

Project Narrative Cashiers Marketplace Jackson County, NC

Initial submittal: July 10, 2023

Applicant:

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Landworks Project Number: 0202221

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Revised 12/29/2023 to eliminate Drip
Fields & Phasing
Revised 2/07/24 Wastewater Provisions

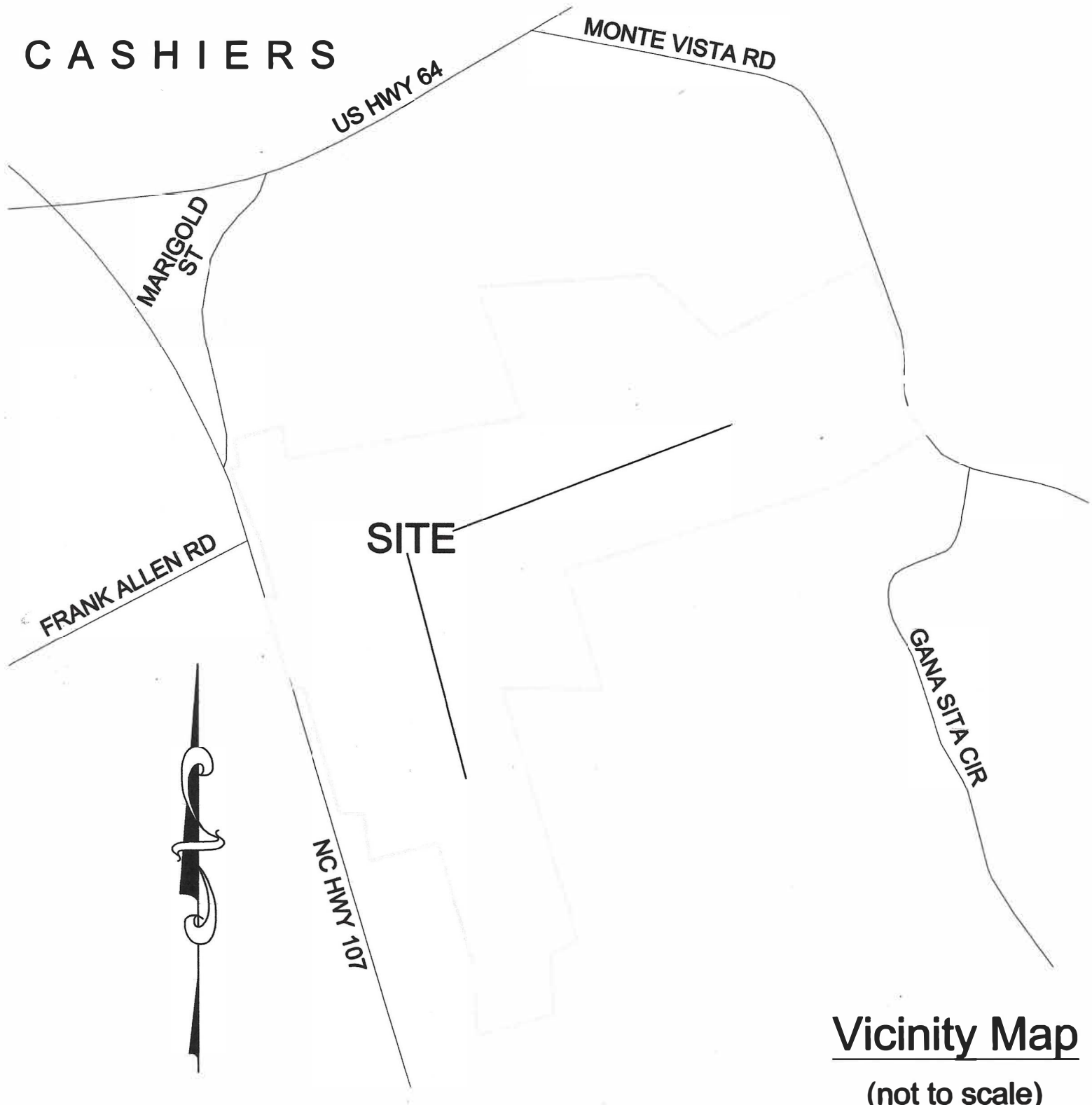
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(SUBMITTED UNDER SEPARATE COVER)

- Phase 2 – (Buildout) Conceptual/Schematic Full Plan Set
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 - Section Location Plan and Site Photo – S1
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CASHIERS



Vicinity Map

(not to scale)

Project Development Scope

Cashiers Marketplace is a proposed mixed use (Commercial Retail, Hotel, and Residential) development planned on a 30.73 Acre parcel identified by PIN 7572-40-9584 located at 179 Hwy 107 S (NC107). The Site currently has split zoning with both Cashiers Commercial Village or Village Center (VC) District and Cashiers Commercial General or General Commercial (GC) District. The proposed Development Plan requires plan submittal for entitlement consideration under the Special Use permitting process per the *Jackson County Unified Development Ordinance* as part of the Cashiers Commercial Area.

Existing Site Conditions

Currently the 30.73 Acre site has one 4,800 +/- SF commercial building and two existing residential structures present with associated driveways and gravel parking areas. The site is currently predominantly wooded ~ 90 % with a grass meadow areas clustered around the existing development in the gentler terrain in the northwest property corner along NC107.

Wooded steep upland slopes containing a mix of deciduous and white pine trees are present above the existing developed site. The site contains a number of navigable dirt timber roadways and spurs that traverse through the property up to the site ridge and then wind down through the property to connect with Monte Vista Road (SR1116) a NCDOT Public Roadway. The site average slope as calculated in accordance with Jackson County regulations computes to 23% (4.35' H to 1' V) and is moderately steep.

Drainage Watersheds

The site ridge defines the break between two drainage basins and bisects the property. Drainage Basin (1) one flows to the west and the Chattooga River (CL. B, Tr., ORW) watershed and totals 19.56 Acres. This site drainage basin exits the site in an overland flow to the north and west discharging toward NC107 and SR 1115 (Marigold Street). There were no drainage culverts observed along the frontage of the project with NC 107 crossing under the roadway toward Lake Cashiers

Drainage Basin two (2) drains overland to the north and east and ultimately the Horsepasture River (CL. C, Tr.) watershed and totals 11.16 Acres. Portions of Drainage Basin 2 currently flows overland onto the neighboring Cashiers East Village property to the north or to the west into the SR 1116 ditch section along Monte Vista Road.

Waters and Wetlands of the US

The Jackson County GIS indicates the possibility of two small stream seeps on previously cleared, graded and developed portions of the site totaling ~ 3 acres in the northwest corner above NC107. Site inspections did not reveal the presence of any wetlands or waters of the US present on the site.

Site Soils

An investigation of the Site Soils indicates that the site consists of predominantly Edneyville-Chestnut complex soils, EdD 15 to 30 percent slopes, and EdE, 30 to 50 percent slopes. General Characteristics of this soil are:

Drainage class: Well drained

General texture class: Loamy

Permeability: Moderately rapid

Available water capacity: Edneyville—moderate; Chestnut—low

Depth to seasonal high-water table: More than 6.0 feet

Hazard of flooding: None

Shrink-swell potential: None.

Slope class: Moderately steep

Soil slippage potential: None

Extent of erosion: Slight, less than 25 percent of the original surface layer has been removed.

Rock fragments on the surface: Widely scattered surface stones and cobbles that average about 3 to 24 inches in diameter and 25 to 75 feet apart

Edneyville soils are in hydrological group "A" with low runoff potential. Chestnut soils are in hydrological group "B" with moderate runoff potential.

Proposed Site Development

The proposed site plan includes four retail buildings along NC 107 with a mix of retail, three restaurants and offices. In addition, a 110-room hotel, with meeting rooms, a full-service restaurant, a spa/fitness facility and 30 hotel operated residential site cabins are proposed. To reduce land impacts, hotel parking will be primarily valet parked in the garage level under the hotel. The proposed site plan was crafted to take advantage of the more buildable areas and accessible areas on the site while preserving trees and vegetation in areas with steeper slopes areas or adjacent to neighboring property. The plan was developed with an environmental bent to limit disturbed areas and create open space in sensitive areas. The Plan provides approximately 13.83 Acres or over 45 % of the site as dedicated open space.

The proposed development plan includes approximately 4,560 lf. of new roads, 2250 lf. of trails, and 6,280 lf. of sidewalks. The Built Upon Area (BUA) totals 9.93 Acres at buildout. The total disturbed area calculated at the site during construction totals 20.53 acres.

