

**WASTEWATER DISPOSAL REPORT  
FOR  
WESTVIEW AT WOODMOOR FILING 1A  
1384 BUCKWOOD LANE  
MONUMENT, COLORADO**

**JANUARY 19, 2023**

Prepared For:  
**Murphy's Custom Homes**  
**13710 Struthers Road**  
Colorado Springs, Co 80921  
(719) 233-2883

Prepared By:  
**TERRA NOVA ENGINEERING, INC.**  
721 S. 23rd Street  
Colorado Springs, CO 80904  
L Ducett, P.E. (719) 635-6422

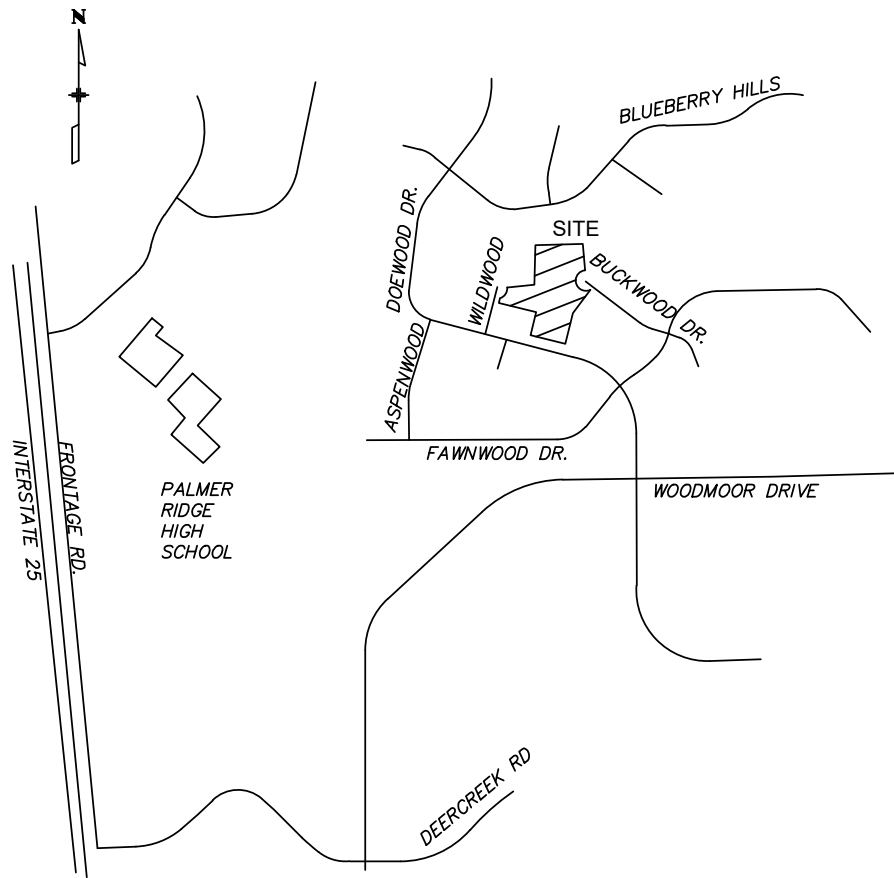
Job No. 2282.00

**GENERAL LOCATION AND PROJECT DESCRIPTION:**

Westview at Woodmoor Filing 1A is a 3.809 acre proposed replat of Lot 1 Westview at Woodmoor located in the northeast corner of Section 11, Township 11 South, Range 67 West of the 6<sup>th</sup> Principal Meridian in El Paso County, Colorado. The site is located at the current address of 1384 Buckwood Lane.

There is an existing residence and associated drive on the east and central portion of the site which will remain. The site is intended to be subdivided into 4 rural residential lots. The minimum lot size will be 0.5 acres as required by the existing zoning. The existing topography generally drains from east to west. The overall site varies in elevation from a low of approximately 7307 feet to a high of approximately 7369 feet.

The site is located within and will be provided with wastewater services by the Woodmoor Water and Sanitation District No. 1 (see attached commitment letter and map of Woodmoor’s existing wet utilities in the appendix). A vicinity map is provided below for reference:



VICINITY MAP  
NOT TO SCALE

The Project will comply with the standards that were adopted by the Woodmoor District and are available on their website.

### **WOODMOOR WATER AND SANITATION DISTRICT NO. 1:**

The Woodmoor Water and Sanitation District No. 1 is a special district that provides wastewater service to homes and businesses in a land area of approximately 6.1 square miles in northern El Paso County. The District's service boundaries include the area east of I-25 to just east of Furrow Road and south of County Line Road to Higby Road. It currently provides wastewater services and treatment to about 8,700 customers.

Most of the District's pipelines are designed for gravity flow, but because of the mountainous terrain, there are seven lift stations that pump low-lying areas to high points where the flow can become part of the gravity system.

### **TRI-LAKES WASTEWATER TREATMENT FACILITY:**

The treatment plant for the Woodmoor Water and Sanitation District No. 1, Monument Sanitation District, and Palmer Lake Sanitation District (jointly known as the Tri-Lakes Joint-Use Authority) is an aerated-lagoon system of three basins in series. The Tri-Lakes Wastewater Treatment Facility 2022 Facility Master Plan Report states that the treatment facility is rated for 4.2 million gallons per day of flow. The Woodmoor District's website explains that an expansion of the original plant, built in 1977, increased basin capacities from 0.9 mgd to 1.5 mgd, for a total plant capacity of 4.6 million gallons per day. The chosen process technology involved a variation of the activated sludge process-single-basin biological nitrogen removal. The new facility reused existing facilities and converted one existing lagoon to two earthen aeration basins. The existing aeration system was replaced with new blowers and flexible tube diffusers allowing for additional BOD removal and ammonia control. Automated valves allowed for control of DO concentrations at various locations in the basins to provide anoxic zones for denitrification. A second lagoon was retrofitted for biosolids digestion, storage, and decant. The third lagoon was cleaned and abandoned. The chlorination and dichlorination facilities were converted to UV disinfection. New facilities added to the plant included two secondary clarifiers, RAS/WAS pumping, mechanical bar screening and grit removal facilities, an operations building, and a PLC-based control system.

In 2013, the Joint-Use Authority obtained the Nutrients Grant to plan, design, and construct upgrades to the Tri-Lakes WWTF to comply with effluent limits established in Regulation 85. In 2014, the Nutrient Engineering Report was completed to address the operational and facility upgrades for the liquid and solid stream that the Joint-Use Authority will implement to meet the effluent nutrient limits outlined in Regulation 85 and Regulation 31. The NER developed a capital improvements plan that identified the improvements necessary over a 20-year period.

In 2015, the Process Design Report and Site Amendment Engineering Report – Nutrient Removal Phase 1 Improvements presented the proposed improvements that would enable the TL-WWTF to comply with the total phosphorous (TP) limits listed in Regulation 85. The proposed improvements were configured to serve as the building block for what may be needed to meet future in-stream standards for nutrients and ammonia based on the Colorado Department of Public Health and Environment (CDPHE) (1) ultimately adopting the Environmental Protection Agency (EPA) 2013 revisions to its freshwater ammonia criteria and (2) implementing the numeric nutrient values listed in Regulation 31.

**ANTICIPATED TRI-LAKES FACILITY WASTEWATER PROJECTIONS:**

(See appendix for Tri-Lakes Wastewater Treatment Facility demand projections)

**OPINION OF PROBABLE POPULATION AND QUANTITY OF EFFLUENT:**

The site development is anticipated to consist of 4 single-family homes. The opinion of probable population and effluent is as follow:

4 single-family homes \* 2.5 residents per household = 10 residents

10 residents \* 65 gallons per resident = 650 GPD = 0.45 GPM

This estimate is made based on methodology used by other utility providers in the area and on industry standards. The actual number of residents and effluent flow could vary from these calculations.

