CHAPEL HILL PLANNING BOARD
SEPTEMBER 18, 2007
PUREFOY DR S.U.P.
HANDOUT FROM NEOLA JONES
7 PAGES INCLUDING MAP,

STORMWATER FACTS & FINDINGS FOR PROPOSED PUREFOY ~~ROAD~~ Drive SUBDIVISION

1) BMP SHOULD BE SIZED TO THE DRAINAGE AREA IT SERVES, NOT STRICTLY TO A REGULATORY REQUIREMENT. A SMALL AREA DRAINS TO BMP (HIGHLIGHTED IN YELLOW ON PG 2 OF 10), SO THE BMP SHOWN ON SITE PLAN LOOKS OVERSIZED.

2) BMP IS IMPROPERLY LOCATED BECAUSE IT IS NOT LOCATED IN A NATURAL DRAINAGE COURSE (BLUE LINE ON PG 2 OF 10) AND NOT MEETING "BEST USES" OF BMP's (PAGES 6 AND 7 OF 10.)

3) THE BMP DOES NOT SERVE THE SUBDIVISION FOR SEVERAL REASONS. ONE MUCH OF THE SUBDIVISION DRAINS AWAY FROM THE BMP (AREA NORTH, EAST, AND SOUTH OF RED LINE SHOWN ON PG 2 OF 10.) TWO BECAUSE EXISTING EDGAR STREET ALREADY FUNCTIONS LIKE A DAM — AND WILL BECOME EVEN MORE SO WHEN CURB AND GUTTER ALONG IT CHANNELS STORMWATER TO CATCH BASINS (CIRCLED IN RED ON PG 2 OF 10) — THE BMP DOES NOT RECEIVE STORMWATER FROM THE SUBDIVISION. CURB AND GUTTER (SHOWN AS GREEN LINE ON PG 2 OF 10) PREVENTS STORMWATER FROM FLOWING TO BMP. THREE, TWO THIRDS OF THE STORMWATER IN THE AREA NORTH OF PUREFOY DRIVE AND WEST OF EDGAR STREET DOES NOT FLOW TO THE BMP. STORMWATER FLOWS TO THE NATURAL DRAINAGE COURSE (BLUE LINE ON PG 2 OF 10)

4) THE BMP TREATS VERY LITTLE STORMWATER IN THE VICINITY. ONLY ONE DRAINAGE COURSE ~~OR~~ NATURALLY EXISTS IN THE VICINITY (BLUE LINE ON

ALTERNATE
REFOY ROAD SUBDIVISION STORMWATER
PROPOSAL FROM
ROGERS ROAD SAP TASK FORCE

EDGAR STREET IS "PIVOTAL" POINT OF ANY STORMWATER PLAN BECAUSE: ONE, IT IS THE LOWERMOST POINT IN THE SUBDIVISION WHERE EVERYTHING DRAINS; AND TWO, IT ACTS AS A DAM — WITH OR WITHOUT STORMWATER DEVICES — CAUSING WATER TO COLLECT BEHIND IT. FOR THESE REASONS, WATER QUANTITY, NOT WATER QUALITY, ARE THE ISSUES MOST ASSOCIATED WITH EDGAR STREET.

THE WATER QUANTITY ISSUE HAS TWO PARTS: THE FIRST INCREASE OF IMPERVIOUS SURFACES; SECOND, EROSION AND SEDIMENTATION CONTROL. STORMWATER DEVICES ON AND BENEATH EDGAR STREET ARE EVEN MORE CRITICAL BECAUSE THE SUBDIVISION CHANGES THE AREA FROM "WOODED RURAL" TO "URBANIZED" WITH MORE IMPERVIOUS SURFACES. THERE IS LESS INFILTRATION INTO SOIL AND VEGETATION BECAUSE OF PAVED STREETS, ROOFTOPS, STREET GUTTER, AND HOUSE DRIVEWAYS (PRESUMING THEY ARE PAVED TOO.) PEAK DISCHARGE OF URBAN STORMWATER FLOW IS SOONER AND GREATER THAN RURAL STORMWATER FLOW.

EROSION & SEDIMENTATION PROBLEMS ARE MOST NOTICEABLE DURING CONSTRUCTION BUT ARE NOT NECESSARILY ONLY CONSTRUCTION PROBLEMS. SOME EROSION APPEARS TO ALREADY EXIST. SEE CIRCLED "V" ON SITE PLAN DENOTING DRAINAGE AREA. SECONDLY COMES SEDIMENTATION FROM THE "FIRST FLUSH" OF GRIT, TRASH, OILS, ETC, WHICH IS THE CLOSEST THE

SUBDIVISION MAY COME TO A "WATER QUALITY" ISSUE AFTER CONSTRUCTION. PAIRED WITH THE INCREASE OF FLOW FROM IMPERVIOUS SURFACES, SEDIMENTATION WILL EXACERBATE THE FLOODING PROBLEM OCCURRING ON LOTS 7, 8, & WHERE NO STORMWATER COLLECTION DEVISES ARE PROPOSED.

