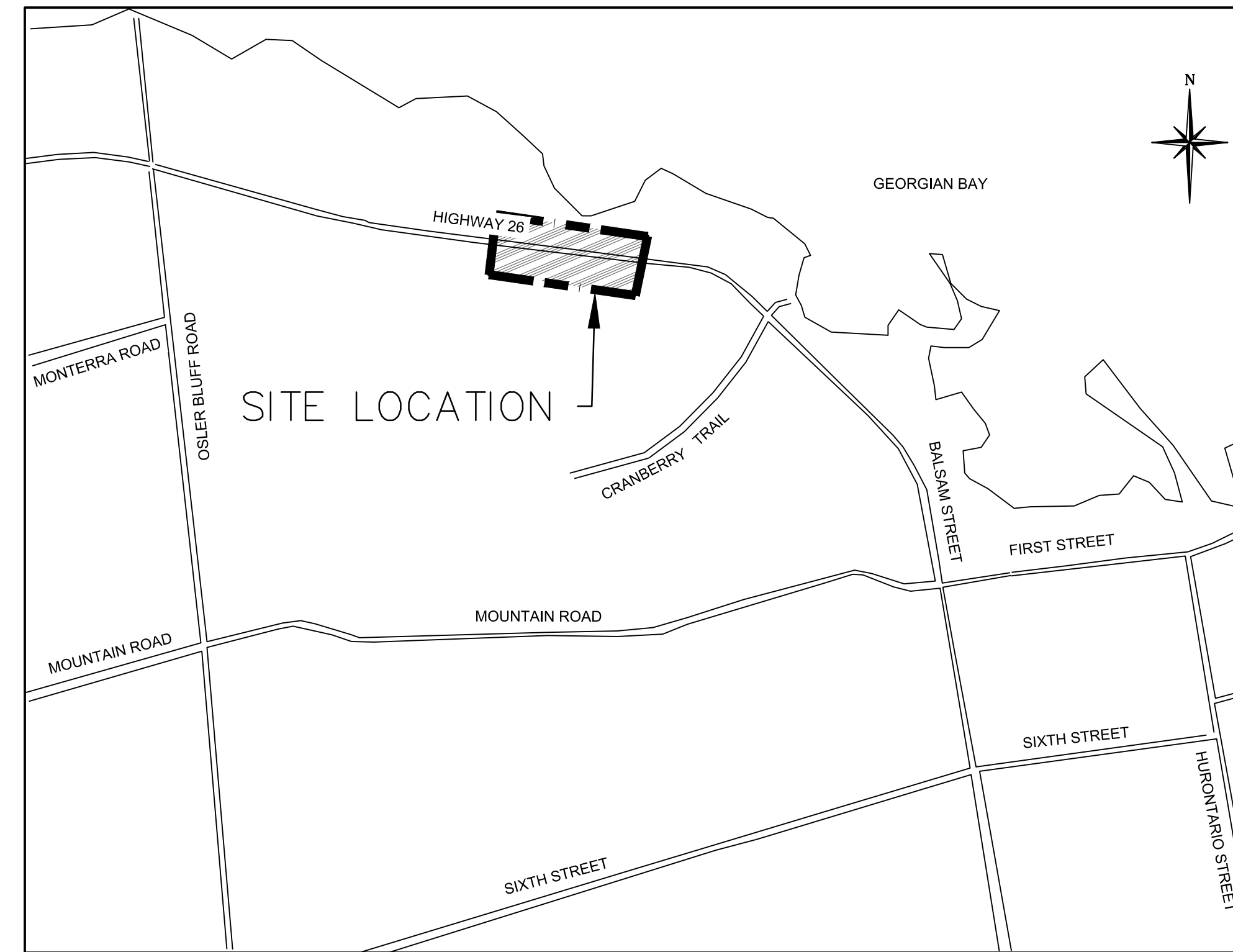


HIGHWAY 26 WATERFALLS LANE / STREET 'A' INTERSECTION IMPROVEMENT

TOWN of COLLINGWOOD
COUNTY OF SIMCOE



| MASTER LEGEND | |
|--------------------------------|-------------------------------------|
| EXISTING FEATURES (EX.) | |
| ---XXX.X | EX. CONTOUR |
| +XXX.XX | EX. GRADE |
| ~ | EX. TREELINE |
| — | EX. WATERCOURSE |
| — | EX. DITCH |
| — | EX. WATERMAIN |
| ⊕ | EX. WATER SERVICE |
| ⊕ | EX. FIRE HYDRANT & VALVE |
| — | EX. SANITARY SEWER & MANHOLE |
| — | EX. SANITARY FORCEMAIN |
| — | EX. SANITARY SERVICE |
| — | EX. STORM SEWER & MANHOLE |
| □ | EX. STORM CATCHBASIN |
| □ | EX. STORM DOUBLE CATCHBASIN |
| ⊕ | EX. STORM CATCHBASIN MANHOLE |
| ⊕ | EX. STORM DOUBLE CATCHBASIN MANHOLE |
| — | EX. GAS MAIN |
| — | EX. BELL LINE |
| ⊕ | EX. BELL PEDESTAL |
| ⊕ | EX. CABLE TELEVISION PEDESTAL |
| ⊕ | EX. HYDRO POLE |
| ⊕ | EX. LIGHT STANDARD |
| ⊕ | EX. SIGN |
| ⊕ | EX. BUILDING |
| ⊕ | EX. BENCHMARK NUMBER & LOCATION |
| ⊕ | EX. BOREHOLE NUMBER & LOCATION |
| PROPOSED FEATURES (PR.) | |
| --- | PR. PROPERTY LIMITS |
| +XXX.XX | PR. ELEVATION |
| +XXX.XX | PR. ELEVATION (MATCH EX. ELEVATION) |
| X.XX | PR. SWALE & SLOPE |
| — | PR. DITCH DRAINAGE |
| — | PR. WATERMAIN & VALVE |
| ⊕ | PR. WATER SERVICE |
| ⊕ | PR. FIRE HYDRANT & VALVE |
| ⊕ | PR. WATER VALVE CHAMBER |
| ⊕ | PR. WATER QUALITY TESTING STATION |
| — | PR. SANITARY SEWER & MANHOLE |
| — | PR. SANITARY FORCEMAIN |
| — | PR. SANITARY SERVICE |
| --- | PR. SANITARY CATCHMENT |
| ⊕ | PR. CATCHMENT AREA ID |
| 0.14 | PR. AREA (ha) |
| POPULATION (3.5 p.p.u.) | PR. POPULATION (3.5 p.p.u.) |
| ⊕ | PR. STORM SEWER & MANHOLE |
| ⊕ | PR. CATCHBASIN |
| ⊕ | PR. DOUBLE CATCHBASIN |
| ⊕ | PR. CATCHBASIN MANHOLE |
| ⊕ | PR. DOUBLE CATCHBASIN MANHOLE |
| --- | PR. STORM CATCHMENT |
| ⊕ | PR. CATCHMENT AREA ID |
| 0.23 0.79 | PR. RUNOFF COEFFICIENT |
| --- | PR. DRAINAGE AREA (ha) |
| --- | PR. CURB CUT |
| ⊕ | PR. CANADA POST COMMUNITY MAIL BOX |
| ⊕ | PR. TRANSFORMER |
| ⊕ | PR. STOP SIGN |
| ⊕ | PR. NAME SIGN |
| ⊕ | PR. NO PARKING SIGN |
| --- | PR. FENCE |
| --- | PR. BUILDING ENVELOPE |
| --- | PR. LIGHT DUTY SILT FENCE |
| --- | PR. HEAVY DUTY SILT FENCE |
| --- | PR. STRAW BALE CHECK FLOW |
| --- | PR. ROCK CHECK DAM |
| --- | PR. SLOPE (3:1 MAX.) |
| --- | PR. TREE PRESERVATION AREA |
| --- | PR. TOPSOIL STOCKPILE LOCATION |

DRAWING TITLE

| | |
|------|--|
| C300 | GENERAL NOTES |
| C301 | REMOVALS AND EROSION & SEDIMENT CONTROL |
| C302 | NEW CONSTRUCTION |
| C303 | TYPICAL SECTIONS |
| C304 | TYPICAL SECTIONS |
| C305 | PAVEMENT ELEVATIONS AND GRADING |
| C306 | PAVEMENT MARKINGS AND SIGNAGE |
| E1 | EXISTING REMOVALS PLAN |
| E2 | TEMPORARY SIGNALS PLAN |
| E3 | TEMPORARY SIGNALS REMOVAL PLAN |
| E4 | ELECTRICAL SIGNALS PLAN |
| E5 | VIRTUAL LOOP DETECTOR PLAN |
| E6 | TEMPORARY ELECTRICAL PHOTOMETRIC PLAN |
| E7 | PERMANENT ELECTRICAL PHOTOMETRIC PLAN |
| E8 | ELECTRICAL SCHEDULES |
| E9 | ELECTRICAL—DETAILS |
| E10 | TEMPORARY ELECTRICAL SINGLE LINE DIAGRAM |
| E11 | PERMANENT ELECTRICAL SINGLE LINE DIAGRAM |
| E12 | PHM-125 LEGAL DRAWING |

MUNICIPALITY

TOWN OF COLLINGWOOD
97 HURONTARIO STREET, P.O. BOX 157
COLLINGWOOD, ONTARIO, L9Y 3Z5

DEVELOPER

SKYDEVCO INC.
5 DOUGLAS STREET, SUITE 301
GUELPH, ONTARIO, N1H 2S8

DEVELOPER'S ENGINEER



THE HARBOUREdge BUILDING,
40 HURON STREET, SUITE 301,
COLLINGWOOD, ON L9Y 4R3
705 446-3510 T
705 446-3520 F
WWW.CFCROZIER.CA
INFO@CFCROZIER.CA

PROJECT No.: 1790-5382
100% DESIGN REVIEW

CONSTRUCTION NOTES:

A) GENERAL – CONSTRUCTION

- ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH TOWN OF COLLINGWOOD STANDARDS, OPSD AND OPSS. WHERE CONFLICT OCCURS, TOWN OF COLLINGWOOD STANDARDS TO GOVERN.
- TRENCH BACKFILL (OPSD 802.010 & 802.013) TO BE SELECT NATIVE MATERIAL OR IMPORTED SELECT SUBGRADE TO OPSS 1010. BACKFILL TO BE PLACED IN MAXIMUM 200mm THICK LIFTS AND COMPACTED TO 95% OF THE MATERIAL'S STANDARD PROCTOR MAXIMUM DRY DENSITY (SPMDD).
- PIPE COVER AND BEDDING TO BE GRANULAR 'A' (MINIMUM 150mm DEPTH, COMPACTED TO A MINIMUM 95%SPMDD).
- ALL TOPSOIL AND EARTH EXCAVATION TO BE STOCK PILED OR REMOVED TO AN APPROVED SITE AS DIRECTED BY ENGINEER.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DETAILED LAYOUT OF THE WORK. THE DEVELOPER'S ENGINEER WILL CONFIRM ALL BENCH MARK ELEVATIONS AND HORIZONTAL ALIGNMENT FOR THE CONTRACTOR.
- ALL PROPERTY BARS TO BE PRESERVED AND REPLACED BY O.L.S. AT CONTRACTOR'S EXPENSE IF REMOVED DURING CONSTRUCTION.
- THE CONTRACTOR SHALL MAKE HIS OWN ARRANGEMENTS FOR THE SUPPLY OF TEMPORARY WATER AND POWER.
- DEWATERING TO BE CARRIED OUT IN ACCORDANCE WITH OPSS-517 AND 518 TO MAINTAIN ALL TRENCHES IN A DRY CONDITION. OWNER RESPONSIBLE FOR OBTAINING M.O.E. PERMIT IF REQUIRED.
- ALL ENGINE DRIVEN PUMPS TO BE ADEQUATELY SILENCED, SUITABLE FOR OPERATION IN A RESIDENTIAL DISTRICT.
- DISTURBED AREAS OUTSIDE THE DEVELOPABLE LANDS TO BE REINSTATED TO PREVIOUS CONDITION OR BETTER.
- THE CONTRACTOR IS RESPONSIBLE TO NOTIFY ALL UTILITY COMPANIES PRIOR TO COMMENCING WORK AND CO-ORDINATE CONSTRUCTION AND LOCATES ACCORDINGLY.
- ALL ROCK EXCAVATION PER OPSS-206.
- ALL EXCAVATION MUST BE CARRIED OUT IN FULL COMPLIANCE WITH MOST RECENT GUIDELINES OF OHSA. NATIVE SOILS ARE CLASSIFIED AS TYPE 3 SOIL.

B) ROADS

- SUBGRADE AND BOULEVARD MATERIAL TO BE COMPACTED TO A MINIMUM DRY DENSITY OF AT LEAST 95% SPMDD. SUBGRADE TO BE PROOF ROLLED AND CERTIFIED PRIOR TO PLACING GRANULAR 'B'.
- GRANULAR 'A' AND 'B' ROAD BASE TO BE COMPACTED TO 100% OF THE MATERIAL'S RESPECTIVE SPMDD AND PLACED IN MAX. 150mm LIFTS. REFER TO GEOTECHNICAL REPORT FOR FURTHER DETAILS.
- ROADWAYS TO BE CONSTRUCTED WITH MINIMUM 300mm GRANULAR 'B' TYPE 1, 150mm GRANULAR 'A', 50mm HL8 BASE COURSE ASPHALT, & 40mm HL3 SURFACE COURSE ASPHALT.
- SELECT SUBGRADE MATERIAL, OR IMPORTED GRANULAR MATERIAL APPROVED BY THE ENGINEER, COMPACTED TO 98% SPMDD TO BE USED AS FILL IN ALL AREAS WHERE PROPOSED PIPE INVERTS ARE HIGHER THAN EXISTING GRADE OR AS INSTRUCTED BY THE ENGINEER.
- ALL GRANULARS AND ASPHALT MATERIALS AND PLACEMENT TO BE IN ACCORDANCE WITH OPSS 314 AND OPSS 310.
- JOINTS WITH EXISTING ASPHALT TO BE SAW CUT STRAIGHT WITH MIN. 0.5m LAP JOINT PRIOR TO PLACING NEW ASPHALT AND TACK COAT APPLIED TO EXISTING ASPHALT.
- STOP SIGNS AND STREET SIGNS TO TOWN STANDARDS.
- REINSTATEMENT OF ALL DISTURBED BOULEVARDS TO INCLUDE REGRADING, 150mm TOPSOIL AND SOD TO OPSS 802 AND 803.
- 100mm Ø PIPE SUBDRAINS SHALL BE PROVIDED UNDER EDGE OF CURB ON BOTH SIDES OF THE ROAD PER TOWN OF COLLINGWOOD STD. 210.
- ALL SUBDRAINS TO BE CONSTRUCTED IN ACCORDANCE WITH OPSS 405. SUBDRAIN TO BE INSTALLED IN GRANULAR 'A' TRENCH AND CONNECTED TO EACH CB OR CBMH.
- SUBDRAINS TO BE PERFORATED OTHER THAN THE 2m SECTION IMMEDIATELY UPSTREAM OF ALL STRUCTURES WHICH SHALL BE NON-PERFORATED.

C) SANITARY SEWERS

- M.H.'S TO OPSD – 701.010, 701.030, & 704.010.
- BENCHING TO OPSD – 701.021.
- STEPS TO OPSD – 405.010.
- BACKFILL AND EMBEDMENT TO OPSD – 802.010 CLASS 'B', GRANULAR 'A' BEDDING.
- TRENCH BACKFILL TO BE SELECT NATIVE MATERIAL AS APPROVED BY ENGINEER OR IMPORTED GRANULAR MATERIAL.
- FRAMES AND COVERS TO OPSD – 401.01 TYPE 'A' (CLOSED COVER).
- SERVICE CONNECTIONS TO OPSD – 1006.020 (125mm), GRANULAR 'A' BEDDING, TEST FITTING, 125 x 100 REDUCER, PLUG AND 2x4 MARKER POST PAINTED GREEN. MINIMUM GRADE TO BE 2.0%.
- RADIUS BENDS TO BE USED ON SANITARY SEWER CONNECTIONS WHERE THE ANGLE OF CONNECTION BETWEEN THE SERVICE AND SEWER EXCEEDS 90°.
- BACKFILL AND EMBEDMENT MATERIAL TO BE COMPACTED TO A DRY DENSITY OF AT LEAST 95% OF THE MATERIAL'S STANDARD PROCTOR MAXIMUM DRY DENSITY (SPMDD).
- MANHOLES FRAMES TO BE SET TO BASE COURSE ASPHALT ELEVATION AND RAISED PRIOR TO PLACING SURFACE COURSE ASPHALT.
- PIPE SUPPORT AT MAINTENANCE HOLES AS PER OPSD 708.020.
- ALL MAINTENANCE HOLES, UNLESS EXPRESSLY IDENTIFIED ARE 1200mm Ø.
- GENERAL INSTALLATION AND TESTING OF SEWERS AND APPURTENANCES TO BE IN ACCORDANCE WITH OPSS 407, 408, 409 (CCTV), 410, 421 AND ALL SPECIFICATIONS REFERENCED WITHIN THESE SECTIONS.
- SANITARY SEWER – SDR 35 PVC.
- SANITARY SERVICE – SDR 28 PVC – 125mm PER OPSD 1006.020 SEWER SERVICE CONNECTION FOR FLEXIBLE PIPE.
- FROST STRAPS PER OPSD 701.100.

