

October 18, 2010

VIA E-MAIL AND FEDERAL EXPRESS DELIVERY

Securities and Exchange Commission
100 F. Street, N.E.
Washington, D.C. 20549-3628

Attention: James E. O'Connor, Esq.
Ms. Christina DiAngelo
Division of Investment Management

Re: Horizon Technology Finance Corporation
Registration Statement on Form N-2, Filed March 19, 2010
File Nos. 333-165570 and 814-00802

Dear Mr. O'Connor and Ms. DiAngelo:

On behalf of Horizon Technology Finance Corporation, a Delaware corporation (the "Company"), we are responding to your comment communicated to us by telephone today with respect to the above-referenced Registration Statement. Thank you for your comment which we restate below, followed by the Company's response. Terms used and not defined in this letter shall have the meaning described in the Registration Statement.

1. In light of the recent performance of the Company's existing loan portfolio, please explain why the Company has not included an amount in the line item "Incentive Fees Payable Under the Investment Management Agreement" in the Fees and Expenses table on page 14 of the Registration Statement.

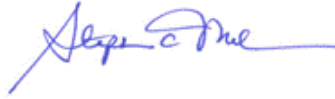
The Company has not included an amount in the line item "Incentive Fees Payable Under the Investment Management Agreement" in the Fees and Expenses table because, even in light of the recent strong performance of its existing loan portfolio, it does not anticipate paying any incentive fees in the first year after the completion of the offering. The incentive fee payable to the Advisor is based on the Company's performance and will not be paid unless the Company achieves certain goals. The Company anticipates that such goals will not be achieved during the first year after the completion of the offering because the net proceeds of the offering will probably not be quickly deployed. As a result, the Company expects that it will not have any capital gains and that the amount of the Company's interest income will not exceed the quarterly minimum hurdle rate discussed in the Registration Statement. However, if the Company were able to deploy substantially all of the net proceeds of the offering quickly (i.e., within a substantially shorter time period than nine months) and maintain a comparable yield to its existing loan portfolio, the Company may have capital gains and interest income that could exceed the quarterly minimum hurdle rate discussed in the Registration Statement resulting in the payment of an incentive fee to the Advisor in the first year after the completion of the offering.

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We appreciate the efforts of the Staff and look forward to resolving the Staff's comments as soon as possible. Please contact the undersigned at the above number if you have any questions.

Very truly yours,

A handwritten signature in blue ink, appearing to read "Stephen C. Mahon", with a long horizontal flourish extending to the right.

Stephen C. Mahon

SCM/ajm
Enclosures