605 - 50th Street
P.O. Box 6300
Edson, AB T7E 1T7
www.edson.ca

February 29, 2024

Addendum # 2

Bid Opportunity: ITB CP-2024-42-03 – 10TH AVENUE- AND 54th STREET UTILITY UPGRADE - 2024

Closing Date: Thursday, March 7, 2024, 14:00:00 Hours Local Time

Tender Issue Date: Tuesday, February 6, 2024

The following addendum will form part of the Construction Documents – Issued for Tender and will become part of the contract documents. Contractors are required to acknowledge receipt of this addendum by inserting its number in the bid form.

Questions and answers

Question #1

SOQ includes 333Lm of 600mm dia. concrete pipe, however the drawing shows it is PVC SDR35. Could you please clarify which one is correct? And if it is concrete, what is the class of the concrete pipe?

Answer #1

PVC SDR35 should be used for all 600mm pipe.

Question #2

Over-excavation comes with m2. What is the depth of excavation of the over-excavation for the purpose of estimating?

Answer #2

A depth of 300 mm should be taken for the purposes of estimating.

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Question #3

Where is the location of fence installation? And could you please advise me with the type of fencing?

Answer #3

The existing fencing is located at the ballpark parking lot to the north east of the 55 Street and 6 Avenue intersection. The existing fencing is galvanized chain link and will be disturbed when trenching the sanitary pipe.

Question #4

All materials on site (excavated, stockpiled, stored) are the property of the Town. Are we supposed to haul and stockpile excess excavated material to the Town's yard or landfill?

Answer #4

It is anticipated that all excess excavated materials should be hauled to the landfill. The Town may identify alternative locations for materials to be stockpiled at a similar distance from the Work site.
As an additional clarification, the intention is for the Contractor to manage material reuse such as backfill within construction limits or within the designated laydown area.

Question #5

This is Town's project. Is the local landfill will accept solid waste such as concrete, asphalt and dirt free of charge?

Answer #5

Materials will be accepted at the local landfill at a standard charge to the Contractor.

Question #6

Both drawing sets (10 Ave & 54 St) do not show buried shallow utilities such as power & telecommunication lines other than gas line. Do we assume they do not exist within the work limit?

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Answer #6

Not all shallow utilities are shown on the drawings. ATCO Gas is shown on the Tender Drawings. All other shallow utility information that is available has been attached to this Addendum.
It will be the Contractor's responsibility to identify, and confirm by hydrovac, the location of all shallow utility locations in the Work area. Obtaining crossing agreements will be the responsibility of the Contractor. The initial OneCall request was performed for information purposes.

Question #7

Do you have a drawing shows all shallow utilities?

Answer #7

See answer #6.

Question #8

I could be wrong, but your schedule B 1200mm manhole replacement comes with 30Vm and New manhole with 8Vm. However, I have 34Vm of replacement and 4Vm of New manhole based on the drawing. The drawing has only one New 1200mm manhole (NEW MH01) with 4Vm deep. Could you please check this and revise SOQ accordingly if my measurement is correct?

Answer #8

The Schedule has been checked and revised; the quantities queried are correct.

Question #9

I found a manhole between S598 and S581 on 54 Street (Schedule B) from drawing C102, however it is not shown on the profile view (Drawing C201). Could you please clarify this?

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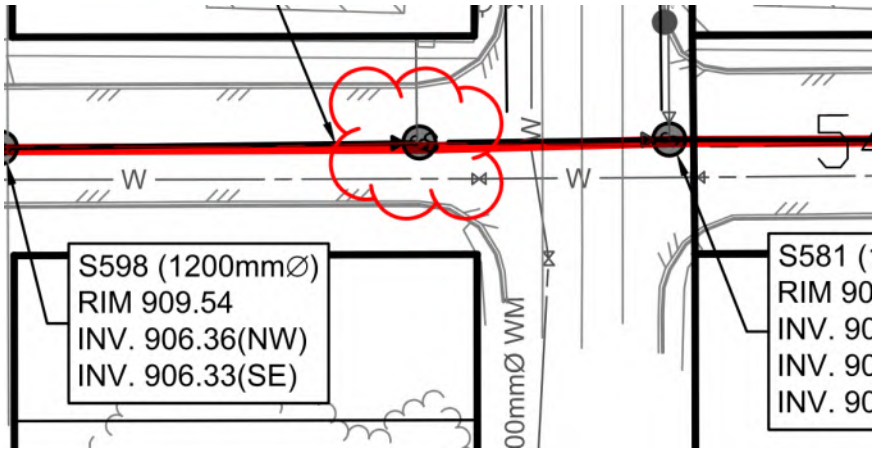

Answer #9

The manhole shown in plan was an artifact from an earlier design iteration, and should be considered not included in the tender.

DOCUMENT ISSUES:

1. Bid Form - See attached revised Bid Form for use in the Bid submission. Changes include catchbasin removal and replacement, revision to new MH vertical meters / remove and replace MH vertical meters.
2. Asbestos Cement Material Removal - Specification has been included for product disposal.
3. Water Utility Distribution Piping - Specification has been added.
4. Water Utility Distribution Equipment - Specification has been added.
5. Measurement and Payment - See attached revised Measurement and Payment section.
6. Pre-Tender meeting minutes - See attached.
7. Sidewalk detail has been included for 1500mm Roll Face Monolithic Curb, Gutter and Sidewalk.
8. Utility Crossings - Maps provided during the initial OneCall have been attached for information, but further communication with utility providers will be required to confirm all required crossing agreements. Utility providers notified during the OneCall include:

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- ATCO
- Axia
- Fortis
- Promark-Telecon West
- Shaw
- Telus
- Town of Edson

END OF ADDENDUM #2

Schedule "B"
54 Street – 5 Avenue to 1 Avenue Sanitary Upgrade
Schedule of Quantities

Item	Description	Unit	Unit Price	Quantity	Extension
CONSTRUCTION COSTS					
Section 1: General					
1.1	Mobilization & Demobilization	LS	$_____	1	$_____
1.2	Traffic Accommodation	LS	$_____	1	$_____
	Total Section 1: General				
Section 2: Surface Removals					
2.1	Asphalt Removal				
	.1 Remove and Dispose Existing Road Structure to Design Subgrade	m^2	$_____	1,245	$_____
2.2	Remove & Dispose Existing Concrete				
	.1 Curb & Gutter	lm	$_____	40	$_____
	Total Section 2: Surface Removals				
Section 3: Roadways					
3.1	Top Lift Asphalt Concrete Pavement - Supply and Install (60mm Depth)	m^2	$_____	1,245	$_____
3.2	Bottom Lift Asphalt Concrete Pavement - Supply and Install (60mm Depth)	m^2	$_____	1,245	$_____
3.3	Supply and Install Granular Base Course (Des 2, Class 20) (150mm Depth)	m^2	$_____	1,245	$_____
3.4	Supply and Install Granular Sub-Base (300mm Depth)	m^2	$_____	1,245	$_____
3.5	Subgrade preparation - 150 mm Depth	m^2	$_____	1,245	$_____
3.6	Geogrid (Biaxial)	m^2	$_____	1,245	$_____
3.7	Non-Woven Geotextile	m^2	$_____	1,245	$_____
	Total Section 3: Roadways				
Section 4: Concrete					
4.1	Standard Concrete Curb & Gutter (250mm Gutter) - Supply & Install	lm	$_____	40	$_____
	Total Section 4: Concrete				
Section 5: Sanitary Sewer					
5.1	Sanitary Sewer Main				
	.1 Remove and Replace Existing				
	.1 Replace with 300mm Dia. PVC DR35	lm	$_____	7	$_____
	.2 Replace with 450mm Dia. PVC DR35	lm	$_____	470	$_____
	.3 Replace with 600mm Dia. Concrete	lm	$_____	333	$_____
5.2	Over-Excavation (incl. Installation of Washed Rock) (Provisional)	m^2	$_____	203	$_____
5.3	Sanitary Manholes				
	.1 Remove and Replace Existing Manholes w/ New 1200 mm I.D. Barrel	v.m	$_____	34	$_____
	.2 Remove and Replace Existing Manholes w/ New 1500 mm I.D. Barrel	v.m	$_____	3	$_____
	.3 Supply and Install New Manhole 1200mm I.D. Barrell	v.m	$_____	4	$_____
	.4 Remove and Dispose Existing Manholes	ea	$_____	1	$_____
5.4	Supply and Install New Frame and Cover				
	.1 NF 80 Frame & Cover	ea	$_____	13	$_____
5.5	Connection to existing sanitary mains	ea	$_____	2	$_____
5.6	CCTV Sewer Inspection				
	.1 Construction Completion	lm	$_____	810	$_____
	.2 End of Warranty Period	lm	$_____	810	$_____
5.7	Fillcrete Backfill	lm	$_____	34	$_____
5.8	Bypass Pumping	LS	$_____	1	$_____
5.9	Remove and Replace Existing Catchbasin	ea	$_____	2	$_____
	Total Section 5: Sanitary Sewer				
Section 6: Landscape					
6.1	Landscaping Restoration	m^2	$_____	790	$_____
6.2	Supply and Install Fence	lm	$_____	8	$_____
	Total Section 6: Landscape				
CONSTRUCTION SUBTOTAL - SCHEDULE "C"					**$_____**

Note:

1 The intent of the Contract is that excavated native backfill shall be reused as approved by the Engineer.

2 Maintain existing sanitary, water and storm services at all times during the execution of the Work. Service interruptions and/or damage are the responsibility of the Contractor at no cost to the Owner.

3 Construction Limits are as defined on drawings.

4 The Bidder shall complete and submit pricing for the entire scope of work included in Schedules "A", "B", and "C".

5 Temporary water and sanitary servicing to businesses and residences is to be included in Unit Costs provided.

UNIT PRICES

All unit prices include the cost of supply of new material and labour to install unless noted otherwise.

Schedule "C"
10 Avenue – 56 Street to 52 Street Sanitary Upgrade
Schedule of Quantities

Item	Description	Unit	Unit Price	Quantity	Extension
CONSTRUCTION COSTS					
Section 1: General					
1.1	Mobilization & Demobilization	LS	$_____	1	$_____
1.2	Traffic Accommodation	LS	$_____	1	$_____
	Total Section 1: General				
Section 2: Surface Removals					
2.1	Asphalt Removal				
	.1 Remove and Dispose Existing Road Structure to Design Subgrade	m²	$_____	1,705	$_____
2.2	Remove & Dispose Existing Concrete				
	.1 Curb & Gutter	lm	$_____	205	$_____
	.2 Sidewalk	m2	$_____	205	$_____
	Total Section 2: Surface Removals				
Section 3: Roadways & Excavation					
3.1	Top Lift Asphalt Concrete Pavement - Supply and Install (50mm Depth)	m²	$_____	1,705	$_____
3.1	Bottom Lift Asphalt Concrete Pavement - Supply and Install (50mm Depth)	m²	$_____	1,705	$_____
3.2	Supply and Install Granular Base Course (Des 2, Class 20) (150mm Depth)	m²	$_____	1,705	$_____
3.3	Supply and Install Granular Sub-Base (300mm Depth)	m²	$_____	1,705	$_____
3.4	Subgrade Preparation - 150 mm Depth	m²	$_____	1,705	$_____
3.5	Geogrid (Biaxial)	m²	$_____	1,705	$_____
3.6	Non-Woven Geotextile	m²	$_____	1,705	$_____
	Total Section 3: Roadways & Excavation				
Section 4: Concrete					
4.1	Standard 1.5m Wide Sidewalk	m²	$_____	230	$_____
4.2	Rolled Face Concrete Curb & Gutter (250mm Gutter) - Supply & Install	lm	$_____	205	$_____
	Total Section 4: Concrete				
Section 5: Sanitary Sewer					
5.1	Sanitary Sewer Main				
	.1 Remove and Replace Existing				
	.1 Replace with 375mm Dia. PVC DR35 MH S340 - MH S337	lm	$_____	265	$_____
	.2 Replace with 375mm Dia. PVC DR35 MH S249 - MH S340	lm	$_____	150	$_____
5.2	Over-Excavation (incl. Installation of Washed Rock) (Provisional)	m²	$_____	104	$_____
5.3	Sanitary Manholes				
	.1 Remove and Replace Existing Manholes w/ New 1200 mm I.D. Barrel	v.m	$_____	21	$_____
5.4	Supply and Install New Frame and Cover				
	.1 NF 80 Frame & Cover	ea	$_____	9	$_____
5.5	Connection to existing sanitary mains	ea	$_____	4	$_____
5.6	*Locate, Remove and Replace Existing Sanitary Services with New 100 mm Diameter PVC DR 28 Sanitary Services c/w Connections to Property Line (PROVISIONAL)*	*ea*	*$_____*	*19*	*$_____*
5.7	*Locate, Remove and Replace Existing Sanitary Services with New 150 mm Diameter PVC DR 28 Sanitary Services c/w Connections to Property Line (PROVISIONAL - MULTIFAMILY UNITS FROM 1+010 - 1+190)*	*ea*	*$_____*	*4*	*$_____*
5.8	Bypass Pumping	LS	$_____	1	$_____
5.9	CCTV Sewer Inspection				
	.1 Construction Completion	lm	$_____	415	$_____
	.2 End of Warranty Period	lm	$_____	415	$_____
5.10	Temporary Water Supply	LS	$_____	1	$_____
	Total Section 5: Sanitary Sewer				
CONSTRUCTION SUBTOTAL - SCHEDULE "A"					**$_____**

Note:

1 The intent of the Contract is that excavated native backfill shall be reused as approved by the Engineer.

2 Maintain existing sanitary, water and storm services at all times during the execution of the Work. Service interruptions and/or damage are the responsibility of the Contractor at no cost to the Owner.

3 Construction Limits are as defined on drawings.

4 The Bidder shall complete and submit pricing for the entire scope of work included in Schedules "A", "B", and "C".

5 Temporary water and sanitary servicing to businesses and residences is to be included in Unit Costs provided.

UNIT PRICES

All unit prices include the cost of supply of new material and labour to install unless noted otherwise.

Schedule "C"
54 Street – 5 Avenue to 1 Avenue Sanitary Upgrade
Schedule of Quantities

Item	Description	Unit	Unit Price	Quantity	Extension
CONSTRUCTION COSTS					
Section 1: General					
1.1	Mobilization & Demobilization	LS	$_____	1	$_____
1.2	Traffic Accommodation	LS	$_____	1	$_____
	Total Section 1: General				
Section 2: Surface Removals					
2.1	Asphalt Removal				
	.1 Remove and Dispose Existing Road Structure to Design Subgrade	m^2	$_____	1,245	$_____
2.2	Remove & Dispose Existing Concrete				
	.1 Curb & Gutter	lm	$_____	40	$_____
	Total Section 2: Surface Removals				
Section 3: Roadways					
3.1	Top Lift Asphalt Concrete Pavement - Supply and Install (60mm Depth)	m^2	$_____	1,245	$_____
3.2	Bottom Lift Asphalt Concrete Pavement - Supply and Install (60mm Depth)	m^2	$_____	1,245	$_____
3.3	Supply and Install Granular Base Course (Des 2, Class 20) (150mm Depth)	m^2	$_____	1,245	$_____
3.4	Supply and Install Granular Sub-Base (300mm Depth)	m^2	$_____	1,245	$_____
3.5	Subgrade preparation - 150 mm Depth	m^2	$_____	1,245	$_____
3.6	Geogrid (Biaxial)	m^2	$_____	1,245	$_____
3.7	Non-Woven Geotextile	m^2	$_____	1,245	$_____
	Total Section 3: Roadways				
Section 4: Concrete					
4.1	Standard Concrete Curb & Gutter (250mm Gutter) - Supply & Install	lm	$_____	40	$_____
	Total Section 4: Concrete				
Section 5: Sanitary Sewer					
5.1	Sanitary Sewer Main				
	.1 Remove and Replace Existing				
	.1 Replace with 300mm Dia. PVC DR35	lm	$_____	7	$_____
	.2 Replace with 450mm Dia. PVC DR35	lm	$_____	470	$_____
	.3 Replace with 600mm Dia. Concrete	lm	$_____	333	$_____
5.2	Over-Excavation (incl. Installation of Washed Rock) (Provisional)	m^2	$_____	203	$_____
5.3	Sanitary Manholes				
	.1 Remove and Replace Existing Manholes w/ New 1200 mm I.D. Barrel	v.m	$_____	34	$_____
	.2 Remove and Replace Existing Manholes w/ New 1500 mm I.D. Barrel	v.m	$_____	3	$_____
	.3 Supply and Install New Manhole 1200mm I.D. Barrell	v.m	$_____	4	$_____
	.4 Remove and Dispose Existing Manholes	ea	$_____	1	$_____
5.4	Supply and Install New Frame and Cover				
	.1 NF 80 Frame & Cover	ea	$_____	13	$_____
5.5	Connection to existing sanitary mains	ea	$_____	2	$_____
5.6	CCTV Sewer Inspection				
	.1 Construction Completion	lm	$_____	810	$_____
	.2 End of Warranty Period	lm	$_____	810	$_____
5.7	Fillcrete Backfill	lm	$_____	34	$_____
5.8	Bypass Pumping	LS	$_____	1	$_____
5.9	Remove and Replace Existing Catchbasin	ea	$_____	2	$_____
	Total Section 5: Sanitary Sewer				
Section 6: Landscape					
6.1	Landscaping Restoration	m^2	$_____	790	$_____
6.2	Supply and Install Fence	lm	$_____	8	$_____
	Total Section 6: Landscape				
CONSTRUCTION SUBTOTAL - SCHEDULE "C"					**$_____**

Note:

1 The intent of the Contract is that excavated native backfill shall be reused as approved by the Engineer.

2 Maintain existing sanitary, water and storm services at all times during the execution of the Work. Service interruptions and/or damage are the responsibility of the Contractor at no cost to the Owner.

3 Construction Limits are as defined on drawings.

4 The Bidder shall complete and submit pricing for the entire scope of work included in Schedules "A", "B", and "C".

5 Temporary water and sanitary servicing to businesses and residences is to be included in Unit Costs provided.

UNIT PRICES

All unit prices include the cost of supply of new material and labour to install unless noted otherwise.

