Our vision of Coeur d'Alene is of a beautiful safe city that promotes a high quality of life and sound economy through excellence in government

PUBLIC WORKS COMMITTEE

with

Council Members Miller, McEvers & Gookin

May 12, 2014, 4:00 p.m.

AGENDA

Item 1	Amending the Trails Master Plan for the Aspen Trails Subdivision – Monte McCully
Item 2	Approval of Consultant Services Contract with Welch Comer for Drainage Utility Projects – Gordon Dobler
Item 3	Request for Acceptance and Adoption of 2013 Wastewater Collection System Master Plan Update Appendix J – Addendum #1: Mill River Lift Station Assessment at Increased Densities and the Mill River Lift Station Surcharge Fee – Mike Becker

Library Community Room
702 Front Street

The City of Coeur d'Alene will make reasonable accommodations for anyone attending this meeting who requires special assistance for hearing, physical or other impairments. Please contact Amy Ferguson, Public Works Committee Liaison, at (208) 666-5754 at least 24 hours in advance of the meeting date and time.

PUBLIC WORKS COMMITTEE
STAFF REPORT

DATE: May 12th, 2014

FROM: Monte McCully, Trails Coordinator

SUBJECT: Amending the Trails Master Plan for the Aspen Trails Subdivision

---

DECISION POINT:
The Parks Department Recommends that Public Works sends to Council approval for amending the Trails and Bikeways Master Plan to reflect the approved trail plan for the Aspen Trails Subdivision.

HISTORY:
The Trails and Bikeways Masterplan adopted the original trails plan for this subdivision prior to 2010. Development slowed down and nothing was built for several years. When the developer came forward to begin development again they changed the layout of the roads and trail system. The new design has been through staff and Design Review and has been approved.

FINANCIAL ANALYSIS:
There will be minimal costs to the City involved in this update. Just the cost of staff time to add the wording to the update of the master plan that is currently underway.

PERFORMANCE ANALYSIS:
Amending the Trails Plan to reflect actual changes is required and necessary so there is no precedent set for deviation to the trails plan.

DECISION POINT/RECOMMENDATION:
The Parks Department Recommends that Public Works sends to Council approval for amending the Trails and Bikeways Master Plan to reflect the approved trail plan for the Aspen Trails Subdivision.

PUBLIC WORKS COMMITTEE
STAFF REPORT

DATE: May 12, 2014
FROM: Gordon Dobler, Engineering Services Director
SUBJECT: Agreement for Professional Services with Welch Comer, Inc.

DECISION POINT

Staff is requesting approval of a contract with Welch Comer to perform consulting services for the Drainage Utility.

HISTORY

The Drainage utility has a variety of collection replacement projects budgeted for this fiscal year and needs to engage a consultant in order to complete them. Staff has completed the RFQ process and selected Welch Comer. We have negotiated a contract with them and we are requesting council approval.

FINANCIAL ANALYSIS

The cost for consultant services is included in the current budget. The contract has a not to exceed amount of $120,000.

PERFORMANCE ANALYSIS

The proposed contract will allow staff to use Welch Comer to perform a variety of services for the Drainage Utility. The scope and budget for individual tasks will be negotiated on a case by case basis, within the not-to-exceed amount. The initial term of the contract is for one year, with an option for up to two more annual renewals.

RECOMMENDATION

Staff recommends Council approve the contract with Welch Comer.

D R A F T

PROFESSIONAL SERVICES AGREEMENT
Between
CITY OF COEUR D'ALENE
And
Welch Comer Associates, Inc.
For
Drainage Utility Stormwater System Capital Improvement Projects

THIS Agreement, made and entered into this _____ day of ___May_____, 2014, between the CITY OF COEUR D'ALENE, Kootenai County, Idaho, a municipal corporation organized and existing under the laws of the state of Idaho, hereinafter referred to as the "City," and **Welch Comer Associates, Inc**., an ____ corporation, with its principal place of business at **350. E Kathleen Avenue, Coeur d'Alene, Idaho**, hereinafter referred to as the "Consultant,"

W I T N E S S E T H:

Section 1. Definition. In this agreement:

A. The term "City" means the city of Coeur d'Alene, 710 Mullan Avenue, Coeur d'Alene, Idaho 83814.

B. The term "Consultant" means Welch Comer Associates, Inc.

C. The term "Mayor" means the mayor of the city of Coeur d'Alene or his authorized representative.

Section 2. Employment of Consultant. The City hereby agrees to engage the Consultant and the Consultant hereby agrees to perform the services hereinafter set forth.

Section 3. Scope of Services.

A. The Consultant shall perform the services described in the Scope of Services attached hereto and incorporated herein by reference as Exhibit "A".

B. Area Covered: The Consultant shall perform all the necessary services provided under this Agreement respecting the tasks set forth in the Scope of Services.

Section 4. Personnel.

A. The Consultant represents that it has or will secure at its own expense all personnel required to perform its services under this Agreement. Such personnel shall not be employees of or have any contractual relationship with the City.

B. All of the services required hereunder will be performed by the Consultant or under his direct supervision, and all personnel engaged in the work shall be fully qualified and shall be authorized under state and local law to perform such services.

C. The Consultant agrees to maintain Workmen's Compensation coverage on all employees, including employees of subcontractors, during the term of this Agreement as required by Idaho Code Section 72-101 through 72-806. Should the Consultant fail to maintain such insurance during the entire term hereof, the Consultant shall indemnify the City against any loss resulting to the City from such failure, either by way of compensation or additional premium liability. The Consultant shall furnish to the City, prior to commencement of the work, such evidence as the City may require guaranteeing contributions which will come due under the Employment Security Law including, at the option of the City, a surety bond in an amount sufficient to make such payments.

Section 5. Time of Performance/Agreement. This agreement shall take effect upon execution of both parties and shall remain in effect for a period of one (1) year from that date. This agreement may be extended for two (2) additional periods of one (1) year each, only by the mutual written agreement of the parties. The time of performance for individual tasks shall be identified in the task order.

Section 6. Compensation.

A. Subject to the provisions of this Agreement, the Consultant agrees to accept as full compensation for all services rendered to the satisfaction to the City for completion of the work, the fee based on time and materials per the attached fee schedule (Exhibit "B"), not to exceed the amount of sixty thousand ($60,000) dollars. The fee schedule may be adjusted periodically during the life of the agreement by mutual written consent of both parties.

B. Except as otherwise provided in this Agreement, the City shall not provide any additional compensation, payment, use of facilities, service or other thing of value to the Consultant in connection with performance of agreement duties. The parties understand and agree that, except as otherwise provided in this Section, administrative overhead and other indirect or direct costs the Consultant may incur in the performance of its obligations under this Agreement have already been included in computation of the Consultant's fee and may not be charged to the City.

Section 7. Method and Time of Payment. The City will pay to the Consultant the amount set forth in Section 6 which shall constitute the full and complete compensation for the Consultant's professional services. That sum will be paid within thirty (30) days after receipt of a billing submitted to the City. Such billings shall reflect the total work performed and approved, to date.

Section 8. Termination of Agreement for Cause. If, through any cause, the Consultant shall fail to fulfill in a timely and proper manner his obligations under this Agreement, or if the Consultant shall violate any of the covenants, agreements, or stipulations of this Agreement,

the City shall thereupon have the right to terminate this Agreement by giving written notice to the Consultant of such termination and specifying the effective date thereof, at least five (5) days before the effective date of such termination. In that event, all finished or unfinished documents, data, studies, surveys, and reports or other material prepared by the Consultant under this agreement shall at the option of the City become its property, and the Consultant shall be entitled to receive just and equitable compensation for any satisfactory work completed on such documents and materials. Equitable compensation shall not exceed the amount reasonably billed for work actually done and expenses reasonably incurred.

