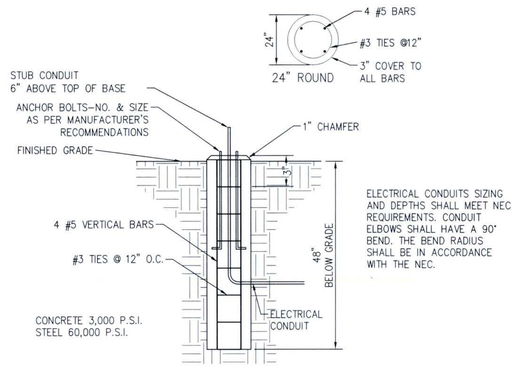
Footcandle Table
Initial footcandle levels at ground level across the horizontal plane at various distances from the base of the lighting fixture.

Mounting Height	Footcandle Values for Footcandle Lines A	B	C	D	E
LXD10522 IES					
17	0.50	0.25	0.20	0.15	0.08
15	0.60	0.50	0.20	0.10	0.06
10	0.02	0.25	0.15	0.06	0.03
LXD10533 IES					
17	0.50	0.25	0.20	0.15	0.08
15	0.60	0.50	0.25	0.10	0.06
10	0.02	0.25	0.15	0.06	0.03

ORDERING INFORMATION

Product Family	Lamp Wattage	Lamp Type	Ballast Type	Voltage	Options
LXD - Dayform Lexington	**Pulse Start Metal Halide** 70 - 70W; 100 - 100W; 175 - 175W; **High Pressure Sodium** 70 - 70W; 100 - 100W; 150 - 150W; **M (Pulse Start)** 175 - 175W	P - Pulse Start Metal Halide; S - High Pressure Sodium; M - Metal Halide	E - Reg. HPF; H - Hi Reg. NPF; R - Hi Reg. NPF	2 - 120V; **Distribution** 22 - Type II; 33 - Type III	5 - Single Fuse (120, 277 or 347V); 4 - NEMA Photocontrol Receptacle; WH - White; BZ - Bronze; AP - Arctic; P - Polycarbonate Lens Panels; T - 3/4" Pendant Mount Provision; S - Snap Latches for Tool-less Lamp Replacement; U - U.L. CSA Listed

Notes: 1 Refer to the technical section for lamp/ballast voltage compatibility. 2 Minimum operating ambient temperature (°F/°C) will vary by lamp type. 3 Pulse Start Metal Halide is available for specific markets only (70W). 4 High Pressure Sodium Only.



FLUSH 18' POLE BASE DETAIL

N.T.S.

LIGHTING NOTES

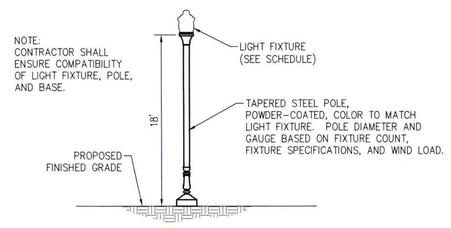
1. THE LIGHTING PLAN IS INTENDED SOLELY FOR THE PURPOSE OF FIXTURE SELECTION & PLACEMENT AND DEPICTING ASSOCIATED LUMINANCE LEVELS.
2. THE CONTRACTOR AND/OR ELECTRICAL ENGINEER SHALL BE RESPONSIBLE FOR: SOURCE OF ELECTRICAL POWER; CIRCUITRY; WIRE SIZE; CONDUIT LAYOUT; AND ANY OTHER ELECTRICAL REQUIREMENTS.
3. LIGHT POLE BASES FLUSH WITH FINISHED GRADE LOCATED ON THE PERIMETER OF A PARKING LOT AREA OR WITHIN A PARKING LOT ISLAND SHALL BE INSTALLED TO BE CENTERED A MINIMUM OF 4' FROM THE BACK-OF-CURB AND SHALL BE LOCATED "IN-LINE" WITH PARKING LOT STRIPING WHERE APPLICABLE. WHERE THIS MINIMUM DISTANCE CAN NOT BE MET, A 30" CONCRETE BASE SHALL BE INSTALLED. THE CONTRACTOR SHALL ENSURE THAT THE OVERALL MOUNTING HEIGHT IS STILL ACHIEVED AND/OR NOT EXCEEDED WITH THE ADDITIONAL HEIGHT OF THE 30" CONCRETE BASE.
4. LIGHT POLE BASES LOCATED WITHIN A PARKING LOT PAVED AREA SHALL BE INSTALLED TO BE CENTERED ON THE INTERSECTION OF THE ASSOCIATED PARKING LOT STRIPING. THE CONCRETE BASES FOR THESE POLES SHALL EXTEND A MINIMUM OF 30" ABOVE FINISHED GRADE. THE CONTRACTOR SHALL ENSURE THAT THE OVERALL MOUNTING HEIGHT IS STILL ACHIEVED AND/OR NOT EXCEEDED WITH THE ADDITIONAL HEIGHT OF THE 30" CONCRETE BASE.
5. CONTRACTOR SHALL ENSURE THE LIGHT FIXTURE, POLE, POLE BASE, AND CONCRETE BASE ARE COMPATIBLE.
6. INSTALLATION OF POLES AND LIGHTING FIXTURES SHALL BE IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS.
7. THE CONTRACTOR SHALL ENSURE THAT THE POLE DIAMETER, GAUGE, AND CONCRETE BASE MEET OR EXCEED THE MINIMUM LOAD REQUIREMENTS BASED ON FIXTURE COUNT, REGIONAL WIND LOAD STATISTICS, ADDITIONAL BANNERS / POLE ARMS, AND THE FIXTURE SPECIFICATIONS.
8. CONTRACTORS ARE RESPONSIBLE FOR LOCATING ALL UTILITIES PRIOR TO THE BEGINNING OF WORK AND AVOIDING THEM DURING INSTALLATION OPERATIONS.

PLANT SCHEDULE

TREES	QTY	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	REMARKS
AR	81	ACER RUBRUM 'RED SUNSET'	RED SUNSET MAPLE	1-1/2" CAL.	B & B	SINGLE STEM
BN	3	BETULA NIGRA 'DURAHEAT'	DURAHEAT RIVER BIRCH	8'-10' HT.	B & B	3-5 CANES
CE	9	CARPINUS BETULUS	EUROPEAN HORNBEAM	2-1/2" CAL.	B & B	SINGLE STEM
CC	3	CERCIS CANADENSIS	EASTERN REDBUD	1-1/2" CAL.	B & B	SINGLE STEM
CP	6	CRATAEGUS PHAENOPYRUM	WASHINGTON HAWTHORN	2" CAL.	B & B	SINGLE STEM
JV	3	JUNIPERUS VIRGINIANA	EASTERN RED CEDAR	8'-10' HT.	B & B	DENSE, FULL
MG	5	MAGNOLIA GRANDIFLORA	SOUTHERN MAGNOLIA	8'-10' HT.	B & B	DENSE, FULL
MGL	3	MAGNOLIA GRANDIFLORA 'LITTLE GEM'	DWARF SOUTHERN MAGNOLIA	8'-10' HT.	B & B	DENSE, FULL
PT	9	PINUS TAEDA	LOBLOLLY PINE	8'-10' HT.	B & B	DENSE, FULL
PA	19	PLATANUS X ACERIFOLIA 'BLOODGOOD'	LONDON PLANE TREE	1-1/2" CAL.	B & B	SINGLE STEM
QA	3	QUERCUS ALBA	WHITE OAK	2-1/2" CAL.	B & B	SINGLE STEM
QP	60	QUERCUS PHELLOS	WILLOW OAK	1-1/2" CAL.	B & B	SINGLE STEM
QR	5	QUERCUS RUBRA	RED OAK	2-1/2" CAL.	B & B	SINGLE STEM
UP	19	ULMUS PARVIFOLIA	CHINESE ELM	1-1/2" CAL.	B & B	SINGLE STEM
SHRUBS	**QTY**	**BOTANICAL NAME**	**COMMON NAME**	**SIZE**	**ROOT**	**REMARKS**
AK	19	ABELIA X GRANDIFLORA 'KALEIDOSCOPE'	GLOSSY ABELIA	18"-24" HT./W.	CONT.	DENSE, FULL
AA	12	ARONIA ARBUTIFOLIA	RED CHOKEBERRY	22"-30" HT./W.	CONT.	DENSE, FULL
CA	5	CLETHRA ALNIFOLIA	SUMMERSWEET CLETHRA	18"-24" HT./W.	CONT.	DENSE, FULL
CB	26	CORNUS BAILEYI	BAILEY'S RED-TWIG DOGWOOD	22"-30" HT./W.	CONT.	DENSE, FULL
FI	20	FORSYTHIA X INTERMEDIA	GOLDEN-BELLS	22"-30" HT./W.	CONT.	DENSE, FULL
IVW	21	ILEX VERTICILLATA	WINTERBERRY	22"-30" HT./W.	CONT.	DENSE, FULL
IVB	12	ILEX VOMITORIA 'BORDEAUX'	BORDEAUX HOLLY	18"-24" HT./W.	CONT.	DENSE, FULL
KL	13	KALMIA LATIFOLIA	MOUNTAIN LAUREL	18"-24" HT./W.	CONT.	DENSE, FULL
MC	20	MYRICA CERIFERA	WAX MYRTLE	22"-30" HT./W.	CONT.	DENSE, FULL
VAB	18	VACCINIUM ATROCOCCUM	HIGHBUSH BLUEBERRY	22"-30" HT./W.	CONT.	DENSE, FULL

JAMES CITY COUNTY LANDSCAPE REQUIREMENTS

AREAS		TREES AND SHRUBS					
LANDSCAPE YARD	COUNTY REQ.	PLANTING RATIO	PLANTS REQUIRED		EXISTING PLANTS TO REMAIN*		NEW PLANTS PROVIDED
75' R/W BUFFER ROCHAMBEAU DRIVE	14,731 SF	1 TREE AND 3 SHRUBS: 400 SQ.FT.	37 TREES	NOTE 15 DECIDUOUS SHADE; 15-20% 6-8 ORNAMENTAL; 35% 13 LG EVERGREEN	-- TREES	- DECIDUOUS SHADE; - ORNAMENTAL; - LG EVERGREEN	37 TREES — 17 DECIDUOUS SHADE; 6 ORNAMENTAL; 14 LG EVERGREEN
			110 SHRUBS	35% 39 EVERGREEN	-- SHRUBS	- EVERGREEN	111 SHRUBS — 50 EVERGREEN



TYPICAL POLE DETAIL

N.T.S.

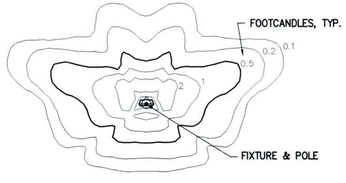
GENERAL NOTES

1. ALL PLANT STOCK SHALL MEET THE MINIMUM STANDARDS & SPECIFICATIONS DESCRIBED IN THE "AMERICAN STANDARD FOR NURSERY STOCK," LATEST EDITION, PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
2. ALL PLANT MATERIAL SHALL BE INSTALLED AS SPECIFIED IN THE VNLA STANDARDIZED LANDSCAPE SPECIFICATIONS, LATEST EDITION.
3. THE CONTRACTOR SHALL SUPPLY ALL NEW PLANT MATERIAL IN QUANTITIES SUFFICIENT TO COMPLETE ALL PLANTING SHOWN ON THE DRAWINGS. WHERE DISCREPANCIES EXIST BETWEEN THE PLANS & THE PLANT LIST, THE PLANS SHALL TAKE PRECEDENCE.
4. GROUPINGS OF PLANTS SHALL BE MULCHED IN CONTINUOUS PLANT BEDS.
5. AREAS DISTURBED BY CONSTRUCTION, NOT OTHERWISE WITHIN PLANT BEDS OR COVERED IN SITE CONTRACT, ARE TO BE SODDED OR SEEDED WITH A STATE CERTIFIED TURF-TYPE TALL FESCUE VARIETY SELECTED FROM THE FOLLOWING LIST:

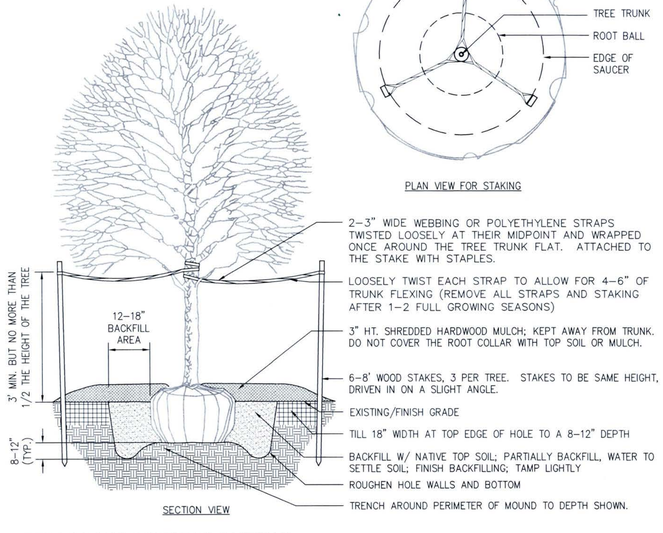
   Biltmore, Bingo, Cochise III, Constitution, Coyote II, Crossfire II, Endeavor, Fidelity, Good-en, Grande, Greenkeeper WAF, Inferno, Kalahari, Magellan, Masterpiece, Onyx, Padre, Picasso, Penn 1901, Quest, Raptor, Rebel Exeda, Rembrandt, Rendition, SR 8250, SR 8300, Tarheel, Titanium, Watchdog, Wolfpack, MPEZE.
6. AREAS OF THE SITE DEPICTED AS "TURF" REPRESENT MAINTAINED TURF AND CAN INCLUDE ALREADY ESTABLISHED TURF AREAS. THESE AREAS DO NOT SOLELY REPRESENT PROPOSED TURF. THE TOTAL AMOUNT OF PROPOSED TURF, AS WELL AS IF SEED OR SOD IS USED, SHALL BE DETERMINED AT THE OWNER'S DISCRETION.
7. TREES SUPPORT STAKING IS OPTIONAL FOR TREES THAT ARE 1" CAL. OR 6' HT. OR LESS. ALL TREE STAKING SHALL BE REMOVED AFTER 1-2 GROWING SEASONS.
8. ALL TREES ARE TO BE PLANTED SO TOP OF ROOT BALL IS 3" ABOVE FINISH GRADE.
9. TREE SHALL BE INSTALLED PLUMB & STRAIGHT.
10. PRUNE ALL SUCKERS, RUBBING OR CROSSED BRANCHES, CODOMINANT LEADERS, NARROW CROTCH ANGLES, WATER SPROUTS, BROKEN BRANCHES.
11. DO NOT PRUNE CENTRAL LEADER OR BRANCH TIPS.
12. REMOVE TAGS, LABELS & PLASTIC SLEEVING.
13. DO NOT WRAP TRUNK.
14. IF PLANT MATERIAL IS CONTAINER-GROWN, REMOVE TOP OF WIRE BASKET, OR REMOVE CONTAINER & CUT CIRCLING ROOT; IF FIELD-GROWN, CUT ROPE SURROUNDING BOTTOM OF TREE TRUNK AFTER BACKFILLING BUT BEFORE MULCHING & REMOVE BURLAP FROM TOP 1/3 OF BALL ROOT.
15. REMOVE ALL STAKES, STRAPS, WIRES, RUBBER HOSES, ETC. AFTER 1-2 GROWING SEASONS.
16. PLANT SUBSTITUTIONS WILL NOT BE MADE WITHOUT THE WRITTEN CONSENT OF THE OWNER OR THE OWNER'S DESIGNATED REPRESENTATIVE PRIOR TO INSTALLATION.
17. ALL INSTALLED PLANT MATERIAL SHALL BE SUBJECT TO REGULAR MAINTENANCE, INCLUDING FERTILIZATION, PRUNING, REPLACEMENT, INSECT AND DISEASE CONTROL, WATERING, MULCHING, AND WEED CONTROL.
18. CONTRACTORS ARE RESPONSIBLE FOR LOCATING ALL UTILITIES PRIOR TO THE BEGINNING OF WORK AND AVOIDING THEM DURING LANDSCAPING OPERATIONS.

