

6th Line Municipal Class Environmental Assessment

County Road 27 to St John's Road
Town of Innisfil, ON

September 6, 2016

**APPENDIX J:
CULVERT INSPECTION REPORT**



Culvert Inspection Report

6th Line Municipal Class Environmental Assessment

County Road 27 to St. John's Road

Town of Innisfil, ON

October 3, 2015

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B. Centerline Culvert Photographic Inventory Data Sheets

1. INTRODUCTION

1.1 Background and Scope of Work

The Town of Innisfil has retained HDR Corporation (HDR) to conduct a Schedule 'C' Municipal Class Environmental Assessment Study to identify the need for transportation improvements to 6th Line from County Road 27 to St. John's Road. As part of the Municipal Class Environmental Assessment, HDR performed a limited condition survey for all culverts (Major and Minor) within the Town of Innisfil's Right-of-Way of the project area.

The scope of work consisted of:

- Visual and surface deterioration survey of all culverts along the roadway (within the Right-of-Way) within the project limits.

The Filed Investigation portion of the assignment was started on April 2, 2015. The study was completed June 19, 2015.

The study area is located just west of the Town of Innisfil and is illustrated in **Figure 1-1** below.

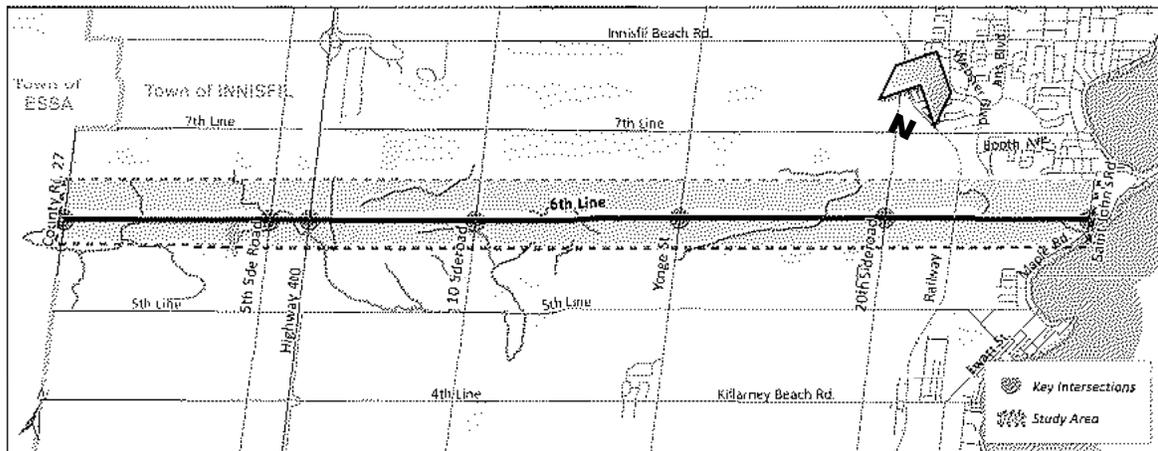


Figure 1-1: Key Plan of the Study Area

2. CULVERT INSPECTION

2.1 Methodology

Field reviews of the existing centreline culverts, entrance culverts and side road culverts within the Towns Right-of-Way along 6th Line Project Limits were undertaken on April 2nd, 2015 and June 19th, 2015 to assess the physical conditions of the culverts.

During the field investigations, culverts were assigned identification numbers. **Appendix A** summarizes each culvert inspected to describe their existing conditions and their corresponding ID number. A **Culvert Location Plan** of the project limits illustrating existing culvert locations as well as assigned identification numbers is provided in **Appendix B**.

For pipes crossing the mainline, data sheets and recommendations will be developed and incorporated into the design. Photos were taken of all culverts during the inspection, and provided to the Town of Innisfil electronically with the final report.

2.2 Inspection Results

There are one hundred and eleven (111) culverts on 6th Line between County Road 27 and St. John's Road:

- Twenty-four (24) centreline culverts:
 - Twenty-three (23) CSP sized 300mm to 1800mm;
 - One (1) Concrete Box sized 1200mm by 800mm;
- Eighty-four (84) entrance culverts:
 - Eighty-one (81) Corrugated Steel Pipe (CSP) culverts sized 200mm to 1200mm;
 - Three (3) High Density Polyethylene culverts sized 400mm.
- Three (3) side road culverts:
 - Three (3) CSP sized 400mm to 1500mm;

Exhibit 2-1: Centreline Culvert ID Key Plan



Exhibit 2-1 is an abbreviated Key Plan. A more detailed map can be found in Appendix B.

To support the design process, Data Sheets for Mainline culverts summarizing the findings and recommendations from the field investigations and photo inventories were developed and are provided in **Appendix C**. Pipes on the approach roads are assumed to be replaced as a result of the roadway platform widening and Data Sheets were not developed. However, pipes were inspected and photo documented, and included in the overall evaluation completed for the corridor.

The physical characteristics, observations, and recommendations for the centreline and entrance culverts are summarized in **Exhibit 2-2 Culvert Summary Table**.

Exhibit 2-2: Culvert Summary Table

Existing Culvert Characteristics - 6th Line Road, County Road 27 to St. John's Road											
Culvert ID	Culvert #	Crossing Type	Type	Shape	Size (mm)	Fill Over Culvert (m)	Blockage in Culvert	Culvert Condition	Inlet Condition	Outlet Condition	Recommendation(s)
CUL_01-01	1	Road CL	CSP	Circle	600	0.8	Minor Sediments	Fair	Fair	Bent - ok	Maintain existing culvert and replace the end sections. Flush to clean the culvert. Extend the culvert to match proposed ditch alignment.
CUL_01-02	2	Road CL	CSP	Circle	500	0.5	None	Rusted	Good	10% buried	Replace existing culvert
CUL_02-01	3	Entrance-L	CSP	Circle	400	0.3	Large rock and some Sediments	Good	Good	Bent - 20% Buried	The road profile is being raised. Replace culvert to match new ditch elevations.
CUL_02-02	4	Entrance-L	CSP	Circle	400	0.3	None	Good	20% Buried	20% Buried	The road profile is being lowered. Replace culvert to match new ditch elevations.
CUL_02-03	5	Entrance-L	CSP	Circle	400	0.6	None	Good	Bent - 30% Buried	Bent - 40% buried	The road profile is being raised. Replace culvert to match new ditch elevations.
CUL_01_03	6	Road CL	CSP	Circle	1100	1.0	None	Good	Good	Good	Maintain existing culvert and provide culvert extension to new ditch alignments.
CUL_02-04	7	Entrance-R	CSP	Circle	500	0.8	None	Good	OK - 10% Buried	Buried	Due to road widening ditches are being realigned further back. Need to remove and replace the culvert to match the new ditch alignment.
CUL_01-04	8	Road CL	CSP	Circle	1800	0.7	90% Full Water	Poor	Poor	Poor	This culvert is 90% submerged without any positive flow. Remove and replace the culvert providing adequate slope to provide positive drainage.

Culvert Inspection Report
6th Line Road, County Road 27 to St. John's Road

Existing Culvert Characteristics - 6th Line Road, County Road 27 to St. John's Road											
Culvert ID	Culvert #	Crossing Type	Type	Shape	Size (mm)	Fill Over Culvert (m)	Blockage in Culvert	Culvert Condition	Inlet Condition	Outlet Condition	Recommendation(s)
CUL_02-05	9	Entrance-L	CSP	Circle	400	1.0	Ok - Some Garbage	Some Rust - Lower Half	Good	Good	Due to road widening ditches are being realigned further back. Need to remove and replace the culvert to match the new ditch alignment.
CUL_02-06	10	Entrance-L	CSP	Circle	500	1.0	None	Poor	Fair	Fair	Replace the culvert due to its poor condition. It also needs to match the new ditch alignment.
CUL_02-07	11	Entrance-R	CSP	Circle	200	0.3	Minor Sediments	Good	20% Buried	40% Buried	Due to road widening ditches are being realigned further back. Need to remove and replace the culvert to match the new ditch alignment.
CUL_02-08	12	Entrance-R	CSP	Circle	400	0.5	Minor Sediments	Good	Good	Good	Due to road widening ditches are being realigned further back. Need to remove and replace the culvert to match the new ditch alignment.
CUL_02-09	13	Entrance-R	CSP	Circle	400	0.4	40% Sediments	Good	60% Buried	50% Buried	Due to road widening ditches are being realigned further back. Need to remove and replace the culvert to match the new ditch alignment.
CUL_02-10	14	Entrance-L	CSP	Circle	400	0.5	None	Good	Good	Good	Due to road widening ditches are being realigned further back. Need to remove and replace the culvert to match the new ditch alignment.
CUL_02-11	15	Entrance-L	CSP	Circle	400	0.2	None	Good	Good	Good	Due to road widening ditches are being realigned further back. Need to remove and replace the culvert to match the new ditch alignment.

Culvert Inspection Report
6th Line Road, County Road 27 to St. John's Road

Existing Culvert Characteristics - 6th Line Road, County Road 27 to St. John's Road											
Culvert ID	Culvert #	Crossing Type	Type	Shape	Size (mm)	Fill Over Culvert (m)	Blockage in Culvert	Culvert Condition	Inlet Condition	Outlet Condition	Recommendation(s)
CUL_02-12	16	Entrance-L	CSP	Circle	400	0.5	None	Good	Good	Good	Due to road widening ditches are being realigned further back. Need to remove and replace the culvert to match the new ditch alignment.
CUL_01-05	17	Road CL	CSP	Circle	300	1.1	None	Rusted	Fair	Poor Bent/Rusted	Replace culvert due to its substandard size. Upsize to 500mm diameter.
CUL_02-13	18	Entrance-R	CSP	Circle	400	0.4	None	Good	Good	Good	Due to road widening ditches are being realigned further back. Need to remove and replace the culvert to match the new ditch alignment.
CUL_03-01	19	Sideroad-L	CSP	Circle	1500	0.6	Minor Sediments	Good	Good	Good	Remove sediment. Extend the culvert to match the new ditch alignment.
CUL_03-02	20	Sideroad-R	CSP	Circle	500	0.5	15% Sediment	Poor	Poor	Fair	Replace culvert due to its poor condition.
CUL_01-06	21	Road CL	CSP	Circle	800	2.0	90% Water	Poor	Poor	Poor	End of the culvert are plugged. Due to road widening the culvert needs to be extended. Remove and replace the end sections prior to extension. Culvert CUL_01-07 is only few meters away from this culvert. If hydraulic analysis reveals that Culvert CUL_01-07 has adequate capacity to carry the follow in this area, this culvert can be removed.

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6th Line Road, County Road 27 to St. John's Road

Existing Culvert Characteristics - 6th Line Road, County Road 27 to St. John's Road											
Culvert ID	Culvert #	Crossing Type	Type	Shape	Size (mm)	Fill Over Culvert (m)	Blockage in Culvert	Culvert Condition	Inlet Condition	Outlet Condition	Recommendation(s)
CUL_01-07	22	Road CL	Conc. Box	Rect.	1200x800	1.0	Garbage Bags	Good	Good	Good	Extend the culvert to match new ditch lines. Flush and clean the culvert.
CUL_02-14	23	Entrance-L	CSP	Circle	400	0.4	None	Good	Good	Good	Due to road widening ditches are being realigned further back. Need to remove and replace the culvert to match the new ditch alignment.
CUL_01-08	24	Road CL	CSP	Circle	1800	2.5	None	Minor Rusting	Good	Good	Extend the culvert at both ends. Replace any damaged end sections.
CUL_02-15	25	Entrance-L	CSP	Circle	800	0.5	None	Good	Good	Good	Due to road widening ditches are being realigned further back. Need to remove and replace the culvert to match the new ditch alignment.
CUL_02-16	26	Entrance-R	CSP	Circle	350	0.6	Some Garbage	Minor Rusting	Bent / 30% Buried	Bent / 30% Buried	The road profile is being lowered and cover over the culvert will be reduced. Remove and replace the culvert.
CUL_01-09	27	Road CL	CSP	Circle	500	0.7	None	Fair - Rusting	Fair	Fair	Replace existing culvert
CUL_02-17	28	Entrance-L	CSP	Circle	500	0.5	None	Rusting	Good	Good	Due to road widening ditches are being realigned further back. Need to remove and replace the culvert to match the new ditch alignment.
CUL_02-18	29	Entrance-R	CSP	Circle	400	0.6	None	Good	Good	Good	Due to road widening ditches are being realigned further back. Need to remove and replace the culvert to match the new ditch alignment.

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6th Line Road, County Road 27 to St. John's Road

Existing Culvert Characteristics - 6th Line Road, County Road 27 to St. John's Road											
Culvert ID	Culvert #	Crossing Type	Type	Shape	Size (mm)	Fill Over Culvert (m)	Blockage in Culvert	Culvert Condition	Inlet Condition	Outlet Condition	Recommendation(s)
CUL_02-19	30	Entrance-L	CSP	Circle	400	0.6	None	Good	Good	Good	Due to road widening ditches are being realigned further back. Need to remove and replace the culvert to match the new ditch alignment.
CUL_02-20	31	Entrance-R	CSP	Circle	300	0.3	None	Good	Metal Sheet Covering	Good	Due to road widening ditches are being realigned further back. Need to remove and replace the culvert to match the new ditch alignment.
CUL_02-21	32	Entrance-R	CSP	Circle	500	0.4	20% Sediments	Rusting	Bent / 50% Buried	Bent / 70% Buried	Due to road widening ditches are being realigned further back. Need to remove and replace the culvert to match the new ditch alignment
CUL_02-22	33	Entrance-L	CSP	Circle	400	0.3	10% Sediment	Poorr	Poor - 60% Buried	Poor - 60% Buried	Replace culvert
CUL_02-23	34	Entrance-R	CSP	Circle	400	0.4	95% Water	Submerged	Poor - Bent / Buried	Poor - Bent / Buried	Replace culvert
CUL_02-24	35	Entrance-L	CSP	Circle	400	0.5	None	Minor Rusting	Good - Covered with Vegetation	Good - Covered with Vegetation	Due to road widening ditches are being realigned further back. Need to remove and replace the culvert to match the new ditch alignment..
CUL_01-10	36	Road CL	CSP	Circle	400	0.5	None	Poor	80% Buried	70% Buried	Replace culvert due to its poor condition and substandard size
CUL_03-03	37	Sideroad-L	CSP	Circle	400	0.7	60%	Poor	Buried	Buried	Replace culvert due to its poor condition and substandard size
CUL_02-25	38	Entrance-L	CSP	Circle	500	0.7	None	Good	Good	Good	Culvert will be located within proposed shoulder. Remove and replace culvert.

Culvert Inspection Report
6th Line Road, County Road 27 to St. John's Road

Existing Culvert Characteristics - 6th Line Road, County Road 27 to St. John's Road											
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CUL_01-11	39	Road CL	CSP	Circle	400	0.5	None	Poor - Rusted Through	Poor - Bent	Poor - Bent	Replace culvert due to its poor condition and substandard size.
CUL_02-26	40	Entrance-L	CSP	Circle	300	0.2	None	Good	Good	Good	Culvert will be located within proposed shoulder. Remove and replace culvert.
CUL_02-27	41	Entrance-L	CSP	Circle	400	0.7	None	Poor - Rusted	Ok	Ok - 30% Buried	Due to road widening ditches are being realigned further back. Need to remove and replace the culvert to match the new ditch alignment.
CUL_01-12	42	Road CL	CSP	Circle	1200	1.0	None	Bottom Half Rusted	Poor	Poor	Replace the culvert due to its poor condition.
CUL_02-28	43	Entrance-R	CSP	Circle	400	0.4	None	Good	Good	Good	Culvert will be located within proposed shoulder. Remove and replace culvert.
CUL_02-29	44	Entrance-L	CSP	Circle	300	0.4	Buried	Buried	Buried	Buried	Replace culvert.
CUL_02-30	45	Entrance-R	CSP	Circle	400	0.3	Some Brush	Good	Good	Good	Culvert will be located within proposed shoulder. Remove and replace culvert.
CUL_01-13	46	Road CL	CSP	Circle	800	1.0	90% Blocked	Fair	Fair	Fair	There is no positive flow, most likely the bottom of the culvert is rusted due to stagnant water. Replace culvert.
CUL_02-31	47	Entrance-L	CSP	Circle	400	0.3	None	Bottom Half Rusted	Good	Good	Due to road widening ditches are being realigned further back. Need to remove and replace the culvert to match the new ditch alignment.

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Culvert ID	Culvert #	Crossing Type	Type	Shape	Size (mm)	Fill Over Culvert (m)	Blockage in Culvert	Culvert Condition	Inlet Condition	Outlet Condition	Recommendation(s)
CUL_02-32	48	Entrance-R	CSP	Circle	400	0.6	None	Good	Good	Good	Culvert will be located within proposed shoulder. Remove and replace culvert.
CUL_02-33	49	Entrance-R	HDPE	Circle	400	0.6	None	Good	Good	Good	Road is being raised and it will be in fill area. Replace the culvert to the new ditch alignment.
CUL_02-34	50	Entrance-L	CSP	Circle	400	0.5	Some Brush	Good	Good	Good	Road is being raised and it will be in fill area. Replace the culvert to the new ditch alignment.
CUL_02-35	51	Entrance-R	HDPE	Circle	400	0.4	None	Ok	50% Buried	50% Buried	Road is being raised and it will be in fill area. Replace the culvert to the new ditch alignment.
CUL_01-14	52	Road CL	CSP	Circle	600	1.5	None	Fair	20% Buried - Bent	90% Buried	Most likely the bottom is rusted due to blockage. Replace culvert.
CUL_02-36	53	Entrance-L	CSP	Circle	400	0.4	None	Good	Good	Good	The road is being lowered, it will not have sufficient cover. Replace culvert to the new ditch alignment.
CUL_02-37	54	Entrance-L	CSP	Circle	400	0.4	Buried	Rusting	60% Buried	Buried	Replace culvert due to its poor condition.
CUL_02-38	55	Entrance-L	CSP	Circle	500	0.4	None	Good	Good	Bent	Due to road widening ditches are being realigned further back. Need to remove and replace the culvert to match the new ditch alignment.
CUL_02-39	56	Entrance-L	CSP	Circle	400	0.3	Buried	Poor	Buried	90% Buried	Replace culvert due to its poor condition.

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CUL_02-40	57	Entrance-L	CSP	Circle	500	0.3	None	Good	Good	Good	Due to road widening ditches are being realigned further back. Need to remove and replace the culvert to match the new ditch alignment.
CUL_02-41	58	Entrance-L	CSP	Circle	500	0.3	None	Good	Good	Good	Due to road widening ditches are being realigned further back. Need to remove and replace the culvert to match the new ditch alignment.
CUL_02-42	59	Entrance-R	CSP	Circle	300	0.3	Culvert Crushed	Poor	90% Buried	90% Buried	Due to road widening ditches are being realigned further back. Need to remove and replace the culvert to match the new ditch alignment.
CUL_02-43	60	Entrance-R	CSP	Circle	300	0.2	Some Sediments	Ok - Rusting	80% Buried	80% Buried	Due to road widening ditches are being realigned further back. Need to remove and replace the culvert to match the new ditch alignment.
CUL_02-44	61	Entrance-L	CSP	Circle	500	0.4	None	Good	Good	Good	Due to road widening ditches are being realigned further back. Need to remove and replace the culvert to match the new ditch alignment.
CUL_02-45	62	Entrance-L	CSP	Circle	400	0.7	Some Sediments	Good	Good	Good	Due to road widening ditches are being realigned further back. Need to remove and replace the culvert to match the new ditch alignment.

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6th Line Road, County Road 27 to St. John's Road

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CUL_02-46	63	Entrance-R	CSP	Circle	400	0.4	None	Ok	Good	Good	Due to road widening ditches are being realigned further back. Need to remove and replace the culvert to match the new ditch alignment.
CUL_02-47	64	Entrance-R	CSP	Circle	400	0.5	None	Good	Good	Good	Due to road widening ditches are being realigned further back. Need to remove and replace the culvert to match the new ditch alignment.
CUL_02-48	65	Entrance-L	CSP	Circle	400	0.8	None	Good	Good	Good	Due to road widening ditches are being realigned further back. Need to remove and replace the culvert to match the new ditch alignment.
CUL_01-15	66	Road CL	CSP	Circle	400	1.0	None	Good	Good	Good	Replace the culvert due to its substandard size.
CUL_02-49	67	Entrance-L	CSP	Circle	400	0.7	None	Poor - Rusted	Poor - Bent	Poor - Bent	Replace the culvert due to its poor condition.
CUL_01-16	68	Road CL	CSP	Circle	600	1.2	Ice	Good	Fair	Good	Extend the culvert and replace any damaged end sections.
CUL_02-50	69	Entrance-R	CSP	Circle	400	0.7	None	Good	Fair	Good	Due to road widening ditches are being realigned further back. Need to remove and replace the culvert to match the new ditch alignment.
CUL_02-51	70	Entrance-R	CSP	Circle	400	1.0	None	Good	Good	Good	Due to road widening ditches are being realigned further back. Need to remove and replace the culvert to match the new ditch alignment.

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CUL_02-52	71	Entrance-L	CSP	Circle	400	1.0	10% Sediment	Good	Good	Poor	Due to road widening ditches are being realigned further back. Need to remove and replace the culvert to match the new ditch alignment.
CUL_01-17	72	Road CL	CSP	Circle	600	0.7	Water 50%	Good	Fair	Fair	Clean the culvert, extend the culvert to new ditch alignment.
CUL_02-53	73	Entrance-R	CSP	Circle	500	1.5	None	Good	Good	Good	Due to road widening ditches are being realigned further back. Need to remove and replace the culvert to match the new ditch alignment.
CUL_02-54	74	Entrance-R	CSP	Circle	400	1.2	None	Good	Good	Good	Due to road widening ditches are being realigned further back. Need to remove and replace the culvert to match the new ditch alignment.
CUL_02-55	75	Entrance-R	CSP	Circle	400	0.7	None	Good	60% Buried	60% Buried	Replace culvert due to its poor condition.
CUL_02-56	76	Entrance-L	CSP	Circle	400	0.4	None	Good	Good	Good	Due to road widening ditches are being realigned further back. Need to remove and replace the culvert to match the new ditch alignment.
CUL_02-57	77	Entrance-R	CSP	Circle	400	0.4	Buried	Ok	Buried	Buried	Due to road widening ditches are being realigned further back. Need to remove and replace the culvert to match the new ditch alignment.

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Culvert ID	Culvert #	Crossing Type	Type	Shape	Size (mm)	Fill Over Culvert (m)	Blockage in Culvert	Culvert Condition	Inlet Condition	Outlet Condition	Recommendation(s)
CUL_02-58	78	Entrance-L	CSP	Circle	400	0.5	None	Good	Good	Good	Due to road widening ditches are being realigned further back. Need to remove and replace the culvert to match the new ditch alignment.
CUL_01-18	79	Road CL	CSP	Circle	700	0.6	10% Sediment	Poor	Poor - Deformed	Fair - 10% Sediment	Deformed inlet. Replace culvert due to its poor condition.
CUL_01-19	80	Road CL	CSP	Circle	700	0.6	20% Sed./Debris	Fair	Fair	Buried in Veg.	Clean the culvert, remove end sections and extend to the new ditch alignment.
CUL_02-59	81	Entrance-R	HDPE	Circle	400	0.3	Veg.	Good	W-Veg.	E-Veg.	Remove the culvert since this area is being urbanized.
CUL_02-60	82	Entrance-R	CSP	Circle	400	0.1	Sed/Veg/Debri	Ok	W-Veg.	E-Poor	Remove the culvert since this area is being urbanized.
CUL_02-61	83	Entrance-R	CSP	Circle	350	0.1	Sediment	Good	W-Good	E-Poor	Remove the culvert since this area is being urbanized.
CUL_02-62	84	Entrance-L	CSP	Circle	400	0.3	Severe Veg.	Ok	W-Poor	E-Veg.	Remove the culvert since this area is being urbanized.
CUL_02-63	85	Entrance-L	CSP	Circle	400	0.3	Severe Veg.	Good	W-Poor	E-Veg.	Remove the culvert since this area is being urbanized.
CUL_02-64	86	Entrance-R	CSP	Circle	400	0.1	Severe Veg.	Poor	E-Poor	W-Poor	Remove the culvert since this area is being urbanized.
CUL_02-65	87	Entrance-L	CSP	Circle	300	0.5	50%	Ok	E-Veg.	W-Poor	Remove the culvert since this area is being urbanized.
CUL_02-66	88	Entrance-R	CSP	Circle	500	1.0	60%	Good	W-Poor	E-Poor	Remove the culvert since this area is being urbanized.

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CUL_02-67	89	Entrance-R	CSP	Circle	900	0.5	40%	Good	E-Poor	W-Poor	Remove the culvert since this area is being urbanized.
CUL_02-68	90	Entrance-L	CSP	Circle	400	0.6	Veg./Mud	Poor	W-Buried	E-Buried	Remove the culvert since this area is being urbanized.
CUL_02-69	91	Entrance-R	CSP	Circle	400	0.6	Severe Veg.	Poor	W-Buried.	E-Buried	Remove the culvert since this area is being urbanized.
CUL_02-70	92	Entrance-R	CSP	Circle	400	0.3	Veg./Debris	Ok	W-Poor	E-Ok	Remove the culvert since this area is being urbanized.
CUL_01-20	93	Road CL	CSP	Circle	500	1.0	5%	Good	Good	S-Veg	Clean the culvert, remove end sections and extend to the new ditch alignment.
CUL_02-71	94	Entrance-R	CSP	Circle	600	0.3	10%	Ok	E-Ok	W-Good	Remove the culvert since this area is being urbanized.
CUL_01-21	95	Road CL	CSP	Circle	650	0.3	Mild Debris	Good	Good	Fair – Moderate Deformation	Clean the culvert, remove end sections and extend to the new ditch alignment.
CUL_02-72	96	Entrance-L	CSP	Circle	400	Completely Buried By Stones for construction driveway					Remove the culvert since this area is being urbanized.
CUL_02-73	97	Entrance-L	CSP	Circle	600	0.2	10% Sed.	Good	W-Good	E-Good	Remove the culvert since this area is being urbanized.
CUL_01-22	98	Road CL	CSP	Circle	400	1.5	65% Water/Sed	Poor-Rust	Poor – 60% Blocked	Poor – 60% Blocked	Replace the culvert.
CUL_02-74	99	Entrance-R	CSP	Circle	1200	0.7	50%Water/Sed	Poor-Rust	W-Poor	E-Poor	Remove the culvert since this area is being urbanized.
CUL_01-23	100	Road CL	CSP	Circle	800	0.1	40% Water	Good	Fair-10% Water	Fair-40% Water	Clean the culvert, remove end sections and extend to the new ditch alignment.