D) WATERMAINS

- BACKFILL AND EMBEDMENT TO OPSD – 802.010 CLASS 'B', GRANULAR 'A' EMBEDMENT.
- TRENCH BACKFILL TO BE SELECT NATIVE MATERIAL AS APPROVED BY ENGINEER OR IMPORTED GRANULAR MATERIAL.
- THRUST BLOCKS TO OPSD – 1103.010 AND 1103.020 WHERE SUITABLE SOILS ARE ENCOUNTERED.
- SERVICE CONNECTIONS TO OPSD – 1104.010, 100mm GRANULAR 'A' EMBEDMENT AND COVER OVER PIPE. TERMINATE AS NOTED C/W CURB STOP AND BOX.
- HYDRANTS TO OPSD – 1105.010 DRAIN PLUGS SHALL BE INSTALLED WHERE HIGH WATER TABLE IS ENCOUNTERED.
- BACKFILL AND EMBEDMENT MATERIAL TO BE COMPACTED TO A DRY DENSITY OF AT LEAST 95% OF THE MATERIAL'S STANDARD PROCTOR MAXIMUM DRY DENSITY (SPMDD).
- MINIMUM COVER ON WATERMAIN AND SERVICES TO BE 1.7m.
- GATE VALVES, BENDS AND HYDRANT LEADS AND FITTINGS TO BE CONNECTED WITH ROLMAC GRIPPER RING RESTRAINING GLANDS.
- CLEARANCE BETWEEN WATERMAINS AND SEWERS TO BE AS PER MOE GUIDELINES, MINIMUM 0.5m VERTICAL SEPARATION WHERE SEWER IS ABOVE WATERMAIN & 2.5m MINIMUM HORIZONTAL SEPARATION.
- ALL SERVICES TO BE DIRECT TAPPED.
- FOLLOWING TESTING, CONTRACTOR SHALL OPERATE EACH WATER SERVICE TO VERIFY FULL FLOW AND PRESSURE AT THE CURB STOP TO THE SATISFACTION OF THE ENGINEER.
- GENERAL INSTALLATION AND TESTING OF WATERMAIN AND APPURTENANCES TO BE IN ACCORDANCE WITH OPSS 701 AND ALL SPECIFICATIONS REFERENCED WITHIN THESE SECTIONS. COMPLETE WATER SYSTEM SHALL BE DISINFECTED IN ACCORDANCE WITH REQUIREMENTS OF AWWA SHANDARD C651-99. REFER TO DETAIL ON DWG 108 FOR TYPICAL TEMPORARY CONNECTION.
- ALL WATERMAIN TESTING & CHLORINATION WILL BE CONDUCTED BY TOWN OF COLLINGWOOD WATER DEPARTMENT AT CONTRACTORS COST. WATERMAINS ARE NOT TO BE CONNECTED TO EXISTING WATERMAINS UNTIL BACTERIOLOGICAL TESTING HAS BEEN SUCCESSFULLY COMPLETED & CERTIFIED BY TOWN.
- COMPLETE WATER SYSTEM SHALL BE DISINFECTED IN ACCORDANCE WITH REQUIREMENTS OF REG. 459/00 & SATISFACTION OF TOWN.
- WATERMAIN – CLASS 52 OR PRESSURE CLASS 350 CEMENT LINED DUCTILE IRON. CONDUCTIVITY CONNECTORS TO BE USED ON ALL JOINTS.
- WATERMAIN SERVICES – 20mm Ø TYPE 'K' SOFT COPPER PIPE.
- MAIN STOPS TO 301-A3H3, ¾", BALL STYLE, AWWA THREAD BY COMPRESSION CAMBRIDGE BRASS.
- CURB STOPS TO 203-H3H3, ¾", BALL STYLE WITH DRAIN. COMPRESSION JOINT BY CAMBRIDGE BRASS.
- A CURB STOP & EXTENSION SERVICE BOX & MAIN STOP MUST BE INSTALLED ON EACH SERVICE USING COMPRESSION JOINT FITTINGS.
- ALL CURB STOPS FOR SERVICES WITHIN ASPHALT TO BE LOCATED IN VALVE BOXES INSTALLED FLUSH TO FINISHED GRADE OF ASPHALT. CAP FOR VALVE BOX TO BE MARKED WITH 'W' & PAINTED BLUE.
- SERVICE BOXES TO NUMBER 7, D-I CLOW OR MUELLER, 24" BLACK ROAD STRAIGHT, 36" STAINLESS STEEL RODS STRAIGHT C/W CAP PAINTED BLUE.
- ALL SERVICES SHALL BE METERED. METERS TO BE COMPLETE WITH REMOTE READOUT OR RADIO READ AS DETERMINED BY THE TOWN.
- HYDRANTS – CENTURY NUMBER 1, OPEN LEFT (O/L), 2 HOSE, 33B PLUMBER PORT. 6" MJ BASE, SELF-DRAINING YELLOW BASE WITH SILVER BONNET AND PORTS.
- VALVES – RESILIENT SEATED, RSGV MECHANICAL JOINT, OPEN LEFT CLOW OR MUELLER WITH 5-SL-48 SLIDING VALVE BOX C/W CAP PAINTED BLUE.
- MECHANICAL JOINT DUCTILE FITTINGS – AWWA/ANSI C153/A21.53.
- HYDRANTS TO BE INSTALLED C/W HYDRANT MARKER STAKES PER TOWN & CPU STANDARD "FLEX STAKE HYDRANT MARKER MODEL FHV804, 48" LONG, COLOUR YELLOW WITH REFLECTIVE HYDRANT GRAPHIC ON BOTH SIDES". MARKER TO BE POSITIONED ON THE RIGHT PORT AS VIEWED FROM STREET.
- 50mmØ WATERMAIN LOOP- TYPE 'K' COPPER.
- ALL VALVES TO BE OPERATED BY THE COLLINGWOOD WATER DEPARTMENT OR TOWN. CONTRACTOR TO PROVIDE MIN. 48hr NOTIFICATION FOR REQUEST.
- HYDRANTS ARE TO BE 1.67m LONG. MAKE-UP PIECES, IF REQUIRED, ARE TO BE INSTALLED IMMEDIATELY ABOVE THE BEND.
- ALL FITTINGS ARE TO BE LEAD FREE.
- TRACER WIRE SHALL BE INSTALLED IF CONTINUITY OF PIPE IS BROKEN. TRACER WIRE MUST BE 12 AWG TWH SOLID PLASTIC COVERED, TW4 75°C 600V OR APPROVED EQUIVALENT. A CONTINUITY TEST MUST ALSO BE COMPLETED AND ACCEPTED.
- THE GEOTECHNICAL REPORT SHALL TEST THE NATIVE MATERIAL TO DETERMINE SOIL CORROSIIVITY AND COMMENT ON THE REQUIREMENT FOR CORROSION RESISTANCE MEASURES.

E) STORM SEWERS

- MH TO OPSD 701.010 AND DCBMH TO OPSD – 701.011, 701.012, C/W SUMP UNLESS NOTED OTHERWISE.
- STEPS TO OPSD 405.010.
- M.H. FRAMES AND GRATES TO OPSD – 401.010 OPEN COVER.
- DCB'S TO OPSD – 705.030, 705.040.
- DCBMH FRAMES AND GRATES TO OPSD – 400.020
- PIPE SUPPORT AT DCBMH'S TO OPSD – 708.020.
- DCB LEADS – 300mm Ø DOUBLE TO OPSD – 708.010, 708.030.
- PROTECTION DURING CONSTRUCTION TO OPSD – 808.010.
- BACKFILL AND EMBEDMENT TO OPSD – 802.010 (FLEXIBLE PIPE) CLASS 'B', GRANULAR 'A' EMBEDMENT OR OPSD – 802.030, 802.031 AND 802.032 (RIGID PIPE) GRANULAR 'A' EMBEDMENT.
- BACKFILL AND EMBEDMENT MATERIAL TO BE COMPACTED TO A DRY DENSITY OF AT LEAST 95% OF THE MATERIAL'S SPMDD.
- MAIN SEWERS SHALL BE PVC PIPE (OPSS 410), MIN. PIPE STIFFNESS SHALL BE 320 kPa. ALL PIPE TO BE JOINED WITH A GASKETTED BELL AND SPIGOT SYSTEM.
- FROST STRAPS PER OPSD 701.100.

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THE SURVEY WAS COMPLETED BY KROMAR SURVEYORS LTD. ON THE 4th DAY OF AUGUST, 2017 (JOB No. 17-038).
 ELEVATIONS SHOWN HEREON ARE GEODETIC AND ARE RELATED TO TOWN OF COLLINGWOOD BENCH MARK No. 001972U313, HAVING AN ELEVATION OF 179.633 METRES.

| | |
|------|--|
| Town | |
|------|--|

| No. | ISSUE | DATE: MM/DD/YYYY |
|-----|-------------------------------|------------------|
| 1 | ISSUED FOR DESIGN REVIEW | 11/28/2019 |
| 2 | ISSUED FOR 60% DESIGN REVIEW | 07/17/2020 |
| 3 | ISSUED FOR 90% DESIGN REVIEW | 03/10/2021 |
| 4 | ISSUED FOR 100% DESIGN REVIEW | 09/03/2021 |



Project: **HIGHWAY 26 & WATERFALLS LANE/STREET 'A' INTERSECTION IMPROVEMENT TOWN OF COLLINGWOOD**

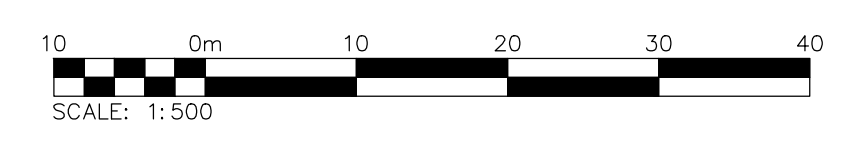
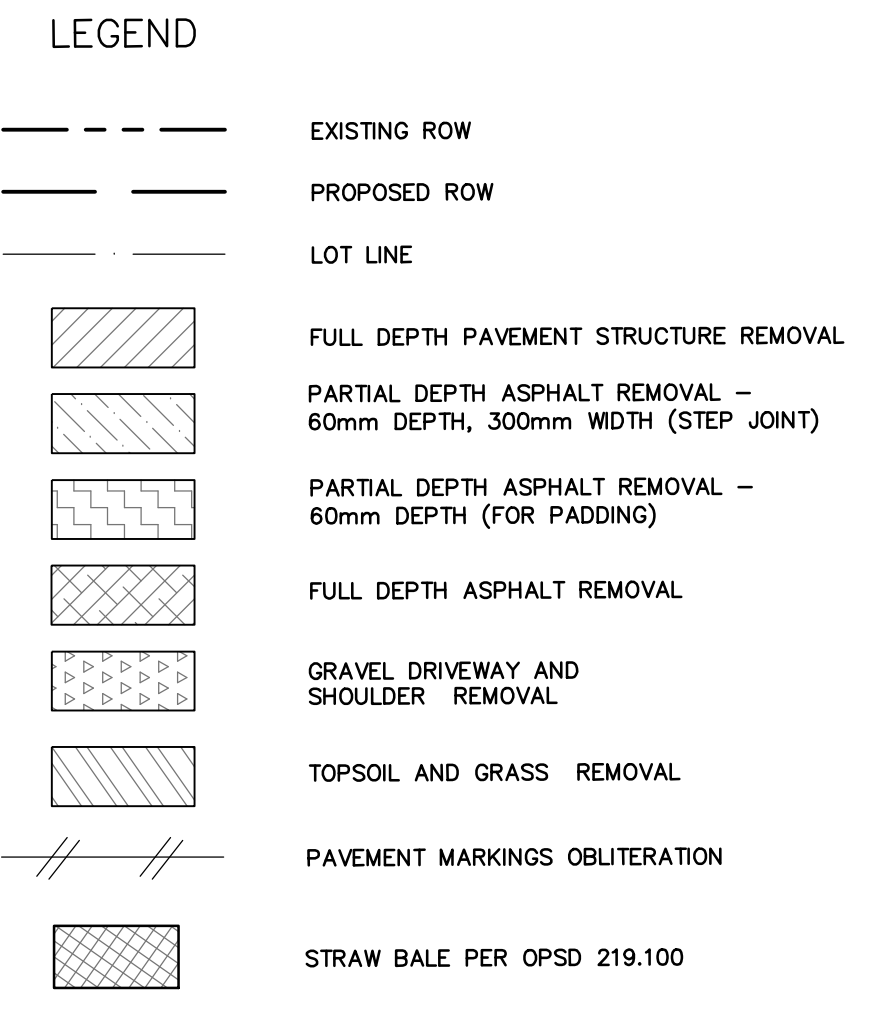
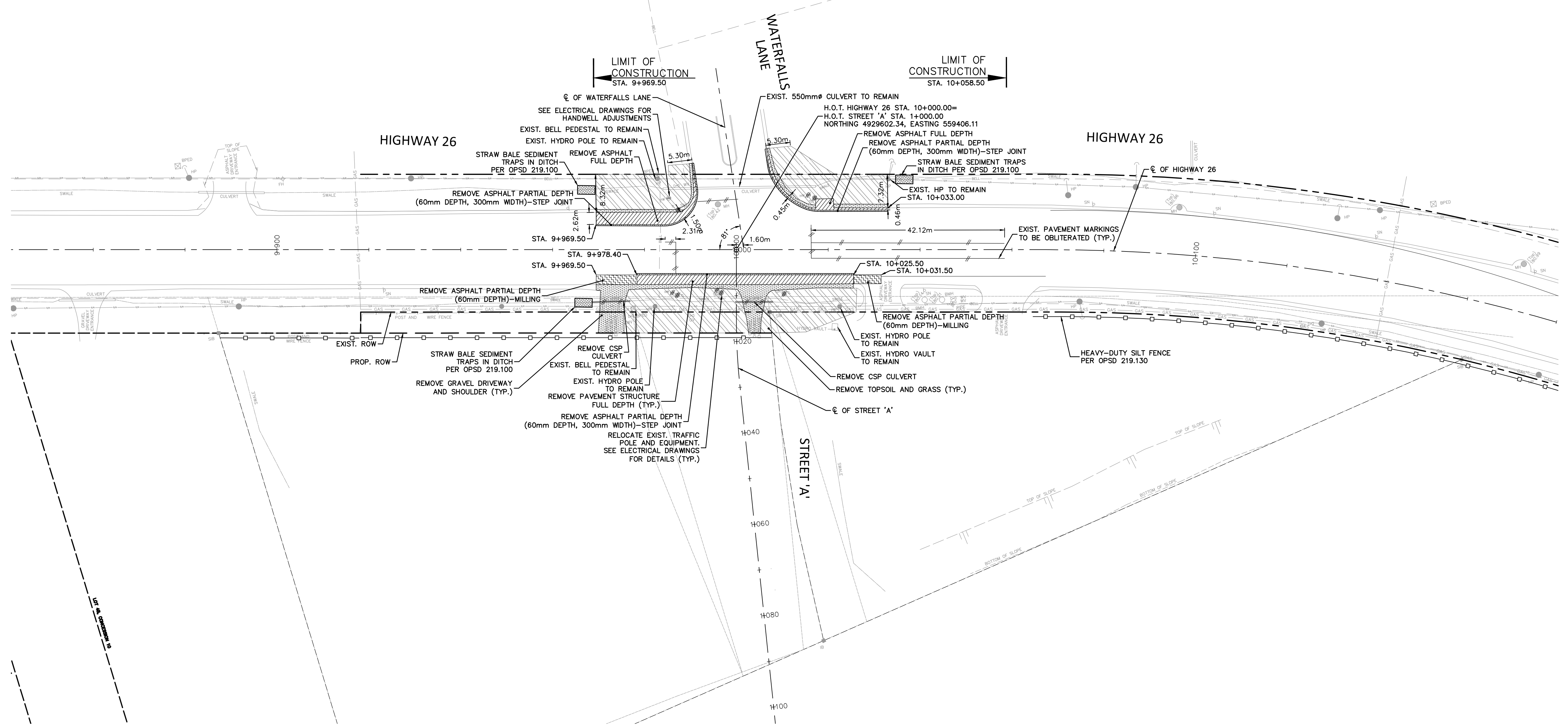
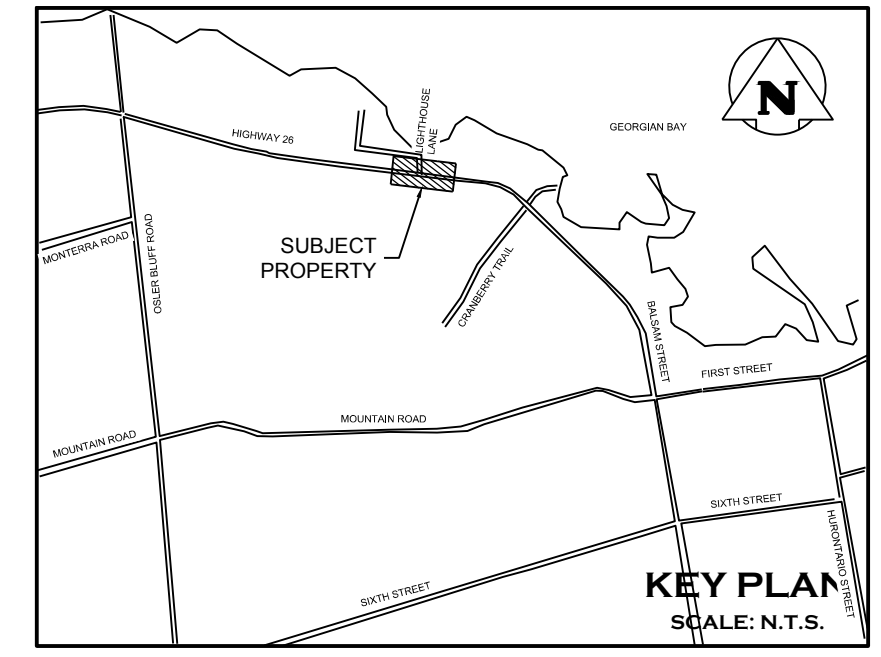
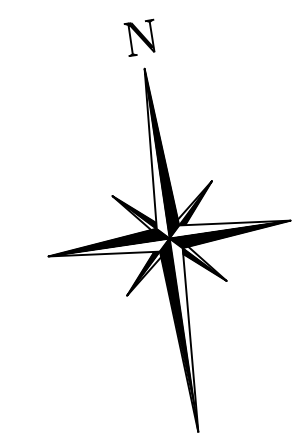
Drawing: **GENERAL NOTES**

