

**Town of Boone
Planning Commission
Special Meeting
6:00 PM, Sep. 12, 2016
Council Chambers, 1500 Blowing Rock Road**

Adoption of Agenda

Case 20160136 Riverswalk PD - Zoning Map Amendment

1. Rivers Walk Application Information
2. Rivers Walk Neighborhood Meeting Information
3. Rivers Walk Applicant's Development Narrative
4. Rivers Walk Applicant's Summary of Changes
5. Rivers Walk Information Submitted to Community Appearance Commission
6. Rivers Walk Site Plans
7. Rivers Walk Building Elevations
8. Rivers Walk Lighting Plans
9. Rivers Walk Floor Plans
10. Rivers Walk Traffic Impact Analysis
11. Rivers Walk Parking Study
12. Rivers Walk PD Zoning Map Amendment Staff Report

Adjournment

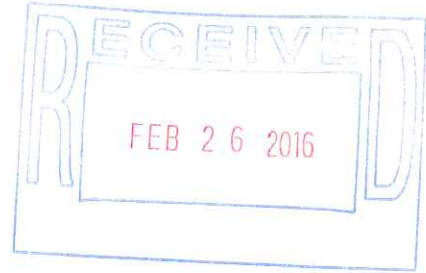
20160136

Harrod LLC/Peak Campus Planned Development Property Owners' Meeting

A neighborhood meeting, pursuant to the planned development under Section 9.10.05 of the Unified Development Ordinance was held on December 17, 2015. A notice was given to all of the property owners located within 150 feet of the development site on November 23, 2015, a copy of the Notice is attached. The meeting was held at the Watauga County Agriculture Center at 971 West King Street, Boone, North Carolina. The center had adequate parking and was a convenient location being next to the property in question.

The attendees at the meeting were as follows:

1. Mary Dean Silver on behalf of Resort Area Ministries
P.O. Box 24
Boone, NC 28607
2. Ben Miller
190 Berkeley Street
Boone, NC 28607
3. Deron Geouque, Watauga County Manager
814 West King Street
Boone, NC 28607
4. Monty Dunlap
P.O. Box 215
Boone, NC 28607
5. Sam Furgiuele and Peggy Mendell-Furgiuele
119 Gragg Street
Boone, NC 28607
6. Jeff Githens
2970 Claremont Road
Atlanta, GA
7. Glenn Weaver
3361 Fieldwood Drive
Smyrna, GA 30080
8. Alan Crees, Municipal Engineering
P.O. Box 349
Boone, NC 28607
9. James M. Deal, Jr., Deal, Moseley & Smith, LLP
870 West King Street, Suite B
Boone, NC 28607



At the meeting the petitioner presented contact information for the parties involved in the ownership design and development of the property, being Jeff Githens and Glenn Weaver. The petitioner also provided information for Alan Crees from Municipal Engineering and James M. Deal, Jr. with Deal, Moseley & Smith, LLP as being representatives of the petitioner. The petitioner then provided design maps of the property and proposed development showing general information on the current conditions of the site. The petitioner also presented the proposed uses and site development with preliminary plans or renderings that were available at that time. The

petitioner presented the existing conditions as well as the proposed development conditions for discussion by the parties attending the meeting. A sheet of contact information was provided to all parties who attended the meeting.

Alan Crees from Municipal Engineering described the site plan as well as the footprint of the property. The location of the greenway easement was discussed. The following items were also discussed:

1. The overhead power lines. The petitioner discussed with members of the public who were present the possibility of moving as many of these overhead lines underground as possible.
2. A discussion was held regarding the location of the dumpster and whether there were alternative locations. The petitioner agreed to look at potential alternative locations for the dumpster to move it further away from Proper Restaurant.
3. Discussion was held regarding the possibility of access into the site from the driveway owned by Watauga County as an access to the parking garage and from there thence onto Poplar Grove Road. Deron Geouque on behalf of the county, discussed this matter with the petitioner.
4. The question of the number of parking spaces within the parking deck took place. The petitioner stated that there were approximately 150 spaces in the parking deck plus approximately 18 surface parking spaces. The property owners who were present discussed the parking issues and whether this would be sufficient parking for the project. As part of the general discussion relating to parking and traffic, the petitioner stated that they would support the idea of a traffic circle at the intersection of Rivers and Water Street.
5. The petitioner discussed changing the location of the pool to a courtyard within the building area which would shelter the pool from the view of the other property owners.
6. The petitioner presented materials regarding the potential layout of the floor plan which would orient commercial space more toward Water Street. It would also increase the ceiling height for the commercial space and move the commercial space to a deeper bay with access from Water Street and Poplar Grove Road. The petitioner discussed the number of commercial spaces that would be oriented toward the intersection of Poplar Grove and Water Street. Mr. Furgiuele commented that he liked the idea of the commercial being pushed more toward Water Street rather than all the way up Poplar Grove Road. In general, the revised building elevations were well received.
7. There was a discussion regarding whether the height of the building fronting Water St. would be in context with the Proper Restaurant building with the roof tops of both buildings being of a similar height. Petitioner agreed to look at the issue.
8. The floorplan above the commercial space was discussed including being approximately 380 bedrooms and the general building elevations. The petitioner discussed that there would be four occupied stories but they would like to expand the floor to floor height to provide more reasonable residential ceiling heights and a taller elevator mechanical area in order to allow elevators to reach all floors. The petitioner also discussed providing a parapet for proper storm drainage and screening of HVAC equipment.
9. A discussion regarding the stream took place and the petitioner stated that they would not be covering any areas of the stream that are not currently covered.

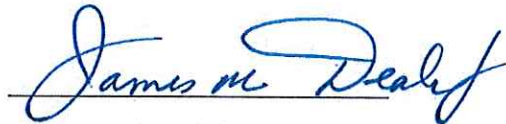
10. There was a discussion regarding potentially extending the proposed Greenway to the parking deck for convenient and safe access to bike storage within the deck. The petitioner represented that they would be amenable to providing such an extension.
11. There was a discussion of possible uses of the commercial space, however there were no defined tenants ready to occupy the commercial space.
12. The last discussion was regarding this project as an improvement to an already approved project in terms of trying to conceal mechanical and HVAC units that might be located on the roof, a relocation of the commercial space to a more commercial friendly area and a general discussion of the allocation of parking spaces within the structure and parking availability for other locations.

The primary concerns voiced by the attendees at the meeting were:

1. The location of the dumpster;
2. A potential concern regarding building height, although screening of mechanical items and rooftop physical items, as well as improving functionality of the building, was seen as a benefit; and
3. A concern over parking and traffic.

The meeting began at approximately 5:30 p.m. and ended at approximately 7:30 p.m. This concludes the report from the meeting of the property owners located with 150 feet of the project.

This Report was prepared by James M. Deal, Jr. pursuant to the Town of Boone UDO Planned Development Ordinance, section 9.10.05.



James M. Deal, Jr.

DEAL, MOSELEY & SMITH, LLP
ATTORNEYS AND COUNSELLORS AT LAW

870 WEST KING STREET, SUITE B
BOONE, NORTH CAROLINA 28607
Telephone (828) 264-4734

Mailing Address:
Post Office Box 311
Boone, North Carolina 28607
Facsimile (828) 264-2712

James M. Deal, Jr.
Allen C. Moseley
Claude D. Smith, Jr. *
C. Philip Ginn
Bryan P. Martin
J. Tucker Deal

* Also Licensed in Georgia
Certified Mediator

November 23, 2015

Dear Property Owner,

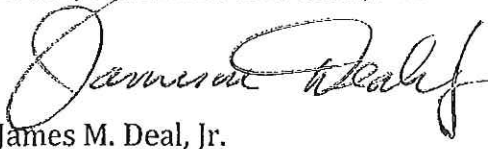
The purpose of this letter is to provide notice of a neighborhood meeting concerning a potential Planned Development for the old Southern States and G & B Oil properties along Water Street and Poplar Grove Road. The meeting is scheduled for Thursday, December 17th at 5:30 p.m. and will be held at the Watauga County Agricultural Center, located at 971 W. King St. Boone, NC. This meeting will be open to the owners of property located within 150 feet of the proposed Planned Development.

At the meeting, the proponent of the potential Planned Development will, at a minimum, present the following information:

1. Contact information of the parties involved in the ownership, design, and development of the property;
2. The location of the property and general information on the current conditions of the site;
3. Proposed use(s) and site development;
4. Any preliminary plans or renderings, if available; and
5. Any other information deemed pertinent by the Director of Planning & Inspections for the Town of Boone.

Very truly yours,

DEAL, MOSELEY & SMITH, LLP


James M. Deal, Jr.



Harrod/AP, LLC
3361 Fieldwood Drive
Smyrna, GA 30080
Tele: 919-414-0739
Fax: 800-878-2244
Email: glenn.weaver@frontier.com

July 12, 2016

Mr. Bill Bailey, Director
Town of Boone Planning and Inspections
680 W. King Street, Suite C
Boone, NC 28607

Re: Rivers Walk Planned Development Submittal

Dear Mr. Bailey:

We are pleased to submit to you our Planned Development (PD) Submittal for the Rivers Walk Project (Project) in downtown Boone. This proposal is similar to that approved by the Town Council on February 23, 2015, but differs in three ways: (1) retail is requested to be co-located closer to Water Street, (2) parapets are requested in lieu of mechanical screens, and (3) a potential, parking deck entrance is requested from the County alley.

Specific responses to section 9.10.05 of the UDO are provided below:

9.10.05

B. Specific information which must be submitted:

1. **A site specific development plan addressing plan aspects identified in Appendix A, identifying all development specifics which deviate from the standards of this Ordinance.**

With the exception of the items below, everything else in Appendix A is addressed in the drawings.

A2.01.D

A summary of changes to the Project with this PD versus the Conditional Use District Map Amendment approved on February 23, 2015 and the underlying UDO requirements are as follows:

- Residential will not materially change – The residential component of the Project is very similar to that approved on February 23, 2015. The total bed count remains unchanged at 380 beds. The total unit count is 151 versus 145 previously. This change in unit count is due to a change in unit configuration and distribution. A 24 hour, video monitoring, security office/quarters is added.
- Commercial footage provided will not materially change. – The commercial component of the Project has been improved from the February 23, 2015 approval to relocate most of the commercial space nearer to the intersection of Water Street and Poplar Grove Road in lieu of fronting all street frontages with ground level



commercial. In doing so, the Project now has a deeper retail, better proximity to the surface parking lot, and retail accessed off Water Street has higher commercial ceiling height than the previous design.

Per the UDO - where commercial is required on fifty percent (50%) of the square footage of each building on the primary street level (Water Street in this case) and thirty (30%) of each additional street level floor (Poplar Grove Road in this case) for developments located on lots which abut more than one public street in the Central Business District – the Project provides the required commercial space and has not materially changed.

Thus, the commercial component of the Project is generally consistent with sections 15.11.02.A, B, and C of the UDO with the exception of the reorientation of the commercial space towards the Water Street and Poplar Grove Road intersection and the slight deviation from the required commercial space as noted above.

- The Project's parking configuration will not materially change. The design of the parking deck is now efficiently increasing the number of spaces for vehicles, motorbikes and bikes. The lower level deck can alternatively be accessed from the County's property if the County allows this access. Otherwise, the access will be from Poplar Grove Road as shown in the attached plans with sight distances as per NCDOT. In addition to the Tenant Lease requiring that every tenant have a parking contract for their car, a satellite parking lot for 100 plus spaces will be provided by Landlord for the benefit of Tenants. The total on-site parking count provided versus (that approved on February 23, 2015) - and what is required by the UDO, is as follows:
 - Vehicular – 199 versus (184) – Only maximum regulated, no minimum required.
 - Car Share – 2 versus (2) – None required.
 - Motorcycle – 4 versus (6) – 4 are required at ratio of 1 per 40 vehicular spaces.
 - Bicycle – 56 in garage plus 16 in basement versus (72) – 47 are required.
 - Additional, Satellite Parking (off-site) for 100 additional spaces will be secured prior to receiving a Certificate of Occupancy from the Town of Boone.
- Building Height – The current approved height is 40' plus additional screening for rooftop mechanical equipment, (screening is not counted in height measurements per code). To provide for parapets to improve water management, to screen HVAC equipment, and to allow overhead elevator equipment to penetrate the roof line so that elevators can reach all residential levels, the Project needs PD approval. Parapets ranging from 2' to 5' are requested, which exceed the approval granted on February 23, 2015.



These requested building heights for parapets vary from those permitted in sections 16.08.02, 04, 05, and 09 of the UDO, but are necessary to provide the benefits noted above.

- **Building Footprint/Site Plan** – The building footprint/site plan will not materially change and is generally consistent with sections 15.11.02 D, E, F, G, H, I, J, and K of the UDO.

A2.01.G

The total construction cost of the Project is approximately \$25.5 million.

2. **Written analysis, tailored to specifically address the characteristics of the particular location, addressing how the planned development will effectively and to the greatest degree reasonably possible, mitigate the impacts of the proposed development on the surrounding area, including but not limited to:**

- a. **noise impacts;**

Balconies locations will not materially change and are mostly located on certain units facing Boone Creek. Professional on-site management will be available at all hours to manage resident conduct and any complaints. In addition a 24 hour security monitory and security facilities are provided to manage the parking deck and building.

- b. **light impacts; and**

Lighting will not materially change. The majority of the parking on-site is within the parking deck which will be at or below the grade of Poplar Grove Road. Additionally, all exterior lighting requirements/codes will be followed.

- c. **Elevations and esthetics will not materially change. Possible, predictable negative effect including but not limited to:**

- i. **negative visual effects;**

The parapets are considered to be esthetically superior to mechanical screens.. Given the site's location at the bottom of a valley and the steep topography of the surrounding properties, either screens or parapets are neccessary to prevent pedestrians on King Street or in Rivers Park from seeing the roof and mechanical equipment. The proposed street-scaping, utility relocation underground, and historic architectural style will further enhance the site as a true gateway into downtown Boone. The Greenway extension and the restoration of the vegetated buffer along Boone Creek also will greatly improve the visual effects.

- ii. **negative traffic effects; and**

Parking and traffic will not materially change. The Project will reduce the current 6 driveway entrances on the site to 2 and move them further away from the intersection of Water Street and Poplar Grove Road.

- iii. **negative health effects.**



Health effects will not materially change. The Project stands to redevelop a blighted property and mitigate a site that has been environmentally impacted to the betterment of all surrounding properties, neighbors, and Boone Creek. The urban infill nature of the Project with proximity to downtown Boone and the Appalachian State campus will promote walkability, bike-ability, and connect to mass transit. On site amenities, fitness center, and programs will promote health and well-being for our residents and the citizens of Boone. The Project simply epitomizes best practices in mixed-use design.

3. **Information to demonstrate compliance with all mandatory requirements of this Ordinance, including:**
 - a. **Article 5 Subdivisions (for purposes of this Section the Town Council is the approval authority for major subdivision preliminary plats); N/A**
 - b. **Article 8 Historic Preservation; N/A**
 - c. **Article 19 Grading; Addressed on plans**
 - d. **Article 20 Soil Erosion and Sediment Control; Addressed on plans**
 - e. **Article 21 Stormwater Management; Addressed on plans**
 - f. **Article 22 Utilities; Addressed on plans**
 - g. **Article 29 Watershed Protection; N/A**
 - h. **Article 30 Flood Damage Prevention; Addressed on plans**
4. **Other information which may be required by the Administrator to fully evaluate the proposed development and its potential impacts on the surrounding area. Such information may include but is not limited to: traffic impact analysis, community impact analysis, additional engineering, and legal information.**

We look forward to working with the CAC and Town Council to optimize the architecture and function of the planned project.

Sincerely,

Glenn Weaver
Manager



Date Received
July 12, 2016

Harrod / AP, LLC
Academic Privatization, LLC
3361 Fieldwood Drive
Smyrna, GA 30080
Tele: 919-414-0739
Fax: 800-878-2244
Email: glenn.weaver@frontier.com

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1. **A summary of changes to the Project** with this PD versus the Conditional Use District Map Amendment approved on February 23, 2015 is as follows:

- (i) **Relocation of Commercial Space:**

- Residential will not materially change – The residential component of the Project is very similar to that approved on February 23, 2015. The total bed count remains unchanged at 380 beds. The total unit count is 151 versus 145 previously. This change in unit count is due to a change in unit configuration and distribution.
- Commercial square footage provided will not materially change – The Commercial component of the Project has been improved to relocate most of the Commercial space closer to the intersection of Water Street and Poplar Grove Road. In doing so, the Project now has a deeper retail space for larger tenants, better proximity to the surface parking lot, and the retail accessed off Water Street has a higher Commercial ceiling than the previous design.



- A 24 hour, video monitoring, security office/quarters is added as a part of the Commercial space. This facility will provide security personal to observe the activities in the Commercial and residential parking spaces. Issues such as intruders, break-ins, auto accidents, car alarm activations, reserve space violations and mechanical gates can be observed and resolved.
- The elevations and storefronts related to the Commercial spaces will not materially change from those previously approved. The intent is that the storefronts on Poplar Grove Road will not change even as the use resulting from the relocation may change. (See elevation and floor plans attached.)

(ii) Parapets in lieu of mechanical screens:

- Building Height – The current approved height is 40' plus additional screening for rooftop mechanical equipment. (Screening is not counted in height measurements per code.) Parapets are requested to improve water management and to screen HVAC equipment, and to allow overhead elevator equipment to penetrate the roof line so that elevators can reach all residential levels.
- Parapets are considered to be esthetically superior to mechanical screens and allow for more variety and enhancements to the building elevations along Poplar Grove Road. Given the site's location at the bottom of a valley and the steep topography of the surrounding properties, either parapets or screens will be necessary to prevent pedestrians on King Street or in Rivers Park from seeing the roof and mechanical equipment.
- Attached architectural drawings demonstrate that without parapets or screens, the roof and mechanical equipment will be visible.
- These requested building heights for parapets vary from those permitted in sections of the UDO, but are necessary to provide the benefits noted above.
- A cupola and two chimneys extending five feet above the parapets are requested to enhance variety of the roofline. These are not required but are considered esthetically desirable.



(iii) **Approval for an additional and optional entrance to the parking deck is requested:**

- The Project's parking configuration will not materially change; however, the design of the parking deck is now more efficiently increasing the number of spaces for vehicles, motorbikes and bikes. Developer requests that the lower level of the parking deck be approved for an additional access from the County's property or alley, if and when the County approves this access. Otherwise, all access will be from Poplar Grove Road as shown in the attached plans with sight distances as per NCDOT.
- The building footprint, site plan and elevations will not materially change as a result of the additional egress from the County alley, although an additional egress portal is required on the west elevation through the basement.

2. **The Elevations and Site Plan** do not materially change other than as described below:

(i) **Elevations:**

- The proposed elevations are our efforts to reflect the character of King Street by creating a variety of many small individual building fronts lining Poplar Grove Road. Certain building styles were simulated from existing structures in Lenoir, Blowing Rock and many other towns of the Appalachian Region. Local rock, NC and TN brick, glass, wood, cement plank, and hurricane rated dryvit are incorporated to create the feel of the early 1900's.
- The building elevations will not materially change from those approved; however, minor changes occur in certain materials and colors and fenestration. These are refinements for the building that were not previously defined.
- The elevations are only materially changed as a result of the parapets. See elevation and rendering package attached.

(ii) **Site Plan:**

- The proposed street-scaping, utility relocation underground, and historic architectural style will further enhance the site. The Greenway



extension and the restoration of the vegetated buffer along Boone Creek also will greatly improve the visual effects.

- Building Footprint/Site Plan – The building footprint/site plan will not materially change other than as defined below. Minor changes occur in certain corners of the foundation, but these are refinements that enable the reduction of the building coverage and do not impact any setback or restricted areas.
- The Building Footprint/Site Plan is only materially change as a result of the additional parking egress. See complete site plan package attached.

3. **The Revised Site Plan** is attached and does not materially change other than as described above.

4. **The Revised Use Calculations:**

- 16,647sf of Commercial space plus 42 interior Commercial parking spaces were originally approved. The PD request is for 17,480sf of Commercial space plus the same number of dedicated Commercial spaces during business hours.
- The total Commercial space was defined as:

Heated Commercial/Retail	16,647 sf
Elevation 3262 P1 Parking	12,324 sf
Total	28,971 sf

- The Commercial uses are substantially the same as planned to include:

Real Estate Leasing Management Office
 Gym
 Coffee Shop
 UPS style printing and copy shop
 Cafe and Bar
 Full service restaurant with alcohol service
 Security Office
 Furniture Repair Shop
 General Merchandise and Clothing stores
 Convenience Store
 Security Office/Quarters:



5. Bedroom Unit Count

- 145 apartments or condominiums with 380 bedrooms were originally approved. Over half of the apartments were expected to be one and two bedroom units. The distribution anticipated was:

Studio			
1 Bedroom	14	10%	14
2 Bedroom	79	54%	158
3 Bedroom			
4 Bedroom	52	36%	208
<u>4 Bedroom 2 Story Apt.</u>			
Total	145		380

- The PD request is for 151 apartments with 380 bedrooms and expected to include a distribution of:

Studio	8	5%	8
1 Bedroom	9	6%	9
2 Bedroom	83	55%	166
3 Bedroom	7	5%	21
4 Bedroom	35	23%	140
<u>4 Bedroom 2 Story Apt.</u>	9	6%	36
Total	151		380

- 6. Parking and traffic** will not materially change, but some enhancements have been incorporated:

The Project redevelops a blighted property and mitigates a site that has been environmentally impacted. The urban infill nature of the Project with proximity to downtown Boone and the Appalachian State campus will promote walk-ability, bike-ability, and connect to mass transit. The site is approximately 600 feet from the Appalachian State Student Center and closer to Academic Facilities than some university owned housing. On-site amenities, fitness center, and programs will promote health and well-being for our Tenants and the citizens of Boone. The Project simply epitomizes best practices in mixed-use design for young professionals and students.

Both Traffic and Parking Studies have been approved. The Project will reduce the current six driveway entrances on the site to two and move them further away from the intersection of Water Street and Poplar Grove Road. Since February



23, 2015, and at Bill Bailey's request, three parking enhancements have been incorporated:

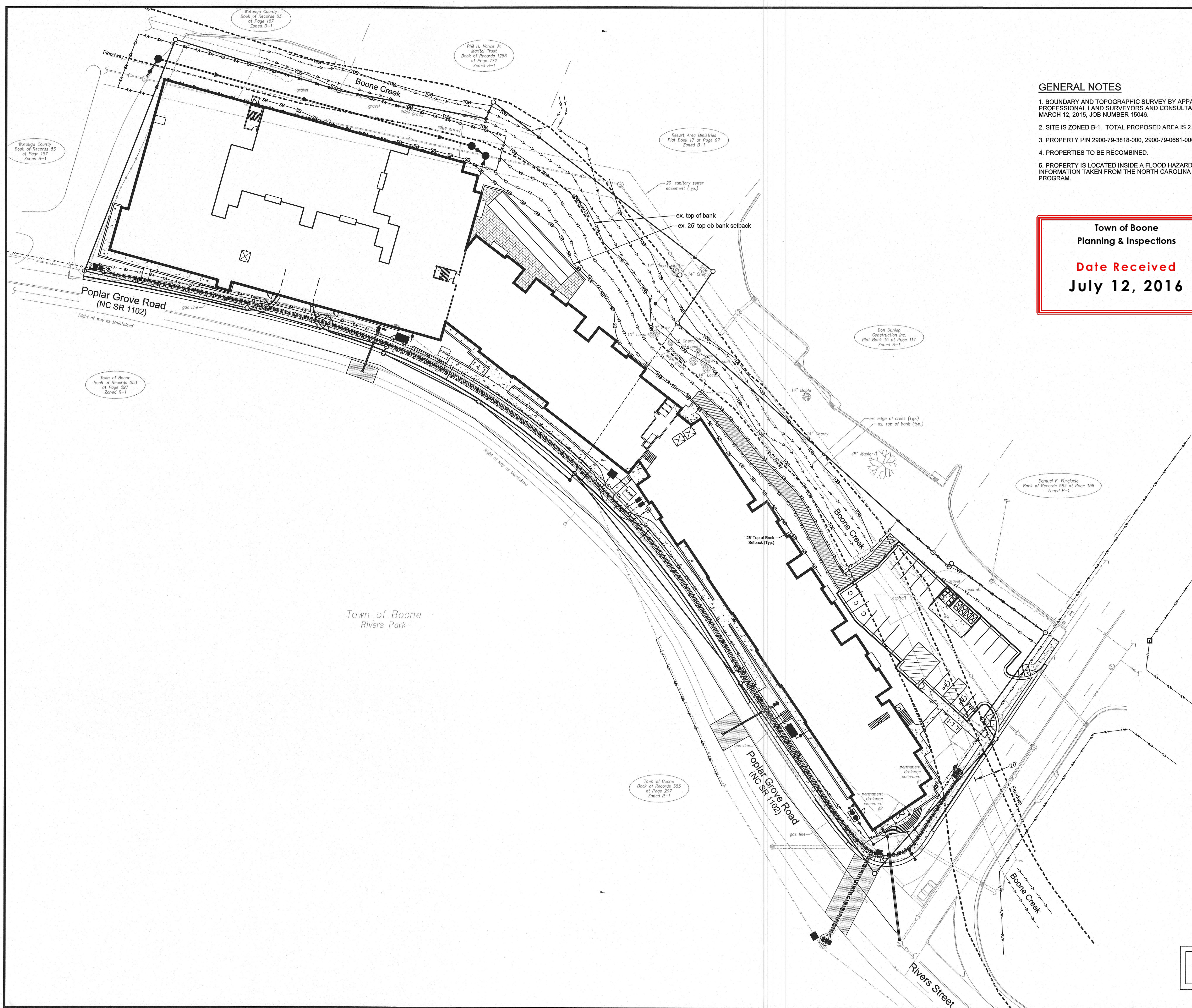
- A mandatory provision to the Tenant Lease requires that any Tenant bringing a car to Boone is required to present evidence to Landlord that a contract for parking has been secured. The Lease amendment is enforceable, and Landlord is required to assure that the Tenant has secured a Parking Contract in order for the Lease to be valid.
- Two car sharing (Zip cars or the equivalent) have been committed by the Landlord for the benefit of Tenants.
- 15 additional parking spaces have been provided in the parking deck and surface parking.
 - a. Vehicular – 199 versus (184) – Only maximum regulated, no minimum required.
 - b. Car Share – 2 versus (2) – None required.
 - c. Motorcycle – 4 versus (6) – 4 are required at ratio of 1 per 40 vehicular spaces.
 - d. Bicycle – 54 versus (72) – 47 are required.

In addition, as part of this PD application, the Developer will secure off-site parking facility for 100 cars for lease to Tenants (Satellite Parking). This facility will be operational prior to issuance of a Certificate of Occupancy by the Town of Boone. Other Commercial and university parking for students is also available.

We look forward to working with the CAC and Town Council to optimize the architecture and function of this planned project.

Sincerely,

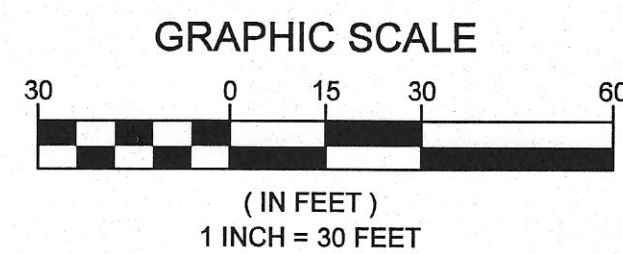
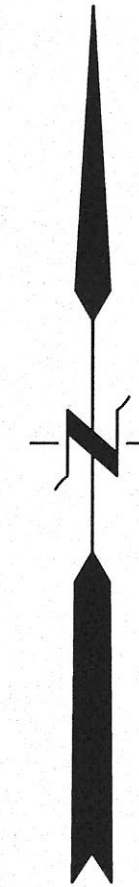
Glenn Weaver
Manager



- GENERAL NOTES**
1. BOUNDARY AND TOPOGRAPHIC SURVEY BY APPALACHIAN PROFESSIONAL LAND SURVEYORS AND CONSULTANTS, PA, DATED MARCH 12, 2015, JOB NUMBER 15046.
 2. SITE IS ZONED B-1. TOTAL PROPOSED AREA IS 2.747 ACRES .
 3. PROPERTY PIN 2900-79-3818-000, 2900-79-0661-000 & 2900-69-8658-000.
 4. PROPERTIES TO BE RECOMBINED.
 5. PROPERTY IS LOCATED INSIDE A FLOOD HAZARD AREA. FLOOD INFORMATION TAKEN FROM THE NORTH CAROLINA FLOOD MAPPING PROGRAM.

Town of Boone
Planning & Inspections

Date Received
July 12, 2016



PRELIMINARY
FOR REGULATORY REVIEW ONLY

Engineering Company, P.A.
P.O. BOX 348 BOONE, N.C. 28607
(828) 262-1767
LICENSE NUMBER: C-0281

Municipal Services

**RIVERS WALK
HARROD/AP, LLC**

**WATER STREET & POPLAR GROVE ROAD
BOONE, NORTH CAROLINA**

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[illegible]

Town of Boone
Planning & Inspections
Date Received
July 12, 2016

PRELIMINARY
FOR REGULATORY REVIEW ONLY

by _____
Professional Engineer

RIVERS WALK
HARROD/AP, LLC
WATER STREET & POPLAR GROVE ROAD
BOONE, NORTH CAROLINA

BUILDING FOOTPRINT REVIEW		DESCRIPTION
1.		COVER SHEET

SCALE: AS SHOWN	
DATE: 12-22-14	
DRAWN BY: AJC	
CHKD. BY: AJC	
PROJECT NUMBER	
B13057.3	
DRAWING NO.	SHEET NO.
C-1	1 OF 6

1.1 MIXED-USE MULTI-FAMILY RESIDENTIAL:

14 ONE BEDROOM UNITS
79 TWO BEDROOM UNITS
52 FOUR BEDROOM UNITS

MAXIMUM PARKING SPACE REQUIREMENTS

1 BEDROOM UNITS:	1 PARKING SPACE / UNIT	X	14 UNITS	=	14 SPACES
2 BEDROOM UNITS:	2 PARKING SPACES / UNIT	X	79 UNITS	=	158 SPACES
4 BEDROOM UNITS:	3 PARKING SPACES / UNIT	X	52 UNITS	=	156 SPACES

MAXIMUM RESIDENTIAL AUTOMOBILE PARKING SPACES: = 328 SPACES

2.1 COMMERCIAL RETAIL:

COMMERCIAL RETAIL SPACE: 16,000 FT²
MAXIMUM SPACE REQUIREMENT: 5 SPACES / 1,000 FT² OF RETAIL SPACE

MAXIMUM COMMERCIAL AUTOMOBILE PARKING SPACES: = 80 SPACES
TOTAL MAXIMUM AUTOMOBILE PARKING SPACES: = 408 SPACES

AUTOMOBILE PARKING SPACES PROVIDED:

PARKING DECK = 166
SURFACE PARKING LOT = 18
LEASED SPACES = AS NEEDED

TOTAL SPACES PROVIDED = 184 + LEASED SPACES AS NEEDED

MOTORCYCLE PARKING REQUIREMENTS

TOTAL NUMBER OF AUTOMOBILE PARKING SPACES: = 160 SPACES
MOTORCYCLE PARKING SPACE REQUIREMENT: 1 SPACE / 40 AUTOMOBILE PARKING SPACES

MINIMUM NUMBER OF MOTORCYCLE PARKING SPACES REQUIRED: = 4 SPACES
PROVIDED MOTORCYCLE PARKING SPACES: = 6 SPACES

ALL MOTORCYCLE SPACES WILL BE LOCATED IN THE PARKING STRUCTURE ON IN THE SURFACE LOT

BICYCLE PARKING REQUIREMENTS

SHORT TERM BICYCLE SPACES

TOTAL NUMBER OF RESIDENTIAL UNITS: = 145 UNITS
RESIDENTIAL SHORT TERM BICYCLE SPACE REQUIREMENT: 1 SPACE / 20 UNITS
MINIMUM NUMBER OF SHORT TERM BICYCLE SPACES REQUIRED FOR RESIDENTIAL: = 7 SPACES

TOTAL COMMERCIAL GROSS FLOOR AREA: = 16,647 FT²
COMMERCIAL SHORT TERM BICYCLE SPACE REQUIREMENT: 1 SPACE / 5,000 FT² GROSS FLOOR AREA
MINIMUM NUMBER OF SHORT TERM BICYCLE SPACES REQUIRED FOR COMMERCIAL: = 3 SPACES

MINIMUM NUMBER OF SHORT TERM BICYCLE SPACES REQUIRED: = 10 SPACES
PROVIDED SHORT TERM BICYCLE SPACES: = 16 SPACES

LONG TERM BICYCLE SPACES

TOTAL NUMBER OF RESIDENTIAL UNITS: = 145 UNITS
RESIDENTIAL LONG TERM BICYCLE SPACE REQUIREMENT: 1 SPACE / 4 UNITS
MINIMUM NUMBER OF LONG TERM BICYCLE SPACES REQUIRED FOR RESIDENTIAL: = 36 SPACES

TOTAL COMMERCIAL GROSS FLOOR AREA: = 16,647 FT²
COMMERCIAL LONG TERM BICYCLE SPACE REQUIREMENT: 1 SPACE / 12,000 FT² GROSS FLOOR AREA
MINIMUM NUMBER OF LONG TERM BICYCLE SPACES REQUIRED FOR COMMERCIAL: = 1 SPACES

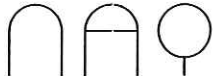
MINIMUM NUMBER OF LONG TERM BICYCLE SPACES REQUIRED: = 37 SPACES
PROVIDED LONG TERM BICYCLE SPACES: = 56 SPACES

SHORT TERM BICYCLE RACKS WILL BE LOCATED OUTSIDE IN FRONT OF THE BUILDINGS
ALL LONG TERM BICYCLE SPACES WILL BE PROVIDED IN COVERED AREAS OF THE PARKING DECK.

BICYCLE PARKING NOTES

ALL BICYCLE PARKING FACILITIES SHALL MEET THE REQUIREMENTS OF THE TOWN OF BOONE'S UNIFIED DEVELOPMENT ORDINANCE. IN PARTICULAR, BICYCLE PARKING FACILITIES SHALL BE CONSTRUCTED OF MATERIALS OF SUFFICIENT STRENGTH TO SIGNIFICANTLY RESIST THEIR DISPLACEMENT OR REMOVAL, AND THEY SHALL BE SECURELY ANCHORED IN CONCRETE OR OTHER EQUIVALENT MATERIAL OR SYSTEM OF SUFFICIENT STRENGTH TO SIGNIFICANTLY RESIST REMOVAL. BICYCLE PARKING FACILITIES SHALL SUPPORT BICYCLES IN A STABLE POSITION WITHOUT DAMAGE TO WHEELS, FRAME OR OTHER COMPONENTS AND ALLOW FOR THE USE OF EITHER A CABLE, U-SHAPED, OR SIMILAR LOCK TO SECURE BOTH WHEELS OF THE BICYCLE. NO LESS THAN 4" SHALL BE PROVIDED BETWEEN PARALLEL RACKS.

EXAMPLES OF ACCEPTABLE FACILITIES:



- CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES PRIOR TO EXCAVATION.
- NEW SANITARY SEWER MAINS SHALL BE 12" CLASS 350 DUCTILE IRON PIPE UNLESS SPECIFIED OTHERWISE.
- ALL SANITARY SEWER SERVICES SHALL BE 6" SCH 40 PVC, CONSTRUCTED ACCORDING TO NC BUILDING CODE. PLACE 2-DIRECTIONAL CLEANOUTS ON S.S. SERVICE WITHIN 10' OF BUILDING.
- PLUMBING ENGINEER SHALL CONFIRM SIZE, MATERIAL, AND LOCATION OF ALL SEWER SERVICES.
- SANITARY SEWER MAIN SHALL BE BEDDED IN STONE IN POOR SOIL CONDITIONS AND AT DEPTHS GREATER THAN 10' OR AS DIRECTED BY ENGINEER.
- RIM ELEVATIONS MAY VARY AFTER GRADING IS COMPLETED. MATCH RIM ELEVATIONS TO FINISHED GRADE.
- SANITARY SEWER MANHOLES WITH UPSTREAM PIPE GRADES ABOVE 8% SHALL BE CONSIDERED "HIGH VELOCITY" MANHOLES. INVERTS SHALL BE COATED WITH 4 MILS OF ABRASION RESISTANT EPOXY RESIN. SEE DETAIL ON DETAIL SHEET.
- THE CONTRACTOR/PROPERTY OWNER IS RESPONSIBLE FOR ANY DAMAGE TO THE SEWER MAINS IN THE CONSTRUCTION AREA UNTIL CONSTRUCTION IS COMPLETE.
- ALL NEW SEWER MAINS LOCATED OUTSIDE THE TOWN OF BOONE'S ROAD RIGHT-OF-WAY SHALL HAVE A 25' EASEMENT DEDICATED TO THE TOWN OF BOONE. THE EASEMENT SHALL BE GENERALLY CENTERED ON THE NEW SEWER MAIN, HOWEVER IT MAY BE OFFSET TO AVOID EXISTING STRUCTURES.

FIRE PROTECTION NOTES:

- CONTRACTOR IS RESPONSIBLE FOR CONFIRMING LOCATION, SIZE & TYPE OF ALL EXISTING PIPES AT TIE-IN POINTS, PRIOR TO ORDERING NEW PIPE OR FITTINGS.
- SPRINKLER CONTRACTOR SHALL NOT CALCULATE FOR SPRINKLER SUBMITTAL ABOVE 90% AVAILABLE WATER. NO VALVE FITS OR BUILDING ENTRY FOR SHUT OFF. PROVIDE KNOX BOX SECURITY SYSTEM FOR FIRE DEPARTMENT ENTRY. COORDINATE LOCATION OF KNOX BOX, FDCs AND PIVs WITH FIRE MARSHALL.
- SPRINKLER CONTRACTOR SHALL CONFIRM SIZE, MATERIAL, AND LOCATION OF ALL FIRE AND FDC LINES.
- RPZ DETECTORS SHALL BE LOCATED ON THE FIRE LINE IN EACH OF THE SPRINKLER ROOMS OR OUTSIDE IN A HOT BOX. A DRAIN MUST BE INSTALLED TO HANDLE CATASTROPHIC FAILURE OF THE RELIEF VALVES AND OUTLET TO THE ATMOSPHERE IF INSTALLED IN SPRINKLER ROOMS. SPRINKLER CONTRACTOR TO PROVIDE MIKE TRIVETT, TOWN OF BOONE'S BACK FLOW PREVENTION COORDINATOR, WITH SPECIFICATIONS FOR RPZ DETECTOR AND CALCULATIONS FOR DRAIN.
- FIRE DEPARTMENT CONNECTIONS (FDCs) SHALL BE LOCATED A MAXIMUM OF 100' FROM FIRE HYDRANTS. FDCs SHALL BE PROPERLY MARKED.
- STANDPIPES SHALL BE REQUIRED DUE TO BUILDING ELEVATIONS. THEY SHALL BE A DRY TYPE SYSTEMS WITH CONNECTIONS LOCATED ON THE INTERVENING STAIR LANDINGS. THE CONNECTIONS SHALL BE LOCATED AT THE SAME LOCATION AS THE FDCs. WALL MOUNTED OR FREE STANDING PIVs ARE APPROVED TYPES.
- THE MAIN STRUCTURE ADDRESS NUMBER HEIGHT SHALL BE 8" OF CONTRASTING COLOR TO THE BUILDING WITH THE LOCATION TO BE DETERMINED BY THE BOONE FIRE DEPARTMENT. UNIT NUMBERS SHALL BE SUBMITTED TO THE TOWN GIS DEPARTMENT FOR APPROVAL. ADDITIONAL REQUIREMENTS ARE POSSIBLE UPON REVIEW OF BUILDING PLANS.
- DRY STANDPIPE CONNECTION SHALL BE LOCATED NEXT TO FDC.

WATER MAIN & SERVICE NOTES:

- ALL UNDERGROUND UTILITIES SHALL BE FIELD LOCATED BY CONTRACTOR PRIOR TO EXCAVATION.
- CONTRACTOR IS RESPONSIBLE FOR CONFIRMING LOCATION, SIZE & TYPE OF ALL EXISTING PIPES AT TIE-IN POINTS, PRIOR TO ORDERING NEW PIPE OR FITTINGS.
- ANY NEW WATER MAINS SHALL BE CLASS 350 DUCTILE IRON OR C-900 PVC PIPE.
- ALL WATER SERVICE LINES SHALL BE SDR 13.5 PVC UNLESS OTHERWISE SPECIFIED.
- ALL WATER MAINS AND SERVICES SHALL HAVE A MINIMUM 3' COVER UNLESS SPECIFIED OTHERWISE.
- ALL VALVES SHALL BE RESILIENT-SEAT DUCTILE IRON GATE VALVES.
- COORDINATE LOCATION OF ALL NEW TAPS & METERS WITH TOWN OF BOONE UTILITY DEPARTMENT (828-268-6250).
- CONCRETE THRUST BLOCKING SHALL BE PROVIDED AT ALL BENDS AND FITTINGS FOR MAINS AND SERVICES OVER 4" IN DIAMETER.
- ALL BENDS AND TEES SHALL BE RESTRAINED JOINT AND HAVE THRUST BLOCKING. SEE DETAIL SHEET FOR SCHEDULE OF THRUST BLOCKING.
- ALL HYDRANTS MUST BE KENNEDY K-81 HYDRANTS OR APPROVED EQUAL. COORDINATE WITH TOWN OF BOONE UTILITY DEPARTMENT.
- HYDRANT LOCATORS SHALL BE ADDED TO ALL FIRE HYDRANTS IN THE PROJECT AREA FOR IDENTIFICATION DURING INCLEMENT WEATHER.
- PLUMBING ENGINEER SHALL CONFIRM SIZE, MATERIAL, AND LOCATION OF ALL WATER SERVICES. SPRINKLER CONTRACTOR SHALL CONFIRM SIZE, MATERIAL, AND LOCATION OF ALL FIRE AND FDC LINES.
- PLUMBING CONTRACTOR & SPRINKLER CONTRACTOR SHALL COORDINATE WITH MIKE TRIVETT AT TOWN OF BOONE UTILITY DEPARTMENT REGARDING BACKFLOW PREVENTION REQUIREMENT PRIOR TO CONSTRUCTION (828-268-6250).
- THE CONTRACTOR/PROPERTY OWNER IS RESPONSIBLE FOR ANY DAMAGE TO THE WATER MAINS IN THE CONSTRUCTION AREA UNTIL CONSTRUCTION IS COMPLETE.

WATER METER NOTES:

- WATER METERS FOR THE BUILDING MAY BE LOCATED INSIDE THE BUILDING IN METER ROOMS. IF INSIDE, THE METERS SHALL BE SENSUS RADIO READ OR APPROVED EQUAL WITH DUEL CHECK SETTERS OR DUEL CHECK VALVES.
- METERS MAY BE LOCATE OUTSIDE THE BUILDING IN INDIVIDUAL METER BOXES. OUTSIDE METERS SHALL BE SENSUS TOUCH READ OR APPROVED EQUAL WITH DUAL CHECK SETTERS.
- COORDINATE TAPS AND METERS WITH TOWN OF BOONE UTILITY DEPARTMENT (828-268-6250).

BACKFLOW PREVENTION NOTES:

- RPZ DETECTORS ARE REQUIRED FOR EACH FIRE LINE INTO THE BUILDING. RPZ DETECTORS MAY BE LOCATED IN A SPRINKLER ROOM INSIDE THE GARAGE OR IN AN ABOVE GROUND HOT BOX OUTSIDE THE BUILDING.
- A REDUCED PRESSURE PRINCIPAL ASSEMBLY (RP) IS REQUIRED ON ALL DOMESTIC WATER SERVICE LINES ENTERING THE BUILDING IF DOMESTIC METERS ARE LOCATED INSIDE THE BUILDING. IN ADDITION, ALL COMMERCIAL USES IN THE US HWY 321 BUILDING SHALL HAVE RP's ON THEIR INDIVIDUAL SERVICE LINES. THESE RP's MAY BE LOCATED IN BACKFLOW ROOMS IN THE PARKING GARAGE.
- ALL RPZ DETECTORS AND RP's LOCATED IN SPRINKLER OR BACKFLOW ROOMS SHALL HAVE A DRAIN INSTALLED TO HANDLE CATASTROPHIC FAILURE OF THE RELIEF VALVES AND OUTLET TO THE ATMOSPHERE.
- SPRINKLER CONTRACTOR AND PLUMBING ENGINEER SHALL PROVIDE MIKE TRIVETT, TOWN OF BOONE'S BACK FLOW PREVENTION COORDINATOR, WITH SPECIFICATIONS FOR RPZ DETECTOR AND RP's ALONG WITH CALCULATIONS FOR DRAIN.

- SITE IS CURRENTLY ZONED B-1. APPLICANT IS REQUESTING THAT THE SUBJECT PROPERTY BE REZONED TO CONDITIONAL ZONING DISTRICT B-1.
- PROPOSED PROPERTY AREA = 2.747 ACRES.
- UPON APPROVAL PROPERTIES WILL BE RECOMBINED INTO ONE TRACT.
- PRIOR TO ANY EXCAVATION, CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES. CALL 1-800-632-4949.
- ALL UTILITIES SHALL BE UNDERGROUND.
- CONTACT NEW RIVER LIGHT & POWER FOR LOCATION OF POWER (828-264-3671).
- CONTACT AT&T FOR PHONE SERVICE (828-262-4908).
- CONTACT CHARTER COMMUNICATIONS FOR CABLE SERVICE (828-733-1510).
- ALL SIDEWALKS WITHIN THE TOWN OF BOONE RIGHT OF WAY SHALL CONFORM TO ALL REQUIREMENTS OF SECTION 23.08 OF THE TOWN OF BOONE'S UNIFIED DEVELOPMENT ORDINANCE.
- 24" CONCRETE CURB & GUTTER (NC DOT STD. 846.01) SHALL BE USED AS SHOWN ON PLAN. 30" CURB & GUTTER SHALL BE USED IN THE RIGHT-OF-WAY.
- PARKING SPACE DIMENSIONS ARE TO FACE OF CURB (TYP). RADII ARE TO BACK OF CURB (TYP).
- THE CONTRACTOR/PROPERTY OWNER IS RESPONSIBLE FOR ANY DAMAGE TO THE WATER & SEWER MAINS IN THE CONSTRUCTION AREA UNTIL CONSTRUCTION IS COMPLETE.
- ALL ROOFTOP EQUIPMENT SHALL BE SCREENED OR OTHERWISE PLACED OUT OF VIEW FROM ADJACENT STREETS.
- ALL UTILITIES INCLUDING BUT NOT LIMITED TO HVAC UNITS AND METERS SHALL BE SCREENED FROM ADJACENT PROPERTIES AND PUBLIC STREETS PER SECTION 25.02 OF THE TOWN OF BOONE'S UNIFIED DEVELOPMENT ORDINANCE.
- HANDICAP SPACES SHALL BE MARKED BOTH ON PAVEMENT & WITH SIGNS IN COMPLIANCE WITH THE LATEST EDITION OF THE NORTH CAROLINA ACCESSIBILITY CODE.
- COMPACT AUTOMOBILE AND MOTORCYCLE SPACES SHALL BE MARKED ON PAVEMENT ONLY.
- MOTORCYCLE AND SCOOTER SPACES SHALL HAVE MINIMUM DIMENSIONS OF 4x8' AND PROVIDED WITH A FIXED FEATURE FOR SECURING THE MOTORCYCLES AND SCOOTERS. IN ADDITION, SPACES SHALL CONFORM TO ALL OTHER REQUIREMENTS OF SECTION 24.10 OF THE TOWN OF BOONE'S UNIFIED DEVELOPMENT ORDINANCE.
- LONG TERM AND SHORT TERM BICYCLE RACKS AND SPACES SHALL CONFORM TO ALL REQUIREMENTS OF SECTION 24.09 OF THE TOWN OF BOONE'S UNIFIED DEVELOPMENT ORDINANCE.
- ALL RECOMMENDATIONS SPECIFIED IN THE TRANSPORTATION IMPACT ANALYSIS PREPARED BY DAVENPORT ENGINEERING SHALL BE FOLLOWED.

SIGNAGE NOTES:

- ALL SIGNAGE SHALL BE PERMITTED SEPARATELY.

VARIANCES GRANTED TO THE PROJECT:

THE FOLLOWING VARIANCES WERE GRANTED BY THE TOWN OF BOONE'S BOARD OF ADJUSTMENT ON NOVEMBER 6, 2014:

- VARIANCE FROM UDO SUBSECTION 15.11.02 (J) TO REDUCE THE MINIMUM BUILDING FOOTPRINT FROM 60% TO 40% OF THE TOTAL GROSS LAND AREA OF THE LOT.
- VARIANCE FROM UDO SUBSECTION 16.08.05 TO ALLOW THE BUILDING TO EXCEED 35' IN HEIGHT WHEN THE BUILDING IS WITHIN 100' OF AN R-1 ZONED PROPERTY.

PRELIMINARY
FOR REGULATORY REVIEW ONLY

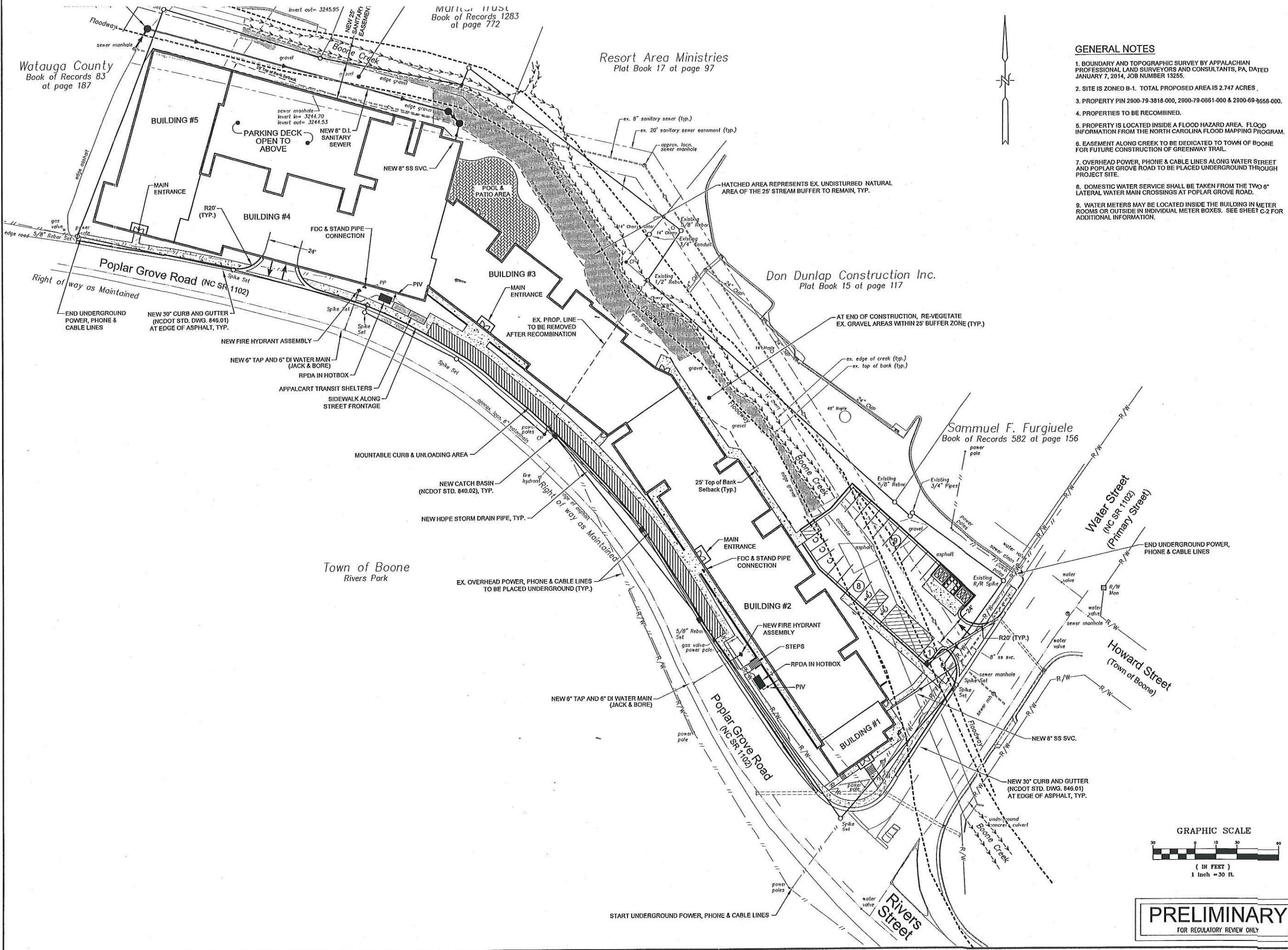


RIVERS WALK
HARRODIAP, LLC
WATER STREET & POPLAR GROVE ROAD
BOONE, NORTH CAROLINA

PROJECT NOTES

SCALE: NTS	DATE: 12-22-14
DRWN. BY: AJC	CHKD. BY: AJC
PROJECT NUMBER: B13057.3	DRAWING NO. C-2
SHEET NO. 2 OF 6	

[illegible]



- GENERAL NOTES**
1. BOUNDARY AND TOPOGRAPHIC SURVEY BY APPALACHIAN PROFESSIONAL LAND SURVEYORS AND CONSULTANTS, PA, DATED JANUARY 7, 2014, JOB NUMBER 13265.
 2. SITE IS ZONED B-1. TOTAL PROPOSED AREA IS 2.747 ACRES.
 3. PROPERTY PIN 2900-79-3818-000, 2900-79-0661-000 & 2900-69-9568-000.
 4. PROPERTIES TO BE RECOMBINED.
 5. PROPERTY IS LOCATED INSIDE A FLOOD HAZARD AREA. FLOOD INFORMATION FROM THE NORTH CAROLINA FLOOD MAPPING PROGRAM.
 6. EASEMENT ALONG CREEK TO BE DEDICATED TO TOWN OF BOONE FOR FUTURE CONSTRUCTION OF GREENWAY TRAIL.
 7. OVERHEAD POWER, PHONE & CABLE LINES ALONG WATER STREET AND POPLAR GROVE ROAD TO BE PLACED UNDERGROUND THROUGH PROJECT SITE.
 8. DOMESTIC WATER SERVICE SHALL BE TAKEN FROM THE TWO 6" LATERAL WATER MAIN CROSSINGS AT POPLAR GROVE ROAD.
 9. WATER METERS MAY BE LOCATED INSIDE THE BUILDING IN METER ROOMS OR OUTSIDE IN INDIVIDUAL METER BOXES. SEE SHEET C-2 FOR ADDITIONAL INFORMATION.

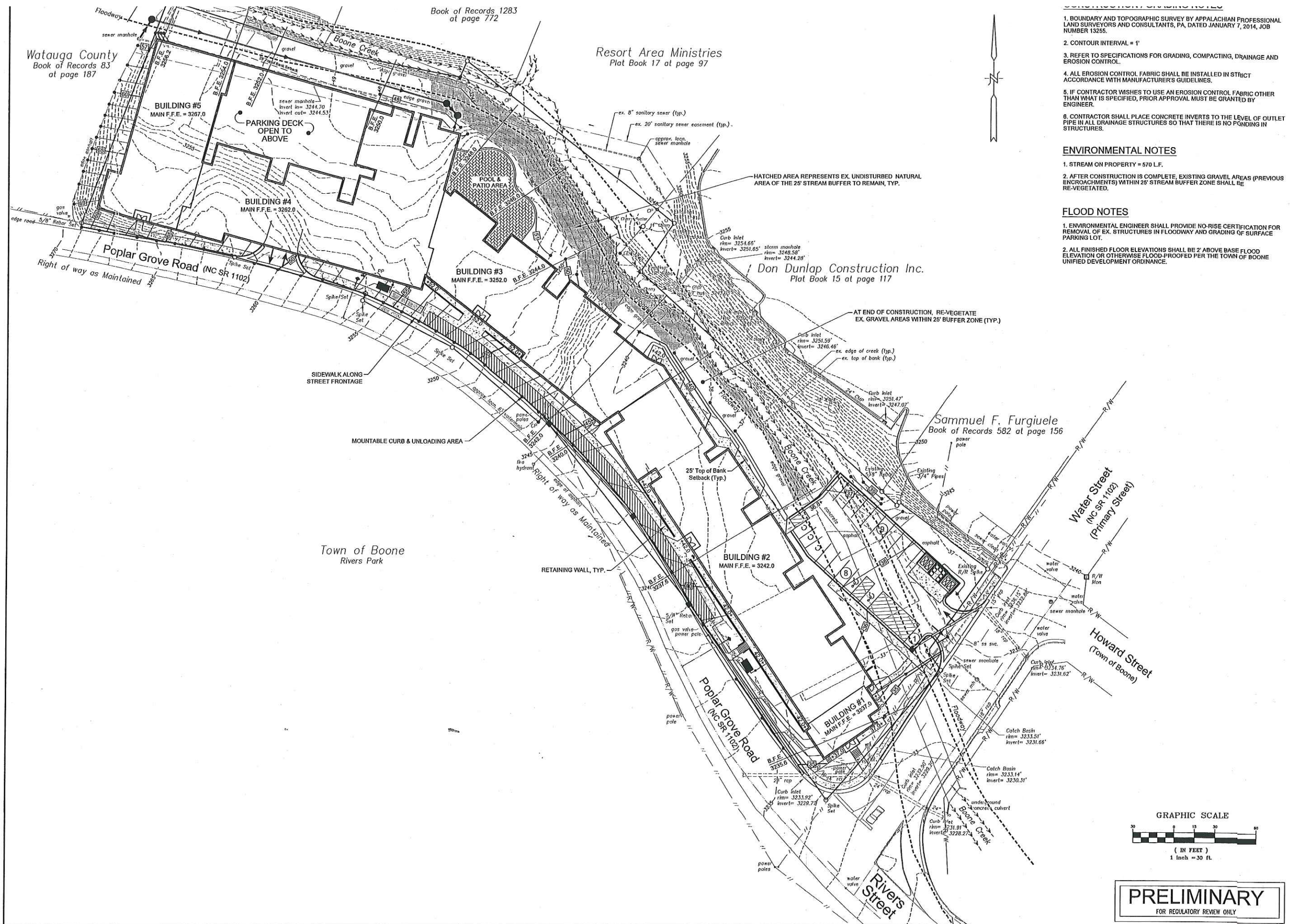
Engineering
Company, P.A.

Municipal
Services

P.O. BOX 348 BOONE, NC 28601
(828) 292-1787
LICENSE NUMBER C0227

RIVERS WALK
HARROD/AP, LLC
WATER STREET & POPLAR GROVE ROAD
BOONE, NORTH CAROLINA

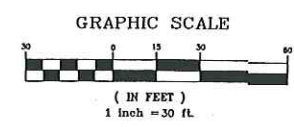
PRELIMINARY SITE PLAN	
DATE	REV.
12-22-14	AJC
DRWN. BY:	AJC
CHWD. BY:	AJC
PROJECT NUMBER	B13057.3
DRAWING NO.	SHEET NO.
C-4	4 OF 6



- BOUNDARY AND TOPOGRAPHIC SURVEY BY APPALACHIAN PROFESSIONAL LAND SURVEYORS AND CONSULTANTS, PA, DATED JANUARY 7, 2014, JOB NUMBER 13255.**
1. BOUNDARY AND TOPOGRAPHIC SURVEY BY APPALACHIAN PROFESSIONAL LAND SURVEYORS AND CONSULTANTS, PA, DATED JANUARY 7, 2014, JOB NUMBER 13255.
 2. CONTOUR INTERVAL = 1'
 3. REFER TO SPECIFICATIONS FOR GRADING, COMPACTING, DRAINAGE AND EROSION CONTROL.
 4. ALL EROSION CONTROL FABRIC SHALL BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURER'S GUIDELINES.
 5. IF CONTRACTOR WISHES TO USE AN EROSION CONTROL FABRIC OTHER THAN WHAT IS SPECIFIED, PRIOR APPROVAL MUST BE GRANTED BY ENGINEER.
 6. CONTRACTOR SHALL PLACE CONCRETE INVERTS TO THE LEVEL OF OUTLET PIPE IN ALL DRAINAGE STRUCTURES SO THAT THERE IS NO PONDING IN STRUCTURES.