Culvert Inspection Report
6th Line Road, County Road 27 to St. John's Road

Existing Culvert Characteristics - 6th Line Road, County Road 27 to St. John's Road											
Culvert ID	Culvert #	Crossing Type	Type	Shape	Size (mm)	Fill Over Culvert (m)	Blockage in Culvert	Culvert Condition	Inlet Condition	Outlet Condition	Recommendation(s)
CUL_02-75	101	Entrance-R	CSP	Circle	400	0.1	50% Sed.	Poor	W-Poor	E-Poor	Remove the culvert since this area is being urbanized.
CUL_02-76	102	Entrance-R	CSP	Circle	400	0.2	100%	Poor	W-Poor	E-Poor	Remove the culvert since this area is being urbanized.
CUL_02-77	103	Entrance-L	CSP	Circle	400	0.2	50% Water	Poor	W-Poor	E-Good	Remove the culvert since this area is being urbanized.
CUL_02-78	104	Entrance-R	CSP	Circle	300	0.2	None	Good	W-Good	E-Ok	Remove the culvert since this area is being urbanized.
CUL_02-79	105	Entrance-R	CSP	Circle	300	0.1	15%	Poor	W-Poor	E-Good	Remove the culvert since this area is being urbanized.
CUL_02-80	106	Entrance-R	CSP	Circle	300	0.1	100%	Poor	W-Poor	E-Poor	Remove the culvert since this area is being urbanized.
CUL_02-81	107	Entrance-L	CSP	Circle	400	0.1	10%	Good	W-Good	E-Good	Remove the culvert since this area is being urbanized.
CUL_02-82	108	Entrance-R	CSP	Circle	400	0.3	80%	Poor	W-Poor	E-Poor	Remove the culvert since this area is being urbanized.
CUL_02-83	109	Entrance-R	CSP	Circle	300	0.3	20%	Good	W-Good	E-Ok	Remove the culvert since this area is being urbanized.
CUL_02-84	110	Entrance-R	CSP	Circle	300	0.3	20%	Good	W-Good	E-Good	Remove the culvert since this area is being urbanized.
CUL_01-24	111	Road CL	CSP	Circle	500	0.3	10%	Fair	Poor-Rust/Deformation	Fair	Replace the culvert due to its poor condition.

3. SUMMARY AND RECOMMENDATIONS

The centreline culverts in this corridor range from being in poor condition to good condition. The majority require maintenance or replacement based on current physical conditions and planned roadway improvements.

Extensive sediment accumulation was observed in Culverts 1-01, 1-04, 1-05, 1-06, 1-10, 1-11, 01-13, 1-14, 1-17, 1-18, 1-19, 1-20, 1-221-23 and 1-24. To maintain the functionality of this system it is recommended that all culverts be flushed and cleaned out if the pipe is intended to be left in place and extended.

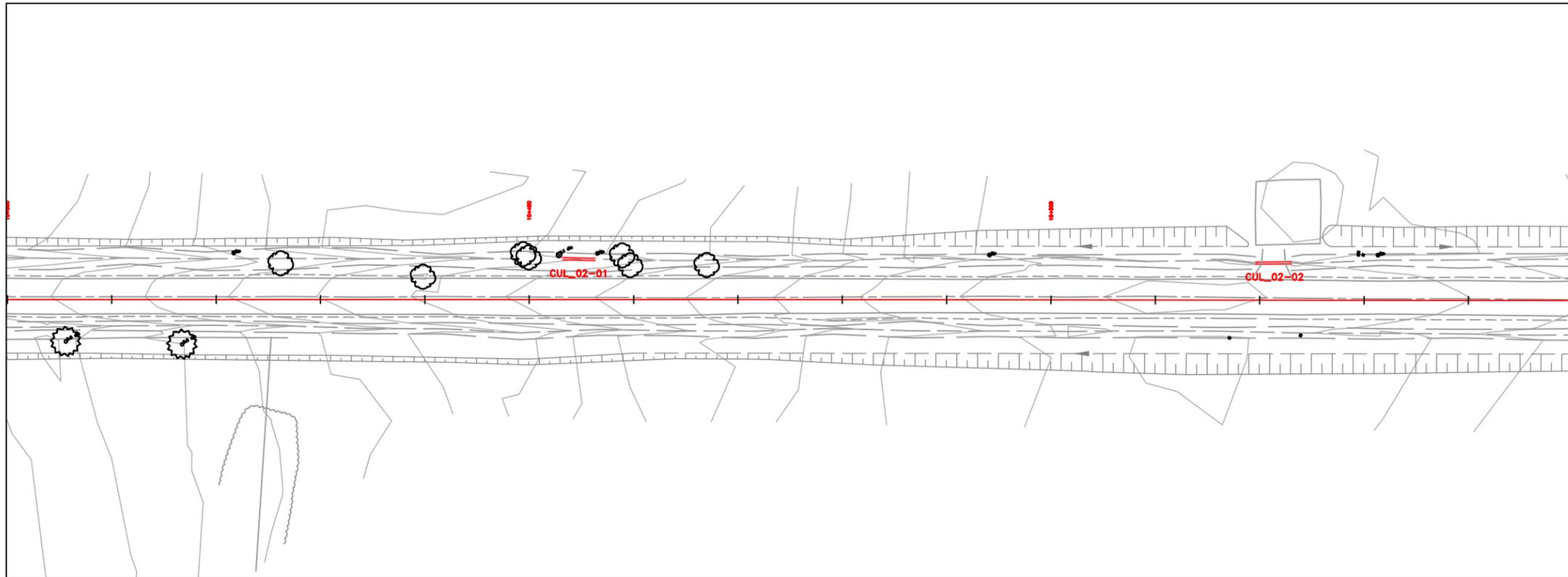
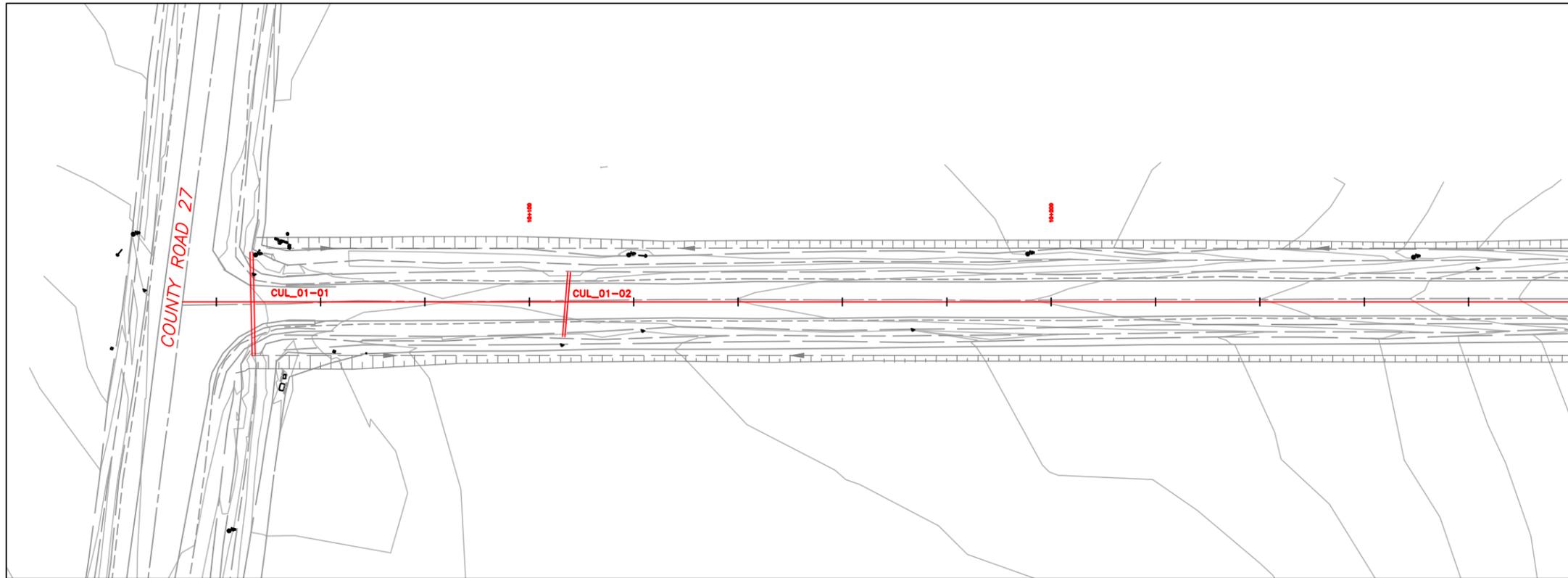
Due to the sediment it was difficult to assess the corrosion of some culverts but significant rusting was still visible for 1-02, 1-05, 1-08, 1-09, 1-11, 1-12, 1-22 and 1-24. These pipes are recommended for replacement.

Severe deformation of culverts 1-05, 1-11, 1-18, 1-21, 1-22 and 1-24 were observed. Replacements of these culverts are recommended.

Culverts 1-10, 1-17, 1-19 and 1-23 were not accessed during the site visit (due to limited accessibility on private lands). Additional investigations are required during detailed design.

Culverts on approach and sideroads should be replaced as needed to support the roadway platform expansion.

Appendix A
Culvert Location Map



SERVICE DATA					
SERVICE	DATE	INIT.	SERVICE	DATE	INIT.
SAN SEWERS			GAS MAINS		
STORM SEWERS			BELL U/G CABLE		
WATERMANS			HYDRO U/G CABLE		
TRANSIT			HYDRO ONE		
PARKS & REC.			CTV		
ONT. CLEAN WATER			COMMUNIC. CABLES		

REVISIONS		
DATE	DETAILS	INIT.

LEGEND:
 EXISTING CULVERT



General Notes

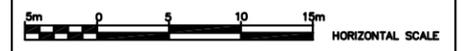
- All Driveways ASPHALT Unless Otherwise Noted.
- All Service Locations Are Approximate And Must Be Located Accurately In The Field
- Denotes Building - Not Located
- Denotes Building Located
- Type 'B' Bedding Unless Otherwise Noted (SAN)

B.M. No. Elev.
 The Contractor Is Responsible For Locating And Protecting All Existing Utilities Prior To And During Construction Location of Existing Utilities Approximate Only, To Be Verified In Field By Contractor.

Designed by	Approved by
_____	_____
Chkd	

NOTICE TO CONTRACTOR
 48 HOURS PRIOR TO COMMENCING WORK NOTIFY THE FOLLOWING

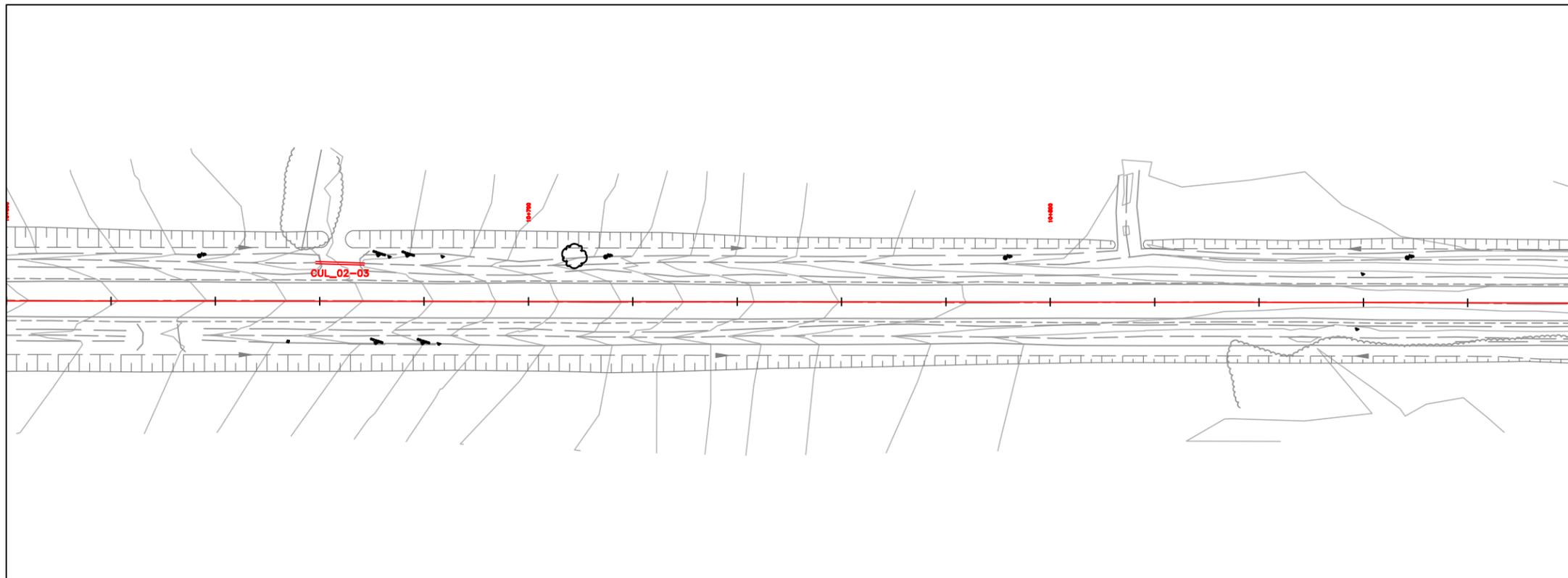
BELL CANADA	BELL CANADA
ENBRIDGE INCORPORATED-GAS DISTRIBUTION	ENERSOURCE TELECOM
ONTARIO MINISTRY OF TRANSPORTATION	HYDRO ONE TELECOM
ONTARIO CLEAN WATER AGENCY	HYDRO ONE NETWORKS
HYDRO ONE NETWORKS	ROGERS CABLE
ENERSOURCE, HYDRO	ALLSTREAM
HYDRO ONE	PSN (PUBLIC SECTOR NETWORK)
CABLE TELEVISION/FIBREOPTIC PROVIDERS:	FUTUREWAY (FCI BROADBAND)



6TH LINE
 FROM STA 10+000 to STA 10+600
 CULVERT LOCATION PLAN

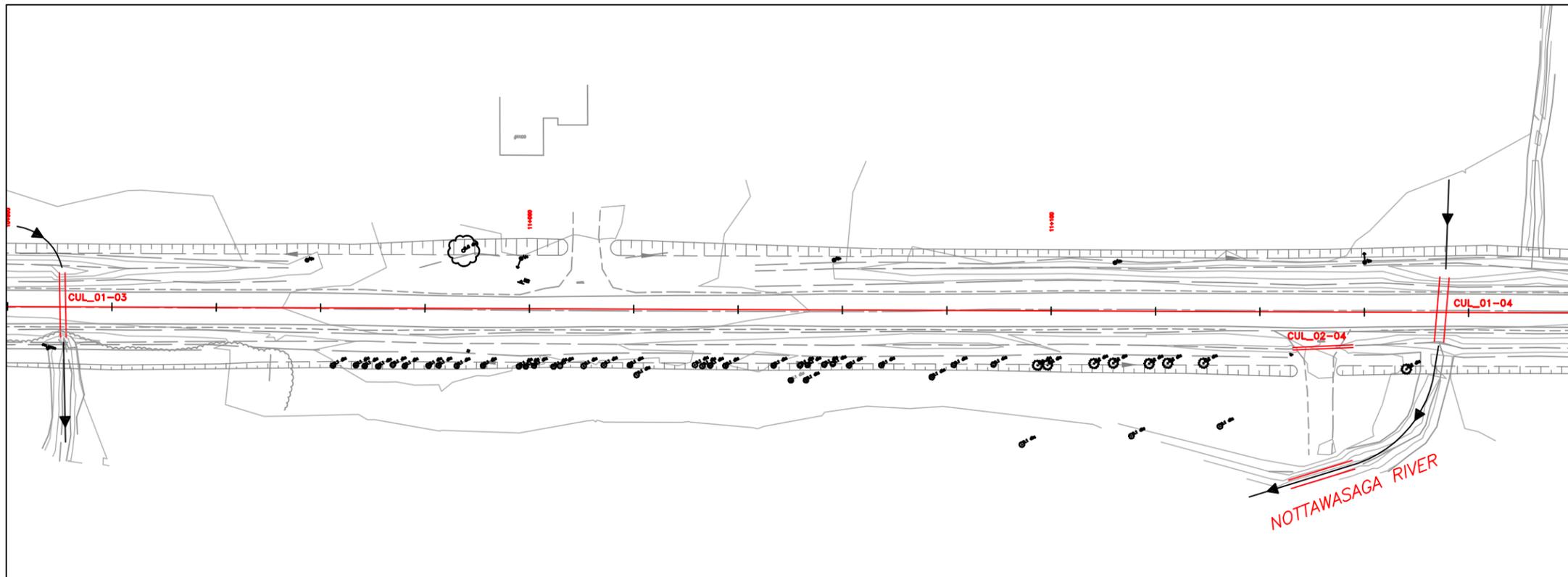
CAD Area	Area	Project No.
Checked by	Drawn by M.D.	
Date May, 2015	Sheet 1 of 27	Plan No.

SEE SHEET 1



MATCH LINE A

MATCH LINE A



SEE SHEET 3

SERVICE DATA					
SERVICE	DATE	INIT.	SERVICE	DATE	INIT.
SAN SEWERS			GAS MAINS		
STORM SEWERS			BELL U/G CABLE		
WATERMANS			HYDRO U/G CABLE		
TRANSIT			HYDRO ONE		
PARKS & REC.			CTV		
ONT. CLEAN WATER			COMMUNIC. CABLES		

REVISIONS		
DATE	DETAILS	INIT.

LEGEND:

— EXISTING CULVERT



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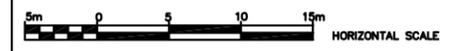
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Designed by	Approved by
_____	_____
Chkd	

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BELL CANADA	BELL CANADA
ENBRIDGE INCORPORATED-GAS DISTRIBUTION	ENERSOURCE TELECOM
ONTARIO MINISTRY OF TRANSPORTATION	HYDRO ONE TELECOM
ONTARIO CLEAN WATER AGENCY	HYDRO ONE NETWORKS
HYDRO ONE NETWORKS	ROGERS CABLE
ENERSOURCE, HYDRO	ALLSTREAM
HYDRO ONE	PSN (PUBLIC SECTOR NETWORK)
CABLE TELEVISION/FIBROPTIC PROVIDERS:	FUTUREWAY (FCI BROADBAND)



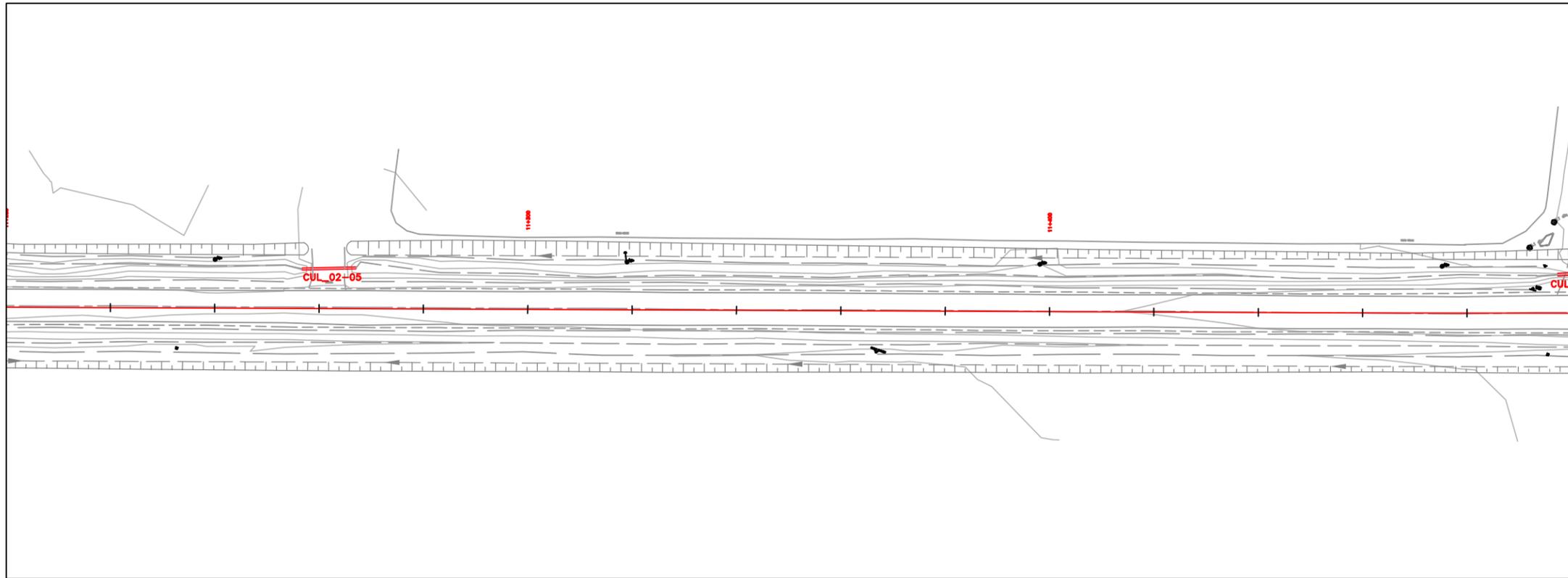
6TH LINE

FROM STA 10+600 TO STA 11+200

CULVERT LOCATION PLAN

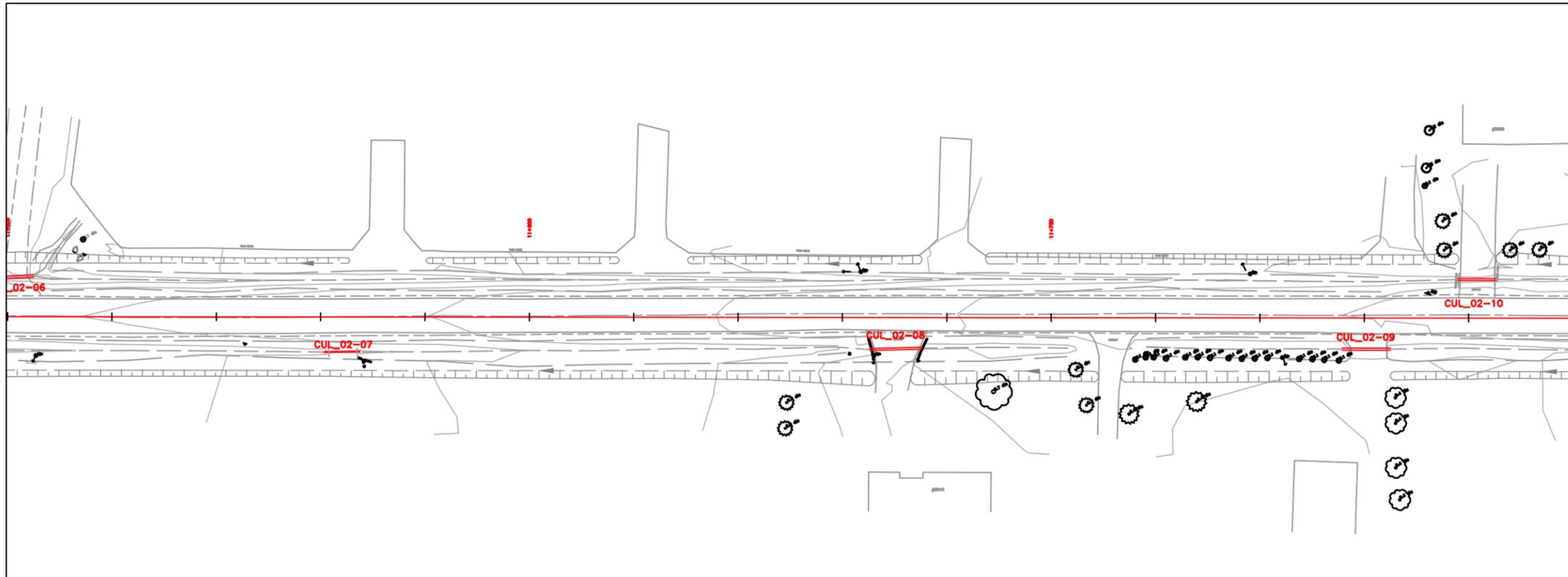
CAD Area	Area	Project No.
Checked by	Drawn by M.D.	
Date May, 2015	Sheet 2 of 27	Plan No.

SEE SHEET 2



MATCH LINE A

MATCH LINE A



SEE SHEET 4

SERVICE DATA					
SERVICE	DATE	INIT.	SERVICE	DATE	INIT.
SAN SEWERS			GAS MAINS		
STORM SEWERS			BELL U/G CABLE		
WATER MAINS			HYDRO U/G CABLE		
TRANSIT			HYDRO ONE		
PARKS & REC.			CTV		
ONT. CLEAN WATER			COMMUNIC. CABLES		

REVISIONS		
DATE	DETAILS	INIT.

