

Memorandum

Dakota Springs Engineering

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Date: April 24, 2018

To: Mr. Roy Heald
Security Water and Security Sanitation Districts

cc: Roger Sams, GMS, Inc.
Paul Koscielski, SWV, LLC

From: Charles K. Cothorn, P.E.

Subject: Springs at Waterview

This memorandum has been prepared to provide response and clarification to the GMS letter dated February 22, 2018. The comment is listed followed by the response. Please find attached 3 sets of the revised plans for the above referenced project for your review along with a copy of the plat. One of the sets and a copy of the plat has been provided to GMS, Inc. for their review.

Based on our review of these drawings, we have the following comments. These comments are limited to those matters which affect the water and wastewater management services required for this property. Comments will be provided under a separate memorandum for the subdivision plat documents when received.

A. Sheet 1 of 23 — Title Sheet

1. The Benchmark elevation listed is required to be in relation to the NGVD 1929 Datum. Please list the datum applicable to the elevations represented on these documents.

Datum listed as 1929

2. For the Water Plan Approval, please revise the approving entity to be the Security Water District.

DSE Response: Changed approving entity to Security Water District.

3. Please revise the "DISTRICT MAIN EXTENSIONS" statement to be compliant with current District requirements at the time of final plan acceptance.

DSE Response: All statements have been updated to current requirements.

B. Sheet 2 of 23 — General Notes and Details

1. We have no comments relative to the General Notes and Details for this project. Revisions may be necessary in the future as the District's rules, regulations, policies and procedures are modified.

Acknowledged

C. Sheet 3 of 23 — General Notes and Details

1. We have no comments relative to the General Notes and Details for this project. Revisions may be necessary in the future as the District's rules, regulations, policies and procedures are modified.

Acknowledged

D. Sheet 4 of 23 — Site Plan

1. Please designate the easements and label the easement widths where the proposed water main will cross Lots 59 and 60 and where it will cross the tract between Lots 14 and 15. Proper setback requirements shall be incorporated into the easements so that the plat indicates that there shall be no proposed improvements over the pipelines. Refer to subsequent comments in this memorandum.

DSE Response: Water layout has been revised, requested easement has now been granted along shared lot line of lots 63 & 64. Easement through Tract B is to be dedicated per plat as well.

2. There may be added comments and revisions required when the subdivision plat documents are provided for review. Please provide all plat documents for the District's review before soliciting final approval from El Paso County.

A copy of the current plat has been provided with this submittal.

E. Sheet 5 of 23 -Wolf Moon - (1 of 2)

1. All proposed water mains shall be ductile iron instead of PVC. Please revise all water main material callouts accordingly.

DSE Response: Water layout has been revised to be DIP throughout the project.

2. In order to minimize access restrictions for fire suppression personnel, the fire hydrant shall be relocated from the end of the cul-de-sac to a location opposite the common front lot corner of Lots 13 and 14.

DSE Response: Hydrant locations have been revised per criteria discussed in meeting with Roger Sams held 3/22.

F. Sheet 6 of 23 - Wolf Moon - (2 of 2)

1. The existing sanitary sewer located at the pump station shall be relocated to drain to Wolf Moon Drive so that it does not pass through Lots 1 through 9. Indicate how the existing sewer will be abandoned and removed.

DSE Response: Sewer revised as suggested. Existing sewer has been labeled "to be abandoned" with actual removal left to home builder should the pipe cause any interference with construction.

2. Refer to other comments regarding modification of the water distribution and transmission system in the vicinity of the existing water pump station.

DSE Response: Water recommendations near the pump house have been incorporated.

G. Sheet 7 of 23 - Passing Sky - (1 of 2)

1. The sanitary sewer shown with a 52' radius curve is not compliant with District or installation practices. The radius curve shall be replaced with straight runs of pipe and an additional manhole.

DSE Response: Sewer layout has been revised to have a straight pipe between SSMH-1 and SSMH-2 (SSMH-2 lies outside of normal traffic lane) then turning and running a straight pipe to SSMH-3.

2. The portion of sanitary sewer along the northeastern portion of Passing Sky, Sta. 1+55 to 3+00, is shown to have a curve with a 745.99' radius. We would recommend replacing this curve with a straight section of pipe.

DSE Response: Sewer layout has been revised to have a straight pipe between SSMH-1 and SSMH-2 (SSMH-2 lies outside of normal traffic lane) then turning and running a straight pipe to SSMH-3.

