



COLORADO

**Colorado Water
Conservation Board**

Department of Natural Resources

1313 Sherman Street
Denver, CO 80203

P (303) 866-3441
F (303) 866-4474

John Hickenlooper, Governor

Robert W. Randall, DNR Executive Director

Rebecca Mitchell, CWCB Director

TO: Colorado Water Conservation Board Members

FROM: Erik Skeie, Program Associate
Interstate, Federal and Water Information Section

DATE: September 20-21, 2017 Board Meeting

AGENDA ITEM: 18. Damaging High Groundwater Response Grants - Highway 144 Ranchettes HOA in Fort Morgan

Introduction

There have been increased occurrences of high groundwater issues in several areas in the lower South Platte Basin since 2008. In HB12-1278, the General Assembly directed the Colorado Water Institute to conduct a study of the South Platte alluvial aquifer focusing on these groundwater issues. The South Platte Basin Roundtable formed a Groundwater Technical Committee (Technical Committee) in 2014 to review recommendations from the HB12-1278 report, the first of which concerns mitigation of localized high groundwater conditions.

HB15-1178 (Saine & Humphrey—Marble) established an emergency dewatering grant program, to be administered by CWCB, for the purpose of lowering the water table in the Gilcrest and Sterling areas; however, this funding is almost spent. Additional funds were allocated in HB17-1248 in part to award grants for projects in response to damaging high groundwater levels in the South Platte Basin. These grants may be awarded for the construction, maintenance, and monitoring of dewatering infrastructure. The Board approved Criteria and Guidelines for these grants in July 2017.

This agenda item concerns an application submitted by the Highway 144 Ranchettes HOA to construct a passive dewatering system for \$133,746.

Background

High groundwater issues began occurring in the Highway 144 Ranchette Subdivision in August of 2009. Residents began installing sump pumps in their basements in an attempt to mitigate flooding in their basements. Drinking water in this community is supplied by domestic wells, so septic tanks need to be emptied to prevent waste water from mixing with the drinking supply. The water table has risen in the area from 1978 levels of 12 feet below ground surface (bgs) to less than 5.6 feet bgs in 2017.

In April of 2017, a Ranchette homeowner on lot #18 installed two additional sump pumps (totalling four) and was still unable to prevent the groundwater from flooding their basement. Since then, a hydrogeologist was hired to design a dewatering system for the subdivision to drain the groundwater to the Bijou Creek drainage to the north. This system has been designed to lower the water table 2.5 feet below the lowest basement in the subdivision, as well as at least 4 feet below septic leach fields in the area.

Application Summary

This application is for a grant to fund most of the installation of a permanent dewatering system for the Highway 144 Ranchettes HOA. This system will be a combination of a tile line, collection station, and pipeline from the subdivision to the Bijou Creek drainage area.



This system will primarily be a passive system to intercept high groundwater upgradient of the most at-risk houses within the neighborhood. The tiling line will carry water north to a collection vault, where it will then be pumped into the Bijou Creek Drainage. From there the water will flow to the South Platte.

The total project cost is \$173,105.50. The HOA is providing a cash match of \$23,359.50, and an in-kind match of \$16,000, for a total \$39,359.50 match. This request is to fund the remaining cost of \$133,746, which is primarily for construction and easement acquisition.

For more details please see the attached application.

Attachments

- 1) Highway 144 Ranchettes HOA Grant Application

Staff Recommendation

CWCB staff have reviewed the application and it meets the grant program criteria and guidelines as approved by the Board in July 2017. CWCB staff recommends that the Board approve this Damaging High Groundwater Response Grant for \$133,746, conditional on the necessary permits being obtained

Project: Hwy 144 Ranchettes Dewatering System
Applicant: Hwy 144 Ranchettes Homeowners Association
Total Grant Request: \$133,746

Contact Information

Mark Kokes, Hwy 144 Ranchettes HOA Representative
15160 Hwy 144 Lot #18
Fort Morgan, CO 80701
Phone: 970-467-7780
Email: mdkokes@gmail.com

1. Introduction:

This application is being submitted by the Hwy 144 Ranchettes Homeowners Association of Fort Morgan, Colorado. Funding from this grant will be used to construct an emergency dewatering system in the northern portion of the Ranchettes to lower the ground water levels to a point at which basements will no longer be flooded and the risk to public health through the comingling of ground water and septic water is brought within safe distance from each other.

In August 2009 high groundwater caused basement flooding and unsafe groundwater levels in relation to existing septic and leach fields. This was primarily along Hwy 144 in lots 17, 18, 19 and 20. These are the properties that are lowest in elevation with lot #18 being the lowest in elevation and having a full basement. Due to the persistent rise in the water table residents installed sump pumps, pumped septic and leach fields and paid the adjacent property owner to clean an abandoned seep ditch. This seemed to stabilize the problem for a short period of time but each year since then the problem has consistently become worse. Most recently, the water table has risen from 1978 levels of 12 feet when the domestic wells were drilled to 2017 levels of less than 5'7" feet. This is consistent at 3 of the 4 properties. The Ranchettes residents in the affected area have spent approximately \$36,250 over the past several years on dewatering attempts, pumps, septic and leach field repairs and other related expenses due to inundation of excessively high ground water.

In 2015 the owner of the property where the seep ditch was located (north of the Ranchettes) declined the Ranchettes permission to mechanically dig out the seep ditch. The water table was so high that the more we dug out the seep ditch the wider the ditch became and sand would quickly fill the ditch back in to a level that would not effectively lower the water table of the Ranchettes. We attempted to control the weeds in the ditch with rakes and pitch forks but it became obvious that the problem was getting worse regardless of our efforts in keeping the ditch clear.

In April of 2017 despite running sump pumps water began running into Lot #18's basement. An additional 2 sump pumps were installed equaling 4 pumps. The basement was gutted to prevent black mold. The adjacent lots began having leach field issues thus prompting our call to CWCB to ask for a site visit and assistance. John Stulp, Special Water Policy Advisor to the Governor,

visited the area and shared his genuine empathy for our situation and offered suggestions on how we might get some assistance in mitigating this unfortunate problem. Since then we have been working toward a long term solution of installing a perforated drain system that will intercept the northeasterly flow of water in the lowest portion of the Ranchettes and divert it to a natural drainage approximately 1200 feet away. Groundwater monitoring stations were installed and the Ranchettes employed the services of HydroKenetics to evaluate the geology and elevations of the area to design the most viable and cost effective means of remedying the problem. The anticipated outcome of the design should drain the area to a level where the water table is 2 ½ feet below the basement floor of lot #18 and lowering the water table in the surrounding area to a level that meets or exceeds a 4 foot barrier between the leach fields and drinking water.

2. Figures

Please see the attached map (appendix A) showing the layout of the dewatering system in the Ranchettes. Red lines indicate perforated line and Blue indicated transmission line. Monitoring stations are pinned in yellow. The collection vault is at the intersection of the red and blue lines.

3. Proposed and/or existing Infrastructure: See attached map Exhibit A.

The Pipe Infrastructure will consist of an 8" perforated pipe extending east/west approximately 450 feet, then commencing from the center north 200 feet into a collection vault. Also, another 8" perforated line located on the north side of the home on Lot #18 bearing east/west 200 feet into the same collection vault. From said vault a 6" PVC or HDPE line will be buried at no less than 5 foot deep heading northwest 200 feet then heading due west 325 feet (this will be directionally bored due to elevation issues) and turning due north crossing Hwy 144 at Rd. 15 with a 60 foot bore in a CDOT approved casement pipe and then proceeding an additional 600 feet north exiting into the Bijou Drainage.

