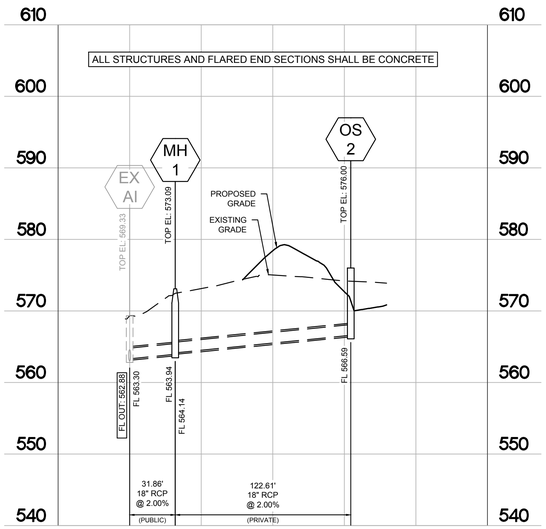
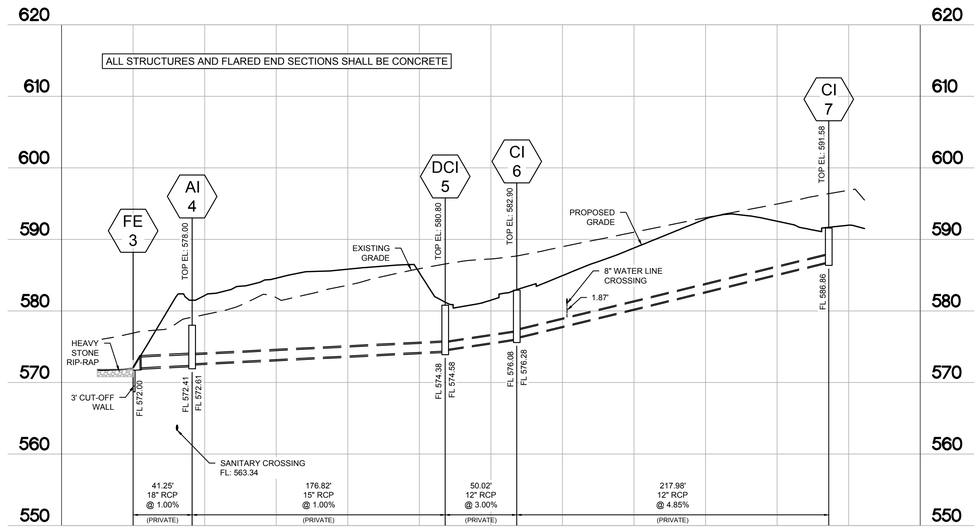




STORM SEWER PROFILES

SCALE: HORIZ.: 1" = 50'

VERT.: 1" = 10'

15YR.-20MIN. PIPE HYRAULICS

Line No.	Line ID	DnStm Ln No	Invert Dn (ft)	Gnd/Rim El Dn (ft)	Invert Up (ft)	Gnd/Rim El Up (ft)	Line Length (ft)	Line Slope (%)	Line Size (in)	n-val Pipe	Known Q (cfs)	Capac Full (cfs)	Flow Rate (cfs)	Vel Ave (ft/s)	Energy Loss (ft)	Minor Loss (ft)	HGL Dn (ft)	HGL Up (ft)	Rim-Hw (ft)
1	3-4	Outfall	572.00	574.71	572.41	578.00	41.250	1.00	18	0.013	2.90	10.50	7.47	4.57	0.213	0.56	573.50	573.62	3.82
2	4-5	1	572.61	578.00	574.38	580.80	176.817	1.00	15	0.013	3.54	6.46	4.57	4.38	1.093	n/a	574.18	575.25 j	5.55
3	5-6	2	574.58	580.80	576.08	582.90	50.023	3.00	12	0.013	0.53	6.17	1.03	2.54	0.000	n/a	575.25	576.51 j	6.39
4	6-7	3	576.28	582.90	586.86	591.58	217.981	4.85	12	0.013	0.50	7.84	0.50	3.18	0.000	0.11	576.51	587.15	4.43
5	EX-1	Outfall	563.30	569.33	563.94	573.09	31.860	2.01	18	0.013	0.00	14.88	13.77	7.96	0.512	n/a	564.80	565.31 j	7.78
6	1-2	5	564.14	573.09	566.59	576.00	122.606	2.00	18	0.013	13.77	14.85	13.77	8.70	0.000	n/a	565.31	567.97	8.03

ADDITIONAL NOTES:

1. CONNECTIONS AT ALL SANITARY STRUCTURES TO BE MADE WITH A-LOCK JOINT OR EQUAL.
2. "RIP-RAP SHOWN AT FLARED ENDS WILL BE EVALUATED IN THE FIELD BY THE ENGINEER, CONTRACTOR AND CITY INSPECTOR AFTER INSTALLATION FOR EFFECTIVENESS AND FIELD MODIFIED, IF NECESSARY, TO REDUCE EROSION ON AND OFF-SITE.

