

# **REQUEST FOR BOARD ACTION**

## **Henderson County Board of Commissioners**

**Meeting Date:** December 19, 2007

**Subject:** **Water Line and Sewer Line Extensions**

**Attachments:** 1. Water Line and Sewer Line Extension – Orchards at Flat Rock,  
Phase II

### **Summary of Request:**

The City of Hendersonville has requested that the County comment on the proposed water line and sewer line extension. City of Hendersonville Project Summary Sheet, with vicinity map, project map, and county review sheet, are attached for Board review and action.

### **Board Action Request:**

Action by the Board of Commissioners is needed to either grant or deny this request. If the Board decides to approve the requested extension the following motion has been provided.

### **Suggested Motion:**

I move that the Board approve the water line and sewer line extension for Phase II of the Orchards at Flat Rock and direct Staff to convey the County's comments to the City of Hendersonville.

## HENDERSON COUNTY REVIEW OF CITY WATER LINE EXTENSIONS

Project Name: The Orchards at Flat Rock, Phase II

Size of Water Line (Main & Distribution Pipe Size): 2,240' of 8" DIP – 305' of 6" DIP – 320" of 4" DIP

County Staff Reviewing Extension: Rocky Hyder, Fire Marshal; Matt Card, Planner

Has the project been reviewed under the **County Subdivision Ordinance**?

☒  
Yes

☐  
No

☐  
N/A

Date reviewed: 11/21/06

Action: Approved with Conditions.

Conditions: Standard Conditions.

Comments:

Has the project been reviewed under the **County Manufactured Park Ordinance**?

☐  
Yes

☐  
No

☒  
N/A

Date reviewed: \_\_\_\_\_

Action: \_\_\_\_\_

Conditions: \_\_\_\_\_

Comments:

Has the project been reviewed under the **County Zoning Ordinance (i.e. Special-Use or Conditional-Use Permit)?**

☐  
Yes

☐  
No

☒  
N/A

Date reviewed: \_\_\_\_\_

Action: \_\_\_\_\_

Conditions: \_\_\_\_\_

Comments:

Is the project subject to **any other County Land Use Ordinance**?

☐  
Yes

☒  
No

☐  
N/A

If yes, explain:

Does the project conform with the **2020 Henderson County Comprehensive Plan (CCP)**?

☒  
Yes

☐  
No

☐  
N/A

Does the project have **adequate hydrant location and spacing**?

☒  
Yes

☐  
No

☐  
N/A

Description of **hydrant type and thread**: Mueller Centurion – National Standard Thread

Does the estimated flow rate (gpm) meet **fire protection standards**? Fore structure spacing of 100" or more.

☒  
Yes

☐  
No

☐  
N/A

### BOARD OF COMMISSIONERS APPROVAL

☐

Approved

Date of Board Review: \_\_\_\_\_

☐

Not Approved

Comments: \_\_\_\_\_

☐

Conditional Approval (See Comments)



**PROJECT SUMMARY  
SEWER UTILITY EXTENSION  
Orchards at Flat Rock – Phase 2**

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**November 15, 2007**

To: Honorable Mayor and Members of City Council

From: Water & Sewer Department Staff

RE: STAFF RECOMMENDATION FOR ACCEPTANCE OF  
SEWER UTILITY EXTENSION AGREEMENT (SUEA)

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This is a project to extend lines to provide sewer service to a **Phase 2 of the existing residential development**. This project is located on **South Orchard Road**. This project is under the reviewing jurisdiction of **Henderson County** and is located within the **USA – Urban Services** planning area. The entire cost of the proposed sewer line extension is to be paid for by **Lifestyle Homes of Distinction, Inc. of Asheville, NC**.

This project requires approximately **2,625** linear feet of Gravity sewer line sized as following:

|                     |                      |
|---------------------|----------------------|
| Approximate Length: | Description:         |
| <b>2,625'</b>       | <b>8" PVC SDR 35</b> |

Pump station required: ☐ Yes ☒ No.

The amount of wastewater generated by this project will be approximately **35,680** gallons per day.

The Reviewing Jurisdiction, listed below, has completed their review of this utility extension request in regard to their adopted land use plan or in terms of its future impact on existing land uses for that local government.

Reviewing Jurisdiction: **Henderson County**

☐ Approved ☐ Disapproved (See attached letter provided to the City by the Reviewing Jurisdiction)

Narrative Comments Provided: ☐ Yes ☐ No

Signing Official: \_\_\_\_\_  
(Print)

Date: \_\_\_\_\_

Based on the above information, the Water & Sewer Department has the capacity to support this additional infrastructure and associated connections and hereby recommends approval of said project contingent upon final approval of construction plans and specifications by the Water & Sewer Department.

A motion is needed to approve and accept this project. Suggested wording for motion is as follows:  
***"I move to accept this Sewer Utility Extension Project and to authorize the City Manager to execute the associated Sewer Utility Extension Agreement on behalf of the City."***

|                              |  |                                      |                |
|------------------------------|--|--------------------------------------|----------------|
| Water and Sewer Department:  | <input checked="" type="checkbox"/> Approved | <input type="checkbox"/> Disapproved | Date: 11-19-07 |
| Henderson Co. Commissioners: | <input type="checkbox"/> Approved            | <input type="checkbox"/> Disapproved | Date: _____    |
| Hendersonville City Council: | <input type="checkbox"/> Approved            | <input type="checkbox"/> Disapproved | Date: _____    |

BROOKS ENGINEERING ASSOCIATES, PA



LAND PLANNING    CIVIL ENGINEERING    SURVEYING    ENVIRONMENTAL SERVICES

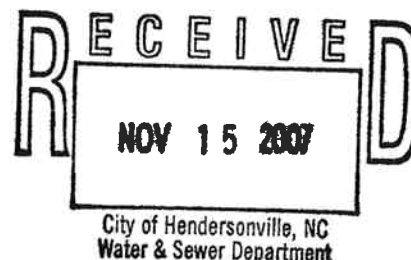
**PROJECT NARRATIVE**

**TO:** Lee Smith, Utilities Director  
Water & Sewer Department  
City of Hendersonville

**FROM:** Brooks Engineering Associates, PA

**DATE:** November 15, 2007

**SUBJECT:** The Orchards @ Flat Rock Subdivision – Phase 2  
PIN #: 9588-63-9201-55, 9588-63-3075-55 & 9588-72-3809-55  
SEWER UTILITY EXTENSION



An extension of the existing sewer main(s) located in Summerfield Place is required to provide sewer service to the above referenced project. This project is proposed to be a single family development. The sewer extension will serve a total of 98 Units generating an estimated 35,680-gallons per day of sanitary sewer for treatment by the City. The proposed site is currently owned and being developed by:

Bruce Alexander, President  
Lifestyle Homes of Distinction, Inc.  
84 Peach Tree Road, Suite 200  
Office: (828) 274-1004  
Email: balexander@lifestylehomes.net


AVL, NC 28803

At the present time, **Bruce Alexander with Lifestyle Homes of Distinction** will be responsible for signing the Sewer Utility Extension Agreement (SUEA) with the City of Hendersonville.

The project will consist of approximately 2,625 lineal feet of 8-inch sewer pipe. For more information regarding this proposed project see the accompanying plans.

This project is estimated to be completed 90 days after final grading has been completed, assuming favorable weather conditions. I, or an authorized representative of my company, will be observing and monitoring the progress of construction for this project. Should you have any questions, concerns or comments regarding this project please feel free to contact me.

Sincerely,  
**Brooks Engineering Associates**



Shawn M. Lynch, PE

**PROJECT SUMMARY  
WATER UTILITY EXTENSION  
Orchards at Flat Rock, Phase 2**

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**November 15, 2007**

To: Honorable Mayor and Members of City of Council

From: Water & Sewer Department Staff

RE: STAFF RECOMMENDATION FOR ACCEPTANCE OF  
WATER UTILITY EXTENSION AGREEMENT (WUEA)

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This is a project to extend lines to provide water service to **Phase 2 of the existing residential development**. This project is located on **South Orchard Road**. This project is under the reviewing jurisdiction of **Henderson County** and is located within the **USA – Urban Services** planning area. This project **will not** involve an IBT (Interbasin Transfer) from the French Broad River Basin. The entire cost of the proposed water line extension is to be paid for by **Lifestyle Homes of Distinction, Inc. of Asheville, NC**.

This project requires approximately **2,865** linear feet of water line sized as following:

| Approximate Length: | Description:  |
|---------------------|---------------|
| <b>2,240</b>        | <b>8" DIP</b> |
| <b>305 lf</b>       | <b>6" DIP</b> |
| <b>320 lf</b>       | <b>4" DIP</b> |

Fire Protection will be provided by the installation of **6** fire hydrant(s).

The Reviewing Jurisdiction, listed below, has completed their review of this utility extension request in regard to their adopted land use plan or in terms of its future impact on existing land uses for that local government.

