

SOUTH VIEW HEIGHTS II

Project Feasibility Report

City Project Number 10257

August 25, 2015



Project Feasibility Report

Project Name
City Project Number 10257
City Of Mankato

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II. CERTIFICATION PAGE

CERTIFICATION

I hereby certify that this report was prepared by me or under my direct supervision and that I am a duly registered professional engineer under the laws of the state of Minnesota.

Jeffrey Johnson, PE
Reg. No. 45826

Date

III. PROJECT CONTACTS

| TITLE | NAME | PHONE | EMAIL |
|------------------------|-----------------------|--------------|---------------------------|
| Mayor | Eric Anderson | 507.386.1750 | eanderson@ mankatomn.gov |
| Councilor at Large | Christopher Frederick | 507.382.7299 | cfrederick@ mankatomn.gov |
| Councilor Ward 1 | Karen Foreman | 507.382.4256 | kforeman@ mankatomn.gov |
| Councilor Ward 2 | Tamra Rovney | 507.388.3326 | trovney@ mankatomn.gov |
| Councilor Ward 3 | Mark Frost | 507.387.3169 | mfrost@ mankatomn.gov |
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| City Manager | Patrick Hentges | 507.387.8695 | phentges@ mankatomn.gov |
| City Engineer | Jeffrey Johnson | 507.387.8640 | jjohnson@ mankatomn.gov |
| Project Engineer | Michael McCarty | 507.387.8643 | mmccarty@ mankatomn.gov |
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| Project Designer | Nick Dylla | 507.387.8652 | ndylla@ mankatomn.gov |
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IV. EXECUTIVE SUMMARY

Southview Heights II Subdivision consists of 59 properties along Capri Drive; Bela Vista Court; Ruth Court; North and South Golf Court; North and South Pilot Court; Glenn Court; and one additional property on Stoltzman Road. In the beginning of 2013, the Subdivision Board approached the City of Mankato to examine the possibility of petitioning for annexation and receiving city municipal sanitary sewer and water. A petition was presented to the City Council at the March 2, 2015 meeting. The City Council declared the petition adequate and referred the project to the City Engineer for preparation of this feasibility report.

The proposed improvements include removal and replacement of the existing pavement section along with installing new domestic water and sanitary sewer mains; sewer and water services to each and every lot. The per lot cost for this option is estimated to cost \$29,297.81.

The condition of the roads in the subdivision range from poor to good condition. A majority of the excess storm water utilizes natural drainage ways to the surrounding ravines. Improvements and repairs are necessary for the aging water system. Currently, ISTS's are utilized by all properties in the subdivision and according to the Blue Earth County Environmental Services, as of November 2013 58% of these systems are noncompliant and failing.

From an engineering standpoint, the proposed improvements are necessary, cost effective, and feasible. This can best be accomplished by letting competitive bids for the work. It is recommended that the council accept this project feasibility report and schedule a preliminary assessment hearing for the proposed improvements.

V. PROJECT INTRODUCTION

In the beginning of 2013, the City of Mankato was approached by the Subdivision Board to evaluate petitioning for annexation; reconstructing the road; and receiving municipal sewer and water. This option was to be compared to adding select curb and gutter, catch basins, and storm pipe to improve drainage in the subdivision in addition to option one. The specific objectives of this preliminary engineering report are to:

- Evaluate the need for this project based on the two options.
- Determine the necessary improvements for each of the options.
- Provide information on the estimated costs for each of the options.
- Determine the project schedule.
- Determine the feasibility of each option.

This project, as proposed, will include 3192-feet of Capri Drive; 535-feet of Bela Vista Court; 157-feet of Ruth Court; 476-feet of North and South Golf Court; 649-feet of North and South Pilot Court; and 272-feet of Glenn Court. Specific items that will be included in the project are as follows:

Proposed Improvements

- Remove the existing bituminous pavement and aggregate base.
- Reconstruct the watermain.
- Install sanitary sewer main.
- Install sanitary sewer and water services into each lot.
- Re-grade and install aggregate base.
- Install new bituminous pavement.

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VI. EXISTING CONDITIONS

A. STREET

The subdivision includes Capri Drive; Bela Vista Court; Ruth Court; North and South Golf Court; North and South Pilot Court; and Glenn Court. The average width for the roads in the subdivision are currently 22-feet. Maintenance by Mankato Township personnel occurs on the roadways within the subdivision every other year. Capri Drive is in fair condition with an average pavement rating of 47 out of 100 possible points, utilizing the city's current pavement rating system developed by the Army Corps of Engineers. The cul-de-sacs, excluding North Golf Court, are in good condition with an average pavement rating of 69 out of 100 points; however, with a pavement rating of 36 out of 100 points, North Golf Court is in poor condition. A value of 40 or below is generally a poor pavement and an excellent candidate for reconstruction with planning for capital improvements beginning when ratings are around a value of 65.

