PUBLIC FACILITIES REPORT & WQIA

ELLIS FARM / MANNING RD. SUBDIVISION

MANNING RD., PARCELS 33*75, 33*75A

SUFFOLK, VA

November 13, 2024

Prepared By:

DSG

DEVELOPMENT SERVICES GROUP INC.

PUBLIC FACILITIES REPORT & WQIA

ELLIS FARM/ MANNING RD. SUBDIVISION

MANNING RD., PARCELS 33*75, 33*75A

SUFFOLK, VA

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1210 Progressive Dr., Suite 201
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Narrative

Project Description

The subject properties are identified as Tax Map Parcels 33*75 and 33*75A. Both Parcels have frontage on Manning Road. The property is generally bounded to the north by Speights Run Reservoir, to the west by Manning Rd. and property zoned Residential (RLM), to the south by property zoned Agriculture (A) and to the east by property zoned Residential (RLM). The two existing two parcels consists of approximately 113.29 acres. The proposed development intends to rezone the project limits to RU Residential to allow for the proposed single- family detached dwellings. The proposed project limits are shown below in red on ***Figure 1.0*** The parcels have approximately 1,200 linear feet of combined frontage along Manning Rd.

Figure 1.0 – Existing Zoning

The intent of the project is to develop the property into a new single family residential development that will meet the provisions set forth in the UDO for a single-family detached subdivision. The development will consist of 300 single-family detached units as shown below in ***Figure 2.0***. The infrastructure improvements include parks and open space amenities, domestic water and sanitary sewer services, and storm drainage conveyance and management systems.

Primary access to the development will be provided with two new entrances on Manning Rd. The main entrance to the development is currently positioned directly across from the main entrance to an existing subdivision on the west side of Manning Rd. as show in ***Figure 2.0*** below. Additional access information is provided in the Traffic Report submitted under separate cover.

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Figure 2.0 – Preliminary Concept Plan

Public Facilities Report

Water Level of Service

Based on the information provided by the City, there is a water main located west of the project area within Manning Road. Per City of Suffolk Public Utilities this will likely be the connection point for the proposed domestic service and fire flow demand. A water main extension from Manning Rd. will be routed along the proposed roadways to provide adequate water service to the proposed lots. The proposed development will utilize fire hydrants adequately spaced as required to address the fire flow requirements. Refer to Appendix A for water service mapping provided by the Suffolk Public Utilities Department.

Sewer Level of Service

Based on the HRSD Sanitary Sewer Flow Calculations Worksheet, the approximate sewer demand for the proposed 300 units (310gdp/unit) is ***64.58gpm (average) and 161.46gpm (peak)***. See Appendix A for preliminary sewer demand for the project. Based on the information provided by the City, the best option for providing sewer service to this site will be to tie into the existing 6" force main located in Manning Rd. The existing City/HRSD

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pump stations will need to be hydraulically modelled to ensure that the proposed flows from this development can be handled by the existing infrastructure. A new pump station and force main will also need to be designed and constructed as part of this development in order to tie the new infrastructure into the existing 6" public force main. These options will be fully assessed and confirmed when more information is available during Engineering Plan review. Refer to Appendix A for sewer service mapping provided by the Suffolk Public Utilities Department.

Major Water Quality Impact Assessment

2A Existing Topography

Most of the property is currently being used for agricultural purposes. The property currently drains to the northeast and discharges directly into Speights Run Reservoir. The project area is located within the Chesapeake Bay Preservation Overlay District and is designated as a Resource Management Area (RMA). The proposed development area will not be located within or impact any Resource Protection (RPA).

2B Impacts on topography

The proposed site design shall utilize the existing topography as much as possible to minimize proposed earthwork. Offsite work is only proposed for the proposed sewer and water connections and right-of-way improvements, with the understanding of no impacts to adjacent properties.

Soil Characteristics

Based on USDA's Natural Resources Conservation Service (NRCS) Web Soil Survey information, the project area consists of a variety of soil types. Please refer to the Map Unit Legend and Soils Map below.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
8A	Eunola loamy fine sand, 0 to 2 percent slopes	5.7	4.5%
9A	Goldsboro fine sandy loam, 0 to 2 percent slopes	19.7	15.7%
11	Kenansville loamy sand, 0 to 4 percent slopes	8.6	6.8%
15D	Nansemond loamy fine sand, 6 to 15 percent slopes	12.2	9.7%
15E	Nansemond loamy fine sand, 15 to 30 percent slopes	10.4	8.3%
22A	Suffolk loamy sand, 0 to 2 percent slopes	42.3	33.7%
22B	Suffolk loamy sand, 2 to 6 percent slopes	26.0	20.7%
W	Water	0.5	0.4%
Totals for Area of Interest		125.3	100.0%

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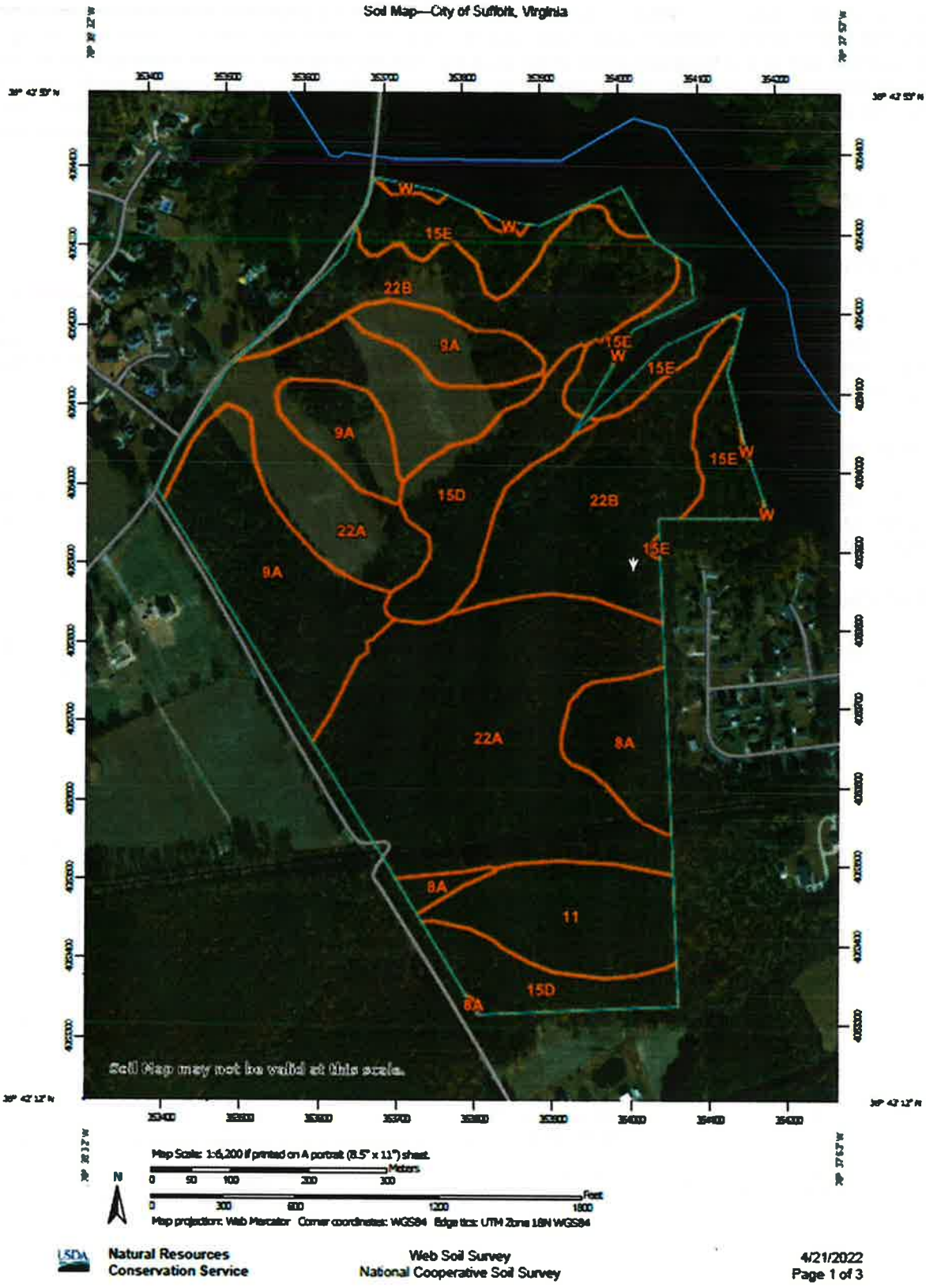