Reviewing Jurisdiction: **Henderson County**

☐ Approved ☐ Disapproved (See attached letter provided to the City by the Reviewing Jurisdiction)

Narrative Comments Provided: ☐ Yes ☐ No

Signing Official: \_\_\_\_\_  
(Print)

Date: \_\_\_\_\_

Based on the above information, the Water & Sewer Department has the capacity to support this additional infrastructure and associated connections and hereby recommends approval of said project contingent upon final approval of construction plans and specifications by the Water & Sewer Department.

A motion is needed to approve and accept this project. Suggested wording for motion is as follows:

***"I move to accept this Water Utility Extension Project and to authorize the City Manager to execute the associated Water Utility Extension Agreement on behalf of the City."***

|                              |  |                                      |                |
|------------------------------|--|--------------------------------------|----------------|
| Water and Sewer Department:  | <input checked="" type="checkbox"/> Approved | <input type="checkbox"/> Disapproved | Date: 11-19-07 |
| Henderson Co. Commissioners: | <input type="checkbox"/> Approved            | <input type="checkbox"/> Disapproved | Date: _____    |
| Hendersonville City Council: | <input type="checkbox"/> Approved            | <input type="checkbox"/> Disapproved | Date: _____    |

BROOKS ENGINEERING ASSOCIATES, PA



LAND PLANNING CIVIL ENGINEERING SURVEYING ENVIRONMENTAL SERVICES

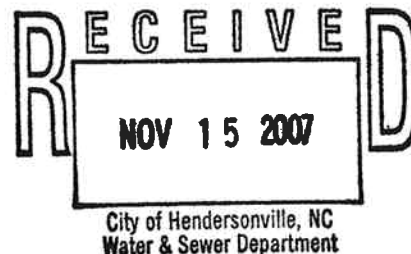
PROJECT NARRATIVE

TO: Lee Smith, Utilities Director  
Water & Sewer Department  
City of Hendersonville

FROM: Brooks Engineering Associates, PA

DATE: November 15, 2007

SUBJECT: The Orchards @ Flat Rock Subdivision - Phase 2  
PIN #: 9588-63-9201-55, 9588-63-3075-55 & 9588-72-3809-55  
WATER UTILITY EXTENSION



An extension of the existing water main(s) located in Summerfield Place that is part of Phase 1 of the project and connection to the water main located along South Orchard Road is required to provide water service to the above referenced project. This project is proposed to be a single family development. The water extension will serve a total of 98 units. The proposed site is currently owned and being developed by:

Bruce Alexander, President  
Lifestyle Homes of Distinction, Inc.  
84 Peach Tree Road, Suite 200  
Office: (828) 274-1004  
Email: balexander@lifestylehomes.net

AUL, NC 28803

The sewer service for this project will be provided by City of Hendersonville.

At the present time, Bruce Alexander with Lifestyle Homes of Distinction will be responsible for signing the Water Utility Extension Agreement (WUEA) with the City of Hendersonville.

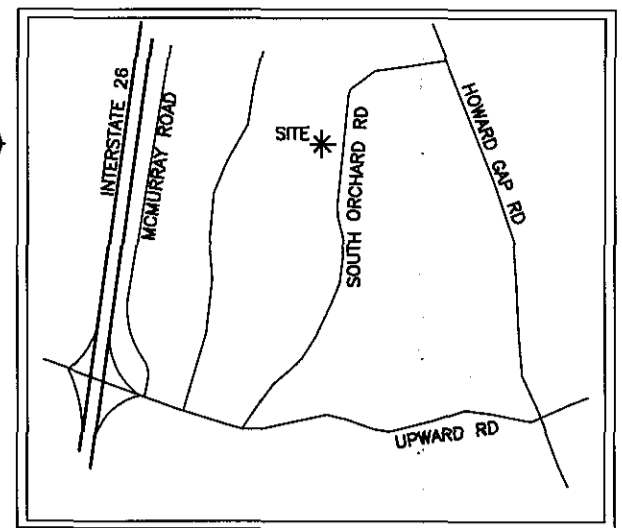
The project will consist of approximately 2,240 LF of 8" DIP, 305 LF of 6" DIP and 320 LF of 4" DIP and an air release valve. In addition there will be 6 new hydrants that have been calculated to flow 500 GPM at the worst case location. For more information regarding this proposed project see the accompanying plans and calculations.

This project is estimated to be completed 90 days after final grading has been completed, assuming favorable weather conditions. I, or an authorized representative of my company, will be observing and monitoring the progress of construction for this project. Should you have any questions, concerns or comments regarding this project please feel free to contact me.

Sincerely,  
Brooks Engineering Associates

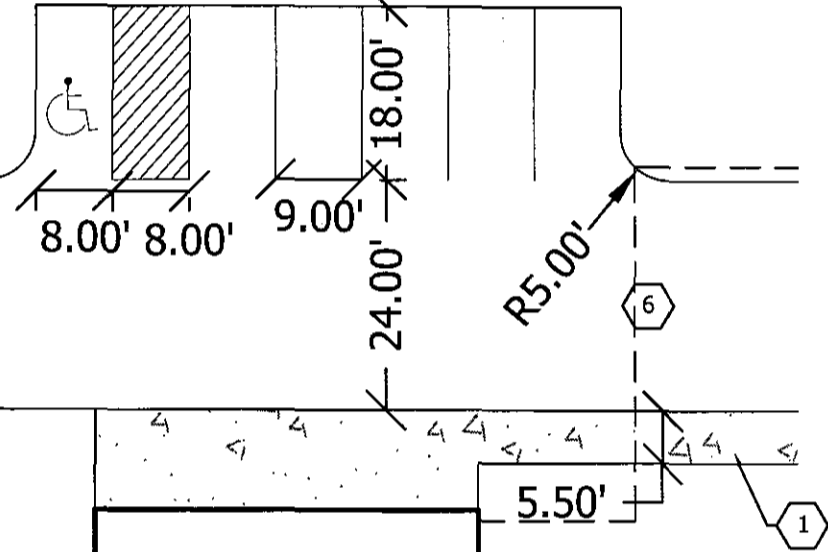
Shawn M. Lynch, PE

PHASE 1  
PHASE 2



PROP. ROADWAY  
CURVE TABLE

| CURVE | LENGTH  | RADIUS  |
|-------|---------|---------|
| C13   | 197.27' | 600.00' |
| C14   | 134.06' | 80.00'  |
| C15   | 144.22' | 95.00'  |
| C16   | 120.14' | 75.00'  |
| C17   | 16.21'  | 80.00'  |
| C18   | 20.26'  | 100.00' |