The current street section in the subdivision is estimated to consist of 6-inches of bituminous pavement and 12-inches of aggregate base. According to the Natural Resource Conservation Service (NRCS), the soils in this area of the city are expected to be silty clay see (Figure 1). The existing street layout and conditions can be seen in Figures 2 and 3 of the Appendix.

B. STORM SEWER

The storm sewer system in the subdivision consists entirely of culverts and ditches. There is minimal subsurface drain, a lack of a modern storm sewer system, and a majority of stormwater naturally drains to the surrounding ravines.

C. SANITARY SEWER

There is no existing sanitary sewer system for this area and each home is individually serviced by an Individual Sewer Treatment System (ISTS). Forty-two percent of the ISTS on record with Blue Earth County Environmental Services are compliant with the balance of the ISTS systems being deemed noncompliant and failing under current state law. Compliance certificates generally expire after 3 years. While each property is different, the mound system is the only type of ISTS that meets the county's current requirements; since most areas can no longer use subgrade drain fields due to rules regarding separation between the seasonal high ground water levels and the ISTS. Included with this report is a map showing the individual properties and the areas where, by current rule, a new mound could be theoretically installed (Figures 4-6). It is expected that within five years all of the ISTS will be noncompliant without an inspection by a licensed installer.

D. WATERMAIN

The existing watermain system in the subdivision was constructed approximately 60 years ago and is in fair to poor condition. Services to each home were likely installed around the same time and therefore assumed to be in the same condition as the main. An 8-inch cast iron main runs in the boulevard of Capri Drive with 2-inch services to each of the cul-de-sacs. There is approximately 5820-feet of watermain in the subdivision, with five fire hydrants along Capri Drive. The community well is 8 to 10 years old but according to the maintenance supervisor the equipment utilized in running the water distribution system is the same age as the system and in need of replacement.

E. OTHER UTILITIES

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Other non-municipal-owned utilities may be present in the right-of-way. These include natural gas, electric, and telecommunications. The condition of these utilities is unknown and their replacement is beyond the scope of this report.

VII. PROPOSED IMPROVEMENTS

The proposed improvements for this project include municipal sewer and water as well as a new road. The proposed improvements will include:

- Reconstruction of the road matching the existing geometry and an appropriate pavement section.
- Installation of municipal sanitary sewer mains.
- Reconstruction of the in place watermain
- Installation of sewer and water end services to each and every lot.

A. STREET

The existing bituminous pavement and aggregate base on Capri Drive; Bela Vista Court; Ruth Court; North and South Golf Court; North and South Pilot Court; and Glenn Court will be reclaimed and/or removed. The proposed street improvements will be designed to match the existing widths and geometry with a proposed road section including for 4-inches of bituminous, 8-inches of class 5 aggregate base, and 6-inches of class 3 aggregate base on top of geotextile fabric. Replacement of the driveway aprons is also proposed as part of these improvements.

Any temporary damages that occur to the boulevard during construction will be repaired after the project with sod in all of the disturbed areas. Trees, bushes, and other vegetation located in the construction zone will be protected where possible; however, some trees and bushes may need to be removed as part of construction due to direct conflict with the proposed utilities or due to unavoidable root damage.

B. STORM SEWER

All driveway and crossing culverts will be removed and replaced as necessary to maintain proper drainage along the roadway. Select grading and additional culverts may be installed to ensure proper drainage.

C. SANITARY SEWER

The proposed improvements include installing approximately 5161-feet of 8-inch PVC sanitary sewer main down the centerline of Capri Drive; Bela Vista Court; Ruth Court; North and South Golf Court; North and South Pilot Court; and Glenn Court. In order to connect the new sanitary sewer main to city sanitary sewer on the east side of Stoltzman Road an 8-inch HDPE pipe will be bored underneath Stoltzman Road. Services to each lot will be extended using 4-inch PVC from the main to the right of way. Removal of the in place ISTS and connection of new sanitary sewer service from the right of way to the home will be the property owner's responsibility. The cost to connect from the home to the right-of-way can range from \$5000 to \$12,000. Due to each situation being unique, costs for this were not incorporated into the report. It is recommended that a licensed plumber be contacted to better assess the options and costs for this connection. Installation of 18 sanitary sewer manholes are also proposed as a part of this project. Gravity sewer will be extended to all homes.