Section 9. Termination for Convenience of City. The City may terminate this Agreement at any time by giving thirty (30) days written notice to the Consultant of such termination and specifying the effective date of such termination. In that event, all finished or unfinished documents and other materials as described in Section 8 above shall, at the option of the City, become its property.

Section 10. Modifications. The City may, from time to time, require modifications in the scope of services of the Consultant to be performed under this Agreement. The type and extent of such services cannot be determined at this time; however, the Consultant agrees to do such work as ordered in writing by the City, and the City agrees to compensate the Consultant for such work accomplished by written amendment to this Agreement.

Section 11. Equal Employment Opportunity.

A. The Consultant will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The Consultant shall take affirmative action to ensure that applicants are employed and that employees are treated during employment without regard to their race, color, religion, sex, or national origin. Such actions shall include, but not be limited to the following: employment, upgrading, demotions, or transfers; recruitment or recruitment advertising; layoffs or terminations; rates of pay or other forms of compensation; selection for training, including apprenticeship; and participation in recreational and educational activities. The Consultant agrees to post in conspicuous places available for employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause. The Consultant will, in all solicitations or advertisements for employees placed by or on behalf of the Consultant, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin. The Consultant will cause the foregoing provisions to be inserted in all subcontracts for any work covered by this agreement so that such provisions will be binding upon each sub consultant, provided that the foregoing provisions shall not apply to contracts or subcontracts for standard commercial supplies or raw materials.

B. The Consultant shall keep such records and submit such reports concerning the racial and ethnic origin of applicants for employment and employees as the City may require.

Section 12. Interest of Members of City and Others. No officer, member, or employee of the City and no member of its governing body, and no other public official of the governing body shall participate in any decision relating to this Agreement which affects his personal interest or the interest of any corporation, partnership, or association in which he is, directly or indirectly, interested or has any personal or pecuniary interest, direct or indirect, in this Agreement or the proceeds thereof.

Section 13. Assignability.

A. The Consultant shall not assign any interest in this Agreement and shall not transfer any interest in the same (whether by assignment or novation) without the prior written consent of the City thereto. Provided, however, that claims for money due or to become due to the Consultant from the City under this Agreement may be assigned to a bank, trust company, or other financial institution without such approval. Notice of any such assignment or transfer shall be furnished promptly to the City.

B. The Consultant shall not delegate duties or otherwise subcontract work or services under this Agreement without the prior written approval of the City.

Section 14. Interest of Consultant. The Consultant covenants that he presently has no interest and shall not acquire any interest, direct or indirect, which would conflict in any manner or degree with the performance of services required to be performed under this Agreement. The Consultant further covenants that in the performance of this Agreement, no person having any such interest shall be employed.

Section 15. Findings Confidential. Any reports, information, data, etc., given to or prepared or assembled by the Consultant under this Agreement which the City requests to be kept confidential shall not be made available to any individual or organization by the Consultant without the prior written approval of the City.

Section 16. Publication, Reproduction and Use of Materials. No material produced, in whole or in part, under this Agreement shall be subject to copyright in the United States or in any other country. The City shall have unrestricted authority to publish, disclose, distribute and otherwise use, in whole or in part, any reports, data or other materials prepared under this Agreement.

Section 17. Audits and Inspection. This Agreement anticipates an audit by the city of Coeur d'Alene, and infrequent or occasional review of Consultant's documents by City staff. During normal business hours, there shall be made available for examination all of the Consultant's records with respect to all matters covered by this Agreement and will permit representatives of the City to examine, and make excerpts or transcripts from such records, and to make audits of all contracts, invoiced materials, payrolls, records, or personnel conditions of employment, and other data relating to all matters covered by this Agreement.

Section 18. Jurisdiction; Choice of Law. Any civil action arising from this Agreement shall be brought in the District Court for the First Judicial District of the State of Idaho at Coeur d'Alene, Kootenai County, Idaho. The law of the state of Idaho shall govern the rights and obligations of the parties.

Section 19. Non-Waiver. The failure of the City at any time to enforce a provision of this Agreement shall in no way constitute a waiver of the provisions, nor in any way affect the validity of this Agreement or any part thereof, or the right of the City thereafter to enforce each and every protection hereof.

Section 20. Permits, Laws and Taxes. The Consultant shall acquire and maintain in good standing all permits, licenses and other documents necessary to its performance under this Agreement. All actions taken by the Consultant under this Agreement shall comply with all applicable statutes, ordinances, rules, and regulations. The Consultant shall pay all taxes pertaining to its performance under this Agreement.

Section 21. Relationship of the Parties. The Consultant shall perform its obligations hereunder as an independent contractor of the City. The City may administer this Agreement and monitor the Consultant's compliance with this Agreement but shall not supervise or otherwise direct the Consultant except to provide recommendations and to provide approvals pursuant to this Agreement.

Section 22. Integration. This instrument and all appendices and amendments hereto embody the entire agreement of the parties. There are no promises, terms, conditions, or obligations other than those contained herein; and this Agreement shall supersede all previous communications, representations or agreements, either oral or written, between the parties.

Section 23. City Held Harmless.

A. The Consultant shall save, hold harmless, indemnify, and defend the City, its officers, agents and employees from any liability arising out of the acts, errors, omissions, or negligence, including costs and expenses, for or on account of any and all legal actions or claims of any character resulting from injuries or damages sustained by any person or persons or property arising from Consultant's performance of this Agreement in any way whatsoever.

B. The Consultant shall save, hold harmless, and indemnify the City, its officers, agents, and employees from and against any and all damages or liability arising out of the Consultant's professional acts, errors, and omissions, including costs and expenses for or on account of any and all legal actions claims of any character resulting from injuries or damages sustained by persons or property arising from Consultant's professional performance of this Agreement.

Section 24. Notification. Any notice under this Agreement may be served upon the Consultant or the City by mail at the address provided in Section 1 hereof.

Section 25. Special Conditions. Standard of Performance and Insurance.

A. Consultant shall maintain general liability insurance naming the City, its entities, and its representatives as additional insured's in the amount of at least $500,000.00 for property damage or personal injury, death or loss as a result of any one occurrence or accident regardless of the number of persons injured or the number of claimants, it being the intention that the minimum limits shall be those provided for under Chapter 9, Title 6, Section 24 of the Idaho Code.

B. In performance of professional services, the Consultant will use that degree of care and skill ordinarily exercised under similar circumstances by members of the Consultant's profession. Should the Consultant or any of the Consultants' employees be found to have been negligent in the performance of professional services from which the City sustains damage, the Consultant has obtained Errors and Omission Insurance in at least the amount of five hundred thousand dollars ($500,000.00). The Consultant shall maintain, and furnish proof thereof, coverage for a period of two years following the completion of the project.

C. The Consultant shall obtain and maintain auto liability insurance in the amount of $500,000.00 for the duration of the project.

D. Prior to work under this Agreement, the Consultant shall furnish to the City certificates of the insurance coverage's required herein, which certificates must be approved by the City Attorney. Certificates shall provide cancellation notice information that assures at least thirty (30) days written notice to the City prior to cancellation of the policy for any reason.

IN WITNESS WHEREOF, this Agreement executed the day and year first written above.

CITY OF COEUR D'ALENE _____

_____ By_____

Steve Widmyer, Mayor Its_____

ATTEST:

_____

Renata McLeod, City Clerk

Exhibit A
Scope of Work

1. Preliminary Design Phase
   - Meeting with City Staff to discuss potential solutions to stormwater system issues.
   - Conducting field work and research necessary for preliminary design work.
   - Developing potential solutions, including conceptual designs, preliminary opinions of costs and a narrative summary of options, analysis and comparison.

