5 Infrastructure and Phasing

5.1 Introduction

This Chapter describes the major backbone infrastructure and utilities required to support development of the Dana Reserve Specific Plan (DRSP) area. Public utilities include potable water system, wastewater system, stormwater facilities and other utilities such as natural gas, electrical, telecommunications, fiber, and cable/data service. Additionally, future developers in the DRSP area will pay NCSD water and wastewater development impact fees.

5.2 Water

Potable water for the DRSP area will be supplied by NCSD. Table 5.1 on the following page summarizes the water use factors and demand calculations for the anticipated land uses in the DRSP. The total demand is estimated at ~~376.11~~350.64354.69 acre-feet per year (AFY), with the total demand plus a 10% contingency estimated at ~~413.72~~385.71390.16 AFY. An estimated ~~72.84~~67.5570.85 acre-feet of the total ~~376.11~~350.64354.69 acre-feet would be used for commercial development, daycare, public safety and landscaped common areas. The NCSD has reviewed water demands for the DRSP area and determined that there is an adequate and reliable water supply for buildout of the DRSP area.

As shown in Exhibit 5-1, the water system for the DRSP area is proposed to be comprised of a 12" main line extension from the stub in North Frontage Road, at the southeast corner of the property, to Willow Road and will also include an internally looped system of 8" public water main line, which will provide fire suppression to the development areas. These will be routed within the public roads. The main trunk lines will be owned and operated by NCSD. The private main line system for the commercial areas will be protected at each connection point to the public system with a double detector check assembly.

Domestic water services for each development area are proposed to utilize County and NCSD standard water services and meters. Service connections will connect to the above referenced 8" domestic main lines. Waterlines are proposed to be routed within streets or easements. Fire hydrants will be located adjacent to roadways and spacing will be no greater than 500 feet, except on dead end streets it shall be no more than 400 feet. The maximum distance from any point on the street frontage to a hydrant shall be 250 feet. For commercial or light industrial areas, the maximum spacing will be no greater than 250 feet or less, as required by the Fire Official. Hydrants or tie-ins for future hydrants may be required by the fire official and shall typically limit the distance from any point on the exterior of any building to 150 feet.

As shown in Exhibit 5-2 below, the DRSP will install recycled water lines to make the project "recycled water" ready. If NCSD is able to provide recycled water to the DRSP, recycled water will be utilized for landscaping within the village and flex commercial area, public recreation, neighborhood parks, and streetscape and parkway areas. Irrigation for these identified areas will be converted from potable water to recycled water at that time.

5.2.1 *Operations and Maintenance*

The ongoing operation of water mains, infrastructure and associated appurtenances serving the DRSP area will be owned and maintained by NCSD.

Table 5.1: DRSP Water Use Factor and Demand

Land Use Category	*# of Units or Acres*	*Water Use Factor[3] (af/yr)*	*Potable Water Demand (af/yr)*	*Daily Demand[2] (gpd)*
Residential				
Apartments/ Condominiums	193~~73~~ units	0.13 af/yr/unit	~~22.14~~24.70	
Townhomes	~~210~~ 152 units	0.14 af/yr/unit	~~30.24~~21.89	
Cluster	124 units	0.21 af/yr/unit	25.79	
4,000-5,999 SF	43~~947~~ units	0.21 af/yr/unit	~~9~~91.31~~2.98~~	
6,000-10,000+ SF	256~~86~~60 units	0.34 af/yr/unit	~~87.72~~86.02~~6.02~~7.36	
Affordable	~~78156~~ units	0.14 af/yr/unit	11.23~~22.46~~	
ADU~~'~~s	152 units	0.14 af/yr/unit	21.2~~8~~89	
		Subtotal:	*~~302.25~~282.83~~3.09~~.~~42~~*	*~~269,831~~252,~~559~~327 ~~51,962~~*
Commercial[1]				
Village Commercial	4.4 ac	0.136 af/yr/1,000 sf	8.69	
Flex Commercial[6]	17.56 ac	0.136 af/yr/1,000 sf	34.67	
		Subtotal:	*43.36*	*38,709*
Recreation - Daycare[1]				
Recreation – Daycare Facility	0.45 ac	0.136 af/yr/1,000 sf	0.8~~9~~9	
		Subtotal:	*0.8~~9~~9*	*795*
Public Safety				
Fire Station	2.15 ac	0.136 af/yr/1,000 sf	1.63	
		Subtotal:	*1.63*	*1,455*
Landscape				
Village and Flex Commercial Areas and Recreation – Daycare Facility[4]	7.46 ac	1.0 af/yr/ac	7.46	
Recreation – Passive Neighborhood Park	1.0 ac	1.0 af/yr/ac	1.0	
Pocket Parks	10.0~~12.0~~ ac	1.0 af/yr/ac	10.0~~12.0~~	
Streetscape/Parkways	6.5 ac	1.0 af/yr/ac	6.50	
		Subtotal:	*~~26.96~~24.97*	*~~24,068~~22,277*
		Project Total[5]:	*~~376.11~~350.64354.69 af/yr*	*~~335,769~~312,~~227~~312 ~~,824~~316,462 gpd*
		Project Total (with 10% contingency[5]:	*~~413.72~~385.71390.16 af/yr*	*~~369,345~~348,~~107~~082 ~~4,112~~ gpd*

Notes:
[1] Assumes 0.15 gpd/sf and 33% useable site area for buildings.

[2] Conversion factor: 1 af/yr equals 892.742 gpd.
[3] Water usage factors used in the table above are derived from the following sources: 2016 NCSD Urban Water Management Plan (UWMP), The City of Santa Barbara and the County of SLO were used if there wasn't a direct water usage factor listed in the 2016 UWMP for each land use category. The water demand usage factors have been reduced by the mandated 20% as described in the 2016 UWMP.
[4] Assumes 33% of total commercial and daycare acreage is available for landscape.
[5] Includes potential Public Safety Facility Water Demand - 1.06 acre lot: 1.02 AF/Year/1000 sf (Institutional Land Use Category) = 1.02 ac-ft/year (Project Total) / 1.12 ac-ft/year (Project Total (with 10% contingency)).
[6] Does not include 0.34 acre access easement as shown on the Vesting Tentative Map.