Figure 3.0 – NRCS Web Soil Survey Map

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2C City of Suffolk Unified Development Ordinance Checklist Items

In accordance with Appendix B-13 of the Unified Development Ordinance, the following elements shall be included in the preparation and submission of a major water quality assessment:

1. (A) Location of the components of the RPA, including the 100 foot buffer areas;

This property is located within the Chesapeake Bay Preservation Overlay District and is designated as resource management area (RMA / RPA. 100' buffers are shown around the required area as shown in the Wetland determination report prepared by MSA PC.

(B) Location and nature of the proposed encroachment into the buffer area, including: type of paving material; areas of clearing or grading; location of any structures, drives for other impervious cover; and sewage disposal systems or reserve drain field sites;

The plan does not propose any encroachments into the RPA buffer, other than the necessary stormwater outfall locations.

(C) Type and location of proposed best management practices to mitigate the proposed encroachment.

Exact BMP type has not been determined at this point, but it is anticipated that at least one Level II Wet Pond will be constructed. BMPs will be provided as needed to meet City and State stormwater regulations.

(D) Location of existing vegetation and re-vegetation areas as shown on the site drawing.

Landscaping will be installed as required by the Unified Development Ordinance along the street and parking area.

2. A hydrogeological element that:

(A) Describes the existing topography, soils, hydrology and geology of the site and adjacent lands.

As shown on the USGS Map, the existing topography of the site indicates that the runoff flows to natural channels and marshes which ultimately drains to Shingle Creek.

In accordance with the NRCS, the following types of soils can be found on the project site:

- ***8A – Eunola loamy fine sand***
- ***9A – Goldsboro fine sandy loam***
- ***11 – Kenansville loamy sand***
- ***15D/E – Nansemond loamy fine sand***
- ***22A/B – Suffolk Loamy Sand, 2-6% slopes.***

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(B) Describes the impacts of the proposed development on topography, soils, hydrology and geology on the site an adjacent lands.

The proposed development will retain the current topography as much as possible. Cut and fill of the existing topography will be kept to a minimum. AS shown on the conceptual site plan, it is anticipated that wet ponds will flank the existing stream that bisects the property. The stream will be a protected feature on-site and will remain in it's natural state with the exception of a single proposed roadway crossing, The drainage from the site is handled by Best Management Practices (BMP'S) in a manner acceptable to the City of Suffolk.

(C) Indicates the following:

1. Disturbance or destruction of wetlands and justification for such action;

   Wetland impacts will be limited to a proposed road crossing and stormwater outfalls.

2. Disruptions or reductions in the supply of water to the wetlands, streams, lakes, rivers or other water bodies;

   The supply of water will not be disrupted or reduced. We do not intend on impacting the runoff to adjacent areas. Utilization of BMP will maintain water quality draining to the discharge point on site.

3. Disruptions to existing hydrology including wetland and stream circulation patterns;

   Downstream wetland and stream circulation patterns will not be disrupted.

4. Source location and description of proposed fill material;

   Proposed fill material would be hauled to the site from borrow pits in the vicinity of the project.

5. Location of dredge material and location of dumping area for such material;

   No dredging is associated with this project.

6. Location of and impacts on shellfish beds, submerged aquatic vegetation, and fish spawning areas;

   There will be no impact to shellfish beds, submerged aquatic vegetation, or fish spawning area.

7. Estimation of pre- and post-development pollutant loads in runoff;

   The VRRM New Development Compliance Spreadsheet was used to calculate a total phosphorus removal requirement of 77.17lb/yr. We will be required to meet or exceed the removal requirement.

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8. Estimation of percent increase in impervious surface on site and types of surfacing materials used;

The existing site has no impervious area. We will be increasing the amount of impervious area by approximately 40 percent. This 40 percent increase includes the proposed roadways, buildings and parking areas. The increase in impervious area will be treated in accordancewith the Criteria IIB.

9. Percent of site to be cleared for the project;

Approximately 65% of the project area will need to be cleared.

10. Anticipation, duration and phasing schedule of construction project;

We anticipate on commencing construction as soon as the development plans are approved. We feel that the project should be ready for construction in late 2023. No phasing of the development is anticipated.

11. Listing of all requisite permits from all applicable agencies necessary to develop project.

- ***VSMP from the Department of Environmental Quality (required for land disturbance over 1 acre)***
- ***Wetlands Disturbance Permit from USACOE***
- ***Land Disturbance Permit from City of Suffolk (required for land disturbance over 2,500 square feet)***

There could be other permits required once the final construction plan is complete.

12. Describe the proposed mitigation measures for the potential hydrogeological impacts. Potential mitigation measures include:

(A) Proposed erosion and sediment control concepts; concepts may include minimizing the extent of the cleared area, perimeter controls, reduction of runoff velocities, measures to stabilize disturbed areas, schedule and personnel for site inspection;

An erosion and sediment control plan will be a part of the construction plans. This plan will include such erosion control measures as follows:

- ***Construction Entrance***
- ***Silt Fence***
- ***Temporary Sediment Basin***
- ***Inlet Protection***
- ***Seeding***
- ***Outlet Protection***

The plan will ensure that periodic inspections and required maintenance will be provided, at least once a week and especially after each significant storm event. The project

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superintendent shall be responsible for the installation and maintenance of all erosion and sediment control practices.

