



DEGERLUND ENGINEERING, LLC

(AK ENTITY 136868)

P.O Box 10253

Fairbanks, Alaska 99710

Phone: (907) 978-7857



July 19, 2024

To: Tri-Valley Subdivision Homeowner's Association

Re: Engineer's Recommendations for Subdivision Road Improvement Plan

This letter is a follow-up to the site visit made by me and Annette Ziegman on June 29, 2024 at the Tri-Valley Subdivision in Healy, Alaska. The intent of the visit was for me to observe the road drainage facilities within the subdivision with the purpose of offering recommendations to the HOA's Road Improvement Plan. The Road Improvement Plan is intended to inform potential contractors who may bid on the work.

GENERAL COMMENTS

The Road Improvement Plan lists eight project areas within the subdivision to receive road grading and drainage improvements. Each project has an associated cost estimate which includes Material, Equipment and Labor, and a 15% Contingency. No estimate is given for Construction Administration, which involves preparation of bidding documents, review and acceptance of bids, inspections, acceptance or rejection of work, and payments made to the contractor. Typically, Construction Administration costs anywhere between 2% and 10% of the construction cost. I recommend that you add a 10% Construction Administration cost to the estimates and find someone experienced in the administration of road construction projects to oversee the work. I can provide names of potential Construction Administrators if requested. Construction Administration should be a separate contract and not included in the construction contract.

Unit Cost estimates depend upon local conditions and availability. Cost estimates for gravel and bull rock appear normal for locally obtainable materials. I am not familiar with local material availability in Healy and defer to the HOA for their local expertise on those costs.

Culvert cost is estimated at \$10 per foot which seems very low. However, the material is listed as "structural steel pipes". Usually, corrugated zinc-coated steel pipes (CSP) are used for culverts whereas structural steel pipes are typically used for pilings or fabricated structures supporting loads. Structural steel pipes have sometimes been used for culverts because of availability but their lifespan and usefulness may be limited due to corrosion. If the HOA has a source of structural steel pipe that they would like used on these projects, the source should be identified for potential contractors who may bid on this project. Otherwise, I suggest corrugated steel pipe be specified for culverts with 12-inch minimum diameter for driveway crossings and 18-inch diameter for areas of known high runoff volumes. CSP is lighter and easier to install compared to structural steel pipe and will result in slightly lower labor costs for installation. Local culvert material costs in Fairbanks are \$23.19/foot for 12-inch and \$33.49/foot for 18-inch culverts. The cost per foot delivered on site in Healy may be double the Fairbanks costs. Project cost estimates may need to be adjusted accordingly.

The Tri-Valley Subdivision HOA Road Improvement Plan seems to have been prepared to provide project objectives and desired outcomes but does not provide much guidance for a potential contractor other than “to build up the road and facilitate proper drainage”. I suggest that some form of standard specifications be used to provide uniform expectations among bidders and subsequently, a basis for the scope, standard of work expected for construction, and basis of payment. One such document which might be altered or modified is the Fairbanks North Star Borough Standard Specifications for Road Maintenance – 2024.

(<https://www.fnsb.gov/DocumentCenter/view/16348/2024-Standard-Specifications-for-Local-Road-Maintenance-PDF>) Other documents are available such as the State of Alaska Department of Transportation and Public Facilities Standard Specifications for Highway Construction, however I caution that its use might be cumbersome and could possibly lead to higher bids and unnecessary complexity for the projects.

At a minimum, I suggest a typical road section be provided which shows road widths, depth and type of base course, depth and type of surface course, minimum cover over culverts, side slopes, and minimum depth of ditches. I suggest all ditches be 18-inch minimum depth unless otherwise prohibited by site features. The typical section should also notify contractors that ditching and culvert installation work will include all clearing required.

Additional costs should be estimated for the location of property/right-of-way lines in each project area to avoid encroachment of construction activities onto private property. The work should include staking of clearing limits. Also, the HOA should require that the contractor locate all buried utility lines before commencing construction activities.

SPECIFIC COMMENTS/RECOMMENDATIONS

The following comments are offered based on field observations and are offered as additions to the plan depicted in the subdivision map that was provided to me before the site visit.

Project #1 - Enhancement of Graphite Road

- Install culverts at driveway crossings for Lots 1, 4, and 19.
- Construct ditches on both sides of the road draining to Carbon Way.

Project #2 – Enhancement of Carbon Way

- Install 18-inch diameter CSP culverts across Quartz Way and Platinum and Silver Courts.

Project #3 – Dry Creek Road/Coal Street Improvements

- Install culverts on the driveway intersecting Dry Creek Road and across Dry Creek Road.
- Improve ditches along Coal Street and Dry Creek Road downstream of the intersection with Coal Street.

Project #4 – Quartz Road (Way) Upgrade

- Construct a ditch along the north side of Quartz Way, draining toward the west.
- Install new culverts across Rutile Place (see project # 6) and Magnetite Place.
- Install driveway culverts for Lots 21 and 22, Block 3, and Lot 12 Block 2.
- Construct a ditch along the north side of Quartz Way adjacent to Lots 13 and 14, Block 2.

Project #5 – Intersection of Dry and Quartz Creek

- Install a new culvert across Quartz Way at the intersection of Dry Creek Road.
- Construct ditches along Cassiterite Place and the south side of Quartz Way to drain to the intersection with Dry Creek Road.
- Construct ditches along the south side of Dry Creek Road adjacent to Lot 1, Block 3 and Lot 4, Block 4 to facilitate runoff northward through the new culvert to be installed across Quartz Way.

Project #6 – Culvert Installation across Quartz to Rutile

- Special consideration must be given to the drainage in the area of Rutile Place and Quartz Way. This area receives runoff from the surrounding areas and has no outlet, therefore drainage collects and threatens the house on Lot 12. I recommend that some elevations be measured throughout the area and an outlet path be identified which will not impact the houses and structures surrounding the cul-de-sac. A drainage easement across one or multiple lots may need to be identified for construction of a ditch, swale or detention pond. A professional engineer should be contracted to provide the drainage design.
- Install a new culvert across Rutile Place. Construct ditching along the north side of Quartz Way adjacent to Lot 12, Block 2 (see comments on Project #2, above) to allow runoff to be directed through the new culvert across Rutile Place.

Project #7 – Culvert Replacement near Preschool

- Remove and replace the existing culvers on and across Stibnite Place to allow drainage to move eastward, away from preschool area.
- Clean culvert and clear brush away from the culvert crossing Sulfide at the intersection with Usibelli Spur.

Project #8 – Gravel Addition at Cassiterite

- Place gravel as stated in the Road Improvement Plan being careful to construct proper crown (3%) and ditching.

I suggest a map be provided to contractors bidding on the project. The map could delineate each project area. Specific plans for each project area would also be helpful, even if drawn with minimal detail but at least showing general locations (not to scale) of roads, driveways, right of ways, location of new culverts and flow direction for new or repaired ditches. I estimate that the HOA should be able to procure such a map/plan set for under \$5000.

Thank you for the opportunity to assist you with your project. Please feel free to contact me should you need further assistance.

Respectfully,



Nils Degerlund, P.E., P.L.S.