Exhibit 5-1: Proposed Water Backbone Infrastructure

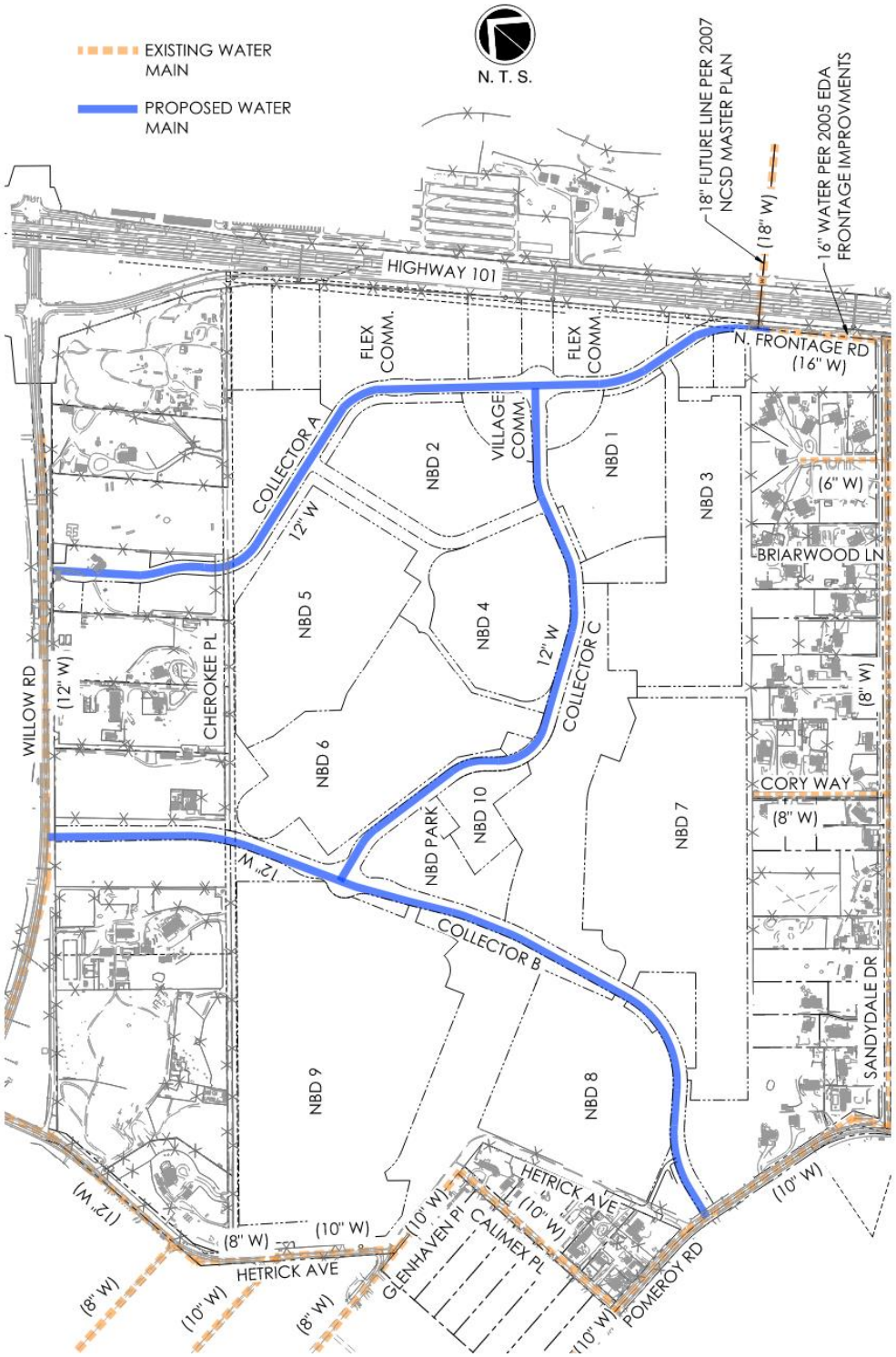
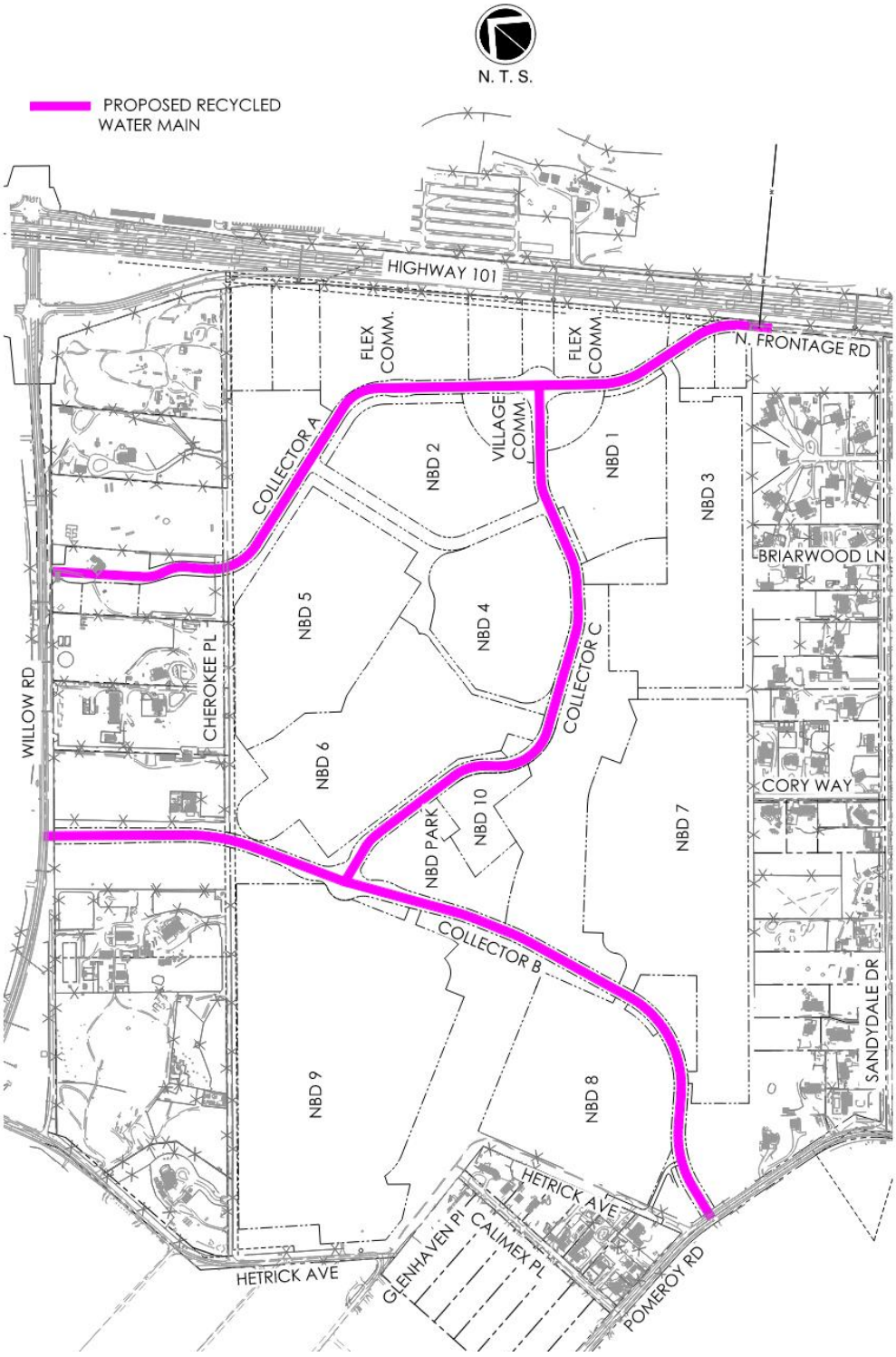