10th Avenue and 54th Street Utility Upgrade 2024 - Pre-Tender Meeting

Location: Town of Edson Town Office 605 – 50th Street, Edson, AB T7E 1T7
Date: February 13, 2024 @ 2:00pm to 3:00pm
Purpose: PRE-TENDER MEETING – MINUTES

Participants: See attached sign-in List

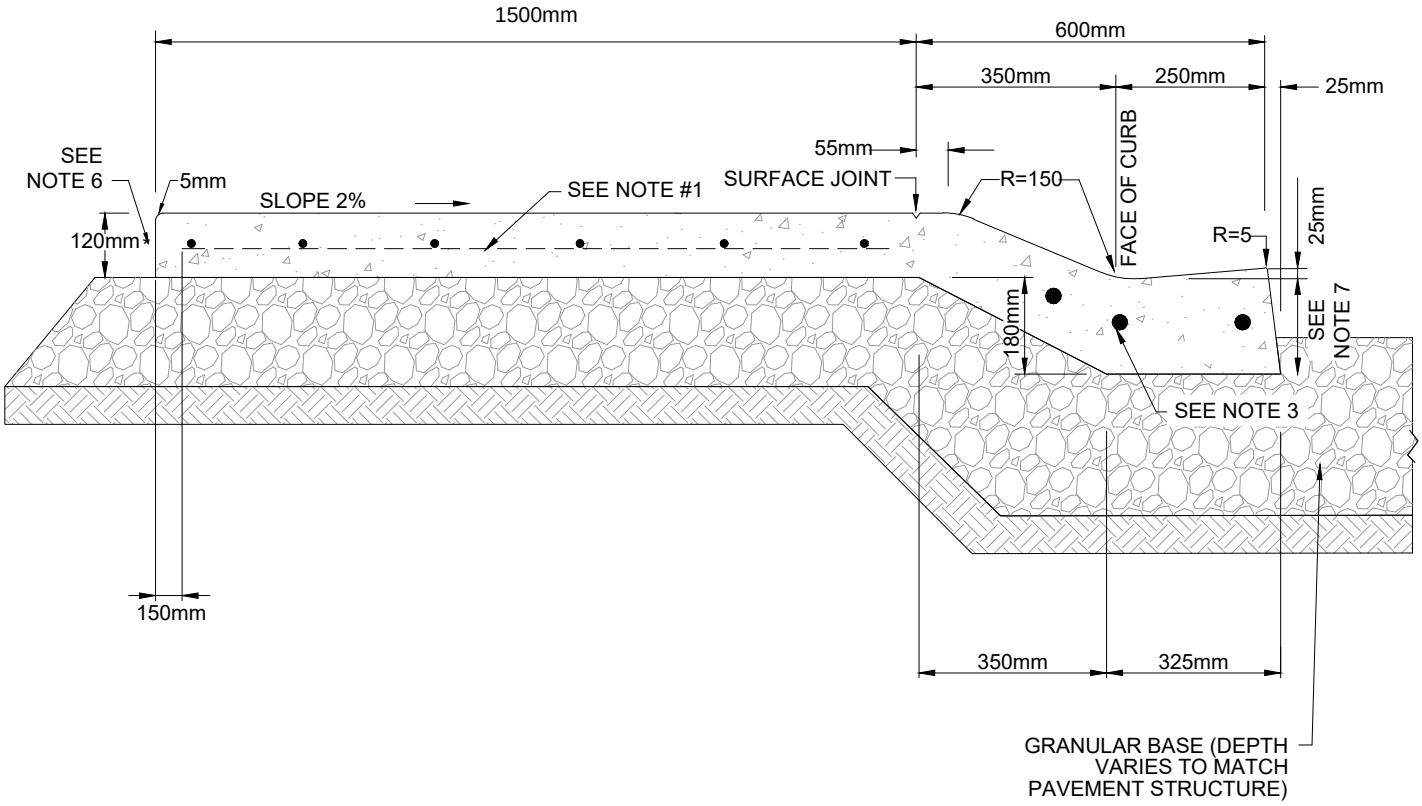
ITEM	TOPIC	
1.0	**INTRODUCTIONS** All parties present introduced themselves. See attached sign-in list for details. **SAFETY MOMENT** Be mindful at 4-way stops and ensure that you stop completely prior to going forward.	
2.0	**SAFETY** - **OH&S Prime Contractor** a.) The successful bidder and Prime Contractor is responsible for all site safety.	
3.0	**PROJECT OVERVIEW** - **Tender Drawings Shared** a.) JA gave an overview of the project area extents. b.) Scope of underground replacement - Work includes removal and replacement of sanitary storm pipe (upsizing) and manholes, connections to existing sanitary mains and restorations. Removals also includes asphalt, concrete curb and gutter and sidewalk where required. c.) Scope of Surface Reinstatement – Asphalt and concrete will be completed as indicated in the drawings. d.) 56th Street & 10th Ave intersection requires deep excavation. A separate unit price is required for this section. e.) Backfill method – single point Proctor; refer to project specifications. f.) Existing sanitary services are to be reconnected at the new main. It is not the intent to replace sanitary services to property boundary. g.) Bypass pumping is required where sewer mains are disturbed. Flows will be provided in an Addendum. h.) Temporary water is required on 10th Street where water services will be affected by trenching for sanitary mains installation. Water service locations to be confirmed by hydovac prior to excavation. Where water services are cut to allow trenching, a local repair is to be completed. It is not the intent to replace water services to property boundary. i.) Highway 16 is crossed in two locations with new sanitary mains by open cut installation. An AT permit has been obtained and included in the Contract documents. Backfill is to be completed using fillcrete and asphalt completed directly after. Temporary gravel surfacing will not be allowed. j.) First and Second asphalt lifts to be completed in same construction season. - **Construction Access Requirements** a.) Access to residences during construction –. Vehicular access to multi-family residences on 10th Avenue to be kept open at all times by maintaining a minimum one lane of traffic. b.) Contractor will be required to submit a traffic plan and note should be taken of electronic message boards needed. - **Stakeholder Notifications and Communications**	

ITEM	TOPIC	
	a.) Construction notifications to residents by Prime Contractor. The successful bidder shall be responsible for notifying all residents affected by the work and continuing communication during construction. b.) Shallow Utility Permits will be obtained by McElhanney. Contractor is responsible for notification of shallow utility providers throughout the project. - **Project Schedule** a.) Project Start Date: start as early as May 1, 2024, but no later than May 20, 2024 b.) Substantial Completion: no later than August 9, 2024 c.) Construction Completion: no later than August 30, 2024. - **Materials Disposal** a.) Materials disposal at Landfill will incur charges to the Contractor. Landfill charges should be included in bid price. b.) Asbestos pipe disposal is to be completed following applicable guidelines for asbestos removal and disposal. c.) Disposal of excess materials, including clay, responsibility of Contractor.	
4.0	**PROJECT TEAM & KEY STAKEHOLDERS** - **Town of Edson (Owner)** a.) Project Manager – Armia Mikhail - **McElhanney Ltd. (Consultant)** a.) Contract Admin & Project Management – Jeff Amundson / Grant Hall b.) Construction Management & Field Inspection – Michael Harper / Morgan Johnson - **Key Stakeholders** a.) Residents b.) Town of Edson c.) Franchise Utility Coordination – Prime Contractor d.) 54th Street Businesses. e.) Alberta Transportation (Highway 16 Crossing)	
5.0	**SUBMISSION REQUIREMENTS** - **Submission Dates** a.) Tender submission deadline – 14:00:00 March 7, 2024 b.) Questions received until 11:00:00 February 28, 2024 c.) Final Addendum to be issued by March 1, 2024 - **Documents** *Mandatory* a.) Certificate of Insurance b.) Acknowledgement of Addenda c.) Consent of Surety d.) Copy of Bidders COR / SECOR e.) Proof of Worker's Compensation Board (WCB) f.) Completed and Authorized Tender Form g.) Bid Bonding h.) Bid Security i.) Bonding and j.) Insurance - **Weighted Criteria**	

ITEM	TOPIC	
	a.) Resume, Qualifications and Experience of Proposed Team b.) References (3) c.) Proposed Construction Schedule d.) Tender Amount - Score weighting is provided in Tender Documents. - Bids to be submitted on Bids & Tenders online. - **<u>Survey Layout</u>**. a.) Contractor responsible for detailed survey layout and as-built survey information. - **<u>Franchise Utility Coordination</u>** a.) Prime Contractor responsibility - **<u>Section 01 22 00 – Measurement and Payment</u>** a.) Review carefully the measurement and payment section when completing the bid form.	
6.0	**ROUND TABLE DISCUSSION** It was noted in discussion that the construction schedule is quite tight. **QUESTIONS** **Q:** What is the existing sanitary pipe material? **A: On 10th Avenue the existing sanitary pipe records show AC pipe. For the remainder of the project the existing sanitary pipe is concrete. Drawings will be updated when issued for construction to reflect this change.** **Q:** What fencing is required around the work area? **A: The whole work area including excavation, machinery and any materials being stored.** **Q:** Can storm flow data be provided for the sanitary bypass requirements? **A: Yes, to be provided by McElhanney.** **Q:** It is not clear the difference between Schedules A, B and C in the bid form. **A: Schedule A, 10th Avenue, should be priced as a stand-alone project. Schedule B, 54th Street should be priced as a stand-alone project. Schedule C should be priced as both 10th Avenue and 54th Street scope being completed in the same construction season.** **Q:** Can washed rock be used as pipe bedding material? **A: Washed rock is acceptable as pipe bedding.** **Q:** Is there a laydown area available on Town land that can be used during the project.? **A: A section of the park bounded by 54 Street / 11 Avenue / 53 Street / 10 Avenue will be available for laydown, with the exact area to be delineated by the Town prior to construction. Any Park areas used as laydown must be restored to previous condition or better. Contractor will be ultimately responsible for**	

ITEM	TOPIC	
	identifying laydown areas. Limited storage can be utilized within the fenced off work area also. **Q:** Can dewatering of the excavated trenches be disposed to the Town's storm sewer system? **A: All catch basins should be protected during construction to prevent silt and debris ingress. Water can be disposed of to the storm system only if it is properly screened to prevent solids / silt / mud ingress, with catchbasins to be cleaned at substantial completion.** **Q:** Is survey to be completed by the Contractor? **A:** L**ayout and as-built survey are the responsibility of the Contractor. In addition, red line drawings should be submitted at the end of construction.** **Q:** Where the sanitary pipe to be replaced is crossing water mains, can the mains be isolated to reduce risk of damage? **A:** Mains can be isolated for limited periods subject to operational requirements, Town approval, and adequate notice provided.	

STANDARD DETAIL	4-201	
Date:	NOV, 2020	Rev. 0



NOTES:

(1) 150X150 PI8/PI8 GAUGE WIRE MESH TO BE PLACED IN SIDEWALK ACROSS ALL LANES AND APARTMENT BUILDING DRIVEWAY ENTRANCES.

(2) CONCRETE TO BE TYPE HS, 30MPa. COMPRESSIVE STRENGTH AT 28 DAYS WITH 5.5% TO 8.0% AIR ENTRAINMENT.

(3) 3-10M REINFORCEMENT BARS AT ALL LANES AND APARTMENT BUILDING DRIVEWAY ENTRANCES.

(4) SEE STANDARD DWG. NO. 4-200 FOR A MORE DETAILED ROLLED FACE CURB & GUTTER.

(5) SEE STANDARD DWG. NO. 4-205 FOR JOINT DETAILS.

(6) 175 mm AT ALL LANES, CURB RAMPS, AND COMMERCIAL, INDUSTRIAL, AND APARTMENT BUILDING DRIVEWAY ENTRANCES

(7) 200 mm (MIN.) OR THICKNESS OF ASPHALT, WHICHEVER IS GREATER

Scale:	Not To Scale
Drawn By:	D.C.
Checked By:	K.M.
Approved:	K.M.
Date:	NOVEMBER 2020

Gateway to the Rockies
HINTON

TOWN OF HINTON

Rolled Face Monolithic Curb, Gutter, and Sidewalk

File: \\s-edm-fs-01\working\2020-3749-00\civil\Standard Details\3749-00_4-201.dwg by
Xrefs: TH-G-TTBL_8.5x11

1.0 GENERAL

1.1 Intent

.1 This Section specifies general requirements common to all asbestos control work. Read this section in conjunction with related Sections that specify requirements for specific procedures and methods for asbestos control.

1.2 Related Work Not Provided Under This Contract

.1 Following related work will be performed by Consultant's own forces or by user:

.2 Moving of items and equipment from asbestos control area before work begins.

1.3 Related Sections

.1 Asbestos Removal: Section 02 82 33.

1.4 Reference Documents

.1 Asbestos Abatement Manual, Current Edition, available from: Alberta Employment and Immigration, Information Services, 2nd Floor, Labour Building, 10808 - 99 Avenue, Edmonton, Alberta, T5K 0G5, Telephone: (780) 427-8531.

.2 Guidelines for the Disposal of Asbestos Waste, available from Alberta Environmental Protection.

.3 CAN/CGSB-1.205-94, Sealer for Application to Asbestos-Fibre Releasing Materials.

.4 CAN/CGSB-43.150-97, Performance Packagings for Transportation of Dangerous Goods.

1.5 Definitions

.1 Asbestos Control Work: means asbestos containment procedures, removal and disposal of asbestos or materials containing asbestos, as specified.

.2 Asbestos Control Area: means space in which

asbestos control work is being performed and to which general access is prohibited.

.3 Asbestos Waste: means removed contaminant and contaminated materials or products.

.4 Contaminant: means asbestos material.

.5 Contaminated: describes products, by-products, or material containing, or affected by, asbestos or removal thereof.

.6 HEPA Filter: high efficiency particulate air filter, removing not less than 99.97% of particles measuring 0.3 microns and larger, for powered respirators, vacuums, vacuum trucks and negative air units.

.7 P100 Filter: high efficiency, oil proof, particulate air filter, removing not less than 99.97% of particles measuring 0.3 microns and larger, for non-powered air purifying respirators.

1.6 Worker Qualifications

.1 Workers used for handling, removal, and packaging for disposal of asbestos waste, shall have completed an asbestos awareness course acceptable to Alberta Employment and Immigration, Workplace Health and Safety.

.2 At least one employee who will be performing the work shall have completed a first aid course as required by Alberta Occupational Health and Safety Act.

.3 Persons involved in loading, transportation, uploading, and disposal of asbestos waste shall have been trained in accordance with the Dangerous Goods Transportation and Handling Act.

.4 Non-certified workers such as heavy equipment operators may be used for loading and transporting the asbestos containing debris to an approved sanitary landfill site. These workers require dangerous goods training as specified in this Section.

1.7 Submittals

.1 Comply with requirements of this Section. Provide submittals prior to start of asbestos control work.

.2 Submit disposal procedure for contaminant and contaminated waste.

.3 Submit a copy of worker protection information which will be provided to employees.

.4 Submit proof that Alberta Employment and Immigration, Workplace Health and Safety, has been notified of the asbestos control work to be performed.

.5 Submit proof that all persons involved in the handling, packing, loading, transportation, unloading, and disposal of asbestos waste are trained in accordance with the Dangerous Goods Transportation and Handling Act.

1.8 Regulatory Requirements

.1 Comply with the following legislation and regulations:

.1 Environmental Protection Act (Canada).

.2 Environmental Protection and Enhancement Act (Alberta).

.3 Occupational Health and Safety Act, Regulation and Code (Alberta).

.4 Transportation of Dangerous Goods Act, 1992 (Canada).

.5 Dangerous Goods Transportation and Handling Act (Alberta) and regulations.

.6 Other legislation and regulations which apply to the performance of asbestos control work.

1.9 Inspection By Consultant

.1 Consultant will use own forces to inspect the work procedure.

.2 Consultant's own forces are authorized to identify deficiencies in the asbestos control work and provide site instructions to ensure compliance with

Contract requirements.

.3 Consultant may stop work where he has reasonable cause to believe that:

.1 Work conditions and practice may lead to:

.1 contamination of building with asbestos,

.2 asbestos exposure to building occupants, or

.3 release of asbestos fibres into the environment.

1.10 Protection Of Personnel

.1 Provide workers with respirators and hooded disposable coveralls conforming to Occupational Health and Safety Regulations for the airborne asbestos fibre levels that are present during asbestos control work.

.2 Do not permit smoking, eating or drinking in work area.

.3 Provide the following to employees involved in asbestos control work:

.1 Written information describing potential health hazards related to exposure to asbestos fibre.

.2 Written instructions describing safe work procedures.

.4 For low risk asbestos removal, do the following:

.1 Comply with regulatory requirements.

.2 Provide workers with not less than a non-powered half-mask respirator equipped with P100 filters and hooded disposable coveralls. Coveralls shall fit snugly around neck, wrists and ankles.

.3 Allow no one in the removal area during asbestos control work unless wearing disposable coveralls and respirator equipped with P100 filters.

.5 Provide the following safety equipment for Consultant's representatives, as required to permit

ready and safe access to the work:

.1 Disposable or cloth coveralls.

.2 Rubber boots or easily decontaminated footwear.

.3 Caps.

.4 Eye protection.

.5 Gloves.

.6 Hard hats.

.7 Non-powered half mask respirator equipped with P100 filters (minimum).

2.0 PRODUCTS

2.1 Material

.1 Asbestos Sealer: to CAN/CGSB 1.205 94, Sealer for Application to Asbestos-Fibre- Releasing Materials, Class A - water-based, for spray application, and as follows:

.1 Type 2 - Surface Film Forming. Acceptable products: American Coating "CC-2B", Certified Technologies "Overcoat 2000", Childers "Chil-Bridge CP- 211", Fiberlock Technologies "ABC", Foster "32-32", International Protective Coatings "Serpiflex Shield".

2.2 Asbestos Disposal Containers

.1 Plastic Bags: to CAN/CGSB-43.150, minimum 150 micrometer thick sheet polyethylene. Bag seams shall be sufficiently strong to resist pressure and shocks that occur under normal conditions of transport. Designed and manufactured to contain a maximum net mass of 50kg.

.2 Drums: to CAN/CGSB-43.150, sturdy non reusable, steel (1A2), aluminum (1B2), or plastic (1H2), with tight fitting lids.

.3 Sheet Polyethylene: two separate layers, minimum 150 micrometer thick, each layer sealed with

water-resistant plastic duct tape.

.4 Label containers with labels stating "CONTAINS ASBESTOS, CANCER HAZARD, AVOID BREATHING DUST".

2.3 Warning Barrier Tape And Signs

.1 Provide warning barrier tape and signs which state that:

.1 Asbestos is present in the area.

.2 Access to the area is prohibited, except to authorized personnel.

.3 Drinking, eating and smoking are prohibited in the area.

.2 Obtain Consultant's approval of warning sign wording, legibility and location.

3.0 EXECUTION

3.1 Preparation

.1 Low Risk asbestos removal work may commence only after the following have been completed:

.1 Barriers are in place and work area has been isolated.

.2 Warning signs have been placed around perimeter of asbestos control area and at each potential entrance to the area.

.3 Consultant's representative has inspected and approved preparations.

3.2 Asbestos Removal

.1 Refer to Section 02 82 33 for asbestos removal requirements.

3.3 Preparation For Asbestos Disposal

.1 Prepare contaminant and contaminated materials for disposal as follows:

.1 Place in double bagged plastic asbestos disposal bags or inside disposable drums

with tight fitting lids.

.2 Wrap bulk materials that do not lend themselves to disposal in plastic bags or drums, in sheet polyethylene. (2 separately sealed layers)

.3 The resulting package must be constructed, filled and closed so that, under normal conditions of handling and transport, there will be no discharge, emission or escape of the dangerous goods form the package or small container that could constitute a danger to public safety.

.2 Transfer asbestos waste containers and normal construction waste from asbestos control area for disposal, in accordance with procedures described in the following documents.

.1 Alberta Environment document entitled "Guidelines for the Disposal of Asbestos Waste".

.2 Alberta Employment and Immigration document entitled "Asbestos Abatement Manual", current edition.

.3 Section 02 82 33 - Asbestos Removal.

.4 Where more than one document addresses an issue, the most stringent requirements shall apply.

.3 Treat contaminated water and soil as asbestos waste.

3.4 Disposal Of Normal Construction Waste

.1 This article applies to materials not readily prepared for asbestos disposal as specified, and being capable of thorough cleaning, for example, bulky mechanical equipment.

.2 Clean materials until free of visible asbestos, wash, and dip in or spray with asbestos sealer.

.3 Dispose of as normal construction waste.

3.5 Transportation And Permanent Disposal Of Asbestos Waste

.1 Transport asbestos waste in accordance with Alberta and Federal legislation and regulations.

.2 Ensure that all materials are properly packaged and labeled prior to transportation. Each container must be marked in accordance with the Dangerous Goods Transportation and Handling Act showing the shipping name (White Asbestos) and product identification number (UN2590).

.3 Transport hazardous waste materials in properly placarded vehicles.

.4 Transport asbestos waste in a manner which will prevent asbestos fibres from becoming airborne.

.5 Each load shall be accompanied by a properly completed manifest satisfactory to the authority having jurisdiction.

.6 Dispose of asbestos waste in a supervised, approved sanitary landfill site.

.7 Make arrangements with operator of landfill site in advance to receive asbestos waste material.

.8 In event of leakage or spillage enroute, repackage material before continuing transport to landfill.

.9 If spill, emission or discharge of waste asbestos is in excess of 50 kg from the transport unit, immediately report the incident to the local police.

.10 Place asbestos waste containers intact in excavated area. Do not dump or throw containers from truck. Repackage contents of containers that have broken open, in accordance with requirements for preparation for asbestos disposal.

.11 Arrange for asbestos waste to be covered with soil.

.12 Provide the Minster with a copy of each waste manifest once asbestos waste has been disposed of at a supervised, approved landfill site.

3.6 Worker Decontamination

.1 Prior to leaving area where asbestos has been

removed by low risk methods, wet wipe coveralls with amended water. Dispose of coveralls and wiping rags into double polyethylene asbestos disposal bags, and treat as asbestos waste.

.2 Immediately upon leaving area where asbestos has been removed by low risk methods, perform the following:

.1 Proceed to nearest shower or wash-up station outside work area and, with respirator in place, shower or wash head and face prior to removal of respirator. If a shower is not available, wash head thoroughly, including exterior of respirator, prior to removing respirator.

.2 Dispose of respirator filters into double asbestos disposal bags, and treat as asbestos waste.

3.7 Daily Cleaning

.1 Progressively containerize contaminant and contaminated material as removal work progresses. Do not permit asbestos waste to accumulate.

.2 Keep contaminant and contaminated material damp to minimize generation of airborne asbestos fibres.

.3 Remove asbestos waste from asbestos control area at least once per day.

.4 Regularly check, clean and replace filters as necessary.

3.8 Final Cleaning

.1 Upon completion of asbestos control work, perform the following:

.1 Remove asbestos waste from work site.

.2 Wash contaminated tools and equipment.

.3 Dispose of non-reusable materials and contaminated materials as asbestos waste.

.4 Clean site to original condition.

.5 Make good any damage resulting from the asbestos control work, to the satisfaction of the Consultant.

- END OF SECTION 02 82 01-

1.0 GENERAL

1.1 Description

.1 This section specifies requirements for providing pressure pipe for water mains including, but not limited to, the following:

a) Pipe;

b) Jointing materials;

c) Testing;

d) Disinfection and;

e) Temporary Services.

1.2 Standards

.1 The Standards and Guidelines for Municipal Water Supply, Wastewater and Storm Drainage Facilities, issued by Standards and Approvals Division, Alberta Environment shall apply to the work of this section.