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D. WATERMAIN

The current watermain that runs along Capri Drive is proposed to be removed. The portion of the watermain that runs behind 322 Capri Drive, 318 Capri Drive, and 312 Capri Drive to the well will be abandoned and sand filled. Installation of approximately 4749-feet of 8-inch PVC watermain is proposed to run down Capri Drive; Bela Vista Court; North and South Golf Court; and North and South Pilot Court and approximately 248-feet of 6-inch PVC watermain will service Glenn Court and Ruth Court. In order to connect to the city's water distribution system on the east side of Stoltzman Road, a 24-inch steel casing will be installed with jack and bore methods under Stoltzman Road. New 1-inch plastic services will replace the existing services from the main to the right-of-way to each property and terminate with a connection to the existing service at that point. Nine fire hydrants are proposed to be installed to meet National Fire Protection Association (NFPA) fire codes.

E. OTHER UTILITIES

The design of the proposed improvements will be coordinated with the owners of private utilities such as natural gas, electric, telephone, and cable television. A design coordination meeting will be held with all private utility companies to identify those utilities that are in conflict with the proposed improvements. Private utility companies will be requested to submit proposed designs and construction schedules for any relocation. The construction schedule for the proposed improvements will be coordinated with the utility relocation schedule to avoid unnecessary delays.

VIII. RIGHT-OF-WAY AND EASEMENT

Capri Drive; Bela Vista Court; Ruth Court; North and South Golf Court; and North and South Pilot Court; and Glenn Court have an existing right-of-way of 50-feet and no permanent additional right-of-way or easement acquisitions are anticipated to complete the project.

Temporary construction easements maybe required to accommodate the installation of the sanitary sewer and access for the neighborhood residents. The sanitary sewer along Capri Drive from Golf Court to Stoltzman Road is 18 to 22 feet in depth. This depth of sewer will have a greater impact on installation and access than standard 12 to 14 feet deep sanitary sewer. Staff will outline construction practices that will minimize the overall trench width in the contract documents, however access may still be impeded. To better accommodate access the Contractor will be required to provide each household an electric golf cart.

To provide temporary off street parking for the golf carts and select vehicles a temporary parking lot will be created at Southview Park. This parking area will be the location of the charging station for the golf carts. Preliminary design allows for approximately 30 parking stalls. Once final design is performed on the area the number of parking stalls may increase.

IX. APPROVALS/PERMITS

Approvals and permits are required from various agencies for the construction of the project. They include:

- MDH – Watermain
- MPCA– Construction Storm Water
- MPCA – Sanitary Sewer Extension
- Blue Earth County - Right-of-way

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X. PROJECT COST ESTIMATE AND FINANCING

Estimated projections for the cost of this project are summarized below. A detailed cost estimate is included at the end of the report.

| COST ESTIMATE | |
|---------------------------|-----------------------|
| ITEM | COST |
| Street | \$964,317.77 |
| Storm Water | \$68,193.01 |
| Watermain | \$383,172.05 |
| Sanitary Sewer | \$464,596.48 |
| Lift Station Costs | \$202,352.00 |
| Construction Contingency | \$208,263.13 |
| TOTAL CONSTRUCTION | \$2,290,894.43 |
| Admin/bonding | \$137,453.67 |
| Engineering | \$229,089.44 |
| TOTAL PROJECT COST | \$2,657,437.54 |

Funding for the proposed improvements is shown in the table below.

| COST PER LOT | |
|--------------------------------------|--------------------|
| Street | \$16,071.96.97 |
| Storm Water | \$1,136.55 |
| Water | \$6,386.20 |
| Sanitary sewer | \$7,743.27 |
| Stony Creek lift station | \$3,372.53 |
| Admin/bonding | \$2,290.89 |
| Engineering | \$3,818.16 |
| COST PER LOT | \$44,290.63 |
| PSIG Funding | (\$11,659.48) |
| G.O. Bonding | (\$3,333.33) |
| PRELIMINARY ASSESSMENT AMOUNT | \$29,297.81 |