Exhibit 5-2: Recycled Water Infrastructure



5.3 Wastewater

Wastewater generated within the DRSP area will be conveyed to the existing NCSD infrastructure within North Frontage Road. The project will require an extension of the existing 12" gravity line within North Frontage Road to provide sewer to the proposed development areas. The wastewater collected from this development will be conveyed to the Southland Wastewater Treatment plant located south of the project site along U.S. Highway 101 on Old Windmill Place. See Exhibit 5-3 for proposed sewer service lines in the DRSP area. The main trunk lines will be owned and operated by NCSD. Buildout of the development would generate an estimated ~~266.95~~~~248.87~~249.61 acre-feet of wastewater per year based on average flow rates (see Table 5.2). For potential peak water flows, a calculation of ~~667.38~~~~622.18~~624.03 acre-feet is projected, based on a County peaking factor of 2.5.

There are (3) proposed sewer lift stations that will be located on separate dedicated lots. Two of the lift stations will be on the west side towards Hetrick Avenue and Pomeroy Road within the DRSP area and the third will be in the southeast corner of the site. All of them will be owned/operated by NCSD. The force main lines and connections back to the gravity sewer backbone will coincide with the neighborhood developments.

5.3.1 *Phasing*

The anticipated phasing for the proposed improvements would consist of connecting to the sewer mainline that is currently approved by the County to be installed with the widening of the Frontage Road. Phasing of the wastewater backbone infrastructure should generally follow the phasing demonstrated in Exhibit 5-6.

5.3.2 *Operation and Maintenance*

The ongoing operation of gravity sewer mains, manholes, lift stations, force mains, infrastructure and associated appurtenances serving the DRSP area will be maintained by NCSD.