WHAT CAN BE DONE ON EDGAR STREET THAT BENEFITS BOTH THE PROPOSED SUBDIVISION AND EXISTING COMMUNITY:

(1) DECREASE STORMWATER QUANTITY—TO IT BY ROUTING THE SUBDIVISION'S NORTHEAST STORMWATER (HIGHLIGHTED IN RED) BACK TO WHERE IT ORIGINALLY DRAINED (LOT 45.)

THIS WILL:

(a) DECREASE THE DRAINAGE AREA AT EDGAR STREET FROM 19 Ac TO 16 Ac.

(b) REDUCE PIPE NEEDED RE-ROUTE STORMWATER (SEE X's FROM STATION 21+70 TO 25+30) AND SAVE PROJECT COSTS.

(2) INSTALL CROSS PIPE BENEATH EDGAR STREET AT APPROXIMATE STATION 13+60

3) INSTALL DROP INLET ON LOT 8 TO COLLECT STORMWATER DRAINING FROM SUBDIVISION AND TRANSMITTING IT TO CROSSPIPE BENEATH EDGAR STREET. THE DROP INLET WILL ENTAIL:

(a) NEW DETAIL FOR DROP INLET

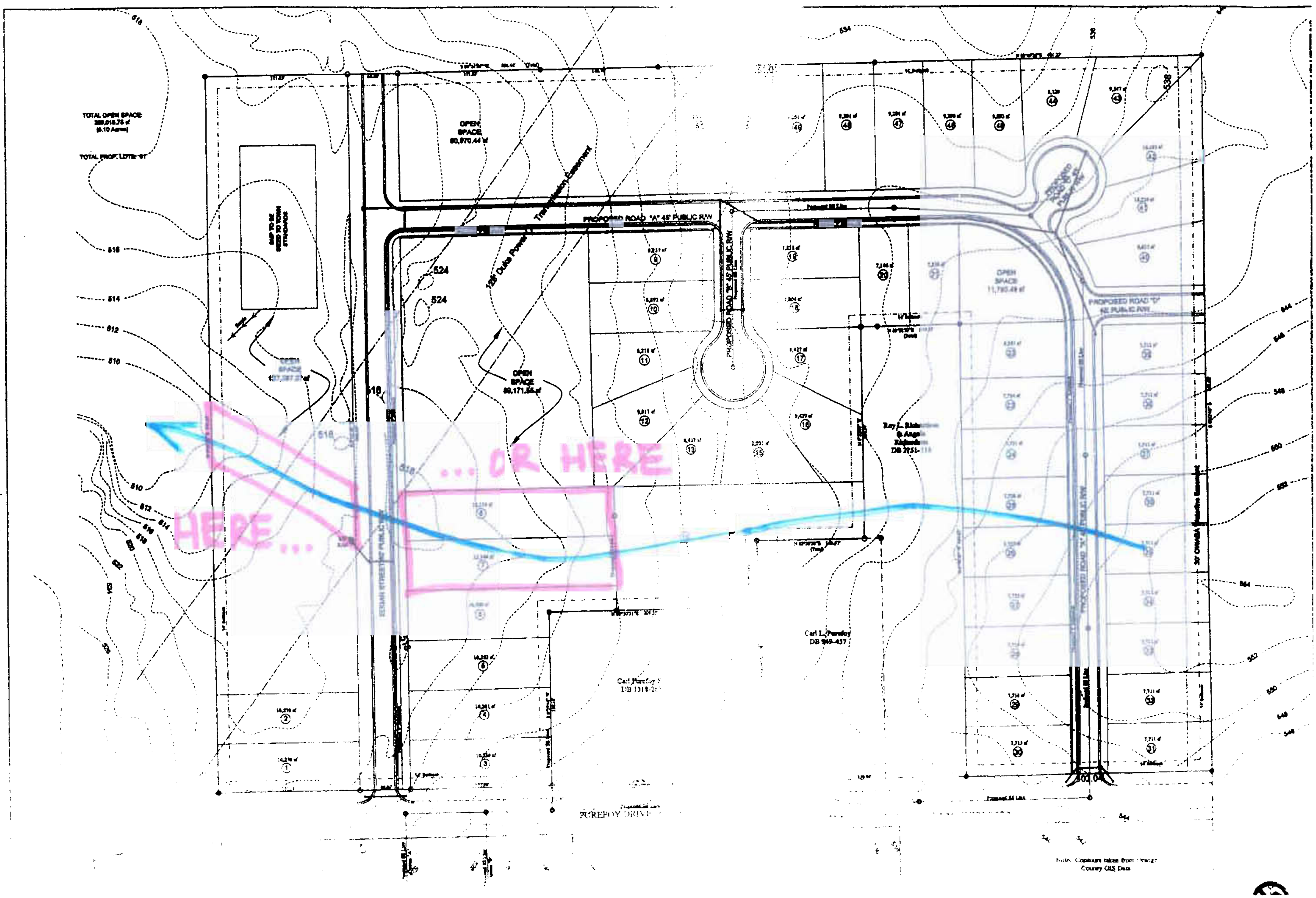
(b) NEW DETAIL FOR DROP INLET GRATE & COVER

