



# Memorandum

Date: Friday, January 27, 2023

Project: City of Cosmopolis – Mill Creek Multi-Objective Improvement Plan

To: Darrin Raines, City of Cosmopolis

From: Cindy Kinzer, Ty Johnson, Jerry Bibee, Fatima Prada, HDR

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Subject: **Mill Creek Multi-Objective Improvement Plan - Data and Survey Request**

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## Introduction and Purpose

This memorandum addresses the data gaps and the supplemental survey pickups and mapping data needs for the City of Cosmopolis – Mill Creek Multi-Objective Improvement Plan (MOIP) Task 200.2. This memorandum is based primarily on the data available from the Biological Assessment (BA) field work, prior 2015 Mill Creek survey and mapping provided by Berglund Schmidt and Associates (BSA), other record drawings provided by the City, and other data available through the County of Grays Harbor’s geographic information system (GIS).

## Project Background

The City of Cosmopolis Mill Creek MOIP aims to provide a master plan for Mill Creek culvert crossing improvements and adjacent channel tie-in improvements to achieve flood reduction and improved fish passage in Mill Creek between its Chehalis River outfall and the upstream side of C Street, and downstream from the restored Mill Creek dam, and improved fishway.

The project will evaluate opportunities to improve hydraulic capacities and fish passage conditions with the Mill Creek channel corridor.

## Data Gaps and Supplemental Survey and Mapping Needs for Project Evaluation

The Project team reviewed the available GIS database available through the County of Grays Harbor, information provided by the City, and the prior 2015 BSA survey information of the project corridor.

The following data and data gaps were identified, and the additional available City and supplemental survey data required include:

1. Available data include Washington State LiDAR 2019 mapping
2. Available GIS data from the County of Grays Harbor include:
  - County/City Roads
  - Parcels limits
  - Hydrology Watercourse
  - Soil Types
  - Watershed
  - Wetlands