- ENVIRONMENTAL NOTES**
1. STREAM ON PROPERTY = 570 LF.
 2. AFTER CONSTRUCTION IS COMPLETE, EXISTING GRAVEL AREAS (PREVIOUS ENCROACHMENTS) WITHIN 25' STREAM BUFFER ZONE SHALL BE RE-VEGETATED.

- FLOOD NOTES**
1. ENVIRONMENTAL ENGINEER SHALL PROVIDE NO-RISE CERTIFICATION FOR REMOVAL OF EX. STRUCTURES IN FLOODWAY AND GRADING OF SURFACE PARKING LOT.
 2. ALL FINISHED FLOOR ELEVATIONS SHALL BE 2' ABOVE BASE FLOOD ELEVATION OR OTHERWISE FLOOD-PROOFED PER THE TOWN OF BOONE UNIFIED DEVELOPMENT ORDINANCE.



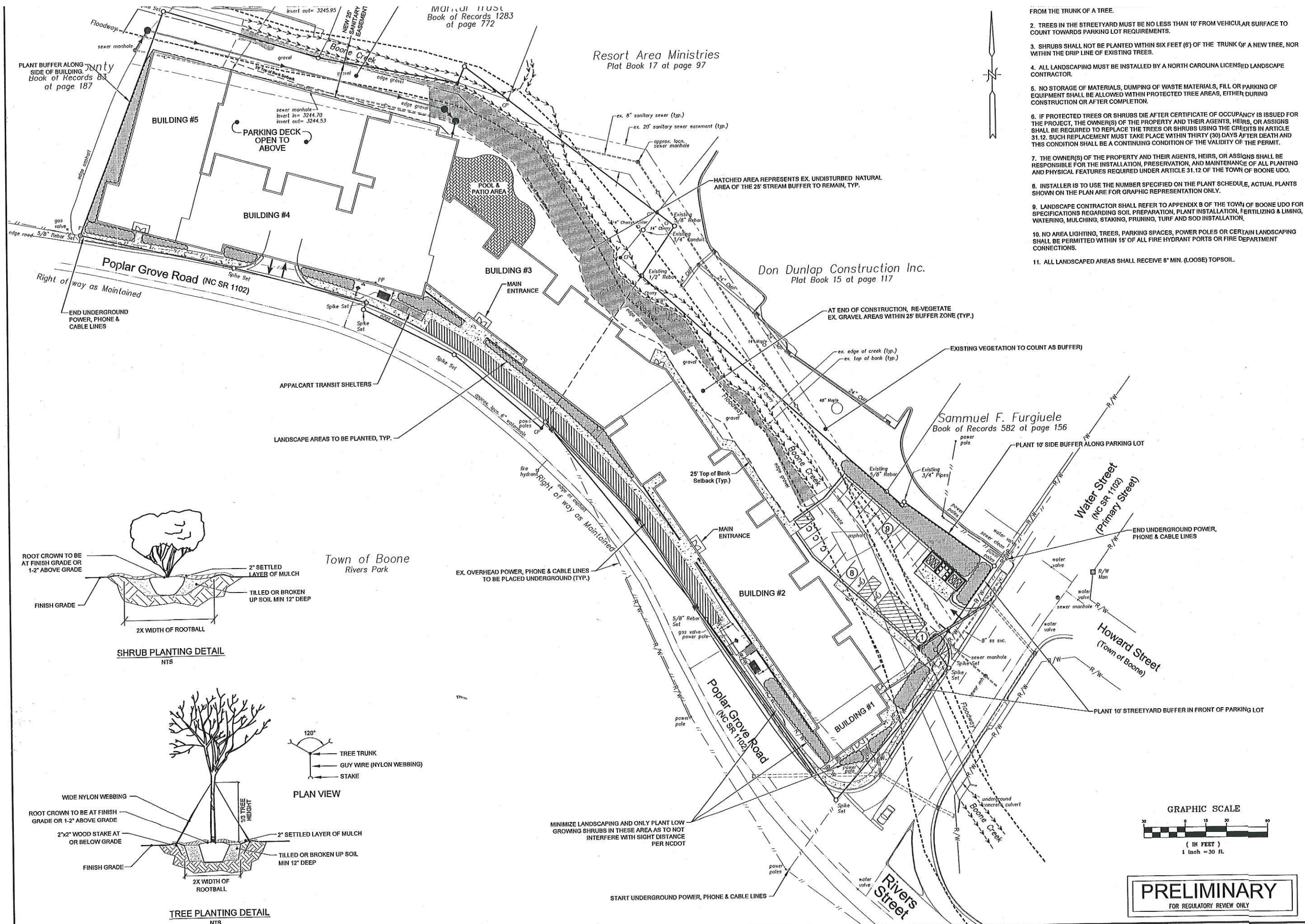
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Engineering Company, P.A.
Municipal Services

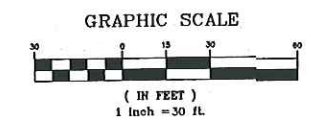
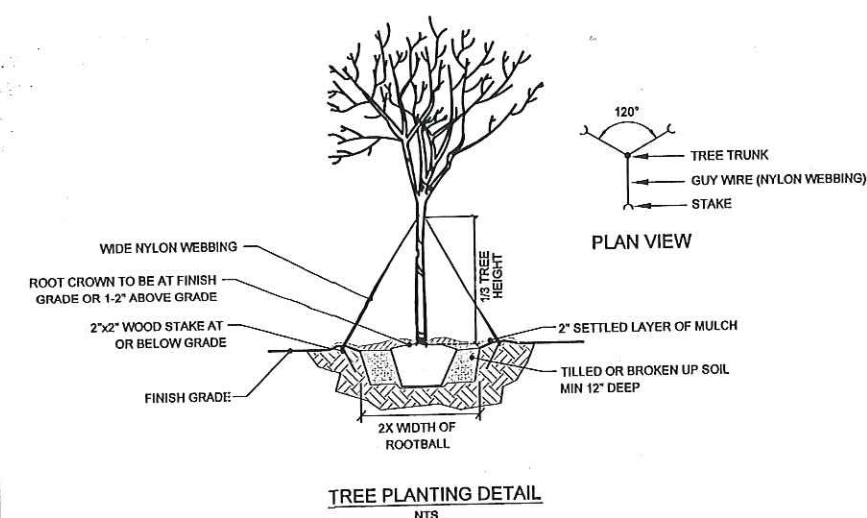
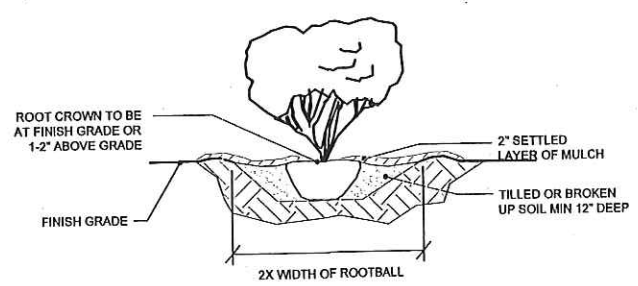
P.O. BOX 348 BOONE, N.C. 28601 (828) 263-1767
P.O. BOX 97 GARNER, N.C. 27325 (919) 772-5393
LICENSE NUMBER C-281

**RIVERS WALK
HARRODIAP, LLC**
**WATER STREET & POPLAR GROVE ROAD
BOONE, NORTH CAROLINA**

DESCRIPTION	
DATE	REV.
12-22-14	AJC
12-22-14	AJC
PROJECT NUMBER	
B13057.3	
DRAWING NO.	SHEET NO.
C-5	5 OF 6



- GENERAL LANDSCAPE NOTES:**
- FROM THE TRUNK OF A TREE.
 - TREES IN THE STREETYARD MUST BE NO LESS THAN 10' FROM VEHICULAR SURFACE TO COUNT TOWARDS PARKING LOT REQUIREMENTS.
 - SHRUBS SHALL NOT BE PLANTED WITHIN SIX FEET (6') OF THE TRUNK OF A NEW TREE, NOR WITHIN THE DRIP LINE OF EXISTING TREES.
 - ALL LANDSCAPING MUST BE INSTALLED BY A NORTH CAROLINA LICENSED LANDSCAPE CONTRACTOR.
 - NO STORAGE OF MATERIALS, DUMPING OF WASTE MATERIALS, FILL OR PARKING OF EQUIPMENT SHALL BE ALLOWED WITHIN PROTECTED TREE AREAS, EITHER DURING CONSTRUCTION OR AFTER COMPLETION.
 - IF PROTECTED TREES OR SHRUBS DIE AFTER CERTIFICATE OF OCCUPANCY IS ISSUED FOR THE PROJECT, THE OWNER(S) OF THE PROPERTY AND THEIR AGENTS, HEIRS, OR ASSIGNS SHALL BE REQUIRED TO REPLACE THE TREES OR SHRUBS USING THE CREDITS IN ARTICLE 31.12. SUCH REPLACEMENT MUST TAKE PLACE WITHIN THIRTY (30) DAYS AFTER DEATH AND THIS CONDITION SHALL BE A CONTINUING CONDITION OF THE VALIDITY OF THE PERMIT.
 - THE OWNER(S) OF THE PROPERTY AND THEIR AGENTS, HEIRS, OR ASSIGNS SHALL BE RESPONSIBLE FOR THE INSTALLATION, PRESERVATION, AND MAINTENANCE OF ALL PLANTING AND PHYSICAL FEATURES REQUIRED UNDER ARTICLE 31.12 OF THE TOWN OF BOONE UDO.
 - INSTALLER IS TO USE THE NUMBER SPECIFIED ON THE PLANT SCHEDULE, ACTUAL PLANTS SHOWN ON THE PLAN ARE FOR GRAPHIC REPRESENTATION ONLY.
 - LANDSCAPE CONTRACTOR SHALL REFER TO APPENDIX B OF THE TOWN OF BOONE UDO FOR SPECIFICATIONS REGARDING SOIL PREPARATION, PLANT INSTALLATION, FERTILIZING & LIMING, WATERING, MULCHING, STAKING, PRUNING, TURF AND SOD INSTALLATION.
 - NO AREA LIGHTING, TREES, PARKING SPACES, POWER POLES OR CERTAIN LANDSCAPING SHALL BE PERMITTED WITHIN 15' OF ALL FIRE HYDRANT PORTS OR FIRE DEPARTMENT CONNECTIONS.
 - ALL LANDSCAPED AREAS SHALL RECEIVE 8" MIN. (LOOSE) TOPSOIL.



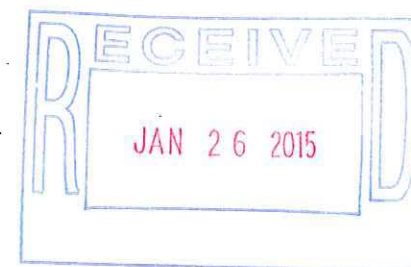
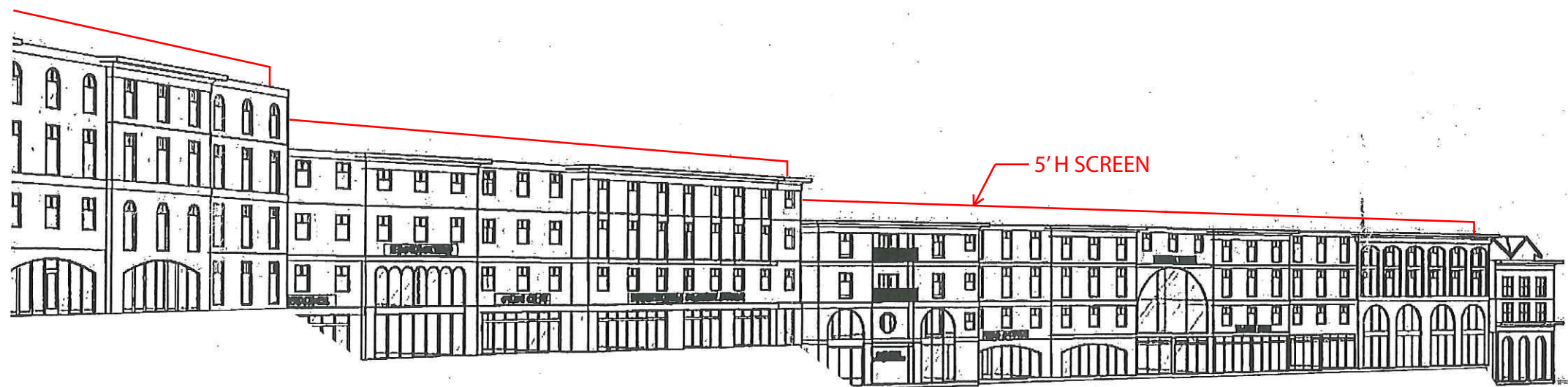
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(919) 772-5333
LICENSE NUMBER C-0251
P.O. BOX 349 BOONE, NC 28601
(828) 262-1711

RIVERS WALK
HARRODIAP, LLC
WATER STREET & POPLAR GROVE ROAD
BOONE, NORTH CAROLINA

DESCRIPTION		DATE	
DATE	BY	REV.	
PRELIMINARY LANDSCAPE PLAN			
SCALE: 1" = 30'			
DATE: 12-22-14			
DRWN. BY: AJC			
CHKD. BY: AJC			
PROJECT NUMBER			
B13057.3			
DRAWING NO.		SHEET NO.	
C-6		6 OF 6	



PRELIMINARY NOT FOR CONSTRUCTION	
DATE	XXXXXX
PROJECT #	14xxx
SHEET NUMBER	A-101

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Project Status
RIVERS WALK PLAZA
 178 S. WATER STREET, BOONE,
 NC 28607

**APPALACHIAN
 ARCHITECTURE, PA**
 703 West King Street
 Boone, NC 28607

DIA
Design Innovation
 ARCHITECTS + INTERIORS + PLANNING
 402 S. Gov Street, Suite 201, Knoxville, TN 37902



3-D VIEW OF GARAGE SLABS



OVERALL
1° = 100°-0°



level 3252
1/16" = 1'-0"

ELEV. 3252
6314 S.F.
COMMERCIAL



level 3262
1/16" = 1'-0"

P1

$$1'' = 20'$$

24 HOUR SECURITY



LEVEL 3242
1/16" = 1'-0"

ELEV. 3237
1606 S.F.
COMMERCIAL

PRELIMINARY NOT
FOR CONSTRUCTION

DATE	XX/XX/XX
------	----------

PROJECT #	14xxx
-----------	-------

SHEET NUMBER A-101

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RIVERS WALK

178 S. WATER ST., BOONE, NC 28607

**APPALACHIAN
ARCHITECTURE, PA**

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Boone, NC 28607

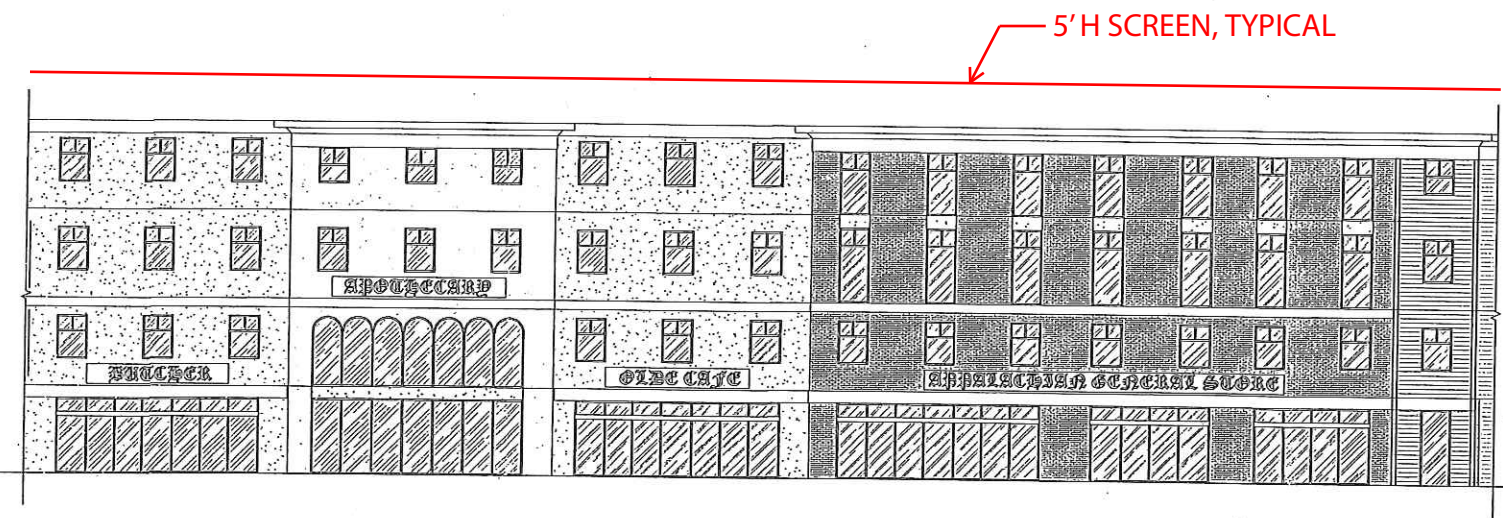
ph 828.265.2405

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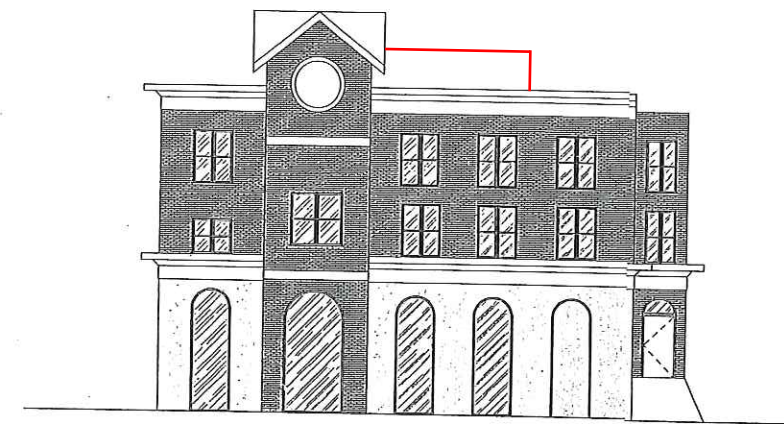
402 S. Gay Street, Suite 201, Knoxville, TN 37902
ph 865.637.8540 or 865.291.2221 fx 865.544.3840
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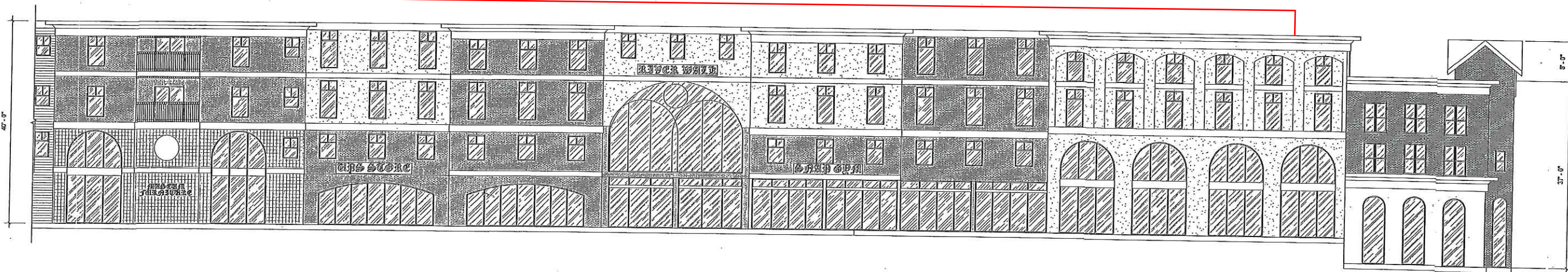
3 ELEVATION 3262 AND 3267
1" = 10'-0"



2 ELEVATION 3252
1" = 10'-0"



4 WATER STREET ELEVATION
1" = 10'-0"



1 ELEVATION 3242 AND 3237
1" = 10'-0"

PRELIMINARY NOT FOR CONSTRUCTION

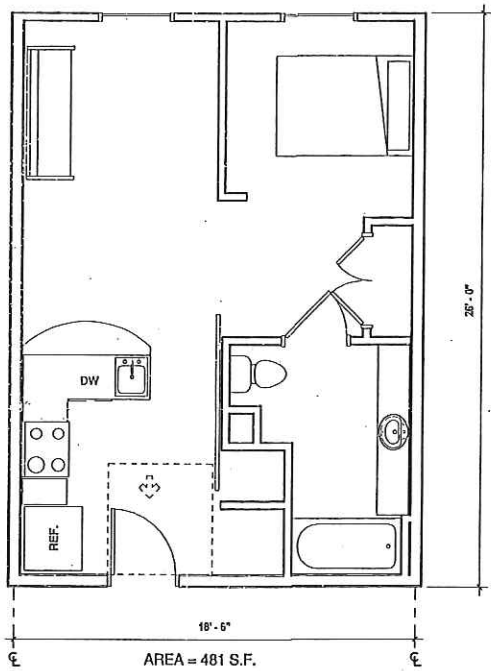
DATE	XX/XX/XX
PROJECT #	14xxx
SHEET NUMBER	A-201

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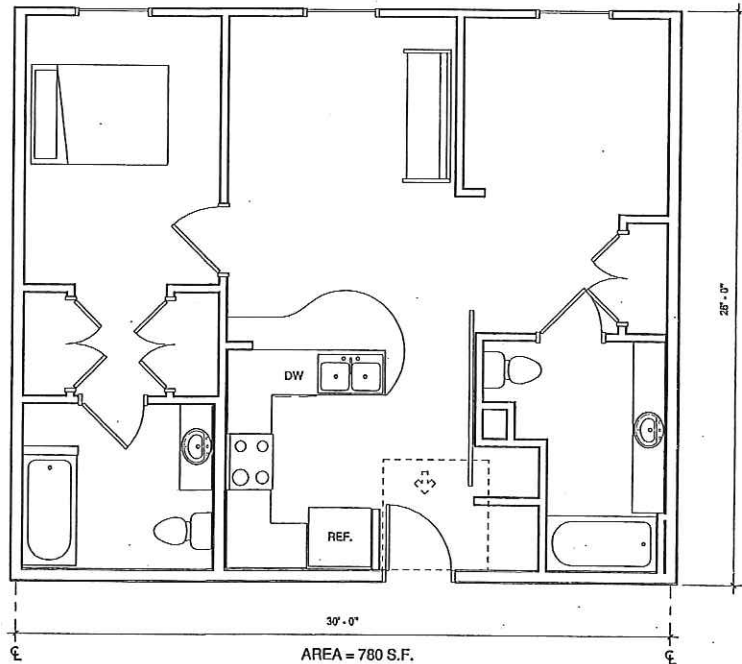
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APPALACHIAN ARCHITECTURE, PA
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Boone, NC 28607
ph 828.265.2405

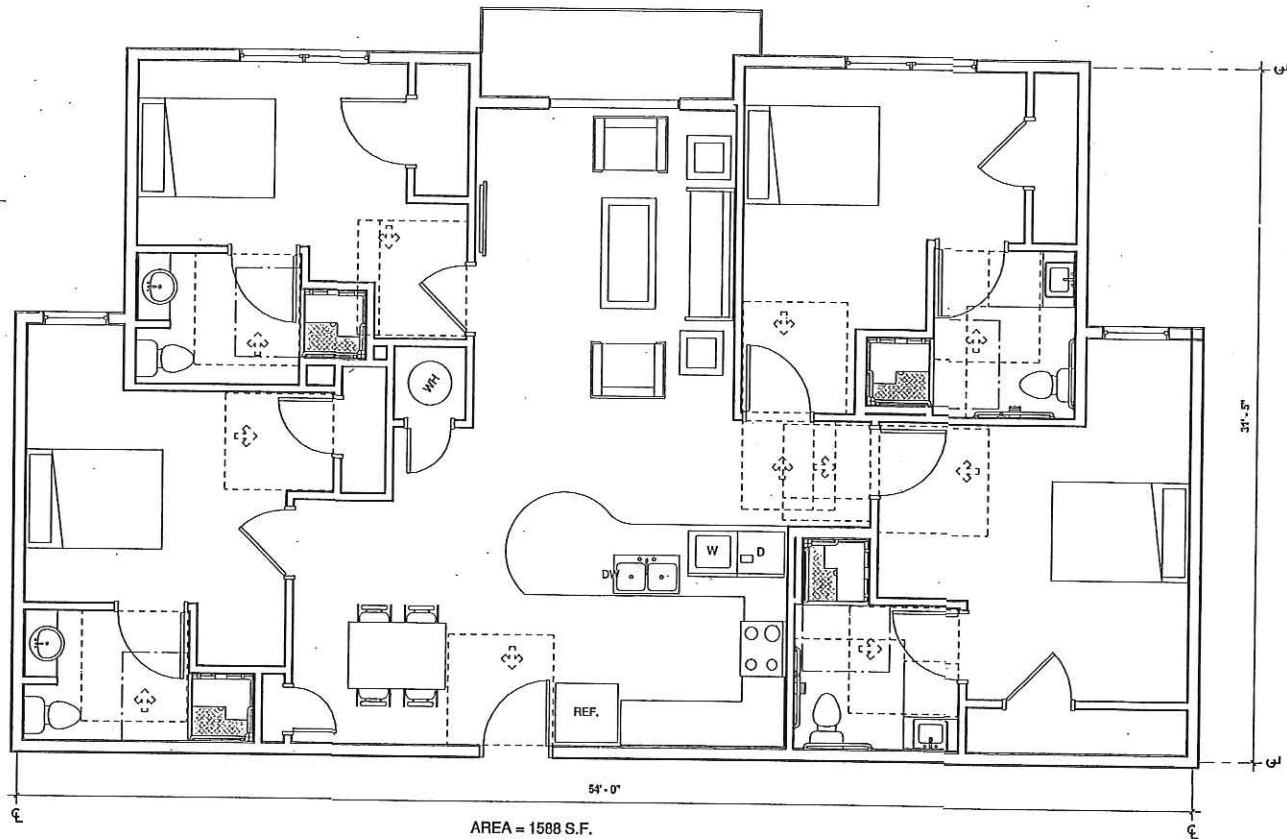
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3 1 BED 1 BATH UNIT
1/4" = 1'-0"



2 2 BED 2 BATH UNIT
1/4" = 1'-0"



1 4 BED 4 BATH IN-LINE UNIT
1/4" = 1'-0"

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DATE	12/19/14
PROJECT #	14xxx
SHEET NUMBER	A-102
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5' H SCREEN BEYOND



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FOR CONSTRUCTION

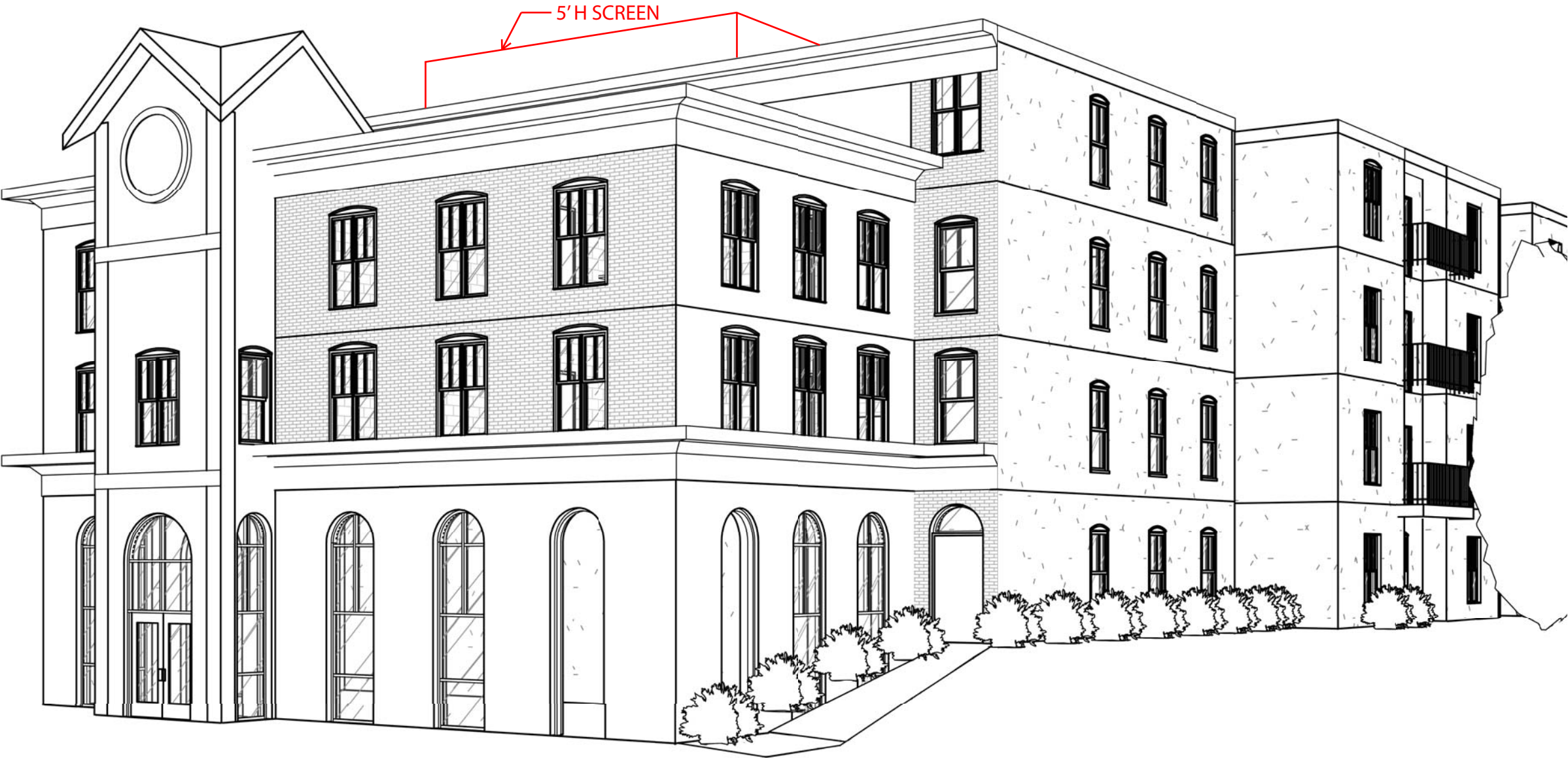
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PROJECT #	14xxx
SHEET NUMBER	A-201

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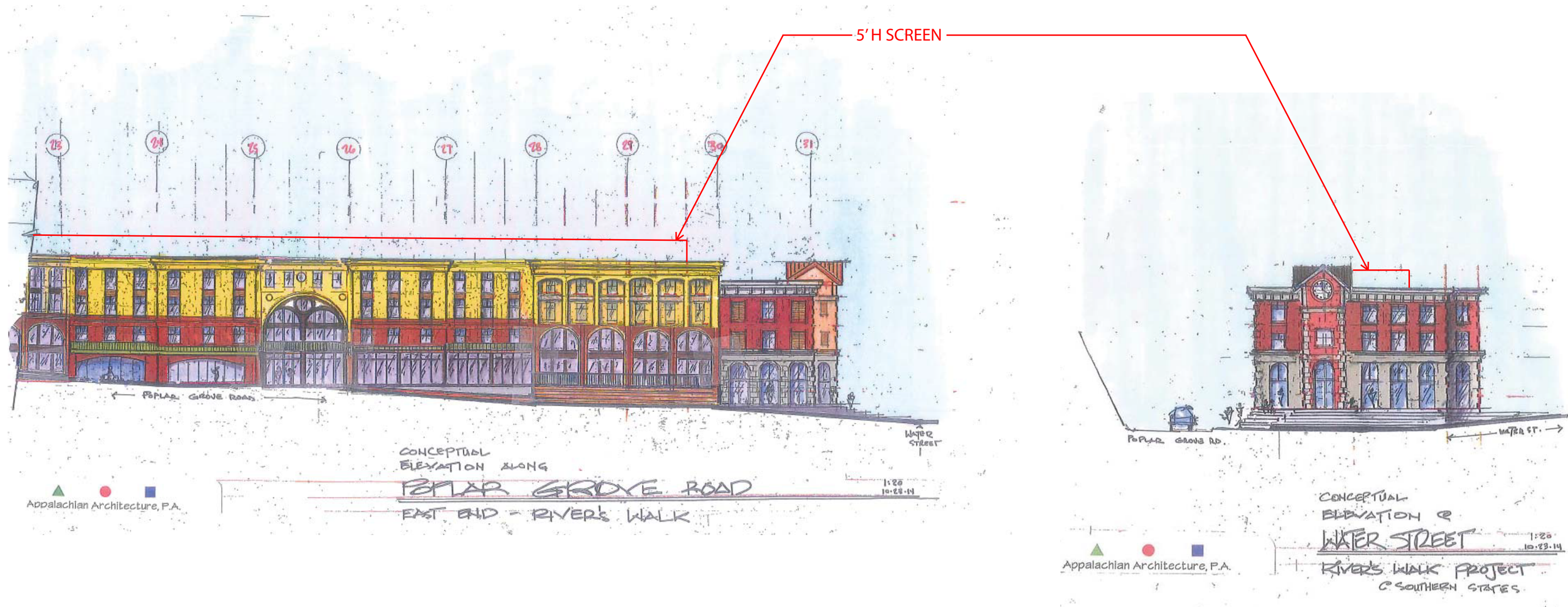


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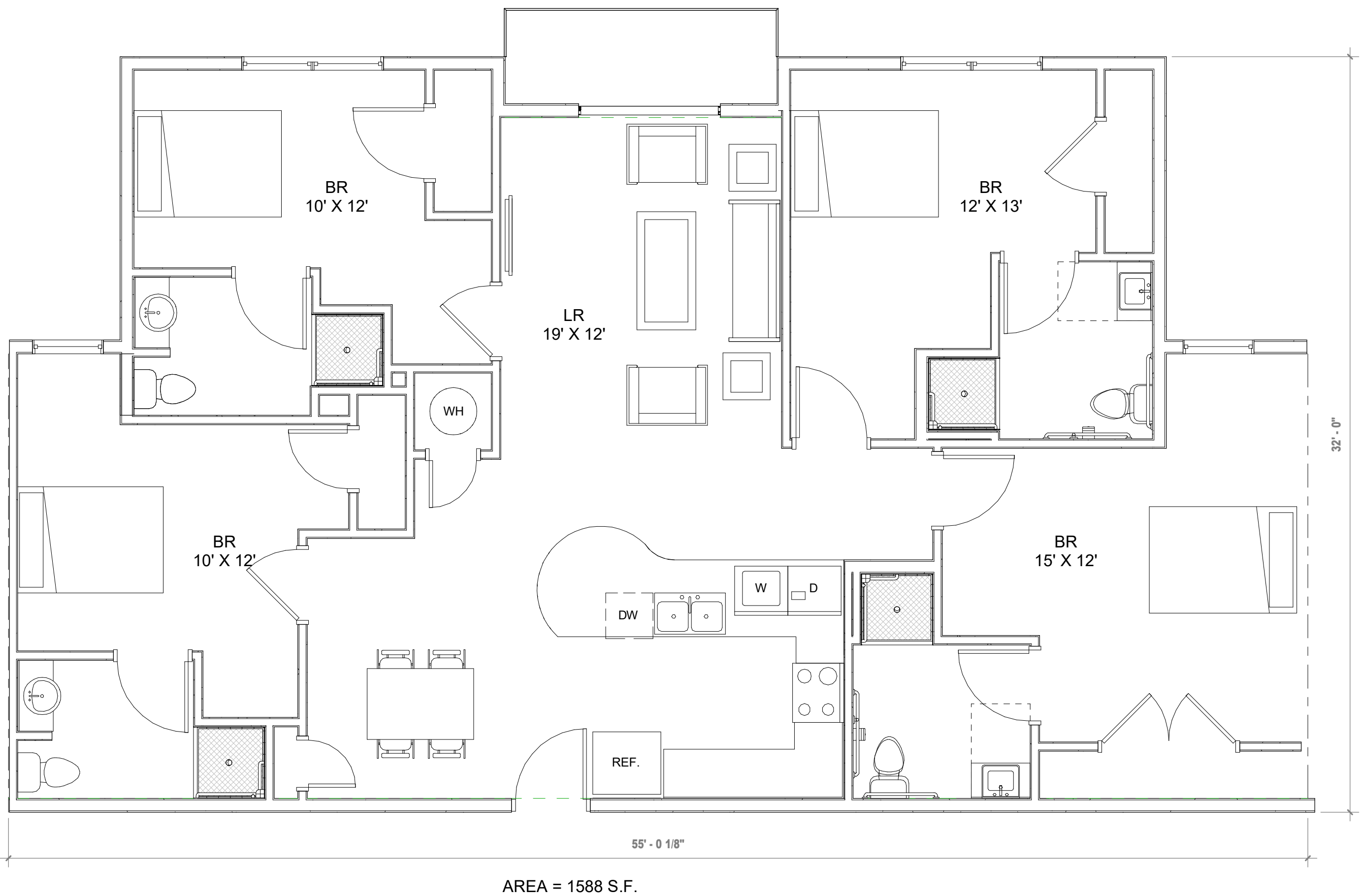


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PROJECT #	14xxx
SHEET NUMBER	A-20
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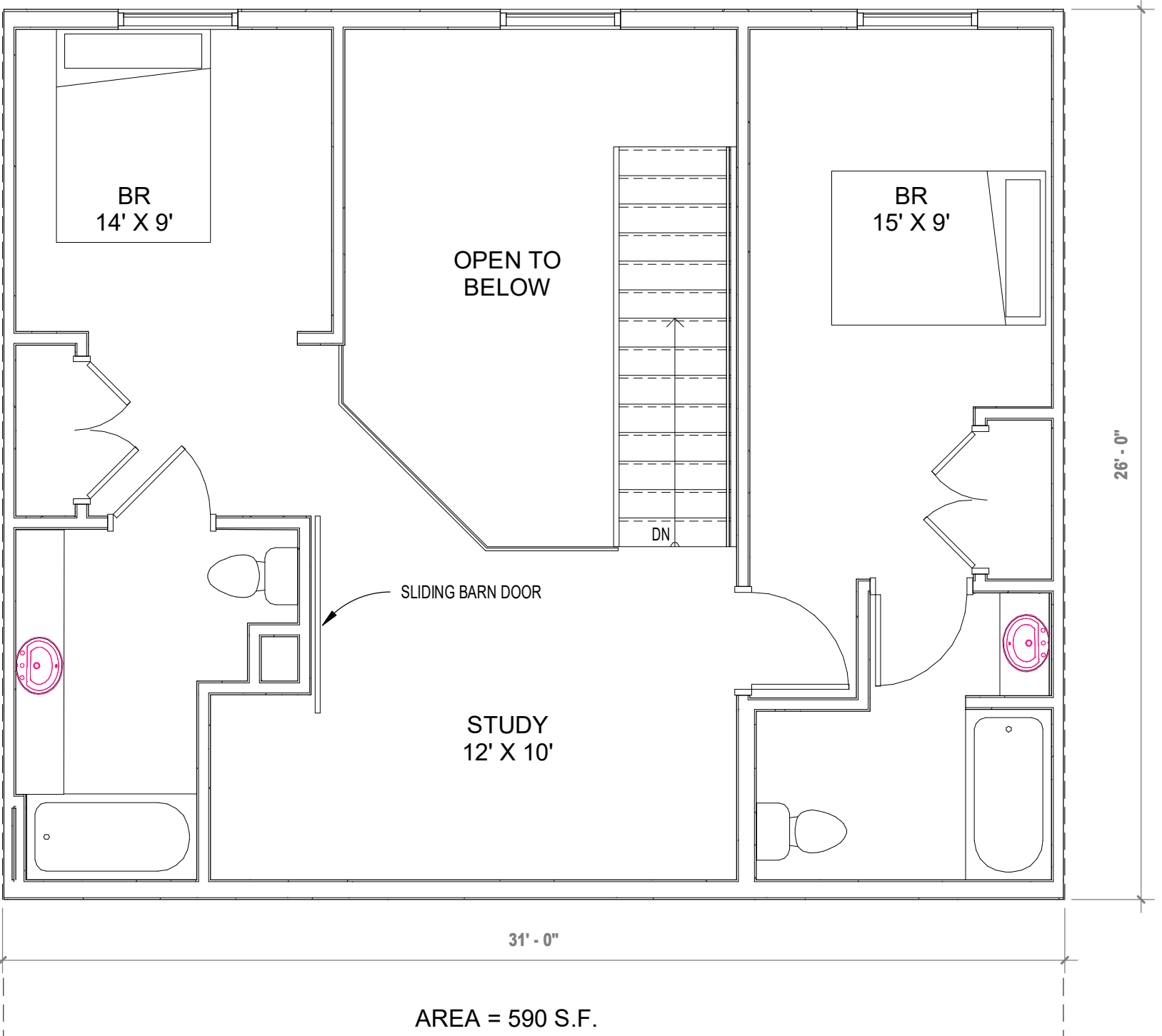
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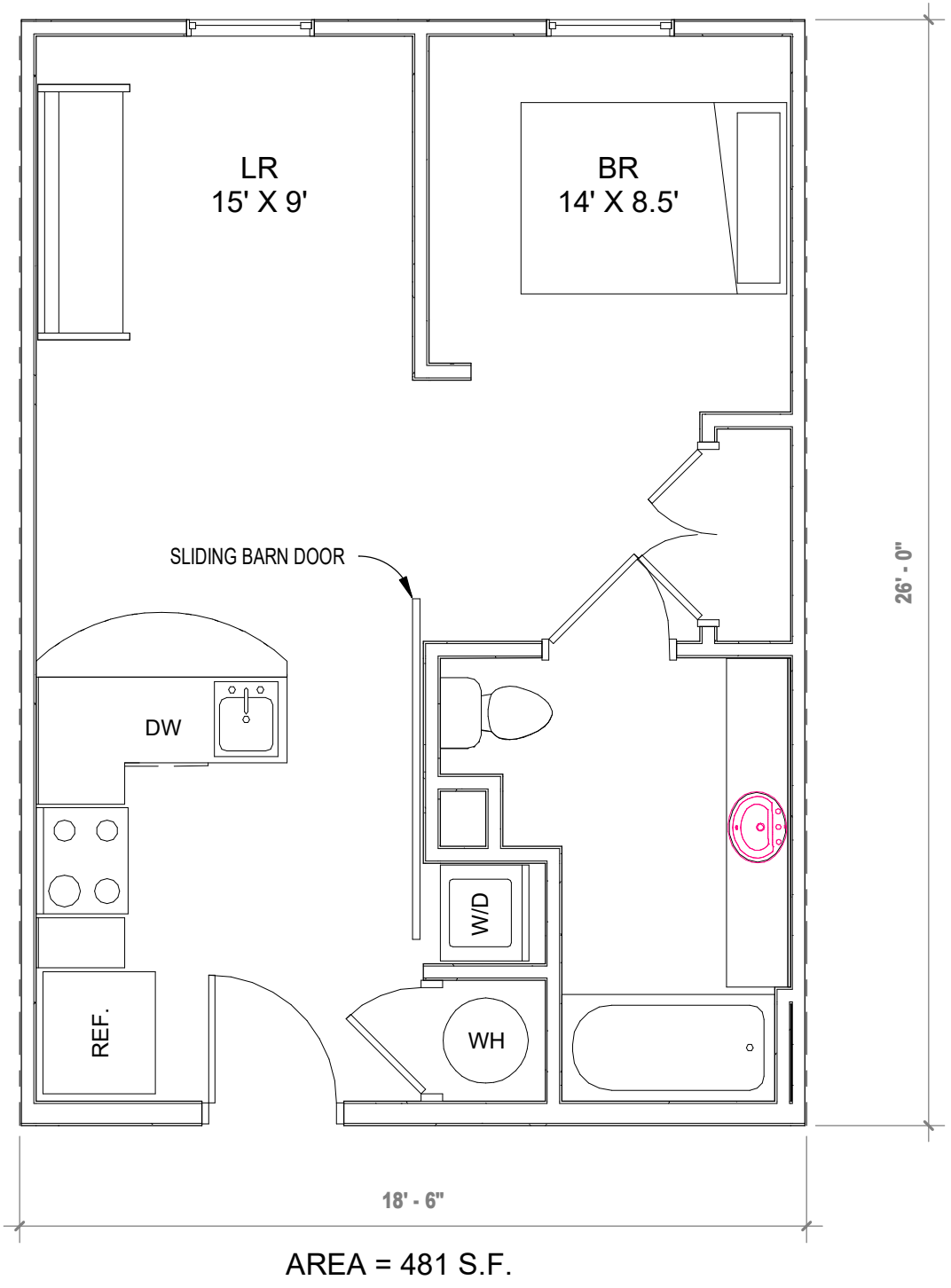
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1 4 BED UNIT
1/4" = 1'-0"



4 4 BED TOWNHOUSE, 2 FLOORS
1/4" = 1'-0"



2 1 BED UNIT
1/4" = 1'-0"



3 2 BED UNIT
1/4" = 1'-0"

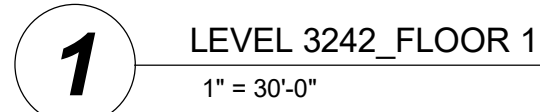
Town of Boone
Planning & Inspections
Date Received
July 12, 2016

PRELIMINARY NOT FOR CONSTRUCTION	
DATE	07/12/16
PROJECT #	14028
SHEET NUMBER	A-101
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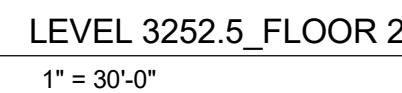
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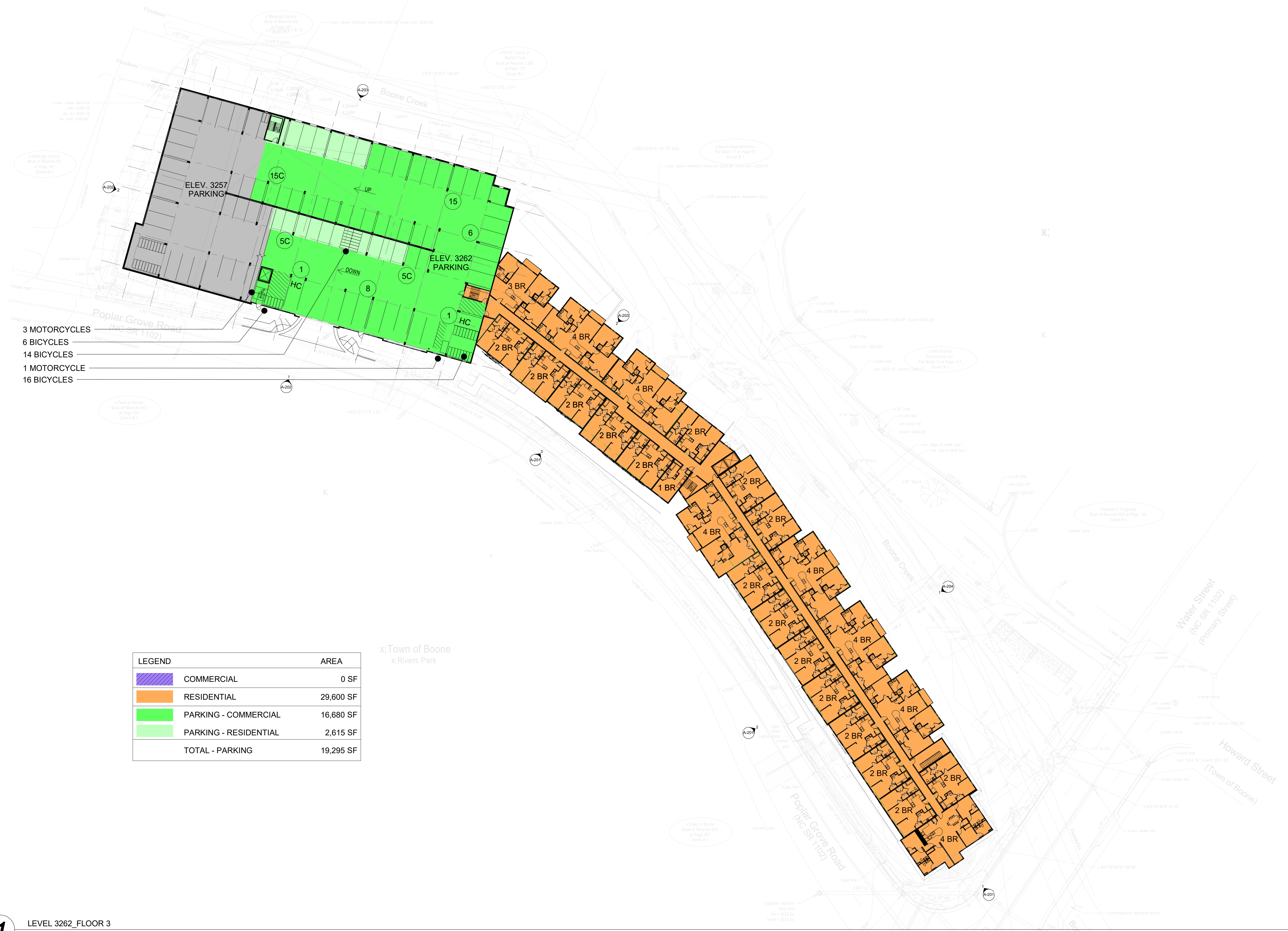
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Packet Pg. 32



PRELIMINARY NOT
FOR CONSTRUCTION

DATE	07/12/16
PROJECT #	14028
SHEET NUMBER	A-104

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Packet Pg. 33



LEGEND		AREA
	COMMERCIAL	0 SF
	RESIDENTIAL	50,590 SF
	PARKING - COMMERCIAL	0 SF
	PARKING - RESIDENTIAL	0 SF
TOTAL - PARKING		0 SF

1 LEVEL 3271.5_FLOOR 4
1" = 30'-0"

PRELIMINARY NOT
FOR CONSTRUCTION

DATE	07/12/16
PROJECT #	14028
SHEET NUMBER	A-105

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Packet Pg. 34



LEGEND		AREA
	COMMERCIAL	0 SF
	RESIDENTIAL	34,365 SF
	PARKING - COMMERCIAL	0 SF
	PARKING - RESIDENTIAL	0 SF
TOTAL - PARKING		0 SF

1 LEVEL 3281_FLOOR 5
1" = 30'-0"

PRELIMINARY NOT
FOR CONSTRUCTION

DATE	07/12/16
PROJECT #	14028
SHEET NUMBER	A-106

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Packet Pg. 35



PRELIMINARY NOT FOR CONSTRUCTION

DATE

07/12/16

PROJECT #

14028

SHEET NUMBER

A-107

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Packet Pg. 36

Communication: Rivers Walk Information Submitted to Community Appearance Commission (Case 20160136 Riverswalk PD - Zoning Map Amendment)

CONCEPT OF MATERIAL VARIATIONS & PARAPET PROFILES



1 WATER ST ELEVATION--EAST
1" = 10'-0"

PROPOSED TOP OF PARAPET

CONCEPT OF MATERIAL VARIATIONS & PARAPET PROFILES



2 POPLAR GROVE RD ELEVATION--SOUTH
1" = 10'-0"



3 POPLAR GROVE RD ELEVATION--CENTER
1" = 10'-0"

PRELIMINARY NOT
FOR CONSTRUCTION

DATE 07/12/16
PROJECT # 14028
SHEET NUMBER A-201

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402 S. Gay Street, Suite 201, Knoxville, TN 37902
ph 865.637.8540 or 865.291.2221 fx 865.544.3840
www.dia-arch.com



1 POPLAR GROVE RD ELEVATION--NORTH
1" = 10'-0"



2 WATAUGA CO. ELEVATION--WEST
1" = 10'-0"

PRELIMINARY NOT
FOR CONSTRUCTION

DATE	07/12/16
PROJECT #	14028
SHEET NUMBER	A-202

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RIVERS WALK
178 S. WATER ST., BOONE, NC 28607

DIA

Design Innovation

ARCHITECTS + INTERIORS + PLANNING

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Packet Pg. 38



1 BOONE CREEK ELEVATION--NORTH
1" = 10'-0"



2 BOONE CREEK ELEVATION--CENTER
1" = 10'-0"

PRELIMINARY NOT
FOR CONSTRUCTION

DATE	07/12/16
PROJECT #	14028
SHEET NUMBER	A-203

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RIVERS WALK
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Packet Pg. 39

Communication: Rivers Walk Information Submitted to Community Appearance Commission (Case 20160136 Riverswalk PD - Zoning Map Amendment)



Communication: Rivers Walk Information Submitted to Community Appearance Commission (Case 20160136 Riverswalk PD - Zoning Map Amendment)

PRELIMINARY NOT
FOR CONSTRUCTION

DATE	07/12/16
PROJECT #	14028
SHEET NUMBER	A-204

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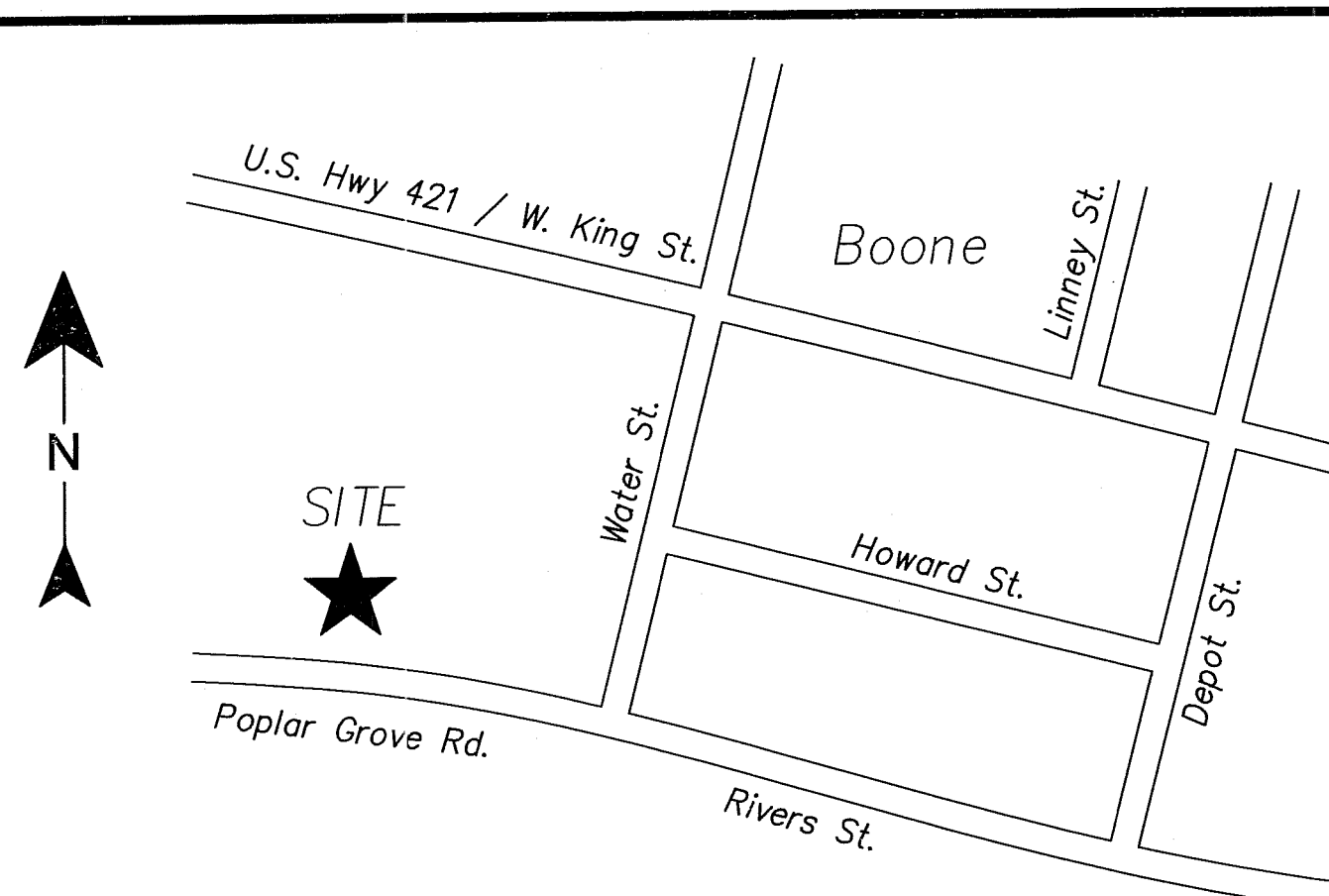
RIVERS WALK
178 S. WATER ST., BOONE, NC 28607

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ph 865.637.8540 or 865.291.2221 fx 865.544.3840
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C-12	PRELIMINARY LANDSCAPE PLAN - SHEET 1 OF 2	12 OF 14			
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C-14	SPECIAL FLOOD HAZARD AREA PLAN	14 OF 14			

Town of Boone
Planning & Inspections

Date Received
July 21, 2016

APPLICANT:
HARROD/AP, LLC
PO BOX 90713
RALEIGH, NC 27613-0713
(919) 414-0739

CIVIL ENGINEER:
MUNICIPAL ENGINEERING
SERVICES COMPANY, PA
PO BOX 349
671 WEST KING STREET
BOONE, NC 28607
(828) 262-1767

ARCHITECTS:
APPALACHIAN ARCHITECTURE, PA
703 WEST KING STREET
BOONE, NC 28607
(828) 265-2405

DESIGN INNOVATION ARCHITECTS, INC.
402 S. GAY STREET, SUITE 201
KNOXVILLE, TN 37902
(865) 637-8540

SURVEYOR:
APPALACHIAN PROFESSIONAL LAND
SURVEYORS & CONSULTANTS, PA
1480 US HIGHWAY 421S
BOONE, NC 28607
(828) 264-0290

ENVIRONMENTAL ENGINEER:
BRUSHY FORK ENGINEERING
5902 HIGHWAY 421 SOUTH
MOUNTAIN CITY, TN 37683
(423) 727-4476

TRAFFIC ENGINEER:
DAVENPORT ENGINEERING
305 WEST FOURTH ST., SUITE 2A
WINSTON-SALEM, NC 27101
(336) 744-1636

RIVERS WALK PLANNED DEVELOPMENT MIXED-USE PROJECT

**WATER ST. & POPLAR GROVE RD.
BOONE, NORTH CAROLINA**

PROJECT NO. B13057.1

Municipal Engineering Services Company, P.A.
Boone, N.C. Garner, N.C.

