

June 18, 2018

Nina Ruiz, El Paso County Planning and Community Development Department, 2880 International Circle, Suite 110 Colorado Springs, CO 80910

Re: WindingWalk PUD, PCD# PUDSP-18-002
The Enclaves at Stonebridge PUD, PCD# PUDSF-18-003
WindingWalk Filings 1, PCD# SF-18-002

Dear Ms. Ruiz

This letter responds to the May 14, 2018 review letter from the Colorado Geologic Survey relating to the above referenced projects.

Below are brief summaries addressing the key points of concern from the Colorado Geologic Survey:

Uncontrolled Fill

- Compaction reports from CTL Thompson for the areas in question have been provided to Entech Engineering for their recordes
- Utility trenches will be properly compacted, monitored and compacted to at least 95%
 Maximum Modified Proctor Dry Desnsity (ASTM D 1557)

Collapsible Soil

- Utility trenches will be properly compacted, monitored and compacted to at least 95%
 Maximum Modified Proctor Dry Desnsity (ASTM D 1557)
- Each home site will have a soils report prepared for foundation design. Should collapsible soils be encountered proper mitigation including overexcavation and recompaction as outlined in the report will be required.

Expansive Soil

Should highly expansive soils be encountered during pavement preparation after utility
installation; proper mitigation measures as outlined per the El Paso County Pavement Design
Criteria will be followed. Generally, these measures include soil moisture conditioning.