2. Design Phase
   - If needed, completing a topographical survey to gather existing system information such as location, size and elevations.
   - Researching utility record drawings, if available, to evaluate potential utility conflicts.
   - Completing appropriate engineering calculations and system modeling, if necessary, to size the stormwater facilities.
   - Developing detail level plans.

3. Plans and Specifications
   - Plans and Specifications will be developed to the extent necessary for the City to secure pricing through an informal or formal bidding process, as applicable to each project.
   - An opinion of probable project cost will also be developed under this task.

4. Bidding Phase

   Bidding phase work will include assisting the City with either formal or informal bidding processes, depending on the size of the project.

5. Construction Phase
   - Observation of construction work to confirm compliance with the construction documents.
   - Processing pay requests, change orders and change directives, reviewing submittals, attending construction meetings, and preparing record drawings.
   - Communication and coordination with the Contractor and the City regarding field conditions and construction of the project.

6. Mapping, Modeling and CIP Development Phase
   - Assisting the City in updating their existing mapping as projects are completed and/or topographical survey information is collected.
   - Modeling portions of the system to identify solutions to more complex issues, or multiple issues in a given area. Modeling may also be used to analyze the effect of system reconfigurations and/or large-scale improvements.
   - Developing a Capital Improvement Plan (CIP) for the system, which identifies needed improvements, their estimated cost and their relative priority, will also be completed under this task.

Exhibit B
Estimated Fees

1. Preliminary Design Phase	$30,000
2. Design Phase	$25,000
3. PS&E Task	$15,000
4. Bidding Phase	$15,000
5. Construction Phase	$20,000
6. Mapping, Modeling and CIP Development Phase	$15,000
Total	$120,000

Exhibit B (cont.)

Rate Schedule

Hourly rates for services effective on the date of this Agreement are:

Principal Engineer	165.00
Principal Engineer	150.00
Sr. Project Manager	130.00
Project Manager	125.00
Senior Landscape Architects	160.00
Engineer IV	120.00
Engineer III	105.00
Engineer II	105.00
Engineer I	90.00
Engineer Assistant	60.00
Sr. Engineer Tech II	90.00
Sr. Engineer Tech I	85.00
Professional Land Surveyor II	140.00
Professional Land Surveyor I	125.00
Crew Chief I	95.00
Crew Chief II	100.00
Crew Member	80.00
Survey Technician II	100.00
Survey Technician I	95.00
Cad Technician III	85.00
Cad Technician II	80.00
Cad Technician I	70.00
Sr. Project Administrator	75.00
Project Administrator	65.00
Sr. Administrative Assistant	55.00
Administrative Assistant	45.00
No Charge Services	0.00

D R A F T

Exhibit C
Example Task Order

TASK ORDER NO. 14-01

Project Title:

1. Background Data

In accordance with the General Services Agreement between City and Consultant for Professional Services dated , 2014 ("Agreement"), City and Consultant agree as follows:

1.1. City: City of Coeur d' Alene, Idaho

1.2. Consultant: Welch, Comer & Associates, Inc.

2. Specific Project Data

2.1. TITLE:

3. Services of Consultant

3.1.

4. Assumptions:

4.1.

5. City's Responsibilities

5.1. The City will provide to Consultant all criteria and full information as the City's requirements for the Project, including design objectives and constraints, space, capacity and performance requirements, flexibility and expandability, and any budgetary limitations; and furnish copies of all design and construction standards which City will require to be included in the Drawings and Specifications.

5.2. The City will furnish to Consultant as required for performance of Consultant's services, data prepared by or services of others, if available, including, without limitation, borings, probings and subsurface explorations, hydrographic surveys, laboratory tests and inspections of samples, materials and equipment; appropriate professional interpretations of all of the foregoing; environmental assessment and impact statements, surveys of record, property descriptions; zoning, deed and other land use restrictions; and other special data or consultations as may be available, all of which may use and rely upon in performing services under this Agreement.

5.3. The City will arrange for access to and make all provisions for Consultant to enter upon public and private property as required for Consultant to perform services under this Agreement.

6. Payments to Consultant for Services

6.1. City shall pay Consultant for the services described above as follows:

i. Hourly rates with an estimated maximum or at a fixed fee

7. Approval and Acceptance

7.1. Approval and Acceptance of this Task Order shall incorporate this document as part of the Agreement. Consultant is authorized to begin performance upon its receipt of a copy of this Task Order signed by City.

City	**Consultant**
City of Coeur d'Alene , Idaho	Welch Comer & Associates, Inc.
By: _____	By: _____
Name/Title: Gordon Dobler, P.E/City Engineer	Name/Title: Phil F. Boyd, P.E./President
Date: _____	Date: _____

PUBLIC WORKS COMMITTEE STAFF REPORT

DATE: May 5, 2014
FROM: Mike Becker, Wastewater Utility Project Manager
SUBJECT: Request for Acceptance and Adoption of 2013 Wastewater Collection System Master Plan Update Appendix J - Addendum #1: Mill River Lift Station Assessment at Increased Densities and the Mill River Lift Station Surcharge Fee.

==========

DECISION POINT:
The Council may wish to authorize acceptance and adoption of the *2013 Wastewater Collection System Master Plan Update Appendix J - Addendum #1: Mill River Lift Station Assessment at Increased Densities* prepared by J.U.B. Engineers and authorize staff to begin implementation of the Mill River Lift Station Surcharge Fee added to all future building permit CAP Fees and Annexations within the Mill River Lift Station Service Area. See accompanying Figure J-1 for said service area limits.

HISTORY:
The original 2013 Wastewater Master Plan modeled the Mill River Lift Station Service Area at 11.8 Equivalent Residential Units per acre (ERU/Ac.) Over the past couple of years, a majority of developments in this area have increased to a density nearing 17 ERU/Ac. Presently most of the parcels in the area are zoned C-17. With increased densities, Wastewater was concerned that the existing sewer infrastructure in the area may not have sufficient capacity to accommodate the increase in wastewater flows. This would ultimately leave the City financially obligated to fund any capacity upgrades or improvements.

As part of the 2013 Wastewater Collection System Master Plan Update Maintenance Service Contract, J-U-B Engineers was authorized on 4/12/13 to evaluate the existing sewer collection system serving the Mill River Lift Station Service Area and provide an addendum to the Master Plan's Appendix J of their findings. This addendum was completed last August and was to identify sewerage discharge options and if necessary; system upgrades and/or improvements, trigger flow dates and probable costs associated with an increase in wastewater flows. The overall goal was, if upgrades and/or improvements were needed, to develop a surcharge fee allocated per ERU that corresponds with future developments.

A copy of J-U-B's *Appendix J - Addendum #1* is accompanying this report.

FINANCIAL ANALYSIS:
As found in the addendum, an increase in densities will increase sewer flows. With increasing the development density to 17 ERU/Ac, a total of 2,805± ERUs is calculated within the Mill River Lift Station Service Area at build-out. This is nearly 858± ERUs greater than the original Master Plan model. As of August 2013, 594 connections have been committed, leaving 2,211± ERUs remaining to connect to the City's sewer system.

Excluding land costs, J-U-B estimates the total probable cost for system upgrades to safely

convey the wastewater to the Treatment Plant is approximately $989,000 (2013 U.S. Dollars). Based on this data, the corresponding cost for these upgrades when allocated to the additional ERUs is nearly $450 per ERU.