3. The distance between sanitary Manhole No. 2 and No. 3 exceeds 400 LF. Please relocate Manhole No. 2 to be approximately near the center of Lot 28 to be equidistant from the upstream and downstream manholes.

DSE Response: Sewer layout has been revised to have all pipe lengths less than 400'.

H. Sheet 8 of 23 - Passing Sky - (2 of 2)

1. Revise the water main layout such that the water main extends along the north side of Lot 60 instead of the south side. An easement and easement width must be indicated on the plat compliant with District design criteria. There will be an easement 30-feet in total width with specific conditions of use by others. Proper setback requirements shall be incorporated into the easements so that the plat indicates that there shall be no proposed improvements over the pipeline.

DSE Response: Water layout has been revised; requested easement has now been shown along shared lot line of lots 63 & 64.

2. In order to minimize access restrictions for fire suppression personnel, the fire hydrant shall be relocated from the end of the cul-de-sac to a location opposite the common front lot corner of Lots 66 and 67.

DSE Response: Hydrant locations have been revised per criteria discussed in meeting with Roger Sams held 3/22 distance between hydrants does not exceed 500'.

3. In order to better suit the installation of water service connections and reduce the length of water services, please reconfigure the water main layout such that it resembles the following layout relative to the water main stations.

- a. Sta. 13+23 ±, 450 bend left

- b. Sta. 13+63 ±, 450 bend right
- c. Sta. 13+78 ±, 450 bend right
- d. Sta. 13+98 ±, 450 bend right
- e. Extend westerly along the property line between Lots 59 and 60
- f. Sta. 15+57 ±, tee right for fire hydrant
- g. Sta. 15+90 ±, tee
 - 1) Line valve on east branch
 - 2) Cap north branch
 - 3) Line valve on south branch
 - 4) Continue water main south
- h. Sta. 16+93 ±, 11.250 bend left
- i. Sta. 17+48 ±, 11.250 bend right, join existing

DSE Response: Water layout has been revised

- 4. All proposed water mains shall be ductile iron instead of PVC. Please revise all water main material callouts accordingly.

DSE Response: All water main information has been updated to reflect DIP construction.

I. Sheet 9 of 23 - New Moon – P&P

- 1. In order to accommodate efficient future water main maintenance by the District, please eliminate the water main lowering underneath Storm Line G and replace with an 18' long casing pipe. Adjust the water main grade, if necessary, in order to provide a minimum of 6" clear separation between the storm sewer and casing pipe. The storm sewer shall be placed on reinforced concrete bridging blocks per the District's Standard Details.

DSE Response: Water layout has been revised. No water main to be installed in New Moon removing the need for a lowering or casing.

- 2. The sanitary sewer as shown with a 52' radius curve is not compliant with District or installation practices. The radius curve shall be replaced with straight runs of pipe and an additional manhole. Refer to the "Knuckle - Passing Sky Drive" plan.

DSE Response: Sewer layout has been revised to have a straight pipe between SSMH-1 and SSMH-2 (SSMH-2 lies outside of normal traffic lane) then turning and running a straight pipe to SSMH-3.

- 3. The portion of sanitary sewer along the northeastern most portion of Passing Sky is shown to have a curve with a 745.99' radius. We would recommend replacing this curve with a straight section of pipe.

DSE Response: Sewer layout has been revised to have a straight pipe between SSMH-1 and SSMH-2 (SSMH-2 lies outside of normal traffic lane) then turning and running a straight pipe to SSMH-3.

- 4. The distance between sanitary sewer Manhole No. 2 and No. 3 exceeds 400 LF. Please relocate Manhole No. 2 to be approximately near the center of Lot 28 to be equidistant from the upstream and downstream manholes.

DSE Response: Sewer layout has been revised to have all pipe lengths less than 400'.

5. Refer to subsequent notes addressing the proposed water main lowering at “Storm Line E.”

DSE Response: Water layout has been revised. No water main to be installed in New Moon removing the need for a lowering or casing.

J. Sheet 10 of 23 - Grading & Erosion Control Plan

1. Please designate the easements and label the easement widths where the water main will cross Lots 59 and 60 and where it will cross the tract between Lots 14 and 15. Proper setback requirements shall be incorporated into the easements so that the plats indicate that there shall be no proposed improvements over the pipelines.

DSE Response: Water layout has been revised, requested easement has now been granted along shared lot line of lots 63 & 64. Easement through Tract B is to be dedicated per plat as well.

