

FEASIBILITY REPORT
FOR
PROPOSED ROAD IMPROVEMENT PROJECT
OF
FERN DRIVE AND BIRCH LANE
CREDIT RIVER TOWNSHIP, MINNESOTA
AUGUST 2012

Prepared by:



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I hereby certify that this Plan, Specification, or Report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under State of Minnesota Statutes 326.02 to 326.16.

Shane Nelson, PE

43381
License No.

August 3, 2012
Date

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EXHIBITS

- EXHIBIT A. Woodlyn Hills Improvement Project - Benefiting Properties
- EXHIBIT B. Birch Lane and Fern Drive Local Residential Rural Street Section
- EXHIBIT C. Birch Lane and Fern Drive Local Residential Urban Street Section
- EXHIBIT D. Birch Lane and Fern Drive Reconstruction Improvement Project - Preliminary Cost Estimate

I. INTRODUCTION

The purpose of this feasibility report is to present the Township of Credit River with a preliminary examination of road improvements for Fern Drive and Birch Lane. The report discusses the scope of reconstructing these roads from Lucerne Trail to each cul-de-sac. The report was initiated by the Credit River Town Board after a board meeting, and has been prepared in compliance with Minnesota State Statutes 429 for projects resulting in special assessments.

II. PROJECT LOCATION

Fern Drive and Birch Lane are located in Section 27, Township 114 North, Range 21 West, Credit River Township, Scott County, Minnesota. There are currently 23 existing properties that receive their direct access from the project. The residential properties are rural type lots with lot sizes ranging from 1.5 acres to 4.5 acres. The project area and roadway location is depicted on the Benefiting Properties Exhibit (Exhibit A) included in the Appendix of this report.

III. ROADWAY IMPROVEMENT PROJECT

A. Existing Conditions

Fern Drive and Birch Lane were originally paved in 1987. There are many indications that the road is failing and is near or at the end of its design life. Fern Drive and Birch Lane were reviewed in 2005 as part of the Credit River Township Road Inventory and received a pavement ranking of 22 out of a possible ranking of 100, which are the lowest ranking roads in the Township.

Maintenance has been performed on a yearly and as needed basis. The road has required patching in recent years to repair failed areas on the pavement. Severe transverse and alligator cracking were observed. Some causes of road cracking may be excessive loads, failure of subgrade material, and poorly drained subgrades.

Fern Drive is approximately 1,400 feet in length and predominately utilizes a rural section with ditch sections and driveway culverts. However, a section at the north end of Fern Drive contains bituminous

curb. The existing cul-de-sac bulb on the north end of Fern Drive is approximately 85 feet in diameter, which does not meet Township standards, but may be sufficient for the anticipated traffic.

Birch Lane is approximately 2,200 feet in length and predominately utilizes a rural section with ditch sections and driveway culverts. The existing cul-de-sac bulb on the north end of Birch Lane is approximately 90 feet in diameter, which does not meet Township standards but may be sufficient. Most of Birch Lane has sub-standard drainage consisting of shallow ditches and culverts. Some areas lack ditches altogether.

A geotechnical investigation has not been performed at the time of this report. For this report, the subgrade was assumed to be in need of reconstruction. However, a geotechnical report shall be obtained prior to final design to determine the additional required work to the subgrade and for the pavement design. Geotechnical investigations are also necessary to adequately determine the existing bituminous and Class 5 thicknesses.

The width of the existing streets vary slightly, varying from 22 to 24 feet wide, consisting mainly of two 11 to 12 foot wide drive lanes with little or no shoulders. The total length of the project is approximately 0.68 miles (3,600 feet).

B. Proposed Improvements

The project consists of reconstructing Fern Drive and Birch Lane in their entirety. The current road does not meet current Township standards. Improving the road to Township standards is beyond the scope of this report. This project proposes to confine the roadway surface to the existing width, approximately 22 feet. The assumed section for this report was 4" of bituminous with 12" of Class 5 aggregate base. Easements or right of way were not considered for purposes of this report. Further evaluation of existing easements/right of way will be necessary during final design.

The project involves removing the existing bituminous surface and aggregate base. The subgrade will then be excavated to the elevations as required and any soft and unsuitable material will be subcut from

the roadbed and replaced with suitable material. After the subgrade has been compacted and proof rolled, the Class 5 aggregate base will be placed to the required thickness. Finally, the bituminous surface will be placed. Excavation for proper ditching will be completed and driveway new culverts will be installed. Shouldering material will be placed on each side of the road to reestablish the shoulder level with the new bituminous surface. Along some sections of the road where topography does not allow for ditches, concrete curb and gutter will need to be incorporated. The concrete curb and gutter segments will be constructed as shown in Exhibit C.