(B) Proposed storm water management system;

The storm water management system will be designed to reduce the pollutant load of the runoff as required by the current stormwater regulations.

(C) Creation of wetlands to replace those lost;

There are no wetlands to be disturbed with this project.

(D) Minimizing cut and fill.

Limits of clearing and grading will be shown on the construction plans to ensure that no unnecessary cut and fill takes place.

3. A landscape element that:

(A) Identifies and delineates the location of all significant plant material, including all trees on site six (6) inches or greater in diameter at breast heights. Where there are groups of trees, stands may be outlined.

Landscaping will be provided per City of Suffolk UDO requirements

1. Describes the impacts the development or use will have on the existing vegetation. Information should include: General limits of clearing, based on all anticipated improvements, including buildings, drives and utilities;
Please refer to the concept plan.

2. Clear delineation of all trees which will be removed;

Please refer to concept plan.

3. Description of plant species to be disturbed or removed.

N/A

4. Describes the potential measures for mitigation. Possible mitigation measures include:

(A) Replanting schedule for trees and other significant vegetation removed for construction, including a list of possible plants and trees to be used;

A landscape plan shall be provided for approval by the City prior construction. The landscape plan shall list the types of vegetation used to replant the site.

(B) Demonstration that the design of the plan will preserve to the greatest extent possible any significant trees and vegetation on the site and will provide maximum erosion control and overland flow benefits from such vegetation.

Please refer to the attached Plan

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(C) Demonstration that indigenous plants are to be used to the greatest extent possible.

N/A

4. A wastewater element, where applicable, that:

(A) Includes calculations and locations of anticipated drain field or wastewater irrigation areas;

N/A - The site will incorporate a new pump station and force main and tie into the existing force main in Manning Rd.

Provide justification for sewer line locations in environmentally sensitive areas, where applicable, and describes construction techniques and standards;

See Item 4 (A), we do not anticipate or propose any encroachments to sensitive areas.

(B) Discusses any proposed on-site collection and treatment systems, their treatment levels, and impacts on receiving watercourses.

See Item 4 (A), the on-site collection and treatment systems will be designed at the development plan stage and coordinated with the Health Department.

(C) Describe the potential impacts of the proposed wastewater systems, including the proposed mitigative measures for these impacts.

See Item 4 (A).

(D) Identification of the existing characteristics and conditions of sensitive lands included as components of Chesapeake Bay Preservation Areas, as defined in this Article.

The site is located within the RPA/RMA, however the buffers associated with these areas are not proposed to be encroached upon.

(E) Identification of the natural processes and ecological relationships inherent in the site, and an assessment of the impact of the proposed use and development of land on these processes and relationships.

With all of the proposed measures mentioned above, there should be little, if any, ecological impacts with this development.

3 Landscape Element

A. The existing property is currently used as an agricultural farm and forested areas. Trees within the proximity of newly proposed infrastructure will be removed. Where possible, trees within the development will be saved to improve the quality and character of the development.

B. i) The proposed development anticipates approximately thirty (94) acres of land disturbance for the purposes of constructing the buildings, roadways, parks and stormwater management facilities. As we enter the engineering phase of the project, we anticipate this number to significantly reduce.

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ii) Individual trees to be removed will be assessed during the engineering phase of the project. In general trees will be saved within park areas, other passive open space as well as along the perimeter of the property to create a visual buffer.

iii) Specific plant species are not identified at this stage of the process.

iv) During the design process, efforts will be made to design the proposed improvements to minimize impacts to the existing trees and vegetation. The landscape design will incorporate the use of native plants and trees.

4 Wastewater Element

A. The proposed development will not use a septic system or mass drain field.

B. The proposed development does not propose sewer line locations in sensitive areas.

C. The proposed development intends to collect all sanitary sewer within a gravity sewer system that will connect to the existing gravity sewer located in White Marsh Rd.

D. No impacts are proposed.

E. As part of our preliminary site investigation a review of the wetland inventory was performed within the proposed project limits. The wetland inventory review identified approximately 8.5 acres of wetlands/RPA buffers within the proposed property limits. Per the wetland assessment, a 100' RPA buffer is located on site northeast corner of the site, as well as around the existing stream. All onsite areas are located within the CBPA Resource Management area.

F. As mentioned above, the existing property is currently a mixture of agricultural farmland and forested areas. The property drains into Speights Run Reservoir along the northeastern limits of the property. The change in use will remove the use of pesticides and strong fertilizers typically used in farming practices. The proposed development will capture the runoff and discharge into a stormwater management facility where sediment and pollutants will be removed prior to discharging into the existing ditch system. This process shall improve water quality within the existing watershed.

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APPENDIX A

UTILITY MAPPING AND SEWER CALCULATIONS

- Water and Sewer Utility Maps
- Sanitary Sewer Flow Calculations

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HRSD Sanitary Sewer Flow Calculations Worksheet

Applicants with projects generating sanitary sewer flow must use this worksheet to calculate flows and submit to HRSD Development Services using the email link: developrequest@hrsd.com

Project Name: Ellis Farm/ Manning Rd. Subdivision

Pump Station Replacements - Upgrades - Modifications projects

HRSD shall certify a pump station based on metered data if available. In absence of metered data, water consumption data shall be used instead. If there is a future flow component in the calculations for the catchment, please use the worksheet below.

PS No:				
PS Name:				
	Pump Station Catchment Basin			
	Avg. Dry Weather Flow		Wet Weather Flow	
	gpd	gpm	gpd	gpm
Enter Metered →				
OR Water Consumption Flow →				
Sub-totals:	0	0.00	0	0.00

Proposed Development

Please use the table below to calculate sanitary sewer flows for your project

Land Use	Contributing Unit Type	Flow (gpd/Unit)	Flow Duration (hours)	Peak Factor	Enter No. of Units	Avg. Flow (gpd)	Avg. Flow (gpm)	Peak Flow (gpd)	Peak Flow (gpm)
Residential									
Single Family Homes, Trailers, Apartments, Condos, Townhomes, Duplexes	Residential Dwelling	310	24	2.5	300	93,000	64.58	232,500	161.46
Medical Facilities									
Hospitals	Medical Bed	300	24	3					
Nursing Homes & Assisted Living		160	24	3					
Funeral Homes	Gross SF	0.25	12	3					
Medical Office Building	Gross SF	0.25	12	3					
Tourism Facilities									
Motels & Hotels	Room	130	24	3					
Educational Facilities									
High School (w/ showers)	Student / Faculty	15	8	3					
Elementary & Middle School		10	8	3					
College/University Campus & Day Care		10	12	3					
Boarding Schools		75	16	3					
Recreational Facilities									
Picnic Areas, Parks & Amusement Parks	Person	5	12	3					
Movie Theater	Seat	2.5	12	3					
Religious Assembly		2.5	6	3					
Campground / Cabins	Camping site	100	24	3					
Dining /Eatery Facilities									
Restaurants	Seat	30	16	3					
Service & Retail Facilities									
Shopping Mall & Retail Shops	Gross SF	0.2	12	3					
Convenient Store		0.3	24	3					
Office Building, Storage Units Office		0.1	12	3					
Fitness Center		0.1	16	3					
Service Stations		0.4	16	3					
Laundromats	Machine	500	16	3					
Industrial Facilities									
Heavy Industrial	Gross SF	0.35	16	3					
Light Industrial		0.1	16	3					
Warehouse		0.05	24	3					
					Sub-Totals:	93,000	64.58	232,500	161.46