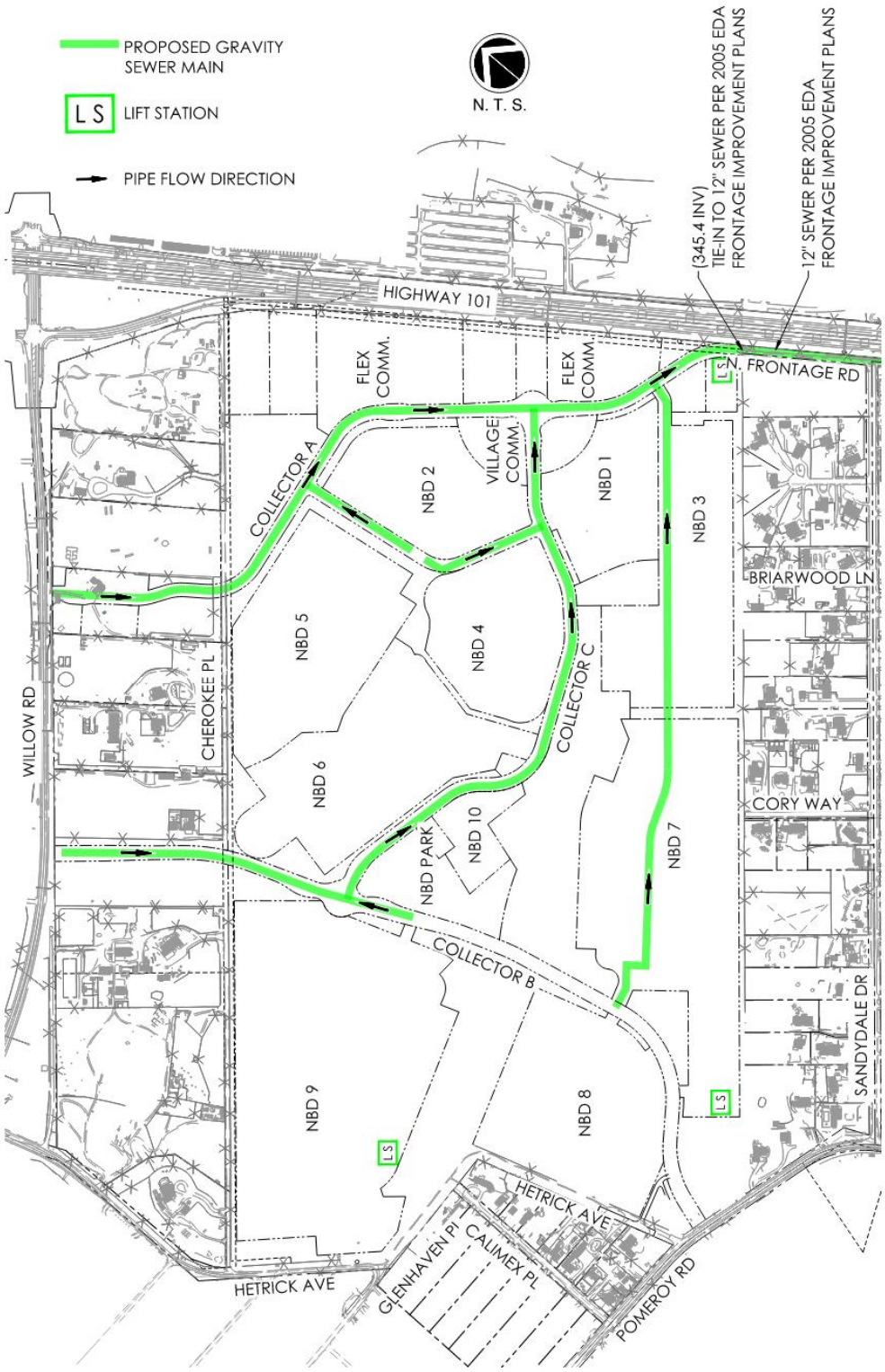
Table 5.2: DRSP Wastewater Generation

Land Use Category	*# of Units or Acres*	*Wastewater Generation Factor[3,4] (GPD)*	*Annual Demand (af/yr)*	*Daily Demand[2] (gpd)*
Residential				
Apartments/ Condominiums	193 units	103/unit	22.23~~19.93~~	
Townhomes	~~210~~ 152 units	116/unit	~~27.21~~19.70	
Cluster	124 units	167/unit	23.21	
4,000-5,999 SF	439 ~~47~~ units	130/unit	~~65.08~~63.91	
6,000-10,000+ SF	~~260~~ 256~~8~~6 units	180/unit	~~52.41~~~~51.61~~~~52.01~~51.61	
Affordable	~~156~~ 78 units	116/unit	~~20.22~~10.11	
ADU's	152 units	116/unit	19.70	
		Subtotal:	*~~227.81~~210.~~58~~47*	*~~203,376~~187,~~869~~771*
Commercial[1]				
Village Commercial	4.4 ac	100/k-sf	7.16	
Flex Commercial[6]	17.56 ac	100/k-sf	28.56	
		Subtotal:	*35.72*	*31,889*
Recreation - Daycare[1]				
Recreation – Daycare Facility	0.45 ac	100/k-sf	*0.73*	
		Subtotal:	*0.73*	*~~648~~648*
Public Safety				
Fire Station	2.15 ac	100/k-sf	1.34	
		Subtotal:	*1.34*	*1,196*
Landscape				
Recreation – Passive Neighborhood Park	1.0 ac	0.50 af-ft/ yr-acre	0.50	
Pocket Parks	~~12.0~~10 ac	-	-	
Streetscape/ Parkways	6.5 ac	-	-	
		Subtotal:	*0.50*	*446*
		Project Total Average Flow[5]:	*~~266.95~~249.61~~87~~ af/yr*	*~~238,318~~221,~~718~~22~~2,030~~222,~~690~~708 gpd*
		Project Peak Flow (assumes 2.5 Peaking Factor)[5]:	*~~667.38~~624.03~~2~~18 af/yr*	*~~595,798~~554,~~294~~556,72~~947~~ ~~5,078~~ gpd*

Notes:
[1] Assumes 33% useable site area for buildings.
[2] Conversion factor: 1 af/yr equals 892.742 gpd.
[3] Wastewater flow generation factors for single family are a percentage of average water demand: 60% for 6,000+, 70% for 4,000-6,000, 90% for all others.

[4] Wastewater flow generation factors for commercial: City of San Luis Obispo, Infrastructure Renewal Strategy (Dec. 2015)
[5] Includes potential Public Safety Facility Wastewater Flow – 1.06 acre lot = 0.85 ac-ft/yr (Project Total) / 2.13 ac-ft/yr (Project Peak Flow (assumes 2.5 Peaking Factor)).
[6] Does not include 0.34 acre access easement as shown on the Vesting Tentative Map.

Exhibit 5-3: Proposed Sewer Backbone Infrastructure



5.4 Drainage and Storm Water Facilities

5.4.1 Existing Conditions

Per the USDA NRCS Web Soil Survey, the hydrologic soil group for the development area is listed as Type A Soils, Oceano Sand. Per the geotechnical feasibility report prepared by Earth Systems Pacific dated September 2017, the site is well drained and there are high infiltration rates across the site.

Most of the existing terrain across the property is gradually sloped between 2% - 10% with localized mounds and some rolling hills. The average existing slope for the entire property is 5%. Localized low spots and depressions occur throughout the site. An existing hillside, or ridge, that runs from the Hetrick Avenue and the Glenhaven Place intersection to the southeast varies between 10% - 25% slope. Another localized ridge runs north-south from Willow Road to the north and Sandydale Drive to the south.

These localized ridges divide the project into (3) general watershed areas, see in Exhibit 5-4:

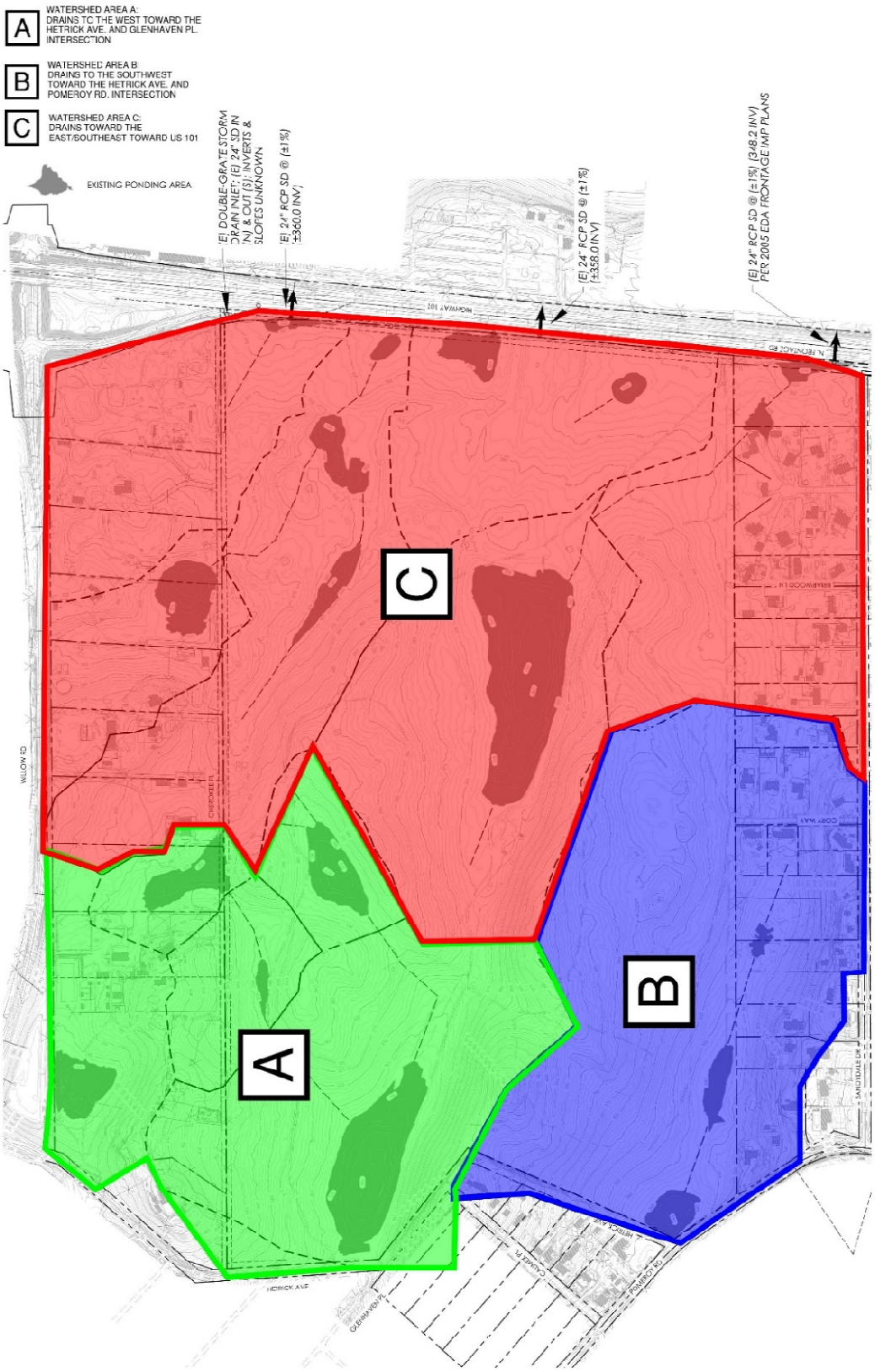
- *Watershed Area A*: the northwest portion of the project drains to the west towards the Hetrick Avenue and Glenhaven Place intersection.
- *Watershed Area B*: the southwest portion of the project drains to the southwest towards the Hetrick Avenue and Pomeroy Road intersection.
- *Watershed Area C*: the east portion of the project drains towards the east/southeast towards U.S. Highway 101.

Some existing off-site areas drain towards and onto the DRSP property as run-on. The associated flows from these areas will be collected in swales and/or storm drain culverts along the perimeter of the DRSP area, conveyed around the proposed neighborhoods and considered as bypass during the development of the project improvements. Drainage should be conveyed in a non-erosive manner so as not to cause damage to downstream properties.

The existing drainage along the east side of U.S. Highway 101 and Nipomo Creek is intended to remain in its current condition with no upgrades, since the County requires all post developed flows to be equal to or less than pre-developed peak flows. This will reduce the amount of anticipated flows that the existing channel will receive during the larger storm events, therefore the channel should not need to be improved from its current state.

See Exhibit 5-4 for the existing topography, localized low spots and depressions, drainage management area (DMA) watersheds and existing storm drain culverts.

Exhibit 5-4: Existing Drainage Watershed Areas



5.4.2 *Proposed Construction and Post-Construction Conditions*

The DRSP area post-developed conditions will mimic pre-developed conditions to the greatest extent practicable. Runoff from the identified watershed areas, or drainage management area (DMA), will be directed in the same general direction as the existing site conditions. Proposed storm drain facilities will be designed to meet both the County of San Luis Obispo traditional flooding requirements as well as the Central Coast Regional Water Quality Control Board post-construction stormwater requirements.

Proposed backbone road sections, identified as Collectors A, B, and C, include roadside low-impact development (LID) areas to treat and mitigate runoff from roadway impervious areas. Two curb types have been proposed along these backbone Collector Roads to allow for runoff to sheet flow into roadside LID areas. Curb types will either be flush curbs, or mow curbs, that allow runoff to sheet flow into the LID areas or traditional concrete curb and gutters that will collect and convey runoff to curb cuts to the LID areas. Perforated storm drain culverts may be added as underdrains as necessary. Inlets and/or catch basins will be integrated for larger storm event overflow. Storm drain inlets/culverts will be added and spaced appropriately to collect and convey large storm event overflow runoff towards proposed, downstream basins.

Examples of parkway/LID and curb cuts applications allowing for water infiltration.

Each development area will also design and incorporate its own stormwater mitigation measures within the individual DRSP neighborhoods and commercial areas. Stormwater mitigation measures examples are found in Appendix A – Design Guidelines. Neighborhood and internal road sections have been designed to also include roadside LID areas to treat and mitigate runoff. Inlets and/or catch basins will also be integrated within these areas for larger storm event overflow. Storm drain inlets/ culverts will be added and spaced appropriately to collect and convey large storm event overflow runoff towards proposed, downstream basins.

As shown in Exhibit 5-5, four (4) decentralized, eight-foot maximum ponded depth stormwater basins are proposed at the northeast, southwest, and west/northwest corners of the DRSP area. In addition, multiple, shallow, 2-foot maximum ponded depth (includes freeboard as shown on County of San Luis Obispo Detail D-1A) stormwater basins are proposed throughout the eastern half of the project. All stormwater basins will be designed to meet the County of San Luis Obispo Public Improvement standards. Each sub-system of basins will be sized to accommodate the remaining

runoff produced by the additional impervious areas within each respective DMA and neighborhood development. Storm drain inlets/culverts will also be added to connect sub-systems of basins where appropriate. Overflow structures, culverts, weirs, or other devices will be added and sized to meet discharge flows for both the County of San Luis Obispo requirements as well as the Central Coast Regional Water Quality Control Board post-construction stormwater requirements.