## **APPENDIX**

Proposed Plat

Woodmoor Water and Sanitation District No. 1 Utility Map

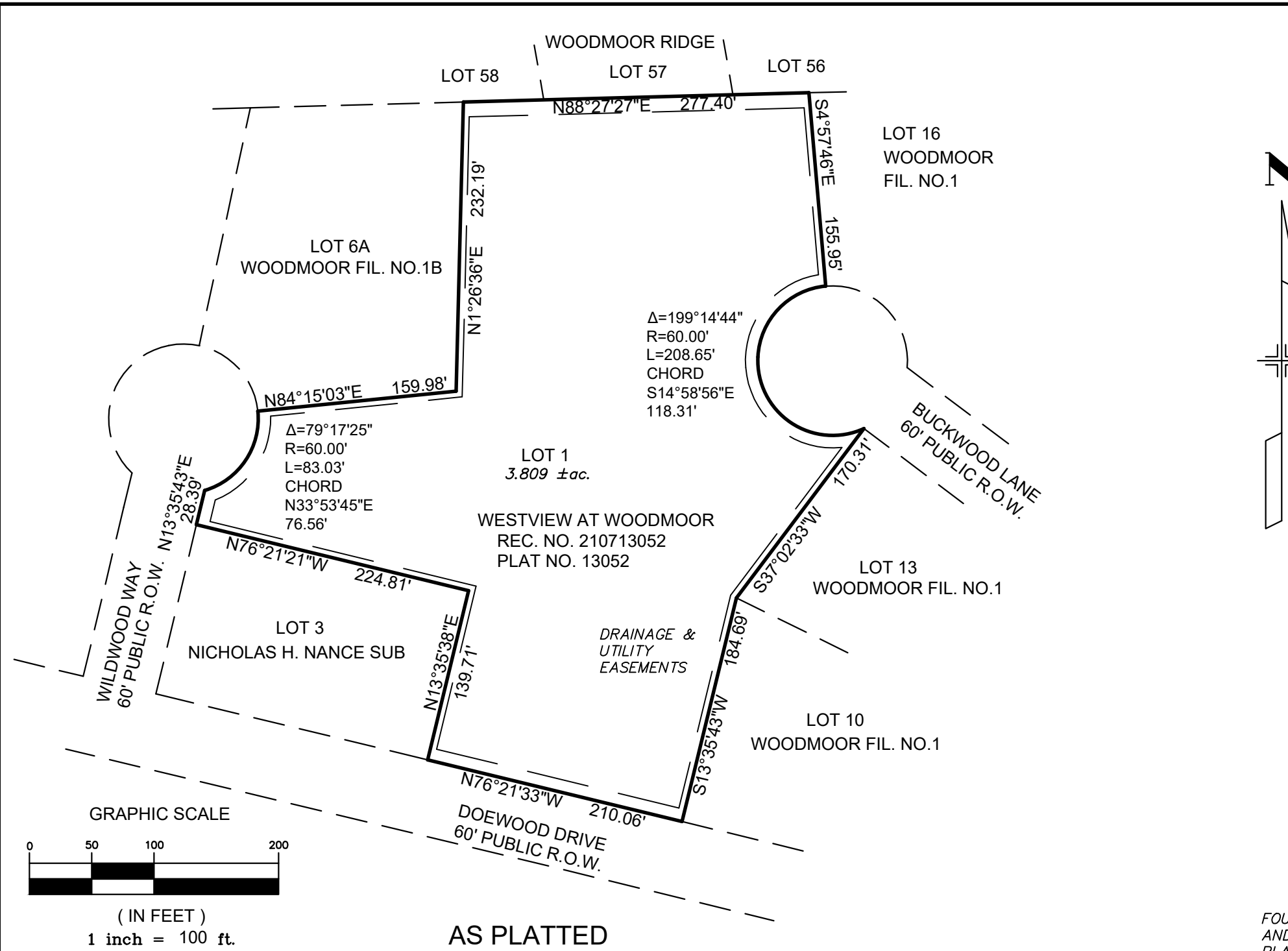
Commitment Letter

Tri-Lakes Wastewater Treatment Facility Location Map

Tri-Lakes Wastewater Treatment Facility Demand Projections

# WESTVIEW AT WOODMOOR FILING NO. 1A

A REPLAT OF LOT 1, WESTVIEW AT WOODMOOR  
IN THE NORTHEAST QUARTER OF SECTION 11  
TOWNSHIP 11 SOUTH, RANGE 67 WEST OF THE 6TH P.M.  
EL PASO COUNTY, COLORADO

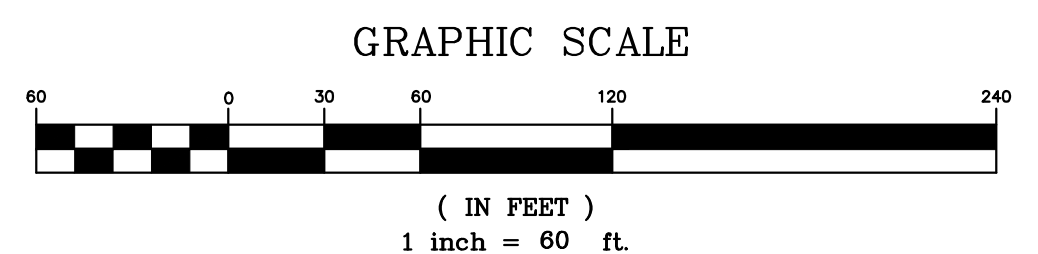
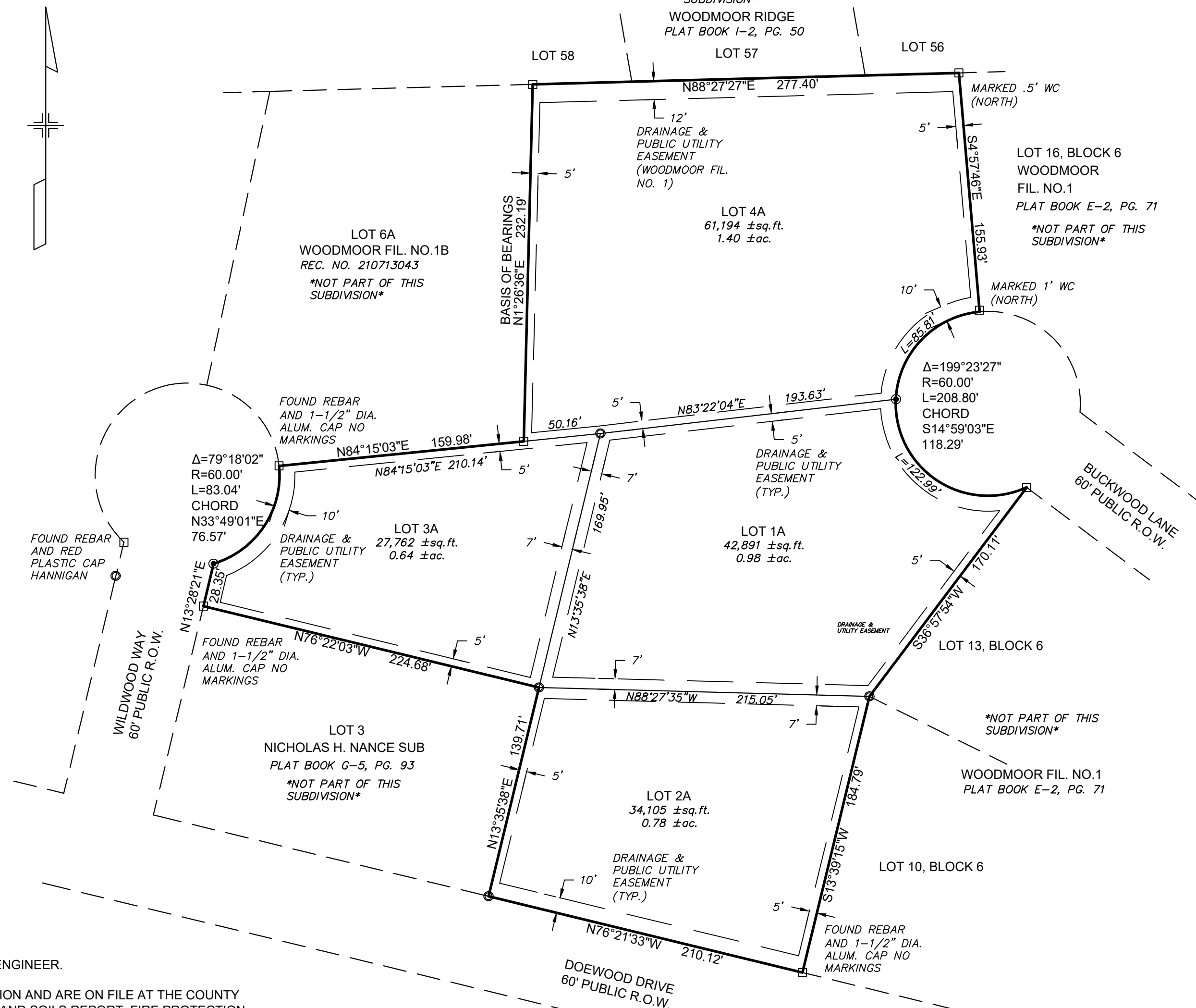
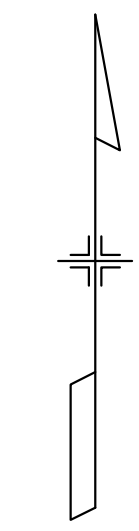