Future Growth Flow Calculations

Land use	Contributing Unit Type	Enter Flow (gpd/Unit)	Flow Duration (hrs)	Peak Factor	Enter No. of Units	Avg. Flow (gpd)	Avg. Flow (gpm)	Peak Flow (gpd)	Peak Flow (gpm)
Residential									
Single Family Homes, Trailers, Apartments, Condos, Townhomes, Duplexes	Residential Dwelling	310	24	2.5					
Commercial									
Medical, Tourism, Educational, Recreational, Dining, Service & Retail Facilities	Acres	1,000.00	24	3					
Industrial									
Heavy & Light Industrial, Manufacturing, Warehouses	Acres	1,000.00	24	3					
					Sub-totals:	0	0	0	0
					Grand Totals:	**93,000**	**64.58**	**232,500**	**161.46**

NOTE: Enter the number of units as indicated in the appropriate land use to calculate project design flows. Under the Future Growth Flow Calculations section, you may edit the default values for the flow factor (gpd/Unit) based on best engineering practices.

Comments:

Applicant's Name:
Phone No:
Email:

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APPENDIX B

STORMWATER / DRAINAGE CALCULATIONS

PRELIMINARY DEQ VRRM Calculations

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DEQ Virginia Runoff Reduction Method Re-Development Compliance Spreadsheet - Version 3.0

○ 2011 BMP Standards and Specifications ○ 2013 Draft BMP Standards and Specifications

Project Name: Ellis Farm/ Manning Rd. Subdivision
Date:
Linear Development Project? No

CLEAR ALL

data input cells
constant values
calculation cells
final results

Site Information

Post-Development Project (Treatment Volume and Loads)

Enter Total Disturbed Area *(acres)* → 114.00

Maximum reduction required:	20%
The site's net increase in impervious cover (acres) is:	45
Post-Development TP Load Reduction for Site (lb/yr):	77.17

Check:
BMP Design Specifications List: 2013 Draft Stds & Specs
Linear project? No
Land cover areas entered correctly? ✓
Total disturbed area entered? ✓

Pre-ReDevelopment Land Cover (acres)

	A Soils	B Soils	C Soils	D Soils	Totals
Forest/Open Space (acres) – undisturbed forest/open space			94.00		94.00
Managed Turf (acres) – disturbed, graded for yards or other turf to be mowed/managed			20.00		20.00
Impervious Cover (acres)			0.00		0.00
					114.00

Post-Development Land Cover (acres)

	A Soils	B Soils	C Soils	D Soils	Totals
Forest/Open Space (acres) – undisturbed, protected forest/open space or reforested land			20.00		20.00 *
Managed Turf (acres) – disturbed, graded for yards or other turf to be mowed/managed			49.00		49.00
Impervious Cover (acres)			45.00		45.00
Area Check	OK	OK	OK	OK	114.00

* Forest/Open Space areas must be protected in accordance with the Virginia Runoff Reduction Method

Constants

Annual Rainfall (inches)	43
Target Rainfall Event (inches)	1.00
Total Phosphorus (TP) EMC (mg/L)	0.26
Total Nitrogen (TN) EMC (mg/L)	1.86
Target TP Load (lb/acre/yr)	0.41
Pj (unitless correction factor)	0.90

Runoff Coefficients (Rv)

	A Soils	B Soils	C Soils	D Soils
Forest/Open Space	0.02	0.03	0.04	0.05
Managed Turf	0.15	0.20	0.22	0.25
Impervious Cover	0.95	0.95	0.95	0.95

LAND COVER SUMMARY -- PRE-REDEVELOPMENT

Land Cover Summary-Pre

Pre-ReDevelopment	Listed	Adjusted[1]
Forest/Open Space Cover (acres)	94.00	49.00
Weighted Rv(forest)	0.04	0.04
% Forest	82%	71%
Managed Turf Cover (acres)	20.00	20.00
Weighted Rv(turf)	0.22	0.22
% Managed Turf	18%	29%
Impervious Cover (acres)	0.00	0.00
Rv(impervious)	0.95	0.95
% Impervious	0%	0%
Total Site Area (acres)	114.00	69.00
Site Rv	0.07	0.09

Treatment Volume and Nutrient Load

Pre-ReDevelopment Treatment Volume (acre-ft)	0.6800	0.5300
Pre-ReDevelopment Treatment Volume (cubic feet)	29,621	23,087
Pre-ReDevelopment TP Load (lb/yr)	18.61	14.51 *
Pre-ReDevelopment TP Load per acre (lb/acre/yr)	0.16	0.21 *
Baseline TP Load (lb/yr) (0.41 lbs/acre/yr applied to pre-redevelopment area excluding pervious land proposed for new impervious cover)		28.29

[1] Adjusted Land Cover Summary:
Pre-ReDevelopment land cover minus pervious land cover (forest/open space or managed turf) acreage proposed for new impervious cover.

Adjusted total acreage is consistent with Post-ReDevelopment acreage minus acreage of new impervious cover).

Column I shows load reduction requirement for new impervious cover (based on new development load limit, 0.41 lbs/acre/year)

LAND COVER SUMMARY -- POST DEVELOPMENT

Land Cover Summary-Post (Final)

Post ReDev. & New Impervious	
Forest/Open Space Cover (acres)	20.00
Weighted Rv(forest)	0.04
% Forest	18%
Managed Turf Cover (acres)	49.00
Weighted Rv (turf)	0.22
% Managed Turf	43%
Impervious Cover (acres)	45.00
Rv(impervious)	0.95
% Impervious	39%
Final Site Area (acres)	114.00
Final Post Dev Site Rv	0.48

Land Cover Summary-Post

Post-ReDevelopment	
Forest/Open Space Cover (acres)	20.00
Weighted Rv(forest)	0.04
% Forest	29%
Managed Turf Cover (acres)	49.00
Weighted Rv (turf)	0.22
% Managed Turf	71%
ReDev. Impervious Cover (acres)	0.00
Rv(impervious)	0.95
% Impervious	0%
Total ReDev. Site Area (acres)	69.00
ReDev Site Rv	0.17

Land Cover Summary-Post

Post-Development New Impervious	
New Impervious Cover (acres)	45.00
Rv(impervious)	0.95