LIGHTING SCHEDULE

KEY	FIXTURE TYPE	MOUNTING HEIGHT	POLE TYPE/ MOUNTING INSTRUCTIONS	FIXTURES PER POLE	TOTAL FIXTURES
A	COOPER LIGHTING MODEL#: LXD-15-P-22 LEXINGTON DAYFORM, 150W PUSLE START METAL HALIDE, TYPE II; COLOR: BRONZE	18'	INSTALL PER MANUFACTURER SPECIFICATIONS	1	21

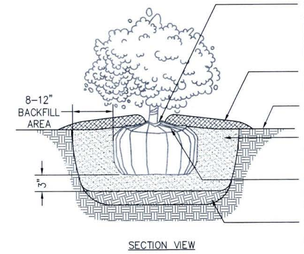


ISO-FOOTCANDLE DIAGRAM SHOWING TYPE II ILLUMINATION PATTERN
N.T.S.



DECIDUOUS TREE PLANTING

NOT TO SCALE



NOTES:
1. SPACE AS SHOWN ON PLAN OR AS INDICATED ON PLANT CHART.
2. WATER IMMEDIATELY AFTER PLANTING.

SHRUB PLANTING

NOT TO SCALE

Rev.	Date	Descrip	
3	07/06/15	REVISED PER COUNTY COMMENTS	TRS
2	06/15/15	REVISED PER COUNTY COMMENTS	TRS
1	01/12/15	REVISED PER COUNTY COMMENTS	TRS

GAVIN R. ROBEY — Lic. No. 001299 — 07/06/15

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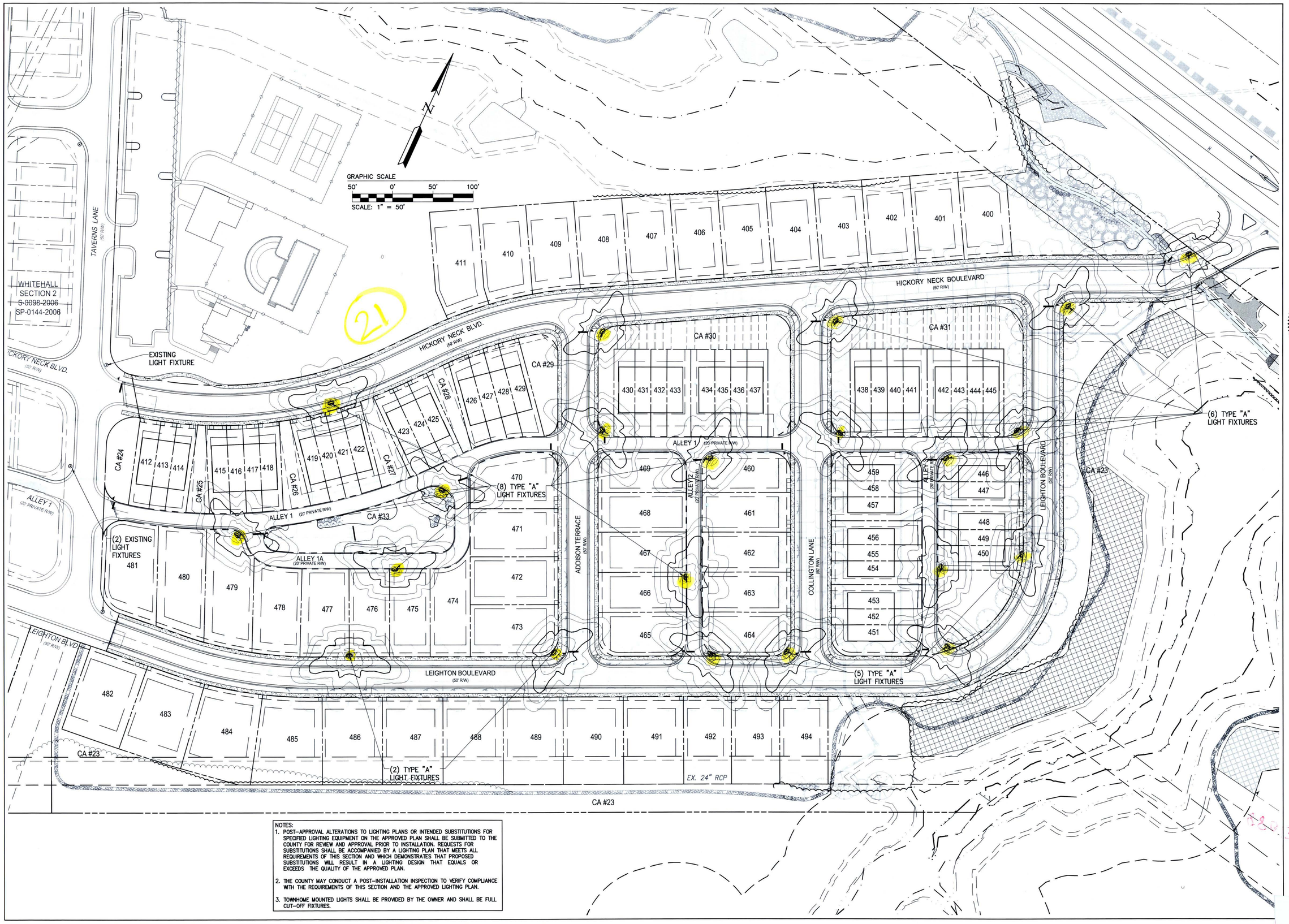
Hampton Roads | Central Virginia | Middle Peninsula

SECTION 4
WHITE HALL
DEVELOPER: HHUNT COMMUNITIES
STONEHOUSE DISTRICT JAMES CITY COUNTY VIRGINIA

Project Contacts:	HWP/TRS
Project Number:	9048-20B
Scale: 1"=30'	Date: AUG. 20, 2014

Sheet Title:
LANDSCAPE NOTES AND DETAILS

Sheet Number
29



NOTES:

1. POST-APPROVAL ALTERATIONS TO LIGHTING PLANS OR INTENDED SUBSTITUTIONS FOR SPECIFIED LIGHTING EQUIPMENT ON THE APPROVED PLAN SHALL BE SUBMITTED TO THE COUNTY FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION. REQUESTS FOR SUBSTITUTIONS SHALL BE ACCOMPANIED BY A LIGHTING PLAN THAT MEETS ALL REQUIREMENTS OF THIS SECTION AND WHICH DEMONSTRATES THAT PROPOSED SUBSTITUTIONS WILL RESULT IN A LIGHTING DESIGN THAT EQUALS OR EXCEEDS THE QUALITY OF THE APPROVED PLAN.
2. THE COUNTY MAY CONDUCT A POST-INSTALLATION INSPECTION TO VERIFY COMPLIANCE WITH THE REQUIREMENTS OF THIS SECTION AND THE APPROVED LIGHTING PLAN.
3. TOWNHOME MOUNTED LIGHTS SHALL BE PROVIDED BY THE OWNER AND SHALL BE FULL CUT-OFF FIXTURES.

Rev.	Date	Description	Revised By
3	07/06/15	REVISED PER COUNTY COMMENTS	TRS
2	05/15/15	REVISED PER COUNTY COMMENTS	TRS
1	01/12/15	REVISED PER COUNTY COMMENTS	TRS

COMMONWEALTH OF VIRGINIA
GAVIN R. ROBEY
Lic. No. 001299
LANDSCAPE ARCHITECT
07/06/15

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SECTION 4
WHITE HALL
DEVELOPER: HHHUNT COMMUNITIES
STONEHOUSE DISTRICT JAMES CITY COUNTY VIRGINIA

Project Contacts:	HWP/TRS
Project Number:	9048-20B
Scale: 1"=50'	Date: AUG. 20, 2014
Sheet Title: LIGHTING PLAN	
Sheet Number	

5. Construction Drawings

6. Design Calculations

S-0043-2014 / SP-0074-2014

EROSION AND SEDIMENT CONTROL NARRATIVE
AND
DRAINAGE CALCULATIONS

FOR

White Hall Section 4

Planning & Resource Protection
JUL 10 2015
RECEIVED

PLANNING DIVISION
JUL 07 2015
RECEIVED

COMMONWEALTH OF VIRGINIA
T. RYAN STEPHENSON
Lic. No. 044405
7/6/15
PROFESSIONAL ENGINEER

Prepared By:

AES Consulting Engineers
5248 Olde Towne Road, Suite 1
Williamsburg, Virginia 23188

August 20, 2014
Revised: July 6, 2015

AES Project No. 9048-20B

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III.

STORM SEWER CALCULATIONS

Runoff Coefficient Calculations
Storm Sewer System Calculations
Inlet Spread Calculations

AES
CONSULTING ENGINEERS

Project:	White Hall Section 4
Project No.:	9048-20B
Subject:	Runoff Coefficients
Date:	Revised 6/23/2015
Calculated By:	GSW

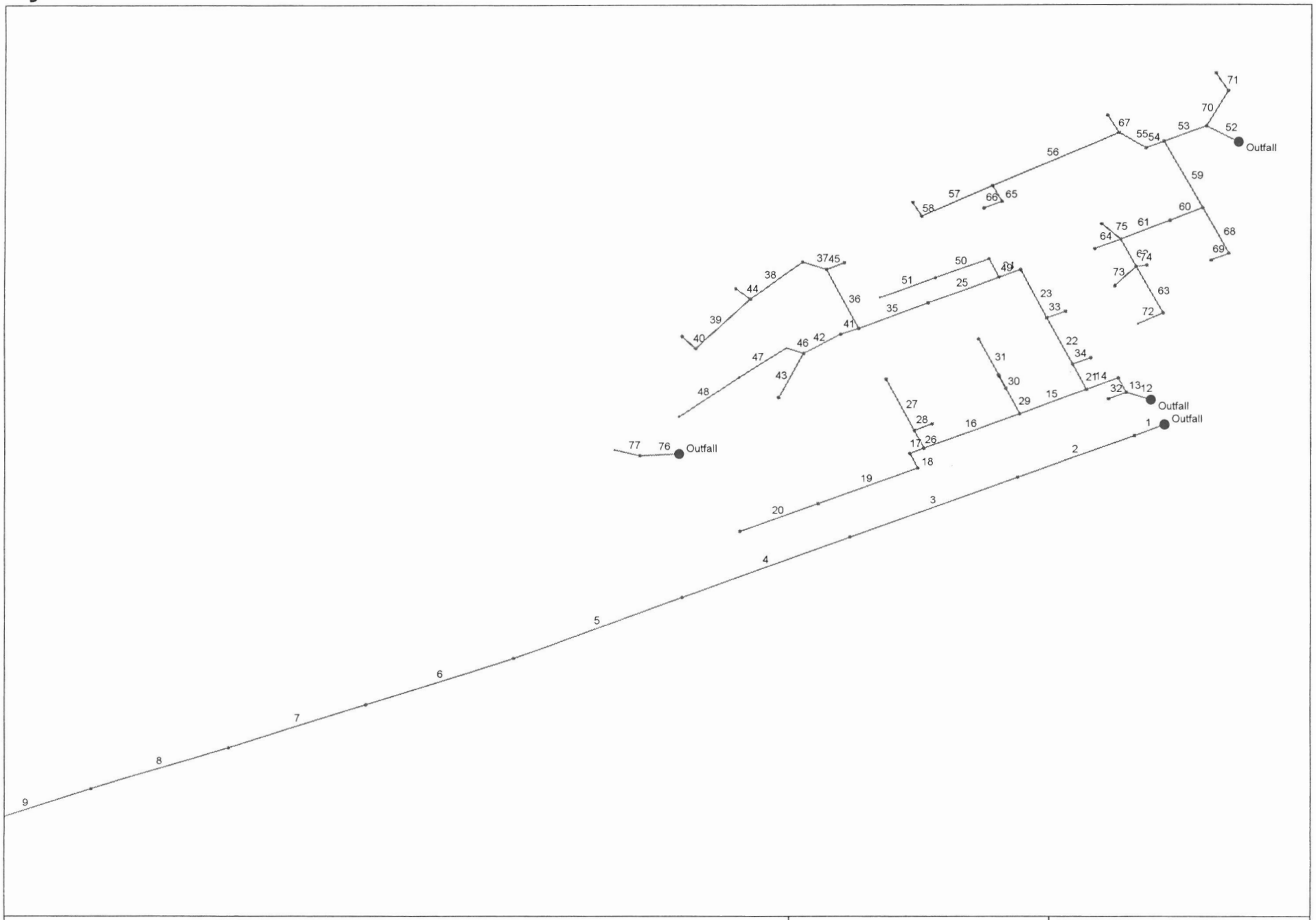
Runoff Coefficients used in the following calculations were taken from Table 4-3 of the Virginia Stormwater Management Handbook.