**NOTES:**

- MONUMENTS
  - FOUND A 1/2" DIAMETER REBAR
  - FOUND A REBAR AND ORANGE PLASTIC CAP PLS 37928 OR AS NOTED.
  - SET A 5/8" DIAMETER REBAR, 18" IN LENGTH WITH A 1-1/2" DIAMETER ALUMINUM CAP "LWA PLS 28658. MONUMENTS ARE FLUSH WITH THE GROUND UNLESS NOTED OTHERWISE
- RESEARCH FOR RECORDED RIGHTS OF WAY AND EASEMENTS WAS DONE BY LAND TITLE GUARANTEE COMPANY, FILE NO. SR55103105 EFFECTIVE DATE JANUARY 27, 2022. THIS DRAWING DOES NOT CONSTITUTE A TITLE SEARCH BY KEVIN M. O'LEARY OR LWA LAND SURVEYING INC.
- PROPERTY MAY BE SUBJECT TO ADDITIONAL EASEMENTS AND AGREEMENTS AS STATED IN THE TITLE COMMITMENT.
- UNITS OF MEASURE ARE U.S. SURVEY FEET.
- THE BASIS OF BEARINGS FOR THIS SURVEY IS THE WEST LINE OF LOT 4A, N1°26'36"E - 232.19'. THE DIRECTION IS BASED ON THE WESTVIEW AT WOODMOOR PLAT AND THE LINE IS MONUMENTED BY REBAR AND ORANGE PLASTIC CAPS PLS 37928.

**NOTES:**

- STRUCTURAL FOUNDATIONS ON THE LOTS IN THIS SUBDIVISION SHALL BE DESIGNED BY A COLORADO REGISTERED PROFESSIONAL ENGINEER.
- THE FOLLOWING REPORTS HAVE BEEN SUBMITTED IN ASSOCIATION WITH THE PRELIMINARY PLAN OR FINAL PLAT FOR THIS SUBDIVISION AND ARE ON FILE AT THE COUNTY DEVELOPMENT SERVICES DEPARTMENT: DRAINAGE REPORT; WATER RESOURCES REPORT; WASTEWATER DISPOSAL REPORT; GEOLOGY AND SOILS REPORT; FIRE PROTECTION REPORT; WILDFIRE HAZARD REPORT; NATURAL FEATURES REPORT AND NOXIOUS WEED MANAGEMENT PLAN.
- ALL PROPERTY OWNERS ARE RESPONSIBLE FOR MAINTAINING PROPER STORM WATER DRAINAGE IN AND THROUGH THEIR PROPERTY. PUBLIC DRAINAGE EASEMENTS AS SPECIFICALLY NOTED ON THE PLAT SHALL BE MAINTAINED BY THE INDIVIDUAL LOT OWNERS UNLESS OTHERWISE INDICATED. HOMEBUILDERS ARE RESPONSIBLE TO ENSURE PROPER DRAINAGE AROUND STRUCTURES, INCLUDING ELEVATIONS OF FOUNDATIONS AND WINDOW WELLS IN RELATION TO SIDE LOT DRAINAGE EASEMENTS AND SWALES. HOMEOWNERS SHALL NOT CHANGE THE GRADE OF THE LOT OR DRAINAGE SWALES WITHIN SAID EASEMENTS, AS CONSTRUCTED BY THE BUILDER, IN A MANNER THAT WOULD CAUSE ADVERSE DRAINAGE IMPACTS TO PROPERTIES. STRUCTURES, FENCES, MATERIALS OR LANDSCAPING THAT COULD IMPEDE THE FLOW OR RUNOFF SHALL NOT BE PLACED IN DRAINAGE EASEMENTS.
- MAILBOXES SHALL BE INSTALLED IN ACCORDANCE WITH ALL EL PASO COUNTY AND UNITED STATES POSTAL SERVICE REGULATIONS.
- THIS PROPERTY IS SUBJECT TO THE DECLARATION OF COVENANTS, CONDITIONS AND RESTRICTIONS FOR WOODMOOR FILING NO. 1, BY BEING A REPLAT THEREOF AS RECORDED IN BOOK 2421 AT PAGE 215 OF THE EL PASO COUNTY RECORDS.
- THE DEVELOPER SHALL COMPLY WITH FEDERAL AND STATE LAWS, REGULATIONS, ORDINANCES, REVIEW AND PERMIT REQUIREMENTS, AND OTHER AGENCY REQUIREMENTS, IF ANY, OF APPLICABLE AGENCIES INCLUDING, BUT NOT LIMITED TO, THE COLORADO DEPARTMENT OF WILDLIFE, COLORADO DEPARTMENT OF TRANSPORTATION, U.S. ARMY CORP. OF ENGINEERS, THE U.S. FISH AND WILDLIFE SERVICE REGARDING THE ENDANGERED SPECIES ACT.
- THE ADDRESSES EXHIBITED ON THIS PLAT ARE FOR INFORMATIONAL PURPOSES ONLY. THEY ARE NOT THE LEGAL DESCRIPTION AND ARE SUBJECT TO CHANGE.
- INDIVIDUAL LOT PURCHASERS ARE RESPONSIBLE FOR CONSTRUCTING DRIVEWAYS, INCLUDING NECESSARY DRAINAGE CULVERTS PER LAND DEVELOPMENT CODE SECTION 6.3.3.C.2 AND 6.3.3.C.3. DUE TO THEIR LENGTH OR GRADE, SOME OF THE DRIVEWAYS WILL NEED TO BE SPECIFICALLY APPROVED BY THE FIRE DISTRICT AND ECM ADMINISTRATOR. NO DRIVEWAY SHALL BE ESTABLISHED UNLESS AN ACCESS PERMIT HAS BEEN GRANTED BY EL PASO COUNTY.
- THE SUBDIVIDER AGREES ON BEHALF OF HIMSELF AND ANY DEVELOPER OR BUILDER SUCCESSORS AND ASSIGNEES THAT THE SUBDIVIDER AND/OR SAID SUCCESSORS AND ASSIGNEES SHALL BE REQUIRED TO PAY TRAFFIC IMPACT FEES IN ACCORDANCE WITH THE EL PASO COUNTY ROAD IMPACT FEE PROGRAM RESOLUTION (RESOLUTION 19-471) OR ANY AMENDMENTS THERETO, AT OR PRIOR TO THE TIME OF BUILDING PERMIT SUBMITTALS. THE FEE OBLIGATION, IF NOT PAID AT FINAL PLAT RECORDING, SHALL BE DOCUMENTED ON ALL SALES DOCUMENTS AND ON PLAT NOTES TO ENSURE THAT A TITLE SEARCH WOULD FIND THE FEE OBLIGATION BEFORE THE SALE OF THE PROPERTY.
- THIS PROPERTY IS LOCATED WITHIN AND SERVICED BY THE MOUNTAIN VIEW ELECTRIC ASSOCIATION SERVICE DISTRICT, THE TRI-LAKES MONUMENT FIRE PROTECTION DISTRICT, LEWIS PLAMER SCHOOL DISTRICT NO. 38, THE BLACK HILLS ENERGY CORPORATION SERVICE DISTRICT AND WOODMOOR WATER AND SANITATION.
- DRAINAGE EASEMENTS: NO PERMANENT DWELLING UNIT, TEMPORARY OR PERMANENT STRUCTURES, INCLUDING SHEDS AND OUT BUILDING, WATER WELL OR WASTEWATER TREATMENT SYSTEM MAY BE CONSTRUCTED IN THE DRAINAGE EASEMENTS SHOWN ON THIS PLAT. DRAINAGE CULVERTS AND FENCES THAT DO NOT BLOCK OR IMPEDE STORM WATER RUNOFF ARE ALLOWED IN AND ACROSS DRAINAGE EASEMENTS.
- A "GEOLOGIC HAZARD EVALUATION AND SOILS AND FOUNDATION INVESTIGATION PROPOSED WESTVIEW AT WOODMOOR FILING NO. 1A, EL PASO COUNTY, COLORADO", CTL THOMPSON INC., PROJECT NO. CS19579-120, DATED SEPTEMBER 20, 2022 IS HELD UNDER THE WESTVIEW AT WOODMOOR FILING NO. 1A AT THE EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT DEPARTMENT. GEOLOGIC HAZARDS THAT WOULD PRECLUDE THE PROPOSED DEVELOPMENT WERE NOT FOUND TO BE PRESENT AT THIS SITE. GEOLOGIC CONSTRAINTS ARE POTENTIALLY PRESENT, AND INCLUDE: SPORADIC LENSES OF EXPANSIVE CLAYSTONE BEDROCK AND POTENTIAL FOR EXPANSIVE/SETTLEMENT PRONE SOILS. THESE GEOLOGIC AND ENGINEERING CONDITIONS ARE RELATIVELY COMMON TO THE AREA AND CAN BE SATISFACTORILY MITIGATED THROUGH PROPER ENGINEERING, DESIGN, AND CONSTRUCTION PRACTICES.
- THIS PROPERTY IS LOCATED WITHIN ZONE X "AREAS DETERMINED TO BE OUTSIDE 500-YEAR FLOOD PLAIN" AS DETERMINED BY THE FLOOD INSURANCE RATE MAP NUMBER 08041C0276G, EFFECTIVE DATE DECEMBER 7, 2018.
- FIRE PROTECTION REPORT RECOMMENDATIONS, AS A CONDITION OF APPROVAL OF THIS PLAT BY THE BOARD OF COUNTY COMMISSIONERS, NO CONVEYANCE, SALE OR TRANSFER OF TITLE OF LOTS 1-4 IDENTIFIED HEREON, SHALL BE MADE, NOR ANY BUILDING PERMIT OR CERTIFICATE OF OCCUPANCY BE ISSUED BY EL PASO COUNTY, UNTIL SUCH TIMES AS THE FOLLOWING HAS BEEN ACCOMPLISHED BY THE PROPERTY OWNER. A LETTER OF COMPLIANCE HAS BEEN RECEIVED FROM THE COLORADO STATE FOREST SERVICE, FIRE DEPARTMENT, FIRE MARSHALL, OR OTHER QUALIFIED PROFESSIONAL STATING PRACTICES DESIGNATED TO REDUCE WILDFIRE HAZARDS HAS BEEN COMPLETED IN ACCORDANCE WITH THE WILDLAND FIRE AND HAZARD MITIGATION PLAN. SUCH WORK MAY INCLUDE, BUT IS NOT NECESSARILY LIMITED TO THE FOLLOWING: \*FOREST WIDE THINNINGS, \*FUELBREAK THINNINGS, \*PRUNINGS, \*DEBRIS DISPOSAL.