5.4.3 Stormwater Mitigation

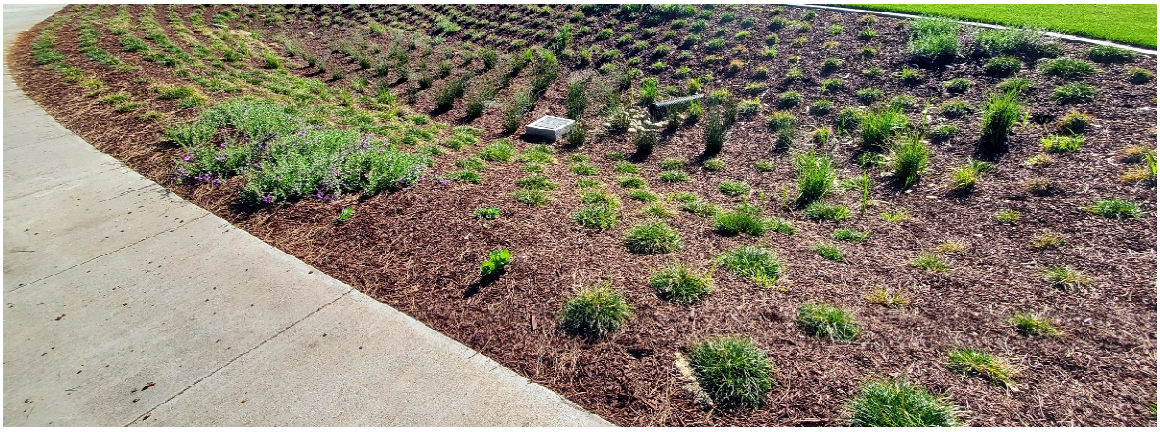
Proposed stormwater mitigation will be designed so post-developed peak run-off flows are equal to or less than pre-development peak flows. The design intent is to not increase peak flows that ultimately go to the three (3) existing 24-inch reinforced concrete storm drain culverts that travel underneath U.S. Highway 101.

Storm water runoff quality will be addressed for both construction and post-construction phases of the DRSP. Temporary sediment control during construction will be implemented during construction and a Stormwater Pollution Prevention Plan (SWPPP) will be prepared for each grading project over one (1) acre in area of ground disturbance in accordance the State Water Resources Control Board (SWRCB) requirements. Construction phase impacts will be addressed by the implementation of Best Management Practices (BMPs). Operations and maintenance will be carried out by the developer's contractor during construction and will be responsible for implementing BMPs established in the County Code.

See Exhibit 5-5 for the master site plan overlaid with backbone storm drain trunk lines and proposed deep and shallow basin locations.