Subject Area: Runoff Coefficients

Area Description	Grass/Woods	Impervious				Total Area	C x A	Weighted C
	0.30	0.90						
4-59A	0.06	0.05				0.11	0.06	0.57
4-59	0.15	0.26				0.41	0.28	0.68
4-56	0.26	0.33				0.59	0.38	0.64
4-55	0.15	0.19				0.34	0.22	0.64
4-54	0.12	0.15				0.27	0.17	0.63
4-53	0.22	0.24				0.46	0.28	0.61
4-52	0.10	0.12				0.22	0.14	0.63
4-51	0.04	0.12				0.16	0.12	0.75
4-50	0.32	0.29				0.61	0.36	0.59
4-46	0.06	0.16				0.22	0.16	0.74
4-48	0.12	0.22				0.34	0.23	0.69
4-47	0.19	0.30				0.49	0.33	0.67
4-44	0.15	0.14				0.29	0.17	0.59
4-43	0.17	0.24				0.41	0.27	0.65
4-42	0.09	0.06				0.15	0.08	0.54
4-41	0.05	0.10				0.15	0.11	0.70
4-40	0.09	0.10				0.19	0.12	0.62
4-39	0.03	0.07				0.10	0.07	0.72
4-38	0.09	0.10				0.19	0.12	0.62
4-37	0.40	0.64				1.04	0.70	0.67
DRY SWALE #1 (overall)	0.66	0.90				1.56	1.01	0.65
4-36C	0.08	0.11				0.19	0.12	0.65
4-36B	0.09	0.04				0.13	0.06	0.48
4-36A	0.08	0.05				0.13	0.07	0.53
4-36	0.18	0.24				0.42	0.27	0.64
4-35	0.05	0.13				0.18	0.13	0.73
4-33	0.02	0.08				0.10	0.08	0.78
4-32C	0.10	0.00				0.10	0.03	0.30
4-32B	0.03	0.11				0.14	0.11	0.77
4-32	0.06	0.16				0.22	0.16	0.74
4-30	0.05	0.10				0.15	0.11	0.70
4-29	0.08	0.09				0.17	0.11	0.62
4-28	0.15	0.27				0.42	0.29	0.69
4-27	0.09	0.17				0.26	0.18	0.69
4-25	0.04	0.04				0.08	0.05	0.60
4-24	0.31	0.41				0.72	0.46	0.64
4-23	0.03	0.07				0.10	0.07	0.72
4-21A	0.03	0.04				0.07	0.05	0.64
4-21	0.06	0.12				0.18	0.13	0.70
4-20A	0.03	0.04				0.07	0.05	0.64
4-20C	0.03	0.07				0.10	0.07	0.72

4-20	0.18	0.27			0.45	0.30	0.66
4-19	0.05	0.11			0.16	0.11	0.71
4-18A	0.04	0.11			0.15	0.11	0.74
4-17	0.16	0.19			0.35	0.22	0.63
4-16	0.05	0.08			0.13	0.09	0.67
4-15	0.04	0.10			0.14	0.10	0.73
4-14	0.01	0.05			0.06	0.05	0.80
4-13	0.24	0.26			0.50	0.31	0.61
4-12	0.15	0.15			0.30	0.18	0.60
4-11	0.23	0.18			0.41	0.23	0.56
4-10	0.08	0.08			0.16	0.10	0.60
4-8	0.35	0.41			0.76	0.47	0.62
4-7	0.28	0.18			0.46	0.25	0.53
4-6	0.18	0.17			0.35	0.21	0.59
4-5	0.03	0.10			0.13	0.10	0.76
4-4	0.33	0.17			0.50	0.25	0.50
4-3	0.02	0.08			0.10	0.08	0.78
5-4	0.08	0.00			0.08	0.02	0.30
5-3	0.22	0.14			0.36	0.19	0.53

Hydraflow Storm Sewers Extension for Autodesk® AutoCAD® Civil 3D® Plan



Project File: SS#4 and SS#5.stm	Number of lines: 77	Date: 6/23/2015

Storm Sewers v10.40

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	54	0.00	0.44	0.00	0.00	0.23	0.0	7.4	6.7	10.16	15.99	5.40	24	0.50	68.49	68.76	69.63	69.93	76.79	78.55	5-3 to 5-2
2	1	207	0.36	0.44	0.56	0.20	0.23	5.0	7.0	6.8	10.18	50.77	9.06	24	5.04	69.66	80.10	70.26	81.24	78.55	86.17	5-3 to 5-2(2)
3	2	300	0.08	0.08	0.30	0.02	0.02	5.0	6.0	7.2	8.81	38.87	4.99	24	2.95	80.10	88.96	81.24	90.02	86.17	98.96	5-4 to 5-3
4	3	300	0.00	0.00	0.00	0.00	0.00	0.0	5.0	0.0	8.64	15.99	5.14	24	0.50	88.96	90.46	90.02	91.51	98.96	95.92	5-5 to 5-4
5	4	300	0.00	0.00	0.00	0.00	0.00	0.0	4.0	0.0	8.64	15.99	5.00	24	0.50	90.46	91.96	91.57	93.01	95.92	97.42	5-6 to 5-5
6	5	258	0.00	0.00	0.00	0.00	0.00	0.0	3.2	0.0	8.64	15.99	5.17	24	0.50	91.96	93.25	93.01	94.30	97.42	105.77	5-7 to 5-6
7	6	240	0.00	0.00	0.00	0.00	0.00	0.0	2.4	0.0	8.64	15.99	5.00	24	0.50	93.25	94.45	94.36	95.50	105.77	106.86	5-8 to 5-7
8	7	240	0.00	0.00	0.00	0.00	0.00	0.0	1.6	0.0	8.64	15.99	5.17	24	0.50	94.45	95.65	95.50	96.70	106.86	107.85	5-9 to 5-8
9	8	232	0.00	0.00	0.00	0.00	0.00	0.0	0.8	0.0	8.64	15.99	5.00	24	0.50	95.65	96.81	96.76	97.86	107.85	109.68	5-10 to 5-9
10	9	192	0.00	0.00	0.00	0.00	0.00	0.0	0.2	0.0	8.64	15.99	5.17	24	0.50	96.81	97.77	97.86	98.82	109.68	111.67	5-11 to 5-10
11	10	53	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	8.64	17.02	4.39	24	0.57	97.70	98.00	99.13	99.05	111.67	103.46	BMP #1.3 to 5-11
12	End	42	0.10	10.27	0.72	0.07	6.64	5.0	8.0	6.5	46.10	71.30	9.49	36	1.14	69.68	70.16	71.44	72.37	82.29	84.55	4-23 to 4-22
13	12	32	0.08	9.45	0.60	0.05	6.10	5.0	8.0	6.6	42.70	50.23	10.44	30	1.50	70.66	71.14	72.43	73.32	84.55	84.55	4-25 to 4-23
14	13	57	0.00	9.37	0.00	0.00	6.05	0.0	7.9	6.6	42.55	50.38	9.36	30	1.51	71.14	72.00	73.32	74.18	84.55	84.12	4-26 to 4-25
15	14	119	0.00	3.70	0.00	0.00	2.39	0.0	6.8	6.9	16.45	18.19	10.56	18	3.00	76.43	80.00	77.55	81.43	84.12	86.21	4-45 to 4-26
16	15	171	0.00	2.65	0.00	0.00	1.66	0.0	6.4	7.0	11.67	12.95	6.94	18	1.52	80.00	82.60	81.43	83.90	86.21	90.56	4-49 to 4-45
17	16	26	0.46	1.66	0.61	0.28	1.05	5.0	6.4	7.0	7.35	12.21	8.46	15	3.58	84.25	85.18	84.95	86.26	90.56	91.86	4-53 to 4-49
18	17	32	0.27	1.20	0.63	0.17	0.77	5.0	6.3	7.1	5.40	6.46	5.12	15	1.00	85.18	85.50	86.26	86.44	91.86	91.86	4-54 to 4-53
19	18	178	0.34	0.93	0.64	0.22	0.60	5.0	5.6	7.3	4.33	14.11	4.64	15	4.78	85.50	94.00	86.44	94.84	91.86	99.07	4-55 to 4-54
20	19	140	0.59	0.59	0.64	0.38	0.38	5.0	5.0	7.5	2.83	9.45	3.70	15	2.14	94.00	97.00	94.84	97.68	99.07	102.07	4-56 to 4-55
21	14	55	0.42	5.67	0.69	0.29	3.66	5.0	7.8	6.6	26.90	30.50	9.98	24	1.82	74.00	75.00	75.46	76.81	84.12	83.23	4-28 to 4-26
22	21	102	0.17	4.99	0.62	0.11	3.20	5.0	7.6	6.7	23.99	25.04	8.16	24	1.23	75.00	76.25	76.81	77.98	83.23	84.87	4-29 to 4-28

Project File: SS#4 and SS#5.stm | Number of lines: 77 | Run Date: 6/23/2015

NOTES:Intensity = 55.61 / (Inlet time + 10.00) ^ 0.74 ; Return period =Yrs. 10 ; c = cir e = ellip b = box

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
23	22	107	0.00	4.67	0.00	0.00	2.98	0.0	7.3	6.7	22.77	32.80	7.94	24	2.10	76.25	78.50	77.98	80.20	84.87	86.27	4-31 to 4-29
24	23	38	0.22	4.67	0.74	0.16	2.98	5.0	7.3	6.8	22.84	33.43	8.03	24	2.18	78.50	79.33	80.20	81.03	86.27	85.76	4-32 to 4-31
25	24	127	0.10	4.21	0.78	0.08	2.68	5.0	7.0	6.8	21.03	22.62	7.51	24	1.00	79.33	80.60	81.03	82.24	85.76	88.76	4-33 to 4-32
26	16	40	0.61	0.99	0.59	0.36	0.62	5.0	6.0	7.2	4.43	6.46	3.85	15	1.00	82.60	83.00	83.90	84.03	90.56	89.58	4-50 to 4-49
27	26	113	0.22	0.22	0.63	0.14	0.14	5.0	5.0	7.5	1.04	8.80	1.95	15	1.86	83.00	85.10	84.42	85.50	89.58	90.97	4-52 to 4-50
28	26	32	0.16	0.16	0.75	0.12	0.12	5.0	5.0	7.5	0.90	6.46	0.76	15	1.00	83.00	83.32	84.42	84.43	89.58	89.58	4-51 to 4-50
29	15	56	0.22	1.05	0.74	0.16	0.73	5.0	5.6	7.3	5.29	7.12	4.56	15	1.21	80.00	80.68	81.43	81.73	86.21	85.69	4-46 to 4-45
30	29	30	0.49	0.83	0.67	0.33	0.56	5.0	5.5	7.3	4.13	6.46	4.11	15	1.00	80.70	81.00	81.91	81.82	85.69	85.57	4-47 to 4-46
31	30	78	0.34	0.34	0.69	0.23	0.23	5.0	5.0	7.5	1.76	6.46	2.82	15	1.00	81.00	81.78	81.82	82.31	85.57	86.15	4-48 to 4-47
32	12	32	0.72	0.72	0.64	0.46	0.46	5.0	5.0	7.5	3.45	6.46	4.92	15	1.00	79.68	80.00	80.33	80.75	84.55	84.44	4-24 to 4-23
33	22	32	0.15	0.15	0.70	0.11	0.11	5.0	5.0	7.5	0.79	6.46	3.12	15	1.00	77.68	78.00	77.98	78.35	84.87	84.87	4-30 to 4-29
34	21	32	0.26	0.26	0.69	0.18	0.18	5.0	5.0	7.5	1.34	6.46	3.73	15	1.00	76.68	77.00	77.07	77.46	83.23	83.23	4-27 to 4-28
35	25	125	0.00	4.11	0.00	0.00	2.61	0.0	6.7	6.9	20.72	22.62	7.53	24	1.00	80.60	81.85	82.24	83.48	88.76	91.62	4-34 to 4-33
36	35	130	0.21	1.50	0.59	0.12	0.94	5.0	6.3	7.1	6.62	10.50	4.98	18	1.00	82.35	83.65	83.48	84.64	91.62	90.62	4-38 to 4-34
37	36	42	0.19	1.19	0.62	0.12	0.74	5.0	6.2	7.1	5.26	14.44	6.14	15	5.00	83.90	86.00	84.64	86.93	90.62	92.53	4-40 to 4-38
38	37	113	0.15	1.00	0.70	0.11	0.62	5.0	5.8	7.2	4.51	6.57	4.81	15	1.04	86.00	87.17	86.93	88.03	92.53	94.23	4-41 to 4-40
39	38	133	0.41	0.70	0.65	0.27	0.44	5.0	5.2	7.4	3.25	10.11	4.00	15	2.45	87.17	90.43	88.03	91.16	94.23	97.60	4-43 to 4-41
40	39	32	0.29	0.29	0.59	0.17	0.17	5.0	5.0	7.5	1.28	6.46	2.50	15	1.00	90.43	90.75	91.16	91.20	97.60	97.60	4-44 to 4-43
41	35	31	0.18	2.61	0.73	0.13	1.67	5.0	6.5	7.0	14.33	22.71	9.21	18	4.68	82.35	83.80	83.48	85.19	91.62	91.35	4-35 to 4-34
42	41	72	0.42	2.43	0.64	0.27	1.54	5.0	6.4	7.0	13.49	17.10	7.94	18	2.65	83.80	85.71	85.19	87.08	91.35	93.22	4-36 to 4-35
43	42	98	1.56	1.56	0.65	1.01	1.01	5.0	5.0	7.5	10.28	14.80	8.71	15	5.26	85.96	91.11	87.08	92.30	93.22	95.61	4-37 (Dry Swale) t
44	38	32	0.15	0.15	0.54	0.08	0.08	5.0	5.0	7.5	0.61	6.46	1.65	15	1.00	87.17	87.49	88.03	87.79	94.23	94.23	4-42 to 4-41

Project File: SS#4 and SS#5.stm | Number of lines: 77 | Run Date: 6/23/2015

NOTES:Intensity = 55.61 / (Inlet time + 10.00) ^ 0.74 ; Return period =Yrs. 10 ; c = cir e = ellip b = box