**SURVEYOR'S CERTIFICATION:**

I, KEVIN M. O'LEARY, A DULY REGISTERED PROFESSIONAL LAND SURVEYOR IN THE STATE OF COLORADO, DO HEREBY CERTIFY THAT THIS PLAT TRULY AND CORRECTLY REPRESENTS THE RESULTS OF A SURVEY MADE ON THE DATE OF THE SURVEY, BY ME OR UNDER MY DIRECT SUPERVISION AND THAT ALL MONUMENTS EXIST AS SHOWN HEREON; THAT MATHEMATICAL CLOSURE ERRORS ARE LESS THAN 1:10,000; AND THAT SAID PLAT HAS BEEN PREPARED IN FULL COMPLIANCE WITH ALL APPLICABLE LAWS OF THE STATE OF COLORADO DEALING WITH MONUMENTS, SUBDIVISION, OR SURVEYING OF LAND AND ALL APPLICABLE PROVISIONS OF THE EL PASO COUNTY LAND DEVELOPMENT CODE.

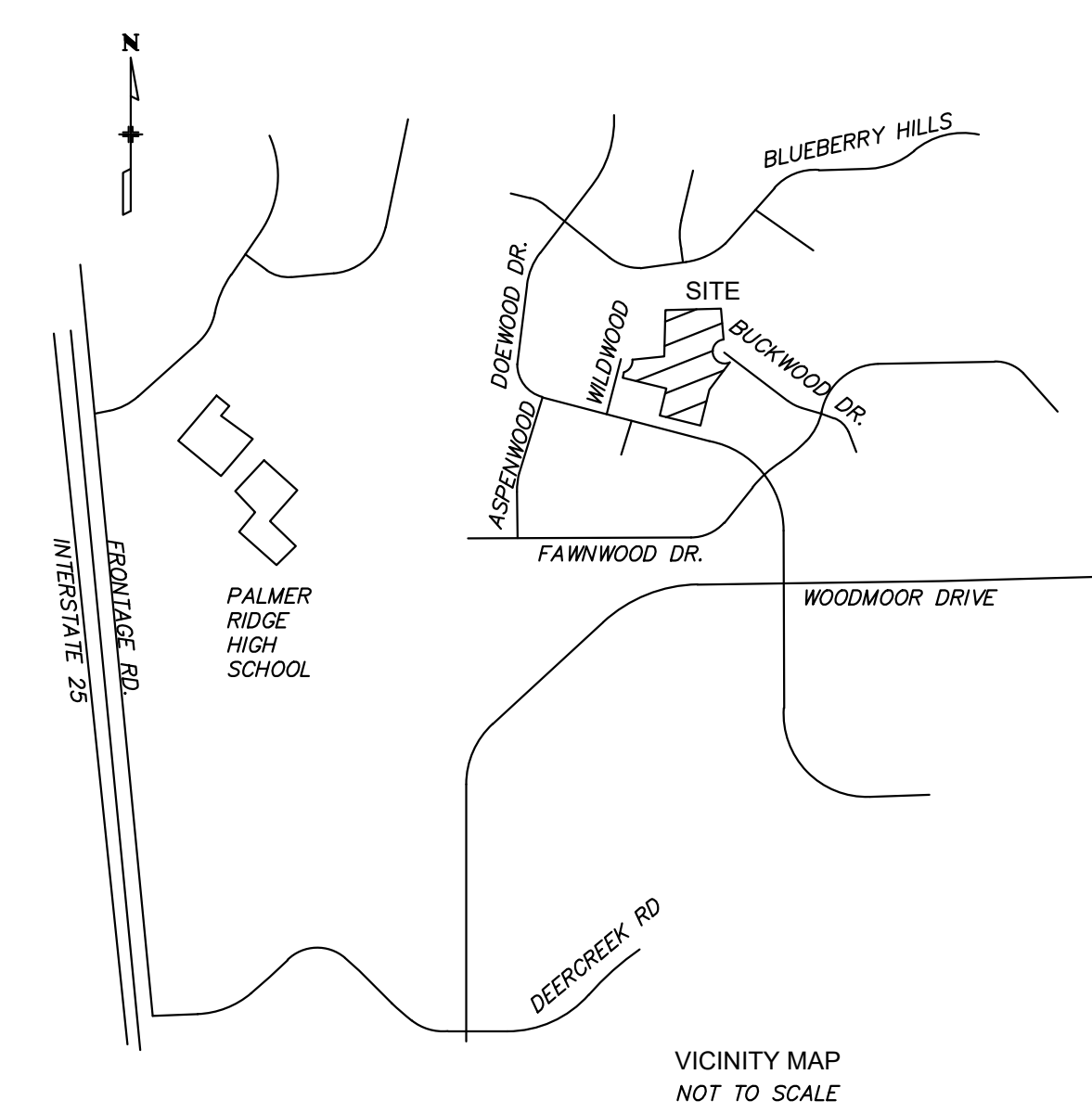
I ATTEST THE ABOVE ON THIS \_\_\_ DAY OF \_\_\_\_\_, 2023.

KEVIN M. O'LEARY  
COLORADO REGISTERED PLS #28658  
FOR AND ON BEHALF OF  
LWA LAND SURVEYING, INC.

DATE

**LOT SUMMARY TABLE:**

TOTAL GROSS ACREAGE	3.81 ACRES	100%
4 RESIDENTIAL LOTS	3.81 ACRES	100%
GROSS DENSITY	1.05 DU/AC	
NET DENSITY	1.05 DU/AC	
TOTAL NET ACREAGE:	3.81 ACRES	100%



**BE IT KNOWN BY THESE PRESENTS:**

THAT MURPHY'S CUSTOM HOMES, INC., TIM MURPHY, PRESIDENT IS THE OWNER OF THE FOLLOWING DESCRIBED TRACT OF LAND, TO WIT:

LOT 1, WESTVIEW AT WOODMOOR, EL PASO COUNTY, COLORADO AS SHOWN ON THE SUBDIVISION PLAT THEREOF RECORDED UNDER RECEPTION NO. 210713052 OF THE EL PASO COUNTY RECORDS.