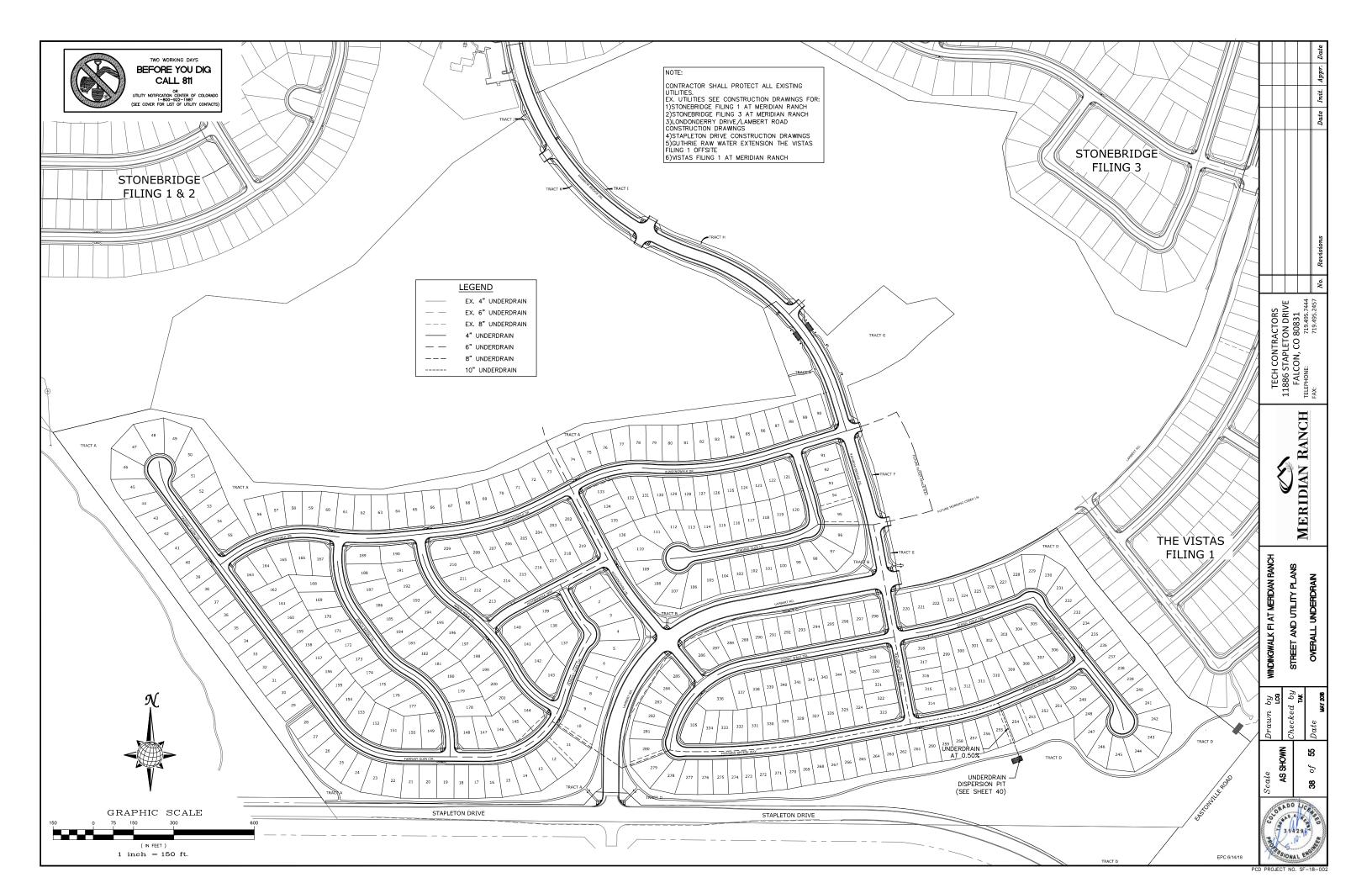
Shallow Groundwater

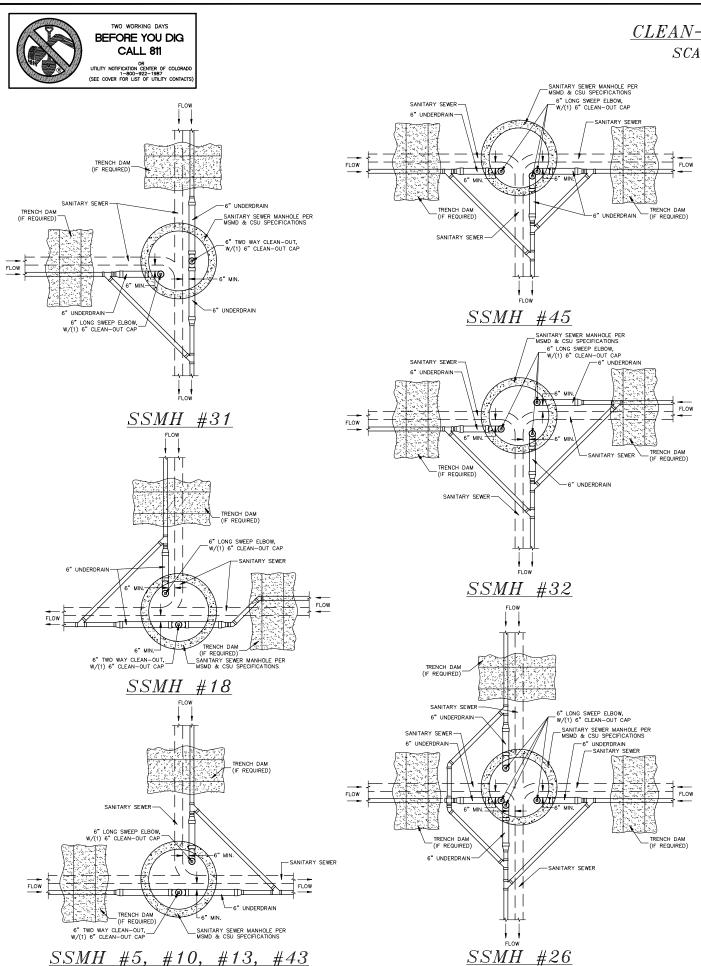
• The Meridian Ranch project has an extensive underdrain system capable to mitigate any shallow groundwater encountered. The underdrain system is included in the street and utility improvement plans and will be installed with the sanitary sewer. Cleanouts are placed at every sanitary sewer manhole for proper maintenance. A structure is provided at the outfall of each underdrain system to promote infiltration of the groundwater per Upper Black Squirrel Groundwater District and State of Colorado Groundwater Commission requirements. See the attached excerpted sheets from the approved construction drawings.

