

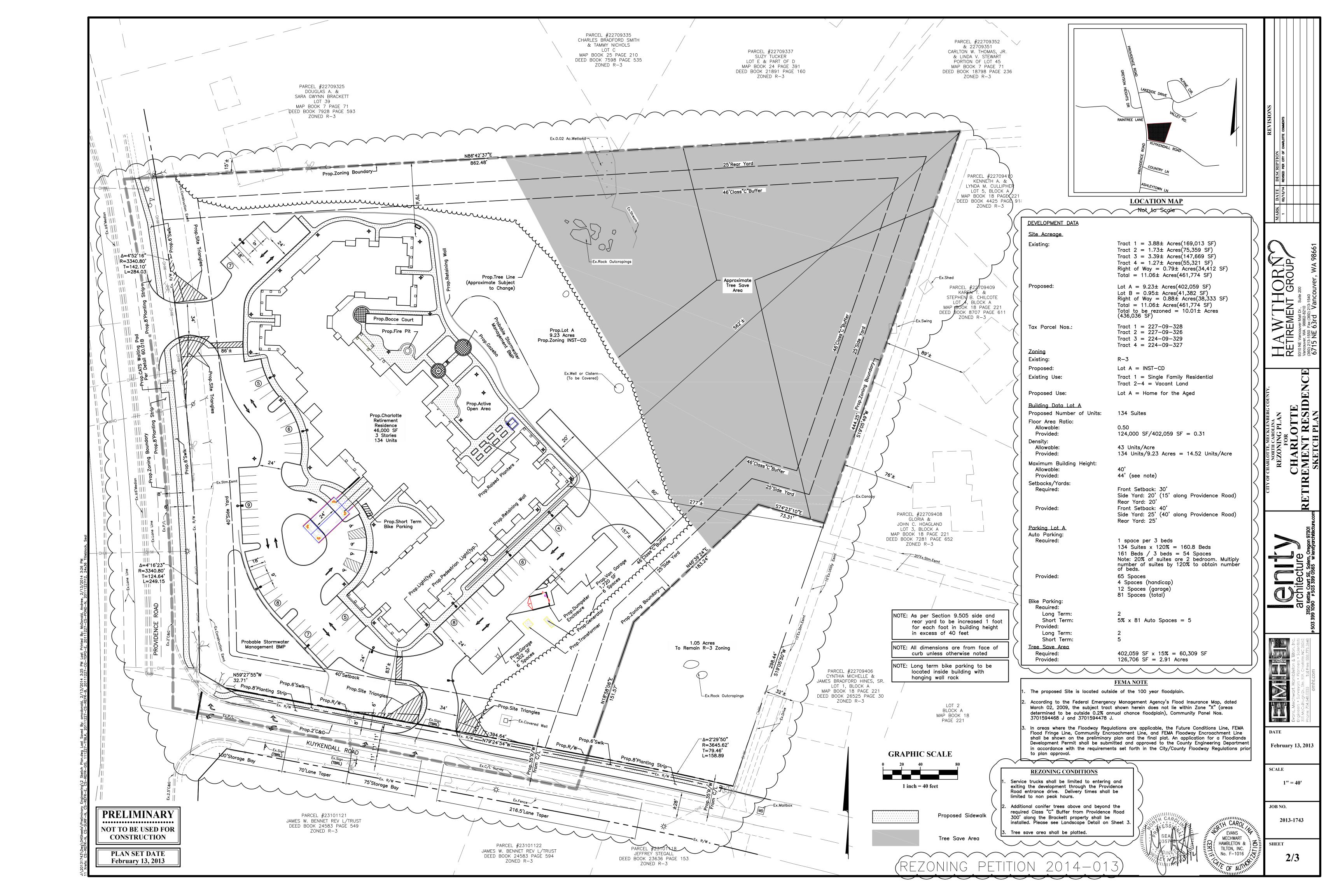
February 13, 2013

SCALE

1'' = 40'

JOB NO. 2013-1743

SHEET



1. GENERAL PROVISIONS

a.) Future amendments to the conditional site plan development standards may be applied for by the then Owner of the parcel or parcels involved, in accordance with 6.207 of the Charlotte Zoning Ordinance.

2. PERMITTED USES

a.) Lot A shall be limited to the 'Home for the Aged' use as described in Section 9.502 of the Charlotte Zoning Ordinance.

3. TRANSPORTATION

- a.) The total number of ingress/egress points to the site from existing and proposed thoroughfares that abut the site shall be limited to the number shown on the Plan. The exact locations may vary from those depicted based upon final design and location requirements as regulated by CDOT and NCDOT.
- b.) The Petitioner shall convey a 35' Right of Way from centerline along the property frontage of Kuykendall Road for Lots A and B in fee simple fashion.
- c.) The Petitioner shall not be responsible for any signal improvements and/or modifications or signal pole relocations at the intersection of Kuykendall Road and Providence Road.
- d.) The Petitioner will be responsible for implementing a left-turn lane and associated tapers for the proposed Charlotte Retirement Residence. The petitioner shall provide the pavement necessary to accomodate the future cross section measuring 16.5' from the existing centerline of Kuykendall Road. The Kuykendall Road transportation improvements shall be completed and approved by CDOT/NCDOT before the building certificate of occupancy is issued. Final construction details will be discussed during the construction permitting process.
- e.) The proposed driveway connections to Providence Road and Kuykendall Road will require driveway permits to be submitted to CDOT and NCDOT for review and approval. The exact driveway locations and type/width of the driveways will be determined by CDOT during the driveway permit process. The locations of the driveways shown on the site plan are subject to change.
- f.) Any fence or wall constructed along or adjacent to any sidewalk or street right of way requires a certificate issued by CDOT.
- g.) A Right of Way Encroachment Agreement is required for the installation of any non standard item(s) (irrigation systems, decorative concrete pavement, brick pavers, etc.) within a proposed/existing City maintained street right of way by a private individual, group, business or homeowner's/business association. An encroachment agreement must be approved by CDOT prior to the construction/installation of the non-standard item(s). Contact CDOT for additional information concerning costs, submittal and liability insurance coverage requirements.
- h.) Adequate sight triangles must be reserved at the proposed street entrances. Two 35'x35' and two 10'x70' sight triangles are required for the entrances to meet requirements. All proposed trees, berms, walls, fences, and/or identification signs must not interfere with sight distance at the entrances.

- a.) Lot A shall provide a 40' setback measured from the Right of Way of Kuykendall Road. A 40' side yard measured from the Right of Way of Providence Road and a 25' side and rear yard shall be provided. In the case that the maximum building height exceeds the maximum of 40', the side and rear yard shall be increased by 1' for every 1' of height greater than 40'.
- b.) The intent of this design is to make the residence feel like home and not an institutional atmosphere or appearance. The facades of the facility are broken up by rooflines, patios and balconies as well as by the buildings overall asymmetrical shape. The wing ends and building center step down from three to two and then one story. There are no long building expanses or stark walls. The horizontal lines and vertical lines of the building shall be broken up with both plane and material changes. This arrangement provides for privacy and a gentle change of scale. This further emphasizes the residential look and feel verses an institutional appearance.
- c.) To further enliven the streetscape the buildings assortment of rooflines creates a residential feel similar to the nearby homes. The proportions of window and door openings, patios, balconies and railings are similar to what you may find in any standard single family home. The shaded porches and variety of eave lines along with the exterior siding and other accents are indicative of the shingle architecture style.
- d.) The exterior siding materials will include stucco and horizontal siding with brick, brick veneer, stone or simulated stone. No vinyl siding will be used.
- e.) The roof will be architectural composition shingle.
- f.) The selected materials and colors are designed to accentuate the natural tones of the site and to compliment the surrounding landscape.
- g.) The same materials and similar design standards will apply to the garages and other accessory buildings on the site.
- h.) The loading and trash collection areas are well screened from both the view of the public and our residents.