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
45	36	32	0.10	0.10	0.72	0.07	0.07	5.0	5.0	7.5	0.54	6.46	1.63	15	1.00	83.90	84.22	84.64	84.51	90.62	90.62	4-39 to 4-38
46	42	30	0.13	0.45	0.53	0.07	0.25	5.0	6.3	7.1	1.80	5.46	5.06	12	2.00	88.90	89.50	89.30	90.07	93.22	92.50	4-36A to 4-36
47	46	98	0.13	0.32	0.48	0.06	0.19	5.0	5.8	7.2	1.34	6.16	3.21	12	2.55	89.50	92.00	90.07	92.49	92.50	95.00	4-36B to 4-36A
48	47	125	0.19	0.19	0.65	0.12	0.12	5.0	5.0	7.5	0.93	6.46	2.77	12	2.80	92.00	95.50	92.49	95.90	95.00	98.50	4-36C to 4-36B
49	24	41	0.00	0.24	0.00	0.00	0.14	0.0	6.7	6.9	0.95	3.80	3.21	8	8.42	80.33	83.80	81.03	84.26	85.76	87.20	4-32A to 4-32
50	49	95	0.14	0.24	0.77	0.11	0.14	5.0	6.2	7.1	0.98	3.85	2.96	12	1.00	83.80	84.75	84.26	85.16	87.20	87.75	4-32B to 4-32A
51	50	99	0.10	0.10	0.30	0.03	0.03	5.0	5.0	7.5	0.22	6.43	1.41	12	2.78	84.75	87.50	85.16	87.69	87.75	~~0.00~~ 90.50	4-32C to 4-32B
52	End	62	0.00	5.53	0.00	0.00	3.40	0.0	7.4	6.7	22.79	34.35	9.85	24	2.31	66.00	67.43	67.19	69.13	68.29	77.97	4-2 to 4-1
53	52	75	0.13	4.93	0.72	0.09	3.09	5.0	7.2	6.8	20.91	33.34	7.47	24	2.17	67.43	69.06	69.13	70.70	77.97	78.47	4-5 to 4-2
54	53	32	0.35	2.94	0.59	0.21	1.73	5.0	6.5	7.0	12.09	14.85	8.36	18	2.00	70.36	71.00	71.39	72.32	78.47	78.47	4-6 to 4-5
55	54	54	0.46	2.59	0.53	0.24	1.53	5.0	6.4	7.0	10.69	15.84	11.35	15	6.02	72.00	75.25	72.75	76.45	78.47	80.42	4-7 to 4-6
56	55	232	0.00	1.37	0.00	0.00	0.81	0.0	5.7	7.2	5.88	6.61	5.27	15	1.05	75.25	77.68	76.45	78.66	80.42	85.19	4-9 to 4-7
57	56	131	0.30	0.80	0.60	0.18	0.49	5.0	5.2	7.4	3.61	8.92	4.03	15	1.91	77.68	80.18	78.66	80.95	85.19	87.31	4-12 to 4-9
58	57	32	0.50	0.50	0.61	0.31	0.31	5.0	5.0	7.5	2.29	6.46	3.40	15	1.00	80.18	80.50	80.95	81.10	87.31	87.31	4-13 to 4-12
59	53	151	0.06	1.86	0.80	0.05	1.27	5.0	6.8	6.9	8.72	13.99	6.05	18	1.77	69.56	72.24	70.70	73.38	78.47	81.13	4-14 to 4-5
60	59	60	0.35	1.53	0.63	0.22	1.03	5.0	6.7	6.9	7.14	16.25	6.23	15	6.34	72.24	76.01	73.38	77.08	81.13	80.33	4-17 to 4-14
61	60	88	0.00	1.18	0.00	0.00	0.81	0.0	6.4	7.0	5.68	9.71	5.34	15	2.26	76.01	78.00	77.08	78.96	80.33	82.51	4-18 to 4-17A
62	61	61	0.45	0.87	0.66	0.30	0.58	5.0	6.1	7.1	4.16	6.44	3.41	15	0.99	77.39	78.00	78.96	79.20	82.51	81.89	4-20 to 4-18
63	62	104	0.18	0.25	0.70	0.13	0.17	5.0	5.3	7.4	1.26	8.55	2.14	15	1.76	78.00	79.82	79.46	80.26	81.89	83.74	4-21 to 4-20
64	61	47	0.16	0.16	0.71	0.11	0.11	5.0	5.0	7.5	0.85	13.92	1.87	15	4.65	78.00	80.16	78.96	80.52	82.51	84.16	4-19 to 4-18
65	56	35	0.16	0.57	0.60	0.10	0.33	5.0	5.2	7.4	2.42	7.07	3.16	15	1.20	77.68	78.10	78.66	78.72	85.19	84.84	4-10 to 4-9
66	65	32	0.41	0.41	0.56	0.23	0.23	5.0	5.0	7.5	1.72	6.46	3.19	15	1.00	78.10	78.42	78.72	78.94	84.84	84.84	4-11 to 4-10

Project File: SS#4 and SS#5.stm | Number of lines: 77 | Run Date: 6/23/2015

NOTES:Intensity = 55.61 / (Inlet time + 10.00) ^ 0.74 ; Return period =Yrs. 10 ; c = cir e = ellip b = box

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
67	55	40	0.76	0.76	0.62	0.47	0.47	5.0	5.0	7.5	3.53	6.46	3.73	15	1.00	75.25	75.65	76.45	76.41	80.42	80.42	4-8 to 4-7
68	59	101	0.14	0.27	0.73	0.10	0.19	5.0	5.3	7.4	1.40	8.52	2.27	15	1.74	72.24	74.00	73.38	74.47	81.13	83.20	4-15 to 4-14
69	68	32	0.13	0.13	0.67	0.09	0.09	5.0	5.0	7.5	0.65	6.46	2.12	15	1.00	74.00	74.32	74.47	74.64	83.20	83.20	4-16 to 4-15
70	52	81	0.10	0.60	0.78	0.08	0.30	5.0	5.2	7.4	2.25	5.87	3.06	15	0.83	68.18	68.85	69.13	69.45	77.97	76.32	4-3 to 4-2
71	70	40	0.50	0.50	0.45	0.23	0.23	5.0	5.0	7.5	1.69	6.46	3.22	15	1.00	68.85	69.25	69.45	69.77	76.32	76.32	4-4 to 4-3
72	63	47	0.07	0.07	0.64	0.04	0.04	5.0	5.0	7.5	0.34	3.88	2.68	12	1.01	80.07	80.54	80.27	80.78	83.74	83.85	4-21A to 4-21
73	62	52	0.07	0.07	0.64	0.04	0.04	5.0	5.0	7.5	0.34	8.86	1.38	12	5.27	78.25	81.00	79.46	81.24	81.89	84.50	4-20A to 4-20
74	62	17	0.10	0.10	0.72	0.07	0.07	5.0	5.0	7.5	0.54	4.64	0.69	12	1.45	78.25	78.50	79.46	79.46	81.89	82.50	4-20C to 4-20
75	61	43	0.15	0.15	0.74	0.11	0.11	5.0	5.0	7.5	0.83	2.34	1.58	12	0.37	78.25	78.41	78.96	78.98	82.51	82.40	4-18A to 4-18
76	End	64	0.41	0.52	0.67	0.27	0.34	5.0	5.4	7.4	2.48	4.57	3.82	15	0.50	96.64	96.96	97.27	97.64	97.89	100.85	4-59 to 4-60
77	76	43	0.11	0.11	0.57	0.06	0.06	5.0	5.0	7.5	0.47	3.86	1.82	12	1.00	97.21	97.64	97.76	97.92	100.85	100.75	4-59A to 4-59

Project File: SS#4 and SS#5.stm | Number of lines: 77 | Run Date: 6/23/2015

NOTES:Intensity = 55.61 / (Inlet time + 10.00) ^ 0.74 ; Return period =Yrs. 10 ; c = cir e = ellip b = box

AES CONSULTING ENGINEERS
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(757) 253-0040
Fax: (757) 220-8994

PROJECT: Whitehall - Section 4
PROJECT NO.: 9048-20B
SUBJECT: Inlet Spread Calculations
SHEET NO.:
DATE: Revised 6/26/15
BY: GSW

STORM WATER INLET COMPUTATIONS

INLET Number	Type Lane W	Length	Station	Drainage Area (Ac.)	C	CA	Σ CA	I in/hr	Q-Inter (CFS)	Q Carry- Over (CFS)	Qt Gutter Flow	S Gutter Slope (ft/ft)	Sx Cross Slope (ft/ft)	T(Spread)	W (ft)	W/T	Sw (ft/ft)	Sw/Sx	Eo(#10)	n	Local Dep.	a	S'w =a/(12W)	Se (ft/ft) =Sx+SwEo	Lt (ft) 15 P. Effec L	Depth d (ft) Depth de(ft)	Sag Inlets Only: L/Lt	Sag Inlets Only: E(#16) Control Flow	Sag Inlets Only: Q Int CFS do (ft)	Sag Inlets Only: Q Carryover Spread	Remarks
Hickory Neck Blvd.																															
Right Side	11.5'																														
T allow = 11.5'/2 + 3' = 8.75'																															
Grade (4-43)	DI-3A	2.5	29+25	0.41	0.65	0.27	0.27	4	1.07		1.07	0.04	0.021	**4.93**	2	0.41	0.08	3.85	0.8871	0.015	2	3.42	0.14	0.15	8.84	0.19	0.28	0.45021	0.48	0.59	
Grade (4-41)	DI-3A	2.5	30+56	0.15	0.70	0.11	0.11	4	0.42	0.586	1.01	0.02	0.021	**6.06**	2	0.33	0.08	3.85	0.8066	0.015	2	3.42	0.14	0.14	7.03	0.21	0.36	0.54681	0.55	0.46	
Grade (4-40)	DI-3A	2.5	31+74	0.19	0.62	0.12	0.12	4	0.47	0.456	0.93	0.01	0.021	**6.03**	2	0.33	0.08	3.85	0.8089	0.015	2	3.42	0.14	0.14	6.5	0.21	0.38	0.58298	0.54	0.39	
Grade (4-12)	DI-3A	2.5	33+95	0.30	0.60	0.18	0.18	4	0.72		0.72	0.02	0.021	**4.58**	2	0.44	0.08	3.85	0.91	0.015	2	3.42	0.14	0.15	6.26	0.19	0.4	0.60082	0.43	0.29	
Grade (4-7)	DI-3A	2.5	37+60	0.46	0.53	0.24	0.24	4	0.98		0.97	0.03	0.021	**5.11**	2	0.39	0.08	3.85	0.8747	0.015	2	3.42	0.14	0.15	7.85	0.2	0.32	0.49869	0.49	0.49	
Grade (4-3)	DI-3A	2.5	39+55	0.10	0.78	0.08	0.08	4	0.31		0.31	0.03	0.021	2	2	1	0.08	3.85	1	0.015	2	3.42	0.14	0.16	4.54	0.13	0.55	0.76346	0.24	0.07	Depth of Water is Within Gutter Pan
Hickory Neck Blvd.																															
Left Side	11.5'																														
T allow = 11.5'/2 + 3' = 8.75'																															
Grade (4-44)	DI-3A	2.5	29+25	0.29	0.59	0.17	0.17	4	0.68		0.68	0.04	0.021	**3.56**	2	0.56	0.08	3.85	0.9674	0.015	2	3.42	0.14	0.16	7.02	0.17	0.36	0.54753	0.37	0.31	
Grade (4-42)	DI-3A	2.5	30+56	0.15	0.54	0.08	0.08	4	0.32	0.309	0.63	0.02	0.021	**4.63**	2	0.43	0.08	3.85	0.9069	0.015	2	3.42	0.14	0.15	5.45	0.19	0.46	0.66903	0.42	0.21	
Grade (4-13)	DI-3B	6	33+95	0.50	0.60	0.30	0.30	4	1.20	0.21	1.41	0.02	0.021	**6.7**	2	0.3	0.08	3.85	0.7622	0.015	2	3.42	0.14	0.13	9.08	0.23	0.66	0.85703	1.21	0.2	
Grade (4-8)	DI-3B	8	37+60	0.76	0.62	0.47	0.47	4	1.88	0.202	2.09	0.03	0.021	**7.6**	2	0.26	0.08	3.85	0.702	0.015	2	3.42	0.14	0.12	12.1	0.24	0.66	0.85864	1.79	0.29	
Grade (4-4)	DI-3B	8	39+55	0.50	0.45	0.23	0.23	4	0.90	0.295	1.20	0.03	0.021	**5.74**	2	0.35	0.08	3.85	0.83	0.015	2	3.42	0.14	0.14	8.78	0.21	0.91	0.98719	1.18	0.02	
Addison Terrace																															
Right Side	11.5'																														
T allow = 11.5'/2 + 3' = 8.75'																															
				0.08	0.59	0.05	0.05	4	0.19	0.387	0.58	0.04	0.021	2.67	Flow Approaching From 4-40					0.015						0.15					
Sump (4-38)	DI-3A	2.5	10+52								0.88	0.001	0.021		2		0.08				2					**0.16**		**<-Weir**		**7.53**	
				0.13	0.59	0.08	0.08	4	0.31		0.31	0.02	0.021	2	Flow Approaching From Alley 1					0.015						0.14					
Grade (4-52)	DI-3A	2.5	12+92	0.22	0.63	0.14	0.14	4	0.55		0.55	0.01	0.021	**4.44**	2	0.45	0.08	3.85	0.919	0.015	2	3.42	0.14	0.15	4.9	0.18	0.51	0.72329	0.4	0.15	
				0.43	0.59	0.25	0.25	4	1.01	0.074	1.09	0.01	0.021	6.55	Flow Approaching From 4-52					0.015						0.22					
Sump (4-50)	DI-3C	8	14+05								1.70	0.001	0.021		2		0.08				2					**0.16**		**<-Weir**		**7.6**	
				0.18	0.59	0.11	0.11	4	0.42	0.188	0.61	0.02	0.021	4.02	Flow Approaching From 4-53					0.015						0.18					
Addison Terrace																															
Left Side	11.5'																														
T allow = 11.5'/2 + 3' = 8.75'																															
				0.04	0.72	0.03	0.03	4	0.12		0.10	0.01	0.021	2	Flow Approaching From Hickory Neck					0.015						0.12					
Sump (4-39)	DI-3A	2.5	10+52								0.34	0.001	0.021		2		0.08				2					**0.08**		**<-Weir**		**3.95**	
				0.06	0.72	0.04	0.04	4	0.17		0.24	0.02	0.021	2	Flow Approaching From Alley 1					0.015						0.13					
				0.14	0.75	0.11	0.11	4	0.42		0.42	0.01	0.021	3.59	Flow Approaching From 4-52					0.015						0.17					
Sump (4-51)	DI-3A	2.5	14+05								0.55	0.001	0.021		2		0.08				2					**0.11**		**<-Weir**		**5.5**	
				0.02	0.75	0.02	0.02	4	0.06		0.13	0.02	0.021	2	Flow Approaching From 4-53					0.015						0.09					