CROZIER CONSULTING ENGINEERS

THE HARBOUREDGE BUILDING, 40 HURON STREET, SUITE 301, COLLINGWOOD, ON L9Y 4R3
 705 446-3510 T
 705 446-3520 F
 WWW.CFCROZIER.CA

Drawn By: I.Z. Design By: I.Z. Project: **1790-5382**

Check By: R.M. Check By: Scale: Drawing: **C300**



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| | | |

Engineer

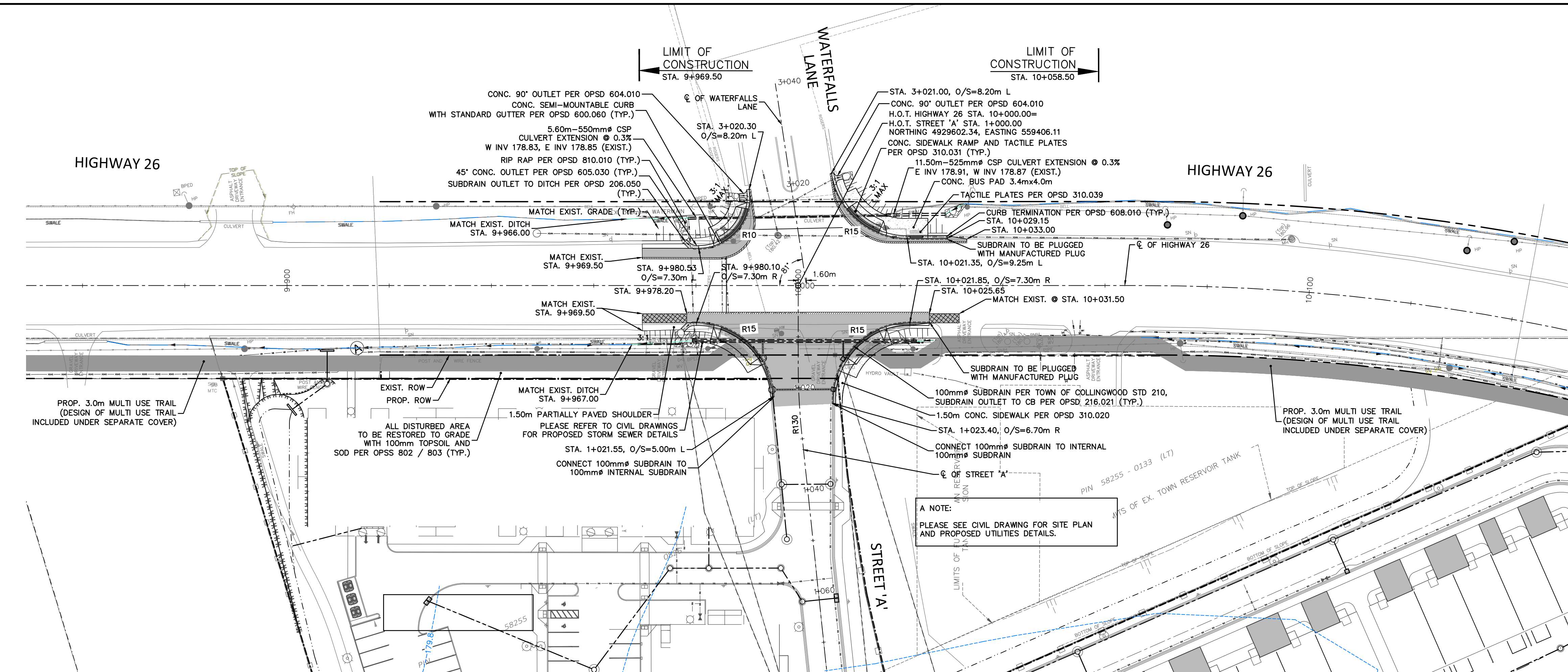
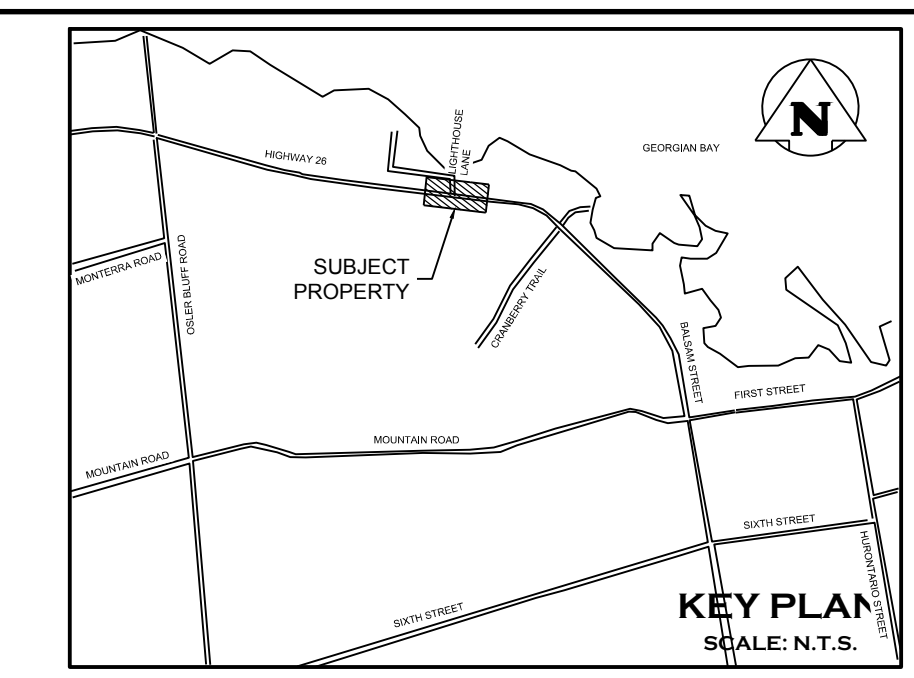
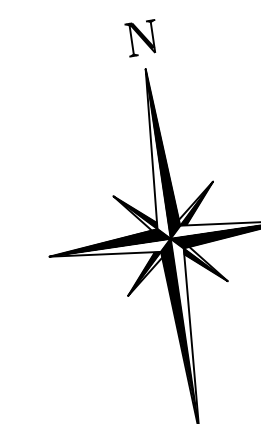
Engineer

Project: HIGHWAY 26 & WATERFALLS LANE/STREET 'A' INTERSECTION IMPROVEMENT TOWN OF COLLINGWOOD

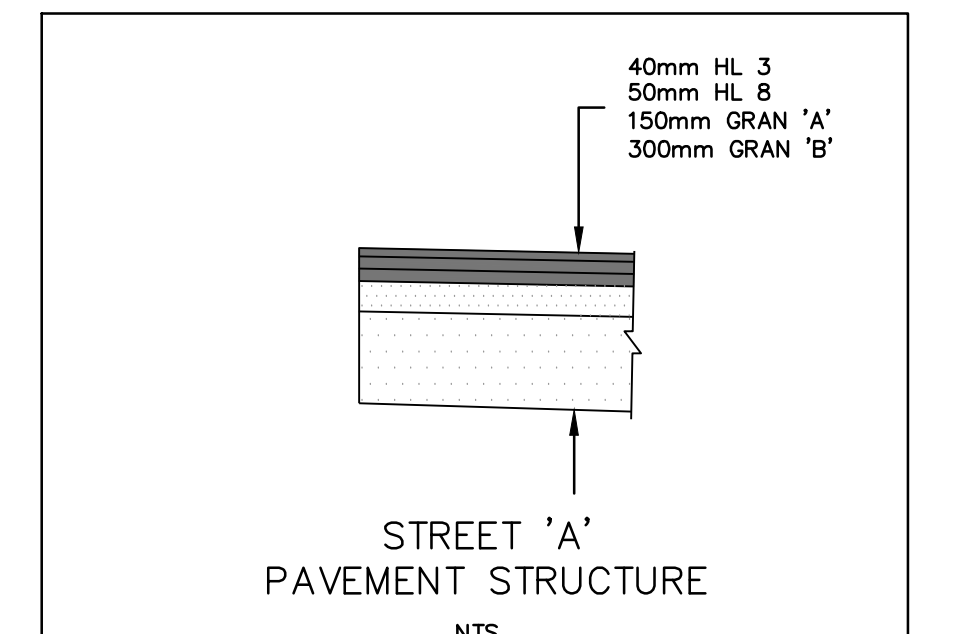
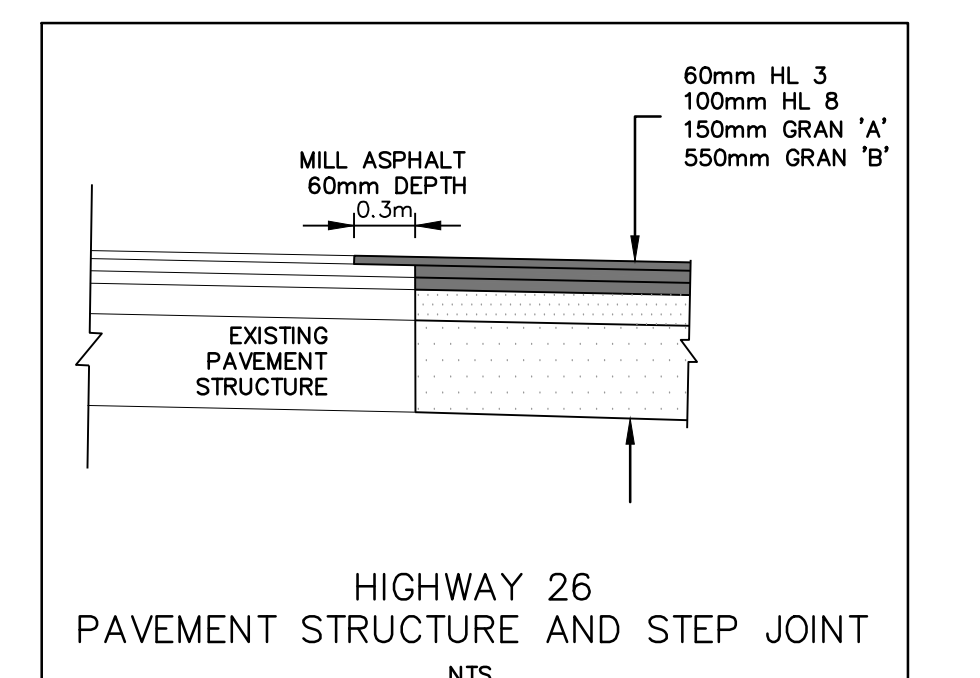
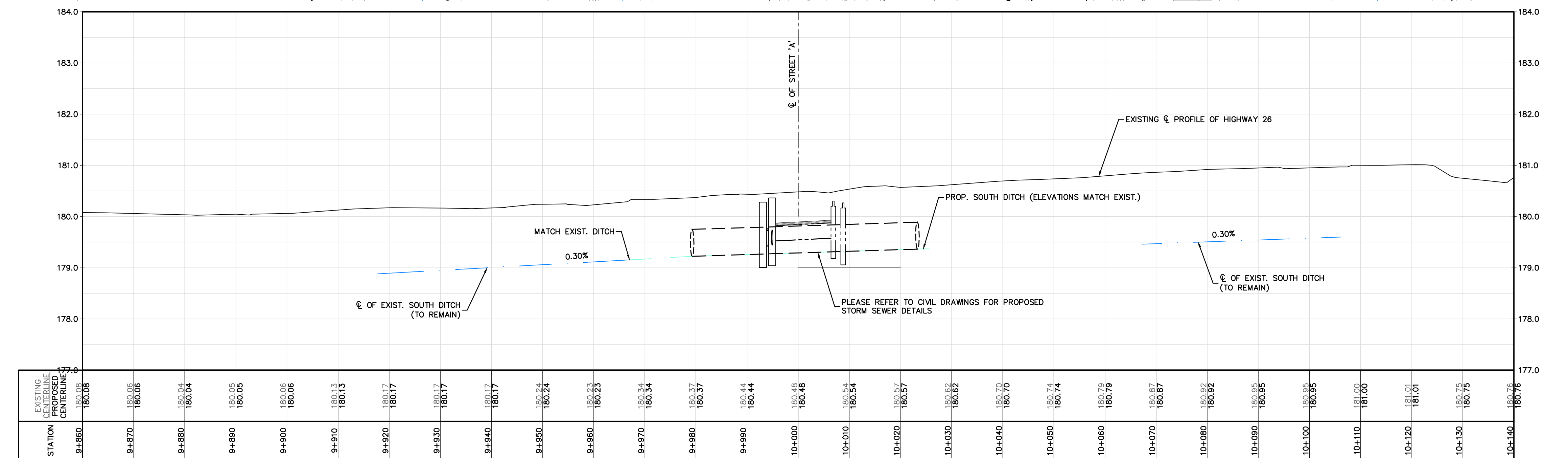
Drawing: REMOVALS AND EROSION & SEDIMENT CONTROL

THE HARBOUREDGE BUILDING,
40 HURON STREET, SUITE 301,
COLLINGWOOD, ON L9Y 4R3
705 446-3510 T
705 446-3520 F
WWW.CROZIER.CA
INFO@CROZIER.CA

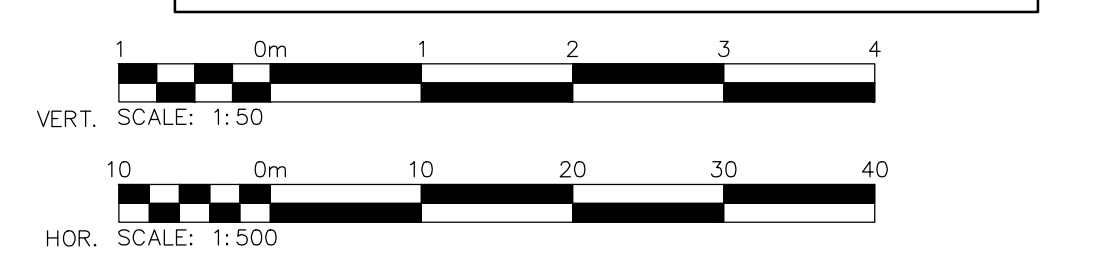
| | | | | | | |
|----------|------|-----------|------|---------|-----------|------|
| Drawn By | I.Z. | Design By | I.Z. | Project | 1790-5382 | |
| Check By | R.M. | Check By | | Scale | 1:500 | |
| | | | | | Drawing | C301 |



A NOTE:
PLEASE SEE CIVIL DRAWING FOR SITE PLAN AND PROPOSED UTILITIES DETAILS.