Wastewater Provisions

Having secured a commitment from a local utility operator to accept and treat the wastewater generated by full buildout of the project (estimated at 65,425 gpd), plans have been revised to eliminate the interim (earlier phase 1) step of an on-site aerobic wastewater plant with drip-field disposal and proceed with the full buildout plan (phase 2 as presented) with the addition of a second wastewater pump station in lieu of the future Tuckaseigee Water and Sewer Authority (TWASA) gravity connection at an unknown later date. This private wastewater pump station at the northeast corner of the property along NC107 will be similar to the smaller pump station positioned near Monte Vista Road that collects the wastewater from the Horesepasture drainage basin and pumps it over the ridge to a gravity system and down to the new pump station at the Chattooga drainage basin NC 107 side. Both pump station systems will include back-up power and odor control and will be designed and permitted in accordance with NCDEQ Division of Water Quality requirements 15A NCAC 2T .0305 to collect and direct the wastewater generated by the project via force main to the utilities wastewater treatment plant for treatment and disposal.

No development beyond what can be accommodated and permitted will be placed into service.

Potable Water

Potable water is another development challenge for the Cashiers Area of Jackson County. The Cashiers Marketplace development group has secured off-site potable water wells producing water of sufficient quality and quantity per State PWSS requirements to provide the needed water to serve both Phases of the project. Carolina Water Service of NC as a public utilities water provider has indicated their willingness and desire to expand their current Cashiers public water distribution system to serve the site. On-site water distribution system improvements include a 130,000 gallon Aqua-stor ground storage tank (approximate dimension 28 ft. dia. x 29 ft. high). Based upon the water storage tank positioning and the large trees remaining at the site, the tank is not expected to be visible from NC 107 or Monte Vista Road.

The proposed water tank provides 90,000 gallons of supplemental water for fire protection and a half day of projected peak daily demand storage at buildout.

In addition, the proposed site buildings and hotel propose to utilize low flow fixtures and energy star appliances to reduce anticipated water demands and energy use.

The potable water system is not intended to provide water for landscape irrigation. Instead, the site storm drainage design intends to incorporate rainwater harvesting and reuse cisterns where possible (above and below ground tanks w/ pumps) to capture and store rainwater runoff from impervious surfaces to provide water for irrigating the landscaping around and within the development.

Roadways & Driveways

All roadways and driveways within the development have been designed to meet Jackson County Design Standards Section 4.3.5 for road classification types, right-of-way, road travel way widths, road grades, vertical curves, Intersections, cut & fill slopes, shoulders and emergency vehicle access and turn arounds where appropriate. NCDOT Driveway Connection and grade standards to State maintained roadways have also been met.

Marketplace Drive is a placeholder name for the main collector road through the project.

Schematic Roadway profiles have been provided showing design conditions and grades.

The proposed right-in/right-out driveway connection from NC107 into the retail parking lot is also provided.

NCDOT Improvements

Possible Improvements to NC 107 have been shown on the Plan. They include a free-flowing right-in/right out driveway directly across from the signalized Frank Allen intersection including the addition of a dedicated right turn lane into the project and a full exit transition lane. There has also been a dedicated left turn lane introduced on NC 107 while traveling southbound at the main entrance to the south. Curb & gutter, drainage improvements, sidewalks and street scape improvements are planned along the NC107 road frontage.

The proposed Marketplace driveway intersection placement and grades along Monte Vista Drive (SR1116) maximizes safe sight distance in both directions exceeding the minimums NCDOT requires.

Retaining Walls

Retaining walls are needed for mountain terrain to limit land disturbance and create areas for buildings, parking, and accessibility. The retaining walls on this site are placed, spaced and designed to comply with the Jackson County UDO Section 9.3.5,(b),(c),(ii),c. and do not exceed 10 ft. in height where visible from NC107 or Monte Vista Rd. The retaining walls will be stepped (tiered) and landscaped in accordance with the Jackson County wall screening requirements.

Parking

Parking has been calculated and provided in accordance with the Jackson County UDO requirements and is provided in surface lots, overflow lots, below the proposed hotel (valet), in hotel cabin driveways and in building basement garages where appropriate. The parking requirements have been met or exceeded for the project. The development team recognizes the importance of providing shared parking between uses but also adequate parking at restaurants retail shops and office space in Cashiers. The parking figures for the project can be found in the Plan package on drawing C1 and within the Appendix of this report.

Stormwater & Storm Drainage

Storm drainage Collection systems have been schematically designed to collect and convey stormwater runoff from the site in accordance with the Jackson County UDO Standard 9.4.7. Stormwater treatment will be designed to provide water quality removal of heavy metals, oils and total suspended solids in accordance with the NCDEQ Stormwater regulations for each watershed. The Chattooga River watershed is within the outstanding resource (ORW) waters of the State.

Stormwater on the Cashiers Marketplace site will be employed by providing a combination of water quality and water quantity Stormwater Control Measure (SCM) strategies. These SCM strategies will meet or exceed the Minimum Design Criteria per 15A NCAC 02H .1050 for all Stormwater Control Measures. These SCM's are likely to include:

- Rainwater Harvesting and Reuse Cisterns - above and below ground tanks and pumps to capture store runoff and reuse rainwater runoff from impervious surfaces in providing supplemental water for irrigating the landscaping around and within the development.
- Vegetated conveyances where appropriate.
- Underground Infiltration Recharge Chambers.
- Underground Detention Storage Tanks & Chambers.
- Outlet Metering Devices.
- Level spreaders to encourage sheet flow and infiltration.
- Energy Dissipators to reduce flow velocity.

The objective is to capture and treat the stormwater close to the source and encourage infiltration into the site soil. Stormwater within each watershed will remain within that watershed and will be treated and discharged into that watershed.

Stormwater runoff

Stormwater runoff from the site within the Chattooga River Basin currently drains to the northwest property corner along the east side of NC 107 at the intersection of Marigold Road (SR1115). The runoff surface flows along the entire property frontage along the east side of NC107 and Marigold via roadside ditch. In Marigold the runoff is intercepted by a drainage network that conveys it across Marigold Road, NC107, and Burns Street through a network of drop inlet structures and piping under paved parking lots. The runoff discharges above Frank Allen Road, the headwaters of Cashiers Lake and the Chattooga River.

Stormwater runoff from our site discharging toward the Chattooga River watershed will be limited to the pre-development (existing) peak rate of runoff by incorporating stormwater detention and encouraging site infiltration and stormwater re-use.

Stormwater runoff from the east side of the site within the Horsepasture River Basin currently drains to the north and leaves the site above a creek within the Village East property and to the east discharging into the NCDOT maintained roadside ditch conveyance along Monte Vista Road (SR 1116). Stormwater runoff from our site discharging toward the Horsepasture river watershed will be limited to the pre-development (existing) peak rate of runoff by incorporating stormwater detention and encouraging site infiltration and stormwater re-use.

Landscaping and buffers

Landscaping and/or buffering shall be provided as required by UDO Section 9.3.7. An approved Plant list of Native Species will be utilized for the site landscaping and buffers per the Jackson County UDO. A Plant List is provided on the Landscaping Plans.

Site Lighting

Site Lighting shall be provided in compliance with UDO Section 9.3.8

Site Lighting fixtures will be designed for safety and security with "BUG" (Backlight, Up-light, Glare) ratings that eliminate "up light" to reduce glare and light trespass into the night sky and neighboring properties.