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PROJECT: Whitehall - Section 4
PROJECT NO.: 9048-20B
SUBJECT: Inlet Spread Calculations
SHEET NO.:
DATE: Revised 6/26/15
BY: GSW

STORM WATER INLET COMPUTATIONS

INLET Number	Type Lane W	Length	Station	Drainage Area (Ac.)	C	CA	Σ CA	I in/hr	Q-Inter (CFS)	Q Carry- Over (CFS)	Qt Gutter Flow	S Gutter Slope (ft/ft)	Sx Cross Slope (ft/ft)	T(Spread)	W (ft)	W/T	Sw (ft/ft)	Sw/Sx	Eo(#10)	n	Local Dep.	a	S'w =a/(12W)	Se (ft/ft) =Sx+SwEo	Lt (ft) 15 P Effec L	Depth d (ft) Depth de(ft)	Sag Inlets Only: L/Lt	Sag Inlets Only: E(#16) Control Flow	Sag Inlets Only: Q Int CFS do (ft)	Sag Inlets Only: Q Carryover Spread	Remarks
Collington Lane																															
Right Side	11.5'																														
T allow = 11.5'/2 + 3' = 8.75'																															
				0.23	0.56	0.13	0.13	4	0.52	0.287	0.80	0.04	0.021	4.06	Flow Approaching From Hickory Neck					0.015						0.18					
Sump (4-11)	DI-3C	6	10+50								1.21	0.001	0.021		2		0.08				2					**0.14**	<-Weir			**6.85**	
				0.18	0.56	0.1	0.1	4	0.40		0.40	0.02	0.021	2.58	Flow Approaching From Alley 1					0.015						0.15					
Grade (4-29)	DI-3A	2.5	13+07	0.17	0.62	0.11	0.11	4	0.42		0.42	0.02	0.021	**3.06**	2	0.65	0.08	3.85	0.9865	0.015	2	3.42	0.14	0.16	4.64	0.16	0.54	0.75139	0.32	0.1	
				0.22	0.69	0.15	0.15	4	0.61	0	0.61	0.02	0.021	4.23	Flow Approaching From 4-29					0.015						0.18					
Sump (4-28)	DI-3CC	6	14+08								1.16	0.001	0.021		2		0.08				2					**0.14**	<-Weir			**6.67**	
				0.20	0.69	0.14	0.14	4	0.55		0.55	0.02	0.021	3.69	Flow Approaching From Leighton					0.015						0.17					
Collington Lane																															
Left Side	11.5'																														
T allow = 11.5'/2 + 3' = 8.75'																															
				0.02	0.60	0.01	0.01	4	0.05		0.12	0.02	0.021	2	Flow Approaching From Hickory Neck					0.015						0.09					
Sump (4-10)	DI-3A	2.5	10+50								0.45	0.001	0.021		2		0.08				2					**0.10**	<-Weir			**4.81**	
				0.14	0.60	0.08	0.08	4	0.34		0.34	0.02	0.021	2	Flow Approaching From Alley 1					0.015						0.14					
Grade (4-30)	DI-3A	2.5	13+07	0.15	0.70	0.11	0.11	4	0.42		0.42	0.02	0.021	**3.04**	2	0.66	0.08	3.85	0.9869	0.015	2	3.42	0.14	0.16	4.63	0.16	0.54	0.75233	0.32	0.1	
				0.16	0.69	0.11	0.11	4	0.44	0.104	0.55	0.02	0.021	3.9	Flow Approaching From 4-29					0.015						0.17					
Sump (4-27)	DI-3A	2.5	14+08								0.82	0.001	0.021		2		0.08				2					**0.15**	<-Weir			**7.18**	
				0.10	0.69	0.07	0.07	4	0.28		0.28	0.02	0.021	2	Flow Approaching From Leighton					0.015						0.13					
Leighton Blvd.																															
Right Side	11.5'																														
T allow = 11.5'/2 + 3' = 8.75'																															
Grade (4-56)	DI-3B	6	25+51	0.59	0.64	0.38	0.38	4	1.51		1.51	0.01	0.021	**7.83**	2	0.26	0.08	3.85	0.6876	0.015	2	3.42	0.14	0.12	8.44	0.25	0.71	0.89263	1.35	0.16	
Grade (4-55)	DI-3B	6	26+90	0.34	0.64	0.22	0.22	4	0.87	0.162	1.03	0.04	0.021	**4.52**	2	0.44	0.08	3.85	0.9143	0.015	2	3.42	0.14	0.15	9.14	0.18	0.66	0.85405	0.88	0.15	
Grade (4-54)	DI-3B	6	28+68	0.27	0.63	0.17	0.17	4	0.68	0.151	0.83	0.04	0.021	**3.85**	2	0.52	0.08	3.85	0.9532	0.015	2	3.42	0.14	0.16	8.16	0.17	0.74	0.90847	0.76	0.08	
				0.02	0.64	0.01	0.01	4	0.05	0.076	0.13	0.02	0.021	2	Flow Approaching From 4-54					0.015						0.1					
Sump (4-24)	DI-3C	8	32+10								1.97	0.001	0.021		2		0.08				2					**0.17**	<-Weir			**8.38**	
				0.70	0.64	0.45	0.45	4	1.79	0.049	1.84	0.02	0.021	7.53	Flow Approaching From 4-23					0.015						0.24					
Grade (4-23)	DI-3A	2.5	32+42	0.10	0.72	0.07	0.07	4	0.29		0.29	0.02	0.021	**2**	2	1	0.08	3.85	1	0.015	2	3.42	0.14	0.16	4	0.13	0.63	0.82939	0.24	0.05	Depth of Water is Within Gutter Pan
Grade (4-15)	DI-3A	2.5	35+98	0.14	0.73	0.10	0.10	4	0.41		0.41	0.02	0.021	**2.72**	2	0.74	0.08	3.85	0.9946	0.015	2	3.42	0.14	0.16	4.72	0.15	0.53	0.74239	0.3	0.11	
Grade (4-14)	DI-3A	2.5	36+98	0.06	0.80	0.05	0.05	4	0.19	0.105	0.30	0.02	0.021	**2**	2	1	0.08	3.85	1	0.015	2	3.42	0.14	0.16	4.11	0.13	0.61	0.81465	0.24	0.06	Depth of Water is Within Gutter Pan
				0.10	0.76	0.08	0.08	4	0.30	0.055	0.36	0.02	0.020	2.7	Flow Approaching From 4-14					0.015						0.15					
Sump (4-5)	DI-3A	2.5	38+49								0.49	0.001	0.021		2		0.08				2					**0.11**	<-Weir			**5.09**	
				0.03	0.76	0.02	0.02	4	0.09		0.13	0.02	0.021	2	Flow Approaching From Hickory Neck					0.015						0.09					

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SHEET NO.:
DATE: Revised 6/26/15
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STORM WATER INLET COMPUTATIONS

INLET																											Sag Inlets Only				
Number	Type Lane W	Length	Station	Drainage Area (Ac.)	C	CA	Σ CA	I in/hr	Q-Inter (CFS)	Q Carry- Over (CFS)	Qt Gutter Flow	S Gutter Slope (ft/ft)	Sx Cross Slope (ft/ft)	T(Spread)	W (ft)	W/T	Sw (ft/ft)	Sw/Sx	Eo(#10)	n	Local Dep.	a	S'w =a/(12W)	Se (ft/ft) =Sx+SwEo	Lt (ft) 15 P. Effec L	Depth d (ft) Depth de(ft)	L/Lt	E(#16) Control Flow	Q Int CFS do (ft)	Q Carryover Spread	Remarks
Leighton Blvd.																															
Left Side	11.5'																														
T allow = 11.5'/2 + 3' = 8.75'																															
Grade (4-53)	DI-3B	6	28+68	0.46	0.61	0.28	0.28	4	1.12		1.12	0.04	0.021	**4.78**	2	0.42	0.08	3.85	0.8967	0.015	2	3.42	0.14	0.15	9.53	0.19	0.63	0.8326	0.93	0.19	
Grade (4-25)	DI-3A	2.5	32+42	0.08	0.60	0.05	0.05	4	0.19		0.19	0.02	0.019	**2**	2	1	0.08	4.28	1	0.015	2	3.47	0.14	0.16	3.37	0.12	0.74	0.91285	0.18	0.02	Depth of Water is Within Gutter Pan
Grade (4-16)	DI-3A	2.5	35+98	0.13	0.67	0.09	0.09	4	0.35		0.35	0.02	0.019	**2**	2	1	0.08	4.28	1	0.015	2	3.47	0.14	0.16	4.39	0.14	0.57	0.78046	0.27	0.08	Depth of Water is Within Gutter Pan
				0.26	0.59	0.15	0.15	4	0.61		0.61	0.02	0.021	4.43	Flow Approaching From Alley 1					0.015						0.18					
Sump (4-6)	DI-3C	6	32+10								1.31	0.001	0.021		2		0.08				2					**0.15**	**<-Weir**			**7.26**	
				0.09	0.59	0.05	0.05	4	0.21	0.489	0.70	0.02	0.021	4.43	Flow Approaching From Hickory Neck					0.015						0.18					
Alley 1																															
Right Side	9.0'																														
T allow = 9'/2 + 3' = 7.5'																															
Grade (4-59)	DI-3B	2.5	21+33	0.41	0.67	0.27	0.27	4	1.10		1.10	0.04	0.019	**5.27**	2	0.38	0.08	4.28	0.8753	0.015	2	3.47	0.14	0.15	9.1	0.19	0.27	0.43896	0.48	0.62	
Grade (4-36)	DI-3A	2.5	24+67	0.42	0.64	0.27	0.27	4	1.08		1.07	0.03	0.019	**5.45**	2	0.37	0.08	4.28	0.8627	0.015	2	3.47	0.14	0.14	8.66	0.2	0.29	0.45821	0.49	0.58	
				0.13	0.73	0.09	0.09	4	0.38	0.582	0.96	0.03	0.021	4.8	Flow Approaching From 4-36					0.015						0.19					
Sump (4-35)	DI-3C	6	25+43								1.11	0.001	0.021		2		0.08				2					**0.13**	**<-Weir**			**6.48**	
				0.05	0.73	0.04	0.04	4	0.15		0.15	0.02	0.021	2	Flow Approaching From Road A					0.015						0.1					
Grade (4-33)	DI-3A	2.5	26+99	0.10	0.78	0.08	0.08	4	0.31		0.33	0.04	0.019	**2**	2	1	0.08	4.28	1	0.015	2	3.47	0.14	0.16	5.09	0.13	0.49	0.70313	0.23	0.1	Depth of Water is Within Gutter Pan
				0.16	0.74	0.12	0.12	4	0.47		0.47	0.04	0.021	2	Flow Approaching From Alley 2					0.015						0.14					
Sump (4-32)	DI-3C	6	28+27								0.65	0.001	0.021		2		0.08				2					**0.09**	**<-Weir**			**4.54**	
				0.06	0.74	0.04	0.04	4	0.18		0.18	0.02	0.021	2	Flow Approaching From Road B					0.015						0.12					
Grade (4-19)	DI-3A	2.5	29+92	0.16	0.71	0.11	0.11	4	0.45		0.45	0.02	0.019	**3.2**	2	0.62	0.08	4.28	0.9842	0.015	2	3.47	0.14	0.16	5.01	0.16	0.5	0.71184	0.32	0.13	
				0.15	0.63	0.09	0.09	4	0.38		0.38	0.03	0.021	2	Flow Approaching From 4-19					0.015						0.13					
Sump (4-17)	DI-3C	6	31+27								0.96	0.001	0.021		2		0.08				2					**0.12**	**<-Weir**			**5.88**	
				0.20	0.63	0.13	0.13	4	0.50	0.076	0.58	0.02	0.021	3.85	Flow Approaching From Leighton					0.015						0.17					

AES CONSULTING ENGINEERS
5248 Olde Towne Road, Suite 1
Williamsburg, Virginia 23188
(757) 253-0040
Fax: (757) 220-8994

PROJECT: Whitehall - Section 4
PROJECT NO.: 9048-20B
SUBJECT: Inlet Spread Calculations
SHEET NO.:
DATE: Revised 6/26/15
BY: GSW

STORM WATER INLET COMPUTATIONS

INLET																											Sag Inlets Only				
Number	Type Lane W	Length	Station	Drainage Area (Ac.)	C	CA	Σ CA	I in/hr	Q-Inter (CFS)	Q Carry- Over (CFS)	Qt Gutter Flow	S Gutter Slope (ft/ft)	Sx Cross Slope (ft/ft)	T(Spread)	W (ft)	W/T	Sw (ft/ft)	Sw/Sx	Eo(#10)	n	Local Dep.	a	S'w =a/(12W)	Se (ft/ft) =Sx+SwEo	Lt (ft) 15 P Effec L	Depth d (ft) Depth de(ft)	L/Lt	E(#16) Control Flow	Q Int CFS do (ft)	Q Carryover Spread	Remarks
Alley 2																															
Left Side	9.0'																														
T allow = 9'/2 + 3' = 7.5'																															
Grade (4-48)	DI-3B	4	11+10	0.35	0.69	0.24	0.24	4	0.97		0.97	0.01	0.021	**6.64**	2	0.3	0.08	3.85	0.7659	0.015	2	3.42	0.14	0.13	6.22	0.23	0.64	0.84328	0.81	0.15	
				0.34	0.67	0.23	0.23	4	0.91	0.151	1.06	0.01	0.021	6.91	Flow Approaching From 4-48					0.015						0.23					
Sump (4-47)	DI-3C	8	11+88								1.46	0.001	0.021		2		0.08				2					**0.14**	<-Weir			**6.88**	
				0.15	0.67	0.1	0.1	4	0.40	0	0.40	0.01	0.021	3.86	Flow Approaching From 4-46					0.015						0.17					
Grade (4-46)	DI-3B	6	12+18	0.22	0.74	0.16	0.16	4	0.65		0.65	0.01	0.019	**5.65**	2	0.35	0.08	4.28	0.8496	0.015	2	3.47	0.14	0.14	5.05	0.2	1	1	0.65	0	
Alley 3																															
Right Side	9.0'																														
T allow = 9'/2 + 3' = 7.5'																															
				0.15	0.66	0.1	0.1	4	0.40	0.131	0.53	0.01	0.021	4.69	Flow Approaching From 4-19					0.015						0.19					
Sump (4-20)	DI-3C	6	10+72								1.43	0.001	0.021		2		0.08				2					**0.16**	<-Weir			**7.67**	
				0.30	0.66	0.2	0.2	4	0.79	0.107	0.90	0.01	0.021	6.36	Flow Approaching From 4-21					0.015						0.22					
Grade (4-21)	DI-3A	2.5	11+76	0.18	0.70	0.13	0.13	4	0.50		0.50	0.01	0.021	**4.6**	2	0.43	0.08	3.85	0.909	0.015	2	3.42	0.14	0.15	4.34	0.19	0.58	0.78696	0.4	0.11	

IV.