.2 Materials supplied in this section are in accordance with AWWA, ASTM, and CSA standards.

.3 The Town may at any time require the Contractor to produce certification by an independent testing agency that materials used conform to the specified standards, and the costs of such certifications shall be borne by the Contractor.

1.3 Quality Assurance

.1 Refer to Section 01 45 00 – Quality Control.

.2 Testing laboratories or agencies to test materials shall be independent testing agencies approved by the Town.

.3 Submit to the Town a list of sources of materials including gravel and borrow materials.

.4 Provide samples, test results, sieve analyses and reports for preliminary approval of materials.

.5 Preliminary approval of materials does not constitute general acceptance. Acceptance depends on satisfactory field test results and performance in place.

1.4 Quality Control Testing

.1 Moisture density curves: to ASTM-D698.

.2 Sieve analyses: to ASTM-C136.

.3 Field densities: to ASTM-D2167 or to ASTM-D2922.

.4 Minimum quality control test frequencies specified as follows are the minimum number required. The Contractor shall perform as many tests as are necessary to ensure that the Work conforms to the requirements of the Contract regardless of the minimum number required.

.5 Provide moisture/density curves for each type of material from each source of material to be compacted to a specified density.

a) Field densities:

i) Pipe Bedding - one for each 100 m of pipe installed.

ii) Pipe Zone Backfill - one for each 100 m of pipe installed.

b) If any density test results in less than the required compaction, two more tests shall be taken for the depth and length of backfill or bedding represented by the failed test. If the average of the three tests results in a density less than required, the depth and length of backfill or bedding represented by the failed tests shall be reworked, the soil moisture modified as necessary, re-compacted, and re-tested until the required compaction is met.

2.0 PRODUCTS

2.1 Pipe

.1 Pipe for water mains shall be polyvinyl chloride (PVC) pipe manufactured to AWWA-C900 or C905, as applicable, and certified to CAN/CSA-B137.3. Certification of pipe compliance with AWWA-C900 and CAN/CSA-B137.3 must be provided to the Town upon request.

.2 Pipe shall have standard nominal inside diameters as indicated on the Drawings, based on cast iron outside diameters (C.I.O.D.), unless otherwise indicated.

.3 PVC water main 100 mm to 300 mm diameter shall conform to AWWA-C900 and shall be Pressure Class 150, 1,035 kPa, with a dimension ratio (DR) of 18, unless otherwise specified.

.4 PVC water main greater than 300 mm in diameter shall conform to AWWA-C905 and shall have a pressure rating (PR) of 1,138 kPa, with a DR of 25, unless otherwise specified.

.5 Pipe material shall be normal impact grade material conforming to ASTM-D1784, Type 1, Grade 1 PVC, with a cell classification of 12454A or 12454B, and designated for potable water use.

.6 PVC pipe shall have a joint with an integrally thickened bell end and flexible elastomeric gasket. Joints shall conform to ASTM-D3139 with gaskets conforming to ASTM-F477.

.7 Joint lubricants shall be in accordance with National Sanitation Foundation (NSF) Standards 14 and 61 and shall be compatible with gasket materials.

2.2 Service Connections

.1 Service line valves and fittings to conform to ANSI/AWWA C800.

.2 Couplings to be Standard Brass Compression Type.

.3 Water services 50 mm or less shall be Copper tubing to ASTM B88, type K “soft”, annealed with thaw wire (No. 2 insulated).

.4 Copper tubing joints: Compression type suitable to 1MPa working pressure.

.5 Brass Corporation main stops: Cambridge Brass 301-A3H3, 301-A4H4 Compression type having threads to ANSI/AWWA C800.

.6 Curb stop will be copper to copper invert and key stop and drain – Mueller H15219, Cambridge Brass or other approved manufacturer. Curb stops to have adjustable cast iron service box with stem to suit depth of bury. Top of cast iron box marked “WATER”.

.7 Service saddles to be double strapped stainless steel Robar – Model 2626 or Cast Bronze Robar Model 2706 rated to 150 PSI.

.8 PVC pipe to: AWWA C 900 DR 18 CIOD for service pipe 100 mm to 300 mm.

.9 Tee connections to be fabricated of the same material.

2.3 Insulation

.1 Use only where indicated on the Drawings or directed by or as approved by the Town.

.2 Use DOW HI-40 Styrofoam board rigid insulation as further detailed on the Drawings, where applicable.

2.4 Pipe Bedding

.1 Concrete

a) Concrete shall be made with Type 50 sulphate resistant Portland cement to CAN/CSA-A3000.

b) Maximum slump 75 mm, Class 25 MPa.

c) In freezing weather, provide concrete with a temperature of not less than 10°C, and maintain this temperature for 72 hours.

.2 Sand, complying with the following gradation.

Sieve Size	Percent Passing
9.5 mm	100
4.75 mm	90 - 100
150 micro-m	20 maximum

2.5 Backfill in the Pipe Zone

.1 Sand complying with the gradation specified in Article 2.4.2.

.2 Selected native soil shall be material selected from the excavated trench materials by the Contractor. Selected native soil shall be well graded and shall not contain particles larger than 25 mm. It shall be free of frozen material, shall not be saturated, and shall be free of excessive organic material.

3.0 EXECUTION

3.1 Product Delivery, Storage and Handling

.1 Store and handle pipe in accordance with the manufacturer's recommendations.

.2 Deliver, store, and handle pipe with care to prevent damage.

.3 Store materials so that they are kept clean.

.4 Cover pipe ends if necessary to keep clean.

.5 Drain valves and hydrants to eliminate damage due to freezing of trapped water.

.6 Where necessary, protect pipe from exposure to sunlight or from any condition that may harm or adversely affect the pipe.

.7 String pipe in such a manner to cause minimal interference to public traffic, construction traffic, and property access. Where such interference is required, obtain the written approval of the Town prior to commencing stringing activities.

.8 Inspect for defects upon delivery and immediately before installation.

.9 Clean pipes before installation.

3.2 Alignment and Grade

.1 Lay pipe to the required alignment and grade, with fittings, valves, hydrants, and all other appurtenances at the locations identified on the Drawings or otherwise directed by the Town.

.2 Provide minimum 3.3 m depth of cover on the pipe unless otherwise indicated on the Drawings or directed by the Town. Where depth of cover is less than 3.3 m, provide insulation.

.3 Erect batterboards or sight rails over the trench at intervals of not more than 30 m to provide control or provide control by laser beam in a manner approved by the Town.

.4 Acceptable tolerances are as follows:

a) Alignment - the centreline of the pipe shall not be more than 100 mm off the given line.

b) Elevation - the pipe invert shall not be more than 50 mm off the given elevation.

.5 Maintain, and provide to the Town upon request, grade sheets for the installation of the pipe.

.6 No deviation shall be made from the required alignment or grade without the written consent of the Town.

3.3 Pipe Bedding and Pipe Zone Backfill

.1 Prepare the pipe bedding and pipe zone backfill in accordance with the Drawings and the following:

a) Class A:

i) Place a cradle of concrete bedding under the pipe and the full width of the trench to the depth shown on the Drawings.

ii) Place sand above the concrete and compact to 95% of Standard Proctor Density to 300 mm above the top of the pipe.

b) Class B:

i) Place sand bedding under the pipe and the full width of the trench to the depth shown on the Drawings and compact to 95% of Standard Proctor Density.

ii) Place selected native soil or sand above the bedding and compact to 98% & 95% respectively of Standard Proctor Density to 300 mm above the top of the pipe.

c) Class C:

i) Use only if directed by the Town.

ii) Place and compact sand bedding under the pipe, across the full width of the trench, and up the sides of the pipe to provide a support angle of 120°. Compact bedding to 95% of Standard Proctor Density.

iii) Place selected native soil or sand above the bedding and compact to 98% or 95% respectively of Standard Proctor Density to 150 mm above the top of the pipe.

.2 Provide bell or coupling holes and support the pipe uniformly and continuously throughout its length.

.3 Granular bedding and backfill shall be placed and compacted in uniform lifts not exceeding 150 mm in depth.

.4 Where no specific bedding and pipe zone backfill class is indicated on the Drawings, use Class B.

3.4 Pipe Installation

.1 General

a) Follow manufacturer's instructions for pipe installation. Where manufacturer's instructions and these specifications are in conflict, notify the Town who will provide judgement on which method will govern the Work.

b) Lay and join PVC pipe in accordance with AWWA-M23.

c) Install calcium hypochlorite tablets in pipes, in accordance with Article 3.12 –Disinfection.

.2 Laying Pipe

a) Lay pipes on prepared bedding with excavated joint holes that allow the joint ends to be kept clean of soil and bedding material, to facilitate completing the joint and to avoid load concentration on the bells or couplings.

b) Lay pipes with the bell ends facing in the direction of the laying operations.

c) Cut pipes where necessary to install fittings and valves. Make cuts in accordance with the manufacturer's recommendations using recommended cutting tools. Cut pipes squarely and accurately.

d) Test bolting of all mechanical couplings and restraints on completion using a torque wrench. Torque shall conform to the pipe or fitting manufacturer's recommendations.

e) Pipe deflections at joint shall not exceed those specified by the pipe manufacturer.

f) Do not lay pipe in water or when, in the opinion of the Town, trench conditions are unsuitable.

g) Cover open ends of installed pipe, when pipe laying is not in progress, to keep out trench water.

.3 Joining Pipe

a) Clean the bell and spigot ends of the pipes.

b) Insert the gasket with care so that the gasket is in the correct position and is seated evenly around the pipe.

c) Do not lubricate the rubber ring.

d) Apply PVC joint lubricant to the spigot end in accordance with the manufacturer's instructions, covering the beveled end and the entire circumference of the pipe using a brush, cloth, hand, sponge, or glove.

e) Insert the spigot end into the bell so that it is in contact with the ring. Push the spigot end in until the reference mark on the spigot end is flush with the end of the bell, using a bar and a block or other approved equipment.

3.5 Floating Pipe

.1 As the work progresses, place adequate backfill to prevent floating of pipes.

.2 Remove and re-lay any pipes which have floated.

3.6 Connecting to Existing Mains

.1 Notify the Town in writing at least five (5) days prior to connecting to an existing water main. Include a work plan identifying necessary valve closures and a contingency plan detailing the procedures to be observed in the event of problems during the connection process or other emergency. As well, the work plan should describe the precautions to be taken to ensure that there is no contamination of the water system during the connection process. Written approval must be received from the Town at least 24 hours before connecting to existing mains.

.2 Notify and complete an application form for the connection with the Town of Edson Public Works). The Town will conduct any necessary valve operations for the Work.

.3 Any disruption of service must conform to Article 3.9 – Temporary Water Service and Article 4.17and 4.18 of Section 00 72 00 – General Conditions.

.4 Use a tapping sleeve and valve where specifically designated to make a connection without taking the existing water main out of service. Tapping of PVC

pipe shall be in accordance with AWWA-C605, AWWA-M23, and the manufacturer's instructions. The Contractor shall observe all due care and diligence during tapping activities.

.5 Make electrical conductivity or isolation connection, where required. Install sacrificial anodes and test leads as designated for cathodic protection, where required.

3.7 Plugging of Dead Ends

.1 Insert standard plugs into the bell ends of fittings or pipe bells. Place caps over spigot ends of fittings and pipes.

.2 Construct concrete thrust blocks for all caps and plugs as detailed on the Drawings.

.3 Tie plugs and caps to fittings using galvanized clamps and tie rods.

3.8 Insulation

.1 Install insulation in accordance with the manufacturer's instructions and the Drawings and as approved by the Town.

3.9 Temporary Water Service

.1 Where performance of the Work requires disruption of water services, the Contractor must provide at least five (5) days notice to all affected parties. Such notice shall consist of an information pamphlet, subject to the review and approval of the Town, which shall be hand-delivered to affected parties.

.2 The Contractor shall provide temporary facilities as required to provide water service for commercial building, apartment buildings, and multi-family developments affected by disruption of service longer than 8 hours in the performance of the Work. Portable water facilities shall not be acceptable unless the affected parties sign a release.

.3 The Contractor shall provide residents of single-family houses or duplexes, affected by disruption of service longer than 8 hours in the performance of the Work, with suitable temporary water facilities.

.4 The Town retains the right to name certain water customers as "Special Needs" customers. These may include businesses that the Town deems to be more sensitive to pressurized potable water service interruption, such as but not exclusively car washes, restaurants, hair salons, Seniors residences, Arenas, Public Halls or places of Worship, medical or dental facilities. The Contractor would be responsible to ensure such Special Needs customers have no more than a 30 minute interruption in pressurized water service, to transition from normal pressurized water service to other approved temporary pressurized potable water service, with more notice given to Special Needs customers before such interruption as may be deemed necessary by the Town.

.5 Temporary water facilities shall be subject to the approval of the Town.

.6 If a water meter is removed or installed in order to provide temporary water service or other reason to do the work, the Town of Hinton Public Works will be contacted, 24 hours before removing or installing the meter so that a Utility

Operator is available to exercise the option to either witness or assist the water meter removal or installation.

.7 The pipe and other materials shall be provided by the Contractor for use in conjunction with temporary bypass pipe and connections to services and laterals. These materials shall be fully adequate to withstand the working pressures operating within the existing network and all other conditions of use.

a) All piping for temporary water services shall be certified for potable water use.

b) Temporary above-ground water connections are to be CSA-200 Municipal piping.

c) All materials used for temporary water services shall only be used for that purpose and shall not be used to perform any other function.

d) Disinfection shall be carried out by the Contractor unless otherwise specified by the Owner and shall be flushed and chlorinated according to ANSI/AWWA C651. See Cl. 3.12.

.8 The Contractor shall obtain a hydrant permit from the Town of Hinton prior to commencement of the temporary water service.

.9 Hydrants out of service shall be bagged and clearly marked with “Hydrant out of service” tag.

.10 Temporary bypass facilities shall include hoses and necessary outlets and fittings to each service connection and/or fire line. The bypass connection may be made at the water meter or at a spigot where possible. The Contractor shall provide, install, and always maintain the temporary bypass lines in a safe and operable working condition. The Contractor shall be required to mound over the temporary water service bypass wherever it crosses a street, driveway, or sidewalk to prevent injury to vehicular and pedestrian traffic. After service has been restored to a section of water main, the Contractor shall remove the temporary bypass and related facilities and shall leave the work site in a neat and orderly condition.

.11 The bypass system shall be installed as to minimize disruption to the public including providing vehicular access to driveways, lanes, and parking lots.

.12 Each building shall have its own temporarily water service connection to the bypass pipe and a connection to the private plumbing via wye at an outside tap or other means to be identified by the Contractor. An approved building connection vacuum breaker shall be supplied on the open ends of all wyes.

a) Temporary mains (headers) shall be a minimum of 40 mm in diameter.

b) Single family residential service laterals shall be a minimum of 13 mm in diameter.

c) Existing 40 mm and 50 mm services will require a minimum of two – 13 mm service laterals.

d) Existing 100 mm to 200 mm services will require two 40 mm laterals.

e) All laterals shall be installed with control valves at the connection to the temporary main with an outlet for the residents use near the tie-in to the hose bib.

.13 Temporary water services shall be connected to a 2.5" hydrant port. All 4" hydrant ports shall remain accessible for use by the Fire Department.

a) Prior to the start of the construction season, the contractor shall disinfect all temporary hoses using a sodium or calcium hypochlorite solution. Using the same procedure used to disinfect water mains, the contractor shall ensure a minimum chlorine residual at the end of 24 hours of 10 mg/L.

b) After disinfection, the hoses shall be adequately flushed. Chlorinated water shall be dechlorinated and disposed of in accordance with the Town's sewer bylaws.

c) When removing and transporting temporary water hoses between construction projects, the ends of all headers and laterals must be capped to prevent contamination.

d) Headers and laterals should be adequately flushed prior to use on every project.

e) If a temporary water hose is placed in storage and is not moved directly from one construction project to another, it must be re- disinfected prior to use.

.14 Initial Water Quality Sampling:

a) Prior to connecting customers to the temporary water supply, water quality samples must be collected and submitted for testing. After flushing, the water must be allowed to sit in the temporary hoses for a minimum of 16 hours before samples are collected.

b) Water samples should be collected from the furthest end of the temporary water supply.

c) Each set of samples should include one plastic container for bacteriological testing.

d) All samples must be passed before customers can be switched over to the temporary water supply.

.15 The Contractor shall have adequate standby equipment at the construction compounds ready for immediate operation and use in the event of an emergency breakdown.

.16 The bypass pumping system shall be capable of bypassing the flow around the required work area and shall be sized to accommodate the anticipated water demands including fire flows.

.17 The Contractor shall inform the Owner before he starts any work which will affect service to customers. The Owner may instruct the Contractor to notify customers. Contractor shall inform residents a minimum of seven (7) days prior to temporary water lines being "laid out" at properties. The Contractor shall have a 24 hour customer contact number in the event of a system malfunction. Shutoffs to customer service lines and connections from the bypass line to the customer service lines shall be made by the Owner.

.18 In addition and if required by the Owner, the Contractor shall make bypass service connections requiring excavation, cutting or tapping, unless specifically excluded.

.19 The Contractor shall be responsible for restoring service to the customer to original or better flow and pressure, including disconnecting from the bypass system and reconnecting to the pipeline.

.20 The services shall be flushed before customers are disconnected from the temporary water system and reconnected to the permanent network.

.21 The Contractor is fully responsible for coordination and scheduling of water meter inspection following reconnection to replaced water mains and services.

.22 The Contractor is fully responsible for any damages to residential properties while conducting the instalment and removal of temporary water services.

.23 The contractor shall make all shut-offs of consumers services and the final connections from the bypass pipe to the consumer using flexible hose.

.24 Notification to the Consultant and Fire Department is required whenever temporarily water service is changed.

3.10 Test Preparation

.1 The Contractor shall supply all testing equipment and personnel to perform hydrostatic pressure testing.

.2 Personnel shall be qualified to operate testing equipment. Testing equipment shall be shall be subject to the approval of the Town. Test pumps shall be motor driven and shall be complete with pressure gauges. An approved pressure recorder shall be provided to continuously record line pressure over a 24-hour period.

.3 The Contractor shall advise the Town 24 hours in advance of filling the line for testing. Failure to notify the Town may result in the tests being deemed unacceptable.

.4 Testing shall not be done under winter conditions unless the line can be safely drained or immediately placed into operation.

.5 Concrete thrust blocks must be cured prior to commencing testing activities.

.6 Partially or completely backfill the excavation prior to commencing testing activities.

.7 Ensure all corporation stops are open and all curb stops are closed.

.8 Ensure the test section is isolated and open all main valves within the test section.

.9 Ensure all hydrants are sufficiently inspected prior to pressure testing. Open all hydrant shutoff valves in the test section and ensure the hydrants are closed.

.10 Maximum length of distribution water main test sections shall be 450 m, unless otherwise directed by the Town.

.11 Maximum length of transmission water main test sections shall be 800 m, unless otherwise directed by the Town.

.12 Take care when filling water mains to ensure calcium hypochlorite tablets, for disinfection as described in Article 3.12, are not dislodged prematurely.

.13 Ensure air is sufficiently expelled from the test section prior to initiating testing.

3.11 Hydrostatic Pressure Test

.1 At the point of the test, apply hydrostatic pressure of 1.5 times the operating pressure or 690 kPa, whichever is the greater, and at no point in the test section shall the hydrostatic pressure be less than 1.25 times the operating pressure.

.2 When the test pressure is achieved, the test will begin.

.3 Mark the gauge and level of water in the storage barrel at the beginning of the test. These will be used to calculate leakage at the end of the test.

.4 Maintain the test pressure, within ± 20 kPa, for two hours.

.5 During the test, inspect all exposed pipe, fittings, and appurtenance locations for signs of leakage or distress.

.6 At the end of the test, pump the test section back to the test pressure.

.7 The leakage allowance for PVC pipe will be determined by the Town using the following formula:

a) $$L = \frac{ND\sqrt{P}}{128{,}300}$$

Where: N = number of joints in the test section;
D = nominal pipe diameter in mm; and
P = average test pressure in kPa.

b) The number of joints is estimated from the total length of pipe installed plus 1 joint allowance for each water service connection.

c) An additional allowance is made when testing against closed metal-seated valves. This allowance is 0.0012 L per hour per mm of nominal valve size.

.8 If the total volume of makeup water used to pump the test section back up to the test pressure exceeds the allowable leakage, inspect the test section for and repair leaks or defective pipes, or remove trapped air and repeat the test.

.9 Repair and re-test until leakage is within the specified limits.

.10 Upon successful completion of testing procedures, complete any remaining backfilling and surface restoration.

3.12 Disinfection

.1 Submit a detailed work plan for disinfection procedures to the Town for approval at least ten (10) days prior to conducting such activities. The work plan must provide sufficient detail regarding the following:

a) Water supply source;

b) Disinfection procedures;

c) Flushing procedures;

d) Discharge location;

e) Discharge de-chlorination procedures; and

f) Testing locations for chlorine residual and bacteriological testing.