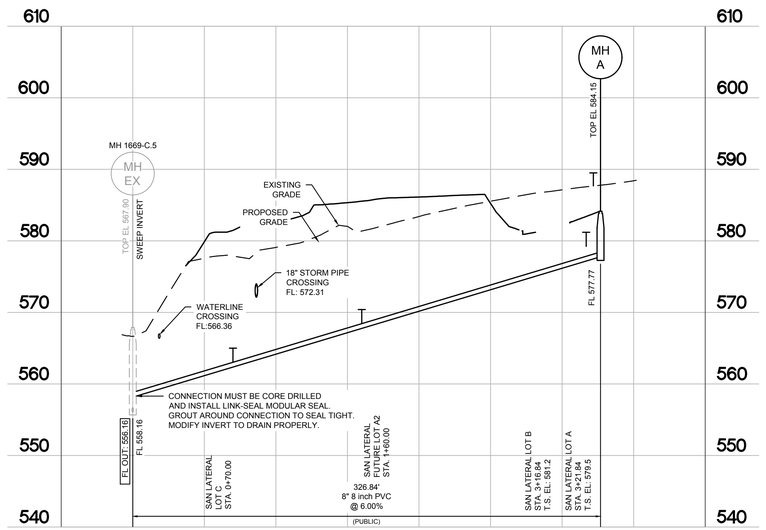
STORM SEWER NOTES:

1. ALL STORM SEWER INSTALLATION IS TO BE IN ACCORDANCE WITH M.S.D. STANDARDS AND SPECIFICATIONS EXCEPT AS MODIFIED BY THE CITY OF O'FALLON ORDINANCES.
2. BRICK SHALL NOT BE USED IN THE CONSTRUCTION OF STORM SEWER STRUCTURES. PRE CAST CONCRETE STRUCTURES ARE TO BE USED UNLESS OTHERWISE APPROVED BY THE CITY OF O'FALLON.
3. A 5/8" TRASH BAR SHALL BE INSTALLED HORIZONTALLY IN THE CENTER OF THE OPENING(S) IN ALL CURB INLETS AND AREA INLETS.
4. (INTENTIONALLY OMITTED)
5. ENCASE WITH CONCRETE BOTH SANITARY AND STORM SEWER AT CROSSING WHEN STORM SEWER IS WITHIN 18 INCHES ABOVE SANITARY SEWER. ADD CONCRETE CRADLE TO ONLY RCP STORM SEWER AND ENCASE FLEXIBLE STORM SEWER WHEN IT IS MORE THAN 18 INCHES ABOVE SANITARY LINE. SHOW ON PROFILE SHEET.
6. THE STORM SEWERS SHOULD RUN DIAGONALLY THROUGH THE SIDE YARDS TO MINIMIZE ANY ADDITIONAL UTILITY EASEMENTS REQUIRED.
7. ALL CONCRETE PIPES WILL BE INSTALLED WITH O-RING RUBBER TYPE GASKETS.
8. CONNECTIONS AT ALL STORM STRUCTURES ARE TO BE MADE WITH A-LOCK JOINT OR EQUAL.
9. PRE CAST CONCRETE INLET COVERS ARE NOT TO BE USED.
10. THE SWALE IN THE DETENTION BASINS SHALL HAVE A MINIMUM 2% LONGITUDINAL SLOPE AND BE LINED WITH A PERMANENT EROSION CONTROL BLANKET THAT WILL ALLOW INFILTRATION OF STORM WATER.
11. ALL STRUCTURES AND FLARED END SECTIONS MUST BE CONCRETE. H.D.P.E. PIPE WILL NOT BE ALLOWED FOR DETENTION BASIN OUTFLOWS, FINAL PIPE RUN TO DETENTION BASINS, CREEK DISCHARGE OR OTHER APPROVED MEANS.
12. (INTENTIONALLY OMITTED)
13. RIP RAP SHOWN AT FLARED END SECTIONS WILL BE EVALUATED IN THE FIELD BY THE ENGINEER, CONTRACTOR, AND CITY INSPECTORS AFTER INSTALLATION FOR EFFECTIVENESS AND FIELD MODIFIED, IF NECESSARY TO REDUCE EROSION ON AND OFF SITE.
14. ADD 1" MINUS ROCK BACK FILL TO ALL STORM SEWER THAT LIE WITHIN THE 1:1 SHEAR PLANE OF THE ROAD.
15. (INTENTIONALLY OMITTED)