$989,000 (2013 U.S. Dollars) ÷ 2,211± ERUs remaining = $447.31

Mill River Lift Station Surcharge Fee = $450.00 / ERU

PERFORMANCE ANALYSIS:
Addendum #1's revised model of the Mill River Lift Station Service Area determined that the increase in densities will likely overload the current sewer system before build-out and future upgrades and/or improvements will be required. As shown on Table J-3, the following is a brief summary of J-U-B's recommended phased wastewater collection system upgrades/improvements:

- Construct an emergency storage basin next to the Mill River Lift Station
- Replace existing pumps with larger pumps within the Lift Station
- Replace or upgrade starters, controls and programming
- Construct a larger diameter force main dedicated to the Mill River Lift Station

With the aforementioned upgrades/improvements, the existing sewer infrastructure should be able to safely handle the increase in wastewater flows generated within the Mill River Lift Station Service Area. Further, by implementing the collection of the $450 Mill River Lift Station Surcharge Fee per each residential connection and on a per ERU basis for commercial and industrial projects, the City will not have to fund said upgrades and/or improvements. New Development would be responsible for this cost.

The mechanism for collecting the Mill River Lift Station Surcharge Fee could be handled similar to the present collection method of the Huetter Interceptor Fee. Currently, the Wastewater Utility assesses the Huetter Fee during the building permitting process. We could have the City's IT Department add another check box in the permitting software to account for the additional Mill River Lift Station Surcharge Fee.

The surcharge fee for annexations would be handled on case by case basis.

RECOMMENDATION:
The Council may wish to authorize acceptance and adoption of the *2013 Wastewater Collection System Master Plan Update Appendix J - Addendum #1: Mill River Lift Station Assessment at Increased Densities* prepared by J.U.B. Engineers and authorize staff to begin implementation of the Mill River Lift Station Surcharge Fee added to all future building permit CAP Fees and Annexations within the Mill River Lift Station Service Area.

Appendix J

Addendum No. 1: Mill River Lift Station Assessment at Increased Densities

Contents

Appendix J Addendum No. 1: Mill River Lift Station Quantitative Assessment at Increased Densities

J.1 Introduction

As discussed in the 2013 Master Plan Update and detailed further in Appendix J, the Mill River area of the City of Coeur d'Alene has experienced significant commercial and mixed-use development. Portions of the remaining vacant land are currently being considered for development, with some areas at an increased density compared to previous Master Plans (i.e., proposed annexations at 17 ERU/Ac compared to a previously assumed condition of 11.8 ERU/Ac). Because this area is dominated by commercial and high-density residential land uses and cannot be served by gravity to the main collection system, changes in density significantly impact the Mill River Lift Station.

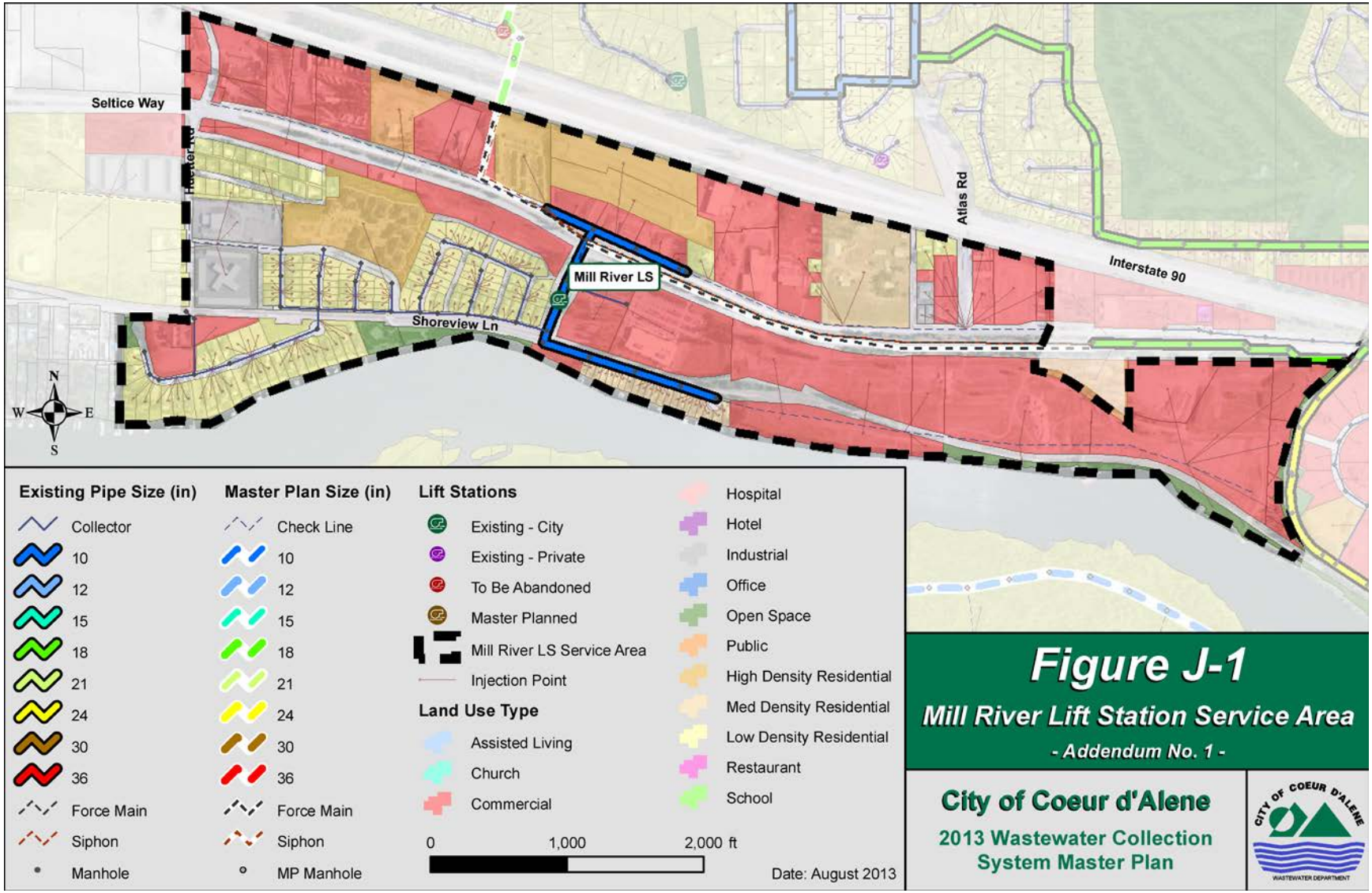
The conclusions in Appendix J regarding the Mill River Lift Station under increased Master Plan densities (i.e., exceeding 11.8 ERU/Ac) were as follows:

- **Submersible Pumps**: The existing 40 HP pumps must be replaced with larger pumps capable of 800 gpm (firm) at 140 feet; motor size is estimated at 50 HP.
- **Electrical Systems**: Electrical upgrades are likely, including power service, Motor Control Center(s), drives, and possibly the generator.
- **Emergency Storage**: Provide additional emergency storage to accommodate higher peak flows. The storage basin will need to fill and drain within the existing operating limits of the lift station since infrastructure and gravity sewer are already in place. Additionally, the basin will need access via hatches to enable cleaning and have sufficient slope to prevent deposits/accumulation. The most likely location for the storage basin is in the median, although there are utility conflicts in this area (e.g., force mains, gravity sewer, power).
- **Force Main**: No improvement required; utilize 8-inch force main and 8-inch siphon to the Siphon Outlet. **Note**: This removes the 8-inch siphon from potential use in the 3-Pipe Siphon. If the 8-inch siphon pipe is needed for the 3-Pipe Siphon and flows arising from the Huetter Interceptor, a new dedicated force main for the Mill River Lift Station will be required.

This addendum provides further analysis and discussion of the electrical system, emergency storage, and force main. An opinion of probable cost for improvements associated with densities at 17 ERU/Ac and a cost per ERU are also included. For additional background information on the Mill River Lift Station, refer to the 2013 Master Plan Update.