K. Sheet 11 of 23 — Grading & Erosion Control Details

1. We have no comments relative to the Grading & Erosion Control Details for this project.

Acknowledged

L. Sheet 12 of 23 — Signing and Striping Plan

1. We have no comments relative to the Signing and Striping Plan for this project.

Acknowledged

M. Sheet 13 of 23 — Storm A Profile

1. Please add the profile view of the existing sanitary sewer which parallels the proposed "Storm Line A." Please provide no less than two cross-sections which represent the horizontal and vertical relationship of the existing wastewater pipeline and the proposed storm water pipeline. It is important that we understand and accommodate the horizontal relationship, i.e. clear space between the outside of existing and proposed pipelines and the existing manhole and proposed storm pipeline. In particular, please provide a section at Sta. 1+82 to demonstrate the horizontal and vertical relationship with the proposed storm water inlet. Based on the drawing as presented, the clear dimension between the two pipelines appears to be less than 10-feet. Please provide that detailed information based on field survey of the existing wastewater pipeline and the dimensioned (3-D) location of the proposed storm water pipeline.

Cross Sections Provided in storm set for your reference.

N. Sheet 14 of 23 - Storm B Profile

1. In order to accommodate efficient future water main maintenance by the District, please reduce the depth of the water main lowering underneath Storm Line B at both Passing Sky Drive and Wolf Moon Drive. Adjust the water main lowering and provide a minimum of 6" clear separation between the storm sewer and casing pipe. The storm sewer shall be placed on reinforced concrete bridging blocks per the District's Standard Details.

DSE Response: Water and Storm layouts have been revised to achieve 6" separation between the storm sewer and water casing pipe. Storm blocks are shown per detail.

2. Clearly and precisely dimension the horizontal relationship between the proposed "Storm B" and the existing and reconstructed wastewater pipeline, including manholes.

DSE Response: With water being removed from New Moon, new construction is shown to have more than 10' of separation.

O. Sheet 15 of 23 - Storm C & D Profiles

1. In order to comply with District's water service depth requirements and vertical separation requirements from sewers, please provide and indicate the use of water service sleeves where the water services will cross under Storm Lines C and D. Provide complete construction details.

DSE Response: Water service line callouts added to have service sleeves to be installed on Lots 9-10, 24-26, 49-50, and 71-73. Standard detail for sleeved crossings added to Sheet 5 of 11, titled Master Utility Plan.

P. Sheet 15 of 23 - Storm E & F Profiles

1. In order to accommodate efficient future water main maintenance by the District, please eliminate the water main lowering underneath the proposed 30" Storm Line E. This may be accomplished by raising the storm sewer and water main such that the top-of-pipe of the water main is six feet below final grade and provide an 18' long casing pipe around the water main. Provide a minimum of 6" clear separation between the storm sewer and casing pipe. The storm sewer shall be placed on reinforced concrete bridging blocks per the District's Standard Details.

DSE Response: Water layout has been revised. No water main to be installed in New Moon removing the need for a lowering or casing.

2. In order to comply with the District's water service depth requirements and vertical separation requirements from sewers and other non-potable pipelines, please provide and indicate the use of water service sleeves where the water services will cross the Storm Lines E and F. Provide complete construction details.

DSE Response: Water service line callouts added to have service sleeves to be installed on Lots 9-10, 24-26, 49-50, and 71-73. Standard detail for sleeved crossings added to Sheet 5 of 11, titled Master Utility Plan.

Q. Sheet 17 of 23 - Storm G & H Profiles

1. In order to accommodate efficient future water main maintenance by the District, please eliminate water main lowering underneath the proposed 18" storm Line G. Provide an 18' long water main casing pipe and maintain straight water main grade under the storm sewer. Provide a minimum of 6" clear separation between the storm sewer and casing pipe. The storm sewer shall be placed on reinforced concrete bridging blocks per the District's Standard Details.

DSE Response: There is no longer a storm crossing here.

2. In order to comply with the District's water service depth requirements and vertical separation requirements from sewers and other non-potable pipelines, please provide and indicate the use of water service sleeves where the water services will cross the Storm Lines G and H. Provide complete construction details.

DSE Response: Water service line callouts added to have service sleeves to be installed on Lots 9-10, 24-26, 49-50, and 71-73. Standard detail for sleeved crossings added to Sheet 5 of 11, titled Master Utility Plan.