LEGEND:

— EXISTING CULVERT



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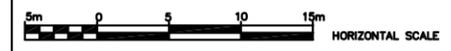
Designed by _____
Chkd

Approved by _____

NOTICE TO CONTRACTOR

48 HOURS PRIOR TO COMMENCING WORK NOTIFY THE FOLLOWING

BELL CANADA	BELL CANADA
ENBRIDGE INCORPORATED-GAS DISTRIBUTION	ENERSOURCE TELECOM
ONTARIO MINISTRY OF TRANSPORTATION	HYDRO ONE TELECOM
ONTARIO CLEAN WATER AGENCY	HYDRO ONE NETWORKS
HYDRO ONE NETWORKS	ROGERS CABLE
ENERSOURCE, HYDRO	ALLSTREAM
HYDRO ONE	PSN (PUBLIC SECTOR NETWORK)
CABLE TELEVISION/FIBROPTIC PROVIDERS:	FUTUREWAY (FCI BROADBAND)



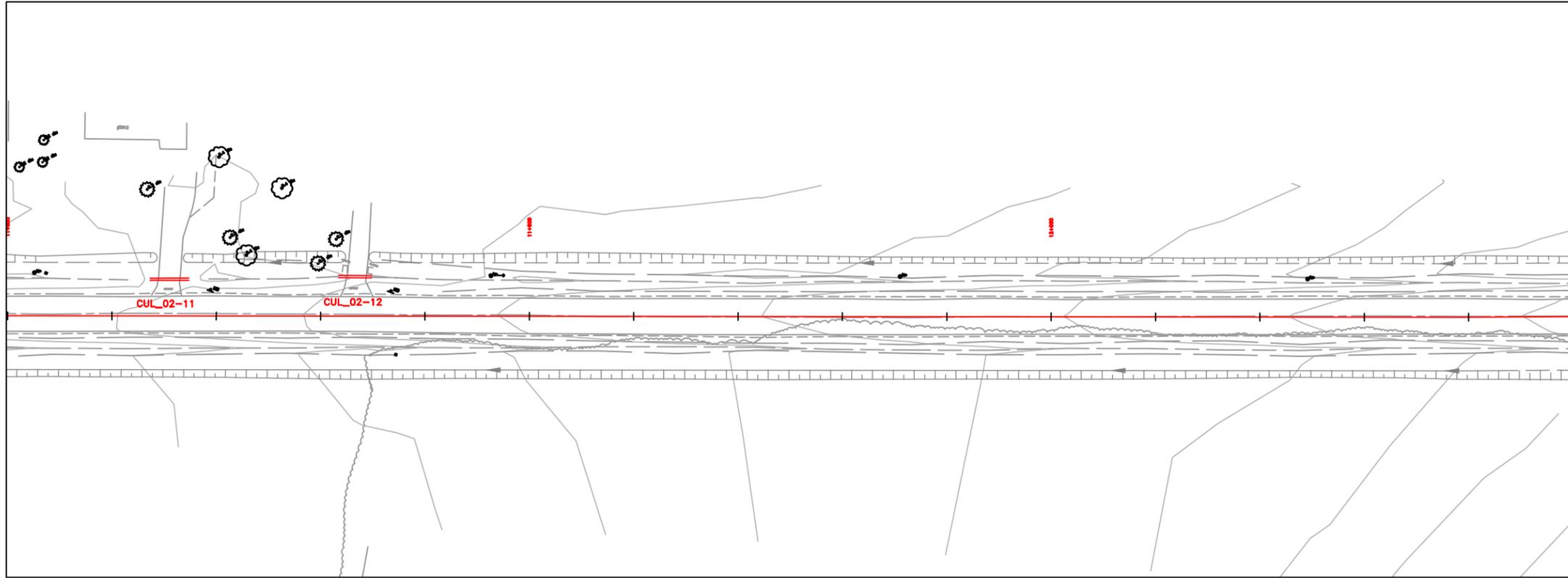
6TH LINE

FROM STA 11+200 to STA 11+800

CULVERT LOCATION PLAN

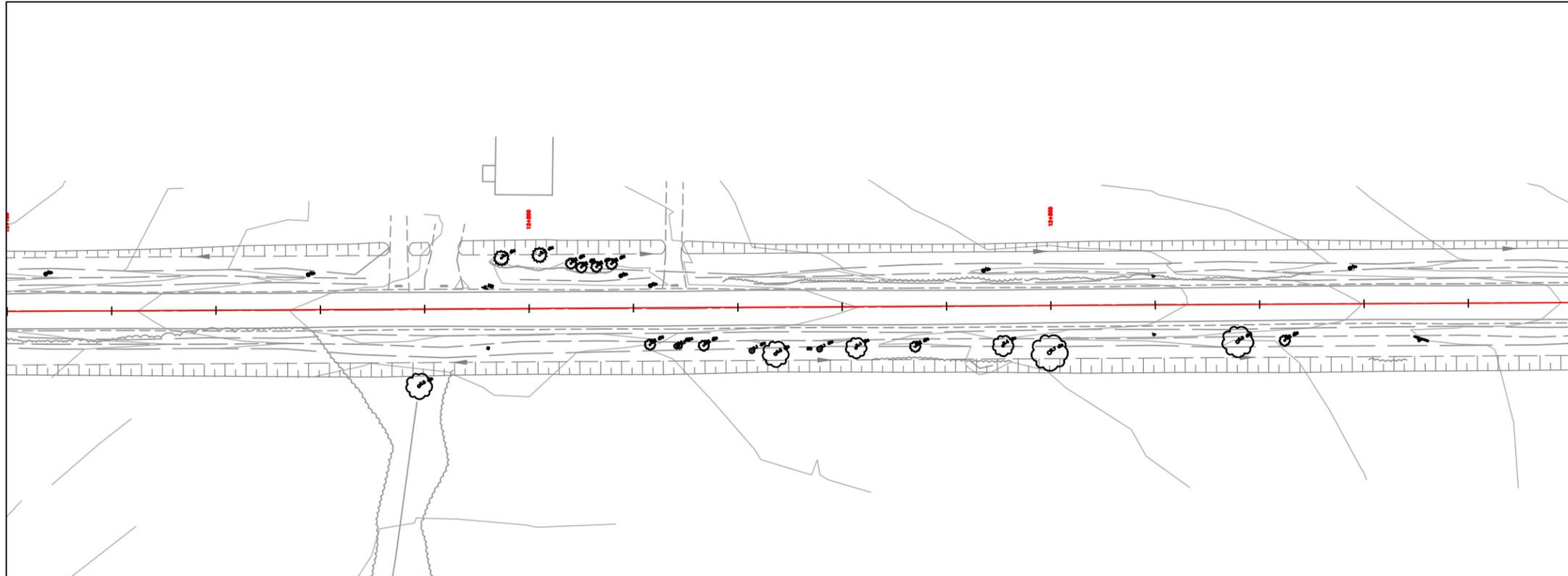
CAD Area	Area	Project No.
Checked by	Drawn by M.D.	
Date May, 2015	Sheet 3 of 27	Plan No.

SEE SHEET 3



MATCH LINE A

MATCH LINE A



SEE SHEET 5

SERVICE DATA					
SERVICE	DATE	INIT.	SERVICE	DATE	INIT.
SAN SEWERS			GAS MAINS		
STORM SEWERS			BELL U/G CABLE		
WATERMANS			HYDRO U/G CABLE		
TRANSIT			HYDRO ONE		
PARKS & REC.			CTV		
ONT. CLEAN WATER			COMMUNIC. CABLES		

REVISIONS		
DATE	DETAILS	INIT.

LEGEND:

EXISTING CULVERT



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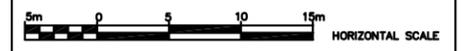
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Designed by	Approved by
Chkd	_____

NOTICE TO CONTRACTOR

48 HOURS PRIOR TO COMMENCING WORK NOTIFY THE FOLLOWING

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ENBRIDGE INCORPORATED-GAS DISTRIBUTION	ENERSOURCE TELECOM
ONTARIO MINISTRY OF TRANSPORTATION	HYDRO ONE TELECOM
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HYDRO ONE NETWORKS	ROGERS CABLE
ENERSOURCE, HYDRO	ALLSTREAM
HYDRO ONE	PSN (PUBLIC SECTOR NETWORK)
CABLE TELEVISION/FIBREOPTIC PROVIDERS:	FUTUREWAY (FCI BROADBAND)



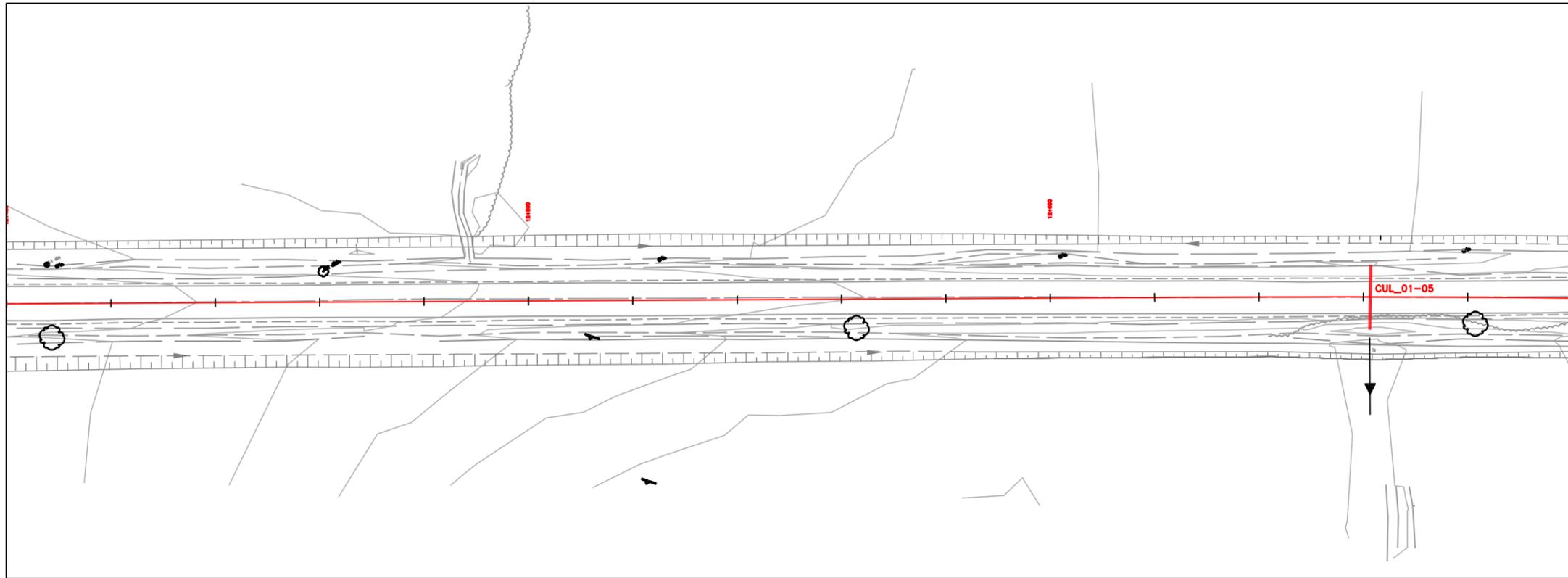
6TH LINE

FROM STA 11+800 to STA 12+400

CULVERT LOCATION PLAN

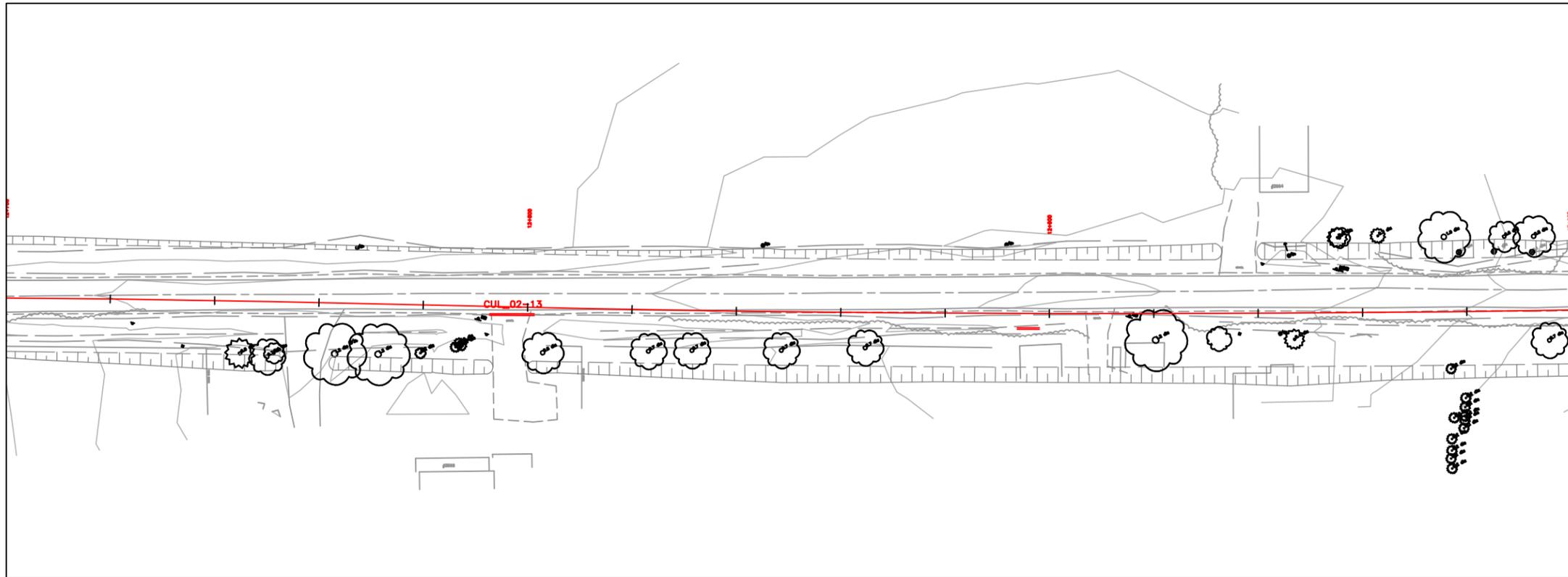
CAD Area	Area	Project No.
Checked by	Drawn by M.D.	
Date May, 2015	Sheet 4 of 27	Plan No.

SEE SHEET 4



MATCH LINE A

MATCH LINE A



SEE SHEET 6

SERVICE DATA					
SERVICE	DATE	INIT.	SERVICE	DATE	INIT.
SAN SEWERS			GAS MAINS		
STORM SEWERS			BELL U/G CABLE		
WATERMANS			HYDRO U/G CABLE		
TRANSIT			HYDRO ONE		
PARKS & REC.			CTV		
ONT. CLEAN WATER			COMMUNIC. CABLES		

REVISIONS		
DATE	DETAILS	INIT.

LEGEND:

— EXISTING CULVERT



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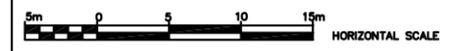
Designed by _____
Chkd

Approved by _____

NOTICE TO CONTRACTOR

48 HOURS PRIOR TO COMMENCING WORK NOTIFY THE FOLLOWING

BELL CANADA	BELL CANADA
ENBRIDGE INCORPORATED—GAS DISTRIBUTION	ENERSOURCE TELECOM
ONTARIO MINISTRY OF TRANSPORTATION	HYDRO ONE TELECOM
ONTARIO CLEAN WATER AGENCY	HYDRO ONE NETWORKS
HYDRO ONE NETWORKS	ROGERS CABLE
ENERSOURCE, HYDRO	ALLSTREAM
HYDRO ONE	PSN (PUBLIC SECTOR NETWORK)
CABLE TELEVISION/FIBREOPTIC PROVIDERS:	FUTUREWAY (FCI BROADBAND)



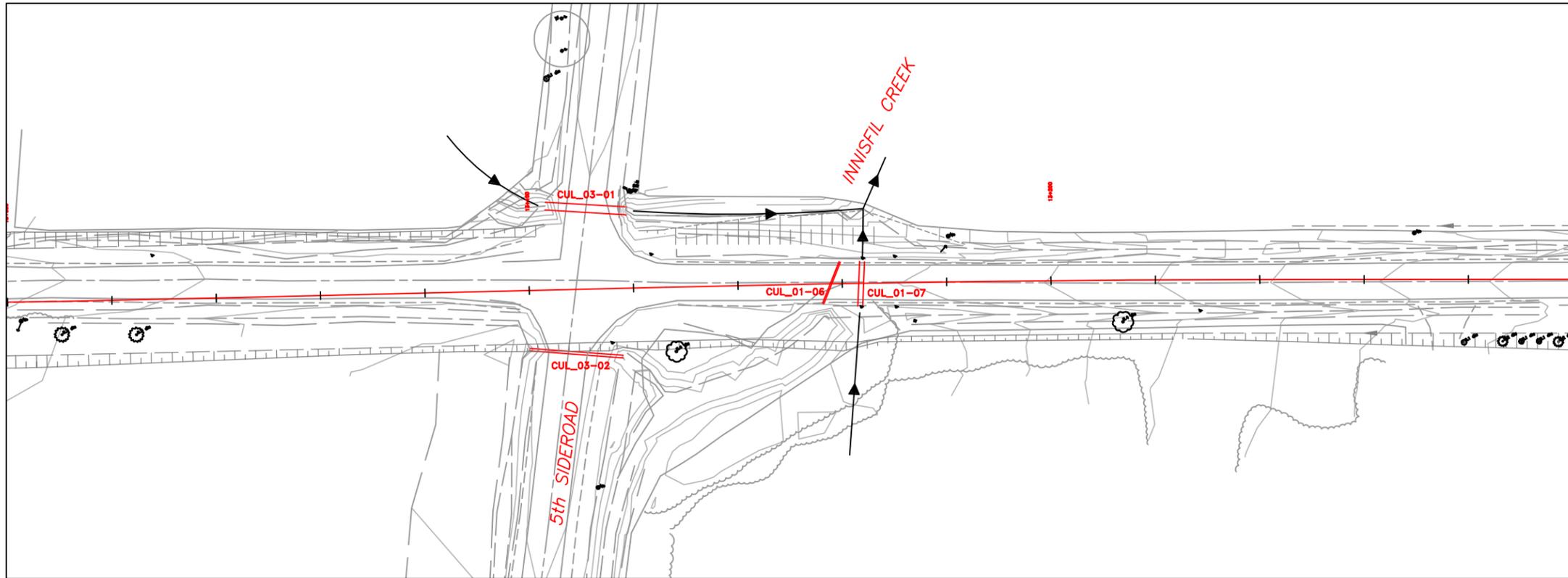
6TH LINE

FROM STA 12+400 TO STA 13+000

CULVERT LOCATION PLAN

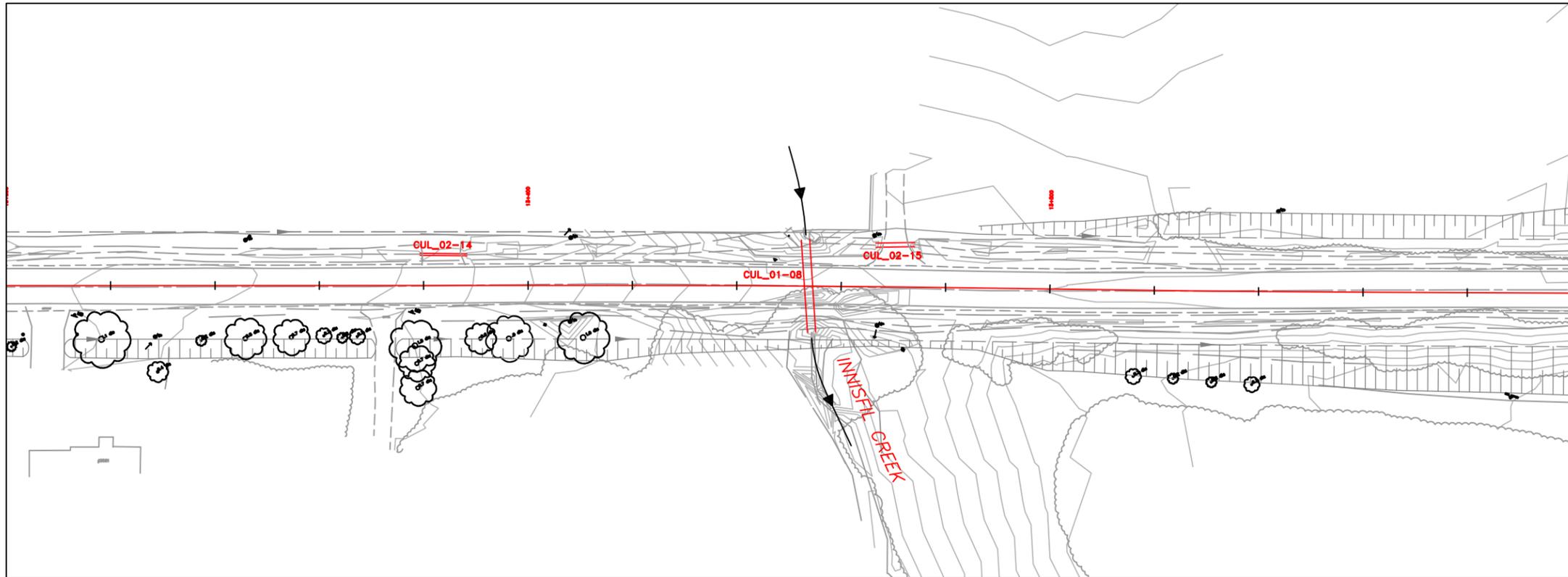
CAD Area	Area	Project No.
Checked by	Drawn by M.D.	
Date May, 2015	Sheet 5 of 27	Plan No.

SEE SHEET 5



MATCH LINE A

MATCH LINE A



SEE SHEET 7

SERVICE DATA					
SERVICE	DATE	INIT.	SERVICE	DATE	INIT.
SAN SEWERS			GAS MAINS		
STORM SEWERS			BELL U/G CABLE		
WATERMANS			HYDRO U/G CABLE		
TRANSIT			HYDRO ONE		
PARKS & REC.			CTV		
ONT. CLEAN WATER			COMMUNIC. CABLES		

REVISIONS		
DATE	DETAILS	INIT.

LEGEND:

— EXISTING CULVERT



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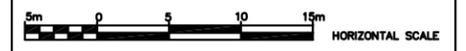
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_____	_____
Chkd	

NOTICE TO CONTRACTOR

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ENERSOURCE, HYDRO	ALLSTREAM
HYDRO ONE	PSN (PUBLIC SECTOR NETWORK)
CABLE TELEVISION/FIBROPTIC PROVIDERS:	FUTUREWAY (FCI BROADBAND)



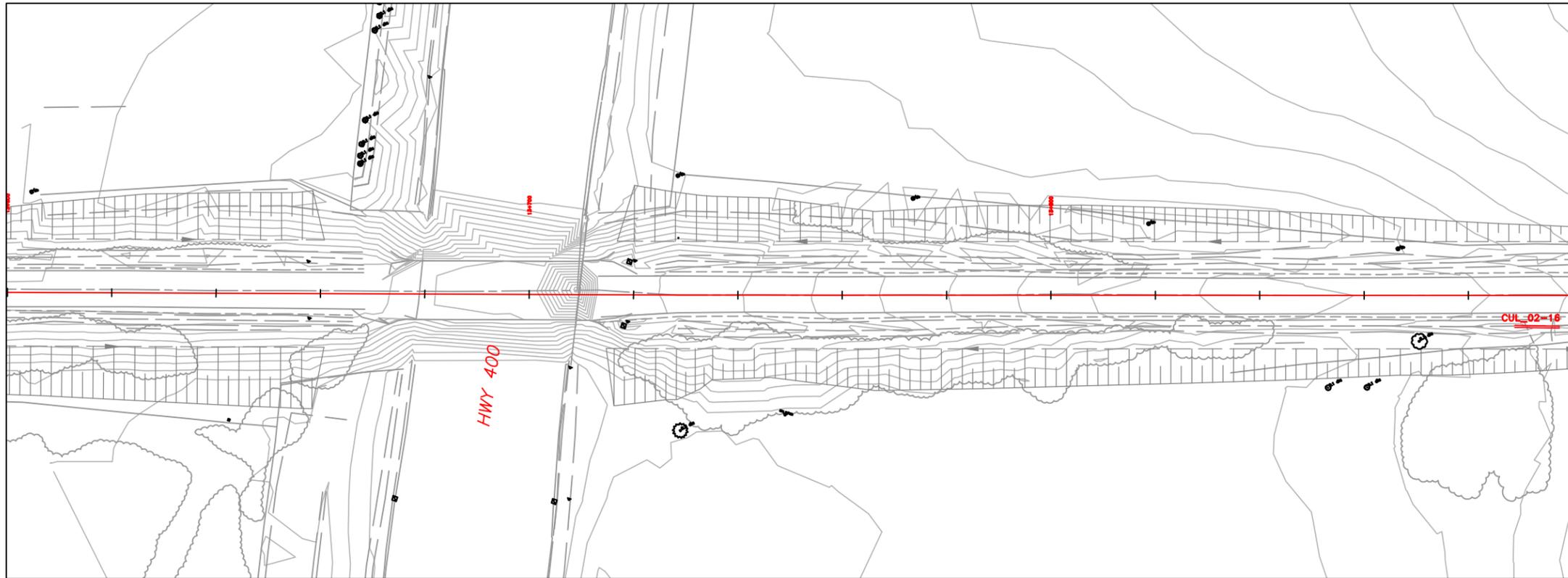
6TH LINE

FROM STA 13+000 to STA 13+600

CULVERT LOCATION PLAN

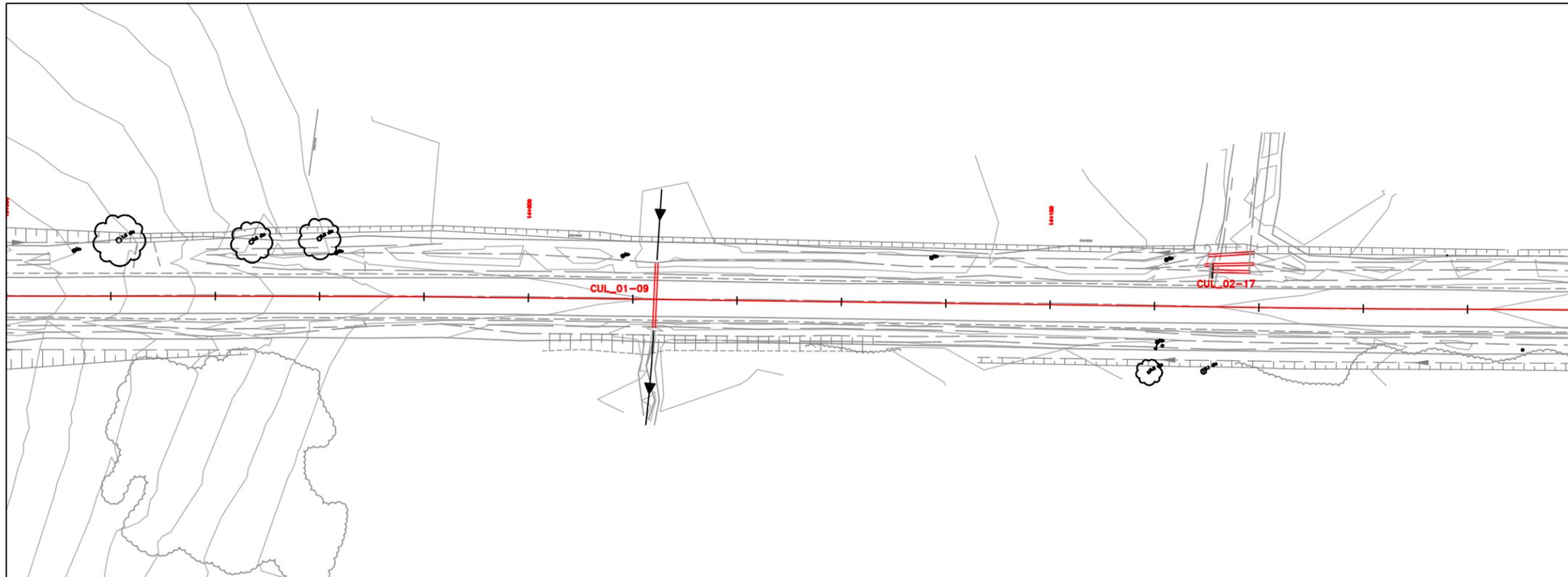
CAD Area	Area	Project No.
Checked by	Drawn by M.D.	
Date May, 2015	Sheet 6 of 27	Plan No.