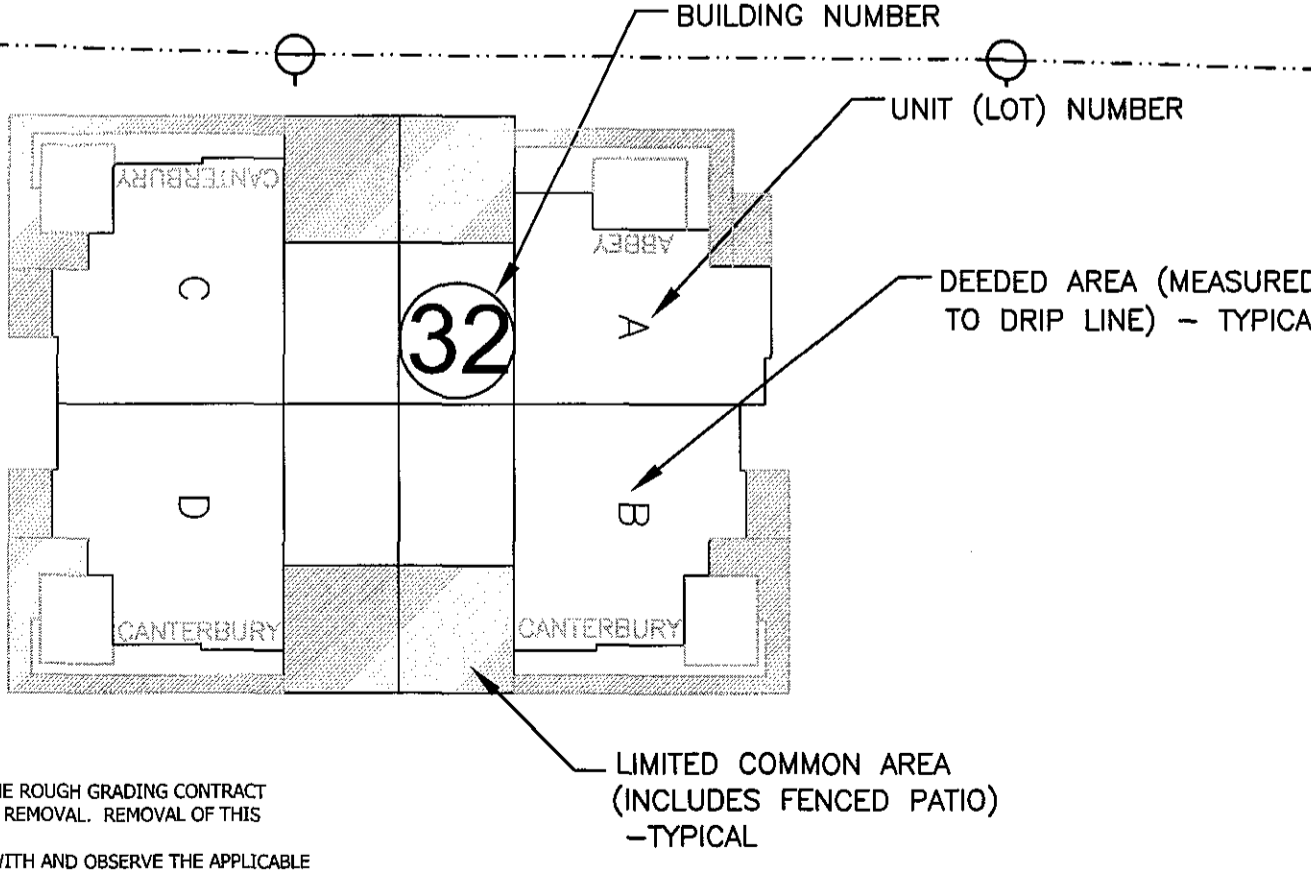


FITNESS CENTER  
FFE= 2142.5

B FITNESS CENTER DETAIL

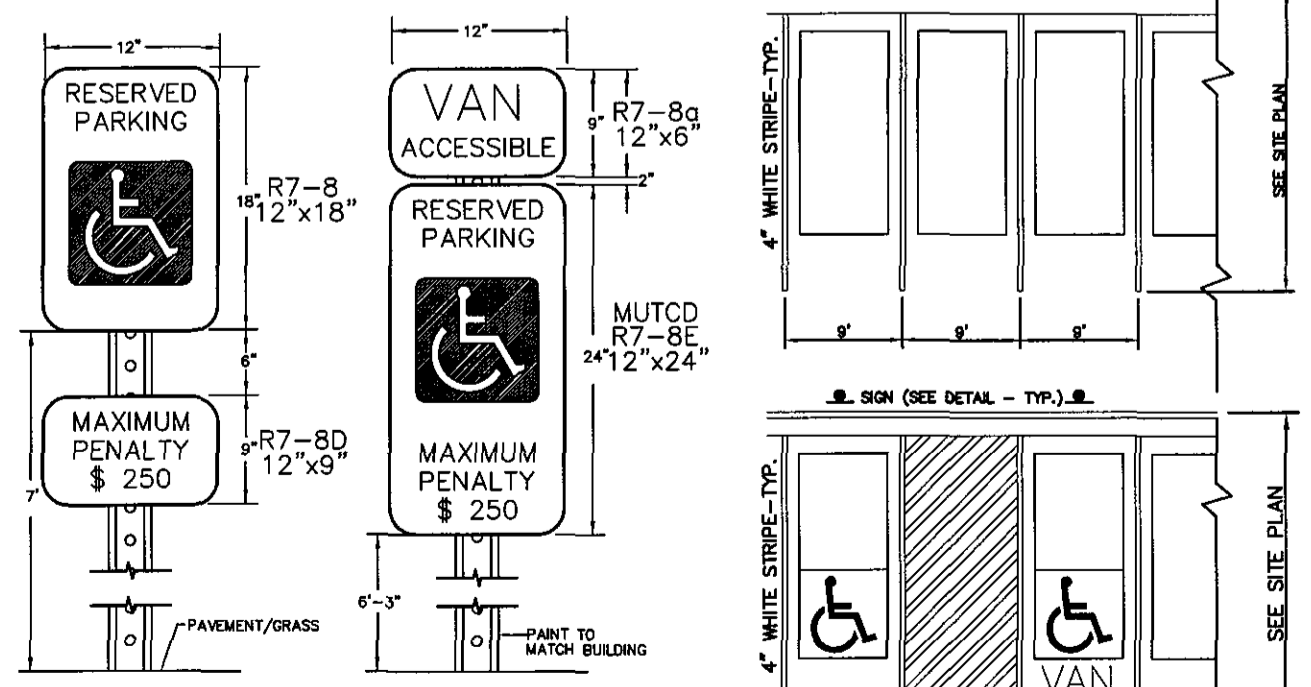
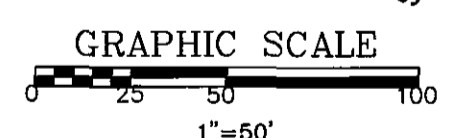
GENERAL NOTES

- A. TOPOGRAPHIC AND BOUNDARY SURVEY DATA PROVIDED BY:  
PETTIT PROFESSIONAL SERVICES  
206 GARRISON ROAD  
FAIRVIEW, NC 28053  
(828) 551-8779
- B. OWNER/DEVELOPER:  
BRUCE M. ALEXANDER  
84 PEACH TREE ROAD, SUITE 200  
ASHEVILLE, NC 28803  
PH: (828) 232-4700  
FX: (828) 232-1331
- C. PAVING SPECIFICATIONS:  
NORMAL DUTY  
2" 50.58 OVER  
6" C&G OVER  
24"-95% COMPACTED SUBGRADE
- ENGINEER:  
Brooks & Medlock Engineering, PLLC  
17 Arlington Street  
Asheville, NC 28801  
PH: (828) 232-4700  
FX: (828) 232-1331
- D. ALL CONCRETE SHALL BE FULL 4" THICK 4000 PSI CONCRETE WITH WVF STEEL REINFORCEMENT.
- E. ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
- F. MIN. CURB RADIUS IS 3' UNLESS OTHERWISE NOTED.
- G. SEE ARCHITECTURAL AND PLUMBING PLANS FOR EXACT LOCATION AND SIZE OF WATER SERVICE, SEWER SERVICE AND ROOF DOWNSPOUTS/DRAIN LOCATIONS.
- H. SEE ARCHITECTURAL PLANS FOR BUILDING DIMENSIONS, FEATURES, STAIRS AND HANDRAILS, ETC.
- I. DRIVEWAYS TO BE CONSTRUCTED AS SHOWN ON THE PLANS AND AS DIRECTED BY OWNER.
- J. HANDICAP REGULATIONS:  
a. A HANDICAP PARKING SPACE SHALL HAVE NO GREATER SLOPE THAN 1/4" PER FOOT ACROSS THE SPACE.  
b. HANDRAILS ARE TO BE PROVIDED ON HANDICAP RAMPS WITH A DROP OF TWO INCHES OR MORE.
- K. CONTRACTOR SHALL COORDINATE WITH THE PROPER UTILITY COMPANIES AND GOVERNMENT AGENCIES PRIOR TO COMMENCEMENT OF WORK.
- L. ALL DISTANCES AND DATA SHALL BE CHECKED BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. IN CASE OF CONFLICT, THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY SO THAT CLARIFICATIONS MAY BE MADE PRIOR TO THE START OF WORK.
- M. THE CONTRACTOR SHALL RESET ALL MAINHOLE COVERS, CATCH BASIN GRATES AND ANY OTHER UTILITY ACCESS COVERS TO FINISH PAVEMENT SURFACE OR SIDEWALK GRADE.
- N. THE CONTRACTOR SHALL SUPPLY AND ESTABLISH SURVEY CONTROL, INCLUDING THE HORIZONTAL AND VERTICAL CONTROL POINTS. THE CONTRACTOR SHALL MAINTAIN THIS CONTROL AND PROVIDE ALL BENCHMARKS, STAKES, GRADES, LEVELS, AND LINES NECESSARY FOR CONSTRUCTION.
- O. PROTECT UNDERGROUND UTILITIES AND THEIR APPURTENANCES TO REMAIN ON SITE FROM DAMAGE DURING CONSTRUCTION OPERATIONS.
- P. ALL EXISTING PAVEMENT AND CONCRETE TO BE JOINED SHALL BE SAWCUT.
- Q. BURNING ON, OR NEAR THE JOB SITE WILL NOT BE PERMITTED.
- R. ALL FILL SHALL BE COMPACTED TO 95% PER ASTM D 698.
- S. UPON COMPLETION OF THE WORK, THE CONTRACTOR SHALL CLEAN THE ENTIRE SITE OF ALL CONSTRUCTION RELATED MATERIAL OR DEBRIS TO THE OWNERS SATISFACTION.
- T. TREE SAVE NOTES:  
a. TEMPORARY TREE SAVE FENCING INSTALLED UNDER THE ROUGH GRADING CONTRACT SHALL BE MAINTAINED UNTIL THE OWNER ALLOWS ITS REMOVAL. REMOVAL OF THIS FENCING SHALL BE INCLUDED HEREIN.  
b. THE SITE WORK CONTRACTORS SHALL BE FAMILIAR WITH AND OBSERVE THE APPLICABLE REQUIREMENTS. ANY QUESTION SHOULD BE DIRECTED TO THE PROJECT CIVIL ENGINEERING REPRESENTATIVE.
- U. LAND DEVELOPMENT ENGINEER TO BE GIVEN 24 HOURS NOTICE PRIOR TO START OF CONSTRUCTION. COORDINATE ALL CURB AND STREET GRADES IN INTERSECTION WITH NC DOT/COUNTY INSPECTOR. APPROVAL OF THIS PLAN IS NOT AN AUTHORIZATION TO GRADE ON ADJACENT PROPERTIES. WHEN FIELD CONDITIONS WARRANT OFFSITE GRADING, PERMISSION MUST BE OBTAINED FROM THE AFFECTED PROPERTY OWNERS.
- V. ALL EXISTING DRIVEWAYS AND CURB CUTS THAT ARE NOT USED SHALL BE REMOVED AND REPLACED WITH CONCRETE CURB, GUTTER, AND SIDEWALK.
- W. ALL SIGNAGE SHALL COMPLY TO THE HENDERSON COUNTY ZONING ORDINANCE.
- X. ALL EXISTING PAVEMENT AND CONCRETE THAT ARE NOT USED SHALL BE REMOVED AND REPLACED WITH CONCRETE CURB, GUTTER, AND SIDEWALK.
- Y. THE DEVELOPER/APPLICANT OF THE PROPERTY INTENDS TO PROVIDE MAINTENANCE OF ALL ONSITE INFRASTRUCTURE UPON COMPLETION OF CONSTRUCTION AND BENEFICIAL OCCUPATION.
- Z. SEE SHIT. C-3 FOR CENTERLINE AND CURVE TABLE.