R. Sheet 18 of 23 — Storm I & J Profiles

1. In order to comply with the District's water service depth requirements and vertical separation requirements from sewers, please provide and indicate the use of water service sleeves where the water services will cross the Storm Lines Land-J Provide complete construction details.

DSE Response: Water service line callouts added to have service sleeves to be installed on Lots 9-10, 24-26, 49-50, and 71-73. Standard detail for sleeved crossings added to Sheet 5 of 11, titled Master Utility Plan.

S. Sheet 19 of 23 — Master Utility Plan

1. All proposed water mains shall be ductile iron instead of PVC. Please revise all water main material callouts accordingly.

DSE Response: Water layout has been revised to be DIP throughout the project.

2. The proposed water stub out at the southwest corner of the pump station will not be allowed. Extend the water main to the south and connect to the existing Zone 3 distribution piping.

DSE Response: Water layout has been revised to connect to Zone 3 distribution piping within Bradley Rd.

3. There is a proposed connection to the Zone 3 water distribution system shown at the northeast corner of the pump station. In order to provide water system simplicity and minimize future maintenance efforts by the District, please relocate this connection to Zone 3 to be at the intersection of Bradley Road and Wolf Moon Drive.

DSE Response: Water layout has been revised to connect to Zone 3 distribution piping within Bradley Rd.

- a. The Designer shall pothole the existing utilities and storm water pipeline in order to verify their location and elevation. The existing 18" Bradley Road storm sewer shall be lowered as necessary to accommodate the water main crossing. A water main casing pipe shall be used if 18" clearance cannot be attained over the storm water pipeline. Provide a minimum of 6" clear separation between the storm sewer and casing pipe.

Pothole information added.

4. In order to assist with pipeline air removal, flushing and disinfection, the proposed fire hydrant shown at the pump station shall be relocated to Sta. 9+40.

DSE Response: Hydrant location moved to Sta. 10+03 as location is nearest to the high point of the water profile within Wolf Moon Dr. Additionally, all hydrant locations have been revised per criteria discussed in meeting with Roger Sams held 3/22 distance between hydrants does not exceed 500'.

5. Please label the tee fitting to be a Swivel x MJ tee on the hydrant connection detail.

DSE Response: Added label and included typical size of tee.

6. In accordance with District requirements, please relocate the following fire hydrants according to comments E.2., H.2., S.4., and T.4.

DSE Response: All hydrant locations have been revised per criteria discussed in meeting with Roger Sams held 3/22, distance between hydrants does not exceed 500'.

7. In accordance with District requirements, please add fire hydrants at the following locations:

DSE Response: All hydrant locations have been revised per criteria discussed in meeting with Roger Sams held 3/22, distance between hydrants does not exceed 500'.

- a. a location opposite the common front lot corner of Lots 4 and 5.
- b. a location opposite the common front lot corner of Lots 28 and 29.
- c. a location opposite the common front lot corner of Lots 57 and 58.
- d. a location opposite the common front lot corner of Lots 73 and 72. The hydrant leader shall be installed underneath Storm Line F with a casing pipe. Provide a minimum of 6" clear separation between the storm sewer and casing pipe.
- e. Any fire hydrant locations shall meet the requirements of the Fire District and the Water District.

8. For the water main tees located at the intersections of New Moon Drive, Wolf Moon Drive and New Moon Drive/Passing Sky Drive; please relocate the south line valves to be adjacent to the tees.

DSE Response: Water layout has been revised. No tees are to be constructed with the listed intersections. Valves within the intersection are those required for water main lowering crossing Storm Line B.

9. All water mains shall have line valves installed every 250' as further described in this memorandum.

DSE Response: Additional valves have been placed equidistant between required valves such that no run of pipe exceeds 250' without a minimum of 2 valves.

10. In order to better suit the installation of water service connections at the Wolf Moon Drive cul-de-sac, please provide approximately 18 LF (full stick of pipe) of water main between the two 45° bends.

DSE Response: Water layout has been revised such that an approximate 18LF of pipe is to be placed between said bends.

11. Please relocate the water service to Lot 10 so that so that it is not running through a line valve.

DSE Response: Water layout has been revised and all service taps have been verified to miss proposed valves.

12. Revisions are needed where the water main extends from the Wolf Moon Drive cul-de-sac to the existing water main along Dancing Moon Way.