- NOTES:
1. SIDEWALK/BUS PAD TO BE CONSTRUCTED PER OPSS 351
 2. GRANULAR BASE FOR SIDEWALK/BUS PAD SHALL BE MINIMUM 150mm AND CONFIRM TO OPSS 1010.
 3. PROVIDE FROST TAPER 5:1 FOR SUBGRADE TRANSITION WHEN NEEDED.
 4. PLEASE REFER TO DRAWING C303 FOR PIPE POLYSTYRENE INSULATION DETAIL.



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ELEVATIONS SHOWN HEREON ARE GEODETIC AND ARE RELATED TO TOWN OF COLLINGWOOD BENCH MARK No. 001972U313, HAVING AN ELEVATION OF 179.633 METRES.

| No. | ISSUE | DATE: MM/DD/YYYY |
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| 2 | ISSUED FOR 60% DESIGN REVIEW | 07/17/2020 |
| 3 | ISSUED FOR 90% DESIGN REVIEW | 03/10/2021 |
| 4 | ISSUED FOR 100% DESIGN REVIEW | 09/03/2021 |

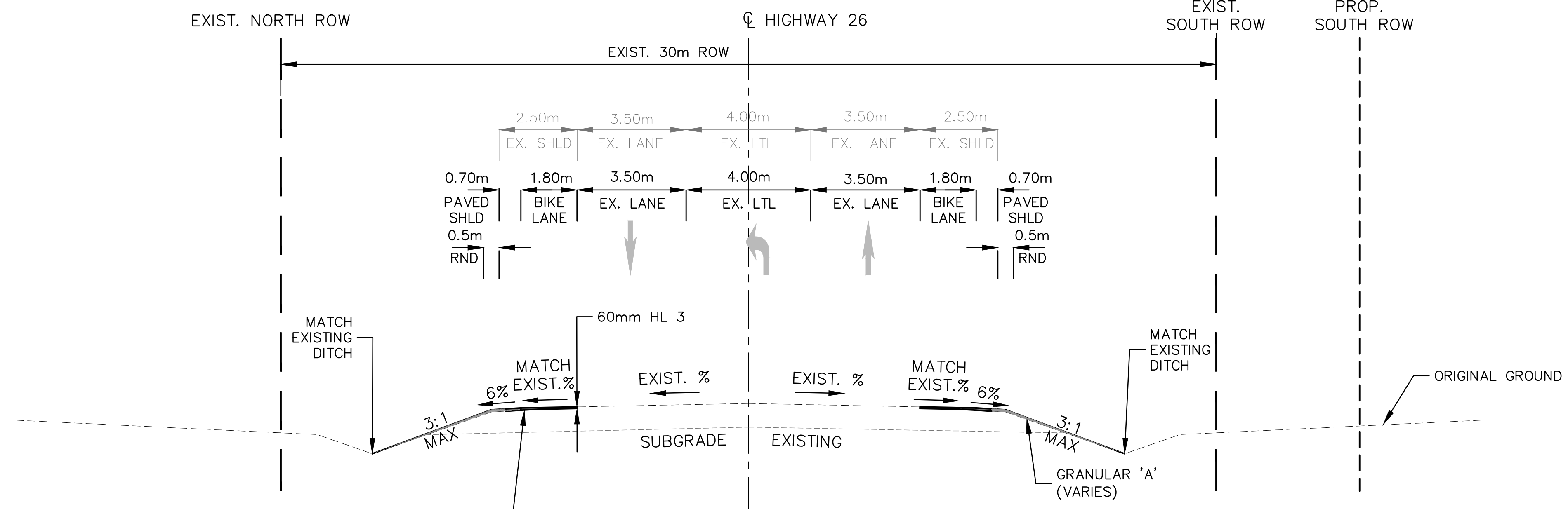
Engineer
P. MACLAUGHLAN
100201141
PROVINCE OF ONTARIO

Engineer
I.A. ZAKHAROVA
100182699
PROVINCE OF ONTARIO

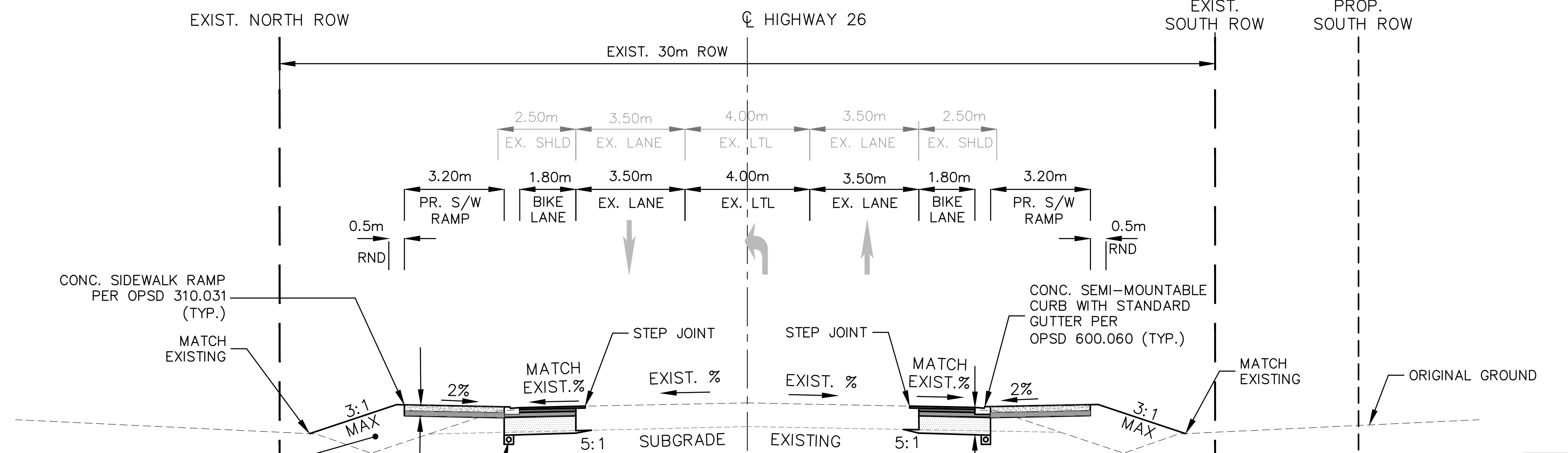
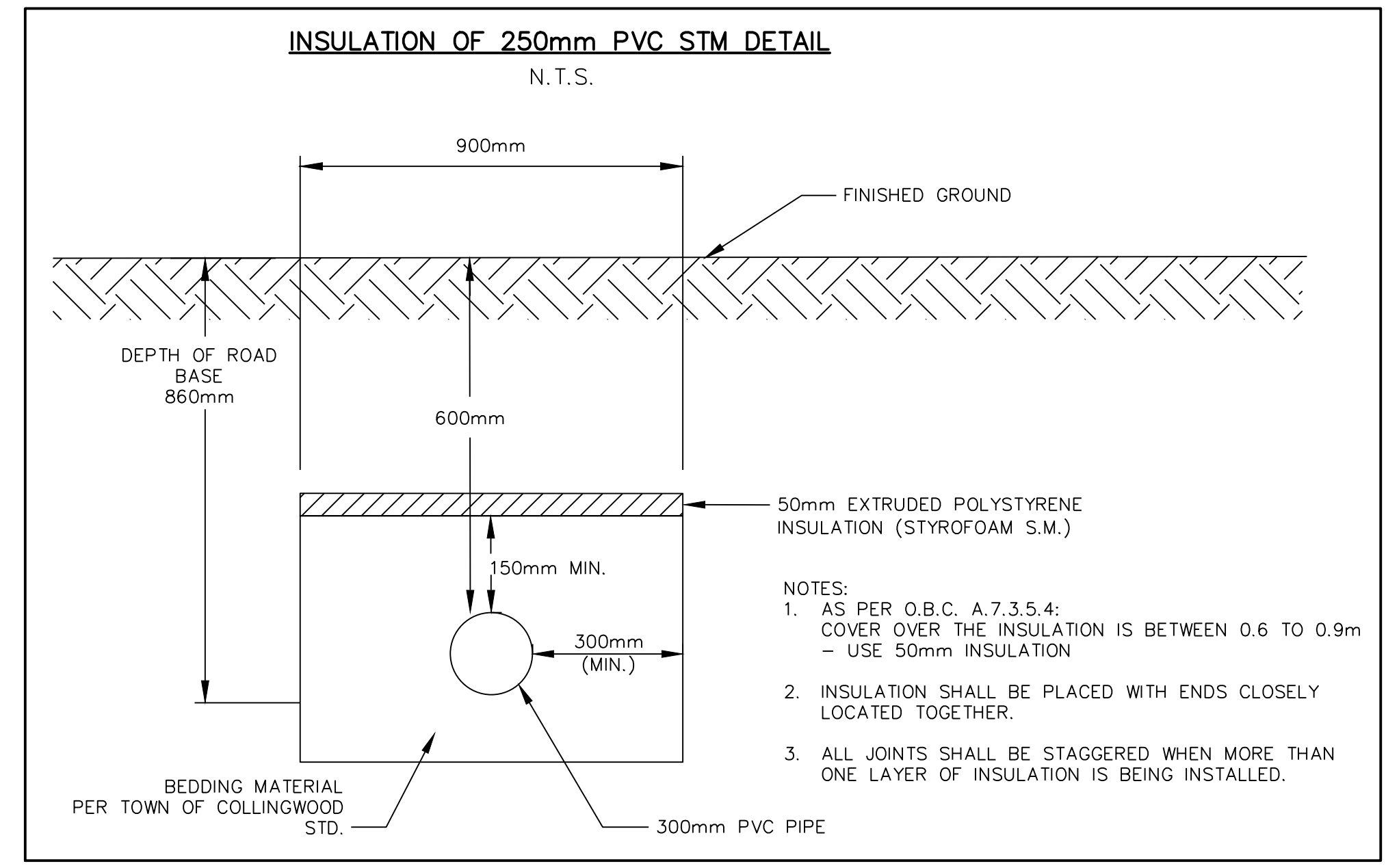
Project
HIGHWAY 26 & WATERFALLS LANE/STREET 'A'
INTERSECTION IMPROVEMENT
TOWN OF COLLINGWOOD
Drawing
NEW CONSTRUCTION

THE HARBOUREDGE BUILDING,
40 HURON STREET, SUITE 301,
COLLINGWOOD, ON L9Y 4R3
705 446-3510 T
705 446-3520 F
WWW.CROZIER.CA
INFO@CROZIER.CA

Drawn By: I.Z. Design By: I.Z. Project: 1790-5382
Check By: R.M. Check By: Scale: 1:500 Drawing: C302

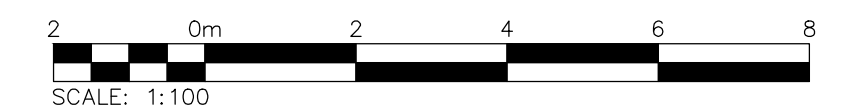


TYPICAL SECTION
HIGHWAY 26
FROM STA. 9+969.50 TO STA. 9+978.40



TYPICAL SECTION
HIGHWAY 26
FROM STA. 9+978.40 TO STA. 9+995.30

- NOTES:
1. PROPOSED SUBGRADE TO MATCH EXISTING TO ENSURE POSITIVE DRAINAGE. PROVIDE FROST TAPER 5:1 FOR SUBGRADE TRANSITION WHEN NEEDED.
 2. CONCRETE THICKNESS: FOR RAMP AND BUS PAD - 200mm, FOR SIDEWALK ADJACENT TO RAMP - 150mm ON 150mm GRANULAR 'A' BASE.



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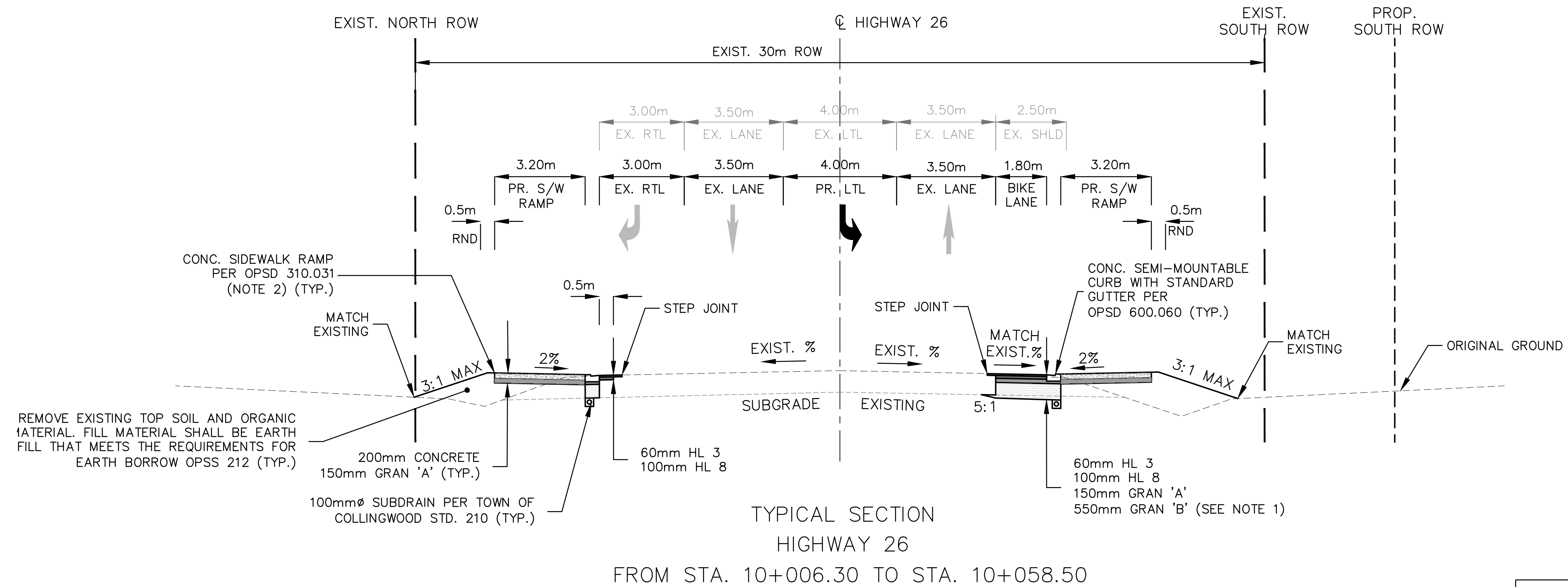
Engineer
I.A. ZAKHAROVA
100182699
Sept 3, 2021
PROVINCE OF ONTARIO