The Mill River Lift Station service area is shown in **Figure J-1**. The service area has been modified slightly from the original Master Plan study boundary to exclude the area east of Huetter Road. Those connections were originally included to evaluate worst-case hydraulics, but upon further review with the Wastewater Utility, will not be included herein when determining the surcharges on an ERU basis resulting from the required upgrades discussed in subsequent sections.

Figure J-1 – Mill River Lift Station Service Area



J.2 Electrical System

In April 2013, City staff, J-U-B, and AEI Engineering (an electrical engineering subconsultant for this project) conducted a site visit to visually inspect the lift station, determine its current electrical service and control panel configuration, and identify any limiting conditions with the existing lift station. Conclusions from the site visit include the following:

- The facility is fed by Avista Utilities. The utility transformer is a 75KVA, 12.47KV-480/277Y pad mount transformer installed as part of the 2005 construction project. The existing electrical service, a Cutler Hammer panelboard, is located on the equipment rack and is rated 200A at 480V 3 phase.
- The Cutler Hammer panelboard distributes 3 phase, 480 volt power to the 200A, 3 pole automatic transfer switch that feeds the Duplex Pump Control Panel.
- A 125KW, 480/277V, 3 phase, 4 wire, natural gas fueled standby generator provides backup power to the automatic transfer switch located on the equipment rack.
- The Duplex Pump Control Panel contains two Square D, full voltage non-reversing (FVNR), NEMA size 3 starters with 90A circuit breakers and Motor logic Class 20 overloads. The starters feed two 40 HP submersible pumps.
- The Telemetry Control Panel contains a Rugid PLC and Dataradio Integra licensed frequency radio telemetry system. The primary level control is based on a Milltronics MiniRanger Plus Ultrasonic level transducer. The back level control is provided with a four float/Koyo PLC controller.
- The electrical service, standby generator, and pump control system have adequate capacity to operate the existing pumping system as installed.

In summary, the control panel and lift station appeared to have been well constructed and satisfactorily maintained. It was noted, however, that the ultrasonic transducer unit has been failing when the wet well hatch is closed, potentially due to an intermittent echo condition. As a temporary fix, operations staff have propped the hatch open with a 2x4 spacer. A potential long-term solution would be to replace the ultrasonic level measurement system with a submersible pressure transducer.

Based on the following observations made during the site visit, an upgrade to the higher capacity pumps can be achieved with the following minor modifications to the existing electrical system:

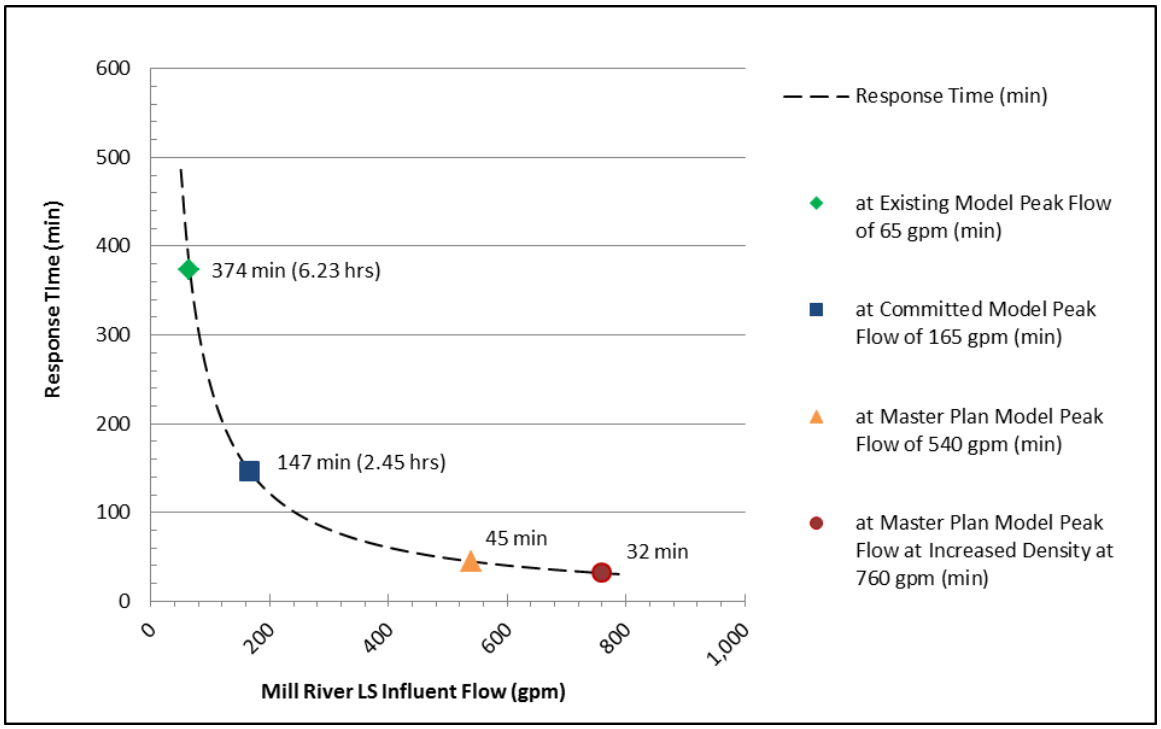
- The existing electrical service from Avista has the capacity to accommodate two 50 HP pumps.
- The pump control panel has the capacity to accommodate two 50 HP pumps with no significant modifications. However, the existing starting system is FVNR, and upsizing to 50 HP would require coordination and possibly permission from Avista because they normally require reduced voltage starting of larger motors. For the purpose of preparing a cost opinion, new reduced voltage starters have been assumed.

- The generator has the capacity to start only one 50 HP pump with a FVNR starter. Since a single pump can handle the estimated peak flows, this is acceptable. However, if the existing FVNR starters are replaced with reduced voltage starters, the generator would be able to start two 50 HP pumps.
- Minor programming modifications should be expected to incorporate the new pumps and level measurement into the existing control panel.

J.3 Emergency Storage

In addition to the standby power provided at the lift station, the City Wastewater Utility requires 45 minutes of storage to respond to lift station failures. Appendix J in the Master Plan Update identified a necessary storage volume of 24,300 gallons to achieve adequate storage under peak flows (540 gpm) at the assumed Master Plan density of 11.8 ERU/Ac. If this storage volume is constructed, the corresponding available response time under the Existing, Committed, Master Plan, and Master Plan at Increased Density conditions will be as shown in **Figure J-2**. As noted in the figure, the response time decreases to 32 minutes if only the Master Plan emergency storage volume is provided. Under the increased density scenario (17 ERU/Ac), the peak flows are estimated to be 760 gpm, which necessitates a 34,200-gallon storage basin to achieve a 45-minute response time.

Figure J-2 – Available Response Time with 24,000 Gallons of Storage Capacity



The emergency storage basin under either scenario will need to fill and drain within the existing operating limits of the lift station to avoid backing up and surcharging the existing sanitary sewer lines that enter the lift station. Existing constraints and preliminary design considerations are therefore as follows:

- Setting the maximum overflow elevation of the emergency storage basin equal to the inlet sanitary sewer invert elevation results in a maximum water surface elevation of 2107.85 in the wet pit and overflow basin (based on Record Drawing information).
- The bottom of concrete in the emergency storage basin will need to be high enough to permit gravity drainage of the emergency storage basin into the lift station wet pit.

Table J-1 summarizes the planning level overflow basin size and dimensions for the two scenarios under consideration.