- a.) As per Section 9.505 side and rear yard to be increased by 1 foot for each foot in building height in excess of 40 '
- b.) Lot A shall provide a minimum 46 foot wide buffer in accordance with Section 12.302(9) of the Zoning
- c.) The Buffers listed above may be removed if the zoning of the abutting property becomes a similar or more intensive
- d.) All landscaping and screening requirements shall meet the standards set forth by the City of Charlotte Zoning Ordinance.
- e.) The site is to be extensively landscaped with a goal of providing a park like atmosphere with beautiful outdoor amentias that benefit both our residents and our neighbors The site will feature a network of walking paths that provide a popular onsite exercise opportunity for our residents that is also available for the enjoyment of our neighbors. Usable outdoor spaces include extensive lawn and a partially covered patio off the craft/exercise room. Please note that no outdoor amenities or walking trails will

<u> 6. ENVIRONMENTAL FEATURES</u>

be provided in tree save areas.

a.) The overall development shall provide 15 percent Tree Save Area, located generally in the vicinity depicted on the site

- b.) Tree save area to be platted.
- c.) Tree save area to remain undisturbed.
- d.) The areas listed in the "Development Data" represents the Lot A portion of Tree Save Area to be provided.
- e.) Development on the site shall comply with the City of Charlotte Post Construction Controls Ordinance (PCCO)
- f.) The location, size, and type of storm water management systems depicted on the Rezoning Plan are subject to review and approval as part of the full development plan submittal and are not implicitly approved with this rezoning. Adjustments may be necessary in order to accommodate actual storm water treatment requirements and natural site discharge points.

7.) FIRE PROTECTION

a.) Fire protection shall meet the requirements set forth by the City of Charlotte Fire Department.

8.) LIGHTING

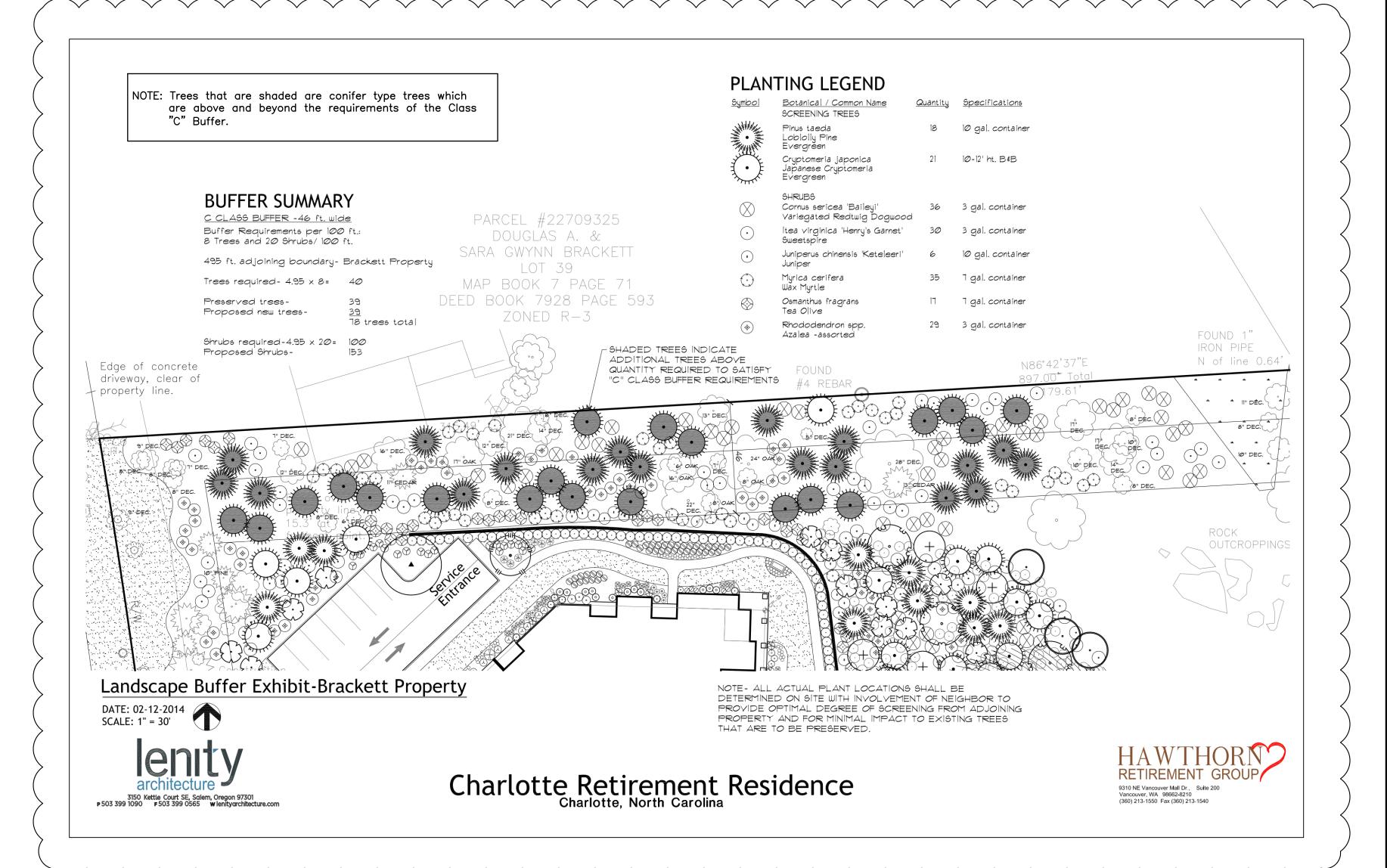
a.) All freestanding lighting and all exterior lighting on buildings will be fully shielded and full cut-off type fixtures downwardly directed. No "wall-pak" type lighting will be used but attached decorative lighting fixtures such as sconces may be allowed. The maximum height of any freestanding lighting shall not exceed 25 feet.

9.) PARKING

a.) Parking will generally conform to the layout shown on the plan. Parking shall meet the requirement set forth by the City of Charlotte Zoning Ordinance.

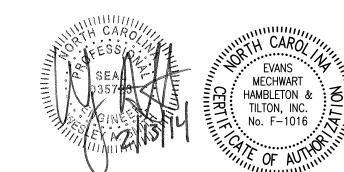
10) SOLID WASTE MANAGEMENT PLAN

a.) The Petitioner shall submit to the Mecklenburg County Solid Waste Department a Solid Waster Management Plan prior to initiating demolition and/or construction activities. The Solid Waste Management Plan will include, at a minimum, the procedures that will be used to recycle all clean wood, metal, and concrete generated during demolition and construction activities. Additionally, the Solid Waste Management Plan will specify that all land clearing and inert debris shall be taken to a properly permitted facility. The plan shall also include a requirement that a monthly reporting of all tonnage disposed and recycled will be made to the Mecklenburg County Solid Waste Program. The report shall include the identification and location of all facilities receiving disposed or recycled materials.



PRELIMINARY NOT TO BE USED FOR CONSTRUCTION

> PLAN SET DATE **February 13, 2013**



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SCALE

JOB NO.

SHEET

February 13, 2013

2013-1743

RLOTTE IT RESIDENC NG NOTES



MEMO

Date: February 5, 2014

To: Wes Smith, PE

From: Jared Fowler, PE, PTOE

Subject: Charlotte Retirement Residence – Trip Generation

This memo has been prepared to provide a trip generation analysis for the proposed Charlotte Retirement Residence site, located at the northeast quadrant of the intersection of Providence Road (NC 16) and Kuykendall Road in Charlotte, North Carolina.

The development is planned to consist of a 134-suite living facility designed for seniors who maintain a mostly independent living lifestyle, but need some support. Site generated trip ends were forecast using data and methodology contained in <u>Trip Generation</u>, 9th Edition (Institute of Transportation Engineers, 2012). Daily, morning, and afternoon peak hour traffic volumes were estimated using trip generation rates published for ITE land use code 253, Congregate Care Facility. As shown in **Table 1** below, the proposed development is expected to generate 272 total daily trips, 8 external trips in the morning peak hour (5 entering, 3 exiting) and 23 external trips in the afternoon peak hour (13 entering, 10 exiting).

Table 1 - Trip Generation — Congregate Care Facility

	Square						
Land Use	Feet ITE		Time	ITE	Total	Trips	Trips
	or Units	Code	Period	Formula	Trips	Entering	Exiting
Congregate Care	134	253	Weekday (ADT)	Average Rate=2.02	272	136	136
Facility	units		AM Peak Hr of Adjacent St.	Average Rate=0.06	8	5	3
			PM Peak Hr of Adjacent St.	Average Rate=0.17	23	13	10

The number of daily weekday trips expected to be generated by the proposed facility was also estimated based on trip data from similar existing facilities, as provided by the developer. As shown in **Table 2** below, the similar facility-based estimate results in fewer daily trips compared to the ITE-based estimate.