SITE PLAN KEYS

- MONOLITHIC CONCRETE SIDEWALK AND CURB. DEPRESS SIDEWALK AT PAINTED CROSSWALK TO ALLOW FOR ACCESS PER ADA STANDARDS. SHEET C6, DETAIL B.
- 4" WIDE PAINTED PARKING STRIPE (TYP) COLOR: WHITE.
- NEW 6" CONCRETE RIBBON CURB. SEE DETAIL C, SHEET C6.
- PROVIDE HANDICAP RAMP AT SIDEWALK. SEE DETAIL E, SHEET C6.
- 4" PAINTED CROSSWALK.
- NEW ASPHALT DRIVEWAY - SEE DETAIL D SHEET C6.
- DESIGN/BUILD RETAINING WALL. CONTRACTOR TO SUBMIT SHOP DRAWINGS CERTIFIED BY A STRUCTURAL ENGINEER FOR APPROVAL. SEE DETAILS SHIT. C7, FOR EXAMPLE.
- TAPER CURB. EXTEND EDGE OF PAVEMENT TO MATCH EXISTING AS REQUIRED.
- TAPER CURB FLUSH TO MATCH GRADE AT DRIVEWAY CONNECTION TO STREET.
- HOUSE TO BE REMOVED FROM SITE BY CONTRACTOR.
- LOCAL PRIVATE STREET. SEE DETAIL A, SHEET C6.
- BLOW UP AREA. SEE DETAIL THIS SHEET.



A STD. PARKING DETAILS

STD. HANDICAP SIGN

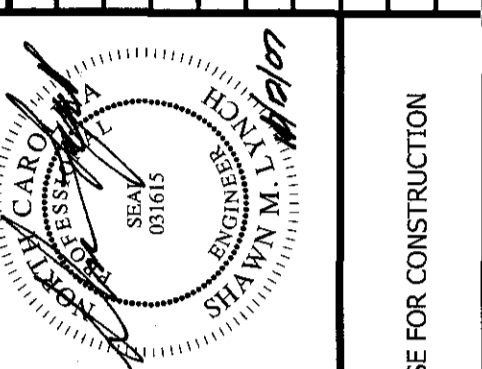
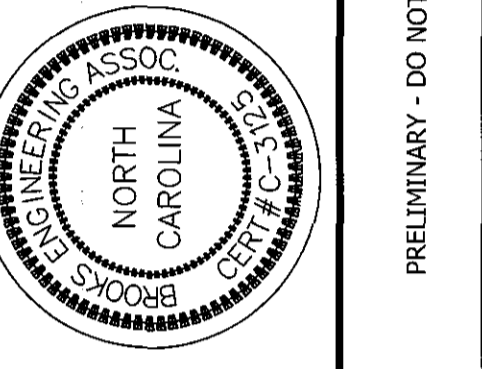
STD. PARKING DETAILS



RESIDENTIAL SUBDIVISION  
LIFESTYLE HOMES OF DISTINCTION  
SOUTH ORCHARD ROAD  
NORTH CAROLINA  
HENDERSON COUNTY

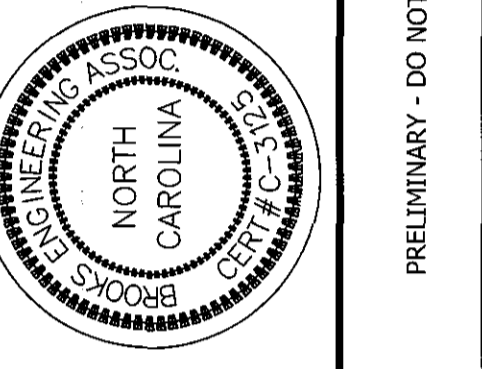
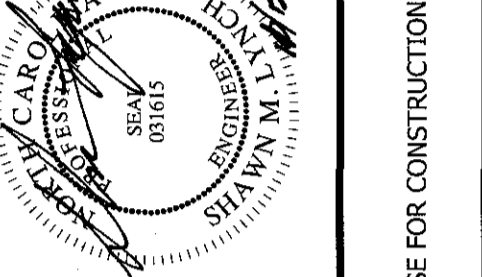
Project No:  
183006  
C-1  
2 of 10  
Drawing Title:  
SITE LAYOUT PLAN

Reviewed:  
Scale:  
AS NOTED  
Date:  
5-15-07



REVISIONS/SUBMISSIONS

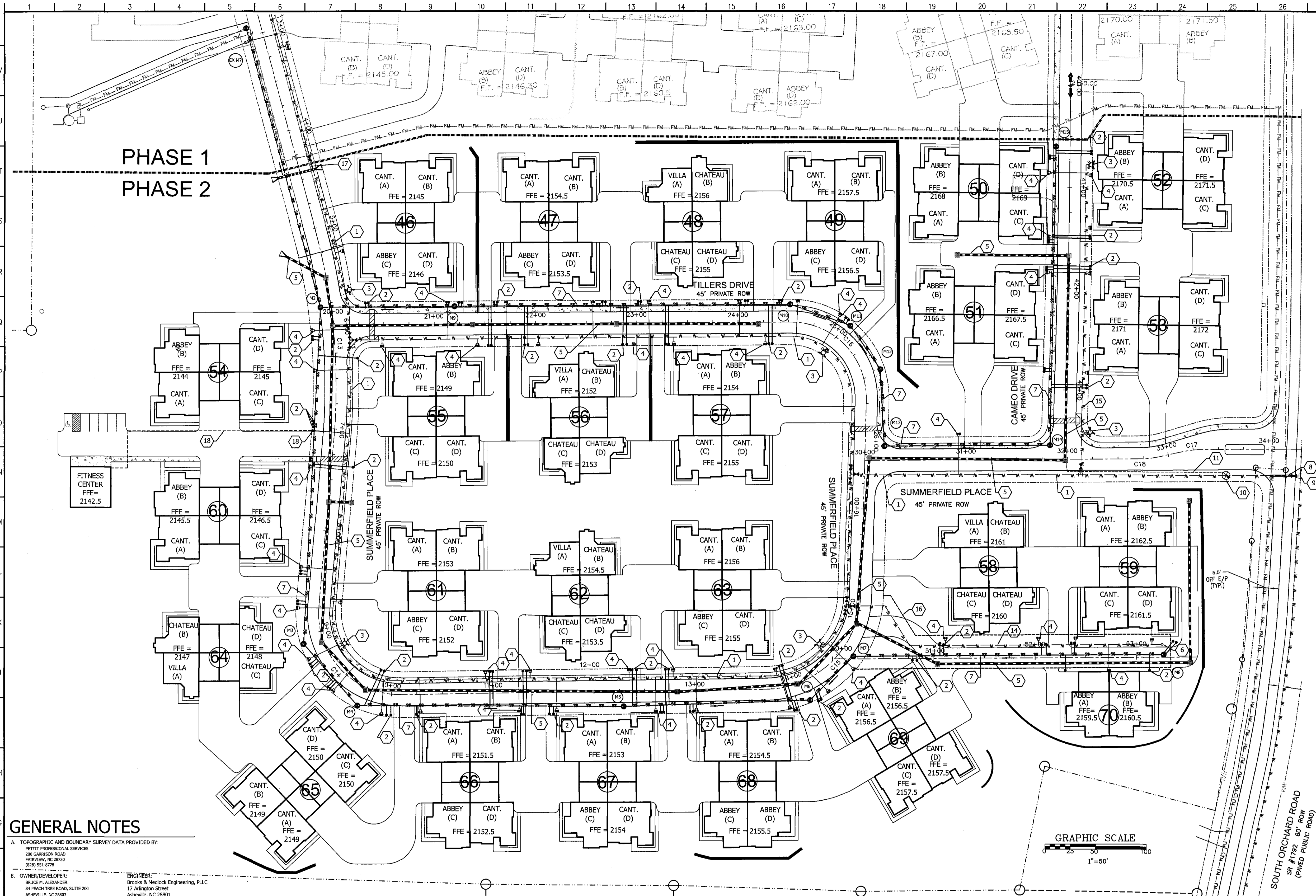
| No. | Date     | REVISIONS/SUBMISSIONS     |
|-----|----------|---------------------------|
| 1   | 10/1/07  | INITIAL SUBMITTAL TO CITY |
| 2   | 11/09/07 | STATE SUBMITTAL/RED SET   |