Other components of the system include a collection vault located on Lot #18 where a lift pump will be installed to elevate the water that is being drained from the 8"perforated pipe into the 6" transmission pipe extending to the bijou drainage. Clean-outs will be located at each intersection to allow for future maintenance and flushing. The electrical system will be wired into the existing Lot #18 utility. Payment of future pumping cost will be mutually agreed to among homeowners as part of the ongoing operation and maintenance.

4. Permissions- *See Appendix B for consent letters and easements*

The dewatering system will be owned and maintained by the Hwy 144 Ranchettes Homeowners Association.

The proposed route from the southern-most portion of the line will be located on Lots 17, 18 and 19. A collection vault on lot #18 will collect water before it is transmitted across lot #17, then west across Snider property then turning north through a casement pipe under State Highway 144 proceeding north along the western edge of the Bristol property and terminating into the Bijou Drainage.

Permissions are as follows:

- Lot #17, Jeff and Chris Wiges- 8" perforated line, 6" transmission line and monitoring wells
- Lot#18, Mark and Peggy Kokes- 8" perforated line, collection vault, electrical pumping facilities and monitoring well.
- Lot#19, Judy Keating – 8" perforated Line, monitoring well
- Lot #1, John Snider - 6" transmission Line
- Dwayne and Shelly Bristol- 6" transmission line and drainage water into existing uninterrupted waterway.

5. Permitting:

Please see attached permits in Appendix C for permits

- Notice of intent to construct monitoring hole
- CDOT's Utility/ Special Use Permit – *Pending CDOT Approval*

A CDOT Utility/Special Use Permit is being applied for and will require approximately 3-4 weeks for them to review and respond. Though the permit has not been approved to date we are confident that the permit will be issued.

The Hydrogeologist is documenting the well logs and submitting the final documents to the SEO for approval of the selected monitoring wells.

6. Monitoring for Data Collection: See Appendix D.

As part of the initial engineering and design it was requested that the Ranchettes drill and install a number of monitoring stations to determine the area that would most effectively dewater the inundated parts of the Ranchettes. Data has been collected weekly using measuring tape since the wells were installed and used by HydroKenetics, the Hydro engineering firm retained by the HOA, to accurately design the system that would achieve the dewatering goals of the HOA. Monitoring will continue on at least a quarterly basis and data will be sent to the appropriate agency upon completion of the project.

7. Measureable Outcome and Evaluation

The anticipated outcome of the design should drain the area to a level where the water table is 2 ½ feet below the basement floor of lot #18 and lowering the water table in the surrounding area to a level that meets or exceeds a 4 foot barrier between the leach fields and drinking water.

Following the design it has been determined by the engineer that at least 3 monitoring wells be maintained and data collection continue by the HOA on at least a quarterly basis to evaluate the effectiveness of the project and give reasonable assurance that the project is working as designed. The most effective means of evaluating the success of the project, however, will be that the sump pumps in basements will no longer be running during seasonal high water table periods. After a period of 3 years the HOA should meet with the CWCB staff to determine the necessity of future monitoring. If the State determines the need for the data, the HOA will grant permission to the state to resume monitoring on a schedule that suits their goals. Access to the monitoring wells has been given as part of the easement agreements signed by those parties where facilities are located.

8. Itemized Grant Request and Supporting Documents (See Appendix E for Supporting Documents)

Table 1: Itemized Grant Request	
Item	Cost
Tile and Pipeline Installation	\$81,275
6" Directional Boring	\$25,485
Electrical Sub Contracting	\$4,815
Pump and Controls	\$7,448
Professional Hydrologist	\$5,562
Easement Acquisition	\$5,500
Tree Removal	\$2,800
Filter Fabric	\$861
TOTAL REQUEST:	\$133,746

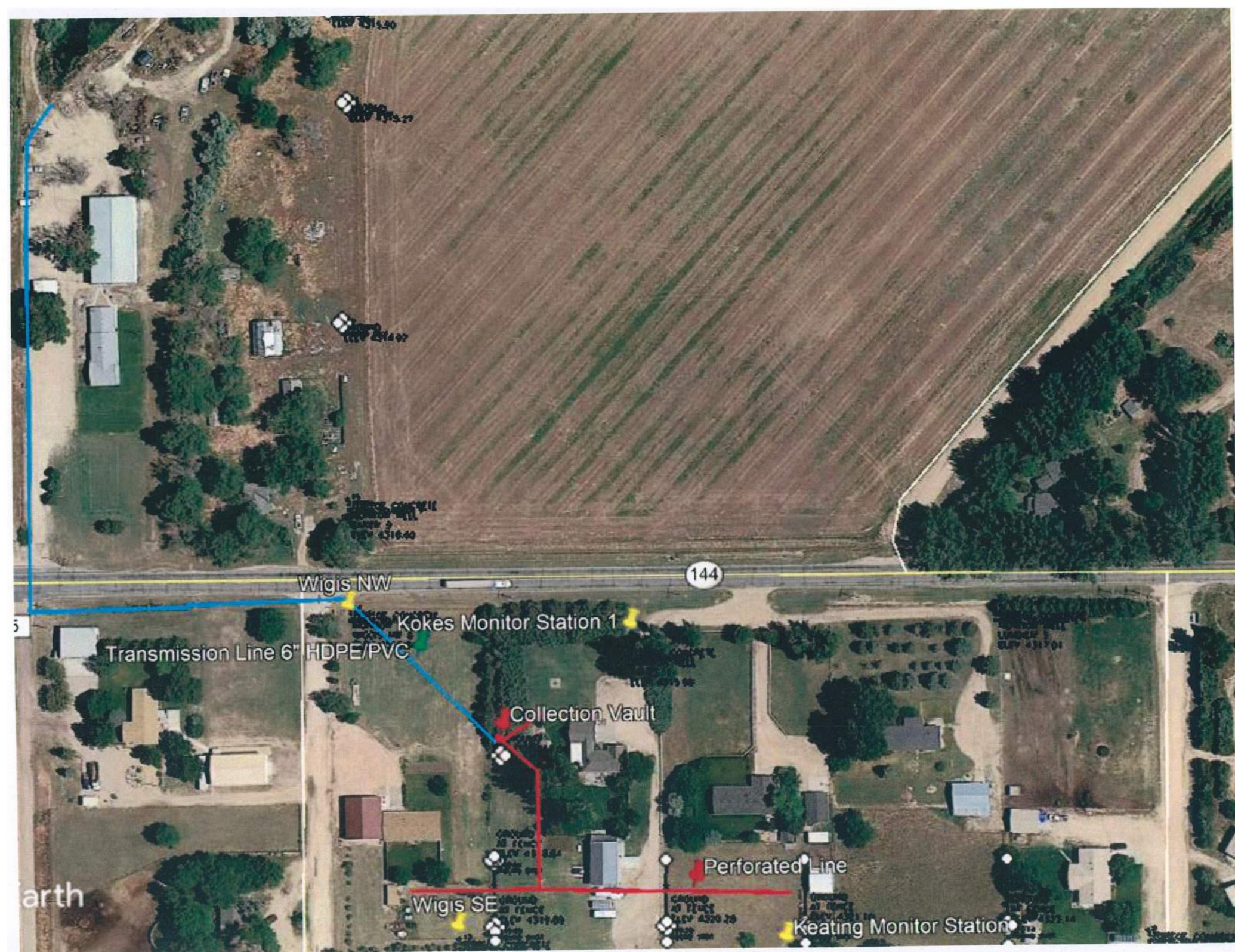
Table 2: Matching Funds

Item	Cost	Notes
Professional Engineer	\$17,633	Cash: Initial modeling and project design
Elevation Survey	\$907.50	Cash
Dewatering Mitigation	\$2,144	Cash
Monitoring Well Installation	\$375	Cash: 4 wells installed
Reclamation of construction area	\$2,300	Cash
Project Management	\$16,000	In-Kind: 160 Hours @ \$100/hr
TOTAL MATCH:	\$39,359.50	