C. Estimated Costs

The 2012 construction costs have been estimated for the proposed Fern Drive and Birch Lane improvement project. The estimated costs are estimates only and are not guaranteed prices. The costs shown are estimates based on actual bid prices from projects of similar scope and adjusted for inflation.

Before bidding, the construction estimate should be updated to reflect changes in construction costs and the final design. Final contracts will be awarded on a unit price basis and the contractor will only be paid for work completed. No costs are included for easements. The total estimated project cost is \$526,720. An estimate of the cost of the improvements is shown in Exhibit D.

D. Financing and Assessments

The Township costs of the improvements for the reconstruction of Fern Drive and Birch Lane are proposed to be partially assessed to the benefiting properties. For this project, the recommended assessment method is to assess the benefiting properties on a per unit basis.

The Township may pass a general obligation/revenue bond that will be backed by assessment of the costs to the benefiting properties. The assessments may be paid in full up front or amortized over a period of time, typically 10 years, with an interest rate as determined by the Town Board. Generally, interest rates on assessments are on the order of 6 percent.

The Township policy is to pay forty percent of the project costs and assess the remaining sixty percent to the benefitting properties. Therefore, the proposed cost to be assessed to the benefitting properties with this project is estimated at \$316,000. The remaining amount, estimated at \$210,720, will be paid from Township funds.

For this project, sixty percent assessment to the benefitting properties would yield an assessment of approximately \$13,740 per unit.