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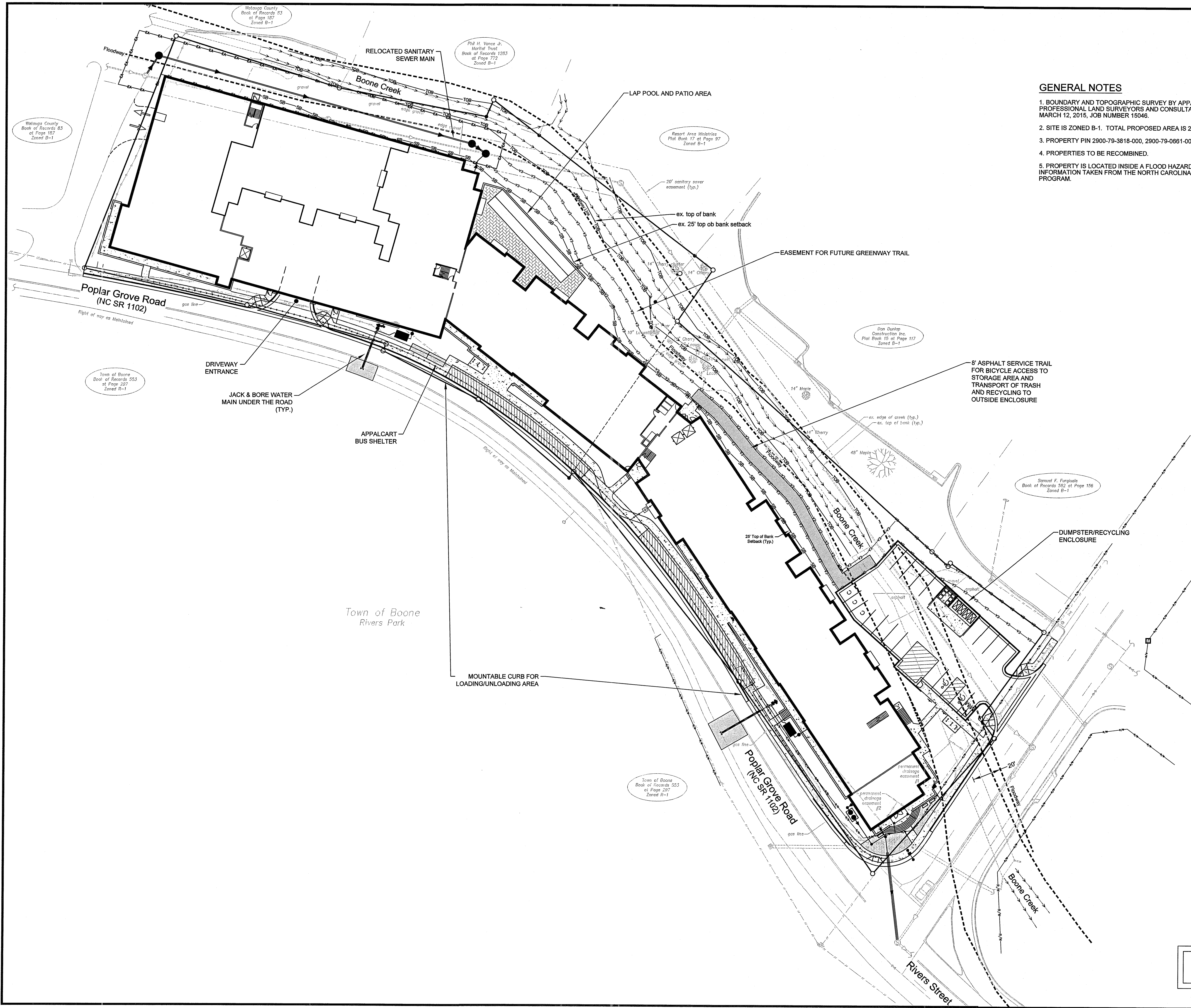
by _____
Professional Engineer

LEGEND		LINETYPES		LUI RATIOS		STORMWATER MANAGEMENT	
 EX. POWER POLE	 PROPOSED POWER POLE	 PROPOSED WATERMAIN	SITE IS ZONED B-3 (GENERAL BUSINESS DISTRICT) LOT AREA = 119,663 FT² LOT WIDTH (WATER ST.) = 204 FT FLOOR AREA = N/A OPEN SPACE = N/A LIVABILITY SPACE = N/A RECREATION SPACE = N/A BUILDING HEIGHT = 45 FT MAX (VARIES DUE TO PARAPET HEIGHT) BUILDING FOOTPRINT = 58,061 FT² *MIN BUILDING FOOTPRINT = 40% X 119,663 FT² = 47,865 FT² (VARIANCE HAS BEEN GRANTED)	EXISTING IMPERVIOUS SURFACE AREA = 83,322 FT ²		WATER STREET BOULDER COVER SHEET SCALE: AS SHOWN DATE: 7-21-16 DRWN. BY: EGT CHKD. BY: A/JC PROJECT NUMBER B13057.1 DRAWING NO. C-1 SHEET NO. 1 OF 14	
 EX. SS MANHOLE	 PROPOSED SS MANHOLE	 PROPOSED CONTOURS		PROPOSED IMPERVIOUS SURFACE AREA = 83,315 FT ²			
 EX. SS CLEANOUT	 PROPOSED SS VAULT	 EXISTING CONTOURS		THEREFORE, NO STORM WATER DETENTION IS REQUIRED.			
 EX. GATE VALVE	 PROPOSED SS CLEANOUT	 STREAM OR CREEK					
 EX. FIRE HYDRANT	 PROPOSED GATE VALVE	 DITCH OR SWALE					
 EX. LIGHT POLE	 PROPOSED FIRE HYDRANT	 STREAM OR CREEK TOP OF BANK					
 EX. CATCH BASIN	 PROPOSED LIGHT POLE	 STREAM BUFFER					
 EX. DROP INLET	 PROPOSED DRAINAGE STRUCTURE	 TROUT BUFFER					
 EX. WATER METER	 PROPOSED DRAINAGE YARD DRAINAGE INLET	 EXISTING WETLANDS					
 EX. GUY WIRE	 PROPOSED WATER METER	 PROPOSED DRAINAGE PIPE					
 EX. TEST PIT	 TEMPORARY DITCH WATTLE	 EXISTING STORM DRAINAGE					
 EX. DRAINAGE MANHOLE	 TEMPORARY ROCK PIPE INLET PROTECTION	 PROPOSED S.S. MAIN CENTERLINE					
 EX. GAS MARKER	 TEMPORARY HARDWARE CLOTH & GRAVEL INLET PROTECTION	 FENCES					
 EX. WELL		 EXISTING WATERLINE					
 EX. TREE		 RIGHT-OF-WAY LINE					
 EX. BUSH		 EASEMENTS					
 EX. SIGN		 EXISTING SANITARY SEWER					
 EX. TELEPHONE PEDESTAL		 PERMANENT DIVERSION					
		 TEMPORARY BERM DITCH					
		 SILT FENCE					
		 EXISTING WOODS LINE					
		 EXISTING OVERHEAD POWERLINE					
		 UNDERGROUND GAS LINE					
		 UNDERGROUND FIBER OPTIC LINE					
		 UNDERGROUND POWERLINE					
		 UNDERGROUND TELEPHONE LINE					
		 UNDERGROUND CABLE LINE					



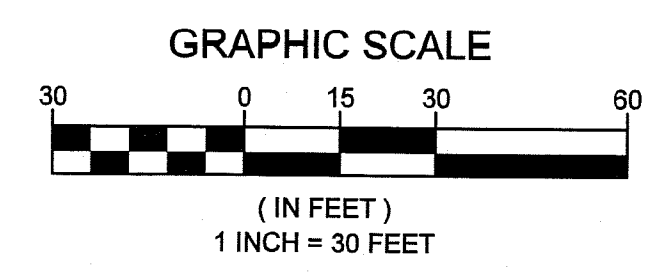
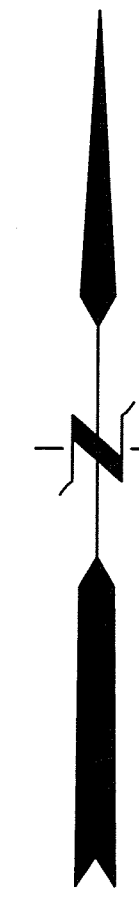
**RIVERS WALK
HARROD/AP, LLC
WATER STREET & POPLAR GROVE ROAD
BOONE, NORTH CAROLINA**

[illegible]



GENERAL NOTES

1. BOUNDARY AND TOPOGRAPHIC SURVEY BY APPALACHIAN PROFESSIONAL LAND SURVEYORS AND CONSULTANTS, PA, DATED MARCH 12, 2015, JOB NUMBER 15046.
2. SITE IS ZONED B-1. TOTAL PROPOSED AREA IS 2.747 ACRES .
3. PROPERTY PIN 2900-79-3818-000, 2900-79-0861-000 & 2900-69-8658-000.
4. PROPERTIES TO BE RECOMBINED.
5. PROPERTY IS LOCATED INSIDE A FLOOD HAZARD AREA. FLOOD INFORMATION TAKEN FROM THE NORTH CAROLINA FLOOD MAPPING PROGRAM.



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Engineering Company, P.A.
Municipal Services
P.O. BOX 348 BOONE, N.C. 28607
(919) 772-5953
LICENSE NUMBER: C-0281

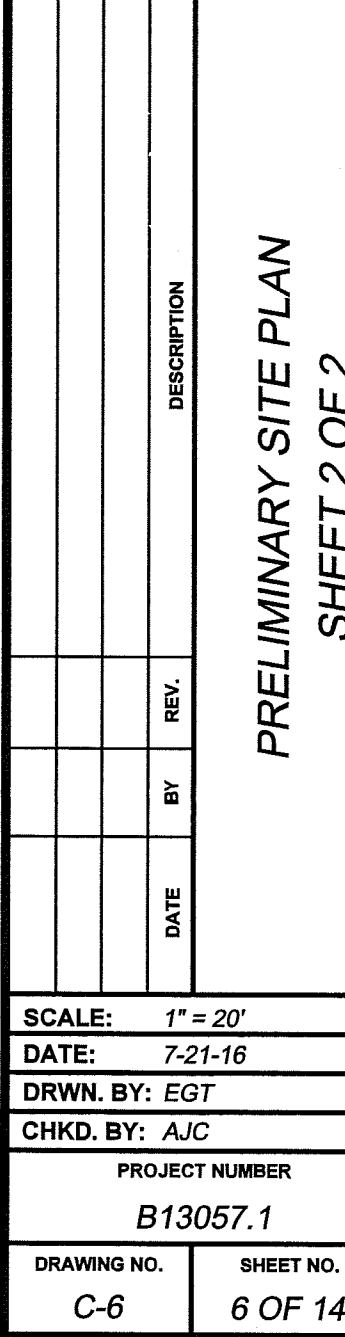
**RIVERS WALK
HARROD/AP, LLC
WATER STREET & POPLAR GROVE ROAD
BOONE, NORTH CAROLINA**

DATE		BY	REV.	DESCRIPTION
7-21-16		EGT		OVERALL SITE PLAN
7-21-16		EGT		
AJC				
PROJECT NUMBER		B13057.1		
DRAWING NO.		C-4		
SHEET NO.		4 OF 14		



**RIVERS WALK
HARROD/AP, LLC
WATER STREET & POPLAR GROVE ROAD
BOONE, NORTH CAROLINA**

[illegible]



**RIVERS WALK
HARROD/AP, LLC
WATER STREET & POPLAR GROVE ROAD
BOONE, NORTH CAROLINA**

Packet Pg. 47



Engineering
Company, P.A.

Municipal
Services

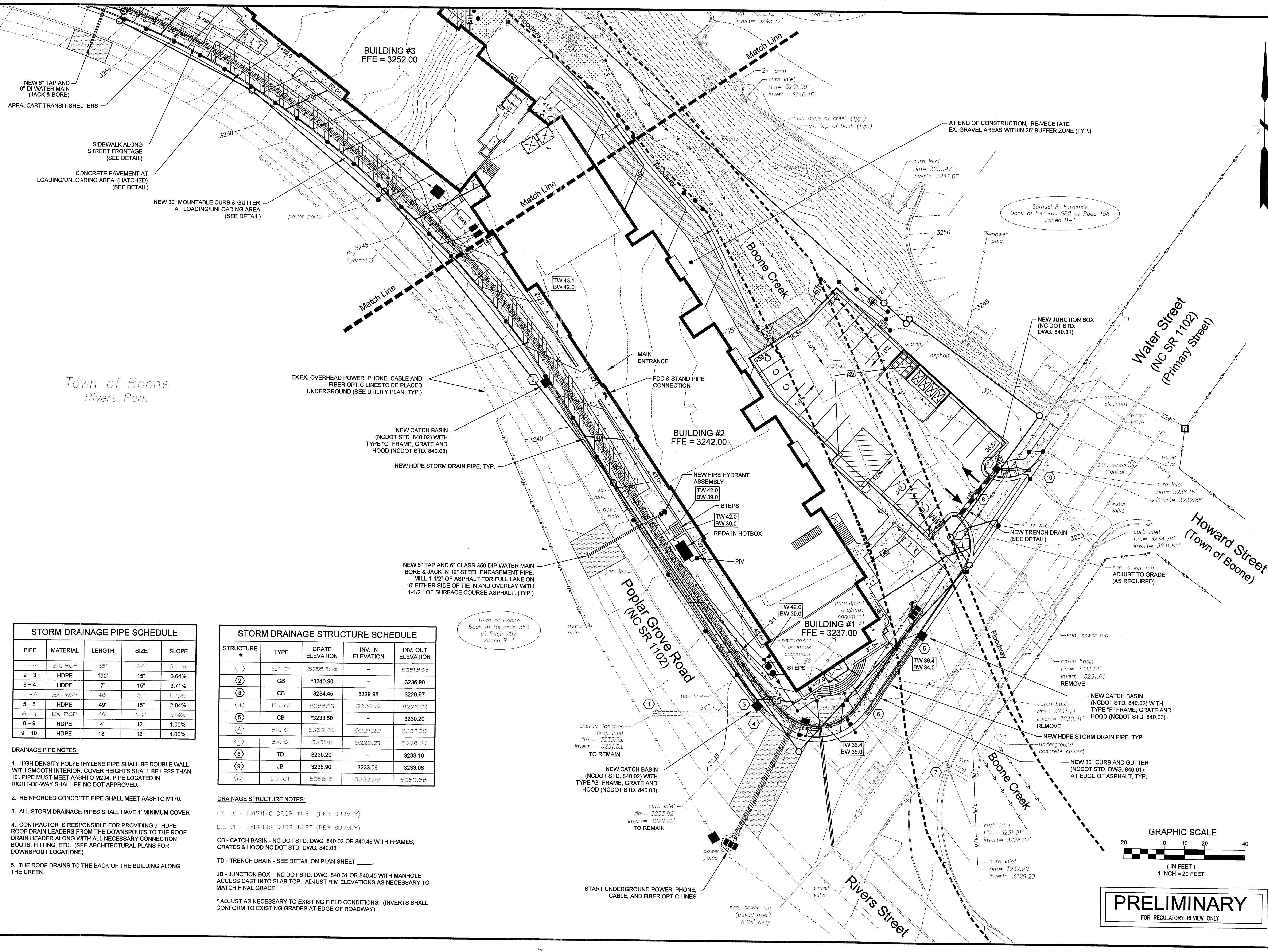
P.O. BOX 349 BOONE, N.C. 28607
(919) 772-5383
LICENSE NUMBER: C-0281

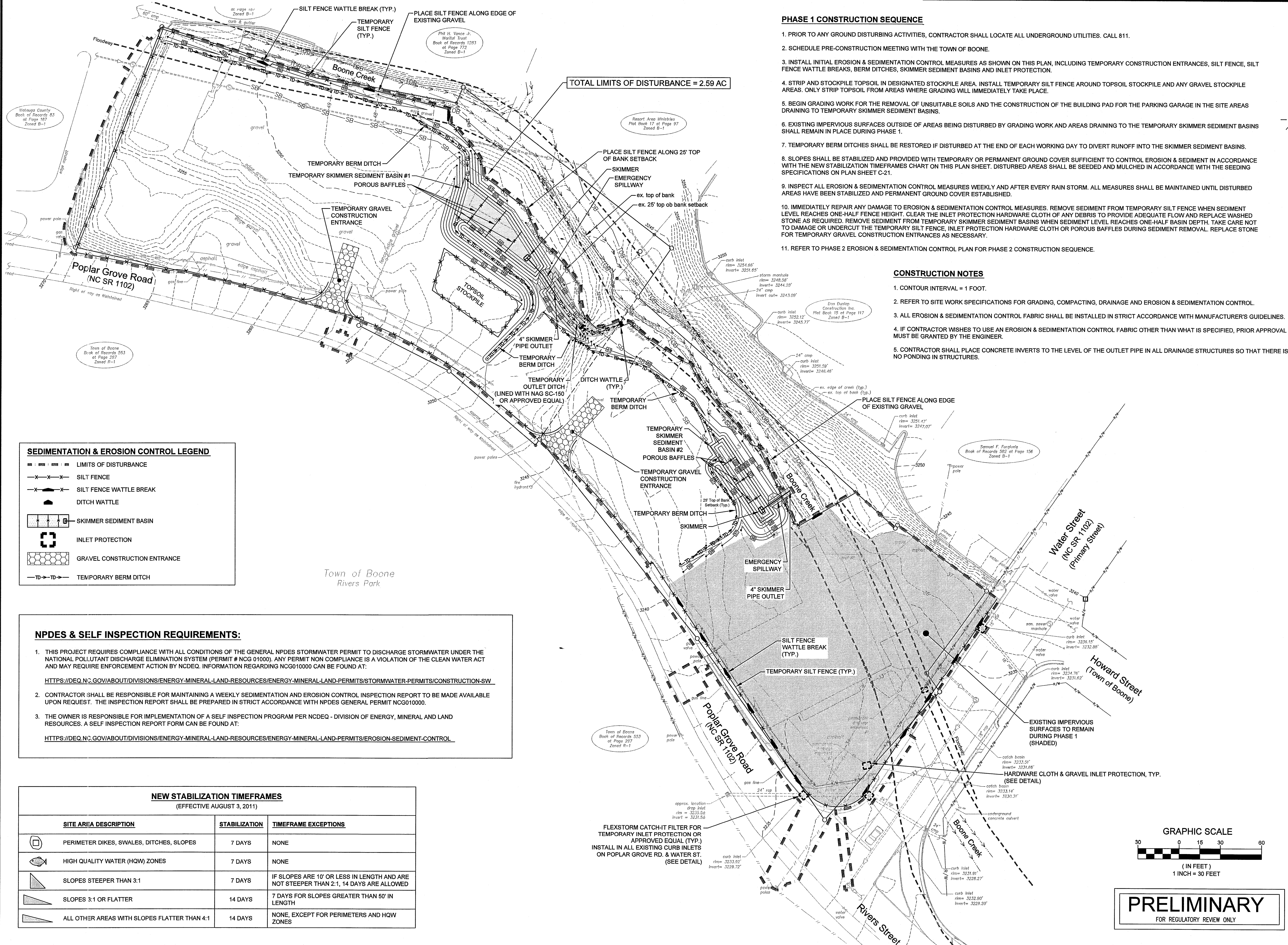
**RIVERS WALK
HARRODIAP, LLC**

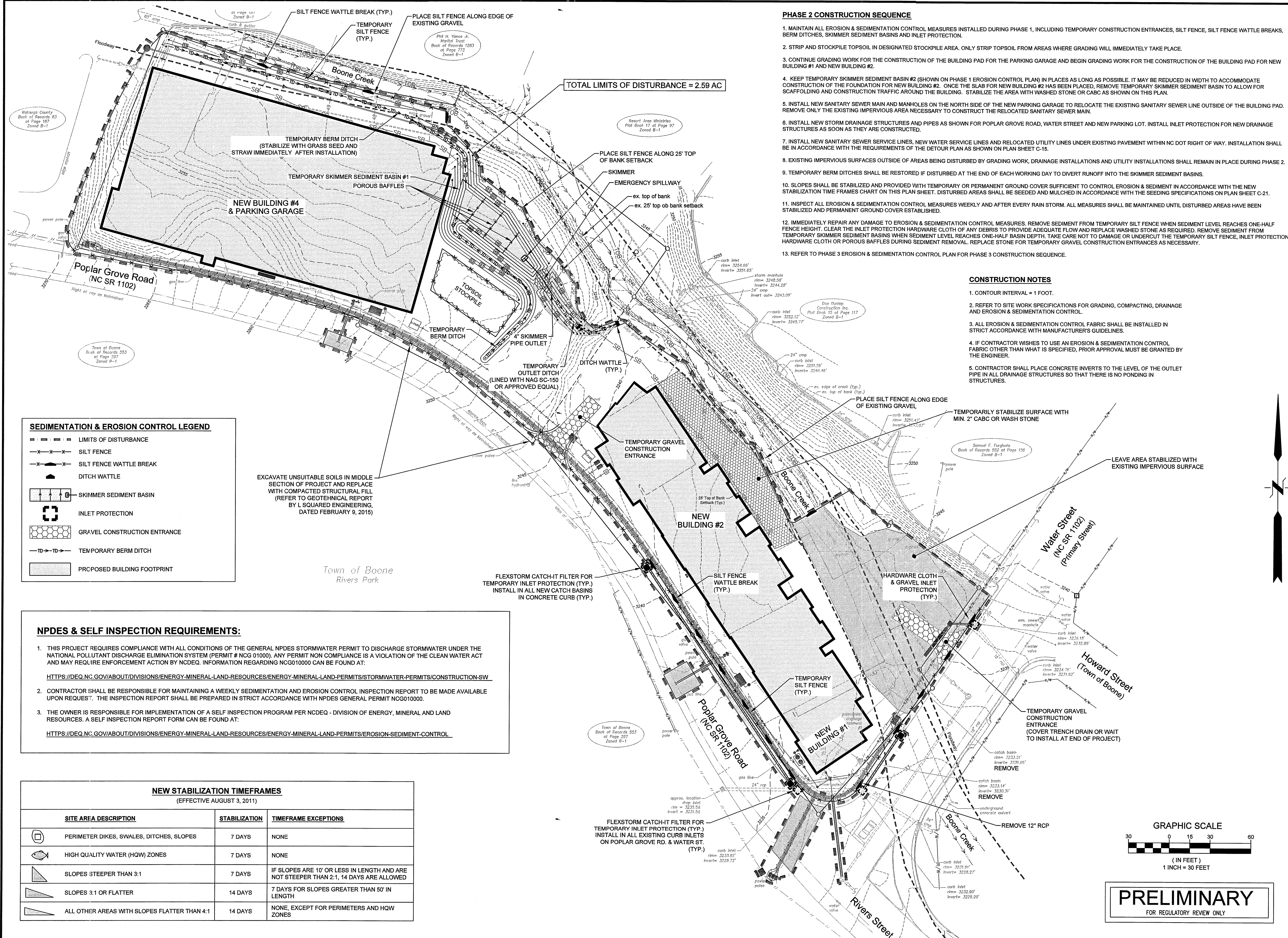
**WATER STREET & POPLAR GROVE ROAD
BOONE, NORTH CAROLINA**

**PRELIMINARY GRADING & DRAINAGE PLAN
SHEET 2 OF 2**

SCALE: 1" = 20'
DATE: 7-21-16
DRWN. BY: EGT
CHKD. BY: AJC
PROJECT NUMBER: B13057.1
DRAWING NO.: C-8
SHEET NO.: 8 OF 14
Packet Pg. 48







PHASE 2 CONSTRUCTION SEQUENCE

1. MAINTAIN ALL EROSION & SEDIMENTATION CONTROL MEASURES INSTALLED DURING PHASE 1, INCLUDING TEMPORARY CONSTRUCTION ENTRANCES, SILT FENCE, SILT FENCE WATTLE BREAKS, BERM DITCHES, SKIMMER SEDIMENT BASINS AND INLET PROTECTION.
2. STRIP AND STOCKPILE TOPSOIL IN DESIGNATED STOCKPILE AREA. ONLY STRIP TOPSOIL FROM AREAS WHERE GRADING WILL IMMEDIATELY TAKE PLACE.
3. CONTINUE GRADING WORK FOR THE CONSTRUCTION OF THE BUILDING PAD FOR THE PARKING GARAGE AND BEGIN GRADING WORK FOR THE CONSTRUCTION OF THE BUILDING PAD FOR NEW BUILDING #1 AND NEW BUILDING #2.
4. KEEP TEMPORARY SKIMMER SEDIMENT BASIN #2 (SHOWN ON PHASE 1 EROSION CONTROL PLAN) IN PLACES AS LONG AS POSSIBLE. IT MAY BE REDUCED IN WIDTH TO ACCOMMODATE CONSTRUCTION OF THE FOUNDATION FOR NEW BUILDING #2. ONCE THE SLAB FOR NEW BUILDING #2 HAS BEEN PLACED, REMOVE TEMPORARY SKIMMER SEDIMENT BASIN TO ALLOW FOR SCAFFOLDING AND CONSTRUCTION TRAFFIC AROUND THE BUILDING. STABILIZE THE AREA WITH WASHED STONE OR CABC AS SHOWN ON THIS PLAN.
5. INSTALL NEW SANITARY SEWER MAIN AND MANHOLES ON THE NORTH SIDE OF THE NEW PARKING GARAGE TO RELOCATE THE EXISTING SANITARY SEWER LINE OUTSIDE OF THE BUILDING PAD. REMOVE ONLY THE EXISTING IMPERVIOUS AREA NECESSARY TO CONSTRUCT THE RELOCATED SANITARY SEWER MAIN.
6. INSTALL NEW STORM DRAINAGE STRUCTURES AND PIPES AS SHOWN FOR POPLAR GROVE ROAD, WATER STREET AND NEW PARKING LOT. INSTALL INLET PROTECTION FOR NEW DRAINAGE STRUCTURES AS SOON AS THEY ARE CONSTRUCTED.
7. INSTALL NEW SANITARY SEWER SERVICE LINES, NEW WATER SERVICE LINES AND RELOCATED UTILITY LINES UNDER EXISTING PAVEMENT WITHIN NC DOT RIGHT OF WAY. INSTALLATION SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE DETOUR PLAN AS SHOWN ON PLAN SHEET C-15.
8. EXISTING IMPERVIOUS SURFACES OUTSIDE OF AREAS BEING DISTURBED BY GRADING WORK, DRAINAGE INSTALLATIONS AND UTILITY INSTALLATIONS SHALL REMAIN IN PLACE DURING PHASE 2.
9. TEMPORARY BERM DITCHES SHALL BE RESTORED IF DISTURBED AT THE END OF EACH WORKING DAY TO DIVERT RUNOFF INTO THE SKIMMER SEDIMENT BASINS.
10. SLOPES SHALL BE STABILIZED AND PROVIDED WITH TEMPORARY OR PERMANENT GROUND COVER SUFFICIENT TO CONTROL EROSION & SEDIMENT IN ACCORDANCE WITH THE NEW STABILIZATION TIME FRAMES CHART ON THIS PLAN SHEET. DISTURBED AREAS SHALL BE SEEDED AND MULCHED IN ACCORDANCE WITH THE SEEDING SPECIFICATIONS ON PLAN SHEET C-21.
11. INSPECT ALL EROSION & SEDIMENTATION CONTROL MEASURES WEEKLY AND AFTER EVERY RAIN STORM. ALL MEASURES SHALL BE MAINTAINED UNTIL DISTURBED AREAS HAVE BEEN STABILIZED AND PERMANENT GROUND COVER ESTABLISHED.
12. IMMEDIATELY REPAIR ANY DAMAGE TO EROSION & SEDIMENTATION CONTROL MEASURES. REMOVE SEDIMENT FROM TEMPORARY SILT FENCE WHEN SEDIMENT LEVEL REACHES ONE-HALF FENCE HEIGHT. CLEAR THE INLET PROTECTION HARDWARE CLOTH OF ANY DEBRIS TO PROVIDE ADEQUATE FLOW AND REPLACE WASHED STONE AS REQUIRED. REMOVE SEDIMENT FROM TEMPORARY SKIMMER SEDIMENT BASINS WHEN SEDIMENT LEVEL REACHES ONE-HALF BASIN DEPTH. TAKE CARE NOT TO DAMAGE OR UNDERCUT THE TEMPORARY SILT FENCE, INLET PROTECTION HARDWARE CLOTH OR POROUS BAFFLES DURING SEDIMENT REMOVAL. REPLACE STONE FOR TEMPORARY GRAVEL CONSTRUCTION ENTRANCES AS NECESSARY.
13. REFER TO PHASE 3 EROSION & SEDIMENTATION CONTROL PLAN FOR PHASE 3 CONSTRUCTION SEQUENCE.

CONSTRUCTION NOTES

1. CONTOUR INTERVAL = 1 FOOT.
2. REFER TO SITE WORK SPECIFICATIONS FOR GRADING, COMPACTING, DRAINAGE AND EROSION & SEDIMENTATION CONTROL.
3. ALL EROSION & SEDIMENTATION CONTROL FABRIC SHALL BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURER'S GUIDELINES.
4. IF CONTRACTOR WISHES TO USE AN EROSION & SEDIMENTATION CONTROL FABRIC OTHER THAN WHAT IS SPECIFIED, PRIOR APPROVAL MUST BE GRANTED BY THE ENGINEER.
5. CONTRACTOR SHALL PLACE CONCRETE INVERTS TO THE LEVEL OF THE OUTLET PIPE IN ALL DRAINAGE STRUCTURES SO THAT THERE IS NO PONDING IN STRUCTURES.

SEDIMENTATION & EROSION CONTROL LEGEND

- — — — — LIMITS OF DISTURBANCE
- x — x — SILT FENCE
- x — x — SILT FENCE WATTLE BREAK
- — — — — DITCH WATTLE
- — — — — SKIMMER SEDIMENT BASIN
- — — — — INLET PROTECTION
- — — — — GRAVEL CONSTRUCTION ENTRANCE
- — — — — TEMPORARY BERM DITCH
- — — — — PROPOSED BUILDING FOOTPRINT

EXCAVATE UNSUITABLE SOILS IN MIDDLE SECTION OF PROJECT AND REPLACE WITH COMPACTED STRUCTURAL FILL (REFER TO GEOTECHNICAL REPORT BY L SQUARED ENGINEERING, DATED FEBRUARY 9, 2015)

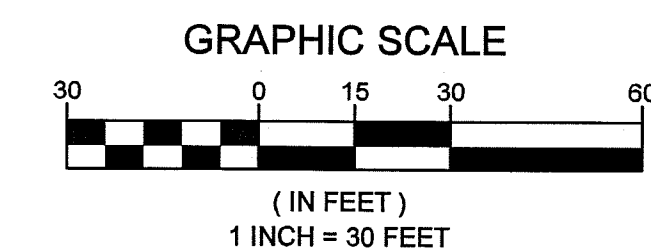
NPDES & SELF INSPECTION REQUIREMENTS:

1. THIS PROJECT REQUIRES COMPLIANCE WITH ALL CONDITIONS OF THE GENERAL NPDES STORMWATER PERMIT TO DISCHARGE STORMWATER UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (PERMIT # NCG 01000). ANY PERMIT NON COMPLIANCE IS A VIOLATION OF THE CLEAN WATER ACT AND MAY REQUIRE ENFORCEMENT ACTION BY NCDEQ. INFORMATION REGARDING NCG010000 CAN BE FOUND AT:
<https://deq.nc.gov/about/divisions/energy-mineral-land-resources/energy-mineral-land-permits/stormwater-permits/construction-sw>
2. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING A WEEKLY SEDIMENTATION AND EROSION CONTROL INSPECTION REPORT TO BE MADE AVAILABLE UPON REQUEST. THE INSPECTION REPORT SHALL BE PREPARED IN STRICT ACCORDANCE WITH NPDES GENERAL PERMIT NCG010000.
3. THE OWNER IS RESPONSIBLE FOR IMPLEMENTATION OF A SELF INSPECTION PROGRAM PER NCDEQ - DIVISION OF ENERGY, MINERAL AND LAND RESOURCES. A SELF INSPECTION REPORT FORM CAN BE FOUND AT:
<https://deq.nc.gov/about/divisions/energy-mineral-land-resources/energy-mineral-land-permits/erosion-sediment-control>

NEW STABILIZATION TIMEFRAMES

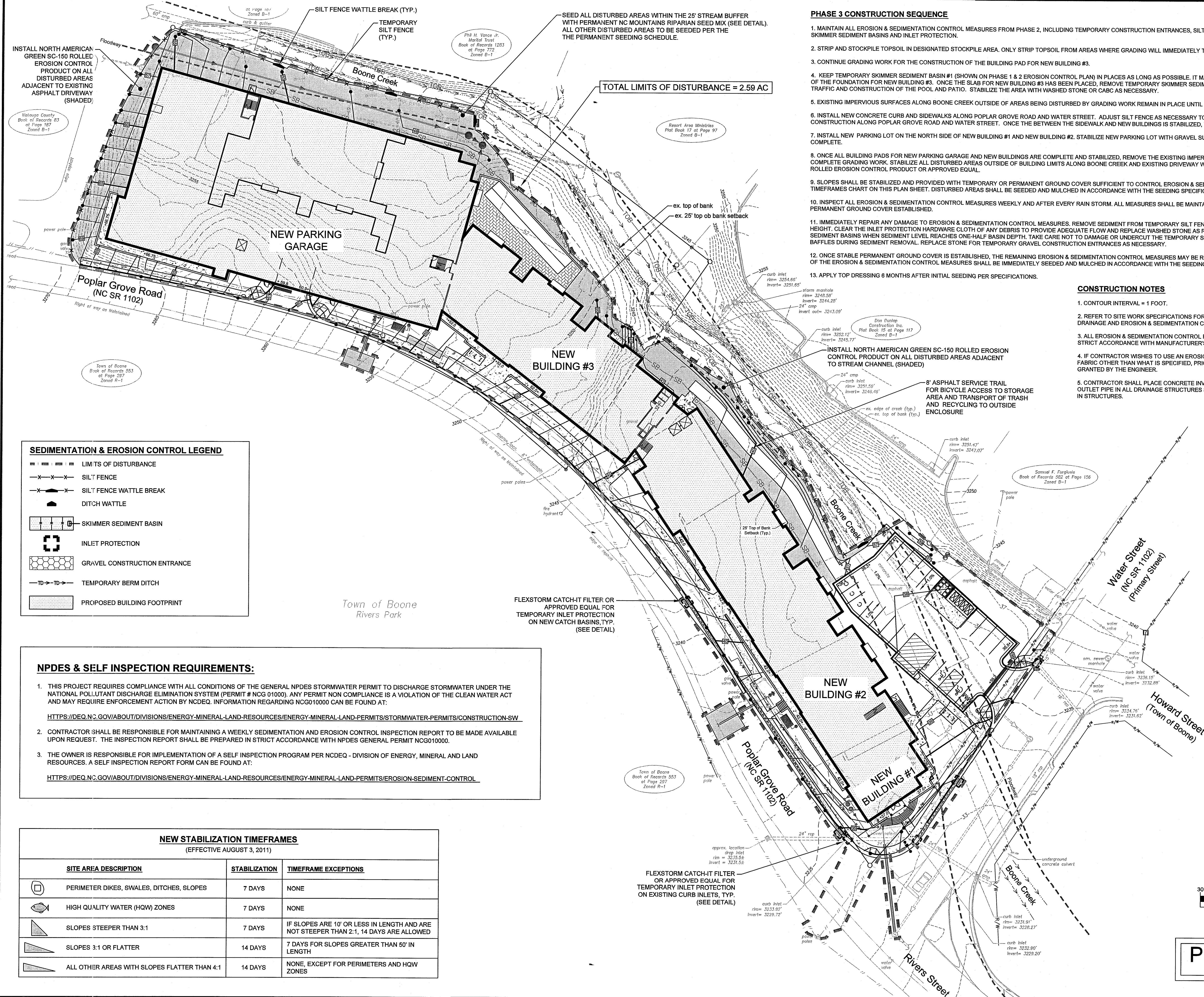
(EFFECTIVE AUGUST 3, 2011)

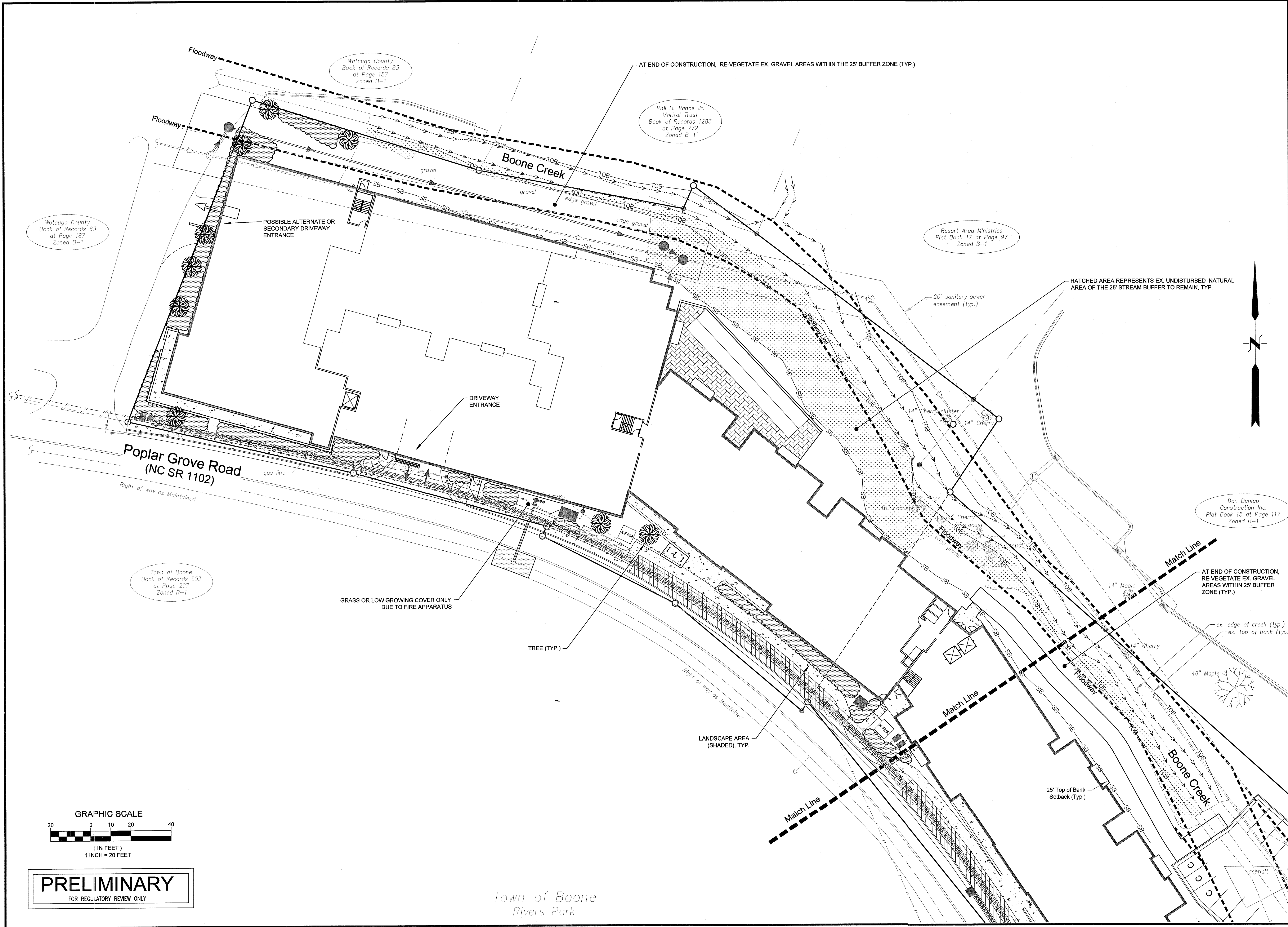
SITE AREA DESCRIPTION	STABILIZATION	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES, SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQP) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES



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Town of Boone
Rivers Park

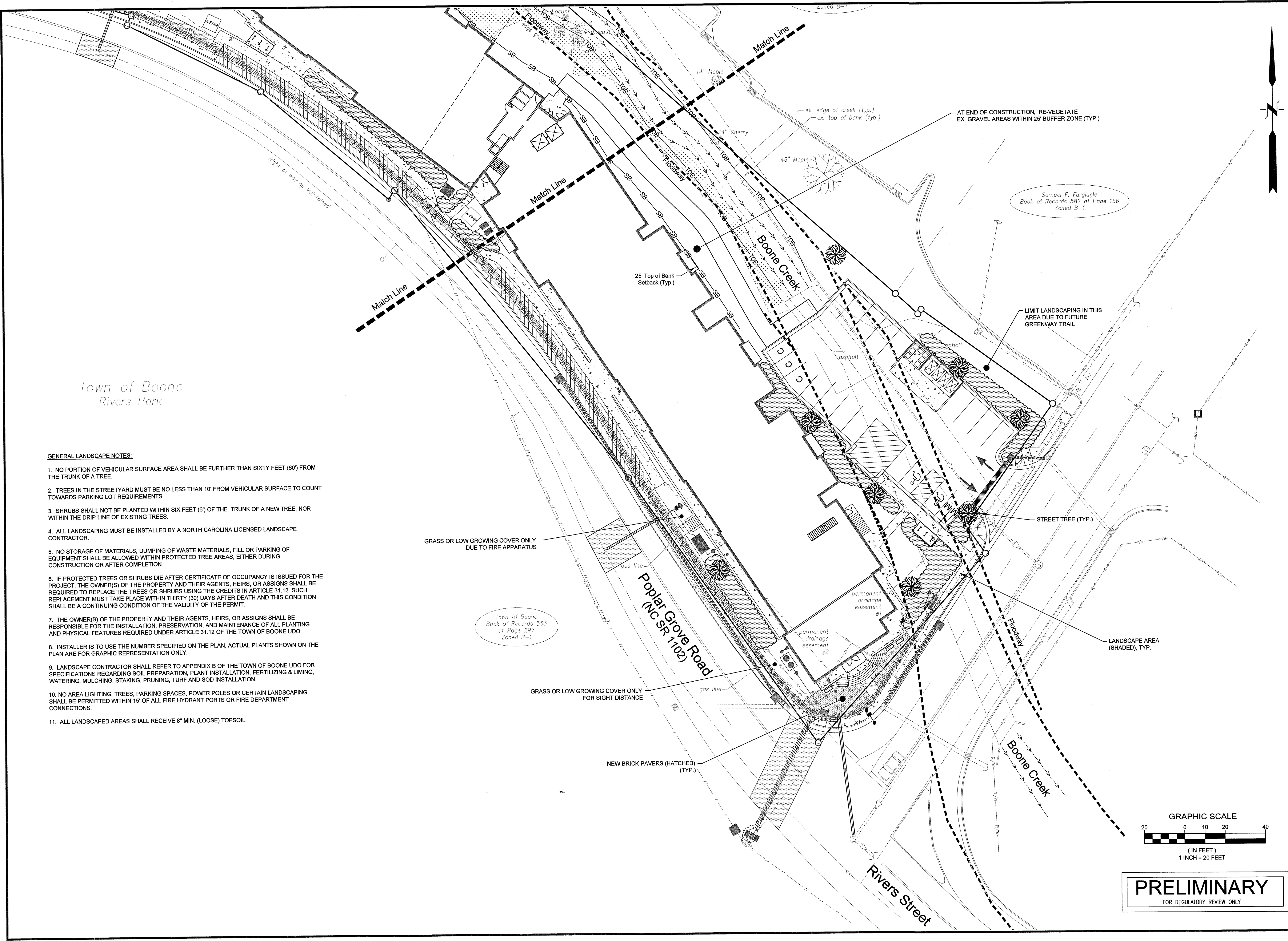
Engineering
Company, P.A.

Municipal
Services

P.O. BOX 349 BOONE, N.C. 28607
(828) 262-1767
LICENSE NUMBER: C-0261

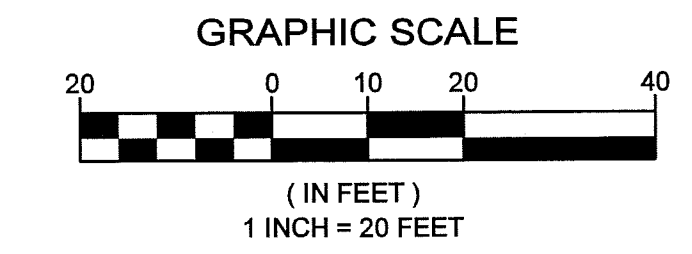
**RIVERS WALK
HARROD/AP, LLC
WATER STREET & POPLAR GROVE ROAD
BOONE, NORTH CAROLINA**

DESCRIPTION		DATE	BY	REV.
PRELIMINARY LANDSCAPE PLAN				
SHEET 1 OF 2				
SCALE: 1" = 20'				
DATE: 7-21-16				
DRWN. BY: EGT				
CHKD. BY: AJC				
PROJECT NUMBER				
B13057.1				
DRAWING NO.		SHEET NO.		
C-12		12 OF 14		



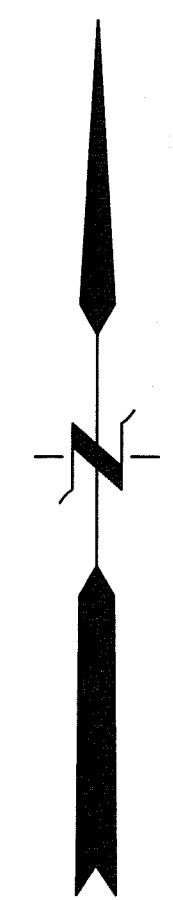
GENERAL LANDSCAPE NOTES:

1. NO PORTION OF VEHICULAR SURFACE AREA SHALL BE FURTHER THAN SIXTY FEET (60') FROM THE TRUNK OF A TREE.
2. TREES IN THE STREETYARD MUST BE NO LESS THAN 10' FROM VEHICULAR SURFACE TO COUNT TOWARDS PARKING LOT REQUIREMENTS.
3. SHRUBS SHALL NOT BE PLANTED WITHIN SIX FEET (6') OF THE TRUNK OF A NEW TREE, NOR WITHIN THE DRIP LINE OF EXISTING TREES.
4. ALL LANDSCAPING MUST BE INSTALLED BY A NORTH CAROLINA LICENSED LANDSCAPE CONTRACTOR.
5. NO STORAGE OF MATERIALS, DUMPING OF WASTE MATERIALS, FILL OR PARKING OF EQUIPMENT SHALL BE ALLOWED WITHIN PROTECTED TREE AREAS, EITHER DURING CONSTRUCTION OR AFTER COMPLETION.
6. IF PROTECTED TREES OR SHRUBS DIE AFTER CERTIFICATE OF OCCUPANCY IS ISSUED FOR THE PROJECT, THE OWNER(S) OF THE PROPERTY AND THEIR AGENTS, HEIRS, OR ASSIGNS SHALL BE REQUIRED TO REPLACE THE TREES OR SHRUBS USING THE CREDITS IN ARTICLE 31.12. SUCH REPLACEMENT MUST TAKE PLACE WITHIN THIRTY (30) DAYS AFTER DEATH AND THIS CONDITION SHALL BE A CONTINUING CONDITION OF THE VALIDITY OF THE PERMIT.
7. THE OWNER(S) OF THE PROPERTY AND THEIR AGENTS, HEIRS, OR ASSIGNS SHALL BE RESPONSIBLE FOR THE INSTALLATION, PRESERVATION, AND MAINTENANCE OF ALL PLANTING AND PHYSICAL FEATURES REQUIRED UNDER ARTICLE 31.12 OF THE TOWN OF BOONE UDO.
8. INSTALLER IS TO USE THE NUMBER SPECIFIED ON THE PLAN, ACTUAL PLANTS SHOWN ON THE PLAN ARE FOR GRAPHIC REPRESENTATION ONLY.
9. LANDSCAPE CONTRACTOR SHALL REFER TO APPENDIX B OF THE TOWN OF BOONE UDO FOR SPECIFICATIONS REGARDING SOIL PREPARATION, PLANT INSTALLATION, FERTILIZING & LIMING, WATERING, MULCHING, STAKING, PRUNING, TURF AND SOD INSTALLATION.
10. NO AREA LIGHTING, TREES, PARKING SPACES, POWER POLES OR CERTAIN LANDSCAPING SHALL BE PERMITTED WITHIN 15' OF ALL FIRE HYDRANT PORTS OR FIRE DEPARTMENT CONNECTIONS.
11. ALL LANDSCAPED AREAS SHALL RECEIVE 8" MIN. (LOOSE) TOPSOIL.



PRELIMINARY

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NOTES:

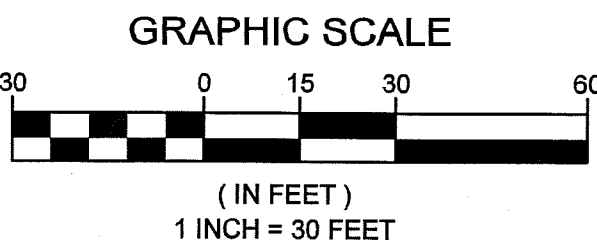
1. ALL UTILITIES SHALL BE LOCATED A MINIMUM OF 2' ABOVE BASE FLOOR ELEVATION.
2. HVAC EQUIPMENT SHALL BE LOCATED ON THE ROOF OF THE PROPOSED BUILDINGS.
3. THE FINISHED FLOOR OF THE PROPOSED BUILDINGS SHALL AT LEAST 2' ABOVE THE BASE FLOOR ELEVATION. INCIDENTAL AREAS NOT 2' ABOVE BASE FLOOR ELEVATIONS SHALL BE FLOOR PROOFED.
4. THE CONTRACTOR IS REQUIRED TO PROVIDE THE UTILITIES AND HVAC EQUIPMENT ELEVATIONS FOR THE PROPOSED BUILDING. PRE-CONSTRUCTION, AFTER FIRST FLOOR IS ESTABLISHED, AND FINAL CONSTRUCTION.

PROJECT DESCRIPTION:

REDEVELOPMENT OF THE SITE AND CONSTRUCTION OF
A NEW MULTI-BUILDING MIXED USE PROJECT.

BASE FLOOD ELEVATION

1. THE BASE FLOOD ELEVATIONS VARY FOR THE BUILDINGS. SEE PLAN. ELEVATION TAKEN FROM THE NORTH CAROLINA FLOOD MAPPING PROGRAM.
2. ALL FINISHED FLOOR ARE PLANNED TO BE A MINIMUM OF 2 FEET ABOVE BASE FLOOD ELEVATION. ANY INCIDENTAL AREAS NOT 2 FEET ABOVE BASE FLOOD ELEVATION WILL BE FLOOD PROOFED. ALL REQUIREMENTS OF THE TOWN OF BOONE'S FLOOD DAMAGE PREVENTION ORDINANCE WILL BE MET.



PRELIMINARY
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Municipal
Services

Engineering
Company, P.A.

**RIVERS WALK
HARROD/AP, LLC
WATER STREET & POPLAR GROVE ROAD
BOONE, NORTH CAROLINA**

[illegible]

Town of Boone
Planning & Inspections

Date Received
July 18, 2016



1 WATER ST ELEVATION--EAST
1" = 10'-0"



2 POPLAR GROVE RD ELEVATION--SOUTH
1" = 10'-0"



3 POPLAR GROVE RD ELEVATION--CENTER
1" = 10'-0"

- MATERIAL LEGEND
- STONE A
 - STONE B
 - BRICK A
 - BRICK B
 - MONOLITHIC SURFACE
 - CLAPBOARD SIDING

PRELIMINARY NOT FOR CONSTRUCTION	
DATE	07/18/16
PROJECT #	14028
SHEET NUMBER	A-201
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RIVERS WALK
178 S. WATER ST., BOONE, NC 28607

APPALACHIAN
ARCHITURECTURE, PA
703 West King Street
Boone, NC 28607
ph 828.265.2405

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Design Innovation
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Communication: Rivers Walk Building Elevations (Case 20160136 Riverswalk PD - Zoning Map Amendment)



1 POPLAR GROVE RD ELEVATION--NORTH
1" = 10'-0"



2 WATAUGA CO. ELEVATION--WEST
1" = 10'-0"

- MATERIAL LEGEND
- STONE A
 - STONE B
 - BRICK A
 - BRICK B
 - MONOLITHIC SURFACE
 - CLAPBOARD SIDING

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DATE	07/18/16
PROJECT #	14028
SHEET NUMBER	A-202

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Packet Pg. 56



1 BOONE CREEK ELEVATION--NORTH
1" = 10'-0"



2 BOONE CREEK ELEVATION--CENTER
1" = 10'-0"

- MATERIAL LEGEND
- STONE A
 - STONE B
 - BRICK A
 - BRICK B
 - MONOLITHIC SURFACE
 - CLAPBOARD SIDING

PRELIMINARY NOT
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DATE	07/18/16
PROJECT #	14028
SHEET NUMBER	A-203

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Packet Pg. 57



1 BOONE CREEK ELEVATION--SOUTH
1" = 10'-0"

Communication: Rivers Walk Building Elevations (Case 20160136 Riverswalk PD - Zoning Map Amendment)

- MATERIAL LEGEND
- STONE A
 - STONE B
 - BRICK A
 - BRICK B
 - MONOLITHIC SURFACE
 - CLAPBOARD SIDING

PRELIMINARY NOT
FOR CONSTRUCTION

DATE	07/18/16
PROJECT #	14028
SHEET NUMBER	A-204

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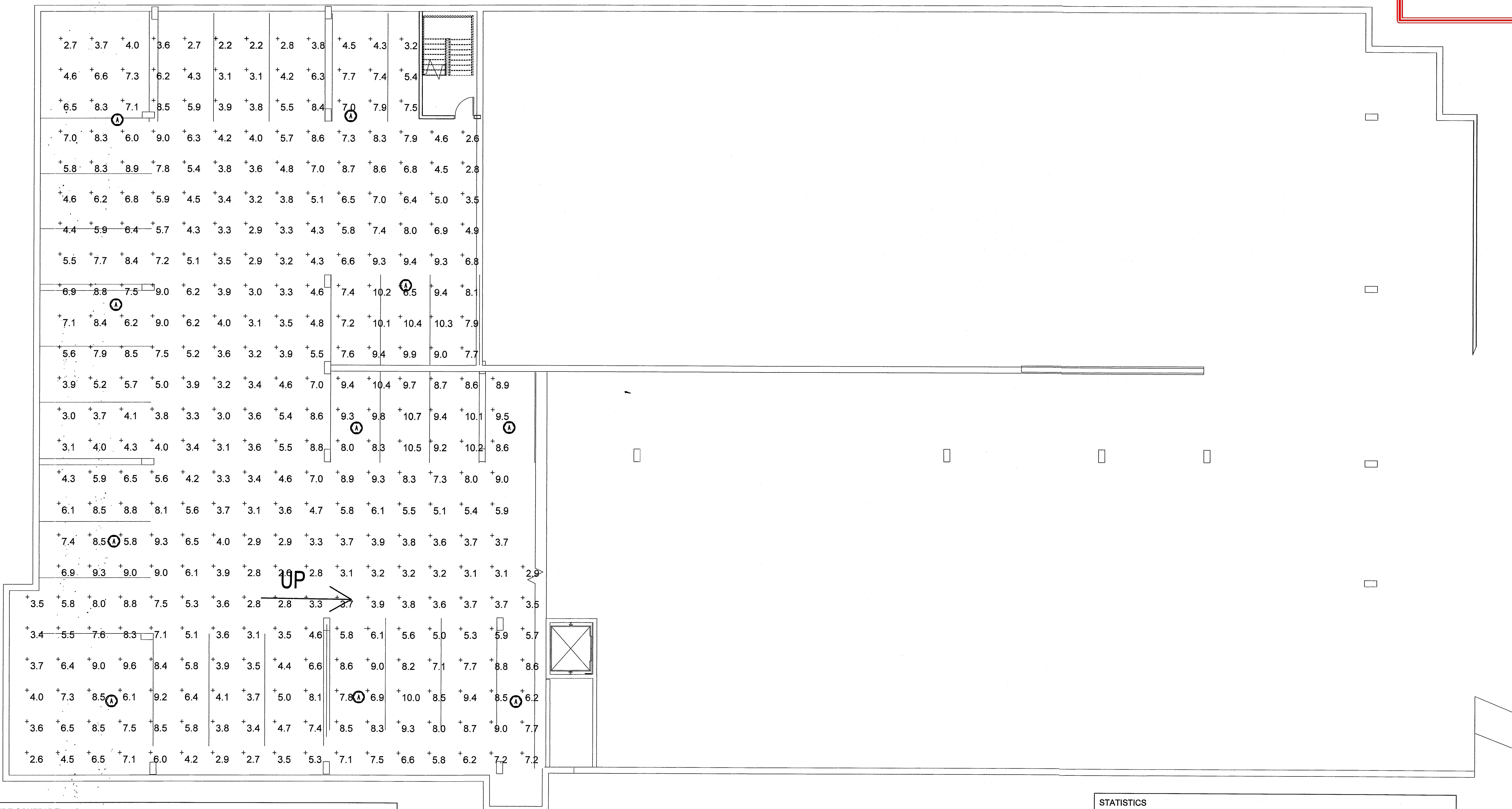
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Town of Boone
Planning & Inspections

Date Received
July 21, 2016



LUMINAIRE SCHEDULE										
Symbol	Label	Qty	Ca talog Number	Description	Lamp	Mounting Ht.	File	Lumens	LLF	Watts
○	A	74	SVPG-168L-1800-NV-5	PHILIPS SOFTVIEW PARKING GARAGE	LED	9'	SVPG-168L-1800-NV-5.les	Absolute	0.95	84.8

STATISTICS						
Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
1st flr	+	6.0 fc	10.7 fc	2.2 fc	4.9:1	2.7:1

PARKING GARAGE FIRST FLOOR PHOTOMETRIC PLAN
SCALE: 1/8"=1'-0"



PRELIMINARY NOT FOR CONSTRUCTION

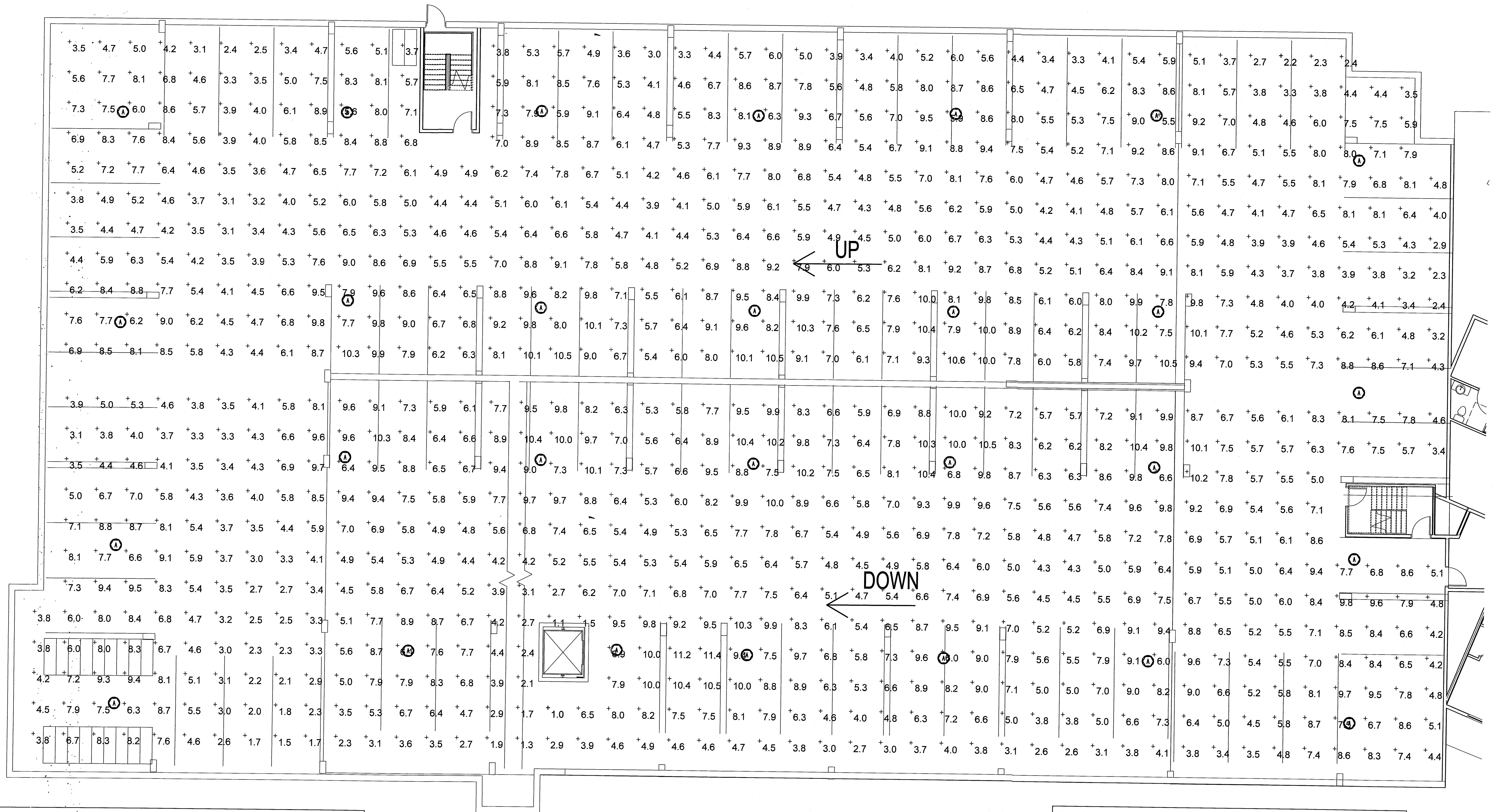
DATE	07/11/16
PROJECT #	14028
SHEET NUMBER	EP101