17 Arlington Street  
Asheville, N.C. 28801  
Phone: 1-828-232-4700  
Fax: 1-828-232-1331  
www.brooksea.com

Brooks Engineering Associates  
Planning - Engineering - Surveying  
- Environmental Services -

PRELIMINARY - DO NOT USE FOR CONSTRUCTION



GENERAL UTILITY NOTES:

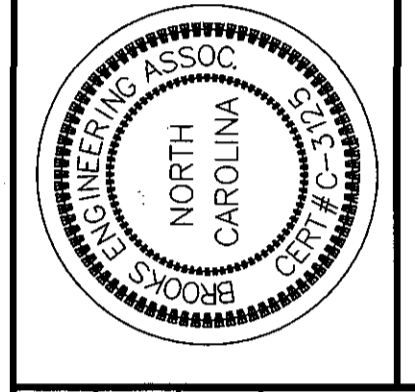
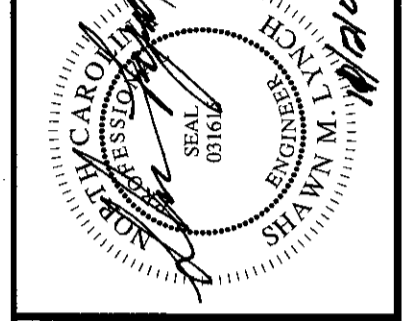
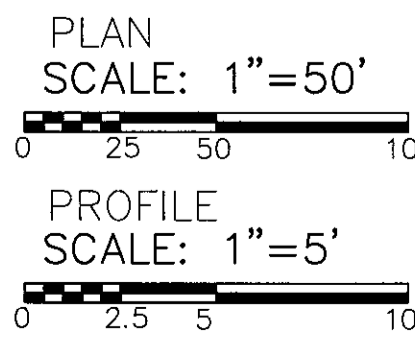
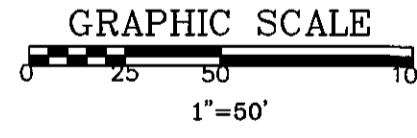
- A. CONTRACTOR SHALL COORDINATE WITH THE PROPER UTILITY COMPANIES AND GOVERNMENT AGENCIES PRIOR TO THE COMMENCEMENT OF WORK.
- B. DIMENSIONS TO OR COORDINATES OF MANHOLES, VALVES, PIPELINES, ETC., ARE TO CENTERLINE UNLESS OTHERWISE NOTED.
- C. THE CONTRACTOR SHALL OBTAIN AND PAY FOR, PRIOR TO THE BEGINNING OF ANY WORK, ALL PERMITS AND LICENSES NECESSARY TO ACCOMPLISH THE WORK. PERMITS CAN INCLUDE, BUT ARE NOT LIMITED TO, EROSION CONTROL PERMIT, GRADING PERMIT, AND UTILITY COMPANY'S PERMIT FOR THE WORK TO BE PERFORMED ON THEIR RESPECTIVE FACILITIES.
- D. ANY CONTRACTOR PERFORMING WORK ON THIS PROJECT SHALL FAMILIARIZE HIMSELF WITH THE JOB SITE AND LOCATION OF ALL EXISTING FACILITIES AND UNDERGROUND UTILITIES SHOWN OR NOT SHOWN ON THESE PLANS. THE CONTRACTOR WILL BE UNLATERAL RESPONSIBLE FOR ANY DAMAGE DONE TO EXISTING FACILITIES AND UNDERGROUND UTILITIES THAT ARE SHOWN OR NOT SHOWN ON THESE PLANS; AND IF DAMAGED, SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE OWNER AT NO COST TO THE OWNER.
- E. THE CONTRACTOR SHALL VISIT THE SITE AND FAMILIARIZE HIMSELF WITH THE EXISTING CONDITIONS BEFORE SUBMITTING HIS BID.
- F. THE CONTRACTOR SHALL RE-SET ALL MANHOLE COVERS, CATCH BASIN GRATES, AND ANY OTHER UTILITY ACCESS COVERS TO FINISH PAVEMENT SURFACE OR SIDEWALK GRADE.
- G. PROTECT UNDERGROUND UTILITIES AND THEIR APPURTENANCES TO REMAIN ON SITE FROM DAMAGE DURING CONSTRUCTION OPERATIONS. PROVIDE SHORING AND OTHER METHODS OF PROTECTIONS AS NEEDED TO ENSURE THE CONDITION AND OPERATION OF THOSE UTILITIES TO REMAIN. FIBER OPTIC LINES ARE BURIED IN CONDUIT AND TELEPHONE LINES ARE DIRECT BURY. ELECTRIC IS ALSO BURIED IN CONDUIT. CONTRACTOR SHALL CONFIRM AS ENCOUNTERED AND COORDINATE WITH AGENCIES/UTILITY SUPPLIERS AS REQUIRED.
- H. CONTRACTOR(S) SHALL BE RESPONSIBLE FOR ADEQUATE SUPERVISION TO PREVENT DAMAGE AND MOVEMENT FROM EQUIPMENT WORKING AROUND CONSTRUCTION STAKES. THESE CONSTRUCTION STAKES SHALL REMAIN IN PLACE AND BE PROTECTED UNTIL THE OWNER APPROVES THEIR REMOVAL. ANY STAKES THAT HAVE BEEN DISPLACED AS A RESULT OF CONSTRUCTION ACTIVITY ARE TO BE REPLACED BY A LICENSED LAND SURVEYOR ENGAGED BY THE CONTRACTOR AT NO COST TO THE OWNER.
- I. UPON COMPLETION OF THE WORK, THE CONTRACTOR SHALL CLEAN THE ENTIRE SITE OF ALL CONSTRUCTION RELATED MATERIAL OR DEBRIS TO THE OWNERS SATISFACTION.
- J. THE ENGINEER WILL NOT BE CONTINUOUSLY PRESENT IN THE FIELD. IT IS SPECIFICALLY UNDERSTOOD THE HE DOES NOT UNDERTAKE NOR ASSUME ANY OBLIGATION FOR SUPERVISION OF CONSTRUCTION. SAFETY MEASURES TAKEN DURING THE COURSE OF CONSTRUCTION, RESPONSIBILITY FOR SCHEDULING THE WORK FOR INSURING COMPLETE COMPLIANCE WITH THE CONTRACT DOCUMENTS AND/OR ALL CODE REQUIREMENTS, RULES AND REGULATION OF ANY PUBLIC OR PRIVATE AUTHORITY HAVING JURISDICTION OVER THE WHOLE OR ANY PART OF THE WORK. IN ADDITION, THE ENGINEER NEITHER UNDERTAKES, ASSUMES, NOR GUARANTEES THE WORK AND/OR PERFORMANCE OF THE CONTRACTOR.
- K. ALL EXISTING IMPROVEMENTS DAMAGED AS A RESULT OF CONSTRUCTION OPERATIONS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION, TO THE SATISFACTION OF THE OWNER.
- L. ALL CONSTRUCTION TO MEET CITY OF ASHEVILLE STANDARDS AND SPECIFICATIONS.
- M. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ACQUIRING ANY NECESSARY STREET CUT, SIDEWALK CUT, AND/OR STREET/LANE CLOSURE PERMITS FROM THE CITY OF ASHEVILLE ENGINEERING DIVISION PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION.