Please call me should you have any further questions or concerns.

Sincerely

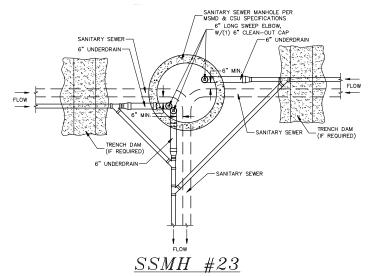
Thomas A. Kerby, PE Tech Contractors

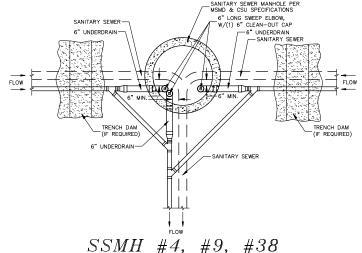


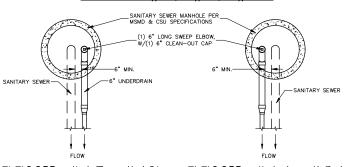


CLEAN-OUT DETAILS SCALE: N.T.S.



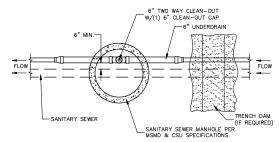




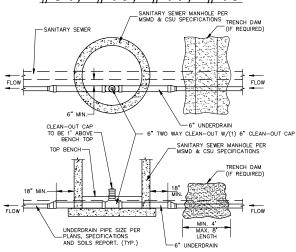


#29 #36, #46, & #51

SSMH #15, #17, SSMH #14, #21, #24, #28, #35, #42, #48, & #50



SSMH #6, 11, 12, #19, #20, #27, #30, #34, #40, #41, #49



SSMH #16

NOTES:

- THE UNDERDRAIN SYSTEM SHALL BE PASSIVE, WATER TIGHT, NON— PERFORATED PIPE, WITH THE MAIN LINE SIZE DESIGNED BY THE ENGINEER. ALL UNDERDRAIN PIPES AND FITTINGS SHALL BE SDR 35 PVC, OR MOMD APPROVED EQUAL, INSTALLED PER THE SAME INSTALLATION STANDARDS AS OUTLINED BY SOUS FOR SANITARY SEWER SYSTEMS. THE UNDERDRAIN SYSTEM AT EACH SANITARY SEWER MANHOLE SHALL CONTAIN 6" CLEAN—OUTS IN EACH UNDERDRAIN MAIN DIRECTION PER THE CLEAN—OUT DETAIL. ALL LOTS SHALL RECEIVE A WHITE 3" UNDERDRAIN SERVICE LATERAL ADJACENT TO THE SANITARY SEWER SERVICE LATERAL.
- TESTING OF THE UNDERDRAIN SYSTEM WILL CONSIST OF VISUAL INSPECTIONS FOR WATER IN THE SYSTEM, ALONG WITH A VIDEO INSPECTION PERFORMED BY MSMD PERSONNEL. ALL UNDERDRAIN MAINS AND DOWNSTREAM INFILITRATION STRUCTURES SHALL BE CLEAN AND DEBRIS FREE UPON COMPLETION OF THE SYSTEM AND PRIOR TO CCTV. ALL UNDERDRAIN MAINS SHALL BE CCTV INSPECTED BY MSMD AND REVIEWED FOR APPROVAL. THE SPECIFICATION FOR ALLOWABLE STANDING WATER INFILITRATION IN THE UNDERDRAIN ASSYSTEM SHALL BE THE SAME AS PER CSUS FOR SANITARY SEWER SYSTEMS. IF EXCESS WATER IS OBSERVED IN THE UNDERDRAIN SYSTEM, THE CONTRACTOR SHALL LOCATE THE SOURCE OF WATER INFILITRATION AND REPAIR AS NECESSARY TO MEET CSUS.
- IF THE UNDERDRAIN MAIN HAS LOW SPOTS THAT EXCEED CSUS STANDARDS, THE CONTRACTOR SHALL REPAIR THE LINE AS NECESSARY TO MEET CSUS. UNDERDRAIN MAINS THAT DO NOT MEET MSMD STANDARDS SHALL BE REPLACED AND OR REPAIRED AS NECESSARY. THE CONTRACTOR SHALL RE-CCTV INSPECT THE UNDERDRAIN MAIN LINES AFTER THE REPAIRS HAVE BEEN MADE WITH ONE VIDEO SUBMITTED TO MSMD FOR REVIEW AND APPROVAL.
- UNDER DRAIN MAIN LINES SHALL HAVE CONTINUOUS POSITIVE DRAINAGE TO THE POINT OF DISCHARGE INTO A BELOW GRADE AN APPROVED UNDERDRAIN INFILTRATION STRUCTURE WHEREVER POSSIBLE. UNDERDRAIN INFILTRATION STRUCTURES SHALL BE DESIGNED WITH OVERFLOW LINES FOR FUTURE EXPANSION AS NEEDED. IF OROUNDWATER IS ENCOUNTERED DURING CONSTRUCTION OF THE INFILTRATION STRUCTURE, STOP INSTALLATION AND CONTACT THE DISTRICT ENGINEER FOR POSSIBLE ALTERNATE DESIGN. ALTERNATE DESIGN.
- UNDERDRAINS WILL DAYLIGHT AT LOCATIONS SHOWN ON THE DRAWINGS.
- UNDERDRAIN CLEANOUTS SHALL BE 6 INCH AND SHALL BE LOCATED AT EVERY MANHOLE. UNDERDRAIN CLEANOUTS AND CLEANOUT CONSTRUCTION WILL LEAVE NO INFILTRATION WITHIN SEWER MANHOLES. MANHOLE PERTERATIONS TO BE FILLED WITH NON-SHRINKING GROUT. UNDERDRAIN SIZE WILL NOT BE REDUCED THROUGH THE MANHOLE.
- TRENCH DAMS WILL BE PROVIDED AT INTERVALS NO GREATER THAN 350 FEET IN SANITARY SEWER SECTIONS WHERE GROUNDWATER EXISTS OR WHERE DIRECTED BY THE ENGINEER. A TRENCH DAM WILL BE CONSTRUCTED WITHIN THE FIRST 100 FEET OF EITHER ENTERING OR EXITING GROUNDWATER. THE CONTRACTOR SHALL NOTIFY THE DISTRICT WHEN GROUNDWATER IS ENCOUNTERED TO REVIEW TRENCH DAM NEEDS, LOCATIONS, AND MATERIALS.
- TRENCH DAMS MAY BE CONSTRUCTED OF ON SITE MATERIALS IF APPROVED BY THE SOILS ENGINEER.
- TRENCH DAMS SHALL COMPLETELY INTERRUPT GRAVEL BEDDING AND STABILIZATION THE FULL WIDTH OF THE TRENCH FOR A LENGTH OF NO LESS THAN 4 FEET BUT NO GREATER THAN 8 FEET.
- 10. TRENCH DAMS SHALL BE COMPACTED TO 95% OF STANDARD PROCTOR AROUND THE SEWER AND UNDERDRAIN PIPELINES.
- 11. IF ALTERNATE MATERIALS (CONCRETE) OR SOIL AMENDED TRENCH DAMS ARE NECESSARY OR REQUIRED BY THE ENGINEER, THE DAMS SHALL BE EXTENDED A MINIMUM OF 6 FEET ABOVE THE PIPELINE BUT IN NO CASE CLOSER THAN 6' FROM THE SURFACE.