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LUMINAIRE SCHEDULE									
Symbol	Label	Qty	Catalog Number	Description	Lamp	Mounting Ht.	File	Lumens	LLF
○	A	74	SVPG-168L-1800-NW-S	PHILIPS SOFTVIEW PARKING GARAGE	LED	9'	SVPG-168L-1800-NW-S.ies	Absolute	0.95

STATISTICS						
Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
2nd flr DN	+	6.4 fc	11.4 fc	1.0 fc	11.4:1	6.4:1
2nd flr UP	+	6.3 fc	10.6 fc	2.2 fc	4.8:1	2.9:1

PARKING GARAGE SECOND FLOOR PHOTOMETRIC PLAN
SCALE: 1/8"=1'-0"



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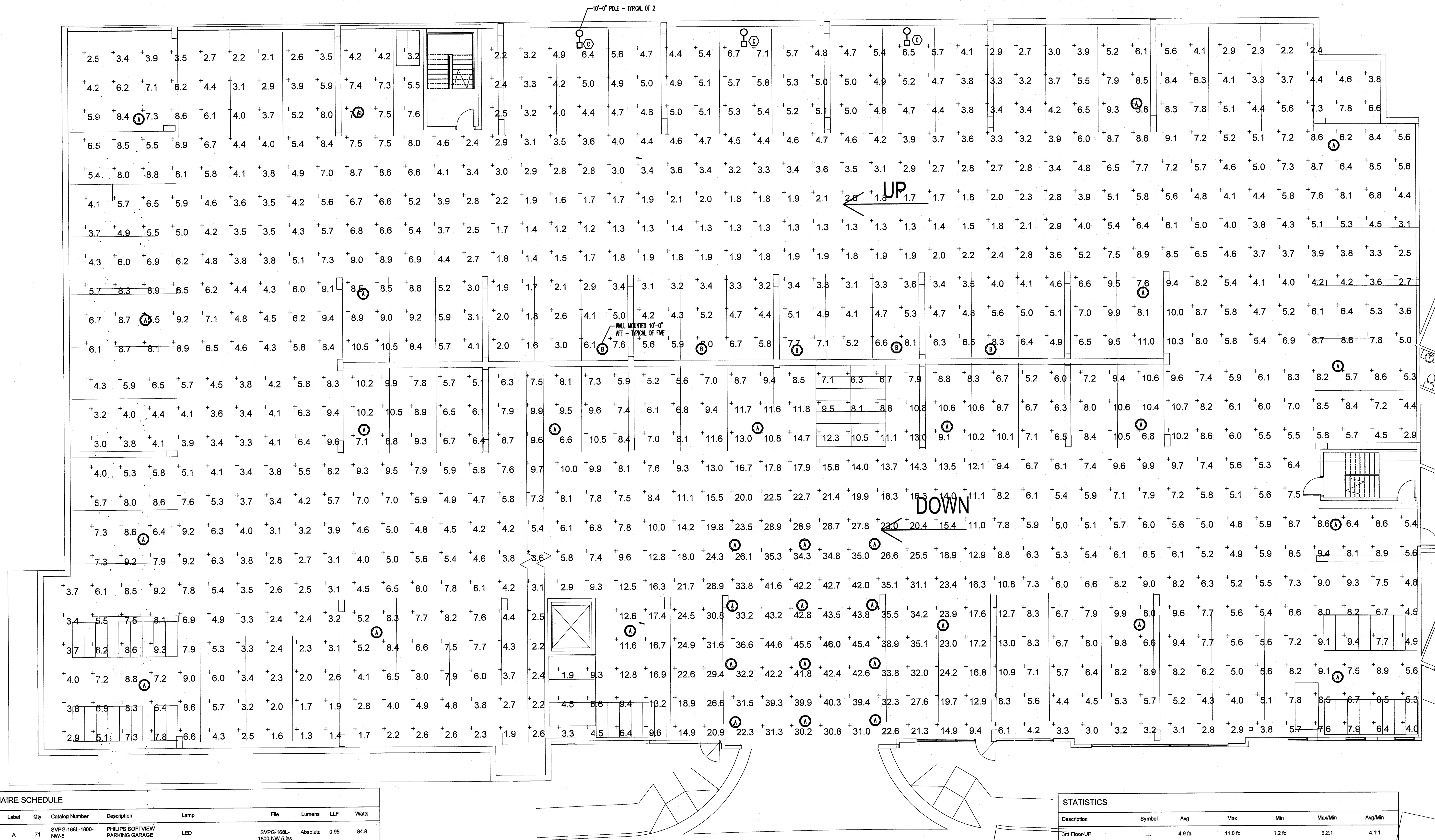
DATE	07/11/16
PROJECT #	14028
SHEET NUMBER	EP102

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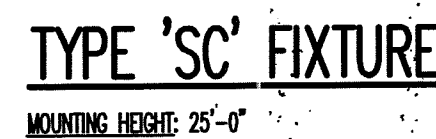
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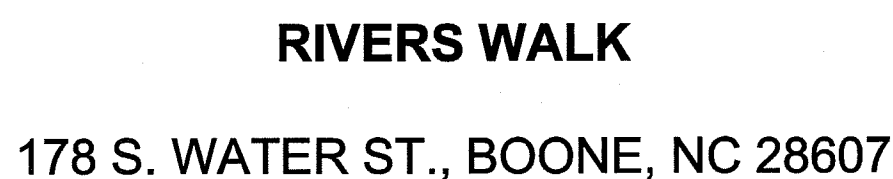


Packet Pg. 62



STATISTICS						
Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Back sidewalk	+	2.7 fc	7.9 fc	0.4 fc	19.8:1	6.8:1
Poplar Grove Rd/River Dr	+	3.4 fc	10.8 fc	0.6 fc	18.0:1	5.7:1
Sidewalk between parking lot and building	+	1.4 fc	1.8 fc	1.0 fc	1.8:1	1.4:1
Surface parking lot	+	1.6 fc	2.5 fc	0.7 fc	3.6:1	2.3:1

LUMINAIRE SCHEDULE										
Symbol	Label	Qty	Catalog Number	Description	Lamp	Mounting Ht.	File	Lumens	LLF	Watts
	SA	10	URB-26-60NB-136-3K-T3	URBAN SERIES MTG HT: 22'-10"	LED	22'-10"	URB-26-60NB-136-3K-T3.iss	Absolute	0.95	137
	SB	12	URB-26-60NB-136-3K-T3-	URBAN SERIES MTG HT: 12'	LED	12'	URB-26-60NB-136-3K-T3.iss	Absolute	0.80	110
	SC	4	EASC_B4F550_____ WITH ELS-_____ EASX-RS3-BLCK	Evolve LED Area Light - Scalable EASC	LED	25'	easc_b4f550_____ _____ els-easx- rs3-blick- right_tcm201- 100564.iss	Absolute	0.95	62



PRELIMINARY NOT FOR CONSTRUCTION	
DATE	07/11/16
PROJECT #	14028
SHEET NUMBER	SP101

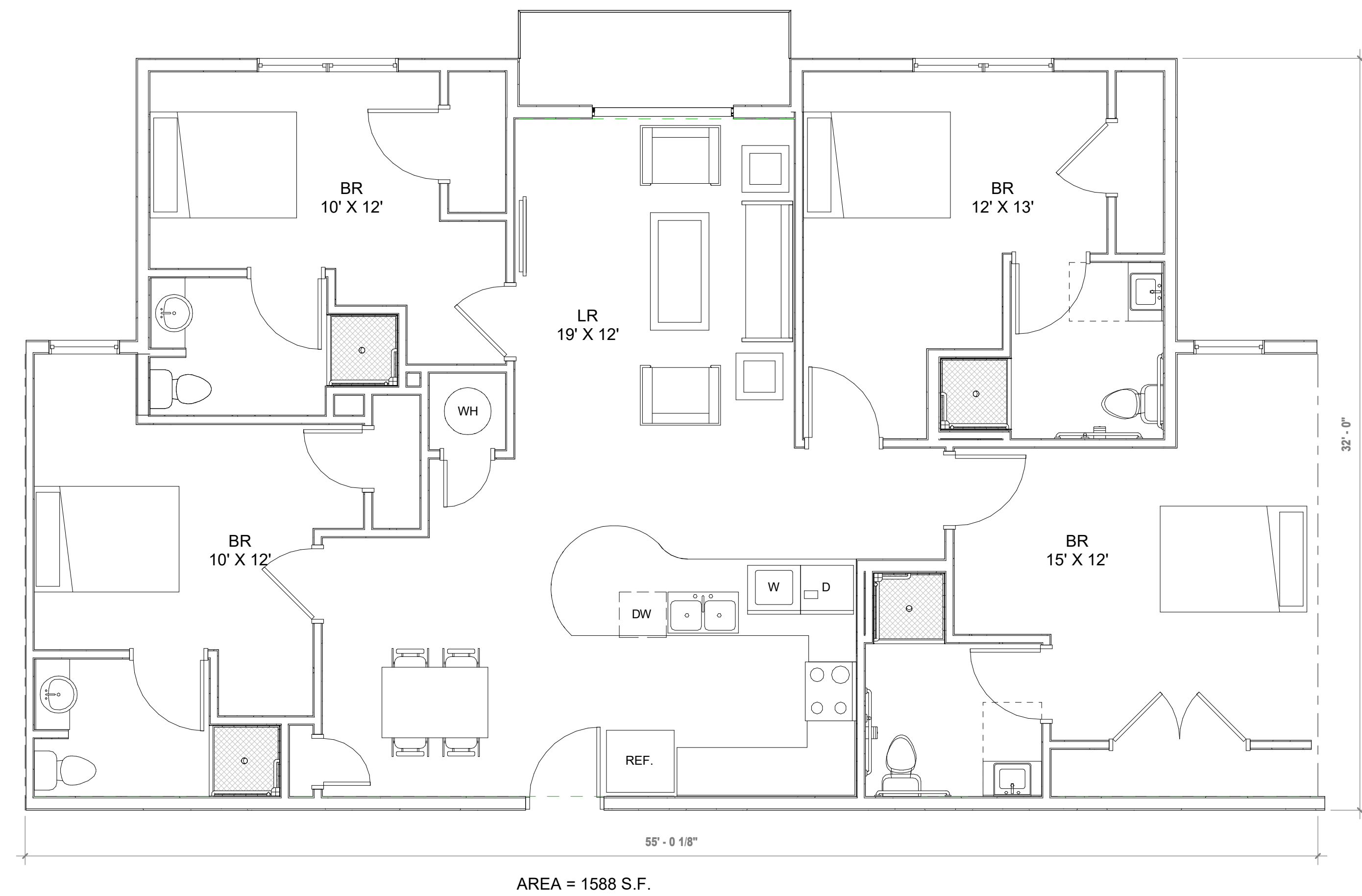
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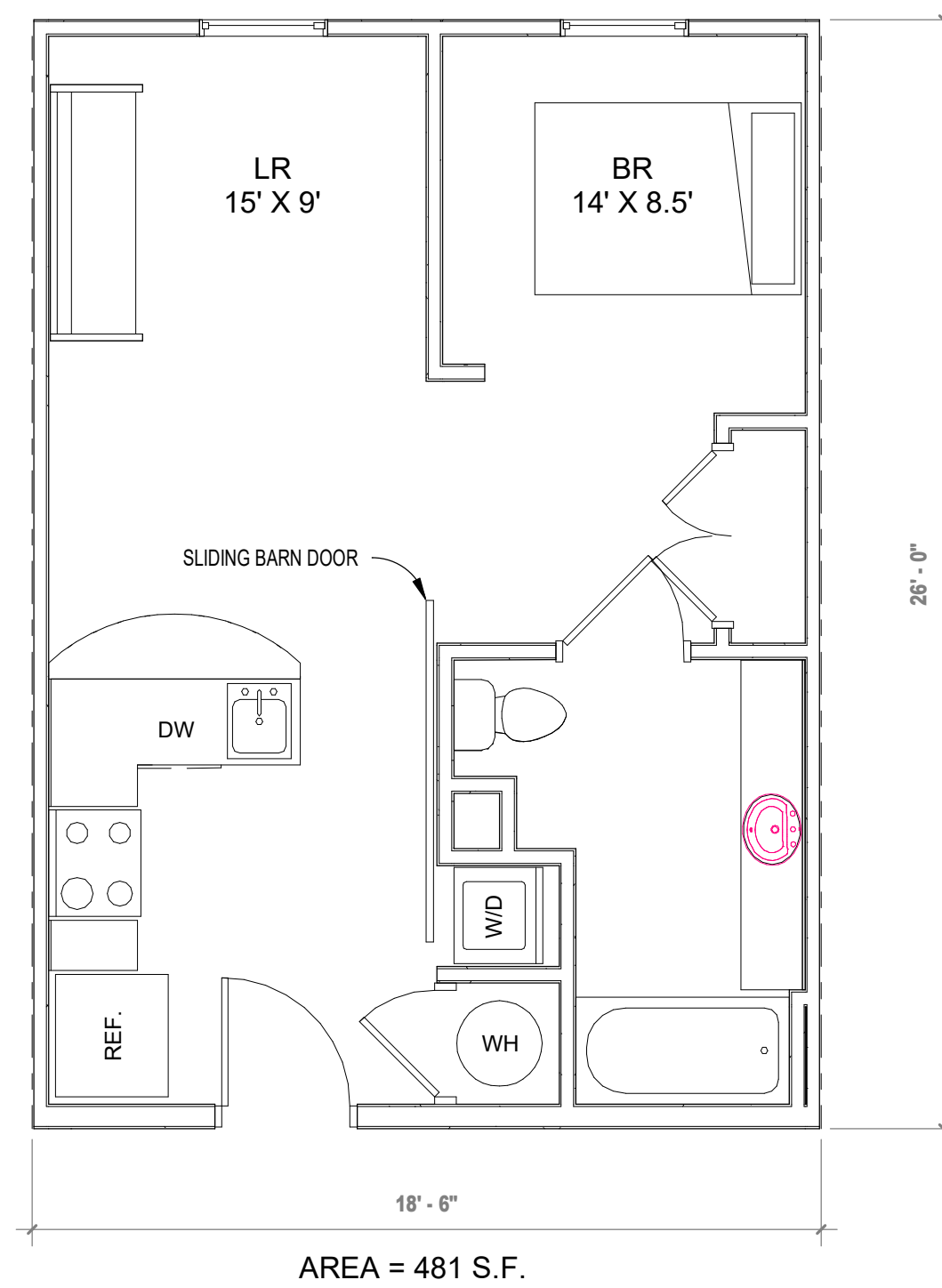
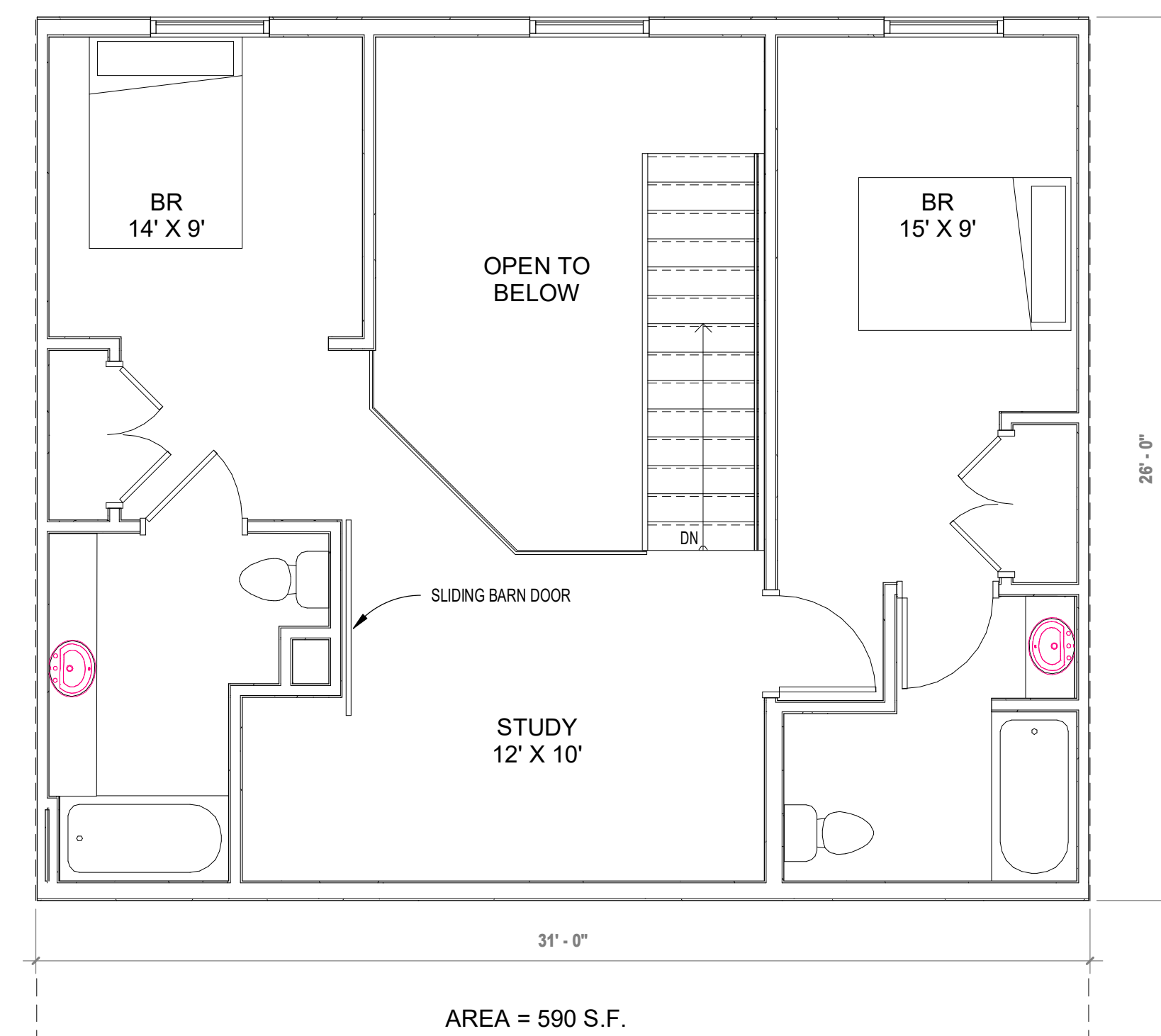
Town of Boone
Planning & Inspections

Date Received
July 18, 2016



1

4 BED UNIT
1/4" = 1'-0"



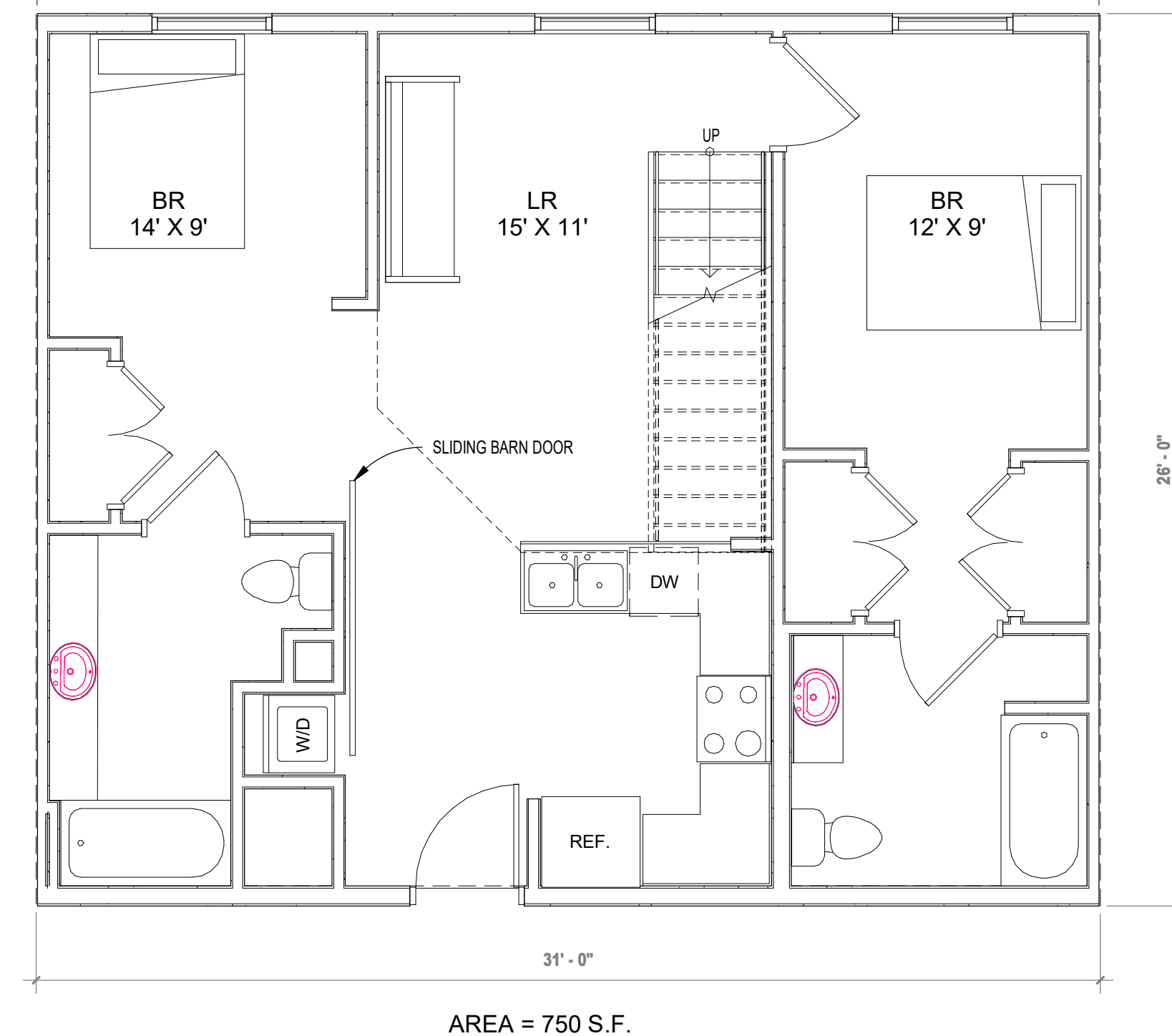
2

1 BED UNIT
1/4" = 1'-0"



3

2 BED UNIT
1/4" = 1'-0"



4

4 BED TOWNHOUSE, 2 FLOORS
1/4" = 1'-0"

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RIVERS WALK

178 S. WATER ST., BOONE, NC 28607

APPALACHIAN
ARCHITECTURE, PA

703 West King Street
Boone, NC 28607

ph 828.265.2405

DIA
Design Innovation
ARCHITECTS + INTERIORS + PLANNING

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07/18/16

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A-102

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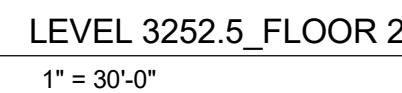
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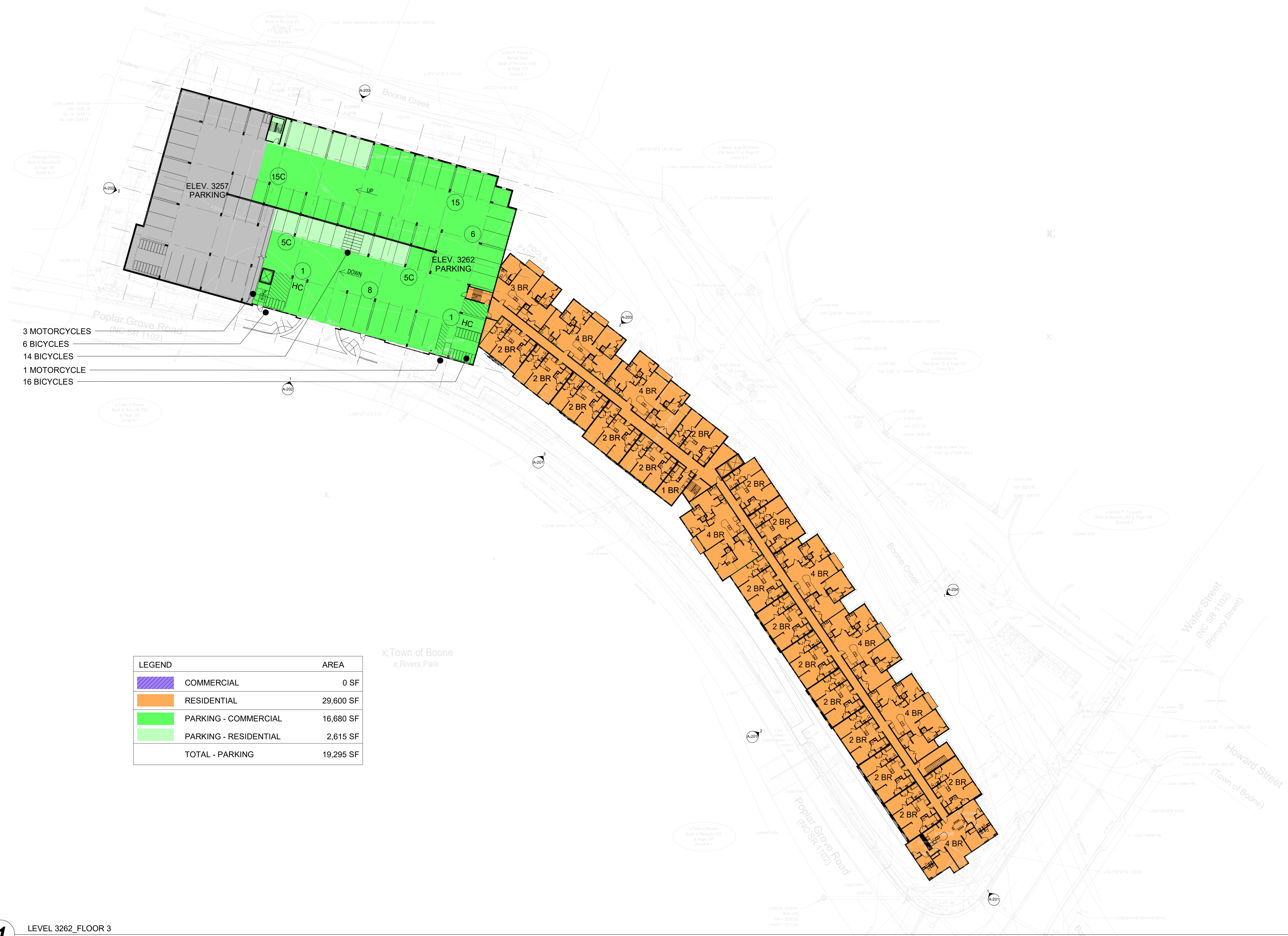
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Packet Pg. 66

Communication: Rivers Walk Floor Plans (Case 20160136 Riverswalk PD - Zoning Map Amendment)



Packet Pg. 67



- 3 MOTORCYCLES
- 6 BICYCLES
- 14 BICYCLES
- 1 MOTORCYCLE
- 16 BICYCLES

LEGEND	AREA
COMMERCIAL	0 SF
RESIDENTIAL	29,600 SF
PARKING - COMMERCIAL	16,680 SF
PARKING - RESIDENTIAL	2,615 SF
TOTAL - PARKING	19,295 SF

1 LEVEL 3262_FLOOR 3
1" = 30'-0"

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DATE	07/18/16
PROJECT #	14028
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Packet Pg. 68





Communication: Rivers Walk Floor Plans (Case 20160136 Riverswalk PD - Zoning Map Amendment)

1 LEVEL 3281_FLOOR 5
1" = 30'-0"

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07/18/16

PROJECT #

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Packet Pg. 70



Communication: Rivers Walk Floor Plans (Case 20160136 Riverswalk PD - Zoning Map Amendment)

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DATE	07/18/16
PROJECT #	14028
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TRANSPORTATION IMPACT ANALYSIS

Prepared for Harrod/ AP, LLC

Project Number: 14-076

Original: 01/16/2015

Revised: 02/26/2016

River Walk Development

Boone, NC

Communication: Rivers Walk Traffic Impact Analysis (Case 20160136 Riverswalk PD - Zoning Map Amendment)



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Transportation Impact Analysis

River Walk Development Boone, NC

Prepared for Harrod/ AP, LLC

Original: January 16, 2015

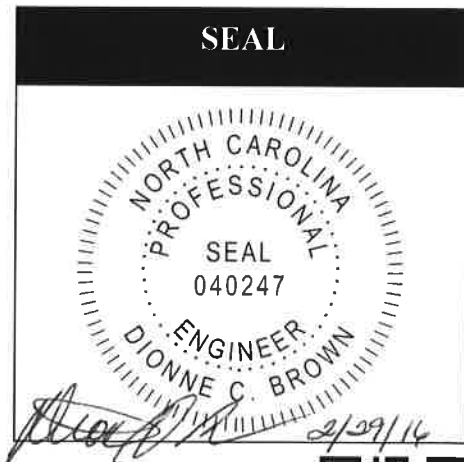
Revised: February 26, 2016

Analysis by: Mary Morgan, P.E.
Dionne C. Brown, P.E.

Drafting/Graphics by: Dionne C. Brown, P.E.

Reviewed by: Mary Morgan, P.E.

Sealed by: Dionne C. Brown, P.E.



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Winston-Salem, NC 27101
Main: 336.744.1636; Fax: 336.458.9377

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River Walk Development – Revised Transportation Impact Analysis

Prepared for Harrod/ AP, LLC

Original: January 16, 2015

Revised: February 26, 2016

Executive Summary

The proposed River Walk Development is located within the Central Business District (CBD) along the northwest quadrant of Rivers Street/ Poplar Grove Road and Water Street in Boone, North Carolina. As currently planned, the site will consist of 380 bedrooms of a mix of young professional and student apartment housing and 10,266 square feet of retail area..

The site plan shows three (3) driveways to the site: two which will serve as the access to the proposed parking deck on site, and one driveway on Water Street that will serve as the access to a 17- vehicular space parking lot (2 for shared car service), 2 motorcycle spaces and 14 bicycle spaces. The majority of tenants at the residential building will park in the parking deck. Hence, this traffic analysis considers the parking deck access on Poplar Grove Road to be the primary access to the site.

Since the submittal of the River Walk Development TIA in January 2015, there have been changes to the site plan that needed to be reflected in a revised TIA. Therefore, DAVENPORT was retained to determine the potential traffic impacts of this development and to identify transportation improvements that may be required to accommodate the impacts of both background traffic and new development traffic. The following intersections were included in the study:

- West King Street at Water Street
- Water Street at Howard Street
- Water Street at Rivers Street/ Poplar Grove Road
- Water Street at Proposed Site Access 1
- Poplar Grove Road at Proposed Site Access 2
- Poplar Grove Road at Proposed Site Access 3

The above-mentioned intersections were analyzed for the following scenarios:

- 2014 Existing Conditions
- 2016 Future No Build Conditions
- 2016 Future Build-Out Conditions
- 2016 Future Build-Out with Improvements (as necessary)

The build-out analysis year for this project was assumed to be 2016. The AM (7-9 am) and PM (4-6 pm) peaks were studied.

The Town of Boone and the North Carolina Department of Transportation (NCDOT) were contacted to obtain background information and to ascertain the elements to be covered in this Transportation Impact Analysis (TIA). Information regarding the property was provided by Harrod/ AP, LLC.



Level of Service Results

The results of the study are discussed by intersection below:

Water Street at West King Street

This signalized intersection of Water Street at West King Street currently operates at LOS A in the AM peak and LOS C in the PM peak. The simulation show sporadic queuing on the northbound left approach of this intersection during the PM peak, which is mainly due to heavy left turns. In 2016 future no build conditions, the analysis indicates LOS A in the AM peak and LOS C in the PM peak. With the addition of site traffic, this intersection is projected to operate at LOS B in the AM peak and LOS C in the PM peak. It is recommended to optimize signal timing to accommodate future traffic growth.

Water Street at Howard Street

This unsignalized intersection currently operates at LOS A in the AM peak and LOS B in the PM peak. In 2016 future no build conditions, LOS A is expected in the AM peak and LOS B in the PM peak. Additionally, sporadic queues were observed on the westbound approach of Howard Street, particularly during the PM peak. This is mainly due to lack of sufficient gaps from the minor street, which is due to heavy traffic volumes and queues on Water Street. This is a background condition which exists regardless of the proposed development. With the addition of proposed site traffic, LOS A is expected in the AM peak and LOS B in the PM peak. No improvements are recommended.

Water Street at Rivers Street/ Poplar Grove Road

This unsignalized intersection currently operates at LOS B in the AM peak and LOS C in the PM peak. In 2016 future no build conditions, LOS B is expected in the AM peak and LOS C in the PM peak. With the addition of site traffic, LOS B is expected in the AM peak and LOS D in the PM peak. No improvements are recommended.

Water Street at Proposed Site Access 1

This unsignalized intersection is expected to operate at LOS B or better during future build scenarios. Though this intersection is in close proximity to Howard Street and existing driveway to the north, this access is expected to serve a 17-space parking lot with minimal trips. Close driveway spacing such as this is typical for a downtown central business district and dense urban settings. No improvements are recommended.

Poplar Grove Road at Proposed Site Access 2

This unsignalized intersection is expected to operate at LOS B during future build scenarios. No improvements are recommended.

Poplar Grove Road at Proposed Site Access 3

This unsignalized intersection is expected to operate at LOS B during future build scenarios. No improvements are recommended.



The recommended improvements at the study intersections are illustrated in Figure 9 in the report.

Level of Service Summary

Table A presents the summary of the level of service analysis.

Table A - Level of Service Summary				
AM Peak	2014 Existing	2016 Future No Build	2016 Build	2016 Build with Improvements
Water Street at King Street	A (9.4)	A (9.6)	B (10.3)	B (10.3)
Water Street at Howard Street	A (9.4) WB Approach	A (9.5) WB Approach	A (9.7) WB Approach	
Water Street at Rivers Street/ Poplar Grove Road	B (11.3) SB Approach	B (11.5) SB Approach	B (12) SB Approach	
Water Street at Proposed Site Access 1			A (9.3) EB Approach	
Poplar Grove Road at Proposed Site Access 2			B (11.9) SB Approach	
Poplar Grove Road at Proposed Site Access 3			B (12.2) SB Approach	
PM Peak	2014 Existing	2016 Future No Build	2016 Build	2016 Build with Improvements
Water Street at King Street	C (21.6)	C (22.5)	C (23.5)	C (22.2)
Water Street at Howard Street	B (10.8) WB Approach	B (11) WB Approach	B (11.4) WB Approach	
Water Street at Rivers Street/ Poplar Grove Road	C (19.8) SB Approach	C (21.8) SB Approach	D (29.5) SB Approach	
Water Street at Proposed Site Access 1			B (12.7) EB Approach	
Poplar Grove Road at Proposed Site Access 2			B (13.1) SB Approach	
Poplar Grove Road at Proposed Site Access 3			B (13.6) SB Approach	
LOS (delay in seconds)				
Note for unsignalized conditions, LOS and delay indicates only minor street approach with longest delay				



Pedestrian and Bicycle Accommodations

As part of the development of this site, the developer plans to construct the following pedestrian and bicycle accommodations:

- Sidewalks will be constructed along the street frontage of the property: the northeastern side of Poplar Grove Road and along Water Street.
- A sidewalk will be provided adjacent to the commercial/ retail store entrances on site.
- The developer build the greenway trail from the surface lot to the parking deck as depicted on the site plan. This will provide safe and convenient access to the parking deck bike storage areas.
- In order to accommodate bicycling activities to and from the site, there will be 50 covered bicycle spaces inside of the garage and 14 bicycles spaces in the surface lot.

Transit Accommodations

AppalCart provides transit service in the Town of Boone. *AppalCart* currently runs routes (Gold, Pop 105 and Express routes) which provides service in the proximity of the site. There is an existing *AppalCart* stop on King Street and Water Street, which is within 400 feet of the proposed development. Residents in this proposed development will be able to use this transit service to reach their destinations. In addition, a loading lane has been incorporated into the site plan along Poplar Grove Road for buses.

Summary and Conclusion

The proposed River Walk Development is located on the border of Appalachian State University (ASU) and the Central Business District (CBD) along the northwest quadrant of Rivers Street/ Poplar Grove Road and Water Street in Boone, North Carolina. As currently planned, the site will consist of 380 bedrooms of a mix of young professional and student apartment housing and 10,266 square feet of retail area.

The site plan shows three (3) driveways to the site: two which will serve as the access to the proposed parking deck on site, and one driveway on Water Street that will serve as the access to a 17-space parking lot. The majority of tenants at the residential building will park in the parking deck. Hence, this traffic analysis considers the parking deck access on Poplar Grove Road to be the primary access to the site.

The trip generation indicates that based on the current site plan the proposed project is projected to generate a net total of 1,271 trips per day. This is based on 380-bedrooms of a mix of young professional and student apartment housing and 10,266 square feet of retail area.

The analysis indicates that all study intersections will operate at LOS D or better in the future build conditions.



Table B summarizes the recommended improvements for the 2016 future build scenario. Improvements are shown in Figure 9 in the report.

In conclusion, this analysis has been conducted based on NCDOT and Town of Boone guidelines and has determined the potential traffic impacts of this development. With the build-out of the site, the analysis indicates there will be adequate capacity to accommodate future traffic. Note that the site accesses should to be designed according to NCDOT standards as appropriate.

Table B - Recommended Improvement Summary	
Water Street at West King Street	Optimize signal timing
Water Street at Howard Street	No improvements recommended
Water Street at Rivers Street/ Poplar Grove Road	No improvements recommended
Water Street at Proposed Site Access 1	No improvements recommended
Poplar Grove Road at Proposed Site Access 2	No improvements recommended
Poplar Grove Road at Proposed Site Access 3	No improvements recommended
Water Street at Existing Driveway	No improvements recommended
Pedestrian and Bicycle Accommodations	- Sidewalks will be constructed along the street frontage of the property: the northeastern side of Poplar Grove Road and along Water Street. - A sidewalk will be provided adjacent to the commercial/retail store entrances on site. - The developer build the greenway trail from the surface lot to the parking deck as depicted on the site plan. This will provide safe and convenient access to the parking deck bike storage areas. - In order to accommodate bicycling activities to and from the site, there will be 50 covered bicycle spaces inside of the garage and 14 bicycle spaces in the surface lot.
Transit Accommodations	There is an existing <i>AppalCart</i> stop on Water Street at West King Street which is within 400 feet of the proposed development. Residents in this proposed development will be able to use this transit service to reach their destinations.



River Walk Development – Revised Transportation Impact Analysis
Prepared for Harrod/ AP, LLC
Original: January 16, 2015
Revised: February 26, 2016

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River Walk Development – Revised Transportation Impact Analysis
Prepared for Harrod/ AP, LLC
Original: January 16, 2015
Revised: February 26, 2016

1.0 Introduction

The proposed River Walk Development is located within the Central Business District (CBD) along the northwest quadrant of Rivers Street/ Poplar Grove Road and Water Street in Boone, North Carolina. As currently planned, the site will consist of 380 bedrooms of a mix of young professional and student apartment housing and 10,266 square feet of retail area. Figure 1 presents the site plan.

The site plan shows three (3) driveways to the site: two which will serve as the access to the proposed parking deck on site, and one driveway on Water Street that will serve as the access to a 17- vehicular space parking lot (2 for shared car service), 2 motorcycle spaces and 14 bicycle spaces. The majority of tenants at the residential building will park in the parking deck. Hence, this traffic analysis considers the parking deck access on Poplar Grove Road to be the primary access to the site.

Since the submittal of the River Walk Development TIA in January 2015, there have been changes to the site plan that needed to be reflected in a revised TIA. Therefore, DAVENPORT was retained to determine the potential traffic impacts of this development and to identify transportation improvements that may be required to accommodate the impacts of both background traffic and new development traffic. The following intersections were included in the study:

- West King Street at Water Street
- Water Street at Howard Street
- Water Street at Rivers Street/ Poplar Grove Road
- Water Street at Proposed Site Access 1
- Poplar Grove Road at Proposed Site Access 2
- Poplar Grove Road at Proposed Site Access 3

The above-mentioned intersections were analyzed for the following scenarios:

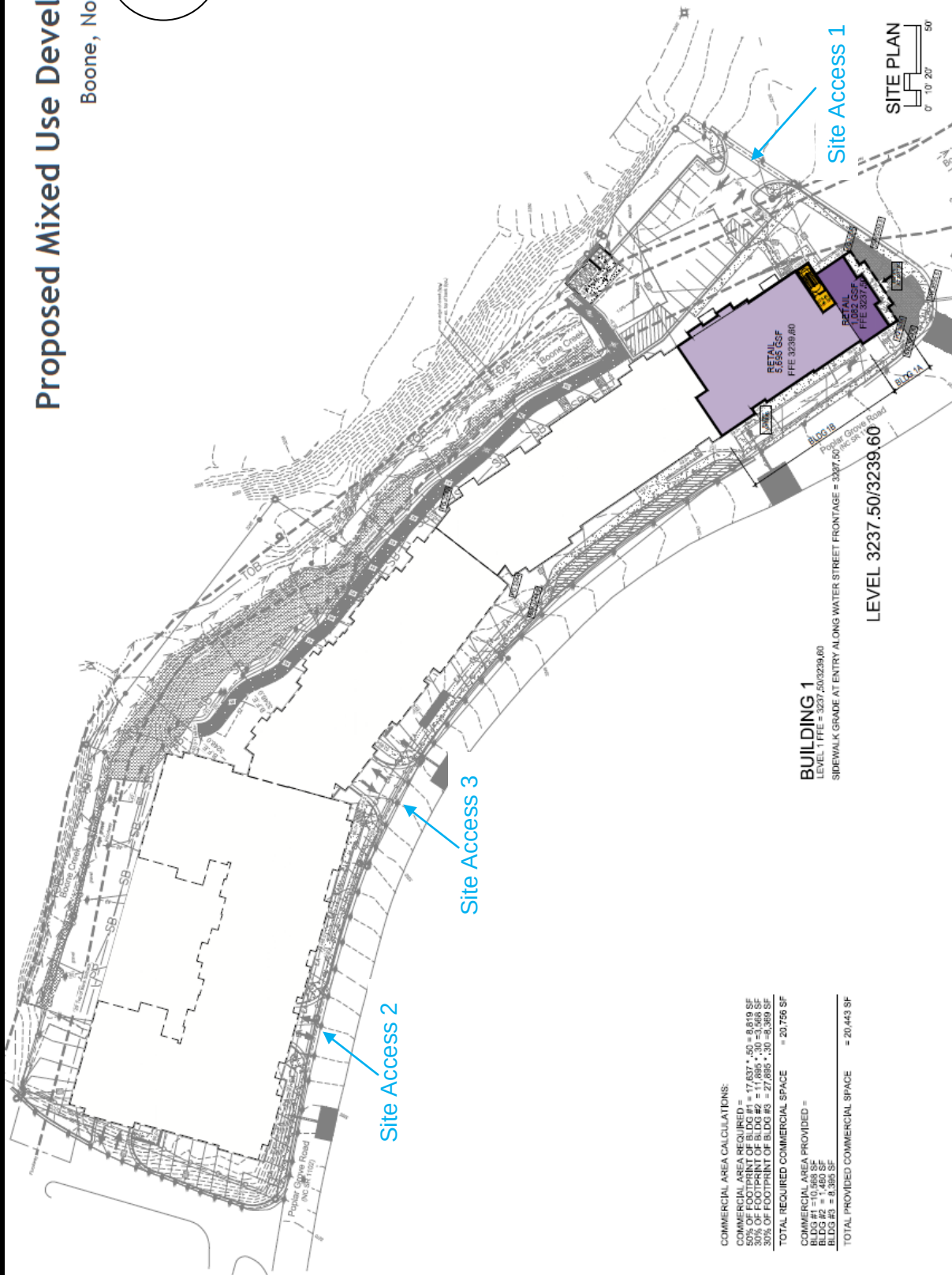
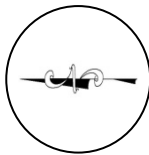
- 2014 Existing Conditions
- 2016 Future No Build Conditions
- 2016 Future Build-Out Conditions
- 2016 Future Build-Out with Improvements (as necessary)

The build-out analysis year for this project was assumed to be 2016. The AM (7-9 am) and PM (4-6 pm) peaks were studied.

The Town of Boone and the North Carolina Department of Transportation (NCDOT) were contacted to obtain background information and to ascertain the elements to be covered in this Transportation Impact Analysis (TIA). Information regarding the property was provided by Harrod/ AP, LLC.

Proposed Mixed Use Development

Boone, North Carolina



COMMERCIAL AREA CALCULATIONS:

COMMERCIAL AREA REQUIRED =	17,637 * .30 = 5,291 SF
50% OF FOOTPRINT OF BLDG #1 =	11,637 * .50 = 5,819 SF
50% OF FOOTPRINT OF BLDG #2 =	11,637 * .50 = 5,819 SF
50% OF FOOTPRINT OF BLDG #3 =	27,895 * .30 = 8,369 SF
TOTAL REQUIRED COMMERCIAL SPACE	= 20,756 SF

COMMERCIAL AREA PROVIDED =	
BLDG #1 =	10,568 SF
BLDG #2 =	10,568 SF
BLDG #3 =	8,369 SF
TOTAL PROVIDED COMMERCIAL SPACE	= 20,443 SF

FIGURE 1
SITE PLAN



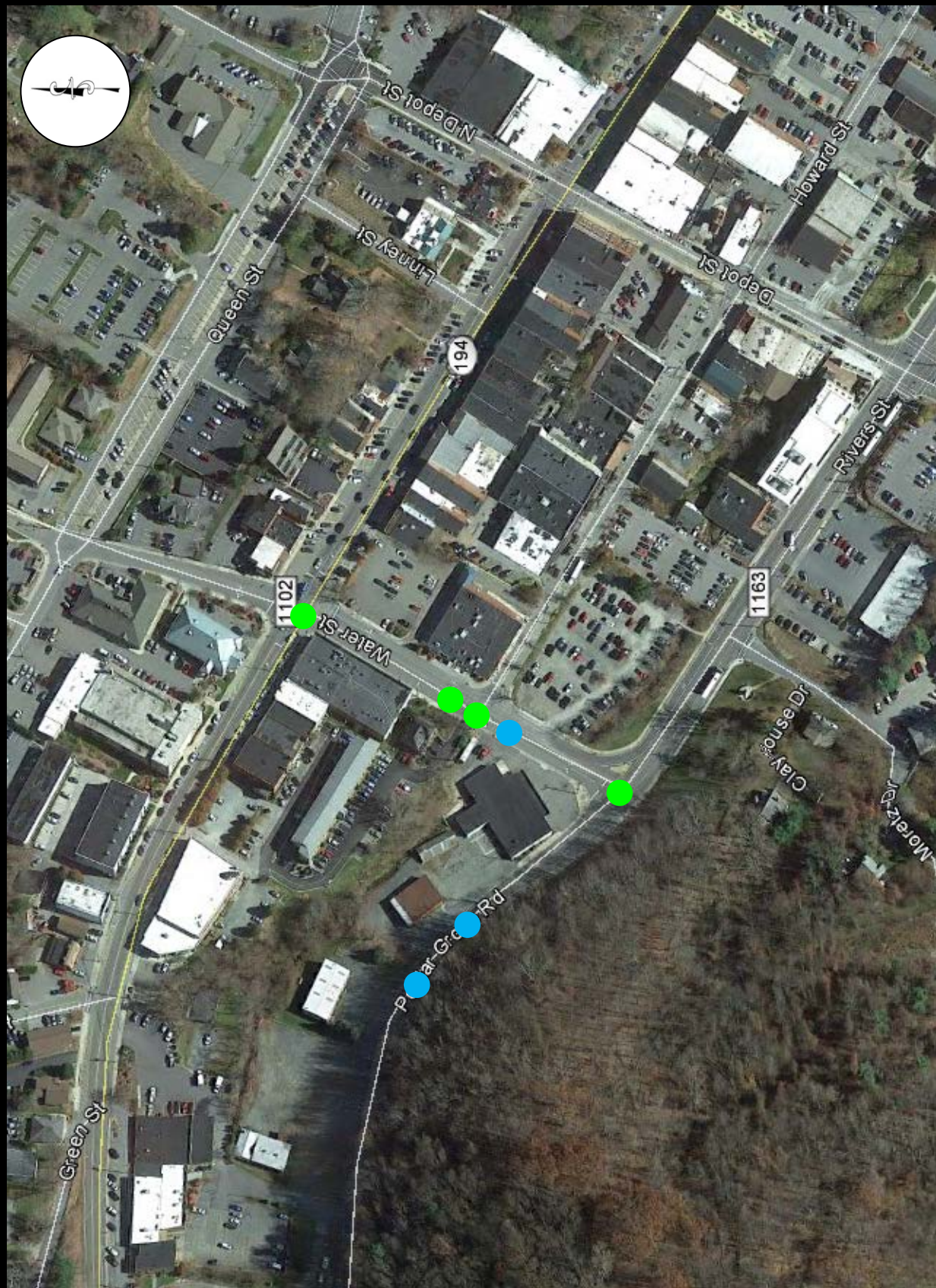


FIGURE 2B
VICINITY MAP

● EXISTING INTERSECTION
● PROPOSED INTERSECTION





2.0 Existing Conditions

2.1 Inventory

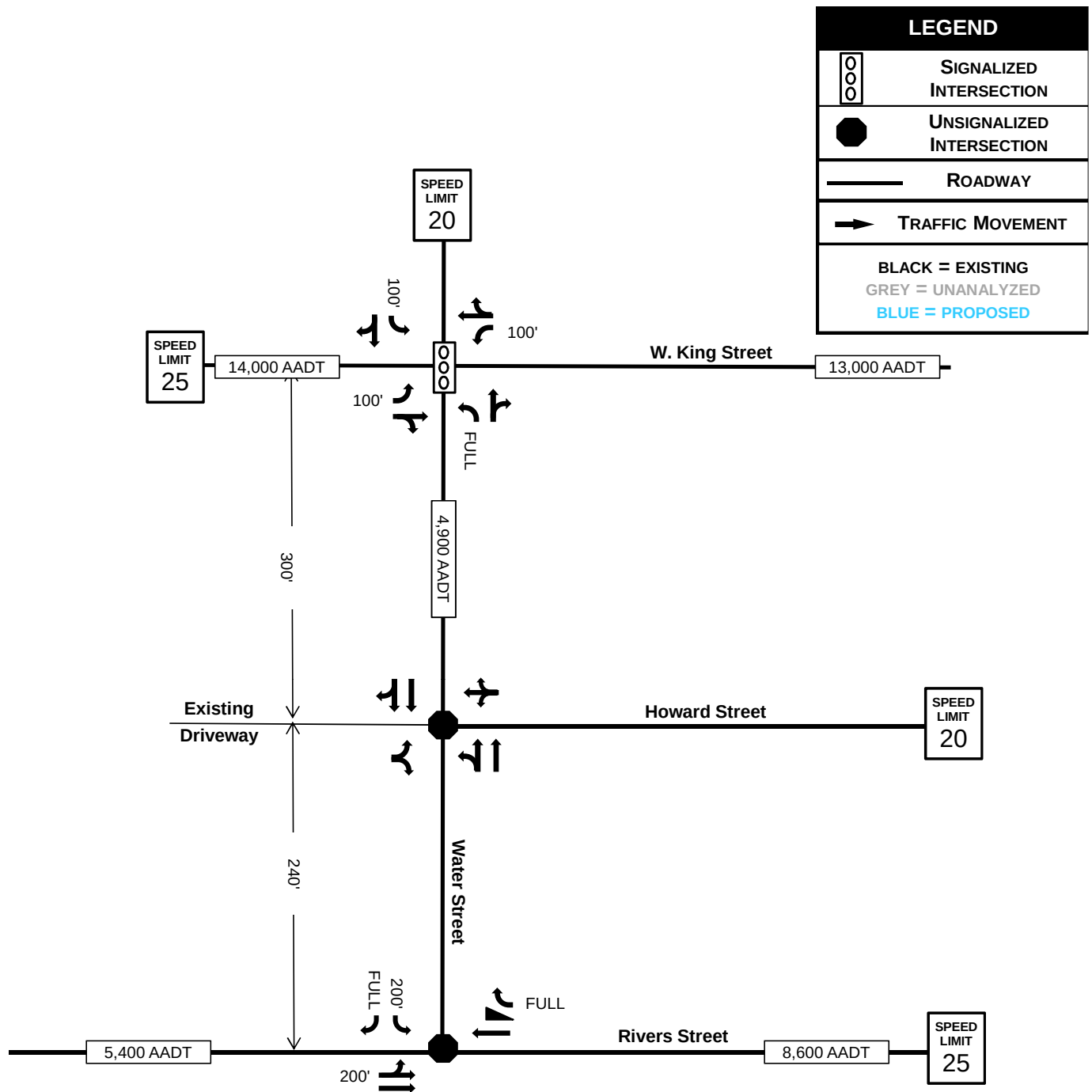
A field investigation was conducted by DAVENPORT staff to determine the existing roadway conditions in the study area. Table 2.1 presents a summary of this review. Figure 3 illustrates the existing lane geometry.

Table 2.1 - Street Inventory					
Facility Name	Route #	Typical Cross Section	Pavement Width	Speed Limit	Maintained By
West King Street	US 421	2-lane undivided	Approx. 48'	25 MPH	NCDOT
Howard Street	N/A	1-2 lane undivided	Approx. 22'	20 MPH	Town of Boone
Rivers Street/Poplar Grove Road	SR 1163	2-4 lane undivided	Approx. 48'	25 MPH	NCDOT
Water Street	SR 1102	4-lane undivided	Approx. 48'	20 MPH	Town of Boone

2.2 Existing Traffic Volumes

Existing traffic volumes for this project were collected by DAVENPORT staff. Table 2.2 below contains the dates these counts were conducted. Appalachian State University (ASU) and Watauga County Schools were in session at the time of traffic counts. Traffic volumes were balanced along study intersections. Figure 4 shows existing AM and PM peak hour volumes. The full reports for these volumes can be found in the appendix.

Table 2.2 - Traffic Volume Data		
<u>Count Location:</u>	<u>Date Taken:</u>	<u>By:</u>
West King Street at Water Street	11/6/14	DAVENPORT
Howard Street at Water Street	11/6/14	DAVENPORT
Rivers Street at Water Street	11/6/14	DAVENPORT



**FIGURE 3
EXISTING LANE
GEOMETRY**

RIVER WALK DEVELOPMENT
BOONE, NC

PROJECT NUMBER 14-076



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Communication: Rivers Walk Traffic Impact Analysis (Case 20160136 Riverswalk PD - Zoning Map Amendment)



LEGEND



SIGNALIZED
INTERSECTION



UNSIGNALIZED
INTERSECTION



ROADWAY



TRAFFIC MOVEMENT

BLACK = EXISTING
GREY = UNANALYZED
BLUE = PROPOSED

AM / PM PEAKS

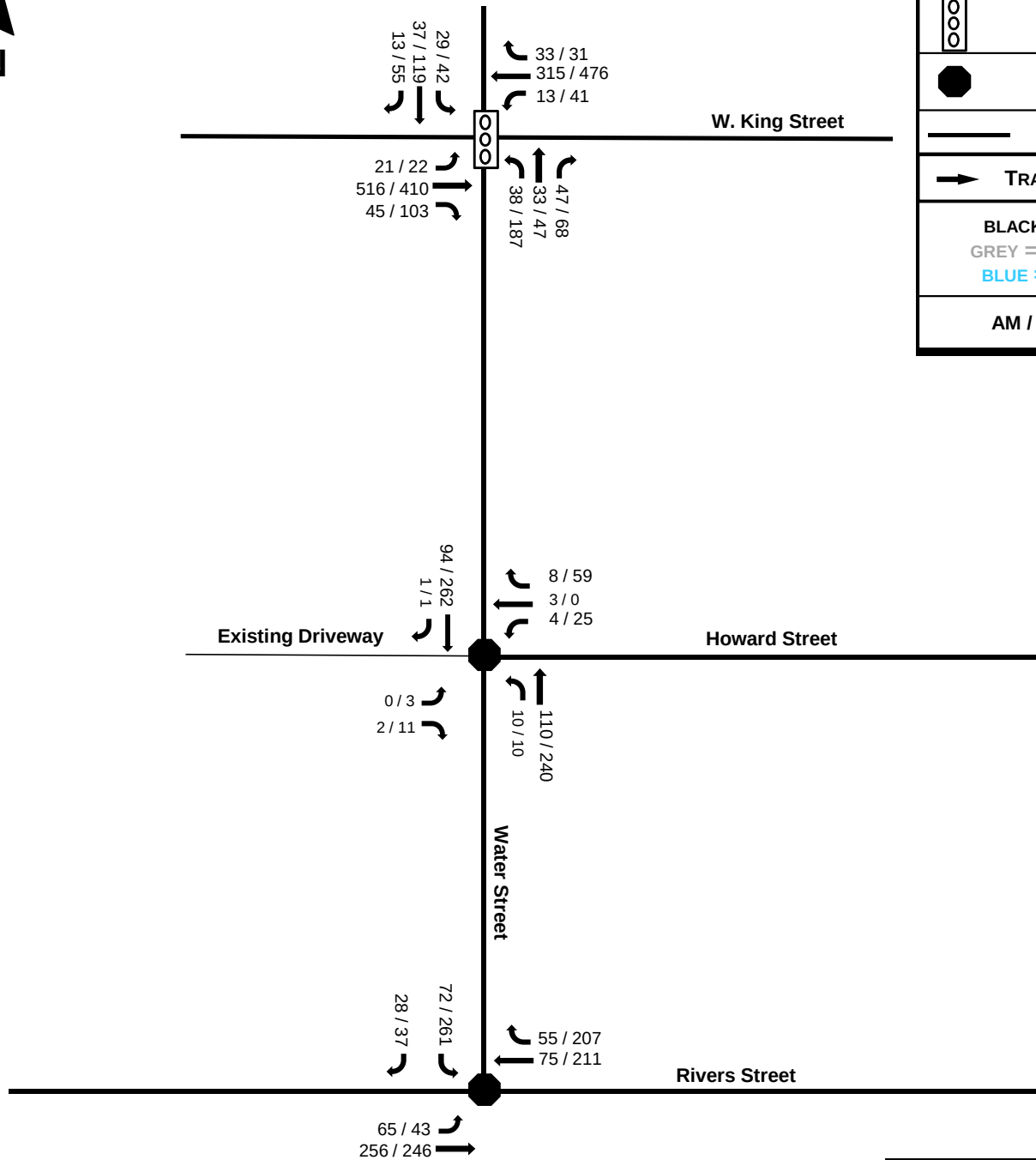


FIGURE 4
EXISTING TRAFFIC
VOLUMES

RIVER WALK DEVELOPMENT
BOONE, NC

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3.0 Approved Developments and Committed Improvements

3.1 *Approved Developments*

Approved developments are developments that have been recently approved in the area, but not yet constructed. Per NCDOT staff, there are no approved developments to be considered in this analysis, but the 2% annual growth rate would be sufficient to account for background traffic growth.

