



[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

mccomel@drexelbarrill.com

[REDACTED]

[REDACTED]

OWNER, APPLICANT, AND ENGINEER DECLARATION

To the best of my knowledge, the information on this application and all additional or supplemental documentation is true, factual and complete. I am fully aware that any misrepresentation of any information on this application may be grounds for denial. I have familiarized myself with the rules, regulations and procedures with respect to preparing and filing this application. I also understand that an incorrect submittal will be cause to have the project removed from the agenda of the Planning Commission, Board of County Commissioners and/or Board of Adjustment or delay review until corrections are made, and that any approval of this application is based on the representations made in the application and may be revoked on any breach of representation or condition(s) of approval.

[Handwritten Signature]
Signature of owner (or authorized representative)

7/26/24
Date

Engineer's Seal, Signature
And Date of Signature



DEVIATION REQUEST (Attach diagrams, figures, and other documentation to clarify request)

A deviation from the standards of or in Section **4.3.6 A3** of the Engineering Criteria Manual (ECM) is requested.

Identify the specific ECM standard which a deviation is requested:

Section 4.3.6.A.3: Storm Sewer Lines: At no time shall storm sewer lines be placed less than 2 feet in depth measured perpendicularly to the finished road surface. When placed outside the road, at no time shall the storm sewer lines be placed less than 1 foot in depth from the ground surface.

State the reason for the requested deviation:

The Haven Valley pond outfall and Widefield Drive storm sewer improvements are proposed to discharge via bubbler inlets in the curb line of Widefield Drive. The existing grade of Widefield Drive is minimal, so in order to achieve this bubbler system and to avoid chasing grade for a significant distance with the 4" drain lines, a shallow incoming storm sewer is necessary. We are also avoiding conflicts with existing utilities to include gravity sanitary sewer services that cannot be relocated vertically.

Explain the proposed alternative and compare to the ECM standards (May provide applicable regional or national standards used as basis):

as basis)