DUCKETT CREEK SANITARY DISTRICT CONSTRUCTION NOTES

1. Underground utilities have been plotted from available information and therefore location shall be considered approximate only. The verification of the location of all underground utilities, either shown or not shown on these plans, shall be the responsibility of the contractor and shall be located prior to any grading or construction of improvements.
2. Gas, water and other underground utilities shall not conflict with the depth or horizontal location of existing or proposed sanitary and storm sewers, including house laterals.
3. All existing site improvements disturbed, damaged or destroyed shall be repaired or replaced to closely match preconstruction conditions.
4. All fill including places under proposed storm and sanitary sewer lines and paved areas including trench backfills within and off the road right-of-way shall be compacted to 90 percent of maximum density as determined by the "Modified AASHTO T-180 Compaction Test (ASTM D1557)". All tests shall be verified by a Soils Engineer concurrent with grading and backfilling operations. The compacted fill shall be free of rutting and shall be non-yielding and non-pumping during proofrolling and compaction.
5. The contractor shall prevent all storm, surface water, mud and construction debris from entering the existing sanitary sewer system. The contractor will be required to install a brick bulkhead on the downstream side of the first new manhole constructed when connecting into existing sewers.
6. All sanitary sewer flowlines and tops built without elevations furnished by the engineer will be the responsibility of the sewer contractor.
7. It is the responsibility of the contractor to adjust all sanitary sewer manholes (that are affected by the development) to finish grade.
8. Easements shall be provided for all sanitary sewers, storm sewers and all utilities on the record plat.
9. All sanitary sewer construction and materials shall conform to the current construction standards of the Duckett Creek Sanitary District.
10. The Duckett Creek Sanitary District shall be notified at least 48 hours prior to construction for coordination of inspection.
11. All sanitary sewer building connections shall be designed so that the minimum vertical distance from the low point of the basement to the flowline of a sanitary sewer at the corresponding building connection shall not be less than the diameter of the pipe plus the vertical distance of 2½ feet.
12. All sanitary sewer manholes shall be watertight in accordance with Missouri Dept. of Natural Resources specification 10 CSR 20-8.120(6)(F) 1.
13. All PVC sanitary sewer pipe shall conform to the requirements of ASTM D-3034 Standard Specification for PSM Polyvinyl Chloride Sewer Pipe, SDR-35 or equal, with "clean" 1/2 inch to 1 inch granular stone bedding uniformly graded. This bedding shall extend from 4 inches below the pipe to springline of pipe. Immediate backfill over pipe shall consist of same size "clean" or "minus" stone from springline of pipe to 6 inches above the top of pipe. Final backfill material shall be of suitable material removed from excavation except as other material is specified. Debris, frozen material, large rocks or stones, or other unstable materials shall not be used within 2 feet from top of pipe.
14. All sanitary and storm sewer trench backfills shall be water jetted. Granular backfill will be used under pavement areas.
15. All pipes shall have positive drainage through manholes. Flat invert structures not allowed.
16. Epoxy Coating shall be used on all sanitary sewer manholes that receive pressurized mains.
17. All creek crossings shall be lined with rip-rap as directed by District inspectors.
18. Brick shall not be used on sanitary sewer manholes.
19. Existing sanitary sewer service shall not be interrupted.
20. Maintain access to existing residential driveways and streets.
21. Pre-manufactured adapters shall be used at all PVC to DIP connections. Rubber boot / Mission-type couplings will not be allowed.
22. Any permits, licenses, easements, or approvals required to work on public or private properties or roadways are the responsibility of the developer.
23. 'Type N' Lock-Type Cover and Locking Device (Lock-Lug) shall be used where lock-type covers are required.
24. All sanitary sewer system work shall be conducted under the inspection of a representative of the District. All work may not require inspection but the District's representative may designate specific areas that must be inspected before the work is backfilled. All testing must be witnessed by the District's Inspector and the Contractor shall furnish all testing equipment as approved by the District. Testing shall include:
    - A mandrel test of all gravity sewers using a mandrel with a diameter that has a diameter 95% of the inside pipe diameter. If the mandrel test fails on any section of pipe, that section of pipe shall be uncovered and replaced. No expansion devices will be allowed to be used to "force" the pipe that is deformed back into round. Any string lines used in mandrel testing shall be removed after testing is completed. Deflection testing cannot be conducted prior to 30 days after final backfill.
    - An air pressure test of all gravity sewers to a pressure of 5 PSI with no observed drop in pressure during a test period of 5 minutes.
    - A vacuum test of all manholes for a period of 1 minute and the vacuum shall be 10" of mercury and may not drop below 9" of mercury at the end of the 1 minute test.