APPENDIX

- Building Summary
- Building Heights & NC 107 Visibility Exhibit
- Parking Summary
- Wastewater Projections
- Potable Water System Availability & Summary (CDC)
 - Water Demands
 - Aqua-Stor Water Tank Photo
- State Stormwater Regulations

Building Summary

Cashiers Marketplace					
Building Details					
Building Number	Description Use	Approximate Net Useable Size (SF)	Estimated Capacities and Usage	Number of Stories	Notes
R1-R4	Retail/Restaurant Area				
R1	Retail One	6,000	Retail	2	Surface Parking Behind
R2	Retail Two	6,000	Retail	2	Surface Parking Behind
R3	Retail Three	6,000	Retail	2	Surface Parking Behind
R4	Retail Four	6,000	Retail	2	Surface Parking Behind
R1	Restaurant 1	4,500	60 Seats w/ 20 bar seats 10 employee's		
R2	Restaurant 2	4,500	60 Seats w/ 20 bar seats 10 employee's		
R3	Restaurant 3	4,500	60 Seats w/ 20 bar seats 10 employee's		
R4	Offices	6,000	Office	2	
H1	Hotel	90,000	110 Rooms, 25 employees	4	156 Valet Parks Basement Level, 26 surface
	Restaurant	7,000	100 Seats w/20 bar seats, 20 employee's		
	Conf/Meeting Rooms	5,500	100 daily outside visitors	1	
H2	Spa/Fitness	7,000	125 daily users	2	
HC1-HC30	Residence Cabins	1,000	30-Hotel Cabins	1, 2, & 3	Driveway/Surface Parking
C1-C21	Residential Cottages	2,400	21 Lots	1-3	Driveway Parking
	Residential Flats		24 Units Total		
F1	Flat Building	14,400	6- 3 Bedroom Flats	3	Parking Basement Level
F2	Flat Building	14,400	6- 3 Bedroom Flats	3	Parking Basement Level
F3	Flat Building	14,400	6- 3 Bedroom Flats	3	Parking Basement Level
F4	Flat Building	14,400	6- 3 Bedroom Flats	3	Parking Basement Level
	Workforce Housing		30 Apts. 16-1/BR and 14-2/BR		
A1	Workforce Housing	21,000	8-1/BR Units and 7- 2/BR Units	3	Surface Parking
A2	Workforce Housing	21,000	8-1/BR Units and 7- 2/BR Units	3	Surface Parking

Building Height Calculations

Cashiers Marketplace
Building Height Calculations

Maximum Building Height for VC & GC = 45 ft. per Jackson County UDO

	Lowest Adjacent Grade								6:12 Gable Roof			Building Height
	LAG	Garage	Δ (ft.)	Level 1	Δ (ft.)	Level 2	Δ (ft.)	Level 3	Roof Base (+12 ft.)	Roof Mid Height (+7.5 ft.)	Roof Ridge Peak (+15 ft.)	(ft.)
R1	3494.0	-		3494.8	12	3506.8		-	3518.8	3526.3	3533.8	32.3
R2	3496.0	-		3496.5	14	3510.5		-	3522.5	3530	3537.5	34
R3	3498.0	-		3500.5	14	3514.5		-	3526.5	3534	3541.5	36
R4	3500.0	-		3502.5	14	3516.5		-	3528.5	3536	3543.5	36
		Garage		Level 1		Level 2		Level 3	Roof Base (+11 ft.)	Roof Mid Height (+7.5 ft.)	Roof Ridge Peak (+15 ft.)	
F1	3582.0	3583.0	14	3597.0	11	3608.0		-	3619.0	3626.5	3634	44.5
F2	3572.0	3573.0	14	3587.0	11	3598.0		-	3609.0	3616.5	3624	44.5
F3	3600.0	3601.0	14	3615.0	11	3626.0		-	3637.0	3644.5	3652	44.5
F4	3587.0	3588.0	14	3602.0	11	3613.0		-	3624.0	3631.5	3639	44.5
		Gar./Service								Roof Mid Height (+10.0 ft.)	Roof Ridge Peak	
H1-Hotel	3638.0	3624.5	16	3640.5	11.5	3652.0	10	3662.0	3672.0	3682.0	3692.0	44
H2-Fitness	3611.4	-	-	3611.5	13	3624.5		-	3638.5	3643.5	3648.5	32.1
										Roof Mid Height (+7.5 ft.)	Roof Ridge Peak (+15 ft.)	
A1	3554.0	-		3555	10	3565	10	3575	3575	3582.5	3590	28.5
A2	3557.0	-		3560	10	3570	10	3580	3580	3587.5	3595	30.5

Parking Summary

Cashiers Marketplace Estimated Parking Counts				revised 12-29-23		
Building Details						
Building Number	Description Use	Approximate Net Useable Size (SF)	Estimated Capacities and Usage	JC Ordinance Parking Requirements	Number of Parking Spaces Required	Number of Parking Spaces Provided
R1	Retail One	6,000	Retail Shops	1 space /300 SF	20	20
	Restaurant Three	4,500	60 Seats w/20 bar seats, 10 employee's	1/ space/3 seats, plus 1 space/2 employees on the greatest shift	32	32
R2	Retail Two	6,000	Retail Shops	1 space /300 SF	20	20
	Restaurant One	4,500	60 Seats w/20 bar seats, 10 employee's	1 pkg. space/3 seats, plus 1 space/2 employees on the greatest shift	32	32
R3	Retail Three	6,000	Retail Shops	1 space /300 SF	20	20
	Restaurant Two	4,500	60 Seats w/20 bar seats, 10 employee's	1 pkg. space/3 seats, plus 1 space/2 employees on the greatest shift	32	32
R4	Retail Four	6,000	Retail Shops	1 space /300 SF	20	20
	Offices	6,000	Office	1 space /300 SF	20	20
				Req'd/Provided	196	196
			43 Total Spaces in the Overflow Lot, 6 utilized for req'd parking.	Extra Spaces (above req'd) in Overflow Lot		37
	Retail Area			Sub-Total	196	233
H1	Hotel	90,000	110 Rooms, 25 employees	1 space/2 guest rooms plus 1 space/2 employees on the greatest shift	68	69
	Restaurant	7,000	100 Seats w/ 20 bar seats , 20 employee's	1/ space/3 seats, plus 1 space/2 employees on the greatest shift	50	50
	Meeting Rooms	5,500		1space/200 SF	28	28
H2	Spa/Fitness	7,000		1space/200 SF	35	35
6 ADA H/C Spaces out front & 156 Valet Spaces min. below Hotel, +20 surface at Spa = 182 spaces				Sub-total	181	182
HC1-HC30	Hotel Residence Cabins	1,000	30 Cabins	1 space /cabin	30	30
C1-C21	Residential Cottages*		21 single family Lots Total	2/driveway *	42	42
			* Not regulated, shown for information only			
	Residential Flats		24-Units Total			
F1	Flat Building		6-3 Bedroom Flats	1 space/bedroom	18	18
F2	Flat Building		6-3 Bedroom Flats	1 space/bedroom	18	18
F3	Flat Building		6-3 Bedroom Flats	1 space/bedroom	18	18
F4	Flat Building		6-3 Bedroom Flats	1 space/bedroom	18	18
A1 & A2	Workforce Housing		30 Apts. 16-1 BR & 14-2 BR	1 space/bedroom	44	51
Project totals without Residential Cottages					523	568
Project Total					565	610

Wastewater Projections

Cashiers Marketplace

Estimated Average Daily Sanitary Wastewater Flows

Building Number	Description Use	Approximate Net Useable Size (SF)	Estimated Capacities and Usage	Number of Stories	15A NCAC 18A.1949 Projected Daily Sewer Flow	
					Design Basis	Estimated Flow (GPD)
Retail/Restaurant Area						
R1	Retail One	6,000	Retail	2	100gpd/1000 Sf	600
R2	Retail Two	6,000	Retail	2	100gpd/1000 Sf	600
R3	Retail Three	6,000	Retail	2	Surface Parking Behind	600
R4	Retail Four	6,000	Retail	2	100gpd/1000 Sf	600
R1	Restaurant 1	4,500	60 Seats w/ 20 bar seats 10 employee's			2,800
R2	Restaurant 2	4,500	60 Seats w/ 20 bar seats 10 employee's		40 gal/restaurant seat, + 20 gal/bar seat	2,800
R3	Restaurant 3	4,500	60 Seats w/ 20 bar seats 10 employee's		40 gal/restaurant seat, + 20 gal/bar seat	2,800
R4	Offices	6,000	Office	2	1 person/200 SF x 25 gpd/person	750
H1	Hotel	90,000	110 Rooms	4	120 gpd/room	13,200
	Office & Staff		25 employees		25 gpd/employee	625
	Restaurant	7,000	100 Seats w/20 bar seats, 20 employee's		40 gal/seat	4,800
	Conf/Meeting Rooms	5,500	100 daily outside visitors	1	10 gpd/person	1,000
H2	Spa/Fitness	7,000	125 daily users	2	10 gpd/person	1,250
HC1-HC30	Hotel Cabins	1,000-1,200	Hotel Residence Cabins, 10-1/BR	1-2	240 gpd/unit	2,400
			Hotel Residence Cabins, 20-2/BR	1-3	360 gpd/unit	7,200
C1-C21	Residential Cottages	2,400	21 Lots	1-3	360 gpd/residence	7,560
	Residential Flats		24 Units Total			
F1	Flat Building	14,400	6- 3 Bedroom Flats	3	120 gpd/bedroom	2,160
F2	Flat Building	14,400	6- 3 Bedroom Flats	3	120 gpd/bedroom	2,160
F3	Flat Building	14,400	6- 3 Bedroom Flats	3	120 gpd/bedroom	2,160
F4	Flat Building	14,400	6- 3 Bedroom Flats	3	120 gpd/bedroom	2,160
	Workforce Housing		30 Apts. 16-1/BR and 14-2/BR			
A1	Workforce Housing	21,000	8-1/BR Units and 7- 2/BR Units	3	120 gpd/BR, min. 240	3,600
A2	Workforce Housing	21,000	8-1/BR Units and 7- 2/BR Units	3	120 gpd/BR, min. 240	3,600
Total directed to Public Utility						65,425