the alternative

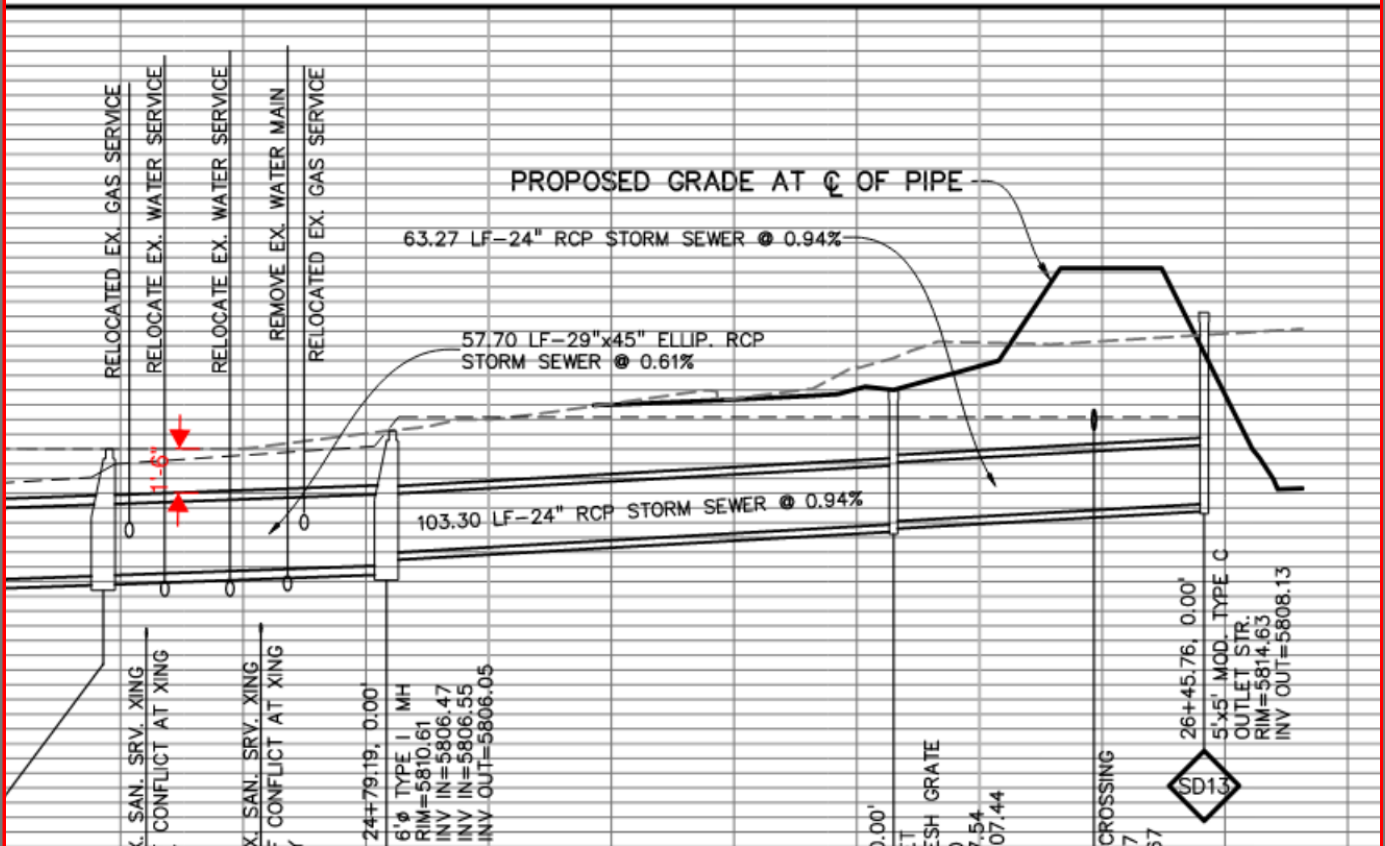
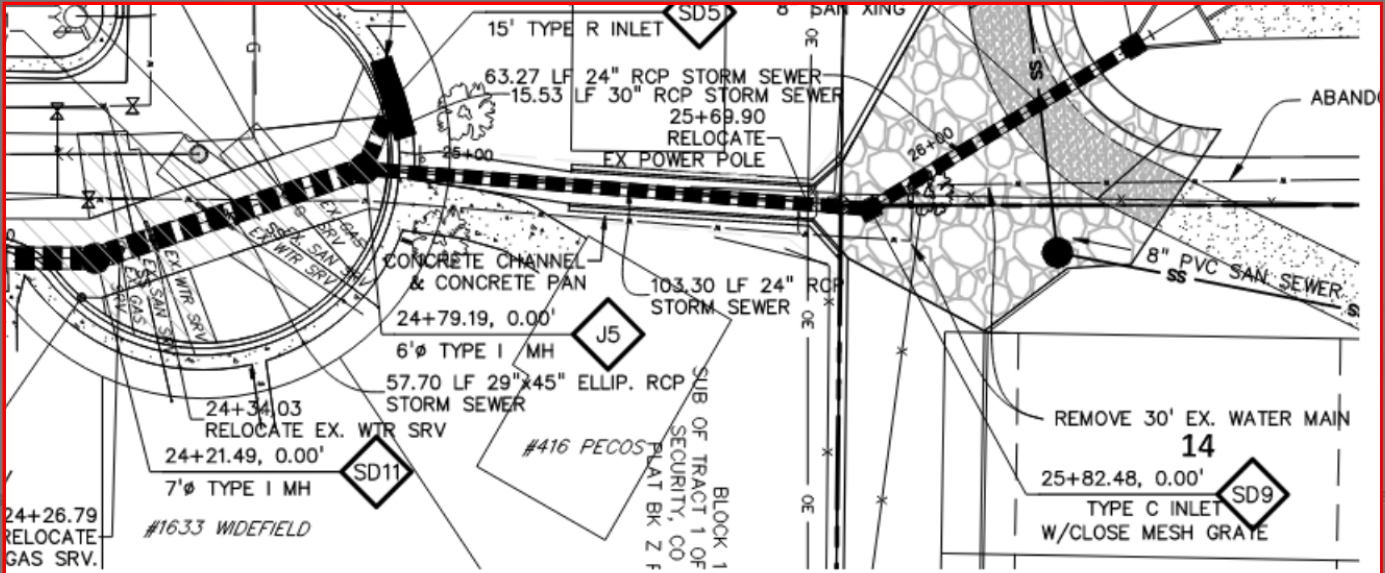
butler

would be

elaborate

of

established



[Redacted]

[Redacted]

Provide justification

of Waitefield Drive

achieve

[Redacted]

[Redacted]

[Redacted]

The deviation will achieve the intended result

a comparable or superior design and quality of improvement

safety

the proposed

facility

[Redacted]

deviation will not adversely affect safety or operations

affected

of

[Redacted]

The deviation [redacted] not adversely affect maintenance [redacted]'s associated [redacted] affected

[Redacted content]

The deviation [redacted] not adversely affect aesthetic appearance.

[Redacted content]

The deviation meets the design intent [redacted] purpose [redacted] the ECM standards of [redacted]

[Redacted content]

The deviation meets the [redacted] measure requirements [redacted] Part I E 3 [redacted] Part I E 4 [redacted] the County's MS4 permit [redacted] applicable MS4 [redacted]

[Redacted content]

[Redacted]

[Redacted]

4.3.6.A.3

[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]



- The centerline of the storm sewer pipe is located 15 feet or less horizontally from any building structure.

Service life shall be determined according to analyses described in Appendix 9-A at the back of this chapter. Approval of alternative pipe materials shall be based on the determination that its service life is estimated to be at least equal to service life durations stated herein and other issues such as constructability and maintenance.