Table 2 - Trip Generation - Similar Retirement Residence Data

Land Use	Units	Time Period	Trip Source	Total Trips	Trips Entering	Trips Exiting
Congregate Care	134	Weekday (ADT)	Employees: 18 empl. x 4 trips per day	72	36	36
Facility	units		Visitors: 20% of residents per day	54	27	27
			Residents: <25% possess vehicles	68	34	34
			Shuttle Service: 3-4 excursions per day	8	4	4
			Deliveries/Service Trips: 5 per day	10	5	5
			WEEKDAY TOTAL	212	106	106

Note:

^{1. 4} trips per day = arrive for shift, depart for lunch, return from lunch, depart after shift (Conservative - assumes no employees on vacation or sick leave, and all leave site for lunch break)



Since the number of daily trips estimated via the similar facility data is close to, but somewhat less than the ITE estimate of daily trips, it is reasonable to assume that the number of peak hour trips will be similar to, or slightly less than the number of trips estimated via the ITE trip generation methodology.

Trips generated by the proposed development were compared to what could be generated if the site were developed with an estimated 33 single-family homes per current zoning. (See Table 3 below.) The comparison analysis of trip generation estimates indicates the proposed development is expected to generate fewer peak hour trips and result in lower ADTs (approximately 44% fewer trips) than would be generated by a traditional single-family neighborhood.

Table 3 - Trip Generation - Single Family Detached Housing

Square							
Land Use	Feet	ITE	Time	ITE	Total	Trips	Trips
	or Units	Code	Period	Formula	Trips	Entering	Exiting
Single-Family Detached	33	210	ADT	Ln(T)=0.92Ln(x)+2.72	380	190	190
Housing	units		AM Peak	T=0.70(x)+9.74	33	8	25
			PM Peak	Ln(T)=0.90Ln(x)+0.51	39	25	14

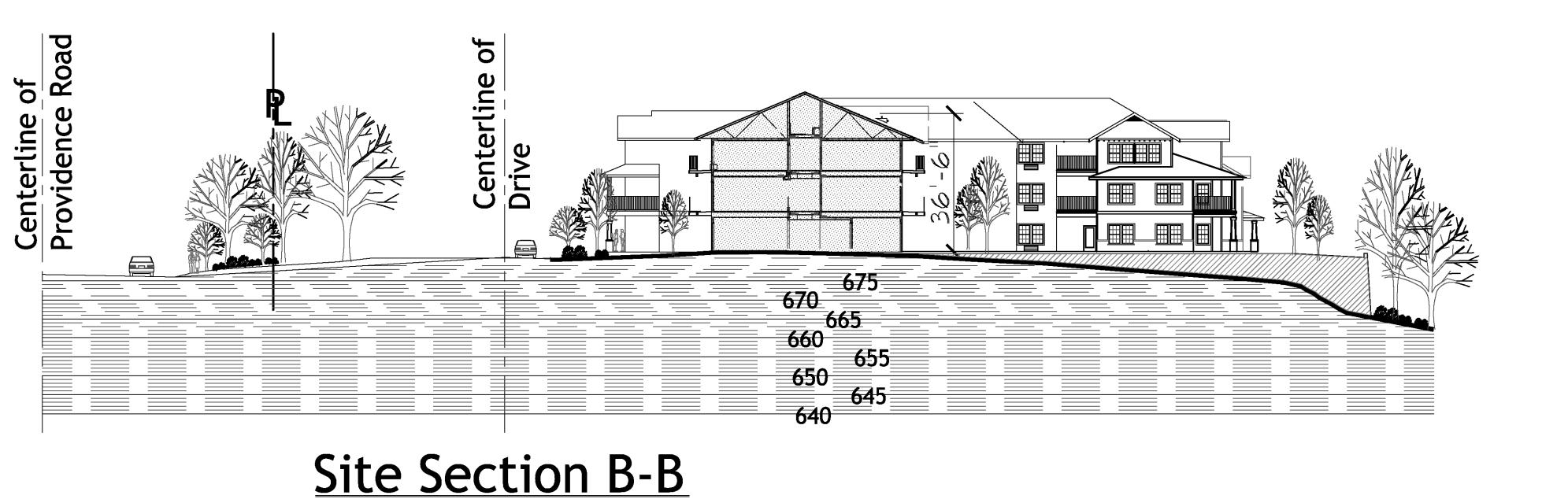
In summary, the analysis results indicate that the retirement facility will generate a relatively low number of vehicle trips. Traffic impacts resulting from the proposed 134-unit retirement facility can be expected to be relatively minor due to several factors:

- Typically, less than 25% of residents drive vehicles.
- On any given weekday, only 20% of residents will have visitors traveling to and from the site.
- The 18 employees (approximate) will arrive and depart the site at shift change times which do not typically coincide with the normal morning and afternoon peak traffic hours of the adjacent streets.

Please let me know if you have any questions or if I may be of further assistance in this matter.

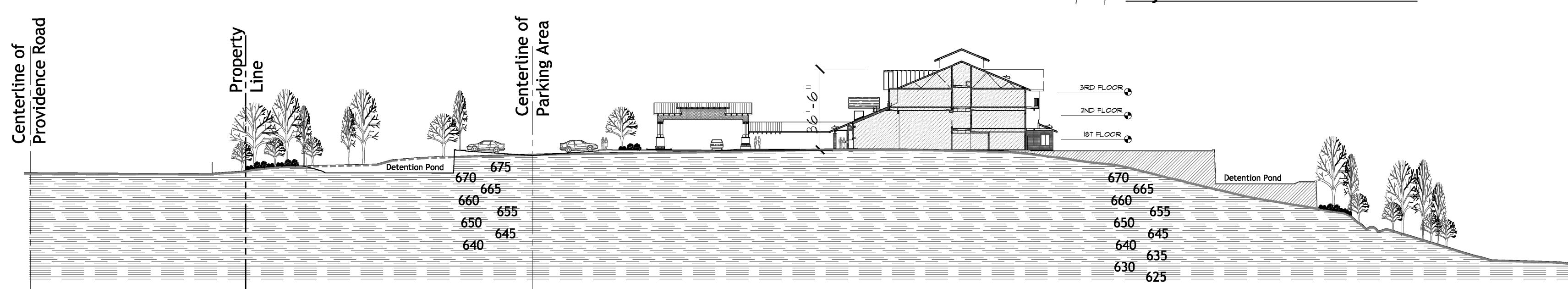
Sincerely,

Jared Fowler, PE, PTOE Senior Traffic Engineer



Site Section A-A







Charlotte Retirement Residence

RETIREMENT GROUP

9310 NE Vancouver Mall Dr., Suite 200

Vancouver, WA 98662-8210

(360) 213-1550 Fax (360) 213-1540

Site Sections

DATE: 01-21-14

SCALE: 1" = 20'-0"

Charlotte, North Carolina



Charlotte, North Carolina

9310 NE Vancouver Mall Dr., Suite 200 Vancouver, WA 98662-8210 (360) 213-1550 Fax (360) 213-1540



February 10, 2014

Mr. Mark D. Lowen Lenity Architecture 3150 Kettle Court SE Salem, Oregon 97301

Subject: Protected Species Survey Results

Charlotte Retirement Residence Charlotte, North Carolina CWS Project No. 2013-3235

Dear Mr. Lowen:

Carolina Wetland Services, Inc. (CWS) has been contracted by Lenity Architecture to provide a Protected Species Survey of the proposed Charlotte Retirement Residence site at the intersection of Providence Road and Kuykendall Road in Charlotte, North Carolina (NC) (Figure 1, attached). This report includes the following sections:

- Executive Summary
- Methods
- Results
- Conclusions

Executive Summary

The proposed Charlotte Retirement Residence site is located northeast of the intersection of Providence Road and Kuykendall Road in Charlotte, North Carolina (Figure 1, attached). CWS performed a pedestrian survey of the proposed site and downstream ponds (hereinafter referred to as the study area or the site) on February 6, 2014. There were no federally-protected species, nor their appropriate habitat, identified within the study area.