SEE SHEET 6



MATCH LINE A

MATCH LINE A



SEE SHEET 8

SERVICE DATA					
SERVICE	DATE	INIT.	SERVICE	DATE	INIT.
SAN SEWERS			GAS MAINS		
STORM SEWERS			BELL U/G CABLE		
WATER MAINS			HYDRO U/G CABLE		
TRANSIT			HYDRO ONE		
PARKS & REC.			CTV		
ONT. CLEAN WATER			COMMUNIC. CABLES		

REVISIONS		
DATE	DETAILS	INIT.

LEGEND:

— EXISTING CULVERT



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B.M. No. Elev.

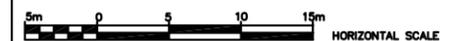
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Designed by	Approved by
_____	_____
Chkd	

NOTICE TO CONTRACTOR

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ENBRIDGE INCORPORATED—GAS DISTRIBUTION	ENERSOURCE TELECOM
ONTARIO MINISTRY OF TRANSPORTATION	HYDRO ONE TELECOM
ONTARIO CLEAN WATER AGENCY	ROGERS CABLE
HYDRO ONE NETWORKS	ALLSTREAM
ENERSOURCE, HYDRO	PSN (PUBLIC SECTOR NETWORK)
HYDRO ONE	FUTUREWAY (FCI BROADBAND)
CABLE TELEVISION/FIBROPTIC PROVIDERS:	



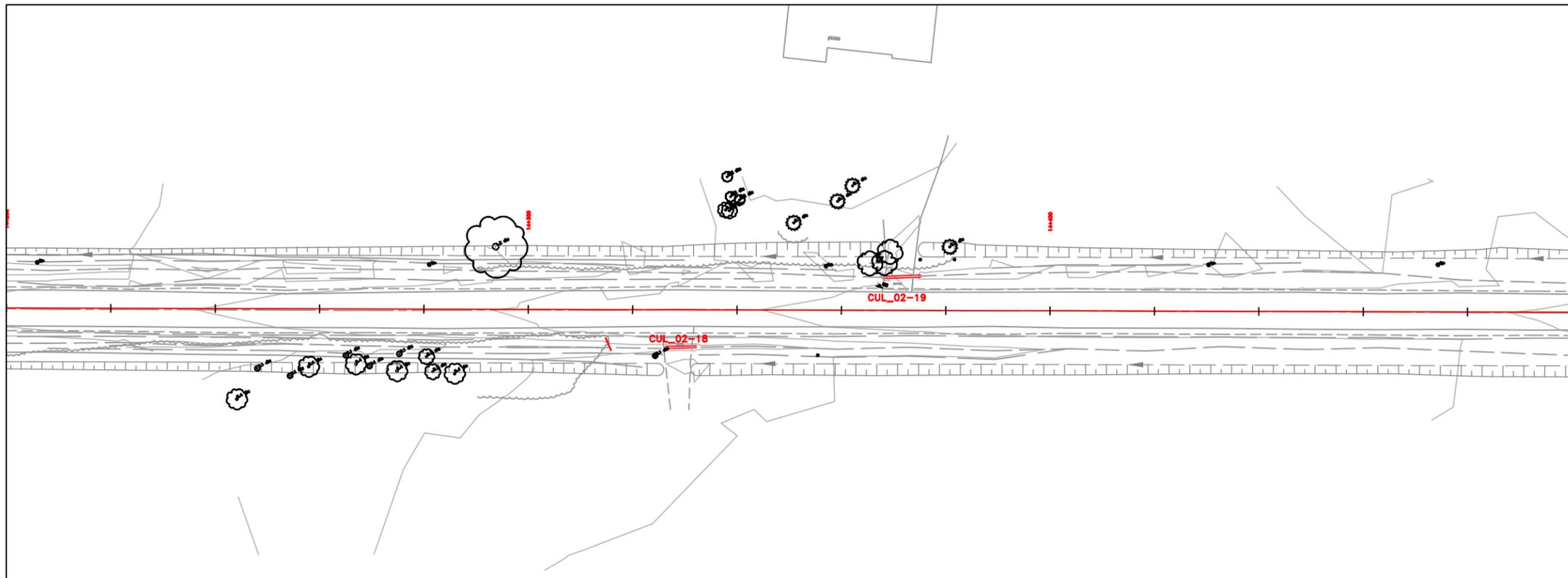
6TH LINE

FROM STA 13+600 to STA 14+200

CULVERT LOCATION PLAN

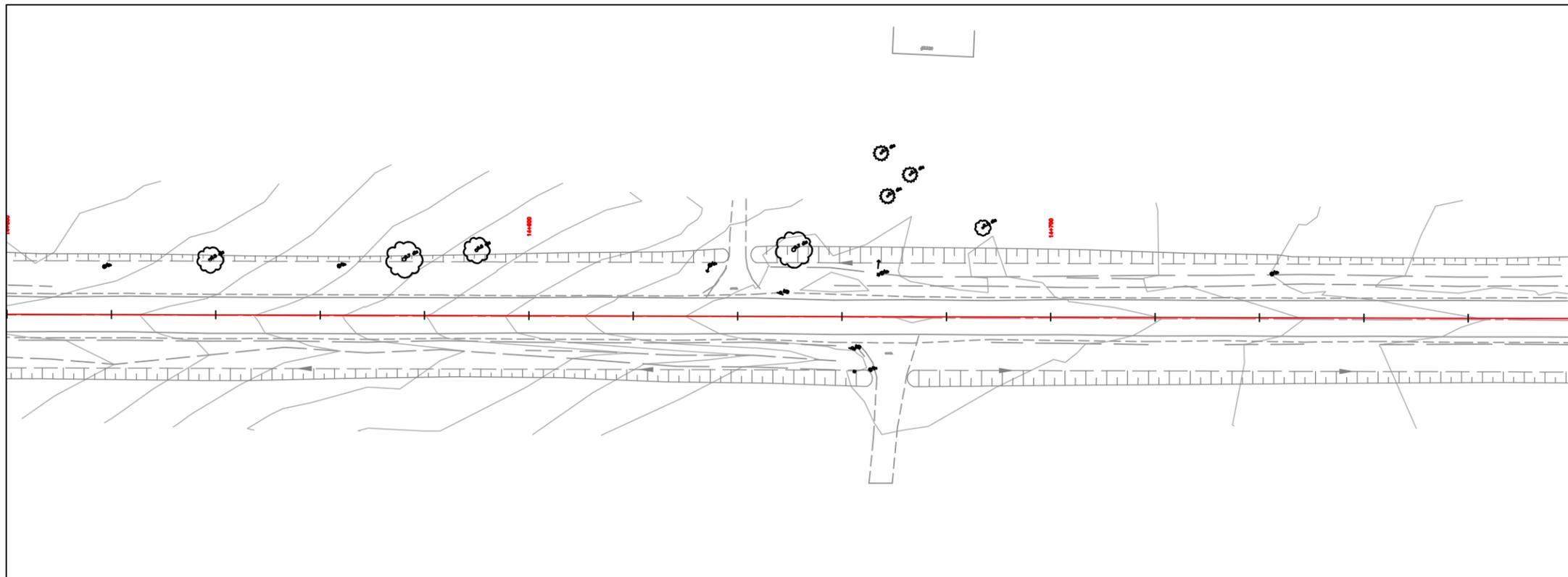
CAD Area	Area	Project No.
Checked by	Drawn by M.D.	
Date May, 2015	Sheet 7 of 27	Plan No.

SEE SHEET 7



MATCH LINE A

MATCH LINE A



SEE SHEET 9

SERVICE DATA					
SERVICE	DATE	INIT.	SERVICE	DATE	INIT.
SAN SEWERS			GAS MAINS		
STORM SEWERS			BELL U/G CABLE		
WATERMANS			HYDRO U/G CABLE		
TRANSIT			HYDRO ONE		
PARKS & REC.			CTV		
ONT. CLEAN WATER			COMMUNIC. CABLES		

REVISIONS		
DATE	DETAILS	INIT.

LEGEND:

EXISTING CULVERT



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B.M. No. Elev.

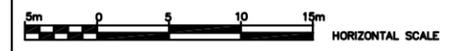
The Contractor Is Responsible For Locating And Protecting All Existing Utilities Prior To And During Construction Location of Existing Utilities Approximate Only, To Be Verified In Field By Contractor.

Designed by _____ Chkd	Approved by _____
------------------------------	----------------------

NOTICE TO CONTRACTOR

48 HOURS PRIOR TO COMMENCING WORK NOTIFY THE FOLLOWING

BELL CANADA ENBRIDGE INCORPORATED—GAS DISTRIBUTION ONTARIO MINISTRY OF TRANSPORTATION ONTARIO CLEAN WATER AGENCY HYDRO ONE NETWORKS ENERSOURCE, HYDRO HYDRO ONE CABLE TELEVISION/FIBROPTIC PROVIDERS:	BELL CANADA ENERSOURCE TELECOM HYDRO ONE TELECOM ROGERS CABLE ALLSTREAM PSN (PUBLIC SECTOR NETWORK) FUTUREWAY (FCI BROADBAND)
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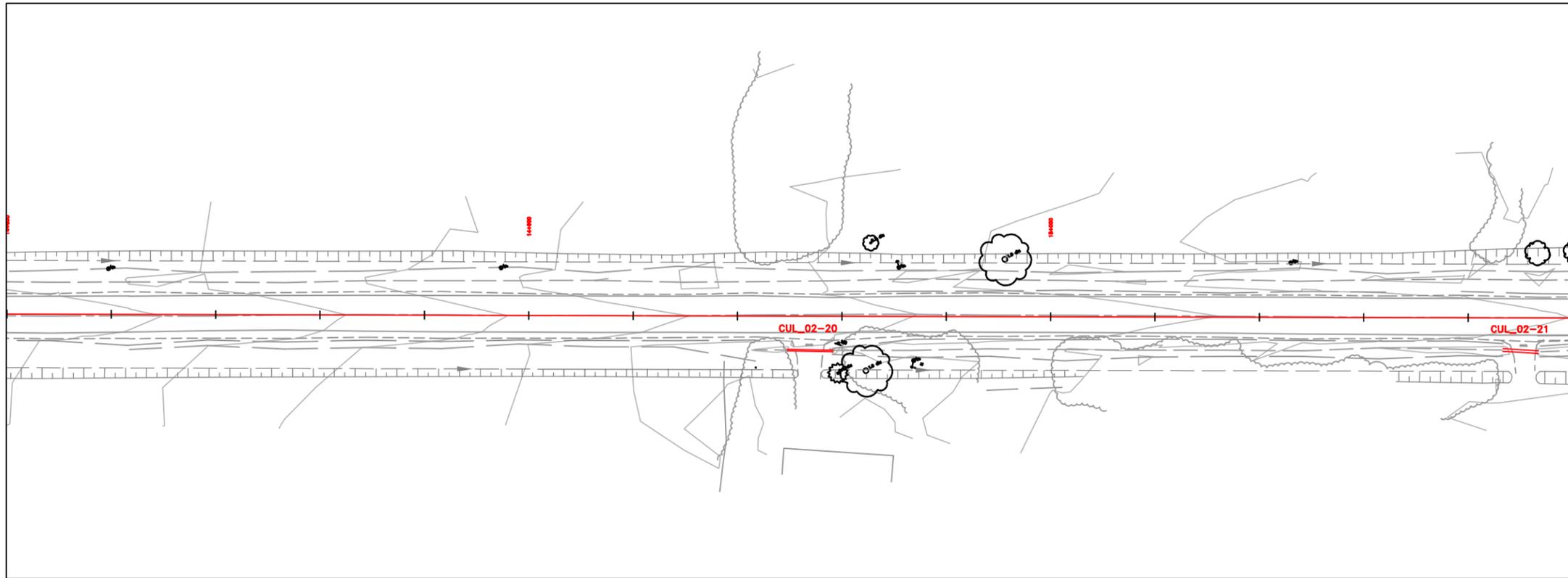
6TH LINE

FROM STA 14+200 TO STA 14+800

CULVERT LOCATION PLAN

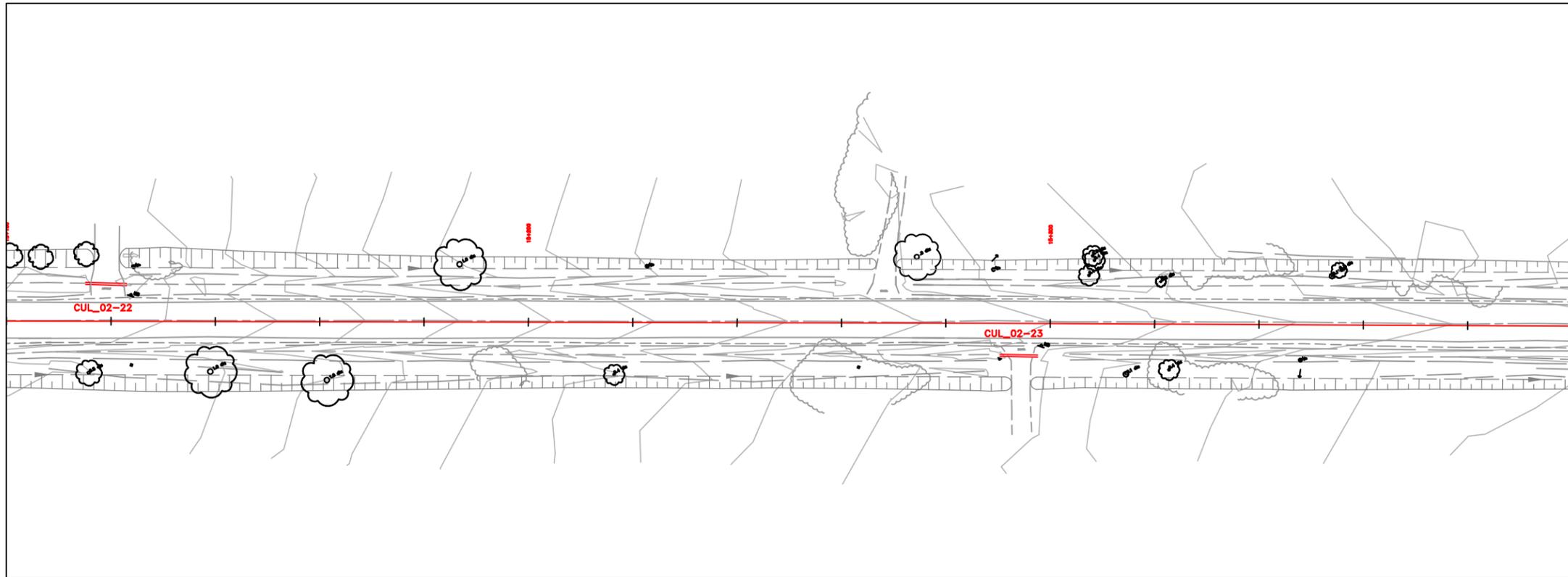
CAD Area	Area	Project No.
Checked by	Drawn by M.D.	
Date May, 2015	Sheet 8 of 27	Plan No.

SEE SHEET 8



MATCH LINE A

MATCH LINE A



SEE SHEET 10

SERVICE DATA					
SERVICE	DATE	INIT.	SERVICE	DATE	INIT.
SAN SEWERS			GAS MAINS		
STORM SEWERS			BELL U/G CABLE		
WATERMANS			HYDRO U/G CABLE		
TRANSIT			HYDRO ONE		
PARKS & REC.			CTV		
ONT. CLEAN WATER			COMMUNIC. CABLES		

REVISIONS		
DATE	DETAILS	INIT.

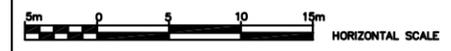
LEGEND:
 EXISTING CULVERT



General Notes
 -- All Driveways ASPHALT Unless Otherwise Noted.
 -- All Service Locations Are Approximate And Must Be Located Accurately In The Field
 ● Denotes Building - Not Located
 ◻ Denotes Building Located
 Type 'B' Bedding Unless Otherwise Noted (SAN)
 B.M. No. Elev.
 The Contractor Is Responsible For Locating And Protecting All Existing Utilities Prior To And During Construction Location Of Existing Utilities Approximate Only, To Be Verified In Field By Contractor.

Designed by _____
 Chkd _____
 Approved by _____

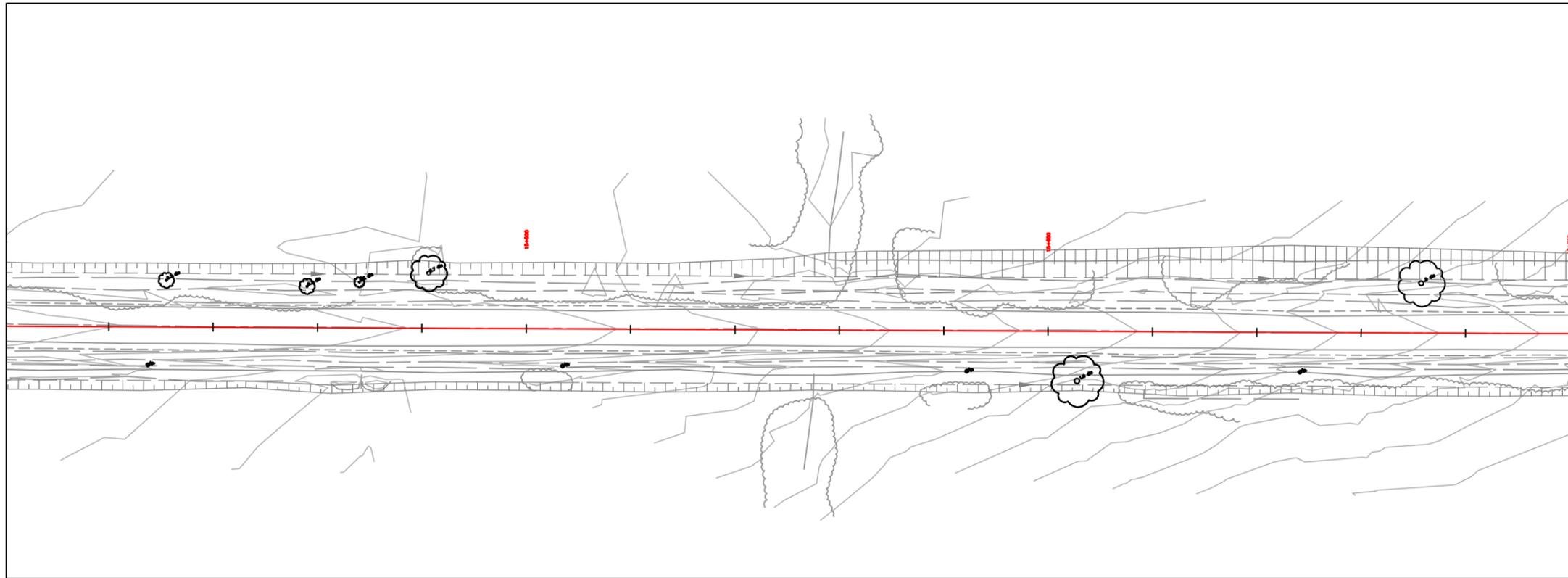
NOTICE TO CONTRACTOR
 48 HOURS PRIOR TO COMMENCING WORK NOTIFY THE FOLLOWING
 BELL CANADA
 ENBRIDGE INCORPORATED-GAS DISTRIBUTION
 ONTARIO MINISTRY OF TRANSPORTATION
 ONTARIO CLEAN WATER AGENCY
 HYDRO ONE NETWORKS
 ENERSOURCE, HYDRO
 HYDRO ONE
 CABLE TELEVISION/FIBREOPTIC PROVIDERS:
 BELL CANADA
 ENERSOURCE TELECOM
 HYDRO ONE TELECOM
 ROGERS CABLE
 ALLSTREAM
 PSN (PUBLIC SECTOR NETWORK)
 FUTUREWAY (FCI BROADBAND)



6TH LINE
 FROM STA 14+800 to STA 15+400
CULVERT LOCATION PLAN

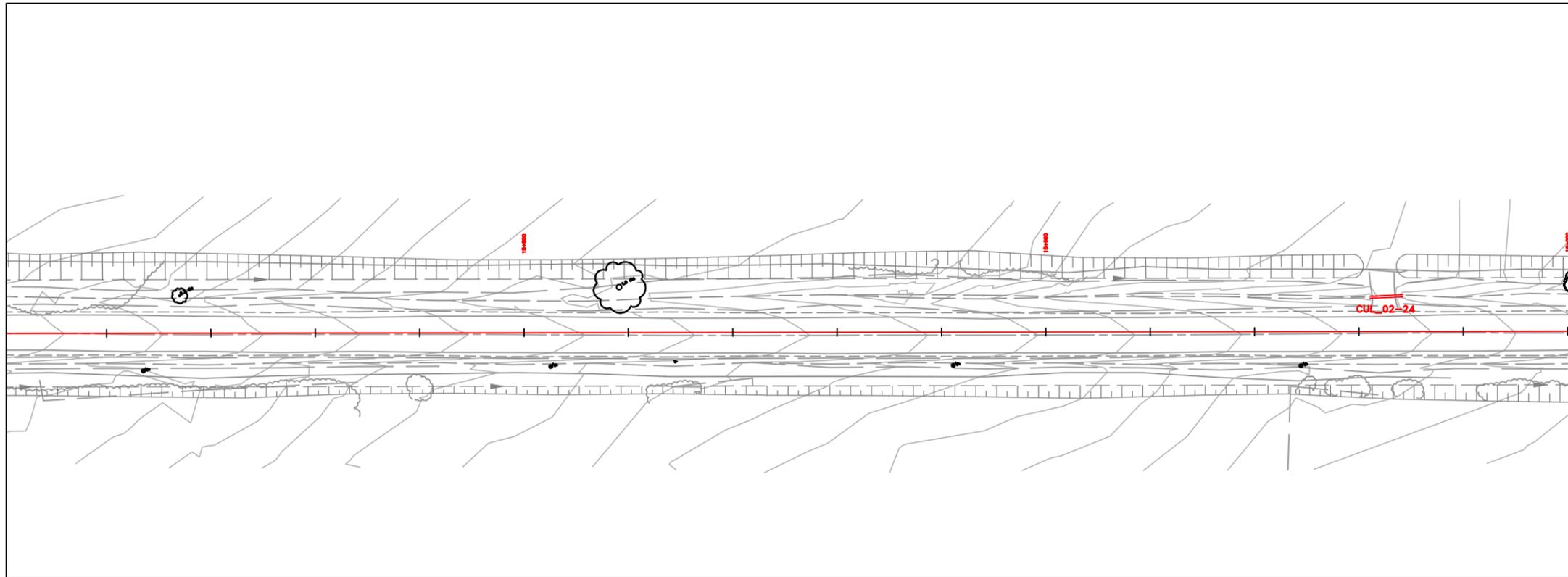
CAD Area	Area	Project No.
Checked by	Drawn by M.D.	
Date May, 2015	Sheet 9 of 27	Plan No.

SEE SHEET 9



MATCH LINE A

MATCH LINE A



SEE SHEET 11

SERVICE DATA					
SERVICE	DATE	INIT.	SERVICE	DATE	INIT.
SAN SEWERS			GAS MAINS		
STORM SEWERS			BELL U/G CABLE		
WATERMAINS			HYDRO U/G CABLE		
TRANSIT			HYDRO ONE		
PARKS & REC.			CTV		
ONT. CLEAN WATER			COMMUNIC. CABLES		

REVISIONS		
DATE	DETAILS	INIT.

LEGEND:

— EXISTING CULVERT



General Notes

- All Driveways ASPHALT Unless Otherwise Noted.
- All Service Locations Are Approximate And Must Be Located Accurately In The Field
- Denotes Building - Not Located
- Denotes Building Located
- Type 'B' Bedding Unless Otherwise Noted (SAN)

B.M. No. Elev.

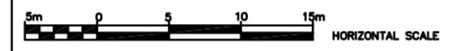
The Contractor Is Responsible For Locating And Protecting All Existing Utilities Prior To And During Construction Location of Existing Utilities Approximate Only, To Be Verified In Field By Contractor.

Designed by	Approved by
Chkd	

NOTICE TO CONTRACTOR

48 HOURS PRIOR TO COMMENCING WORK NOTIFY THE FOLLOWING

BELL CANADA	BELL CANADA
ENBRIDGE INCORPORATED—GAS DISTRIBUTION	ENERSOURCE TELECOM
ONTARIO MINISTRY OF TRANSPORTATION	HYDRO ONE TELECOM
ONTARIO CLEAN WATER AGENCY	HYDRO ONE NETWORKS
HYDRO ONE NETWORKS	ROGERS CABLE
ENERSOURCE, HYDRO	ALLSTREAM
HYDRO ONE	PSN (PUBLIC SECTOR NETWORK)
CABLE TELEVISION/FIBREOPTIC PROVIDERS:	FUTUREWAY (FCI BROADBAND)



6TH LINE

FROM STA 15+400 to STA 16+000

CULVERT LOCATION PLAN

CAD Area	Area	Project No.
Checked by	Drawn by M.D.	
Date May, 2015	Sheet 10 of 27	Plan No.

SERVICE DATA					
SERVICE	DATE	INIT.	SERVICE	DATE	INIT.
SAN SEWERS			GAS MAINS		
STORM SEWERS			BELL U/G CABLE		
WATER MAINS			HYDRO U/G CABLE		
TRANSIT			HYDRO ONE		
PARKS & REC.			CTV		
ONT. CLEAN WATER			COMMUNIC. CABLES		

REVISIONS		
DATE	DETAILS	INIT.

LEGEND:

==== EXISTING CULVERT



General Notes

- All Driveways ASPHALT Unless Otherwise Noted.
- All Service Locations Are Approximate And Must Be Located Accurately In The Field
- ⊙ Denotes Building - Not Located
- ⊞ Denotes Building Located
- ⊞ Type 'B' Bedding Unless Otherwise Noted (SAN)

B.M. No. Elev.

The Contractor Is Responsible For Locating And Protecting All Existing Utilities Prior To And During Construction Location of Existing Utilities Approximate Only, To Be Verified In Field By Contractor.