STORMWATER MANAGEMENT CALCULATIONS

Virginia Runoff Reduction Method Worksheet (New Development)
Dry Swale Volume Calculations and Surface Area Calculations
Dry Swale Channel Analysis
Dry Swale Hydraflow Report
~~BMP 1-2 Hydraflow Report (As-Built Condition)~~

* DRY SWALE NOT A BMP
ADD'L LID FEATURE
LOCATED IN PARCEL 1B
B/W TAVERNS LN &
ADDISON TER

Virginia Runoff Reduction Method New Development Worksheet -- v2.8 _2011Specs

Site Data Summary

Total Rainfall = 43 inches

Site Land Cover Summary

	A Soils	B Soils	C Soils	D Soils	Total	% of Total
Forest (acres)	0.00	0.00	0.00	0.00	0.00	*0.00*
Turf (acres)	0.00	0.66	0.00	0.00	0.66	*42.31*
Impervious (acres)	0.00	0.90	0.00	0.00	0.90	*57.69*
					1.56	*100.00*

Site Rv	0.63
Post Development Treatment Volume (ft3)	3583
Post Development TP Load (lb/yr)	2.25
Post Development TN Load (lb/yr)	16.10
Total TP Load Reduction Required (lb/yr)	1.61

Total Runoff Volume Reduction (ft^3)	2150
Total TP Load Reduction Achieved (lb/yr)	2
Total TN Load Reduction Achieved (lb/yr)	16.09
Adjusted Post Development TP Load (lb/yr)	0.54
Remaining Phosphorous Load Reduction (Lb/yr) Required	0.00

Drainage Area Summary

	D.A. A	D.A. B	D.A. C	D.A. D	D.A. E	Total
Forest (acres)	0.00	0.00	0.00	0.00	0.00	*0.00*
Turf (acres)	0.66	0.00	0.00	0.00	0.00	*0.66*
Impervious (acres)	0.90	0.00	0.00	0.00	0.00	*0.90*
						1.56

Drainage Area Compliance Summary

	D.A. A	D.A. B	D.A. C	D.A. D	D.A. E	Total
TP Load Red. (lb/yr)	1.71	0.00	0.00	0.00	0.00	*1.71*
TN Load Red. (lb/yr)	16.09	0.00	0.00	0.00	0.00	*16.09*

Drainage Area A Summary

Land Cover Summary

	A Soils	B Soils	C Soils	D Soils	Total	% of Total
Forest (acres)	0.00	0.00	0.00	0.00	0.00	*0.00*
Turf (acres)	0.00	0.66	0.00	0.00	0.66	*42.31*
Impervious (acres)	0.00	0.90	0.00	0.00	0.90	*57.69*
					1.56	

BMP Selections

Practice	Credit Area (acres)		Downstream Practice
5.b. Dry Swale #2 (Spec #10)	Impervious:	0.9	
	Turf (Pervious):	0.66	

Total Impervious Cover Treated (acres)	0.90
Total Turf Area Treated (acres)	0.66
Total TP Load Reduction Achieved in D.A. A (lb/yr)	1.71
Total TN Load Reduction Achieved in D.A. A (lb/yr)	16.09

Channel and Flood Protection

	Weighted CN	1-year storm Adjusted CN	2-year storm Adjusted CN	10-year storm Adjusted CN
Target Rainfall Event (in)		2.90	3.50	5.50
D.A. A CN	82	75	76	78
D.A. B CN	0	#N/A	#N/A	#N/A
D.A. C CN	0	#N/A	#N/A	#N/A
D.A. D CN	0	#N/A	#N/A	#N/A
D.A. E CN	0	#N/A	#N/A	#N/A

AES
CONSULTING ENGINEERS

Project:	White Hall - Section 4
Project No.:	W9048-20B
Subject:	DRY SWALE
Date:	Revised 6/23/2015
Calculated By:	GSW

$$T_v = \frac{1.0 * R_v * A}{12} + \text{Carryover Volume from Upstream BMP}$$

	A	B	C	D
Forest/Open Space	0.00	0.00	0.00	0.00
Mananged Turf	0.00	0.66	0.00	0.00
Impervious Cover	0.00	0.90	0.00	0.00

A=	**1.56**	AC	
Rv=	**0.63**		
Multiplier=	**1.00**		**From DCR Stormwater Design Specifications*
Carryover V=	**0**	CF	**From VRRM Spreadsheet (Volume from Upstream RR Practice)*
Tv=	**3583**	CF	

Equivalent Storage Depth

Soil Media Depth=	**2.00**	feet
Gravel Depth=	**1.00**	feet
Surface Storage=	**1.00**	feet
Equivalent Storage Depth=	**1.90**	feet

$$S.A. = \frac{Tv + Carryover\ Volume\ from\ Upstream\ BMP}{Equivalent\ Storage\ Depth}$$

Tv=	**3583**	CF	
Equivalent Storage Depth=		**1.90**	feet
S.A.=	**1886**	SF	

Tv Provided = 3,762 C.F.

S.A. Provided : 3,580 C.F.

Hydrograph Report

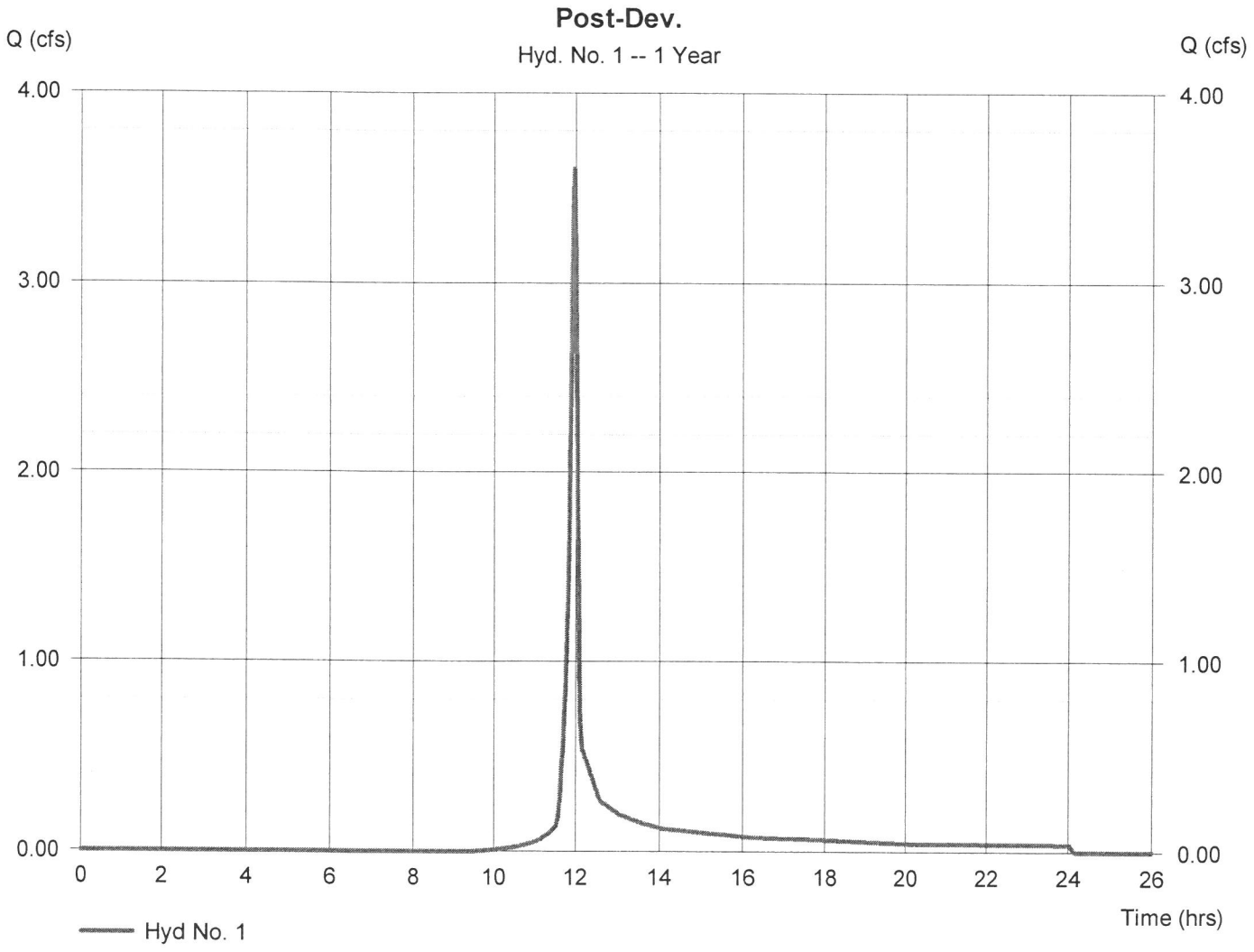
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2012 by Autodesk, Inc. v9 Monday, 00 12, 2015

Hyd. No. 1

Post-Dev.

Hydrograph type	= SCS Runoff	Peak discharge	= 3.602 cfs
Storm frequency	= 1 yrs	Time to peak	= 11.97 hrs
Time interval	= 1 min	Hyd. volume	= 7,236 cuft
Drainage area	= 1.580 ac	Curve number	= 82*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 2.80 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(1.700 x 98) + (0.870 x 61)] / 1.580



Hydrograph Report

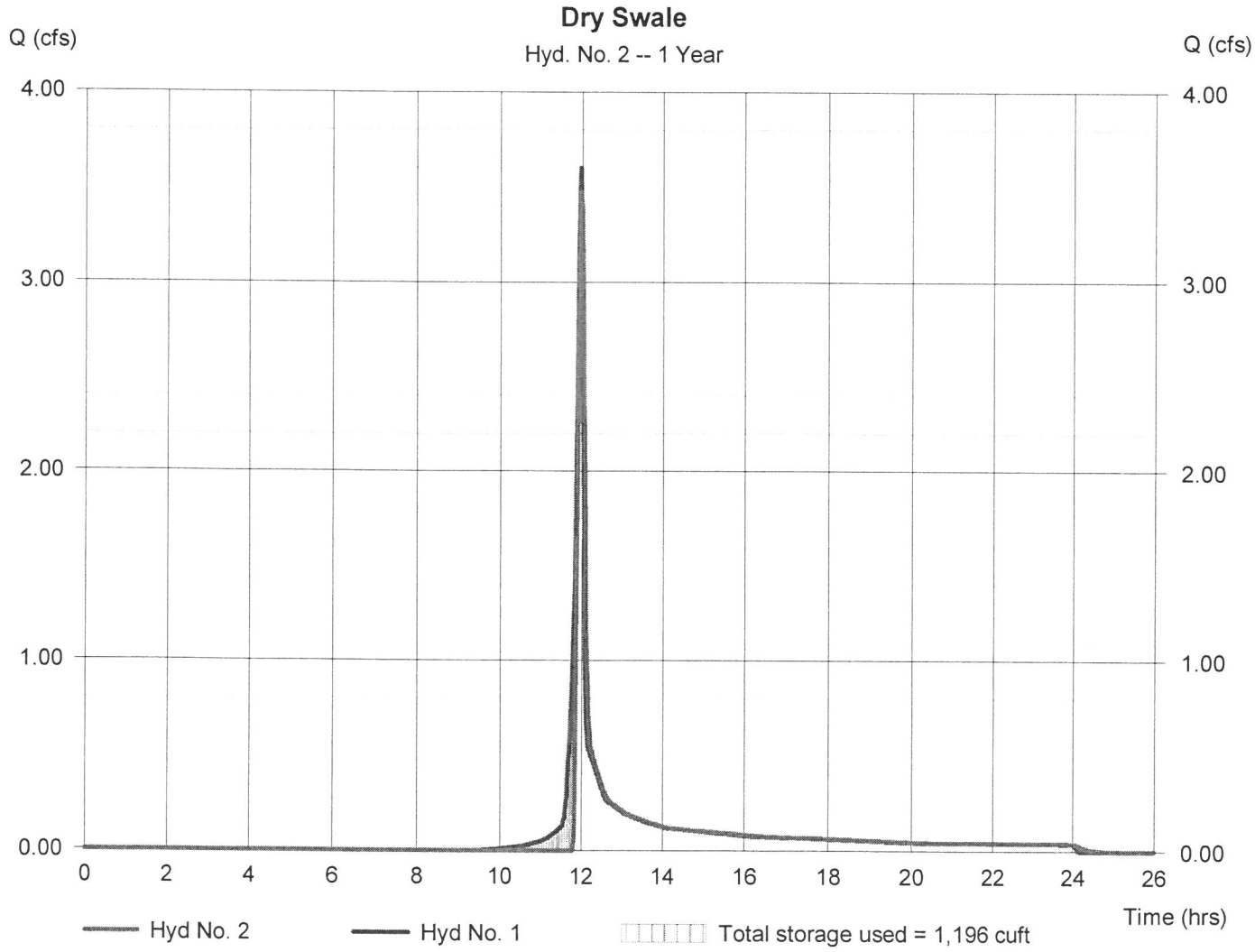
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2012 by Autodesk, Inc. v9 Monday, 00 12, 2015

Hyd. No. 2

Dry Swale

Hydrograph type	= Reservoir	Peak discharge	= 3.472 cfs
Storm frequency	= 1 yrs	Time to peak	= 11.98 hrs
Time interval	= 1 min	Hyd. volume	= 6,484 cuft
Inflow hyd. No.	= 1 - Post-Dev.	Max. Elevation	= 95.92 ft
Reservoir name	= Dry Swale #1	Max. Storage	= 1,196 cuft

Storage Indication method used.