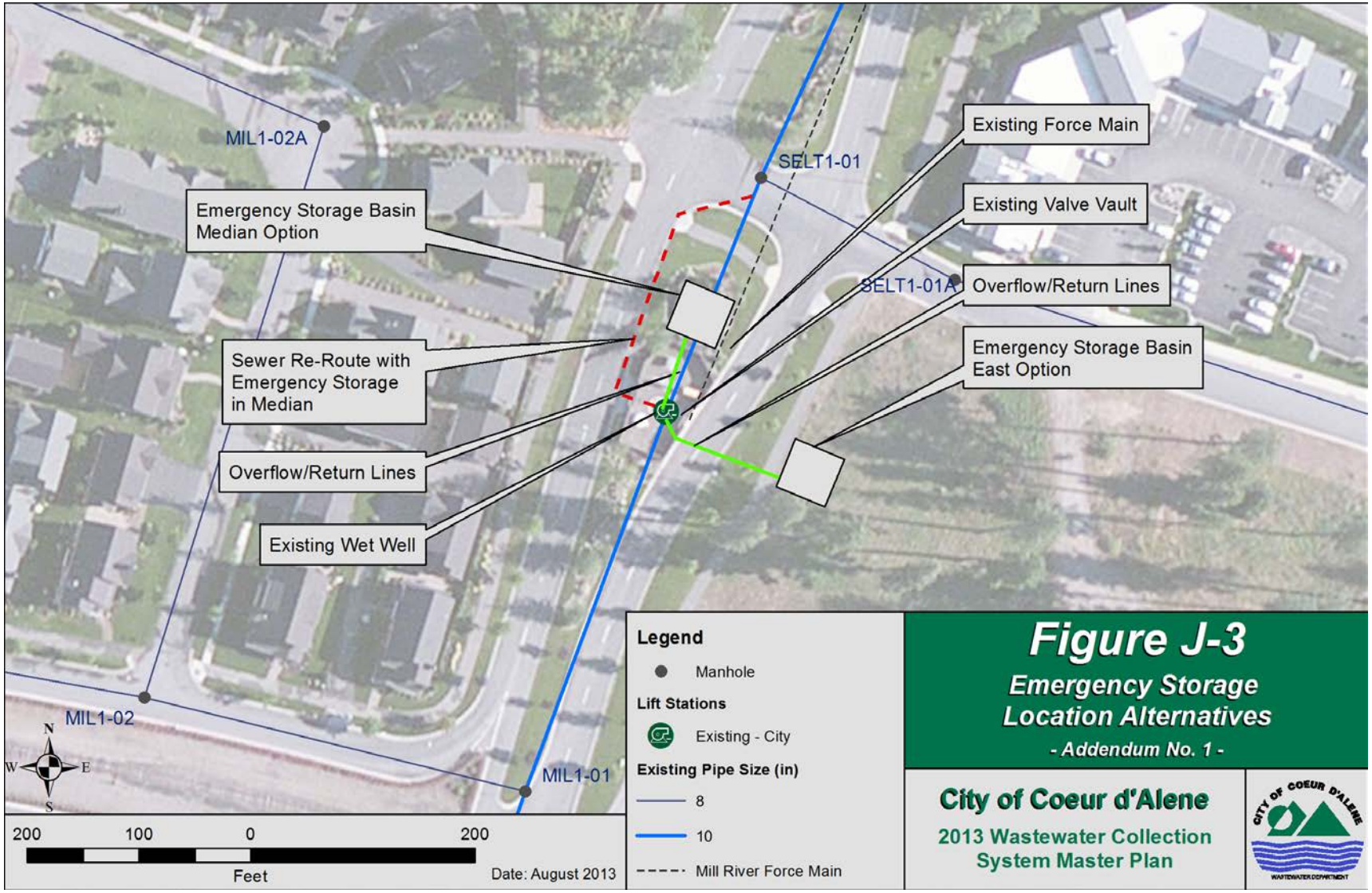
Table J-1 – Emergency Storage Design Summary

Parameter	Master Plan Density (11.8 ERU/Ac)	Increased Density (17 ERU/Ac)
Peak Flow	540 gpm	760 gpm
Minimum Working Volume for 45 min response time	24,300 gal	34,200 gal
Approximate Surface Elevation	2,127.60	2,127.60
Max Overflow Elevation (equal to the lift station invert elevation)	2107.85	2107.85
Estimated Overall Depth from Ground Surface to Bottom of Storage Basin	25 to 30 ft ±	25 to 30 ft ±

One location for an emergency storage basin is in the median north of the lift station; however, there are conflicts with adjacent utilities, roadways, and structures that may require shoring to protect these existing features. An alternate location is directly east of the lift station in a currently undeveloped area. The larger parcel provides a larger construction zone and could reduce overall construction costs since shoring could be reduced or eliminated. Both alternatives are illustrated in **Figure J-3**.

Based on discussions with the Wastewater Utility, a 34,200-gallon emergency storage basin located east of the existing lift station is preferred; the final location and details would be considered as preliminary design is undertaken. This approach will require utility work across Grand Mill Lane for the overflow/return lines and an easement for the vault on the adjacent property.

Figure J-3 – Emergency Storage Location Alternatives



The Wastewater Utility is currently developing general design criteria for lift stations. Conditions set forth in those design criteria will need to be incorporated into this upgrade, which may include or expand upon the following:

- Multiple access hatches are necessary to enable cleaning from the surface.
- The basin floor should be sloped sufficiently to be self-cleaning and prevent debris accumulation.
- Sufficient instrumentation should be included to indicate when flow is being diverted to the basin and the water level in the basin.
- A manual drainage valve is necessary as well as automated valves to permit automatic drainage of the emergency storage basin to the lift station as pumps are returned to service or sufficient capacity is available in the lift station (i.e. the wet well level returns to normal levels).
- The emergency storage basin interior should also be sacked and coated to prevent concrete deterioration due to corrosive gases.

J.4 Force Main

The Mill River Lift Station currently discharges through a dedicated 6-inch force main to Manhole HUT-8 on Seltice Way. The lift station is also configured such that an existing 8-inch force main from the lift station could be connected to the 8-inch siphon pipe (part of the 3-Pipe Siphon) with discharge routed directly to the Siphon Outlet (Manhole HUT-8). The Siphon Headworks plans also include a future 8-inch force main from the intersection of Grand Mill Lane and Seltice Way to the Siphon Inlet. Available force main discharge options and corresponding capacities of the pumps are shown in **Table J-2**.

Table J-2 – Mill River Lift Station Discharge Options

Condition	Existing Pump Capacity (10.75-inch Impeller)	Existing Pump Capacity with Larger Impellers (11.375-inch Impeller)	New Pump Capacity for Increased Density Condition (800 gpm at 140 ft TDH)
Mill River 6-inch Force Main to Siphon Outlet (Manhole HUT-8)	300 gpm (1,160 ERUs ±)	375 gpm (1,430 ERUs ±)	440 gpm ± (1,680 ERUs ±)
Mill River 8-inch Force Main to Siphon Outlet (Manhole HUT-8) (using 8-inch siphon pipe)	530 gpm (2,040 ERUs ±)	650 gpm (2,680 ERUs ±)	800 gpm ± (3,340 ERUs ±)
Mill River 8-inch Force Main to the proposed Siphon Inlet (not yet constructed)	425 gpm (1,620 ERUs ±)	620 gpm (2,500 ERUs ±)	800 gpm ± (3,340 ERUs ±)

To convey peak estimated flows in either the Master Plan or the Increased Density scenario, use of an 8-inch force main discharging directly to the Siphon Outlet (Manhole HUT-8) is required. Additionally, the 3-Pipe Siphon may require dedicated use of its 8-inch siphon pipe for redundancy purposes depending on its final configuration and hydraulic capacity (reference Table J-7 in Appendix J of the Master Plan Update). Therefore, a new dedicated 8-inch force main is recommended for the Mill River Lift Station from the intersection of Grand Mill Lane to the Siphon Outlet (Manhole HUT-8). The length of the new force main would be approximately 4,000 feet and would presumably be located parallel to the existing 3-Pipe Siphon along Seltice Way.