Designed by _____

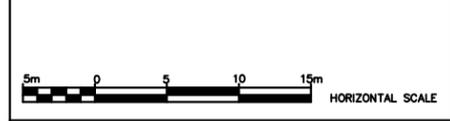
Chkd. _____

Approved by _____

NOTICE TO CONTRACTOR

48 HOURS PRIOR TO COMMENCING WORK NOTIFY THE FOLLOWING

BELL CANADA	BELL CANADA
ENBRIDGE INCORPORATED-GAS DISTRIBUTION	ENERSOURCE TELECOM
ONTARIO MINISTRY OF TRANSPORTATION	HYDRO ONE TELECOM
ONTARIO CLEAN WATER AGENCY	ROGERS CABLE
HYDRO ONE NETWORKS	ALLSTREAM
ENERSOURCE, HYDRO	PSN (PUBLIC SECTOR NETWORK)
HYDRO ONE	FUTUREWAY (FCI BROADBAND)
CABLE TELEVISION/FIBROPTIC PROVIDERS:	

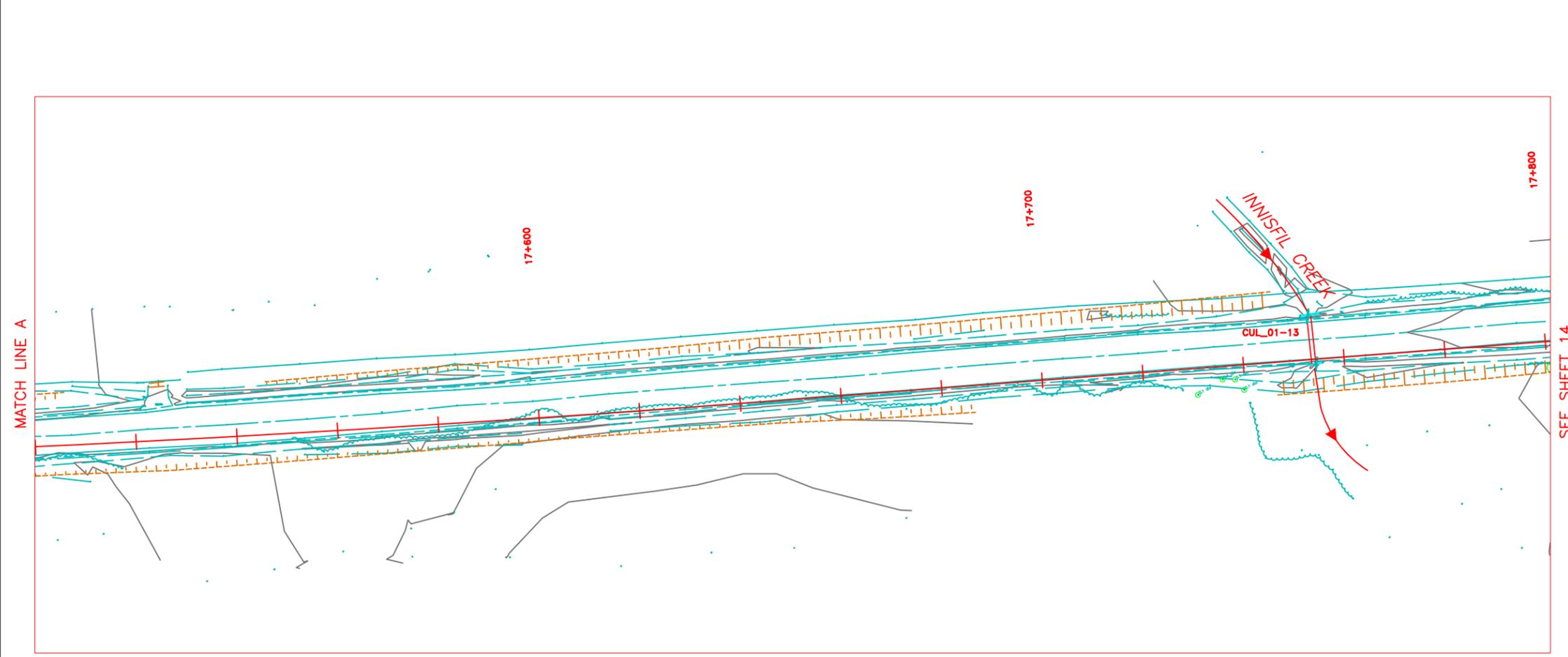
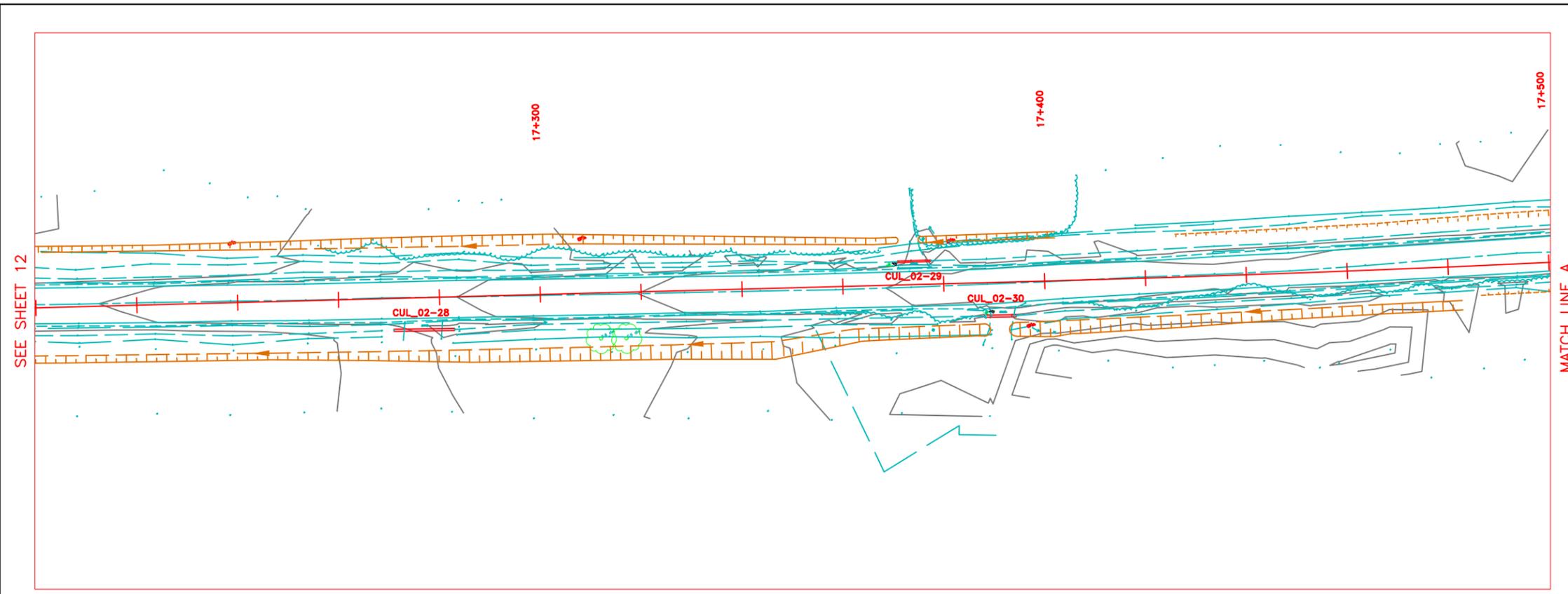


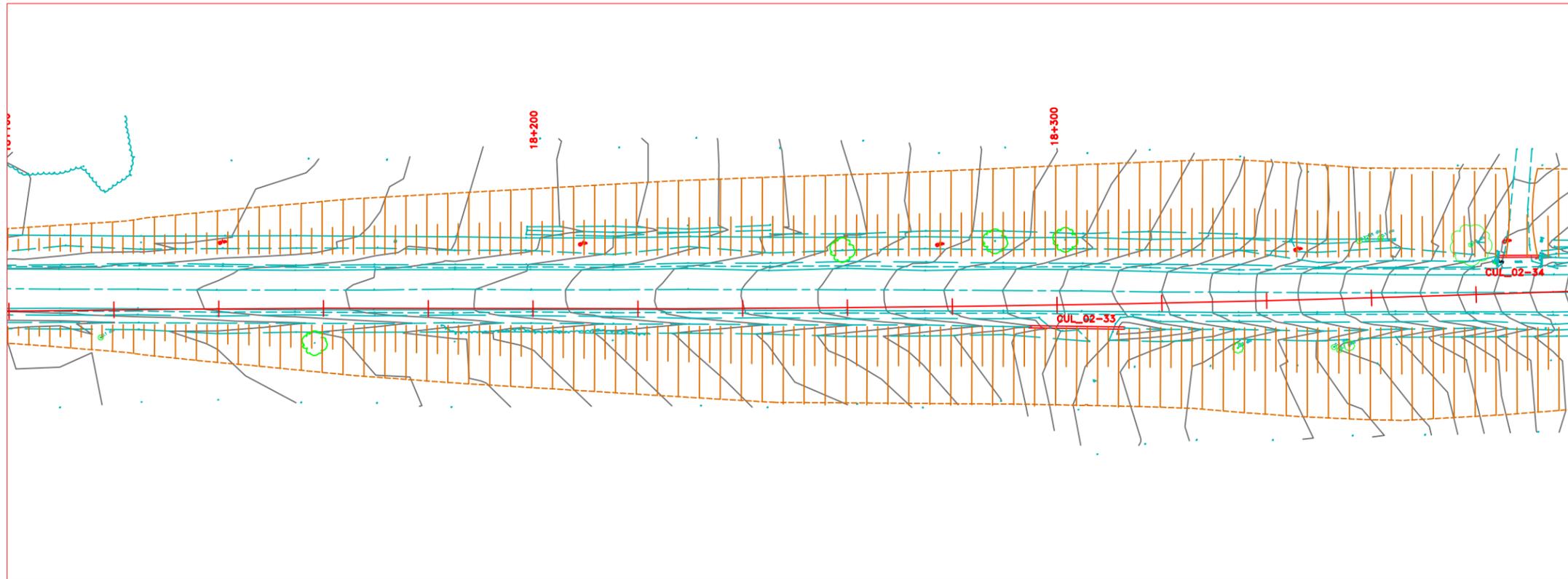
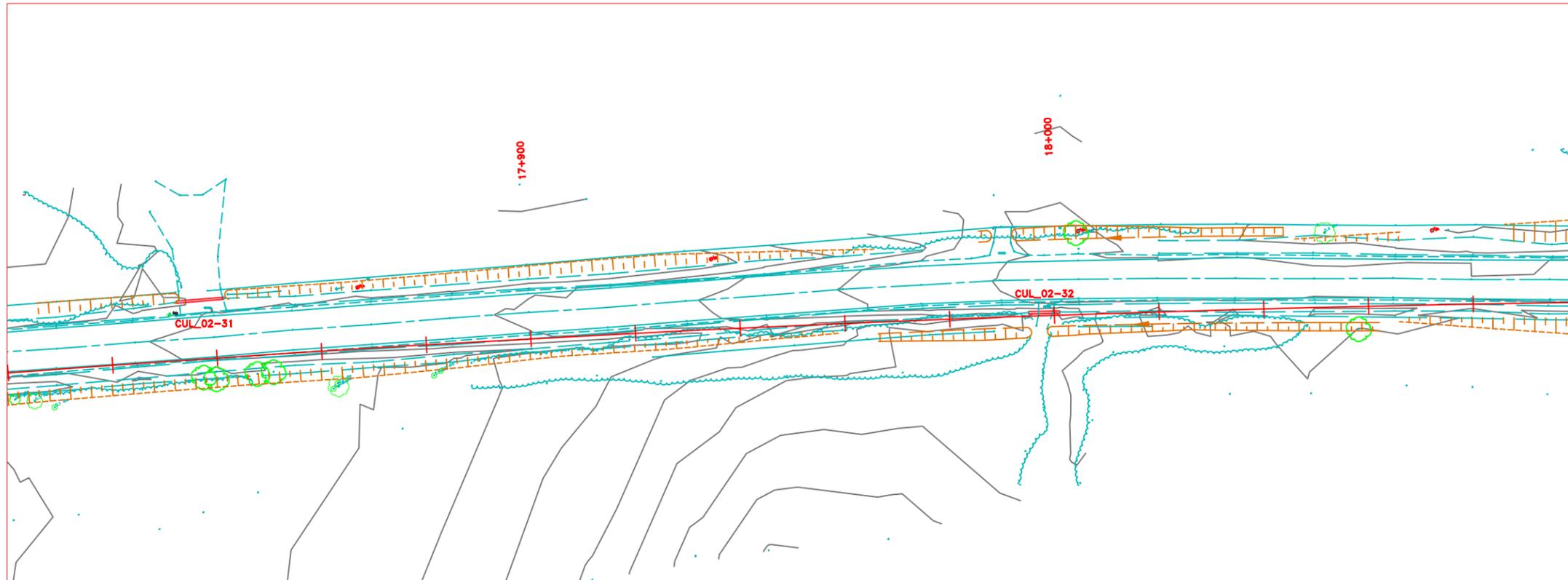
6TH LINE

FROM STA 17+200 to STA 17+800

CULVERT LOCATION PLAN

CAD Area	Area	Project No.
Checked by	Drawn by M.D.	Plan No.
Date May, 2015	Sheet 13 of 27	





SEE SHEET 13

MATCH LINE A

MATCH LINE A

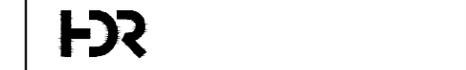
SEE SHEET 15

SERVICE DATA					
SERVICE	DATE	INIT.	SERVICE	DATE	INIT.
SAN SEWERS			GAS MAINS		
STORM SEWERS			BELL U/G CABLE		
WATER MAINS			HYDRO U/G CABLE		
TRANSIT			HYDRO ONE		
PARKS & REC.			CTV		
ONT. CLEAN WATER			COMMUNIC. CABLES		

REVISIONS		
DATE	DETAILS	INIT.

LEGEND:

EXISTING CULVERT



- General Notes
- All Driveways ASPHALT Unless Otherwise Noted.
 - All Service Locations Are Approximate And Must Be Located Accurately In The Field
 - ⊙ Denotes Building - Not Located
 - ⊞ Denotes Building Located
 - ⊞ Type 'B' Bedding Unless Otherwise Noted (SAN)

B.M. No. Elev.
 The Contractor Is Responsible For Locating And Protecting All Existing Utilities Prior To And During Construction Location of Existing Utilities Approximate Only, To Be Verified In Field By Contractor.

Designed by _____
 Chkd. _____

Approved by _____

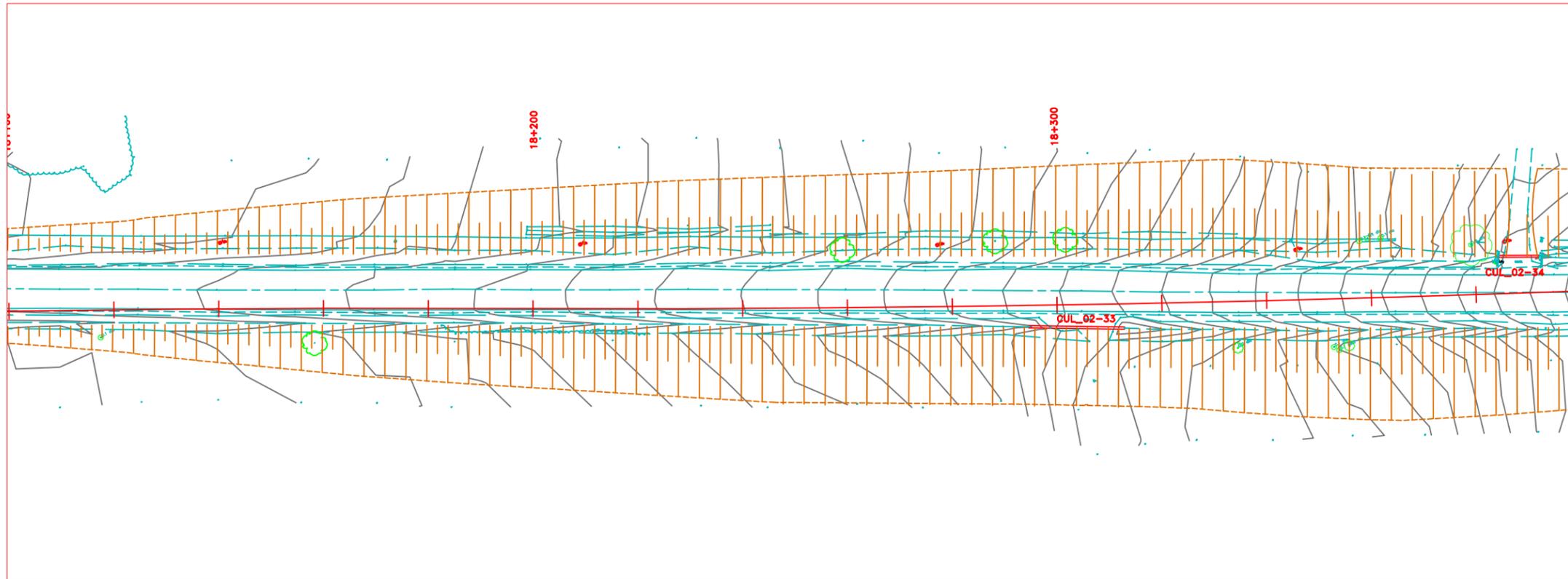
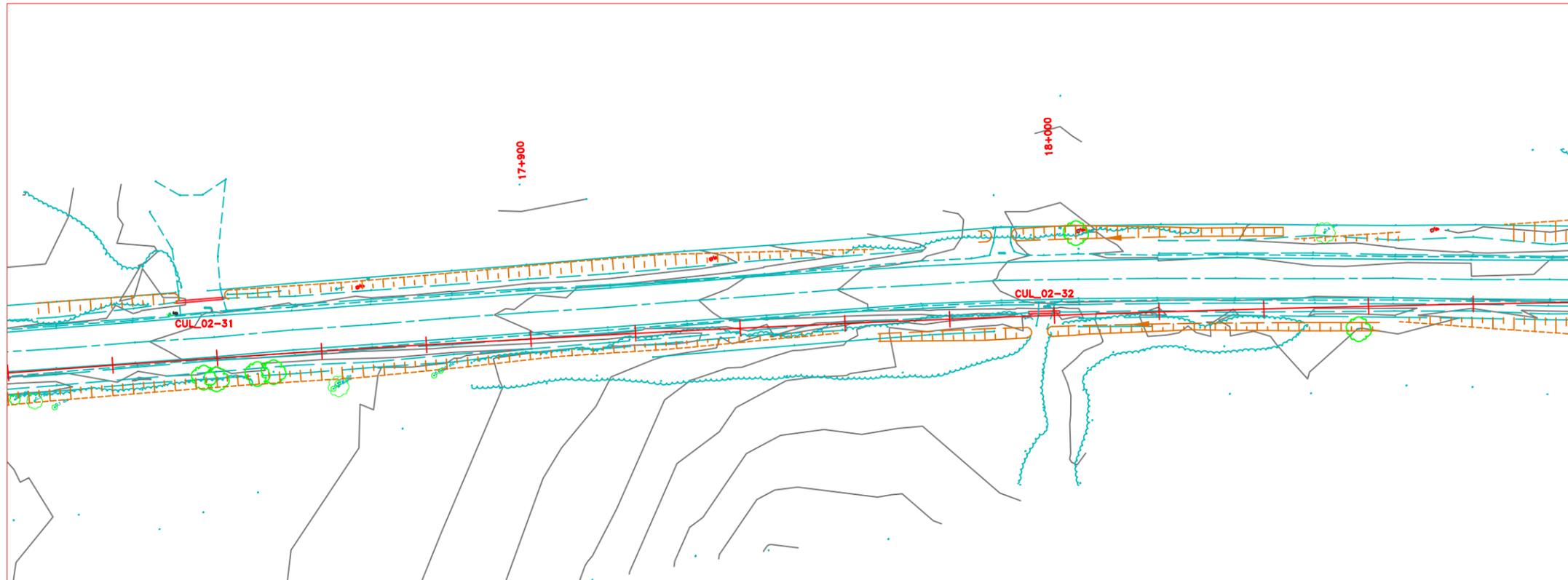
NOTICE TO CONTRACTOR
 48 HOURS PRIOR TO COMMENCING WORK NOTIFY THE FOLLOWING

BELL CANADA	BELL CANADA
ENBRIDGE INCORPORATED-GAS DISTRIBUTION	ENERSOURCE TELECOM
ONTARIO MINISTRY OF TRANSPORTATION	HYDRO ONE TELECOM
ONTARIO CLEAN WATER AGENCY	ROGERS CABLE
HYDRO ONE NETWORKS	ALLSTREAM
ENERSOURCE, HYDRO	PSN (PUBLIC SECTOR NETWORK)
HYDRO ONE	FUTUREWAY (FCI BROADBAND)
CABLE TELEVISION/FIBROPTIC PROVIDERS:	



6TH LINE
 FROM STA 17+200 to STA 17+800
 CULVERT LOCATION PLAN

CAD Area	Area	Project No.
Checked by	Drawn by M.D.	
Date May, 2015	Sheet 14 of 27	Plan No.



SEE SHEET 14

MATCH LINE A

MATCH LINE A

SEE SHEET 16

SERVICE DATA					
SERVICE	DATE	INIT.	SERVICE	DATE	INIT.
SAN SEWERS			GAS MAINS		
STORM SEWERS			BELL U/G CABLE		
WATER MAINS			HYDRO U/G CABLE		
TRANSIT			HYDRO ONE		
PARKS & REC.			CTV		
ONT. CLEAN WATER			COMMUNIC. CABLES		

REVISIONS		
DATE	DETAILS	INIT.

LEGEND:
 EXISTING CULVERT



General Notes
 -- All Driveways ASPHALT Unless Otherwise Noted.
 -- All Service Locations Are Approximate And Must Be Located Accurately In The Field
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 ⊞ Denotes Building Located
 Type 'B' Bedding Unless Otherwise Noted (SAN)

B.M. No. Elev.
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Designed by _____
 Chkd. _____
 Approved by _____

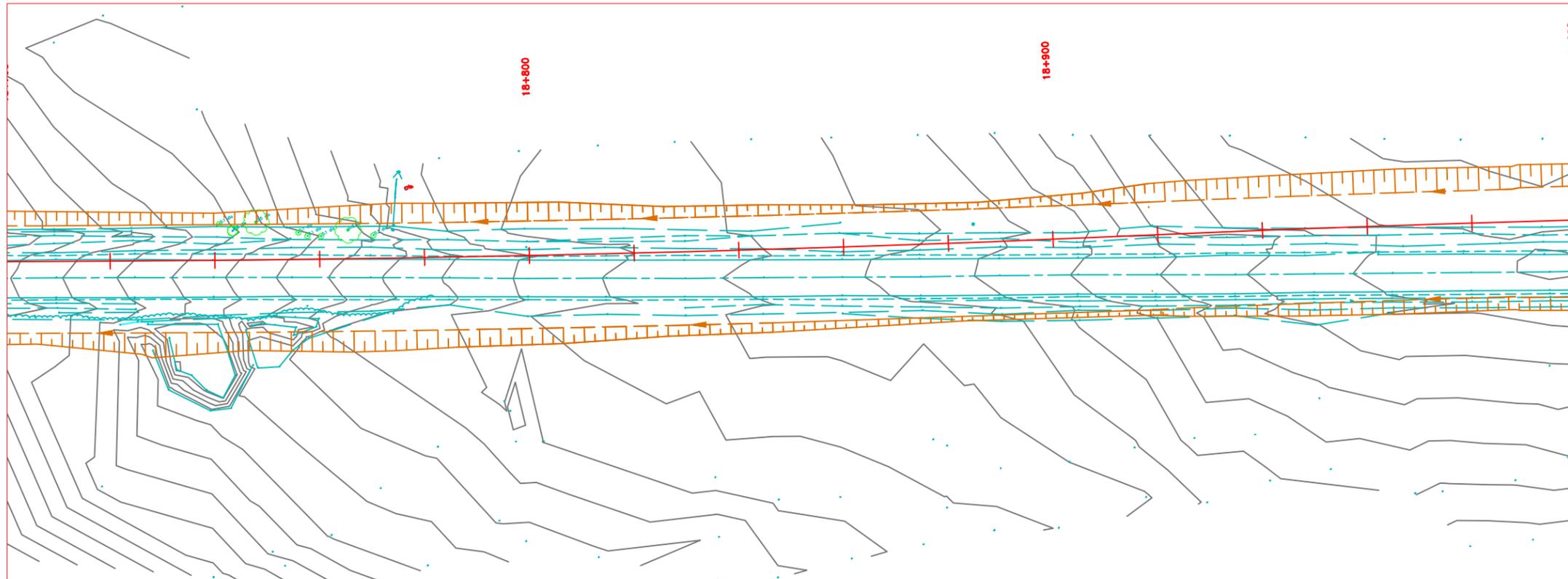
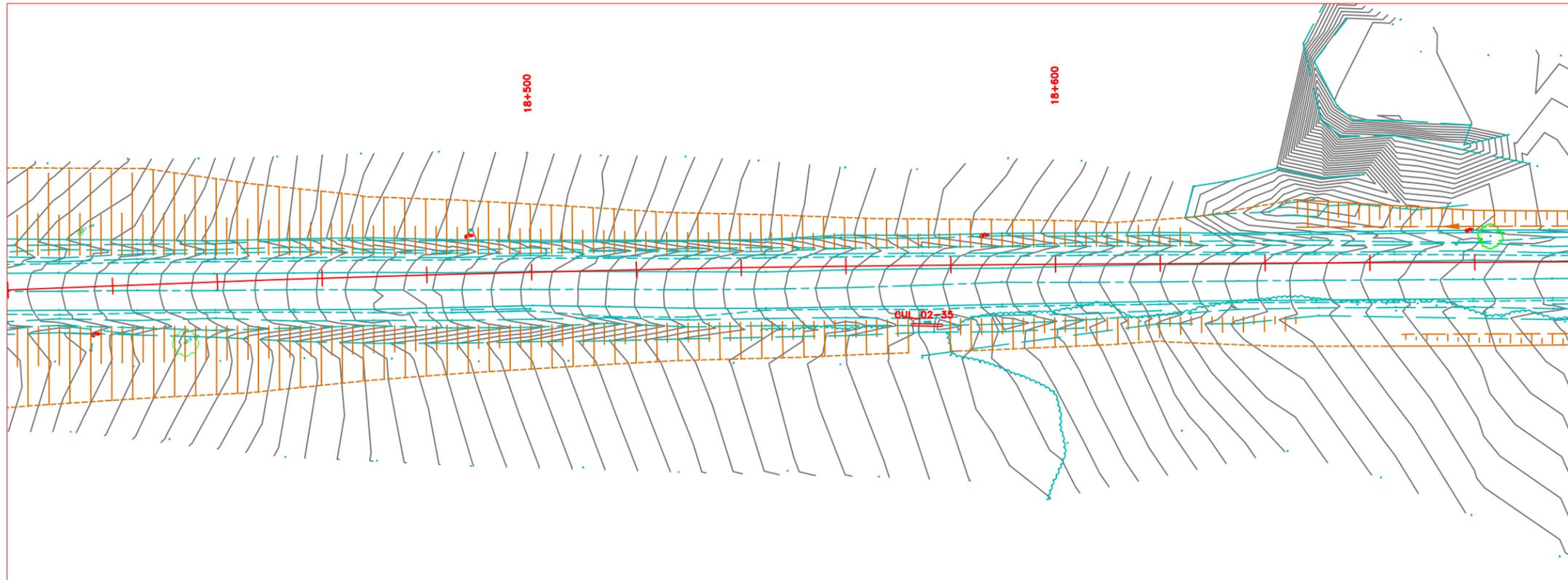
NOTICE TO CONTRACTOR
 48 HOURS PRIOR TO COMMENCING WORK NOTIFY THE FOLLOWING

BELL CANADA	BELL CANADA
ENBRIDGE INCORPORATED-GAS DISTRIBUTION	ENERSOURCE TELECOM
ONTARIO MINISTRY OF TRANSPORTATION	HYDRO ONE TELECOM
ONTARIO CLEAN WATER AGENCY	ROGERS CABLE
HYDRO ONE NETWORKS	ALLSTREAM
ENERSOURCE, HYDRO	PSN (PUBLIC SECTOR NETWORK)
HYDRO ONE	FUTUREWAY (FCI BROADBAND)
CABLE TELEVISION/FIBROPTIC PROVIDERS:	



6TH LINE
 FROM STA 17+800 to STA 18+400
 CULVERT LOCATION PLAN

CAD Area	Area	Project No.
Checked by	Drawn by M.D.	
Date May, 2015	Sheet 15 of 27	Plan No.