Methods

CWS reviewed the North Carolina Natural Heritage Program (NCNHP) and the United States Fish and Wildlife Service (USFWS) databases for federally protected, endangered, or threatened species known to have either a current or historical occurrence in Mecklenburg County. Table 1 on the following page lists the potentially present federal species of concern and their corresponding status.

A protected species survey was conducted to determine the potential for the occurrence of animal and plant species formally proposed or listed as endangered or threatened by current Federal regulations [Federal Endangered Species Act of 1973 (16 U.S.C. 1531 *et seq.*)] (ESA) within the study area (Table 1). The assessment consisted of a literature and records search, and a pedestrian survey performed by CWS biologists on February 6, 2014. The literature review included searching several databases and literature available through the North Carolina Natural Heritage Program (NCNHP), the United States Fish and Wildlife Service (USFWS), the United States Department of Agriculture Natural Resource Conservation Service (USDA-NRCS), as well as other independent sources. During the pedestrian survey, CWS documented the presence or absence of suitable habitat for each of the species listed in Table 1. Observed plants were identified to the lowest taxonomic level

necessary to determine if the observed specimen was a protected species. Plant species identified in this report follow taxonomy described by Weakley.¹

Table 1. Listing of Potentially Present Protected Species

Scientific Name	Common Name	Туре	Federal Status ² , ³ , ⁴	Optimal Survey Window ⁵	Habitat Present (Y/N)	Species Present (Y/N)
Echinacea laevigata	Smooth purple coneflower	Vascular Plant	Endangered	late May - October	N	N
Helianthus schweinitzii	Schweinitz's sunflower	Vascular Plant	Endangered	late July - October	N	N
Lasmigona decorata	Carolina heelsplitter	Freshwater bivalve	Endangered	During non- hibernating	N	N
Rhus michauxii	Michaux's sumac	Vascular Plant	Endangered	May - October	N	N
Symphyotrichum georgianum	Georgia aster	Vascular Plant	Candidate	late May - July	N	N

Results

Site Conditions

The proposed Charlotte Retirement Residence and downstream ponds are located in Charlotte, North Carolina (Figure 1, attached). The existing adjacent land use is dominated by single family residential lots and adjacent wooded lots. On-Site dominant vegetation includes red oak (*Quercus rubra*), white oak (*Quercus alba*), tulip poplar (*Liriodendron tulipifera*), loblolly pine (*Pinus taeda*), sweetgum (*Liquidambar styraciflua*), and American beech (*Fagus grandifolia*). The site is heavily invaded with invasive plant species such as autumn olive (*Eleananus umbeallata*), bamboo (*Phyllostachys aurea*), Chinese wisteria (*Wisteria sinensis*), and lesser periwinkle (*Vinca minor*).

On-Site soils consist of Cecil sandy clay loam, 2 to 8 percent slopes, moderately eroded (CeB2), Cecil sandy clay loam, 8 to 15 percent slopes, moderately eroded (CeD2), Mecklenburg fine sandy loam, 2 to 8 percent slopes (MeB), Pacolet sandy loam, 15 to 25 percent slopes (PaE), and Wilkes loam, 15 to 25 percent slopes (WkE) (Figure 2, attached). All on-site soils are well drained soils and none are listed on the North Carolina Hydric Soils list for Mecklenburg County⁶ or on the National Hydric Soils List.⁷

¹ Weakley, Alan, S. working draft, May 2011. Flora of the Southern and Mid-Atlantic States. University of North Carolina Herbarium, Chapel Hill, North Carolina.

² Animals: LeGrand, Harry E., John T. Finnegan, Sarah E. McRae, and Stephen P. Hall. Natural Heritage Program List of the Rare Animal Species of North Carolina. 2010. North Carolina Natural

Heritage Program Office of Conservation, Planning, and Community Affairs and N.C. Department of Environment and Natural Resources. Raleigh, NC.

³ Plants: Buchanan, Misty, Franklin and John T. Finnegan. Natural Heritage Program List of the Rare Plants of North Carolina. 2010 ed. North Carolina Natural Heritage Program Office of Conservation, Planning, and Community Affairs and N.C. Department of Environment and Natural Resources. Raleigh, NC.

⁴ http://ecos.fws.gov/tess_public/countySearch!speciesByCountyReport.action?fips=37119

⁵ Personal communication with Dr. Alexander Krings with NC State Herbarium and Weakley, Alan, S. working draft, May 2011. Flora of the Southern and Mid-Atlantic States. University of North Carolina Herbarium, Chapel Hill, North Carolina.

⁶ United States Department of Agriculture – Natural Resources Conservation Service, 1999. North Carolina Hydric Soils List, USDA-NRCS North Carolina State Office, Raleigh.

⁷ United States Department of Agriculture – Natural Resources Conservation Service, 1999. North Carolina Hydric Soils List, USDA-NRCS North Carolina.

Federally Listed Endangered and Threatened Species

Literature Search

To determine which federally-protected species and their respective habitats are listed as occurring or potentially occurring within the study area, CWS consulted a variety resources. These resources include, but are not limited to, United States Geologic Service (USGS) topographic maps (Figure 1, attached), Natural Resources Conservation Service (NRCS) soil surveys (Figure 2, attached), National Wetland Inventory (NWI) maps, aerial photography, and county GIS/topographic mapping, and element occurrence records from the North Carolina Natural Heritage Program (NCNHP).

A habitat description of each protected species potentially occurring in the study area is provided below.

Pedestrian Survey

Smooth purple coneflower (Echinacea laevigata)

Smooth purple coneflower habitat is open woods, cedar barrens, clearcuts, woodlands, and open areas over mafic rocks. This species is listed as endangered at the federal level due to habitat fragmentation due to human impacts, fire suppression, highway right-of-way maintenance, and encroachment of exotic species⁹.

On-site plant communities are not associated with the smooth purple coneflower. There were no individuals of smooth purple coneflower, nor their appropriate habitat observed during the field survey.

Schweinitz's sunflower (Helianthus schweinitzii)

Schweinitz's sunflower habitat is open woods, roadsides, and other rights-of-ways that maintain some level of disturbance. This species is listed as endangered at the federal level due to the loss of historic levels of natural disturbance from fire and grazing by herbivores and habitat fragmentation¹⁰.

On-site plant communities are not associated with the Schweinitz's sunflower. There were no individuals of Schweinitz's sunflower, nor their appropriate habitat observed during the field study.

Carolina heelsplitter (Lasmigona decorata)

The Carolina heelsplitter's habitat is found in waters of the Catawba and Pee-Dee River Basins in the Waxhaw Creek and Goose Creek watersheds. This species is listed as endangered at the federal level due to a narrow endemic range and degradation of water quality contributed to by poor land use practices¹¹.

There are no perennial streams or ponds located on the site. There were no individuals of Carolina heelsplitter, nor their appropriate habitat observed during the field survey.

Michaux's sumac (Rhus michauxii)

Michaux's sumac habitat is sandhills, sandy forests, woodlands, and woodland edges. This species is listed as endangered at the federal level due to lack of natural disturbances such as fire and an endemic, narrow range¹².

On-Site plant communities are not associated with Michaux's sumac. There were no individuals of Michaux's sumac, nor their appropriate habitat observed during the field survey.

⁹ http://ecos.fws.gov/docs/recovery_plan/950418.pdf. Date accessed February 6, 2014.

¹⁰ http://ecos.fws.gov/docs/federal_register/fr1852.pdf. Date accessed February 6, 2014.

¹¹ http://ecos.fws.gov/docs/federal_register/fr2323.pdf. Date accessed February 6, 2014.

¹² http://ecos.fws.gov/docs/federal_register/fr1509.pdf. Date accessed February 6, 2014.

Georgia aster (Symphyotrichum georgianum)

The Georgia aster habitat is dry oak-pine flatwoods and uplands. This species is listed as a candidate for federal listing due to the destruction and loss of habitat due to development, however it is more populous than originally thought. This species is a relict prairie species and depends on the availability of light to sexually reproduce¹³.

On-Site plant communities are not associated with the Georgia aster. There were no individuals of the Georgia aster, nor their appropriate habitat observed during the field survey.

Conclusions

No specimens of any federally-protected species, nor their appropriate habitats, were identified within the proposed Charlotte Retirement Residence study area.