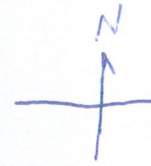
Note: The affected homeowners in the Ranchettes have expended and pledged cash and in-kind contributions of \$39,359.50. Additionally the HOA and affected residents are committed to paying for long-term operating costs. This includes pumping and system maintenance costs. The Project cost is anticipated to be approximately \$173,105.50. We are requesting \$133,746. We are willing to expend 23% of the total project to remedy this unfortunate situation.

APPENDIX A

Project Maps



Bid Includes - Time + Materials Installed
 Perforated 8" Smooth Pipe
 Gravel Bedding - Surrounding pipe approx 500 yds



Vault = 6-8' Diameter 14' Deep with access lid.
 Install Customer Provided Pumps

6" Transmission line - HDPE or PVC = 805 ft 5' foot Bury

6" HDPE Pipe - Directionally Drilled = 355'

CDOT approved Casement + Crossing

Clean outs at Each End + Intersection
 of Pipe = 6 Cleanouts = ⑥

Dewatering - Estimate if necessary

Perforated line = 375
 175
 116

$\frac{20}{686 \text{ or } 700}$

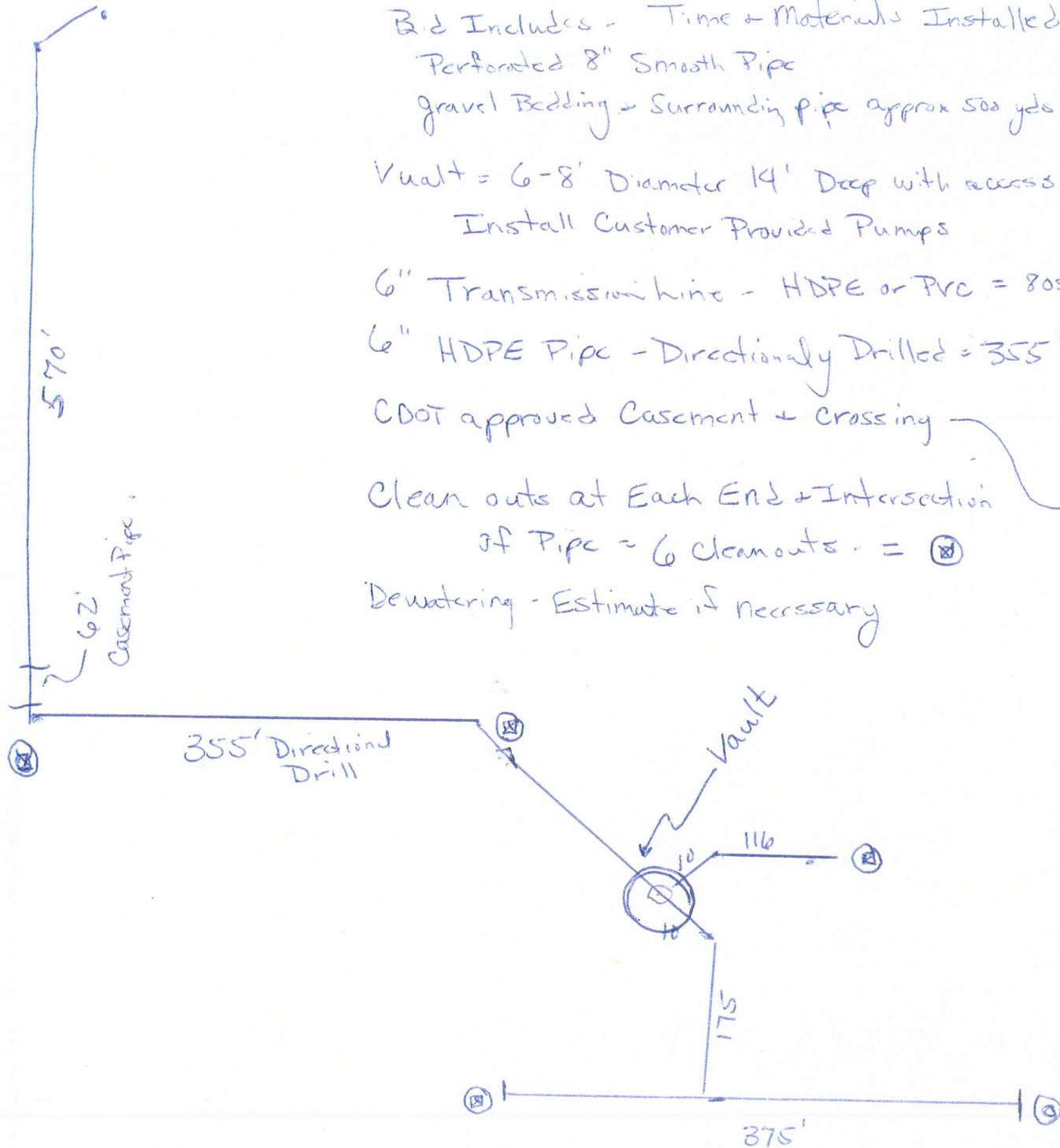
$\frac{235}{+ 570} = 805$

= 1160

$\frac{1160}{1220}$

Transmission line
 6"

Directional
 Drill
 6"
 HDPE 355



APPENDIX B

Permissions

Hwy 144 Ranchettes Homeowners Association

We, the Hwy 144 Ranchettes Homeowners Association, give our consent to participate in the application process of acquiring a grant funded by the Colorado Water Conservation Board to assist in dewatering the northern portion of the Ranchettes where a number of homes have suffered losses and continue to have potential losses due to the increase in the water table. There is also a health concern that needs to be addressed related to the comingling of drinking water with septic water. The HOA has appointed a committee led by Mark Kokes to work on behalf of the Ranchettes. The committee will communicate with the HOA throughout the process and seek additional approvals if necessary through special meetings called by the HOA governing board. The Hwy 144 Ranchettes Homeowners will fund the O&M expenses after the completion of a functional dewatering system.