.2 Disinfection

a) Disinfect the water main in accordance with AWWA-C651.

b) The preferred method of disinfection is with calcium hypochlorite tablets, further described in the following. Alternatively, disinfection using continuously fed sodium or calcium hypochlorite solution or slug injection of chlorine solution may be acceptable provided that the Contractor submits detailed disinfection procedures for approval at least ten (10) days in advance of disinfection activities. For alternate disinfection methods, flushing activities shall be conducted prior to disinfection.

c) Calcium hypochlorite tablets shall be placed in the water main during construction.

d) Use 5-gram tablets and place one at each end of the water main, at 150 m intervals, at each hydrant lead, in each hydrant, and at other appurtenances to provide an average dose of 25 mg/L in the water main.

e) Attach the tablets to the top inside of each piece of pipe during construction using Le Page's white, waterproof glue.

f) The number of tablets required can be calculated from:

$$N = 6.28x10^{-6}(D^2)(L)$$

Where: N = number of tablets required;
D = nominal pipe diameter in mm; and
L = length of pipe being disinfected in m

g) Slowly fill the water main, maintaining flow veloTown below 0.3 m/s, to prevent premature dislodging of the tablets.

h) Upon complete filling of the water main, allow minimum 12 hours of contact time at water temperatures greater than 5°C.

i) After 12 hours, the Town will supervise testing of the chlorine residual and taking of bacteriological test samples. The free chlorine residual must be greater than 20 mg/L and the samples must successfully pass bacteriological testing prior to the water main being placed into normal operation. Should the test sample fail either of these testing procedures, the water main will be flushed and disinfected at the Contractor’s expense. This process shall be repeated until water samples pass these tests.

j) Disinfection may be carried out simultaneously with pressure and leakage testing, provided the provisions of AWWA-C651 are followed and with the Owner’s approval.

k) If repairs are made on any section of pipe, disinfection shall be repeated.

.3 Flushing

a) Flush water mains clean of all dirt, debris, and other deleterious material prior to placing the water mains into normal operation.

b) The flushing flow rate shall be sufficient to achieve a minimum flow velocity of 0.8 m/s through the pipe.

c) Flush water mains and safely discharge the water so that no downstream damage occurs.

d) Discharge flushing water in a manner and to locations approved by the Town. Sufficiently de-chlorinate flushing water in accordance with Article 3.12.4 prior to discharge.

e) Where flushing is insufficient to remove material buildup in the water main, the Contractor shall undertake foam swabbing of the water main.

f) 24 hours before Swabbing commences, a swabbing plan that includes swab size and counts, directions, insertion and retraction points and anticipated flows, shall be submitted to the Town for approval before swabbing starts.

.4 De-chlorination

a) Flushing water must be sufficiently de-chlorinated prior to release. The maximum allowable free chlorine residuals that must be achieved prior to release are as follows:

i) 2.0 mg/L to sanitary sewers;

ii) 0.5 µg/L to storm sewers that are at least 250m from watercourses; or

iii) 0.0 mg/L to watercourses.

b) De-chlorination procedures are subject to the approval of the Town. No disposal of flushing water shall be permitted until the Contractor's proposed de-chlorination procedures have been reviewed and approved by the Town.

c) The preferred de-chlorination method includes utilizing a continuously fed neutralizing chemical introduced to the chlorinated water as it is flushed from the water main and before the water enters the receiving environment. Alternatively, a de-chlorination tank system may be used.

d) Acceptable de-chlorination chemicals include sodium thiosulphate, sodium sulphite, and sodium bisulphate. Citric acid or other methods may be required if the proposed method results in excessive sulphate formation or other potentially regulated byproduct in discharge.

e) Follow the instructions of the de-chlorination chemical supplier for mix ratios required for chlorine neutralization, application methods, and safety procedures.

3.13 Placing Water Mains Into Service

.1 Notify the Town in writing at least five (5) days prior to placing a new water main into service. Include a work plan identifying valve operation sequencing, water quality monitoring to ensure water quality in the existing system is not adversely affected, emergency procedures, and any other activities necessary to the successful commissioning of the water main. Written approval must be received from the Town at least 24 hours before commissioning the water main.

.2 Notify and arrange for a representative of the Town of Hinton Utilities Department to be present during all valve operations.

.3 Open one hydrant or flush valve fully open, then open one boundary valve slowly, releasing air from the new main through hydrants or approved blow off, controlling the flow with the main valve, then reduce the flow at the hydrant or blow off until the pressure is equalized and stable, then slowly open other boundary valves. The goal initially is to have the flowing area of the hydrant port or blow off opening larger than the flow area of the opened main valve until all the water in the main has been replaced twice.

.4 Maintain a watch for a break in the new water main. In such an event, isolate the water main so that service interruptions will be minimal.

.5 The Town will turn on service connections.

.6 Assist the Town in obtaining water samples for quality control testing. Standby and be prepared to perform any necessary sampling if water quality concerns arise.

.7 In cooperation with the Town, maintain a watch for leaks on the water main within 3 days of commissioning. Promptly repair any leaks which are detected.

.8 Should any water sample fail quality control testing, the Town may issue directions for remedial action.

3.14 Cleanup

.1 Cleanup and restore the affected areas to a condition at least equal to that existing prior to installation, and in accordance with other applicable requirements of the Contract Documents.

- END OF SECTION 33 11 00 -

1.0 GENERAL

1.1 Description

.1 This section specifies requirements for providing fittings, fixtures, and appurtenances for water mains including, but not limited to, the following:

a) Fittings;

b) Valves;

c) Couplings;

d) Reducers and Tees;

e) Tapping sleeves;

f) Hydrants;

g) Mechanical joint restraints; and

h) Cathodic protection.

1.2 Standards

.1 The Standards and Guidelines for Municipal Water Supply, Wastewater and Storm Drainage Facilities, issued by Standards and Approvals Division, Alberta Environment shall apply to the work of this section.

.2 Materials supplied in this section are in accordance with AWWA, ASTM, and CSA standards.

.3 All fittings shall be made from National Sanitation Foundation (NSF) approved material.

.4 The Town may at any time require the Contractor to produce certification by an independent testing agency that materials used conform to the specified standards, and the costs of such certifications shall be borne by the Contractor.

1.3 Related Work

.1 Section 33 11 00 – Water Utility Distribution Piping.

2.0 PRODUCTS

2.1 Fittings

.1 Polyvinyl Chloride (PVC)

a) PVC injection-molded fittings shall conform to AWWA-C900 or C905, as applicable, and shall be certified to CAN/CSA-B137.3. Certification of pipe compliance with must be provided to the Town upon request.

b) Fitting diameter and pressure rating to match pipe.

c) Use push-on type ends complete with one gasket for each bell.

d) Gaskets shall conform to ASTM-F477.

2.2 Gate Valves

.1 Gate valves shall only be used for pipes.

.2 Gate valves shall be resilient-seated type conforming to AWWA-C509.

.3 Epoxy-coated cast iron body and disc.

.4 Non-rising stem.

.5 Bell ends, single-ring gasket, and push-on joints suitable for connecting to PVC pipe (C.I.O.D.).

.6 Use a valve size equivalent to the pipe size.

.7 Operating pressure shall be 1,200 kPa, cold water service.

.8 Provide a 50 mm square operating nut that turns counterclockwise to open.

.9 Valve stem to be bronze or Type 304 stainless steel.

.10 Provide “O”-ring valve stem seals.

.11 Valve Box and Extension

a) Valve boxes shall be two-section, Norwood Type A-bottom section PVC minimum 8 foot long, Cast iron top section 3 foot to 4 foot long depending on valve depth of bury.

b) The internal spindle shall extend to within 300 mm of the finished surface and shall include a top operating nut and rock disc.

c) Valve boxes shall be of sufficient lengths to provide for adjustments of 300 mm in the up or down direction.

d) Valve box extensions shall be cast iron, suitable for use with the valve boxes installed.

e) Extension stem shall be 25 mm square, mild steel, with 50 mm square operating nut and flange.

.12 Mueller, or approved equal.

2.3 Couplings

.1 PVC Couplings

a) PVC couplings shall conform to AWWA-C900 or C905, as applicable, and shall be certified to CAN/CSA-B137.3. Certification of pipe compliance with must be provided to the Town upon request.

b) Coupling diameter and pressure rating to match pipe.

c) Use push-on type ends complete with two gaskets for each coupling.

d) Gaskets shall conform to ASTM-F477.

.2 Bolted-Sleeve Couplings

a) Use only where indicated on the Drawings or directed by the Town.

b) Bolted-sleeve couplings shall conform to AWWA-C219.

c) Coupling diameter and pressure rating to match pipe.

d) Coupling body to be ductile iron or carbon steel. Carbon steel bodies shall be provided for all couplings of nominal diameter greater than 300 mm. Bodies shall have fusion-bonded epoxy coating to AWWA-C213.

e) Fasteners shall be Type 304 stainless steel with threads treated to prevent binding.

f) Centre sleeves and end rings shall conform to ASTM-A536.

g) Gaskets shall conform to AWWA-C111.

2.4 Tapping Sleeves

.1 Mechanical joint end seals conforming to AWWA-C111.

.2 Outlet flange to AWWA C207, Class D.

.3 Carbon steel body with fusion bonded epoxy coating, or Type 304 stainless steel.

.4 Nuts and bolts to be Type 304 stainless steel, treated to prevent binding.

.5 Gaskets to be constructed of synthetic rubber and certified for potable water applications. Provide a 20 mm NPT test plug for pressure testing of the sleeve and tapping valve.

2.5 Tapping Valves

.1 Tapping valves shall conform to Article 2.2.

.2 Flanged end shall to AWWA C207, Class D.

.3 Mechanical joint end shall to AWWA C111.

2.6 Hydrants

.1 Hydrants shall conform to AWWA-C502.

.2 Post-type, dry-barrel fire hydrant with compression shutoff, cast iron body, bronze-mounted, and bottom connection with drip valve and drain.

.3 Five-sided operating nuts, counterclockwise to open.

.4 All external nuts and bolts, excluding the ground flange, shall be Type 304 stainless steel, including ground flange.

.5 Each hydrant shall have one 150 mm diameter pumper connection and two 65 mm diameter hose connections to conform to Alberta Mutual Aid Thread Standard. Connections must be a minimum of 415 mm above the ground flange. Hose connections must be at 90-degrees to each side of the pumper connection. 100 mm diameter Storz fittings shall be provided on the pumper connection.

.6 Nipples shall be provided with caps, without chains or cables. Nipples shall be threaded into the hydrant head, rather than leaded in, unless a positive locking device is provided to prevent blowout of the nipples.

.7 The valve stem in the hydrant head shall be equipped with “O”-ring seals and a thrust bearing.

.8 The barrel of the hydrant shall be a minimum of 150 mm inside diameter in two flanged sections, with the upper section being 300 mm in length and terminating

at the ground flange, 50 mm above ground level. The lower section shall be of sufficient length to provide a minimum of 2.65 m of cover over the water main.

.9 Ground flange shall be four-section, breakaway type.

.10 Provide a bottom connection, flanged to the barrel, with a single-ring gasket and push-on joint suitable for connecting to PVC pipe, and complete with harnessing lugs. Bottom inlet connection to match size and type of water main.

.11 The hydrant shall be placed on a concrete pad, as further detailed on the Drawings.

.12 A screened rock drainage pit shall be provided at the bottom of the hydrant, as further detailed on the Drawings.

.13 A gate valve, in accordance with Article 2.2, shall be provided with each hydrant lead.

.14 The valve shall be mechanically connected to the barrel with mechanical joint restraints conforming to Article 2.8.

.15 All hydrants shall be painted Tremclad Yellow (No. 270-97X).

2.7 Mechanical Joint Restraints

.1 Joint restraints shall conform to AWWA-C111 and ASTM F1674.

.2 Diameter and pressure rating to match the pipe and fitting to which the restraints are being applied. The pressure rating of the restraint shall include a minimum safety factor of 2.

.3 Gland shall be constructed of high strength ductile iron conforming to ASTM-A536.

2.8 Concrete

.1 Concrete for thrust blocks and supports shall be made with Type 50 sulphate-resistant cement.

.2 Maximum slump 75 mm, minimum 20 MPa at 7 days.

.3 In freezing weather, provide concrete with a temperature of not less than 10°C, and maintain this temperature for 72 hours.

2.9 Cathodic Protection

.1 All cast iron fittings, valves, and hydrants shall be cathodically protected with a 5.5 kg zinc anode.

.2 Zinc anodes shall conform to ASTM B418, Type 2.

.3 Lead wires shall be 2 m long, No. 10A WG/7.

.4 Wires shall be connected to fittings, valves, and hydrants with a Cadweld welded electrical connection, or approved equal.

3.0 EXECUTION

3.1 Product Delivery, Storage and Handling

.1 Store and handle material in accordance with the manufacturer's recommendations.

.2 Deliver, store, and handle material with care to prevent damage.

.3 Store materials so that they are kept clean.

.4 Drain valves and hydrants to eliminate damage due to freezing of trapped water.

.5 Where necessary, protect material from exposure to sunlight or from any condition that may harm or adversely affect the material.

.6 Inspect for defects upon delivery and immediately before installation.

3.2 Length of Pipe at Fittings and Structures

.1 Use 1,000 mm maximum pipe lengths where 200 mm or smaller diameter water mains connect to valves, hydrants, or structures.

.2 Use 2,000 mm maximum pipe lengths where 250 mm or larger diameter rigid water mains connect to valves, hydrants, or structures.

.3 Where connecting to existing water mains use a minimum of two pipe lengths beyond newly installed valves or reducers.

.4 At least one flexible joint shall be used between two adjacent rigid joints.

3.3 Jointing Pipe to Fittings

.1 Connect pipes to fittings using rubber gasket or mechanical joints.

.2 Where dissimilar pipes are connected or where rubber gasket or mechanical joints cannot be made to connect use sleeve type couplings or flanged connections upon Town approval.

.3 Where plastic pipe is connected to butterfly valves use a short length of steel pipe on each side of the valve and adapt to the plastic pipe using couplings approved by the Town.

3.4 Setting Fittings and Valves

.1 Install fittings and valves at the required locations.

.2 Support all fittings and valves with concrete, in accordance with the Drawings. Provide a minimum of 75 mm of concrete under all fittings.

.3 Install valve boxes plumb and support valve boxes to prevent the transmission of strain or shock to the valve.

.4 Set valve boxes flush with finished grades.

.5 Provide Class I or Class II compacted backfill, in accordance with Section 31 23 33 – Trenching and Backfilling, for a minimum 1.5 m radius around all valves.

3.5 Setting Hydrants

.1 Install hydrants in the required locations and at the required directions.

.2 Set hydrants plumb with hose nozzles parallel or at right angles to the street centreline.

.3 Set hydrants with ground flanges above final curb and sidewalk grades.

.4 Provide a screened rock drainage pit where hydrant barrels can be drained to the surrounding soil, in accordance with the Drawings. Plug hydrant drains where ordered by the Town.

.5 Construct hydrant thrust blocks so that drains are not plugged.

.6 Support hydrants with treated fir or concrete blocks, or as designated on the Drawings.

.7 Provide Class I or Class II compacted backfill, in accordance with Section 31 23 33 – Trenching and Backfilling, for a minimum 1.5 m radius around all hydrants.

3.6 Thrust Blocks and Mechanical Joint Restraints

.1 Install thrust blocks at all dead ends and at all fittings, valves, and hydrants in accordance with these specifications and as indicated in the appropriate details on the Drawings.

.2 Place concrete thrust blocks against solid ground with a minimum bearing area as shown on the Drawings or as directed by the Town.

.3 Pour the concrete in a manner that will leave pipes, fittings, valves, and hydrants accessible for repair.

.4 Thrust blocks must be allowed to cure for a minimum of 8 hours prior to backfilling unless otherwise approved by the Town.

.5 Mechanical joint restraints are required at all hydrants.

.6 Valves and fittings shall be mechanically restrained as follows:

Working Pressure	Diameters Requiring Restraint
Up to 700 kPa	300 mm and up
700 to 1,000 kPa	200 mm and up
1,000 to 1,380 kPa	All sizes

.7 Install mechanical restraints in accordance with manufacturer's instructions.

3.7 Cathodic Protection

.1 Install cathodic protection on all cast iron fittings, valves, and hydrants in accordance with the Drawings and manufacturer's instructions.

.2 Embed zinc anodes into the trench wall to provide a minimum 50 mm native material compacted around the anode.

.3 A minimum of 3 L of water shall be poured on each anode to initiate operation of the anode prior to backfilling.

3.8 Inspection of Valves and Hydrants

.1 Upon completion of backfilling and surface restoration, check the operation of all valves and hydrants in the presence of the Town.

- End of Section 33 12 00 -

1.0 General

.1 Payments will be made based on the unit prices and lump sum prices bid in the Tender, and in accordance with Section 5.0 – Payments and Certificates of the General Conditions.

.2 The prices bid for various items of work, unless specifically noted otherwise, shall include the supply of all labour, plant, products, material, and equipment necessary to construct the Work in accordance with the Contract Documents.

.3 The prices bid for supply and installation shall be full compensation for supplying, hauling, handling, storing, installing, cleaning, testing, and placing in service together with all other work subsidiary and incidental thereto for which separate payment is not provided elsewhere.

.4 The method of measurement of the quantities for payment and the basis for payment will be in accordance with the following items of this section. All measurement will be done by the Town using generally accepted field survey methods.

.5 Where the Tender shows separate items for supply and installation, the unit prices or lump sum prices bid for supply shall include supplying, delivering, loading, unloading and all allowances for handling, storage, breakage, and waste. Payment will be made only for material actually installed in the Work. Progress Payment for supply-only items shall be made only for material and product on the worksite and in the Contractor's care, and shall then become the property of the Town.

.6 Other materials on site, whether existing structures, vegetation, topsoil, gravel, sand or other excavated or piled materials, are the property of the Town or of the owner of the land on which the Work is located. Only those materials specifically noted in the Contract Documents as belonging to the Contractor shall become the Contractor's property.

.7 Where there are excess excavated materials, unsuitable materials excavated or materials of any kind that are excavated but not used in the Work, such materials are not the property of the Contractor unless authorized in writing by the Town or specified to be disposed of by the Contractor.

.8 With each progress payment claim, the Contractor and any pre-selected Supplier shall jointly certify a claim for payment for preordered material used or incorporated into the Work or delivered to the site of the Work during that claim period.

.9 Upon complete performance of the Work, the Contractor shall credit the Town for material paid for as supplied on the worksite, but not incorporated in the Work, and remove the surplus material from the worksite.

.10 Unless specifically stated otherwise, the following activities shall be deemed to be included in the cost of the measurement items and/or general items and no additional payment will be made for these activities:

i) Correction of deficiencies
ii) Removal and replacement of reject work
iii) Protection of Work
iv) All required surveys
v) Mix design and quality control
vi) Quality control and quality assurance
vii) Submittals and samples
viii) Arrangement of facilities for inspection
ix) Clean-up of work site and laydown area

2.0 Measurement and Payment Clauses (specific to the Tender Form)

.1 Mobilization

a) Mobilization and demobilization shall include the Contractor's costs of mobilization at the beginning of the project, and the costs of demobilization at the end of the project.

b) Included in mobilization are such items as bonding, insurance, permits, moving personnel, materials and equipment to the site, setting up temporary facilities, project signage, shallow utility locates, record keeping for as-constructed data of all new construction, construction layout and as-built survey, public and business notifications and all preparation for performing the Work.

c) The work site shall be delineated with fencing along the boulevard to impede pedestrian and vehicular traffic from crossing the work zone. Fencing shall be maintained throughout the duration of construction. No additional payment will be made for maintenance of fencing during construction.

d) Included in demobilization are preparation and submission of operation and maintenance manuals, removal of all personnel, materials and equipment; and cleanup of the site and the Work.

e) The lump sum price bid for this work shall be relative to the costs involved but shall not exceed ten percent of the Tender Price.

f) Payment will be made as follows, or as approved by the Town:

i. 60% of the lump sum bid will be included in the first progress payment certificate;

ii. 40% of the lump sum bid will be included in the final progress payment certificate;

g) The Town may, at the Town’s own discretion, provide only partial payment if mobilization or demobilization is deemed not complete or insufficient to meet the demands of the Work.