3.2 *Committed Improvements*

Committed Improvements are improvements that are planned by NCDOT, a local municipality, or a developer in the area, but not yet constructed. Per NCDOT, there are no committed developments in the study area.



Rivers Street at Water Street facing east



4.0 Methodology

4.1 Base Assumptions and Standards

In general, the analysis for this project was conducted utilizing commonly accepted NCDOT standards. The following table contains a summary of the base assumptions:

Table 4.1 - Assumptions	
Peak Hour Factor	0.90
Background Traffic Annual Growth Rate	2.0% per year for all roadways
Base Signal Timing/Phasing	Provided by NCDOT
Analysis Software	Synchro/SimTraffic Version 8.0
Lane widths	12-feet
Truck percentages	2%

4.2 Trip Generation

As currently planned, this development will include 380-bedrooms of a mix of young professional and student apartment housing and 10,266 square feet of retail space. TripGen 2013 software, based on the 9th Edition of ITE Trip Generation Manual, was used to develop the projected trips created by this development. Table 4.2 contains the results.

Table 4.2 - ITE Trip Generation									
River Walk Development, Boone NC									
Average Weekday Driveway Volumes					24 Hour	AM Peak Hour		PM Peak Hour	
					Two-Way				
<u>Land Use</u>	<u>ITE Land Code</u>	<u>Size</u>		<u>Data Source</u>	<u>Volume</u>	<u>Enter</u>	<u>Exit</u>	<u>Enter</u>	<u>Exit</u>
Apartments	220	380	Persons	Equations	1,254	53	57	89	62
Retail	820	10.27	Th.Sq.Ft GLA	Equations	1,547	24	15	62	68
Total Unadjusted Trips					2,801	77	72	151	130
Internal Capture Reduction		12% Daily / 11% PM			-309	0	0	-14	-14
Subtotal with Internal Capture					2,492	77	72	137	116
Pass-by Reduction		0% AM / 34% PM			-473	0	0	-19	-20
Pedestrian/Transit Reduction		30%			-748	-23	-22	-41	-35
Total Adjusted Trips					1,271	54	50	77	61

Mixed-use developments of this type are designed to combine a number of uses into one site, allowing people to live, work and shop in the same area and without dependence on a vehicle. This proposed development meets the criteria as defined in the ITE Trip Generation Handbook for a "multi-use" development. Therefore, the trips for this development were reduced using the method described in Chapter 7 of the ITE



Handbook. A reduction of 12% was applied to daily and 11% to the PM peak hour trips for residential and retail land uses. The worksheets for the internal capture are shown in the supporting documentation of the Appendix.

Developments of this type also generate what are called “pass-by” trips. The ITE Trip Generation Manual defines “pass-by” trips as trips that are generated by the development, but are already on the adjacent roadway. These trips are not new trips, but are a part of the existing background traffic on Rivers Street/ Poplar Grove Road and Water Street. A “pass-by” reduction of 34% was applied to retail trips in the PM peak hour.

Further consideration was given to the context of the site and surrounding area to account for the potential of non-vehicle trips. This site is located in close proximity to the Appalachian State University (ASU) campus and Downtown Boone. Many residents in the student-oriented apartments are likely to walk or bike to access the university or destinations in Downtown. In addition, an *AppalCart* (transit) stop is located near the site. *AppalCart* provides direct transit service in the Town on Boone. Based on this, we have applied a 30% reduction to daily trips to account for the use of alternative modes of transportation.

4.3 Trip Distribution

Residential site trips for this proposed development were distributed based on the existing traffic patterns and engineering judgment. The directional distributions for the residential site trips are as follows:

- 45% to and from the east on Rivers Street
- 30% to and from the east on West King Street
- 15% to and from the west on Poplar Grove Road
- 10% to and from the west on West King Street

Retail site trips for this proposed development were distributed based on the existing traffic patterns and engineering judgment. The directional distributions for the retail site trips are as follows:

- 40% to and from the east on Rivers Street
- 15% to and from the west on Poplar Grove Road
- 15% to and from the east on West King Street
- 15% to and from the west on West King Street
- 10% to and from the north on Water Street
- 5% to and from the east on Howard Street

The residential and retail trip distributions are shown in Figure 5A and 5B, respectively. 80% of pass-by trips were assumed to originate from the east on Rivers Street and 20% of pass-by trips from the west on Poplar Grove Road. The pass-by trip distribution for this development is illustrated in Figure 5C.



4.4 Future No Build Traffic

The 2016 future no build traffic volumes were computed by applying a 2.0% compounded annual growth rate to the 2014 existing traffic volumes. Figure 6 shows the 2016 future no build traffic volumes for AM and PM peaks.

4.5 Total Traffic

The 2016 build-out traffic volumes were obtained by summing 2016 future no build volumes and residential, retail and pass-by site trips due to the proposed project. Site trips are shown in Figure 7A, 7B and 7C, respectively. The resulting build volume totals for AM and PM peaks are shown in Figure 8. More information can be found in the Traffic Volume Data section of the appendix.



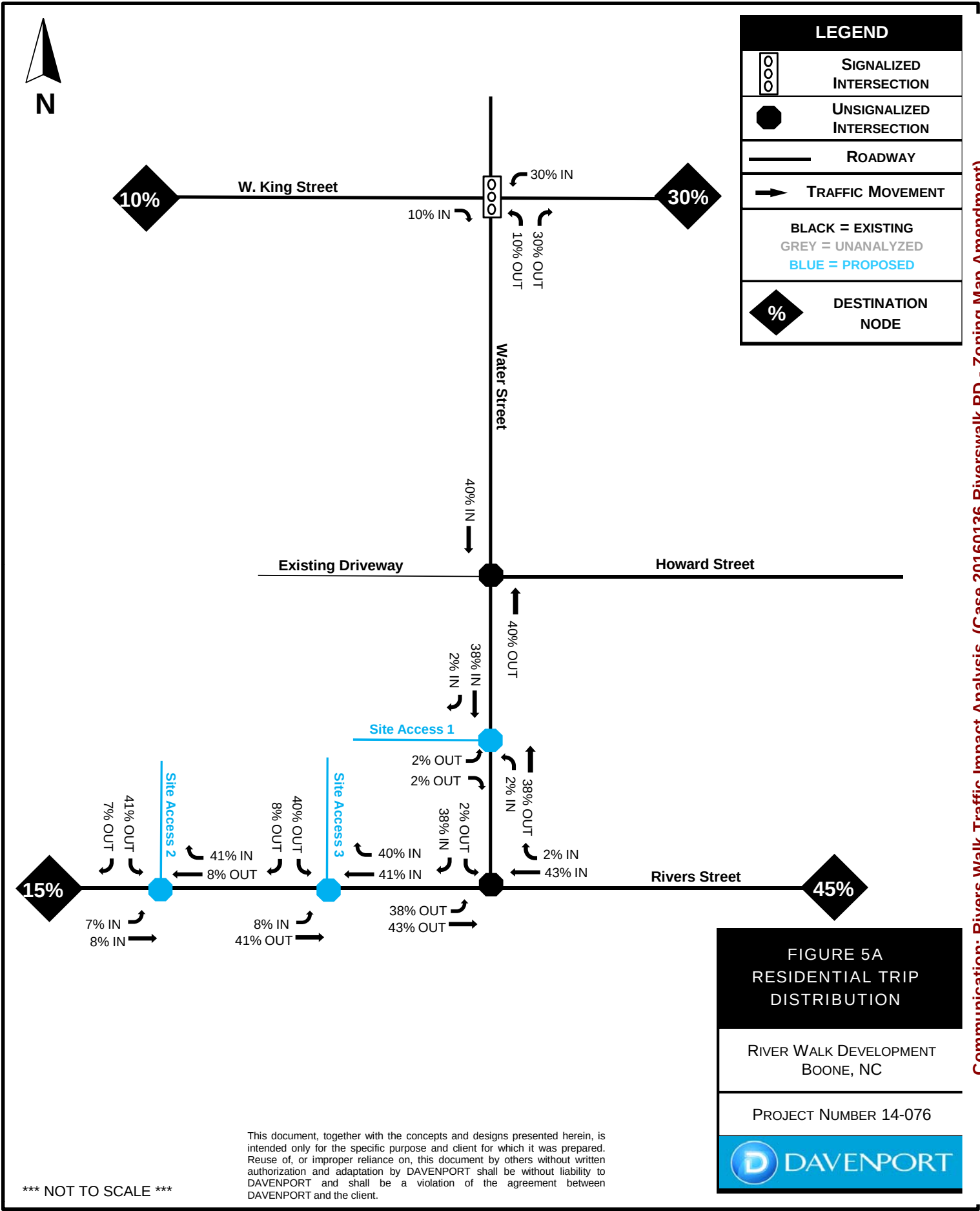


FIGURE 5A
RESIDENTIAL TRIP
DISTRIBUTION

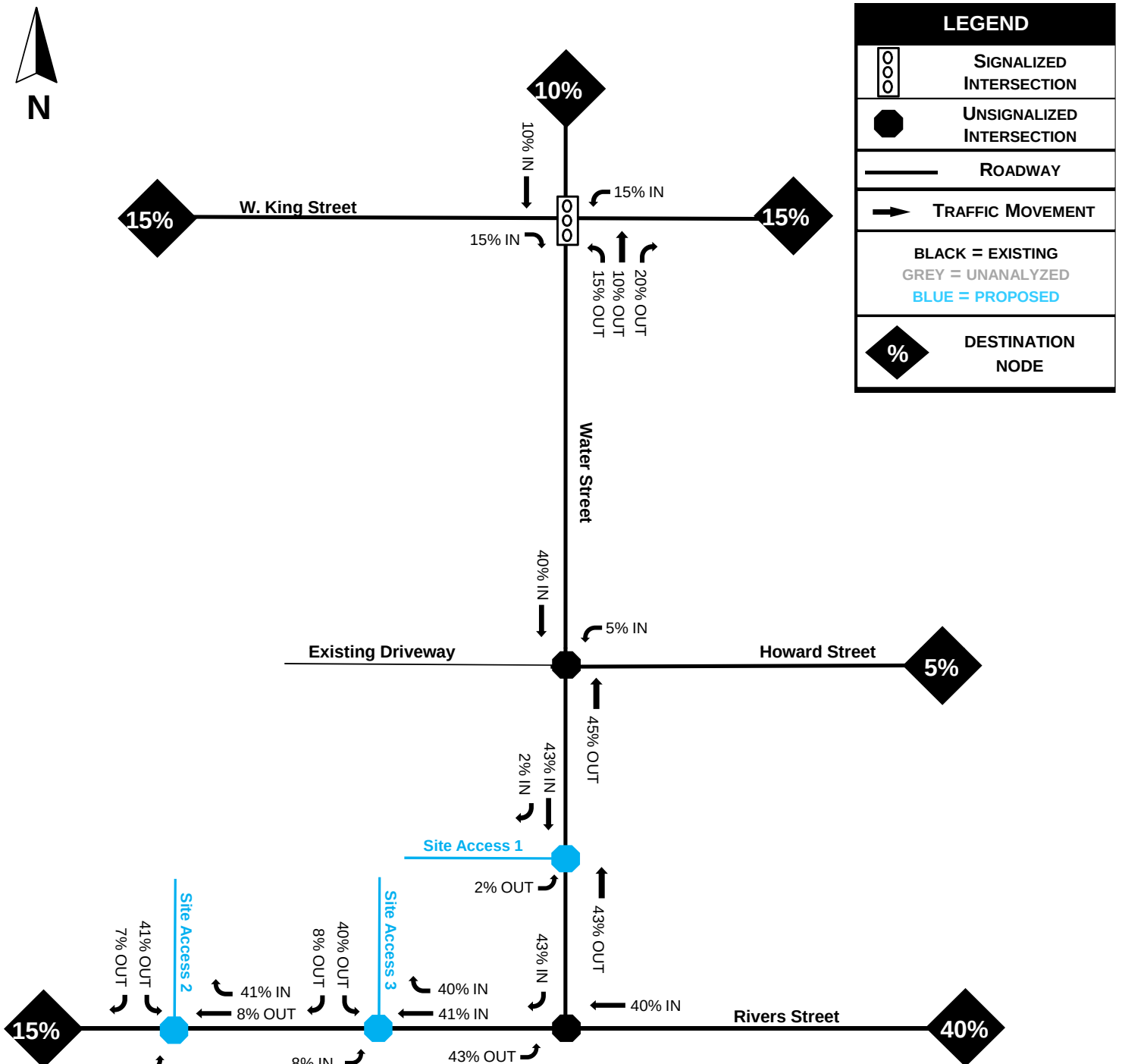
RIVER WALK DEVELOPMENT BOONE, NC

PROJECT NUMBER 14-076



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**FIGURE 5B
RETAIL TRIP
DISTRIBUTION**

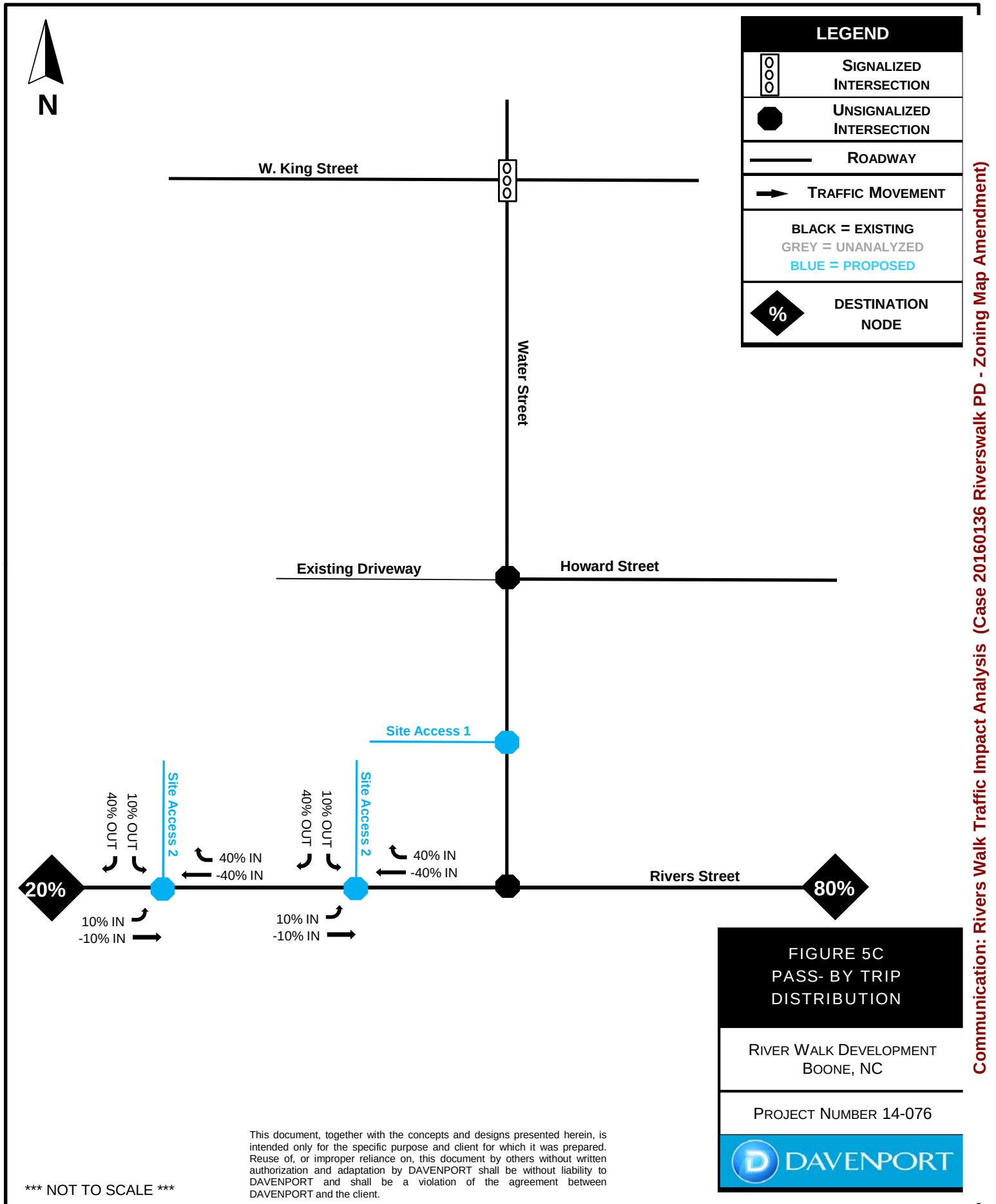
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LEGEND



**SIGNALIZED
INTERSECTION**



**UNSIGNALIZED
INTERSECTION**



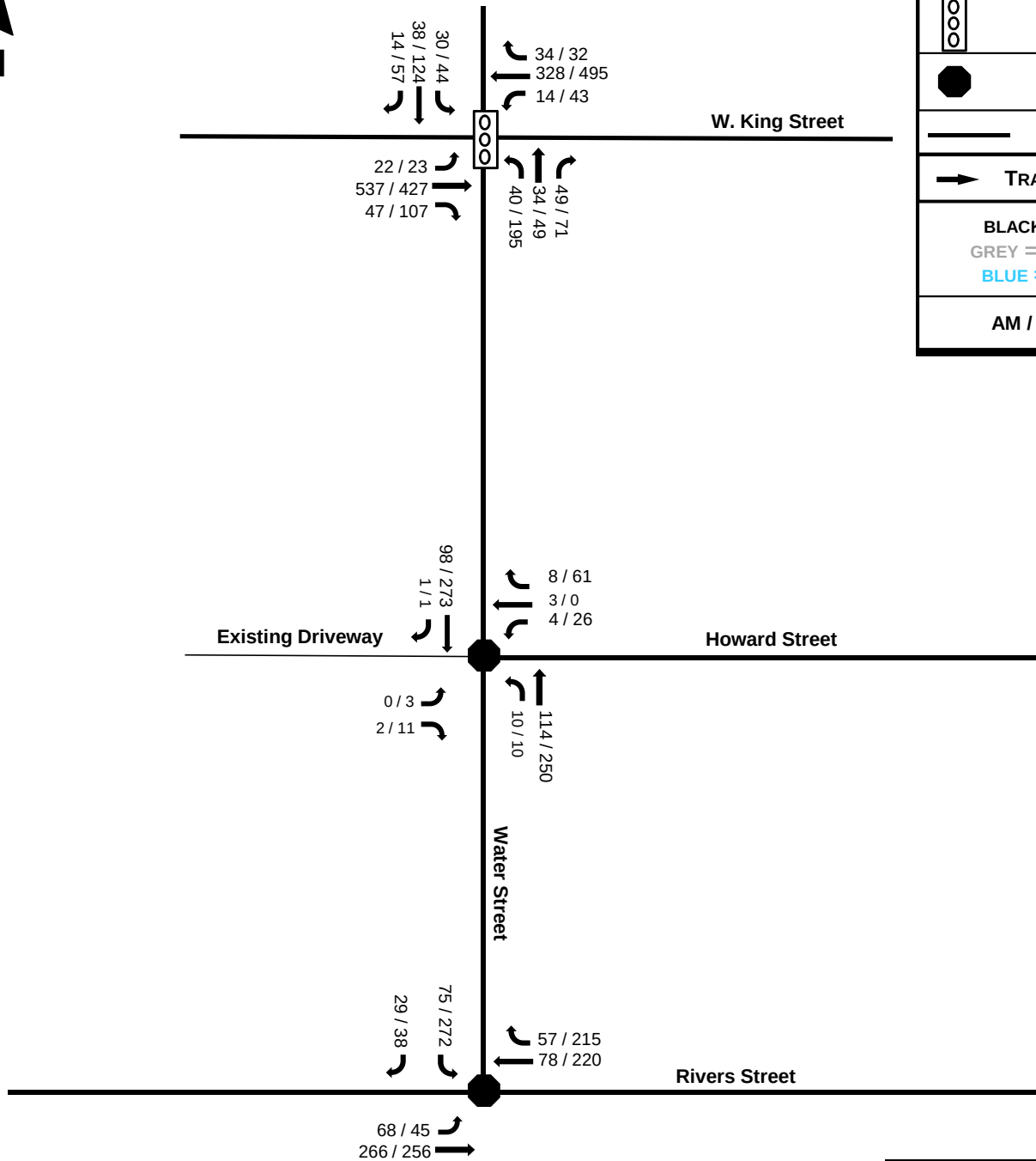
ROADWAY



TRAFFIC MOVEMENT

**BLACK = EXISTING
GREY = UNANALYZED
BLUE = PROPOSED**

AM / PM PEAKS



**FIGURE 6
2016 FUTURE NO
BUILD VOLUMES**

**RIVER WALK DEVELOPMENT
BOONE, NC**

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INTERSECTION



UNSIGNALIZED
INTERSECTION



ROADWAY



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AM / PM PEAKS

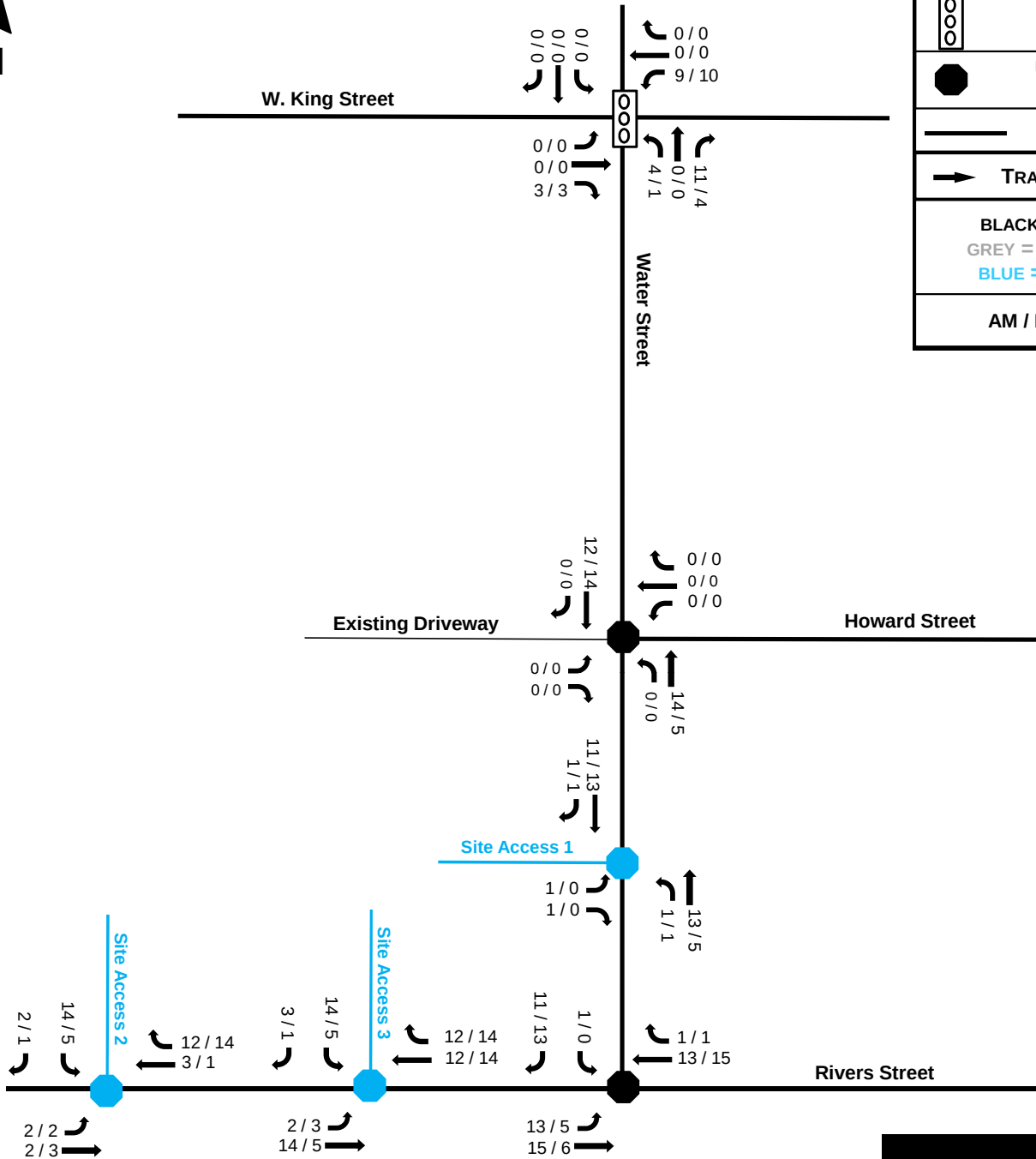


FIGURE 7A
RESIDENTIAL SITE
TRIPS

RIVER WALK DEVELOPMENT
BOONE, NC

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INTERSECTION



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AM / PM PEAKS

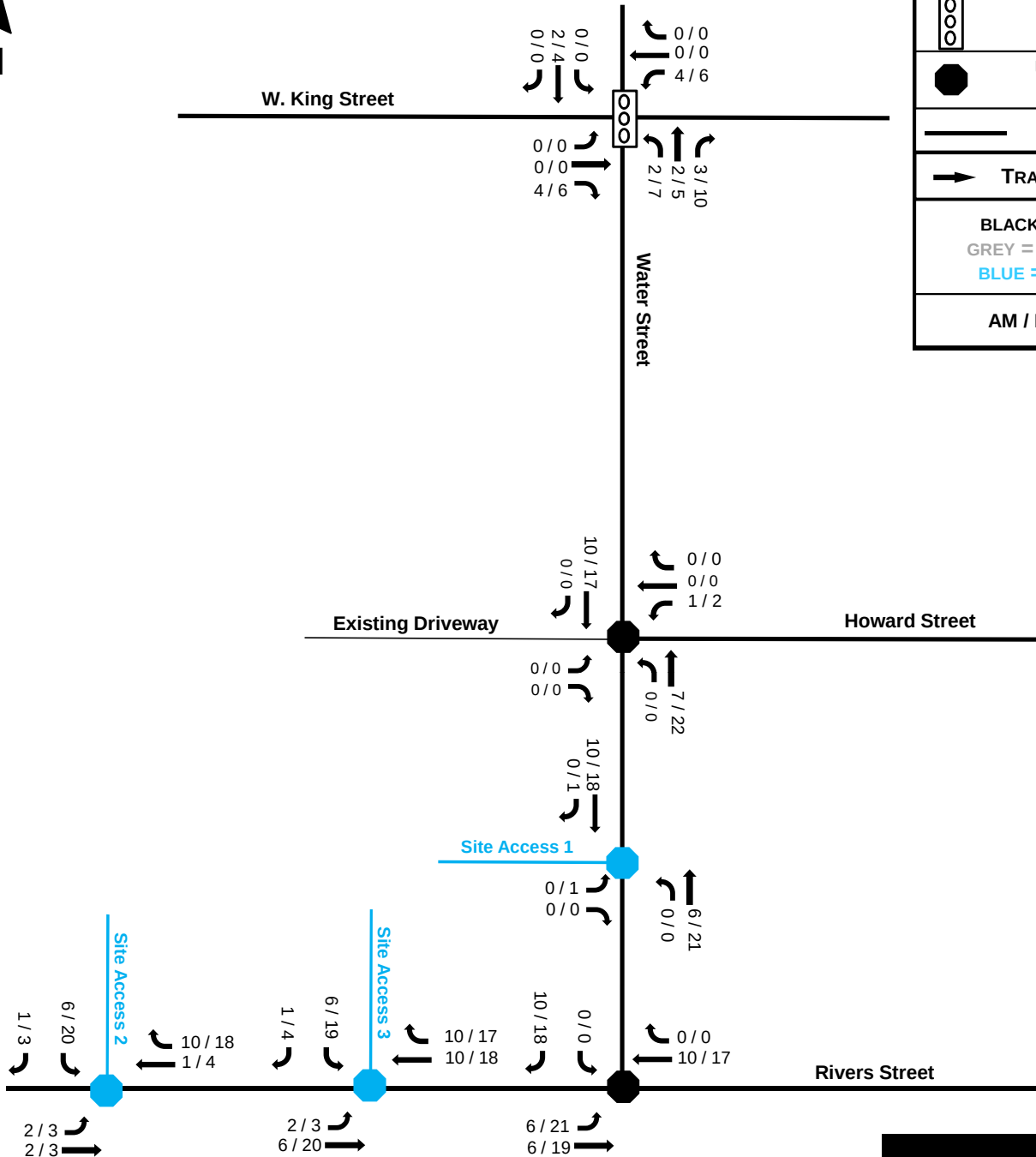


FIGURE 7B
RETAIL SITE TRIPS

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BOONE, NC

PROJECT NUMBER 14-076



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LEGEND



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INTERSECTION**



**UNSIGNALIZED
INTERSECTION**



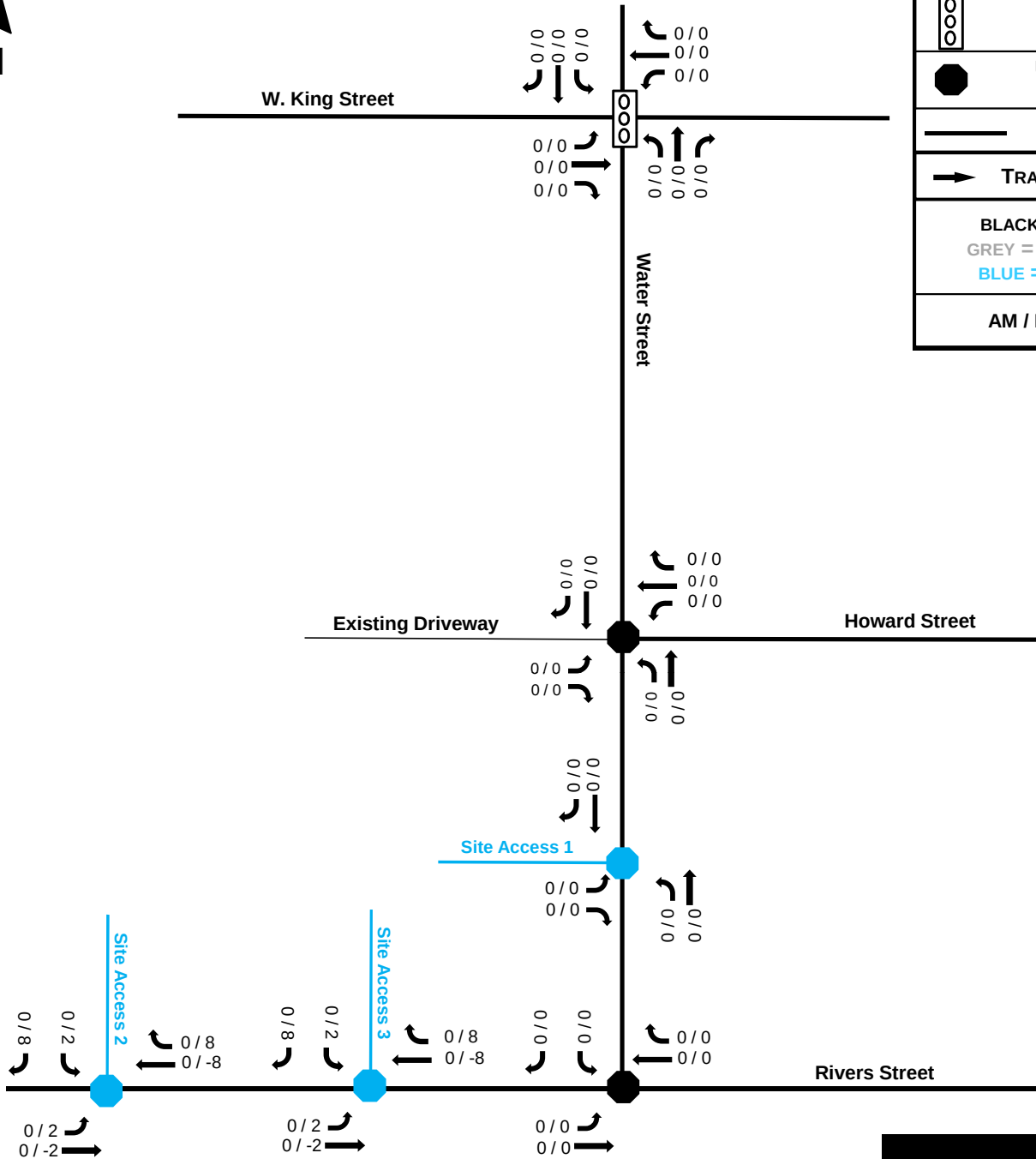
ROADWAY



TRAFFIC MOVEMENT

**BLACK = EXISTING
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BLUE = PROPOSED**

AM / PM PEAKS



**FIGURE 7C
PASS-BY SITE TRIPS**

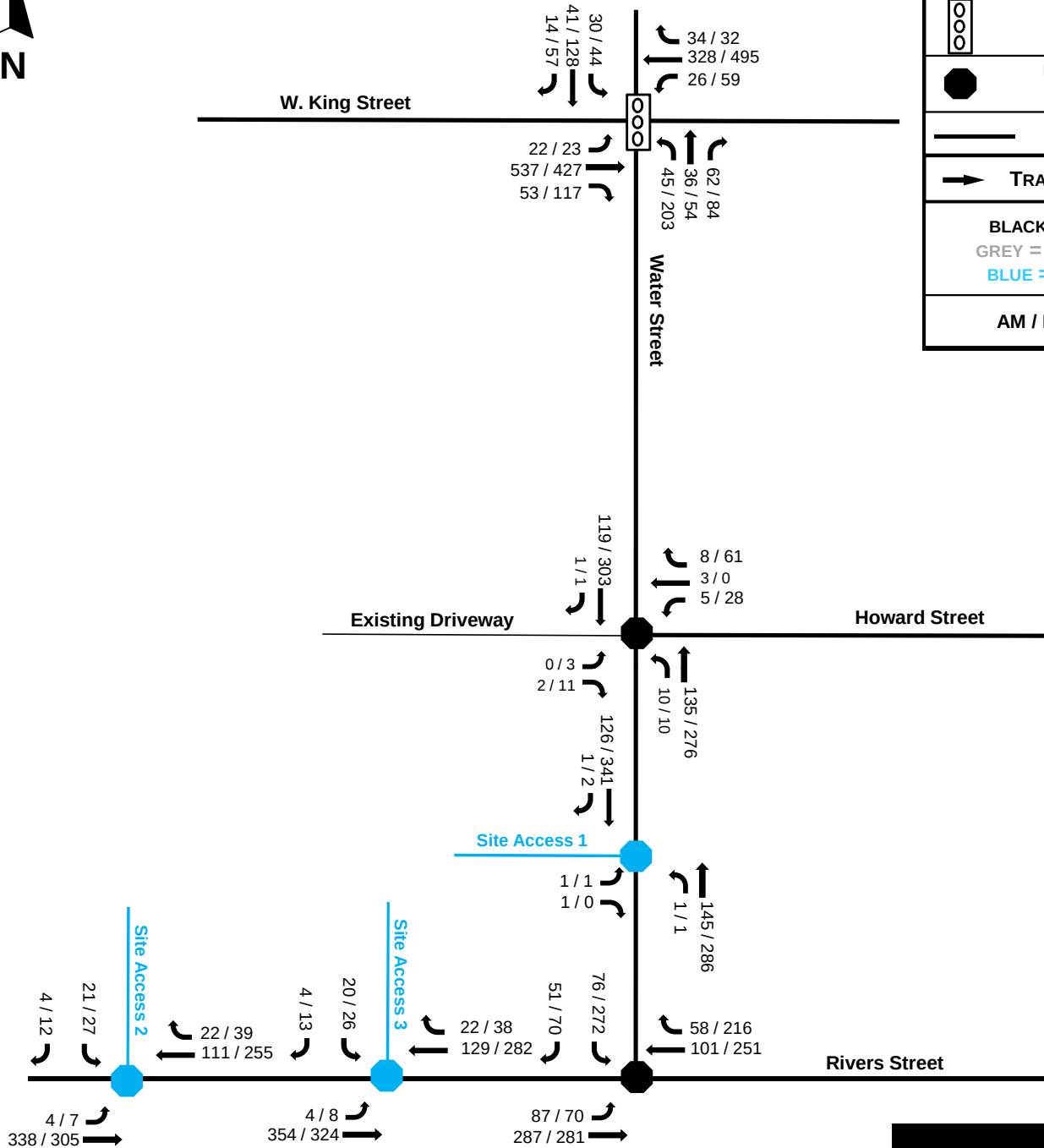
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BOONE, NC**

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LEGEND



**SIGNALIZED
INTERSECTION**



**UNSIGNALIZED
INTERSECTION**



ROADWAY



TRAFFIC MOVEMENT

**BLACK = EXISTING
GREY = UNANALYZED
BLUE = PROPOSED**

AM / PM PEAKS

**FIGURE 8
2016 FUTURE BUILD
VOLUMES**

**RIVER WALK DEVELOPMENT
BOONE, NC**

PROJECT NUMBER 14-076



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5.0 Capacity Analysis

5.1 Level of Service Evaluation Criteria

The Transportation Research Board's Highway Capacity Manual (HCM) utilizes a term "level of service" to measure how traffic operates in intersections and on roadway segments. There are currently six levels of service ranging from A to F. Level of service "A" represents the best conditions and Level of Service "F" represents the worst. Synchro Traffic Modeling software was used to determine the level of service for studied intersections. Note for unsignalized intersection analysis, the level of service noted is for the worst approach of the intersection. This is typically the left turn movement for the side street approach, due to the number of opposing movements. All worksheet reports from the analyses can be found in the Appendix.

Table 5.1 – Highway Capacity Manual

Levels of Service and Control Delay Criteria			
Signalized Intersection		Unsignalized Intersection	
Level of Service	Control Delay Per vehicle (sec)	Level of Service	Delay Range (sec)
A	≤ 10	A	≤ 10
B	> 10 and ≤ 20	B	> 10 and ≤ 15
C	> 20 and ≤ 35	C	> 15 and ≤ 25
D	> 35 and ≤ 55	D	> 25 and ≤ 35
E	> 55 and ≤ 80	E	> 35 and ≤ 50
F	> 80	F	> 50



5.2 Level of Service Results

The results of the study are discussed by intersection below:

Water Street at West King Street

This signalized intersection of Water Street at West King Street currently operates at LOS A in the AM peak and LOS C in the PM peak. The simulation show sporadic queuing on the northbound left approach of this intersection during the PM peak, which is mainly due to heavy left turns. In 2016 future no build conditions, the analysis indicates LOS A in the AM peak and LOS C in the PM peak. With the addition of site traffic, this intersection is projected to operate at LOS B in the AM peak and LOS C in the PM peak. It is recommended to optimize signal timing to accommodate future traffic growth.

Water Street at Howard Street

This unsignalized intersection currently operates at LOS A in the AM peak and LOS B in the PM peak. In 2016 future no build conditions, LOS A is expected in the AM peak and LOS B in the PM peak. Additionally, sporadic queues were observed on the westbound approach of Howard Street, particularly during the PM peak. This is mainly due to lack of sufficient gaps from the minor street, which is due to heavy traffic volumes and queues on Water Street. This is a background condition which exists regardless of the proposed development. With the addition of proposed site traffic, LOS A is expected in the AM peak and LOS B in the PM peak. No improvements are recommended.

Water Street at Rivers Street/ Poplar Grove Road

This unsignalized intersection currently operates at LOS B in the AM peak and LOS C in the PM peak. In 2016 future no build conditions, LOS B is expected in the AM peak and LOS C in the PM peak. With the addition of site traffic, LOS B is expected in the AM peak and LOS D in the PM peak. No improvements are recommended.

Water Street at Proposed Site Access 1

This unsignalized intersection is expected to operate at LOS B or better during future build scenarios. Though this intersection is in close proximity to Howard Street and existing driveway to the north, this access is expected to serve a 17-space parking lot with minimal trips. Close driveway spacing such as this is typical for a downtown central business district and dense urban settings. No improvements are recommended.

Poplar Grove Road at Proposed Site Access 2

This unsignalized intersection is expected to operate at LOS B during future build scenarios. No improvements are recommended.

Poplar Grove Road at Proposed Site Access 3

This unsignalized intersection is expected to operate at LOS B during future build scenarios. No improvements are recommended.



The recommended improvements at the study intersections are illustrated in Figure 9.

5.3 Level of Service Summary

Table 5.2 presents the summary of the level of service analysis.

Table 5.2 - Level of Service Summary				
AM Peak	2014 Existing	2016 Future No Build	2016 Build	2016 Build with Improvements
Water Street at King Street	A (9.4)	A (9.6)	B (10.3)	B (10.3)
Water Street at Howard Street	A (9.4) WB Approach	A (9.5) WB Approach	A (9.7) WB Approach	
Water Street at Rivers Street/ Poplar Grove Road	B (11.3) SB Approach	B (11.5) SB Approach	B (12) SB Approach	
Water Street at Proposed Site Access 1			A (9.3) EB Approach	
Poplar Grove Road at Proposed Site Access 2			B (11.9) SB Approach	
Poplar Grove Road at Proposed Site Access 3			B (12.2) SB Approach	
PM Peak	2014 Existing	2016 Future No Build	2016 Build	2016 Build with Improvements
Water Street at King Street	C (21.6)	C (22.5)	C (23.5)	C (22.2)
Water Street at Howard Street	B (10.8) WB Approach	B (11) WB Approach	B (11.4) WB Approach	
Water Street at Rivers Street/ Poplar Grove Road	C (19.8) SB Approach	C (21.8) SB Approach	D (29.5) SB Approach	
Water Street at Proposed Site Access 1			B (12.7) EB Approach	
Poplar Grove Road at Proposed Site Access 2			B (13.1) SB Approach	
Poplar Grove Road at Proposed Site Access 3			B (13.6) SB Approach	
LOS (delay in seconds)				
Note for unsignalized conditions, LOS and delay indicates only minor street approach with longest delay				



LEGEND	
	SIGNALIZED INTERSECTION
	UNSIGNALIZED INTERSECTION
	ROADWAY
	TRAFFIC MOVEMENT
BLACK = EXISTING	
GREY = UNANALYZED	
BLUE = PROPOSED	

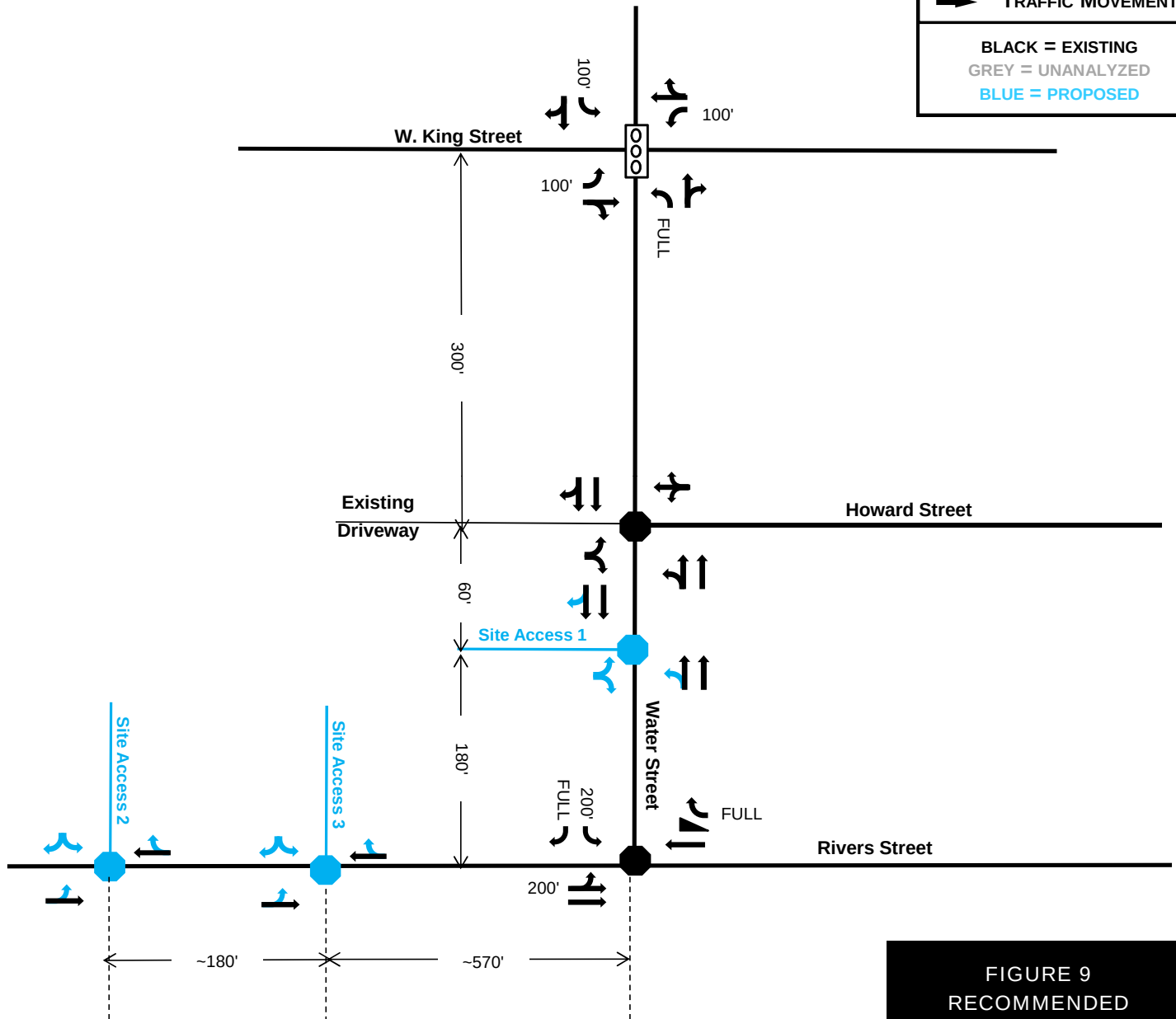


FIGURE 9
RECOMMENDED
IMPROVEMENTS

RIVER WALK DEVELOPMENT
BOONE, NC

PROJECT NUMBER 14-076



*** NOT TO SCALE ***

This document, together with the concepts and designs presented herein, is intended only for the specific purpose and client for which it was prepared. Reuse of, or improper reliance on, this document by others without written authorization and adaptation by DAVENPORT shall be without liability to DAVENPORT and shall be a violation of the agreement between DAVENPORT and the client.



6.0 Pedestrian and Bicycle Accommodations

As part of the development of this site, the developer plans to construct the following pedestrian and bicycle accommodations:

- Sidewalks will be constructed along the street frontage of the property: the northeastern side of Poplar Grove Road and along Water Street.
- A sidewalk will be provided adjacent to the commercial/ retail store entrances on site.
- The developer build the greenway trail from the surface lot to the parking deck as depicted on the site plan. This will provide safe and convenient access to the parking deck bike storage areas.
- In order to accommodate bicycling activities to and from the site, there will be 50 covered bicycle spaces inside of the garage and 14 bicycles spaces in the surface lot.

7.0 Transit Accommodations

AppalCart provides transit service in the Town of Boone. *AppalCart* currently runs routes (Gold, Pop 105 and Express routes) which provides service in the proximity of the site. There is an existing *AppalCart* stop on King Street and Water Street, which is within 400 feet of the proposed development. Residents in this proposed development will be able to use this transit service to reach their destinations. In addition, a loading lane has been incorporated into the site plan along Poplar Grove Road for buses.



Water Street at Howard Street facing south



8.0 Summary and Conclusion

The proposed River Walk Development is located on the border of Appalachian State University (ASU) and the Central Business District (CBD) along the northwest quadrant of Rivers Street/ Poplar Grove Road and Water Street in Boone, North Carolina. As currently planned, the site will consist of 380 bedrooms of a mix of young professional and student apartment housing and 10,266 square feet of retail area.

The site plan shows three (3) driveways to the site: two which will serve as the access to the proposed parking deck on site, and one driveway on Water Street that will serve as the access to a 17-space parking lot. The majority of tenants at the residential building will park in the parking deck. Hence, this traffic analysis considers the parking deck access on Poplar Grove Road to be the primary access to the site.

The trip generation indicates that based on the current site plan the proposed project is projected to generate a net total of 1,271 trips per day. This is based on 380-bedrooms of a mix of young professional and student apartment housing and 10,266 square feet of retail area.

The analysis indicates that all study intersections will operate at LOS D or better in the future build conditions.

Table 8.0 on the following page summarizes the recommended improvements for the 2016 future build scenario. Improvements are shown in Figure 9 in the report.

In conclusion, this analysis has been conducted based on NCDOT and Town of Boone guidelines and has determined the potential traffic impacts of this development. With the build-out of the site, the analysis indicates there will be adequate capacity to accommodate future traffic. Note that the site accesses should to be designed according to NCDOT standards as appropriate.


Table 8.0 - Recommended Improvement Summary

Water Street at West King Street	Optimize signal timing
Water Street at Howard Street	No improvements recommended
Water Street at Rivers Street/ Poplar Grove Road	No improvements recommended
Water Street at Proposed Site Access 1	No improvements recommended
Poplar Grove Road at Proposed Site Access 2	No improvements recommended
Poplar Grove Road at Proposed Site Access 3	No improvements recommended
Water Street at Existing Driveway	No improvements recommended
Pedestrian and Bicycle Accommodations	• Sidewalks will be constructed along the street frontage of the property: the northeastern side of Poplar Grove Road and along Water Street. • A sidewalk will be provided adjacent to the commercial/retail store entrances on site. • The developer build the greenway trail from the surface lot to the parking deck as depicted on the site plan. This will provide safe and convenient access to the parking deck bike storage areas. • In order to accommodate bicycling activities to and from the site, there will be 50 covered bicycle spaces inside of the garage and 14 bicycle spaces in the surface lot.
Transit Accommodations	• There is an existing <i>AppalCart</i> stop on Water Street at West King Street which is within 400 feet of the proposed development. Residents in this proposed development will be able to use this transit service to reach their destinations.



Appendix



Level of Service Analysis



Water Street at West King Street

Lanes, Volumes, Timings

100: W. King Street & Water Street

1/13/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	21	516	45	13	315	33	38	33	47	29	37	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	0		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100		25	100		25	25		25	100		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.988			0.986			0.912			0.962	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1593	1656	0	1593	1653	0	1593	1529	0	1593	1613	0
Flt Permitted	0.525			0.388			0.721			0.699		
Satd. Flow (perm)	880	1656	0	650	1653	0	1209	1529	0	1172	1613	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			20			20	
Link Distance (ft)		576			371			300			329	
Travel Time (s)		15.7			10.1			10.2			11.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Parking (#/hr)			30			70						
Adj. Flow (vph)	23	573	50	14	350	37	42	37	52	32	41	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	23	623	0	14	387	0	42	89	0	32	55	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		

14-076 River Walk Development
Mary Morgan, PE

AM Existing
Page 1

Communication: Rivers Walk Traffic Impact Analysis (Case 20160136 Riverswalk PD - Zoning Map Amendment)

Lanes, Volumes, Timings

100: W. King Street & Water Street

1/13/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	36.0	36.0		36.0	36.0		25.0	25.0		25.0	25.0	
Total Split (s)	50.0	50.0	0.0	50.0	50.0	0.0	25.0	25.0	0.0	25.0	25.0	0.0
Total Split (%)	66.7%	66.7%	0.0%	66.7%	66.7%	0.0%	33.3%	33.3%	0.0%	33.3%	33.3%	0.0%
Maximum Green (s)	44.0	44.0		44.0	44.0		19.0	19.0		19.0	19.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	0.0	-2.0	-2.0	0.0	-2.0	-2.0	0.0	-2.0	-2.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	12.0	12.0		12.0	12.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	18.0	18.0		18.0	18.0		12.0	12.0		12.0	12.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)	59.2	59.2		59.2	59.2		11.2	11.2		11.2	11.2	
Actuated g/C Ratio	0.79	0.79		0.79	0.79		0.15	0.15		0.15	0.15	
v/c Ratio	0.03	0.48		0.03	0.30		0.23	0.39		0.18	0.23	
Control Delay	3.3	5.5		3.3	4.0		30.3	33.2		29.3	29.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	3.3	5.5		3.3	4.0		30.3	33.2		29.3	29.5	
LOS	A	A		A	A		C	C		C	C	
Approach Delay		5.4			4.0			32.3			29.4	
Approach LOS		A			A			C			C	
Queue Length 50th (ft)	2	89		1	45		18	38		13	23	
Queue Length 95th (ft)	9	188		7	96		43	75		35	52	
Internal Link Dist (ft)		496			291			220			249	
Turn Bay Length (ft)	100			100						100		
Base Capacity (vph)	695	1307		513	1305		339	428		328	452	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.03	0.48		0.03	0.30		0.12	0.21		0.10	0.12	

Intersection Summary

Area Type: CBD

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.48

Intersection Signal Delay: 9.4

Intersection LOS: A

Intersection Capacity Utilization 48.9%

ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
100: W. King Street & Water Street

1/13/2015

Splits and Phases: 100: W. King Street & Water Street



Communication: Rivers Walk Traffic Impact Analysis (Case 20160136 Riverswalk PD - Zoning Map Amendment)

Lanes, Volumes, Timings

100: W. King Street & Water Street

1/13/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	22	537	47	14	328	34	40	34	49	30	38	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	0		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100		25	100		25	25		25	100		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.988			0.986			0.912			0.959	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1593	1656	0	1593	1653	0	1593	1529	0	1593	1608	0
Flt Permitted	0.515			0.374			0.719			0.697		
Satd. Flow (perm)	863	1656	0	627	1653	0	1205	1529	0	1169	1608	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			20			20	
Link Distance (ft)		576			371			300			329	
Travel Time (s)		15.7			10.1			10.2			11.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Parking (#/hr)			30			70						
Adj. Flow (vph)	24	597	52	16	364	38	44	38	54	33	42	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	24	649	0	16	402	0	44	92	0	33	58	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		

14-076 River Walk Development
Mary Morgan, PE

AM No Build
Page 1

Communication: Rivers Walk Traffic Impact Analysis (Case 20160136 Riverswalk PD - Zoning Map Amendment)

Lanes, Volumes, Timings

100: W. King Street & Water Street

1/13/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	36.0	36.0		36.0	36.0		25.0	25.0		25.0	25.0	
Total Split (s)	50.0	50.0	0.0	50.0	50.0	0.0	25.0	25.0	0.0	25.0	25.0	0.0
Total Split (%)	66.7%	66.7%	0.0%	66.7%	66.7%	0.0%	33.3%	33.3%	0.0%	33.3%	33.3%	0.0%
Maximum Green (s)	44.0	44.0		44.0	44.0		19.0	19.0		19.0	19.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	0.0	-2.0	-2.0	0.0	-2.0	-2.0	0.0	-2.0	-2.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	12.0	12.0		12.0	12.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	18.0	18.0		18.0	18.0		12.0	12.0		12.0	12.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)	59.1	59.1		59.1	59.1		11.3	11.3		11.3	11.3	
Actuated g/C Ratio	0.79	0.79		0.79	0.79		0.15	0.15		0.15	0.15	
v/c Ratio	0.04	0.50		0.03	0.31		0.24	0.40		0.19	0.24	
Control Delay	3.4	5.8		3.4	4.1		30.4	33.3		29.2	29.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	3.4	5.8		3.4	4.1		30.4	33.3		29.2	29.5	
LOS	A	A		A	A		C	C		C	C	
Approach Delay		5.7			4.1			32.3			29.4	
Approach LOS		A			A			C			C	
Queue Length 50th (ft)	2	96		2	48		18	40		14	24	
Queue Length 95th (ft)	9	204		7	102		45	77		36	54	
Internal Link Dist (ft)		496			291			220			249	
Turn Bay Length (ft)	100			100						100		
Base Capacity (vph)	680	1304		494	1302		337	428		327	450	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.04	0.50		0.03	0.31		0.13	0.21		0.10	0.13	

Intersection Summary

Area Type: CBD

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.50

Intersection Signal Delay: 9.6

Intersection LOS: A

Intersection Capacity Utilization 50.4%

ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
100: W. King Street & Water Street

1/13/2015

Splits and Phases: 100: W. King Street & Water Street



Lanes, Volumes, Timings

100: Water Street & W. King Street

2/29/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	537	53	26	328	34	45	36	62	30	41	14
Future Volume (vph)	22	537	53	26	328	34	45	36	62	30	41	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	0		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			25			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.987			0.986			0.905			0.961	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1593	1655	0	1593	1653	0	1593	1517	0	1593	1611	0
Flt Permitted	0.513			0.366			0.717			0.677		
Satd. Flow (perm)	860	1655	0	614	1653	0	1202	1517	0	1135	1611	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			20			20	
Link Distance (ft)		576			371			284			329	
Travel Time (s)		15.7			10.1			9.7			11.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Parking (#/hr)			30			70						
Adj. Flow (vph)	24	597	59	29	364	38	50	40	69	33	46	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	24	656	0	29	402	0	50	109	0	33	62	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	36.0	36.0		36.0	36.0		25.0	25.0		25.0	25.0	
Total Split (s)	50.0	50.0		50.0	50.0		25.0	25.0		25.0	25.0	
Total Split (%)	66.7%	66.7%		66.7%	66.7%		33.3%	33.3%		33.3%	33.3%	
Maximum Green (s)	44.0	44.0		44.0	44.0		19.0	19.0		19.0	19.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	12.0	12.0		12.0	12.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	18.0	18.0		18.0	18.0		12.0	12.0		12.0	12.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)	58.3	58.3		58.3	58.3		12.1	12.1		12.1	12.1	
Actuated g/C Ratio	0.78	0.78		0.78	0.78		0.16	0.16		0.16	0.16	
v/c Ratio	0.04	0.51		0.06	0.31		0.26	0.44		0.18	0.24	
Control Delay	3.7	6.4		4.0	4.5		29.7	33.5		28.1	28.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

14-076 River Walk Development
Mary Morgan, PE

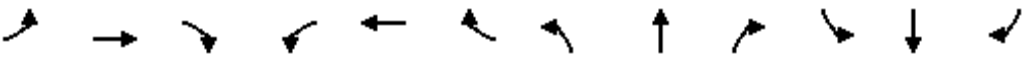
AM Build
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Communication: Rivers Walk Traffic Impact Analysis (Case 20160136 Riverswalk PD - Zoning Map Amendment)

Lanes, Volumes, Timings

100: Water Street & W. King Street

2/29/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	3.7	6.4		4.0	4.5		29.7	33.5		28.1	28.5	
LOS	A	A		A	A		C	C		C	C	
Approach Delay		6.3			4.5			32.3			28.4	
Approach LOS		A			A			C			C	
Queue Length 50th (ft)	2	105		3	51		21	47		14	26	
Queue Length 95th (ft)	10	224		12	110		48	87		35	55	
Internal Link Dist (ft)		496			291			204			249	
Turn Bay Length (ft)	100			100						100		
Base Capacity (vph)	668	1286		477	1284		336	424		317	451	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.04	0.51		0.06	0.31		0.15	0.26		0.10	0.14	

Intersection Summary

Area Type: CBD

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.51

Intersection Signal Delay: 10.3

Intersection LOS: B

Intersection Capacity Utilization 51.1%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 100: Water Street & W. King Street



Lanes, Volumes, Timings

100: Water Street & W. King Street

2/29/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	537	53	26	328	34	45	36	62	30	41	14
Future Volume (vph)	22	537	53	26	328	34	45	36	62	30	41	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	0		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			25			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.987			0.986			0.905			0.961	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1593	1655	0	1593	1653	0	1593	1517	0	1593	1611	0
Flt Permitted	0.513			0.366			0.717			0.677		
Satd. Flow (perm)	860	1655	0	614	1653	0	1202	1517	0	1135	1611	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			20			20	
Link Distance (ft)		576			371			284			329	
Travel Time (s)		15.7			10.1			9.7			11.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Parking (#/hr)			30			70						
Adj. Flow (vph)	24	597	59	29	364	38	50	40	69	33	46	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	24	656	0	29	402	0	50	109	0	33	62	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	36.0	36.0		36.0	36.0		25.0	25.0		25.0	25.0	
Total Split (s)	50.0	50.0		50.0	50.0		25.0	25.0		25.0	25.0	
Total Split (%)	66.7%	66.7%		66.7%	66.7%		33.3%	33.3%		33.3%	33.3%	
Maximum Green (s)	44.0	44.0		44.0	44.0		19.0	19.0		19.0	19.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	12.0	12.0		12.0	12.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	18.0	18.0		18.0	18.0		12.0	12.0		12.0	12.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)	58.3	58.3		58.3	58.3		12.1	12.1		12.1	12.1	
Actuated g/C Ratio	0.78	0.78		0.78	0.78		0.16	0.16		0.16	0.16	
v/c Ratio	0.04	0.51		0.06	0.31		0.26	0.44		0.18	0.24	
Control Delay	3.7	6.4		4.0	4.5		29.7	33.5		28.1	28.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

14-076 River Walk Development
Mary Morgan, PE

AM Build + Improvements
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Communication: Rivers Walk Traffic Impact Analysis (Case 20160136 Riverswalk PD - Zoning Map Amendment)

Lanes, Volumes, Timings

100: Water Street & W. King Street

2/29/2016

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	3.7	6.4		4.0	4.5		29.7	33.5		28.1	28.5	
LOS	A	A		A	A		C	C		C	C	
Approach Delay		6.3			4.5			32.3			28.4	
Approach LOS		A			A			C			C	
Queue Length 50th (ft)	2	105		3	51		21	47		14	26	
Queue Length 95th (ft)	10	224		12	110		48	87		35	55	
Internal Link Dist (ft)		496			291			204			249	
Turn Bay Length (ft)	100			100						100		
Base Capacity (vph)	668	1286		477	1284		336	424		317	451	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.04	0.51		0.06	0.31		0.15	0.26		0.10	0.14	

Intersection Summary

Area Type: CBD

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.51

Intersection Signal Delay: 10.3

Intersection LOS: B

Intersection Capacity Utilization 51.1%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 100: Water Street & W. King Street



Lanes, Volumes, Timings

100: W. King Street & Water Street

1/13/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	22	410	103	41	476	31	187	47	68	42	119	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	0		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100		25	100		25	25		25	100		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.970			0.991			0.911			0.953	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1593	1626	0	1593	1661	0	1593	1527	0	1593	1598	0
Flt Permitted	0.371			0.367			0.531			0.645		
Satd. Flow (perm)	622	1626	0	615	1661	0	890	1527	0	1081	1598	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			20			20	
Link Distance (ft)		576			371			300			329	
Travel Time (s)		15.7			10.1			10.2			11.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Parking (#/hr)			30			70						
Adj. Flow (vph)	24	456	114	46	529	34	208	52	76	47	132	61
Shared Lane Traffic (%)												
Lane Group Flow (vph)	24	570	0	46	563	0	208	128	0	47	193	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		

14-076 River Walk Development
Mary Morgan, PE

PM Existing
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Communication: Rivers Walk Traffic Impact Analysis (Case 20160136 Riverswalk PD - Zoning Map Amendment)

Lanes, Volumes, Timings

100: W. King Street & Water Street

1/13/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	36.0	36.0		36.0	36.0		25.0	25.0		25.0	25.0	
Total Split (s)	60.0	60.0	0.0	60.0	60.0	0.0	30.0	30.0	0.0	30.0	30.0	0.0
Total Split (%)	66.7%	66.7%	0.0%	66.7%	66.7%	0.0%	33.3%	33.3%	0.0%	33.3%	33.3%	0.0%
Maximum Green (s)	54.0	54.0		54.0	54.0		24.0	24.0		24.0	24.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	0.0	-2.0	-2.0	0.0	-2.0	-2.0	0.0	-2.0	-2.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	12.0	12.0		12.0	12.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	18.0	18.0		18.0	18.0		12.0	12.0		12.0	12.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)	58.2	58.2		58.2	58.2		23.8	23.8		23.8	23.8	
Actuated g/C Ratio	0.65	0.65		0.65	0.65		0.26	0.26		0.26	0.26	
v/c Ratio	0.06	0.54		0.12	0.52		0.89	0.32		0.16	0.46	
Control Delay	7.2	11.6		7.8	11.3		68.3	28.1		25.9	30.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	7.2	11.6		7.8	11.3		68.3	28.1		25.9	30.9	
LOS	A	B		A	B		E	C		C	C	
Approach Delay		11.4			11.0			53.0			29.9	
Approach LOS		B			B			D			C	
Queue Length 50th (ft)	5	171		10	166		109	56		20	88	
Queue Length 95th (ft)	15	262		25	253		#231	104		47	151	
Internal Link Dist (ft)		496			291			220			249	
Turn Bay Length (ft)	100			100						100		
Base Capacity (vph)	403	1052		398	1075		257	441		312	462	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.06	0.54		0.12	0.52		0.81	0.29		0.15	0.42	

Intersection Summary

Area Type: CBD

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 21.6

Intersection LOS: C

Intersection Capacity Utilization 70.1%

ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Lanes, Volumes, Timings
100: W. King Street & Water Street

1/13/2015

Queue shown is maximum after two cycles.