Peggy Kokes

Peggy Kokes, Secretary

Timothy Gibbs

Tim Gibbs, President

Timothy Gibbs

08/11/17

Date

WATER PIPELINE EASEMENT

KNOW ALL MEN BY THESE PRESENTS, that Helen Judith Keating, ("Grantor"), in consideration of \$ 1 dollar and no cents and other good and valuable consideration paid to them by the Hwy 144 Ranchettes Homeowners Association, whose address is 15160 Hwy 144 Box 24, Fort Morgan, Colorado 80701 ("Ranchettes"), does hereby grant to Ranchettes, its successors and assigns, a non-exclusive and perpetual easement ("Easement") over, under, and across a portion of the following described real property owned by Grantor ("Property"), as follows:

1. **Easement Purpose:** The purpose of the Easement is to allow the Ranchettes to survey, construct, install, lay, and thereafter use, operate, inspect, repair, maintain, replace, and remove a buried de-watering pipeline and surface and subsurface appurtenances (collectively referred to as "Pipeline"), and the right of ingress and egress to access the Pipeline.
2. **Description of Property and Easement.** The Property and Easement are depicted on **EXHIBIT A**. The legal description of the Property is:

Subd: 144 Ranchettes SUB, FM (34-4-58) Lot: 19 S: 34 T: 4 R:58 PARC NW1/4

Address known as: 15160 Hwy 144 Lot #19
3. **Grantor's Reservation of Rights.** Grantor reserves the right to use the Easement for any purpose that is not inconsistent with this Easement, except that Grantor shall cause or allow within the Easement (A) utility lines paralleling the Pipeline less than 24 inches measured horizontally from the edge of the Pipeline; (B) any buildings, other improvements, and trees and shrubs which would prevent access to the Pipeline; or (C) the earth cover over the Pipeline to be less than three feet or more than ten feet, measured vertically from the top of the Pipeline.
4. **As-Built Drawing.** Upon completion of construction of the Pipeline an as-built drawing for the Pipeline shall be attached as Exhibit A, the Grantor agrees to execute the Amendment to Water Pipeline Easement attached as Exhibit A. The Exhibit shall include a legal description of the Easement limited to 20 feet in width centered on the as-built Pipeline and a construction and repair easement not to exceed 40 feet in width. Property shall be entered through the existing drive until safe and realistic intersect can be made on the easement. The Amendment shall include a plat depicting the location of the amended Easement and the as-built Pipeline.
5. **Binding in Nature.** This Easement, and its terms and conditions, shall constitute a covenant running with the land for the benefit of the Ranchettes, its successors, agents and assigns.
6. **Legal Authority.** Grantor warrants that it has full right and lawful authority to make the grant herein contained, and promises and agrees to defend the title to the Easement.
7. **Modification.** Any modifications to this agreement shall be in writing and signed by the parties.

This Water Pipeline Easement was mutually executed on this 4 day of August, 2017.

GRANTOR

Helen Q. Heading
By: _____

By: _____

STATE OF COLORADO)
)ss

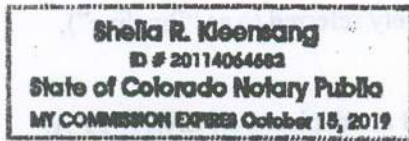
COUNTY OF Morgan)

The foregoing instrument was acknowledged before me this 4 day of August, 2017, by

Helen Judith Heading and _____

Witness my hand and official seal. My commission expires: October 15, 2019

Sheila B. Kleensang
Notary Public



Hwy 144 Ranchettes

ATTEST:

Peggy Kokes
By Peggy Kokes, Secretary

Timothy Gibbs
By: Tim Gibbs, President
Timothy Gibbs

STATE OF COLORADO)
)ss

COUNTY OF Morgan)

The foregoing instrument was acknowledged before me this 4th day of August, 2017, by

Peggy Kokes and Timothy Gibbs

Witness my hand and official seal. My commission expires: 7/11/21

Kayleen M Zarbock
Notary Public



WATER PIPELINE EASEMENT

KNOW ALL MEN BY THESE PRESENTS, that DUANE D & SHELLY K BRISTOL, ("Grantor/s"), in consideration of \$ 5500 and no cents and other good and valuable consideration paid to them by the Hwy 144 Ranchettes Homeowners Association, whose address is 15160 Hwy 144 Box 24, Fort Morgan, Colorado 80701 ("Ranchettes"), does hereby grant to Ranchettes, its successors and assigns, a non-exclusive and perpetual easement ("Easement") over, under, and across a portion of the following described real property owned by Grantor ("Property"), as follows:

- 1. Easement Purpose:** The purpose of the Easement is to allow the Ranchettes to survey, construct, install, lay, and thereafter use, operate, inspect, repair, maintain, replace, and remove a buried de-watering pipeline and surface and subsurface appurtenances (collectively referred to as "Pipeline"), and the right of ingress and egress to access the Pipeline.
- 2. Description of Property and Easement.** The Property and Easement are depicted on **EXHIBIT A**. The legal description of the Property is: Parcel Number 104127000006, Address 15015 HWY 144 FT MORGAN, CO 80701

Legal : S: 27 T: 4 R: 58 S1/2SW1/4 B895 P349

Easement Description: A 20 foot wide section measuring approximately 570 feet from South West corner of property North into the uninterrupted flow of the Bijou drainage.

- 3. Grantor's Reservation of Rights.** Grantor reserves the right to use the Easement for any purpose that is not inconsistent with this Easement, except that Grantor shall cause or allow within the Easement (A) utility lines paralleling the Pipeline less than 24 inches measured horizontally from the edge of the Pipeline; (B) any buildings, other improvements, and trees and shrubs which would prevent access to the Pipeline; or (C) the earth cover over the Pipeline to be less than three feet or more than ten feet, measured vertically from the top of the Pipeline.
- 4. As-Built Drawing.** Upon completion of construction of the Pipeline an as-built drawing for the Pipeline shall be attached as Exhibit A, the Grantor agrees to execute the Amendment to the De-Water Pipeline Easement attached as Exhibit A. The Exhibit shall include a legal description of the Easement limited to 20 feet in width centered on the as-built Pipeline and. Property shall be entered through the existing drive until safe and realistic intersect can be made on the easement. The Amendment shall include a plat depicting the location of the amended Easement and the as-built Pipeline.
- 5. Binding in Nature.** This Easement, and its terms and conditions, shall constitute a covenant running with the land for the benefit of the Ranchettes, its successors, agents and assigns.
- 6. Legal Authority.** Grantor warrants that it has full right and lawful authority to make the grant herein contained, and promises and agrees to defend the title to the Easement.
- 7. Modification.** Any modifications to this agreement shall be in writing and signed by the parties.

This Water Pipeline Easement was mutually executed on this 9 day of August, 2017.

GRANTOR

Duane D. Bristol

By:

Shelly K Bristol

By:

STATE OF COLORADO)

)ss

COUNTY OF Morgan)

The foregoing instrument was acknowledged before me this 9 day of August, 2017, by Duane D Bristol and Shelly K Bristol.

Witness my hand and official seal. My commission expires: 8/12/2020



Juanita M Heesacker
Notary Public

ATTEST:

Peggy Kokes
By Peggy Kokes Secretary

Hwy 144 Ranchettes

Timothy Gibbs
By: Tim Gibbs, President
Timothy Gibbs

STATE OF COLORADO)

)ss

COUNTY OF Morgan)

The foregoing instrument was acknowledged before me this 9th day of August, 2017 by Timothy Gibbs and Peggy Kokes.