SEE SHEET 15

MATCH LINE A

MATCH LINE A

SEE SHEET 17

SERVICE DATA					
SERVICE	DATE	INIT.	SERVICE	DATE	INIT.
SAN SEWERS			GAS MAINS		
STORM SEWERS			BELL U/G CABLE		
WATER MAINS			HYDRO U/G CABLE		
TRANSIT			HYDRO ONE		
PARKS & REC.			CTV		
ONT. CLEAN WATER			COMMUNIC. CABLES		

REVISIONS		
DATE	DETAILS	INIT.

LEGEND:

==== EXISTING CULVERT

General Notes

- All Driveways ASPHALT Unless Otherwise Noted.
- All Service Locations Are Approximate And Must Be Located Accurately In The Field
- ⊙ Denotes Building - Not Located
- ⊞ Denotes Building Located
- ⊞ Type 'B' Bedding Unless Otherwise Noted (SAN)

B.M. No. Elev.

The Contractor Is Responsible For Locating And Protecting All Existing Utilities Prior To And During Construction Location of Existing Utilities Approximate Only, To Be Verified In Field By Contractor.

Designed by	Approved by
Chkd.	

NOTICE TO CONTRACTOR

48 HOURS PRIOR TO COMMENCING WORK NOTIFY THE FOLLOWING

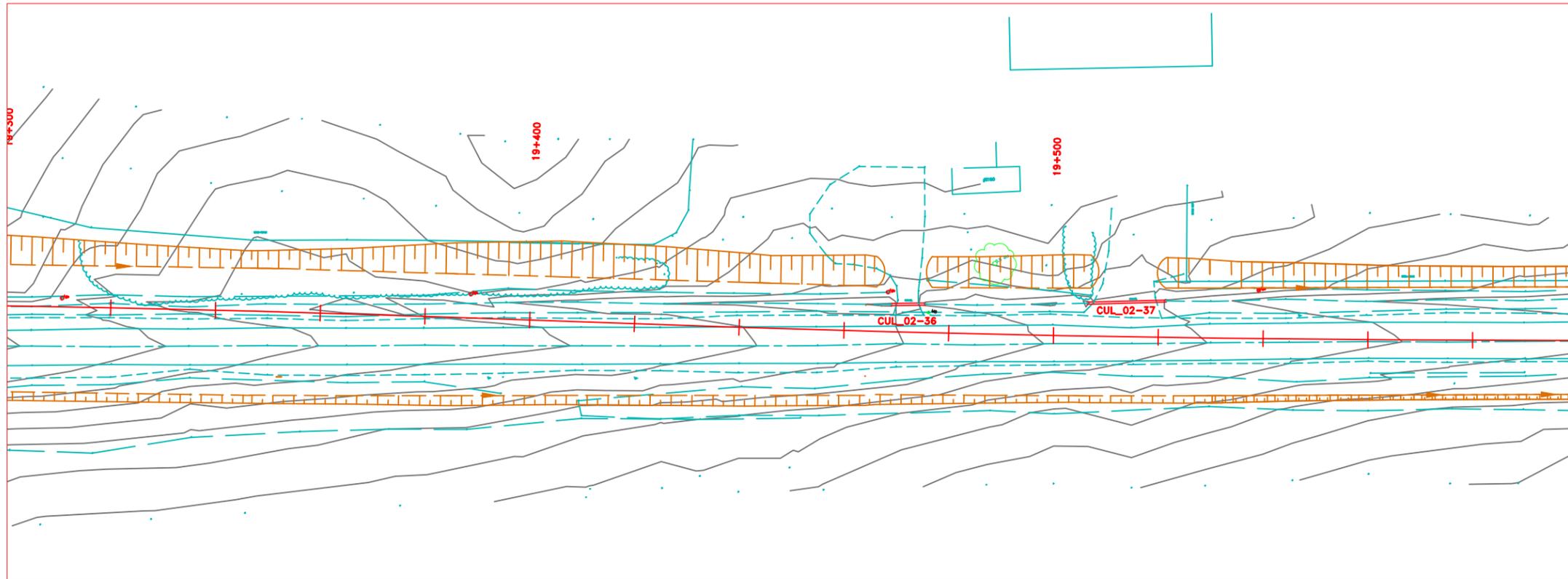
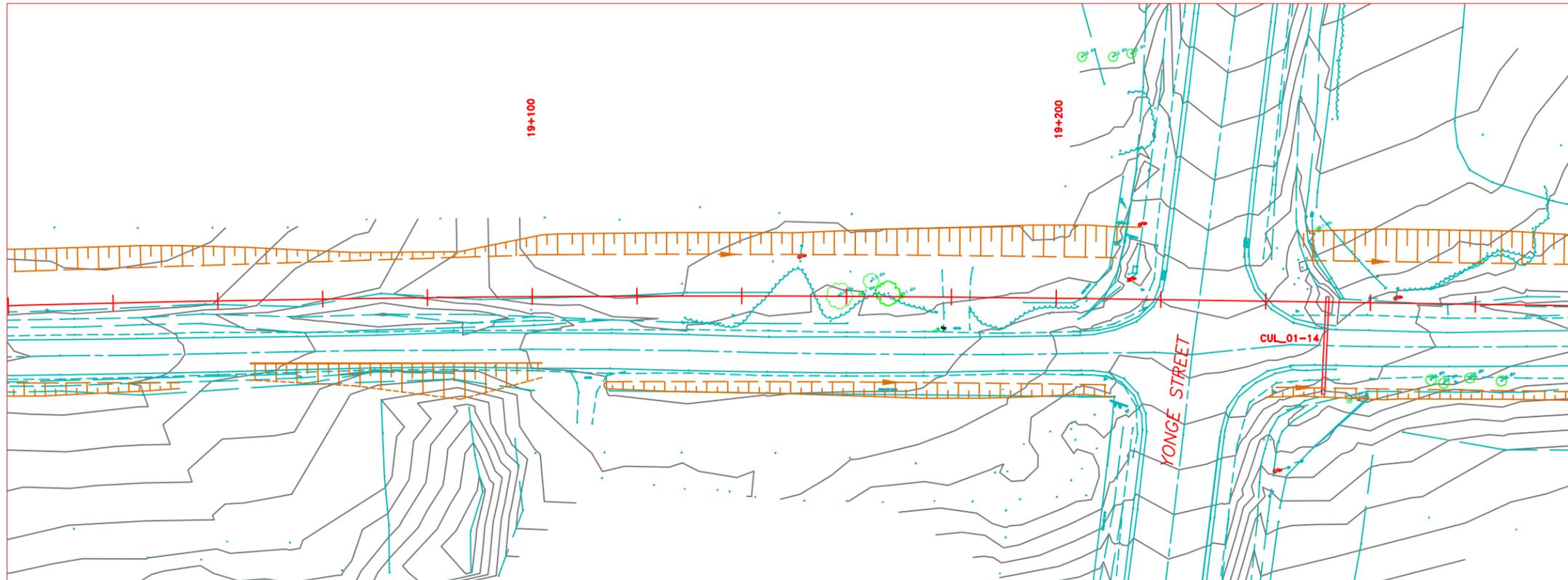
BELL CANADA	BELL CANADA
ENBRIDGE INCORPORATED—GAS DISTRIBUTION	ENERSOURCE TELECOM
ONTARIO MINISTRY OF TRANSPORTATION	HYDRO ONE TELECOM
ONTARIO CLEAN WATER AGENCY	ROGERS CABLE
HYDRO ONE NETWORKS	ALLSTREAM
ENERSOURCE, HYDRO	PSN (PUBLIC SECTOR NETWORK)
HYDRO ONE	FUTUREWAY (FCI BROADBAND)
CABLE TELEVISION/FIBROPTIC PROVIDERS:	

6TH LINE

FROM STA 18+400 to STA 19+000

CULVERT LOCATION PLAN

CAD Area	Area	Project No.
Checked by	Drawn by M.D.	
Date May, 2015	Sheet 16 of 27	Plan No.



SEE SHEET 16

MATCH LINE A

MATCH LINE A

SEE SHEET 18

SERVICE DATA					
SERVICE	DATE	INIT.	SERVICE	DATE	INIT.
SAN SEWERS			GAS MAINS		
STORM SEWERS			BELL U/G CABLE		
WATERMANS			HYDRO U/G CABLE		
TRANSIT			HYDRO ONE		
PARKS & REC.			CTV		
ONT. CLEAN WATER			COMMUNIC. CABLES		

REVISIONS		
DATE	DETAILS	INIT.

LEGEND:
 EXISTING CULVERT



- General Notes
- All Driveways ASPHALT Unless Otherwise Noted.
 - All Service Locations Are Approximate And Must Be Located Accurately In The Field
 - ⊙ Denotes Building - Not Located
 - ⊞ Denotes Building Located
 - ⊞ Type 'B' Bedding Unless Otherwise Noted (SAN)

B.M. No. Elev.
 The Contractor Is Responsible For Locating And Protecting All Existing Utilities Prior To And During Construction Location of Existing Utilities Approximate Only, To Be Verified In Field By Contractor.

Designed by _____
 Chkd. _____

Approved by _____

NOTICE TO CONTRACTOR
 48 HOURS PRIOR TO COMMENCING WORK NOTIFY THE FOLLOWING

BELL CANADA	BELL CANADA
ENBRIDGE INCORPORATED-GAS DISTRIBUTION	ENERSOURCE TELECOM
ONTARIO MINISTRY OF TRANSPORTATION	HYDRO ONE TELECOM
ONTARIO CLEAN WATER AGENCY	ROGERS CABLE
HYDRO ONE NETWORKS	ALLSTREAM
ENERSOURCE, HYDRO	PSN (PUBLIC SECTOR NETWORK)
HYDRO ONE	FUTUREWAY (FCI BROADBAND)
CABLE TELEVISION/FIBROPTIC PROVIDERS:	



6TH LINE
 FROM STA 19+000 to STA 19+600
 CULVERT LOCATION PLAN

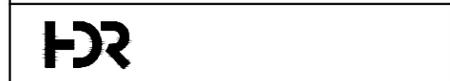
CAD Area	Area	Project No.
Checked by	Drawn by M.D.	
Date May, 2015	Sheet 17 of 27	Plan No.

SERVICE DATA					
SERVICE	DATE	INIT.	SERVICE	DATE	INIT.
SAN SEWERS			GAS MAINS		
STORM SEWERS			BELL U/G CABLE		
WATER MAINS			HYDRO U/G CABLE		
TRANSIT			HYDRO ONE		
PARKS & REC.			CTV		
ONT. CLEAN WATER			COMMUNIC. CABLES		

REVISIONS		
DATE	DETAILS	INIT.

LEGEND:

==== EXISTING CULVERT



General Notes

- All Driveways ASPHALT Unless Otherwise Noted.
- All Service Locations Are Approximate And Must Be Located Accurately In The Field
- ⊙ Denotes Building - Not Located
- ⊞ Denotes Building Located
- ⊞ Type 'B' Bedding Unless Otherwise Noted (SAN)

B.M. No. Elev.

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Designed by _____

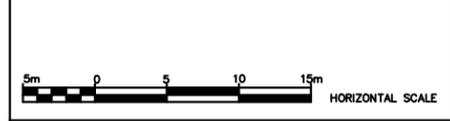
Chkd. _____

Approved by _____

NOTICE TO CONTRACTOR

48 HOURS PRIOR TO COMMENCING WORK NOTIFY THE FOLLOWING

BELL CANADA	BELL CANADA
ENBRIDGE INCORPORATED-GAS DISTRIBUTION	ENERSOURCE TELECOM
ONTARIO MINISTRY OF TRANSPORTATION	HYDRO ONE TELECOM
ONTARIO CLEAN WATER AGENCY	ROGERS CABLE
HYDRO ONE NETWORKS	ALLSTREAM
ENERSOURCE, HYDRO	PSN (PUBLIC SECTOR NETWORK)
HYDRO ONE	FUTUREWAY (FCI BROADBAND)
CABLE TELEVISION/FIBROPTIC PROVIDERS:	

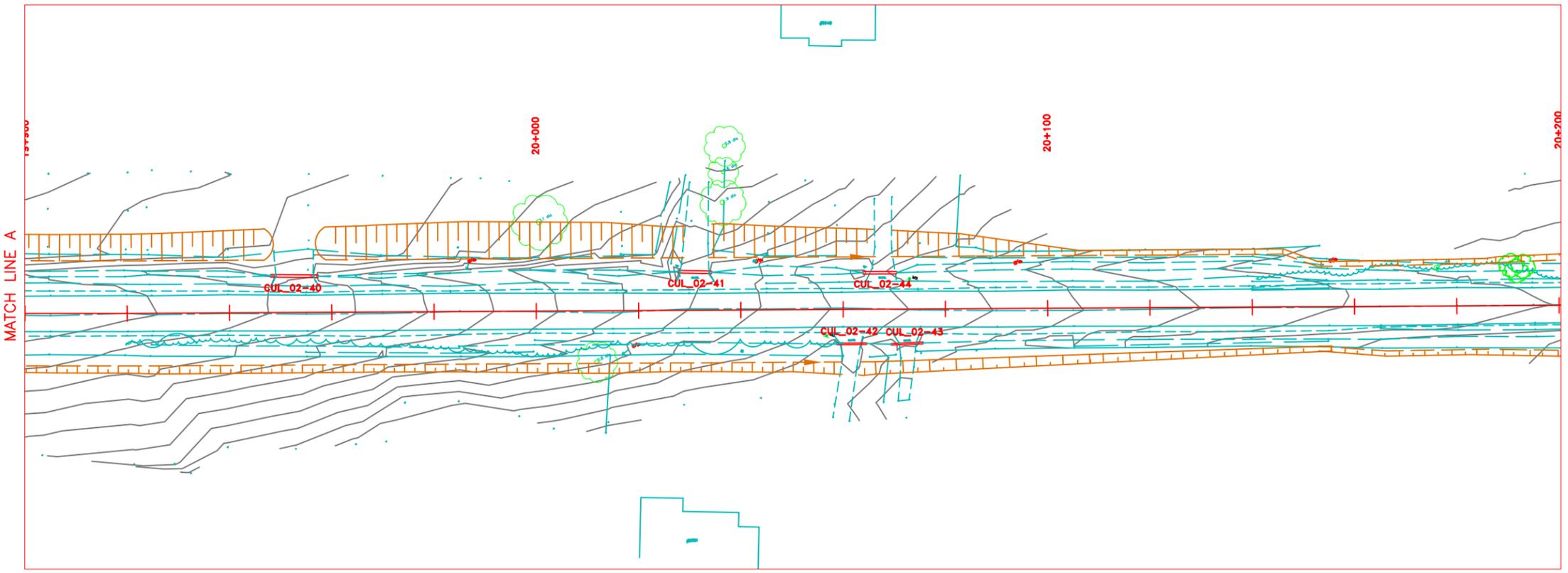
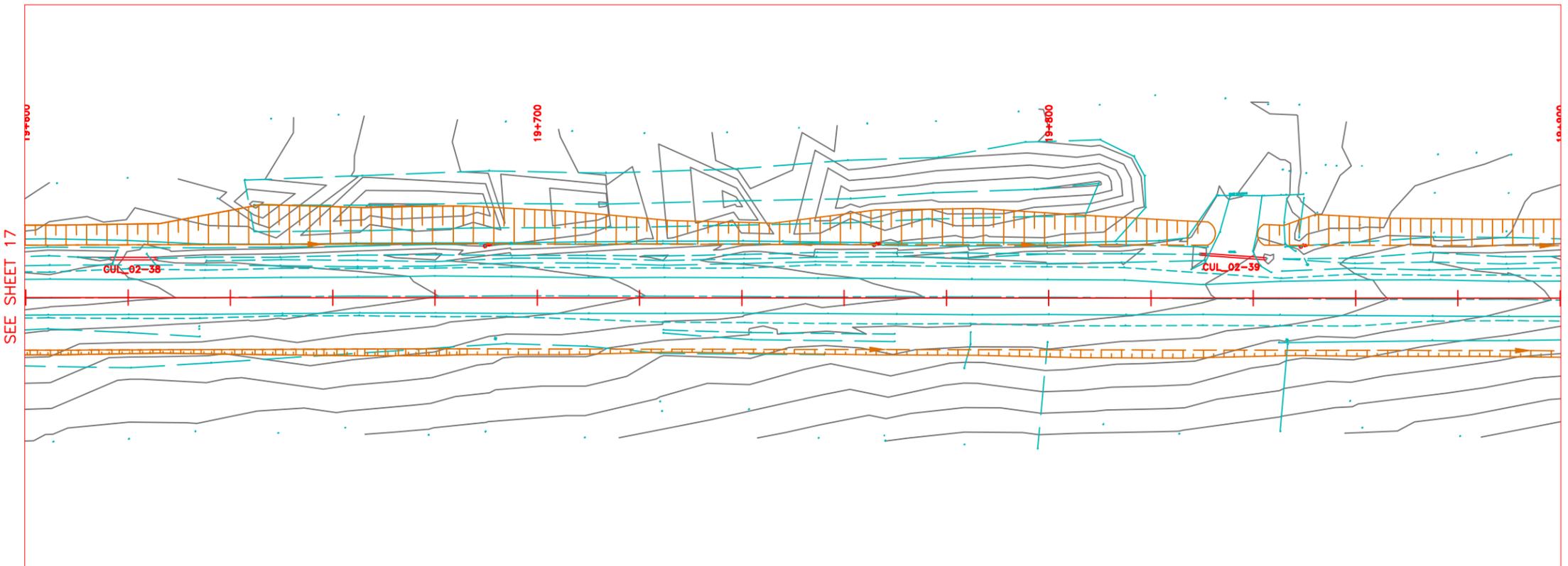


6TH LINE

FROM STA 19+600 to STA 20+200

CULVERT LOCATION PLAN

CAD Area	Area	Project No.
Checked by	Drawn by M.D.	Plan No.
Date May, 2015	Sheet 18 of 27	



SERVICE DATA					
SERVICE	DATE	INIT.	SERVICE	DATE	INIT.
SAN SEWERS			GAS MAINS		
STORM SEWERS			BELL U/G CABLE		
WATER MAINS			HYDRO U/G CABLE		
TRANSIT			HYDRO ONE		
PARKS & REC.			CTV		
ONT. CLEAN WATER			COMMUNIC. CABLES		

REVISIONS		
DATE	DETAILS	INIT.

LEGEND:

==== EXISTING CULVERT

HR

General Notes

- All Driveways ASPHALT Unless Otherwise Noted.
- All Service Locations Are Approximate And Must Be Located Accurately In The Field
- ⊙ Denotes Building - Not Located
- ⊞ Denotes Building Located
- ⊞ Type 'B' Bedding Unless Otherwise Noted (SAN)

B.M. No. Elev.

The Contractor Is Responsible For Locating And Protecting All Existing Utilities Prior To And During Construction Location of Existing Utilities Approximate Only, To Be Verified In Field By Contractor.

Designed by _____

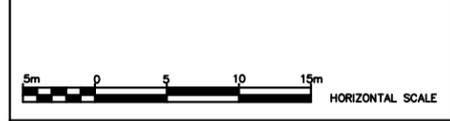
Chkd. _____

Approved by _____

NOTICE TO CONTRACTOR

48 HOURS PRIOR TO COMMENCING WORK NOTIFY THE FOLLOWING

BELL CANADA	BELL CANADA
ENBRIDGE INCORPORATED-GAS DISTRIBUTION	ENERSOURCE TELECOM
ONTARIO MINISTRY OF TRANSPORTATION	HYDRO ONE TELECOM
ONTARIO CLEAN WATER AGENCY	ROGERS CABLE
HYDRO ONE NETWORKS	ALLSTREAM
ENERSOURCE, HYDRO	PSN (PUBLIC SECTOR NETWORK)
HYDRO ONE	FUTUREWAY (FCI BROADBAND)
CABLE TELEVISION/FIBROPTIC PROVIDERS:	

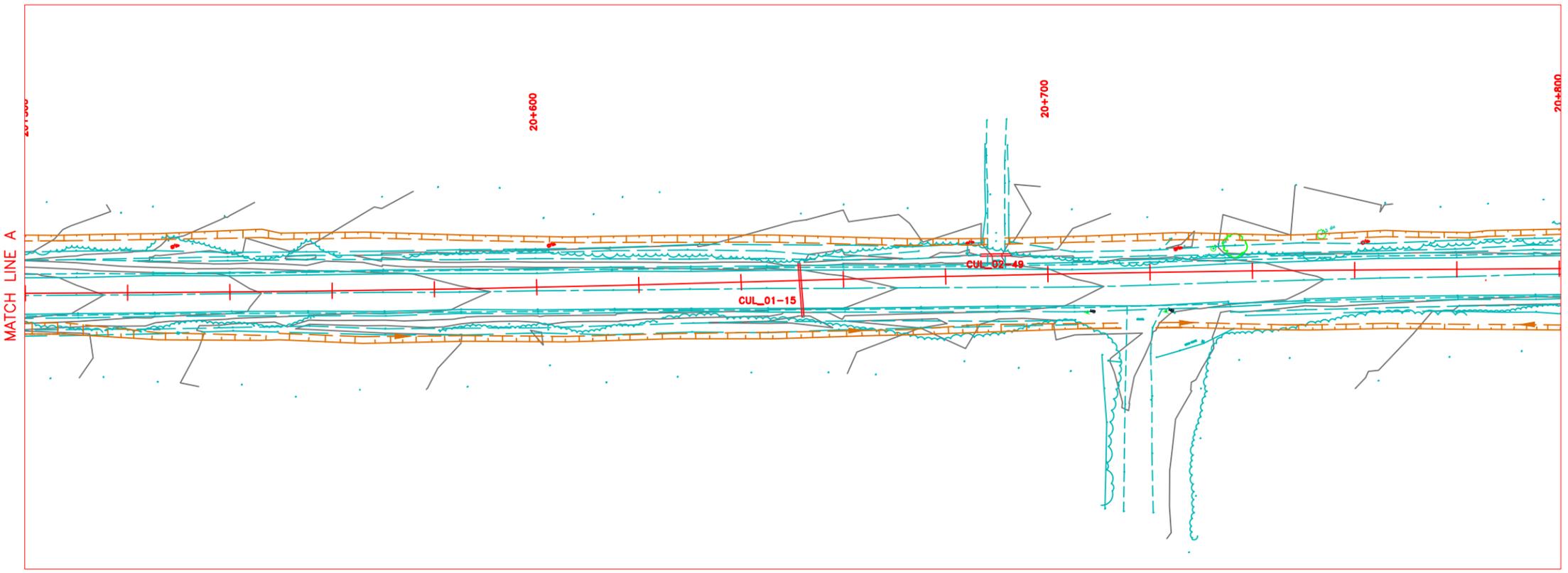
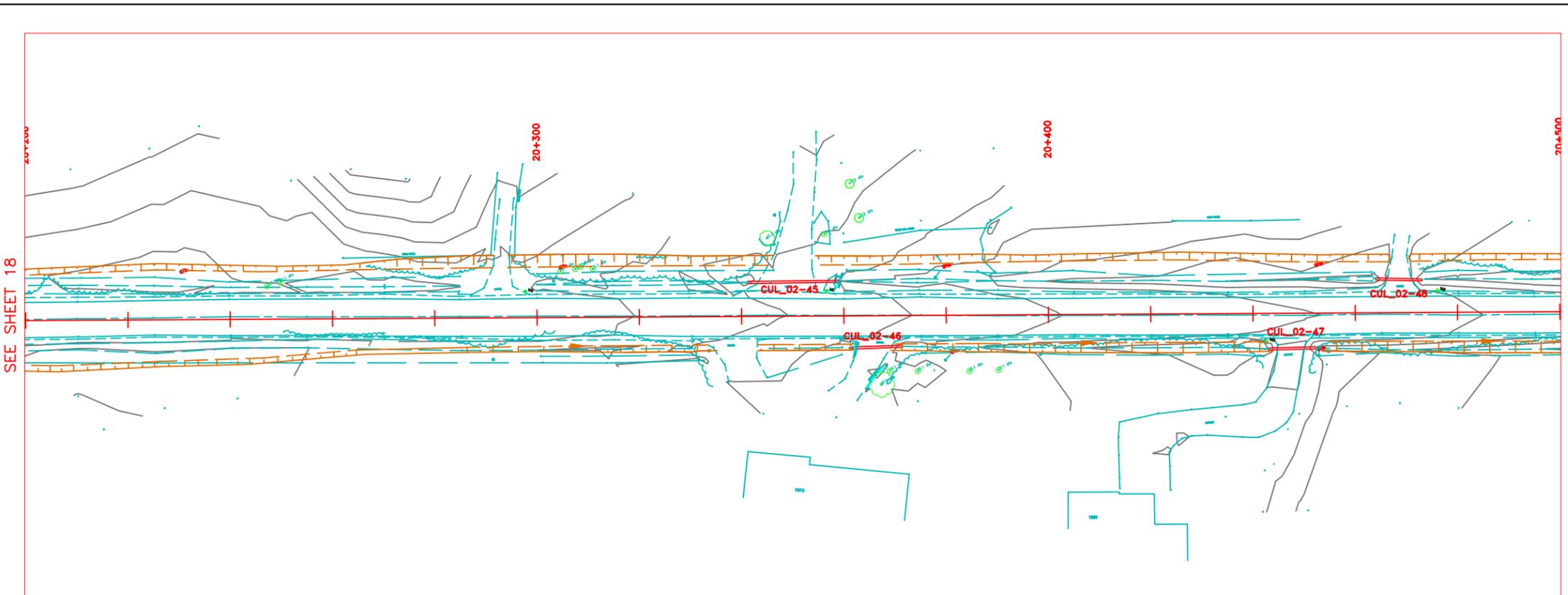


6TH LINE

FROM STA 20+200 to STA 20+800

CULVERT LOCATION PLAN

CAD Area	Area	Project No.
Checked by	Drawn by M.D.	Plan No.
Date May, 2015	Sheet 19 of 27	



SERVICE DATA					
SERVICE	DATE	INIT.	SERVICE	DATE	INIT.
SAN SEWERS			GAS MAINS		
STORM SEWERS			BELL U/G CABLE		
WATER MAINS			HYDRO U/G CABLE		
TRANSIT			HYDRO ONE		
PARKS & REC.			CTV		
ONT. CLEAN WATER			COMMUNIC. CABLES		

REVISIONS		
DATE	DETAILS	INIT.