CONTAINING 3.81 ACRES, MORE OR LESS

**OWNERS CERTIFICATE**

THE UNDERSIGNED, BEING ALL THE OWNERS, MORTGAGEES, BENEFICIARIES OF DEEDS OF TRUST AND HOLDERS OF OTHER INTERESTS IN THE LAND DESCRIBED HEREIN, HAVE LAID OUT, SUBDIVIDED AND PLATTED SAID LANDS INTO LOTS AND EASEMENTS AS SHOWN HEREON UNDER THE NAME AND SUBDIVISION OF WESTVIEW AT WOODMOOR FILING NO. 1A. ALL PUBLIC IMPROVEMENTS REQUIRED BY THIS LAND USE ACTION ARE HEREBY DEDICATED TO PUBLIC USE AND SAID OWNER DOES HEREBY COVENANT AND AGREE THAT THESE PUBLIC IMPROVEMENTS WILL BE CONSTRUCTED TO EL PASO COUNTY STANDARDS AND THAT PROPER DRAINAGE AND EROSION CONTROL FOR THE SAME WILL BE PROVIDED AT SAID OWNER'S EXPENSE. ALL TO THE SATISFACTION OF THE BOARD OF COUNTY COMMISSIONERS OF EL PASO COUNTY, COLORADO. UPON ACCEPTANCE BY RESOLUTION, ALL PUBLIC IMPROVEMENTS SO DEDICATED WILL BECOME MATTERS OF MAINTENANCE BY EL PASO COUNTY, COLORADO. THE UTILITY EASEMENTS SHOWN HEREON ARE HEREBY DEDICATED FOR PUBLIC UTILITIES, COMMUNICATION SYSTEMS AND OTHER PURPOSES AS SHOWN HEREON. THE ENTITIES RESPONSIBLE FOR PROVIDING THE SERVICES FOR WHICH THE EASEMENTS ARE ESTABLISHED ARE HEREBY GRANTED THE PERPETUAL RIGHT OF INGRESS AND EGRESS FROM AND TO ADJACENT PROPERTIES FOR INSTALLATION, MAINTENANCE AND REPLACEMENT OF UTILITY LINES AND RELATED FACILITIES.

**IN WITNESS WHEREOF:**

THE AFOREMENTIONED MURPHY'S CUSTOM HOMES, INC HAS EXECUTED THIS INSTRUMENT THIS \_\_\_ DAY OF \_\_\_\_\_, 2023.

MURPHY'S CUSTOM HOMES, INC.  
TIM MURPHY, PRESIDENT

**NOTARIAL:**

STATE OF COLORADO) SS  
COUNTY OF EL PASO)  
THE FOREGOING INSTRUMENT WAS ACKNOWLEDGED BEFORE ME THIS \_\_\_ DAY OF \_\_\_\_\_, 2023 BY TIM MURPHY, PRESIDENT MURPHY'S CUSTOM HOMES, INC.

MY COMMISSION EXPIRES: \_\_\_\_\_  
NOTARY PUBLIC

**BOARD OF COUNTY COMMISSIONERS APPROVAL:**

THIS PLAT FOR WESTVIEW AT WOODMOOR FILING NO. 1A WAS APPROVED FOR FILING BY THE EL PASO COUNTY, COLORADO BOARD OF COUNTY COMMISSIONERS ON THIS \_\_\_ DAY OF \_\_\_\_\_, 2023, SUBJECT TO ANY NOTES SPECIFIED HEREON AND ANY CONDITIONS INCLUDED IN THE RESOLUTION OF APPROVAL. THE DEDICATIONS OF LAND TO THE PUBLIC AND EASEMENTS ARE ACCEPTED, BUT PUBLIC IMPROVEMENTS THEREON WILL NOT BECOME THE MAINTENANCE RESPONSIBILITY OF EL PASO COUNTY UNTIL PRELIMINARY ACCEPTANCE OF THE PUBLIC IMPROVEMENTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE LAND DEVELOPMENT CODE AND ENGINEERING CRITERIA MANUAL.

CHAIR, BOARD OF COUNTY COMMISSIONERS DATE

DIRECTOR PLANNING AND COMMUNITY DEVELOPMENT DATE

**RECORDING:**

STATE OF COLORADO) SS  
COUNTY OF EL PASO)  
I HEREBY CERTIFY THAT THIS INSTRUMENT WAS FILED FOR RECORD AT MY OFFICE AT \_\_\_ O'CLOCK \_\_\_ M., THIS \_\_\_ DAY OF \_\_\_\_\_, 2023, AND IS DULY RECORDED AT RECEPTION NO. \_\_\_\_\_ OF THE RECORDS OF EL PASO COUNTY, COLORADO.

CHUCK BROERMAN  
BY: \_\_\_\_\_  
COUNTY CLERK AND RECORDER

FEE: \_\_\_\_\_  
SURCHARGE: \_\_\_\_\_

FEES:  
DRAINAGE FEES: \_\_\_\_\_  
BRIDGE FEES: \_\_\_\_\_  
SCHOOL FEES: \_\_\_\_\_  
PARK FEES: \_\_\_\_\_

PREPARED BY  
**LWA LAND SURVEYING, INC.**  
FILE NO. VR-22-13  
953 E. FILLMORE STREET  
COLORADO SPRINGS, COLORADO 80907  
Phone (719) 636-5179  
REVISED 1/20/23  
JUNE 30, 2022  
PROJECT 2201B  
BUCKWOOD.DWG SHEET 1 OF 1

**EASEMENTS:**

UNLESS SHOWN GREATER IN WIDTH, SIDE AND REAR LOT LINES ARE HEREBY PLATTED WITH A FIVE (5) FOOT EASEMENT FOR DRAINAGE AND PUBLIC UTILITIES ONLY; FRONT LOT LINES ARE HEREBY PLATTED WITH A TEN (10) FEET EASEMENT FOR DRAINAGE AND PUBLIC UTILITIES ONLY; THE SOLE RESPONSIBILITY FOR MAINTENANCE OF THE EASEMENT AREAS IS VESTED WITH THE PROPERTY OWNERS.

\*NOTICE: ACCORDING TO COLORADO LAW YOU MUST COMMENCE ANY LEGAL ACTION BASED UPON ANY DEFECT IN THIS SURVEY WITHIN THREE YEARS AFTER YOU FIRST DISCOVER SUCH DEFECT. IN NO EVENT MAY ANY ACTION BASED UPON ANY DEFECT IN THIS SURVEY BE COMMENCED MORE THAN TEN YEARS FROM THE DATE OF THE CERTIFICATION SHOWN HEREON.\*

**MAP LEGEND**

WOODMOOR  
WOODMOOR DRIVE  
321 TRACT "A"