Engineer
I.A. ZAKHAROVA
100182699
Sept 3, 2021
PROVINCE OF ONTARIO

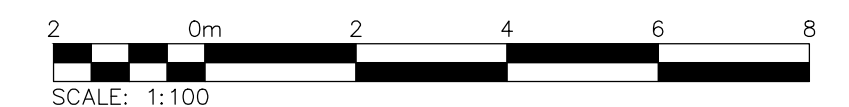
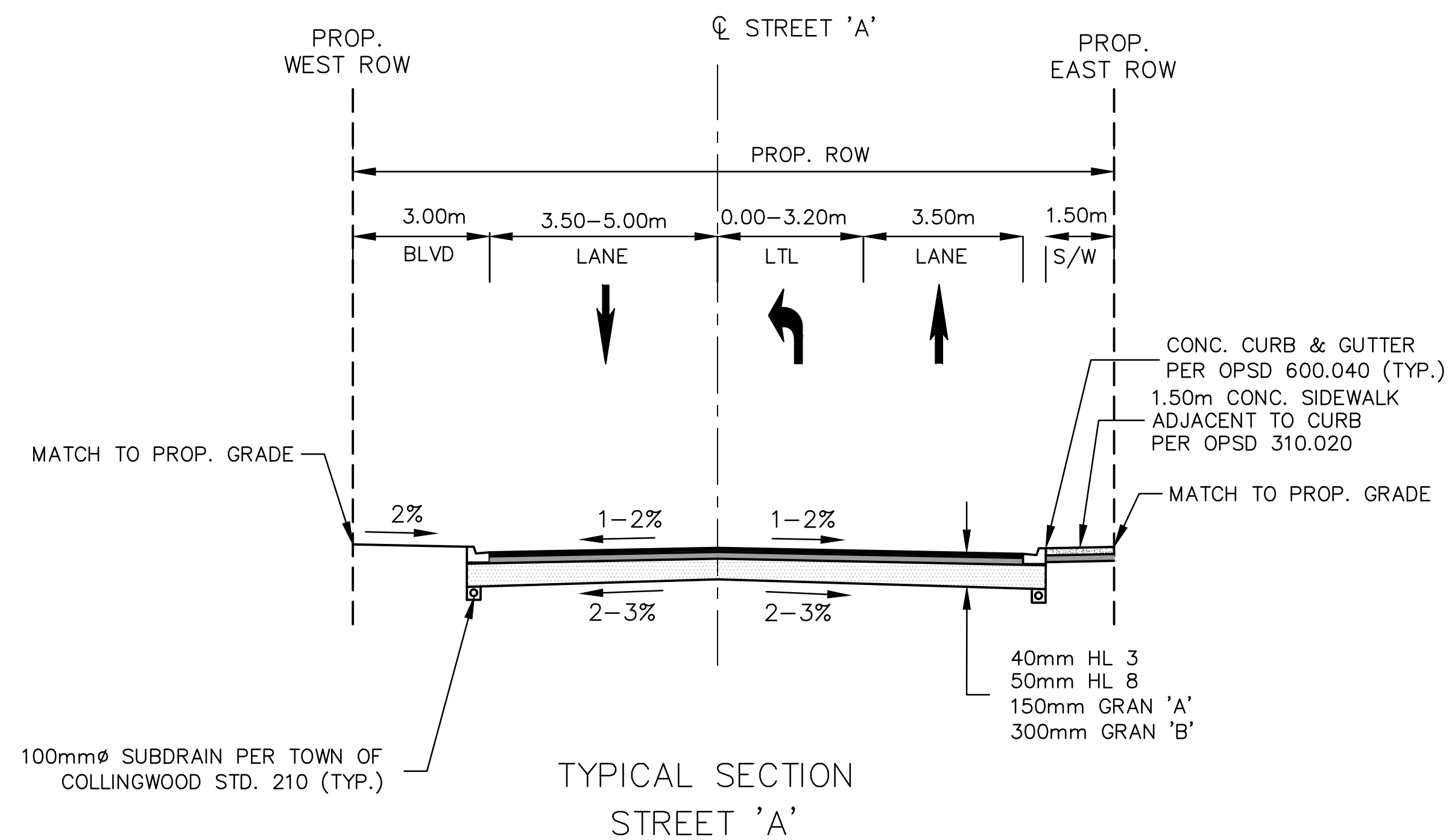
Project
HIGHWAY 26 & WATERFALLS LANE/STREET 'A'
INTERSECTION IMPROVEMENT
TOWN OF COLLINGWOOD
Drawing

CROZIER CONSULTING ENGINEERS
THE HARBOUREDGE BUILDING,
40 HURON STREET, SUITE 301,
COLLINGWOOD, ON L9Y 4R3
705 446-3510 T
705 446-3520 F
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Drawn By: I.Z. Design By: I.Z. Project: 1790-5382
Check By: R.M. Check By: Scale: 1:100 Drawing: C303



- NOTES:
1. PROPOSED SUBGRADE TO MATCH EXISTING TO ENSURE POSITIVE DRAINAGE. PROVIDE FROST TAPER 5:1 FOR SUBGRADE TRANSITION WHEN NEEDED.
 2. CONCRETE THICKNESS: FOR RAMP AND BUS PAD - 200mm, FOR SIDEWALK ADJACENT TO RAMP - 150mm ON 150mm GRANULAR 'A' BASE.



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4. DO NOT SCALE THE DRAWINGS.

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| No. | ISSUE | DATE: MM/DD/YYYY |
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| | | |
| | | |
| | | |

Engineer: **P. McLAUGHLAN** 100201141
 LICENSED PROFESSIONAL ENGINEER
 PROVINCE OF ONTARIO

Engineer: **I.A. ZAKHAROVA** 100182699
 LICENSED PROFESSIONAL ENGINEER
 PROVINCE OF ONTARIO

Project: **HIGHWAY 26 & WATERFALLS LANE/STREET 'A' INTERSECTION IMPROVEMENT TOWN OF COLLINGWOOD**

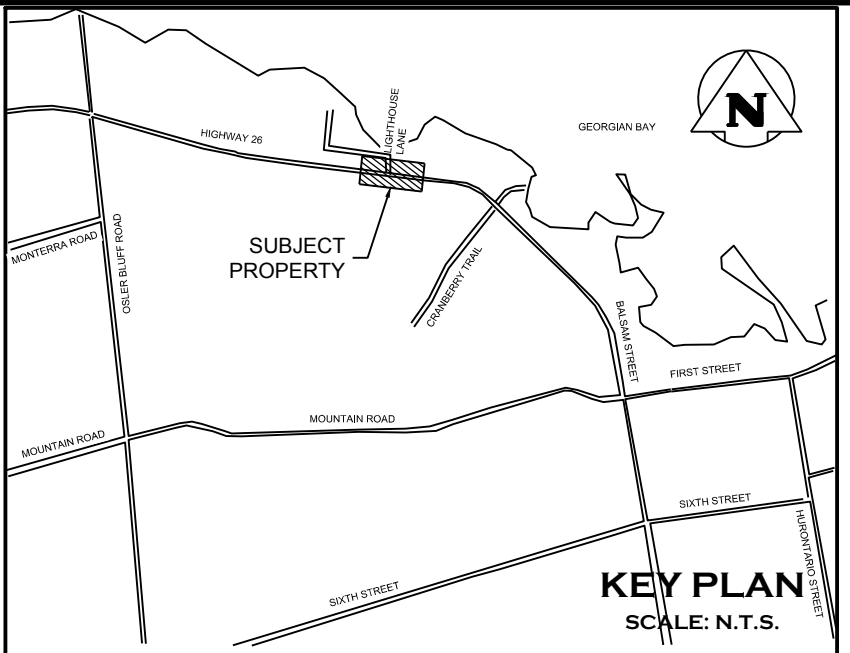
Drawing: **TYPICAL SECTIONS**

CROZIER CONSULTING ENGINEERS

THE HARBOUREDGE BUILDING,
 40 HURON STREET, SUITE 301,
 COLLINGWOOD, ON L9Y 4R3
 705 446-3510 T
 705 446-3520 F
 WWW.CFCROZIER.CA
 INFO@CFCROZIER.CA

Drawn By: I.Z. Design By: I.Z. Project: **1790-5382**

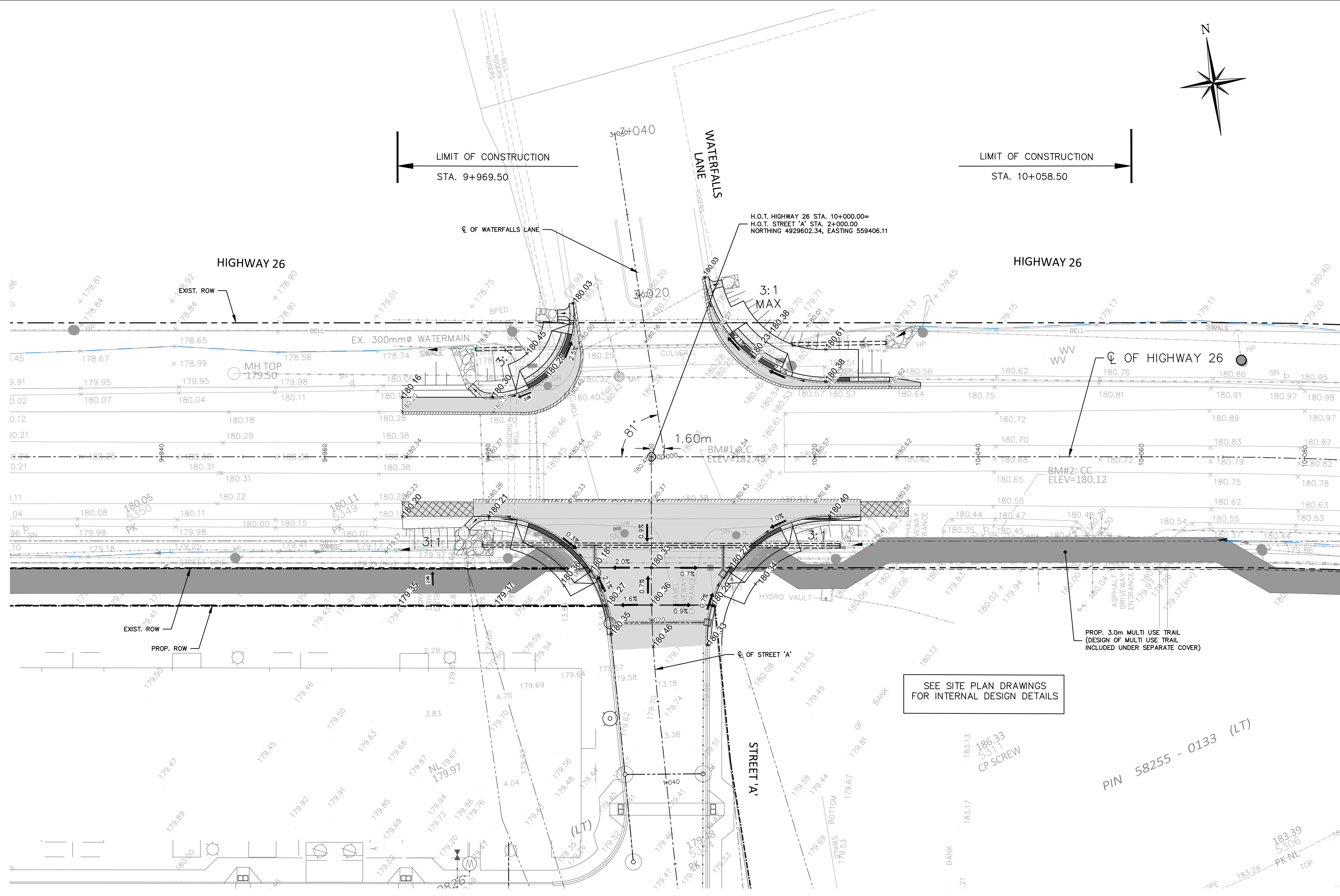
Check By: R.M. Check By: Scale: 1:100 Drawing: **C304**



LEGEND

- EXISTING ROW
- - - PROPOSED ROW
- LOT LINE

- EXISTING ELEVATIONS
- PROPOSED ELEVATIONS



SEE SITE PLAN DRAWINGS FOR INTERNAL DESIGN DETAILS

PIN 58255 - 0133 (LT)



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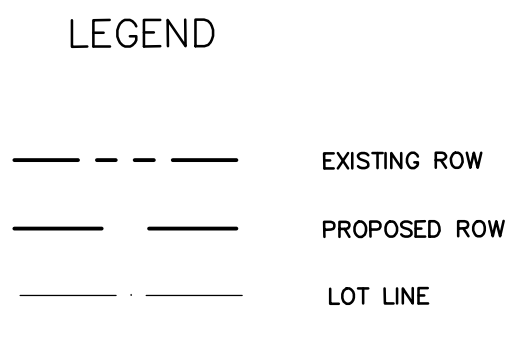
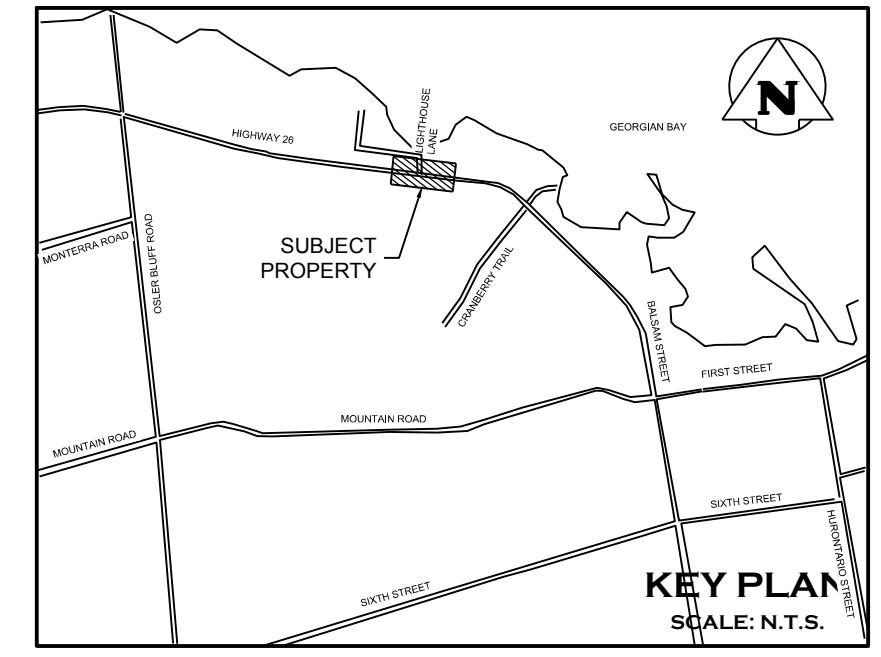
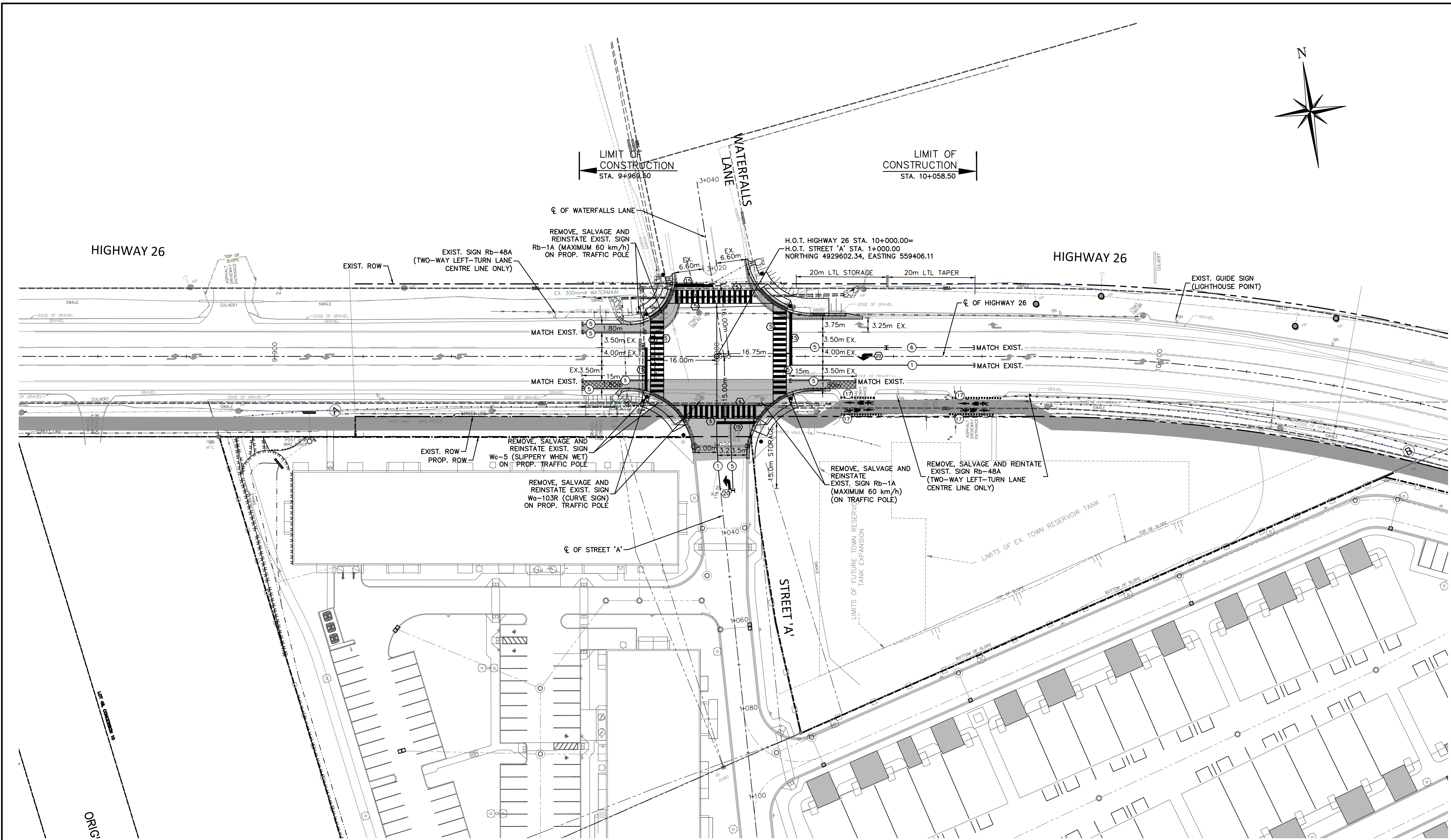
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Project: HIGHWAY 26 & WATERFALLS LANE/STREET 'A' INTERSECTION IMPROVEMENT TOWN OF COLLINGWOOD
 Drawing: PAVEMENT ELEVATIONS AND GRADING