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AS SHOWN

TECH CONTRACTORS
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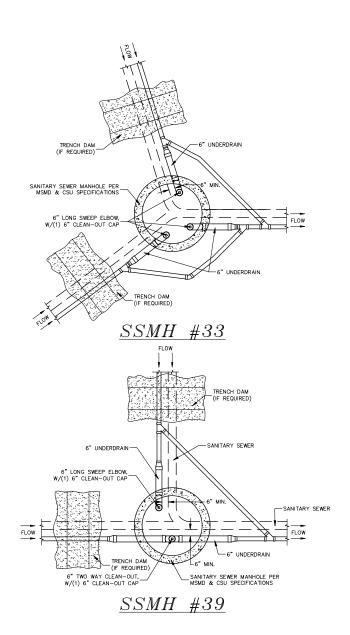
UNDERDRAIN

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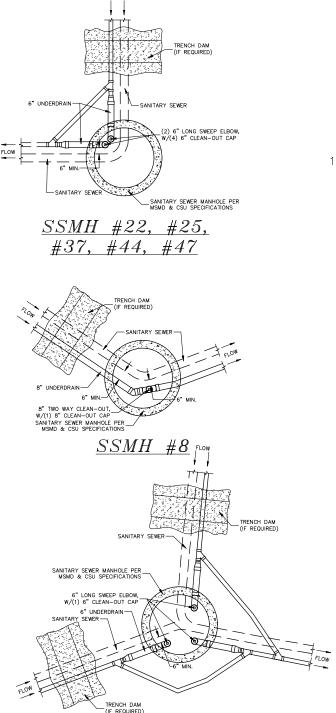
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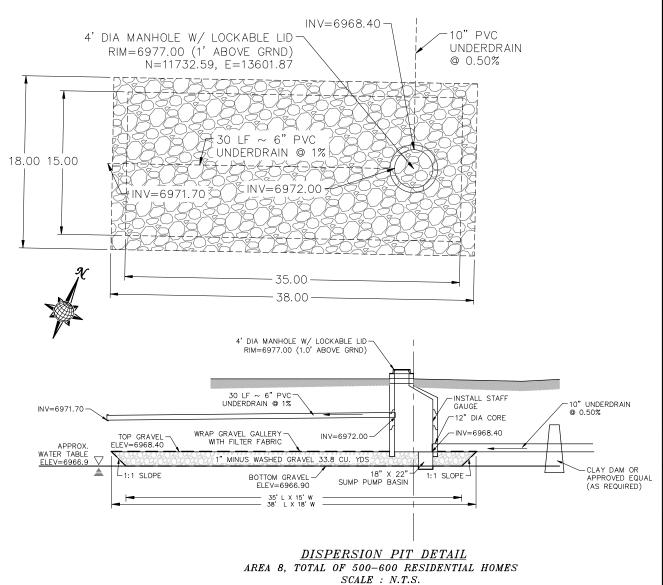




CLEAN-OUT DETAILS SCALE : N.T.S.



SSMH #7



UNDERDRAIN DISPERSION PIT NOTES/SPECIFICATIONS

- UNDERDRAIN SHALL BE PVC SCHEDULE 35,
 PASSIVE AND DAYLIGHT AS SHOWN.
 TRACER WIRE TO BE PLACED WITH SUBDRAIN
 INSTALLATION. USE 14 GA. UF.
 GROUT ALL PIPE PENETRATIONS
 INSTALL A CLAY DAM UPSTREAM OF THE
 DISPERSION PIT AS DIRECTED BY THE SOILS
 ENGINEER.
 CRAVEL SHALL BE 1" MINIS WASHED CRAVEL.
- 5. GRAVEL SHALL BE 1" MINUS WASHED GRAVEL WRAPPED ON ALL SIDES WITH MIRAFI N—SERIES NONWOVEN FILTER FABRIC OR APPROVED EQUAL.
- EQUAL.

 I IF GROUNDWATER IS ENCOUNTERED IN
 DISPERSION PIT STOP INSTALLATION AND
 CONTACT DISTRICT ENGINEER FOR POSSIBLE
 ALTERNATE DESIGN.
- 7. INSTALL 10' STAFF GAUGE INSIDE MANHOLE, WITH ZERO AT TOP OF GRAVEL STAFF GAUGE 'C', USA BLUEBOOK NOS. 27607, 27608, & 27609, OR APPROVED EQUAL. ATTACH TO SIDE OF MANHOLE PER MANUFACTURER'S SPECIFICATIONS.

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STREET AND UTILITY PLANS

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