Pond Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2012 by Autodesk, Inc. v9 Monday, 00 12, 2015

Pond No. 1 - Dry Swale #1

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 95.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	95.00	587	0	0
0.64	95.64	2,193	835	835
1.00	96.00	557	463	1,298
1.61	96.61	1,630	638	1,936
2.00	97.00	8,727	1,837	3,773

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 15.00	0.00	0.00	0.00
Span (in)	= 15.00	0.00	0.00	0.00
No. Barrels	= 1	0	0	0
Invert El. (ft)	= 91.61	0.00	0.00	0.00
Length (ft)	= 98.00	0.00	0.00	0.00
Slope (%)	= 2.66	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 6.00	0.00	0.00	0.00
Crest El. (ft)	= 95.61	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Rect	---	---	---
Multi-Stage	= Yes	No	No	No

Exfil.(in/hr) = 0.000 (by Contour)

TW Elev. (ft) = 0.00

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	95.00	0.00	---	---	---	0.00	---	---	---	---	---	0.000
0.64	835	95.64	9.82 ic	---	---	---	0.10	---	---	---	---	---	0.104
1.00	1,298	96.00	9.82 ic	---	---	---	4.87	---	---	---	---	---	4.866
1.61	1,936	96.61	12.09 ic	---	---	---	12.09 s	---	---	---	---	---	12.09
2.00	3,773	97.00	12.79 ic	---	---	---	12.78 s	---	---	---	---	---	12.78

Hydrograph Report

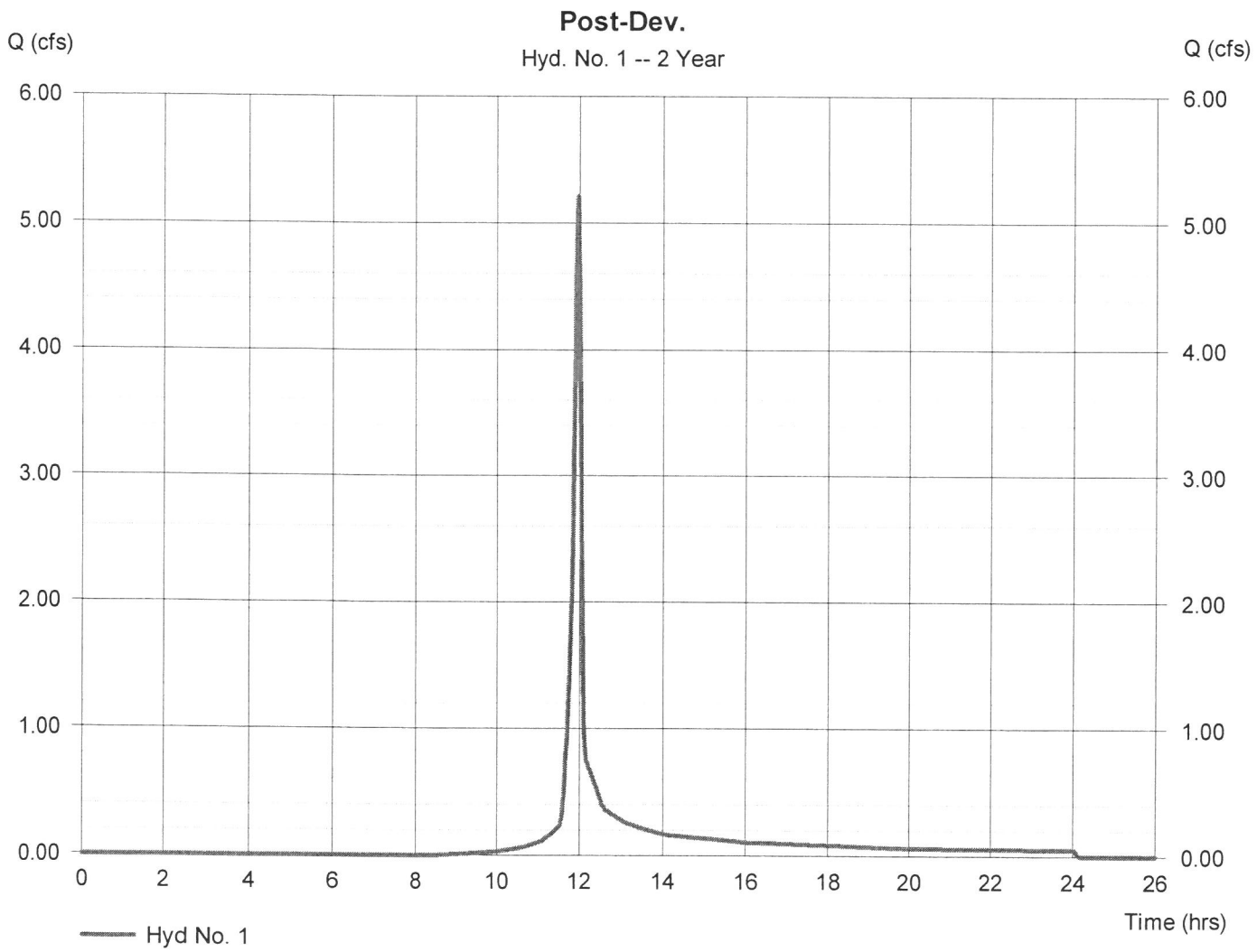
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2012 by Autodesk, Inc. v9 Monday, 00 12, 2015

Hyd. No. 1

Post-Dev.

Hydrograph type	= SCS Runoff	Peak discharge	= 5.213 cfs
Storm frequency	= 2 yrs	Time to peak	= 11.97 hrs
Time interval	= 1 min	Hyd. volume	= 10,543 cuft
Drainage area	= 1.580 ac	Curve number	= 82*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 3.50 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(1.700 x 98) + (0.870 x 61)] / 1.580



Hydrograph Report

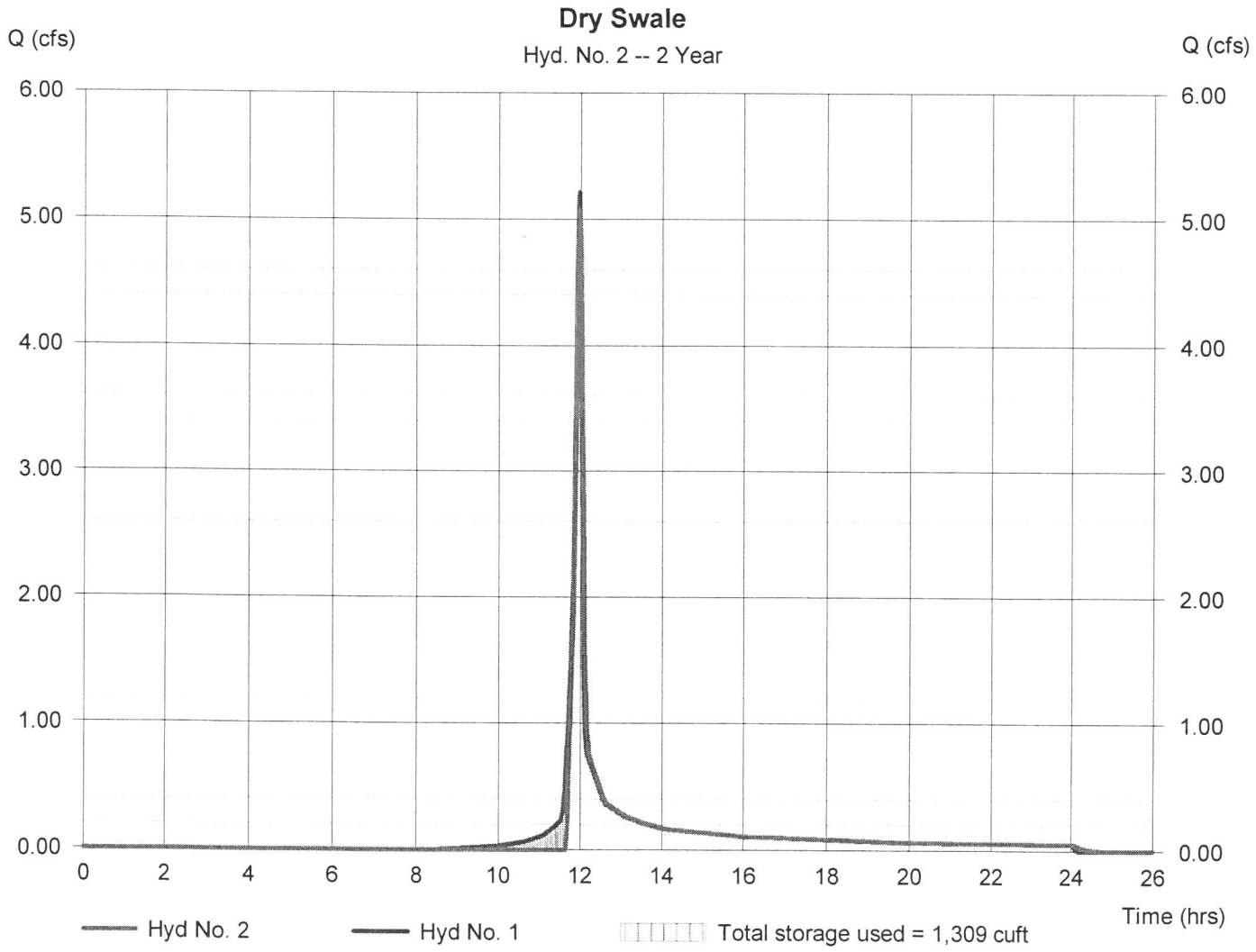
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2012 by Autodesk, Inc. v9 Monday, 00 12, 2015

Hyd. No. 2

Dry Swale

Hydrograph type	= Reservoir	Peak discharge	= 5.078 cfs
Storm frequency	= 2 yrs	Time to peak	= 11.98 hrs
Time interval	= 1 min	Hyd. volume	= 9,791 cuft
Inflow hyd. No.	= 1 - Post-Dev.	Max. Elevation	= 96.01 ft
Reservoir name	= Dry Swale #1	Max. Storage	= 1,309 cuft

Storage Indication method used.



Hydrograph Report

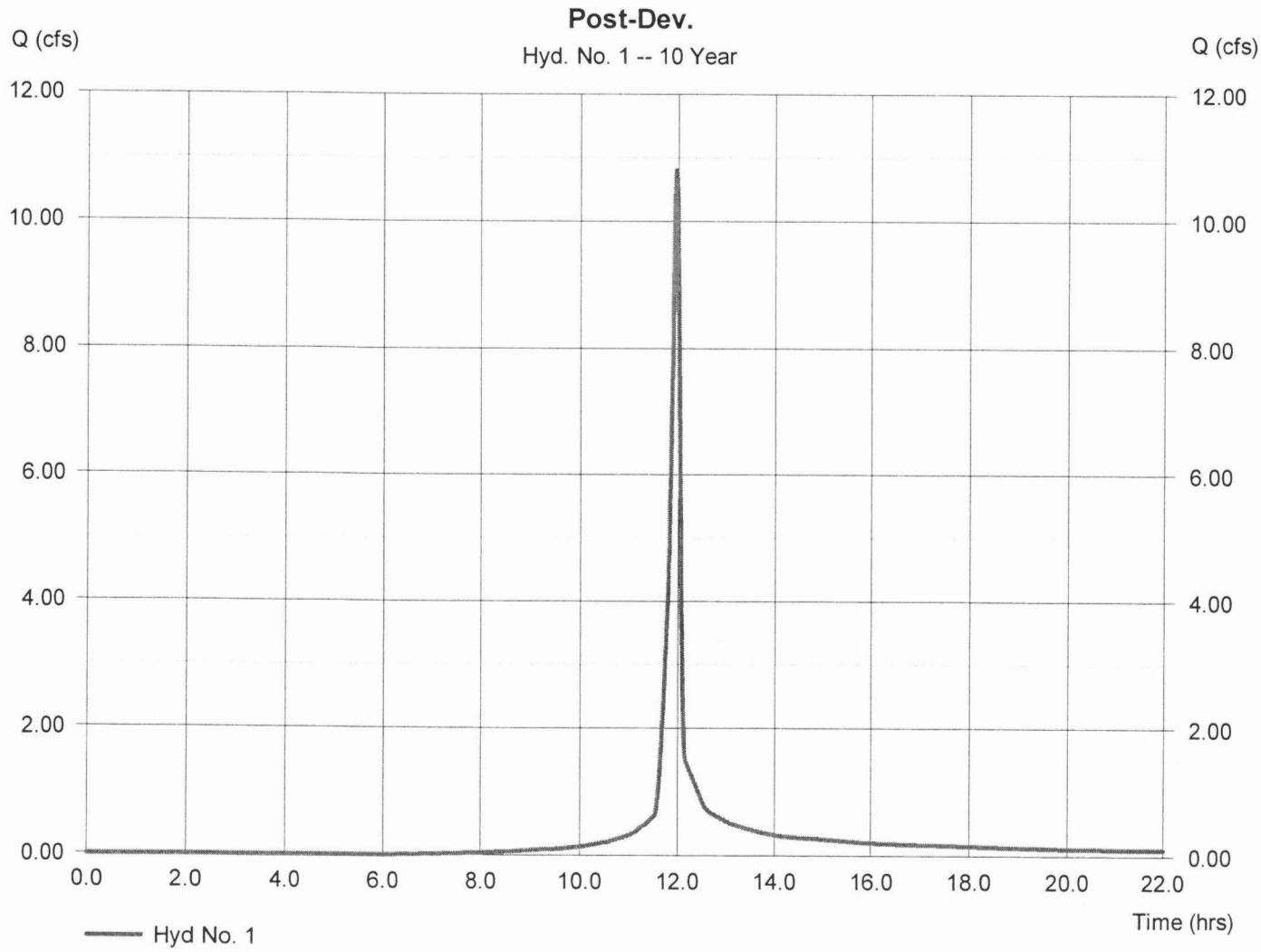
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2012 by Autodesk, Inc. v9 Monday, 00 12, 2015

Hyd. No. 1

Post-Dev.