.2 Traffic Accommodation

a) Shall include temporary Traffic Control as per traffic accommodation submission and all requirements in the Alberta Transportation

Development Permit, the implementation of traffic control for the duration of the project (supply, install, maintain, and remove, at the end of the project, barricades, signage, flag people) and all incidental work for which separate payment is not specified.

b) Shall include Site Signage and trail and pathway detours, including the supply, installation, maintenance, and removal of project specific signage/barricades/fencing, including the installation and maintenance of trail/sidewalk closure and detour signs, business information signs, and all incidental work for which separate payment is not specified.

c) Shall include supply, installation, maintenance and removal of Variable Message Signs (VMS) place at approaches to 56th Street, 10th Avenue, 54th Street, or as directed by the Town.

d) This item shall be paid on a lump sum basis.

e) Payment shall be made as follows, as approved by the Town:

   i. 50% of the lump sum bid will be included in the first progress payment certificate after temporary traffic control, project signage and trail detours have been set up.

   ii. 50% of the lump sum bid will be included in the final progress payment certificate.

f) The Town may, at the Town's own discretion, provide only partial payment if Traffic Control & Signalization are not completed to the satisfaction of the Town.

.3 Remove & Dispose Existing Concrete

a) Measurement and Payment for Saw Cutting, Removal and Disposal of Sidewalk and Curb & Gutter shall be made at the unit price bid per lineal meter basis as specified in the Schedule of Quantities and Prices.

b) Payment will be full compensation for removal of concrete structures including Monolithic Sidewalk, Concrete Lane and Commercial Crossings, Ramps, inclusive of their corresponding curb and gutter, separate concrete walk, concrete curb, concrete swales, concrete driveways and the Removal of Concrete shall be measured and paid for by the corresponding unit as indicated in the schedule of quantities and, shall include but is not limited to: saw cutting at the limits of removal, breakout, removals, separation of materials, loading, hauling, disposal of materials, protection of existing structures and buildings, restoration of adjacent landscaped areas, excavation to accommodate new concrete structures and road right of way cross sections, grading of adjacent slopes to accommodate new concrete structure elevations, tipping fees of disposal site and general cleanup, drainage protection, dust control, maintenance and cleanup of haul routes and all associated labour, materials, tools, equipment and incidentals required for the removal and disposal of existing concrete structures at locations to be determined by the Engineer and Owner.

.4 Remove and Dispose Existing Road Structure to Design Subgrade

a) Measurement and payment for Removal and Disposal of Existing Road Structure to Design Subgrade shall be made at the unit price bid per square meter basis as specified in the Schedule of Quantities and Prices.

b) Payment will be full compensation for existing pavement structure removed and disposed of to accommodate the proposed roadway structure to the proposed subgrade depth. It shall include but is not limited to: cold milling where specified, saw-cutting at the limits of removal, break-out, materials, tools, equipment, and incidentals required for the removal and disposal of existing pavement structures, removals, excavation to proposed subgrade elevation, separation of materials, loading, hauling, and stockpiling salvageable materials at locations specified by the Town as requested, dispose of surplus and unsuitable materials including dumping fees if any, drainage protection, dust control, maintenance and cleanup of haul routes and all associated labour, materials, tools, equipment, and incidentals required for the removal and disposal of existing pavement structures.

c) No differentiation will be made between various types or thicknesses of pavement structures, gravel structures, buried concrete or soil cement.

.5 Remove & Dispose Unsuitable Materials

a) Remove & Dispose Unsuitable Material shall be considered incidental to the work. Will be removal, haul, and disposal of unsuitable materials, all labour, materials, equipment, tools, fees and incidentals necessary to complete the Work as shown on the Engineering Drawings and to the satisfaction of the Engineer.

b) All unsuitable material shall become property of the Contractor and disposed of at the Contractor's offsite disposal site. No additional payment will be considered for Contractor's disposal site preparation, haul road maintenance, permits or fees.

.6 Supply & Install Granular Base Course (Des 3, Class 20) & Granular Sub-Base

a) Measurement for Granular Base Course & Granular Sub-Base shall be made on a metre squared basis for the depth as specified on the Engineering Drawings or as directed in the field by the Engineer. All applicable measurements shall be verified with itemized truck weight receipts upon application.

b) Payment for Granular Base Course & Granular Sub-Base shall be made at the unit price bid per square metre to the depth, designation and class of materials in the Schedule of Quantities and Prices. Such payment will be full compensation for supplying, processing, hauling, placing and compaction of the material on the roadways, supplying of water, adjusting moisture content, preparing the surface and conducting compaction testing and a proof roll on the finished surface.

c) All materials, tools and incidentals necessary to meet the compaction and proof roll requirements to the necessary specifications shall be considered incidental to the work and no separate payment will be made.

d) The bid price and payment shall also include full compensation for clean-up of all aggregate/asphalt materials that may fall off delivery trucks/equipment along public road haul routes and, the removal of any tack coat that has been tracked on to concrete structures or roadway pavement markings. All haul routes shall be inspected prior to commencement of work and again following completion of work to determine clean-up requirements. Any clean-up work not performed in a timely manner will be completed by the Town with all related costs deducted from final payments.

.7 Subgrade Preparation – 150mm Depth

a) Measurement & Payment for Prepared Subgrade will be made at the unit price bid per square meter as specified in the Schedule of Quantities and Prices to the depth as specified.

b) Such payment will be full compensation for scarifying, blading, watering, or drying, shaping, compacting, testing and conducting a proof roll on the subgrade for all roadways, accesses, and lanes. Payment will be made once the necessary compaction has been achieved.

c) All materials, tools and incidentals necessary to meet the compaction and proof roll requirements to the necessary specifications shall be considered incidental to the work and no separate payment will be made.

.8 Non-Woven Geotextiles

a) Measurement & Payment for Non-Woven Geotextile shall be made at the unit price bid on a square metre basis as specified in the Schedule of Quantities & Prices. No additional measurement will be made for overlaps or folds for manufacturer recommendations.

b) Such payment will be full compensation for supplying, hauling, placing, and installing the material on the grade widening as directed by the Town or where compaction requirements cannot be met due to existing field conditions.

.9 Geogrid (Biaxial)

a) Measurement & Payment for Geogrid (Biaxial) shall be made at the unit price bid on a square metre basis as specified in the Schedule of Quantities & Prices. No additional measurement will be made for overlaps or folds for manufacturer recommendations.

b) Such payment will be full compensation for supplying, hauling, placing and installing the material on the grade widening as directed by the Town or where compaction requirements cannot be met due to existing field conditions.

.10 Concrete

a) Measurement & Payment of the various concrete structures, built in accordance with the dimensions specified by Engineer or shown on the drawings, will be as follows:

i) Straight faced curb & gutter – linear metres (measured along the curb face)

ii) Rolled faced curb & gutter – linear metres (measured along the curb face)

iii) Sidewalk – square metres

iv) Pararamps – item

v) Driveway Crossings

b) The unit price bid for construction of the above structures shall include the supply of all materials as per the cross sections and details, restoration of any adjacent pavement structure, private walks, to accommodate new elevations (over cuts for removals and forming); 150 mm subgrade prep, the supply and replacement of granular base, forming and supply and placing of concrete, jointing, reinforcing, finishing, curing, backfilling, compaction and general clean-up.

.11 Sanitary Utility Sewage Piping

a) Remove and Replace with New Sanitary Sewer shall be paid for in lineal meters along the centre line of the pipe, after the pipe has been installed for the diameters and materials as shown in the Bid Form. The Unit Price shall include but is not limited to: excavation, trenching, shoring, removal and disposal of existing sanitary sewer, disposal of surplus and unsuitable materials, disposal fees (if any), removal and disposal of Asbestos Cement pipe, supply and compaction of material in pipe zone, supply and installation of pipe, insulation where required, all fittings, connections to manholes and existing services, backfill with native material and granular sub- base to the corresponding subgrade elevation, compaction, general clean-up and all associated labour, materials, tools, equipment, and incidentals required to remove and replace the existing sanitary sewer. This price shall also include temporary water and sanitary servicing to businesses and residences. This price shall also include any utility or service crossings.

b) Over-Excavation (incl. Installation of Washed Rock) (Provisional) will be paid by meter squared installed to 300 mm depth. Price will include for excavation, removal and disposal of unsuitable materials, supply and installation of washed rock wrapped in filter fabric as directed by the Engineer.

c) Locate, Remove and Replace Existing Sanitary Services with New c/w Connections to Property Line (Provisional) will be measured per service installed for the diameters and materials as shown in the Bid Form. The Unit Price shall include but is not limited to: locating existing service, removal and disposal of the surface structure, excavation, trenching, shoring, removal and disposal of existing service, disposal of surplus and unsuitable materials, disposal fees (if any), supply and compaction of

material in pipe zone, supply and installation of sanitary service pipe, insulation where required, all fittings, connection to existing service and to the main; locating, removing and replacing corresponding riser if applicable, connections, backfill with native material and granular sub-base, compaction, restoration of surface structures as per details and all associated labour, materials, tools, equipment, and incidentals required to install the Sanitary Service.

Also included shall be the restoration of any private driveways, walks, fences, landscaped areas and the temporary removal and restoration of any street furniture required to install the new sanitary service.

d) Remove and Replace Existing Manholes will be measured in vertical metres of new manhole installed, from the top of the frame to the lowest pipe invert, for the diameters indicated on the Bid Form.

The unit price is to include, but not be limited to, the removal of the existing manhole, including frame and cover, pipe disconnections, loading, hauling, disposal off-site, disposal fees (if any), stockpiling of salvageable frames and covers at the Town's Public Works area, the supply and installation of new precast manhole sections, including pre-benched base, pipe stub outlets, grouting, sealing joints, grade rings as required, testing as specified, supply and installation of frame and cover, adjustment of manhole to finished grade, and all labour, equipment, materials, tools, and all other incidentals necessary to perform the work.

e) Supply and Install New Manhole will be measured in vertical metres of new manhole installed, from the top of the frame to the lowest pipe invert, for the diameters indicated on the Bid Form.

The unit price is to include, but not be limited to, the supply and installation of new precast manhole sections, including pre-benched base, pipe stub outlets, grouting, sealing joints, grade rings as required, testing as specified, supply and installation of frame and cover, adjustment of manhole to finished grade, and all labour, equipment, materials, tools, and all other incidentals necessary to perform the work.

f) Remove and Dispose Existing Manholes will be measured per manhole removed, at locations noted within the drawings.

The unit price is to include, but not be limited to, the removal of the existing manhole, including frame and cover, pipe disconnections, loading, hauling, disposal off-site, disposal fees (if any), stockpiling of salvageable frames and covers at the Town's Public Works area, and all labour, equipment, materials, tools, and all other incidentals necessary to perform the work.

g) Supply and Install New Frame and Cover will be measured in units installed. The unit price is to include, but not be limited to, supply and installation of frame and cover, adjustment of manhole to finished grade, and all labour, equipment, materials, tools, and all other incidentals necessary to perform the work.

h) Bypass pumping shall be measured and paid as a lump sum and shall cover the costs of procuring pumps, hoses, fittings, including fuel costs, capable of pumping at a rate such that no upstream flooding occurs, for the duration of the project as required. Price also to include barricading and temporary pedestrian by-passes over or around hoses, supervision, relocating pumps as required, diverting flows, and a back up pump with the same specifications for contingency purposes. Allow for continuous monitoring of water levels in upstream and downstream manholes. Ensure that there is no contamination of basements, ditches, roadways, sidewalks, etc. with raw sewage. In the event of such contamination, immediate action shall be taken to close the source of contamination. Proper cleanup of the affected area shall be followed and no work shall commence until a re-evaluation of the complete process has been carried out. No rehabilitation work shall commence unless authorized. No extra payment will be made for decontamination, clean up, or down time.

i) Temporary water supply required for the duration of the project during the sanitary replacement will be paid on a lump sum basis. The Lump Sum price shall include but is not limited to supply of materials and labour, coordination with the Town, chlorination, flushing, and testing of temporary water pipe and fittings, connection to hydrants and businesses, provision of temporary pipe protection, and vehicular / pedestrian ramps and removal of all temporary water pipe and fittings.

j) Remove and Replace Existing Catch Basin Manholes will be measured per catch basin manhole installed, at locations noted within the drawings.

The unit price is to include, but not be limited to, the removal of the existing manhole, including frame and cover, pipe disconnections, loading, hauling, disposal off-site, disposal fees (if any), stockpiling of salvageable frames and covers at the City's Public Works area, the supply and installation of new precast catch basin manhole sections, pipe stub outlets and connections to existing pipe, grouting, sealing joints, grade rings as required, testing as specified, and all labour, equipment, materials, tools, and all other incidentals necessary to perform the work.

.12 CCTV Sewer Inspection

a) CCTV sewer inspections will be measured and paid for per lineal meter of sewer main inspected. The unit price is to include all labour, equipment, materials, tools, and all other incidentals necessary to perform the work.

.13 Fillcrete

a) Fillcrete backfill shall be paid for in lineal meters along the centre line of the pipe, after the pipe has been installed, for the highway crossings. Per Alberta Transportation requirements, all backfill for the highway crossings is required to be fillcrete, up to the underside of the asphalt layer. The Unit Price shall include but is not limited to: fillcrete supply and installation, general clean-up and all associated labour, materials, tools, and equipment.

.14 Landscape

a) Measurement and payment for Landscaping Restoration shall be made at the lump sum price bid as specified in the Schedule of Quantities and Prices.

b) Measurement and payment for Supply and Install Fence shall be made at the lineal meter price bid as specified in the Schedule of Quantities and Prices. The unit price is to include all labour, equipment, materials, tools, and all other incidentals necessary to perform the work.

c) Such payment will be full compensation for: all required labour, equipment and tools; supply, preparation and clean-up of the surface; loading, hauling, spreading, placement, watering of landscape materials to be supplied by the Contractor.

d) No separate payment will be made for stripping, excavating, preparing and backfilling as required which is considered incidental to the work.

e) Tree protection will not be paid as a separate item but will be considered incidental to the work.

- END OF SECTION 01 22 00 -

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OneCall Ticket no: 20232616834

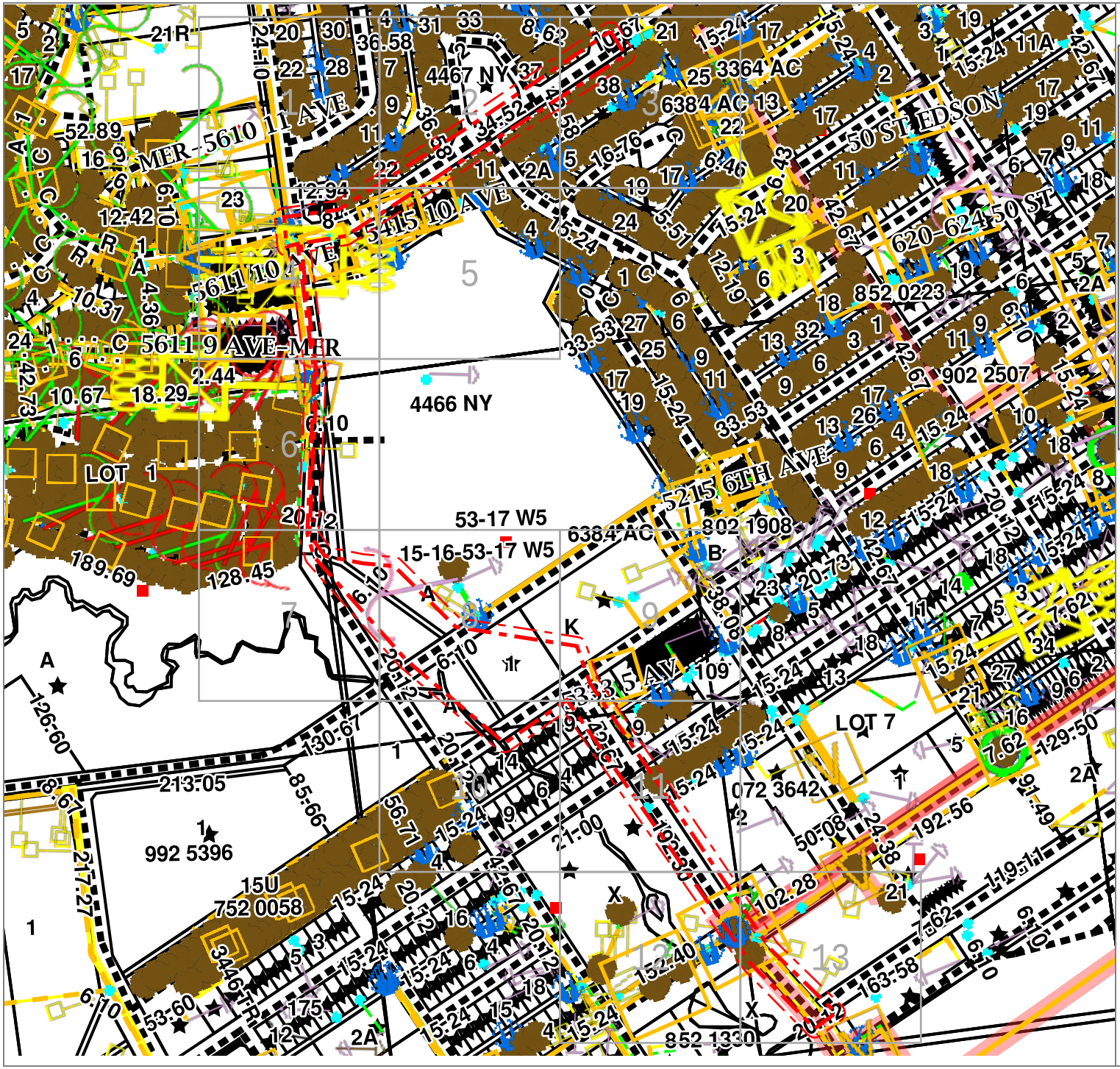
Ticket Location: 54 St, Edson, AB

Overview

One Call Center – Dig Area

TELUS Buffer (10m)

CAUTION



LEGEND

Scale: 1:6150

Underground COPPER	FIBRE Distribution Hub
Underground FIBRE	Pedestal
Direct Buried COPPER	Copper Cross Connect
Direct Buried FIBRE	Aerial / PCP RAP
Aerial COPPER	FIBRE Cabinet
Aerial FIBRE	MUX Cabinet
Underground DUCT	Underground Facility Color
Underground TRENCH	Direct Buried Facility Color
Proposed Direct Buried COPPER	Premises Facility Color
Proposed Underground	Purposed Facility Color
Abandoned	Vault
Temporary	Manhole
Critical Cable	Soft Red Glow
Road	Splice Points
Property Line	NAP Heatmap
Pole / Protection	Lot/Block/Plan / Copper Sensor
	Copper Load Coil
	Copper Repeater

N

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OneCall Ticket no: 20232616834

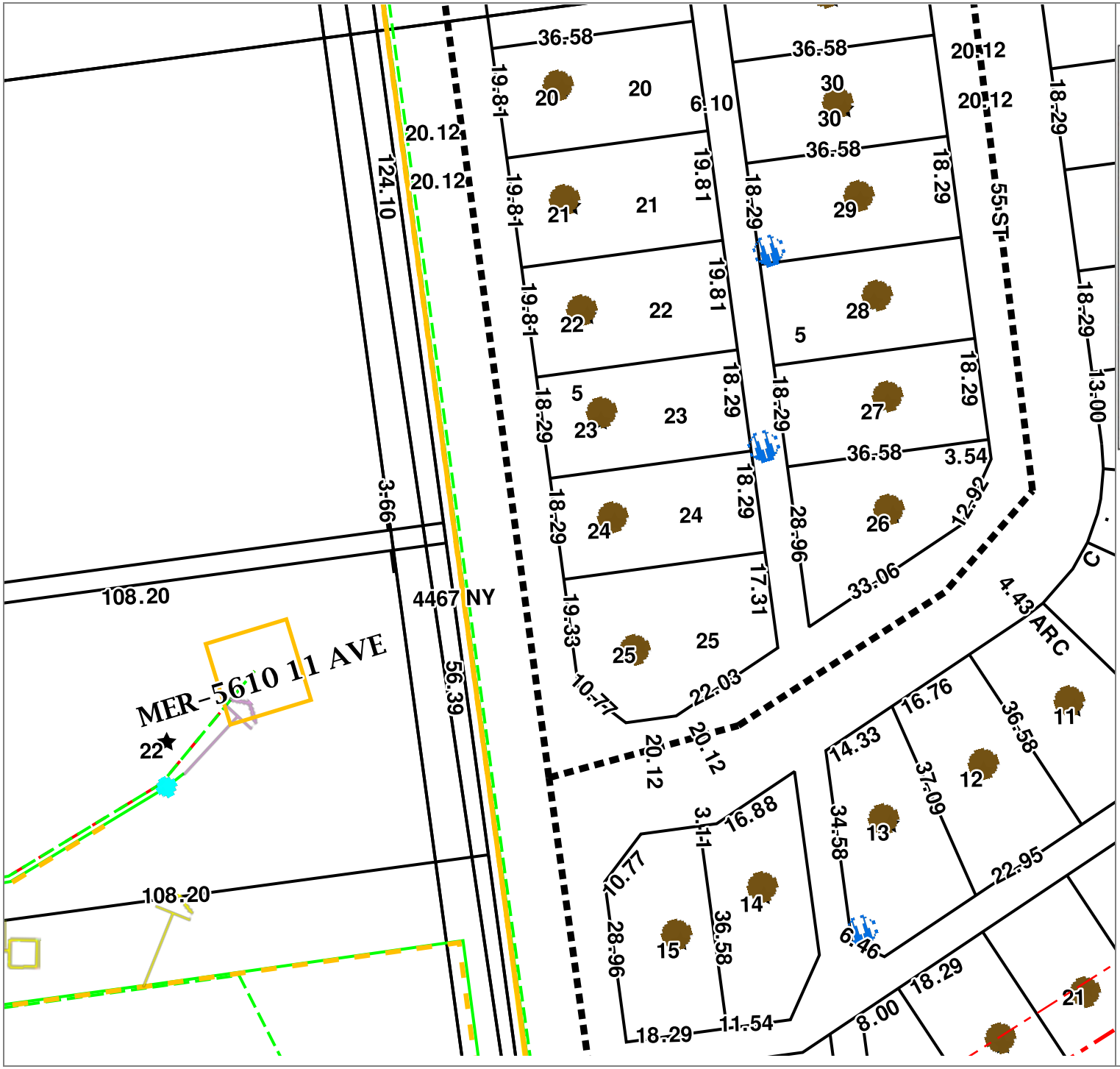
Ticket Location: 54 St, Edson, AB

Tile no. 1

One Call Center – Dig Area

TELUS Buffer (10m)