J.5 Summary

A summary of the recommended upgrades and potential phasing to satisfy the increased density conditions is included in **Table J-3** and presented in alternate Capital Improvement Plan **Figure C.9A.** A concept-level opinion of probable cost for this work is included in **Figure J-4**.

Table J-3 – Mill River Lift Station Recommendations for Increased Density (17 ERU/Ac)

Element	Description	Timing
Emergency Storage	Construct a 34,200-gallon emergency storage basin in the property east of the existing lift station. An easement for construction and maintenance of the emergency storage basin will be required.	Emergency storage is recommended upon reaching the Committed Model flows of 165 gpm (approximately 660 ERUs).
Mechanical System	The existing pumps must be replaced with larger pumps capable of 800 gpm (firm) at 140 feet; motor size is estimated at 50 HP.	As required with growth; reference pumping capacities listed in Table J-2. [1]
Electrical System	Replace existing FVNR starters with reduced voltage starters. Upgrade level measurement to pressure transducer system. Miscellaneous programming modifications.	Electrical upgrades are recommended when the pumps are upgraded.
Force Main	Construct a new, dedicated 8-inch force main from the valve assembly at the intersection of Grand Mill Lane and Seltice Way to the Siphon Outlet at Manhole HUT-8–approximately 4,000 feet.	As required, depending on development density in the Northwest Quadrant and the 3-Pipe Siphon Inlet Elevation (i.e., corresponding hydraulic capacity).

[1] *Pump upgrades may be delayed or eliminated depending on actual flows entering the lift station, final capacity of the 3-Pipe Siphon, and the potential to utilize the emergency storage basin for peak flow equalization.*

With build-out at the Increased Density (17 ERU/Ac in commercial and high density residential parcels) in the service area shown in **Figure J-1**, a total of 2,805± ERUs is projected. As of August, 2013, 594 connections have been committed to the area served by the Mill River Lift Station, leaving an additional 2,211± ERUs until build-out is realized. The corresponding cost for this work when allocated to the additional ERUs is $450 per ERU (2013 dollars).

Based on discussions with the Wastewater Utility, a surcharge of this amount is to be added to future parcels developed in the Mill River service area as building permits are issued for each residential connection, and on an ERU basis for commercial or industrial parcels. The Wastewater

Utility has also indicated a preference to revisit the projected construction costs and adjust the surcharge to account for construction cost escalation, as well as potential modifications to the impact boundary.

Figure J-4 – Opinion of Probable Cost

JUB ENGINEERS, INC.

7825 Meadowlark Way, Coeur d'Alene, ID 83815 / 208.762.8787

PROJECT: Coeur d'Alene Wastewater — **DATE:** Aug-13
2013 Collection System Master Plan Update
Mill River Lift Station & Force Main - at Increased Densities (17 ERU/Ac)
PROJECT MH ID
ITEM: C.9A

J-U-B PROJ. NO.: 20-13-011

ITEM No.	DESCRIPTION	SCHEDULE OF VALUES QTY	UNIT	UNIT PRICE	TOTAL COST
1.00	**Mobilization**			5.0%	$ 30,000
2.00	**Construction Traffic Control**			2.5%	$ 15,000
3.00	**Gravity Sewer Pipe**				
3.01	8" PVC Gravity Sewer Pipe		LF	$ 30	$ -
3.02	10" PVC Gravity Sewer Pipe		LF	$ 35	$ -
3.03	12" PVC Gravity Sewer Pipe		LF	$ 40	$ -
3.04	15" PVC Gravity Sewer Pipe		LF	$ 45	$ -
3.05	18" PVC Gravity Sewer Pipe		LF	$ 60	$ -
3.06	21" PVC Gravity Sewer Pipe		LF	$ 65	$ -
3.07	24" PVC Gravity Sewer Pipe		LF	$ 70	$ -
3.08	30" PVC Gravity Sewer Pipe		LF	$ 95	$ -
3.09	36" PVC Gravity Sewer Pipe		LF	$ 120	$ -
3.10	Bedding and Foundation Material	4,000	LF	$ 10	$ 40,000
4.00	**Gravity Trench Excav./Backfill**				
4.01	4-10 ft.	4,000	LF	$ 25	$ 100,000
4.02	4-10 ft. Alley		LF	$ 40	$ -
4.03	10-16 ft.		LF	$ 45	$ -
4.04	10-16 ft. Alley		LF	$ 75	$ -
4.05	16-20 ft.		LF	$ 65	$ -
4.06	16-20 ft. Alley		LF	$ 90	$ -
4.07	20-24 ft.		LF	$ 85	$ -
4.08	24-28 ft.		LF	$ 125	$ -
4.09	28-30 ft.		LF	$ 200	$ -
4.10	Import Backfill and Foundation Material		CY	$ 25	$ -
5.00	**Surface Repair** [4]				
5.01	Natural Ground		LF	$ 20	$ -
5.02	Gravel Roadway	2,000	LF	$ 25	$ 50,000
5.03	Asphalt - Trench Patch width per City Standards (Required for 4-16' Depth Sewer)	2,000	LF	$ 30	$ 60,000
5.04	Asphalt - ½ Street width per City Standards (Required for 16-20' Depth Sewer)		LF	$ 45	$ -
5.05	Asphalt - Full Street width per City Standards (Required for 20-30' Depth Sewer)		LF	$ 80	$ -
6.00	**Manholes**				
6.01	48" Manholes, 4-10 ft.		EA	$ 3,000	$ -
6.02	48" Manholes, 10-16 ft.		EA	$ 3,500	$ -
6.03	48" Manholes, 16-20 ft.		EA	$ 5,000	$ -
6.04	60" Manholes, 20-24 ft.		EA	$ 7,500	$ -
6.05	60" Manholes, 24-28 ft.		EA	$ 12,500	$ -
6.06	60" Manholes, 28-30 ft.		EA	$ 15,000	$ -
7.00	**Project Specific Considerations**				
7.01	8" Sewer Force Main (C-900) (excludes excavation, bedding, backfill, surface repair)	4,000	LF	$ 25	$ 100,000
7.02	Replace pumps: 800 gpm at 140 ft TDH; no other mechanical work	1	LS	$ 25,000	$ 25,000
7.03	Electrical upgrades	1	LS	$ 35,000	$ 35,000
7.04	Emergency Overflow Basin (28 ft x 28 ft, 26 ft below the surface)	1	LS	$ 120,000	$ 120,000
7.05	Manual and automated drainage valves, vault, and lines	1	LS	$ 25,000	$ 25,000
7.06	Site Surface Repair for Overflow Basin Structure	1	LS	$ 20,000	$ 20,000
8.00	**Miscellaneous Other**				
8.01	Bypass Pumping			2.5%	$ 14,000
8.02	Bonding / Admin			2.5%	$ 15,000
8.03	Easements	2,500	SF	$ 10	$ 25,000
8.04	Legal Fees			2.0%	$ 13,000
				ESTIMATED CONSTRUCTION SUBTOTAL	**$ 687,000**
				Contingency [1]	**$ 137,000**
				Planning, Engineering, & Administrative Costs [2]	**$ 165,000**
				TOTAL PROBABLE COST IN 2013 DOLLARS [3]	**$ 989,000**

1 Estimated at 20% of construction subtotal.

2 Planning, Engineering, & Administrative costs include: Geotechnical Evaluations, Design, Survey, Construction Management, O&M Manuals, Record Drawings, and Administration. Estimated at 20% of construction subtotal, including contingency.