LEGEND:

==== EXISTING CULVERT



General Notes

- All Driveways ASPHALT Unless Otherwise Noted.
- All Service Locations Are Approximate And Must Be Located Accurately In The Field
- ⊙ Denotes Building - Not Located
- ⊞ Denotes Building Located
- Type 'B' Bedding Unless Otherwise Noted (SAN)

B.M. No. Elev.

The Contractor Is Responsible For Locating And Protecting All Existing Utilities Prior To And During Construction Location of Existing Utilities Approximate Only, To Be Verified In Field By Contractor.

Designed by _____
Chkd. _____

Approved by _____

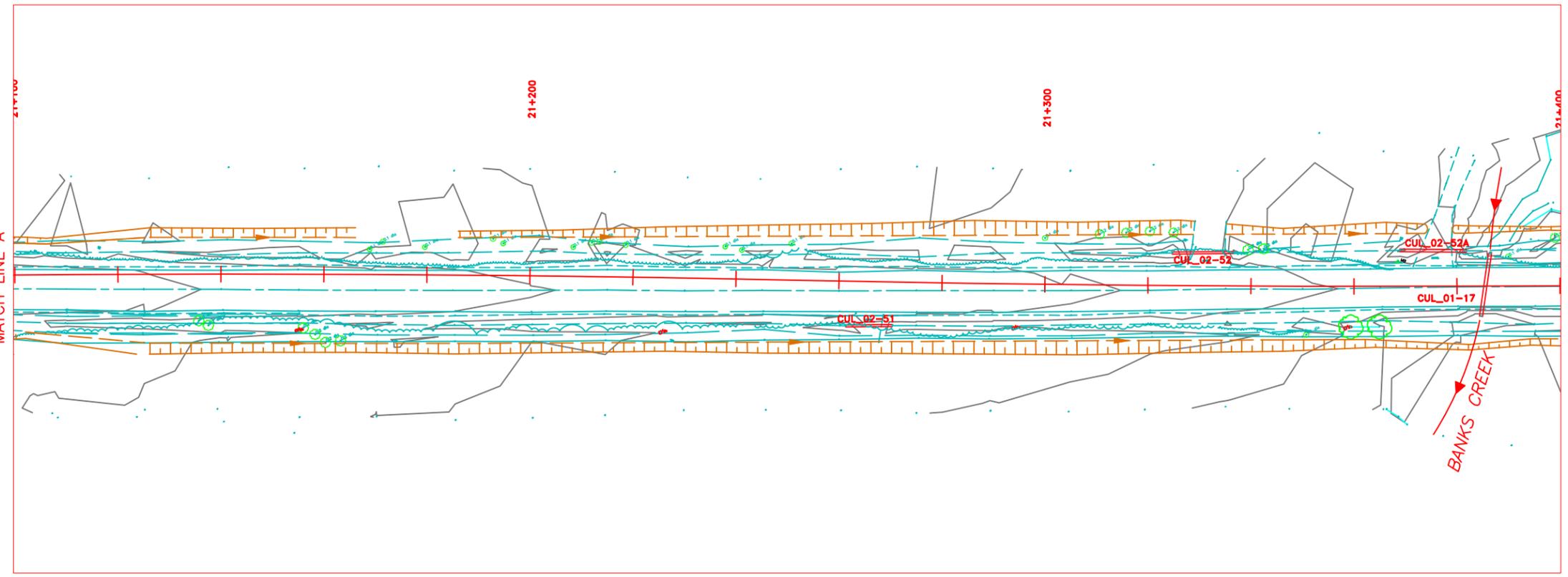
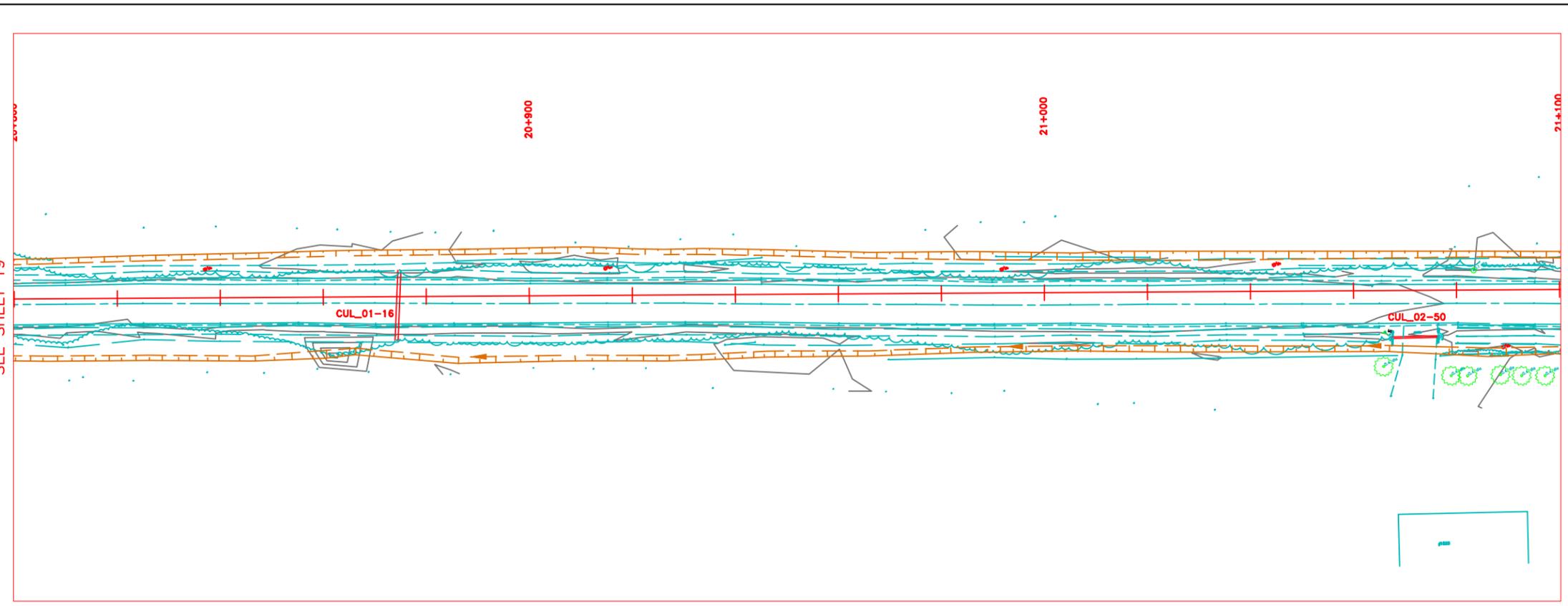
NOTICE TO CONTRACTOR
48 HOURS PRIOR TO COMMENCING WORK NOTIFY THE FOLLOWING

BELL CANADA	BELL CANADA
ENBRIDGE INCORPORATED—GAS DISTRIBUTION	ENERSOURCE TELECOM
ONTARIO MINISTRY OF TRANSPORTATION	HYDRO ONE TELECOM
ONTARIO CLEAN WATER AGENCY	ROGERS CABLE
HYDRO ONE NETWORKS	ALLSTREAM
ENERSOURCE, HYDRO	PSN (PUBLIC SECTOR NETWORK)
HYDRO ONE	FUTUREWAY (FCI BROADBAND)
CABLE TELEVISION/FIBROPTIC PROVIDERS:	



6TH LINE
FROM STA 20+800 to STA 21+400
CULVERT LOCATION PLAN

CAD Area	Area	Project No.
Checked by	Drawn by M.D.	
Date May, 2015	Sheet 20 of 27	Plan No.



SERVICE DATA					
SERVICE	DATE	INIT.	SERVICE	DATE	INIT.
SAN SEWERS			GAS MAINS		
STORM SEWERS			BELL U/G CABLE		
WATER MAINS			HYDRO U/G CABLE		
TRANSIT			HYDRO ONE		
PARKS & REC.			CTV		
ONT. CLEAN WATER			COMMUNIC. CABLES		

REVISIONS		
DATE	DETAILS	INIT.

LEGEND:

==== EXISTING CULVERT

HR

General Notes

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- All Service Locations Are Approximate And Must Be Located Accurately In The Field
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B.M. No. Elev.

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Designed by _____

Chkd. _____

Approved by _____

NOTICE TO CONTRACTOR

48 HOURS PRIOR TO COMMENCING WORK NOTIFY THE FOLLOWING

BELL CANADA	BELL CANADA
ENBRIDGE INCORPORATED-GAS DISTRIBUTION	ENERSOURCE TELECOM
ONTARIO MINISTRY OF TRANSPORTATION	HYDRO ONE TELECOM
ONTARIO CLEAN WATER AGENCY	ROGERS CABLE
HYDRO ONE NETWORKS	ALLSTREAM
ENERSOURCE, HYDRO	PSN (PUBLIC SECTOR NETWORK)
HYDRO ONE	FUTUREWAY (FCI BROADBAND)
CABLE TELEVISION/FIBROPTIC PROVIDERS:	

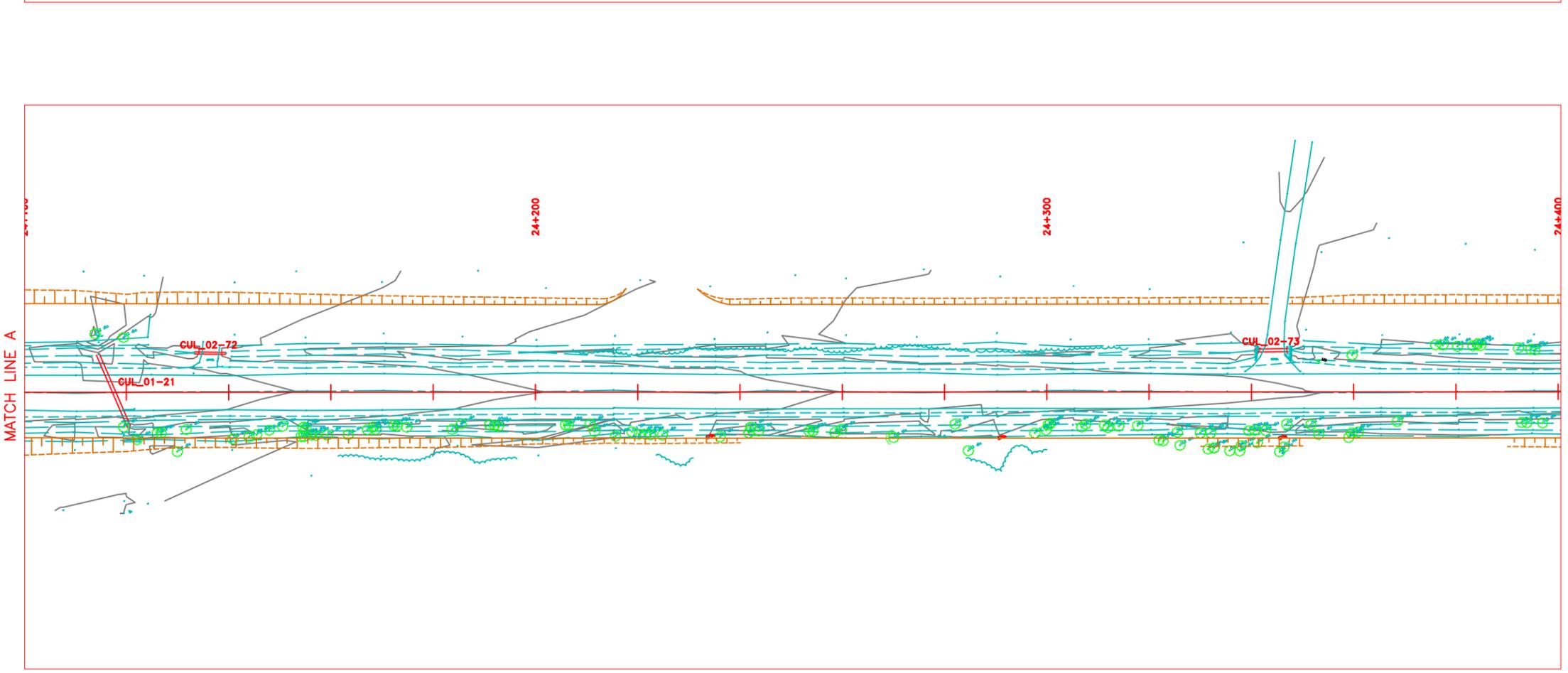
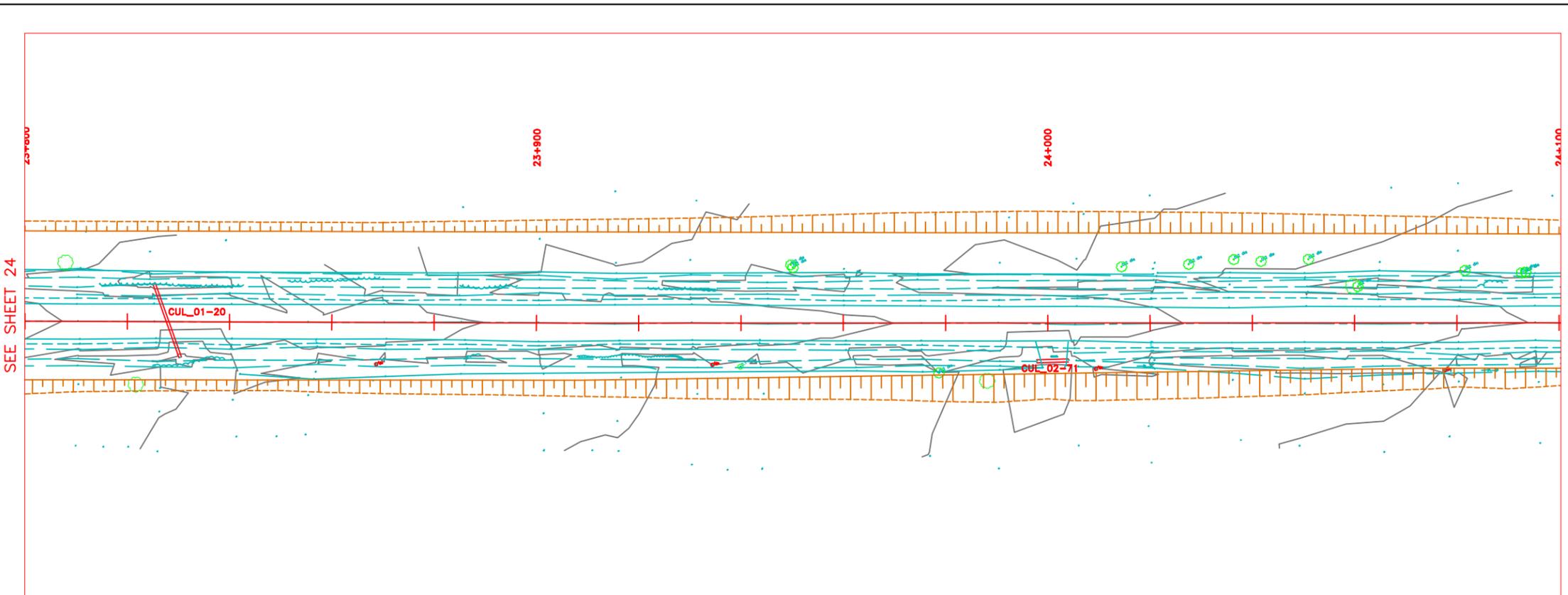


6TH LINE

FROM STA 23+800 to STA 24+400

CULVERT LOCATION PLAN

CAD Area	Area	Project No.
Checked by	Drawn by M.D.	
Date May, 2015	Sheet 25 of 27	Plan No.

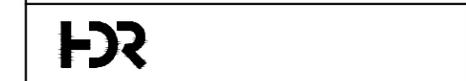


SERVICE DATA					
SERVICE	DATE	INIT.	SERVICE	DATE	INIT.
SAN SEWERS			GAS MAINS		
STORM SEWERS			BELL U/G CABLE		
WATER MAINS			HYDRO U/G CABLE		
TRANSIT			HYDRO ONE		
PARKS & REC.			CTV		
ONT. CLEAN WATER			COMMUNIC. CABLES		

REVISIONS		
DATE	DETAILS	INIT.

LEGEND:

— EXISTING CULVERT



General Notes

- All Driveways ASPHALT Unless Otherwise Noted.
- All Service Locations Are Approximate And Must Be Located Accurately In The Field
- ⊙ Denotes Building - Not Located
- ⊞ Denotes Building Located
- ⊞ Type 'B' Bedding Unless Otherwise Noted (SAN)

B.M. No. Elev.

The Contractor Is Responsible For Locating And Protecting All Existing Utilities Prior To And During Construction Location of Existing Utilities Approximate Only, To Be Verified In Field By Contractor.

Designed by _____

Chkd. _____

Approved by _____

NOTICE TO CONTRACTOR

48 HOURS PRIOR TO COMMENCING WORK NOTIFY THE FOLLOWING

BELL CANADA	BELL CANADA
ENBRIDGE INCORPORATED—GAS DISTRIBUTION	ENERSOURCE TELECOM
ONTARIO MINISTRY OF TRANSPORTATION	HYDRO ONE TELECOM
ONTARIO CLEAN WATER AGENCY	ROGERS CABLE
HYDRO ONE NETWORKS	ALLSTREAM
ENERSOURCE, HYDRO	PSN (PUBLIC SECTOR NETWORK)
HYDRO ONE	FUTUREWAY (FCI BROADBAND)
CABLE TELEVISION/FIBROPTIC PROVIDERS:	

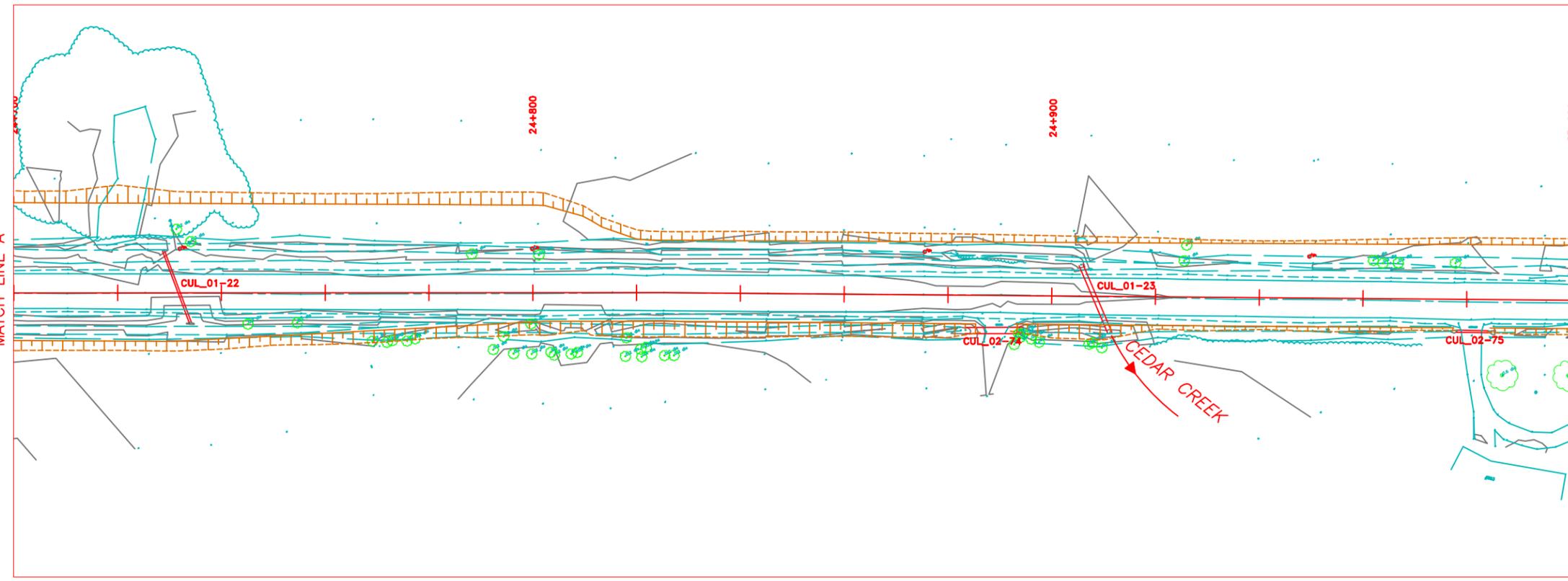
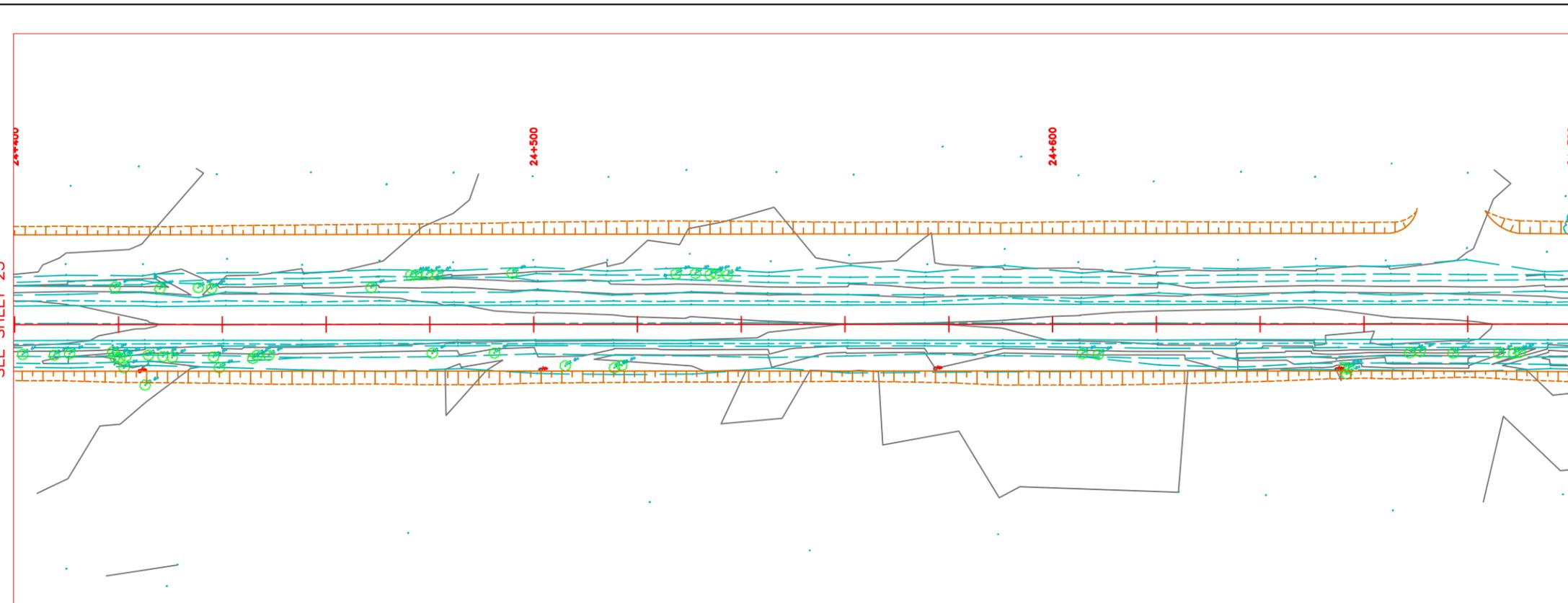


6TH LINE

FROM STA 24+400 to STA 25+000

CULVERT LOCATION PLAN

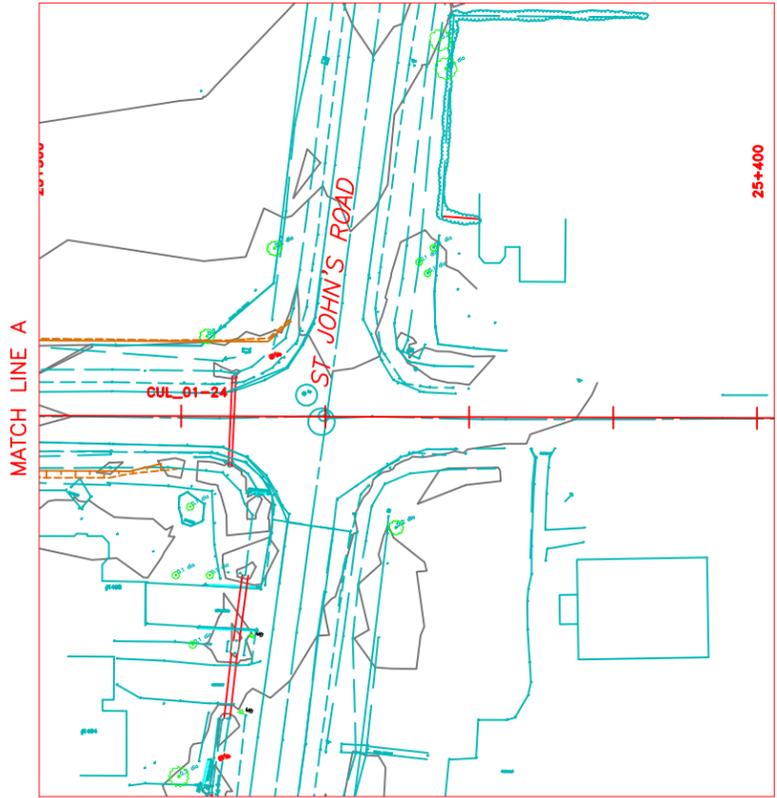
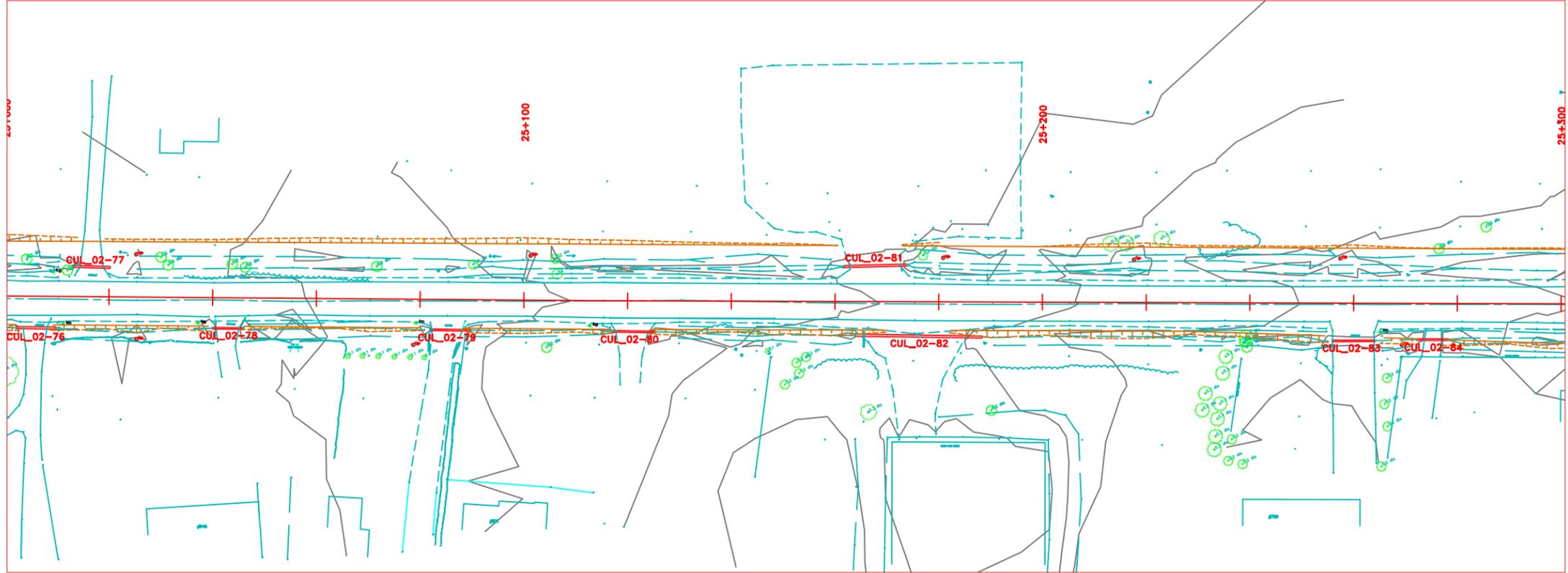
CAD Area	Area	Project No.
Checked by	Drawn by M.D.	
Date May, 2015	Sheet 26 of 27	Plan No.