Please do not hesitate to contact me at 704-527-1177 or tom@cws-inc.net should you have any questions or comments regarding this report.

Sincerely,

Thomas Blackwell, PWS

Senior Scientist

Kelly Thames, WPIT

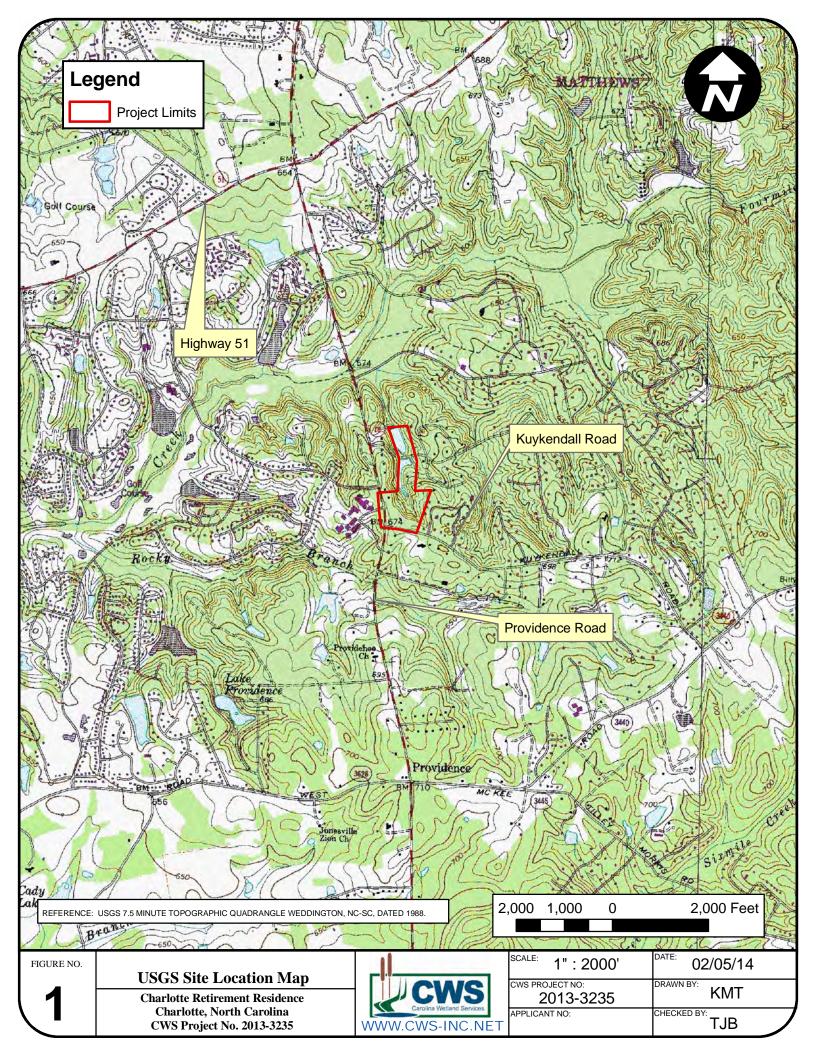
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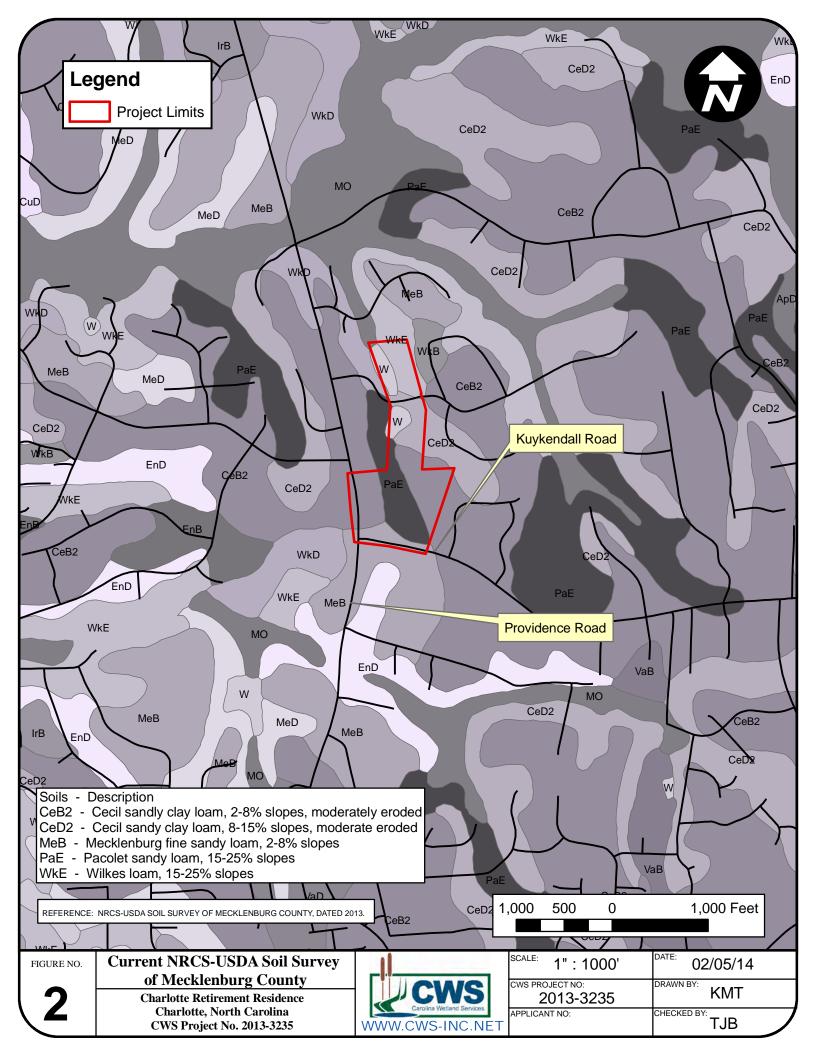
Staff Scientist II

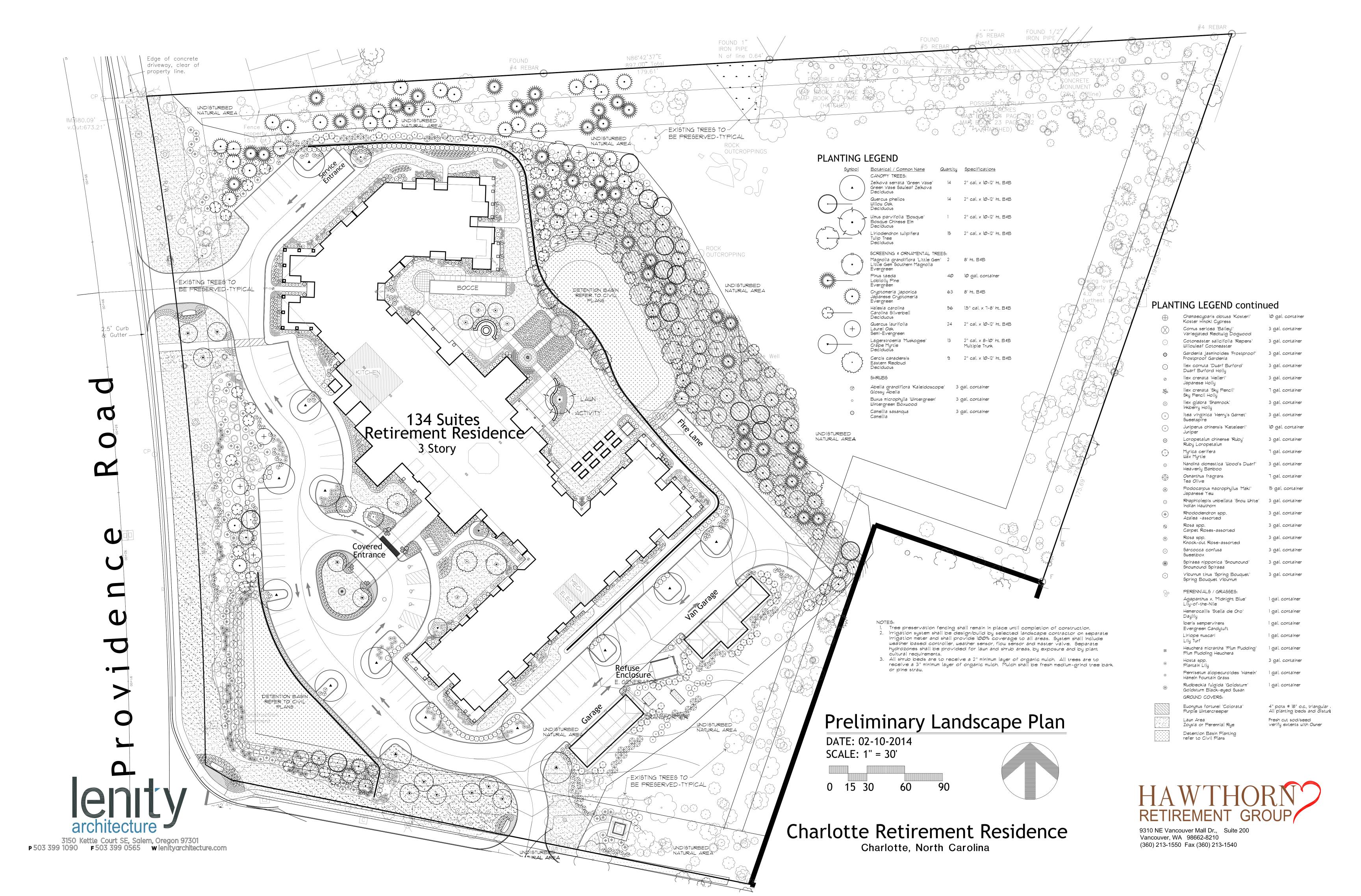
Attachments: Figure 1. USGS Site Location Map