Hydrograph type	= SCS Runoff	Peak discharge	= 10.80 cfs
Storm frequency	= 10 yrs	Time to peak	= 11.95 hrs
Time interval	= 1 min	Hyd. volume	= 22,497 cuft
Drainage area	= 1.580 ac	Curve number	= 82*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 5.80 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(1.700 x 98) + (0.870 x 61)] / 1.580



Hydrograph Report

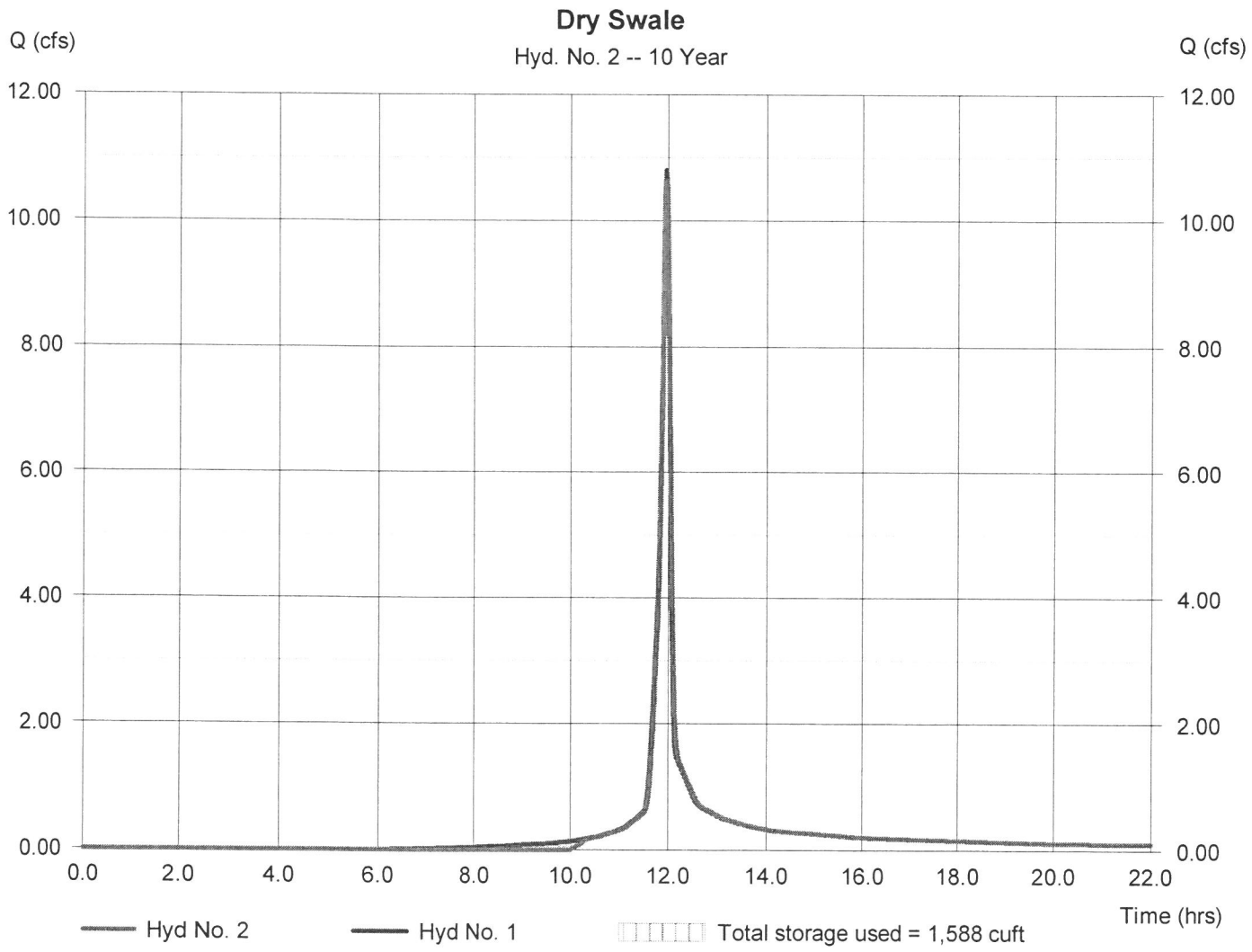
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2012 by Autodesk, Inc. v9 Monday, 00 12, 2015

Hyd. No. 2

Dry Swale

Hydrograph type	= Reservoir	Peak discharge	= 10.64 cfs
Storm frequency	= 10 yrs	Time to peak	= 11.97 hrs
Time interval	= 1 min	Hyd. volume	= 21,744 cuft
Inflow hyd. No.	= 1 - Post-Dev.	Max. Elevation	= 96.28 ft
Reservoir name	= Dry Swale #1	Max. Storage	= 1,588 cuft

Storage Indication method used.



Hydrograph Report

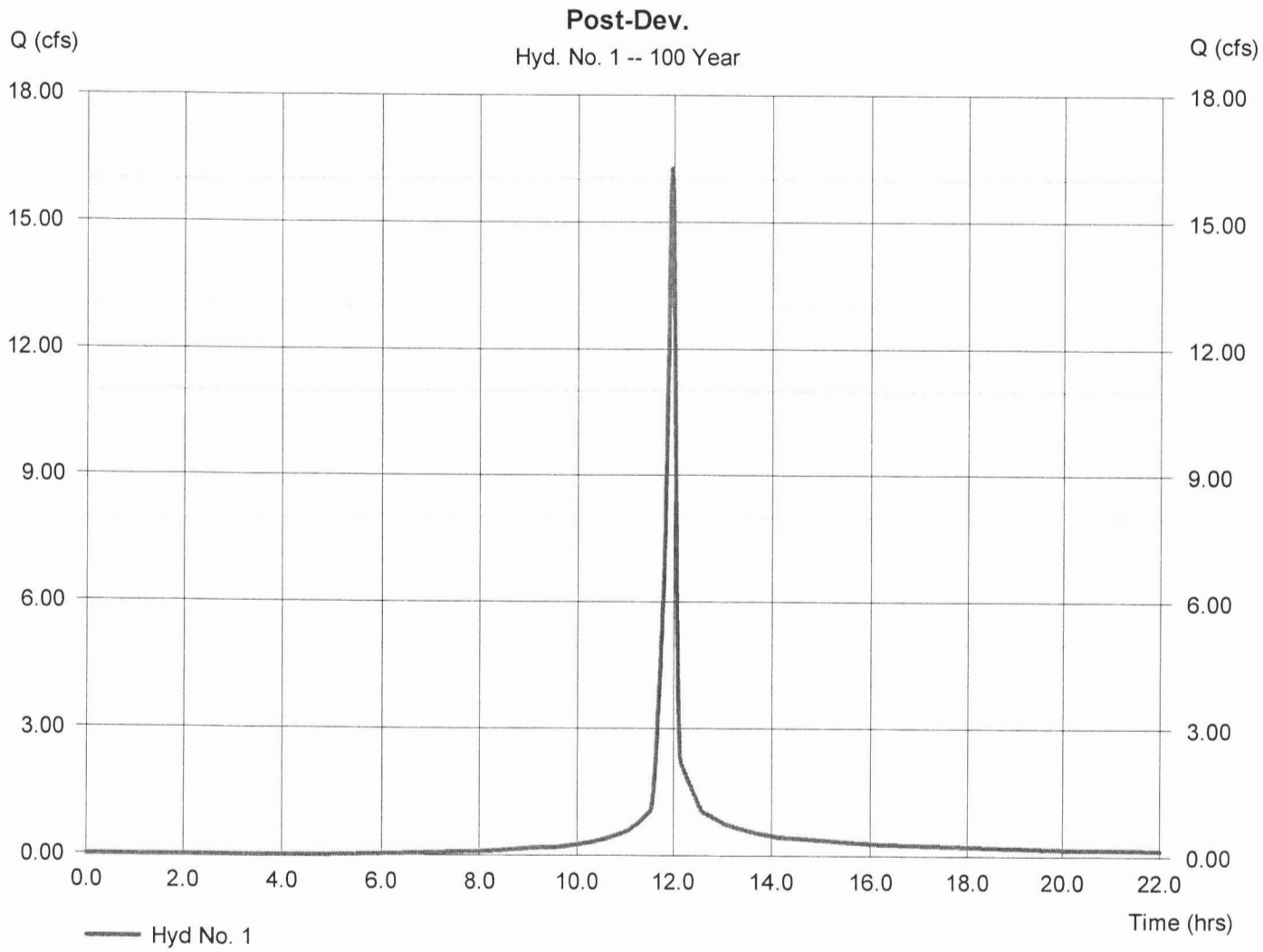
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2012 by Autodesk, Inc. v9 Monday, 00 12, 2015

Hyd. No. 1

Post-Dev.

Hydrograph type	= SCS Runoff	Peak discharge	= 16.26 cfs
Storm frequency	= 100 yrs	Time to peak	= 11.95 hrs
Time interval	= 1 min	Hyd. volume	= 34,658 cuft
Drainage area	= 1.580 ac	Curve number	= 82*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 8.00 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(1.700 x 98) + (0.870 x 61)] / 1.580



Hydrograph Report

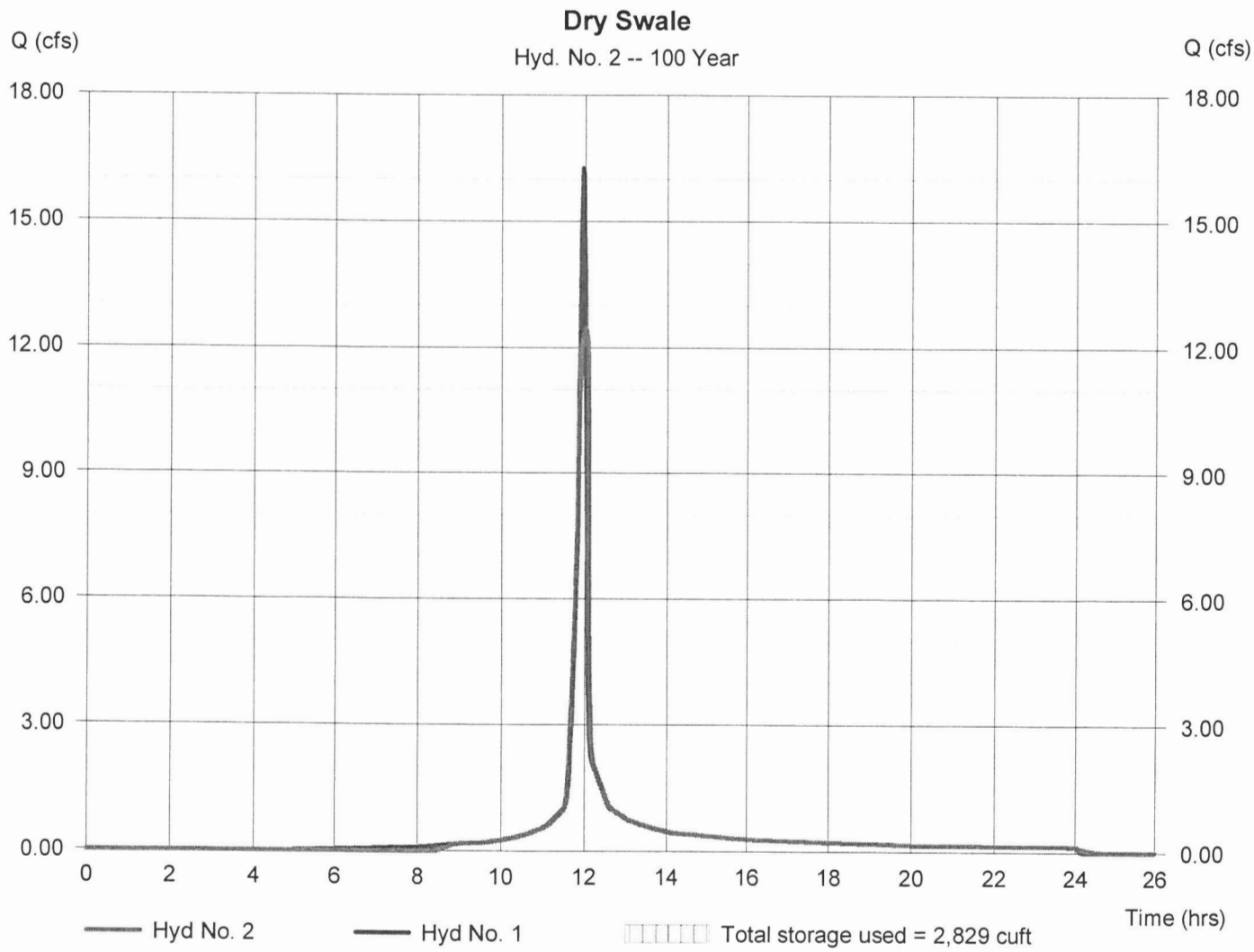
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2012 by Autodesk, Inc. v9 Monday, 00 12, 2015

Hyd. No. 2

Dry Swale

Hydrograph type	= Reservoir	Peak discharge	= 12.45 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.02 hrs
Time interval	= 1 min	Hyd. volume	= 33,906 cuft
Inflow hyd. No.	= 1 - Post-Dev.	Max. Elevation	= 96.80 ft
Reservoir name	= Dry Swale #1	Max. Storage	= 2,829 cuft

Storage Indication method used.



7. Reports

8. Correspondence

Development Management
101-A Mounts Bay Road
P.O. Box 8784
Williamsburg, VA 23187-8784
P: 757-253-6671
F. 757-253-6822
Development.management@jamescitycountyva.gov

jamescitycountyva.gov

Building Safety and Permits 757-253-6620
Engineering and Resource Protection 757-253-6670
Planning 757-253-6685
Zoning Enforcement 757-253-6671

August 10, 2015

Mr. Ryan Stephenson
AES Consulting Engineers
5248 Olde Towne Road, Suite 1
Williamsburg, VA 23188

RE: SP-0074-2014, White Hall Section 4 *(please also see related subdivision construction plan approval letter for S-0043-2014 dated August 10, 2015)*

Dear Mr. Stephenson,

I am pleased to inform you that your site plan received final approval on August 10, 2015. Enclosed are two stamped final approval drawings for your file. Please note that it is the applicant's responsibility to submit any approved drawings to the Building Safety and Permits Division as part of a building permit application if necessary.

Please also be sure to view agency approval letters posted to CaseTrak (specifically the letter from Engineering and Resource Protection) as they may contain information pertinent to the project as it proceeds.

Final approval of the site plan shall expire five years after the date of approval. During that period all permits shall be obtained or the development shall be put into use. When the permits have been issued, the site plan approval shall run concurrently with the permits term of validity for only those uses and improvements covered by the permits. All work shall be completed in the manner and location indicated upon the approved plan. Modifications shall be approved in advance by the Zoning Administrator.

Sincerely,

Jason Purse
Zoning Administrator

9. Inspections

10. Permitting

11. Miscellaneous (ex. photos)

12. Project Development Documents