CAUTION



LEGEND

Scale: 1:1000

Underground COPPER	FIBRE Distribution Hub
Underground FIBRE	Pedestal
Direct Buried COPPER	Copper Cross Connect
Direct Buried FIBRE	Aerial / PCP RAP
Aerial COPPER	FIBRE Cabinet
Aerial FIBRE	MUX Cabinet
Underground DUCT	Underground Facility Color
Underground TRENCH	Direct Buried Facility Color
Proposed Direct Buried COPPER	Premises Facility Color
Proposed Underground	Purposed Facility Color
Abandoned	Vault
Temporary	Manhole
Critical Cable	Soft Red Glow
Road	Splice Points
Property Line	NAP Heatmap
Pole	Lot/Block/Plan
Protection	Copper Sensor
	Copper Load Coil
	Copper Repeater

N

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OneCall Ticket no: 20232616834

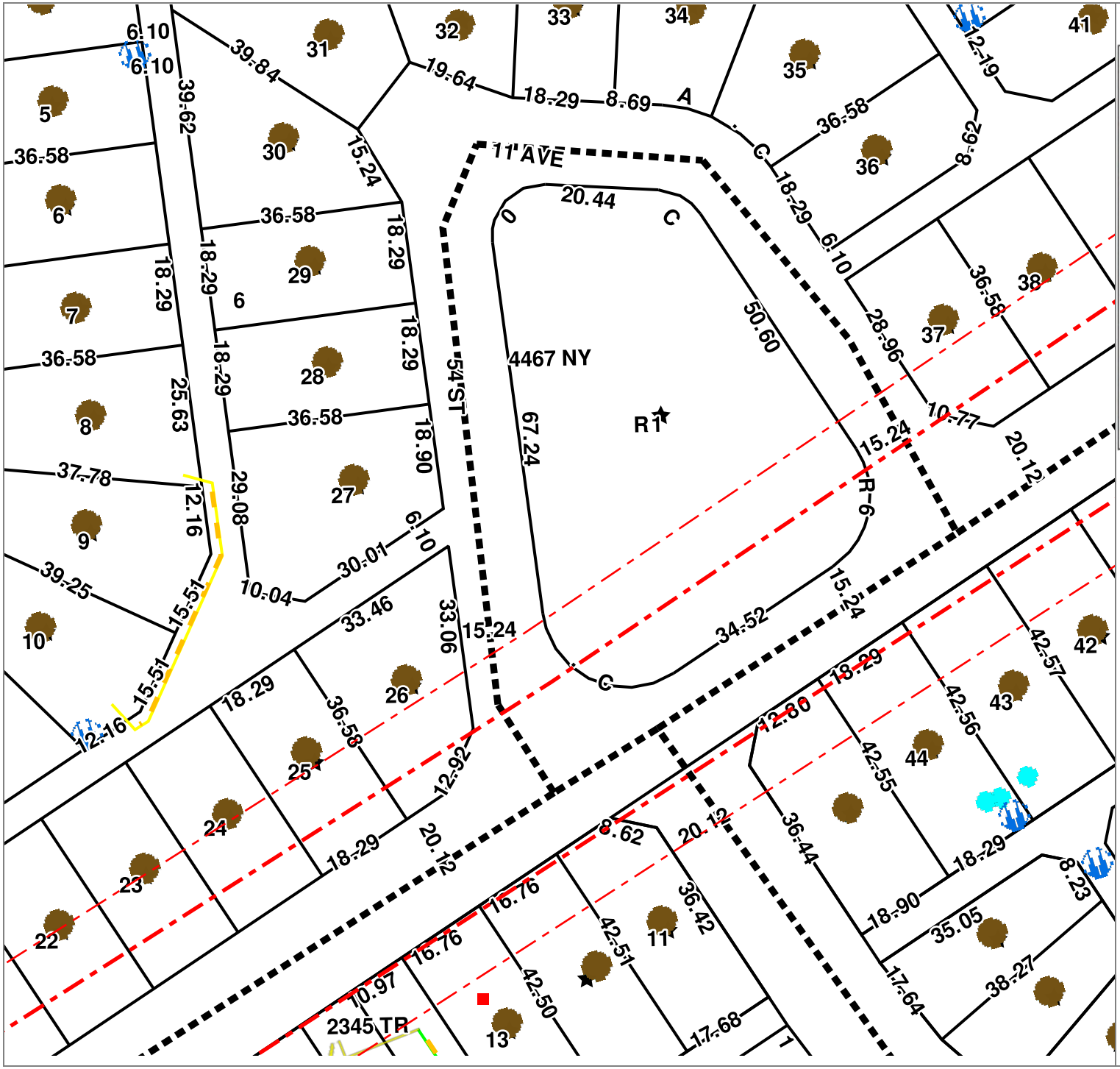
Ticket Location: 54 St, Edson, AB

Tile no. 2

One Call Center – Dig Area

TELUS Buffer (10m)

CAUTION



LEGEND

Scale: 1:1000

Underground COPPER	FIBRE Distribution Hub
Underground FIBRE	Pedestal
Direct Buried COPPER	Copper Cross Connect
Direct Buried FIBRE	Aerial / PCP RAP
Aerial COPPER	FIBRE Cabinet
Aerial FIBRE	MUX Cabinet
Underground DUCT	Underground Facility Color
Underground TRENCH	Direct Buried Facility Color
Proposed Direct Buried COPPER	Premises Facility Color
Proposed Underground	Purposed Facility Color
Abandoned	Vault
Temporary	Manhole
Critical Cable	Soft Red Glow
Road	Splice Points
Property Line	NAP Heatmap
Pole / Protection	Lot/Block/Plan / Copper Sensor
	Copper Load Coil
	Copper Repeater

N

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OneCall Ticket no: 20232616834

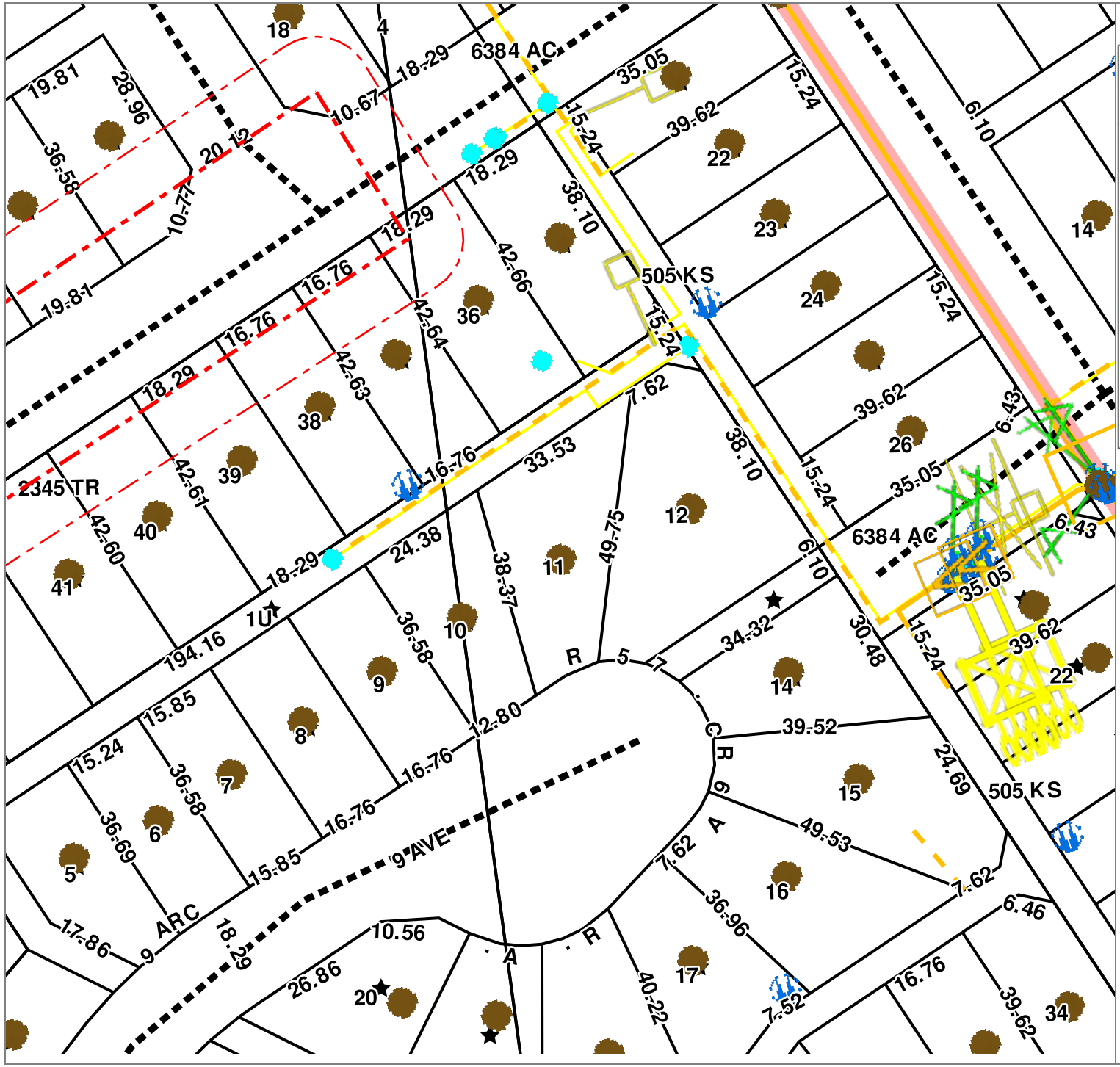
Ticket Location: 54 St, Edson, AB

Tile no. 3

One Call Center – Dig Area

TELUS Buffer (10m)

CAUTION



LEGEND

Scale: 1:1000

Underground COPPER	FIBRE Distribution Hub
Underground FIBRE	Pedestal
Direct Buried COPPER	Copper Cross Connect
Direct Buried FIBRE	Aerial / PCP RAP
Aerial COPPER	FIBRE Cabinet
Aerial FIBRE	MUX Cabinet
Underground DUCT	Underground Facility Color
Underground TRENCH	Direct Buried Facility Color
Proposed Direct Buried COPPER	Premises Facility Color
Proposed Underground	Purposed Facility Color
Abandoned	Vault
Temporary	Manhole
Critical Cable (Soft Red Glow)	Splice Points
Road	NAP Heatmap
Property Line	Copper Load Coil
Pole / Protection	Lot/Block/Plan / Copper Sensor / Copper Repeater

N

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OneCall Ticket no: 20232616834

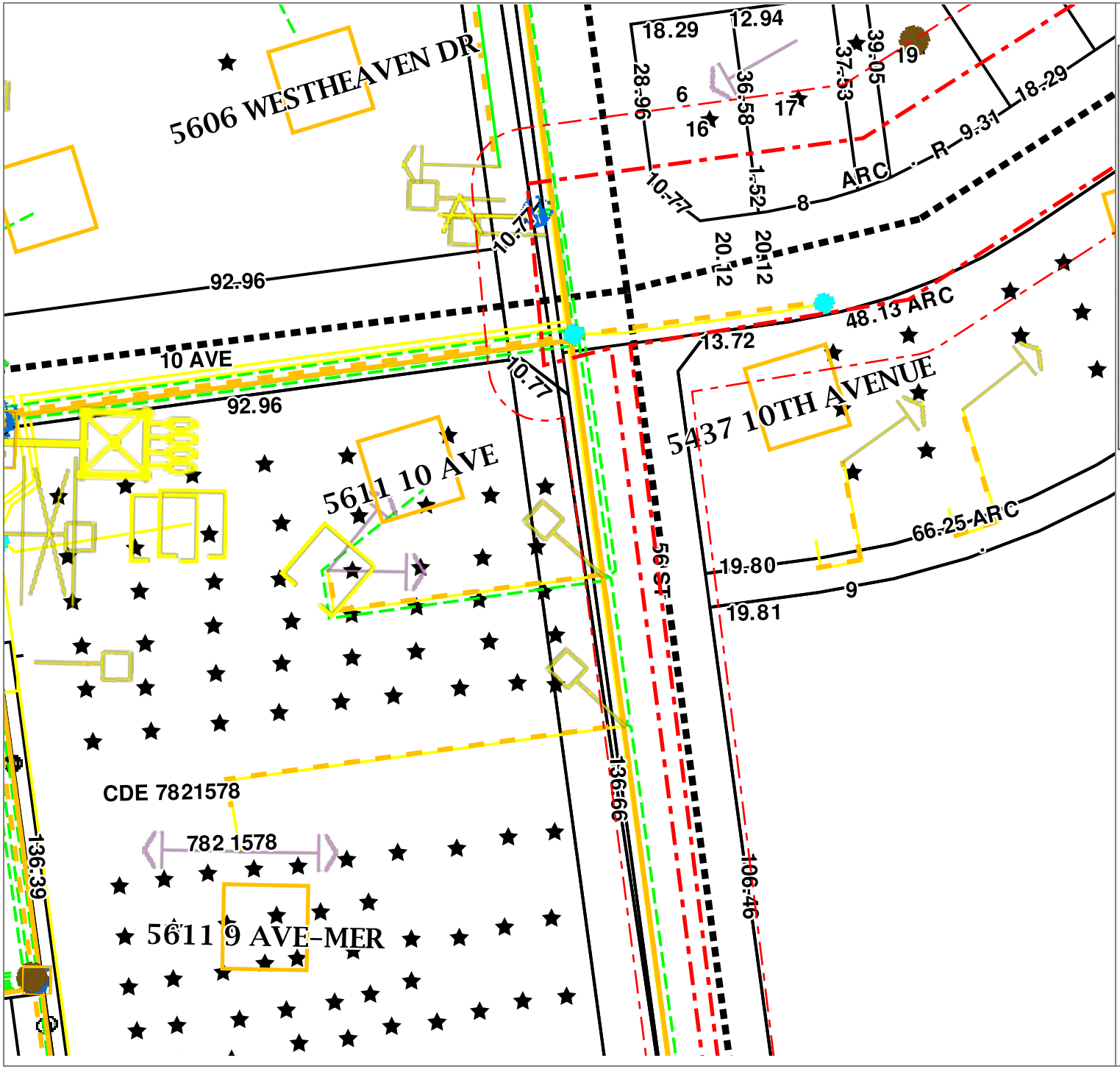
Ticket Location: 54 St, Edson, AB

Tile no. 4

One Call Center – Dig Area

TELUS Buffer (10m)

CAUTION



LEGEND **Scale:** 1:1000

Underground COPPER		FIBRE Distribution Hub	
Underground FIBRE		Pedestal	
Direct Buried COPPER		Copper Cross Connect	
Direct Buried FIBRE		Aerial / PCP RAP	
Aerial COPPER		FIBRE Cabinet	
Aerial FIBRE		MUX Cabinet	
Underground DUCT		Underground Facility Color	
Underground TRENCH		Direct Buried Facility Color	
Proposed Direct Buried COPPER		Premises Facility Color	
Proposed Underground		Purposed Facility Color	
Abandoned		Vault	V
Temporary		Manhole	
Critical Cable	Soft Red Glow	Splice Points	
Road		NAP Heatmap	
Property Line		Copper Load Coil	
Pole	P	Lot/Block/Plan	
Protection		Copper Sensor	
		Copper Repeater	

N

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OneCall Ticket no: 20232616834

Ticket Location: 54 St, Edson, AB

Tile no. 5

One Call Center – Dig Area

TELUS Buffer (10m)

CAUTION

LEGEND **Scale:** 1:1000

Underground COPPER		FIBRE Distribution Hub	
Underground FIBRE		Pedestal	
Direct Buried COPPER		Copper Cross Connect	
Direct Buried FIBRE		Aerial / PCP RAP	
Aerial COPPER		FIBRE Cabinet	
Aerial FIBRE		MUX Cabinet	
Underground DUCT		Underground Facility Color	
Underground TRENCH		Direct Buried Facility Color	
Proposed Direct Buried COPPER		Premises Facility Color	
Proposed Underground		Purposed Facility Color	
Abandoned		Vault	V
Temporary		Manhole	
Critical Cable	Soft Red Glow	Splice Points	
Road		NAP Heatmap	
Property Line		Copper Load Coil	
Pole (P)	Lot/Block/Plan ★	Copper Repeater	
Protection	Copper Sensor		

N

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OneCall Ticket no: 20232616834

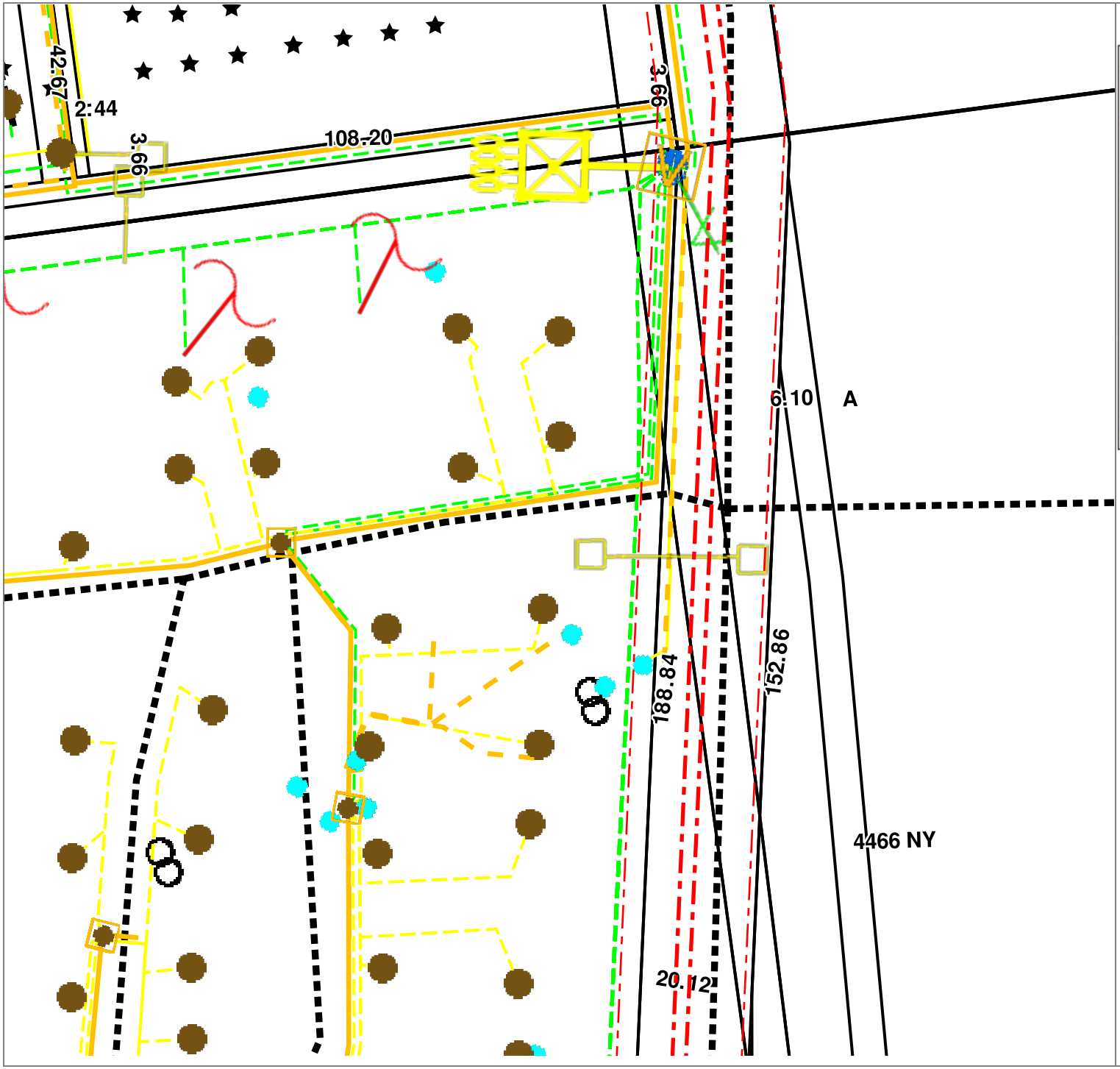
Ticket Location: 54 St, Edson, AB

Tile no. 6

One Call Center – Dig Area

TELUS Buffer (10m)