CROZIER CONSULTING ENGINEERS
 THE HARBOUREDGE BUILDING, 40 HURON STREET, SUITE 301, COLLINGWOOD, ON L9Y 4R3
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 705 446-3520 F
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Drawn By: I.Z. Design By: I.Z. Project: 1790-5382
 Check By: R.M. Check By: Scale: 1:250 Drawing: C305



PAVEMENT MARKINGS LEGEND

| | |
|-----|---------------------------|
| 1 | SOLID YELLOW, 10cm |
| 5 | SOLID WHITE, 10cm |
| 6 | 333 BROKEN WHITE, 10cm |
| 15 | SOLID WHITE, 60cm |
| 17 | 0.40.4 BROKEN WHITE, 40cm |
| 20 | SYMBOLS |
| [] | LIMITS OF MARKINGS |

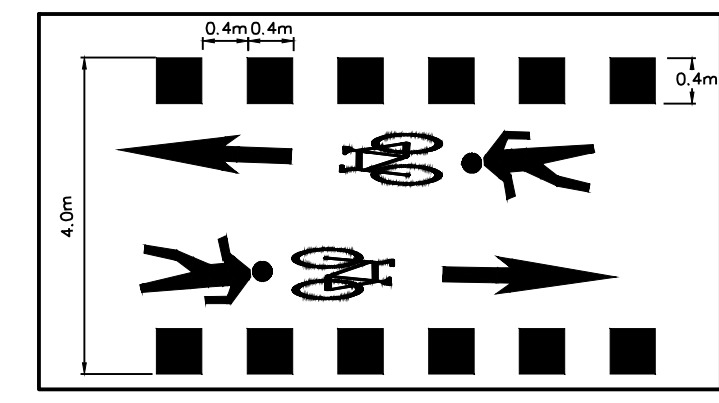
NOTES:

- 333 DENOTES PAVEMENT MARKING SPACING AS 3m LINE, 3m GAP, 3m LINE
- USE ⊗ TO DENOTE PAVEMENT MARKING
- USE ⊗ TO DENOTE DURABLE PAVEMENT MARKING

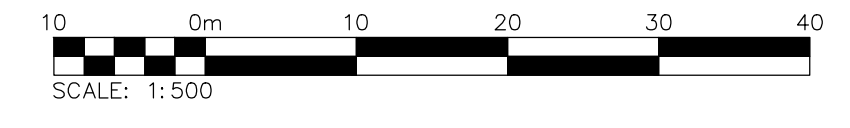
SIGNAGE LEGEND

| SIGN NAME | SIGN NUMBER | SIZE (cm) | OTM BOOK | QUANTITY |
|-----------------------------|-------------|-----------|----------|----------|
| MAXIMUM SPEED BEGINS | | | | |
| | Rb-2 | 60x90 | 5 | 2 |
| CURVE SIGN | | | | |
| | Wa-103R | 75x75 | 6 | 1 |
| SLIPPERY WHEN WET | | | | |
| | Wc-5 | 75x75 | 6 | 1 |

A NOTE:
ALL PAVEMENT MARKINGS AND SIGNAGE HAVE BEEN DESIGNED IN CONJUNCTION WITH ONTARIO TRAFFIC MANUAL (OTM) BOOK 5, 6, 11 AND 18



MIXED PEDESTRIAN AND CYCLIST CROSS-RIDE DETAIL (REFER TO FIGURE 4.103 (OTM BOOK 18))

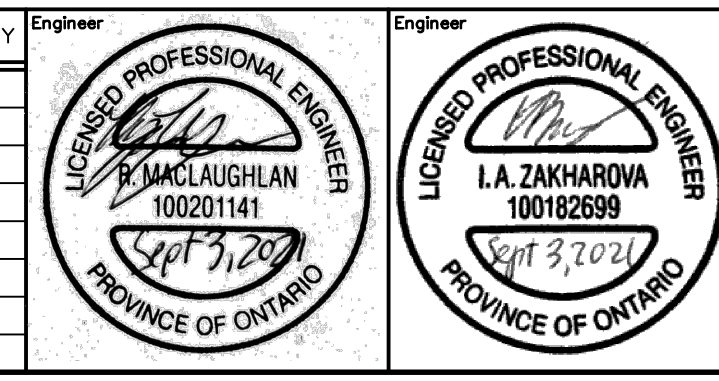


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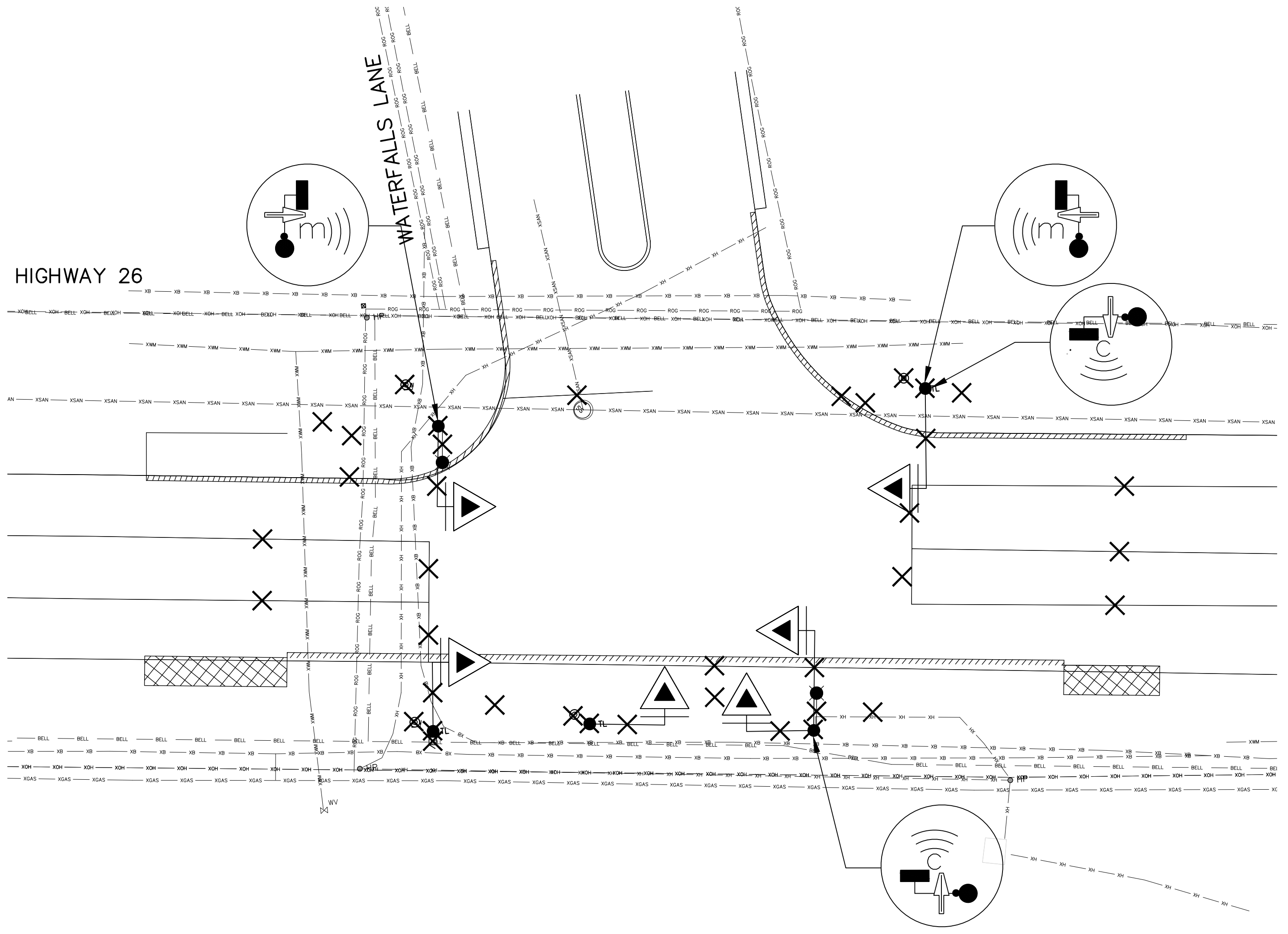
Engineer: **B. MACLAUGHLAN** 100201141
Engineer: **I.A. ZAKHAROVA** 100182699



Project: **HIGHWAY 26 & WATERFALLS LANE/STREET 'A' INTERSECTION IMPROVEMENT TOWN OF COLLINGWOOD**
Drawing: **PAVEMENT MARKINGS AND SIGNAGE**

CROZIER CONSULTING ENGINEERS
THE HARBOUREDGE BUILDING, 40 HURON STREET, SUITE 301, COLLINGWOOD, ON L3Y 4R3
705 446-3510 T
705 446-3520 F
WWW.CFCROZIER.CA
INFO@CFCROZIER.CA

Drawn By: I.Z. Design By: I.Z. Project: **1790-5382**
Check By: R.M. Check By: Scale: 1:500 Drawing: **C306**



LEGEND:

- _{HP} EXISTING HYDRO POLE
- EXISTING TRAFFIC SIGNAL POLE
- ← EXISTING GUY WIRE
- ⊙ EXISTING LUMINAIRE WITH BRACKET
- ⊙ EXISTING ELECTRICAL HANDHOLE, UNDERGROUND WITH IDENTIFICATION CODE
- ▽ EXISTING OVERSIZE HIGHWAY SIGNAL HEAD WITH BACKBOARD AND MAST ARM (ALL 30 cm LENSES)
- EXISTING PEDESTRIAN SIGNAL HEAD
- Ⓞ_c EXISTING ACCESSIBLE PEDESTRIAN PUSH BUTTON WITH AUDIBLE TONE N&S: CUCKOO
- Ⓞ_m EXISTING ACCESSIBLE PEDESTRIAN PUSH BUTTON WITH AUDIBLE TONE E&W: MELODY
- ⊗ EXISTING TRAFFIC CONTROLLER
- ✕ REMOVE
- _{OH}— EXISTING OVERHEAD HYDRO
- _{BELL}— EXISTING BELL
- _{ROG}— EXISTING ROGERS
- _{GAS}— EXISTING GAS

HIGHWAY 26

WATERFALLS LANE

EXISTING REMOVALS PLAN

SCALE: 1:200

TEMPORARY SIGNALS GENERAL NOTES:

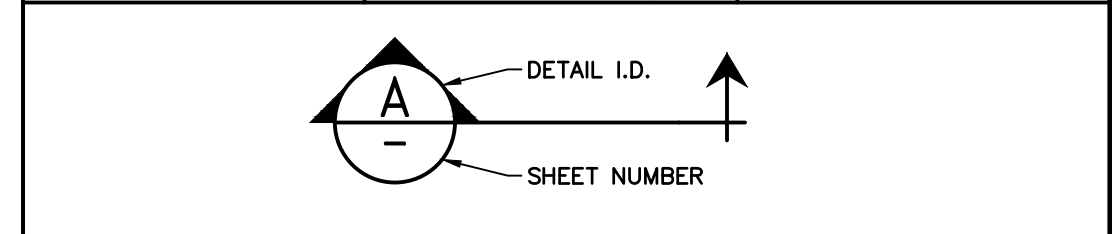
1. ONCE TEMPORARY TRAFFIC SIGNALS ARE INSTALLED ELECTRICAL CONTRACTOR TO ABANDON UNDERGROUND CONDUITS AND DISPOSE OF ALL TRAFFIC SIGNAL AND STREETLIGHT CABLES. COORDINATE TRAFFIC SIGNAL REMOVALS WITH THE TOWN OF COLLINGWOOD PRIOR TO SUBJECT REMOVALS.
2. ELECTRICAL CONTRACTOR TO MAINTAIN EXISTING LIGHTING AT THE INTERSECTION AT ALL THE TIMES. COORDINATE STREET LIGHT REMOVALS WITH THE TOWN OF COLLINGWOOD PRIOR TO SUBJECT REMOVALS.
3. ELECTRICAL CONTRACTOR TO COORDINATE WITH THE TOWN OF COLLINGWOOD PRIOR TO THE SWITCH OVER FROM EXISTING TO TEMPORARY TRAFFIC SIGNALS.

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| 2 | ISSUED FOR 100% DESIGN REVIEW | 09/03/2021 |

North

Engineer

Engineer



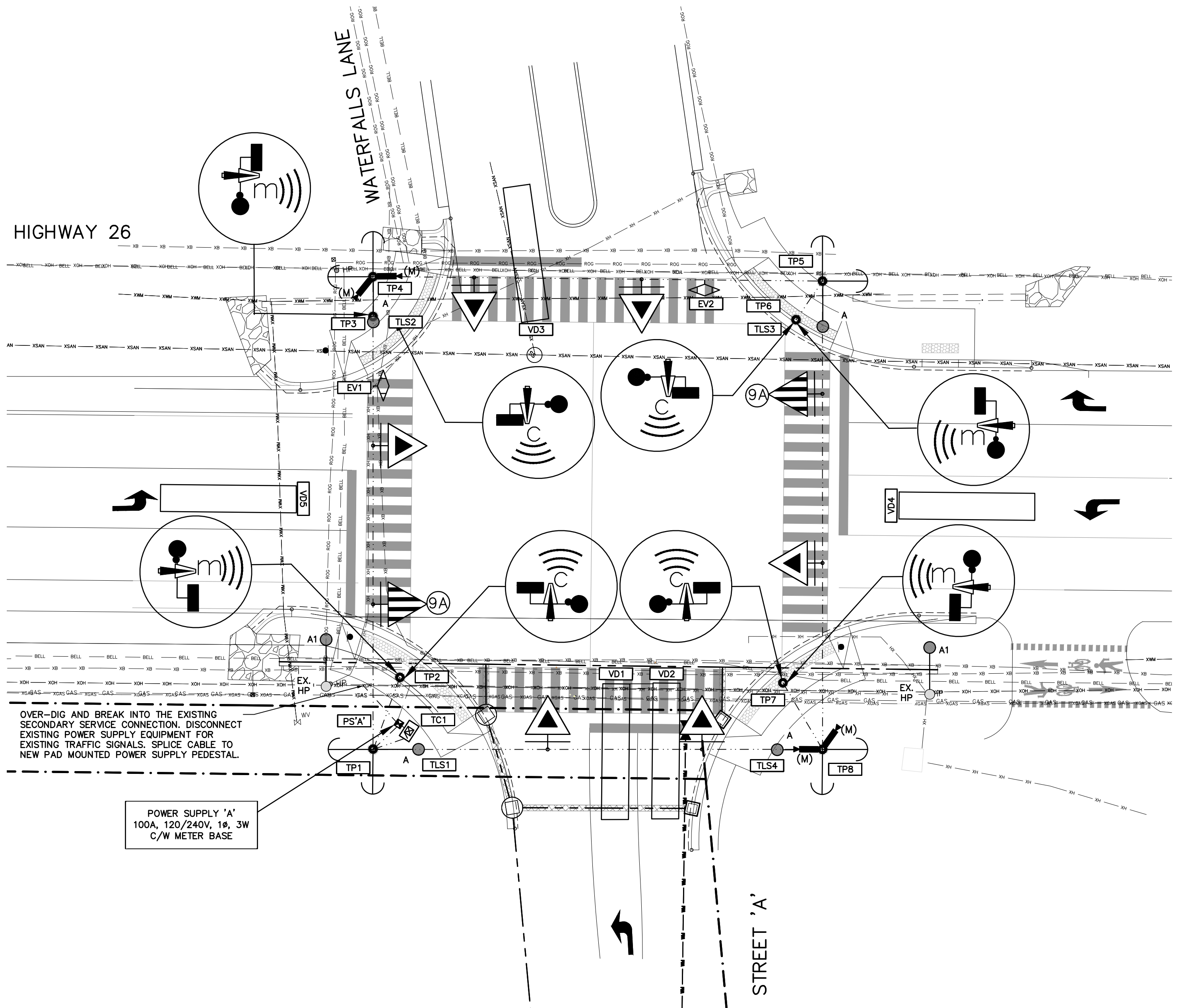
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Project
HWY 26 & WATERFALLS LANE INTERSECTION

Drawing
EXISTING REMOVALS PLAN

THE HARBOUREDGE BUILDING,
40 HURON STREET, SUITE 301,
COLLINGWOOD, ON L5Y 4R3
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705 446-3520 F
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| | | | | | |
|----------|---------------|----------|-------------|---------|------------------|
| Drawn By | T.S.D./J.R.B. | Check By | N.J.M./P.W. | Project | 1790-5382 |
| Scale | 1:200 | Date | 03/05/2021 | Drawing | E1 |