Treatment Volume and Nutrient Load

Final Post-Development Treatment Volume (acre-ft)	4.5275	Post-ReDevelopment Treatment Volume (acre-ft)	0.9650
Final Post-Development Treatment Volume (cubic feet)	197,218	Post-ReDevelopment Treatment Volume (cubic feet)	42,035
Final Post-Development TP Load (lb/yr)	123.91	Post-ReDevelopment Load (TP) (lb/yr)*	26.41
Final Post-Development TP Load per acre (lb/acre/yr)	1.09	Post-ReDevelopment TP Load per acre (lb/acre/yr)	0.38
		Max. Reduction Required (Below Pre-ReDevelopment Load)	20%
		TP Load Reduction Required for Redeveloped Area (lb/yr)	-1.88 *

Post-Development Treatment Volume (acre-ft)	3.5625
Post-Development Treatment Volume (cubic feet)	155,183
Post-Development TP Load (lb/yr)	97.50
TP Load Reduction Required for New Impervious Area (lb/yr)	79.05

* Reduction below new development load limitation not required

Post-Development Requirement for Site Area

TP Load Reduction Required (lb/yr)	77.17

Nitrogen Loads (Informational Purposes Only)

Pre-ReDevelopment TN Load (lb/yr)	133.14	Final Post-Development TN Load (Post-ReDevelopment & New Impervious) (lb/yr)	886.44


76° 38' 32" W
76° 37' 53" W
36° 42' 53" N
36° 42' 12" N
353400
353500
353600
353700
353800
353900
354000
354100
354200
4064400
4064300
4064200
4064100
4064000
4063900
4063800
4063700
4063600
4063500
4063400
4063300
W
15E
22B
9A
15D
22A
8A
11
Map Scale: 1:6,200 if printed on A portrait (8.5" x 11") sheet.
Meters
0 50 100 200 300
Feet
0 300 600 1200 1800
N
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: City of Suffolk, Virginia
Survey Area Data: Version 15, Sep 16, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Dec 31, 2009—Mar 8, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
8A	Eunola loamy fine sand, 0 to 2 percent slopes	5.7	4.5%
9A	Goldsboro fine sandy loam, 0 to 2 percent slopes	19.7	15.7%
11	Kenansville loamy sand, 0 to 4 percent slopes	8.6	6.8%
15D	Nansemond loamy fine sand, 6 to 15 percent slopes	12.2	9.7%
15E	Nansemond loamy fine sand, 15 to 30 percent slopes	10.4	8.3%
22A	Suffolk loamy sand, 0 to 2 percent slopes	42.3	33.7%
22B	Suffolk loamy sand, 2 to 6 percent slopes	26.0	20.7%
W	Water	0.5	0.4%
Totals for Area of Interest		**125.3**	**100.0%**

DSG
DEVELOPMENT SERVICES GROUP INC.

APPENDIX C

WETLAND DELINEATION REPORT

1210 Progressive Dr., Suite 201
Chesapeake, VA 23320
Tel: 757.472.2719

MSA, P.C.
5032 Rouse Drive, Suite 200
Virginia Beach, VA 23462-3764
757-490-9264 | www.msaonline.com

Environmental Sciences □ Surveying □ Civil & Environmental Engineering

February 17, 2022 (revised March 2, 2022)

Bob Arnette
Coastal Virginia Developers
5807 Portsmouth Boulevard
Portsmouth, VA. 23701

RE: Wetland Assessment of Manning Road Parcels

Greetings Bob,

MSA visited the approximately 125 acre property, located on the south side of Manning Road in Suffolk, VA, parcel # 33*75 and 33*75A. The site was assessed for the presence of wetlands based on the three wetland characteristics; vegetation, soils, and hydrology, using the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region. All three characteristics must be present for a location to be considered a wetland. The presence of CBPA buffers is determined by the limits of tidal wetlands and shores, non-tidal wetlands connected by surface flow and contiguous to tidal wetlands or shores or water bodies with perennial flow, and a 100' Resource Protection Buffer landward of these features. Public water supply reservoirs are also buffered.

The property currently contains the remains of a few buildings, including a residence near the eastern end of the site, and collapsed buildings and sheds near the entrance from Manning Road. Farm fields are present on the northwest side of the site, with the remainder of the property wooded. The site is bordered on the northeast side by Speights Run Reservoir, a public water supply for the metropolitan area. A large tributary stream bisects the property, flowing into this reservoir, and both the stream and reservoir are topographically defined wetlands and Waters of the US. Several isolated wetland areas were also identified, resulting from poor drainage, partially within the farm field. Most of the rest of the property lacked hydric soils and evidence of wetland hydrology. Since Speights Run Reservoir is a water supply, it and perennial tributary streams are subject to Chesapeake Bay Preservation Act (CBPA) Resource Protection Area (RPA) buffer as required by ordinance. The proposed limits of this buffer is shown in the attached exhibit, stopping at the end of the perennial stream feature. A second stream defines the southern border of the property, with a tributary branching off of it near the upstream end. While this is a wetland and waters, it is part of a tributary that is cut off from Speights Run by the railroad crossing, as previously approved, and this tributary is not subject to CBPA buffers.

Two marginal areas were called on the property. These are at the top of the stream feature that bisects the property. While these were subject to scour from storm events, they lacked a wetland preferring plant community, and soils were borderline hydric, but could be argued. While I intend to call these non-wetland during a future delineation and Corps review, be advised that these areas may be subject to debate over their jurisdictional status as a wetland.