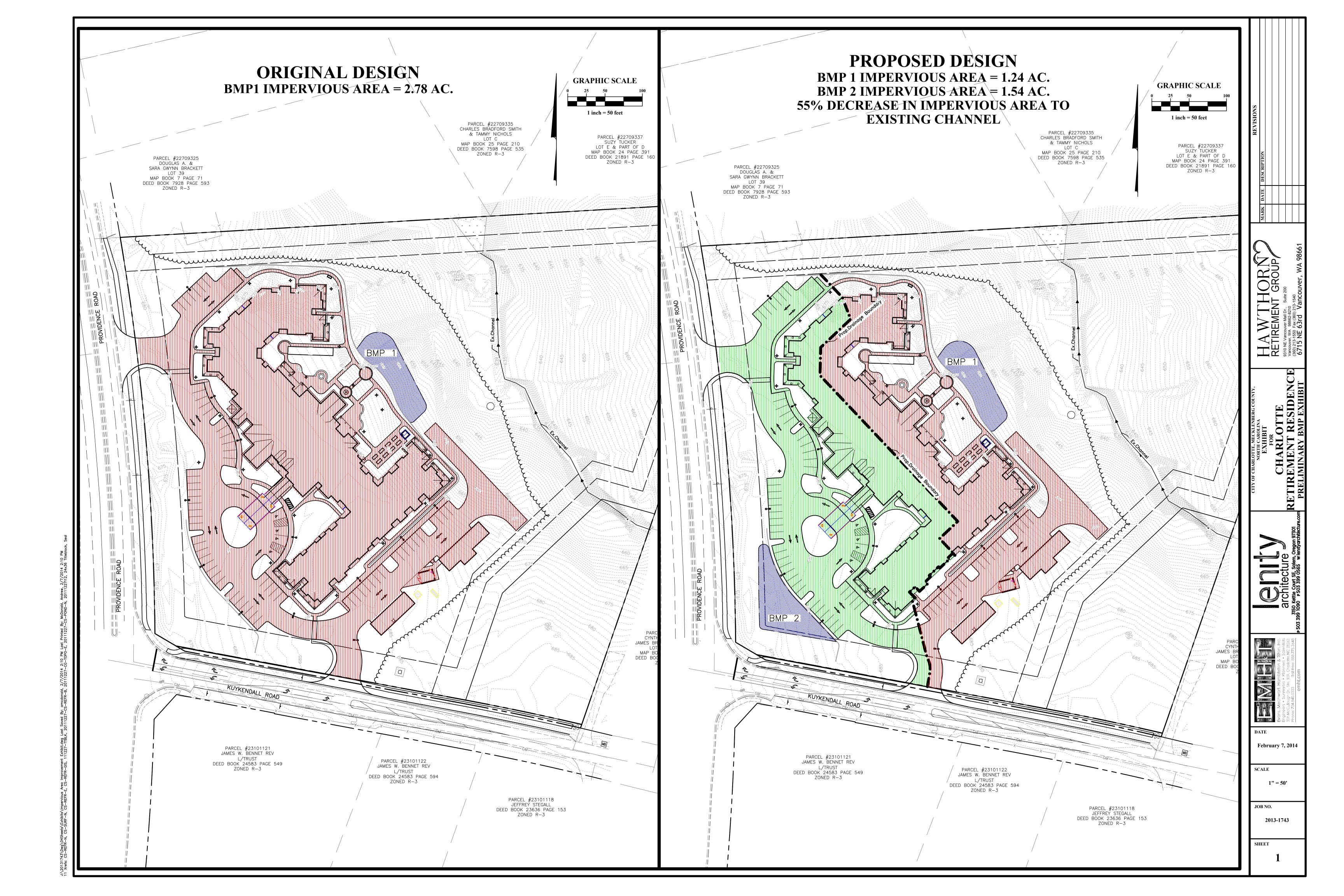
Figure 2. NRCS-USDA Soil Survey of Mecklenburg County

¹³ http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=Q2Z5. Date accessed February 6, 2014.











February 10, 2014

Mr. Mark D. Lowen Lenity Architecture 3150 Kettle Court SE Salem, Oregon 97301

Subject: Plant Community and Wildlife Habitat Assessment

Charlotte Retirement Residence Charlotte, North Carolina CWS Project No. 2013-3235

Dear Mr. Lowen:

Carolina Wetland Services, Inc. (CWS) has been contracted by Lenity Architecture to provide a plant community and wildlife habitat assessment for the proposed Charlotte Retirement Residence site at the intersection of Providence Road and Kuykendall Road and the ponds downstream of the proposed site in Charlotte, North Carolina (NC) (Figure 1, attached). This report includes the following sections:

- Executive Summary
- Methods
- Results
- Conclusions

Executive Summary

The proposed Charlotte Retirement Residence site is located northeast of the intersection of Providence Road and Kuykendall Road in Charlotte, North Carolina (Figure 1, attached). CWS performed a pedestrian survey of the proposed site and downstream ponds on February 6, 2014. One natural plant community type was distinguished, a Dry-Mesic Oak-Hickory forest plant community, with infested areas of invasive plant species.

Methods

On February 6, 2014, CWS biologists performed a pedestrian survey of the project area and downstream ponds to assess and identify the existing plant community types and wildlife habitat. Plant community types were identified using Schafale and Weakley².

The site was methodically surveyed and canopy, understory, and herbaceous species were noted. The presence of native species and invasive species was also noted.

¹ Schafale, M. P. and A. S. Weakley. 1990. Classification of the Natural Communities of North Carolina, Third Approximation. North Carolina Natural Heritage Program, Division of Parks and Recreation. Department of Environment and Natural Resources, Raleigh, North Carolina.

² Schafale, M. P. and A. S. Weakley. 1990. Classification of the Natural Communities of North Carolina, Third Approximation. North Carolina Natural Heritage Program, Division of Parks and Recreation. Department of Environment and Natural Resources, Raleigh, North Carolina.

Results

Site Conditions

The site consists of single family residential lots and wooded areas. The adjacent land use is dominated by single family residential lots and adjacent wooded lots. On-Site dominant vegetation includes red oak (*Quercus rubra*), white oak (*Quercus alba*), tulip poplar (*Liriodendron tulipifera*), loblolly pine (*Pinus taeda*), sweetgum (*Liquidambar styraciflua*), and American beech (*Fagus grandifolia*). The site is invaded with invasive plant species such as autumn olive (*Eleaganus umbellata*), bamboo (*Phyllostachys aurea*), Chinese wisteria (*Wisteria sinensis*), and lesser periwinkle (*Vinca minor*).