Witness my hand and official seal. My commission expires: 7/11/21



Kayleen M Zarbock
Notary Public



WATER PIPELINE EASEMENT

KNOW ALL MEN BY THESE PRESENTS, that Jeffrey L and Christine L Wiges, ("Grantor"), in consideration of \$ 1 dollar and no cents and other good and valuable consideration paid to them by the Hwy 144 Ranchettes Homeowners Association, whose address is 15160 Hwy 144 Box 24, Fort Morgan, Colorado 80701 ("Ranchettes"), does hereby grant to Ranchettes, its successors and assigns, a non-exclusive and perpetual easement ("Easement") over, under, and across a portion of the following described real property owned by Grantor ("Property"), as follows:

1. **Easement Purpose:** The purpose of the Easement is to allow the Ranchettes to survey, construct, install, lay, and thereafter use, operate, inspect, repair, maintain, replace, and remove a buried dewatering pipeline and surface and subsurface appurtenances (collectively referred to as "Pipeline"), and the right of ingress and egress to access the Pipeline.
2. **Description of Property and Easement.** The Property and Easement are depicted on **EXHIBIT A**. The legal description of the Property is:

Subd: 144 Ranchettes SUB, FM (34-4-58) Lot: 17 S: 34 T: 4 R:58 PARC NW1/4

Address known as: 15160 Hwy 144 Lot #17

3. **Grantor's Reservation of Rights.** Grantor reserves the right to use the Easement for any purpose that is not inconsistent with this Easement, except that Grantor shall cause or allow within the Easement (A) utility lines paralleling the Pipeline less than 24 inches measured horizontally from the edge of the Pipeline; (B) any buildings, other improvements, and trees and shrubs which would prevent access to the Pipeline; or (C) the earth cover over the Pipeline to be less than three feet or more than ten feet, measured vertically from the top of the Pipeline.
4. **As-Built Drawing.** Upon completion of construction of the Pipeline an as-built drawing for the Pipeline shall be attached as Exhibit A, the Grantor agrees to execute the Amendment to Water Pipeline Easement attached as Exhibit A. The Exhibit shall include a legal description of the Easement limited to 20 feet in width centered on the as-built Pipeline and a construction and repair easement not to exceed 40 feet in width. Property shall be entered through the existing drive until safe and realistic intersect can be made on the easement. The Amendment shall include a plat depicting the location of the amended Easement and the as-built Pipeline.
5. **Binding in Nature.** This Easement, and its terms and conditions, shall constitute a covenant running with the land for the benefit of the Ranchettes, its successors, agents and assigns.
6. **Legal Authority.** Grantor warrants that it has full right and lawful authority to make the grant herein contained, and promises and agrees to defend the title to the Easement.
7. **Modification.** Any modifications to this agreement shall be in writing and signed by the parties.

This Water Pipeline Easement was mutually executed on this 8 day of Aug, 2017.

GRANTOR

By:

STATE OF COLORADO)

)ss

COUNTY OF Morgan)

The foregoing instrument was acknowledged before me this 8 day of August, 2017, by Jeffrey Wiges and Christine Wiges.

Witness my hand and official seal. My commission expires: 04-25-2019

By:

Notary Public

CARRIE L. MOBLEY
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20114024675
MY COMMISSION EXPIRES 4-25-2019

ATTEST:

By Peggy Kokes, Secretary

STATE OF COLORADO)

)ss

COUNTY OF Morgan)

The foregoing instrument was acknowledged before me this 8th day of August, 2017 by Timothy Gibbs and Peggy Kokes.

Witness my hand and official seal. My commission expires: 7/11/21

Hwy 144 Ranchettes

By: Tim Gibbs, President

Timothy Gibbs

Notary Public

KAYLEEN M ZARBOCK
NOTARY PUBLIC
STATE OF COLORADO
ID # 20054023898
MY COMMISSION EXPIRES JULY 11, 2021

WATER PIPELINE EASEMENT

KNOW ALL MEN BY THESE PRESENTS, that Mark and Peggy Kokes, ("Grantor"), in consideration of \$ 1 dollar and no cents and other good and valuable consideration paid to them by the Hwy 144 Ranchettes Homeowners Association, whose address is 15160 Hwy 144 Box 24, Fort Morgan, Colorado 80701 ("Ranchettes"), does hereby grant to Ranchettes, its successors and assigns, a non-exclusive and perpetual easement ("Easement") over, under, and across a portion of the following described real property owned by Grantor ("Property"), as follows:

- Easement Purpose:** The purpose of the Easement is to allow the Ranchettes to survey, construct, install, lay, and thereafter use, operate, inspect, repair, maintain, replace, and remove a buried de-watering pipeline and surface and subsurface appurtenances (collectively referred to as "Pipeline"), and the right of ingress and egress to access the Pipeline.
- Description of Property and Easement.** The Property and Easement are depicted on **EXHIBIT A**. The legal description of the Property is:

Subd: 144 Ranchettes SUB, FM (34-4-58) Lot: 18 S: 34 T: 4 R:58 PARC NW1/4

Address known as: 15160 Hwy 144 Lot #18
- Grantor's Reservation of Rights.** Grantor reserves the right to use the Easement for any purpose that is not inconsistent with this Easement, except that Grantor shall cause or allow within the Easement (A) utility lines paralleling the Pipeline less than 24 inches measured horizontally from the edge of the Pipeline; (B) any buildings, other improvements, and trees and shrubs which would prevent access to the Pipeline; or (C) the earth cover over the Pipeline to be less than three feet or more than ten feet, measured vertically from the top of the Pipeline.
- As-Built Drawing.** Upon completion of construction of the Pipeline an as-built drawing for the Pipeline shall be attached as Exhibit A, the Grantor agrees to execute the Amendment to Water Pipeline Easement attached as Exhibit A. The Exhibit shall include a legal description of the Easement limited to 20 feet in width centered on the as-built Pipeline and a construction and repair easement not to exceed 40 feet in width. Property shall be entered through the existing drive until safe and realistic intersect can be made on the easement. The Amendment shall include a plat depicting the location of the amended Easement and the as-built Pipeline.
- Binding in Nature.** This Easement, and its terms and conditions, shall constitute a covenant running with the land for the benefit of the Ranchettes, its successors, agents and assigns.
- Legal Authority.** Grantor warrants that it has full right and lawful authority to make the grant herein contained, and promises and agrees to defend the title to the Easement.
- Modification.** Any modifications to this agreement shall be in writing and signed by the parties.

This Water Pipeline Easement was mutually executed on this 11th day of August, 2017.

GRANTOR

Mark Kokes
By:

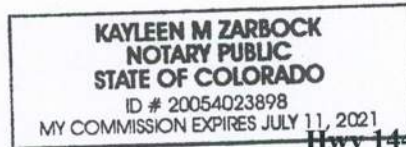
Peggy Kokes
By:

STATE OF COLORADO)
)ss

COUNTY OF Morgan)

The foregoing instrument was acknowledged before me this 11th day of August, 2017 by Peggy Kokes and Mark Kokes.

Witness my hand and official seal. My commission expires: 7/11/21
Kayleen M Zarbock
Notary Public



Hwy 144 Ranchettes

ATTEST:

Peggy Kokes
By Peggy Kokes, Secretary

Timothy Gibbs
By: Tim Gibbs, President
Timothy Gibbs

STATE OF COLORADO)
)ss

COUNTY OF Morgan)

The foregoing instrument was acknowledged before me this 11th day of August, 2017 by Timothy Gibbs and Peggy Kokes.