LEGEND:

| | |
|--|--|
| | POWER SUPPLY EQUIPMENT |
| | HIGHWAY SIGNAL HEAD, ALL 300mm LENSES, WITH BACKBOARD |
| | LUMINAIRE WITH BRACKET |
| | CONTROLLER CABINET, PAD AND/OR FOOTING MOUNTED |
| | DUCTS AND/OR CABLES, UNDERGROUND |
| | EXISTING HYDRO POLE TO REMAIN, HPLS HYDRO POLE WITH LIGHT STAND |
| | POLE WITH IDENTIFICATION CODE |
| | ELECTRICAL HANDHOLE, UNDERGROUND WITH IDENTIFICATION CODE |
| | TRAFFIC SIGNAL CABINET IDENTIFICATION CODE |
| | LUMINAIRE IDENTIFICATION CODE |
| | HYDRO POLE |
| | EXISTING HYDRO (OVERHEAD) |
| | NORTH/SOUTH AUDIBLE PED |
| | EAST/WEST AUDIBLE PED |
| | EXISTING BELL |
| | EXISTING ROGERS |
| | EXISTING GAS |
| | WAVETRONIX MATRIX SMART SENSOR |
| | RADAR DETECTOR WITH IDENTIFICATION CODE |
| | EMERGENCY VEHICLE DUAL CHANNEL PRE-EMPTION DETECTOR WITH IDENTIFICATION CODE |

TEMPORARY SIGNALS PLAN
SCALE: 1:200

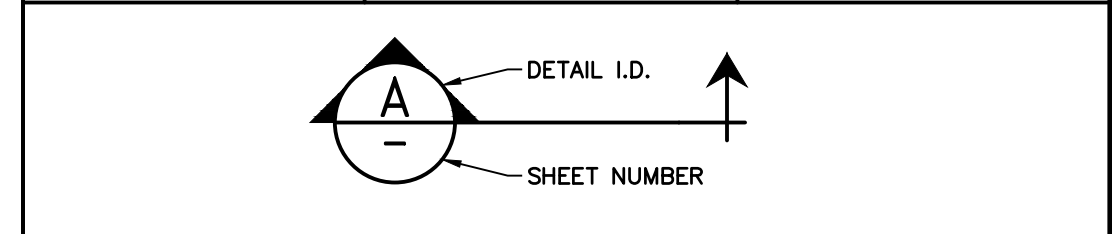
- TEMPORARY SIGNALS GENERAL NOTES:**
- TABLE 9 OF CAN/CSA-C22.3 NO.1 REQUIRES THE FOLLOWING MINIMUM CLEARANCES: (1) VERTICAL CLEARANCE (AT MAXIMUM SAG ABOVE THE POLE SUPPORTING LUMINAIRES) (A) 0.5 M FOR INSULATED CONDUCTORS RANGING FROM 0-750 V; AND (B) 2.5 M FOR NON-INSULATED CONDUCTORS ABOVE 750 V TO 22 KV. (2) HORIZONTAL CLEARANCES (ADD MAXIMUM SWING TO BELOW VALUES) (A) 0.3 M FOR INSULATED CONDUCTORS RANGING FROM 0-750 V; AND (B) 2.0 M FOR NON-INSULATED CONDUCTORS ABOVE 750 V TO 22 KV.

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| 2 | ISSUED FOR 100% DESIGN REVIEW | 09/03/2021 |

North

Engineer

Engineer



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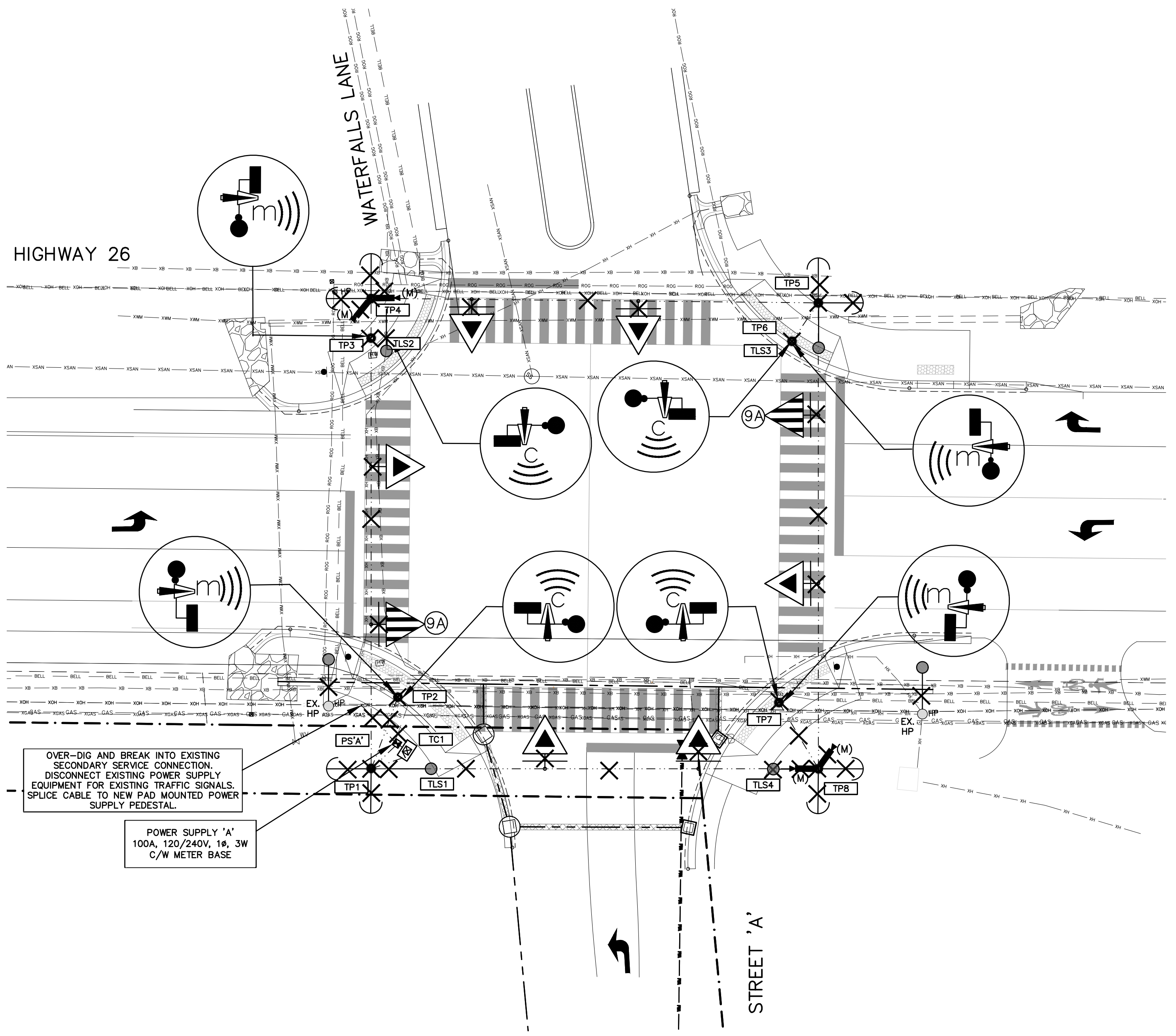
Project
HWY 26 & WATERFALLS LANE INTERSECTION

Drawing
TEMPORARY SIGNALS PLAN

CROZIER & ASSOCIATES
Consulting Engineers

THE HARBOUREDGE BUILDING,
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| | | | | | |
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| Drawn By | T.S.D./J.R.B. | Check By | N.J.M./P.W. | Project | 1790-5382 |
| Scale | 1:200 | Date | 03/05/2021 | Drawing | E2 |



LEGEND:

| | |
|--|---|
| | POWER SUPPLY EQUIPMENT |
| | HIGHWAY SIGNAL HEAD, ALL 300mm LENSES, WITH BACKBOARD |
| | LUMINAIRE WITH BRACKET |
| | CONTROLLER CABINET, PAD AND/OR FOOTING MOUNTED |
| | DUCTS AND/OR CABLES, UNDERGROUND |
| | EXISTING HYDRO POLE TO REMAIN, HPLS HYDRO POLE WITH LIGHT STAND |
| | TEMPORARY POLE WITH IDENTIFICATION CODE |
| | POLE WITH IDENTIFICATION CODE |
| | ELECTRICAL HANDHOLE, UNDERGROUND WITH IDENTIFICATION CODE |
| | TRAFFIC SIGNAL CABINET IDENTIFICATION CODE |
| | LUMINAIRE IDENTIFICATION CODE |
| | HYDRO POLE |
| | PROPOSED TEMPORARY HYDRO (OVERHEAD) |
| | EXISTING HYDRO (OVERHEAD) |
| | REMOVE |
| | PROPOSED TEMPORARY GUY WIRE |
| | NORTH/SOUTH AUDIBLE PED |
| | EAST/WEST AUDIBLE PED |
| | EXISTING BELL |
| | EXISTING ROGERS |
| | EXISTING GAS |
| | WAVETRONIX MATRIX SMART SENSOR |

TEMPORARY SIGNALS REMOVAL PLAN
SCALE: 1:200

TEMPORARY SIGNALS GENERAL NOTES:

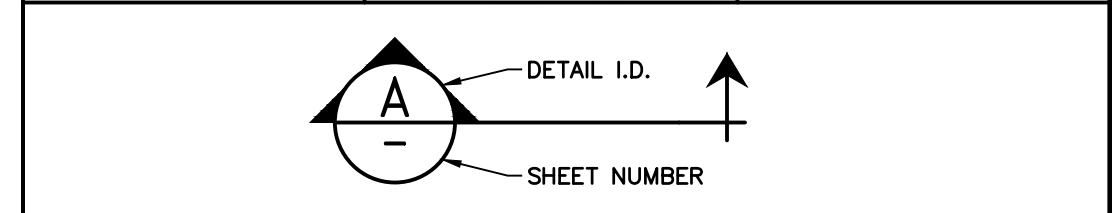
1. ELECTRICAL CONTRACTOR TO FINALIZE THE PROPOSED SIGNAL WORKS PRIOR TO THE REMOVALS OF THE TEMPORARY TRAFFIC SIGNALS. COORDINATE WITH THE TOWN OF COLLINGWOOD FOR APPROVAL OF THE PROPOSED SIGNAL WORKS PRIOR TO REMOVAL OF THE TEMPORARY SIGNAL INSTALLATION.

| No. | ISSUE / REVISION | DATE: MM/DD/YYYY |
|-----|-------------------------------|------------------|
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| 1 | ISSUED FOR 90% DESIGN REVIEW | 03/10/2021 |
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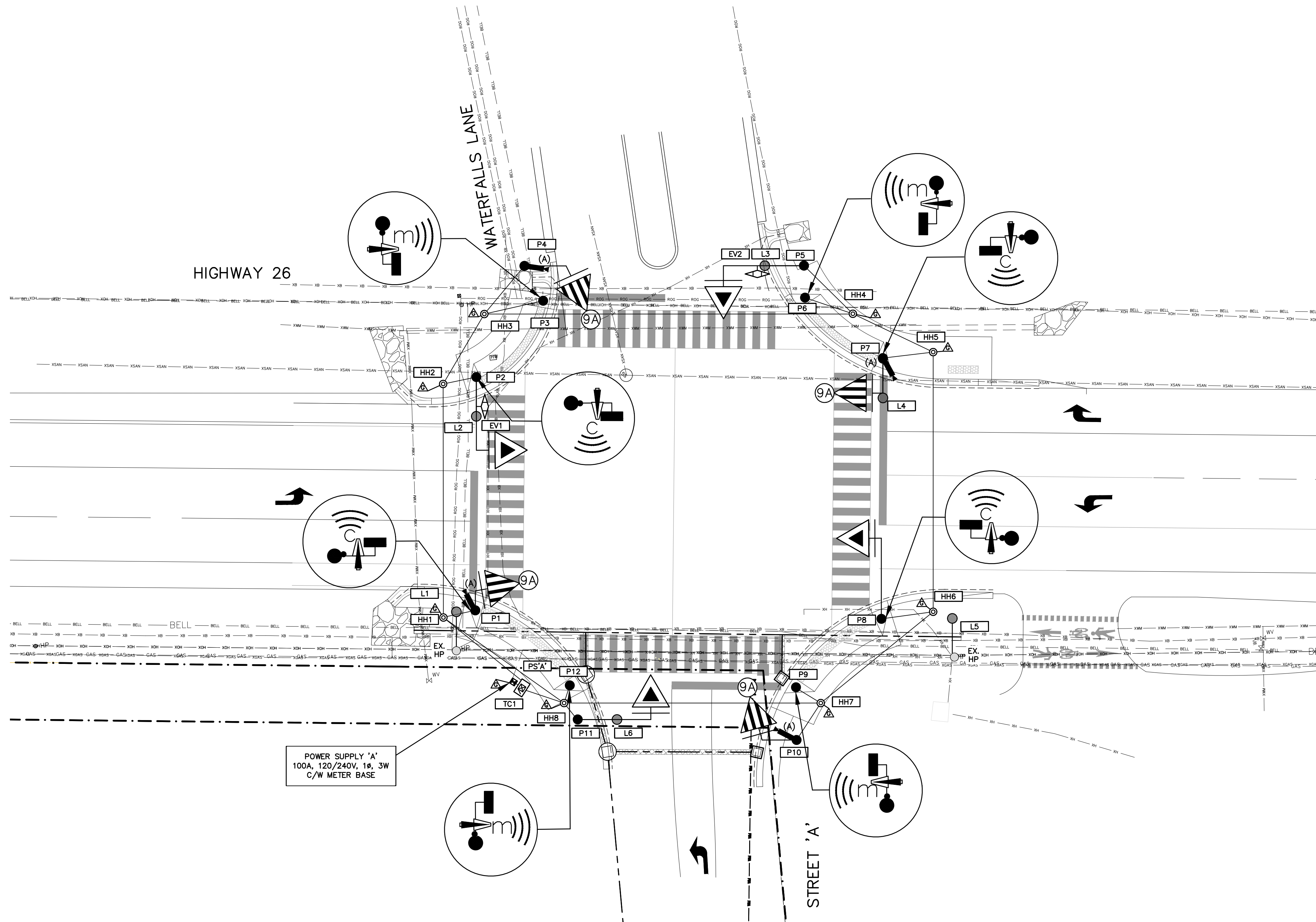
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5. ALL EXISTING UNDERGROUND UTILITIES TO BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

Project
HWY 26 & WATERFALLS LANE INTERSECTION

Drawing
TEMPORARY SIGNALS REMOVAL PLAN

THE HARBOUREDGE BUILDING,
40 HURON STREET, SUITE 301,
COLLINGWOOD, ON L5Y 4R3
705 446-3510 T
705 446-3520 F
www.cfcrozier.ca
info@cfcrozier.ca

| | | | | | |
|----------|---------------|----------|-------------|---------|-----------|
| Drawn By | T.S.D./J.R.B. | Check By | N.J.M./P.W. | Project | 1790-5382 |
| Scale | 1:200 | Date | 03/05/2021 | Drawing | E3 |



POWER SUPPLY 'A'
100A, 120/240V, 1φ, 3W
C/W METER BASE

ELECTRICAL SIGNALS PLAN
SCALE: 1:200

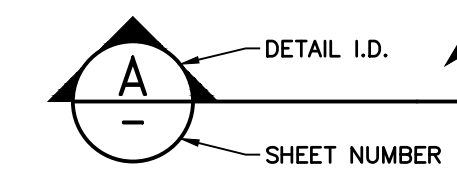
LEGEND:

| | |
|--|--|
| | POWER SUPPLY EQUIPMENT |
| | HIGHWAY SIGNAL HEAD, ALL 300mm LENSES, WITH BACKBOARD |
| | LUMINAIRE WITH BRACKET |
| | CONTROLLER CABINET, PAD AND/OR FOOTING MOUNTED |
| | DUCTS AND/OR CABLES, UNDERGROUND |
| | SPECIAL HEAD TYPE WITH ARROW INDICATION AND BACKBOARD (ALL 30 cm LENSES) |
| | EXISTING HYDRO POLE TO REMAIN, HPLS HYDRO POLE WITH LIGHT STAND |
| | POLE WITH IDENTIFICATION CODE |
| | ELECTRICAL HANDHOLE, UNDERGROUND WITH IDENTIFICATION CODE |
| | TRAFFIC SIGNAL CABINET IDENTIFICATION CODE |
| | LUMINAIRE IDENTIFICATION CODE |
| | HYDRO POLE |
| | EXISTING HYDRO (OVERHEAD) |
| | NORTH/SOUTH AUDIBLE PED |
| | EAST/WEST AUDIBLE PED |
| | EXISTING BELL |
| | EXISTING ROGERS |
| | EXISTING GAS |
| | WAVETRONIX MATRIX ADVANCE SENSOR |
| | EMERGENCY VEHICLE DUAL CHANNEL PRE-EMPTION DETECTOR WITH IDENTIFICATION CODE |