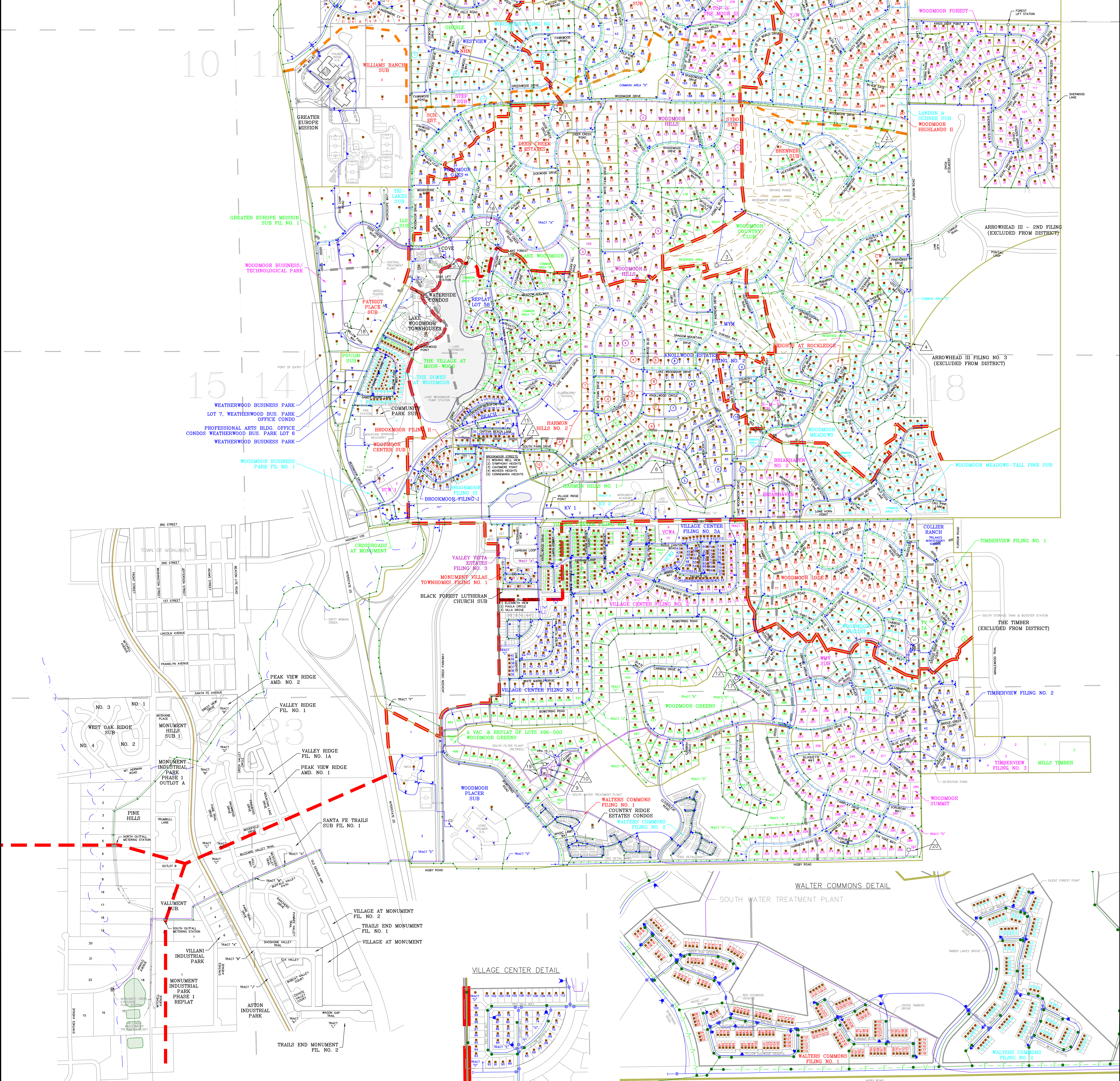
SUBDIVISION NAME  
STREET NAME  
LOT INFORMATION  
DISTRICT BOUNDARY  
SECTION LINE  
SUBDIVISION BOUNDARY  
LOT LINE  
SURFACE WATER  
DETAIL BOUNDARY  
SEWER R&R BOUNDARY  
SEWER BASIN BOUNDARY  
SEWER LINE (PVC)  
SEWER LINE (STL)  
SEWER LINE (VCP)  
SEWER LINE W/ FOLD/FORM  
SEWER LINE W/ IN/ST/FORM  
SEWER LINE W/ HDPE  
SEWER FORCE MAIN (PVC)  
WATER PRESSURE ZONE BNDY.  
POTABLE WATER PIPE (PVC)  
POTABLE WATER PIPE (CP)  
POTABLE WATER PIPE (HDPE)  
NON-POTABLE WATER PIPE (PVC)  
TRANSMISSION LINE (PVC)  
PRIVATE SYSTEM  
NOT FINAL ACCEPTED SYSTEM

1 SECTION NUMBER  
2 SEWER RENEWAL & REPLACEMENT ZONE NUMBER  
3 MAP PANEL NUMBER  
4 WATER PRESSURE ZONE NUMBER  
5 SEWER BASIN NUMBER

NOTES:  
SOME OBJECTS IN THIS LEGEND MAY NOT BE USED ON THIS PLAN.  
ALL WATER MAINS ARE 6" UNLESS NOTED OTHERWISE.  
ALL SEWER MAINS ARE 8" UNLESS NOTED OTHERWISE.

**SUBDIVISION ABBREVIATIONS**

BEACH = THE BEACH AT WOODMOOR  
BMG'S = BOMGAAR'S REPLAT  
C-M = COOK-MALONEY SUBSTITUTION  
CHS = CHISHOLM SUB FIL. NO. 3  
COVE = THE COVE AT WOODMOOR  
CW = COUNTRY WOODMOOR  
C-D SUB = GILGORE-DANSON SUB  
KV 1 = KNOLLWOOD VILLAGE FIL. NO. 2  
KV 2 = KNOLLWOOD VILLAGE FIL. NO. 2  
LPH = LOFTY PINE HEIGHTS  
MIM = NICHOLAS H. MANCE SUB FILING NO. 1  
LWR = A REPLAT OF LOT 56 LAKE WOODMOOR  
MYM = MAYEDA MINOR  
MAZ = MISTY ACRES FILING NO. 2  
MASC = MISTY ACRES FILING NO. 2C  
S-M-Y = SHIPLEY-MILLER-YANCE SUB  
SCH. EST. = SCHORLL ESTATES  
STEP. SUB = STEPHANI SUB  
TW 1A = TIMBERVIEW SUB FILING 1A  
VW 1 = VCV 1 TRUST SUB  
VW 3 = VILLAGE CENTER AT WOODMOOR  
OBERLE = OBERLE VACATION AND REPLAT  
WESTVIEW = WESTVIEW AT WOODMOOR  
WH III = WOODMOOR HIGHLANDS III  
WHZ = WINDING HILLS NO. 2  
WMV SUB = WOODMOOR MOUNTAIN VIEW SUB  
WH 1ST = WOODMOOR MOUNTAIN VIEW 1ST  
WT = WOODMOOR WATER TANK SUB  
Y/N = YATES NIBLACK SUB





September 26, 2022

P. O. Box 1407 • Monument, Colorado 80132  
Phone (719) 488-2525 • Fax (719) 488-2530

To: Murphy's Custom Homes  
Attn: Sarah Martin  
13710 Struthers Rd  
Ste 105B  
Colorado Springs CO 80921

RE: Water & Wastewater Service Commitment – 1384 Buckwood Lane Re-Plat  
El Paso County Parcel Number: 7111101042

Dear Ms. Martin:

The above referenced development, as depicted in the attached sketch, is located within the service boundaries of Woodmoor Water and Sanitation District No. 1 (the District).

It is the District's understanding that Murphy's Custom Homes intends to construct four (4) additional single family homes on the 3.81 acres of land within what is currently Lot 1 of the Westview at Woodmoor subdivision, with a projected total water demand of approximately 1.434 Acre-Feet per year.

The District is committed to providing water and sewer services to the development once the following terms and conditions are met:

1. The Developer must apply for, be subsequently allocated, and enter into an agreement with the District for Supplemental Water Service. Supplemental Water Service is allocated by the District's Board (in its sole and absolute discretion) and therefore is not guaranteed. The District makes no representation herein (expressed or implied) as to whether Developer will or won't be successful in obtaining Supplemental Water Service for the Development.
2. The Development must comply with all District rules, regulations, specifications, and policies regarding water and wastewater service, including the District's System Specifications regarding installation of Water and Sewer utilities, granting of water and sewer utility easements, and construction of offsite improvements if required.

If you should have any questions or need further assistance, please contact me.

Sincerely,

Jessie J. Shaffer  
District Manager

Cc: Ariel Hacker – District Engineer  
Dan LaFontaine – Operations Superintendent