Two wastewater pump stations will be constructed at the project. The first is within the horsepasture river watershed along Monte Vista Road and collects wastewater generated by the east side of the project (estimated at 18,050 gpd) and directs it via force main over the ridge into the sewer system which drains by gravity flow to the second wastewater pump station along NC 107. The second sewer pump station is within the Chattooga river basin and collects and directs the wastewater flow generated by the total project (estimated at 65,425 gpd) via forcemain to the Public Utility Operators Wastewater Treatment Plant where it is treated and disposed. Both sewage pump stations are designed and permitted in accordance with the NCDEQ Division of Water Quality requirements 15A NCAC 2T .0305 rules for wastewater pump stations and force mains. Both pump stations are below grade, screened by landscaping, and provide back up power and odor control.

Potable Water System Availability & Summary (Civil Design Concepts)

- Water Demands
- Aqua-Stor Water Tank Photo



Cashiers Market Place

Proposed Water System

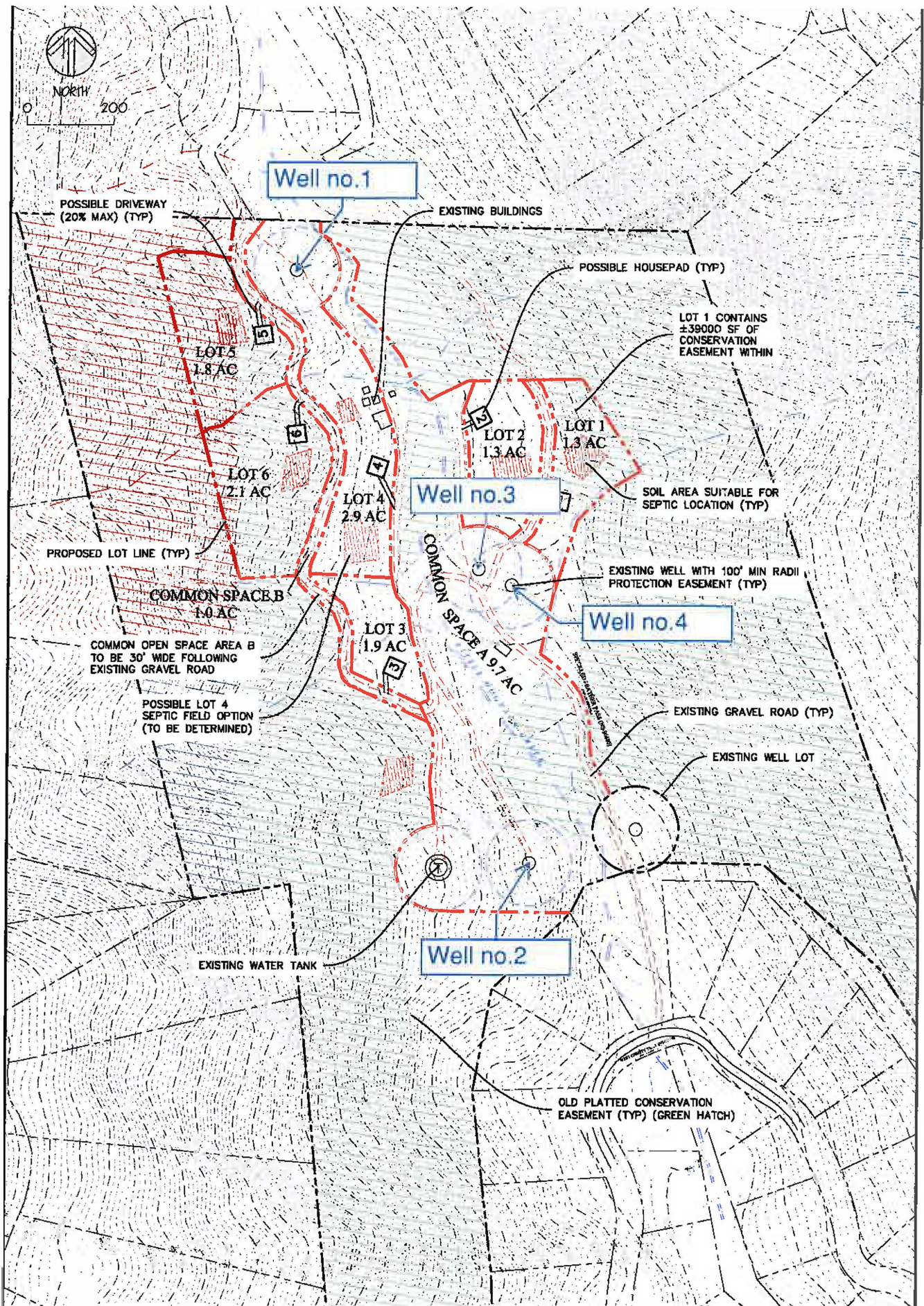
The proposed Cashiers Marketplace has a projected daily demand flow requirement for water of 67,895 gallons per day at full build out. Based on NC DEQ 15A NCAC 18C standards, if a ground water supply is utilized the total capacities would need to provide 94 gallons per minute (GPM). In order to provide water service to the project, source water has been developed and an agreement to purchase the source water in the Sapphire area. Four wells meeting community public water supply standards have been drilled. All wells have had proper 24 hour pump tests conducted to determine the accurate yield. All water quality testing associated with community public water system standards have been analyzed. The combined yield of all four wells is 175.5 gpm. All water quality meets safe drinking water standards.