CAUTION



LEGEND

Scale: 1:1000

Underground COPPER		FIBRE Distribution Hub	
Underground FIBRE		Pedestal	
Direct Buried COPPER		Copper Cross Connect	
Direct Buried FIBRE		Aerial / PCP RAP	
Aerial COPPER		FIBRE Cabinet	
Aerial FIBRE		MUX Cabinet	
Underground DUCT		Underground Facility Color	
Underground TRENCH		Direct Buried Facility Color	
Proposed Direct Buried COPPER		Premises Facility Color	
Proposed Underground		Purposed Facility Color	
Abandoned		Vault	V
Temporary		Manhole	
Critical Cable	Soft Red Glow	Splice Points	
Road		NAP Heatmap	
Property Line		Copper Load Coil	
Pole	P	Lot/Block/Plan	
Protection		Copper Sensor	
		Copper Repeater	

N

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OneCall Ticket no: 20232616834

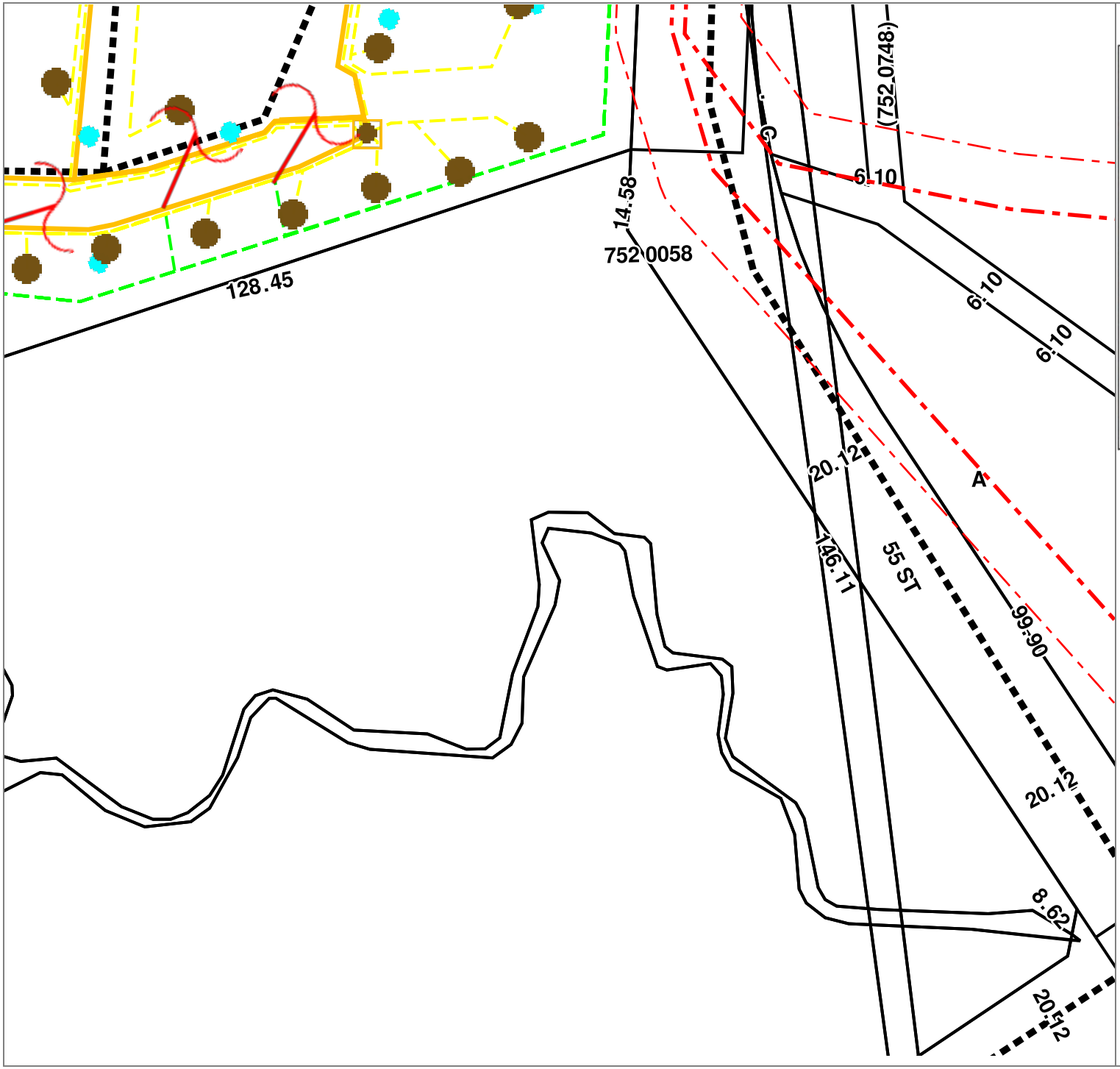
Ticket Location: 54 St, Edson, AB

Tile no. 7

One Call Center – Dig Area

TELUS Buffer (10m)

CAUTION



LEGEND

Scale: 1:1000

Underground COPPER	FIBRE Distribution Hub
Underground FIBRE	Pedestal
Direct Buried COPPER	Copper Cross Connect
Direct Buried FIBRE	Aerial / PCP RAP
Aerial COPPER	FIBRE Cabinet
Aerial FIBRE	MUX Cabinet
Underground DUCT	Underground Facility Color
Underground TRENCH	Direct Buried Facility Color
Proposed Direct Buried COPPER	Premises Facility Color
Proposed Underground	Purposed Facility Color
Abandoned	Vault
Temporary	Manhole
Critical Cable	Splice Points
Road	NAP Heatmap
Property Line	Copper Load Coil
Pole	Lot/Block/Plan
Protection	Copper Sensor
	Copper Repeater

Soft Red Glow

N

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OneCall Ticket no: 20232616834

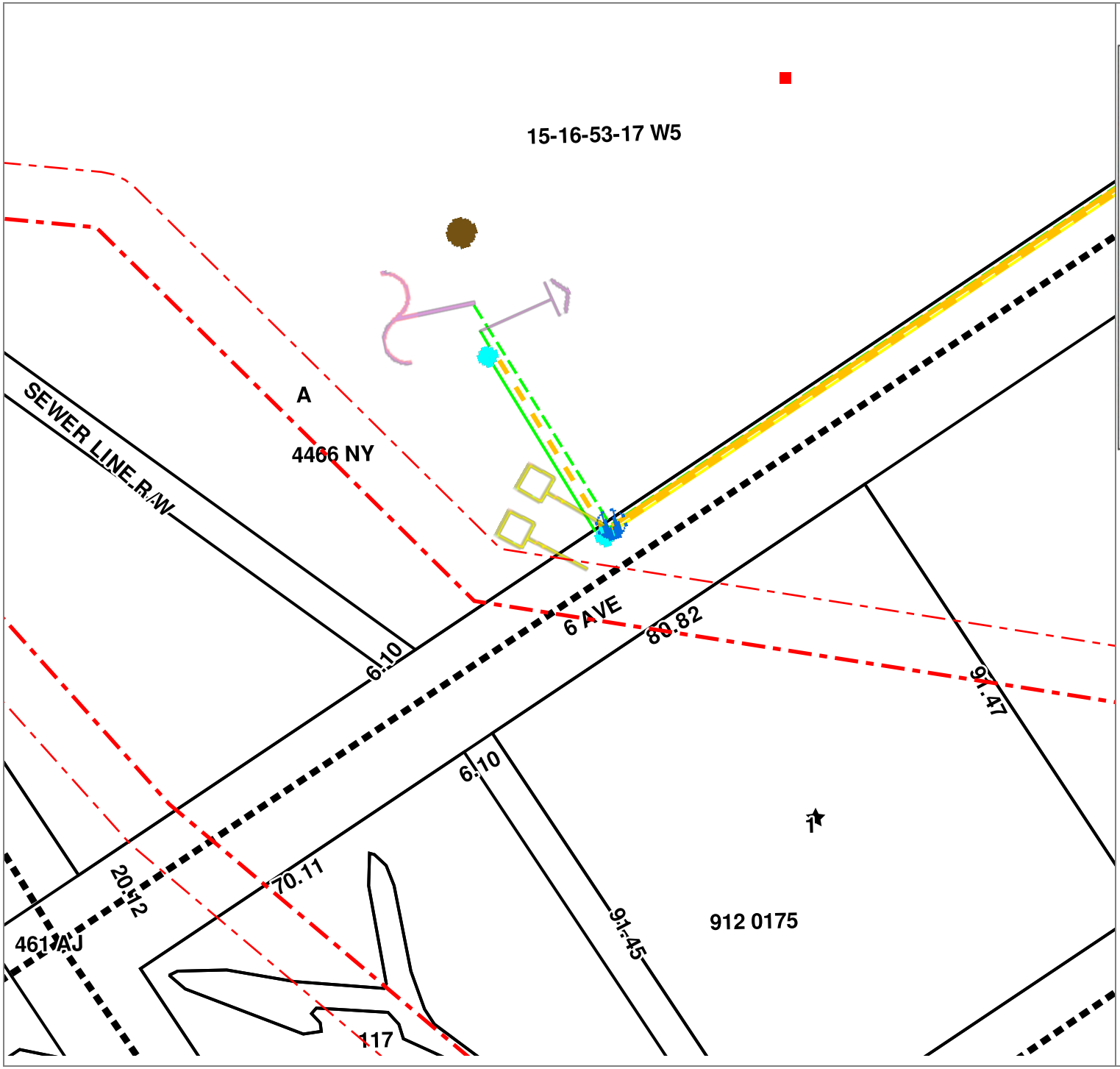
Ticket Location: 54 St, Edson, AB

Tile no. 8

One Call Center – Dig Area

TELUS Buffer (10m)

CAUTION



LEGEND

Scale: 1:1000

Underground COPPER		FIBRE Distribution Hub	
Underground FIBRE		Pedestal	
Direct Buried COPPER		Copper Cross Connect	
Direct Buried FIBRE		Aerial / PCP RAP	
Aerial COPPER		FIBRE Cabinet	
Aerial FIBRE		MUX Cabinet	
Underground DUCT		Underground Facility Color	
Underground TRENCH		Direct Buried Facility Color	
Proposed Direct Buried COPPER		Premises Facility Color	
Proposed Underground		Purposed Facility Color	
Abandoned		Vault	V
Temporary		Manhole	
Critical Cable	Soft Red Glow	Splice Points	
Road		NAP Heatmap	
Property Line		Copper Load Coil	
Pole / Protection	Lot/Block/Plan / Copper Sensor	Copper Repeater	

N

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OneCall Ticket no: 20232616834

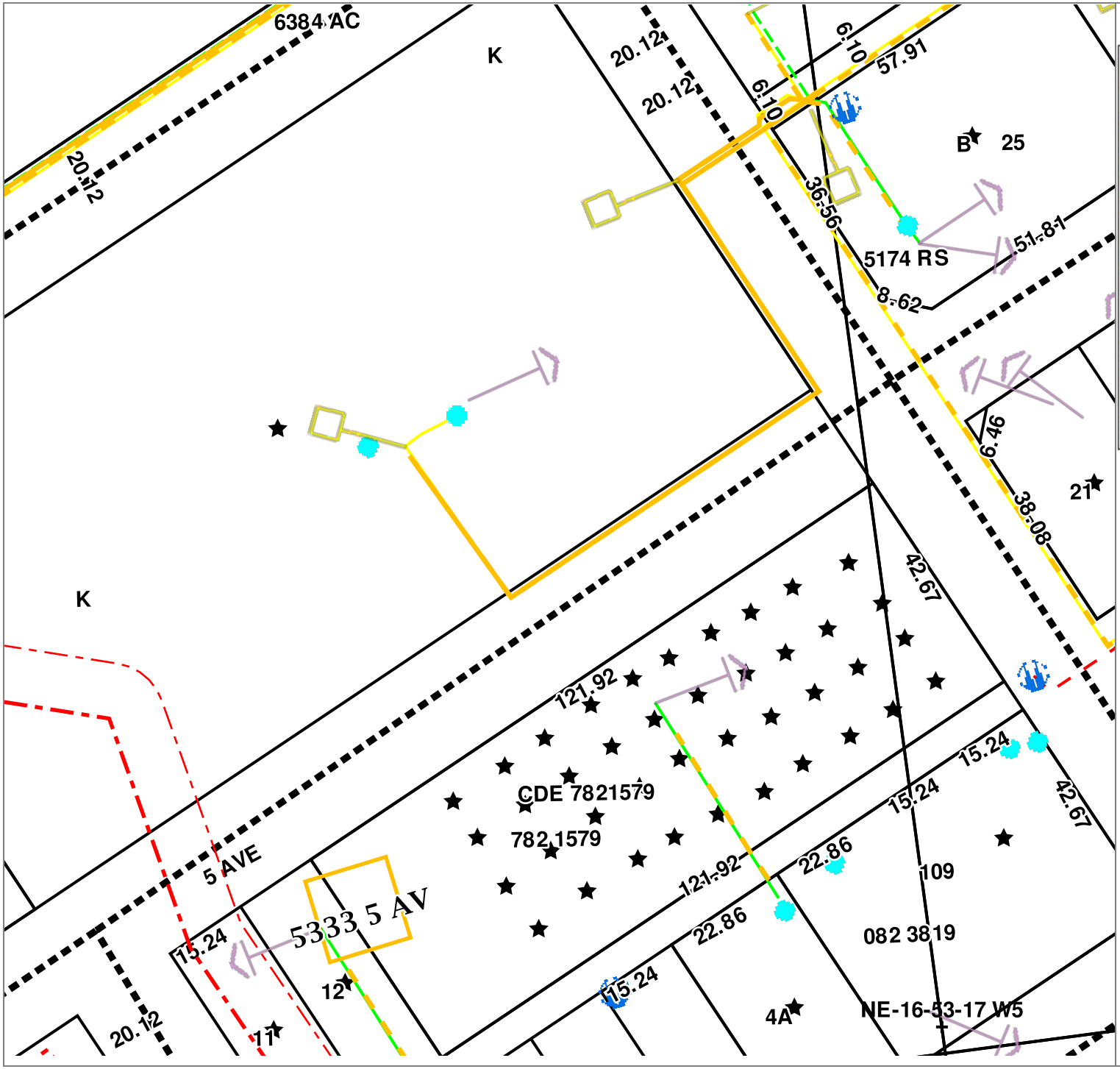
Ticket Location: 54 St, Edson, AB

Tile no. 9

One Call Center – Dig Area

TELUS Buffer (10m)

CAUTION



LEGEND **Scale:** 1:1000

Underground COPPER		FIBRE Distribution Hub	
Underground FIBRE		Pedestal	
Direct Buried COPPER		Copper Cross Connect	
Direct Buried FIBRE		Aerial / PCP RAP	
Aerial COPPER		FIBRE Cabinet	
Aerial FIBRE		MUX Cabinet	
Underground DUCT		Underground Facility Color	
Underground TRENCH		Direct Buried Facility Color	
Proposed Direct Buried COPPER		Premises Facility Color	
Proposed Underground		Purposed Facility Color	
Abandoned		Vault	V
Temporary		Manhole	
Critical Cable	Soft Red Glow	Splice Points	
Road		NAP Heatmap	
Property Line		Copper Load Coil	
Pole	P	Lot/Block/Plan	★
Protection		Copper Sensor	
		Copper Repeater	

N

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OneCall Ticket no: 20232616834

Ticket Location: 54 St, Edson, AB

Tile no. 10

One Call Center – Dig Area

TELUS Buffer (10m)

CAUTION

LEGEND

Scale: 1:1000

Underground COPPER	FIBRE Distribution Hub
Underground FIBRE	Pedestal
Direct Buried COPPER	Copper Cross Connect
Direct Buried FIBRE	Aerial / PCP RAP
Aerial COPPER	FIBRE Cabinet
Aerial FIBRE	MUX Cabinet
Underground DUCT	Underground Facility Color
Underground TRENCH	Direct Buried Facility Color
Proposed Direct Buried COPPER	Premises Facility Color
Proposed Underground	Purposed Facility Color
Abandoned	Vault
Temporary	Manhole
Critical Cable	Soft Red Glow
Road	Splice Points
Property Line	NAP Heatmap
Pole	Lot/Block/Plan
Protection	Copper Sensor
	Copper Load Coil
	Copper Repeater

N

These plans must be read in conjunction with the other documents attached to this email

TELUS FACILITY MAPS: The maps supplied by TELUS show a general location of the buried TELUS facilities. These are NOT 'as-built' plans and only represent an approximate alignment. The depth of buried facilities is NOT provided.

If you have any questions or concerns regarding this response, please contact the Cable Locate Support Centre on **locatesupport@telus.com**

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OneCall Ticket no: 20232616834

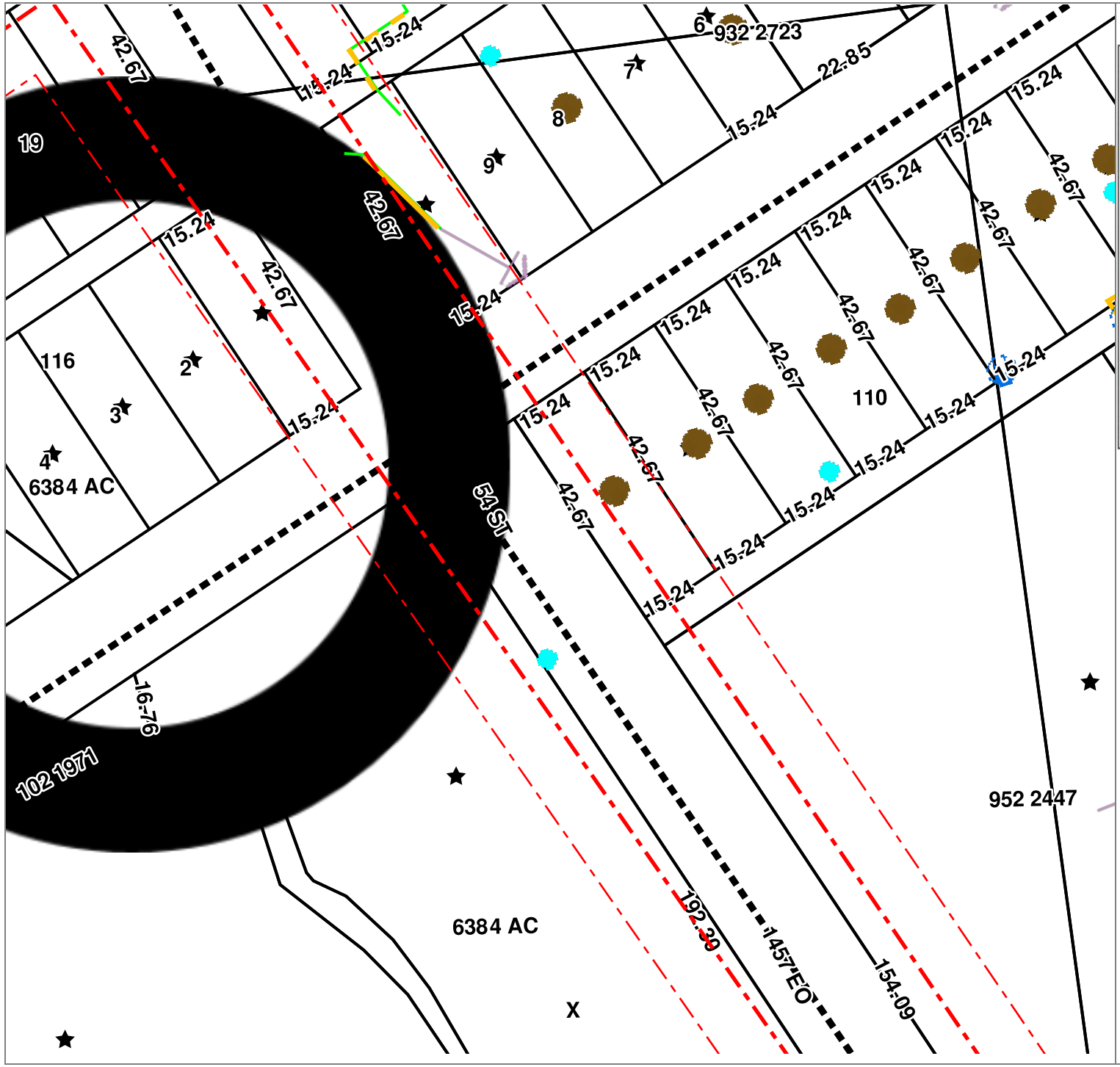
Ticket Location: 54 St, Edson, AB

Tile no. 11

One Call Center – Dig Area

TELUS Buffer (10m)