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XI. POSSIBLE SCHEDULE

A petition was presented to the City Council at the March 2, 2015 meeting. The City Council declared the petition adequate and referred the project to the City Engineer for preparation of a feasibility report. The drafting and presentation of this report to the neighborhood starts the project process in accordance to Minnesota State Statue 429. The schedule for the remainder of the project will be as follow:

| | |
|---------------|------------------------------------|
| 08/25/2015 | Information meeting |
| 11/24/2015 | Resolution set date for hearing |
| 12/08/2015 | Project Feasibility Hearing |
| 01/11/2016 | Preliminary Assessment Hearing |
| 02/08/2016 | Advertise for Bids |
| 03/11/2016 | Open Bids |
| 03/21/2016 | Award Bid; Petition for annexation |
| 04/18/2016 | Begin construction |
| 10/07/2016 | Final completion |
| Summer 2017 | Final surfacing |
| November 2017 | Adopt Final Assessments |
| January 2018 | Repayment of assessment begins. |

XII. CONCLUSION AND RECOMMENDATIONS

The existing conditions of Southview Heights II are unfavorable with only further deteriorations to come. If these road and utility extension improvements are not made, maintenance costs will continue to be an issue and failure of the road and or sewer and water systems will occur. From an engineering standpoint, this project is cost effective, necessary, and feasible. The best way to accomplish this project is by letting competitive bids for the work. Feasibility is contingent upon City Council findings with respect to project financing.

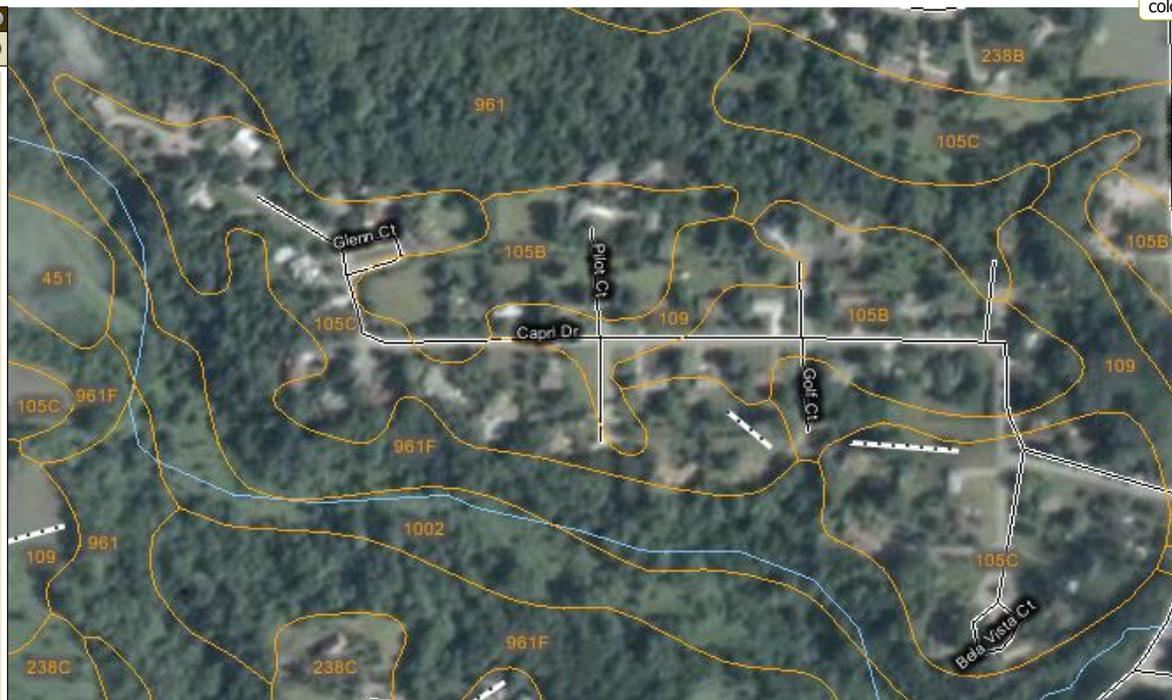
We recommend the Council accept this project feasibility report, set a date for the preliminary assessment hearing, order the City Engineer to prepare final plans and specifications and instruct the City Manager to advertise for bids in accordance with the requirement of law.