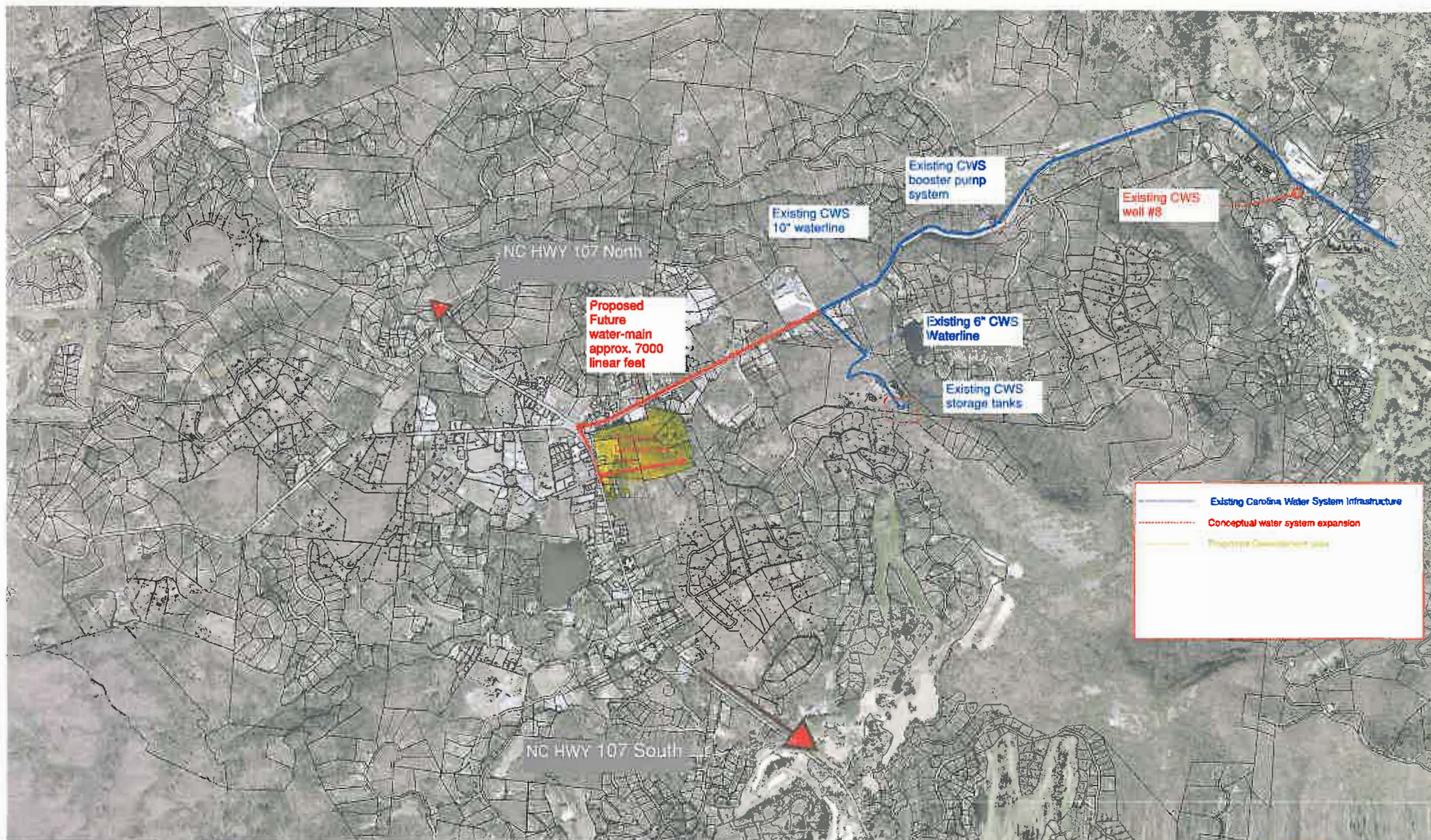
The four wells developed are in close proximity to the Carolina Water Service (CWS) water system. Furthermore, the CWS distribution system is currently along Hwy 64 near the Ingles complex in Cashiers. In order to get the approved source water to the Cashiers Marketplace project, the wells will be turned over to CWS and the existing distribution system expanded from the Ingles area to the Cashiers Marketplace property.

Carolina Water Service agrees with the project and a letter of intent for Carolina Water Service to take over the water system once approved, constructed and certified has been developed. See attached letter of intent.

The overall water system project will consist of four wells, treatment building, storage tanks and approximately 7000 feet of water line.

Having a water system owned and operated by a public utility company is a benefit for the overall community. The Cashiers plateau area is primarily using ground water supplies for all drinking water systems. Proper monitoring and usage information is essential for understanding and managing the water resources. By diversifying the source water locations and properly operating and monitoring the sources, the aquifers can be managed more responsibly.





Cashiers Marketplace
CONCEPTUAL WATER BULLETIN

Preliminary Not For Construction



UTILITY FEASIBILITY ESTIMATE

ITEM #	DESCRIPTION	UNIT	QTY	UNIT COST	TOTAL AMOUNT
WATER LINE					
1	10" DIP Water Line	LF	7,000	\$200	\$1,400,000
2	Treatment Building	LS	1	\$100,000	\$100,000
3	50,000 Gallon Storage Tank	LS	1	\$200,000	\$200,000
4	Well with Pumps	EA	4	\$50,000	\$200,000
5	Booster Pump	LS	1	\$225,000	\$225,000
				SUBTOTAL	\$2,125,000
ROCK CONTINGENCY					
6	Mass Rock	LS	1	\$200,000	\$200,000
				SUBTOTAL	\$200,000
SUBTOTAL					\$2,325,000
CONTINGENCY (25%)					\$581,250
TOTAL					\$2,906,250

NOTES:

1. This estimate is based off of the CDC bulletin: "CASHIERS VILLAGE CONCEPTUAL WATER BULLETIN "; estimate costs listed were established on the date as noted above . Due to cost variations over time, this estimate is only valid for 30 days past the estimate date.
2. The ENGINEER maintains no control of labor costs, materials, equipment or services furnished by others, the Contractor(s)' methods for determining prices, or competitive or market conditions. The estimates herein for project and construction costs represent the ENGINEER'S best judgment, and are based on his experience and qualifications as a Professional Engineer who possesses familiarity with the construction industry. The ENGINEER does not guarantee the accuracy of the cost estimates, which may vary from bids or actual project and construction costs.
3. Soft Costs (i.e. Engineering, Surveying, Legal, and Development Fees) are not included in the above estimate.
4. Asbestos survey and abatement costs (if necessary) are not included in the above estimate.
5. Dry utility costs (removal, relocation, coordination, new services, etc) are not included in this estimate.
6. Utility and storm line quantities stop 5' from edge of buildings.



Carolina Water Service of North Carolina™

February 27, 2023

CONFIDENTIAL

Cashiers Market Place, LLC ("Cashiers")
4355 Cobb Parkway
Suite J-204
Atlanta, Georgia, 30339

Attention: Fritz Rybert, Owner

Re: Cashiers Water Project – Exclusivity Agreement and Non-Binding Letter of Interest (this "Letter")

Carolina Water Service, Inc. of North Carolina ("CWSNC") is interested in advancing discussions with Cashiers for the potential acquisition of its water system the Cashiers Water Project. (the "Utility").

CWSNC can conduct an initial investigation to arrive at a preliminary valuation. Thereafter, we can complete the overall transaction in a timely manner. It will be necessary and appropriate to schedule on-site meetings to inspect the Utility's facilities and operations and to meet with key staff. Based on experience with other similar transactions and provided sufficient access to all assets and data are provided, CWSNC believes that it can complete the investigation within one hundred and twenty (120) days from the date of this Letter. However, upon notice to Cashiers, CWSNC may extend this timeframe to one-hundred and eighty (180) days ("Initial Investigation").

Based on the outcome of the Initial Investigation, CWSNC would desire to negotiate and potentially close the acquisition of the Utility, subject to the following:

1. The Utility will carry on business in the ordinary course during our negotiations.
2. Completion, to the satisfaction of CWSNC, of a due diligence review of the assets, real estate, and business of the Utility, including:
 - a. Review of all material contracts;
 - b. Verification of the accuracy of historical financial information and the continuity of the financial performance of the Utility;
 - c. Verification that the physical assets of the Utility including buildings, vehicles, equipment, and inventory are in a good state of repair for continued operations;
 - d. Verification that the business of Utility has been conducted in substantial compliance with applicable environmental and other laws and that any real property used in the operation of Utility is free of any material environmental impairment;
 - e. Verification that the Utility holds all appropriate regulatory approvals and permits necessary to conduct the business and that the transaction contemplated hereunder will not result in the termination or disruption of such approvals and permits.

- f. Verification that Cashiers has, and can convey, unencumbered title to all real estate with all access rights sufficient to properly operate and maintain the Utility; and that such real estate is free from defects in title, environmental conditions, and boundary disputes.
3. Obtaining all required regulatory, governmental, and other third-party consents and approvals on terms satisfactory to CWSNC.
4. A third-party appraisal of the Utility, at the option of CWSNC.
5. Negotiation of mutually agreed definitive documentation for the purchase of the Utility on terms satisfactory to CWSNC (the "**Definitive Agreements**").
6. Obtaining the approval of the CWSNC Board of Directors and the Corix Transaction Review Committee.

CWSNC appreciates that the Initial Investigation and negotiation of Definitive Agreements will be dependent on Cashiers' timeline and availability, and CWSNC welcomes discussion on the timeline.

Cashiers acknowledges that the Initial Investigation and review contemplated by this Letter will involve the expenditure of substantial time and money by CWSNC. During the period from the date of this Letter until the earlier of (i) the end of the Initial Investigation or (ii) the effective date of the Definitive Agreements (the "**Exclusivity Period**"), neither Cashiers nor its representatives shall directly or indirectly in any manner (a) entertain or solicit, (b) furnish or cause to be furnished any information to any persons or entities (other than CWSNC or its representatives) in connection with, or (c) pursue any proposal or discussions for any possible sale of the Utility, to any person or entity other than CWSNC, no matter how structured.

This Letter is intended to evidence the intent and interest of CWSNC in proceeding in good faith with the Initial Investigation and potential negotiation of one or more Definitive Agreements. As this is a preliminary indication of interest only, it does not constitute a binding legal obligation or agreement on the part of CWSNC. Please note that this Letter is submitted on a strictly confidential basis; its existence and terms may not be disclosed to any third party without CWSNC's prior written consent.