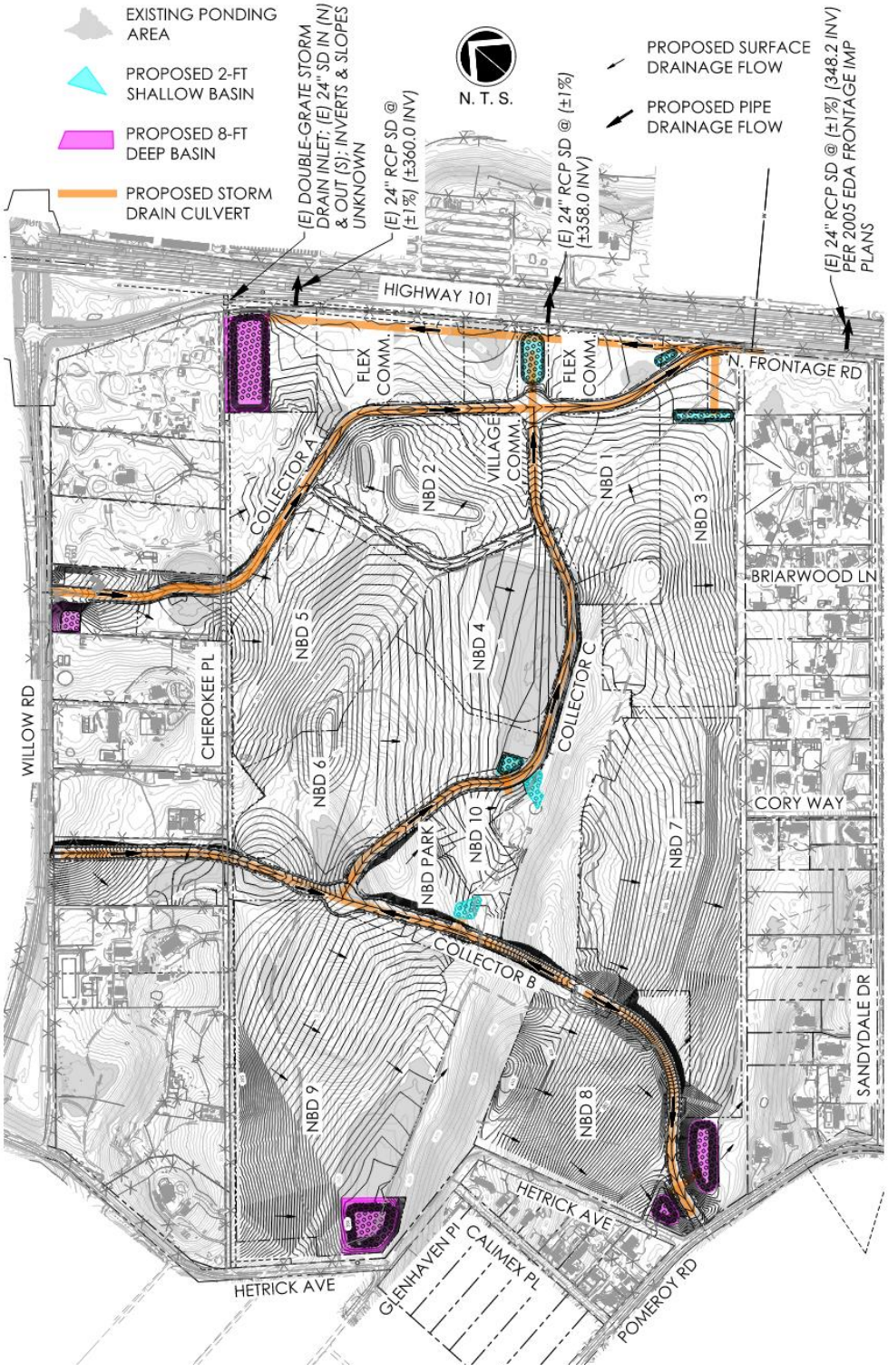
5.4.4 Operations and Maintenance

The operations and maintenance for all drainage and stormwater facilities outside County maintained roadways beyond curb face will be conducted by the Homeowners Association or special district and the agreement will follow the county's private stormwater system operation and maintenance template SWP- 2002c.



Example of stormwater basin.

Exhibit 5-5: Proposed Drainage Conditions



5.5 Grading

The initial rough grading of the site will occur as a single operation to establish the preliminary grades for all developed areas of the site. The final and finished grading of the DRSP area is anticipated to occur in several phases, with grading occurring in sequential construction. The timing, approval, and process of rough grading will comply with Section 2.1.3 of the County's 2019 Public Improvement Standards. The property will first be graded to support the installation of backbone road and utility infrastructure. The backbone roads subgrade will be prepared to allow circulation and construction access to the DRSP area. The adjacent commercial and multi-family designated land use areas as well as the residential neighborhood areas will be graded as necessary with the backbone roads effort in order to balance earthwork operations on-site to the greatest extent practicable. Prior to the commencement of grading operations, areas on-site that contain existing vegetation, oak trees, and/or other sensitive areas that are to remain as part of the development will be delineated with flags and/or protection fencing to ensure they are clearly identifiable.

Proposed stormwater basins in their respective areas of the property will be rough graded to create the basin shape, bottom, and top bench. Relatively flat sloped areas will be created for each adjacent commercial and multi-family areas as well as in the residential neighborhoods in order to direct storm water runoff to these proposed basins. As part of the subdivision plans, a comprehensive drainage plan should be prepared to demonstrate storm water runoff is conveyed in a non-erosive manner in accordance with County Public Improvement standards.

The owner, project team, contractors, and Qualified SWPPP Practitioner (QSP) for the property will determine the frequency and location of temporary measures. Grading-associated components will be temporary in nature and would be maintained until the permanent improvements are constructed.

5.5.1 Maintenance

Maintenance measures during grading activities will be subject to County standards and established Best Management Practices per County Code. Additionally, stockpile maintenance and storage will adhere to the County Code.

5.5.2 Retaining Walls

As determined by the County Code, retaining walls are exempt from a grading permit if deemed applicable to qualify for an exemption. Otherwise, retaining wall heights and setbacks will be subject to the standards set forth in the County Building Code.

5.6 Dry Utilities

The applicant or their appropriate representative shall provide a will-serve letter from the power and telephone providers for the DRSP area, including the following dry utilities: telecommunications, cable/data service, electric, and natural gas, as further described below. All dry utilities will be undergrounded.

5.6.1 *Telecommunications/Fiber*

The American Telephone and Telegraph Company (AT&T), Pac-West Telecomm Inc., and Satin Satellite are the primary telecommunications service providers to the community of Nipomo and will provide service to the DRSP area. These private companies will extend their facilities into the

DRSP area within the designated public utility easements (PUE), as identified on the street sections within Chapter 4, as it develops. All new telecommunications lines within the DRSP area will be placed underground.

High speed fiber infrastructure within the vicinity of the DRSP area is currently limited. However, due to current market demands, high speed fiber infrastructure may be provided within the DRSP area to allow the community to hook into future high-speed fiber infrastructure should it be extended to the property.

5.6.2 *Cable Service*

Cable television for the Nipomo area is provided by Charter Communications. The expanding range of broadcast services, including satellite, may be available for the DRSP area to the extent they are available throughout San Luis Obispo County.

5.6.3 *Electric*

Pacific Gas & Electric (PG&E) will provide electricity distribution to the DRSP area. Existing overhead service lines run along Cherokee Place, Pomeroy Road, and the eastern edge of the property. New service lines will be placed in or adjacent to the right-of way of the proposed commercial and residential roadways. All new electric lines will be placed underground.

Residential neighborhoods within the DRSP area will be designed to accommodate installation of solar panels on rooftops per the Building Code. Installation of solar on all residential homes will aide in generating needed electricity on-site and minimize the overall environmental impact by the community.

5.6.4 *Natural Gas*

Within the DRSP area, a natural gas main exists along the eastern property boundary adjacent to U.S. Highway 101. SoCalGas may provide natural gas distribution to the DRSP area. There are no existing gas mains located within the DRSP area. To support the proposed commercial and amenity areas, new gas mains may be constructed as part of the primary backbone roadways to serve new development areas.

5.7 Infrastructure Easements

5.7.1 North Frontage Road

Based on the conditions of the property located at the southeast corner of the DRSP area, an easement may be needed to accommodate the extension of infrastructure along North Frontage Road to the DRSP property. As part of the DRSP, North Frontage Road will be extended through the project to Willow Road. Refer to Section 4.3 for additional information regarding the North Frontage Road (Collector A) extension.

5.7.2 Hetrick Avenue

Hetrick Avenue traverses the western boundary of the DRSP property. The Nipomo Community Plan, the South County Circulation Study, and the South County Area Inland Plan identify improvements to Hetrick Avenue, designating the roadway a two-lane rural road classification with Class II bike lanes, ultimately extending from Pomeroy Road north to Aden Way. The extension of Hetrick Avenue from Glenhaven Place to Pomeroy Road in the south is currently unimproved. The

improvements within the DRSP do not include the construction of the Hetrick Avenue extension, since there is not sufficient right-of-way, and this route would not be consistent with the character of the existing residential neighborhood west of the DRSP area. The DRSP will construct Collector 'B' which travels from Pomeroy Road through the property and connects with Willow Road to the north, as a more functional alternative to the Hetrick Avenue extension. Currently at the southwest corner of the DRSP, Hetrick Avenue is an existing road with a 30-ft right-of-way serving three parcels. The DRSP includes re-routing access to this road to connect with Collector 'B' and closing where this portion of Hetrick Avenue currently connects with Pomeroy Road. This will eliminate turning movement conflicts on Pomeroy Road and provide permanent access to the three parcels mentioned above.