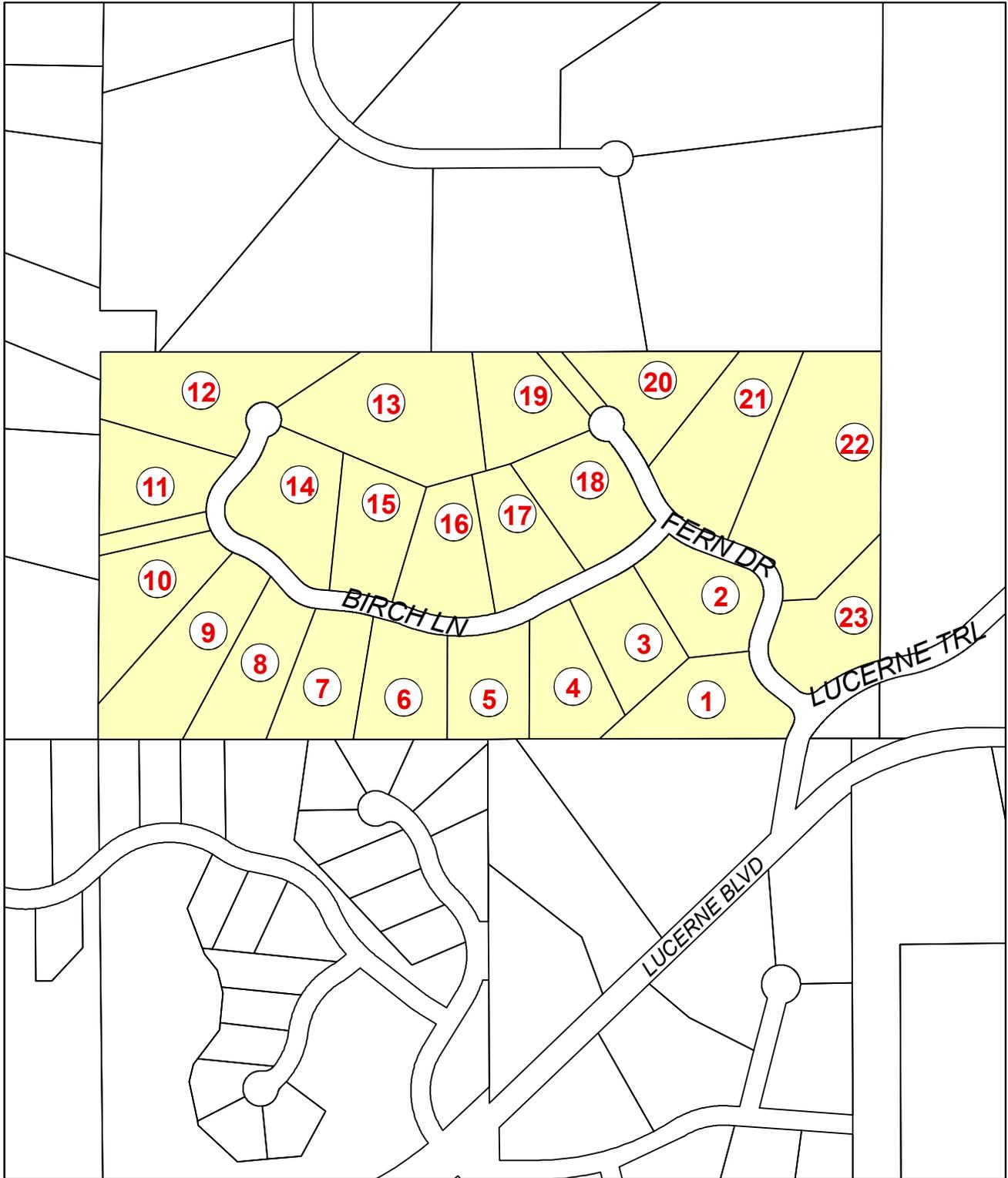
IV. PROJECT SCHEDULE

The schedule of the project will be determined by the Town Board with consideration of resident input. A tentative schedule is as follows:

August 6, 2012	Town Board Calls for Neighborhood Meeting
Fall 2012	Town Board Conducts Neighborhood Meeting
Winter 2012	Town Board Approval of Feasibility Report and Calls for a Public Improvement Hearing. Mail Notice of Public Improvement Hearing.
Winter 2012	Town Board conducts Public Improvement Hearing
Spring 2013	Town Board Orders Plans and Specifications
Fall 2013	Town Board Calls for Conducts Assessment Hearing
January 2014	Town Board Approves Plans and Specifications and Authorizes Advertisement for Bids
February 2014	Advertisement for Bids
April 2014	Bid Opening/ Board Approves Bids and Awards Contract
May 2014	Construction Starts
Fall 2014	Substantial Completion

V. CONCLUSIONS AND RECOMMENDATIONS

We find that this project is necessary, cost effective and feasible from a technical and engineering standpoint, and benefits the properties proposed to be assessed. We would recommend that the Town Board accept this report.



**CREDIT RIVER TOWNSHIP
WOODLYN HILLS
IMPROVEMENT PROJECT
BENEFITING PROPERTIES**

Legend

- Benefiting Property - 23 Total
- 10 Benefiting Property Number

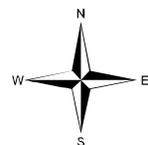
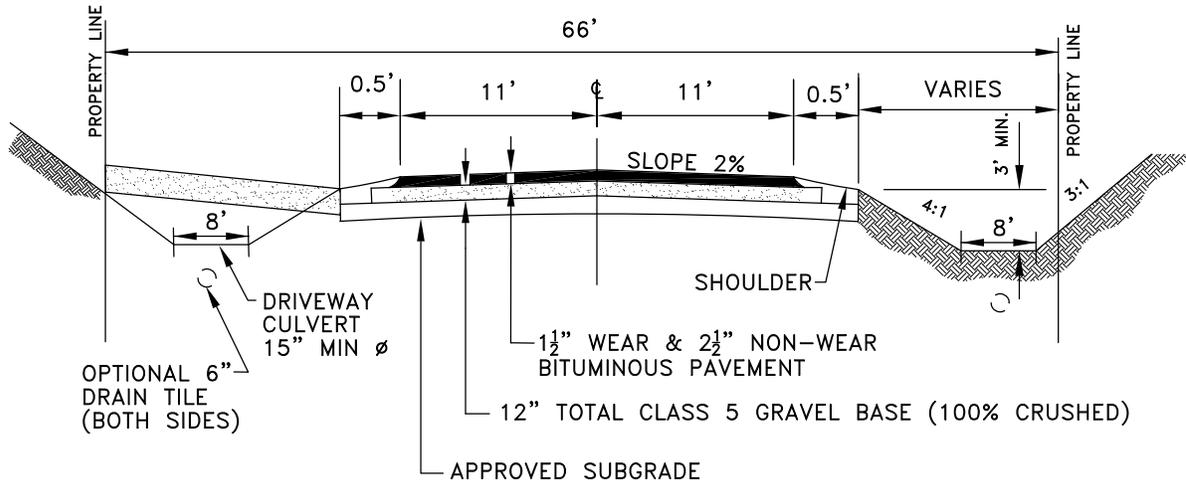