Splits and Phases: 100: W. King Street & Water Street



Communication: Rivers Walk Traffic Impact Analysis (Case 20160136 Riverswalk PD - Zoning Map Amendment)

Lanes, Volumes, Timings

100: W. King Street & Water Street

1/13/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	23	427	107	43	495	32	195	49	71	44	124	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	0		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100		25	100		25	25		25	100		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.970			0.991			0.911			0.953	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1593	1626	0	1593	1661	0	1593	1527	0	1593	1598	0
Flt Permitted	0.353			0.348			0.523			0.639		
Satd. Flow (perm)	592	1626	0	583	1661	0	877	1527	0	1071	1598	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			20			20	
Link Distance (ft)		576			371			300			329	
Travel Time (s)		15.7			10.1			10.2			11.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Parking (#/hr)			30			70						
Adj. Flow (vph)	26	474	119	48	550	36	217	54	79	49	138	63
Shared Lane Traffic (%)												
Lane Group Flow (vph)	26	593	0	48	586	0	217	133	0	49	201	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		

14-076 River Walk Development
Mary Morgan, PE

PM No Build
Page 1

Communication: Rivers Walk Traffic Impact Analysis (Case 20160136 Riverswalk PD - Zoning Map Amendment)

Lanes, Volumes, Timings

100: W. King Street & Water Street

1/13/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	36.0	36.0		36.0	36.0		25.0	25.0		25.0	25.0	
Total Split (s)	60.0	60.0	0.0	60.0	60.0	0.0	30.0	30.0	0.0	30.0	30.0	0.0
Total Split (%)	66.7%	66.7%	0.0%	66.7%	66.7%	0.0%	33.3%	33.3%	0.0%	33.3%	33.3%	0.0%
Maximum Green (s)	54.0	54.0		54.0	54.0		24.0	24.0		24.0	24.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	0.0	-2.0	-2.0	0.0	-2.0	-2.0	0.0	-2.0	-2.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	12.0	12.0		12.0	12.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	18.0	18.0		18.0	18.0		12.0	12.0		12.0	12.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)	57.4	57.4		57.4	57.4		24.6	24.6		24.6	24.6	
Actuated g/C Ratio	0.64	0.64		0.64	0.64		0.27	0.27		0.27	0.27	
v/c Ratio	0.07	0.57		0.13	0.55		0.91	0.32		0.17	0.46	
Control Delay	7.3	12.5		8.1	12.0		71.7	27.8		25.8	30.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	7.3	12.5		8.1	12.0		71.7	27.8		25.8	30.6	
LOS	A	B		A	B		E	C		C	C	
Approach Delay		12.2			11.7			55.0			29.7	
Approach LOS		B			B			E			C	
Queue Length 50th (ft)	5	182		10	176		116	59		21	93	
Queue Length 95th (ft)	16	279		26	269		#247	108		49	158	
Internal Link Dist (ft)		496			291			220			249	
Turn Bay Length (ft)	100			100						100		
Base Capacity (vph)	377	1037		372	1060		253	441		309	462	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.07	0.57		0.13	0.55		0.86	0.30		0.16	0.44	

Intersection Summary

Area Type: CBD

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 22.5

Intersection LOS: C

Intersection Capacity Utilization 72.8%

ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Lanes, Volumes, Timings
100: W. King Street & Water Street

1/13/2015

Queue shown is maximum after two cycles.

Splits and Phases: 100: W. King Street & Water Street



Communication: Rivers Walk Traffic Impact Analysis (Case 20160136 Riverswalk PD - Zoning Map Amendment)

Lanes, Volumes, Timings

100: Water Street & W. King Street

2/29/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	427	117	59	495	32	203	54	84	44	128	57
Future Volume (vph)	23	427	117	59	495	32	203	54	84	44	128	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	0		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			25			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.968			0.991			0.909			0.954	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1593	1623	0	1593	1661	0	1593	1524	0	1593	1599	0
Flt Permitted	0.351			0.339			0.520			0.606		
Satd. Flow (perm)	588	1623	0	568	1661	0	872	1524	0	1016	1599	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			20			20	
Link Distance (ft)		576			371			284			329	
Travel Time (s)		15.7			10.1			9.7			11.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Parking (#/hr)			30			70						
Adj. Flow (vph)	26	474	130	66	550	36	226	60	93	49	142	63
Shared Lane Traffic (%)												
Lane Group Flow (vph)	26	604	0	66	586	0	226	153	0	49	205	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	36.0	36.0		36.0	36.0		25.0	25.0		25.0	25.0	
Total Split (s)	60.0	60.0		60.0	60.0		30.0	30.0		30.0	30.0	
Total Split (%)	66.7%	66.7%		66.7%	66.7%		33.3%	33.3%		33.3%	33.3%	
Maximum Green (s)	54.0	54.0		54.0	54.0		24.0	24.0		24.0	24.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	12.0	12.0		12.0	12.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	18.0	18.0		18.0	18.0		12.0	12.0		12.0	12.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)	57.0	57.0		57.0	57.0		25.0	25.0		25.0	25.0	
Actuated g/C Ratio	0.63	0.63		0.63	0.63		0.28	0.28		0.28	0.28	
v/c Ratio	0.07	0.59		0.18	0.56		0.93	0.36		0.17	0.46	
Control Delay	7.3	12.9		8.9	12.2		77.1	28.5		26.0	30.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

14-076 River Walk Development
Mary Morgan, PE

PM Build
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Communication: Rivers Walk Traffic Impact Analysis (Case 20160136 Riverswalk PD - Zoning Map Amendment)

Lanes, Volumes, Timings

100: Water Street & W. King Street

2/29/2016

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	7.3	12.9		8.9	12.2		77.1	28.5		26.0	30.5	
LOS	A	B		A	B		E	C		C	C	
Approach Delay		12.7			11.9			57.5			29.6	
Approach LOS		B			B			E			C	
Queue Length 50th (ft)	5	187		15	176		123	69		21	95	
Queue Length 95th (ft)	16	288		35	269		#261	123		50	161	
Internal Link Dist (ft)		496			291			204			249	
Turn Bay Length (ft)	100			100						100		
Base Capacity (vph)	371	1026		359	1051		251	440		293	461	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.07	0.59		0.18	0.56		0.90	0.35		0.17	0.44	

Intersection Summary

Area Type: CBD

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 23.5

Intersection LOS: C

Intersection Capacity Utilization 80.0%

ICU Level of Service D

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 100: Water Street & W. King Street



Lanes, Volumes, Timings

100: Water Street & W. King Street

2/29/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	427	117	59	495	32	203	54	84	44	128	57
Future Volume (vph)	23	427	117	59	495	32	203	54	84	44	128	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	0		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			25			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.968			0.991			0.909			0.954	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1593	1623	0	1593	1661	0	1593	1524	0	1593	1599	0
Flt Permitted	0.341			0.329			0.533			0.614		
Satd. Flow (perm)	572	1623	0	552	1661	0	894	1524	0	1029	1599	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			20			20	
Link Distance (ft)		576			371			284			329	
Travel Time (s)		15.7			10.1			9.7			11.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Parking (#/hr)			30			70						
Adj. Flow (vph)	26	474	130	66	550	36	226	60	93	49	142	63
Shared Lane Traffic (%)												
Lane Group Flow (vph)	26	604	0	66	586	0	226	153	0	49	205	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	36.0	36.0		36.0	36.0		25.0	25.0		25.0	25.0	
Total Split (s)	52.0	52.0		52.0	52.0		38.0	38.0		38.0	38.0	
Total Split (%)	57.8%	57.8%		57.8%	57.8%		42.2%	42.2%		42.2%	42.2%	
Maximum Green (s)	46.0	46.0		46.0	46.0		32.0	32.0		32.0	32.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	12.0	12.0		12.0	12.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	18.0	18.0		18.0	18.0		12.0	12.0		12.0	12.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)	55.2	55.2		55.2	55.2		26.8	26.8		26.8	26.8	
Actuated g/C Ratio	0.61	0.61		0.61	0.61		0.30	0.30		0.30	0.30	
v/c Ratio	0.07	0.61		0.20	0.58		0.85	0.34		0.16	0.43	
Control Delay	10.2	15.8		11.9	14.9		56.3	25.0		21.8	26.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

14-076 River Walk Development
Mary Morgan, PE

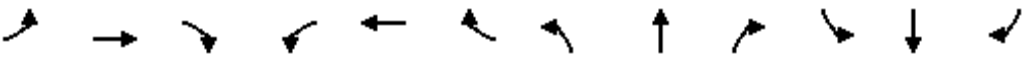
PM Build + Improvements
Page 1

Communication: Rivers Walk Traffic Impact Analysis (Case 20160136 Riverswalk PD - Zoning Map Amendment)

Lanes, Volumes, Timings

100: Water Street & W. King Street

2/29/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	10.2	15.8		11.9	14.9		56.3	25.0		21.8	26.9	
LOS	B	B		B	B		E	C		C	C	
Approach Delay		15.6			14.6			43.7			25.9	
Approach LOS		B			B			D			C	
Queue Length 50th (ft)	6	200		16	188		118	66		20	92	
Queue Length 95th (ft)	20	370		45	346		#200	106		43	138	
Internal Link Dist (ft)		496			291			204			249	
Turn Bay Length (ft)	100			100						100		
Base Capacity (vph)	350	994		338	1018		337	575		388	604	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.07	0.61		0.20	0.58		0.67	0.27		0.13	0.34	

Intersection Summary

Area Type: CBD

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 22.2

Intersection LOS: C

Intersection Capacity Utilization 80.0%

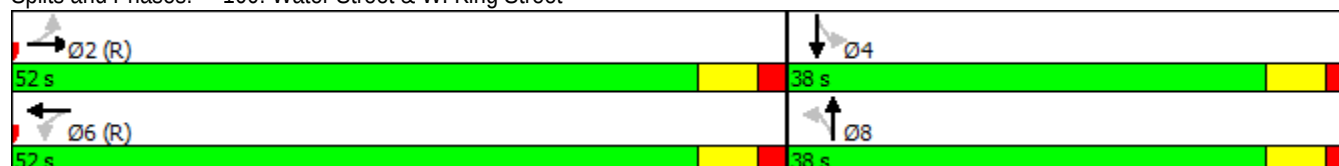
ICU Level of Service D

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 100: Water Street & W. King Street





Water Street at Howard Street

HCM Unsignalized Intersection Capacity Analysis

200: Howard Street & Water Street

1/13/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	2	4	3	8	10	110	0	0	94	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	2	4	3	9	11	122	0	0	104	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)											300	
pX, platoon unblocked												
vC, conflicting volume	199	249	53	199	250	61	106			122		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	199	249	53	199	250	61	106			122		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	99	99	99	99			100		
cM capacity (veh/h)	728	647	1003	736	647	991	1484			1463		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	2	17	52	81	70	36						
Volume Left	0	4	11	0	0	0						
Volume Right	2	9	0	0	0	1						
cSH	1003	827	1484	1700	1700	1700						
Volume to Capacity	0.00	0.02	0.01	0.05	0.04	0.02						
Queue Length 95th (ft)	0	2	1	0	0	0						
Control Delay (s)	8.6	9.4	1.6	0.0	0.0	0.0						
Lane LOS	A	A	A									
Approach Delay (s)	8.6	9.4	0.6		0.0							
Approach LOS	A	A										
Intersection Summary												
Average Delay			1.0									
Intersection Capacity Utilization			18.9%		ICU Level of Service					A		
Analysis Period (min)			15									

Communication: Rivers Walk Traffic Impact Analysis (Case 20160136 Riverswalk PD - Zoning Map Amendment)

HCM Unsignalized Intersection Capacity Analysis

200: Howard Street & Water Street

1/13/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	2	4	3	8	10	114	0	0	98	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	2	4	3	9	11	127	0	0	109	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)											300	
pX, platoon unblocked												
vC, conflicting volume	206	258	55	206	259	63	110			127		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	206	258	55	206	259	63	110			127		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	99	99	99	99			100		
cM capacity (veh/h)	720	640	1000	728	639	988	1478			1457		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	2	17	53	84	73	37						
Volume Left	0	4	11	0	0	0						
Volume Right	2	9	0	0	0	1						
cSH	1000	820	1478	1700	1700	1700						
Volume to Capacity	0.00	0.02	0.01	0.05	0.04	0.02						
Queue Length 95th (ft)	0	2	1	0	0	0						
Control Delay (s)	8.6	9.5	1.6	0.0	0.0	0.0						
Lane LOS	A	A	A									
Approach Delay (s)	8.6	9.5	0.6		0.0							
Approach LOS	A	A										
Intersection Summary												
Average Delay			1.0									
Intersection Capacity Utilization			18.9%		ICU Level of Service					A		
Analysis Period (min)			15									

Communication: Rivers Walk Traffic Impact Analysis (Case 20160136 Riverswalk PD - Zoning Map Amendment)

HCM Unsignalized Intersection Capacity Analysis

200: Water Street & Howard Street

2/29/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	2	5	3	8	10	135	0	0	119	1
Future Volume (Veh/h)	0	0	2	5	3	8	10	135	0	0	119	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	2	6	3	9	11	150	0	0	132	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)											284	
pX, platoon unblocked												
vC, conflicting volume	240	304	66	240	305	75	133			150		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	240	304	66	240	305	75	133			150		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	99	100	99	99			100		
cM capacity (veh/h)	681	603	983	689	603	971	1449			1429		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	2	18	61	100	88	45						
Volume Left	0	6	11	0	0	0						
Volume Right	2	9	0	0	0	1						
cSH	983	784	1449	1700	1700	1700						
Volume to Capacity	0.00	0.02	0.01	0.06	0.05	0.03						
Queue Length 95th (ft)	0	2	1	0	0	0						
Control Delay (s)	8.7	9.7	1.4	0.0	0.0	0.0						
Lane LOS	A	A	A									
Approach Delay (s)	8.7	9.7	0.5		0.0							
Approach LOS	A	A										
Intersection Summary												
Average Delay			0.9									
Intersection Capacity Utilization			20.5%		ICU Level of Service		A					
Analysis Period (min)			15									

Communication: Rivers Walk Traffic Impact Analysis (Case 20160136 Riverswalk PD - Zoning Map Amendment)

HCM Unsignalized Intersection Capacity Analysis

200: Howard Street & Water Street

1/13/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	3	0	11	25	0	59	10	240	0	0	262	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	3	0	12	28	0	66	11	267	0	0	291	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (ft)											300	
pX, platoon unblocked												
vC, conflicting volume	513	581	146	447	581	133	292			267		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	513	581	146	447	581	133	292			267		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	99	94	100	93	99			100		
cM capacity (veh/h)	409	420	875	485	420	891	1266			1294		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	16	93	100	178	194	98						
Volume Left	3	28	11	0	0	0						
Volume Right	12	66	0	0	0	1						
cSH	703	713	1266	1700	1700	1700						
Volume to Capacity	0.02	0.13	0.01	0.10	0.11	0.06						
Queue Length 95th (ft)	2	11	1	0	0	0						
Control Delay (s)	10.2	10.8	0.9	0.0	0.0	0.0						
Lane LOS	B	B	A									
Approach Delay (s)	10.2	10.8	0.3		0.0							
Approach LOS	B	B										
Intersection Summary												
Average Delay			1.9									
Intersection Capacity Utilization			30.7%		ICU Level of Service					A		
Analysis Period (min)			15									

Communication: Rivers Walk Traffic Impact Analysis (Case 20160136 Riverswalk PD - Zoning Map Amendment)

HCM Unsignalized Intersection Capacity Analysis

200: Howard Street & Water Street

1/13/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	3	0	11	26	0	61	10	250	0	0	273	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	3	0	12	29	0	68	11	278	0	0	303	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (ft)											300	
pX, platoon unblocked												
vC, conflicting volume	533	604	152	464	604	139	304			278		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	533	604	152	464	604	139	304			278		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	99	94	100	92	99			100		
cM capacity (veh/h)	394	407	867	471	407	884	1253			1282		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	16	97	104	185	202	102						
Volume Left	3	29	11	0	0	0						
Volume Right	12	68	0	0	0	1						
cSH	690	701	1253	1700	1700	1700						
Volume to Capacity	0.02	0.14	0.01	0.11	0.12	0.06						
Queue Length 95th (ft)	2	12	1	0	0	0						
Control Delay (s)	10.3	11.0	0.9	0.0	0.0	0.0						
Lane LOS	B	B	A									
Approach Delay (s)	10.3	11.0	0.3		0.0							
Approach LOS	B	B										
Intersection Summary												
Average Delay			1.9									
Intersection Capacity Utilization			31.3%		ICU Level of Service					A		
Analysis Period (min)			15									

Communication: Rivers Walk Traffic Impact Analysis (Case 20160136 Riverswalk PD - Zoning Map Amendment)

HCM Unsignalized Intersection Capacity Analysis

200: Water Street & Howard Street

2/29/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	0	11	28	0	61	10	276	0	0	303	1
Future Volume (Veh/h)	3	0	11	28	0	61	10	276	0	0	303	1
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	3	0	12	31	0	68	11	307	0	0	337	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage veh												
Upstream signal (ft)												284
pX, platoon unblocked												
vC, conflicting volume	581	666	169	510	667	154	338				307	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	581	666	169	510	667	154	338				307	
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	99	100	99	93	100	92	99				100	
cM capacity (veh/h)	363	375	845	437	375	865	1218				1250	
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	15	99	113	205	225	113						
Volume Left	3	31	11	0	0	0						
Volume Right	12	68	0	0	0	1						
cSH	668	662	1218	1700	1700	1700						
Volume to Capacity	0.02	0.15	0.01	0.12	0.13	0.07						
Queue Length 95th (ft)	2	13	1	0	0	0						
Control Delay (s)	10.5	11.4	0.8	0.0	0.0	0.0						
Lane LOS	B	B	A									
Approach Delay (s)	10.5	11.4	0.3	0.0								
Approach LOS	B	B										
Intersection Summary												
Average Delay	1.8											
Intersection Capacity Utilization	32.5%			ICU Level of Service					A			
Analysis Period (min)	15											

Communication: Rivers Walk Traffic Impact Analysis (Case 20160136 Riverswalk PD - Zoning Map Amendment)

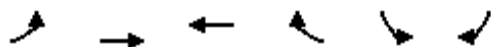


Water Street at Rivers Street/ Poplar Grove Road

HCM Unsignalized Intersection Capacity Analysis

300: Rivers Street & Water Street

1/13/2015



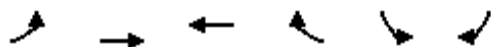
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕	↕	↕	↕	↕
Volume (veh/h)	65	256	75	55	72	28
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	72	284	83	61	80	31
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	83				370	83
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	83				370	83
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				86	97
cM capacity (veh/h)	1512				575	959
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	167	190	83	61	80	31
Volume Left	72	0	0	0	80	0
Volume Right	0	0	0	61	0	31
cSH	1512	1700	1700	1700	575	959
Volume to Capacity	0.05	0.11	0.05	0.04	0.14	0.03
Queue Length 95th (ft)	4	0	0	0	12	3
Control Delay (s)	3.5	0.0	0.0	0.0	12.3	8.9
Lane LOS	A				B	A
Approach Delay (s)	1.6		0.0		11.3	
Approach LOS					B	
Intersection Summary						
Average Delay			3.0			
Intersection Capacity Utilization			24.4%		ICU Level of Service	A
Analysis Period (min)			15			

Communication: Rivers Walk Traffic Impact Analysis (Case 20160136 Riverswalk PD - Zoning Map Amendment)

HCM Unsignalized Intersection Capacity Analysis

300: Rivers Street & Water Street

1/13/2015



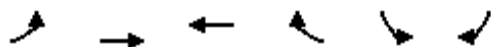
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕	↕	↕	↕	↕
Volume (veh/h)	68	266	78	57	75	29
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	76	296	87	63	83	32
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	87				386	87
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	87				386	87
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				85	97
cM capacity (veh/h)	1507				560	955
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	174	197	87	63	83	32
Volume Left	76	0	0	0	83	0
Volume Right	0	0	0	63	0	32
cSH	1507	1700	1700	1700	560	955
Volume to Capacity	0.05	0.12	0.05	0.04	0.15	0.03
Queue Length 95th (ft)	4	0	0	0	13	3
Control Delay (s)	3.5	0.0	0.0	0.0	12.5	8.9
Lane LOS	A				B	A
Approach Delay (s)	1.6		0.0		11.5	
Approach LOS					B	
Intersection Summary						
Average Delay			3.0			
Intersection Capacity Utilization			24.9%		ICU Level of Service	A
Analysis Period (min)			15			

Communication: Rivers Walk Traffic Impact Analysis (Case 20160136 Riverswalk PD - Zoning Map Amendment)

HCM Unsignalized Intersection Capacity Analysis

300: Rivers Street & Water Street

2/29/2016



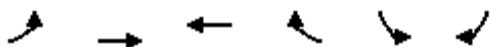
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕	↕	↗	↗	↗
Traffic Volume (veh/h)	87	287	101	58	76	51
Future Volume (Veh/h)	87	287	101	58	76	51
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	97	319	112	64	84	57
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	112				466	112
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	112				466	112
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	93				83	94
cM capacity (veh/h)	1475				491	920
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	203	213	112	64	84	57
Volume Left	97	0	0	0	84	0
Volume Right	0	0	0	64	0	57
cSH	1475	1700	1700	1700	491	920
Volume to Capacity	0.07	0.13	0.07	0.04	0.17	0.06
Queue Length 95th (ft)	5	0	0	0	15	5
Control Delay (s)	3.9	0.0	0.0	0.0	13.8	9.2
Lane LOS	A				B	A
Approach Delay (s)	1.9		0.0		12.0	
Approach LOS					B	
Intersection Summary						
Average Delay			3.4			
Intersection Capacity Utilization			26.3%		ICU Level of Service	A
Analysis Period (min)			15			

Communication: Rivers Walk Traffic Impact Analysis (Case 20160136 Riverswalk PD - Zoning Map Amendment)

HCM Unsignalized Intersection Capacity Analysis

300: Rivers Street & Water Street

1/13/2015



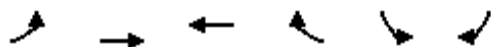
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕	↕	↕	↕	↕
Volume (veh/h)	43	246	211	207	261	37
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	48	273	234	230	290	41
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	234				467	234
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	234				467	234
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				43	95
cM capacity (veh/h)	1330				506	767
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	139	182	234	230	290	41
Volume Left	48	0	0	0	290	0
Volume Right	0	0	0	230	0	41
cSH	1330	1700	1700	1700	506	767
Volume to Capacity	0.04	0.11	0.14	0.14	0.57	0.05
Queue Length 95th (ft)	3	0	0	0	89	4
Control Delay (s)	2.9	0.0	0.0	0.0	21.2	10.0
Lane LOS	A				C	A
Approach Delay (s)	1.2		0.0		19.8	
Approach LOS					C	
Intersection Summary						
Average Delay			6.2			
Intersection Capacity Utilization			47.3%		ICU Level of Service	A
Analysis Period (min)			15			

Communication: Rivers Walk Traffic Impact Analysis (Case 20160136 Riverswalk PD - Zoning Map Amendment)

HCM Unsignalized Intersection Capacity Analysis

300: Rivers Street & Water Street

1/13/2015



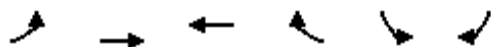
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕	↕	↕	↕	↕
Volume (veh/h)	45	256	220	215	272	38
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	50	284	244	239	302	42
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	244				487	244
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	244				487	244
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				38	94
cM capacity (veh/h)	1319				490	756
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	145	190	244	239	302	42
Volume Left	50	0	0	0	302	0
Volume Right	0	0	0	239	0	42
cSH	1319	1700	1700	1700	490	756
Volume to Capacity	0.04	0.11	0.14	0.14	0.62	0.06
Queue Length 95th (ft)	3	0	0	0	103	4
Control Delay (s)	2.9	0.0	0.0	0.0	23.4	10.0
Lane LOS	A				C	B
Approach Delay (s)	1.3		0.0		21.8	
Approach LOS					C	
Intersection Summary						
Average Delay			6.8			
Intersection Capacity Utilization			48.9%		ICU Level of Service	A
Analysis Period (min)			15			

Communication: Rivers Walk Traffic Impact Analysis (Case 20160136 Riverswalk PD - Zoning Map Amendment)

HCM Unsignalized Intersection Capacity Analysis

300: Rivers Street & Water Street

2/29/2016



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔↗	↗	↗	↗	↗
Traffic Volume (veh/h)	70	281	251	216	272	70
Future Volume (Veh/h)	70	281	251	216	272	70
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	78	312	279	240	302	78
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	279				591	279
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	279				591	279
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	94				27	89
cM capacity (veh/h)	1281				411	718
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	182	208	279	240	302	78
Volume Left	78	0	0	0	302	0
Volume Right	0	0	0	240	0	78
cSH	1281	1700	1700	1700	411	718
Volume to Capacity	0.06	0.12	0.16	0.14	0.73	0.11
Queue Length 95th (ft)	5	0	0	0	145	9
Control Delay (s)	3.7	0.0	0.0	0.0	34.4	10.6
Lane LOS	A				D	B
Approach Delay (s)	1.7		0.0		29.5	
Approach LOS					D	
Intersection Summary						
Average Delay			9.2			
Intersection Capacity Utilization			52.3%		ICU Level of Service	A
Analysis Period (min)			15			

Communication: Rivers Walk Traffic Impact Analysis (Case 20160136 Riverswalk PD - Zoning Map Amendment)



Water Street at Proposed Site Access 1

HCM Unsignalized Intersection Capacity Analysis

400: Water Street & Site Access 1

2/29/2016



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	1	1	145	126	1
Future Volume (Veh/h)	1	1	1	145	126	1
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	1	1	1	161	140	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (ft)					360	
pX, platoon unblocked						
vC, conflicting volume	223	70	141			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	223	70	141			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	745	978	1440			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	2	55	107	93	48	
Volume Left	1	1	0	0	0	
Volume Right	1	0	0	0	1	
cSH	845	1440	1700	1700	1700	
Volume to Capacity	0.00	0.00	0.06	0.05	0.03	
Queue Length 95th (ft)	0	0	0	0	0	
Control Delay (s)	9.3	0.1	0.0	0.0	0.0	
Lane LOS	A	A				
Approach Delay (s)	9.3	0.0		0.0		
Approach LOS	A					
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			14.7%	ICU Level of Service		A
Analysis Period (min)			15			

Communication: Rivers Walk Traffic Impact Analysis (Case 20160136 Riverswalk PD - Zoning Map Amendment)

HCM Unsignalized Intersection Capacity Analysis

400: Water Street & Site Access 1

2/29/2016



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	0	1	286	341	2
Future Volume (Veh/h)	1	0	1	286	341	2
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	1	0	1	318	379	2
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (ft)					360	
pX, platoon unblocked						
vC, conflicting volume	541	190	381			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	541	190	381			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	471	819	1174			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	1	107	212	253	128	
Volume Left	1	1	0	0	0	
Volume Right	0	0	0	0	2	
cSH	471	1174	1700	1700	1700	
Volume to Capacity	0.00	0.00	0.12	0.15	0.08	
Queue Length 95th (ft)	0	0	0	0	0	
Control Delay (s)	12.7	0.1	0.0	0.0	0.0	
Lane LOS	B	A				
Approach Delay (s)	12.7	0.0		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			19.5%	ICU Level of Service		A
Analysis Period (min)			15			

Communication: Rivers Walk Traffic Impact Analysis (Case 20160136 Riverswalk PD - Zoning Map Amendment)

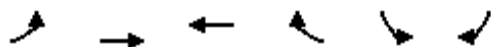


Poplar Grove Road at Proposed Site Access 2

HCM Unsignalized Intersection Capacity Analysis

500: Rivers Street & Site Access 2

2/29/2016



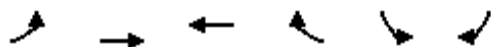
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↰	↰		↰	
Traffic Volume (veh/h)	4	338	111	22	21	4
Future Volume (Veh/h)	4	338	111	22	21	4
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	4	376	123	24	23	4
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	147				519	135
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	147				519	135
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				96	100
cM capacity (veh/h)	1435				516	914
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	380	147	27			
Volume Left	4	0	23			
Volume Right	0	24	4			
cSH	1435	1700	551			
Volume to Capacity	0.00	0.09	0.05			
Queue Length 95th (ft)	0	0	4			
Control Delay (s)	0.1	0.0	11.9			
Lane LOS	A		B			
Approach Delay (s)	0.1	0.0	11.9			
Approach LOS			B			
Intersection Summary						
Average Delay			0.7			
Intersection Capacity Utilization			31.0%	ICU Level of Service		A
Analysis Period (min)			15			

Communication: Rivers Walk Traffic Impact Analysis (Case 20160136 Riverswalk PD - Zoning Map Amendment)

HCM Unsignalized Intersection Capacity Analysis

500: Rivers Street & Site Access 2

2/29/2016



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	7	305	255	39	27	12
Future Volume (Veh/h)	7	305	255	39	27	12
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	8	339	283	43	30	13
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	326				660	304
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	326				660	304
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				93	98
cM capacity (veh/h)	1234				425	735
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	347	326	43			
Volume Left	8	0	30			
Volume Right	0	43	13			
cSH	1234	1700	488			
Volume to Capacity	0.01	0.19	0.09			
Queue Length 95th (ft)	0	0	7			
Control Delay (s)	0.2	0.0	13.1			
Lane LOS	A		B			
Approach Delay (s)	0.2	0.0	13.1			
Approach LOS			B			
Intersection Summary						
Average Delay		0.9				
Intersection Capacity Utilization		31.7%		ICU Level of Service		A
Analysis Period (min)		15				

Communication: Rivers Walk Traffic Impact Analysis (Case 20160136 Riverswalk PD - Zoning Map Amendment)

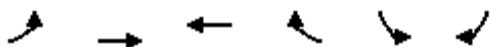


Poplar Grove Road at Proposed Site Access 3

HCM Unsignalized Intersection Capacity Analysis

600: Rivers Street & Site Access 3

2/29/2016



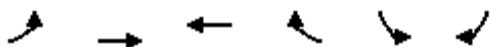
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	4	354	129	22	20	4
Future Volume (Veh/h)	4	354	129	22	20	4
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	4	393	143	24	22	4
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	167				556	155
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	167				556	155
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				96	100
cM capacity (veh/h)	1411				491	891
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	397	167	26			
Volume Left	4	0	22			
Volume Right	0	24	4			
cSH	1411	1700	527			
Volume to Capacity	0.00	0.10	0.05			
Queue Length 95th (ft)	0	0	4			
Control Delay (s)	0.1	0.0	12.2			
Lane LOS	A		B			
Approach Delay (s)	0.1	0.0	12.2			
Approach LOS			B			
Intersection Summary						
Average Delay			0.6			
Intersection Capacity Utilization			31.8%	ICU Level of Service		A
Analysis Period (min)			15			

Communication: Rivers Walk Traffic Impact Analysis (Case 20160136 Riverswalk PD - Zoning Map Amendment)

HCM Unsignalized Intersection Capacity Analysis

600: Rivers Street & Site Access 3

2/29/2016



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	8	324	282	38	26	13
Future Volume (Veh/h)	8	324	282	38	26	13
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	9	360	313	42	29	14
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	355				712	334
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	355				712	334
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				93	98
cM capacity (veh/h)	1204				396	708
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	369	355	43			
Volume Left	9	0	29			
Volume Right	0	42	14			
cSH	1204	1700	462			
Volume to Capacity	0.01	0.21	0.09			
Queue Length 95th (ft)	1	0	8			
Control Delay (s)	0.3	0.0	13.6			
Lane LOS	A		B			
Approach Delay (s)	0.3	0.0	13.6			
Approach LOS			B			
Intersection Summary						
Average Delay			0.9			
Intersection Capacity Utilization			33.5%		ICU Level of Service	
Analysis Period (min)			15		A	

Communication: Rivers Walk Traffic Impact Analysis (Case 20160136 Riverswalk PD - Zoning Map Amendment)



Trip Generation

Trip Generation Summary - Phase 1

Project: 14-076
Alternative: Alternative 1

Open Date: 12/29/2014
Analysis Date: 12/29/2014

ITE	Land Use	Average Daily Trips			AM Peak Hour of Adjacent Street Traffic			PM Peak Hour of Adjacent Street Traffic		
		Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
220	APT 1 380 Persons	627	627	1254	55	55	110	75	75	150
820	CENTERSHOPPING 1 10.27 Gross Leasable Area 1000 SF	774	773	1547	24	15	39	62	68	130
Unadjusted Volume		1401	1400	2801	79	70	149	137	143	280
Internal Capture Trips		0	0	0	2	2	4	24	24	48
Pass-By Trips		0	0	0	0	0	0	19	17	36
Volume Added to Adjacent Streets		1401	1400	2801	77	68	145	94	102	196

Total AM Peak Hour Internal Capture = 3 Percent

Total PM Peak Hour Internal Capture = 17 Percent

Communication: Rivers Walk Traffic Impact Analysis (Case 20160136 Riverswalk PD - Zoning Map Amendment)



Traffic Volume Data

DAVENPORT

305 West 4th Street Suite 2A

Winston Salem, NC 27101

Ph:(336)744-1636

Counted By: Miovision

Weather: Clear

File Name : King at Water

Site Code : 13-070 King @ Wa

Start Date : 11/6/2014

Page No : 1

Groups Printed- Lights - Mediums - Articulated Trucks

	Water Street Southbound					King Street Westbound					Water Street Northbound					King Street Eastbound					
Start Time	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Tot
07:00 AM	0	5	3	0	8	1	44	2	0	47	4	0	2	0	6	0	84	8	0	92	15
07:15 AM	5	6	1	0	12	2	56	1	0	59	5	0	5	0	10	3	116	4	0	123	20
07:30 AM	8	11	6	0	25	3	75	1	0	79	6	8	12	0	26	8	135	12	0	155	28
07:45 AM	7	5	1	0	13	3	78	15	0	96	9	11	15	0	35	6	141	12	0	159	30
Total	20	27	11	0	58	9	253	19	0	281	24	19	34	0	77	17	476	36	0	529	94
08:00 AM	9	5	5	0	19	2	91	9	0	102	12	10	8	0	30	5	138	7	0	150	30
08:15 AM	5	6	1	0	12	5	71	8	0	84	11	4	12	0	27	2	102	14	0	118	24
08:30 AM	9	6	4	0	19	5	77	10	0	92	7	6	3	0	16	4	90	9	0	103	23
08:45 AM	9	7	7	0	23	6	74	7	0	87	4	7	5	0	16	4	98	11	0	113	23
Total	32	24	17	0	73	18	313	34	0	365	34	27	28	0	89	15	428	41	0	484	101
09:00 AM	3	5	2	0	10	4	51	9	0	64	10	7	9	0	26	7	86	16	0	109	20
09:15 AM	8	8	3	0	19	6	60	9	0	75	13	9	4	0	26	3	77	19	0	99	21
09:30 AM	9	16	4	0	29	6	67	8	0	81	15	6	7	0	28	6	58	10	0	74	21
09:45 AM	10	11	6	0	27	5	69	7	0	81	15	4	4	0	23	7	67	15	0	89	22
Total	30	40	15	0	85	21	247	33	0	301	53	26	24	0	103	23	288	60	0	371	86
10:00 AM	9	7	4	0	20	5	63	5	0	73	13	6	6	0	25	6	77	9	0	92	21
10:15 AM	7	3	7	0	17	7	66	4	0	77	10	5	8	0	23	3	67	15	0	85	20
10:30 AM	11	9	9	0	29	6	66	9	0	81	12	9	10	0	31	3	82	14	0	99	24
10:45 AM	14	9	6	0	29	8	64	10	0	82	17	11	15	0	43	9	79	10	0	98	25
Total	41	28	26	0	95	26	259	28	0	313	52	31	39	0	122	21	305	48	0	374	90
11:00 AM	16	6	5	0	27	8	52	6	0	66	14	2	8	0	24	6	84	10	0	100	21
11:15 AM	8	3	7	0	18	6	67	12	0	85	13	3	14	0	30	5	72	7	0	84	21
11:30 AM	9	10	2	0	21	8	93	6	0	107	10	6	16	0	32	3	72	12	0	87	24
11:45 AM	17	10	9	0	36	7	67	14	0	88	11	9	9	0	29	11	90	19	0	120	27
Total	50	29	23	0	102	29	279	38	0	346	48	20	47	0	115	25	318	48	0	391	95
12:00 PM	11	8	10	0	29	8	86	13	0	107	14	20	14	0	48	8	93	14	0	115	29
12:15 PM	20	9	5	0	34	10	102	10	0	122	21	12	14	0	47	4	81	14	0	99	30
12:30 PM	13	14	8	0	35	12	74	13	0	99	21	10	18	0	49	4	66	12	0	82	26
12:45 PM	13	11	7	0	31	12	76	12	0	100	24	9	16	0	49	5	77	7	0	89	26
Total	57	42	30	0	129	42	338	48	0	428	80	51	62	0	193	21	317	47	0	385	113
01:00 PM	11	13	9	0	33	8	65	9	0	82	20	7	9	0	36	3	72	15	0	90	24
01:15 PM	11	13	2	0	26	17	75	10	0	102	24	10	16	0	50	7	77	10	0	94	27
01:30 PM	13	11	10	0	34	7	78	15	0	100	25	9	17	0	51	6	105	14	0	125	31
01:45 PM	13	12	12	0	37	10	92	9	0	111	24	7	17	0	48	8	107	18	0	133	32
Total	48	49	33	0	130	42	310	43	0	395	93	33	59	0	185	24	361	57	0	442	115
02:00 PM	16	9	9	0	34	12	92	18	0	122	18	18	13	0	49	5	97	15	0	117	32
02:15 PM	15	10	8	0	33	11	107	8	0	126	16	13	6	0	35	2	100	17	0	119	31
02:30 PM	9	7	7	0	23	17	55	11	0	83	14	10	10	0	34	4	90	13	0	107	24
02:45 PM	15	3	10	0	28	14	102	12	0	128	30	12	15	0	57	4	92	24	0	120	33
Total	55	29	34	0	118	54	356	49	0	459	78	53	44	0	175	15	379	69	0	463	121
03:00 PM	15	12	11	0	38	8	74	13	0	95	39	9	13	0	61	8	98	15	0	121	31
03:15 PM	17	21	5	0	43	15	82	15	0	112	28	11	17	0	56	4	92	13	0	109	32
03:30 PM	10	12	9	0	31	14	108	15	0	137	34	12	15	0	61	4	69	15	0	88	31
03:45 PM	14	13	11	0	38	12	105	9	0	126	34	15	7	0	56	3	89	16	0	108	32
Total	56	58	36	0	150	49	369	52	0	470	135	47	52	0	234	19	348	59	0	426	128
04:00 PM	9	10	9	0	28	10	126	10	0	146	36	13	10	0	59	10	90	17	0	117	35
04:15 PM	14	12	6	0	32	15	94	4	0	113	38	14	15	0	67	2	88	14	0	104	31
04:30 PM	10	18	7	0	35	15	98	4	0	117	39	6	11	0	56	3	116	16	0	135	34

Communication: Rivers Walk Traffic Impact Analysis (Case 20160136 Riverswalk PD - Zoning Map Amendment)

DAVENPORT

305 West 4th Street Suite 2A

Winston Salem, NC 27101

Ph:(336)744-1636

File Name : King at Water
 Site Code : 13-070 King @ Wa
 Start Date : 11/6/2014
 Page No : 2

Groups Printed- Lights - Mediums - Articulated Trucks

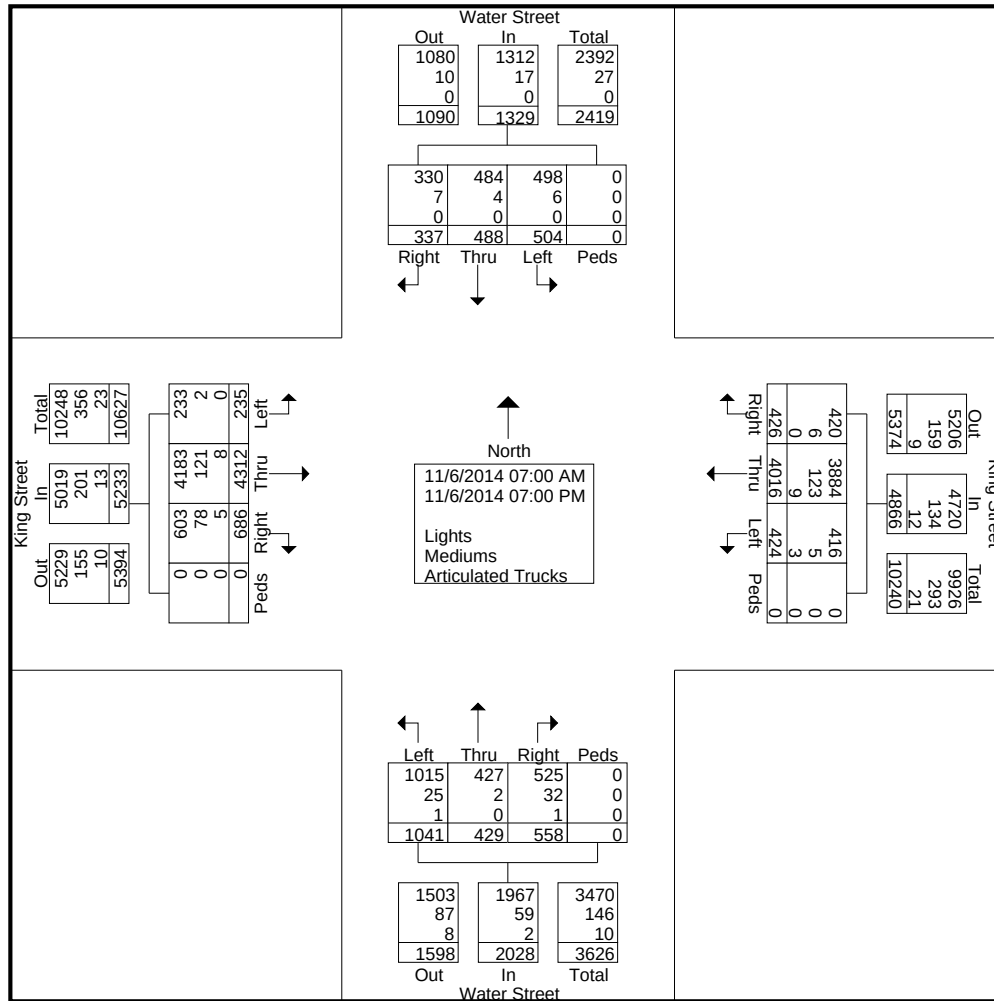
	Water Street Southbound					King Street Westbound					Water Street Northbound					King Street Eastbound					
Start Time		Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Tot
04:45 PM	13	20	15	0	48	15	116	7	0	138	45	10	16	0	71	2	114	22	0	138	39
Total	46	60	37	0	143	55	434	25	0	514	158	43	52	0	253	17	408	69	0	494	140
05:00 PM	13	26	21	0	60	5	130	9	0	144	42	16	15	0	73	9	109	27	0	145	42
05:15 PM	4	18	9	0	31	12	124	9	0	145	64	14	13	0	91	8	88	33	0	129	39
05:30 PM	12	13	10	0	35	9	106	6	0	121	36	11	24	0	71	3	99	21	0	123	35
05:45 PM	14	8	9	0	31	11	112	3	0	126	37	7	15	0	59	1	110	13	0	124	34
Total	43	65	49	0	157	37	472	27	0	536	179	48	67	0	294	21	406	94	0	521	150
06:00 PM	8	12	11	0	31	15	105	11	0	131	26	6	14	0	46	6	71	11	0	88	29
06:15 PM	10	10	3	0	23	11	102	5	0	118	30	6	13	0	49	4	76	19	0	99	28
06:30 PM	6	7	6	0	19	11	87	6	0	104	25	13	15	0	53	3	69	15	0	87	26
06:45 PM	2	8	6	0	16	5	91	8	0	104	26	6	8	0	40	4	62	13	0	79	23
Total	26	37	26	0	89	42	385	30	0	457	107	31	50	0	188	17	278	58	0	353	108
07:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1345
Grand Total	504	488	337	0	1329	424	4016	426	0	4866	1041	429	558	0	2028	235	4312	686	0	5233	
Apprch %	37.9	36.7	25.4	0		8.7	82.5	8.8	0		51.3	21.2	27.5	0		4.5	82.4	13.1	0		
Total %	3.7	3.6	2.5	0	9.9	3.2	29.8	3.2	0	36.2	7.7	3.2	4.1	0	15.1	1.7	32	5.1	0	38.9	
Lights	498	484	330	0	1312	416	3884	420	0	4720	1015	427	525	0	1967	233	4183	603	0	5019	1301
% Lights	98.8	99.2	97.9	0	98.7	98.1	96.7	98.6	0	97	97.5	99.5	94.1	0	97	99.1	97	87.9	0	95.9	96.
Mediums	6	4	7	0	17	5	123	6	0	134	25	2	32	0	59	2	121	78	0	201	41
% Mediums	1.2	0.8	2.1	0	1.3	1.2	3.1	1.4	0	2.8	2.4	0.5	5.7	0	2.9	0.9	2.8	11.4	0	3.8	3.
Articulated Trucks	0	0	0	0	0	3	9	0	0	12	1	0	1	0	2	0	8	5	0	13	2
% Articulated Trucks	0	0	0	0	0	0.7	0.2	0	0	0.2	0.1	0	0.2	0	0.1	0	0.2	0.7	0	0.2	0.