Revised October 2016



SANITARY SEWER PROFILES

SCALE: HORIZ.: 1" = 50'

VERT.: 1" = 10'

DUCKETT CREEK SANITARY DISTRICT (DCSD) NOTES:

1. EXISTING SANITARY SEWERS SHALL NOT BE INTERUPTED.
2. CONSTRUCTION OF WASTEWATER FACILITIES REQUIRES DCSD INSPECTION. CONTACT DCSD ENGINEERING DEPARTMENT AT 636-441-1244 TO SCHEDULE INSPECTION. 48 HOUR ADVANCE NOTICE IS REQUIRED.
3. THE CONTRACTOR SHALL PREVENT ALL STORM, SURFACE WATER, MUD AND CONSTRUCTION DEBRIS FROM ENTERING THE SANITARY SEWER SYSTEM.
4. LATERAL CLEANOUTS WITH METAL FRAME AND COVER AT GRADE SHALL BE PROVIDED AT A MINIMUM OF EVERY 100 FEET AND AT EVERY CHANGE IN DIRECTION OR SLOPE.
5. LOTS A AND C REQUIRE SEPARATE DCSD PLAN REVIEW AND APPROVAL.
6. ALL SANITARY SEWER MANHOLES SHALL HAVE Z - LOC CONNECTORS.

ENGINEER'S AUTHENTICATION

THE RESPONSIBILITY FOR THE PROFESSIONAL ENGINEERING LIABILITY ON THIS PROJECT IS HEREBY LIMITED TO THE SET OF PLANS AUTHENTICATED BY THE SEAL, SIGNATURE AND DATE HEREUNDER ATTACHED. RESPONSIBILITY IS DISCLAIMED FOR ALL OTHER ENGINEERING PLANS INVOLVED IN THE PROJECT AND SPECIFICALLY EXCLUDES REVISIONS AFTER THIS DATE UNLESS REAUTHENTICATED.

10-25-2024	CITY OF O'FALLON COMMENT REVISIONS
11-14-2024	IMPROVEMENT PLAN SUBMITTAL
11-21-2024	DCSD & PWSD#2 COMMENT REVISIONS
11-27-2024	CITY OF O'FALLON COMMENT REVISIONS
12-02-2024	DCSD COMMENT REVISIONS
04-11-2025	PHASING REVISIONS
04-23-2025	GRADING QUANTITIES
05-08-2025	ADD SAWCUT NOTE PER CITY COMMENT
07-28-2025	ADDED LIGHT STANDARDS PER LIGHTING PLAN
08-25-2025	REVISED TRASH ENCLOSURE AND ADA TRAIL DESIGN

IMPROVEMENT PLAN

THE VILLAGES AT MONTRACHET
WEST COMMERCIAL

SEWER PROFILES

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801 S. FIFTH STREET, SUITE 202
ST. CHARLES, MO 63301
TEL: (636) 947-0607 FAX: (636) 947-2448
ST CHARLES ENGINEERING AND SURVEYING, INC.
PROFESSIONAL ENGINEERING AND LAND SURVEYING CORPORATION
MISSOURI STATE CERTIFICATES OF AUTHORITY - 001647 & 000379

STATE OF MISSOURI
MICHAEL NEWELL MEINERS
NUMBER PE-22483
REGISTERED PROFESSIONAL ENGINEER
08/25/25
MICHAEL NEWELL MEINERS
CIVIL ENGINEER PE-22483

ORDER NO.
2024020

DATE
08/25/2025

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