DSE Response: Water layout has been revised to include a proposed valve 4' from the EOP within the cul-de-sac and additional information has been included related to connecting to the existing pipe.

- a. Show the existing line valves (between Lots 14 and 15) to be removed.
- b. A line valve must be installed immediately within the cul-de-sac pavement section (4-feet from edge of gutter).

13. Reconfigure the water main layout according to comment H.3.

DSE Response: Water layout has been revised with a different layout that keeps the intent of the configuration dictated in comment H.3.

14. Please verify the existing fire hydrant shown along the west side of Lot 61 to be a surveyed, as constructed location.

DSE Response: Hydrant in question is a surveyed/as constructed location.

15. The fire hydrant shown along the west side of Lot 52 does not exist; please remove.

DSE Response: Hydrant in question has been removed from base file information.

16. Since there is already an existing fire hydrant located at the NE corner of Escanaba Drive and Passing Sky Drive, the proposed fire hydrant at the NW corner shall be relocated to a location opposite the common front lot corner of Lots 40 and 41.

DSE Response: All hydrant locations have been revised per criteria discussed in meeting with Roger Sams held 3/22, distance between hydrants does not exceed 500'.

17. Please indicate that the existing line valves along the north side of Lot 34 are to be removed.

DSE Response: Notes added to Water System Plan and appropriate P&P page to remove existing items that are no longer used.

18. Please add a note clearly communicating that all of the existing line valves and hydrants along the north side of Bradley Road are to remain accessible throughout construction and that no improvements shall be built on or around these water system components that would limit or restrict access by the District at any time.

DSE Response: Notes added to Final Plat adding build restrictions within the previously recorded easement.

19. Please indicate that the existing tee and valve cluster at the east end of Lot 1 shall be removed and replaced with two 450 bends in order to connect the existing water main at the southwest corner of Escanaba Drive with the existing water main located at the northeast corner of the pump station.

DSE Response: Notes added to Water System Plan and appropriate P&P pages to remove existing items that are no longer used.

20. Additional line valves are needed in order to meet the District's minimum distance requirements and to limit customer water service outages during maintenance. Please add line valves at the following locations:

- a. Wolf Moon Drive:
 - i. Station 0+65±, at end of cul-de-sac
 - ii. Station 2+50±, near center of Lot 12
 - iii. Station 6+10±, near common front lot corner to Lots 5 and 6
 - iv. Station 8+20±, near common front lot corner to Lots 1 and 2
 - v. Station 10+75±, at proposed tee connection at Bradley Road
- b. Passing Sky Drive:
 - i. Station 3+75%, near common front lot corner to Lots 40 and 41 with the line valve described above at the south side of the tee
 - ii. Station 6+20%, near common front lot corner to Lots 27 and 28
 - iii. Station 10+95*, near common front lot corner to Lots 69 and 70
 - iv. Station 12+85%, near common front lot corner to Lots 57 and 58 with the line valve described above at the south side of the tee

DSE Response: Water main has been revised. Additional valves have been placed equidistant between required valves such that no run of pipe exceeds 250' without a minimum of 2 valves.

21. Please designate the easements and label the easement widths where the proposed water main will cross Lots 59 and 60 and where it will cross the tract between Lots 14 and 15. Proper setback requirements shall be incorporated into the easements so that the plat indicates that there shall be no proposed improvements over the pipelines.

DSE Response: Water layout has been revised, requested easement has now been granted along shared lot line of lots 63 & 64. Easement through Tract B is to be dedicated per plat as well.

22. The sanitary sewer as shown with a 52' radius curve is not compliant with District or installation practices. The radius curve shall be replaced with straight runs of pipe and an additional manhole.

DSE Response: Sewer layout has been revised to have a straight pipe between SSMH-1 and SSMH-2 (SSMH-2 lies outside of normal traffic lane) then turning and running a straight pipe to SSMH-3.

23. A portion of sanitary sewer along the northeastern most portion of Passing Sky is shown to have a curve with a 745.99' radius. We would recommend replacing this curve with a straight section of pipe.

DSE Response: Sewer layout has been revised to have a straight pipe between SSMH-1 and SSMH-2 (SSMH-2 lies outside of normal traffic lane) then turning and running a straight pipe to SSMH-3.

24. The distance between sanitary sewer Manhole No. 2 and No. 3 exceeds 400 LF. Please relocate Manhole No. 2 to be approximately near the center of Lot 28 to be equidistant from the upstream and downstream manholes.