EXHIBIT A



LEGEND					
AASHTO	R VALUE SIGMA N18	BITUMINOUS SURFACE		AGGREGATE BASE	
SUBGRADE SOIL CLASS		WEAR 2350 LVWE45030B	NON-WEAR 2350 LVNW35030B	CLASS 5 OR 6 3138 C*	CLASS 3 OR 4 3138 D*
A-7	(R-10 ≤ 90,000)	1 1/2"	2 1/2"	12"	-

* SUBJECT TO REVIEW BY QUALIFIED SOILS ENGINEER

** MINIMUM ALLOWABLE DESIGN THICKNESS

NOTES: R VALUE IS A MEASURE OF EMBANKMENT SOIL RESISTANCE STRENGTH AS DETERMINED BY THE HVEEM STABILOMETER METHOD

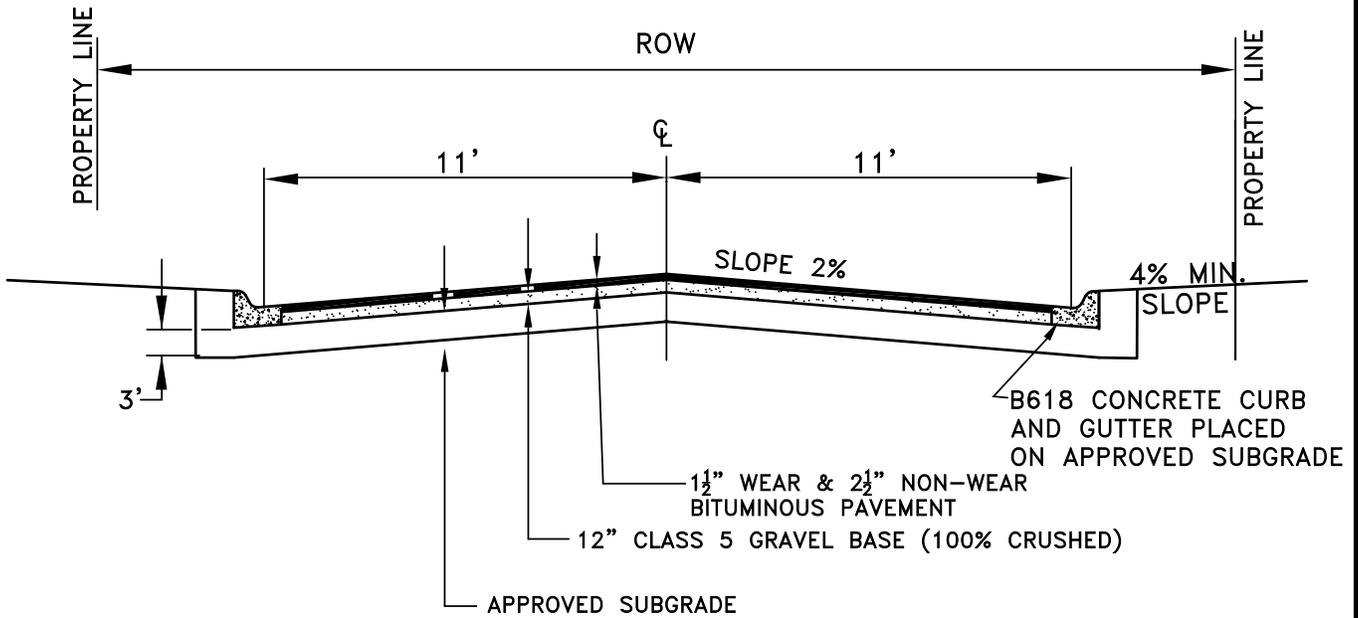
SIGMA N18 VALUE IS THE CUMULATIVE DAMAGE EFFECT OF VEHICLES DURING THE DESIGN LIFE OF A FLEXIBLE PAVEMENT.

CREDIT RIVER TOWNSHIP
BIRCH LANE AND FERN DRIVE
LOCAL RESIDENTIAL RURAL STREET SECTION



Hakanson Anderson Assoc., Inc.
Civil Engineers and Land Surveyors
3601 Thurston Ave., Anoka, Minnesota 55303
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EXHIBIT B



LEGEND					
AASHTO	R VALUE SIGMA N18	BITUMINOUS SURFACE		AGGREGATE BASE	
SUBGRADE SOIL CLASS		WEAR 2350 LVWE45030B	NON-WEAR 2350 LVNW35030B	CLASS 5 OR 6 3138 C*	CLASS 3 OR 4 3138 D*
A-7	(R-10 ≤ 90,000)	1 1/2"	2 1/2"	12"	-

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SIGMA N18 VALUE IS THE CUMULATIVE DAMAGE EFFECT OF VEHICLES DURING THE DESIGN LIFE OF A FLEXIBLE PAVEMENT.