Witness my hand and official seal. My commission expires: 7/11/21
Kayleen M Zarbock
Notary Public



WATER PIPELINE EASEMENT

KNOW ALL MEN BY THESE PRESENTS, that John Snider, ("Grantor/s"), in consideration of \$ 1 and no cents and other good and valuable consideration paid to them by the Hwy 144 Ranchettes Homeowners Association, whose address is 15160 Hwy 144 Box 24, Fort Morgan, Colorado 80701 ("Ranchettes"), does hereby grant to Ranchettes, its successors and assigns, a non-exclusive and perpetual easement ("Easement") over, under, and across a portion of the following described real property owned by Grantor ("Property"), as follows:

1. **Easement Purpose:** The purpose of the Easement is to allow the Ranchettes to survey, construct, install, lay, and thereafter use, operate, inspect, repair, maintain, replace, and remove a buried de-watering pipeline and surface and subsurface appurtenances (collectively referred to as "Pipeline"), and the right of ingress and egress to access the Pipeline.
2. **Description of Property and Easement.** The Property and Easement are depicted on **EXHIBIT A**. The legal description of the Property is

Address 15028 HWY 144 FT MORGAN, CO 80701

Situs Address 15028 HWY 144 #LT01

Legal Subd: 144 RANCHETTES SUB, FM (34-4-58) Lot: 01 S: 34 T: 4 R: 58 PARC NW1/4

Easement Description: *A 20 foot wide section measuring _____ feet from NE corner of property West to the NW corner.*

3. **Grantor's Reservation of Rights.** Grantor reserves the right to use the Easement for any purpose that is not inconsistent with this Easement, except that Grantor shall cause or allow within the Easement (A) utility lines paralleling the Pipeline less than 24 inches measured horizontally from the edge of the Pipeline; (B) any buildings, other improvements, and trees and shrubs which would prevent access to the Pipeline; or (C) the earth cover over the Pipeline to be less than three feet or more than ten feet, measured vertically from the top of the Pipeline
4. **As-Built Drawing.** Upon completion of construction of the Pipeline an as-built drawing for the Pipeline shall be attached as Exhibit A, the Grantor agrees to execute the Amendment to the De-Water Pipeline Easement attached as Exhibit A. The Exhibit shall include a legal description of the Easement limited to 20 feet in width centered on the as-built Pipeline and. Property shall be entered through the existing drive until safe and realistic intersect can be made on the easement. The Amendment shall include a plat depicting the location of the amended Easement and the as-built Pipeline.
5. **Binding in Nature.** This Easement, and its terms and conditions, shall constitute a covenant running with the land for the benefit of the Ranchettes, its successors, agents and assigns.
6. **Legal Authority.** Grantor warrants that it has full right and lawful authority to make the grant herein contained, and promises and agrees to defend the title to the Easement.
7. **Modification.** Any modifications to this agreement shall be in writing and signed by the parties.

This Water Pipeline Easement was mutually executed on this 10th day of August, 2017.

GRANTOR

By: John D Snider

By: _____

STATE OF COLORADO)

)ss

COUNTY OF Morgan)

The foregoing instrument was acknowledged before me this 10 day of August, 2017, by John D Snider and _____.

Witness my hand and official seal. My commission expires: 04-25-2019

CARRIE L. MOBLEY
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20114024675
MY COMMISSION EXPIRES 4-25-2019

Carrie L Mobley
Notary Public

ATTEST:

Peggy Kokes
By Peggy Kokes, Secretary

Hwy 144 Ranchettes

Timothy Gibbs
By: Tim Gibbs, President
Timothy Gibbs

STATE OF COLORADO)

)ss

COUNTY OF Morgan)

The foregoing instrument was acknowledged before me this 10th day of August, 2017 by Peggy Kokes and Timothy Gibbs.

Witness my hand and official seal. My commission expires: 7/11/17

KAYLEEN M ZARBOCK
NOTARY PUBLIC
STATE OF COLORADO
ID # 20054023898
MY COMMISSION EXPIRES JULY 11, 2021

Kayleen M Zarbock
Notary Public

APPENDIX C

Permitting

GWS-11
02/2017

NOTICE OF INTENT TO CONSTRUCT MONITORING HOLE(S)

Please type or print legibly in black or blue ink or file online, cwrpermitsonline@state.co.us
State of Colorado, Office of the State Engineer 1313 Sherman St, Room 821,
Denver, CO 80203 Phone 303-866-3581 www.water.state.co.us

RECEIVED
JUN 14 2017
WATER RESOURCES
STATE ENGINEER
COLO

Well Owner Name(s): Hwy 144 Ranchettes HOA
Address: 15160 Hwy 144 Lot #18 Fort Morgan, CO 80701
Phone: (970) 467-7780
Email: mdkokes@gmail.com

Landowner's Name: Marilyn Baker

Please check one and complete as indicated including contact info:

- ☐ Water Well Driller Licensed in Colorado - Lic. No. _____
☐ Professional Engineer Registered in Colorado - Reg. No. _____
☐ Professional Geologist per C.R.S. 23-41-208(b)
☒ Other - anyone directly employed by or under the supervision of a licensed driller, registered professional engineer or professional geologist

Contact / Company Mark Kokes

Address 15160 Hwy 144

City, State & Zip Fort Morgan, CO 80701

Phone (970) 467-7780

Email mdkokes@gmail.com

Print Name: Mark Kokes

Signature or enter full name here: Mark Kokes

Location: Section 27
Township 4 ☐ N ☐ S, Range 58 ☐ E ☐ W, 6th PM
County: Morgan

Subdivision: _____
Lot: _____ Block: _____ Filing: _____
Site/Property Address 15160 Hwy 144
Fort Morgan, CO 80701

GPS Location in UTM format if known:

Set GPS unit to true north, datum NAD83, and use meters for the distance units, ☐ Zone 12 or ☐ Zone 13.

Easting _____ Northing _____

of Monitoring Holes to be constructed in Section: 1

Estimated Depth 20 Ft., Aquifer South Platte Al

Purpose of Monitoring Hole(s) _____
Geologic Soil Sampling
Ground Water monitoring

Anticipated Date of Construction: 06/20/2017

Date Notice Submitted: 06/14/2017
(Must be at least 3 days prior to construction)

ACKNOWLEDGEMENT FROM STATE ENGINEER'S OFFICE FOR OFFICE USE ONLY

056880

- MH

PROCESSED BY

DATE ACKNOWLEDGED

Div. 1 WD 1 BAS _____ MD _____

CONDITIONS OF MONITORING HOLE ACKNOWLEDGEMENT

A COPY OF THE WRITTEN NOTICE OR ACKNOWLEDGEMENT SHALL BE AVAILABLE AT THE DRILLING SITE.

- 1) Notice was provided to the State Engineer at least 72 hours prior to construction of monitoring & observation hole(s).
- 2) Construction of the hole(s) must be completed within 90 days of the date notice was given to the State Engineer. Testing and/or pumping shall not exceed a total of 200 hours unless prior written approval is obtained from the State Engineer. Water diverted during testing must not be used for beneficial purposes. The owner of the hole(s) is responsible for obtaining permit(s) and complying with all rules and regulations pertaining to the discharge of fluids produced during testing.
- 3) All work must comply with the Water Well Construction Rules, 2 CCR 402-2. Standard permit application and work report forms are found on the DWR website at <http://www.water.state.co.us>. Well Construction and Yield Estimate Reports (GWS-31) must be completed for each hole drilled. The licensed contractor or authorized individual must submit the completed forms to this office within 60 days of monitoring hole completion. Aquifer testing information must be submitted on Well Yield Test Report (GWS-39).
- 4) Unless a well permit is obtained or variance approved, the hole(s) must be plugged and sealed within eighteen (18) months after construction. An Abandonment Report (GWS-09) must be submitted within 60 days of plugging & sealing. The above MH acknowledgement number, owner's structure name, and owner's name and address must be provided on all well permit application(s), well construction and abandonment reports.
- 5) A MONITORING HOLE CANNOT BE CONVERTED TO A PRODUCTION WATER WELL, except for purposes of remediation (recovery) or as a permanent dewatering system, if constructed in accordance with the Water Well Construction Rules and policies of the State Engineer.
- 6) IF HOLES WILL NOT BE CONSTRUCTED UNDER THIS NOTICE WITHIN 90 DAYS, PLEASE WRITE "NO HOLES CONSTRUCTED" ON A COPY OF THE ACKNOWLEDGED NOTICE WITH THE FILE NUMBER AND EMAIL TO THE DIVISION OF WATER RESOURCES AT DWRpermitsonline@state.co.us.