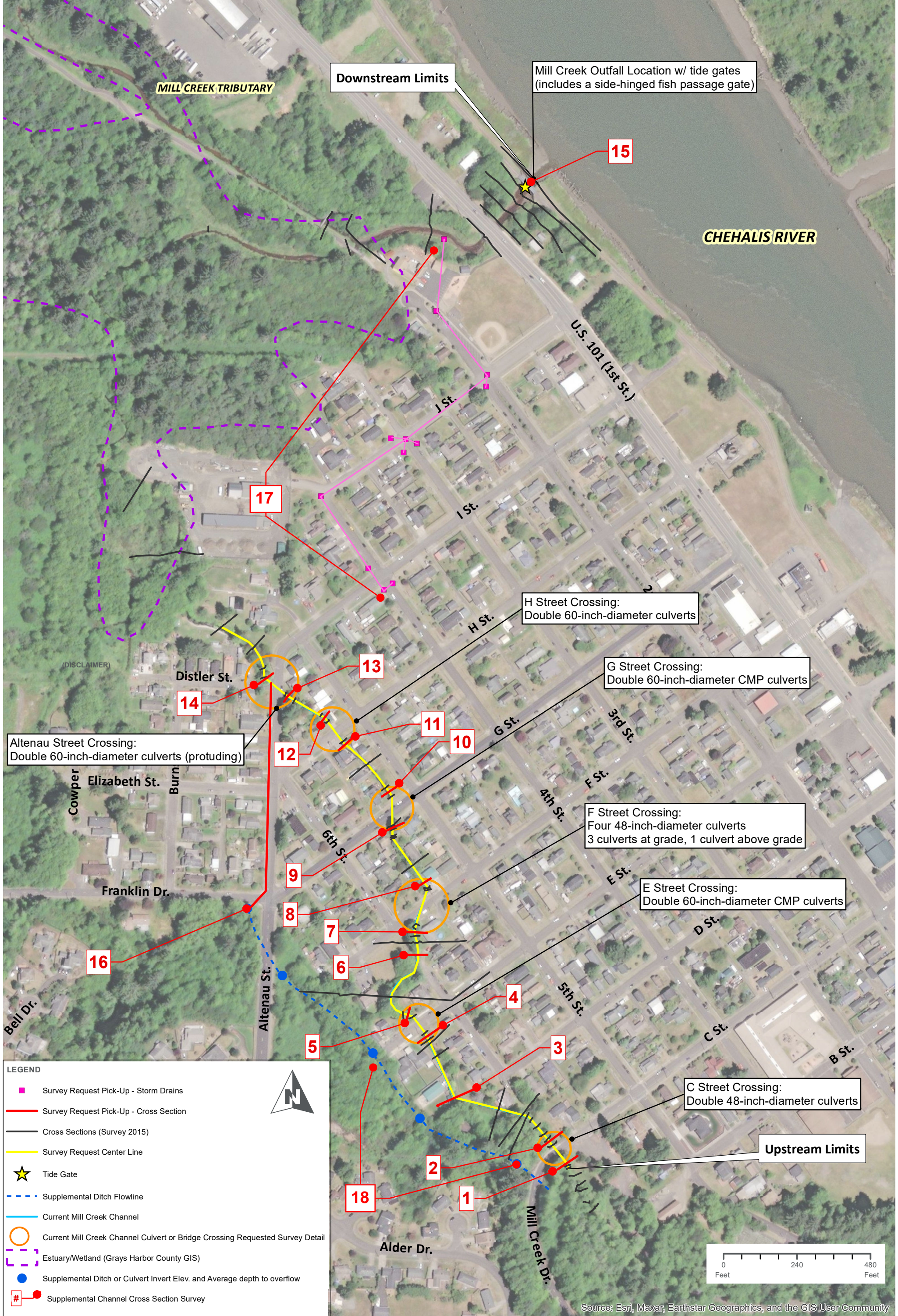
3. Available data include limited geotechnical subsurface soils and groundwater data from the prior Mill Creek dam and fishway improvements, but upstream of the MOIP study reach. Any other City sources of subsurface information through the culvert improvements study reach is requested.
4. Requesting available GIS data of topographic (10-ft contours) and LiDAR mapping.
5. Requesting available GIS shapefile data which include critical areas mapping:
  - o Liquefaction Susceptibility Areas
  - o Landslides Hazard Zones
  - o Hazardous Site/Toxic Waste/Water Quality/Dams/Air Quality
  - o Slope Stability
  - o County Roads Prone to Flooding
6. Requesting available City-documented utilities at Mill Creek culvert crossings from City record drawings.
7. Requesting available City design or record drawings for the six culvert crossing locations and outfall tide gates.

Requested supplemental survey pickups and mapping data needs include:

1. Sections and tide gate opening sizes and elevations at the Mill Creek Chehalis River outfall tide gates.
2. Channel geometries and elevations under bridge decks at the 1<sup>st</sup> Street and 2<sup>nd</sup> Street crossings of the Mill Creek estuary channel (supplemental to prior BSA survey).
3. Streambed and top of bank profiles extending from the Burns Street Mill Creek channel outfall through C Street.
4. Supplemental typical channel sections for stream corridor reaches (up to 15 sections).
5. Culvert crossing types, opening geometries, crown, invert, and streambed thalweg elevations, and roadway overflow sections (to fill data gaps in the prior BSA survey).
6. Alternative bypass channel survey data including flow line and channel size and depth at identified locations.
7. Existing storm drain alignment extending from the intersection of Franklin Drive and Altenau Street and extends north until outfall to either Mill Creek channel or ties to existing culvert.
8. Existing storm drain catch basin locations, pipe size, invert elevations, and rim elevations extending from the intersection of 4th Street and I Street to the Mill Creek Channel outfall northeast of 2nd Street.

These needs are illustrated on the attached survey pickup exhibits, with specifics for survey pickup needs summarized in the attached Table 1. We suggest that this survey data request be forwarded to BSA for estimate and timeline required to provide the requested field survey data collection and to prepare an updated CAD base map. Depending on that response, we will assist the City in prioritizing survey pickup items and to get this activity in progress as input to the Mill Creek MOIP evaluation of improvement options.





Altenau Street Crossing:  
Double 60-inch-diameter culverts (protuding)

Downstream Limits

Mill Creek Outfall Location w/ tide gates  
(includes a side-hinged fish passage gate)

CHEHALIS RIVER

MILL CREEK TRIBUTARY

H Street Crossing:  
Double 60-inch-diameter culverts

G Street Crossing:  
Double 60-inch-diameter CMP culverts

F Street Crossing:  
Four 48-inch-diameter culverts  
3 culverts at grade, 1 culvert above grade

E Street Crossing:  
Double 60-inch-diameter CMP culverts

C Street Crossing:  
Double 48-inch-diameter culverts

Upstream Limits

**LEGEND**

- Survey Request Pick-Up - Storm Drains
- Survey Request Pick-Up - Cross Section
- Cross Sections (Survey 2015)
- Survey Request Center Line
- ★ Tide Gate
- Supplemental Ditch Flowline
- Current Mill Creek Channel
- Current Mill Creek Channel Culvert or Bridge Crossing Requested Survey Detail
- Estuary/Wetland (Grays Harbor County GIS)
- Supplemental Ditch or Culvert Invert Elev. and Average depth to overflow
- # Supplemental Channel Cross Section Survey

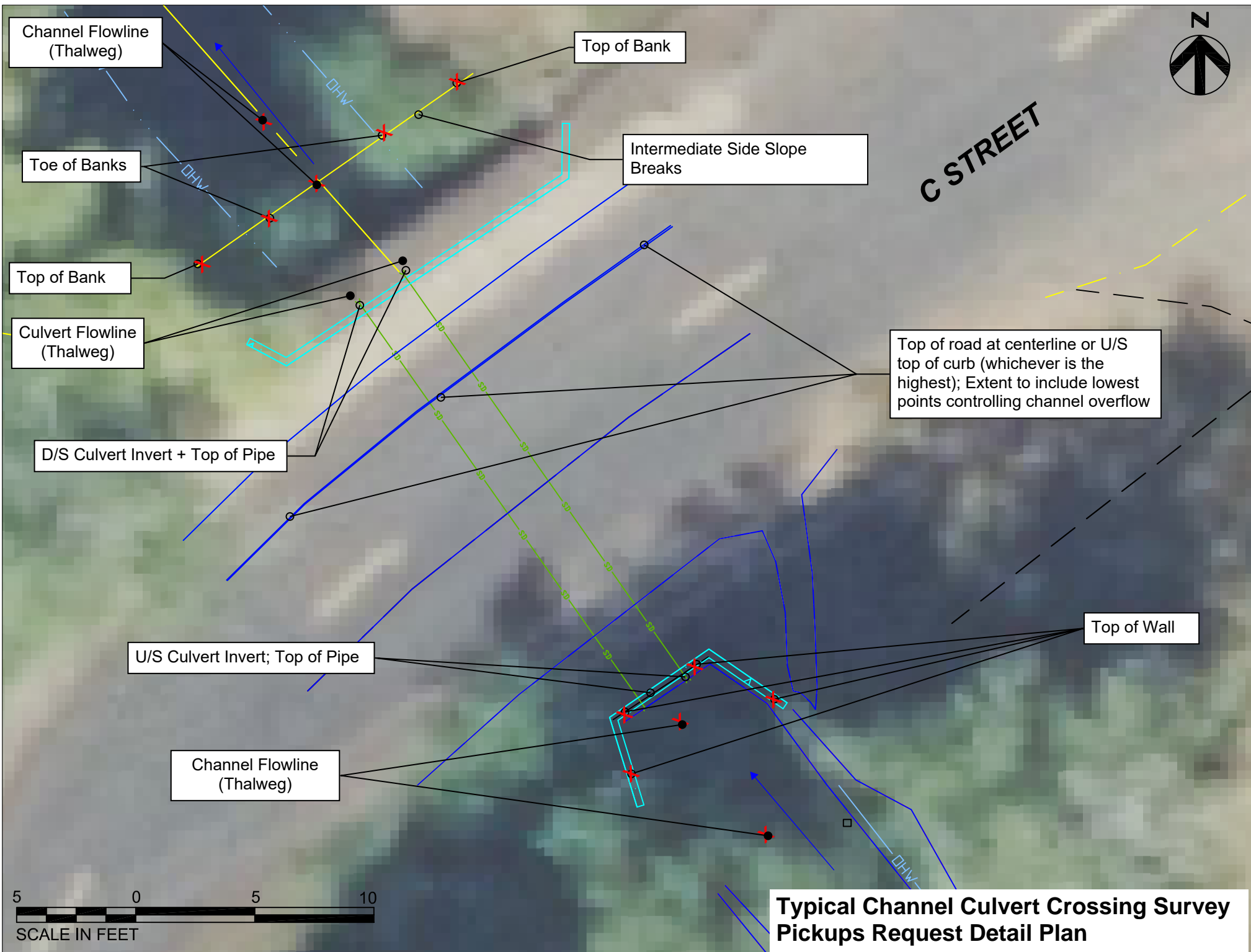


Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

**MILL CREEK MULTI-OBJECTIVE IMPROVEMENT PLAN (MOIP)**  
SURVEY REQUEST  
FIGURE 1







Channel Flowline  
(Thalweg)

Top of Bank

Toe of Banks

Intermediate Side Slope  
Breaks

**C STREET**

Top of Bank

Culvert Flowline  
(Thalweg)

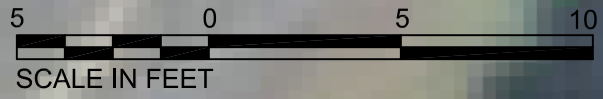
Top of road at centerline or U/S  
top of curb (whichever is the  
highest); Extent to include lowest  
points controlling channel overflow

D/S Culvert Invert + Top of Pipe

U/S Culvert Invert; Top of Pipe

Top of Wall

Channel Flowline  
(Thalweg)



**Typical Channel Culvert Crossing Survey  
Pickups Request Detail Plan**

<b>Table 1: Mill Creek MOIP Survey Pick-up Items Description:</b>			
<b>Item No./ID</b>	<b>Item</b>	<b>Location</b>	<b>Pick-ups</b>
1	Existing Mill Creek Channel	Approximately 25' south upstream face of C Street Culvert Crossing	Channel X-section; top of banks; toe of banks; channel WSEL
2	Existing Mill Creek Channel	Approximately 10' north the downstream face of C Street Culvert Crossing	Channel X-section; top of banks; toe of banks; channel WSEL
C Street Culvert	C Street Culvert	Downstream and Upstream face of the C Street Culvert Crossing	Pipe size(width)/type, u/s and d/s inverts WSEL, top of pipe; flow line elevation
3	Existing Mill Creek Channel	Approximately 380' north from the downstream face of the C Street Culvert Crossing; near D Street crossing	Channel X-section; top of banks; toe of banks; channel WSEL
4	Existing Mill Creek Channel	Approximately 15' south from the upstream face of the E Street Culvert Crossing	Channel X-section; top of banks; toe of banks; channel WSEL
5	Existing Mill Creek Channel	Approximately 15' north from the downstream face of the E Street Culvert Crossing	Channel X-section; top of banks; toe of banks; channel WSEL
E Street Culvert	E Street Culvert	Downstream and Upstream face of the E Street Culvert Crossing	Pipe size(width)/type, u/s and d/s inverts WSEL, top of pipe; flow line elevation
6	Existing Mill Creek Channel	Approximately north or upstream of 6th Street crossing	Channel X-section; top of banks; toe of banks; channel WSEL
7	Existing Mill Creek Channel	Approximately 15' south from the upstream face of the F Street Culvert Crossing	Channel X-section; top of banks; toe of banks; channel WSEL
F Street Culvert	F Street Culvert	Downstream and Upstream face of the F Street Culvert Crossing	Pipe size(width)/type, u/s and d/s inverts WSEL, top of pipe; flow line elevation
8	Existing Mill Creek Channel	Approximately 25' north from the upstream face of the F Street Culvert Crossing	Channel X-section; top of banks; toe of banks; channel WSEL
9	Existing Mill Creek Channel	Approximately 30' south from the upstream face of the G Street Culvert Crossing	Channel X-section; top of banks; toe of banks; channel WSEL
G Street Culvert	G Street Culvert	Downstream and Upstream face of the G Street Culvert Crossing	Pipe size(width)/type, u/s and d/s inverts WSEL, top of pipe; flow line elevation
10	Existing Mill Creek Channel	Approximately 15' north from the downstream face of the G Street Culvert Crossing	Channel X-section; top of banks; toe of banks; channel WSEL
11	Existing Mill Creek Channel	Approximately 15' south from the upstream face of the H Street Culvert Crossing	Channel X-section; top of banks; toe of banks; channel WSEL
H Street Culvert	H Street Culvert	Downstream and Upstream face of the H Street Culvert Crossing	Pipe size(width)/type, u/s and d/s inverts WSEL, top of pipe; flow line elevation
12	Existing Mill Creek Channel	Approximately 15' north from the downstream face of the H Street Culvert Crossing	Channel X-section; top of banks; toe of banks; channel WSEL
13	Existing Mill Creek Channel	Approximately 15' south from the upstream face of the Altenau Street Culvert Crossing	Channel X-section; top of banks; toe of banks; channel WSEL
Altenau Street Culvert	Altenau Street Culvert	Downstream and Upstream face of the Altenau Street Culvert Crossing	Pipe size(width)/type, u/s and d/s inverts WSEL, top of pipe; flow line elevation
14	Existing Mill Creek Channel	Approximately 15' north from the downstream face of the Altenau Street Culvert Crossing	Channel X-section; top of banks; toe of banks; channel WSEL
15	Existing Mill Creek Channel Outfall and Tide gates	Outfall/Tide Gates approximately 200' northeast of 1st Street	Survey detail of D/S side-hinged tide gates and openings (IE, height, width); Survey detail of upstream sluice gates; Survey section at crossing with top of berm and walkway crossing
16	Existing Storm Drain	Begins along the intersection of Franklin Drive and Altenau Street and extends north until outfall to either Mill Creek channel or ties to culvert crossing (TBD)	Validate/pick up storm drain alignment, size, type, IE, and channel/culvert tie in where accessible
17	Existing Storm Drain	Begins along the intersection of 4th Street and I Street and extends east unit outfall to either Mill Creek channel or ties to culvert crossing (TBD)	Validate/pick up storm drain at each catch basins, pipe size, IE, and rim elevation that extends its full length
18	Existing Mill Creek Historic Channel/Ditch	Begins along C Street and Mill Creek Drive and extends north towards Altenau Street	Ditch/Channel flow line elevation at flowline (thalweg); top of bank elevations controlling overflows
Channel	Existing Mill Creek Channel	Mill Creek channel flowline profile at ~100 foot intervals	Channel flow line elevations at flowline (thalweg)
Channel	Existing Mill Creek Channel	Mill Creek channel top of banks profiles at ~ 100 ft intervals	Top of bank elevations controlling overflows