DSE Response: Sewer layout has been revised to have all pipe lengths less than 400'.

25. The distance between Manhole No 8 and No 7 exceeds 400 LF. In order to accommodate the District's requirements for sewer maintenance, the distance manhole to manhole must not exceed 400 feet. There can only be a maximum of one horizontal curve per sewer segment. Please remove the sanitary sewer radius curve located from Sta. 7+00 to 8+00 and replace with straight runs of pipe with Manhole No. 8 being relocated to the PI of the curve (approximately Sta. 7+48, 5' Right).

DSE Response: Sewer layout has been revised to have all pipe lengths less than 400' and only one horizontal curve per segment.

26. Please provide a full scale bypass pumping plan to demonstrate how the sanitary sewer will be removed and replaced from Station 0+36.47 to 5+51.21. Demonstrate how the upstream flows will be conveyed and maintained in order to avoid both sewer backups in homes and sanitary sewer overflows.

DSE Response: Added sheet for sanitary bypass plan.

27. Please provide a gas line stub to the pump station. The gas line shall extend from the nearest gas main into the pump station property boundary and terminate adjacent to the existing HVAC equipment as directed by the District.

Gas service stub will be addressed with CSU as part of the gas utility design.

T. Sheet 20 of 23 - Utility - Wolf Moon

1. All proposed water mains shall be ductile iron instead of PVC. Please revise all water main material callouts accordingly.

DSE Response: Water layout has been revised to be DIP throughout the project.

2. Revise the typical water main depth to be 5'-0" from final grade to the invert of the pipe as described in the developer's requirements on Sheet 1.

DSE Response: Water layout has been revised to reflect typical depth of 5' from final grade to pipe invert (4.33' bury depth).

3. The proposed water stub out at the southwest corner of the pump station will not be allowed. Extend the water main to the south and connect to the existing Zone 3 distribution piping.

DSE Response: Water layout has been revised to connect to Zone 3 distribution piping within Bradley Rd.

4. In accordance with District requirements for fire hydrant locations, please relocate the fire hydrant shown on New Moon Dr. to be approximately 70' east such that it is located at the street intersection.

DSE Response: All hydrant locations have been revised per criteria discussed in meeting with Roger Sams held 3/22, distance between hydrants does not exceed 500'.

5. In accordance with District requirements, please add a fire hydrant at a location opposite the common front lot corner of Lots 4 and 5.

DSE Response: All hydrant locations have been revised per criteria discussed in meeting with Roger Sams held 3/22, distance between hydrants does not exceed 500'.

6. There is a proposed connection to the Zone 3 water distribution system shown at the northeast corner of the pump station site. In order to provide water system simplicity and minimize future maintenance efforts by the District, please relocate this connection to Zone 3 to be at the intersection of Bradley Road and Wolf Moon Drive. Please consult with us for further definition of piping modifications required

DSE Response: Water layout has been revised to connect to Zone 3 distribution piping within Bradley Rd.

a. The Designer shall pothole the existing utilities in order to verify their location and elevation. The existing 18" Bradley Road storm sewer shall be lowered as necessary to accommodate the water main crossing. A water main casing pipe shall be used if 18" clearance above the storm water pipe cannot be attained. Provide a minimum of 6" clear separation between the storm sewer and casing pipe.

Pothole information added

7. In order to assist with pipeline air removal, flushing and disinfection efforts, the proposed fire hydrant shown at the pump station shall be relocated to Sta. 9+40.

DSE Response: Hydrant location moved to Sta. 10+03 as location is nearest to the high point of the water profile within Wolf Moon Dr. Additionally, all hydrant locations have been revised per criteria discussed in meeting with Roger Sams held 3/22 distance between hydrants does not exceed 500'.

8. For the water main tees located at the intersections of New Moon Drive/Wolf Moon Drive and New Moon Drive/Passing Sky Drive please relocate the south line valves to be adjacent to the tees.

DSE Response: Water layout has been revised. No tees are to be constructed within the listed intersections. Valves within the intersection are those required for water main lowerings crossing Storm Line B.

9. In order to better suit the installation of water service connections at Wolf Moon Drive cul-de-sac, please provide approximately 18LF (full stick of pipe) of water main between the two 45° bends.

DSE Response: Water layout has been revised such that an approximate 18LF of pipe is to be placed between said bends.