On-Site soils consist of Cecil sandy clay loam, 2 to 8 percent slopes, moderately eroded (CeB2), Cecil sandy clay loam, 8 to 15 percent slopes, moderately eroded (CeD2), Mecklenburg fine sandy laom, 2 to 8 percent slopes (MeB), Pacolet sandy loam, 15 to 25 percent slopes (PaE), and Wilkes loam, 15 to 25 percent slopes (WkE) (Figure 2, attached). All on-site soils are well drained soils and none are listed on the North Carolina Hydric Soils list for Mecklenburg County⁴ or on the National Hydric Soils List.⁵

There is one first order tributary, fringe wetlands, and two ponds onsite. The tributary and upstream pond experience sediment deposition from upstream erosion. Both on-site ponds exhibit stable bed and banks and a stable normal pool elevation. A wetland connects the on-site tributary and the upstream pond and fringe wetlands are adjacent to the downstream pond.

Plant Community Types

On February 6, 2014, CWS scientists conducted a plant community type assessment of the study area. There is one plant community type found in the project area. The attached plant community map shows the approximate location of the plant community (Figure 3, attached).

Dry-Mesic Oak-History Forest:

Species assemblages include a canopy of white oak, red oak, pignut hickory (*Carya glabra*), mockernut hickory (*Carya tomentosa*), American beech, tulip poplar, sweetgum, and loblolly pine. Understory species assemblages include red maple (*Acer rubrum*), hackberry (*Celtis laevigata*), flowering dogwood (*Cornus florida*), American holly (*Ilex opaca*), and eastern red cedar (*Juniperus virginiana*). Vines include muscadine (*Vitis rotundifolia*) and poison ivy (*Toxicodendron radicans*). The herbaceous layer is sparse, but includes heartleaf species (*Hexastylix* spp.), cranefly orchid (*Tipularia discolor*), and wintergreen (*Chimaphila maculata*).

This plant community type is the most predominant and widespread plant community throughout the piedmont and coastal plain of the southeastern United States. Disturbed variants of this plant community include increased amounts of pines and weedy hardwoods such as red maple and sweetgum.

The Dry-Mesic Oak-Hickory Forest plant community is present throughout the whole site and has been altered in the past. However, it is invaded with invasive species and exhibits severe erosion problems in certain areas (Figure 4, attached). Invasive species present include autumn olive (*Eleaganus umbellata*), bamboo (*Phyllostachys aurea*), Chinese wisteria (*Wisteria sinensis*), and lesser periwinkle (*Vinca minor*). Photograph A

⁴ United States Department of Agriculture – Natural Resources Conservation Service, 1999. North Carolina Hydric Soils List, USDA-NRCS North Carolina State Office, Raleigh.

⁵ United States Department of Agriculture – Natural Resources Conservation Service, 1999. North Carolina Hydric Soils List, USDA-NRCS North Carolina.

(attached) is representative of this plant community type and Photograph B (attached) is representative of an area with an invasive species infestation.

Wildlife Habitat Assessment

This site is surrounded by adjacent woodlands and single family residences to the north and east and constrained by roads to the south and west. There is very little wooded area that has not already impacted by invasive plant species. The area is fragmented and is discontinuous with other suitable habitat, therefore providing only a narrow corridor for wildlife movement. Evidence of deer and raccoon was observed, however no individuals were seen.

Both on-site ponds are in good condition. The upstream pond exhibits a forebay-like area that traps sediment from upstream erosion. Both ponds are surrounded by roads, single family residences, and infestations of invasive plant species. Roadside runoff and impervious surface runoff most likely discharge into the ponds from the surrounding infrastructure and there is little to no movement of aquatic life between the ponds. However, the ponds appear to provide suitable habitat for fish and water fowl. Wildlife that may utilize the ponds include fish species such as brim (*Lepomis macrochirus*) and green sunfish (*Lepomis cyanellus*); amphibian species such as bull frogs (Rana catesbeiana), spring peepers (Pseudacris crucifer), common toads (Bufo fowleri), and marbled salamanders (Ambystoma opacum); and water fowl species such as mallard ducks (Anas platyrhynchos), Canadian geese (Branta canadensis), and wood ducks (Aix sponsa).

Conclusions

Based on the current site conditions, the proposed Charlotte Retirement Residence will have minimal impacts on the wildlife habitat present. The proposed development may in fact alleviate the upstream erosion problems, thereby decreasing downstream sediment loads, and thus improving downstream water quality. During construction, proper erosion and sediment control measures must be enforced.

Throughout the site, invasive plant management could potentially improve water quality even more so by restoring native species to the pond buffers and encouraging an increase in wildlife use.

Please do not hesitate to contact me at 704-527-1177 or tom@cws-inc.net should you have any questions or comments regarding this report.