THIS ACKNOWLEDGEMENT OF NOTICE DOES NOT INDICATE THAT WELL PERMIT(S) CAN BE APPROVED.

Incomplete forms or Notice provided less than 72 hours prior to well construction will not be acknowledged

Receipt # 0056880A

GWS-51
02/2017

NOTICE OF INTENT TO CONSTRUCT MONITORING HOLE(S)

Please type or print legibly in black or blue ink or file online, dwrpermitsonline@state.co.us

State of Colorado, Office of the State Engineer 1313 Sherman St, Room 821,
Denver, CO 80203 Phone 303-866-3581 www.water.state.co.us

RECEIVED

JUN 14 2017

WATER RESOURCES
STATE ENGINEER PM

Well Owner Name(s): Hwy 144 Ranchettes HOA
Address: 15160 Hwy 144 Lot #18 Fort Morgan, CO 80701
Phone: (970) 467-7780
Email: mdkokes@gmail.com

Landowner's Name: Various

Please check one and complete as indicated including contact info:

- ☐ Water Well Driller Licensed in Colorado - Lic. No. _____
☐ Professional Engineer Registered in Colorado - Reg. No. _____
☐ Professional Geologist per C.R.S. 23-41-208(b)
☒ Other - anyone directly employed by or under the supervision of a licensed driller, registered professional engineer or professional geologist

Contact / Company Mark Kokes

Address 15160 Hwy 144

City, State & Zip Fort Morgan, CO 80701

Phone (970) 467-7780

Email mdkokes@gmail.com

Print Name: Mark Kokes

Signature or enter full name here: Mark Kokes

Location: Section 34

Township 4 ☒ N ☐ S, Range 58 ☒ E ☐ W, 6th PM

County: Morgan

Subdivision: _____

Lot: _____ Block: _____ Filing: _____

Site/Property Address 15160 Hwy 144
Fort Morgan, CO 80701

GPS Location in UTM format if known:

Set GPS unit to true north, datum NAD83, and use meters for the distance units, ☐ Zone 12 or ☐ Zone 13.

Easting _____ Northing _____

of Monitoring Holes to be constructed in Section: 8

Estimated Depth 20 Ft., Aquifer South Platte Al

Purpose of Monitoring Hole(s) _____

Geologic Soil Sampling

Ground Water monitoring

Anticipated Date of Construction: 06/20/2017

Date Notice Submitted: 06/14/2017

(Must be at least 3 days prior to construction)

ACKNOWLEDGEMENT FROM STATE ENGINEER'S OFFICE

FOR OFFICE USE ONLY

056881

- MH

Div. 1 WD 1 BAS _____ MD _____

PROCESSED BY Jeff D. Davis

DATE ACKNOWLEDGED 6/14/17

CONDITIONS OF MONITORING HOLE ACKNOWLEDGEMENT

A COPY OF THE WRITTEN NOTICE OR ACKNOWLEDGEMENT SHALL BE AVAILABLE AT THE DRILLING SITE.

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- 3) All work must comply with the Water Well Construction Rules, 2 CCR 402-2. Standard permit application and work report forms are found on the DWR website at <http://www.water.state.co.us>. Well Construction and Yield Estimate Reports (GWS-31) must be completed for each hole drilled. The licensed contractor or authorized individual must submit the completed forms to this office within 60 days of monitoring hole completion. Aquifer testing information must be submitted on Well Yield Test Report (GWS-39).
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- 6) IF HOLES WILL NOT BE CONSTRUCTED UNDER THIS NOTICE WITHIN 90 DAYS, PLEASE WRITE "NO HOLES CONSTRUCTED" ON A COPY OF THE ACKNOWLEDGED NOTICE WITH THE FILE NUMBER AND EMAIL TO THE DIVISION OF WATER RESOURCES AT DWRpermitsonline@state.co.us.

THIS ACKNOWLEDGEMENT OF NOTICE DOES NOT INDICATE THAT WELL PERMIT(S) CAN BE APPROVED.

Incomplete forms or Notice provided less than 72 hours prior to well construction will not be acknowledged

APPENDIX D

Monitoring for Data Collection

Hwy 144 Ranchettes Monitoring Well

Water Table logs

Completion Date 6-20-17

Date	Well ID								
	1-Kokes	2-Keating	3-Lundien	4-Cuckow	5-Ncikell	6-Patterson	7-Wiges	8- Wiges NW	9-Baker
6/14/2017									
6/20/2017	4.333	9.333	6.25	12.583	20+	16.917	7.167	8.333	6.25
6/27/2017	4.333	8.833	5.75	12	20+	16.333	6.583	7.667	5.583
7/5/2017	4.25	8.833	5.667	12	20+	16.333	6.583	7.25	5.167
7/12/2017	4	8.667	5.5	11.667	18.5	16.167	6.5	7	5
7/26/2017	4	8.83	5.5	11.75	18.5	16.583	6.75	7.833	5
8/6/2017	4	9	5.5	12	19	17	6.75	7.75	5

Casing and Perforation Logs

	Kokes	Keating	Lundien	Cuckow	Nickell	Patterson	Wiges	Wiges NW	Baker
Casing Depth	9'7"	20'	20'	20'	20'	20'	16'10"	15'	17'2"
Perf top	No perfs	10	10	10	10	10	7'10"	5'	8'2"

Perforations every 16 inches from top of perforation line to bottom of well depth minus 8 inches

APPENDIX E

Itemized Grant Request and Supporting Documents

RWT EXCAVATING & DEMO.

3771 Rd. P
Wiggins CO 80654
Phone: 970.483.7813
Cell: 970.396.4941

DATE:

BID

FOR:

BID TO:

DESCRIPTION
700' of perforated 8" pipe with bedding installed
6' dia. Vault 14' tall installed
805' of 6" pvc installed at 5' bury
355' of 6" directionally drilled (By others)
casement and road crossing (By Others)
6 cleanouts
500 ton of 3/8" washed pee gravel
dewater location

SUBTOTAL

TAX RATE

SALES TAX

OTHER

TOTAL

THANK YOU FOR YOUR BUSINESS!