10. In accordance with District requirements, please revise the water main as it extends from the Wolf Moon Drive cul-de-sac to the existing water main along Dancing Moon Way:

- a. Show the existing line valves (between Lots 14 and 15) to be removed.
- b. A line valve must be installed immediately within the cul-de-sac street section.

c. Based on the proposed final grade and the water main length as shown, the proposed vertical 45° bend as shown at Sta. 0+58.35 will not work, please revise the bend fitting to accommodate the required pipe elevations.

DSE Response: Water layout has been revised to include a proposed valve 4' from the EOP within the cul-de-sac and a series of vertical bends to connect to existing pipe while maintaining reasonable elevations. Additional information has been included related to connecting to the existing pipe.

11. Please indicate that the existing tee and valve cluster at the east end of Lot 1 shall be removed and replaced with two 45° bends in order to connect the existing water main at the southwest corner of Escanaba Drive with the existing water main located at the northeast corner of the pump station.

DSE Response: Water layout has been revised such that an approximate 18LF of pipe is to be placed between requested bends.

12. In order to accommodate efficient future water main maintenance by the District, please reduce the depth of the water main lowering underneath Storm Line B. Adjust the water main lowering to provide a minimum of 6" clear separation between the storm sewers and casing pipe. The storm sewer shall be placed on reinforced concrete bridging blocks per the District's Standard Details.

DSE Response: Water and storm layout has been revised. Reduced lowering to 6" below storm with CSU Pipe Bridge A7-6.

13. The distance between sanitary sewer Manhole No. 8 and No. 7 exceeds 400 LF. In order to accommodate the District's requirements for sewer maintenance, the distance manhole to manhole must not exceed 400 feet. There can only be a maximum of one horizontal curve per sewer segment. Please remove the sanitary sewer curve located from Sta. 7+00 to 8+00 and replace with straight runs of pipe with Manhole No. 8 being relocated to the PI of the curve (approximately Sta. 7+48, 5' Right).

DSE Response: Sewer layout has been revised to have all pipe lengths less than 400' and only one horizontal curve per segment.

U. Sheet 21 of 23 - Utility - Passing Sky (1 of 2)

1. All proposed water mains shall be ductile iron instead of PVC. Please revise all water main material callouts accordingly.

DSE Response: Water has been revised to use DIP through the entire project.

2. Revise the typical water main depth to be 5'-0" from final grade to the invert of the pipe as described in the developer's requirements on Sheet 1.

DSE Response: Water layout has been revised to reflect typical depth of 5' from final grade to pipe invert (4.33' bury depth).

3. Since there is already an existing fire hydrant located at the NE corner of Escanaba Drive and Passing Sky Drive, the proposed fire hydrant at the NW corner shall be relocated to a location opposite the common front lot corner of Lots 40 and 41.

DSE Response: All hydrant locations have been revised per criteria discussed in meeting with Roger Sams held 3/22 distance between hydrants does not exceed 500'.

4. In accordance with District requirements, please add a fire hydrant to a location opposite the common front lot corner of Lots 28 and 29.

DSE Response: All hydrant locations have been revised per criteria discussed in meeting with Roger Sams held 3/22 distance between hydrants does not exceed 500'.

5. Please indicate that the existing line valves along the north side of Lot 34 removed.

DSE Response: Notes added to Water System Plan and appropriate P&P pages to remove existing items that are no longer used.

6. The sanitary sewer shown with a 52' radius curve is not compliant with District or installation practices. The radius curve shall be replaced with straight runs of pipe and an additional manhole.

DSE Response: Sewer layout has been revised to have a straight pipe between SSMH-1 and SSMH-2 (SSMH-2 lies outside of normal traffic lane) then turning and running a straight pipe to SSMH-3.

7. The portion of sanitary sewer along the northeastern portion of Passing Sky, Sta. 1+55 to 3+00, is shown to have a curve with a 745.99' radius. We would recommend replacing this curve with a straight section of pipe.

DSE Response: Sewer layout has been revised to have a straight pipe between SSMH-1 and SSMH-2 (SSMH-2 lies outside of normal traffic lane) then turning and running a straight pipe to SSMH-3.

8. The distance between sanitary Manhole No. 2 and No. 3 exceeds 400 LF. Please relocate Manhole No. 2 to be approximately near the center of Lot 28 to be equidistant from the upstream and downstream manholes.

DSE Response: Sewer layout has been revised to have all pipe lengths less than 400'.