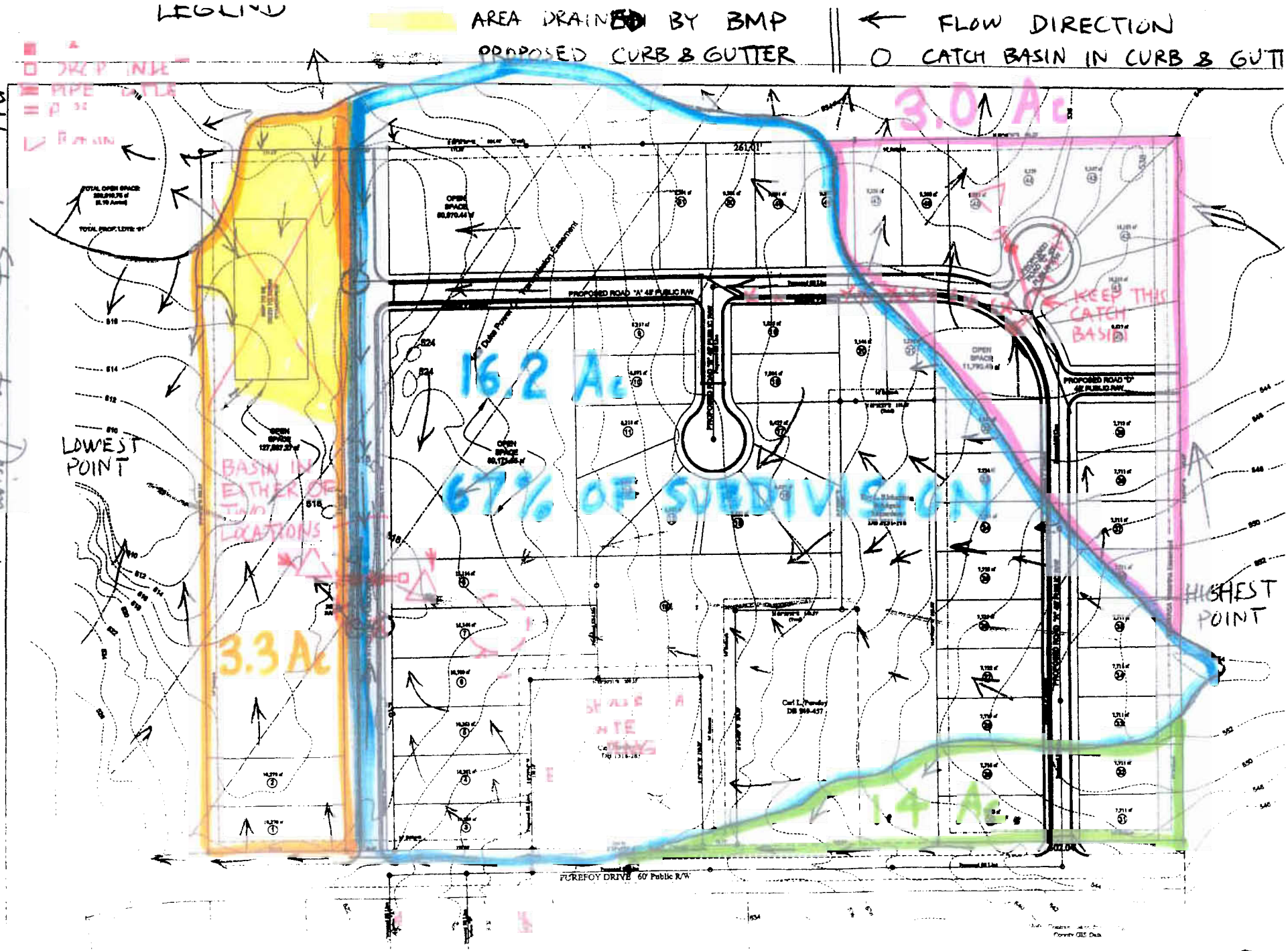
4) MOVE PROPOSED CATCH BASINS FROM STATION 13+05 TO STATION 13+60

THESE RECOMMENDATIONS ARE INTENDED TO PREVENT FLOODING ON LOTS 7 & 8, DECREASE PIPE NEEDED FOR DRAINAGE, DECREASE SIZES OF STORMWATER DEVICES NEEDED, AND MINIMIZE FLOW DIRECTED TO EDGAR STREET


LEGEND
NATURAL DRAINAGE COURSE
AREA DRAINED BY BMP
PROPOSED CURB & GUTTER
DRAINAGE DIVIDE
FLOW DIRECTION
CATCH BASIN IN CURB & GUTTER
SUBDIVISION AREA = 23.9 Ac
LOWEST POINT
HIGHEST POINT
PROPOSED ROAD "A" 48' PUBLIC R/W
PROPOSED ROAD "D" 48' PUBLIC R/W
PUREPOY DRIVE 60' Public R/W
OPEN SPACE
Habitat for Humanity, Orange Co.
Purefoy Drive Subdivision
Site Plan
PRELIMI
Not for Cons
Site Plan
Date: 10/
Revisions:
Drawn By:
Checked By:

2 OF 10.


TOTAL OPEN SPACE
TOTAL PROP. LOTS
BMP TO BE SIZED TO TOWN STANDARDS
OPEN SPACE 80,870.44 sf
OPEN SPACE 80,171.55 sf
OPEN SPACE 11,780.49 sf
125' Duke Power Transmission Easement
PROPOSED ROAD "A" 45' PUBLIC R/W
PROPOSED ROAD "B" 45' PUBLIC R/W
PROPOSED ROAD "D" 45' PUBLIC R/W
EDGAR STREET 50' PUBLIC R/W
30' OWASA Waterline Easement
Roy L. Richardson & Angela Richardson DB 2751-118
Carl L. Purefoy DB 949-457
Carl Purefoy DB 1318-25
PUREFOY DRIVE
Note: Contours taken from Orange County GIS Data
HERE...
... OR HERE



Alternate Stormwater Design #2 of 10

BMP DRAINAGE AREA

5.4.6 General Performance Criteria for Stormwater Management

The following are required stormwater management performance criteria:

a) Stormwater treatment shall be designed to achieve average annual 85% Total Suspended Solids (TSS) removal and must apply to the volume of post-development runoff resulting from the first 1-inch of precipitation. Alternative treatment methods to achieve 85% average annual TSS removal may be acceptable.