CAUTION



LEGEND

Scale: 1:1000

Underground COPPER	FIBRE Distribution Hub
Underground FIBRE	Pedestal
Direct Buried COPPER	Copper Cross Connect
Direct Buried FIBRE	Aerial / PCP RAP
Aerial COPPER	FIBRE Cabinet
Aerial FIBRE	MUX Cabinet
Underground DUCT	Underground Facility Color
Underground TRENCH	Direct Buried Facility Color
Proposed Direct Buried COPPER	Premises Facility Color
Proposed Underground	Purposed Facility Color
Abandoned	Vault
Temporary	Manhole
Critical Cable (Soft Red Glow)	Splice Points
Road	NAP Heatmap
Property Line	Copper Load Coil
Pole / Protection	Lot/Block/Plan / Copper Sensor
	Copper Repeater

N

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OneCall Ticket no: 20232616834

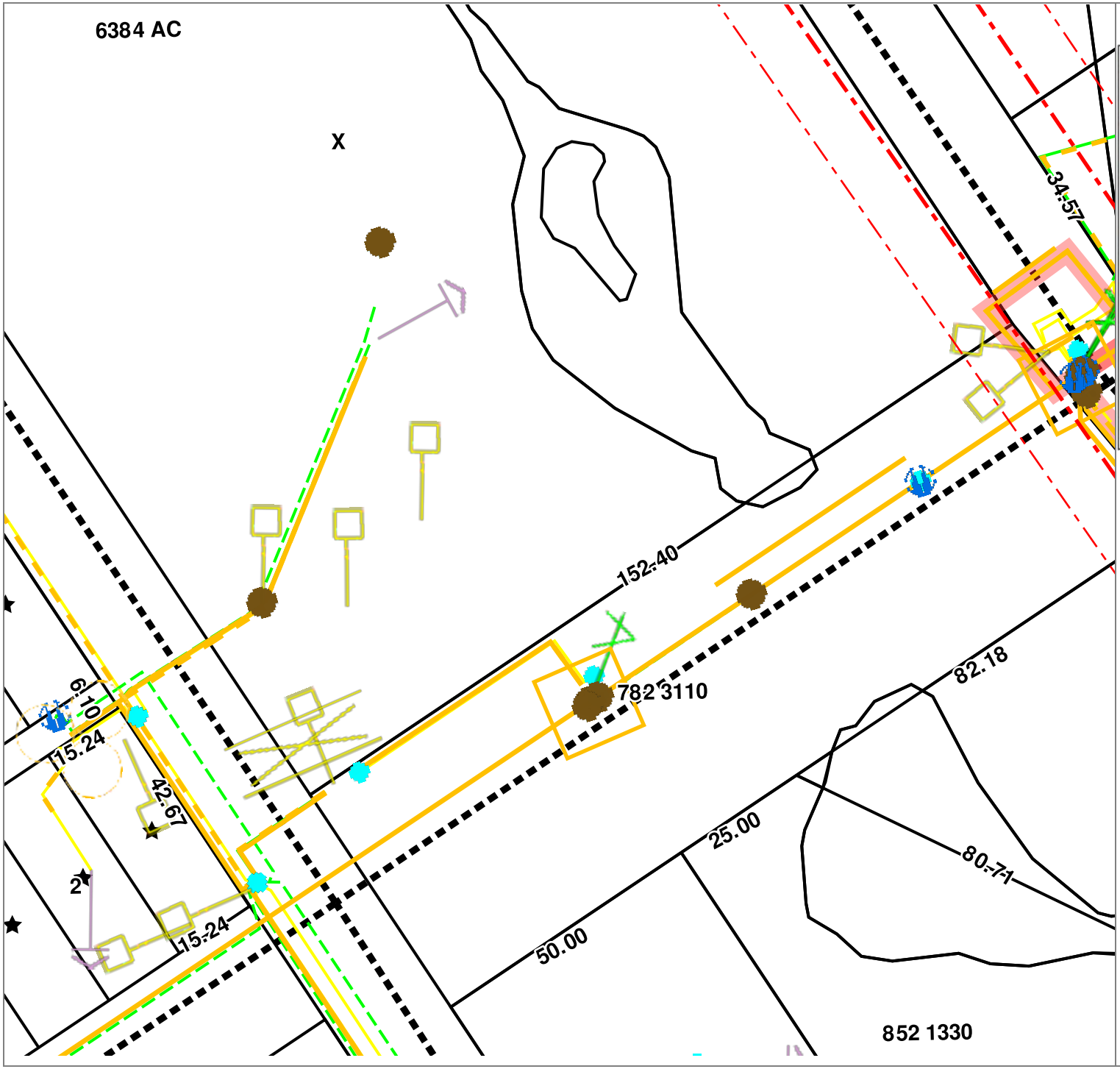
Ticket Location: 54 St, Edson, AB

Tile no. 12

One Call Center – Dig Area

TELUS Buffer (10m)

CAUTION



LEGEND **Scale:** 1:1000

Underground COPPER		FIBRE Distribution Hub	
Underground FIBRE		Pedestal	
Direct Buried COPPER		Copper Cross Connect	
Direct Buried FIBRE		Aerial / PCP RAP	
Aerial COPPER		FIBRE Cabinet	
Aerial FIBRE		MUX Cabinet	
Underground DUCT		Underground Facility Color	
Underground TRENCH		Direct Buried Facility Color	
Proposed Direct Buried COPPER		Premises Facility Color	
Proposed Underground		Purposed Facility Color	
Abandoned		Vault	V
Temporary		Manhole	
Critical Cable	Soft Red Glow	Splice Points	
Road		NAP Heatmap	
Property Line		Copper Load Coil	
Pole	P	Lot/Block/Plan	★
Protection		Copper Sensor	
		Copper Repeater	

N

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OneCall Ticket no: 20232616834

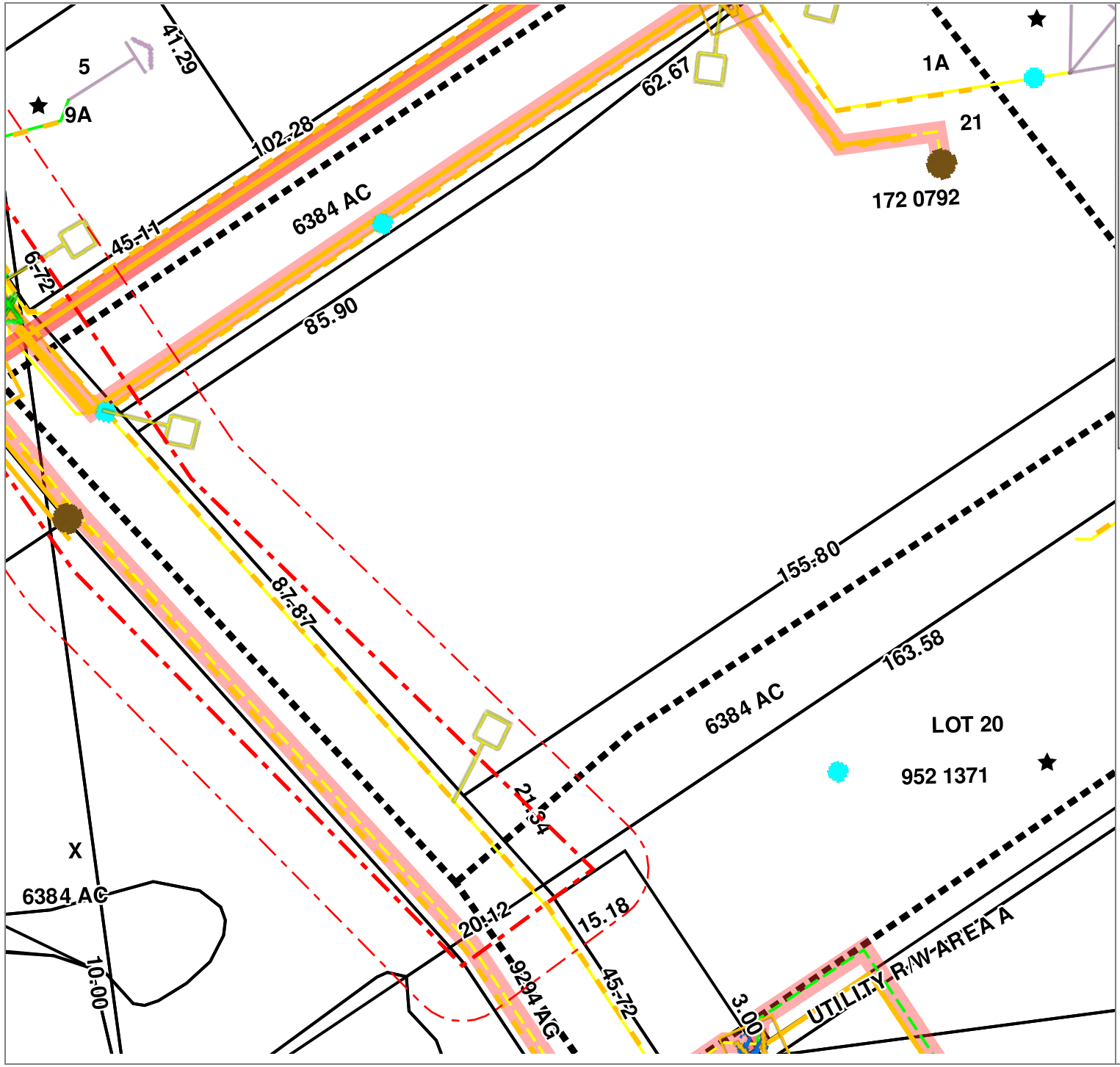
Ticket Location: 54 St, Edson, AB

Tile no. 13

One Call Center – Dig Area

TELUS Buffer (10m)

CAUTION



LEGEND **Scale:** 1:1000

Underground COPPER		FIBRE Distribution Hub	
Underground FIBRE		Pedestal	
Direct Buried COPPER		Copper Cross Connect	
Direct Buried FIBRE		Aerial / PCP RAP	
Aerial COPPER		FIBRE Cabinet	
Aerial FIBRE		MUX Cabinet	
Underground DUCT		Underground Facility Color	
Underground TRENCH		Direct Buried Facility Color	
Proposed Direct Buried COPPER		Premises Facility Color	
Proposed Underground		Purposed Facility Color	
Abandoned		Vault	V
Temporary		Manhole	
Critical Cable	Soft Red Glow	Splice Points	
Road		NAP Heatmap	
Property Line		Copper Load Coil	
Pole / Protection	Lot/Block/Plan / Copper Sensor	Copper Repeater	

N

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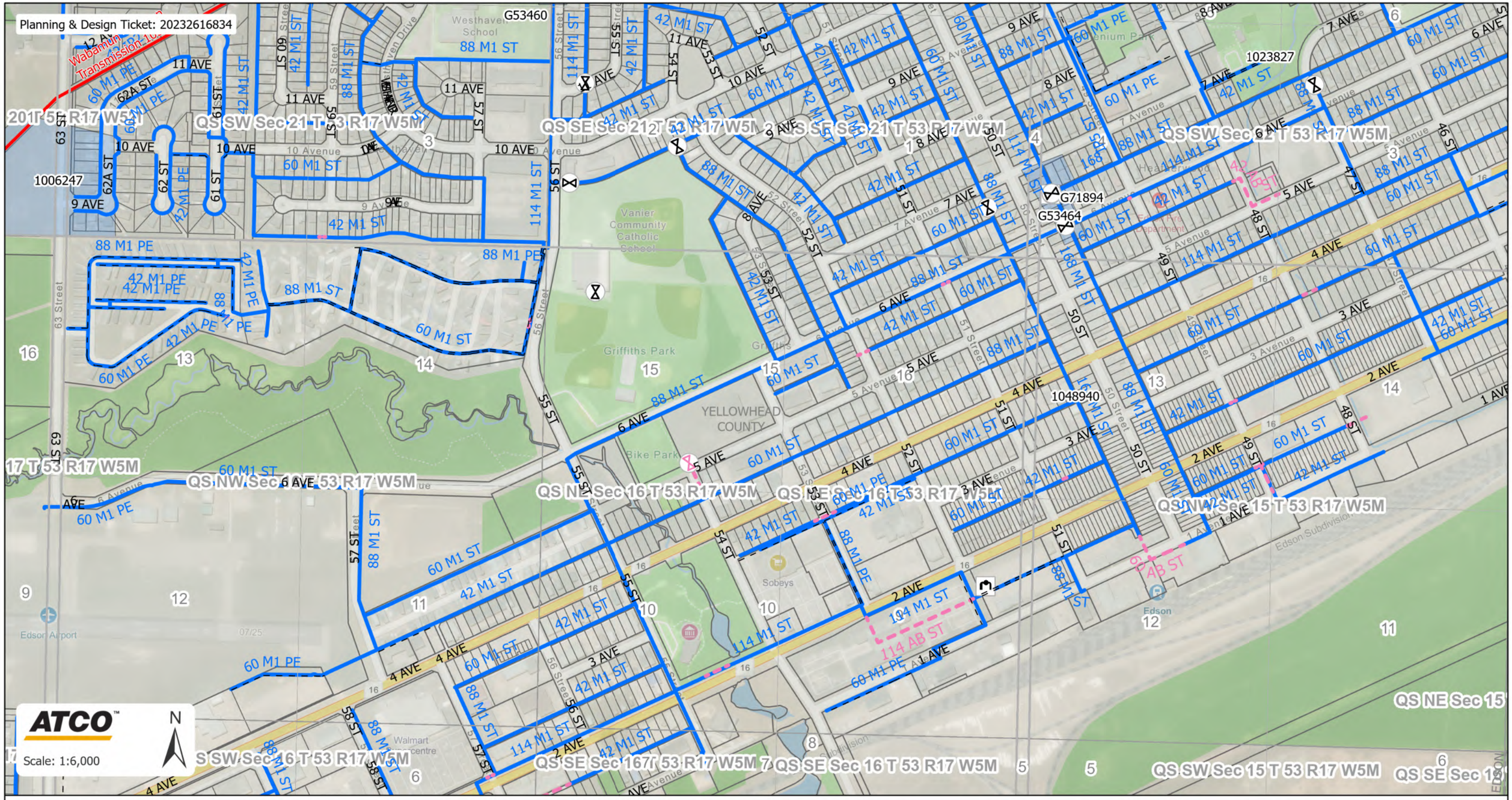
Planning & Design Ticket: 20232616834



DISCLAIMER

1. Planning & Design tickets are for informational purposes only. Locates must be completed prior to construction.

2. Service pipes and meters are not shown in the map.

3. These maps are a reference only and do not show the exact alignment of the lines.

4. A Proposed Capital Project (blue polygon) indicates that a project is planned or has occurred in this area. Mapping has not been updated to reflect these changes. Locates must be completed prior to construction.

5. ATCO provides this information in good faith, to the intended recipient. However, it makes no warranty in regard to the information whatsoever (including but not limited to a warranty as to the accuracy of the information) and ATCO does not accept any liability arising from incomplete, incorrect or misleading information.

6. While every attempt has been made to maintain this file in an up-to-date condition, revisions and modifications are made from time to time and can occur at any time without notice to the recipient of this information. Furthermore, this file is forwarded under the express understanding that there is no obligation to notify recipients of changes.

7. For further information about the location of any Service, please contact Utility Safety Partners (https://utilitysafety.ca/) or a private locator.

- Distribution Pipe
- Transmission Pipe
- Abandoned
- Easement
- District Heating Line
- Proposed Capital Project
- Operating Controllable Valve
- Abandoned Controllable Valve
- Operating Regulator Station
- Abandoned Regulator Station
- GEO Geothermal Service

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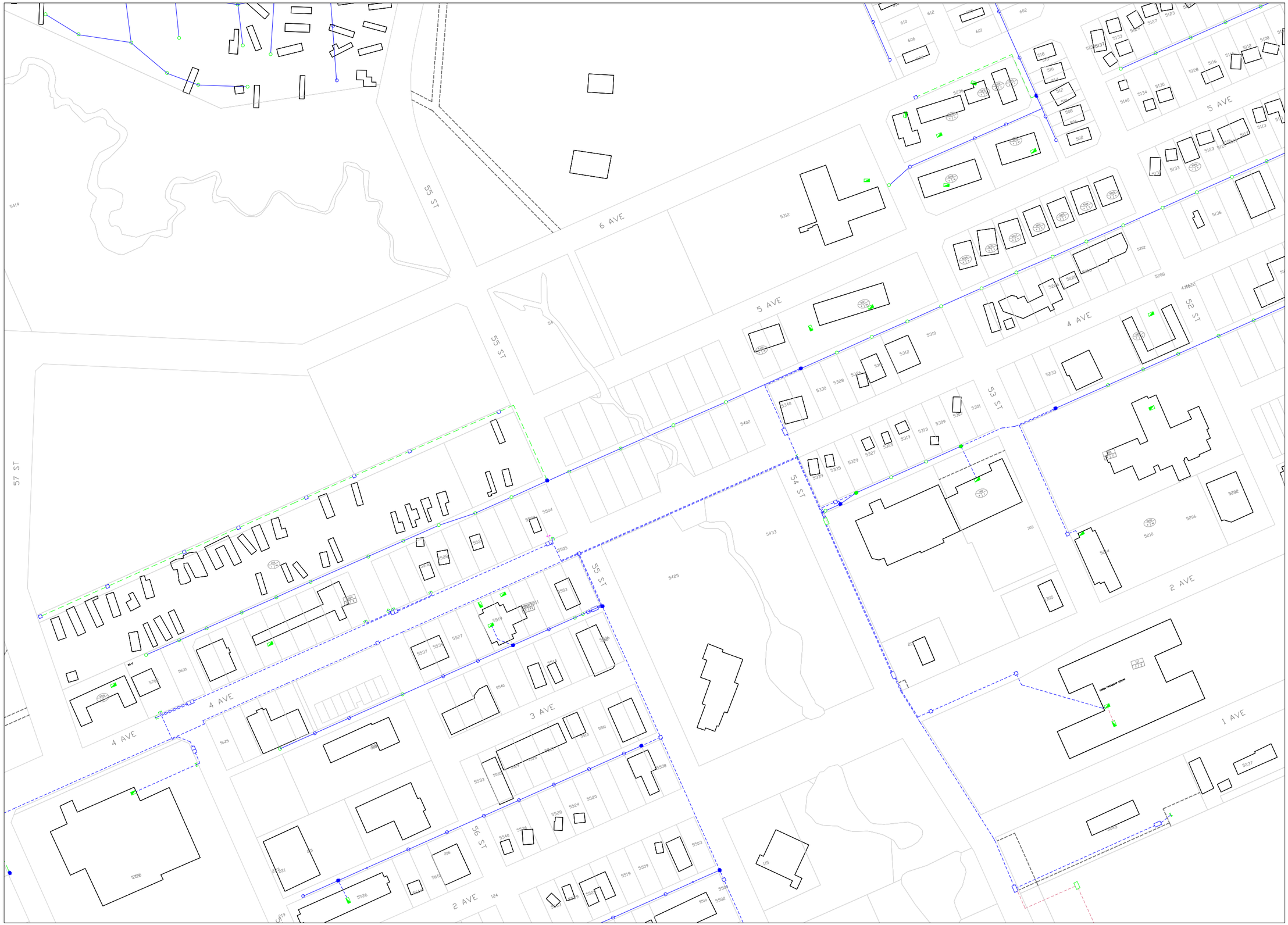

ROGERS
together with Shaw

STRUCTURE SYMBOLS LEGEND

FOREIGN POLE	SHAW POLE
FOREIGN LATERAL POLE	SHAW LATERAL POLE
METRE ROOM	SHAW METRE ROOM
FOREIGN MANHOLE	SHAW MANHOLE
FOREIGN PEDASTAL	SHAW PEDASTAL
FOREIGN PULLBOX	SHAW PULLBOX
FOREIGN PEDESTAL MOUNTED PULLBOX	SHAW PEDESTAL MOUNTED PULLBOX
FOREIGN VAULT	SHAW VAULT
INLAY ENCLOSURE	MIDSPAN
SPLICE MARKER	T SECTION
CONDUIT CAP	CONDUIT CONNECTOR
FOREIGN CONDUIT	SHAW CONDUIT/TRENCH
FOREIGN TRENCH	
FOREIGN STRAND	SHAW STRAND
SHADOW DUCT	INDICATOR FOR HAZARDOUS STRUCTURE

N
W E
S

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Its accuracy should not be considered as precise nor should it be construed as as-built information.

Infrastructure location should be verified by site inspection, field surveying and locates.

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This is not a clearance to excavate. Please request for locates at DigShaw.ca once the excavation is planned.