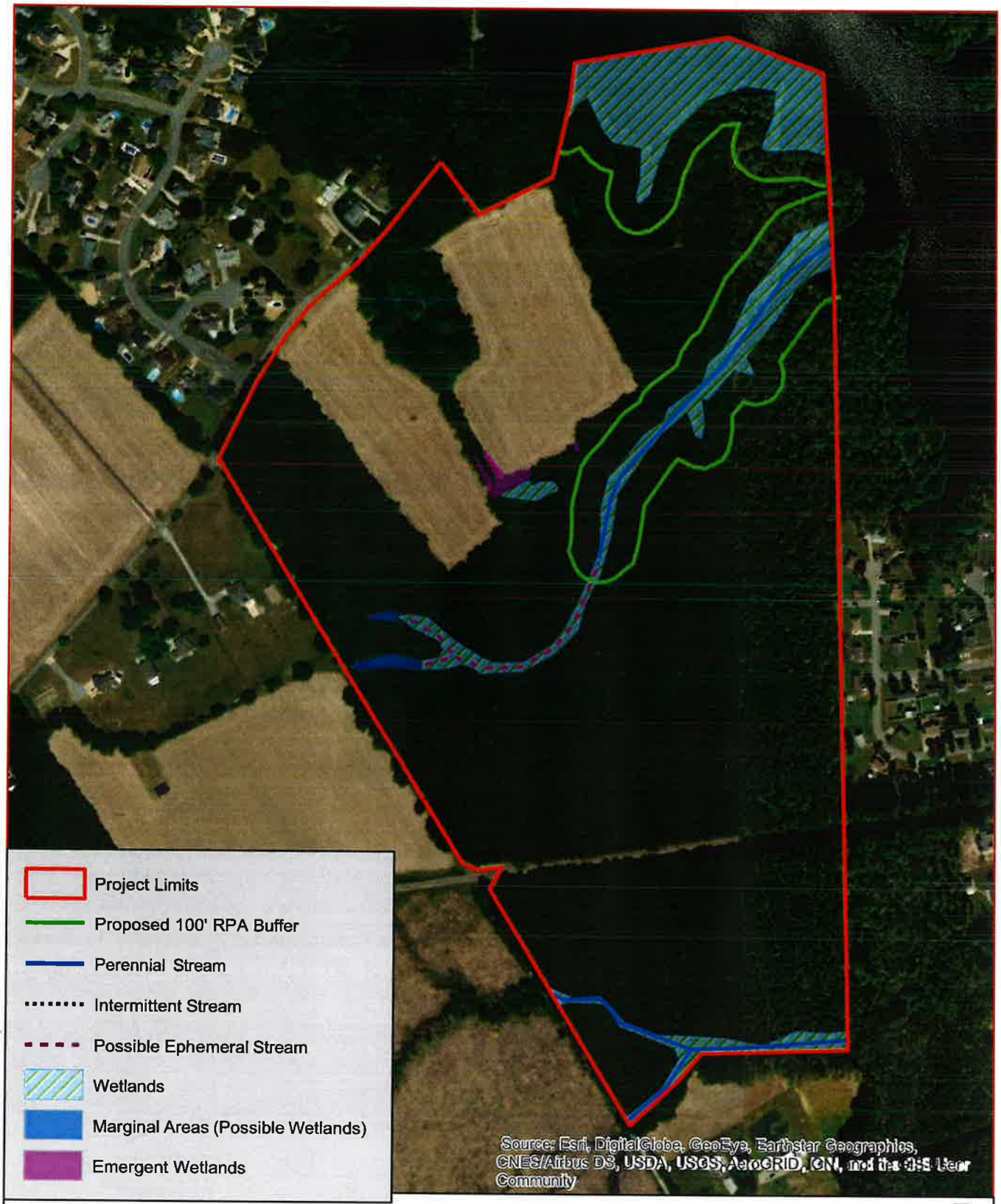
In conclusion, wetlands are present within the area of evaluation approximately as shown in the attached exhibit. Please note that the limits of wetlands has not been verified by the Corps of Engineers as of this time. Should any impacts to these wetland features be needed, permits must be obtained from the

Corps of Engineers or Virginia DEQ. Also the limits of CBPA features on the property has not been evaluated by the City as of this time. Obtaining verification with both agencies is recommended.

Thank you for allowing me to assist you with this project. If you have any questions, please call me at (757) 490-9264.

Sincerely;

Brian R. Owen, PWD
Wetland Specialist



Mapped by BRO
Buckhorn, VA USGS Quadrangle Topographic Map

0 250 500 1,000 1,500 Feet

WETLAND AND CBPA EXHIBIT

WETLAND AND CBPA ASSESSMENT
MANNING ROAD PARCELS
MANNING ROAD, SUFFOLK, VIRGINIA

MSA, P.C.
Environmental Sciences, Surveying,
Civil & Environmental Engineering
5032 Rouse Drive, Suite 200
Virginia Beach, VA. 23462
757-490-9264 www.msaonline.com

MSA JOB #	DATE:	MAPPED BY:
22052	MARCH 2, 2022	BRO

DSG
DEVELOPMENT SERVICES GROUP INC.

APPENDIX D

FISCAL IMPACT ANALYSIS

1210 Progressive Dr., Suite 201
Chesapeake, VA 23320
Tel: 757.472.2719

FISCAL IMPACT ANALYSIS

Ellis Farm/ Manning Rd. Subdivision
November 13, 2024

As part of a rezoning application submitted to the City of Suffolk, this report from Development Services Group presents estimates of the fiscal impact of the Ellis Farm/ Manning Rd. Subdivision planned for tax parcels 33*75 *and 33*75A*. The parcels are currently zoned A for Agriculture and divided as shown below:

Tax Map #	A (ac.)	RR (ac.)	RLM (ac.)	Total (ac.)
33*75	112.62	0.00	0.00	112.62
35*75A	0.67	0.00	0.00	0.67
TOTAL	**113.29**	**0.00**	**0.00**	**113.29**

The areas presented above were confirmed by boundary survey provided by the Owner.

1.0 Introduction

The purpose of this report is to describe estimates of the fiscal revenues and expenditures that this development will generate for the City of Suffolk. Fiscal impacts are those that directly affect a municipality's budget. Any new development that attracts new city residents generates the need for public services, such as *emergency medical services*, *police* and *fire protection*. In turn, the development generates additional tax revenue for the city. The major portion of the City's revenues from residential development is derived from real estate taxes and local household spending. Commercial developments involved in any project will generate revenues in several ways such as retail, meals, real property, business licensure and personal property taxes. All dollar figures contained in this report are expressed in 2022 dollars, and all fiscal impact estimates are based on the City of Suffolk's FY 2021 Comprehensive Annual Financial Report. No projection for economic inflation has been made.

The plans and estimates included in this report cover the development and sales schedules, construction investment, the employment directly associated with the construction of this development and the local spending of new residents in the development. Employment estimates are used to calculate the marginal cost of government services and no attribution is made as to the residence location of any employees. The fiscal impacts that flow from the development efforts and new residents are the new revenues that the City of Suffolk will collect and the new expenditures that Suffolk will incur to provide government services for this project.

2.0 Schedule and Construction Investment

The developer proposes a total of ***300*** *single family-detached homes* for the project. Additional improvements include extension of City water services and sewer utilities to serve the development.

3.0 Development Schedule and Construction Investment

The developer proposes a total of ***300*** *single family-detached homes* and ***0*** *single family-attached homes* for the project. The breakdown of costs associated with each unit are as follows:

Table 1 - Ellis Farm/ Manning Rd. Property Development Plan

Type	*Quantity*	*SF / Unit*	*Construction Cost*	*Infrastructure Cost*	*Average Market Value*
SF Detached	300	1,850	$148,000.00	$40,000.00	$350,000.00

From the data above, we calculate the total ***construction investment*** for *the development* to be approximately ***$56,400,000***. Construction is planned to begin in 2023 with homes coming onto the market in 2024. The developer estimates that 85% of construction materials will be purchased in Suffolk, resulting in average sales of ***$47,940,000*** for City businesses during the construction phase of this development.

4.0 Residential Population Projections

The residential population of the *development* is estimated at ***828 persons*** at buildout. To arrive at this estimate, an average household of ***2.76 persons*** has been assumed (source: United States Census Bureau) and multiplied by the number of proposed dwelling units.