If you agree with proceeding on this basis and subject to the terms set forth above, please indicate your agreement by signing this Letter in the space provided below and returning the signed copy to CWSNC by email at your earliest convenience so that we can proceed to next steps.

Sincerely,

Donald H. Denton III, President
Carolina Water Service, Inc. of North Carolina

ACKNOWLEDGED, AGREED AND ACCEPTED this 27th day of February 2023.

For: **Cashiers Market Place, LLC**

Signature

Name and Title

Cashiers Marketplace

Estimated Water Demands						
Building Number	Description Use	Approximate Net Useable Size (SF)	Estimated Capacities and Usage	Number of Stories	Projected Daily Flow Requirements	
					Design Basis Ave. Daily Sewer Flow	Estimated Demand (GPD)
<i>West Side</i>						
	Retail/Restaurant Area					
R1	Retail One	6,000	Retail	2	100gpd/1000 Sf	600
R2	Retail Two	6,000	Retail	2	100gpd/1000 Sf	600
R3	Retail Three	6,000	Retail	2	100gpd/1000 Sf	600
R4	Retail Four	6,000	Retail	2	100gpd/1000 Sf	600
R1	Restaurant 1	4,500	60 Seats w/ 20 bar seats 10 employee's		40 gal/restaurant seat, + 20 gal/bar seat	2,800
R2	Restaurant 2	4,500	60 Seats w/ 20 bar seats, 10 employee's		40 gal/restaurant seat, + 20 gal/bar seat	2,800
R3	Restaurant 3	4,500	60 Seats w/ 20 bar seats, 10 employee's		40 gal/restaurant seat, + 20 gal/bar seat	2,800
R4	Offices	6,000	Office	2	1 person/200 SF x 25 gpd/person	750
H1	Hotel	90,000	110 Rooms	4	120 gpd/room	13,200
	Office & Staff		25 employees		25 gpd/employee	625
	Restaurant	7,000	100 Seats w/20 bar seats, 20 employee's		40 gal/seat	4,800
	Conf/Meeting Rooms	5,500	100 daily outside visitors	1	10 gpd/person	1,000
H2	Spa/Fitness	7,000	125 daily users	2	10 gpd/person	1,250
HC1-HC30	Residence Cabins	1,000	30-Hotel Cabins, 10-1/BR & 20-2/BR	1-3	1-BR = 240 gpd, 2-BR 360 gpd	9,600
C1-C21	Residential Cottages	2,400	21 Lots	1-3	400 gpd/residence	8,400
	Residential Flats		24 Units Total			
F1	Flat Building	14,400	6- 3 Bedroom Flats	3	360 gpd/unit	2,160
F2	Flat Building	14,400	6- 3 Bedroom Flats	3	360 gpd/unit	2,160
F3	Flat Building	14,400	6- 3 Bedroom Flats	3	360 gpd/unit	2,160
F4	Flat Building	14,400	6- 3 Bedroom Flats	3	360 gpd/unit	2,160
	Workforce Housing		30 Apts. 16-1/BR and 14-2/BR			
A1	Workforce Housing	21,000	8-1/BR Units and 7- 2/BR Units	3	1-BR = 240 gpd, 2-BR 360 gpd	4,400
A2	Workforce Housing	21,000	8-1/BR Units and 7- 2/BR Units	3	1-BR = 240 gpd, 2-BR 360 gpd	4,400
Project Total Domestic Water Demand at buildout						67,865

Daily water demand projections for the water system are based upon projected wastewater daily flow plus approximately 4% additional potable demand based upon the seasonal and transient nature of the project.

Water service will be extended to the site by a NC licensed Utility Company by agreement to provide sufficient quantity and quality potable water for the Private Water System project.

The potable water system is not intended to provide water for irrigation. Rainwater harvesting and re-use will be employed to provide water for Landscape irrigation.

Instantaneous Peak Demand = 68,000/ 24 h/day/ 60 min/h = 47.2 x PF of 2.5 = 118 GPM

Fire Storage = 750 GPM x 2 Hours duration = 90,000 Gallons

Ground Storage Tank = 90,000 + ½ x 68,000 = 124,000 Gallons

An AquaStor 130,000 gallon ground storage tank (aprox. dimension 28 ft. dia x 29 ft. high) will be used for supplemental water storage for domestic and fire storage.

Note: Based upon the water storage tank positioning and the trees to remain at the site, the tank is not expected to be visible from NC107 or SR 1116 (Monte Vista Rd.)



MERRILL

DRILLING & WATER SYSTEMS

828-877-4450

99 Cascade Lake Rd Penrose NC, 28766

828-692-8948

www.MerrillResources.com

24 HOUR FLOW RATE TESTING AND RECOVERY DATA

Owner Sapphire Sanctuary LLC

Well Address Speckled Feather Pass / Holly Forest County Jackson

GPS Location 35°08'16.3"N 83°01'25.6"W Well ID

Drilling Contractor Merrill Drilling & Water Systems Well Number #1 (Upper)

WELL INFORMATION

Well Depth 805' Flow Rate 70 gpm Casing Depth 8'

Static Level 1'+ Well Size 8" to 405' / 6" to 805' Water Zones 380' to 400'

TEST PUMP INFORMATION

Make Grundfos Model 85s150 HP 15

GPM Model 85 Stages 10 Pipe Size 2"

Intake Depth 340' Flow Rate at Intake 110 gpm

Flow Device 2" Water Meter Level Device Barometric Level Logger

Chlorination Type HTH Chlorination Amount 24 oz

Test Start Date 2/3/2022 Test Start Time 10:30 AM

Test End Date 2/4/2022 Test End Time 12:30 PM

Final Water Level

334.15

Final Well Yield

62



MERRILL

DRILLING & WATER SYSTEMS

828-877-4450

99 Cascade Lake Rd Penrose NC, 28766

www.MerrillResources.com

828-692-8948

24 HOUR FLOW RATE TESTING AND RECOVERY DATA

Owner Sapphire Sanctuary LLC

Well Address Speckle'd Cedar Pass / Holly Forest County Jackson

GPS Location 35° 08' 7" N / 83° 20' 0" W Well ID W03

Drilling Contractor Merrill Drilling & Water Systems Well Number Well #3

WELL INFORMATION

Well Depth 505' Flow Rate 60 GPM Casing Depth 73'

Static Level 21.9' Well Size 6.25" Water Zones 20-70' / 40-160'

TEST PUMP INFORMATION

Make Grundfos Model 85s200-16 HP 20 hp

GPM Model 85 GPM Stages 16 Pipe Size 2

Intake Depth 180' Flow Rating at Intake 130 GPM

Flow Device Flow Meter Level Device Sonic

Chlorination Type HTH Chlorination Amount 24 oz

Test Started Date 9/13/2022 Test Started Time 11:35 AM

Test Ended Date 9/14/2022 Test Ended Time 11:35 AM

Final Water Level

183.1

Final Well Yield

72 GPM

Certifying Signature

Dustin A. Merrill



MERRILL

DRILLING & WATER SYSTEMS

828-877-4450

99 Cascade Lake Rd Penrose NC, 28766

828-692-8948

www.MerrillResources.com

24 HOUR FLOW RATE TESTING AND RECOVERY DATA

Owner	<u>Sapphire Sanctuary LLC</u>		
Well Address	<u>Speckled Feather Pass / Holly Forest</u>	County	<u>Jackson</u>
GPS Location	<u>35°08'02.87" N 83°01'18.62" W</u>	Well ID	<u></u>
Drilling Contractor	<u>Merrill Drilling & Water Systems</u>	Well Number	<u>#2 (Lower)</u>

WELL INFORMATION

Well Depth	<u>1005'</u>	Flow Rate	<u>17 gpm</u>	Casing Depth	<u>57'</u>
Static Level	<u>138.3</u>	Well Size	<u>6"</u>	Water Zones	<u>5 @ 80' / 12 @ 430'</u>

TEST PUMP INFORMATION

Make	<u>Aermotor</u>	Model	<u>A20-500</u>	HP	<u>5</u>
GPM Model	<u>20</u>	Stages	<u>34</u>	Pipe Size	<u>2"</u>
Intake Depth	<u>440'</u>	Flow Rating at Intake	<u>25</u>		