GENERAL NOTES

- A. TOPOGRAPHIC AND BOUNDARY SURVEY DATA PROVIDED BY: PETTY PROFESSIONAL SERVICES, 306 GARIBOLDI ROAD, FAIRVIEW, NC 28730, (828) 555-8778.
- B. OWNER/DEVELOPER: BRUCE M. ALEXANDER, 84 PEACH TREE ROAD, SUITE 200, ASHEVILLE, NC 28801, PH: (828) 232-4700, FX: (828) 232-1331. ENGINEER: Brooks & Medlock Engineering, PLLC, 17 Arlington Street, Asheville, NC 28801, PH: (828) 232-4700, FX: (828) 232-1331.
- C. PAVING SPECIFICATIONS: NORMAL DUTY 2" 50.58 OVER 6" CABC OVER 24" 95% COMPACTED SUBGRADE. HEAVY DUTY 2" 50.58 OVER 2" HB OVER 2" CABC OVER 24" 95% COMPACTED SUBGRADE.
- D. ALL CONCRETE SHALL BE FULL 4" THICK 4000 PSI CONCRETE WITH WWF STEEL REINFORCEMENT.
- E. ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
- F. MIN. CURB RADIUS IS 3' UNLESS OTHERWISE NOTED.
- G. SEE ARCHITECTURAL AND PLUMBING PLANS FOR EXACT LOCATION AND SIZE OF WATER SERVICE, SEWER SERVICE AND ROOF DOWNSPOUTS/DRAIN LOCATIONS.
- H. SEE ARCHITECTURAL PLANS FOR BUILDING DIMENSIONS, FEATURES, STAIRS AND HANDRAILS, ETC. DRIVEWAYS TO BE CONSTRUCTED AS SHOWN ON THE PLANS AND AS DIRECTED BY OWNER.
- I. HANDICAP REGULATIONS: a. A HANDICAP PARKING SPACE SHALL HAVE NO GREATER SLOPE THAN 1/4" PER FOOT ACROSS THE SPACE. b. HANDRAILS ARE TO BE PROVIDED ON HANDICAP RAMPS WITH A DROP OF TWO INCHES OR MORE. CONTRACTOR SHALL COORDINATE WITH THE PROPER UTILITY COMPANIES AND GOVERNMENT AGENCIES PRIOR TO COMMENCEMENT OF WORK.
- J. ALL DISTANCES AND DATA SHALL BE CHECKED BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. IN CASE OF CONFLICT, THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY SO THAT CLARIFICATIONS MAY BE MADE PRIOR TO THE START OF WORK.
- K. THE CONTRACTOR SHALL RE-SET ALL MANHOLE COVERS, CATCH BASIN GRATES AND ANY OTHER UTILITY ACCESS COVERS TO FINISH PAVEMENT SURFACE OR SIDEWALK GRADE.
- L. THE CONTRACTOR SHALL SUPPLY AND ESTABLISH SURVEY CONTROL, INCLUDING THE HORIZONTAL AND VERTICAL CONTROL POINTS. THE CONTRACTOR SHALL MAINTAIN THIS CONTROL AND PROVIDE ALL BENCHMARKS, STAKES, GRADES, LEVELS, AND LINES NECESSARY FOR CONSTRUCTION.
- M. PROTECT UNDERGROUND UTILITIES AND THEIR APPURTENANCES TO REMAIN ON SITE FROM DAMAGE DURING CONSTRUCTION OPERATIONS.
- N. ALL EXISTING PAVEMENT AND CONCRETE TO BE JOINED SHALL BE SAWCUT.
- O. BURNING ON, OR NEAR THE JOB SITE WILL NOT BE PERMITTED.
- P. ALL FILL SHALL BE COMPACTED TO 95% PER ASTM D 698.
- Q. UPON COMPLETION OF THE WORK, THE CONTRACTOR SHALL CLEAN THE ENTIRE SITE OF ALL CONSTRUCTION RELATED MATERIAL OR DEBRIS TO THE OWNERS SATISFACTION.
- R. TREE SAVE NOTES: a. TEMPORARY TREE SAVE FENCING INSTALLED UNDER THE ROUGH GRADING CONTRACT SHALL BE MAINTAINED UNTIL THE OWNER ALLOWS ITS REMOVAL. REMOVAL OF THIS FENCING SHALL BE INCLUDED HEREIN. b. THE SITE WORK CONTRACTOR(S) SHALL BE FAMILIAR WITH AND OBSERVE THE APPLICABLE REQUIREMENTS. ANY QUESTION SHOULD BE DIRECTED TO THE PROJECT CIVIL ENGINEERING REPRESENTATIVE.
- S. LAND DEVELOPMENT ENGINEER TO BE GIVEN 24 HOURS NOTICE PRIOR TO START OF CONSTRUCTION. COORDINATE ALL CURB AND STREET GRADES IN INTERSECTION WITH NC DOT/COUNTY INSPECTOR. APPROVAL OF THIS PLAN IS NOT AN AUTHORIZATION TO GRADE ON ADJACENT PROPERTIES. WHEN FIELD CONDITIONS WARRANT OFFSITE GRADING, PERMISSION MUST BE OBTAINED FROM THE AFFECTED PROPERTY OWNERS.
- T. IN ORDER TO ENSURE PROPER DRAINAGE, KEEP A MINIMUM SLOPE OF 0.5% ON PAVED SURFACES.
- U. ALL STRUCTURES SHALL BE HENDERSON COUNTY STANDARD UNLESS NOTED OTHERWISE.
- V. ALL SIGNAGE SHALL COMPLY TO THE HENDERSON COUNTY ZONING ORDINANCE.
- W. ALL EXISTING DRIVEWAYS AND CURB CUTS THAT ARE NOT USED SHALL BE REMOVED AND REPLACED WITH CONCRETE CURB, GUTTER, AND SIDEWALK.
- AA. THE DEVELOPER/APPLICANT OF THE PROPERTY INTENDS TO PROVIDE MAINTENANCE OF ALL ONSITE INFRASTRUCTURE UPON COMPLETION OF CONSTRUCTION AND BENEFICIAL OCCUPATION.
- BB. SEE SHT. C-3 FOR CENTERLINE AND CURVE TABLE.

SITE PLAN KEYS

- 1. NEW 8" DIP WATER MAIN.
- 2. 4" SANITARY SEWER LAT., 2% MINIMUM SLOPE, PROVIDE CLEANOUTS AT 50' O/C. COORDINATE BUILDING EXIT WITH PLUMBING DRAWINGS. PROVIDE TRAFFIC RATED CLEAN-OUT RIM AND COVER IN TRAVELWAYS.
- 3. NEW FIRE HYDRANT ASSEMBLY. SEE DETAIL, SHEET C9.
- 4. NEW 1" TAP BY CONTRACTOR WITH (2) 5/8" WATER METERS BY THE CITY OF HENDERSONVILLE (TYP.).
- 5. NEW STORM SEWER. SEE PLAN AND PROFILE SHEETS C-4 THROUGH C-5 FOR DETAILS.
- 6. NEW BLOW-OFF ASSEMBLY. SEE DETAIL, SHEET C9.
- 7. NEW 8" SAN. SEWER - SEE PROFILES FOR ELEVATIONS, DIMENSIONS, AND SPECIFICATIONS.
- 8. INSTALL 8" WATER LINE ACROSS ORCHARD RD. IN 16" STEEL SLEEVE ACROSS ROAD LIMITS BORE AND JACK CONSTRUCTION - 25' CASING.
- 9. 8" TAPPING SLEEVE WITH VALVE.
- 10. AIR RELEASE VALVE IN PRECAST MANHOLE.
- 11. 4" PVC DRAIN TO STORM CATCH BASIN 10.
- 12. SEWER RUN "A".
- 13. CONNECT TO EXISTING SEWER MANHOLE.
- 14. 4" DIP WATER MAIN.
- 15. 6" DIP WATER MAIN.
- 16. UTILITY EASEMENT.
- 17. REMOVE BLOW OFF ASSEMBLY AND CONNECT TO EX. 8" WATER MAIN.
- 18. NEW 1" TAP BY CONTRACTOR WITH 3/4" WATER METER BY THE CITY OF HENDERSONVILLE.
- 19. 3/4" FITNESS CENTER WATER SERVICE LINE.