Total Residents = (2.76 x **300** units) = **828 residents**

The Unified Development Ordinance (LIDO), Section 31-601 (h)(2)C (i) is the basis for how the City of Suffolk calculates the number of students generated by a development. This table shows the following information:

Type of Development	Elementary	Middle	High School
Single Family - Detached	0.18	0.10	0.13

For example, a single family development of 100 units would be projected to generate approximately 18 elementary age students (100 x 0.18), 10 middle school age students (100 x 0.10) and 13 high school age students (100 x 0.13). Using these ratios, the number of students generated from the development would be as follows:

	Elementary	Middle	High School
School Age Residents	**54**	**30**	**39**

Therefore, the total school age residents for this development would be ***123 students***

5.0 Employment and Payroll

The number of incremental full-time equivalent (FTE) employees is included in this fiscal impact analysis because it is one basis of local government expenditure estimates attributed to new construction activity. It is assumed that 50% of the construction workers will be full-time and 50% will be part-time. Assuming that payroll is ***40% of construction costs*** and that construction workers earn an average of ***$38,554*** (source: Virginia Employment Commission), the construction efforts should provide an average of ***585.2 construction jobs*** with an annual payroll of ***$22,560,000.***

Total Jobs Generated = (**$56,400,000** x 0.40) / $38,554 = **585.2 jobs**

6.0 Local Government Revenues

Residential developments in Suffolk generate several types of revenues, including ***real estate taxes***, ***personal property taxes*** and ***retail sales taxes***. The annual estimates for each one of these categories are shown in Table 2, and assumptions associated with the various components of the revenue stream are as follows:

Real Estate Taxes

The projected market value of each single-family detached house is ***$350,000.*** City of Suffolk's Fiscal Year 2021 Comprehensive Annual Report indicates that the current real estate tax rate is $1.11 per hundred dollars of assessed value. For the purposes of this analysis, 94% of the future market value has been used in this analysis for determining the real estate taxes

Real Estate Tax Revenue = (0.94 x ((**$350,000** x **300**) x $1.11 = **$1,095,570.00**

No adjustment has been made for the current real estate taxes received on the property. It is anticipated that the revenue stream will steadily increase for the City of Suffolk; however, due to the level of uncertainty of real estate values at future rates and assessments, no appreciation of the real estate value has been included in this analysis.

Personal Property Taxes

The City of Suffolk collects approximately $24 million in personal property taxes. The City's tax rate is $4.25 per $100 of assessed value and no increase is accounted for in this analysis. The residential personal property tax calculation has been based on current personal property taxes paid by the residents in the City of Suffolk. Per the Fiscal Year 2021 Comprehensive Annual Report, the personal property taxes for the residents in the City of Suffolk is ***$23,981,308***. Per the same report, the City of Suffolk has ***93,825 residents***. Dividing the personal property taxes paid by the number of citizens provides us with an estimated value of personal property taxes for each resident of ***$256***. This estimated value of personal property has been multiplied by the cumulative number of residents of the development to calculate the tax revenue for residential personal property. Applying these estimates, the City can expect to collect nearly the following personal property taxes:

Personal Property Tax Revenue = ($256 x **828** residents) = **$211,968.00**

Meals Taxes

The City of Suffolk currently levies a 6.5 % tax on prepared food and beverages. For the purposes of this analysis, we have not included any impact to meals taxes by the residential units. In this analysis, we have assumed that the construction employees will eat out an average of 3 times per week with an average meal cost of $10.00. For the purposes of this analysis, we anticipate that as building construction is completed the buildings will be sold over a two-year period.

Meal Tax Revenue = ($10.00 x 6.5% x 3 x **585.2** x 52 x 2) = **$118,669.09**

Retail Sales Taxes

For the purpose of this analysis, we have ignored the additional revenue source of retail sales taxes for each of the residential units with the assumption that **828** new residents will result in an increase in retail sales taxes.

Building Permit Revenue

Revenue will be received by the City of Suffolk from the application of building permit fees for the project. Building permit fees for the residential development are derived by adding the water and sewer connection and availability charges, the plan review fee charged by the Inspections Department (*varies between $75 and $250 based on the square footage of the building*), the Zoning Clearance letter *($35 per application)*, the Certificate of Occupancy Inspection Fee *($50 per inspection*) and the sum of the square footage of the building times the review fee schedule listed below:

- $8.00 per 100 square feet up to a 2,500 square foot building = $1,500
- Water Tap, Sewer Tap, Miscellaneous Fees = $13,675

Based on these fees, the City of Suffolk will receive in excess of **$4,578,000.00** in building permit & tap fees.

Recordation Tax Revenue

Suffolk collects recording taxes on real estate transfers. These included a deed recording fee of $0.33 per $100 of the selling price and a deed of trust recording tax of $0.33 per $100 of selling price or the face value of the mortgage, whichever is greater.

In 2022, the existing property will be purchased from the developer for a total price of ***$8,100,000***, collecting an additional ***$53,460.00*** in recordation taxes. For the purposes of this analysis, we anticipate that as building construction is completed the buildings will be sold over a two-year period. We have used the market value of the single-family detached houses at ***$350,000.*** Based on the information provided, the City can expect to receive the following:

Recordation Fee Revenue = $53,460 + ($0.66 x (350,000/100) x 300) = **$693,000.00**

For the purposes of this proposal, we did not include any resale of residential units after their initial sale.

Revenues from School Proffers

The following information was provided by the Suffolk Planning Department. Data includes Existing and Projected School Capacity 12/31/21 (updated enrollment 9/15/21). Students from the development will go to the following schools and the corresponding enrollment capacities:

- Elementary School – Kilby Shores Elementary School (502 *students enrolled, 498 bldg. capacity, 53 student deficit for committed projected future development*)
- Middle School – Forest Glen Middle School (449 *students enrolled, 478 bldg. capacity, 1student deficit surplus for committed projected future development*)
- Lakeland High School (*1,032 students enrolled, 1323 bldg. capacity, 159 surplus for committed projected future development*)

Per the *Unified Development Ordinance* (UDO), the *Property Subdivision* development will generate additional students as follows:

	Elementary	Middle	High School
School Age Residents	**54**	**30**	**39**

Therefore the total school age residents for this development would be **123 students**

Based on the information provided by the school system, the current demand of students exceeds the capacity of the schools to handle incoming students in Kilby Shores Elementary School and Forest Glen Middle School, however Lakeland High School has existing capacity to meet the additional students generated by this development.

Since **113.29 acres** of this project is currently zoned A, credits can be applied to offset some of the students generated from the development. Based on the UDO, one hundred and six (106) lots can be developed under the current zoning. Based on the Unified Development Ordinance (LIDO), Section 31-601 (h)(2)C (i) the number of students expected within this many single-family homes is as follows.