Flow Device	<u>2" Water Meter</u>	Level Device	<u>Barometric Level Logger</u>
Chlorination Type	<u>HTH</u>	Chlorination Amount	<u>24 oz</u>

Test Started Date	<u>2/1/2022</u>	Test Started Time	<u>1:20 PM</u>
Test Ended Date	<u>2/2/2022</u>	Test Ended Time	<u>3:20 PM</u>

Final Water Level

435.94

Final Well Yield

18.5



MERRILL

DRILLING & WATER SYSTEMS

828-877-4450

99 Cascade Lake Rd Penrose NC, 28766

www.MerrillResources.com

828-692-8948

24 HOUR FLOW RATE TESTING AND RECOVERY DATA

Owner	Sapphire Sanctuary LLC		
Well Address	Speckled Feather Pass / Holly Forest	County	Jackson
GPS Location	35° 08' 9.0" N / 83° 01' 19.0" W	Well ID	W04
Drilling Contractor	Merrill Drilling & Water Systems	Well Number	Well #4

WELL INFORMATION

Well Depth	605'	Flow Rate	20 GPM	Casing Depth	95'
Static Level	30'	Well Size	6.25"	Water Zones	190-15 / 515-5

TEST PUMP INFORMATION

Make	Flint & Walling	Model	4F27s50	HP	5hp
GPM Model	27 GPM	Stages	29	Pipe Size	1.25"
Intake Depth	520'	Flow Rating at Intake	28		

Flow Device	2" Water Meter	Level Device	Sonic
Chlorination Type	HTH	Chlorination Amount	18 oz

Test Started Date	9/13/2022	Test Started Time	11:45 AM
Test Ended Date	9/14/2022	Test Ended Time	11:45 AM

Final Water Level

473.5

Final Well Yield

23 GPM

Certifying Signature

Dustin A. Merrill



AquaStar Water Tank
28' ϕ x 29' h

NCAC State Stormwater Regulations

15A NCAC 02H .1003 REQUIREMENTS THAT APPLY TO ALL PROJECTS

The following requirements shall apply to projects subject to any North Carolina stormwater program set forth in Rule .1001 of this Section.

- (1) **CALCULATION OF PROJECT DENSITY.** The following requirements shall apply to the calculation of project density:
 - (a) Project density shall be calculated as the total built-upon area divided by the total project area;
 - (b) A project with existing development may use the calculation method in Sub-Item (1)(a) or shall have the option of calculating project density as the difference of total built-upon area minus existing built-upon area divided by the difference of total project area minus existing built-upon area;
 - (c) Total project area shall exclude the following:
 - (i) areas below the Normal High Water Line (NHWL); and
 - (ii) areas defined as "coastal wetlands" pursuant to 15A NCAC 07H .0205, herein incorporated by reference, including any subsequent amendments and editions, and may be accessed at no cost at <http://reports.oah.state.nc.us/ncac.asp> as measured landward from the Normal High Water (NHW) line; and
 - (d) On a case-by-case basis as determined by the Division during application review, projects may be considered to have both high and low density areas based on one or more of the following criteria:
 - (i) natural drainage area boundaries;
 - (ii) variations in land use throughout the project; and
 - (iii) construction phasing.
- (2) **DESIGN REQUIREMENTS FOR LOW DENSITY PROJECTS.** Low density projects shall meet the following minimum design criteria:
 - (a) **DENSITY THRESHOLDS.** Low density projects shall not exceed the low density development thresholds set forth in the stormwater programs to which they are subject pursuant to Rules .1017, .1019, and .1021 of this Section. For projects subject to the requirements for Non-Coastal High Quality Waters and Outstanding Resource Waters, dwelling unit per acre may be used instead of density to establish low density status for single-family detached residential development as set forth in Rule .1021 in this Section;
 - (b) **DISPERSED FLOW.** Projects shall be designed to maximize dispersed flow through vegetated areas and minimize channelization of flow;
 - (c) **VEGETATED CONVEYANCES.** Stormwater that cannot be released as dispersed flow shall be transported by vegetated conveyances. A minimal amount of non-vegetated conveyances for erosion protection or piping for driveways or culverts under a road shall be allowed by the permitting authority when it cannot be avoided. Vegetated conveyances shall meet the following requirements:
 - (i) Side slopes shall be no steeper than 3:1 (horizontal to vertical) unless it is demonstrated to the permitting authority that the soils and vegetation will remain stable in perpetuity based on engineering calculations and on-site soil investigation; and
 - (ii) The conveyance shall be designed so that it does not erode during the peak flow from the 10-year storm as demonstrated by engineering calculations.
 - (d) **CURB OUTLET SYSTEMS.** Low density projects may use curb and gutter with outlets to convey stormwater to grassed swales or vegetated areas. Requirements for these curb outlet systems shall be as follows:
 - (i) The curb outlets shall be designed such that the swale or vegetated area can carry the peak flow from the 10-year storm at a non-erosive velocity;
 - (ii) The longitudinal slope of the swale or vegetated area shall not exceed five percent, except where not practical due to physical constraints. In these cases, devices to slow the rate of runoff and encourage infiltration to reduce pollutant delivery shall be provided;
 - (iii) The swale's cross-section shall be trapezoidal with a minimum bottom width of two feet;

- (iv) The side slopes of the swale or vegetated area shall be no steeper than 3:1 (horizontal to vertical);
 - (v) The minimum length of the swale or vegetated area shall be 100 feet; and
 - (vi) Low density projects may use treatment swales designed pursuant to Rule .1061 of this Section in lieu of the requirements specified in Sub-items (i) through (v) of this Item.
- (3) **DESIGN REQUIREMENTS FOR HIGH DENSITY PROJECTS.** High density projects are projects that do not conform to Item (2) of this Rule. High density projects shall meet the following minimum design criteria:
 - (a) **TREATMENT REQUIREMENTS.** SCMs shall be designed, constructed, and maintained so that the project achieves either "runoff treatment" or "runoff volume match" as those terms are defined in Rule .1002 of this Section.
 - (b) **OFF-SITE STORMWATER.** Stormwater runoff from off-site areas and existing development shall not be required to be treated in the SCM. Runoff from off-site areas or existing development that is not bypassed shall be included in the sizing of on-site SCMs at its full built-out potential.
 - (c) **OFF-SITE SCM.** A project that controls runoff through an off-site SCM shall be allowed on a case-by-case basis as determined by the permitting authority if the off-site SCM meets the provisions of Rules .1050 through .1061 of this Section.
 - (d) **EXPANSION OR REPLACEMENT OF EXISTING DEVELOPMENT.** When new built-upon area is added to existing development or existing development is replaced with new built-upon area, only the area of net increase shall be subject to this Section.
 - (e) **MDC FOR SCMS.** SCMs shall meet the relevant MDC set forth in Rules .1050 through .1062 of this Section except in accordance with Item (6) of this Rule.
- (4) **VEGETATED SETBACKS.** Vegetated setbacks shall be required adjacent to waters as specified in the stormwater rules to which the project is subject pursuant to this Section, in addition to the following requirements applicable to all vegetated setbacks:
 - (a) The width of a vegetated setback shall be measured horizontally from the normal pool elevation of impounded structures, from the top of bank of each side of streams or rivers, and from the mean high waterline of tidal waters, perpendicular to the shoreline;
 - (b) Vegetated setbacks may be cleared or graded, but shall be replanted and maintained in grass or other vegetation;
 - (c) Built-upon area that meets the requirements of G.S. 143-214.7(b2)(2) shall be allowed within the vegetated setback.
 - (d) Built-upon area that does not meet the requirements of G.S. 143-214.7(b2)(2) shall be allowed within a vegetated setback when it is not practical to locate the built-upon area elsewhere, the built-upon area within the vegetated setback is minimized, and channelizing runoff from the built-upon area is avoided. Built-upon area within the vegetated setback shall be limited to:
 - (i) Publicly-funded linear projects such as roads, greenways, and sidewalks;
 - (ii) Water Dependent Structures; and
 - (iii) Minimal footprint uses such as poles, signs, utility appurtenances, and security lights.
 - (e) Stormwater that has not been treated in an SCM shall not be discharged through a vegetated setback; instead it shall be released at the edge of the vegetated setback and allowed to flow through the setback as dispersed flow.
 - (f) Artificial streambank and shoreline stabilization shall not be subject to the requirements of this Item.
- (5) **STORMWATER OUTLETS.** Stormwater outlets shall be designed so that they do not cause erosion downslope of the discharge point during the peak flow from the 10-year storm event as shown by engineering calculations.
- (6) **VARIATIONS FROM THIS SECTION.** The permitting authority shall have the option to approve projects that do not comply with all of the provisions of this Section on a case-by-case basis as follows:
 - (a) If the variation pertains to an SCM design that does not meet all of the MDC, then the applicant shall provide technical justification based on engineering calculations and the