Communication: Rivers Walk Traffic Impact Analysis (Case 201601036 Riverswalk PD - Zoning Map Amendment)

DAVENPORT

305 West 4th Street Suite 2A
Winston Salem, NC 27101
Ph:(336)744-1636

File Name : King at Water
Site Code : 13-070 King @ Wa
Start Date : 11/6/2014
Page No : 3

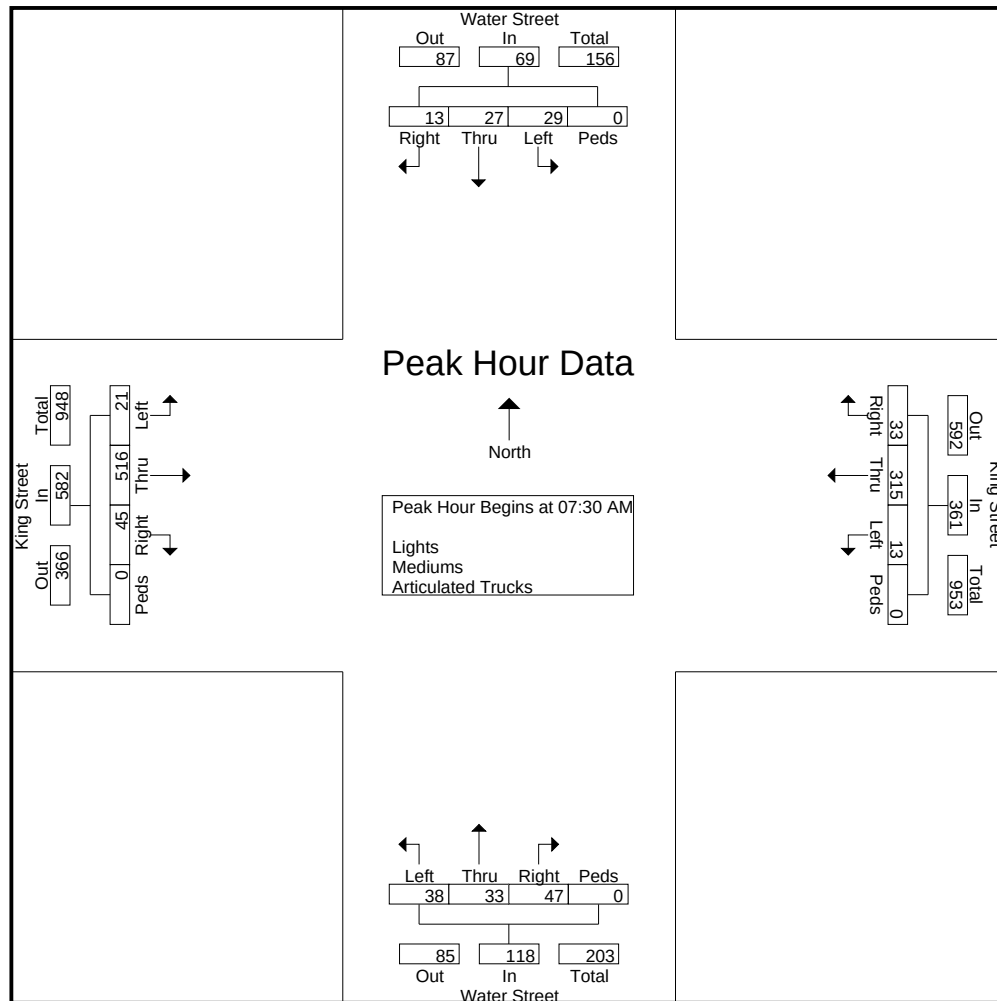


DAVENPORT

305 West 4th Street Suite 2A
Winston Salem, NC 27101
Ph:(336)744-1636

File Name : King at Water
Site Code : 13-070 King @ Wa
Start Date : 11/6/2014
Page No : 4

	Water Street Southbound					King Street Westbound					Water Street Northbound					King Street Eastbound					
Start Time	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Tot
Peak Hour Analysis From 07:00 AM to 09:00 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	8	11	6	0	25	3	75	1	0	79	6	8	12	0	26	8	135	12	0	155	28
07:45 AM	7	5	1	0	13	3	78	15	0	96	9	11	15	0	35	6	141	12	0	159	30
08:00 AM	9	5	5	0	19	2	91	9	0	102	12	10	8	0	30	5	138	7	0	150	30
08:15 AM	5	6	1	0	12	5	71	8	0	84	11	4	12	0	27	2	102	14	0	118	24
Total Volume	29	27	13	0	69	13	315	33	0	361	38	33	47	0	118	21	516	45	0	582	113
% App. Total	42	39.1	18.8	0		3.6	87.3	9.1	0		32.2	28	39.8	0		3.6	88.7	7.7	0		
PHF	.806	.614	.542	.000	.690	.650	.865	.550	.000	.885	.792	.750	.783	.000	.843	.656	.915	.804	.000	.915	.93

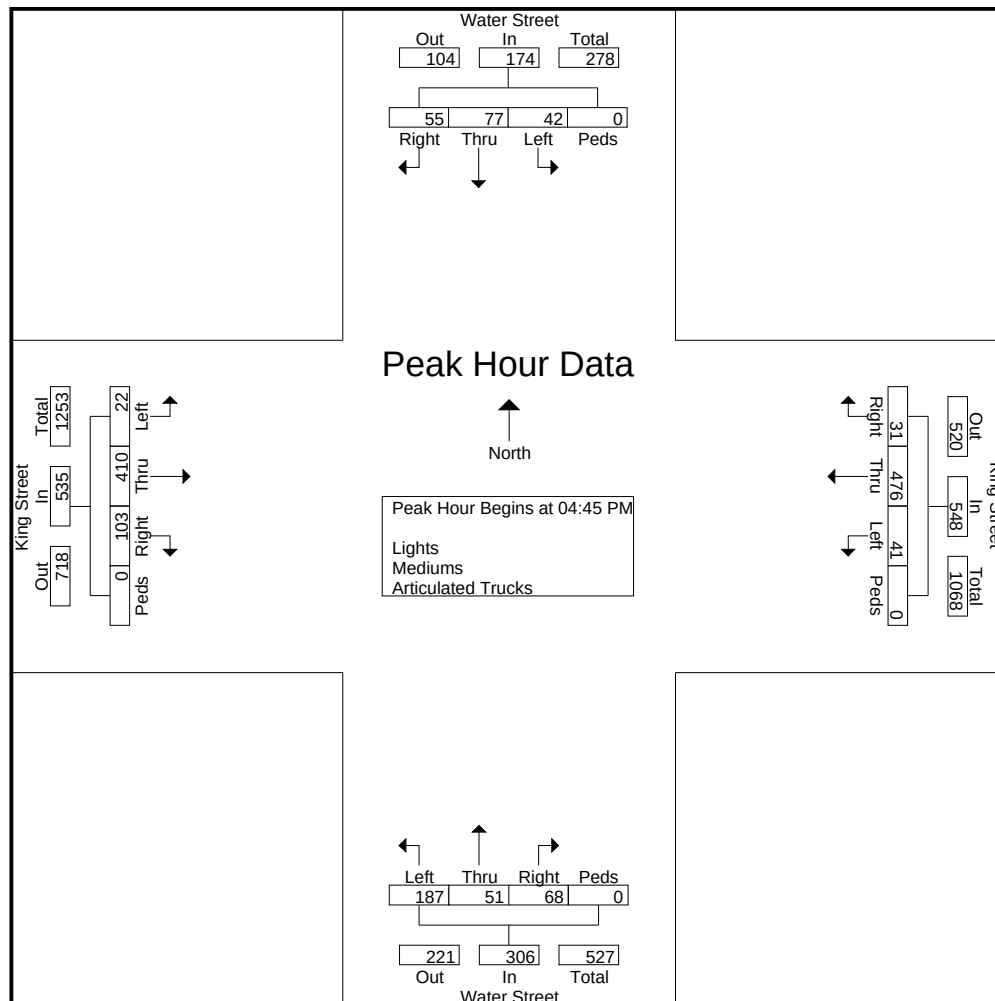


DAVENPORT

305 West 4th Street Suite 2A
Winston Salen, NC 27101
Ph:(336)744-1636

File Name : King at Water
Site Code : 13-070 King @ Wa
Start Date : 11/6/2014
Page No : 5

	Water Street Southbound					King Street Westbound					Water Street Northbound					King Street Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Tot
Peak Hour Analysis From 04:00 PM to 07:00 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	13	20	15	0	48	15	116	7	0	138	45	10	16	0	71	2	114	22	0	138	39
05:00 PM	13	26	21	0	60	5	130	9	0	144	42	16	15	0	73	9	109	27	0	145	42
05:15 PM	4	18	9	0	31	12	124	9	0	145	64	14	13	0	91	8	88	33	0	129	39
05:30 PM	12	13	10	0	35	9	106	6	0	121	36	11	24	0	71	3	99	21	0	123	35
Total Volume	42	77	55	0	174	41	476	31	0	548	187	51	68	0	306	22	410	103	0	535	156
% App. Total	24.1	44.3	31.6	0		7.5	86.9	5.7	0		61.1	16.7	22.2	0		4.1	76.6	19.3	0		
PHF	.808	.740	.655	.000	.725	.683	.915	.861	.000	.945	.730	.797	.708	.000	.841	.611	.899	.780	.000	.922	.92



DAVENPORT

305 West 4th Street Suite 2A

Winston Salen, NC 27101

Ph:(336)744-1636

Counted by: C. Galderise

Weather: Clear

File Name : Howard at Water

Site Code : 00000001

Start Date : 11/6/2014

Page No : 1

Groups Printed- Cars - Bank 1

	Southbound					Westbound					Northbound					Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	0	12	0	2	14	0	0	0	1	1	0	4	0	0	4	1	0	0	1	2	21
07:15 AM	0	15	0	1	16	0	0	1	1	2	0	15	0	0	15	0	0	0	0	0	33
07:30 AM	0	24	1	5	30	0	1	1	1	3	0	21	0	1	22	0	0	2	8	10	65
07:45 AM	0	20	0	4	24	2	0	5	2	9	0	26	0	0	26	1	0	0	9	10	69
Total	0	71	1	12	84	2	1	7	5	15	0	66	0	1	67	2	0	2	18	22	188
08:00 AM	0	14	1	1	16	0	0	1	1	2	1	26	0	0	27	0	0	0	0	0	45
08:15 AM	0	26	0	2	28	3	2	3	1	9	1	26	0	1	28	0	0	2	0	2	67
08:30 AM	0	18	1	3	22	0	1	1	1	3	2	15	0	1	18	0	0	0	4	4	47
08:45 AM	0	29	0	5	34	0	0	2	1	3	3	20	0	0	23	0	0	0	4	4	64
Total	0	87	2	11	100	3	3	7	4	17	7	87	0	2	96	0	0	2	8	10	223
09:00 AM	0	21	0	8	29	1	0	2	4	7	4	25	0	2	31	0	0	0	8	8	75
09:15 AM	0	39	0	6	45	1	1	5	6	13	0	31	0	1	32	0	0	0	5	5	95
09:30 AM	0	26	0	4	30	5	0	6	1	12	0	16	0	1	17	0	0	0	3	3	62
09:45 AM	0	21	1	2	24	1	0	3	1	5	2	12	0	1	15	0	0	0	2	2	46
Total	0	107	1	20	128	8	1	16	12	37	6	84	0	5	95	0	0	0	18	18	278
10:00 AM	0	9	0	2	11	1	1	2	3	7	0	11	0	0	11	0	0	0	5	5	34
10:15 AM	0	25	0	5	30	2	1	4	3	10	2	20	0	2	24	0	0	1	4	5	69
10:30 AM	0	22	0	7	29	2	0	6	4	12	0	14	0	1	15	0	0	0	1	1	57
10:45 AM	0	38	0	4	42	12	0	9	3	24	2	41	0	3	46	2	0	0	2	4	116
Total	0	94	0	18	112	17	2	21	13	53	4	86	0	6	96	2	0	1	12	15	276
11:00 AM	0	18	1	7	26	1	0	5	7	13	1	17	0	2	20	0	0	0	6	6	65
11:15 AM	0	16	0	7	23	0	1	7	12	20	1	17	0	3	21	3	0	1	6	10	74
11:30 AM	0	27	2	3	32	1	1	3	3	8	1	27	0	0	28	1	0	1	3	5	73
11:45 AM	0	38	0	2	40	8	4	12	4	28	0	30	0	0	30	0	0	0	1	1	99
Total	0	99	3	19	121	10	6	27	26	69	3	91	0	5	99	4	0	2	16	22	311
12:00 PM	0	16	0	7	23	2	1	8	2	13	2	22	0	1	25	4	0	4	2	10	71
12:15 PM	0	23	0	4	27	4	0	9	3	16	3	30	0	2	35	0	0	3	1	4	82
12:30 PM	0	27	1	4	32	2	0	13	7	22	1	22	1	0	24	1	0	0	5	6	84
12:45 PM	0	52	0	7	59	3	1	13	9	26	2	51	0	3	56	1	0	2	3	6	147
Total	0	118	1	22	141	11	2	43	21	77	8	125	1	6	140	6	0	9	11	26	384
01:00 PM	0	25	0	7	32	3	0	5	7	15	1	19	0	0	20	1	0	0	8	9	76
01:15 PM	0	25	0	8	33	3	0	5	11	19	1	19	0	0	20	1	0	0	4	5	77
01:30 PM	0	43	0	2	45	7	0	11	8	26	3	38	0	0	41	2	0	1	7	10	122
01:45 PM	0	43	0	1	44	7	0	11	5	23	3	38	0	0	41	2	0	1	3	6	114
Total	0	136	0	18	154	20	0	32	31	83	8	114	0	0	122	6	0	2	22	30	389
02:00 PM	0	21	1	6	28	1	0	3	8	12	1	18	0	2	21	0	0	2	5	7	68
02:15 PM	0	36	0	3	39	2	0	4	7	13	2	25	0	0	27	3	0	2	8	13	92
02:30 PM	0	21	0	4	25	5	0	7	15	27	2	20	0	4	26	0	0	3	5	8	86
02:45 PM	0	27	0	3	30	3	0	11	13	27	2	21	0	2	25	0	0	0	4	4	86
Total	0	105	1	16	122	11	0	25	43	79	7	84	0	8	99	3	0	7	22	32	332
03:00 PM	0	20	3	1	24	3	0	7	9	19	0	28	0	0	28	0	0	1	2	3	74
03:15 PM	0	48	0	0	48	9	0	11	5	25	0	36	0	0	36	2	0	1	2	5	114
03:30 PM	0	34	0	1	35	6	0	6	10	22	1	31	0	0	32	0	0	1	3	4	93
03:45 PM	0	32	0	2	34	6	0	5	6	17	1	52	0	0	53	0	0	6	2	8	112
Total	0	134	3	4	141	24	0	29	30	83	2	147	0	0	149	2	0	9	9	20	393

Communication: Rivers Walk Traffic Impact Analysis (Case 20160136 Riverswalk PD - Zoning Map Amendment)

DAVENPORT

305 West 4th Street Suite 2A

Winston Salen, NC 27101

Ph:(336)744-1636

File Name : Howard at Water

Site Code : 00000001

Start Date : 11/6/2014

Page No : 2

Groups Printed- Cars - Bank 1

	Southbound					Westbound					Northbound					Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
04:00 PM	0	32	0	2	34	4	1	6	9	20	2	42	0	1	45	2	0	0	3	5	104
04:15 PM	0	44	0	6	50	6	0	13	13	32	1	67	0	0	68	1	0	0	1	2	152
04:30 PM	0	43	0	1	44	3	0	13	18	34	1	33	0	1	35	2	0	1	3	6	119
04:45 PM	0	56	1	1	58	11	0	16	10	37	5	47	0	1	53	1	0	4	2	7	155
Total	0	175	1	10	186	24	1	48	50	123	9	189	0	3	201	6	0	5	9	20	530
05:00 PM	0	58	0	3	61	4	0	12	8	24	1	63	0	1	65	0	0	1	5	6	156
05:15 PM	0	52	0	1	53	7	0	18	9	34	3	60	0	0	63	0	0	5	1	6	156
05:30 PM	0	38	0	1	39	6	0	8	5	19	1	49	0	0	50	2	0	5	0	7	115
05:45 PM	0	36	1	1	38	4	0	9	2	15	2	48	0	0	50	0	0	1	1	2	105
Total	0	184	1	6	191	21	0	47	24	92	7	220	0	1	228	2	0	12	7	21	532
06:00 PM	0	16	2	7	25	2	1	3	8	14	1	12	0	2	15	0	0	4	2	6	60
06:15 PM	0	33	0	5	38	11	0	11	10	32	3	43	0	1	47	0	1	3	3	7	124
06:30 PM	0	25	0	1	26	3	0	2	3	8	5	28	0	0	33	1	0	3	0	4	71
06:45 PM	0	33	0	1	34	6	0	12	1	19	2	32	0	0	34	0	0	0	0	0	87
Total	0	107	2	14	123	22	1	28	22	73	11	115	0	3	129	1	1	10	5	17	342
Grand Total	0	1417	16	170	1603	173	17	330	281	801	72	1408	1	40	1521	34	1	61	157	253	4178
Apprch %	0	88.4	1	10.6		21.6	2.1	41.2	35.1		4.7	92.6	0.1	2.6		13.4	0.4	24.1	62.1		
Total %	0	33.9	0.4	4.1	38.4	4.1	0.4	7.9	6.7	19.2	1.7	33.7	0	1	36.4	0.8	0	1.5	3.8	6.1	
Cars	0	1401										1387									
% Cars	0	98.9	100	100	99	98.8	94.1	99.1	100	99.3	100	98.5	100	100	98.6	91.2	100	100	100	98.8	98.9
Bank 1	0	16	0	0	16	2	1	3	0	6	0	21	0	0	21	3	0	0	0	3	46
% Bank 1	0	1.1	0	0	1	1.2	5.9	0.9	0	0.7	0	1.5	0	0	1.4	8.8	0	0	0	1.2	1.1

Communication: Rivers Walk Traffic Impact Analysis (Case 20160136 Riverswalk PD - Zoning Map Amendment)

DAVENPORT

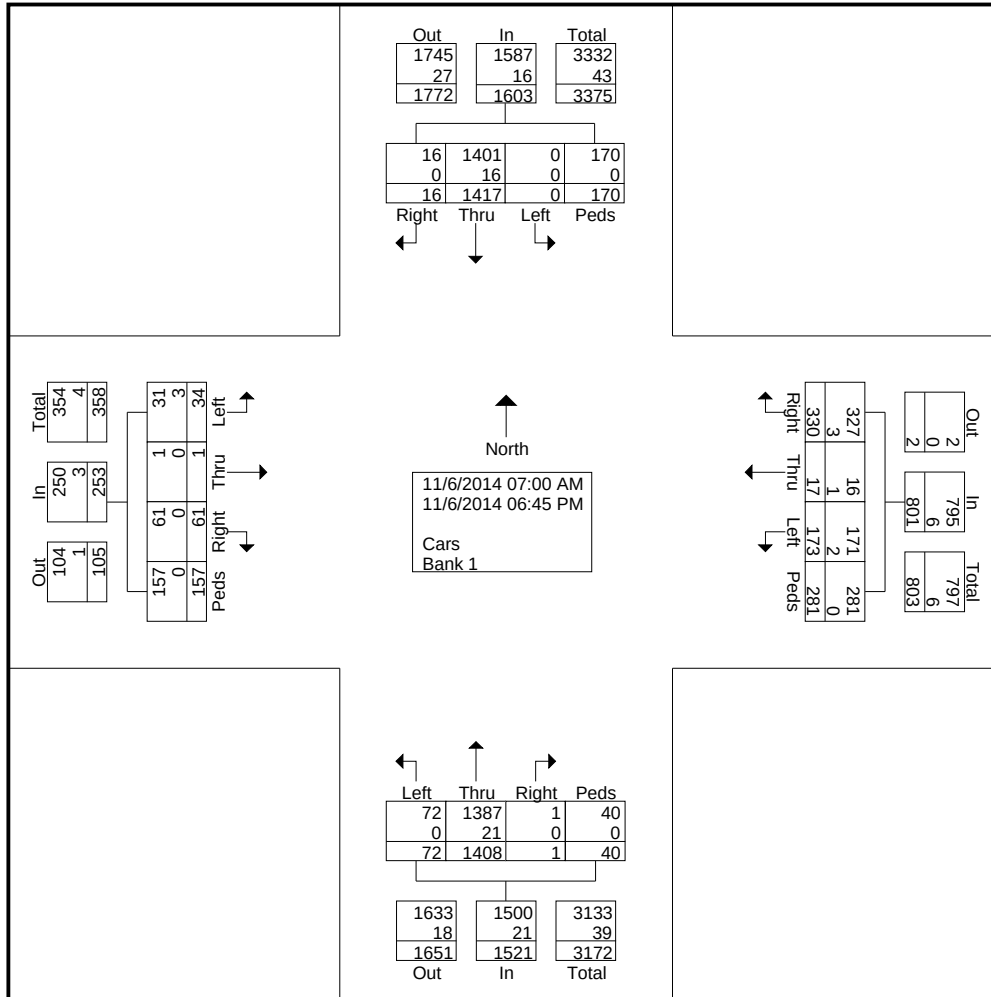
305 West 4th Street Suite 2A
Winston Salen, NC 27101
Ph:(336)744-1636

File Name : Howard at Water

Site Code : 00000001

Start Date : 11/6/2014

Page No : 3



DAVENPORT

305 West 4th Street Suite 2A
Winston Salen, NC 27101
Ph:(336)744-1636

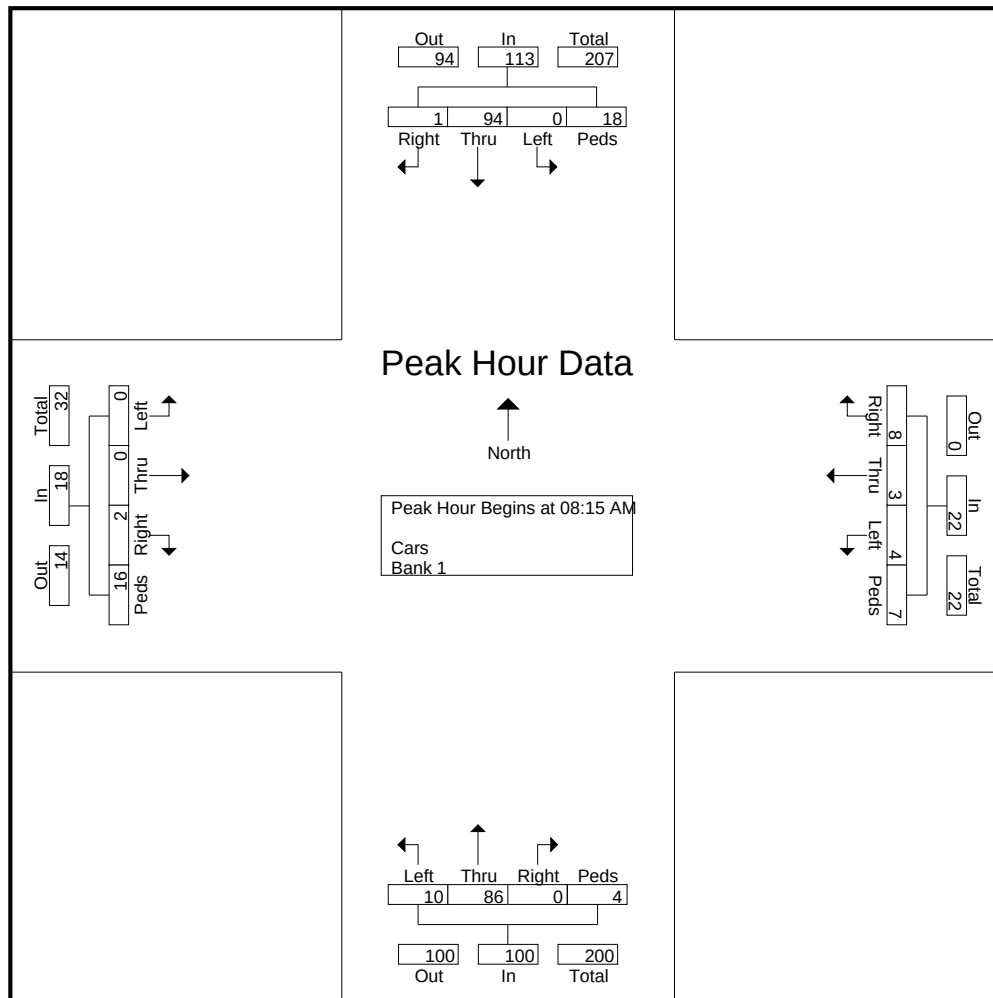
File Name : Howard at Water

Site Code : 00000001

Start Date : 11/6/2014

Page No : 4

	Southbound					Westbound					Northbound					Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:00 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:15 AM																					
08:15 AM	0	26	0	2	28	3	2	3	1	9	1	26	0	1	28	0	0	2	0	2	67
08:30 AM	0	18	1	3	22	0	1	1	1	3	2	15	0	1	18	0	0	0	4	4	47
08:45 AM	0	29	0	5	34	0	0	2	1	3	3	20	0	0	23	0	0	0	4	4	64
09:00 AM	0	21	0	8	29	1	0	2	4	7	4	25	0	2	31	0	0	0	8	8	75
Total Volume	0	94	1	18	113	4	3	8	7	22	10	86	0	4	100	0	0	2	16	18	253
% App. Total	0	83.2	0.9	15.9		18.2	13.6	36.4	31.8		10	86	0	4		0	0	11.1	88.9		
PHF	.000	.810	.250	.563	.831	.333	.375	.667	.438	.611	.625	.827	.000	.500	.806	.000	.000	.250	.500	.563	.843



DAVENPORT

305 West 4th Street Suite 2A
Winston Salen, NC 27101
Ph:(336)744-1636

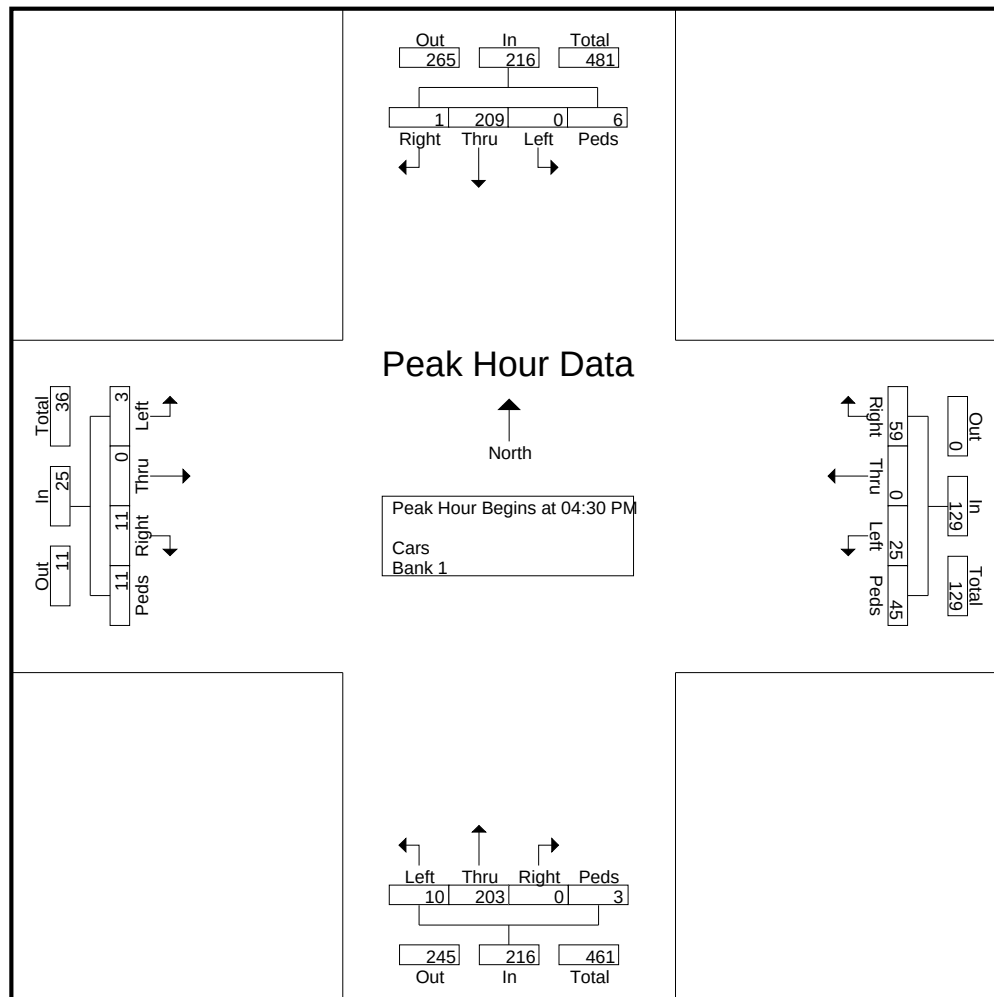
File Name : Howard at Water

Site Code : 00000001

Start Date : 11/6/2014

Page No : 5

	Southbound					Westbound					Northbound					Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 06:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	0	43	0	1	44	3	0	13	18	34	1	33	0	1	35	2	0	1	3	6	119
04:45 PM	0	56	1	1	58	11	0	16	10	37	5	47	0	1	53	1	0	4	2	7	155
05:00 PM	0	58	0	3	61	4	0	12	8	24	1	63	0	1	65	0	0	1	5	6	156
05:15 PM	0	52	0	1	53	7	0	18	9	34	3	60	0	0	63	0	0	5	1	6	156
Total Volume	0	209	1	6	216	25	0	59	45	129	10	203	0	3	216	3	0	11	11	25	586
% App. Total	0	96.8	0.5	2.8		19.4	0	45.7	34.9		4.6	94	0	1.4		12	0	44	44		
PHF	.000	.901	.250	.500	.885	.568	.000	.819	.625	.872	.500	.806	.000	.750	.831	.375	.000	.550	.550	.893	.939



DAVENPORT

305 West 4th Street Suite 2A
Winston Salen, NC 27101
Ph:(336)744-1636

Counted By:
Weather: Clear

File Name : Water at Riv
Site Code : 00000001
Start Date : 11/6/2014
Page No : 1

Groups Printed- Unshifted - Bank 1

	Southbound					Westbound					Northbound					Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. T
07:00 AM	13	0	1	0	14	0	15	8	0	23	0	0	0	0	0	1	32	0	0	33	
07:15 AM	9	0	2	0	11	0	5	7	0	12	0	0	0	0	0	4	40	0	0	44	
07:30 AM	22	0	4	0	26	0	15	6	0	21	0	0	0	0	0	18	60	0	0	78	1
07:45 AM	12	0	4	0	16	0	36	11	3	50	0	0	0	0	0	14	84	0	0	98	1
Total	56	0	11	0	67	0	71	32	3	106	0	0	0	0	0	37	216	0	0	253	4
08:00 AM	16	0	1	0	17	0	12	15	0	27	0	0	0	0	0	9	66	0	0	75	1
08:15 AM	22	0	5	1	28	0	12	9	0	21	0	0	0	1	1	10	46	0	0	56	1
08:30 AM	9	0	4	0	13	0	14	14	0	28	0	0	0	0	0	5	43	0	0	48	
08:45 AM	21	0	3	0	24	0	17	13	2	32	0	0	0	0	0	6	51	0	0	57	1
Total	68	0	13	1	82	0	55	51	2	108	0	0	0	1	1	30	206	0	0	236	4
09:00 AM	14	0	1	0	15	0	15	8	1	24	0	0	0	1	1	0	41	0	0	41	
09:15 AM	20	1	2	3	26	0	23	17	0	40	0	0	0	0	0	7	70	0	0	77	1
09:30 AM	24	0	13	1	38	0	21	16	2	39	0	0	0	0	0	3	46	0	1	50	1
09:45 AM	28	0	2	1	31	0	24	13	0	37	0	0	0	0	0	9	44	0	0	53	1
Total	86	1	18	5	110	0	83	54	3	140	0	0	0	1	1	19	201	0	1	221	4
10:00 AM	23	0	2	0	25	0	17	19	0	36	0	0	0	0	0	7	24	0	0	31	
10:15 AM	16	0	5	1	22	0	13	14	0	27	0	0	0	0	0	5	30	0	0	35	
10:30 AM	27	0	5	3	35	0	23	22	0	45	0	0	0	0	0	5	57	0	0	62	1
10:45 AM	35	0	6	4	45	0	35	26	1	62	0	0	0	0	0	4	43	0	0	47	1
Total	101	0	18	8	127	0	88	81	1	170	0	0	0	0	0	21	154	0	0	175	4
11:00 AM	21	0	4	2	27	0	23	17	0	40	0	0	0	0	0	4	28	0	0	32	
11:15 AM	15	0	2	2	19	0	15	15	0	30	0	0	0	0	0	5	29	0	0	34	
11:30 AM	26	0	5	2	33	0	13	20	0	33	0	0	0	0	0	4	28	0	0	32	
11:45 AM	47	0	4	0	51	0	29	16	4	49	0	0	0	1	1	5	36	0	0	41	1
Total	109	0	15	6	130	0	80	68	4	152	0	0	0	1	1	18	121	0	0	139	4
12:00 PM	34	0	6	2	42	0	25	26	0	51	0	0	0	0	0	8	52	0	1	61	1
12:15 PM	31	0	4	8	43	0	35	31	0	66	0	0	0	0	0	4	50	0	0	54	1
12:30 PM	36	0	5	2	43	0	33	31	1	65	0	0	0	0	0	3	39	0	0	42	1
12:45 PM	29	2	10	2	43	0	22	21	0	43	0	0	0	0	0	10	27	0	0	37	1
Total	130	2	25	14	171	0	115	109	1	225	0	0	0	0	0	25	168	0	1	194	5
01:00 PM	45	0	5	1	51	0	33	17	1	51	0	0	0	1	1	4	25	0	0	29	1
01:15 PM	43	0	8	1	52	0	33	30	0	63	0	0	0	0	0	8	26	0	0	34	1
01:30 PM	38	0	9	1	48	0	32	34	1	67	0	0	0	0	0	6	48	0	0	54	1
01:45 PM	39	0	12	3	54	0	41	30	0	71	0	0	0	0	0	5	47	0	0	52	1
Total	165	0	34	6	205	0	139	111	2	252	0	0	0	1	1	23	146	0	0	169	6
02:00 PM	35	0	6	4	45	0	48	30	0	78	0	0	0	0	0	5	35	0	0	40	1
02:15 PM	34	0	12	5	51	0	40	29	0	69	0	0	0	0	0	5	33	0	0	38	1
02:30 PM	31	0	8	3	42	0	29	23	0	52	0	0	0	0	0	7	35	0	0	42	1
02:45 PM	43	0	6	3	52	0	29	35	0	64	0	0	0	1	1	6	33	0	0	39	1
Total	143	0	32	15	190	0	146	117	0	263	0	0	0	1	1	23	136	0	0	159	6
03:00 PM	33	1	6	1	41	0	30	37	6	73	0	0	0	1	1	7	50	0	0	57	1
03:15 PM	51	0	14	0	65	0	38	42	4	84	0	0	0	0	0	5	44	0	0	49	1
03:30 PM	40	0	13	0	53	0	43	42	2	87	0	0	0	0	0	4	31	0	0	35	1
03:45 PM	43	0	12	1	56	0	43	46	4	93	0	0	0	0	0	8	49	0	1	58	2
Total	167	1	45	2	215	0	154	167	16	337	0	0	0	1	1	24	174	0	1	199	7
04:00 PM	46	0	9	0	55	0	45	45	4	94	0	0	0	0	0	10	25	0	0	35	1
04:15 PM	42	0	11	1	54	0	43	52	2	97	0	0	0	0	0	12	40	0	0	52	2
04:30 PM	39	1	18	2	60	0	42	36	2	80	0	0	0	0	0	0	51	0	0	51	1
04:45 PM	72	0	17	3	92	0	46	40	6	92	0	0	0	0	0	10	49	0	1	60	2
Total	199	1	55	6	261	0	176	173	14	363	0	0	0	0	0	32	165	0	1	198	8

Communication: Rivers Walk Traffic Impact Analysis (Case 20160136 Riverswalk PD - Zoning Map Amendment)

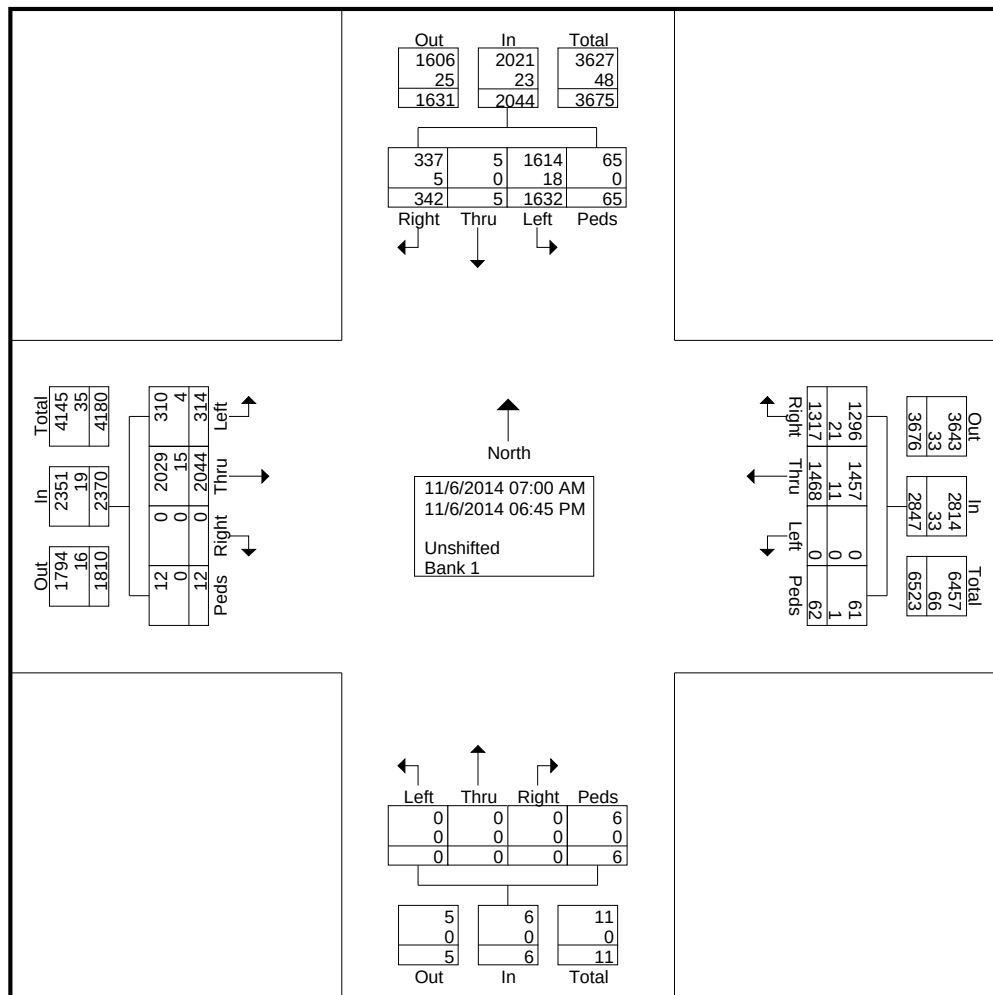
DAVENPORT

305 West 4th Street Suite 2A
Winston Salem, NC 27101
Ph:(336)744-1636

File Name : Water at Riv
Site Code : 00000001
Start Date : 11/6/2014
Page No : 2

Groups Printed- Unshifted - Bank 1

	Southbound					Westbound					Northbound					Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. T
05:00 PM	65	0	15	0	80	0	63	51	1	115	0	0	0	0	0	17	82	0	1	100	2
05:15 PM	74	0	8	2	84	0	55	63	6	124	0	0	0	0	0	9	60	0	1	70	2
05:30 PM	64	0	11	0	75	0	47	53	2	102	0	0	0	0	0	7	55	0	1	63	2
05:45 PM	40	0	11	0	51	0	47	44	2	93	0	0	0	0	0	8	32	0	2	42	1
Total	243	0	45	2	290	0	212	211	11	434	0	0	0	0	0	41	229	0	5	275	9
06:00 PM	41	0	11	0	52	0	43	35	0	78	0	0	0	0	0	3	25	0	1	29	1
06:15 PM	47	0	10	0	57	0	42	41	4	87	0	0	0	0	0	5	35	0	0	40	1
06:30 PM	40	0	5	0	45	0	33	37	1	71	0	0	0	0	0	5	30	0	0	35	1
06:45 PM	37	0	5	0	42	0	31	30	0	61	0	0	0	0	0	8	38	0	2	48	1
Total	165	0	31	0	196	0	149	143	5	297	0	0	0	0	0	21	128	0	3	152	6
Grand Total	1632	5	342	65	2044	0	1468	1317	62	2847	0	0	0	6	6	314	2044	0	12	2370	72
Apprch %	79.8	0.2	16.7	3.2		0	51.6	46.3	2.2		0	0	0	100		13.2	86.2	0	0.5		
Total %	22.5	0.1	4.7	0.9	28.1	0	20.2	18.1	0.9	39.2	0	0	0	0.1	0.1	4.3	28.1	0	0.2	32.6	
Unshifted	1614	5	337	65	2021	0	1457	1296	61	2814	0	0	0	6	6	310	2029	0	12	2351	71
% Unshifted	98.9	100	98.5	100	98.9	0	99.3	98.4	98.4	98.8	0	0	0	100	100	98.7	99.3	0	100	99.2	
Bank 1	18	0	5	0	23	0	11	21	1	33	0	0	0	0	0	4	15	0	0	19	
% Bank 1	1.1	0	1.5	0	1.1	0	0.7	1.6	1.6	1.2	0	0	0	0	0	1.3	0.7	0	0	0.8	



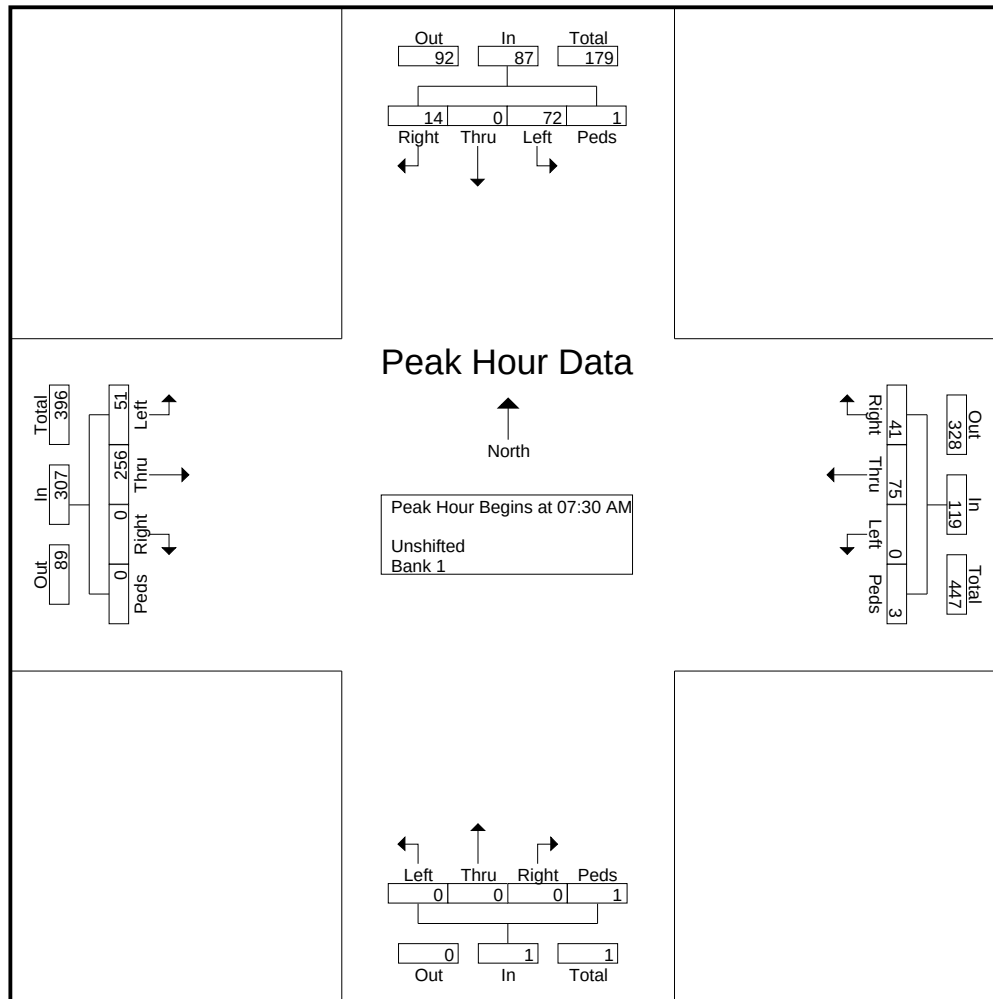
Communication: Rivers Walk Traffic Impact Analysis (Case 201601036 Riverswalk PD - Zoning Map Amendment)

DAVENPORT

305 West 4th Street Suite 2A
Winston Salem, NC 27101
Ph:(336)744-1636

File Name : Water at Riv
Site Code : 00000001
Start Date : 11/6/2014
Page No : 3

	Southbound					Westbound					Northbound					Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. T
Peak Hour Analysis From 07:00 AM to 09:00 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	22	0	4	0	26	0	15	6	0	21	0	0	0	0	0	18	60	0	0	78	1
07:45 AM	12	0	4	0	16	0	36	11	3	50	0	0	0	0	0	14	84	0	0	98	1
08:00 AM	16	0	1	0	17	0	12	15	0	27	0	0	0	0	0	9	66	0	0	75	1
08:15 AM	22	0	5	1	28	0	12	9	0	21	0	0	0	1	1	10	46	0	0	56	1
Total Volume	72	0	14	1	87	0	75	41	3	119	0	0	0	1	1	51	256	0	0	307	5
% App. Total	82.8	0	16.1	1.1		0	63	34.5	2.5		0	0	0	100		16.6	83.4	0	0		
PHF	.818	.000	.700	.250	.777	.000	.521	.683	.250	.595	.000	.000	.000	.250	.250	.708	.762	.000	.000	.783	.7

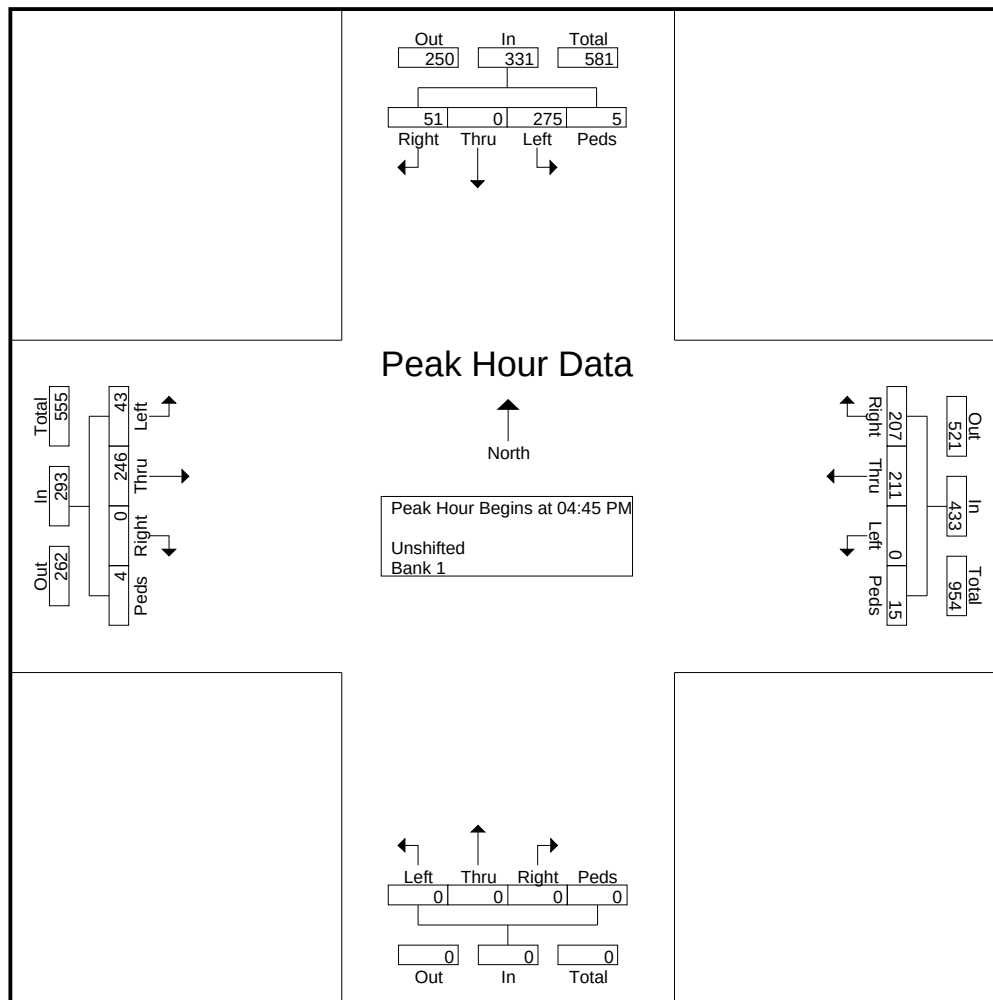


DAVENPORT

305 West 4th Street Suite 2A
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File Name : Water at Riv
Site Code : 00000001
Start Date : 11/6/2014
Page No : 4

	Southbound					Westbound					Northbound					Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. T
Peak Hour Analysis From 04:00 PM to 06:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	72	0	17	3	92	0	46	40	6	92	0	0	0	0	0	10	49	0	1	60	2
05:00 PM	65	0	15	0	80	0	63	51	1	115	0	0	0	0	0	17	82	0	1	100	2
05:15 PM	74	0	8	2	84	0	55	63	6	124	0	0	0	0	0	9	60	0	1	70	2
05:30 PM	64	0	11	0	75	0	47	53	2	102	0	0	0	0	0	7	55	0	1	63	2
Total Volume	275	0	51	5	331	0	211	207	15	433	0	0	0	0	0	43	246	0	4	293	10
% App. Total	83.1	0	15.4	1.5		0	48.7	47.8	3.5		0	0	0	0		14.7	84	0	1.4		
PHF	.929	.000	.750	.417	.899	.000	.837	.821	.625	.873	.000	.000	.000	.000	.000	.632	.750	.000	1.00	.733	.8





Supporting Documentation

Internal Capture: PM Peak Hour of Adjacent Street

LAND USE A RETAIL

ITE Code	Trip Gen'tC	Page	1502	10'x3 s.f.
Size	Trip Gen'tC	Unit	Internal	External
Enter	62	6	56	19
Exit	68	8	60	20
Total	130	14	116	40
%	100%	11%	89%	34%

Enter from External 56
Exit to External 60

Pass-By Trips	%
Enter	19
Exit	20
Total	40

Internal Trips should be removed from the total number of trips generated by the multi-use site before applying the pass-by reduction
Trip Generation Handbook, 2nd Edition, Chapter 7, pg 85

Exit Demand 3% 2
BALANCED 0
Enter Demand 31% 0

Exit Demand 12% 8
BALANCED 8
Enter Demand 31% 28

Enter Demand 2% 1
BALANCED 0
Exit Demand 23% 0

Enter Demand 9% 6
BALANCED 6
Exit Demand 53% 33

LAND USE B OFFICE

ITE Code	Trip Gen'tC	Page	1205	10'x3 s.f.
Size	Trip Gen'tC	Unit	Internal	External
Enter	0	0	0	0
Exit	0	0	0	0
Total	0	0	0	0
%	100%	#DIV/0!	#DIV/0!	#DIV/0!

Enter from External 0
Exit to External 0

Enter Demand 0% 0
BALANCED 0
Exit Demand 2% 0

LAND USE C RESIDENTIAL

ITE Code	Trip Gen'tC	Page	329	10'x3 s.f.
Size	Trip Gen'tC	Unit	Internal	External
Enter	89	8	81	56
Exit	62	6	56	137
Total	151	14	137	91%
%	100%	9%	91%	

Enter from External 81
Exit to External 56

Exit Demand 0% 0
BALANCED 0
Enter Demand 2% 2

NET EXTERNAL TRIPS FOR MULTI-USE DEVELOPMENT

	RETAIL	OFFICE	RESIDENTIAL	TOTAL
Enter	56	0	81	137
Exit	60	0	56	116
Total	116	0	137	254
Single-Use Trip Gen. Estm.	130	0	151	281
				9.8%

TERNAL CAPTURE

Total Internal	14
Enter	14
Exit	14

Enter	118
Exit	96
Total	214

New Roadway System Trips [After Deduction for Pass-By]

Pass-By Trips	
%	30%
Enter	211
Exit	207
Total	418

ITE Code	Trip Gen'l'r	Page
Size	Trip Gen'l'l	Unit
	Total	Internal
Enter	774	70
Exit	774	85
Total	1,547	155
%	100%	10%
		External
		704
		688
		1,392
		90%

Pass-By Trips	
%	30%
Enter	211
Exit	207
Total	418

Internal Trips should be removed from the total number of trips generated by the multi-use site before applying the pass-by reduction

Exit Demand

BALANCED

Enter Demand

Enter Demand

4%	31
----	----

BALANCED

0

Exit Demand

22%	0
-----	---

Diagram illustrating a three-stage game tree for a duopoly:

- Stage 1:** Player 1 chooses between **Enter** (9%, 70) and **Stay Out** (0%, 0).
- Stage 2:** If Player 1 enters, Player 2 chooses between **Fight** (38%, 238) and **Concede** (0%, 0).
- Stage 3:** If Player 2 concedes, Player 1 chooses between **Fight** (0%, 0) and **Concede** (70%, 0).

Exit Demand

11%	85
-----	----

BALANCED

33%	207
-----	-----

Enter Demand

LAND USE B		OFFICE	
ITE Code	Page	120	10/3
Size	Unit	Internal	External
Enter	0	0	0
Exit	0	0	0
Total	0	0	0
%	100%	#DIV/0!	#DIV/0!

Diagram showing two boxes: "Enter Demand" with "0%" and "Exit Demand" with "2%".

BALANCED
0

Exit Demand	0%	0
Enter Demand	3%	19

LAND USE C	RESIDENTIAL		
TITLE Code	rip Gen' Size	Page Unit	327 Persons
	Total	Internal	External
Enter	627	85	542
Exit	627	70	557
Total	1,254	155	1,099
%	100%	12%	88%

NET EXTERNAL TRIPS FOR MULTI-USE DEVELOPMENT		
	RETAIL	RESIDENTIAL
Enter	704	0
Exit	688	0
Total	1,392	1,099
Single-Use Trip Gen. Estm	1,547	0
		1,254

INTERNAL CAPTURE: 11.00%

New Roadway System Trips [After Deduction for Pass-By]

Enter	1,035
Exit	1,039
Total	2 074

Total Internal	
Enter	155
Exit	155

February 26, 2016

Jeff Githens
President
Peak Campus
2970 Clairmont Road NE, Suite 310
Atlanta, GA 30329
O: 404-920-5361
C: 404-964-3677
F: 404-920-5461
jgithens@peakcampus.com

RE: Addendum #2 to Parking Demand Study
River Walk, Boone, NC
(DAVENPORT Project Number 14-076)

Dear Mr. Githens:

The following is an updated addendum to the Parking Demand Study prepared for the River Walk Development dated 5/19/2015. An addendum to the original study was prepared on 1/14/16 to provide additional information. This letter provides an update to reflect the latest site plan for the development.

1.0 Introduction

DAVENPORT was retained to prepare an updated Addendum to the original Parking Demand Study dated May 19, 2015 for the proposed River Walk Development located on the northwest quadrant of Poplar Grove Road and Water Street in Boone. As currently planned, the site will consist of 380 bedrooms (119 units) of which approximately 95% are expected to be students, and 10,266 square feet of retail area.

The purpose of this updated Addendum is to provide and update that reflects the latest site plan for the development.

2.0 Parking Demand

2.1 Requirements per UDO

The Boone UDO addresses mixed-use, multifamily and commercial, land uses in terms of a maximum parking allowed rather than a minimum parking required

2.1.1 Mixed-Use Multifamily Maximum Parking Allowed

The UDO allows 1 space per bedroom for apartments with three or fewer bedrooms and a maximum of three spaces for apartments with larger numbers of bedrooms. Additionally, the UDO allows for a 10% reduction to the minimum parking required, based upon adequate pedestrian access to ASU campus and another 10% reduction based upon adequate access to bus/transit services. Interestingly, the ASU Parking Survey addressed in later sections of this letter, found that 74.1% of students surveyed brought cars to Boone which is consistent with the above and other allowances provided in the UDO.



2.1.2 Commercial Maximum Parking Allowed

The UDO estimates five spaces per 1,000 square feet as the maximum parking that may be allowed for commercial retail and office. For restaurants, 12 spaces per 1,000 square feet is the maximum parking that may be allowed.

2.1.3 Motorcycle Parking Requirement

Per the UDO, one motorcycle parking space is required for every 40 vehicle parking space. With 164 vehicle parking spaces planned for onsite, four motorcycle spaces are required. Six motorcycle spaces are being provided.

2.1.4 Bicycle Parking Requirement

Per the UDO, the combined requirement of short and long term bicycle parking for the intended uses is 39 spaces. Per the developer, a total of 64 parking spaces will be provided onsite.

Per the UDO, the required motor vehicle parking can be reduced for every 5 bicycle spaces in excess of the minimum requirement up to a maximum of 10%. Therefore, since 25 more bicycle spaces are being provided than required, the number of motor vehicle parking spaces required can be reduced by 5 spaces.

2.2 Onsite Shared Cars

Based upon information provided by the developer, there will be two (2) shared cars provided onsite (i.e. Zipcar). Per the research published by shared car programs, each shared car is estimated to replace 15 personally-owned vehicles. Thus, the provision of shared cars onsite for the tenants can further alleviate the need for personally-owned vehicles for residents and parking. For the purposes of this study, the estimated parking demand for the residential portion of the development was adjusted based on the provided shared cars using the research information.

2.3 Commercial Parking Requirement

The original Parking Study dated 5/16/2015 addressed the Commercial Parking for the proposed mixed use development. The results of that study and previous parking studies performed in Boone provided for a commercial mixed use, parking demand of 2 spaces per every 1,000 square feet.



3.0 Motor Vehicle Parking Demand per UDO

Utilizing the measured parking rate for the commercial component of this mixed-use site, and the UDO standard rates for the residential portion, Table 1.0 below shows the projected parking needs for the development.

Table 1.0 – Parking Needed for Proposed Mixed-Use Site			
Residential Use			
Type of Use	Parking Rate ¹	Number of Units	Spaces Allowed
1 bedroom unit	1 space per unit	5	5
2 bedroom unit	2 spaces per unit	39	78
3 bedroom unit	3 spaces per unit	3	9
4 bedroom unit	3 spaces per unit	72	216
Residential Maximum Parking Allowed			308
20% Reduction for Pedestrian/Transit Access			-62
Reduction for Excess Bicycle Parking			-5
Reduction for Shared Cars (2 provided onsite) ²			-30
Residential Parking			211
Commercial Use			
Type of Use	Commercial Retail		
Square Footage	10,266 sq. ft.		
Field-observed parking rate ³	2 spaces per 1,000 sq. ft.		
Commercial Parking	21 spaces		
Site Total			
Total Parking	232 spaces		

¹Rates based on Boone UDO Article 24

²Based on published shared car research that each shared car replaces 15 personally-owned vehicles

³Rate based on field-observed rate

4.0 Parking Supply

Per the site plan, a parking deck will be constructed as part of the Rivers Walk Development with 147 automobile parking spaces. A surface lot will also be provided with an additional 17 spaces. Thus, a total of **164 parking spaces will be provided onsite**. As previously discussed, the total maximum parking allowed for the site is 232 spaces. Since the proposed site will consist of both commercial and residential uses, both short term and long term parking will be needed. Potential short term and long term offsite parking locations are further discussed below.

4.1 Offsite Parking – Short Term

The site is located in downtown Boone, where on-street parking, and public, university, private parking are located within walking distance. An investigation was performed to identify offsite parking areas within 500 feet of the site (per the UDO). Table 2.0 below provides a summary of the available short term parking:

Table 2.0 – Short Term Offsite Parking Inventory				
Name	Location	Number of Spaces (approx.)	Owner	Parking Type
W. King Street on-street parking	Within 500-ft radius of site	46	Public	1-hour, 2-hour
Total		46		



4.2 Offsite Parking – Long Term

The residential component of this development will generate the need for long term (daily) parking. Table 3.0 summarizes available long term parking within 500 feet of the site for residents.

Table 3.0 – Long Term Offsite Parking Inventory				
Name	Location	Number of Spaces (approx.)	Owner	Parking Type
Campus West	S. Water Street, Rivers Street and Howard Street	100	Private	Long Term
Total		100		

4.3 Total Parking Available

Table 4.0 below provides a summary of the parking available for residents and patrons of the River Walk Development. As shown, a total of 310 spaces are available through both onsite and inventoried offsite parking. Figure 3 (attached) summarizes the available parking for both short term and long term parking. In addition to the inventoried parking located within 500 feet of the development, the first of many Appalachian State University parking lots is 650' from the proposed development. There are 6,500 parking spaces available on the ASU campus. To utilize parking spaces on the ASU campus students must pay a parking fee.

Table 4.0 – Available Parking	
Type	Number of Spaces (approx.)
Onsite	164
Offsite – Short Term	46
Offsite – Long Term	100
Total	310

5.0 Demand per Student Parking Survey

Given the specific characteristics of this development, the close proximity to campus, and that 95% of tenants are anticipated to be students, it was determined that more information regarding the specific parking needs for the student tenants would be necessary in order to more accurately estimate the parking demand of the proposed development.

Additional information about the parking and vehicle ownership of ASU students had not previously been published. As such, a student survey was conducted (by others) during the Fall 2015, semester.

5.1 Methodology

The survey (attached) was conducted in order to better understand the potential parking needs of the student tenants of the proposed development. Six students were asked to distribute surveys to fellow classmates. The surveys were conducted in classrooms just prior to scheduled classes, so that distance learning students were not included as a part of the survey results, and so that results were not biased as a result of geographic sampling locations. The sampled group represents 2.5% of the University's reported 16,777 students attending classes on the main campus. The majority of the surveyed students (over 98%) indicated they were full time (FTE) students. Twenty-two of the students surveyed indicated that they lived at home and were deleted from the sample.



The sample is sufficient to be statistically significant. The statistical confidence level of the sample representing the student population is slightly greater than 95%. ⁽¹⁾

The distribution of the 416 students completing the survey was:

1.4%	Graduate Students	6
25.5%	Seniors	106
29.6%	Juniors	123
22.1%	Sophomores	92
21.4%	Freshmen	<u>89</u>
	Subtotal	416
	(Less students living with family)	<u>-22</u>
		394

This group included all classes of students who live both on and off campus. Students who live on campus were included in the results given the close proximity of the proposed development and the expected similar parking needs. The proposed development is located a comparable distance to the library and classrooms as many on-campus, university housing facilities including Appalachian Heights and the Living Learning Center.

An equal number of Type "A" and "B" forms, was completed by students in random classrooms. Forms "A" and "B" were identical except that the order of the "true" and "false" style answers was reversed. The forms contained the following fifteen questions:

- 1 What year student are you?
- 2 Are you considered a Full Time Student?
- 3 Do you live on or off campus?
- 4 Are you a commuting student living at home or with family?
- 5 Do you keep a car available for your use at school?
- 6 Do you drive the car daily?
- 7 Do you normally drive only on weekends?
- 8 Do you routinely walk from your room to classes?
- 9 Do you routinely ride the bus from your room to classes?
- 10 If you have no car, do you use a motor cycle or bike for transportation?
- 11 Do you routinely use the State Farm Parking Complex?
- 12 Are you an international student?
- 13 Do you pay a University Parking Fee for on-campus parking?
- 14 Where do you currently live, (Complex name or address)?
- 15 How much do you pay monthly, semester or annually for parking including University Permits?

5.2 Survey Results

The following responses to the survey questions were:

- a. 163 students (41.4%) live on campus;
- b. 292 students (74.1%) keep a car;
- c. 213 students (54.1%) routinely walk to class from their residence;
- d. 127 students (32.2%) routinely ride the bus to class;
- e. 15 students (3.8%) use a motor cycle or motor bike;
- f. 31 students (7.9%) routinely use the ASU State Farm Parking Complex;
- g. 138 students (35.0%) pay a University Parking Fee excluding metered parking.



Additional information can be found attached.

5.3 Survey Conclusion and Application

The survey results demonstrate that 74% of the surveyed students have a car, and 26% do not. Of all students surveyed, 35% have parking privileges on campus and 39% have cars without existing on-campus parking privileges.

Applying these findings to the proposed development, of the 380 residents planned, 95% or 361 are expected to be students. Using the survey results, 74.1%, or 268, student residents would be expected to have cars, and 35%, or 126, student residents would be expected to have parking privileges on the University campus. Of the 268 students expected to have cars at the proposed development, 142 student residents are anticipated to bring automobiles. And 143 students would be expected to require private, parking contracts. Hence, there would be enough onsite parking to accommodate the anticipated students with one (1) additional parking space left over.

Of the 5% or 19 non-student residents planned to reside at the proposed development, all are anticipated to own cars and require parking contracts.

Total residential parking demand is anticipated to be:

Student Residents Parking	268
Student residents with University parking privileges	<u>-126</u>
Total residents requiring private contract parking	142
Less: available on-premises, resident parking spaces	<u>-143</u>
Students without available on- premises parking	-1
Plus: Young Professional Parking	<u>19</u>
Residents requiring off-premises, private, parking contracts	18

The proposed development provides 164 parking spaces. A minimum of 21 spaces are required for short term commercial parking. The remaining 143 are available for residential contract parking. An anticipated 18 residents (including non-student residents) would need to acquire off-premises, private contracts. These off-premises contract spaces are available on the adjacent parking lot at Water and Rivers Street where the Holton Mountain Rentals, has offered to rent spaces on a first come basis.

6.0 Lease Language

As a final all-inclusive remedy to assuring residents utilize off-street, contract parking, Developer and Management of the proposed development have agreed to require all residents intending to bring automobiles to Boone to execute a mandatory Parking Addendum. The Parking Addendum is a legally binding contract in the Lease between Tenant and Landlord⁽²⁾. The Parking Addendum specifically requires that Tenant provide proof of an off-site, parking contract in the event that Tenant has not leased structured parking in the garage of the proposed development. See the attached for a copy of the Parking Addendum.

(1) Raosoft, Inc.

(2) "494 Lofts", Winkler Organization



7.0 Summary and Conclusion

DAVENPORT was retained to perform a parking demand study for the proposed Rivers Walk Development located on the northwest quadrant of Rivers Street/ Poplar Grove Road and Water Street in Boone, North Carolina. As currently planned, the site will consist of 380 bedrooms (119 units), approximately 95% of tenants are expected to be students, and 10,266 square feet of retail area. The purpose of this study was to determine if adequate parking is available for the development through onsite parking and other available offsite parking.

The projected parking demand for the site is 182 spaces. A total of 164 spaces will be provided onsite, with an additional 146 spaces located within 500 feet of the site. The motorcycle and bicycle parking provided onsite meet and exceed the UDO requirements. Table 5.0 provides a summary.