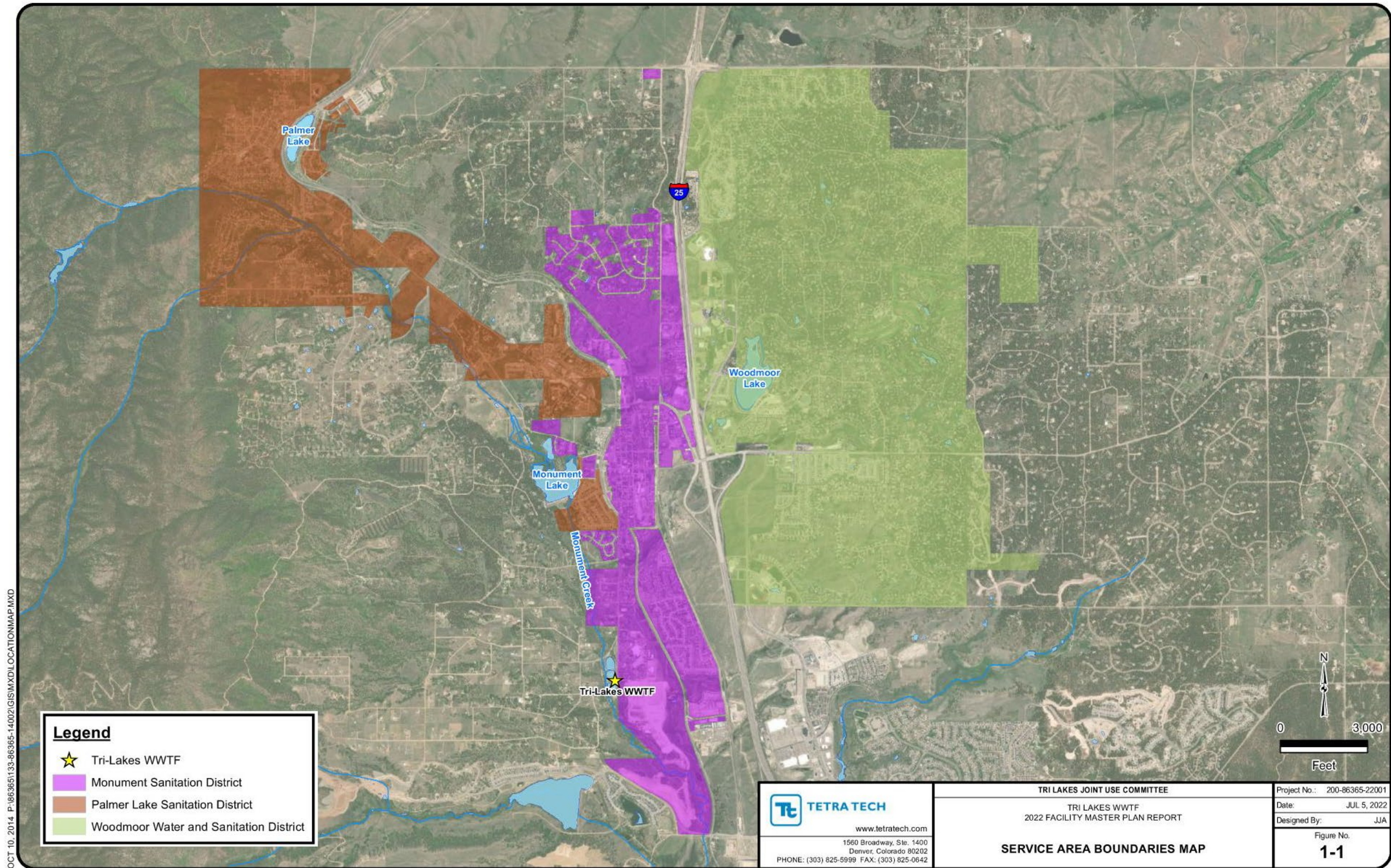


Figure 1-1 Service Area Boundary Map

## 2.0 BASIS OF PLANNING

The following section provides the criteria used to develop the basis of planning for future phased improvements of the TL-WWTF. Population and development projections were prepared by each district. The historical wastewater flow and loads from the TL-WWTF were used to project future wastewater flows and loads. These projected future flows and loads will be used to develop the preliminary design criteria for facilities and equipment for any identified capital improvement projects needed to meet anticipated permit requirements.

### 2.1 POPULATION PROJECTIONS

Each district independently tracks its number of connected sewer taps. Table 2-1 shows the number of connected sewer taps (2013 through 2021) and the five-year projections (2022 through 2027) reported by each district. The five-year projections capture known, upcoming development that, most likely, will not be sustained until 2045. This report assumes that the linear trend observed between 2013 and 2021 will continue from 2028 through 2045 after a short-term spike in growth in population and tap counts between 2022 and 2027. This assumption was informed by comprehensive plans and/or first-hand knowledge from District staff. This assumption will be revisited in the next facility plan update to incorporate any new planning information that becomes available at that time.

To estimate population equivalents (PE) served by the TL-WWTF, the tap projections were multiplied by the average District household size and then summed in the final column of Table 2-1. U.S. Census data from the 2019 American Community Survey showed the population per household as 3.04 people per household for Monument, 2.45 people per household for Palmer Lake, and 3.00 people per household for Woodmoor. These are reasonable household sizes for communities consisting of primarily single-family residential households. Woodmoor Sanitation District has indicated projected tap buildout values of 6,481 by 2037 and 7,815 by 2047. The *Town of Monument Comprehensive Plan 2017* projects a residential population buildout of 15,433 residents. This is equivalent to approximately 5,076 taps, based on the projections used in this report, it is unlikely that Monument will reach buildout by 2045. Palmer Lake has not indicated projected buildout values.

Table 2-1 Population Equivalent Projection

Year	Tap Projections			Total PE Equivalents
	Monument	Palmer Lake	Woodmoor	
2021	1,394	1,270	3,955	19,200
2022	1,478	1,303	4,113	20,000
2023	1,562	1,337	4,271	20,800
2024	1,645	1,370	4,429	21,600
2025	1,729	1,403	4,587	22,500
2026	1,813	1,437	4,744	23,300
2027	1,897	1,470	4,902	24,100
2028	1,927	1,507	5,060	24,700
2029	1,956	1,545	5,218	25,400
2030	1,986	1,582	5,376	26,000
2031	2,015	1,620	5,534	26,700
2032	2,045	1,657	5,692	27,400

Year	Tap Projections			Total PE Equivalents
	Monument	Palmer Lake	Woodmoor	
2033	2,074	1,695	5,850	28,000
2034	2,104	1,732	6,007	28,700
2035	2,133	1,769	6,165	29,300
2036	2,163	1,807	6,323	30,000
2037	2,192	1,844	6,481	30,600
2038	2,222	1,882	6,614	31,200
2039	2,251	1,919	6,748	31,800
2040	2,281	1,957	6,881	32,400
2041	2,310	1,994	7,015	33,000
2042	2,340	2,031	7,148	33,500
2043	2,369	2,069	7,281	34,100
2044	2,399	2,106	7,415	34,700
2045	2,428	2,144	7,548	35,300

## 2.2 FLOW PROJECTIONS

The TL-WWTF routinely samples influent from all three contributing districts and records flow, biological oxygen demand (BOD<sub>5</sub>), and Total Suspended Solids (TSS) data. An annual average of each district's flow contribution was correlated with its respective tap counts to determine a gallon/tap ratio. This scaling factor was applied to the tap projections in Table 2-1.

### 2.2.1 Historic Flow Analysis

Historic treatment facility influent flow data from 2015 to 2021 was analyzed for sustained periods of variability such as peak month flows. This was expressed as a unitless ratio of flow to annual average (AA) flow, also commonly referred to as a "peaking factor." Table 2-2 details these relationships further. Maximum month (MM) flow was determined based on the average 30-day flow at the end of each calendar month. The MM flow occurred in May 2016 with an average flow of 1.65 MGD. Based on the historic data, May 2015 with 2.42 MGD and June 2015 with 2.03 MGD were removed as outliers. May of 2015 was an exceptionally rainy month that year with a reported rainfall of 7.8 inches and only 10 days in the month without rainfall. May of 2016 was the next month with the highest flow and is representative of what TL-WWTF typically sees for a MM. Diurnal flow data was not available therefore peak hour (PH) peaking factor was based on the AA to PH flow ratio of 2.75 developed during the 1997-1999 TL-WWTF Expansion.

Table 2-2 Flow Data Analysis Summary

Flows (MGD)		
Flow Type	Historic	2045
Annual Average (AA)	1.25	2.30
Maximum Month (MM)	1.65	3.03
Peak Hour (PH)	3.44	6.32
Peaking Factors		
AA:AA		1.25
MM:AA		1.32
PH:AA		2.75

## 2.2.2 Projected Flows

Table 2-3 shows projected flow contributions from each of the three districts up to expected build out conditions based on the current AA flow rate and number of taps. To determine peak flows for any projected year, multiply the total plant flow by the appropriate peaking factor from Table 2-2. The facility's existing 4.2 MGD hydraulic capacity is rated based on MM flow conditions. Hydraulic capacity is expected to only be exceeded once annual average flow is greater or equal to 3.6 MGD which is beyond the 2045 planning period.