- results of research studies showing that the proposed design provides equal or better stormwater control and equal or better protection of waters of the State than the requirements of this Section and that it shall function in perpetuity. The permitting authority shall have the option to require compliance with the MDC in the event that the alternative SCM design fails;
- (b) If the variation pertains to other aspects of the project, then the applicant shall demonstrate that the project provides equal or better stormwater control and equal or better protection of waters of the State than the requirements of this Section; and
 - (c) Variations from this Section shall not be allowed if the project is being permitted under the fast-track process.
- (7) **DEED RESTRICTIONS AND PROTECTIVE COVENANTS.** The permittee shall record deed restrictions and protective covenants prior to the issuance of a certificate of occupancy to ensure that projects will be maintained in perpetuity consistent with the plans and specifications approved by the permitting authority. For projects owned by public entities, the permittee shall have the option to incorporate specific restrictions and conditions into a facility management plan or another instrument in lieu of deed restrictions and protective covenants.
- (8) **COMPLIANCE WITH OTHER REGULATORY PROGRAMS.** Project designs shall comply with all other applicable requirements pursuant to G.S. 143-214.1, G.S. 143-214.5, G.S. 143-214.7, and G.S. 143-215.3(a)(1).

History Note: Authority G.S. 143-214.1; 143-214.7; 143-215.1(d); 143-215.3(a)(1); S.L. 2008-198; Eff. January 1, 1988;
Amended Eff. December 1, 1995; September 1, 1995;
Readopted Eff. January 1, 2017.

**15A NCAC 02H .1021 NON-COASTAL COUNTY HIGH QUALITY WATERS (HQW) AND
OUTSTANDING RESOURCE WATERS (ORW)**

The purpose of this Rule is to minimize the impact of stormwater runoff from development on the water quality of surface waters and to protect their designated best usages in management zones of Non-Coastal County High Quality Waters (HQW) and Outstanding Resource Waters (ORW).

- (1) **IMPLEMENTING AUTHORITY.** This rule shall be implemented by the Division.
- (2) **APPLICABILITY.** This Rule shall apply to development activities outside of Coastal Counties that require an Erosion and Sedimentation Control Plan pursuant to G.S. 113A-57 and are either:
 - (a) within one mile of and draining to waters classified as HQW except that development located in WS-I or WS-II watersheds as set forth in 15A NCAC 02B .0212 and .0214 are excluded from the requirements of this Rule; or
 - (b) draining to waters classified as ORW.
- (3) **EFFECTIVE DATE.** The effective date of prior Rules .1006 and .1007 of this Section is September 1, 1995.
- (4) **GENERAL REQUIREMENTS FOR NEW DEVELOPMENT.** In addition to the requirements of this Rule, projects shall also comply with the requirements set forth in Rule .1003 of this Section.
- (5) **PROJECT DENSITY.** A project shall be considered a low density project if meets the low density criteria set forth in Item (2) of Rule .1003 of this Section and contains no more than 12 percent built-upon area or no more than one dwelling unit per acre; otherwise, a project shall be considered high density. Low density projects shall comply with the requirements set forth in Item (2) of Rule .1003 of this Section. High density projects shall comply with the requirements set forth in Item (3) of Rule .1003 of this Section.
- (6) **REQUIRED STORM DEPTH.** For high density projects designed to achieve runoff treatment, the required storm depth shall be one inch. Applicants shall have the option to design projects to achieve "runoff volume match" in lieu of "runoff treatment" as those terms are defined in Rule .1002 of this Section.
- (7) **VEGETATED SETBACKS.** Vegetated setbacks from perennial waterbodies, perennial streams, and intermittent streams shall be at least 30 feet in width for both low and high density developments and shall comply with Rule .1003(4) of this Section.

History Note: Authority G.S. 143-214.1; 143-214.7; 143-215.1; 143-215.3(a);
Eff. January 1, 2017 (portions of this Rule previously codified in 15A NCAC 02H .1006 and .1007).

15A NCAC 02H .1057 MDC FOR RAINWATER HARVESTING

The purpose of this Rule is to set forth the design requirements for rainwater harvesting systems that are constructed to meet the requirements of this Section.

- (1) **MAJOR COMPONENTS OF A RAINWATER HARVESTING SYSTEM.** Rainwater harvesting systems shall include the following components:
 - (a) a collection system;
 - (b) a pre-treatment device to minimize gross and coarse solids collection in the tank;
 - (c) a cistern or other storage device;
 - (d) an overflow; and
 - (e) a distribution system.
- (2) **FATE OF CAPTURED WATER.** Captured stormwater shall be used or discharged as follows:
 - (a) use to meet a water demand. The usage, type, volume, frequency, and seasonality of water demand shall be established and justified;
 - (b) discharge through a passive drawdown device to a vegetated infiltration area or another SCM; or
 - (c) a combination of use and passive discharge.
- (3) **SIZING.** A rainwater harvesting system shall be considered as a primary SCM if the system is sized and water demand, passive discharge, or a combination of the two is provided for 85 percent of the total annual runoff volume as demonstrated through water balance calculations.
- (4) **WATER BALANCE CALCULATIONS.** The water balance shall be calculated using the NCSU Rainwater Harvester model, which is herein incorporated by reference, including subsequent amendments and editions, and may be accessed at no cost at <https://stormwater.bae.ncsu.edu/>, or another continuous-simulation hydrologic model that calculates the water balance on a daily or more frequent time-step using a minimum of five representative years of actual rainfall records. The model shall account for withdrawals from the cistern for use, active or passive drawdown, and additions to the cistern by rainfall, runoff, and a make-up water source if applicable.
- (5) **DISTRIBUTION SYSTEM.** The distribution system shall be tested for functionality prior to the completion of the rainwater harvesting system. The design shall include a protocol for testing the functionality of the distribution system upon completion of the initial system and upon additions to the existing system.
- (6) **SIGNAGE REQUIREMENTS.** All harvested rainwater outlets such as spigots and hose bibs, and appurtenances shall be labeled as "Non-Potable Water" to warn the public and others that the water is not intended for drinking. Passive drawdown devices, when employed, shall be marked with identifying signage or labels that are visible to owners and maintenance personnel.

History Note: Authority G.S. 143-214.7B; 143-215.1; 143-215.3(a);
Eff. January 1, 2017.

15A NCAC 02H .1051 MDC FOR INFILTRATION SYSTEMS

The purpose of this Rule is to set forth the design requirements for infiltration systems that are constructed to meet the requirements of this Section.

- (1) **SOIL INVESTIGATION.** A site-specific soil investigation shall be performed to establish the hydraulic properties and characteristics of the soil within the proposed footprint and at the proposed elevation of the infiltration system.
- (2) **SEPARATION FROM THE SHWT.** The lowest point of the infiltration system shall be a minimum of two feet above the SHWT. However, the separation may be reduced to no less than one foot if the applicant provides a hydrogeologic evaluation that demonstrates that the water table will subside to its pre-storm elevation within five days or less.
- (3) **SOIL SUBGRADE SURFACE.** The surface of the soil subgrade shall have a slope of less than or equal to two percent. Terraces and baffles may be installed to achieve a level subgrade.
- (4) **PRETREATMENT.** Pretreatment devices shall be provided to prevent clogging. Pretreatment devices may include measures such as sumps in catch basins, gravel verges, screens on roof and patio drains, filters, filter strips, grassed swales, and forebays. Rooftop runoff that is discharged to the surface of an infiltration system shall not require pretreatment.
- (5) **DRAW DOWN TIME.** Infiltration systems shall be designed to dewater the design volume to the bottom of the infiltration device within 72 hours or less. In-situ soils may be removed and replaced with infiltration media or infiltration media may be placed on top of in-situ soils if the applicant provides a soils report that demonstrates that the modified soil profile allows for infiltration of the design volume within 72 hours or less.
- (6) **OBSERVATION PORT.** For infiltration devices located under the ground surface, a minimum of one inspection port shall be provided.

History Note: Authority G.S. 143-214.7B; 143-215.1; 143-215.3(a);
Eff. January 1, 2017.