6TH LINE

FROM STA 24+400 to STA 25+000

CULVERT LOCATION PLAN



SERVICE DATA					
SERVICE	DATE	INIT.	SERVICE	DATE	INIT.
SAN SEWERS			GAS MAINS		
STORM SEWERS			BELL U/G CABLE		
WATER MAINS			HYDRO U/G CABLE		
TRANSIT			HYDRO ONE		
PARKS & REC.			CTV		
ONT. CLEAN WATER			COMMUNIC. CABLES		

REVISIONS		
DATE	DETAILS	INIT.

LEGEND:

— EXISTING CULVERT



General Notes

- All Driveways ASPHALT Unless Otherwise Noted.
- All Service Locations Are Approximate And Must Be Located Accurately In The Field
- ⊙ Denotes Building - Not Located
- ⊞ Denotes Building Located
- Type 'B' Bedding Unless Otherwise Noted (SAN)

B.M. No. Elev.

The Contractor Is Responsible For Locating And Protecting All Existing Utilities Prior To And During Construction Location of Existing Utilities Approximate Only, To Be Verified In Field By Contractor.

Designed by _____

Chkd. _____

Approved by _____

NOTICE TO CONTRACTOR

48 HOURS PRIOR TO COMMENCING WORK NOTIFY THE FOLLOWING

BELL CANADA	BELL CANADA
ENBRIDGE INCORPORATED—GAS DISTRIBUTION	ENERSOURCE TELECOM
ONTARIO MINISTRY OF TRANSPORTATION	HYDRO ONE TELECOM
ONTARIO CLEAN WATER AGENCY	ROGERS CABLE
HYDRO ONE NETWORKS	ALLSTREAM
ENERSOURCE, HYDRO	PSN (PUBLIC SECTOR NETWORK)
HYDRO ONE	FUTUREWAY (FCI BROADBAND)
CABLE TELEVISION/FIBROPTIC PROVIDERS:	



6TH LINE

FROM STA 25+000 to STA 25+400

CULVERT LOCATION PLAN

CAD Area	Area	Project No.
Checked by	Drawn by M.D.	
Date May, 2015	Sheet 27 of 27	Plan No.

Appendix B
Centerline Culvert Photographic
Inventory Data Sheet

CULVERT FIELD INVESTIGATION DATA SHEET

Inspection Date	02-Apr-15	Culvert No.	01-01	Inspector	M.Darling
Township	Innisfil				
Road	6th Line				
Culvert Crossing Type	HIGHWAY C/L				
Culvert Type	CSP				
Culvert Shape	CIRCLE				
Culvert Bottom	Steel				
Culvert Flow Direction	North				
Culvert Length (m)	19.8				
Culvert Size (mm)	600				
Fill Over Culvert (m)	0.8				
Fill Material Type	Granular				
Depth of Water In Culvert (mm)	0				
Blockage In Culvert	Minor Sediments				
Culvert Condition	Fair				
Inlet Condition	Fair				
Outlet Condition	Bent - Ok				

LHRS	10+061	OFFSET	0	km
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Additional Comments

CULVERT FIELD INVESTIGATION DATA SHEET

Inspection Date	02-Apr-15	Culvert No.	01-02	Inspector	M.Darling
Township	Innisfil				
Road	6th Line				
Culvert Crossing Type	HIGHWAY C/L				
Culvert Type	CSP				
Culvert Shape	CIRCLE				
Culvert Bottom	Steel				
Culvert Flow Direction	South				
Culvert Length (m)	12.4				
Culvert Size (mm)	500				
Fill Over Culvert (m)	0.5				
Fill Material Type	Granular				
Depth of Water In Culvert (mm)	100				
Blockage In Culvert	None				
Culvert Condition	Rusted				
Inlet Condition	Good				
Outlet Condition	10% Buried				

LHRS	10+121	OFFSET	0	km
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Additional Comments

CULVERT FIELD INVESTIGATION DATA SHEET

Inspection Date	<input type="text" value="02-Apr-15"/>	Culvert No.	<input type="text" value="01-03"/>	Inspector	<input type="text" value="M.Darling"/>
Township	<input type="text" value="Innisfil"/>				
Road	<input type="text" value="6th Line"/>				
Culvert Crossing Type	<input type="text" value="HIGHWAY C/L"/>				
Culvert Type	<input type="text" value="CSP"/>				
Culvert Shape	<input type="text" value="CIRCLE"/>				
Culvert Bottom	<input type="text" value="Steel"/>				
Culvert Flow Direction	<input type="text" value="South"/>				
Culvert Length (m)	<input type="text" value="12.4"/>				
Culvert Size (mm)	<input type="text" value="1100"/>				
Fill Over Culvert (m)	<input type="text" value="1"/>				
Fill Material Type	<input type="text" value="Granular"/>				
Depth of Water In Culvert (mm)	<input type="text" value="200"/>				
Blockage In Culvert	<input type="text" value="None"/>				
Culvert Condition	<input type="text" value="Good"/>				
Inlet Condition	<input type="text" value="Good"/>				
Outlet Condition	<input type="text" value="Good"/>				

LHRS	10+924	OFFSET	0	km
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Additional Comments

CULVERT FIELD INVESTIGATION DATA SHEET

Inspection Date	02-Apr-15	Culvert No.	01-04	Inspector	M.Darling
Township	Innisfil				
Road	6th Line				
Culvert Crossing Type	HIGHWAY C/L				
Culvert Type	CSP				
Culvert Shape	CIRCLE				
Culvert Bottom	Steel				
Culvert Flow Direction	North				
Culvert Length (m)	12.5				
Culvert Size (mm)	1800				
Fill Over Culvert (m)	0.7				
Fill Material Type	Granular				
Depth of Water In Culvert (mm)	400				
Blockage In Culvert	90% Water				
Culvert Condition	Poor				
Inlet Condition	Poor				
Outlet Condition	Poor				

LHRS	11+175	OFFSET	0	km
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Additional Comments
needs ditches graded

CULVERT FIELD INVESTIGATION DATA SHEET

Inspection Date	02-Apr-15	Culvert No.	01-05	Inspector	M.Darling
Township	Innisfil				
Road	6th Line				
Culvert Crossing Type	HIGHWAY C/L				
Culvert Type	CSP				
Culvert Shape	CIRCLE				
Culvert Bottom	Steel				
Culvert Flow Direction	South				
Culvert Length (m)	12.3				
Culvert Size (mm)	300				
Fill Over Culvert (m)	1.1				
Fill Material Type	Granular				
Depth of Water In Culvert (mm)	50				
Blockage In Culvert	None				
Culvert Condition	Rusted				
Inlet Condition	Fair				
Outlet Condition	Poor - Bent/Rusting				
Additional Comments					

LHRS	12+673	OFFSET	0	km
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CULVERT FIELD INVESTIGATION DATA SHEET

Inspection Date	02-Apr-15	Culvert No.	01-06	Inspector	M.Darling
Township	Innisfil				
Road	6th Line				
Culvert Crossing Type	HIGHWAY C/L				
Culvert Type	CSP				
Culvert Shape	CIRCLE				
Culvert Bottom	Steel				
Culvert Flow Direction	South				
Culvert Length (m)	13				
Culvert Size (mm)	800				
Fill Over Culvert (m)	2				
Fill Material Type	Granular				
Depth of Water In Culvert (mm)	500				
Blockage In Culvert	90% Water				
Culvert Condition	Poor				
Inlet Condition	Poor				
Outlet Condition	Poor				

LHRS	13+158	OFFSET	0	km
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Additional Comments
needs ditches regraded

CULVERT FIELD INVESTIGATION DATA SHEET

Inspection Date	02-Apr-15	Culvert No.	01-07	Inspector	M.Darling
Township	Innisfil				
Road	6th Line				
Culvert Crossing Type	HIGHWAY C/L				
Culvert Type	Concrete Box				
Culvert Shape	BOX				
Culvert Bottom	Open				
Culvert Flow Direction	South				
Culvert Length (m)	9.5				
Culvert Size (mm)	1200x800				
Fill Over Culvert (m)	1				
Fill Material Type	Granular				
Depth of Water In Culvert (mm)	0				
Blockage In Culvert	Garbage Bags				
Culvert Condition	Good				
Inlet Condition	Good				
Outlet Condition	Good				

LHRS	13+164	OFFSET	0	km
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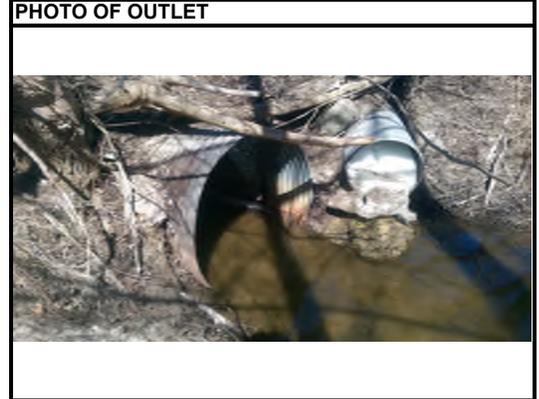


Additional Comments
needs channel cleared

CULVERT FIELD INVESTIGATION DATA SHEET

Inspection Date	02-Apr-15	Culvert No.	01-08	Inspector	M.Darling
Township	Innisfil				
Road	6th Line				
Culvert Crossing Type	HIGHWAY C/L				
Culvert Type	CSP				
Culvert Shape	CIRCLE				
Culvert Bottom	Steel				
Culvert Flow Direction	North				
Culvert Length (m)	17.8				
Culvert Size (mm)	1800				
Fill Over Culvert (m)	2.5				
Fill Material Type	Granular				
Depth of Water In Culvert (mm)	400				
Blockage In Culvert	None				
Culvert Condition	Minor Rusting				
Inlet Condition	Good				
Outlet Condition	Good				

LHRS	13+454	OFFSET	0	km
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Additional Comments

CULVERT FIELD INVESTIGATION DATA SHEET

Inspection Date	02-Apr-15	Culvert No.	01-09	Inspector	M.Darling
Township	Innisfil				
Road	6th Line				
Culvert Crossing Type	HIGHWAY C/L				
Culvert Type	CSP				
Culvert Shape	CIRCLE				
Culvert Bottom	Steel				
Culvert Flow Direction	North				
Culvert Length (m)	12.4				
Culvert Size (mm)	500				
Fill Over Culvert (m)	0.7				
Fill Material Type	Granular				
Depth of Water In Culvert (mm)	200				
Blockage In Culvert	None				
Culvert Condition	Rusting - Fair				
Inlet Condition	Fair				
Outlet Condition	Fair				

LHRS	14+038	OFFSET	0	km
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PHOTO OF INLET



PHOTO OF OUTLET



Additional Comments

CULVERT FIELD INVESTIGATION DATA SHEET

Inspection Date	19-Jun-15	Culvert No.	01-10	Inspector	S. Percy
Township	Innisfil				
Road	6th Line				
Culvert Crossing Type	HIGHWAY C/L				
Culvert Type	CSP				
Culvert Shape	CIRCLE				
Culvert Bottom	Steel				
Culvert Flow Direction	South				
Culvert Length (m)	17.0				
Culvert Size (mm)	400				
Fill Over Culvert (m)	0.5				
Fill Material Type	Granular				
Depth of Water In Culvert (mm)	50				
Blockage In Culvert	Water/Sediment 70-80%				
Culvert Condition	Poor				
Inlet Condition	80% Buried				
Outlet Condition	70% Buried				

LHRS	16+167	OFFSET	0	km
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Additional Comments
Severe vegetation needs to be cleared.

CULVERT FIELD INVESTIGATION DATA SHEET

Inspection Date	02-Apr-15	Culvert No.	01-11	Inspector	M.Darling
Township	Innisfil				
Road	6th Line				
Culvert Crossing Type	HIGHWAY C/L				
Culvert Type	CSP				
Culvert Shape	CIRCLE				
Culvert Bottom	Steel				
Culvert Flow Direction	Equalization				
Culvert Length (m)	12.3				
Culvert Size (mm)	400				
Fill Over Culvert (m)	0.5				
Fill Material Type	Granular				
Depth of Water In Culvert (mm)	10				
Blockage In Culvert	None				
Culvert Condition	Poor - Rusted				
Inlet Condition	Poor - Bent				
Outlet Condition	Poor - Bent				

LHRS	16+641	OFFSET	0	km
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Additional Comments

CULVERT FIELD INVESTIGATION DATA SHEET

Inspection Date	02-Apr-15	Culvert No.	01-13	Inspector	M.Darling
Township	Innisfil				
Road	6th Line				
Culvert Crossing Type	HIGHWAY C/L				
Culvert Type	CSP				
Culvert Shape	CIRCLE				
Culvert Bottom	Steel				
Culvert Flow Direction	South				
Culvert Length (m)	10.0				
Culvert Size (mm)	800				
Fill Over Culvert (m)	1				
Fill Material Type	Granular				
Depth of Water In Culvert (mm)	100				
Blockage In Culvert	Ice - 90% Blocked				
Culvert Condition	Fair				
Inlet Condition	Fair				
Outlet Condition	Fair				

LHRS	17+754	OFFSET	0	km
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Additional Comments
channel needs cleared

CULVERT FIELD INVESTIGATION DATA SHEET

Inspection Date	02-Apr-15	Culvert No.	01-14	Inspector	M.Darling
Township	Innisfil				
Road	6th Line				
Culvert Crossing Type	HIGHWAY C/L				
Culvert Type	CSP				
Culvert Shape	CIRCLE				
Culvert Bottom	Steel				
Culvert Flow Direction	South				
Culvert Length (m)	18.7				
Culvert Size (mm)	600				
Fill Over Culvert (m)	1.5				
Fill Material Type	Granular				
Depth of Water In Culvert (mm)	0				
Blockage In Culvert	Sediments				
Culvert Condition	Fair				
Inlet Condition	20% Buried				
Outlet Condition	90% Buried				

LHRS	19+252	OFFSET	0	km
PHOTO OF INLET				
				
PHOTO OF OUTLET				
				

Additional Comments
channel needs cleared

CULVERT FIELD INVESTIGATION DATA SHEET

Inspection Date	02-Apr-15	Culvert No.	01-15	Inspector	M.Darling
Township	Innisfil				
Road	6th Line				
Culvert Crossing Type	HIGHWAY C/L				
Culvert Type	CSP				
Culvert Shape	CIRCLE				
Culvert Bottom	Steel				
Culvert Flow Direction	South				
Culvert Length (m)	10.6				
Culvert Size (mm)	400				
Fill Over Culvert (m)	1				
Fill Material Type	Granular				
Depth of Water In Culvert (mm)	500				
Blockage In Culvert	None				
Culvert Condition	Good				
Inlet Condition	Good				
Outlet Condition	Good				

LHRS	20+652	OFFSET	0	km
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Additional Comments

CULVERT FIELD INVESTIGATION DATA SHEET

Inspection Date	02-Apr-15	Culvert No.	01-16	Inspector	M.Darling
Township	Innisfil				
Road	6th Line				
Culvert Crossing Type	HIGHWAY C/L				
Culvert Type	CSP				
Culvert Shape	CIRCLE				
Culvert Bottom	Steel				
Culvert Flow Direction	South				
Culvert Length (m)	13.6				
Culvert Size (mm)	600				
Fill Over Culvert (m)	1.2				
Fill Material Type	Granular				
Depth of Water In Culvert (mm)	200				
Blockage In Culvert	Ice				
Culvert Condition	Good				
Inlet Condition	Fair				
Outlet Condition	Good				

LHRS	20+875	OFFSET	0	km
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Additional Comments

CULVERT FIELD INVESTIGATION DATA SHEET

Inspection Date	19-Jun-15	Culvert No.	01-17	Inspector	S. Percy
Township	Innisfil				
Road	6th Line				
Culvert Crossing Type	HIGHWAY C/L				
Culvert Type	CSP				
Culvert Shape	CIRCLE				
Culvert Bottom	Steel				
Culvert Flow Direction	North				
Culvert Length (m)	12.3				
Culvert Size (mm)	600				
Fill Over Culvert (m)	0.7				
Fill Material Type	Granular				
Depth of Water In Culvert (mm)	300				
Blockage In Culvert	Sediment Water 50%				
Culvert Condition	Good				
Inlet Condition	Fair				
Outlet Condition	Fair				

LHRS	21+385	OFFSET	0	km
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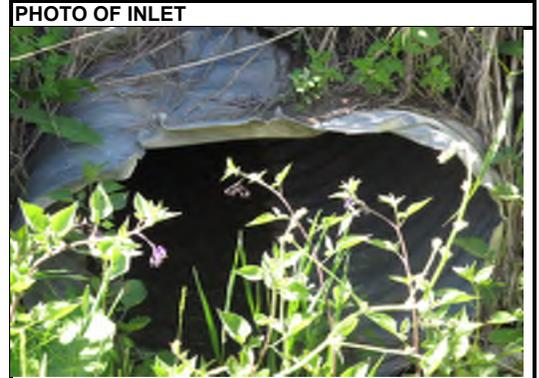


Additional Comments
Both ends are partially submerged in water.

CULVERT FIELD INVESTIGATION DATA SHEET

Inspection Date	19-Jun-15	Culvert No.	01-18	Inspector	S. Percy
Township	Innisfil				
Road	6th Line				
Culvert Crossing Type	HIGHWAY C/L				
Culvert Type	CSP				
Culvert Shape	CIRCLE				
Culvert Bottom	Steel				
Culvert Flow Direction	South				
Culvert Length (m)	16.1				
Culvert Size (mm)	700				
Fill Over Culvert (m)	0.6				
Fill Material Type	Granular				
Depth of Water In Culvert (mm)	100				
Blockage In Culvert	10% Sediment				
Culvert Condition	Poor				
Inlet Condition	Poor-Deformed				
Outlet Condition	Fair - 10% Sediment				

LHRS	22+282	OFFSET	0	km
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Additional Comments
Vegetation needs to be cleared as well as sediment.

CULVERT FIELD INVESTIGATION DATA SHEET

Inspection Date	19-Jun-15	Culvert No.	01-19	Inspector	S. Percy
Township	Innisfil				
Road	6th Line				
Culvert Crossing Type	HIGHWAY C/L				
Culvert Type	CSP				
Culvert Shape	CIRCLE				
Culvert Bottom	Steel				
Culvert Flow Direction	South				
Culvert Length (m)	14.9				
Culvert Size (mm)	700				
Fill Over Culvert (m)	0.6				
Fill Material Type	Granular				
Depth of Water In Culvert (mm)	0				
Blockage In Culvert	20% Sediment/debris				
Culvert Condition	Fair				
Inlet Condition	Fair				
Outlet Condition	Severe vegetation overgrowth				

LHRS	22+301	OFFSET	0	km
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Additional Comments
 Severe vegetation needs to be cleared



CULVERT FIELD INVESTIGATION DATA SHEET

Inspection Date	19-Jun-15	Culvert No.	01-20	Inspector	S. Percy
Township	Innisfil				
Road	6th Line				
Culvert Crossing Type	HIGHWAY C/L				
Culvert Type	CSP				
Culvert Shape	CIRCLE				
Culvert Bottom	Steel				
Culvert Flow Direction	South				
Culvert Length (m)	15.3				
Culvert Size (mm)	500				
Fill Over Culvert (m)	1				
Fill Material Type	Granular				
Depth of Water In Culvert (mm)	100				
Blockage In Culvert	5% Sediment				
Culvert Condition	Good				
Inlet Condition	Good				
Outlet Condition	Moderate-Severe Vegetation				

LHRS	23+828	OFFSET	0	km
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Additional Comments
Vegetation must be cleared.

CULVERT FIELD INVESTIGATION DATA SHEET

Inspection Date	19-Jun-15	Culvert No.	01-21	Inspector	S. Percy
Township	Innisfil				
Road	6th Line				
Culvert Crossing Type	HIGHWAY C/L				
Culvert Type	CSP				
Culvert Shape	CIRCLE				
Culvert Bottom	Steel				
Culvert Flow Direction	South				
Culvert Length (m)	15.4				
Culvert Size (mm)	650				
Fill Over Culvert (m)	0.3				
Fill Material Type	Granular				
Depth of Water In Culvert (mm)	20				
Blockage In Culvert	Mild Debris				
Culvert Condition	Good				
Inlet Condition	Good				
Outlet Condition	Fair - Moderate deformation				

LHRS	24+118	OFFSET	0	km
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Additional Comments
0.3m sitting water at outlet

CULVERT FIELD INVESTIGATION DATA SHEET

Inspection Date	19-Jun-15	Culvert No.	01-22	Inspector	S. Percy
Township	Innisfil				
Road	6th Line				
Culvert Crossing Type	HIGHWAY C/L				
Culvert Type	CSP				
Culvert Shape	CIRCLE				
Culvert Bottom	Steel				
Culvert Flow Direction	South				
Culvert Length (m)	14.8				
Culvert Size (mm)	400				
Fill Over Culvert (m)	1.5				
Fill Material Type	Granular				
Depth of Water In Culvert (mm)	100				
Blockage In Culvert	Water/Sediment 60%				
Culvert Condition	Poor Rusted				
Inlet Condition	Poor- 60% Blocked/Rust/Deformation				
Outlet Condition	Poor-60% blocked standing water/mud and rust				

LHRS	24+731	OFFSET	0	km
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Additional Comments
 Water flow from nearby field held back by 10-15 ft long stone dam allowing small amount of water to trickle to inlet and through culvert. Standing water at outlet. Culvert likely requires replacement.

CULVERT FIELD INVESTIGATION DATA SHEET

Inspection Date	19-Jun-15	Culvert No.	01-23	Inspector	S. Percy
Township	Innisfil				
Road	6th Line				
Culvert Crossing Type	HIGHWAY C/L				
Culvert Type	CSP				
Culvert Shape	CIRCLE				
Culvert Bottom	Steel				
Culvert Flow Direction	South				
Culvert Length (m)	14.2				
Culvert Size (mm)	800				
Fill Over Culvert (m)	0.7				
Fill Material Type	Granular				
Depth of Water In Culvert (mm)	150				
Blockage In Culvert	Water/Sediment 40%				
Culvert Condition	Good				
Inlet Condition	Fair- 10% water				
Outlet Condition	Fair- 40% water				

LHRS	24+909	OFFSET	0	km
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Additional Comments
 Water courses at each end.
 Seever vegetation must be cleared.

CULVERT FIELD INVESTIGATION DATA SHEET

Inspection Date	19-Jun-15	Culvert No.	01-24	Inspector	S. Percy
Township	Innisfil				
Road	6th Line				
Culvert Crossing Type	HIGHWAY C/L				
Culvert Type	CSP				
Culvert Shape	CIRCLE				
Culvert Bottom	Steel				
Culvert Flow Direction	South				
Culvert Length (m)	12.5				
Culvert Size (mm)	500				
Fill Over Culvert (m)	0.4				
Fill Material Type	Granular				
Depth of Water In Culvert (mm)	10				
Blockage In Culvert	10% Sediment				
Culvert Condition	Fair				
Inlet Condition	Poor- Rust/Deformation				
Outlet Condition	Fair				

LHRS	25+328	OFFSET	0	km
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Additional Comments
Vegetation at Inlet must be cleared.

CULVERT FIELD INVESTIGATION DATA SHEET

Inspection Date	19-Jun-15	Culvert No.	03-02	Inspector	S. Percy
Township	Innisfil				
Road	5th Sideroad				
Culvert Crossing Type	HIGHWAY C/L				
Culvert Type	CSP				
Culvert Shape	CIRCLE				
Culvert Bottom	Steel				
Culvert Flow Direction	South				
Culvert Length (m)					
Culvert Size (mm)	500				
Fill Over Culvert (m)	500				
Fill Material Type	Granular				
Depth of Water In Culvert (mm)					
Blockage In Culvert	15% Sediment				
Culvert Condition	poor				
Inlet Condition	Poor				
Outlet Condition	Fair				

LHRS 13+110 RT OFFSET 20 km

PHOTO OF INLET



PHOTO OF OUTLET



Additional Comments

CULVERT FIELD INVESTIGATION DATA SHEET

Inspection Date	19-Jun-15	Culvert No.	03-03	Inspector	S. Percy
Township	Innisfil				
Road	10th Sideroad				
Culvert Crossing Type	HIGHWAY C/L				
Culvert Type	CSP				
Culvert Shape	CIRCLE				
Culvert Bottom	Steel				
Culvert Flow Direction	South				
Culvert Length (m)					
Culvert Size (mm)	400				
Fill Over Culvert (m)	700				
Fill Material Type	Granular				
Depth of Water In Culvert (mm)	60% Blocked				
Blockage In Culvert	15% Sediment				
Culvert Condition	poor				
Inlet Condition	Buried				
Outlet Condition	Buried				

LHRS	16+180 LT	OFFSET	10	km
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Additional Comments