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XIII. APPENDIX A. Soils Map

| Map Unit Legend | | | |
|--------------------------------------|--|--------------|----------------|
| Blue Earth County, Minnesota (MN013) | | | |
| Map Unit Symbol | Map Unit Name | Acres in AOI | Percent of AOI |
| 105B | Kamrar silty clay, 2 to 6 percent slopes | 14.0 | 11.6% |
| 105C | Kamrar silty clay, 6 to 12 percent slopes | 28.1 | 23.3% |
| 105D | Kamrar silty clay, 12 to 18 percent slopes | 1.8 | 1.5% |
| 109 | Cordova clay loam | 9.0 | 7.5% |
| 238B | Kilkenny clay loam, 2 to 6 percent slopes | 4.8 | 4.0% |
| 238C | Kilkenny clay loam, 6 to 12 percent slopes | 3.2 | 2.7% |
| 451 | Dorchester loam, 1 to 3 percent slopes | 1.7 | 1.4% |
| 961 | Storden complex, very steep | 20.4 | 16.9% |
| 961F | Storden complex, 24 to 45 percent slopes | 27.9 | 23.2% |
| 1002 | Alluvial land, frequently flooded | 9.7 | 8.0% |
| Totals for Area of Interest | | 120.6 | 100.0% |



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D. ENGINEERS ESTIMATE

| CONTRACT ITEM | UNIT | EST QTY | BID UNIT PRICE | BID PRICE |
|--|------|----------|----------------|--------------|
| MOBILIZATION | LS | 1.00 | \$89,919.27 | \$89,919.27 |
| CLEARING (6" TO 18") | TREE | 2.00 | \$292.64 | \$585.27 |
| CLEARING (18" TO 30") | TREE | 2.00 | \$519.51 | \$1,039.02 |
| CLEARING (GREATER THAN 30") | TREE | 2.00 | \$561.98 | \$1,123.96 |
| GRUBBING (6" TO 18") | TREE | 2.00 | \$204.49 | \$408.98 |
| GRUBBING (18" TO 30") | TREE | 2.00 | \$174.35 | \$348.71 |
| GRUBBING (GREATER THAN 30") | TREE | 2.00 | \$481.41 | \$962.83 |
| REMOVE CURB AND GUTTER | LF | 235.00 | \$3.94 | \$925.31 |
| REMOVE WATER MAIN | LF | 5807.00 | \$4.61 | \$26,767.37 |
| REMOVE BITUMINOUS DRIVEWAY PAVEMENT | SY | 792.00 | \$4.63 | \$3,667.36 |
| REMOVE CONCRETE DRIVEWAY PAVEMENT | SY | 237.00 | \$7.36 | \$1,744.44 |
| REMOVE GATE VALVE & BOX | EA | 5.00 | \$220.57 | \$1,102.87 |
| REMOVE HYDRANT | EA | 5.00 | \$310.89 | \$1,554.47 |
| SAWING CONCRETE PAVEMENT | LF | 426.50 | \$4.99 | \$2,127.17 |
| SAWCUT BITUMINOUS PAVEMENT | LF | 1349.00 | \$3.58 | \$4,830.09 |
| COMMON EXCAVATION (P)(EV) | CY | 7287.00 | \$10.57 | \$77,049.09 |
| STABILIZING AGGREGATE 0"-4" (CV) | CY | 100.00 | \$36.27 | \$3,626.70 |
| GEOTEXTILE FABRIC TYPE V | SY | 14572.00 | \$1.42 | \$20,655.81 |
| COMMON LABORERS | HR | 10.00 | \$57.75 | \$577.50 |
| DOZER | HR | 10.00 | \$108.78 | \$1,087.80 |
| TAMPING ROLLER | HR | 10.00 | \$92.05 | \$920.54 |
| CRAWLER MOUNTED BACKHOE | HR | 10.00 | \$135.85 | \$1,358.49 |
| SKID LOADER | HR | 10.00 | \$92.05 | \$920.54 |
| STREET SWEEPER (WITH PICKUP BROOM) | HR | 10.00 | \$105.63 | \$1,056.30 |
| AGGREGATE BASE (CV) (P), CLASS 3 | CY | 2429.00 | \$21.32 | \$51,774.14 |
| AGGREGATE BASE (CV) (P), CLASS 5 | CY | 3239.00 | \$24.14 | \$78,187.84 |
| BITUMINOUS PATCH SPECIAL | SY | 812.00 | \$40.16 | \$32,611.95 |
| TYPE SP 12.5 WEAR CRS MIX (3,C) 1.5" THICK | SY | 14572.00 | \$10.68 | \$155,607.10 |
| TYPE SP 19.0 NON WEAR CRS MIX (3,B) 2.5" THICK | SY | 14572.00 | \$10.09 | \$147,038.77 |
| 8" PVC PIPE SEWER, SDR-26 | LF | 1188.00 | \$68.74 | \$81,667.28 |
| 8" PVC PIPE SEWER, SDR 35 | LF | 3973.00 | \$39.78 | \$158,063.82 |
| 12" RC PIPE SEWER DESIGN 3006 CLASS V | LF | 1286.00 | \$42.38 | \$54,498.11 |
| 8" X 4" PVC WYE, HEAVEY WALL | EA | 61.00 | \$230.15 | \$14,039.12 |
| 4" PVC SANITARY SERVICE PIPE, SDR 26 | LF | 1586.00 | \$32.38 | \$51,357.85 |
| 24" STEEL CASING PIPE (JACKED) | LF | 130.00 | \$357.97 | \$46,535.58 |
| TEMPORARY WATER SERVICE | LS | 1.00 | \$26,250.00 | \$26,250.00 |
| CONNECT TO EXISTING WATER MAIN | EA | 1.00 | \$1,714.04 | \$1,714.04 |
| 6" GATE VALVE AND BOX | EA | 11.00 | \$1,452.01 | \$15,972.15 |
| 8" GATE VALVE AND BOX | EA | 10.00 | \$1,833.52 | \$18,335.21 |