CREDIT RIVER TOWNSHIP
BIRCH LANE AND FERN DRIVE
LOCAL RESIDENTIAL URBAN STREET SECTION



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EXHIBIT C

EXHIBIT D
BIRCH LANE AND FERN DRIVE
RECONSTRUCTION PROJECT
PRELIMINARY ESTIMATE
CREDIT RIVER TOWNSHIP

ITEM NO.	ITEM DESCRIPTION	ESTIMATED QUANTITY		UNIT PRICE	EXTENSION
1	MOBILIZATION (MAX. 3% OF TOTAL BID)	1	L.S.	\$10,000.00	\$10,000.00
2	REMOVE CONCRETE PAVEMENT (DRIVEWAYS)	107	S.Y.	\$18.00	\$1,926.00
3	SAWING CONCRETE PAVEMENT	48	L.F.	\$6.00	\$288.00
4	SAWING BITUMINOUS PAVEMENT	133	L.F.	\$2.50	\$332.50
5	SALVAGE AND REINSTALL STREET & STOP SIGNS	4	EACH	\$50.00	\$200.00
6	SALVAGE AND REINSTALL E911 SIGNS	23	EACH	\$50.00	\$1,150.00
7	SALVAGE AND REINSTALL MAILBOXES	23	EACH	\$50.00	\$1,150.00
8	REMOVE RETAINING WALL	45	LF	\$10.00	\$450.00
9	REMOVE TIMBER RETAINING WALL	30	LF	\$10.00	\$300.00
10	COMMON EXCAVATION (CV)	4500	C.Y.	\$7.00	\$31,500.00
11	SUBGRADE EXCAVATION (CV)	5000	C.Y.	\$8.00	\$40,000.00
12	SUBGRADE PREPARATION	36	RDSTA	\$175.00	\$6,300.00
13	AGGREGATE BASE CLASS 5	4665	TON	\$14.50	\$67,642.50
14	AGGREGATE SHOULDERING	320	TON	\$20.00	\$6,400.00
15	BITUMINOUS PAVEMENT RECLAMATION (P)	10413	S.Y.	\$1.00	\$10,413.00
16	HAUL BITUMINOUS PAVEMENT RECLAMATION IN STOCKPILE (SV)	880	C.Y.	\$2.40	\$2,112.00
17	HAUL BITUMINOUS PAVEMENT RECLAMATION FROM STOCKPILE (SV)	880	C.Y.	\$2.40	\$2,112.00
18	TYPE LV 4 WEARING COURSE MIXTURE (B)	790	TON	\$63.00	\$49,770.00
19	TYPE LV 3 NON WEARING COURSE MIXTURE (B)	1316	TON	\$55.00	\$72,380.00
20	BITUMINOUS DRIVEWAY PAVEMENT 2.5" THICK	300	S.Y.	\$13.00	\$3,900.00
21	BITUMINOUS MATERIAL FOR TACK COAT (0.05 gal/SY)	440	GAL	\$3.00	\$1,320.00
22	CONCRETE FLUME	4	EACH	\$200.00	\$800.00
23	RCP STORM SEWER PIPE	90	LF	\$40.00	\$3,600.00
24	15" CS PIPE CULVERT	280	LF	\$30.00	\$8,400.00
25	15" CS PIPE APRON	28	EACH	\$150.00	\$4,200.00
26	WEEP DRAINS	8	EACH	\$210.00	\$1,680.00
27	DRAINAGE STRUCTURES	1	EACH	\$2,000.00	\$2,000.00
28	6" CONCRETE DRIVEWAY PAVEMENT	107	S.Y.	\$32.00	\$3,424.00
29	CONCRETE CURB AND GUTTER	2250	L.F.	\$12.00	\$27,000.00
30	TRAFFIC CONTROL	1	L.S.	\$2,000.00	\$2,000.00
31	SILT FENCE	4900	LF	\$2.30	\$11,270.00
32	SEEDING	1.65	ACRE	\$4,000.00	\$6,600.00
33	EROSION CONTROL BLANKET CATEGORY 4	1000	S.Y.	\$2.50	\$2,500.00

ESTIMATED CONSTRUCTION COST	<u>\$383,120</u>
CONSTRUCTION CONTINGENCY (10%)	<u>\$38,300</u>
ENGINEERING, LEGAL AND FINANCING (25%)	<u>\$105,300</u>
ESTIMATED PROJECT COST	<u><u>\$526,720</u></u>