V. Sheet 22 of 23 - Utility - Passing Sky (2 of 2)

1. All proposed water mains shall be ductile iron instead of PVC. Please revise all water main material callouts accordingly.

DSE Response: Water has been revised to use DIP through the entire project.

2. Revise the typical water main depth to be 5'-0" from final grade to the invert of the pipe as described in the developer's requirements on Sheet 1.

DSE Response: Water layout has been revised to reflect typical depth of 5' from final grade to pipe invert (4.33' bury depth).

3. Reconfigure the water main layout according to comment H.3.

DSE Response: Water layout has been revised in accordance to the intent of comment H.3.

4. The fire hydrant shown on New Moon Dr. shall be relocated to approximately 70' east so that it is located at the street intersection in accordance with District requirements.

DSE Response: All hydrant locations have been revised per criteria discussed in meeting with Roger Sams held 3/22 distance between hydrants does not exceed 500'.

5. In accordance with District requirements, please add a fire hydrant at a location opposite the common front lot corner of Lots 72 and 73. The hydrant lateral shall be installed underneath Storm Line F with a casing pipe. Provide a minimum of 6" clear separation between the storm sewer and casing pipe.

DSE Response: All hydrant locations have been revised per criteria discussed in meeting with Roger Sams held 3/22 distance between hydrants does not exceed 500'.

6. In accordance with District requirements, please add a fire hydrant at a location opposite the common front lot corner of Lots 57 and 58.

DSE Response: All hydrant locations have been revised per criteria discussed in meeting with Roger Sams held 3/22 distance between hydrants does not exceed 500'.

7. In order to accommodate efficient future water main maintenance by the District, please reduce the depth of the water main lowering underneath Storm Line B. Adjust the water main lowering to provide a minimum of 6" clear separation between the storm sewers and casing pipe. The storm sewer shall be placed on reinforced concrete bridging blocks per the District's Standard Details.

DSE Response: Water and storm has been revised to minimize depth of water main passing below Storm Line B.

8. The distance between sanitary sewer Manhole No. 2 and No. 3 exceeds 400 LF. Please relocate Manhole No. 2 to be approximately near the center of Lot 28 to be equidistant from the upstream and downstream manholes.

DSE Response: Sewer layout has been revised to have all pipe lengths less than 400'.

9. Refer to other comments in this memorandum describing the required routing of the pipeline at the southerly extent of Passing Sky Drive to the existing Zone 3 pipeline at the intersection of Bradley Road and Grinnell Boulevard.

DSE Response: Water layout has been revised in accordance to the intent of comments throughout this memorandum.

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1. All proposed water mains shall be ductile iron instead of PVC. Please revise all water main material callouts accordingly.

Modified to DIP.

2. Revise the typical water main depth to be 5'-0" from final grade to the invert of the pipe as described in the developer's requirements on Sheet 1.

DSE Response: Water layout has been revised to reflect typical depth of 5' from final grade to pipe invert (4.33' bury depth).

3. In order to accommodate efficient future water main maintenance by the District, please eliminate the water main lowering under the proposed 18" Storm Line G. Provide an 18' long water casing pipe and maintain straight water main grade under the storm sewer. Provide a minimum of 6" clear separation between the storm sewer and casing pipe. The storm sewer shall be placed on reinforced concrete bridging blocks per the District's Standard Details.

DSE Response: Water layout has been revised. No water main to be installed in New Moon removing the need for a lowering or casing.

4. In accordance with District requirements for fire hydrant locations, please relocate the fire hydrant shown on New Moon Dr. to be approximately 70' east such that it is located at the street intersection.

DSE Response: All hydrant locations have been revised per criteria discussed in meeting with Roger Sams held 3/22 distance between hydrants does not exceed 500'.

5. Refer to comments elsewhere in this memorandum describing the required design modifications for the water main to be constructed under storm Line E.

DSE Response: Water layout has been revised. No water main to be installed in New Moon removing the need for a lowering or casing.

These are preliminary comments on review of the documents itemized in this memorandum. There have been several inquiries made as to design intent, acquisition of as-constructed conditions, i.e. potholes, required by the District's regulations, and other matters described in this memorandum. There may be additional requirements for plan modifications once an updated and revised set of construction documents has been produced and submitted to the Districts for review. Please contact us should you have any questions or desire additional information. We will be glad to discuss and clarify any of the required modifications necessary.

Acknowledged

If you have additional questions or comments please let us know, we can meet at any time.