CALL OR EMAIL WITH ANY QUESTIONS
RICHARD W. THOMAS

BID

August 27, 2017

1568

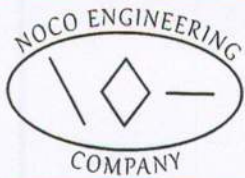
drain line

Mark Kokes

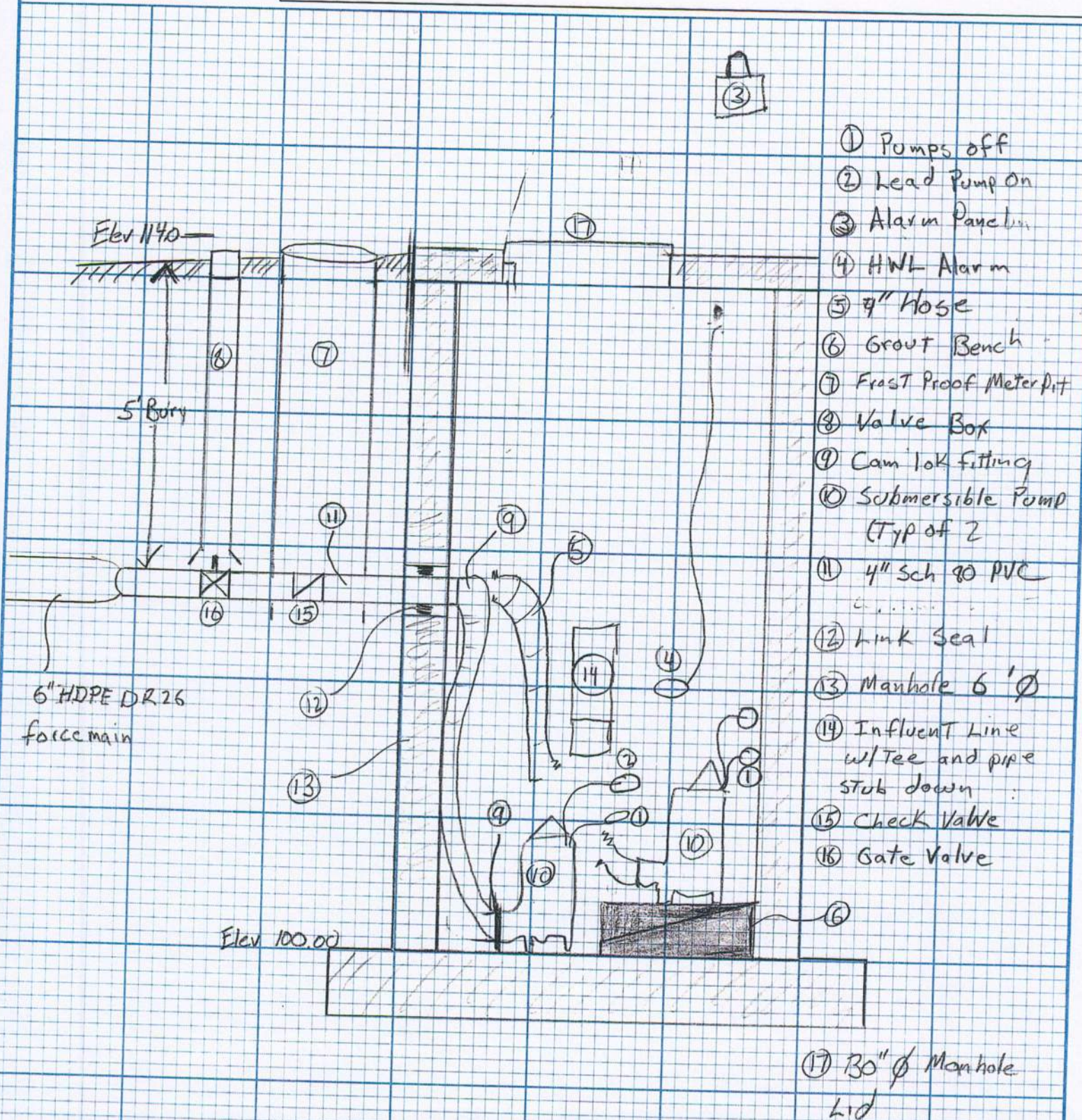
15160 Highway 144

AMOUNT	
\$	24,500.00
\$	5,850.00
\$	20,125.00
\$	-
\$	-
\$	4,850.00
\$	17,450.00
\$	8,500.00
\$	81,275.00
	0.00%
	-
	-
\$	81,275.00

Figure 3



Project: Kokes Lift Station
 Project no.:
 Drawn by:
 Date:



- ① Pumps off
- ② Lead Pump On
- ③ Alarm Panel
- ④ HWL Alarm
- ⑤ 4" Hose
- ⑥ Grout Bench
- ⑦ Frost Proof Meter Pit
- ⑧ Valve Box
- ⑨ Cam lock fitting
- ⑩ Submersible Pump (Type 2)
- ⑪ 4" Sch 80 PVC
- ⑫ Link Seal
- ⑬ Manhole 6' ϕ
- ⑭ Influent Line w/ Tee and pipe stub down
- ⑮ Check Valve
- ⑯ Gate Valve
- ⑰ 30" ϕ Manhole Lid

Hi Mark,

I know you want to get going on this project as soon as possible, so I am sending you a summary of the ground water modeling and gravel drain design now. I will get you a water table elevation map soon.

Due to the lack of a gradient, it appears a dewatering system around your home that drains to Bijou Creek will not result in an adequate dewatering flow rate. Therefore, the best option is to gravity drain the water to a vault, pump the water up in the vault to a depth of 5 feet below ground level and run it from the vault to the creek. The plain pipe can either be installed to be below frost level (at a depth of 5 feet from the top of the pipe), or can be installed at a constant slope from the vault to the creek to facilitate gravity flow.

Ground water modelling was done to determine flow rates and expected drawdown below your home using the Theis technique and assuming: permeability = 1000 gpd/ft, specific yield = 0.25 and aquifer thickness = 40 feet. The model suggests that the system will drain at about 200 gpm at startup and will be near 150 gpm after 30 days and for some time after. These results are approximate and will vary with ditch leakage and rainfall. These drainage rates will result in water levels roughly 2-2.5 feet below the top of your basement floor.

As you know, the attached diagram show the locations of the preferred perforated lines, plain pipe line and the vault. The perforated lines should be 8-inch diameter PVC with slotted perforations. You can purchase mill slotted casing from many piping companies, or you can custom slot the pipe. I would recommend from 0.060 to 0.100 inch width slots with at least 15% open area. The plain pipe from the vault to Bijou Creek should also be PVC and can be either 6 or 8 inch diameter. Using a slope of 0.0046 for the plain pipe from the vault to Bijou Creek, the 6 inch pipe can take up to 200 gpm at which point it may be close to full and pressure up slightly. A pressured line will result in higher pumping costs. However, after 30 days of draining the system will likely be flowing about 150 gpm which a 6-inch pipe can handle (gravity only) with the pipeline about 2/3 full.

An 8-inch diameter pipe from the vault to the creek can easily handle 200 gpm flows and will gravity flow about 290 gpm when it is half full.

The bottom of the perforated pipe should be placed in a trench at an elevation of 4308.5, which is 3 feet below the top of your basement floor. All elbows should be long-radius to keep friction losses low. Vertical cleanouts to flush out sediment should installed at the ends and corners of the perforated pipe section.

The width of the trench is not critical, but should be wide enough to allow the contractor to keep the trench stable and safely install the perforated pipe. The trench with the perforated pipe installed should be covered with 3/8 inch washed pea gravel from the bottom of the trench up to the water table at its highest point.

I do not have the expertise to design the vault or pumping equipment, but local contractors can probably help you with this design.

Any questions, please call.

Pat OBrien