	Elementary	Middle	High School
Credit for A	**19**	**11**	**14**

Therefore, the City would only receive proffers from the following number of students:

	Elementary	Middle	High School
New Students for Proffers	**35**	**19**	**N/A**

Per discussions with the Department of Planning, each additional elementary school student would require a proffer of ***$40,677.50***. The following calculates the per unit proffer amount for Elementary School Students:

Elementary School Proffer TOTAL = $40,677.50 x **35** students = **$1,423,712.50** **Elementary School Proffer (per Unit)** = $40,677.50 x **35** students / **300** units = **$4,745.71**

Per discussions with the Department of Planning, each additional middle school student would require a proffer of ***$56,180.00***. The following calculates the per unit proffer amount for Middle School Students:

Middle School Proffer TOTAL = $56,180.00 x **19** students = **$1,067,420.00 Middle School Proffer (per Unit)** = $56,180.00 x **19** students / **300** units = **$3,558.07**

Per discussions with the Department of Planning, each additional high school student would not require a proffer.

Total Revenue from school proffers = **$2,491,132.50 or $8,303.78 per unit.**

Education Revenue from the Commonwealth

In the City's School Board budget for 2020-2021, the Commonwealth of Virginia provides the City with over $104.8 million in revenue for public education. This amount includes the education sales tax revenue redistributed by the Commonwealth from sales taxes. To arrive at a per pupil revenue amount, $104.8 million has been divided by the number of children within the public-school system (13,993 pupils, source: City of Suffolk School System website) to reach $7,489.5 per pupil. The estimated number of children generated by the *Subdivision* is estimated at ***123*** as shown above. By buildout, the children multiplied by the ***$7,489.5 per child*** will generate the following:

State Education Revenue = $7,489.5 x **123** new students = **$921,208.50**

Education Federal Funds

The Federal Government also provides funding for public education to each of the localities. The 2020-21 School Board budget indicates $1,092,000 in federal funds will be given to the City of Suffolk for public education spending ***$78.04 per pupil***.

Federal Education Revenue = $78.04 x **123** new students = **$9,598.92**

Miscellaneous Taxes and Revenues

Incidental and miscellaneous taxes and revenues are collected by the City of Suffolk as part of normal activities. These taxes and revenues collected include public service taxes, a variety of licenses, permits and fees, fines and forfeitures, revenues from the use of money and property, revenues from the Commonwealth and the Federal government and charges for services. The City budget shows that miscellaneous revenue sources are expected to total about $62.4 million. For this analysis, 95% of these revenues are attributed to residential uses and 5% are attributed to commercial uses.

Based on the City of Suffolk website, the 2019 U.S. Census Bureau indicated that there are 42,459 employees working within the City of Suffolk. On a per employee basis, 5% of the listed revenues total $73.40 ($62,400,000 divided by 42,459 employees x 5%).

Misc Taxes - Jobs = $73.48 x **585.2** jobs = **$42,997.06**

The Fiscal Year 2021 Comprehensive Annual Report indicates that there are 93,825 people residing in the City of Suffolk. On a per resident basis, 95% of the listed revenues totals $33.41 ($62,400,000 divided by 93,825 residents x 95%).

Misc Taxes - Residents = $631.80 x **828** residents = **$523,130.40**

Based on these estimates, the City of Suffolk at buildout is anticipated to receive approximately **$566,127.46** annually in miscellaneous revenues. The totals are shown in Table 2 below:

Table 2 - Ellis Farm/ Manning Rd. City Revenue Projections

Category	*Revenue During Construction*	*Revenue After Build Out*
Real Estate Taxes	$1,095,570.00	$1,095,570.00
Personal Property Tax	$211,968.00	$211,968.00
Meals Tax	$118,669.09	$0.00
Building Permit Revenue	$4,578,000.00	$0.00
Recordation Taxes	$746,460.00	$0.00
School Proffers	$10,417.44	$0.00
Revenue for Education	$2,491,132.50	
From Commonwealth	$921,208.50	$921,208.50
From Federal	$9,598.92	$9,598.92
Miscellaneous Revenue	$566,127.46	$566,127.46
TOTAL $	10,749,151.91	$2,804,472.88

7.0 Local Government Expenditures

Local government expenditures attributed to the development of Property has been estimated through the utilization of projected government expenses reported in the City's 2021 Comprehensive Financial Report. See Below:

Table 3 - FY 2021 Suffolk Government Expenditures

Category	*Cost*
General Government Admin	$24,148,299.00
Judicial Admin	$10,446,204.00
Public Safety	$66,848,213.00
Public Works	$42,200,323.00
Health and Welfare	$15,192,043.00
Transporatation	$1,511,098.00
Education	$58,464,243.00
Parks, Recreation & Cultural	$12,333,012.00
Community Development	$8,481,703.00
Interest on long-term debt	$9,095,957.00
TOTAL $	248,721,095.00

Table 3 shows that the City of Suffolk has total government expenditures of $248,721,095, including educational expenses. For this analysis, 95% of these expenditures are attributed to residential uses and 5% are attributed to commercial uses. The only exception to this is educational expenses, which are attributed as 100% for the residential uses.

The Fiscal Year 2021 Comprehensive Annual Report indicates that there are ***93,825 people*** residing in the City of Suffolk. On a per resident basis, 95% of the listed expenditures, and 100% of the educational expenditures totals:

Expenditures (per resident) = (($248,721,095*0.95) + $58,464,243)/93,825 = **$2,549.52**

As previously calculated, the number of new residences generated by this subdivision is **828**. This figure has been applied to the cumulative residents generated by the project for the ultimate build-out.

Total Expenditures for this development = $2,549.52 x **828** = **$2,110,998.49**

See below for a breakdown of the projected City Expenditures for the Development:

Table 4 - Ellis Farm/ Manning Rd. Projected City Expenditures

Category	*Cost*
General Government Admin	$202,451.93
Judicial Admin	$87,577.77
Public Safety	$560,434.90
Public Works	$353,794.55
Health and Welfare	$127,365.43
Transporatation	$13,335.35
Education	$515,943.44
Parks, Recreation & Cultural	$103,396.19
Community Development	$71,107.99
Interest on long-term debt	$76,257.71
TOTAL $	2,111,665.25

8.0 Net Fiscal Impact

The net fiscal impact of a development on the local government is calculated by subtracting the government expenditures from the government revenues. The annual estimated net fiscal impacts during the development period and at build-out are shown on ***Table 5***. The City should realize a cumulative net fiscal impact of about ***$8,638,153.42*** from 2023 to 2024. Once build-out occurs, it is estimated that the development will provide an annual positive net fiscal impact to the City of Suffolk of approximately ***$693,474.40***.

Table 5 -Ellis Farm/ Manning Rd. Net City Impacts

Category	*During Construction*	*After Build Out*
Annual City Revenue	$10,749,151.91	$2,804,472.88
Annual Expenses	$2,110,998.49	$2,110,998.49
TOTAL	$8,638,153.42	$693,474.40