Sincerely,

Senior Scientist

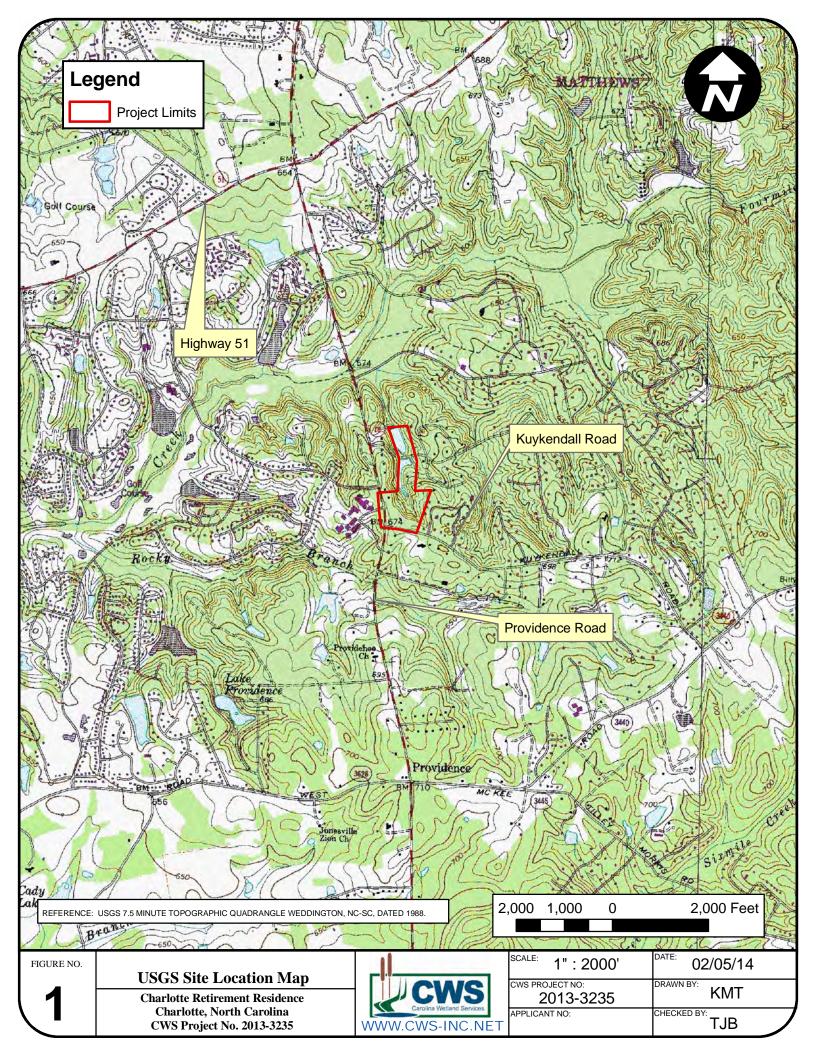
Kelly Thames, WPIT Staff Scientist II

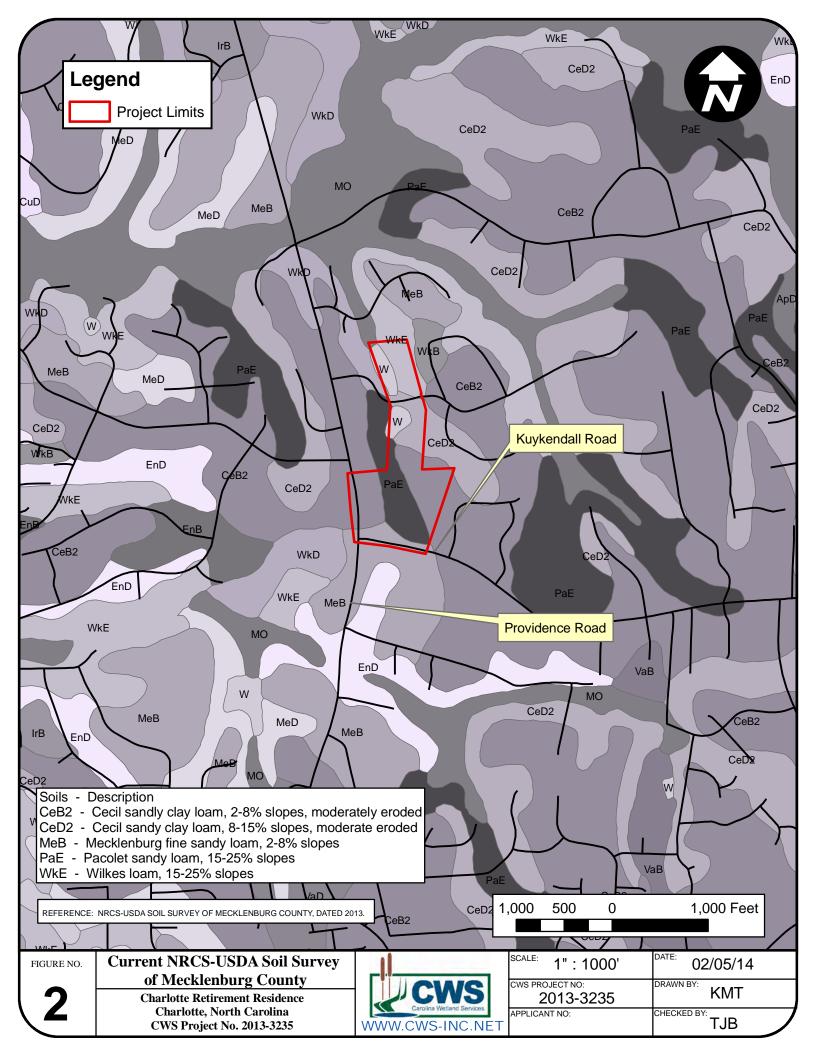
Kelly Thames

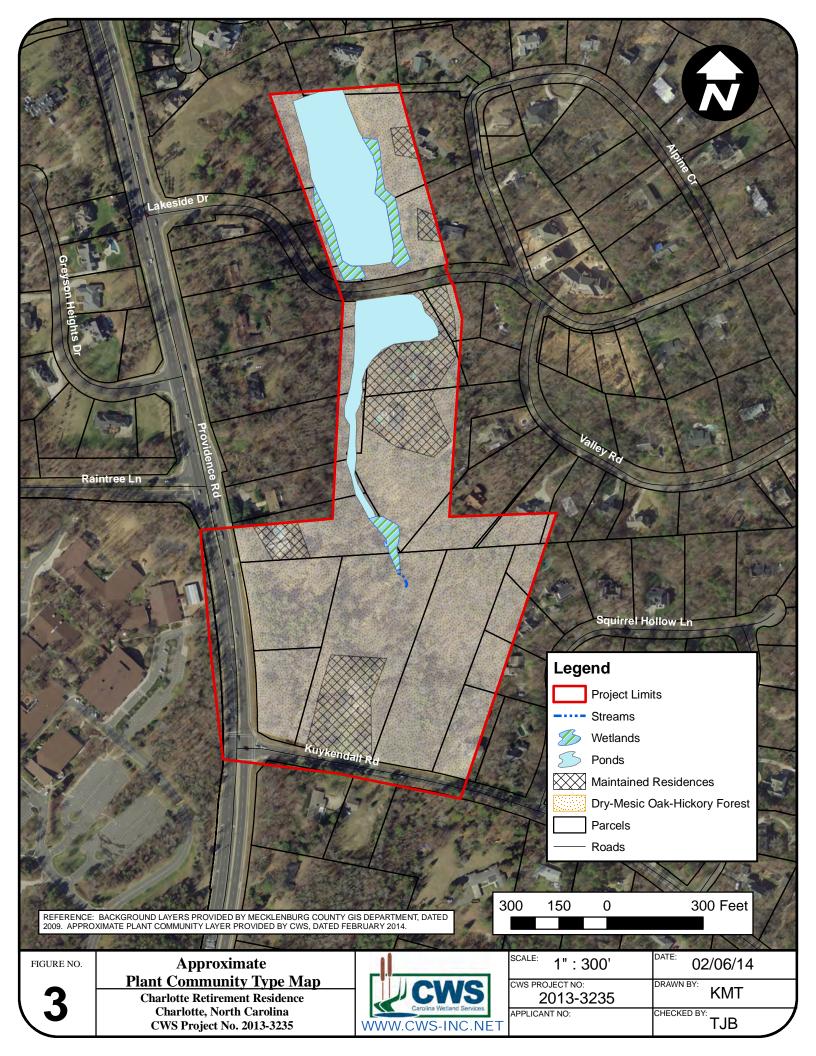
Figure 1. USGS Site Location Map Attachments:

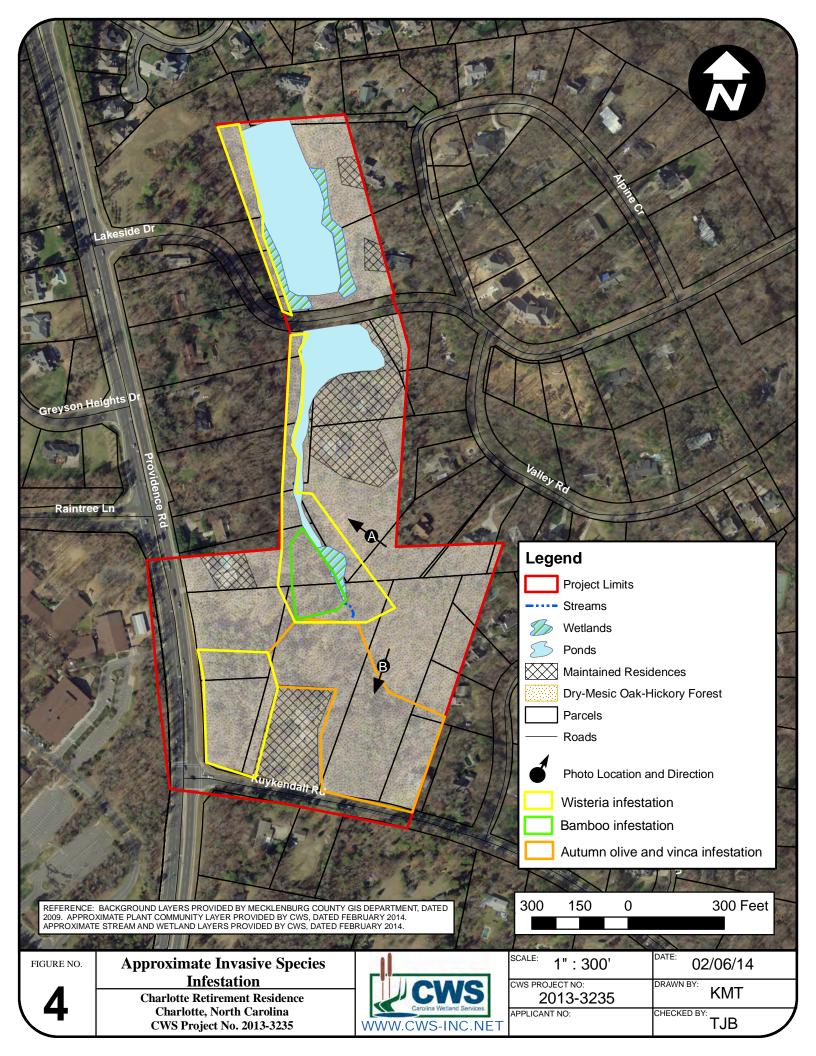
> Figure 2. NRCS Soil Survey of Mecklenburg County Figure 3. Approximate Plant Community Boundary Map Figure 4. Approximate Invasive Species Infestation

Photopage











Photograph A. View of Dry-Mesic Oak-Hickory Forest plant community type, facing northwest.



Photograph B. View of an area that is heavily infested with invasive plants (autumn olive, *Eleaganus umbellata*).