b) The stormwater runoff volume leaving the site post-development shall not exceed the stormwater runoff volume leaving the site pre-development (existing conditions) for the local 2-year frequency, 24-hour duration storm event for all development except single-family and two-family dwellings on lots existing as of January 27, 2003, or on lots pursuant to a Preliminary Plat that was approved by the Town Council prior to January 27, 2003. This may be achieved by hydrologic abstraction, recycling and/or reuse, or any other accepted scientific method.

c) The stormwater runoff rate leaving the site post-development shall not exceed the stormwater runoff rate leaving the site pre-development (existing conditions) for the local 2-year, 10-year, and 25-year 24-hour storm events.

d) Land disturbance within the stream channel of any ephemeral stream shall be minimized, and prohibited unless explicitly authorized by issuance of a Zoning Compliance Permit after demonstration of the necessity for the disturbance.

5.4.7 Integrated Management Practices

Applicants shall utilize Integrated Management Practices/Best Management Practices to meet the standards established in Section 5.4.6, using one or more approved design options. Low Impact Design options are encouraged. Descriptions and standard details of approved Integrated Management Practices/Best Management Practices are included in the Town Design Manual.

Consideration shall be given in all stormwater management strategies to the relationship between temporary facilities required and installed during construction as part of soil erosion and sedimentation control regulations; and permanent facilities designed to manage stormwater post-construction on an on-going basis.

5.4.8 Maintenance

Stormwater Management Facilities that are constructed on privately-owned land and that are not within a public easement shall be maintained by the owner of the subject property. Stormwater Management Facilities that are constructed on public land, within public rights-of-way, and/or within public easements shall be maintained by the public body with ownership/jurisdiction.