In order to allow for emergency access, an easement will be provided from the existing portion of Hetrick Avenue at the northwest corner of the DRSP, connecting to Neighborhood 9. This emergency access point is intended to be used only by fire and safety vehicles, pedestrians, bicycles, and equestrians.

5.7.3 Cory Way

Cory Way currently dead ends into the southern property line of the DRSP. In order to allow for emergency access to the community, an easement will be provided at this location connecting to Cory Way. This emergency access point is intended to be used only by fire and safety vehicles, pedestrians, bicycles, and equestrians. An easement may be needed to accommodate access.

5.7.4 Southern California Gas

An existing 20-ft Southern California Gas (SoCalGas) easement is located directly adjacent to the U.S. Highway 101 right-of-way on the DRSP property. This easement will include mutually agreed upon landscaping and will remain clear of obstructions to allow for any necessary or ongoing maintenance by SoCalGas.

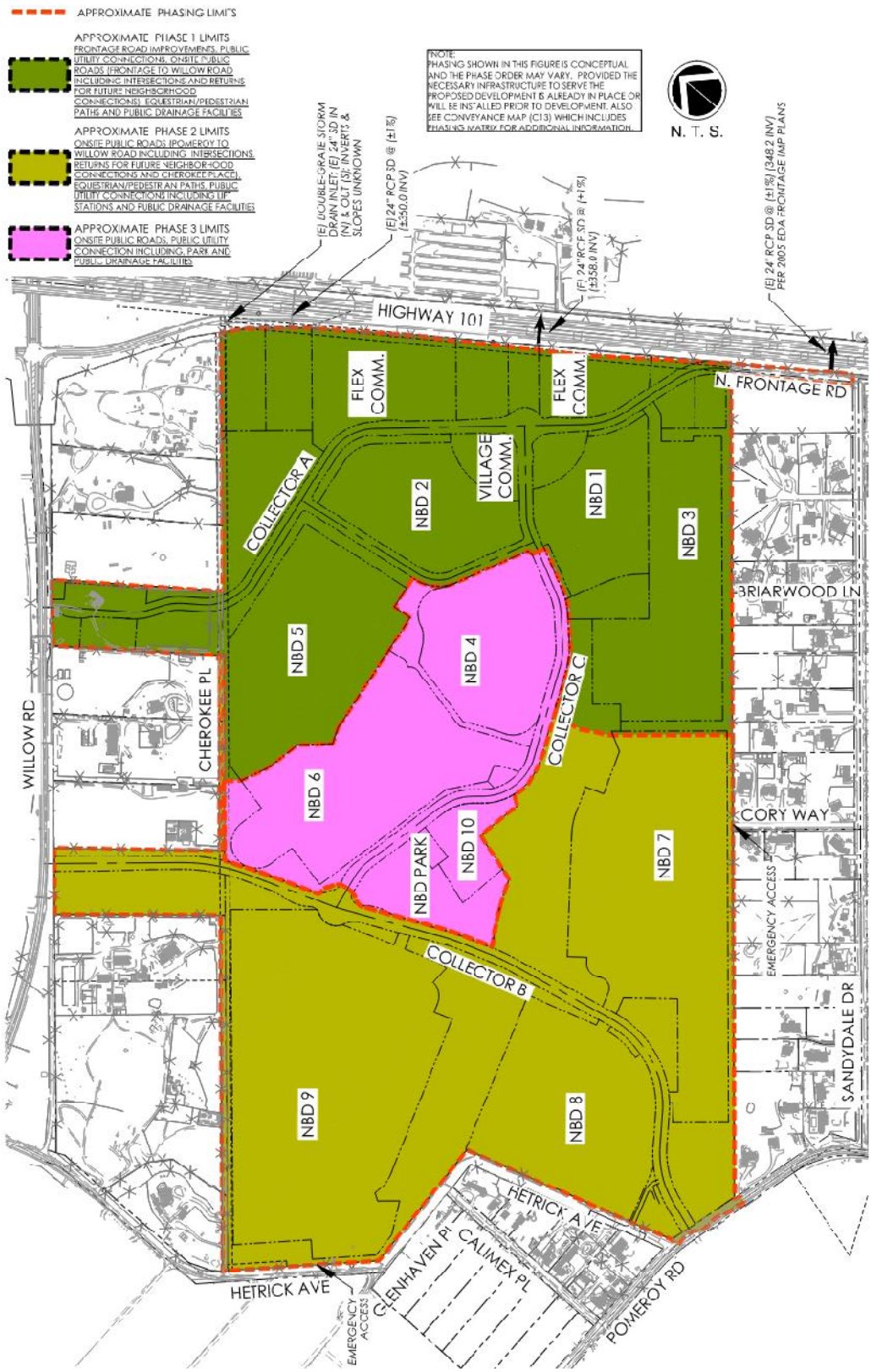
5.7.5 Pomeroy Road

Based on the final alignment of the Pomeroy Road realignment into the DRSP, an easement(s) may be needed to accommodate proposed roadway and circulation improvements.

5.8 Phasing

Exhibit 5-6 identifies the areas anticipated in the conceptual phasing to make up the DRSP development phases. These phases address goals to accommodate orderly development and provision of services. They represent a reasonable approach to extending services and infrastructure throughout the DRSP. In some cases, property owners may wish to develop in phases concurrently or in a different order than anticipated in Exhibit 5-6. This will be permitted provided all public improvements needed to support proposed development are completed, and that circulation is provided for secondary access. For a more detailed breakdown of proposed phasing for the DRSP, refer to Appendix B – Phasing and Public Improvements Implementation Matrix.

Exhibit 5-6: Proposed Conceptual Phasing



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