Table 2-3 Average Annual Flow Projections

Year	Flow Projections (MGD)			Total Plant Flow (MGD)
	Monument	Palmer Lake	Woodmoor	
2021	0.195	0.248	0.806	1.249
2022	0.206	0.255	0.839	1.300
2023	0.218	0.261	0.871	1.350
2024	0.230	0.268	0.903	1.401
2025	0.241	0.274	0.935	1.451
2026	0.253	0.281	0.967	1.501
2027	0.265	0.287	1.000	1.552
2028	0.269	0.295	1.032	1.595
2029	0.273	0.302	1.064	1.639
2030	0.277	0.309	1.096	1.683
2031	0.281	0.317	1.128	1.726
2032	0.285	0.324	1.161	1.770
2033	0.290	0.331	1.193	1.814
2034	0.294	0.339	1.225	1.857
2035	0.298	0.346	1.257	1.901
2036	0.302	0.353	1.289	1.944

Year	Flow Projections (MGD)			Total Plant Flow (MGD)
	Monument	Palmer Lake	Woodmoor	
2037	0.306	0.360	1.321	1.988
2038	0.310	0.368	1.349	2.027
2039	0.314	0.375	1.376	2.065
2040	0.318	0.382	1.403	2.104
2041	0.323	0.390	1.430	2.143
2042	0.327	0.397	1.458	2.181
2043	0.331	0.404	1.485	2.220
2044	0.335	0.412	1.512	2.259
2045	0.339	0.419	1.539	2.297
<b>Multiplier</b>	<b>139.6</b>	<b>195.4</b>	<b>203.9</b>	<b>(gal/tap/day)</b>

## 2.3 WASTE LOAD PROJECTIONS

Similar to the flow projections, historical influent data is used to develop waste load projections. The historical loading data is compared to the current tap count to determine the AA load (lb/day/tap) for each constituent. The current AA load contribution is applied to the PE projection to predict future loading. The AA to peak loading ratios were also determined based on historical data.

Samples are collected from each metering vault for the three districts and are analyzed for BOD<sub>5</sub> and TSS. The results of these samples are used for distributing operations costs among the JUC members. The samples collected are not analyzed for ammonia or phosphorus concentrations. As nutrient limits become more stringent, the cost of operations will be closely tied to influent nitrogen and phosphorus concentrations in addition to BOD<sub>5</sub> and TSS. On the 2014 Nutrient Engineering Report, Tetra Tech recommended that once phosphorus facilities were in operation, that the operations cost distribution included nitrogen and phosphorus contributions as well to ensure equitable distribution of the costs.

### 2.3.1 Historic Load Analysis

The historic influent data for each district was used to analyze influent load contributions from each of the three districts. Considering that ammonia is not currently sampled at the individual metering stations, the ammonia loading was calculated using a scaling factor of 0.108 lbs NH<sub>3</sub>-N/lbs BOD<sub>5</sub> which is based on the facility's combined annual average loading for each of these constituents. The facility is currently permitted for a MM average BOD<sub>5</sub> load of 5,600 lbs/day. The projected loading analysis presented below indicates that organic loading capacity is likely to be exceeded by 2041. However, TL-WWTF is planning to provide the required site application and/or supporting documentation for capacity re-rating on the extended aeration activated sludge wastewater treatment system to the originally approved organic treatment capacity of 9,458 lbs/day during the TL-WWTF expansion site application process. The request to amend the original site approval will be submitted once additional blower capacity (Design Capacity) is installed as per the permit renewal letter submitted in 2004. In addition, the TL-WWTF will also continue to update the Facility Master plan on a 5-year cycle.

Table 2-4 Historic Load Analysis

Peaking Factors					
Flow Type	BOD <sub>5</sub>		TSS		NH <sub>3</sub> -N
Annual Average (AA)	1.0		1.0		1.0
Maximum Month (MM)	1.56		1.43		1.34
Current / 2045 Loads (lbs/day)					
Flow Type	BOD <sub>5</sub>		TSS		NH <sub>3</sub> -N
Annual Average (AA)	3,372	/ 5,990	3,282	/ 6,118	364 / 667
Maximum Month (MM)	5,275	/ 9,370	4,689	/ 8,741	489 / 895

### 2.3.2 Projected Waste Loads

As for projected flow, annual average interceptor values were divided by the respective number of taps for each contributing district to determine three specific lb/tap/day multipliers. Two notable discrepancies were noted. The combined influent BOD and TSS loads recorded at the metering vaults were higher than reported plant influent loads by approximately 3% and 16%, respectively. These discrepancies could be the result of the plant influent sampling occurring after the headworks facility. Some BOD is removed in the headworks and a significant amount of TSS is removed through the degritting process. The BOD and TSS projected loads are presented in Table 2-5 and Table 2-6 respectively.

Table 2-5 BOD<sub>5</sub> Load Projections

Year	BOD Projections (lbs/day)			Total Plant BOD Load (lbs/day) <sup>1</sup>
	Monument	Palmer Lake	Woodmoor	
2021	674	623	2,070	3,265
2022	715	639	2,152	3,401
2023	755	655	2,235	3,536
2024	796	672	2,317	3,671
2025	837	688	2,400	3,807
2026	877	704	2,483	3,942
2027	918	721	2,565	4,077
2028	932	739	2,648	4,189
2029	946	757	2,730	4,301
2030	961	776	2,813	4,413
2031	975	794	2,896	4,525
2032	989	812	2,978	4,636
2033	1,003	831	3,061	4,748
2034	1,018	849	3,143	4,860
2035	1,032	867	3,226	4,972
2036	1,046	886	3,309	5,083
2037	1,060	904	3,391	5,195
2038	1,075	922	3,461	5,295
2039	1,089	941	3,531	5,394
2040	1,103	959	3,601	5,493
2041	1,118	977	3,671	5,593
2042	1,132	996	3,740	5,692
2043	1,146	1,014	3,810	5,791
2044	1,160	1,033	3,880	5,891
2045	1,175	1,051	3,950	5,990
<b>Multiplier</b>	<b>0.48</b>	<b>0.49</b>	<b>0.52</b>	<b>(lbs BOD/tap/day)</b>

Note 1: Values represent total BOD at plant influent downstream of the headworks equipment.

Table 2-6 TSS Load Projections

Year	TSS Projections (lbs/day)			Total Plant TSS Load (lbs/day) <sup>1</sup>
	Monument	Palmer Lake	Woodmoor	
2021	807	729	2,435	3,336
2022	856	748	2,532	3,474
2023	904	768	2,629	3,613
2024	953	787	2,726	3,751
2025	1,001	806	2,823	3,890
2026	1,050	825	2,921	4,028
2027	1,098	844	3,018	4,167
2028	1,115	866	3,115	4,281
2029	1,132	887	3,212	4,395
2030	1,149	909	3,309	4,509
2031	1,167	930	3,407	4,623
2032	1,184	952	3,504	4,737
2033	1,201	973	3,601	4,851
2034	1,218	995	3,698	4,965
2035	1,235	1,016	3,795	5,079
2036	1,252	1,038	3,893	5,193
2037	1,269	1,059	3,990	5,307
2038	1,286	1,081	4,072	5,408
2039	1,303	1,102	4,154	5,510
2040	1,320	1,124	4,236	5,611
2041	1,337	1,145	4,318	5,713
2042	1,355	1,167	4,400	5,814
2043	1,372	1,188	4,482	5,915
2044	1,389	1,210	4,565	6,017
2045	1,406	1,231	4,647	6,118
<b>Multiplier</b>	<b>0.58</b>	<b>0.57</b>	<b>0.62</b>	<b>(lbs TSS/tap/day)</b>

Note 1: Values represent total TSS at plant influent downstream of the headworks equipment.



Table 2-7 Ammonia Load Projections

Year	Ammonia Projections (lbs/day)			Total Plant Ammonia Load (lbs/day)
	Monument	Palmer Lake	Woodmoor	
2021	73	67	223	363
2022	77	69	232	378
2023	81	71	241	393
2024	86	72	250	408
2025	90	74	259	423
2026	95	76	268	438
2027	99	78	277	453
2028	101	80	286	466
2029	102	82	294	478
2030	104	84	303	491
2031	105	86	312	503
2032	107	88	321	516
2033	108	90	330	528
2034	110	92	339	540
2035	111	94	348	553
2036	113	96	357	565
2037	114	98	366	578
2038	116	99	373	589
2039	117	101	381	600
2040	119	103	388	611
2041	121	105	396	622
2042	122	107	403	633
2043	124	109	411	644
2044	125	111	418	655
2045	127	113	426	666
<b>Multiplier</b>	<b>0.052</b>	<b>0.053</b>	<b>0.056</b>	<b>(lbs NH<sub>3</sub>-N/tap/day)</b>