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| | | | | |
|---|------|----------|--------------|-----------------------|
| HYDRANT | EA | 9.00 | \$3,836.52 | \$34,528.69 |
| 1" CORPORATION STOP | EA | 61.00 | \$245.11 | \$14,951.83 |
| 1" CURB STOP & BOX | EA | 61.00 | \$268.66 | \$16,388.47 |
| 1" WATER SERVICE | LF | 1586.00 | \$17.88 | \$28,360.06 |
| 6" PVC WATERMAIN | LF | 374.00 | \$49.98 | \$18,692.52 |
| 8" PVC WATERMAIN | LF | 4749.00 | \$32.68 | \$155,178.32 |
| WATERMAIN FITTINGS | LBS | 2735.00 | \$8.55 | \$23,376.05 |
| CONST DRAINAGE STRUCTURE DESIGN 4007 | LF | 256.00 | \$293.30 | \$75,083.90 |
| CONSTRUCT DRAINAGE STRUCTURE DESIGN 48-4020 | LF | 22.00 | \$324.07 | \$7,129.58 |
| CASTING ASSEMBLY, MnDOT 7007 RING w/716 COVER | EA | 18.00 | \$649.60 | \$11,692.86 |
| CASTING ASSEMBLY, MnDOT 700-7 w/715 COVER | EA | 4.00 | \$641.22 | \$2,564.90 |
| CASTING ASSEMBLY, NEENAH R3067 W/V GRATE | EA | 4.00 | \$842.63 | \$3,370.50 |
| INTERIOR CHIMNEY SEAL | EA | 18.00 | \$367.52 | \$6,615.38 |
| MANHOLE INSERTS | EA | 18.00 | \$143.66 | \$2,585.90 |
| CONSTRUCT 8" OUTSIDE DROP | LF | 43.10 | \$393.38 | \$16,954.79 |
| CONCRETE CURB & GUTTER DESIGN B618 | LF | 235.00 | \$17.26 | \$4,056.57 |
| 6" CONCRETE DRIVEWAY PAVEMENT | SY | 237.00 | \$52.37 | \$12,412.64 |
| TRAFFIC CONTROL | LS | 1.00 | \$78,750.00 | \$78,750.00 |
| DECIDUOUS TREE 2" CAL B&B - BICOLOR OAK | TREE | 10.00 | \$285.81 | \$2,858.10 |
| TREE INSTALLATION - MACHINE | EA | 8.00 | \$128.74 | \$1,029.92 |
| TREE INSTALLATION - HAND LABOR | EA | 2.00 | \$218.75 | \$437.49 |
| PRUNE TREES | HR | 10.00 | \$158.31 | \$1,583.09 |
| STORM DRAIN INLET PROTECTION | EA | 4.00 | \$157.48 | \$629.92 |
| STABILIZED CONSTRUCTION EXIT | EA | 1.00 | \$1,299.95 | \$1,299.95 |
| PERIMETER PROTECTION | LF | 100.00 | \$3.18 | \$318.15 |
| COMMON TOPSOIL BORROW (LV) | CY | 100.00 | \$20.50 | \$2,049.60 |
| SODDING TYPE SALT TOLERANT | SY | 29339.00 | \$6.05 | \$177,442.27 |
| RAPID STABILIZATION METHOD 3 | MGAL | 3.00 | \$641.68 | \$1,925.03 |
| | | | Total | \$1,880,279.30 |