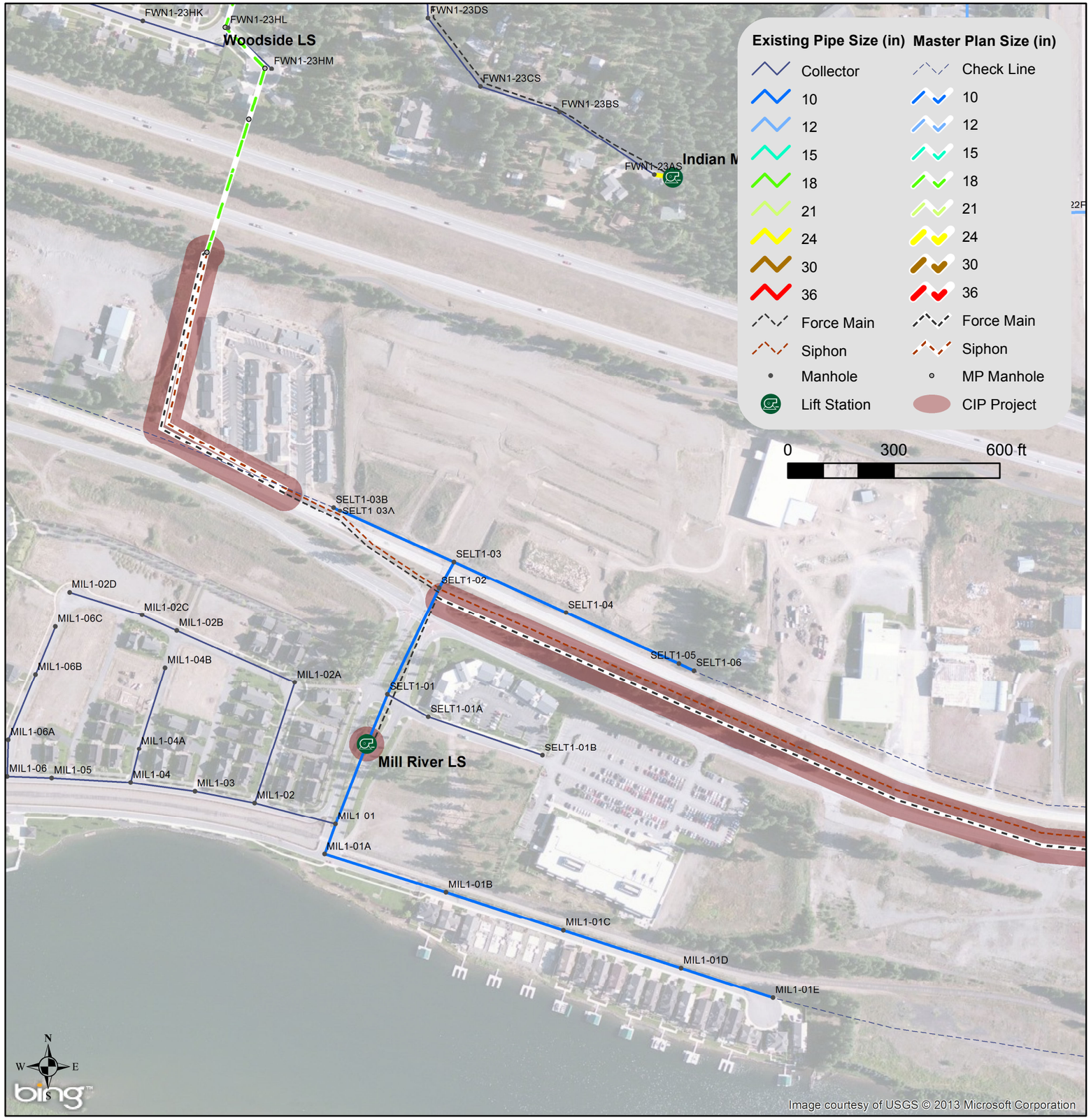
3 Costs are in 2013 dollars and should be inflated appropriately to the mid-point of construction for budgeting purposes. No easement acquisition or legal costs are included.

4 Assumes the force main can be constructed outside of the roadway approximately half its length. Additionally, the trench is not within the concrete roadway on Seltice Way which is reportedly 6 to 9 inches thick (or greater).

Figures

Figure C.9A – Mill River Lift Station and Force Main at Increased Density (17.0 ERU/Ac)

Path: F:\Projects\JUB\20-13-011-CDA-WW\documents\Master Plan Maintenance\Mill River LS\C.9A - Mill River Lift Station and Force Main - 17 ERU-AC (Updated 08-02-2013).mxd



City of Coeur d'Alene

2013 Wastewater Collection System Master Plan

C.9A Mill River

Lift Station and Force Main

CORE ISSUES — **Increased Density (17.0 ERU/AC)**
Insufficient Capacity

BACKGROUND

The Mill River Lift Station is a duplex submersible lift station that is responsible for pumping wastewater from the Mill River Subdivision. The lift station is equipped with two 40 hp submersible Hydromatic Model S4B pumps with 10.75-inch impellers capable of 300 gpm each. The 10.75-inch impellers provide sufficient capacity for existing and committed flows, but to satisfy peak flows arising from build-out at increased densities of 17.0 ERU/AC, new pumps capable of conveying 800 gpm at 140 ft of head are required (estimated motor size is 50 hp). Minor electrical upgrades are recommended, including: replace existing starters with reduced voltage starters; upgrade level measurement; and miscellaneous programming modifications.

Although the lift station has a generator for stand-by power, it does not have 45-minute emergency storage in the event of a lift station failure as required by the Wastewater Utility. Construction of an emergency storage basin is recommended upon reaching the committed flows for the lift station. The basin should provide 45-minutes storage at peak master plan flows, which equates to 34,200 gallons. The most likely location of the emergency storage basin is directly east of the lift station in the currently undeveloped lot. It is expected that a permanent easement will be secured for the basin.

The lift station currently discharges through a 6-inch force main to the Siphon Outlet (Manhole HUT-8). A force main from the lift station to the future Siphon Inlet will be required if flow is routed from the Mill River Lift Station through the 3-Pipe Siphon - reference CIP Project E.1. Alternatively, the lift station can utilize an 8-inch force main that has already been constructed from the Siphon Outlet to the intersection of Grand Mill Lane and Seltice Way. However, the 8-inch siphon line may be required for the siphon as the Huetter Interceptor is constructed. Therefore, a new, dedicated 8-inch force main from the lift station to the Siphon Outlet (approx. 4,000 LF) is recommended. A detailed discussion of discharge options and corresponding capacities is included in Appendix J.

RECOMMENDED SOLUTION

At build-out densities of 17.0 ERU/AC in the area served by the Mill River Lift Station, the following upgrades are recommended:

> New 50-hp pumps capable of 800 gpm at 140 ft TDH; Minor upgrades to the electrical system; Add 34,200 gallons of emergency storage; Construct a new, dedicated 8-inch force main to the Siphon Outlet.

> See E.1 for Seltice Siphon and Headworks costs

> Opinion of Probable Cost (July 2013 Dollars) **$ 989,000**

PROJECT TIMING

Add emergency storage upon reaching committed flows (approx. 660 ERU's, 165 gpm). Other improvements as needed with increased flows.

As Needed With Growth

NOTE
A Master Plan is conceptual in nature and intended for planning purposes only. Field verification, survey, utility locates, and investigation of other potential upstream and downstream conflicts should be completed prior to preliminary and final design.

Date: July 9, 2013

J-U-B ENGINEERS, INC.