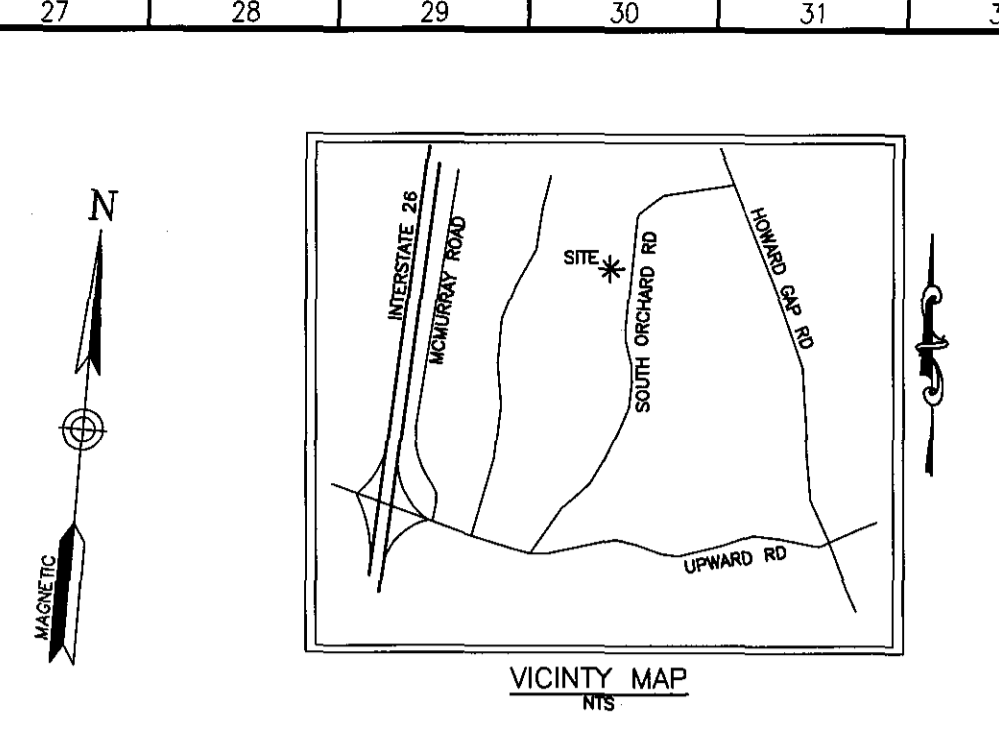
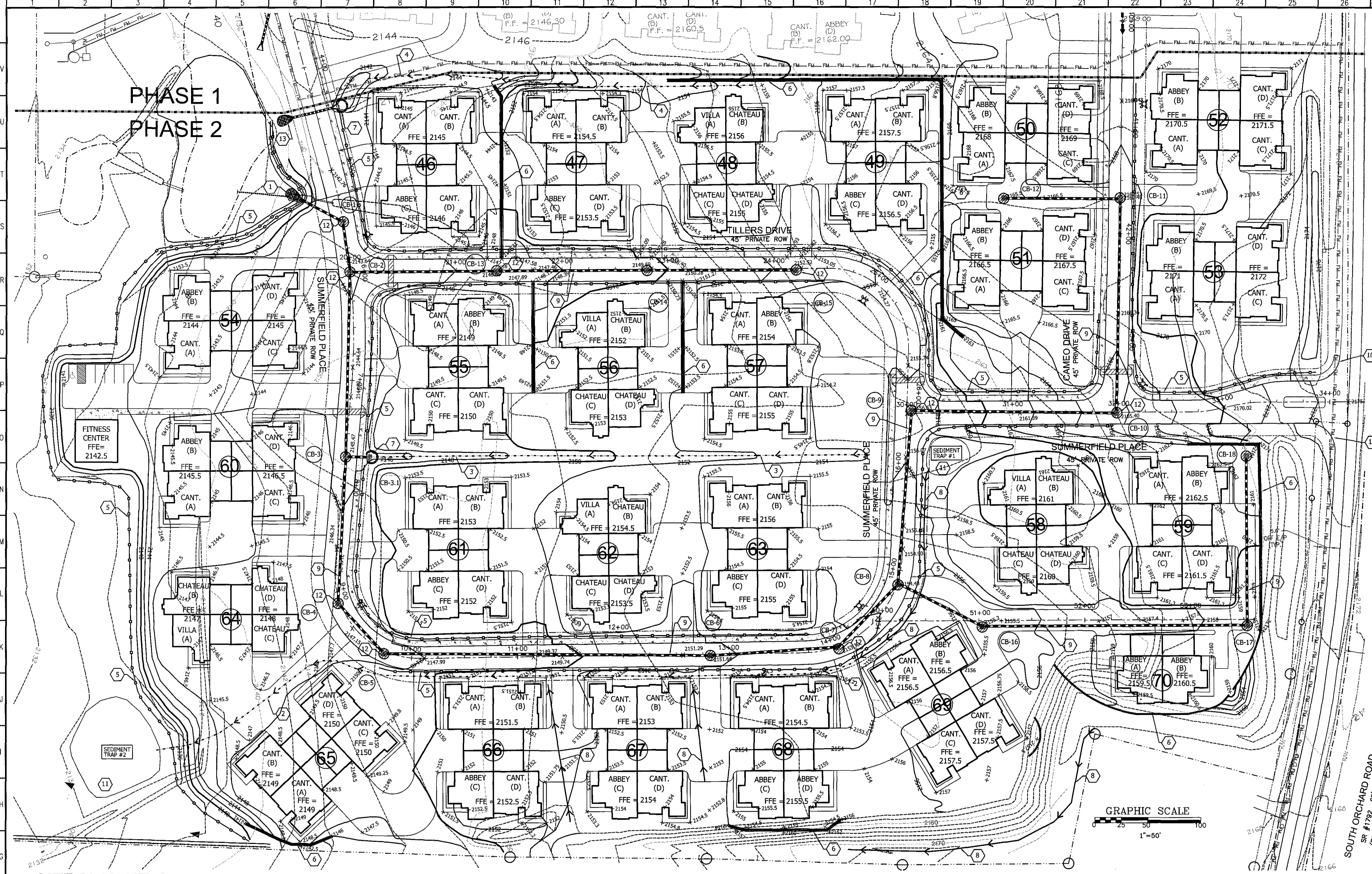


Designed: SML  
Drawn: DLL  
Checked: SML  
Scale: AS NOTED  
Date: 5-15-07  
17 Arlington Street  
Asheville, N.C. 28801  
Phone: 1-828-232-4700  
Fax: 1-828-232-1331  
www.brookssea.com



RESIDENTIAL SUBDIVISION  
LIFESTYLE HOMES OF DISTINCTION  
SOUTH ORCHARD ROAD  
NORTH CAROLINA  
HENDERSON COUNTY  
Project No: 183006  
C-2  
3 of 10  
Drawing Title: SITE UTILITY PLAN

| REVISIONS/SUBMISSIONS |                           | Date     |
|-----------------------|---------------------------|----------|
| No.                   | 1                         | 10/11/07 |
| 1                     | INITIAL SUBMITTAL TO CITY |          |
| 2                     | STATE SUBMITTAL BID SET   | 11/08/07 |
| 3                     |                           |          |
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| 34                    |                           |          |



A. TOPOGRAPHIC AND BOUNDARY SURVEY DATA PROVIDED BY:  
PSTTT PROFESSIONAL SERVICES  
206 GARRISON ROAD  
FAIRVIEW, NC 28730  
(828) 555-8779

B. OWNER/DEVELOPER:  
BRUCE N. ALEXANDER  
84 HATCH TREE ROAD, SUITE 200  
ASHEVILLE, NC 28803  
Ph: (828) 274-1004

C. PAVING SPECIFICATIONS:  
NORMAL DUTY  
2" 55.58 OVER  
9" CABC OVER  
24"-95% COMPACTED SUBGRADE

ENGINEER:  
Brooks & Medlock Engineering, PLLC  
17 Arlington Street  
Asheville, NC 28801  
Ph: (828) 232-4700  
Fax: (828) 232-1331

HEAVY DUTY  
2" 55.58 OVER  
2" 18 OVER  
9" CABC OVER  
24"-95% COMPACTED SUBGRADE

D. ALL CONCRETE SHALL BE FULL 4" THICK 4000 PSI CONCRETE WITH W/WF STEEL REINFORCEMENT.  
E. ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.  
F. MIN. CURB RADIUS IS 3' UNLESS OTHERWISE NOTED.  
G. SEE ARCHITECTURAL AND PLUMBING PLANS FOR EXACT LOCATION AND SIZE OF WATER SERVICE, SEWER SERVICE AND ROOF DOWNSPOUTS/DRAIN LOCATIONS.  
H. SEE ARCHITECTURAL PLANS FOR BUILDING DIMENSIONS, FEATURES, STAIRS AND HANDRAILS, ETC.  
I. DRIVEWAYS TO BE CONSTRUCTED AS SHOWN ON THE PLANS AND AS DIRECTED BY OWNER.  
J. HANDICAP REGULATIONS:  
a. A HANDICAP PARKING SPACE SHALL HAVE NO GREATER SLOPE THAN 1/4" PER FOOT ACROSS THE SPACE.  
b. HANDRAILS ARE TO BE PROVIDED ON HANDICAP RAMPS WITH A DROP OF TWO INCHES OR MORE.  
K. ALL DISTANCES AND DATA SHALL BE CHECKED BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. IN CASE OF CONFLICT, THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY SO THAT CLARIFICATIONS MAY BE MADE PRIOR TO THE START OF WORK.  
L. THE CONTRACTOR SHALL RESET ALL MANHOLE COVERS, CATCH BASIN GRATES AND ANY OTHER UTILITY ACCESSORIES TO FINISH PAVEMENT SURFACE OR SIDEWALK GRADE.  
M. THE CONTRACTOR SHALL SURVEY AND ESTABLISH SURVEY CONTROL, INCLUDING THE HORIZONTAL AND VERTICAL CONTROL. THE CONTRACTOR SHALL MAINTAIN THIS CONTROL AND PROVIDE ALL BENCHMARKS, STAKES, GRADES, LEVELS, AND LINES NECESSARY FOR CONSTRUCTION.  
N. PROTECT UNDERGROUND UTILITIES AND THEIR APPURTENANCES TO REMAIN ON SITE FROM DAMAGE DURING CONSTRUCTION OPERATIONS.  
O. ALL EXISTING PAVEMENT AND CONCRETE TO BE JOINED SHALL BE SAWCUT.  
P. BURNING ON, OR NEAR THE JOB SITE WILL NOT BE PERMITTED.  
Q. ALL FILL SHALL BE COMPACTED TO 95% PER ASTM D 698.  
R. UPON COMPLETION OF THE WORK, THE CONTRACTOR SHALL CLEAN THE ENTIRE SITE OF ALL CONSTRUCTION RELATED MATERIAL OR DEBRIS TO THE OWNERS SATISFACTION.  
S. TREE SAVE NOTES:  
a. TEMPORARY TREE SAVE FENCING INSTALLED UNDER THE ROUGH GRADING CONTRACT SHALL BE MAINTAINED UNTIL THE OWNER ALLOWS ITS REMOVAL. REMOVE OF THIS FENCING SHALL BE INCLUDED HEREIN.  
b. THE SITE WORK CONTRACTOR(S) SHALL BE FAMILIAR WITH AND OBSERVE THE APPLICABLE REQUIREMENTS. ANY QUESTION SHOULD BE DIRECTED TO THE PROJECT CIVIL ENGINEERING REPRESENTATIVE.  
T. LAND DEVELOPMENT ENGINEER TO BE GIVEN 24 HOURS NOTICE PRIOR TO START OF CONSTRUCTION. COORDINATE ALL CURB AND STREET GRADES IN INTERSECTION WITH NCDOT/COUNTY INSPECTOR.  
U. APPROVAL OF THIS PLAN IS NOT AN AUTHORIZATION TO GRADE ON ADJACENT PROPERTIES. WHEN FIELD CONDITIONS WARRANT OFFSITE GRADING, PERMISSION MUST BE OBTAINED FROM THE AFFECTED PROPERTY OWNERS.  
V. IN ORDER TO ENSURE PROPER DRAINAGE, KEEP A MINIMUM SLOPE OF 0.5% ON PAVED SURFACES.  
W. ALL STRUCTURES SHALL BE HENDERSON COUNTY STANDARD UNLESS NOTED OTHERWISE.  
X. ALL STORMAGE SHALL COMPLY TO THE HENDERSON COUNTY ZONING ORDINANCE.  
Y. ALL EXISTING DRIVEWAYS AND CURB CUTS THAT ARE NOT USED SHALL BE REMOVED AND REPLACED WITH CONCRETE CURB, GUTTER, AND SIDEWALK.  
AA. THE DEVELOPER/APPLICANT OF THE PROPERTY INTENDS TO PROVIDE MAINTENANCE OF ALL ONSITE INFRASTRUCTURE UPON COMPLETION OF CONSTRUCTION AND BENEFICIAL OCCUPATION.  
BB. SEE SHT. C-3 FOR CENTERLINE AND CURVE TABLE.