Table 5.0 – Parking Summary			
Motor Vehicle			
Parking Demand (approx.)		Parking Supply (approx.)	
Commercial	21	Onsite Commercial (Short-Term)	46
Residential	161	Onsite Residential (Long-Term)	138
		Offsite	146
Total	182	Total	330
Motorcycle			
UDO Required Motorcycle Parking	4	Provided Motorcycle Parking	6
Bicycle			
UDO Required Bicycle Parking	39	Provided Bicycle Parking	64

In addition to the estimated parking demand and supply, consideration must be given to the location of this development and the provisions provided onsite to accommodate and encourage tenants without vehicles. The site is located within walking distance of ASU and in Downtown Boone where pedestrian traffic has a large role in the overall traffic. Given that the apartments are anticipated to be comprised of mainly students, these tenants will have the opportunity to be less dependent on vehicles given the convenience to walk or bike to campus, as well as locations downtown.

Accommodations will be provided onsite specifically geared towards tenants without vehicles. Two shared cars will be provided onsite (e.g. Zipcar). Per the research published by shared car programs, each shared car is estimated to replace 15 personally-owned vehicles. A tenant-based ridesharing program will also be offered. This is in addition to the ASU ridesharing program (Zimride) and transit (Appalcart) system.

Finally, language will be included in the lease that specifically states the limited parking onsite and the requirement to provide proof of alternative parking arrangements if the tenant has not leased parking through the development.

Student surveys show that many students already choose not to maintain a personally-owned vehicle while at ASU. Given the ability, ease, and promotion for Rivers Walk tenants not to bring a personally-owned vehicle, and the supporting lease language, it is anticipated that this trend would increase for this site.

In conclusion, based on surveyed and field-measured parking rates, and the site-specific considerations, it is anticipated that sufficient parking is provided at this development.



Page 8
Mr. Githens

2/26/2016
DAVENPORT Project No. 14-076

Please contact me if you have any questions.

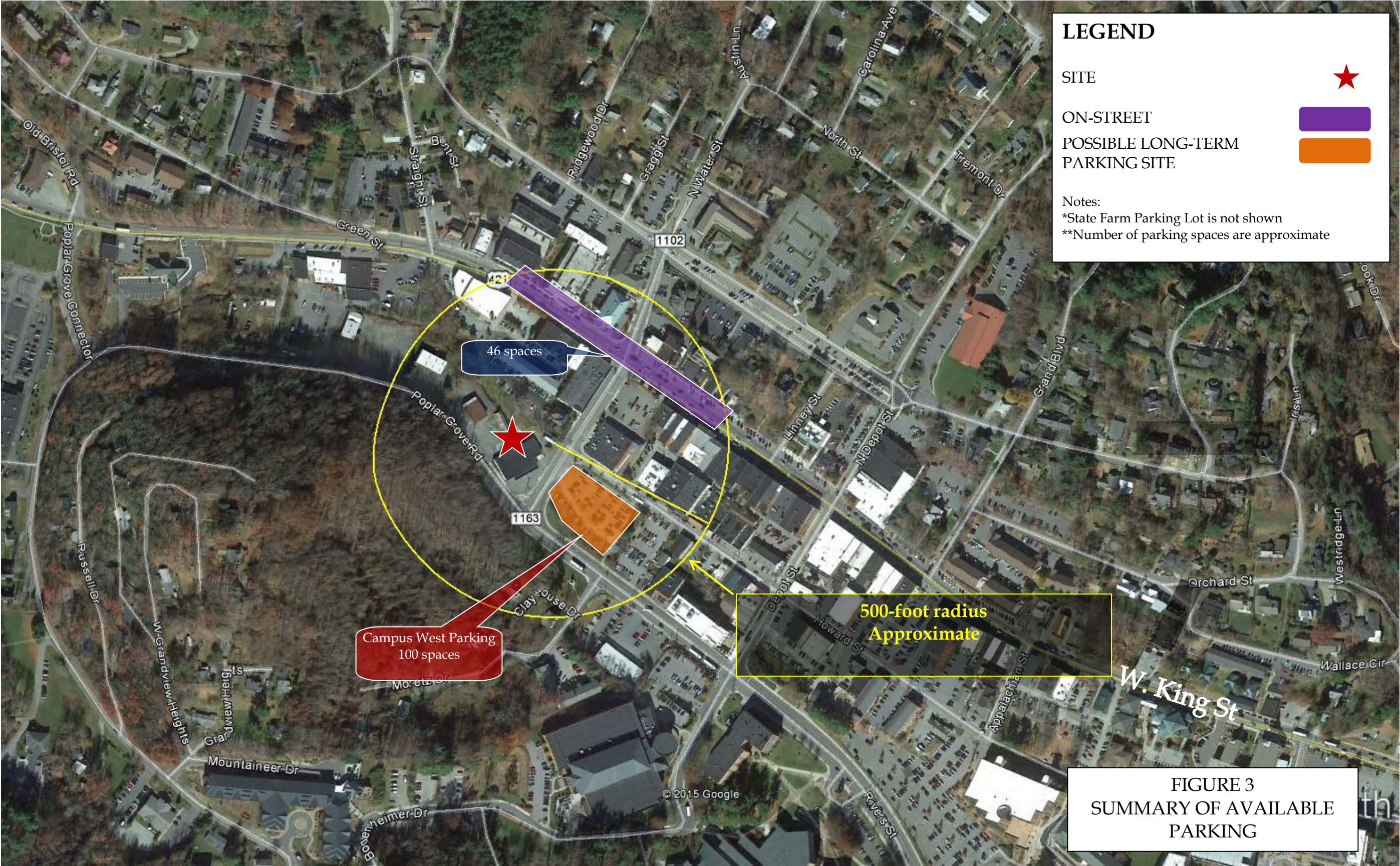
Sincerely,

A handwritten signature in dark ink, appearing to read 'Frank Amenya'.

Frank Amenya, PE, PTOE

Attachments: Figure 3
 Parking Survey
 Parking Calculations
 Rivers Walk Lease - Parking Addendum

Communication: Rivers Walk Parking Study (Case 20160136 Riverswalk PD - Zoning Map Amendment)



STUDENT TRANSPORTATION SURVEY

INSTRUCTIONS

Please circle your answers by choosing the appropriate response or entering your comments in the spaces provided.

1 What year student are you?	Freshman Junior Post Grad	Sophomore Senior
2 Are you considered a Full Time Student?	Yes	No
3 Do you live on or off campus?	On	Off
4 Are you a commuting student living at home or with family?	Yes	No
5 Do you keep a car available for your use at school?	Yes	No
6 Do you drive the car daily?	Yes	No
7 Do you normally drive only on weekends?	Yes	No
8 Do you routinely walk from your room to classes?	Yes	No
9 Do you routinely ride the bus from your room to classes?	Yes	No
10 If you have no car, do you use a motor cycle or bike for transportation?	Yes	No
11 Do you routinely use the State Farm Parking Complex?	Yes	No
12 Are you an international student?	Yes	No
13 Do you pay a University Parking Fee for on-campus parking?	Yes	No
14 Where do you currently live, (Complex name or address)?		
15 How much do you pay monthly, semester or annually for parking including University Permits?		
	Monthly,	\$
	or Semester,	\$
	or Annually	\$

If you have any other comments about transportation or parking, please include below.



Total Parking Demand for Residents of Proposed Development					
Student Residents			Non-Student Residents		Total
Total Residents		380		380	
% of Student Residents		95%	% of Non-Student Residents	5.00%	
Expected Students	361	361	Non-Students	19	
% with Cars		74.10%		100.00%	
			Non-Student Residential Parking	19	19
Students Requiring Parking		268			
% Students having Campus Parking Privileges	35%				
Students with Campus Parking Privileges	126	(126)			
Student Residents without Campus Parking Privileges		142			142
					161
Less On-premises Residential Parking		-143			-143
Students Requiring Off-premises, Non-University Parking		-1			
Total Off-Premises, Non-University Required Parking					18

Individual Residential Rental Contract

RIVERS WALK - Parking Addendum

IN CONSIDERATION of the terms described below and the mutual promises made to each other RIVERS WALK, LLC (Landlord), by and through his/her/its agent (Agent), leases and rents to

_____**(TENANT)**, this ____ day of _____, **2017**.

WITNESSETH: That subject to the terms and conditions set forth by this Residential Rental Contract Parking Addendum, Tenant does hereby acknowledge that limited parking is provided for the Property, "RIVERS WALK" and does hereby agree to provide Landlord proof of Contract Parking arrangements, should Tenant possess a vehicle while residing in the property.

Contract Parking is defined as, but not limited to a parking contract or permit to park at:

Rivers Walk in the Residential Structured Parking Deck;
Holton Mountain Rental parking at Water Street and Rivers Street
Appalachian State University

(Metered Parking is specifically not considered Contract Parking.)

Landlord: **Rivers Walk, LLC.**

By: _____ **(Seal). Date** _____

By: _____ **(Seal) Date:** _____
Management

Tenant: _____

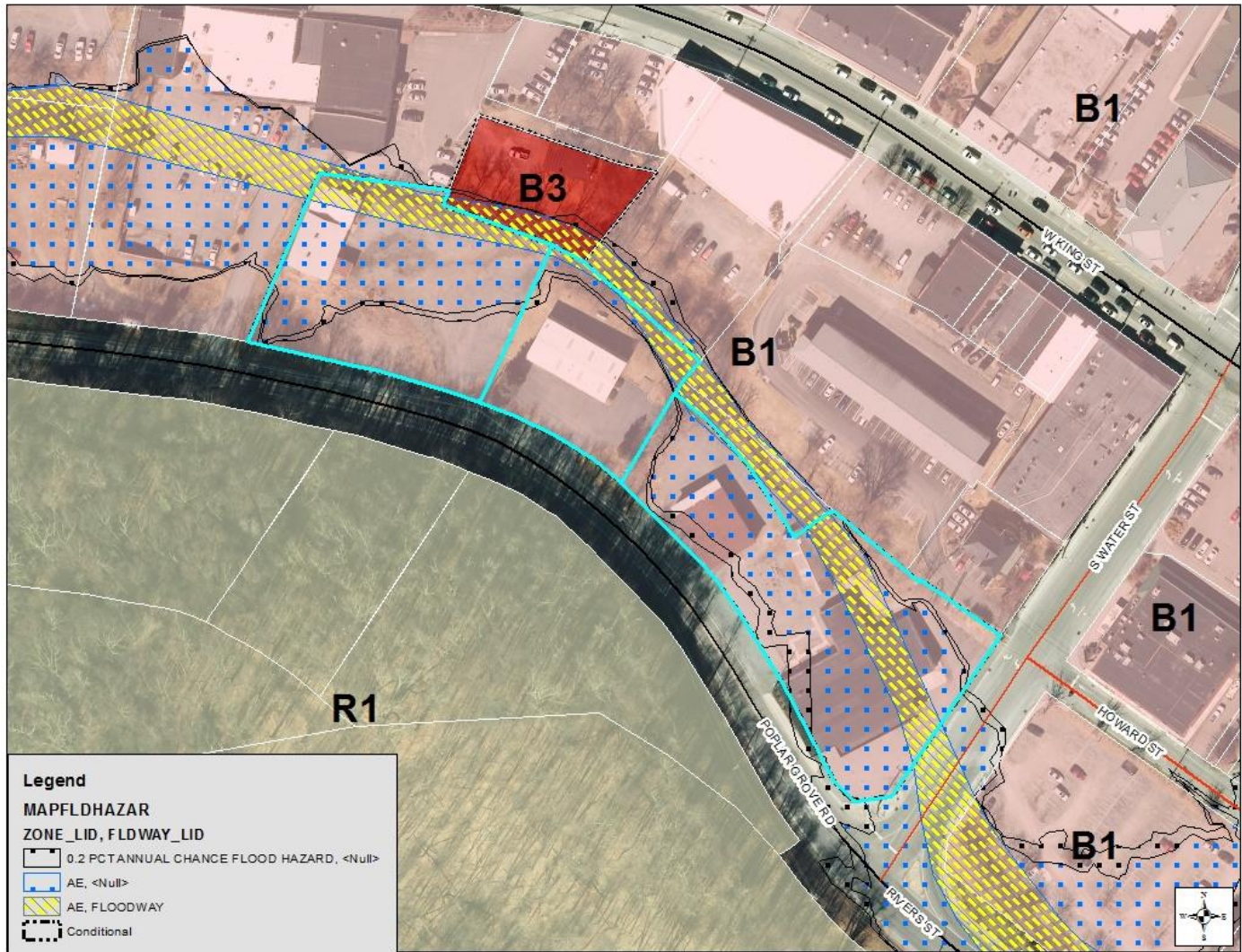
By: _____ **(Seal) Date:** _____
Signature of Tenant

Addendum Printed January 4, 2016

Communication: Rivers Walk Parking Study (Case 20160136 Riverswalk PD - Zoning Map Amendment)



**STAFF REPORT
PUBLIC HEARING
AUGUST 22, 2016
CASE 20160136 RIVERS WALK PLANNED DEVELOPMENT ZONING MAP AMENDMENT**



Request

Glen Weaver has filed a Planning Permit Application for a Planned Development Zoning Map Amendment to rezone 178 South Water Street, 190 and 208 Poplar Grove Road from B1 Central Business to a Planned Development zoning district with a site specific development plan which includes a mixed-use building (residential and commercial uses), including a parking deck. The residential portion contains 151 dwelling units (380 bedrooms); with the following uses proposed for the commercial portion of the building: 11.06 Restaurant $\leq 2,500$ ft² open to the public during 10 pm–6 am, 11.07 Other Restaurants $\leq 2,500$ ft², 11.08 Restaurant $>2,500$ ft² open to the public during 10 pm–6 am, 11.09 Other Restaurants $> 2,500$ ft², 11.12 Personal Service Establishment open to the public during 10 pm–6 am, 11.13 Other Personal Service Establishments, 11.14 Retail Store up to 5,000 ft², 11.15 Retail Store more than 5,000 but less than 25,000 ft², 11.18 Business or Profession Office open to the public during 10 pm – 6 am, 11.19 Other Business or Professional Office, 11.23 Medical Office, Category 4, 12.10 Recreation Facility, Category 1, and 14.02 Brewpub.

8/15/2016 11:00:55 AM

Applicant Information

Applicant Name/Position: Glen Weaver
Applicant Organization: Harrod/AP, LLC
Applicant Address: 6612 Fleetwood Drive, Raleigh, NC 27612
Applicant Contact Phone: (919) 414-0739
Applicant Email: glenn.weaver@frontier.com

Parcel Information

Addresses: 178 South Water Street, 190 & 208 Poplar Grove Road
Watauga County PINs: 2900793318000, 2900790661000, and 2900698658000
Property Owner: G & B Oil Company and Harrod/AP, LLC
Total Lot size: 2.747 acres
Jurisdiction: Corporate limits
Access: Water Street (Town) and Poplar Grove Road (NCDOT)
Topography: Approximate 24' change in elevation from Water Street to the back of the property; Slope generally from SE to NW
SFHA: Yes
Watershed District: No
Corridor District: No
NCD: No
Viewshed: No
Transit Route: Yes. Closest stop within 400'. Staff does not have verification that the applicant has committed with AppalCart to having a stop at this development though 2 AppalCart bus shelters are shown on the plans.
Utilities: Town water and sewer are available.
Current Zoning: CD-B1
Vesting: 2 years
2030 Plan Designations: G-4 Downtown Boone

Zoning & Use of Adjacent Properties		
	Adjacent Zoning	Adjacent Land Use
North	B1 Central Business	Restaurant, Multi-Family, Retail, Auto Garage
East	B1 Central Business	Parking Lot
South	R1 Single Family	Vacant
West	B1 Central Business	Government Facility

History

11-06-2014: Board of Adjustment granted two variances related to this project as outlined below:

1. UDO Subsection 15.11.02(J): The applicant was granted a variance to UDO Subsection 15.11.02(J) to reduce the minimum building footprint from 50% to 40%.

2. UDO Subsection 16.08.05: The applicant was granted a variance to UDO Subsection 16.08.05 to allow the building to exceed the 35' height requirement when the building is within 100' feet of a R1 zoned property.

02-23-2015: Town Council approved with conditions a conditional district zoning map amendment request, vested for 2 years, to rezone the properties at 178 South Water Street and 190 and 208 Poplar Grove Road from B1 Central Business to Conditional District B1 with a site specific development plan for a mixed use project- Rivers Walk. This development included 16,647 square feet of commercial area, 145 apartments with 380 bedrooms, and a parking deck. Uses approved within the commercial area include: 11.06 Restaurant $\leq$ 2,500 ft² open to the public during 10 pm – 6 am, 11.07 Other Restaurants $\leq$ 2,500 ft², 11.08 Restaurant $>$ 2,500 ft² open to the public during 10 pm – 6 am, 11.09 Other Restaurants $>$ 2,500 ft², 11.12 Personal Service Establishment open to the public during 10 pm – 6 am, 11.13 Other Personal Service Establishments, 11.14 Retail Store up to 5,000 ft², 11.15 Retail Store more than 5,000 but less than 25,000 ft², 11.18 Business or Profession Office open to the public during 10 pm – 6 am, 11.19 Other Business or Professional Office, 11.23 Medical Office, Category 4, 12.10 Recreation Facility, Category 1, and 14.02 Brewpub.

Conditions of Approval:

1. Where there is a conflict between the application information and the plans (bearing a received date of January 26, 2014), the plans shall control. Insignificant deviations may be permitted to comply with the requirements of the UDO.
2. Any commitments and representations concerning the proposed project made by the applicant or its (his or her) representatives at the public hearing shall also become a condition of the permit, and a basis for a stop work order and/or permit revocation if violated.
3. Final plans shall be submitted that are in compliance with the provisions of the UDO and other provisions of the Town Code.
4. The Town of Boone will be given the necessary easements for public sidewalks which leave existing street right-of-way.
5. All driveway permits shall be obtained prior to the issuance of a Zoning Permit.
6. Applicant shall demonstrate adequate parking for the development.
7. Applicant shall build the courtyard as demonstrated on the drawing submitted by Bill Dixon on February 9, 2015 at the Planning Commission meeting.
8. The applicant shall provide an easement for 8' minimum greenway along Boone Creek through the development of the property.

04-04-2016: Case 20160136 Rivers Walk Planned Development Zoning Map Amendment was heard during a Special Public Hearing.

04-11-2016: Planning Commission reopened the public hearing to hear additional testimony and to discuss possible conditions with the applicant. After the public hearing was closed the Planning Commission deliberated and ultimately recommended approval of the case with developer approved conditions. Below are the Planning Commission's recommendations:

First motion and vote: Member Long made a motion, seconded by Member Tate that the proposed amendment to the Town's zoning map is consistent with the Towns comprehensive

plan and other applicable plans of the Town which relate to this application because the said plan development is a higher overall quality development than the previously approved conditional district development because the increase in building height makes it a more viable project and allows elevator service to all residents and has less construction impact on Kraut creek, has better storm water management design and proper rooftop screening for mechanical equipment. The commercial space is more attractive and flexible in size and is in a more concentrated location bordering Water Street. It is more likely to be successful as commercial space than the previous commercial space plan. The applicant's willingness to construct the Greenway along the property and Kraut Creek will be a benefit to all the residents of Boone and those visiting the Downtown area. The redistribution of commercial parking to the surface lot allows for more convenient parking for the commercial retail space. In regards to architecture, the applicant is willing to work with the Community Appearance Commission which will result in an architectural design that is harmonious with the Downtown area and based on more community consensus.

Vote: ***Aye – 8 (Catoe, Dineen, Myers, Long, Tate, Templeton, Vincent, Woolridge)***
 Nay – 1 (Simmons)
 The motion passed.

Second Motion and Vote: Chairperson Woolridge made a motion, seconded by Member Long that the Planning Commission recommend approval based on the previously approved plan and the proposed plan because it will create a higher quality development and assure a cohesive design in the Downtown area and the surrounding properties with the following conditions:

1. Where there is a conflict between the application information and the plans (site plans bearing a received date of March 25th and architectural plans bearing a received date of March 28, 2016), the plans shall control. Insignificant deviations may be permitted to comply with the requirements of the UDO.
2. Any commitments and representations concerning the proposed project made by the applicant or its (his or her) representatives at the public hearing shall also become a condition of the permit, and a basis for a stop work order and/or permit revocation if violated.
3. Final plans shall be submitted that are in compliance with the provisions of the UDO and other provisions of the Town Code.
4. The Town of Boone will be given the necessary easements for public sidewalks which leave existing street right-of-way.
5. All driveway permits shall be obtained prior to the issuance of a Zoning Permit.
6. The surface lot in the plan be used for non-employee commercial parking and a minimum of five parking spaces inside the parking deck be dedicated towards commercial parking.
7. The applicant will work with the Community Appearance Commission to develop the final appearance for the building based on the current B-1 zoning standards.
8. The applicant agreed to re-incorporate the clock tower into the building design.

9. The applicant agreed to construct a paved eight-foot wide Greenway to the counties property line.
10. The applicant commitment to construct the greenway and streetscape according to the "Greenway Connection to Howard Street drawing" submitted to the Planning Commission on April 11, 2016.

Vote: **Aye – 8 (Catoe, Dineen, Myers, Long, Tate, Templeton, Vincent, Woolridge)**
 Nay – 1 (Simmons)
 The motion passed.

- 04-21- 2016:** Town Council forwarded Case 20160136 Rivers Walk Planned Development to the May 19, 2016 Town Council meeting in order to reopen the public hearing to hear additional comments.
- 05-19-2016:** The applicant requested that Council continue the public hearing to the June 6, 2016 Special Public Hearing to give the applicant more time to address comments made at the April Town Council meeting. This request was approved.
- 06-06-2016:** Applicant presented revised information at a special public hearing before Town Council.
- 06-16-2016:** The applicant requested that Council continue the case until the July 25th Public Hearing because one of the partners in the project was no longer involved and the remaining original partner would be changing the plan back to his original plan and planned to incorporate new provisos requested by Council. This request was approved with a request that the applicant bring the revised information to the Community Appearance Commission for a courtesy review.
- 07-21-2016:** The applicant requested that Council continue the case until the August 22nd Public Hearing because the applicant did not have sufficient time to appear before the Community Appearance Commission before the July 25th Public Hearing. This request was approved.
- 07-26-2016:** The applicant presented revised information to the Community Appearance Commission, an excerpt from the draft minutes for this meeting are below:

Mr. Tucker Deal, Attorney for the project gave a brief update on what is happening with the project since the previous conditional district approval. Mr. Deal briefly talked about the three proposed changes that were similar to the previous approval but differ in three significant ways. The proposed changes are the commercial space is requested to be co-located closer to Water Street, the parapets are requested in lieu of mechanical screens and the additional potential parking deck entrance is requested from the County's alley.

Mr. Deal said that he and Mr. Weaver are interested in all feedback regarding the improvements that are proposed for this project.

Mr. Deal introduced Mr. Glenn Weaver from Harrod/AP, LLC to the commission members.

Mr. Weaver began his presentation on the project and noted that Mr. Jeff Githens is no longer involved in this project.

Mr. Weaver said there has been no change to the number of bedrooms in the residential area. He noted that he may have figured out a way to increase the number of two-bedrooms or smaller units to 66 percent. He said the commercial square footage increased slightly in the heated

commercial area. He said this square footage might vary, if there is added patio space on the back of the building but the square footage would not be less than in the previous approval.

Mr. Brian Johnson, Urban Design Specialist asked Mr. Weaver to talk about the original elevations for this project for the conditional district approval. Mr. Johnson pointed out that these elevations was not reviewed for zoning approval.

Mr. Weaver handed out a three-page document entitled, Appendix A, Description of Changes to the CDZ approvals for Rivers Walk granted February 23, 2015 (permanently attached). He presented the changes listed in the attached document.

Mr. Weaver pointed out on the elevations presented at this meeting the proposed changes to the uses.

Mr. Weaver talked about the proposed changes to the building materials. He said he has no problem in changing the proposed materials, if needed.

Mr. Weaver talked about the engineered drawings and the different views of what can be seen of the parapets at different elevations.

Mr. Weaver talked about the selling of the apartments as condos, the possibility of the selling the development to the university and the renting of the apartments with or without furniture.

Discussion ensued on the use of a parapet versus the use of screening on the top of the building. Mr. Weaver talked about the clock tower, fake chimneys and the steeple being above the parapets. It was the consensus of the CAC members to prefer a parapet rather than some type of screening.

Mr. Weaver talked about the mechanical equipment and the crash zone requirement for the elevator shaft which is also behind the parapet.

Mr. Weaver noted that the following requested changes in the parking garage spaces are an increase in the auto-parking spaces to 188 spaces from 184, an increase in the motorcycle parking to six spaces from four spaces, a decrease in bicycle spaces from 72 spaces to 68 spaces which is a total of 384 spaces being requested in the PD process.

Mr. Weaver talked about the commercial and residential traffic entering into the building parking lot through the alley way located on the County's property. He noted that this will help with less direct traffic into the building parking lot.

Council Member Collins asked Mr. Weaver, if the developer would think about not leasing the apartments until they know that the development will be ready by 80 percent to get a Certificate of Occupancy. Mr. Weaver talked about his experiences with other development projects. He noted one experience that he had in Atlanta, Georgia where a tree permit was required and it took one year longer to get the final Certificate of Occupancy for the project.

Discussion ensued on the building materials. Mr. Weaver talked about the building materials being limestone or rock on the bottom of the side of the building with red brick above it. Mr. Weaver stated that he proposed using a granite stone on the building in multiple locations. The CAC members were not in favor of the use of hardy board as a building material. Mr. Weaver talked about using plastic or vinyl material for the parapets. It was noted that the CAC members had no opinion on the use of plastic or vinyl on the parapets. It was the consensus of the CAC members to leave the concern of the parapet building materials for the Council's consideration.

Discussion ensued on the design of the building and breaking up the façade. Council Member Mizelle said she felt this topic had been addressed with the recesses of the building.

Council Member Mizelle talked about wanting to protect the Rivers Park.

Council Member Collins noted that she would like to see more brick and granite rock on the building, if possible.

Discussion ensued on the windows of the building, it was noted the windows are designed with a stop on them to keep them from opening all the way. The CAC members discussed that real wood windows would be preferred over vinyl windows.

Motion and Vote:

Chairperson Williams made a motion to recommend the use of parapets on the proposed building, seconded by Council Member Mizelle.

Vote: Aye – All
Nay – None

The vote was unanimous.

Discussion ensued on the different ranges of building heights as it relates to the clock tower. Mr. Weaver pointed out on the map presented at the meeting the different building heights for the clock tower and steeple.

Motion and Vote:

Chairperson Williams made a motion to recommend not allowing the clock tower to exceed 45 feet in height, seconded by Council Member Mizelle.

Vote: Aye – All
Nay – None

The vote was unanimous.

Discussion ensued on the chimney and steeple height as it was presented in this meeting. The CAC members did not have an opinion on the height of the chimney or the steeple exceeding the previously approved building height. It was the consensus of the CAC members to leave this topic for the Council's consideration.

NOTE: The original Rivers Walk development is vested until February 24, 2017 or until the property is rezoned. The developers are requesting a new plan approval through the planned development process recently adopted by Council, which equates to the properties being rezoned.

Impact Analysis

Projected impacts:

1. **Traffic:** This project will bring additional vehicles to the downtown area. The traffic study indicates that an additional 2,801 trips a day will be made from the site. While the traffic study claims no change in level of service based upon the development being completed, the increase in traffic will be noticeable.
2. **Parking:** Based on maximum parking standards in the UDO, the development would be allowed to provide up to 366 residential parking spaces and up to 87 commercial parking spaces for a total of 453 parking spaces. However the applicant is providing 188 parking spaces per plans received on July 21, 2016 (-265). There is a potential to impact nearby parking lots.
3. **Transit:** This project has the potential for negative impact on local transit. Without guarantees that AppalCart can service the development there is a potential for lower the level of service of the transit system. The applicant has not demonstrated that the development is in contract with AppalCart to ensure appropriate service to the development though the traffic study assumes a reduction based upon transit service.

4. Building materials: Since the original approval, Council has amended the UDO (Subsection 25.02.04(B) to include a provision to require the main building façade in the B1 to be comprised of unpainted red or darker brick or natural stone. As proposed the main building façade does not meet this requirement.
5. Scale: Though the scale of the building as compared to the lot is in keeping with the standards of the B1, the scale of this building could potentially dwarf surrounding structures.



Petitioner's Proposal

Proposed Zoning: Rivers Walk Planned Development (Rivers Walk PD)

Comparison Chart		
Standard for B1	CD B1 (Original CD Approval)	PD Rivers Walk
UDO Section 16.08 Building Height Limitations (UDO Subsections 16.08.02 & 16.08.04) Maximum Building Height = 40'	Max Height of 40'	Deviation requested from original approval. Applicant is requesting a deviation to allow screening/parapets to screen the HVAC equipment and to allow the overhead elevator equipment to penetrate the roof line so that elevators can reach all residential levels. See applicant's

Comparison Chart																				
Standard for B1	CD B1 (Original CD Approval)	PD Rivers Walk																		
		summary of changes for varying proposed heights. (up to 62').																		
UDO ARTICLE 15, SUBSECTION 15.11.04(A) Multi-Family in Mixed Use:																				
1. Each project shall provide primary street level commercial land uses (i.e. retail, office, restaurant) of at least fifty percent (50%) of the square footage of the footprint of each building on the primary street level. For developments located on lots which abut more than one public street in the Central Business District, each additional street level floor shall provide commercial uses of at least 30% of that level's square footage. For purposes of this Subsection, the "primary street" shall be determined according to the following order: King Street, Howard Street, Depot Street, all other streets. For example, if a project is located on a lot that abuts both King Street and Howard Street, King Street shall be considered the "primary street" while for a project which abuts Howard Street and Depot Street, Howard Street shall be considered the "primary street" and so on.	Applicant demonstrated compliance with this requirement.	Deviation requested by applicant to relocate commercial space toward the Water Street/Poplar Grove Road intersection. See applicant's summary of changes. Per the applicant's calculation, they are providing a larger amount of commercial space. The applicant is providing 17,480 square feet (original approval contained 16,647 square feet). <table border="1"> <thead> <tr> <th></th><th>Required</th><th>Provided</th></tr> </thead> <tbody> <tr> <td>Bldg. 1.</td><td>100% 1,485 ft²</td><td>100% 1,485 ft²</td></tr> <tr> <td>Bldg. 2</td><td>30% 5,382 ft²</td><td>76% 13,575 ft²</td></tr> <tr> <td>Bldg. 3</td><td>30% 3,060 ft²</td><td>26% 2,690 ft²</td></tr> <tr> <td>Bldg. 4</td><td>30% 8,455 ft²</td><td>0% 0 ft²</td></tr> <tr> <td>Total:</td><td>18,382 ft²</td><td>17,748 ft² Difference of -634 ft²</td></tr> </tbody> </table> Please note that it appears the applicant is using development amenities as commercial space. Please see applicant's summary of changes.		Required	Provided	Bldg. 1.	100% 1,485 ft ²	100% 1,485 ft ²	Bldg. 2	30% 5,382 ft ²	76% 13,575 ft ²	Bldg. 3	30% 3,060 ft ²	26% 2,690 ft ²	Bldg. 4	30% 8,455 ft ²	0% 0 ft ²	Total:	18,382 ft ²	17,748 ft ² Difference of -634 ft ²
	Required	Provided																		
Bldg. 1.	100% 1,485 ft ²	100% 1,485 ft ²																		
Bldg. 2	30% 5,382 ft ²	76% 13,575 ft ²																		
Bldg. 3	30% 3,060 ft ²	26% 2,690 ft ²																		
Bldg. 4	30% 8,455 ft ²	0% 0 ft ²																		
Total:	18,382 ft ²	17,748 ft ² Difference of -634 ft ²																		
2. The entire frontage of the primary street level of the building abutting the street shall provide commercial uses. Required entrances for ingress and egress to secondary uses are permitted along said frontage so long as they are no larger than necessary to meet building code and safety requirements for ingress and egress. Commercial uses on the non-primary street level(s) shall front on the non-primary street.	Applicant demonstrated compliance with this requirement.	In compliance. Water Street is the primary street and commercial uses are providing along the Water Street frontage. In addition the commercial uses along Poplar Grove Road (non-primary street) front on Poplar Grove Road.																		
3. New projects shall be at least two floors above the primary street level.	Applicant demonstrated compliance with this requirement.	In compliance. Applicant has demonstrated compliance with this requirement.																		

Comparison Chart		
Standard for B1	CD B1 (Original CD Approval)	PD Rivers Walk
4. Buildings facades shall be oriented to each public street and shall have a primary entrance door facing each abutting public sidewalk.	Applicant demonstrated compliance with this requirement.	In compliance. Applicant has demonstrated compliance with this requirement.
5. A minimum of 60% of primary public street level facing building facade shall be comprised of transparent, non-reflective windows and 30% of non-primary street level facing building facades shall be comprised of transparent, non-reflective windows.	Applicant demonstrated compliance with this requirement.	Applicant appears to be compliant based upon observation of submitted elevations, though detailed calculations will need to be provided.
6. Surface parking shall be located away from each public street to the extent possible, and if practical, to the rear of the principal building.	Applicant demonstrated compliance with this requirement.	In compliance. Applicant is providing surfacing parking to the side of the building along Water Street.
7. Structured parking is permitted to the rear of the building or below the street level floor.	Applicant demonstrated compliance with this requirement.	In compliance. Applicant is providing the structured parking at the end of the building on Poplar Grove Road.
8. Building facades may be no further than 0'- from the established street setback line, except where necessary to provide landscaped courtyards, plazas, pocket parks, other pedestrian oriented amenities, or when there would be interference with public utilities.	Applicant demonstrated compliance with this requirement.	In compliance. Poplar Grove Road: The applicant is proposing a setback which varies with the right-of-way from 8' to 32'. Within this the right-of-way and the setback area the applicant is providing landscaping, pedestrian walkways along the building and sidewalks along the street. The applicant also has their loading and unloading area.
9. The minimum building footprint shall be 50% of the total gross square feet of the lot.	Applicant received a variance to this requirement which allowed a reduction to the building footprint to 40%.	In compliance due to variance. Applicant is proposing a building footprint of 49%. Please note that the applicant is noting that the building footprint has deviated from the original approval.
10. Pedestrian weather protection such as awnings or canopies are encouraged along the public street but may be placed only in accordance with an encroachment agreement authorized by the Town Council.	Applicant indicated within the original development summary that the development would be in compliance with this requirement.	Per the Applicant's elevations the building is providing canopies. As they are not shown on the site plan, Staff cannot confirm that they will encroach into either of the right-of-ways.
UDO Section 24.01 Parking Spaces Required Multi-Family Parking Spaces= Commercial Spaces (Retail)=	Total of 184 on-site parking spaces, (166 within the parking structure, and 18 in the surface parking lot)	In compliance with maximum parking requirement. Applicant still has the requirement to provide a sufficient number of parking spaces to accommodate the number of vehicles that ordinarily are likely to

Comparison Chart		
Standard for B1	CD B1 (Original CD Approval)	PD Rivers Walk
	*Note as a condition of approval the applicant submitted a parking study analysis which was approved by Mr. Bailey on February 23, 2016	be attracted to the development in question. Total of 188 on-site parking spaces (169 within the parking structure and 19 in the surface parking lot).
UDO Section 24.09 Bicycle Parking Required Short-Term Spaces = 0 Required Long-Term Spaces = 0	15 Short-term provided 37 Long-term provided	In compliance. 12 Short-term provided 56 Long-term provided
UDO Article 25 Community Appearance Standards	Applicant required to meet Article 25.	Deviation requested from original approval. Applicant's proposed elevations have been modified from the original approval as detailed by the applicant. Note: The applicant's elevations deviate from the current Community Appearance Standards which require buildings in the B1 Central Business District to be comprised of unpainted red or darker color brick or natural stone.

TRAFFIC IMPACT ANALYSIS:

Excerpt from Traffic Impact Analysis provided below. Please see the Rivers Walk Traffic Impact Analysis for the full report.

TRAFFIC IMPACT ANALYSIS: The applicant has submitted a Traffic Impact Analysis March 4, 2016 for this project. Below is an excerpt containing pedestrian, bicycle and transit accommodations and the summary and conclusion:

Pedestrian and Bicycle Accommodations

As part of the development of this site, the developer plans to construct the following pedestrian and bicycle accommodations:

- Sidewalks will be constructed along the street frontage of the property: the northeastern side of Poplar Grove Road and along Water Street.
- A sidewalk will be provided adjacent to the commercial/ retail store entrances on site.
- The developer build the greenway trail from the surface lot to the parking deck as depicted on the site plan. This will provide safe and convenient access to the parking deck bike storage areas.
- In order to accommodate bicycling activities to and from the site, there will be 50 covered bicycle spaces inside of the garage and 14 bicycles spaces in the surface lot.

Transit Accommodations

AppalCart provides transit service in the Town of Boone. *AppalCart* currently runs routes (Gold, Pop 105 and Express routes) which provides service in the proximity of the site. There is an existing *AppalCart* stop on King Street and Water Street, which is within 400 feet of the proposed development. Residents in this proposed development will be able to use this transit service to reach their destinations. In addition, a loading lane has been incorporated into the site plan along Poplar Grove Road for buses.

Summary and Conclusion

The proposed River Walk Development is located on the border of Appalachian State University (ASU) and the Central Business District (CBD) along the northwest quadrant of Rivers Street/ Poplar Grove Road and Water Street in Boone, North Carolina. As currently planned, the site will consist of 380 bedrooms of a mix of young professional and student apartment housing and 10,266 square feet of retail area.

The site plan shows three (3) driveways to the site: two which will serve as the access to the proposed parking deck on site, and one driveway on Water Street that will serve as the access to a 17-space parking lot. The majority of tenants at the residential building will park in the parking deck. Hence, this traffic analysis considers the parking deck access on Poplar Grove Road to be the primary access to the site.

The trip generation indicates that based on the current site plan the proposed project is projected to generate a net total of 1,271 trips per day. This is based on 380-bedrooms of a mix of young professional and student apartment housing and 10,266 square feet of retail area.

The analysis indicates that all study intersections will operate at LOS D or better in the future build conditions.

Table B summarizes the recommended improvements for the 2016 future build scenario. Improvements are shown in Figure 9 in the report.

In conclusion, this analysis has been conducted based on NCDOT and Town of Boone guidelines and has determined the potential traffic impacts of this development. With the build-out of the site, the analysis indicates there will be adequate capacity to accommodate future traffic. Note that the site accesses should to be designed according to NCDOT standards as appropriate.

Table 8.0 - Recommended Improvement Summary

Water Street at West King Street	Optimize signal timing
Water Street at Howard Street	No improvements recommended
Water Street at Rivers Street/Poplar Grove Road	No improvements recommended
Water Street at Proposed Site Access 1	No improvements recommended
Poplar Grove Road at Proposed Site Access 2	No improvements recommended
Poplar Grove Road at Proposed Site Access 3	No improvements recommended
Water Street at Existing Driveway	No improvements recommended
Pedestrian and Bicycle Accommodations	- Sidewalks will be constructed along the street frontage of the property: the northeastern side of Poplar Grove Road and along Water Street. - A sidewalk will be provided adjacent to the commercial/retail store entrances on site. - The developer build the greenway trail from the surface lot to the parking deck as depicted on the site plan. This will provide safe and convenient access to the parking deck bike storage areas. - In order to accommodate bicycling activities to and from the site, there will be 50 covered bicycle spaces inside of the garage and 14 bicycle spaces in the surface lot.
Transit Accommodations	There is an existing AppalCart stop on Water Street at West King Street which is within 400 feet of the proposed development. Residents in this proposed development will be able to use this transit service to reach their destinations.

Comments from P & I staff

1. Although the overall impervious area is being reduced, and buffer encroachments already exist, stormwater detention should be considered to mitigate the temperature and sediment impacts of stormwater collected from roofs of new buildings that drain into Boone Creek. NCDENR should be contacted to see if additional permits or approvals are required.
2. The applicant has not demonstrated full compliance with the requirements of UDO Article 25 Community Appearance Standards (as in the original approval). Demonstration of full compliance (materials, features, colors etc.) will be required during zoning compliance review for a Zoning Permit.
3. Staff requests that if approved, that Council seek a condition regarding public transit. Recent feedback from AppalCart has noted that while developments are considering the transit system in their traffic impact studies, no commitments are being made with the transit agency. Without these commitments, AppalCart cannot guarantee service to the development.
4. Staff requests that if approved, that Council seek a condition regarding the greenway easement to include the preparation of the site to the greatest degree possible since the applicant is not proposing to construct the path.

Comments from Other Departments & Outside Agencies

Public Works:

Services Division (Facilities Maintenance Superintendent)

The Public Services Department has reviewed the above referenced plan and has the following comments.

1. Please provide more detail on the type of solid waste container being proposed and show turning movements on plans to demonstrate the collection vehicle can safely service the containers. Also, storage capacity of one-eight cubic yards per bedroom should be satisfied.
2. Sidewalks along any public street shall require the dedication of a permanent easement for public use and maintenance to the Town of Boone. This applies to any sidewalk along Poplar Grove Road that is not within the right-of-way.
3. An encroachment agreement will be needed for storm water pipe #9.
4. Proposed greenway easement leaves applicant's property. Please clarify if adjoining property owners have agreed to an easement to complete the greenway in this area.
5. There is an existing street light at the corner of South Water Street and Poplar Grove Road within the street right-of-way. The applicant will be required to replace this existing infrastructure in the "courtyard" area.

Utilities Division (Utility Services Technician)

1. We will require more water and sanitary sewer information on future utility plans and project notes.

Fire Department (Assistant Fire Chief/Fire Marshal)

Detailed plans meeting all regulations will be required for Zoning and Building Permit reviews.

Compliance with Planned Development Requirements

Applicant's Compliance with Planned Development Requirements	
UDO Subsection	Compliance
UDO Subsection 9.10.03: a PD may be only be proposed for either a development site containing 3 or more acres or a proposed development which includes both commercial and residential uses.	In compliance. The project as contains both commercial and residential uses.
UDO Subsection 9.10.04: The authorization of a PD shall preclude any requirement for obtaining a variance from the Board of Adjustment unless it is a variance to Article 29 Watershed Protection and Article 30 Flood Damage Prevention. Any such variances must be obtained before a public hearing is held on the proposed PD.	In compliance. The applicant has obtain required variances.
UDO Subsection 9.10.05(A)(1): One or more pre-petition consultations with the Administrator, in which the petitioner identifies the development site, its natural features, and the nature of the proposed development.	In compliance. The applicant has had several consultations with Town staff.
UDO Subsection 9.10.05(A): Before submitting the petition, the petitioner must schedule a meeting with owners of property located within 150' of the development site. - The petitioner must provide notice at least 21 days prior to the meeting in accordance with Subsection 1.13.02 herein. - The meeting must be held at an accessible and convenient location in light of available options. - The petitioner must record the names and addresses of all attendees at the meeting. - At the meeting, the petitioner, at a minimum, shall present all the following information: - Contact information of the parties involved in the ownership, design, and development of the property; - The location of the property and general information on the current conditions of the site; - Proposed use(s) and site development; - Any preliminary plans or renderings, if available; and - Any other information deemed pertinent by the Administrator. - The petitioner shall provide the Administrator with a report which details the meeting including any concerns expressed by attendees and any commitments made by the petitioner. This report shall be included in the staff report.	In compliance. Please see applicant's "Harrod LLC/Peak Campus Planned Development Property Owner Meeting" meeting minutes.
UDO Subsection 9.10.05(B)(1): A site specific development plan addressing plan aspects identified in Appendix A, identifying all development specifics which deviate from the standards of this Ordinance.	In compliance. The applicant has submitted a site specific development plan and a separate narrative identifying all development specifics which

	deviate from the standards of this Ordinance. Please see applicant's narrative.
UDO Subsection 9.10.05(B)(2): Written analysis, tailored to specifically address the characteristics of the particular location, addressing how the planned development will effectively and to the greatest degree reasonably possible, mitigate the impacts of the proposed development on the surrounding area, including but not limited to: a. noise impacts; b. light impacts; and c. any other predictable negative effect, including but not limited to: i. negative visual effects; ii. negative traffic effects; and iii. negative health effects.	Yes. Please see applicant's narrative.
UDO Subsection 9.10.05(B)(3): Information to demonstrate compliance with all mandatory requirements of this Ordinance, including: a. Article 5 Subdivisions (for purposes of this Section the Town Council is the approval authority for major subdivision preliminary plats); b. Article 8 Historic Preservation; b. Article 19 Grading; c. Article 20 Soil Erosion and Sediment Control; d. Article 21 Stormwater Management; e. Article 22 Utilities; f. Article 29 Watershed Protection; g. Article 30 Flood Damage Prevention;	In compliance. If approved, additional technical details will be required to determine full compliance with the requirements of these Articles (as applicable).

CONFORMITY TO ADOPTED PLANS

COMPREHENSIVE PLAN UPDATE

[Click here to view the 2006 Comprehensive Plan Update](#)

1.1 Overall Objectives for the Boone Comprehensive Plan (p. 15):

The following objectives, which have not been listed in any particular order of importance, are deliberately broad in scope and less specific than either a policy statement or an implementation action.

Economic Development: Acknowledge the area's natural beauty, university, and medical center presence as the Town's greatest assets for economic development and jobs creation. Treat them accordingly.

Community Appearance and Community Character: Blend the built environment with the natural, scenic, and historic character of a High Country small town. Especially discourage commercial strip development, cluttered signage, and "cheap" apartment buildings.

Open Space: Integrate open space and greenways into the urban fabric of the Town. Preserve the countryside by discouraging suburban sprawl. Avoid development in floodplains, on ridgetops, and on steep slopes.

Environmental Quality: Address and monitor growth factors and activities that contribute to water, air, light, and noise pollution.

Trees: Conserve existing trees and plant new trees, especially hardwoods.

Automobile Transportation: Maximize the efficiency of existing facilities, but not at the expense town and neighborhood character and livability. Build or expand transportation facilities and parking areas as needed, but with care. Work to reduce auto dependency, use, and congestion.

Bikeways: Implement the planned system of bikeways as a legitimate transportation alternative. Unify with greenways and other pedestrian facilities where possible.

Mass Transit: Enhance and support the mass transit system as an effective alternative to the congestion created by the individual automobile.

Pedestrian Movement: Encourage a system of sidewalks, paths, crosswalks and compact development patterns which make it easy to get around Boone on foot.

Infrastructure: Engage in long range planning for water and sewer systems, stormwater runoff, natural gas, and other utility systems. Place overhead utilities underground whenever feasible.

Public Safety: Maintain a high level of policing and fire protection and plan the expansion of public safety services to coincide with projected population increases and identified needs.

Energy and Waste: Reduce waste generation, and the consumption of energy and water. Develop area recycling programs to the fullest. Encourage an anti-litter consciousness among residents and visitors.

University: Emphasize cooperative planning among the Town, County, and University.

Downtown: Support and enhance the cultural and historic significance of downtown Boone, and affirm its appealing, pedestrian orientation.

Recreation: Strive for additional public recreation facilities, especially sports fields, greenways and indoor recreation centers.

Neighborhoods: Ensure the livability of neighborhoods, especially through land use and traffic planning.

Public Involvement: Encourage active public involvement and volunteerism to expand the effectiveness of community planning and action.

1.2 Growth Strategy Map (p. 17): The property is located within Primary Growth Area. The Primary Growth Area is that portion of the urban growth area where urban level of facilities are already in place or can be provided most cost effectively. This is the area where near term growth and development is to be especially encouraged.

Comprehensive Plan Policies: Staff has reviewed land use and comprehensive plan policies, and listed those policies which in staff's opinion have a bearing on the request. The Board should review these policies carefully. Each member may make his or her own interpretation as to the relevance of each and which carry the most weight thereby shaping their overall recommendation.

2.1 THE ECONOMY

2.1.1 Economic Development

- A. *The Town shall protect and enhance a high quality of life, image, cultural amenities, and natural beauty as the most effective, long term component of an economic development strategy. ******
- D. *Economic development efforts shall encourage the revitalization and reuse of currently unused or underutilized structures, sites and infrastructure in appropriately located areas.*
 - D.1 Evaluate development regulations for amendments providing flexibility in the renovation and redevelopment of existing structures and sites.
 - D.2 Urge the resolution of the clean up process of the 482 State Farm Road site so as to render the building suitable for use as soon as possible.
 - D.3 Pursue annually at least one joint public-private venture that will benefit the community at large.
- F. *New firms and expanding businesses that complement the natural resources and beauty of the region shall be especially recruited and encouraged.*

2.1.2 Commercial Development

- B. Commercial and office development shall be encouraged to locate in planned shopping centers, office parks and mixed use developments to stop the proliferation of strip development.
- C. Community/Commercial Centers shall be located adjacent to a major street and contain or be adjacent to other appropriate community facilities.
- D. Automobile Orientated Neighborhood and Convenience Commercial Centers shall be encouraged to locate on a collector street or secondary street at its intersection with a major street.
- F. Commercial uses may be encouraged to develop by consolidation and expansion of existing commercially zoned property, only when such consolidation and expansion does not encroach upon a viable residential area.
- G. Effective buffering and/or landscaping shall be provided where a large scale or automobile-orientated commercial or office use adjoins an existing or planned residential use.
- J. Highway Oriented Commercial uses shall be clustered along segments of major streets and contain land uses which are mutually compatible and reinforcing in use and design. Businesses shall be encouraged to coordinate their site designs with other nearby businesses. Design factors shall include, at a minimum, shared parking and street access, convenient pedestrian and vehicular movement, and consistent sign standards.

2.1.5 Downtown

- A. A compatible design character for the downtown area, drawing upon the locality's original High Country small town features, shall be identified, reinforced and supported to put forth a quality image and sense of place.
- B. The Town, in concert with the downtown property owners and merchants, shall encourage public and private efforts to develop and publicize adequate and appropriately designed off-street parking lots in the downtown area.
- C. A variety of mutually compatible and supportive mixed uses shall be encouraged in the downtown area.
- E. Public and private development decisions in the downtown area shall exhibit a special concern for maintaining the intensive, pedestrian oriented character of the district.

- F. The maintenance and revitalization of downtown Boone, as well as planning for its future development, will reflect the realities and qualities befitting its geographical setting and function as a center of (1) commercial and service activities, (2) educational and cultural activities, events and (3) public services.

2.2 THE INFRASTRUCTURE

2.2.1 Transportation

- I. Driveway cuts along major streets and roads shall be limited to allow these streets to serve primarily as safe traffic movement corridors or, alternatively, to maximize curb frontage for on-street parking.

2.2.2 Utilities

- B. Water and sewer services shall be concentrated within the limits of a geographically defined Urban Growth Area. The Primary Growth Area shall receive first priority for the provision or enhancement of water and sewer services.
- E. The Town shall employ incentives to encourage a concentration of intense urban type development within the Urban Growth Area.

2.2.4 Public Safety

- D. The Town shall place renewed emphasis on enforcement of the state building code and flood prevention regulations to avert or minimize loss of life and property during natural disasters.

2.2.5 Environmental Quality

- C. Development activities in the 100 year floodplain or near lakes or streams shall be carefully controlled. If development must occur, low intensity uses such as open space, recreation and adequately buffered agricultural or forestry activities shall be preferred.
- E. Development which preserves the natural features of the site, including existing topography, streams and significant trees and vegetation, shall be reflected in the Town's Development Standards.

2.3 THE COMMUNITY

- A. Urban type development within the Urban Growth Area shall meet appropriate Town standards.
- B. Properly planned, mixed use developments that promote efficient provision of public services shall be encouraged within the Urban Growth Area.

2.3.2 Community Character

- E. New development, redevelopment and rehabilitation of structures and sites shall occur in a manner which is consistent with the neighborhood and architectural context of the immediate area, and supportive, whenever possible, of Boone's original community character as a High Country small town.

2.3.3 Housing and Neighborhoods

- A. The protection and rehabilitation of viable neighborhoods shall be encouraged to insure their continued existence as a major housing source and as a reflection of the area's image as an attractive, highly livable community.
- C. Proposed residential development which would expose residents to harmful effects of incompatible development or to environmental hazards shall be prohibited.

- D. Innovative and flexible land planning and development practices shall be encouraged to create livable developments which better safeguard land, water, energy and historic resources.
- E. Factors in determining preferred locations for high density residential development shall include: close proximity to the university, employment or shopping centers; access to major thoroughfares and the transit system; the availability of public services and facilities; and compatibility with adjacent land uses.
- G. Compact, full service neighborhoods, offering opportunities for living, working, shopping, and gathering places, shall be encouraged in newly planned developments, as well as for redeveloping areas.

BOONE 2030 LAND USE PLAN

[Click here to view the Boone 2030 Land Use Plan](#)

The 2030 Land Use Plan works together with the Town's Comprehensive Plan and other plans and programs to provide for the Town's long range growth. The Land Use Plan is a three-dimensional framework for the comprehensive plan and serves as the basis for all the facility and service needs of the Town. The Land Use Plan serves as the guiding vision and policy basis for determining the appropriateness of any development or redevelopment that is proposed for the Town's planning jurisdiction.

These properties are located within the G-4 Downtown Boone sector and are also located in a Regional Center.



The G-4 sector is comprised of areas with existing development, with a relatively dense street grid, and which are appropriate for redevelopment or additional development. These areas are shown in the purple color on the Framework Map. This includes the historic downtown and the King Street corridor as far east as Hardin Street.

This area is, in large respect, appropriate for redevelopment and new infill development and well served with infrastructure (roads, utilities, etc.), and access to services and amenities. Because this area is already well provided for in terms of urban services, it is one of the most efficient and most attractive area for redevelopment of underutilized land or development of vacant parcels. It is also one of the best areas for development in terms of minimizing new environmental impacts to natural areas since the area has been built upon since Boone's founding. In-depth discussion of concepts for downtown development, redevelopment and infill neighborhood development is included in the Downtown Boone section of the Land Use Plan. In general, however, the following development types and uses are appropriate in the G-4 sector, continuing in the historic pattern of mixed-use downtown development in Boone. Appropriate land uses/development types include: single-family and multi-family residential, commercial uses (retail and office), mixed-use development, civic uses, light industrial uses

Regional Centers are mixed-use activity centers with employment and commercial uses that attract people from beyond the immediate neighborhoods and from surrounding communities. These centers are appropriate for commercial and employment development as well as the area's highest density housing. The area of these centers is based on a 1/2 mile radius (a typical 10-minute walk)—the larger black circles on the map. Regional centers are envisioned for downtown Boone and the historic university core; around the hospital and the current high school site; and at the intersection of US 321 and NC 105; and around the intersection of US321 and Shadowline Drive. These centers will provide the highest concentrations of residential and employment in the Plan area.

REASONABLE BASIS FOR APPROVAL

To establish "reasonable basis" the permit issuing authority must balance several factors, including the size of the tract, the compatibility of the rezoning with the comprehensive plan and other applicable adopted plans, the benefits and detriments resulting from the rezoning to the petitioner landowner, neighbors and the surrounding community, and the relationship between the proposed uses and the uses currently allowed in adjacent tracts.

The proposed rezoning encompasses approximately 2.7 acres in the downtown area. Surrounding land uses include apartments, restaurants, retail businesses, offices, town-owned park and single-family dwelling units. This proposed rezoning is consistent with and supported by several plan objectives and policies in the comprehensive plan and Boone 2030 Plan as noted above.

Based on the foregoing analysis, this rezoning petition is/is not a reasonable request.

Certification of Notification by Mail

I, Marlene Crosby, certify that individual notices meeting the requirements of Article 9, Subsection 9.03.03(B)(2) of the Town of Boone UDO were placed in the mail (first class) on August 3, 2016.

Marlene Crosby, Administrative Support Specialist

Certification of Posting

I, Bill Bailey, certify that the subject property was posted as required in Article 9, Subsection 9.03.03(B)(2) of the Town of Boone UDO on August 8, 2016.

Bill Bailey, Planning Director

Staff Analysis and Recommendations

This project is located in the downtown area, near Appalachian State University and adjacent to Boone Creek and the recommended West Downtown Alive multi-use trail.

If Council approves the request, Staff recommends the following conditions:

1. Where there is a conflict between the application information and the plans (site plans and architectural plans bearing a received dates _____), the plans shall control. Insignificant deviations may be permitted to comply with the requirements of the UDO.
2. Any commitments and representations concerning the proposed project made by the applicant or its (his or her) representatives at the public hearing shall also become a condition of the permit, and a basis for a stop work order and/or permit revocation if violated.
3. Final plans shall be submitted that are in compliance with the provisions of the UDO and other provisions of the Town Code.
4. All driveway permits shall be obtained prior to the issuance of a Zoning Permit.
5. The applicant will be required to satisfy all NCDOT requirements prior to the issuance of a Zoning Permit.
6. The applicant shall dedicate a greenway easement to the Town of Boone as shown. During construction of the development, the applicant shall prepare the site for the installation of the greenway.
7. The applicant shall contract with AppalCart to provide service to the development.

Planned Development Procedural Information

Per UDO Subsection 14.05.01(B):

A PD creates a sui generis (unique) zoning district not limited to the authorized uses and the development standards of a specific existing zoning district and may be subjected to conditions that make the development plan more desirable. A PD is intended to permit the establishment of areas in which diverse uses may be combined and integrated through careful planning to provide a unified and compatible development which is consistent with adopted plans, and which may reasonably be expected to result in a quality of living environment which is more closely in keeping with the purposes of zoning than would otherwise likely be obtained. It is not the intent of the Town Council that the PD district become a “loophole” designed to permit otherwise illegal contract, conditional or spot zoning, or clandestine institution of an unlawful use variance. Rather the PD district is intended to permit further refinement and more detailed expression of adopted plans in situations where the owners of the property present a development plan which is found to be in the public interest and consistent with adopted plans.

1. A PD should only be approved upon the following findings:
 - a. That the proposed PD will produce a development of equal or higher quality than otherwise required by the strict application of district regulations that would otherwise govern;
 - b. That the proposed PD will encourage innovative arrangement of buildings and open spaces to provide efficient, attractive, flexible, and environmentally sensitive design;
 - c. That the proposed PD will produce a development functioning as a cohesive, unified project; and
 - d. That the proposed PD will not substantially injure or damage the use, value, and enjoyment of surrounding property nor hinder or prevent the development of surrounding property in accordance with the adopted plans and policies of the Town.

PLANNING BOARD REPORT

Per NCGS 160A-387, all proposed amendments to the zoning ordinance or zoning map shall have a written report provided from the Planning Board to the Town Council within 30 days of referral of the amendment to the Planning Board, or the Town Council may proceed in its consideration of the amendment without the Planning Board report. Furthermore, in no case is the Town Council bound by the recommendations, if any, of the Planning Board.

Per NCGS 160A-383, the Planning Board shall advise and comment on whether the proposed zoning amendment is consistent with all applicable officially adopted plans, and provide a written recommendation to the Town Council that addresses plan consistency and other matters as deemed appropriate by the Planning Board, but a comment by the Planning Board that a proposed amendment is inconsistent with the officially adopted plans shall not preclude consideration or approval of the proposed amendment by the Town Council.

First motion and vote: The proposed Amendment to the Town’s zoning map ☐is OR ☐is not consistent with the Town’s comprehensive plan and other applicable adopted plans of the Town which relate to this application because:

Second Motion and Vote: The Planning Commission recommends ☐approval OR ☐denial for the following reasons:

TOWN COUNCIL ACTION

Per NCGS 160A-383, zoning regulations shall be made in accordance with a comprehensive plan. Prior to adopting or rejecting any zoning amendment, the governing board shall adopt a statement describing whether its action is consistent with an adopted comprehensive plan and explaining why the board considers the action taken to be reasonable and in the public interest.

First motion and vote: The proposed amendment to the Town's zoning map ☐is OR ☐is not consistent with the Town's Comprehensive plan and other applicable adopted plans of the Town which relate to this application because:

Second Motion and Vote: I move to ☐approve OR ☐deny the proposed amendment to the Town's zoning map and believe ☐ approval OR ☐denial is reasonable and in the public interest because:
