Storm Drain Condition Assessment Reports

Appendix D

Memorandum

Date: July 2, 2019
From: Marliese von Huene, P.E. & Joey Hegna, P.E. – CRW Engineering Group, LLC
Project: 48th Avenue and Cordova Street Reconstruction
Project No: PM&E# 06-26 (CRW# 10143.00)
Subject: CCTV Storm Drain Condition Assessment

This memorandum summarizes the findings from the closed circuit television (CCTV) data collected by Municipality of Anchorage (MOA) Street Maintenance for the existing storm drain piping along East 48th Avenue from Cordova Street to Old Seward Highway and along Cordova Street from East International Road to East 48th Avenue. MOA provided the CCTV data to CRW Engineering Group, LLC (CRW) to evaluate the condition of the existing pipe.

CCTV Data Collection

CCTV data was collected by MOA Street Maintenance using a CCTV camera between December 2018 and January 2019. The CCTV data collection process works by driving the camera through the pipe to record video footage. The robotic, remotely controlled CCTV camera is inserted into the storm drain pipe, typically from a manhole, and is operated from the ground surface.

The purpose for collecting video images of the interior of the storm drain pipe is to identify any obstructions, structural deficiencies, or sags. It is preferred to collect CCTV data when there is no water in the piped system. However in most cases, some water will be present within the pipes during video recording, preventing the observer from definitely assessing the condition of the pipe invert.

Pipe Inspection Results

CRW evaluated the CCTV data provided by MOA using GraniteNet Viewing software. The pipe identification numbers associated with the CCTV data files were based on MOA's GIS stormwater asset map, allowing the observer to determine the pipe location. Additional information is input into the CCTV data file including pipe size, pipe type, date of inspection and other miscellaneous notes the CCTV operator may have entered.

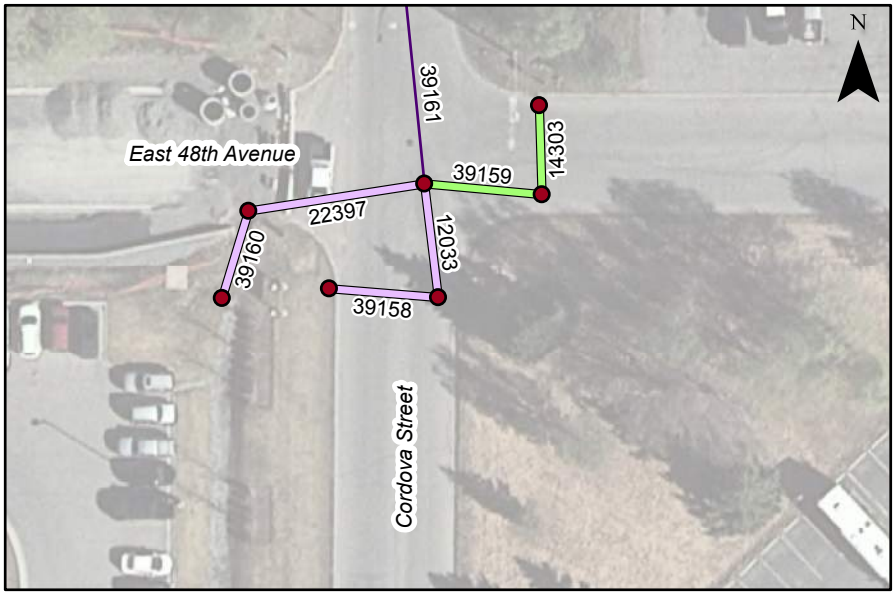
This condition assessment includes approximately 1,400 linear feet (LF) of storm drain pipe total. Of this, approximately 80% is corrugated metal pipe (CMP), and 20% is corrugated polyethylene pipe (CPEP). At the intersections of 48th Avenue and Eagle Street/Denali Street, much of the pipe is perforated CMP that functions as both a storm and subdrain pipe. The majority of CMP pipe evaluated was installed in the 1980's, and CPEP was installed as part of a roadway improvements project in 2014. Approximately 88% of the storm drain pipe located along 48th Avenue and Cordova Street was recorded with CCTV (approximately 170 LF was not recorded).

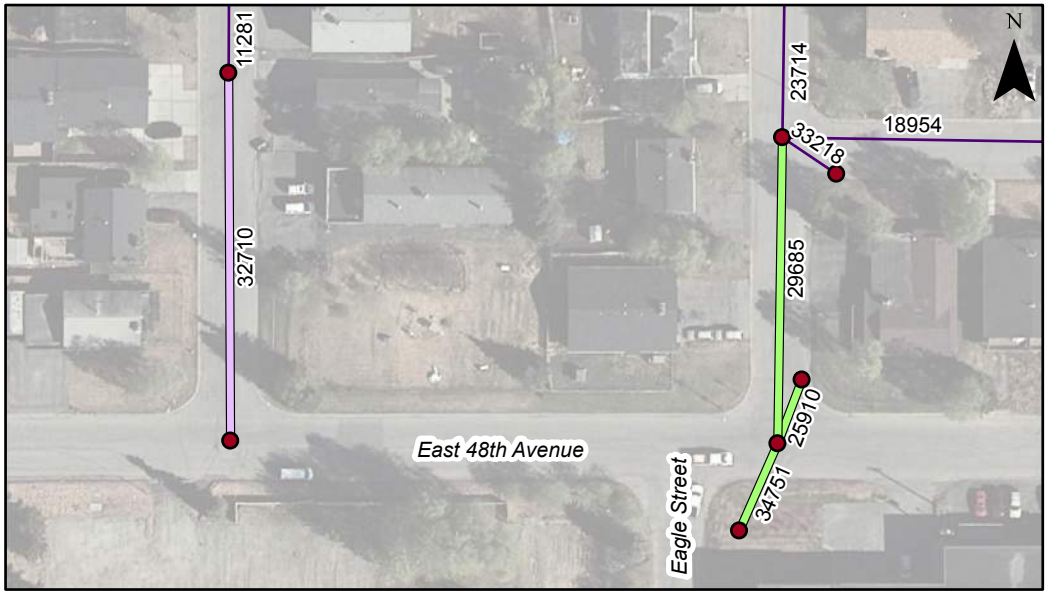
Notable pipe defects identified during review of the CCTV data include:

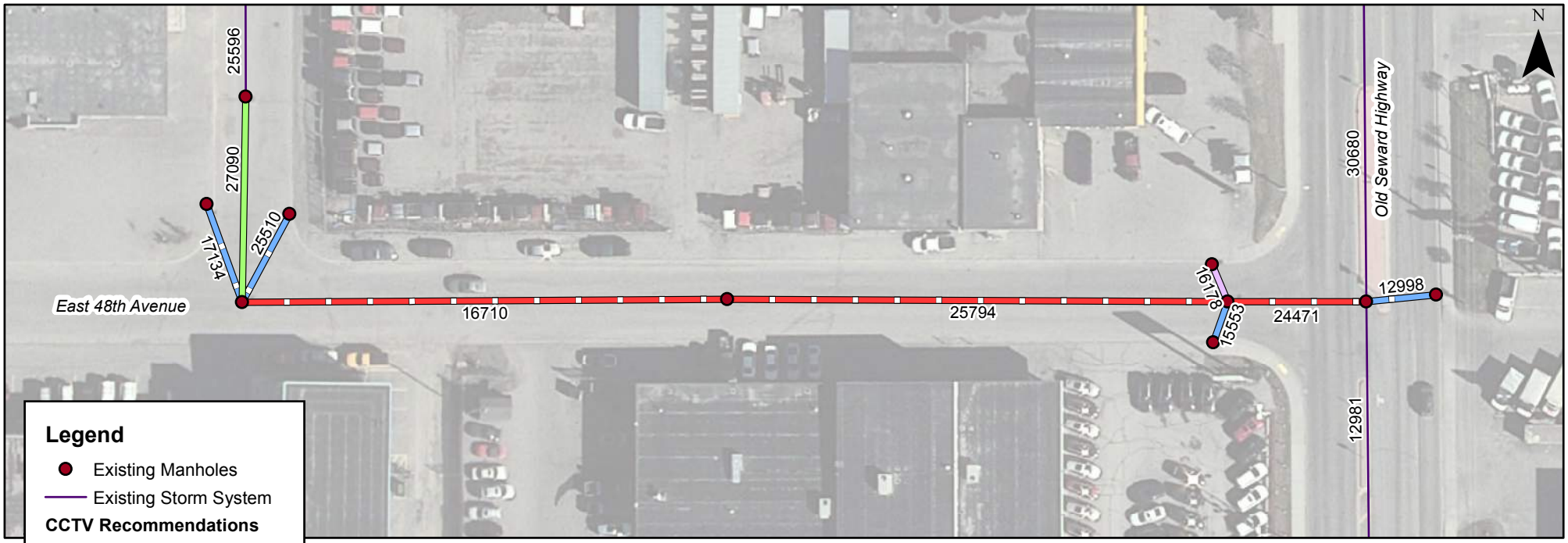
- The three primary 15-inch CMP segments along 48th Avenue (west of Old Seward Highway) are in poor condition, with large sediment/debris deposits obstructing flow in several locations. In addition, the inverts are missing for most of the visible sections in the video, and one pipe has a partial collapse that prevented the camera from going through.
- The four 10-inch CMP catch basin leads/laterals along the 48th Avenue (west of Old Seward Highway) are in moderate condition, showing large debris buildup and corrosion along the length of the pipes.

- Of the remaining pipes, about half were in “like new” condition. The other half were also in good condition, but contained varying amounts of sediment and debris that minimally blocks pipe flow.

A CCTV inspection map and corresponding spreadsheet summarizes the condition of the existing storm drain pipe in the following pages. Additionally, screen shots from the CCTV video and a detailed condition assessment are provided for each pipe segment.







Legend

- Existing Manholes
- Existing Storm System

CCTV Recommendations

- Pipe in good condition
- Cleaning recommended
- Lining recommended
- Requires replacement

CCTV Inspection Map	Date: APR 2019
48th Avenue & Cordova Street	Page: 1 of 1

Pipe Identification	Diameter (in)	Material	Install Date	As-built/ Drawing Name	CCTV Date	CCTV Length (ft)	GIS Length (ft)	Pipe Condition Comments	Recommendations
48th Avenue and Cordova Street									
12033	18	CPEP	2014	2014C026	12/6/2018	26.6	33.8	Like new condition, one minor joint offset	None - Pipe ok
14303	12	CPEP	2014	2014C026	12/6/2018	21.7	26.3	Ok condition, significant buildup of leaves	Cleaning recommended
22397	12	CPEP	2014	2014C026	12/6/2018	47.6	52.5	Like new condition, one minor joint offset	None - Pipe ok
39158	12	CPEP	2014	2014C026	12/6/2018	24.0	32.4	Like new condition	None - Pipe ok
39159	18	CPEP	2014	2014C026	12/6/2018	31.1	34.9	Ok condition, significant buildup of leaves and dirt	Cleaning required
39160	12	CPEP	-	-	12/6/2018	26.4	26.8	Like new condition, one joint offset	None - Pipe ok
48th Avenue and Denali/Eagle Street									
25910	12	Perf CMP	1988	1988-600	12/5/2018	36.1	36.9	Like new condition	Cleaning recommended
29685	12	Perf CMP	1988	1988-600	12/5/2018	161.0	166	Ok condition, some corrosion, debris buildup along most of length	Cleaning required
32710	12	Perf CMP	1988	1988-603	12/5/2018	197.3	199.7	Like new condition	None - Pipe ok
34751	12	CPEP	-	-	12/5/2018	49.5	57.1	Like new condition	Cleaning recommended
48th Avenue and Old Seward Highway									
12998	10	CMP	-	-	1/23/2019	30.0	30.5	Corrosion along invert, debris obstructing flow, top half of pipe frozen during CCTV	Cleaning required, lining recommended
15553	10	CMP	-	-	12/11/2018	18.7	18.8	Ok condition, corrosion along invert, slight debris buildup	Lining recommended
16178	10	CMP	-	-	12/11/2018	12.7	17.5	Like new condition	None - Pipe ok
16710	15	CMP	1982	1982-1339	12/11/2018	135.9	210.4	Break in pipe, large debris blockages, and missing invert along most of pipe	Needs to be replaced
17134	10	CMP	1982	1982-1338	12/11/2018	38.8	45.2	Ok condition, corrosion throughout, including two large infiltration/corroded areas	Lining recommended
24471	15	CMP	-	-	1/23/2019	52.0	60.1	Large buildup of deposits, missing invert along most of pipe	Needs to be replaced
25510	10	CMP	1982	1982-1338	12/11/2018	38.9	43.4	Ok condition, some corrosion and pipe deformations	Lining recommended
25794	15	CMP	1982	1982-1339	12/11/2018	196.0	216.8	Several large debris blockages, corrosion spots	Needs to be replaced
27090	15	CMP	1982	1982-1338	12/11/2018	82.7	89	Ok condition, sections of large sediment buildups	Cleaning required

48th Avenue & Cordova Street Reconstruction CCTV

Area 1 - 48th Avenue and Cordova Street intersection

48th Avenue & Cordova Street Reconstruction CCTV

#12033 - Cordova Street, near 48th Avenue intersection

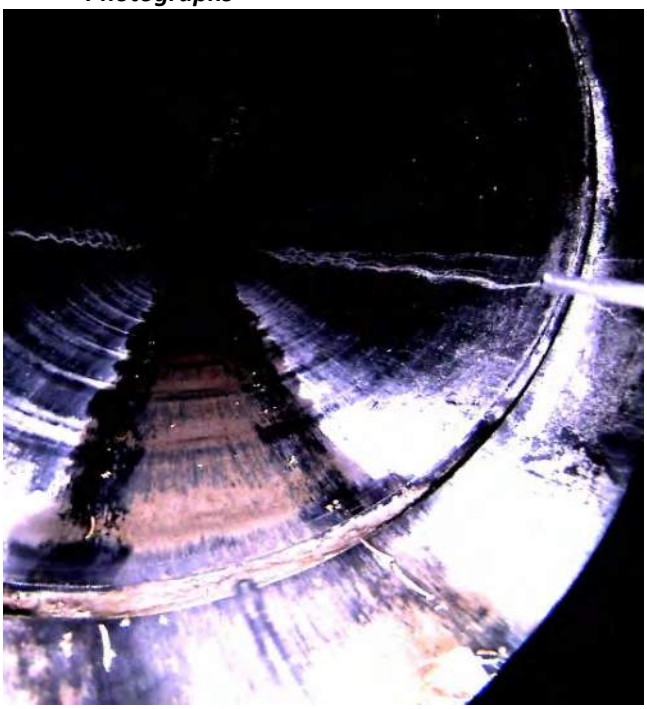
General Inspection Data

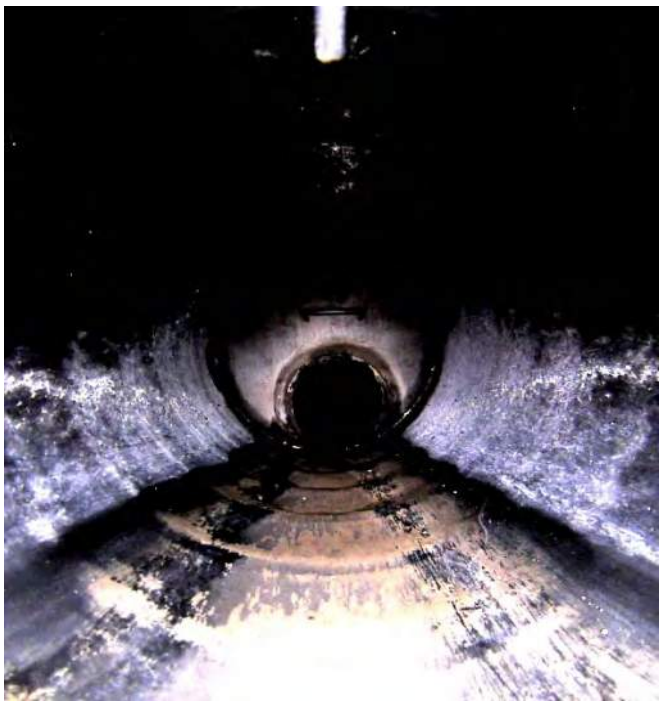
Video Date: 12/6/2018 *Video Recorded By:* MOA

Pipe Data:

Diameter/Material: 18" CPEP
Install Year: 2014
Flow Depth: Minimal
Debris Present? None
Other Notes: Pipe appears to be in good condition, minor joint offset

Photographs





48th Avenue & Cordova Street Reconstruction CCTV

#14303 - 48th Avenue, near Cordova Street intersection

General Inspection Data

Video Date: 12/6/2018 *Video Recorded By:* MOA

Pipe Data:

Diameter/Material: 12" CPEP
Install Year: 2014
Flow Depth: Varying
Debris Present? Significant leaf buildup
Other Notes: Pipe appears to be in good condition, but leaf buildup is restricting flow. Looks like some root intrusion is possible along walls.

Photographs

48th Avenue & Cordova Street Reconstruction CCTV

#22397 - 48th Avenue, near Cordova Street intersection

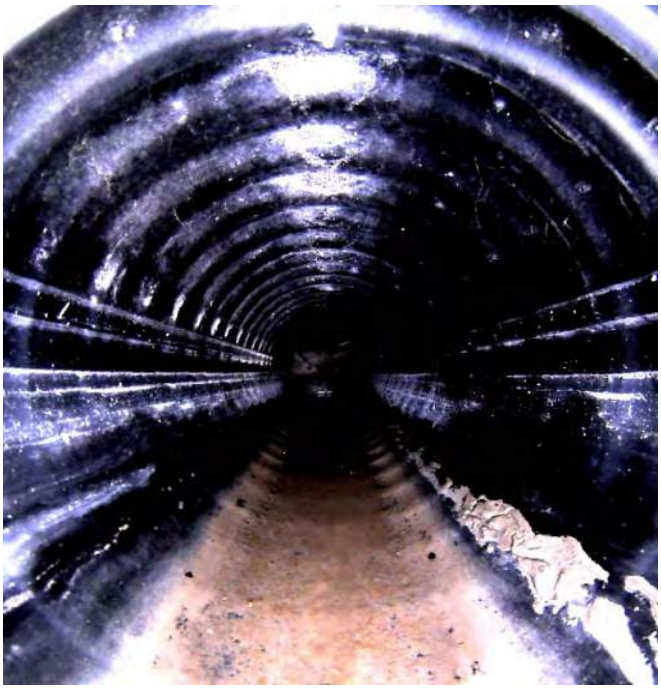
General Inspection Data

Video Date: 12/6/2018 *Video Recorded By:* MOA

Pipe Data:

Diameter/Material: 12" CPEP
Install Year: 2014
Flow Depth: Minimal
Debris Present? Minor sediment
Other Notes: Pipe appears to be in good condition, minor joint offset

Photographs



48th Avenue & Cordova Street Reconstruction CCTV

#39158 - Cordova Street, near 48th Avenue intersection

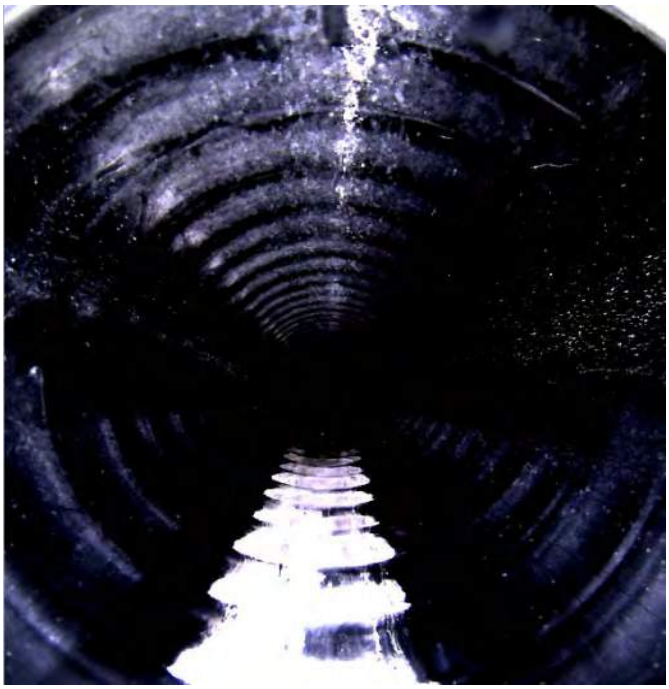
General Inspection Data

Video Date: 12/6/2018 *Video Recorded By:* MOA

Pipe Data:

Diameter/Material: 12" CPEP
Install Year: 2014
Flow Depth: Minimal
Debris Present? Minor sediment
Other Notes: Pipe appears to be in good condition

Photographs



48th Avenue & Cordova Street Reconstruction CCTV

#39159 - 48th Avenue, near Cordova Street intersection

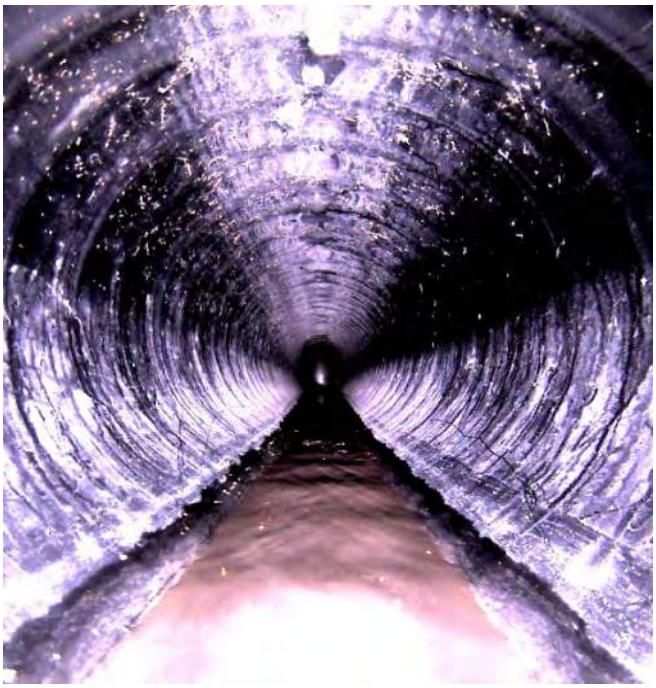
General Inspection Data

Video Date: 12/6/2018 *Video Recorded By:* MOA

Pipe Data:

Diameter/Material: 18" CPEP
Install Year: 2014
Flow Depth: Varying
Debris Present? Significant leaf buildup
Other Notes: Pipe appears to be in good condition, but leaf buildup is restricting flow.

Photographs



48th Avenue & Cordova Street Reconstruction CCTV

#39160 - 48th Avenue, near Cordova Street intersection

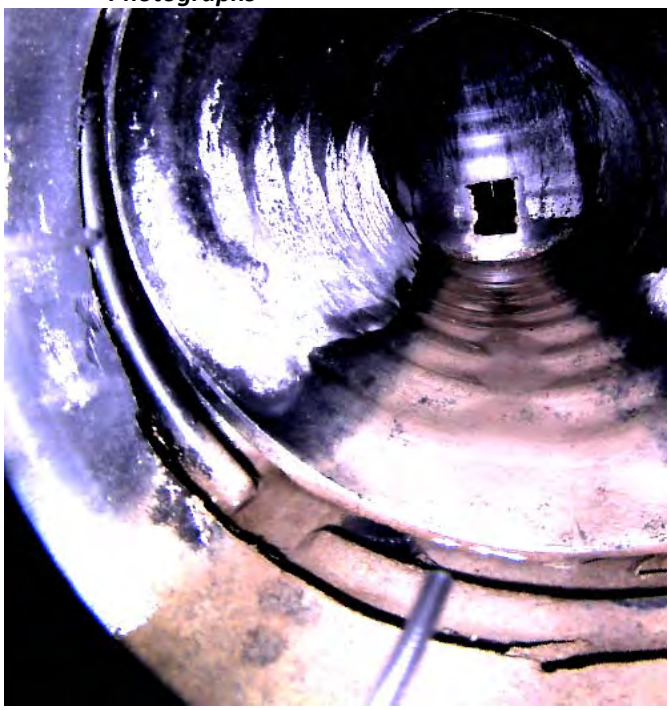
General Inspection Data

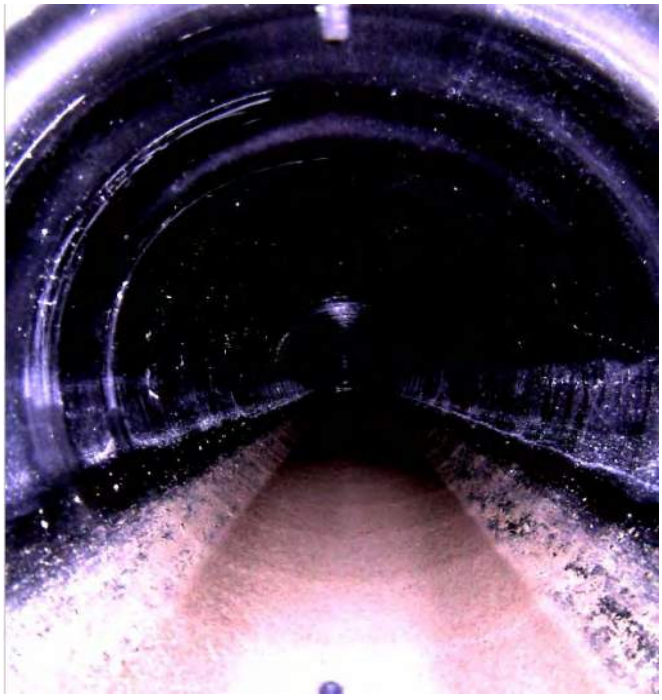
Video Date: 12/6/2018 *Video Recorded By:* MOA

Pipe Data:

Diameter/Material: 12" CPEP
Install Year: 2014
Flow Depth: Minimal
Debris Present? Minor sediment
Other Notes: Pipe appears to be in good condition, one joint offset

Photographs





48th Avenue & Cordova Street Reconstruction CCTV

Area 2 - 48th Avenue near Denali Street/Eagle Street

48th Avenue & Cordova Street Reconstruction CCTV
#25910 - 48th Avenue, near Eagle Street intersection

General Inspection Data

Video Date: 12/5/2018 *Video Recorded By:* MOA

Pipe Data:

Diameter/Material: 12" Perforated CMP
Install Year: 1988
Flow Depth: Minimal, difficult to see
Debris Present? Minor, difficult to see
Other Notes: Pipe appears to be in good condition, but lighting made it difficult to see the bottom half of the pipe.

Photographs

48th Avenue & Cordova Street Reconstruction CCTV

#29685 - 48th Avenue, near Eagle Street intersection

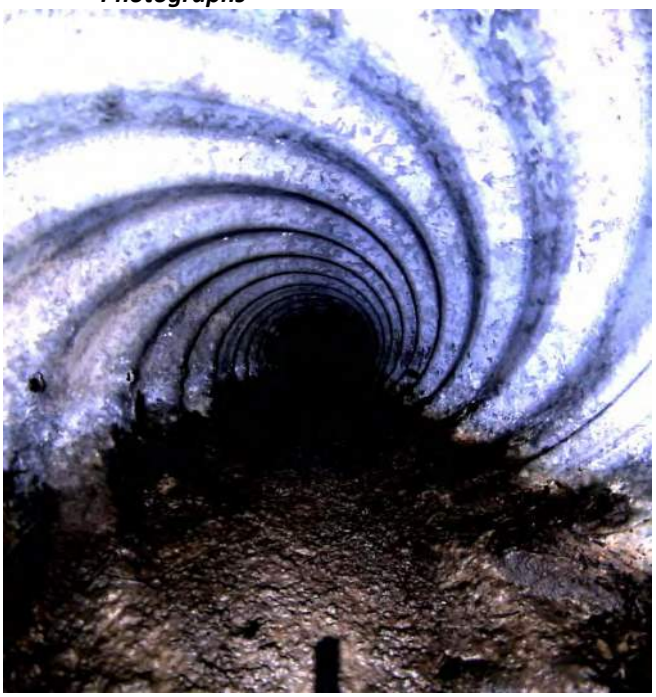
General Inspection Data

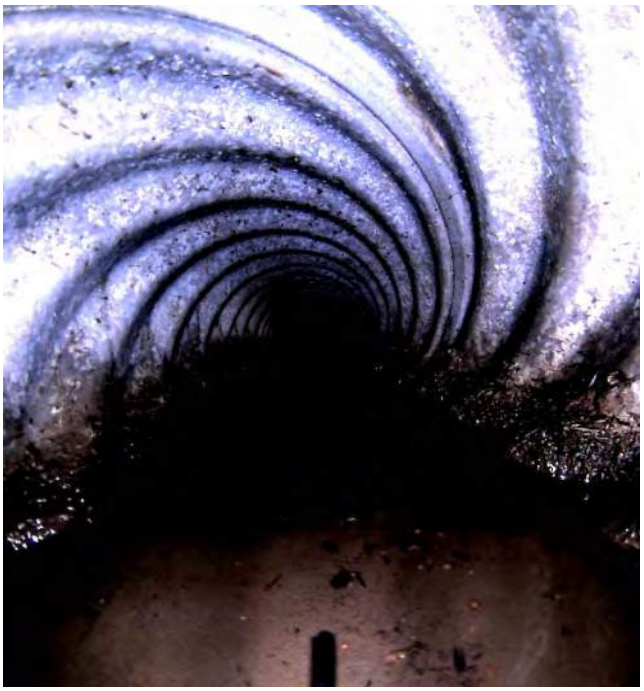
Video Date: 12/5/2018 *Video Recorded By:* MOA

Pipe Data:

Diameter/Material: 12" Perforated CMP
Install Year: 1988
Flow Depth: 1/2 of diameter
Debris Present? Significant debris buildup
Other Notes: Visible pipe appears to be in good condition, but significant buildup is restricting and backing up flow.

Photographs





48th Avenue & Cordova Street Reconstruction CCTV
#32710 - Denali Street, near 48th Avenue intersection

General Inspection Data

Video Date: 12/5/2018 *Video Recorded By:* MOA

Pipe Data:

Diameter/Material: 12" Perforated CMP
Install Year: 1988
Flow Depth: Minimal
Debris Present? No
Other Notes: Pipe appears to be in good condition

Photographs

48th Avenue & Cordova Street Reconstruction CCTV

#34751 - Eagle Street, near 48th Avenue intersection

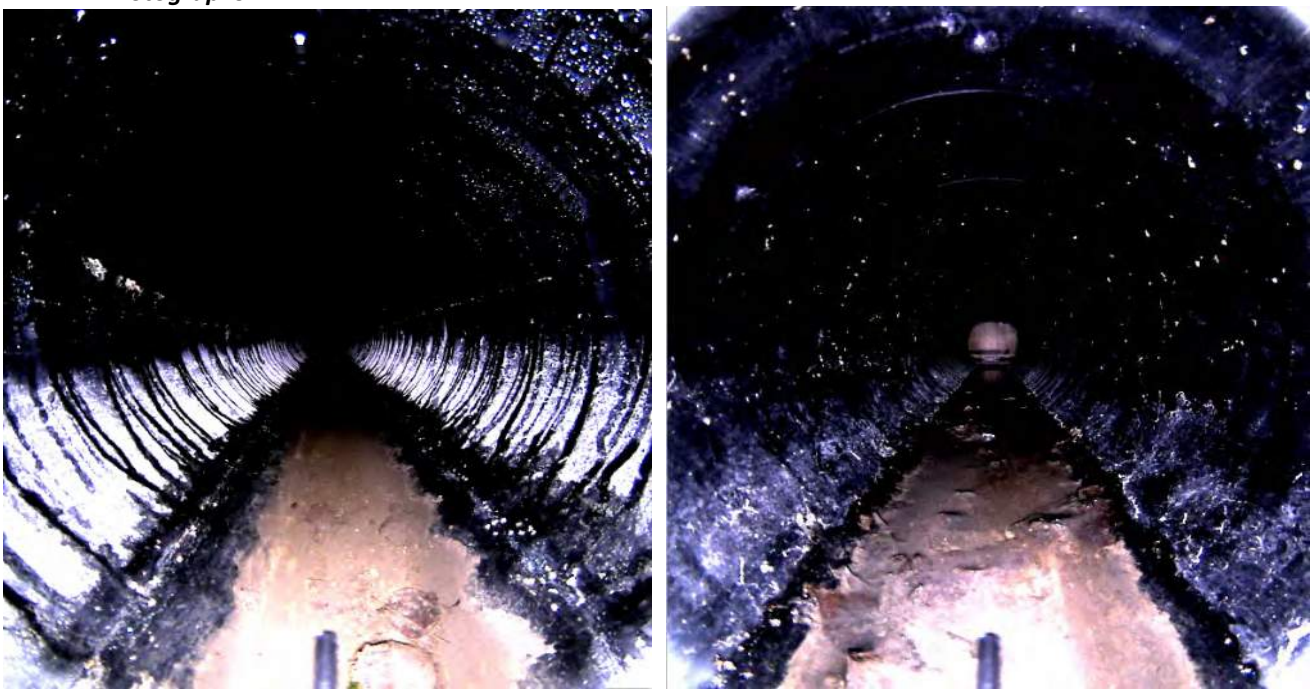
General Inspection Data

Video Date: 12/5/2018 *Video Recorded By:* MOA

Pipe Data:

Diameter/Material: 12" CPEP
Install Year: Unknown
Flow Depth: Minimal
Debris Present? Minor sediment
Other Notes: Pipe appears to be in good condition

Photographs



48th Avenue & Cordova Street Reconstruction CCTV

Area 3 - 48th Avenue near Gambell Street/Old Seward Highway

48th Avenue & Cordova Street Reconstruction CCTV
#12998 - Old Seward Highway, near 48th Avenue intersection

General Inspection Data

Video Date: 1/23/2019 *Video Recorded By:* MOA

Pipe Data:

Diameter/Material: 10" CMP
Install Year: Unknown
Flow Depth: None
Debris Present? Minor debris buildup
Other Notes: Large debris in pipe will block high flows. Pipe appears to be close to surface - significant freezing seen on pipe top. Invert rusted in most of length.

Photographs

48th Avenue & Cordova Street Reconstruction CCTV
#15553 - 48th Avenue, near Old Seward Highway intersection

General Inspection Data

Video Date: 12/11/2018 *Video Recorded By:* MOA

Pipe Data:

Diameter/Material: 10" CMP
Install Year: Unknown
Flow Depth: Minimal
Debris Present? Minor debris buildup
Other Notes: Pipe has small patches of rusting and small amount of debris buildup along invert.

Photographs

48th Avenue & Cordova Street Reconstruction CCTV
#16178 - 48th Avenue, near Old Seward Highway intersection

General Inspection Data

Video Date: 12/11/2018 *Video Recorded By:* MOA

Pipe Data:

Diameter/Material: 10" CMP
Install Year: Unknown
Flow Depth: Minimal
Debris Present? None
Other Notes: Pipe has small patches of rusting and small amount of debris buildup along invert.

Photographs

48th Avenue & Cordova Street Reconstruction CCTV
#16710 - 48th Avenue, near Gambell Street intersection

General Inspection Data

Video Date: 12/11/2018 *Video Recorded By:* MOA

Pipe Data:

Diameter/Material: 15" CMP
Install Year: 1982
Flow Depth: Varying
Debris Present? Significant debris buildup
Other Notes: Pipe has a large break that prevented the CCTV camera from proceeding for full length (second video started from other side, but still missing around 70 feet of middle pipe length). Large debris in pipe dams flow in a few locations. Invert rusted through and missing for most of visible length.

Photographs

48th Avenue & Cordova Street Reconstruction CCTV

#17134 - 48th Avenue and Gambell Street intersection

General Inspection Data

Video Date: 12/11/2018 *Video Recorded By:* MOA

Pipe Data:

Diameter/Material: 10" CMP
Install Year: 1982
Flow Depth: Minimal
Debris Present? Minor/moderate infiltration buildup
Other Notes: Pipe is mostly in good condition, except for one significant infiltration section (about 2-3 feet long) and multiple smaller rust/infiltration spots nearby.

Photographs

48th Avenue & Cordova Street Reconstruction CCTV
#24471 - 48th Avenue and Old Seward Highway intersection

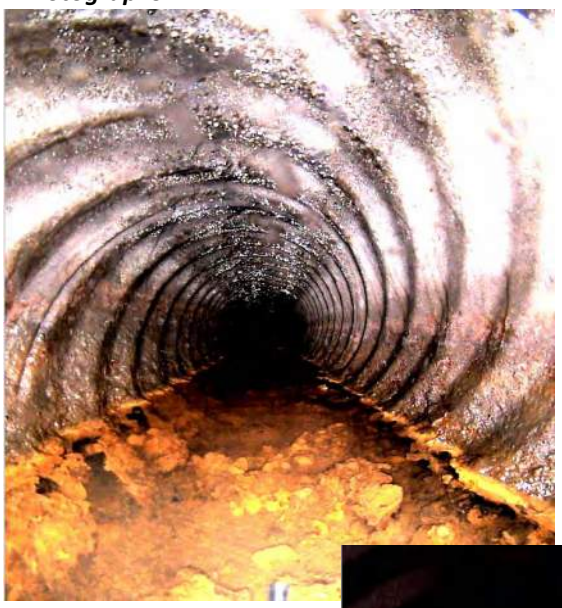
General Inspection Data

Video Date: 1/23/2019 *Video Recorded By:* MOA

Pipe Data:

Diameter/Material: 15" CMP
Install Year: Unknown
Flow Depth: Varying
Debris Present? Significant debris buildup
Other Notes: Large debris in pipe dams flow in a few locations. Invert rusted through and missing for all of visible length, especially obvious at upstream manhole (appears part of manhole wall missing as well).

Photographs



48th Avenue & Cordova Street Reconstruction CCTV

#25510 - 48th Avenue and Gambell Street intersection

General Inspection Data

Video Date: 12/11/2018 *Video Recorded By:* MOA

Pipe Data:

Diameter/Material: 10" CMP
Install Year: 1982
Flow Depth: None
Debris Present? Minor debris buildup
Other Notes: Pipe has small patches of rusting and small amount of debris buildup along invert. Minor joint offset present.

Photographs

48th Avenue & Cordova Street Reconstruction CCTV
#25794 - 48th Avenue, near Old Seward Highway intersection

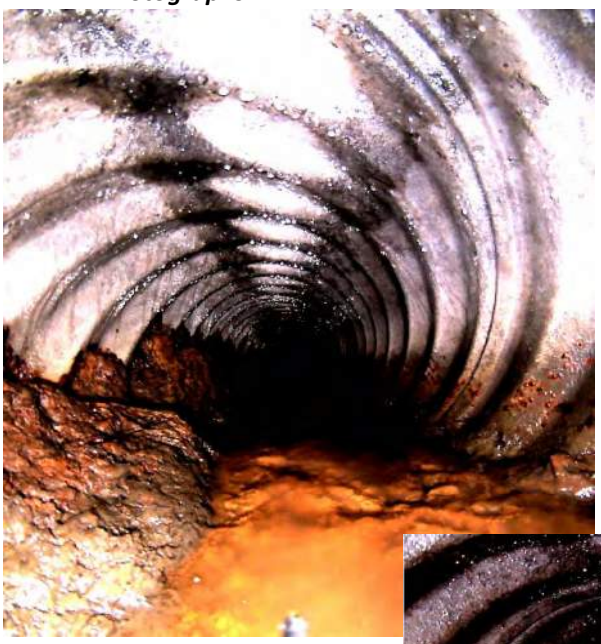
General Inspection Data

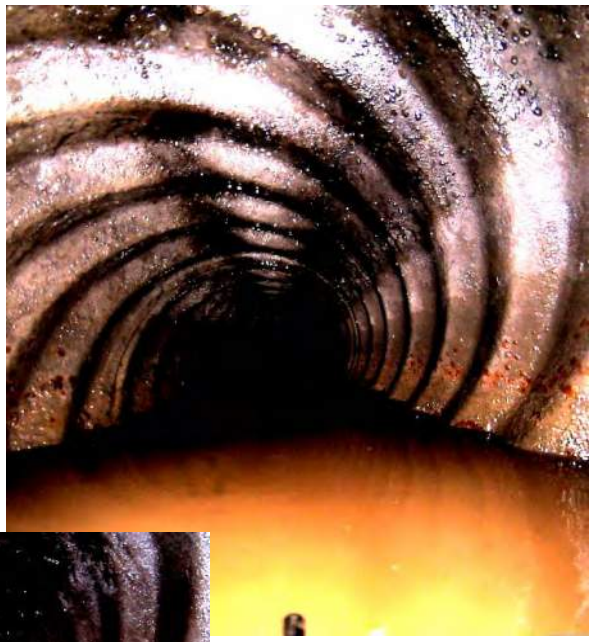
Video Date: 12/11/2018 *Video Recorded By:* MOA

Pipe Data:

Diameter/Material: 15" CMP
Install Year: 1982
Flow Depth: Deep throughout, partially submerged camera once
Debris Present? Significant debris buildup
Other Notes: Pipe had deep flow that prevented the CCTV camera from proceeding for full length (missing around 20 feet of pipe length). Invert not visible due to depth of water. Large debris buildups in pipe dams flow in a few locations, though not fully visible in CCTV footage. Small patches of rusting visible on walls.

Photographs





48th Avenue & Cordova Street Reconstruction CCTV
#27090 - Gambell Street, near 48th Avenue intersection

General Inspection Data

Video Date: 12/11/2018 *Video Recorded By:* MOA

Pipe Data:

Diameter/Material: 15" CMP
Install Year: 1982
Flow Depth: Minimal
Debris Present? Moderate debris/infiltration buildup
Other Notes: Pipe is mostly in good condition, except for one significant infiltration spot, and debris buildup along walls for most of the length.

Photographs

Memorandum

Date: July 2, 2019
From: Marliese von Huene, P.E. & Joey Hegna, P.E. – CRW Engineering Group, LLC
Project: 48th Avenue and Cordova Street Reconstruction
Project No: PM&E# 06-26 (CRW# 10143.00)
Subject: Storm Drain Manhole Condition Assessment

This memorandum summarizes the findings from the storm drain manhole condition assessment performed on the existing structures located along East 48th Avenue from Cordova Street to Old Seward Highway and along Cordova Street from East International Road to East 48th Avenue.

Storm Drain Manhole Inspection

A total of fourteen storm drain structures within the project corridor were inspected in May 2019. The storm drain structures inspected include catch basins, catch basin manholes and standard manholes. All structures are located within the Municipality of Anchorage (MOA) Maintenance & Operations grid map SW1831. The structure identification numbers used herein match those shown on the grid map.

Two catch basins within the project corridor (234 & 158) are located on private property and were not inspected. Three structures located at the intersection of 48th Avenue and Old Seward Highway (026, 027 & 032) were also not inspected. The two catch basins (027 & 032) are planned to be removed and replaced to align with the reconfigured curb line near this intersection. The connecting manhole (026) was unable to be inspected due to high volume of traffic at time of inspection. This structure was installed in the early 1980s along with the two upstream manholes (024 & 025). Based on the poor condition of the inspected upstream manholes, it's assumed this structure (026) also requires replacement.

A condition inspection report was prepared for each structure documenting notable characteristics, irregularities, and defects within the structure. Photographs of each structure were taken to document the condition of the structure at the time of inspection. The assessment was completed by inspecting each structure from the ground surface; no structures were entered for this effort.

Storm Drain Manhole Condition

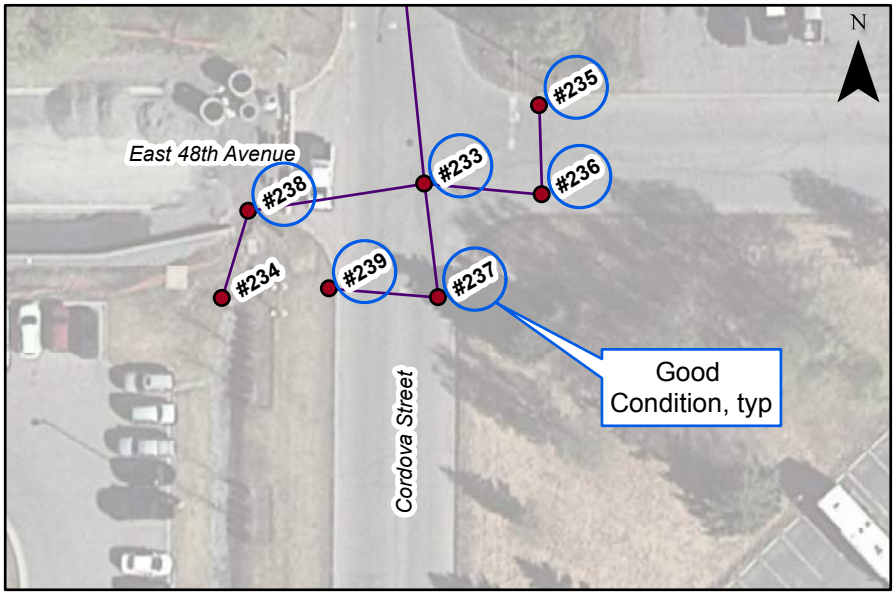
The majority of the storm drain structures along the project corridor were installed in the 1980s with the exception of the structures located at the intersection of 48th Avenue and Cordova Street. These structures were installed in 2014 as part of the A Street & 48th Avenue Extension and Upgrade project (PM&E No. 12-22). Several of the older structures inspected are in poor shape and in need of replacement, whereas the recently installed structures are generally in good shape and meet current Municipality of Anchorage Standard Specifications (MASS).

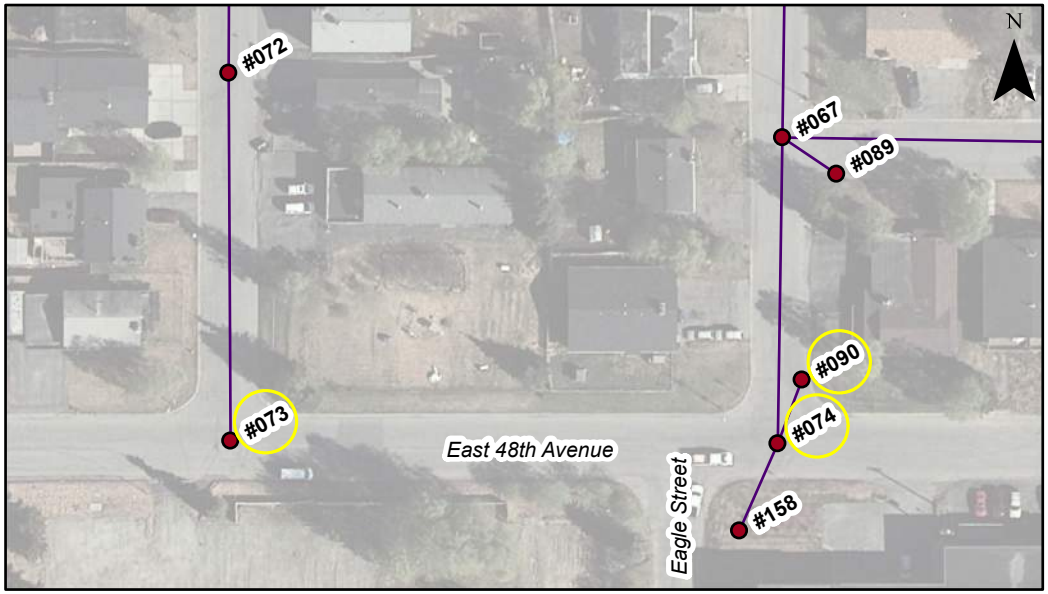
Below is a list of some of the more significant defects observed in the inspected structures:

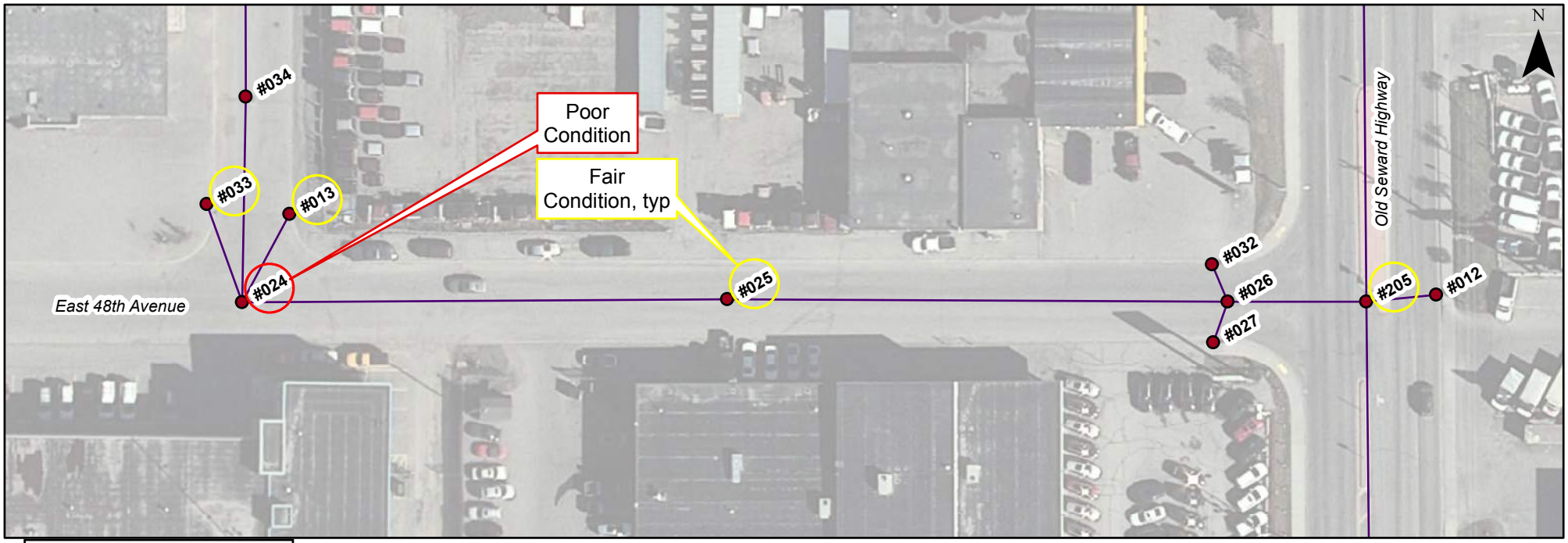
- Curb inlet frame supported with damaged bricks (no grade rings)
- Spalling, damaged grout at manhole pipe penetrations
- Inflow at barrel joints
- Damaged cone sections with exposed rebar
- Pipe entering manhole installed with capped end

- Offsets between grade rings, frame and reducing slab/cone
- Vertical cracking in grade rings
- Non-standard manhole covers, frames and ladder rungs

A manhole inspection map and detailed inspection report for each structure is provided in the following pages.







Legend

- Existing Structures
- Existing Storm System

SW1831

Circled manholes and catchbasins were inspected 5/22/2019 - Inspection forms and photos are in the following pages, manholes are presented first.

Manhole Inspection Map

48th Avenue & Cordova Street

Date: MAY 2019

Page: 1 of 1

48th Avenue & Cordova Street Reconstruction a l·yƘƻƭŜă

Area 1 - 48th Avenue and Cordova Street intersection

CRW ENGINEERING GROUP
STORM DRAIN MANHOLE FIELD INSPECTION FORM
48TH AVENUE & CORDOVA STREET RECONSTRUCTION

INSPECTION DATE: 5/22/19 INSPECTION TIME: 2:30 PM

WEATHER: _____ INSPECTED BY: Joey & Marliese

MANHOLE NUMBER: #233 FIRST PHOTO NUMBER: _____

APPROXIMATE LOCATION: Intersection of 48th & Cordova – MH located in pavement

CONDITION	POOR			GOOD
CONDITION OF LID	1	2	3	4
CONDITION OF GRADE RINGS	1	2	3	4
CONDITION OF BARREL	1	2	3	4
CONDITION OF LADDER	1	2	3	4
CONDITION OF PIPE INLETS/OUTLETS	1	2	3	4
PRESENCE OF SOLIDS OR BUILDUP	YES			NO
PRESENCE OF INFILTRATION/INFLOW	YES			NO

DEPTH/VOLUME OF FLOW: Minor flow

DIAMETER OF MANHOLE: 4' (Type I) Manhole

MANHOLE CONDITION NOTES:

- Recently constructed
- Overall structure in good condition

Photo 1 - Structure Location Map

Photo 2 - Manhole / Surrounding Area

Photo 3 - Frame, Grade Rings & Ladder Rungs

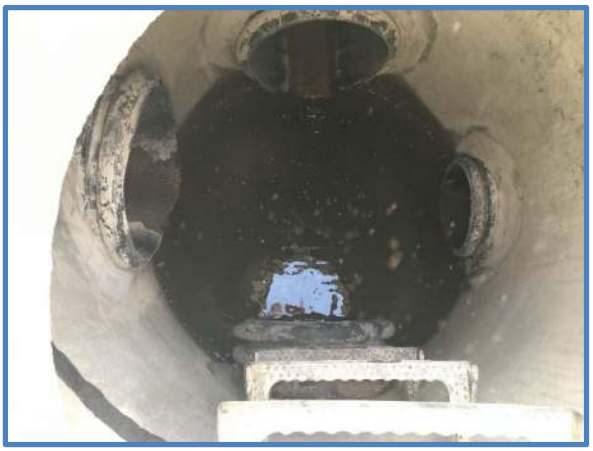


Photo 4 - Inlet & Outlet Pipe Penetrations

CRW ENGINEERING GROUP
STORM DRAIN MANHOLE FIELD INSPECTION FORM
48TH AVENUE & CORDOVA STREET RECONSTRUCTION

INSPECTION DATE: 5/22/19 INSPECTION TIME: 10:45 AM

WEATHER: _____ INSPECTED BY: Joey & Marliese

MANHOLE NUMBER: #236 FIRST PHOTO NUMBER: _____

APPROXIMATE LOCATION: Intersection of 48th & Cordova – SE corner

CONDITION	POOR	←		→	GOOD
CONDITION OF LID	1	2	3		4
CONDITION OF GRADE RINGS	1	2	3		4
CONDITION OF BARREL	1	2	3		4
CONDITION OF LADDER	1	2	3		4
CONDITION OF PIPE INLETS/OUTLETS	1	2	3		4
PRESENCE OF SOLIDS OR BUILDUP		YES		NO	
PRESENCE OF INFILTRATION/INFLOW		YES		NO	

DEPTH/VOLUME OF FLOW: Minor flow

DIAMETER OF MANHOLE: 6’ (Type II) Catchbasin Manhole

MANHOLE CONDITION NOTES:

- Recently constructed
- MH opening and curb inlet are not aligned perpendicular to roadway
- Overall structure in good condition

Photo 1 - Structure Location Map

Photo 2 - Type II Catch Basin Manhole / Surrounding Area

Photo 1 - Frame, Grade Rings & Ladder Rungs

Photo 4 - Inlet & Outlet Pipe Penetrations

CRW ENGINEERING GROUP
STORM DRAIN MANHOLE FIELD INSPECTION FORM
48TH AVENUE & CORDOVA STREET RECONSTRUCTION

INSPECTION DATE: 5/22/19 INSPECTION TIME: 10:20 AM

WEATHER: INSPECTED BY: Joey & Marliese

MANHOLE NUMBER: #237 FIRST PHOTO NUMBER:

APPROXIMATE LOCATION: Intersection of 48th & Cordova – SSE corner

CONDITION	POOR	←		→	GOOD
CONDITION OF LID	1	2	3		4
CONDITION OF GRADE RINGS	1	2	3		4
CONDITION OF BARREL	1	2	3		4
CONDITION OF LADDER	1	2	3		4
CONDITION OF PIPE INLETS/OUTLETS	1	2	3		4
PRESENCE OF SOLIDS OR BUILDUP	YES			NO	
PRESENCE OF INFILTRATION/INFLOW	YES			NO	

DEPTH/VOLUME OF FLOW: Minor flow – from east pipe (not on WMS mapping)

DIAMETER OF MANHOLE: 6’ (Type II) Catchbasin Manhole

MANHOLE CONDITION NOTES:

- Recently constructed
- 8-10” CPEP pipe coming from east is not shown on WMS mapping
- Overall structure in good condition

Photo 1 - Structure Location Map

Photo 2 - Type II Catch Basin Manhole / Surrounding Area

Photo 3 - Frame, Grade Rings & Ladder Rungs

Photo 4 - Outlet Pipe Penetration

CRW ENGINEERING GROUP
STORM DRAIN MANHOLE FIELD INSPECTION FORM
48TH AVENUE & CORDOVA STREET RECONSTRUCTION

INSPECTION DATE: 5/22/19 INSPECTION TIME: 9:40 AM

WEATHER: _____ INSPECTED BY: Joey & Marliese

MANHOLE NUMBER: #238 FIRST PHOTO NUMBER: _____

APPROXIMATE LOCATION: Intersection of 48th & Cordova – SW corner, MH lid in pavement

CONDITION	POOR			GOOD
CONDITION OF LID	1	2	3	4
CONDITION OF GRADE RINGS	1	2	3	4
CONDITION OF BARREL	1	2	3	4
CONDITION OF LADDER	1	2	3	4
CONDITION OF PIPE INLETS/OUTLETS	1	2	3	4
PRESENCE OF SOLIDS OR BUILDUP	YES			NO
PRESENCE OF INFILTRATION/INFLOW	YES			NO

DEPTH/VOLUME OF FLOW: Minor flow

DIAMETER OF MANHOLE: 4’ (Type I) Manhole

MANHOLE CONDITION NOTES:

- Recently constructed
- South invert shows some grout spalling
- No cone, 8” reducing slab
- Overall structure in good condition

Photo 1 - Structure Location Map

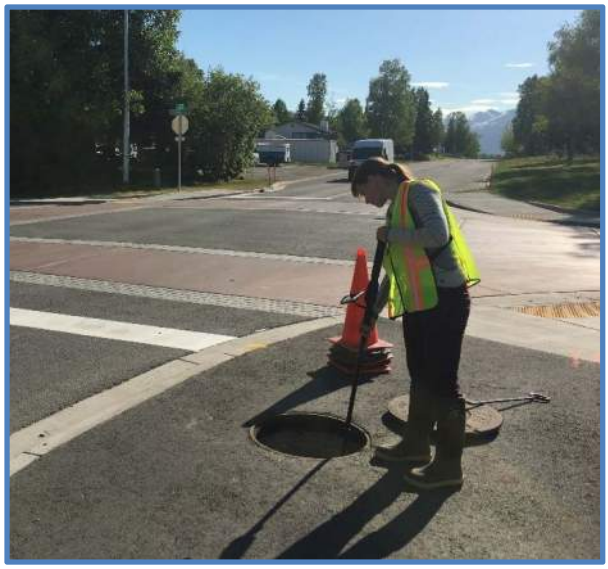


Photo 2 - Manhole / Surrounding Area

Photo 3 - Frame, Grade Rings & Reducing Slab

Photo 4 - Inlet & Outlet Pipe Penetrations

CRW ENGINEERING GROUP
STORM DRAIN CATCHBASIN FIELD INSPECTION FORM
48TH AVENUE & CORDOVA STREET RECONSTRUCTION

INSPECTION DATE: 5/22/19 INSPECTION TIME: 11:05 PM

WEATHER: INSPECTED BY: Joey & Marliese

CATCHBASIN NUMBER: #235 FIRST PHOTO NUMBER:

APPROXIMATE LOCATION: Intersection of 48th & Gambell – W side of Gambell

CONDITION	POOR			GOOD
CONDITION OF GRATE	1	2	3	4
CONDITION OF GRADE RINGS	1	2	3	4
CONDITION OF BARREL	1	2	3	4
CONDITION OF LADDER	1	2	3	4
CONDITION OF PIPE INLETS/OUTLETS	1	2	3	4
PRESENCE OF SOLIDS OR BUILDUP	YES			NO
PRESENCE OF INFILTRATION/INFLOW	YES			NO

DEPTH/VOLUME OF FLOW: None

DIAMETER OF MANHOLE: 4’ Catchbasin

MANHOLE CONDITION NOTES:

- Recently installed, per MASS

Photo 1 - Structure Location Map

Photo 2 - Curb Inlet / Surrounding Area

Photo 3 - Frame, Grade Rings & Reducing Slab

Photo 1 - Outlet Pipe Penetrations

CRW ENGINEERING GROUP
STORM DRAIN CATCHBASIN FIELD INSPECTION FORM
48TH AVENUE & CORDOVA STREET RECONSTRUCTION

INSPECTION DATE: 5/22/19 INSPECTION TIME: 11:05 PM

WEATHER: _____ INSPECTED BY: Joey & Marliese

CATCHBASIN NUMBER: #239 FIRST PHOTO NUMBER: _____

APPROXIMATE LOCATION: Intersection of 48th & Cordova – SW side, on Cordova

CONDITION	POOR	←	→	GOOD
CONDITION OF GRATE	1	2	3	4
CONDITION OF GRADE RINGS	1	2	3	4
CONDITION OF BARREL	1	2	3	4
CONDITION OF LADDER	1	2	3	4
CONDITION OF PIPE INLETS/OUTLETS	1	2	3	4
PRESENCE OF SOLIDS OR BUILDUP	YES			NO
PRESENCE OF INFILTRATION/INFLOW	YES			NO

DEPTH/VOLUME OF FLOW: None

DIAMETER OF MANHOLE: 4’ Catchbasin

MANHOLE CONDITION NOTES:

- Some sediment in pipe invert
- Recently installed, per MASS

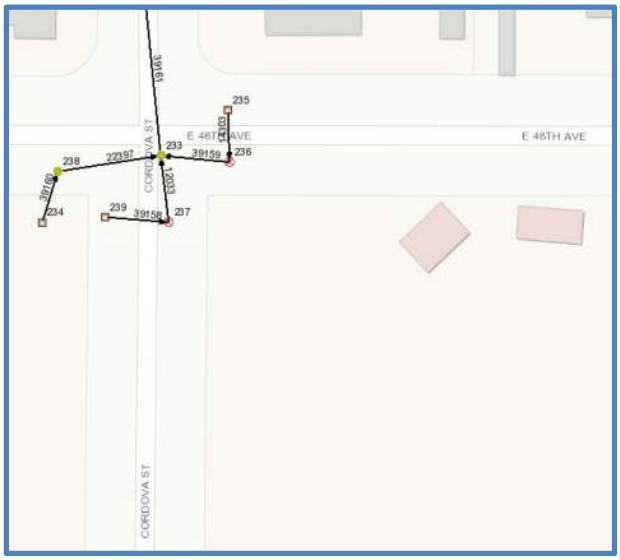


Photo 1 - Structure Location Map

Photo 2 - Curb Inlet / Surrounding Area

Photo 3 - Frame, Grade Rings & Reducing Slab

Photo 4 - Outlet Pipe Penetration

48th Avenue & Cordova Street Reconstruction ɑ l·yƘƵƒŜă

Area 2 - 48th Avenue near Denali Street/Eagle Street

CRW ENGINEERING GROUP
STORM DRAIN MANHOLE FIELD INSPECTION FORM
48TH AVENUE & CORDOVA STREET RECONSTRUCTION

INSPECTION DATE: 5/22/19 INSPECTION TIME: 11:25 AM

WEATHER: _____ INSPECTED BY: Joey & Marliese

MANHOLE NUMBER: #073 FIRST PHOTO NUMBER: _____

APPROXIMATE LOCATION: _____

CONDITION	POOR	←			→	GOOD
CONDITION OF LID	1		2	(3)		4
CONDITION OF GRADE RINGS	1		2	(3)		4
CONDITION OF BARREL	1		2	(3)		4
CONDITION OF LADDER	1		2	(3)		4
CONDITION OF PIPE INLETS/OUTLETS	1		(2)	3		4
PRESENCE OF SOLIDS OR BUILDUP		YES			(NO)	
PRESENCE OF INFILTRATION/INFLOW		YES			(NO)	

DEPTH/VOLUME OF FLOW: No flow

DIAMETER OF MANHOLE: 4' Type I Manhole

MANHOLE CONDITION NOTES:

- Non-standard lid
- Minor offset between grade rings and frame
- Eccentric cone
- Non-standard steel ladder rungs (5)
- Grouting at manhole wall near pipe spalling
- Overall good/fair condition

Photo 1 - Structure Location Map

Photo 1 - Manhole / Surrounding Area

Photo 3 - Frame, Grade Rings & Ladder Rungs

Photo 2 - Outlet Pipe Penetration

CRW ENGINEERING GROUP
STORM DRAIN MANHOLE FIELD INSPECTION FORM
48TH AVENUE & CORDOVA STREET RECONSTRUCTION

INSPECTION DATE: 5/22/19 INSPECTION TIME: 11:40 AM

WEATHER: _____ INSPECTED BY: Joey & Marliese

MANHOLE NUMBER: #074 FIRST PHOTO NUMBER: _____

APPROXIMATE LOCATION: Intersection of Eagle Street and 48th Avenue – In center of roadway

CONDITION	POOR				GOOD
CONDITION OF LID	1	2	**3**		4
CONDITION OF GRADE RINGS	1	2	**3**		4
CONDITION OF BARREL	1	**2**	3		4
CONDITION OF LADDER	1	2	**3**		4
CONDITION OF PIPE INLETS/OUTLETS	1	2	**3**		4
PRESENCE OF SOLIDS OR BUILDUP		YES		**NO**	
PRESENCE OF INFILTRATION/INFLOW		YES		**NO**	

DEPTH/VOLUME OF FLOW: No flow – drip coming from capped south pipe

DIAMETER OF MANHOLE: 4’ Type I Manhole

MANHOLE CONDITION NOTES:

- Non-standard lid
- Minor offset between cone and barrel, cone and grade rings, and grade rings and frame
- Eccentric cone
- Non-standard steel ladder rungs (6)
- South pipe has a CPEP cap over the end that is dripping, unsure of purpose

Photo 1 - Structure Location Map

Photo 2 - Manhole / Surrounding Area

Photo 3 - Frame, Grade Rings & Ladder Rungs

Photo 4 - Inlet & Outlet Pipe Penetrations / End Cap

CRW ENGINEERING GROUP
STORM DRAIN CATCHBASIN FIELD INSPECTION FORM
48TH AVENUE & CORDOVA STREET RECONSTRUCTION

INSPECTION DATE: 5/22/19 INSPECTION TIME: 11:55 PM

WEATHER: _____ INSPECTED BY: Joey & Marliese

CATCHBASIN NUMBER: #090 FIRST PHOTO NUMBER: _____

APPROXIMATE LOCATION: Intersection of 48th & Gambell – W side of Gambell

CONDITION	POOR			GOOD
CONDITION OF GRATE	1	**2**	3	4
CONDITION OF GRADE RINGS	**1**	2	3	4
CONDITION OF BARREL	1	2	**3**	4
CONDITION OF LADDER	1	2	3	4
CONDITION OF PIPE INLETS/OUTLETS	1	2	**3**	4
PRESENCE OF SOLIDS OR BUILDUP	YES		**NO**	
PRESENCE OF INFILTRATION/INFLOW	YES		**NO**	

DEPTH/VOLUME OF FLOW: None

DIAMETER OF MANHOLE: 4’ Catchbasin

MANHOLE CONDITION NOTES:

- Type 2 curb inlet grate and frame
- Vegetation growing into frame
- No grade rings, supported by bricks (in poor condition) placed on reducing slab
- Overall structure in good/fair condition

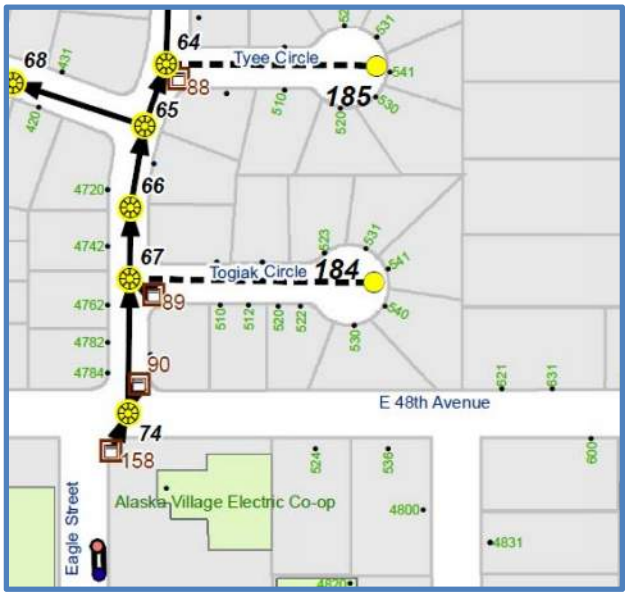


Photo 3 - Structure Location Map

Photo 1 - Curb Inlet / Surrounding Area

Photo 2 - Frame, Brick Grade Rings & Reducing Slab

Photo 4 - Outlet Pipe Penetration

48th Avenue & Cordova Street Reconstruction a l·y K2fŜă

Area 3 - 48th Avenue near Gambell Street/Old Seward Highway

CRW ENGINEERING GROUP
STORM DRAIN MANHOLE FIELD INSPECTION FORM
48TH AVENUE & CORDOVA STREET RECONSTRUCTION

INSPECTION DATE: 5/22/19 INSPECTION TIME: 12:45 PM

WEATHER: _____ INSPECTED BY: Joey & Marliese

MANHOLE NUMBER: #024 FIRST PHOTO NUMBER: _____

APPROXIMATE LOCATION: Intersection of Gambell & 48th – Manhole in middle of roadway

CONDITION	POOR ←			→ GOOD
CONDITION OF LID	1	2	**3**	4
CONDITION OF GRADE RINGS	1	**2**	3	4
CONDITION OF BARREL	1	2	**3**	4
CONDITION OF LADDER	1	2	**3**	4
CONDITION OF PIPE INLETS/OUTLETS	**1**	2	3	4
PRESENCE OF SOLIDS OR BUILDUP	YES		**NO**	
PRESENCE OF INFILTRATION/INFLOW	**YES**		NO	

DEPTH/VOLUME OF FLOW: Minor flow from north pipe

DIAMETER OF MANHOLE: 5' (?) – Appears larger than 4', but not quite 6'

MANHOLE CONDITION NOTES:

- Non-standard lid
- Minor offset between lid and grade rings
- Eccentric cone
- Steel ladder rungs (7)
- Barrel ok (2 sections), Inflow at bottom barrel joint
- Minor vertical cracking in grade rings
- Pipe penetrations show sings of spalling/degradation
- Rebar exposed at bottom of cone section (south side)

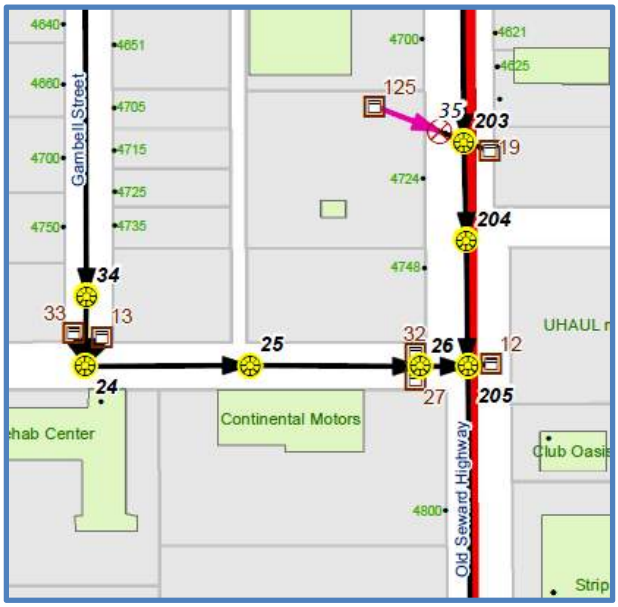


Photo 5 - Structure Location Map

Photo 4 - Manhole / Surround Area

Photo 3 - Frame, Grade Rings & Ladder Rungs

Photo 1 - Inlet & Outlet Pipe Penetrations

Photo 2 - Cone Damage, Exposed Steel

CRW ENGINEERING GROUP
STORM DRAIN MANHOLE FIELD INSPECTION FORM
48TH AVENUE & CORDOVA STREET RECONSTRUCTION

INSPECTION DATE: 5/22/19 INSPECTION TIME: 1:05 PM

WEATHER: _____ INSPECTED BY: Joey & Marliese

MANHOLE NUMBER: #025 FIRST PHOTO NUMBER: _____

APPROXIMATE LOCATION: _____

CONDITION	POOR				GOOD
CONDITION OF LID	1	2	(3)		4
CONDITION OF GRADE RINGS	1	2	(3)		4
CONDITION OF BARREL	1	2	(3)		4
CONDITION OF LADDER	1	2	(3)		4
CONDITION OF PIPE INLETS/OUTLETS	1	(2)	3		4
PRESENCE OF SOLIDS OR BUILDUP		YES		(NO)	
PRESENCE OF INFILTRATION/INFLOW		(YES)		NO	

DEPTH/VOLUME OF FLOW: Minor flow

DIAMETER OF MANHOLE: 6' Manhole

MANHOLE CONDITION NOTES:

- Non-standard lid
- Minor offset between lid, grade rings and frame
- Eccentric cone
- Steel ladder rungs (5)
- Barrel ok (2 sections), possible inflow at bottom barrel joint (appears damp)
- Grouting at manhole wall near pipe spalling

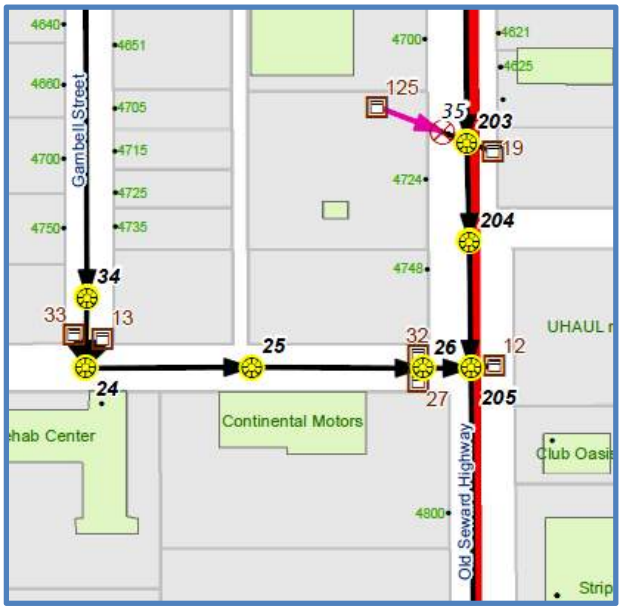


Photo 1 - Structure Location Map

Photo 1 - Manhole / Surrounding Area

Photo 3 - Frame, Grade Rings & Ladder Rungs

Photo 2 - Inlet & Outlet Pipe Penetrations

CRW ENGINEERING GROUP
STORM DRAIN MANHOLE FIELD INSPECTION FORM
48TH AVENUE & CORDOVA STREET RECONSTRUCTION

INSPECTION DATE: 5/22/19 INSPECTION TIME: 3:00 PM

WEATHER: _____ INSPECTED BY: Joey & Marliese

MANHOLE NUMBER: #205 FIRST PHOTO NUMBER: _____

APPROXIMATE LOCATION: In center of Old Seward Highway, near median

CONDITION	POOR			GOOD
CONDITION OF LID	(1)	2	3	4
CONDITION OF GRADE RINGS	1	2	(3)	4
CONDITION OF BARREL	1	2	(3)	4
CONDITION OF LADDER	1	2	(3)	4
CONDITION OF PIPE INLETS/OUTLETS	1	2	(3)	4
PRESENCE OF SOLIDS OR BUILDUP	YES		(NO)	
PRESENCE OF INFILTRATION/INFLOW	YES		(NO)	

DEPTH/VOLUME OF FLOW: _____

DIAMETER OF MANHOLE: _____

MANHOLE CONDITION NOTES:

- Non-standard lid – labeled “sewer”
- Eccentric cone
- Steel ladder rungs (6)
- Pipe penetrations appear to have been recently regrouted
- Overall structure in good condition

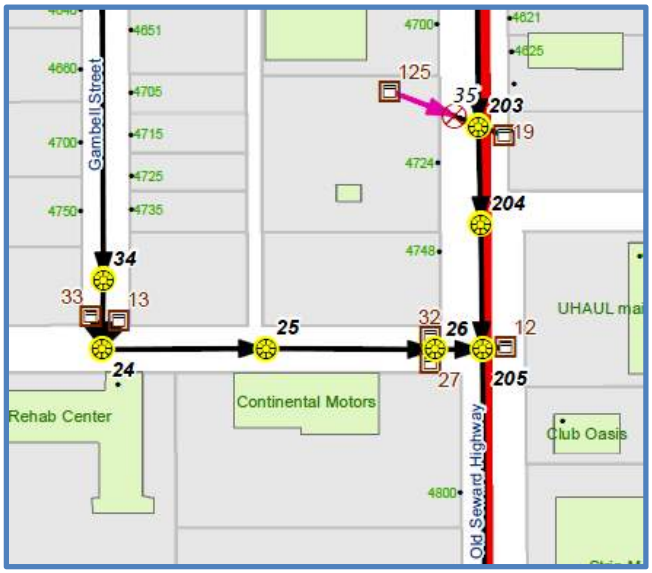


Photo 1 - Structural Location Map

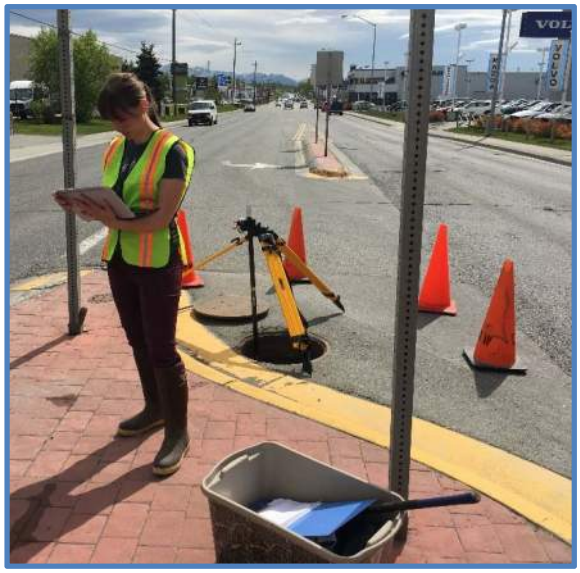


Photo 2 - Manhole / Surrounding Area

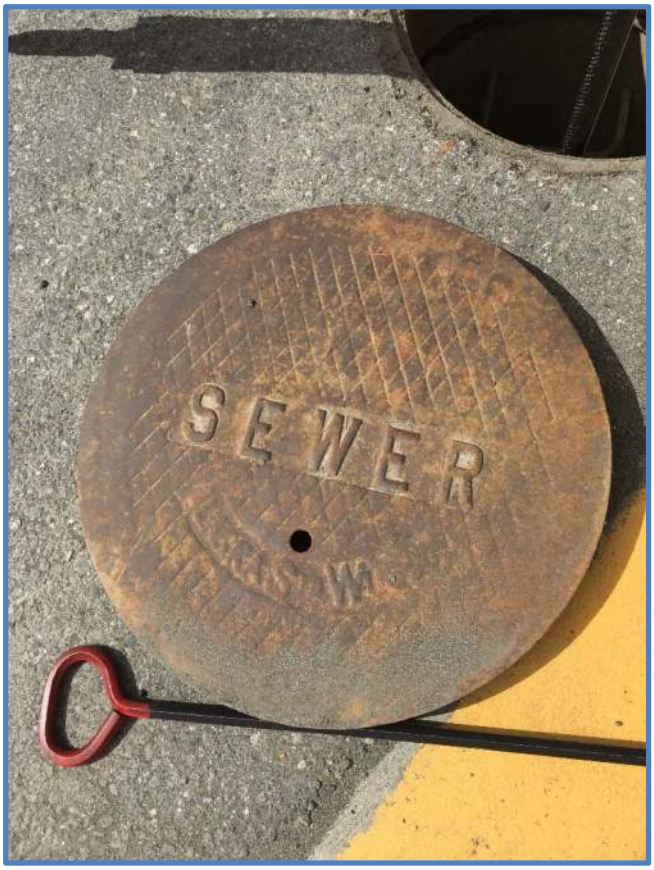


Photo 3 - Sewer Manhole Cover

Photo 4 - Inlet & Outlet Pipe Penetrations

CRW ENGINEERING GROUP
STORM DRAIN CATCHBASIN FIELD INSPECTION FORM
48TH AVENUE & CORDOVA STREET RECONSTRUCTION

INSPECTION DATE: 5/22/19 INSPECTION TIME: 12:25 PM

WEATHER: _____ INSPECTED BY: Joey & Marliese

CATCHBASIN NUMBER: #013 FIRST PHOTO NUMBER: _____

APPROXIMATE LOCATION: Intersection of 48th &Gambell – SW corner, MH lid in pavement

CONDITION	POOR			GOOD
CONDITION OF GRATE	1	2	3	4
CONDITION OF GRADE RINGS	1	2	3	4
CONDITION OF BARREL	1	2	3	4
CONDITION OF LADDER	1	2	3	4
CONDITION OF PIPE INLETS/OUTLETS	1	2	3	4

PRESENCE OF SOLIDS OR BUILDUP YES NO

PRESENCE OF INFILTRATION/INFLOW YES NO

DEPTH/VOLUME OF FLOW: None

DIAMETER OF MANHOLE: 4’ Catchbasin

MANHOLE CONDITION NOTES:

- Type 2 curb inlet grate and frame
- Overall structure in good/fair condition

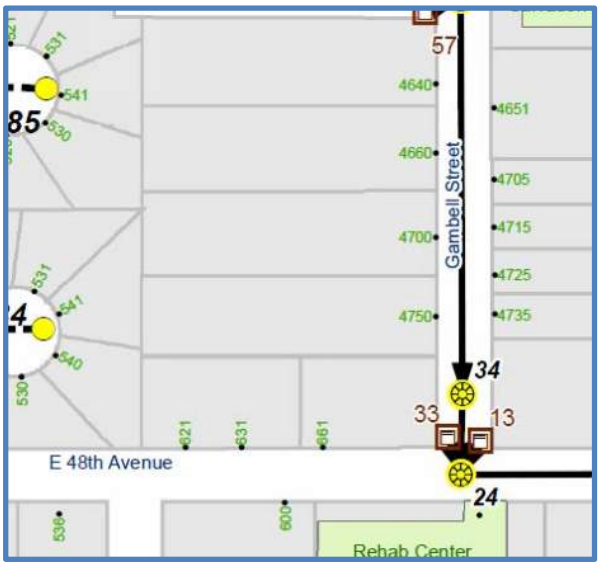


Photo 1 - Structure Location Map

Photo 2 - Curb Inlet / Surrounding Area

Photo 3 - Frame, Grade Rings & Reducing Slab

Photo 4 – Outlet Pipe Penetration

CRW ENGINEERING GROUP
STORM DRAIN CATCHBASIN FIELD INSPECTION FORM
48TH AVENUE & CORDOVA STREET RECONSTRUCTION

INSPECTION DATE: 5/22/19 INSPECTION TIME: 12:15 PM

WEATHER: _____ INSPECTED BY: Joey & Marliese

CATCHBASIN NUMBER: #033 FIRST PHOTO NUMBER: _____

APPROXIMATE LOCATION: Intersection of 48th & Gambell – W side of Gambell

CONDITION	POOR	←	→	GOOD
CONDITION OF GRATE	1	**2**	3	4
CONDITION OF GRADE RINGS	1	2	**3**	4
CONDITION OF BARREL	1	2	**3**	4
CONDITION OF LADDER	1	2	3	4
CONDITION OF PIPE INLETS/OUTLETS	1	2	**3**	4
PRESENCE OF SOLIDS OR BUILDUP	YES		**NO**	
PRESENCE OF INFILTRATION/INFLOW	YES		**NO**	

DEPTH/VOLUME OF FLOW: None

DIAMETER OF MANHOLE: 4’ Catchbasin

MANHOLE CONDITION NOTES:

- Type 2 curb inlet grate and frame
- Overall structure in good/fair condition

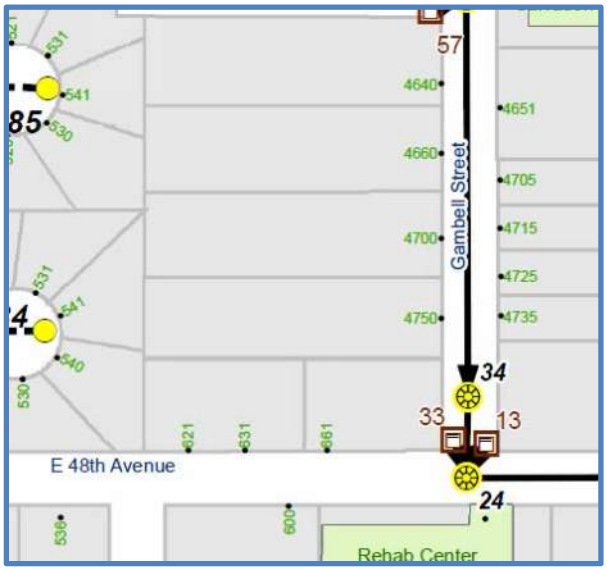


Photo 1 - Structure Location Map

Photo 2 - Curb Inlet / Surrounding Area

Photo 3 - Frame, Grade Rings & Reducing Slab

Photo 4 - Outlet Pipe Penetration