**CONSTRUCTION NOTES:**

- EXISTING TOPOGRAPHICAL INFORMATION SHOWN HEREIN WAS OBTAINED FROM A SURVEY PERFORMED BY PSTTT PROFESSIONAL SERVICES. CONTRACTOR SHALL PROTECT ADJACENT PROPERTIES, THE GENERAL PUBLIC.
- AND ALL OF THE OWNERS FACILITIES AND SHALL BE RESPONSIBLE FOR THE REPAIR OF ALL DAMAGES WHICH OCCUR DURING CONSTRUCTION. LOCATION OF ALL EXISTING UTILITIES, AS SHOWN HEREIN, ARE APPROXIMATE ONLY.
- NO GUARANTEE IS MADE OR IMPLIED BY THE LOCATION REFLECTED IN THE PLANS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE TYPE, SIZE AND LOCATION OF ALL UTILITIES AND OTHER FEATURES WHICH MAY EFFECT CONSTRUCTION OR THE INTENDED FUNCTION OF THE DESIGN. CONTRACTOR SHALL NOTIFY DESIGNER PRIOR TO CONSTRUCTION IF EXISTING CONDITIONS DIFFER FROM THAT INDICATED IN THE PLANS.
- CONTRACTOR SHALL MAINTAIN LIMITS OF CLEARING AND GRADING OF EXISTING VEGETATION WITHIN 5' OF LIMITS OF CONSTRUCTION AS SHOWN.
- ALL WORK IN THE NCDOT RIGHT-OF-WAY TO BE DONE IN ACCORDANCE WITH NCDOT SPECIFICATIONS AND STANDARDS.
- CONTRACTOR TO PROVIDE INLET PROTECTION AT EACH STRUCTURE AS STORM SYSTEM IS CONSTRUCTED.

**JURISDICTIONAL NOTES:**

APPROVAL OF THIS PLAN IS NOT AN AUTHORIZATION TO GRADE ADJACENT PROPERTIES. WHEN FIELD CONDITIONS WARRANT OFF-SITE GRADING, PERMISSION MUST BE OBTAINED FROM THE AFFECTED PROPERTY OWNERS.

THE DEVELOPER SHALL MAINTAIN EACH STREAM, CREEK, OR BACKWASH CHANNEL IN AN UNOBSTRUCTED STATE AND SHALL REMOVE FROM THE CHANNEL AND BANKS OF THE STREAM ALL DEBRIS, LOGS, TIMBER, JUNK AND OTHER ACCUMULATIONS.

HENDERSON COUNTY HAS NOT REVIEWED THE STRUCTURAL INTEGRITY OF ANY RETAINING WALLS ON THE SITE AND DOES NOT ASSUME RESPONSIBILITY FOR THEM.

A PORTION OF THE PROPERTY CONTAINS STREAMS AND WETLANDS THAT REQUIRE PERMITTING FOR DISTURBANCE THROUGH THE US ARMY CORP OF ENGINEERS. THE PERMIT PACKAGE CONTAINS THE DELINEATED AREAS FOR DISTURBANCE.

**SITE GRADING NOTES:**

- ALL SILT BARRIERS MUST BE PLACED IMMEDIATELY FOLLOWING CLEARING.
- NO GRADING SHALL TAKE PLACE UNTIL SILT BARRIERS INSTALLATION IS COMPLETED.
- ALL DRAINAGE EASEMENTS MUST BE GRASSED AND/OR RIP-RAPPED PER THE PLANS TO CONTROL EROSION.
- THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO, OR CONCURRENT WITH, LAND-DISTURBING ACTIVITIES.
- EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL, ADDITIONAL EROSION, AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE.
- THE SITE SHALL RECEIVE TEMPORARY/PERMANENT SEEDING WITHIN 7 DAYS OF COMPLETION OF GRADING OPERATIONS. ALL GRADED SLOPES INCLUDING TOPSOIL ARE TO HAVE A GROUND COVER ESTABLISHED WITHIN 21 CALENDAR DAYS.

**SITE PLAN KEYS**

- 1 PROVIDE 20' RIPRAP APRON W/ CLASS 1 STONE 24" THICK
- 2 GRASS LINED PARABOLIC DITCH 1
- 3 GRASS LINED PARABOLIC DITCH 2
- 4 GRASS LINED PARABOLIC DITCH 3
- 5 SILT FENCE. SEE SHT. C6
- 6 DESIGN/BUILD RETAINING WALL. CONTRACTOR TO SUBMIT SHOP DRAWINGS FOR SUBMITTAL AS REQUIRED.
- 7 ROCK RING FILTER, 2' HIGH W/ 5' DIAMETER. SEE DETAIL, SHT C6
- 8 DIVERSION BERM (TEMPORARY) (PART OF INITIAL LAND GRADING)
- 9 NEW STORM SEWER. REFER TO TABLE AND PROFILES FOR DETAILS.
- 10 MATCH EXIST. GRADE. MAINTAIN EXIST DRAINAGE PATTERNS.
- 11 TEMPORARY SEDIMENT TRAP. SEE DETAILS AND CALCULATIONS ON SHT. C7.
- 12 TEMPORARY STORM INLET PROTECTION (TYP.).
- 13 PROVIDE 12' RIPRAP APRON W/ CLASS B STONE 12" THICK

| DITCH CALCULATIONS |      |     |      |            |       |        |      |         |                             |
|--------------------|------|-----|------|------------|-------|--------|------|---------|-----------------------------|
| Ditch No.          | Da   | "c" | Q10  | Total Flow | SLOPE | SS     | Dn   | V (fps) | Remarks                     |
| 1                  | 3.45 | 0.6 | 16.8 | 16.77      | 1.36% | 3 to 1 | 1.13 | 3.40    | NAG SC150 or approved equal |
| 2                  | 1.29 | 0.6 | 6.3  | 6.27       | 1.70% | 3 to 1 | 0.77 | 2.50    | NAG SC150 or approved equal |
| 3                  | 0.23 | 0.6 | 1.1  | 1.12       | 3.00% | 3 to 1 | 0.32 | 0.61    | NAG SC150 or approved equal |

Project No:  
**183006**

**C-3**  
4 of 10

Drawing Title:  
**GRADING, DRAINAGE & EROSION CONTROL**

RESIDENTIAL SUBDIVISION  
LIFESTYLE HOMES OF DISTINCTION  
SOUTH ORCHARD ROAD  
NORTH CAROLINA  
HENDERSON COUNTY

**Brooks Engineering Associates**  
Planning - Engineering - Surveying  
• Environmental Services •

Revised:  
SML  
Drawn:  
DLL  
Checked:  
SML

Scale:  
AS NOTED

Date:  
5-15-07

17 Arlington Street  
Asheville, N.C. 28801  
Phone: 1-828-232-4700  
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www.brooksa.com

**Brooks Engineering Associates**  
NORTH CAROLINA  
REGISTERED PROFESSIONAL ENGINEER  
No. 12345  
Exp. 12/31/2010

No. 1  
2

REVISIONS/SUBMISSIONS

Date  
10/11/07  
11/09/07

INITIAL SUBMITTAL TO CITY  
STATE SUBMITTAL/BD SET

PRELIMINARY - DO NOT USE FOR CONSTRUCTION