3.4 Other Design Considerations

3.4.1 RCP Pipe Class, Fill Height, and Installation Trench

The minimum class of reinforced concrete pipe shall be Class III, however, the depth of cover, live load, and field conditions may require structurally stronger pipe. Trench installation requirements, trench installation details, and allowable fill heights are shown in the City of Colorado Springs Standard Specifications, Sheets D-30, D-31 and D-32. It is the responsibility of the design engineer to develop and submit alternate trench and installation details when project specific conditions or loadings require modification to the standard installation. Alternate designs shall follow ASTM C1479.

3.4.2 Joints

When storm sewers are designed to operate under pressurized conditions, they shall have gasketed, water-tight joints. ASTM Standard C 443 covers flexible watertight joints for circular concrete sewer pipe and precast manhole sections, using rubber gaskets for sealing the joints. Adhere to local and manufacturer's specifications for the maximum allowable joint gaps to form a water tight seal.

3.4.3 Outfalls

Where storm sewers discharge into open channels or detention ponds, protection of the bank and overbank or pond bottom shall be provided to prevent erosion due to flows discharged from the storm sewer. Erosion protection shall be designed to convey the storm sewer design flow assuming that no flow is in the receiving channel or pond. The stability of the outfall protection must also be evaluated based on the flow conditions in the receiving channel. Design guidance for outfall conditions is provided in Chapter 10 of this manual.

3.4.4 Trash/Safety Racks

Trash/safety racks shall not be used at storm sewer outlets.

3.4.5 Buoyancy

Where groundwater is anticipated to submerge pipelines, buoyancy calculations shall be required and the use of ballast for pipes and structures shall be evaluated.

4.0 Vertical Alignment

4.1 Cover

All storm sewers shall be designed so that they will be structurally adequate for both minimum and maximum cover conditions. A minimum cover shall be maintained to withstand AASHTO HS-20

loading on the pipe. The minimum cover to withstand live loading depends upon the pipe size, type and class, and soil bedding condition, but shall not be less than 1 foot to the exterior pipe wall at any point along the pipe. Additional cover will be required at manhole locations to facilitate the construction of the base over the pipe, manhole lid, ring and cover. There are numerous factors that ultimately affect the depth of cover over a pipe and in most cases it is likely that the cover will have to be greater than the minimum allowed due to other design factors. Some of the other factors that affect the depth of the pipe are hydraulic grade line elevations, inlet depths, adjacent utilities or utility crossings, including water and sewer services lines along residential streets, and connections to existing storm sewer systems. The maximum cover over storm sewers shall also be considered and evaluated according to manufacturer's specifications. Should a design require a cover depth of greater than 15 feet, an extended service life installation shall be provided.

4.2 Cover in Roadways

The roadway subgrade, which supports the pavement section is typically plowed (or scarified) to a certain depth, moisture treated and compacted prior to the placement of the sub-base, base course, and surfacing. There are also instances where the subgrade material must be excavated and replaced or treated to a certain depth to mitigate swelling soils. These efforts can impact the storm sewer system if it has not been designed with adequate depth. The design engineer shall use the best information available, including pavement design or soils reports to ensure that storm sewer pipes have adequate depth during and after construction, but a minimum cover of 1 foot should be provided below the pavement subgrade.

4.3 Utility Clearance

For all storm sewer crossings at utility lines, the appropriate agency shall be contacted to determine the requirements for the crossing. A minimum clearance of 18 inches is required between a storm sewer and a water main, sanitary sewer, or other utility above or below (all clearances are defined as outside-of-pipe to outside-of-pipe). Additional stormwater clearance requirements are included in the Colorado Springs Utilities Water Line Extension and Service Standards.

4.4 Concrete Cut-off Walls and Anchoring

Where the storm sewer pipe trench is susceptible to erosion, reinforced cast-in-place concrete cut-off walls shall be installed at no greater than 30 foot horizontal intervals. In addition, where storm sewer pipe is installed in a slope of 3:1 or steeper, anchoring shall be provided at intervals no greater than 30 feet.

5.0 Horizontal Alignment

5.1 Alignment

In general, storm sewer alignments between drainage structures (inlets or manholes) shall be straight. The angle of confluence where pipe centerlines intersect shall be 90 degrees or less. In addition, the change in the energy grade line through the junction shall not exceed 3 feet. Parallel pipes may not be used without a variance. Variances for parallel pipes must be based on extreme existing site constraints.

Except for lateral pipe connections between inlets, the alignment should allow the entire system to be constructed between the street gutters to avoid the placement of the system under curb, gutter and sidewalk and in utility corridors. The outside edge of manhole covers shall be at least 1 foot outside of street gutters. To the extent possible, place manholes in the center of travel lanes to avoid traffic impacts.