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Project
HWY 26 & WATERFALLS LANE INTERSECTION

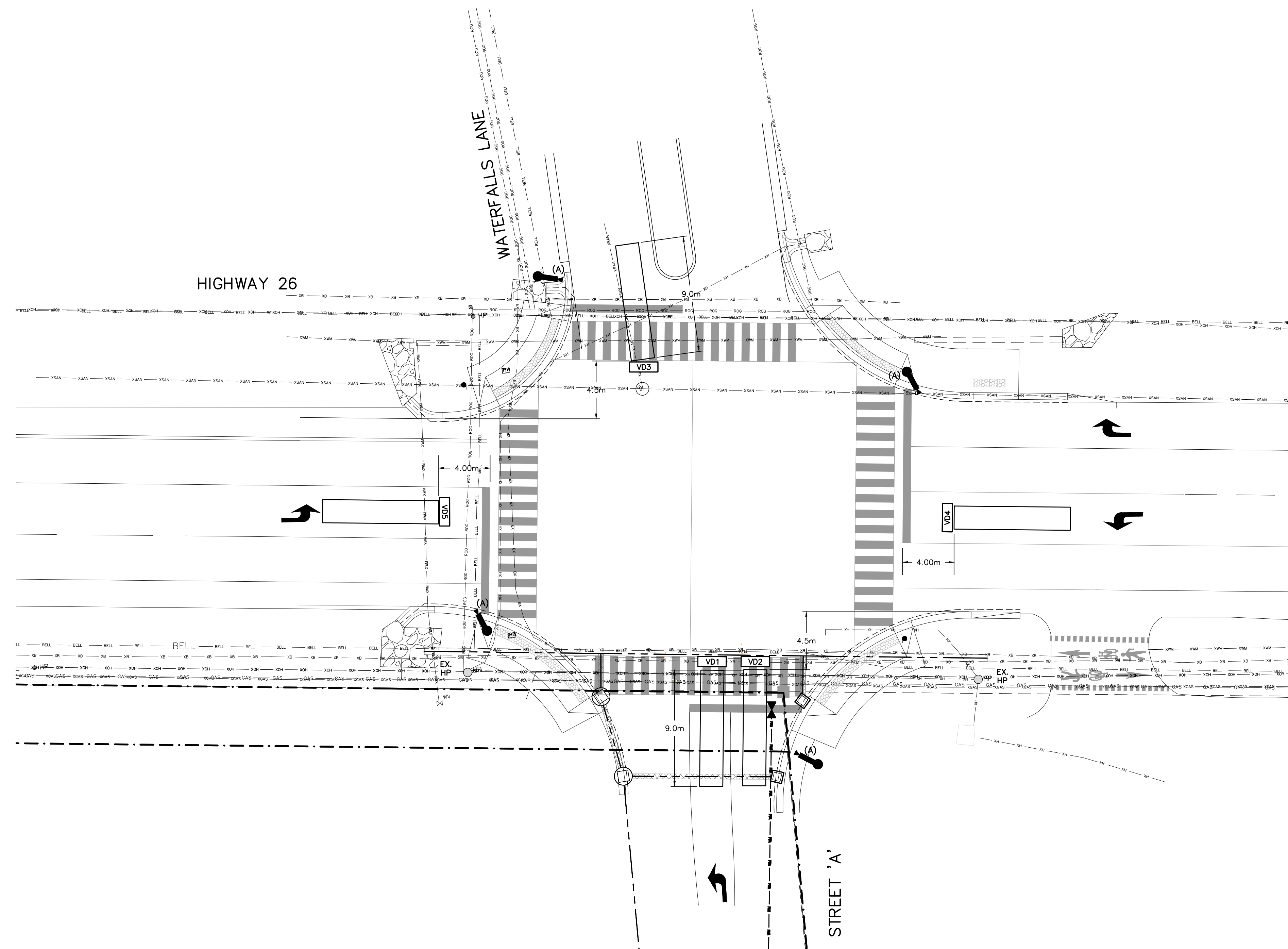
Drawing
ELECTRICAL SIGNALS PLAN

- GENERAL NOTES**
- POWER SUPPLY AND CONTROLLER LOCATION SUBJECT TO CHANGE BASED ON EPCOR FINAL APPROVAL.
 - COORDINATE ELECTRICAL SERVICE ENTRANCE INSTALLATION WITH EPCOR.
 - OVERHEAD COMMUNICATION LINES CROSSING WATERFALLS LANE TO BE RAISED TO AVOID TRAFFIC SIGNAL CONFLICTS OR BE RE-RUN UNDERGROUND.

THE HARBOUREDGE BUILDING,
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COLLINGWOOD, ON L5M 4R3
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Drawn By T.S.D./J.R.B. Check By N.J.M./P.W. Project **1790-5382**

Scale 1:200 Date 03/05/2021 Drawing **E4**



LEGEND:

| | |
|--|---|
| | EXISTING HYDRO POLE TO REMAIN, HPLS |
| | HYDRO POLE WITH LIGHT STAND |
| | WAVETRONIX MATRIX ADVANCE SENSOR |
| | RADAR DETECTOR WITH IDENTIFICATION CODE |
| | EXISTING HYDRO (OVERHEAD) |
| | EXISTING BELL |
| | EXISTING ROGERS |
| | EXISTING GAS |

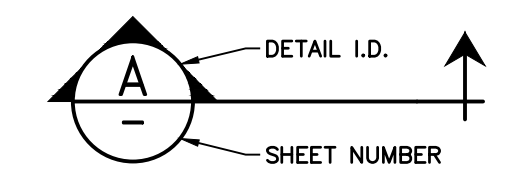
VIRTUAL LOOP DETECTOR PLAN
SCALE: 1:200

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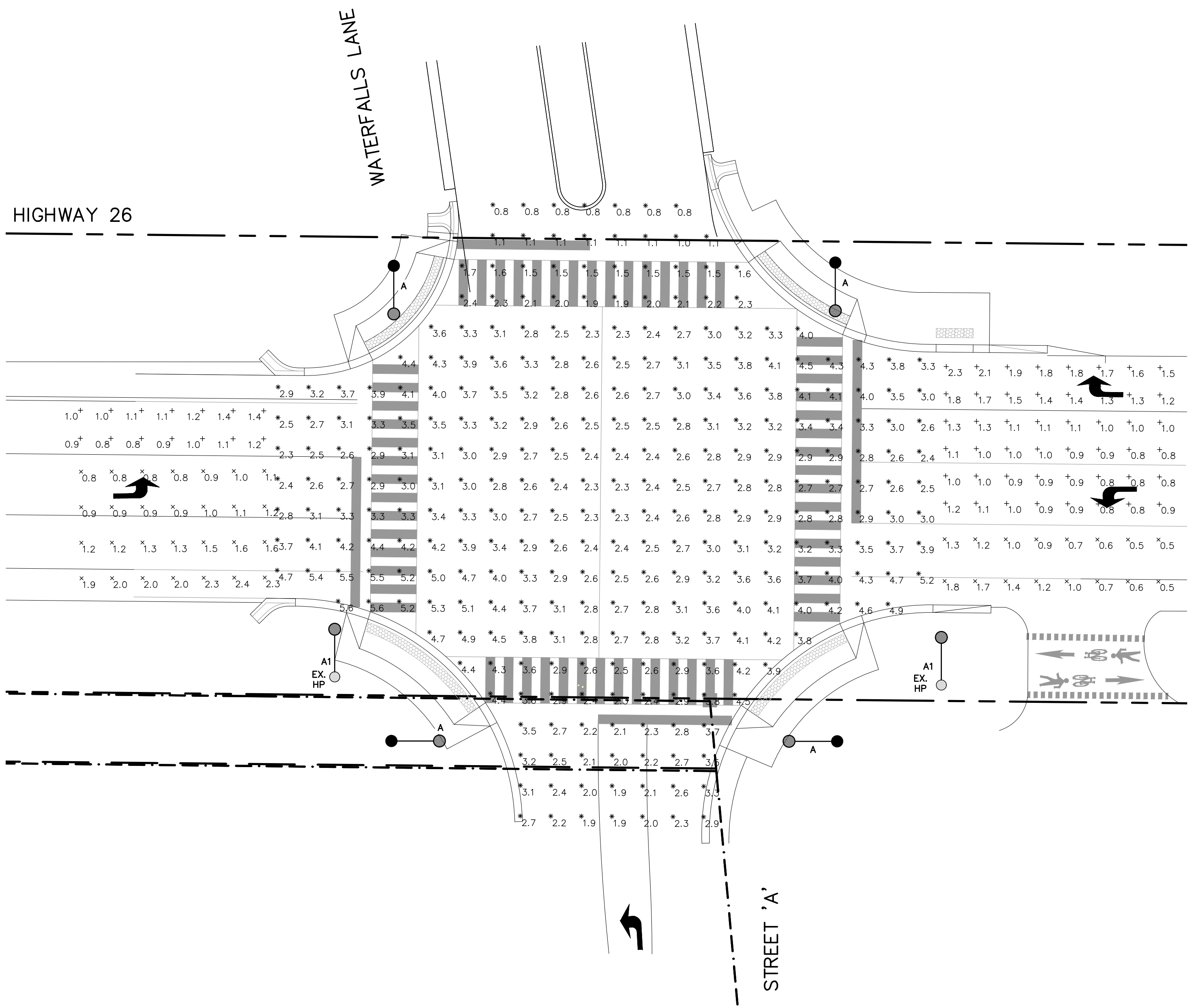
Project
HWY 26 & WATERFALLS LANE INTERSECTION

Drawing
VIRTUAL LOOP DETECTOR PLAN

CROZIER & ASSOCIATES
Consulting Engineers

THE HARBOUREDGE BUILDING,
40 HURON STREET, SUITE 301,
COLLINGWOOD, ON L3Y 4R3
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| | | | | | |
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| Drawn By | T.S.D./J.R.B. | Check By | N.J.M./P.W. | Project | 1790-5382 |
| Scale | 1:200 | Date | 03/05/2021 | Drawing | E5 |



| LUMINAIRE STATISTICS | | | | | | | | | | | TARGET VALUES | | | |
|-------------------------------|--------|-------------------|---------|-----|-----|-----|---------|---------|---------|-----------------------------|---------------|---------|---------|---------|
| LABEL | SYMBOL | CALC. TYPE | UNITS | AVG | MAX | MIN | AVG/MIN | MAX/MIN | LVRATIO | ROADWAY TYPE CLASSIFICATION | AVG | AVG/MIN | MAX/MIN | LVRATIO |
| INTERSECTION | * | ILLUMINANCE | FC | 3.0 | 5.6 | 0.8 | 3.8 | 7.0 | N/A | MAJOR/LOCAL | 2.0 | 3.0 | N/A | N/A |
| HIGHWAY 26 E-W TRAFFIC 1 LANE | x | LUMINANCE | CD/SQ.M | 1.1 | 1.4 | 0.8 | 1.3 | 1.8 | N/A | MAJOR/MEDIUM | 0.9 | 3.0 | 5.0 | N/A |
| HIGHWAY 26 E-W TRAFFIC 1 LANE | x | VEILING LUMINANCE | CD/SQ.M | 0.1 | 0.1 | 0.1 | 1.0 | 1.0 | 0.09 | MAJOR/MEDIUM | N/A | N/A | N/A | 0.3 |
| HIGHWAY 26 E-W TRAFFIC 3 LANE | + | ILLUMINANCE | CD/SQ.M | 1.2 | 2.3 | 0.8 | 1.5 | 2.9 | N/A | MAJOR/MEDIUM | 0.9 | 3.0 | 5.0 | N/A |
| HIGHWAY 26 E-W TRAFFIC 3 LANE | + | VEILING LUMINANCE | CD/SQ.M | 0.1 | 0.1 | 0.0 | N/A | N/A | 0.09 | MAJOR/MEDIUM | N/A | N/A | N/A | 0.3 |
| HIGHWAY 26 W-E TRAFFIC 1 LANE | + | LUMINANCE | CD/SQ.M | 0.9 | 1.8 | 0.4 | 2.3 | 4.5 | N/A | MAJOR/MEDIUM | 0.9 | 3.0 | 5.0 | N/A |
| HIGHWAY 26 W-E TRAFFIC 1 LANE | + | VEILING LUMINANCE | CD/SQ.M | 0.2 | 0.3 | 0.1 | 2.0 | 3.0 | 0.33 | MAJOR/MEDIUM | N/A | N/A | N/A | 0.3 |
| HIGHWAY 26 W-E TRAFFIC 2 LANE | x | LUMINANCE | CD/SQ.M | 1.4 | 2.4 | 0.8 | 1.7 | 3.0 | N/A | MAJOR/MEDIUM | 0.9 | 3.0 | 5.0 | N/A |
| HIGHWAY 26 W-E TRAFFIC 2 LANE | x | VEILING LUMINANCE | CD/SQ.M | 0.1 | 0.1 | 0.1 | 1.0 | 1.0 | 0.07 | MAJOR/MEDIUM | N/A | N/A | N/A | 0.3 |

NOTE:
1. LIGHTING CALCULATIONS ARE BASED ON IES RP-8, TABLE 8 - ILLUMINATION FOR INTERSECTION WITH A FUNCTIONAL ROADWAY CLASSIFICATION OF MAJOR/LOCAL AND A PEDESTRIAN AREA CLASSIFICATION OF MEDIUM.

TYPE: A, A1

Roadway Series 115

Roadway Lighting
50-250W HPS, 70-250W MH

PRODUCT OVERVIEW

Features:
 Rugged die-cast aluminum housing is powder-coated for durability and corrosion resistance.
 Two-bolt mast arm mount provides easy, secure installation and adjustability for arms from 1-1/4" to 2" (1-5/8" to 2-3/8" O.D.) diameter. Optional four-bolt mounting provides extra security in high-vibration applications.
 Die-cast trigger latch on doorframe enables easy and secure one-hand opening for re-lamping and maintenance.
 Large surface area "breathing seal" gasket seals the optical chamber to prevent intrusion by insects and environmental contaminants. Heat-resistant gasket material remains effective over the life of the fixture.
 Wildlife shield is cast into the housing (not a separate piece) on the two-bolt unit and is easily adjustable for 1-1/4" to 2" (1-5/8" to 2-3/8" O.D.) mast arms.
 Photocell receptacle is adjustable without tools.
 Anodized aluminum reflectors provide uniform lighting distribution with borosilicate glass, acrylic, or polycarbonate refractor.
 NEMA wattage label, terminal block, and NEMA photocell receptacle are standard.
 E29 mogul base socket standard.
 Suitable for -40°C.
 Complies with ANSI: C136.2, C136.10, C136.14, C136.15, C136.17, C136.31

Applications:
 Roadways
 Residential streets
 Storage areas
 Parking lots
 Campuses
 Parks

DIMENSIONS

PREFERRED SELECTION CATALOG NUMBERS

115 10S RN 120 R2 DA
 115 15S CA MT1 R2 DA EC
 115 15S RH 120 R2 DA
 115 25S CA MT1 R3 DG EC

Effective Projected Area (EPA)
 The EPA for the Roadway Series 115 is 0.5 sq. ft.
 Approx. Wt. = 19 lbs.

Note: Specifications subject to change without notice. Sheet # RW-115-A

TEMPORARY ELECTRICAL PHOTOMETRIC PLAN
SCALE: 1:200

| LUMINAIRE SCHEDULE | | | | | | |
|--------------------|-------|--------------|------------------|-------------------|---------|---|
| SYMBOL | LABEL | MANUFACTURER | CATALOG NUMBER | LIGHT LOSS FACTOR | WATTAGE | DESCRIPTION |
| ● | A | AEL | 115-25S-CT-R3-DG | 0.85 | 250W | AEL ROADWAY SERIES 115 HPS COBRAHEAD STYLE LUMINAIRE, 120W, WITH TYPE 3 (R3) DISTRIBUTION, C/W WITH EXTRA LONG LIFE PHOTOCELL. LUMINAIRE CATALOGUE NO: 115-25S-CT-120-R3-DG. MOUNTED ON A TEMPORARY WOODEN CLASS 3, TRAFFIC POLE 11.0m (36') C/W 2.4m (8') ELIPGITAL ARM. |
| ● | A1 | AEL | 115-25S-CT-R3-DG | 0.85 | 250W | AEL ROADWAY SERIES 115 HPS COBRAHEAD STYLE LUMINAIRE, 120W, WITH TYPE 3 (R3) DISTRIBUTION, C/W WITH EXTRA LONG LIFE PHOTOCELL. LUMINAIRE CATALOGUE NO: 115-25S-CT-120-R3-DG. MOUNTED ON AN EXISTING HYDRO POLE (AS PER USF DWG-11-103, ATTACHEMENT HEIGHT) C/W 2.4m (8') ELIPGITAL ARM. |

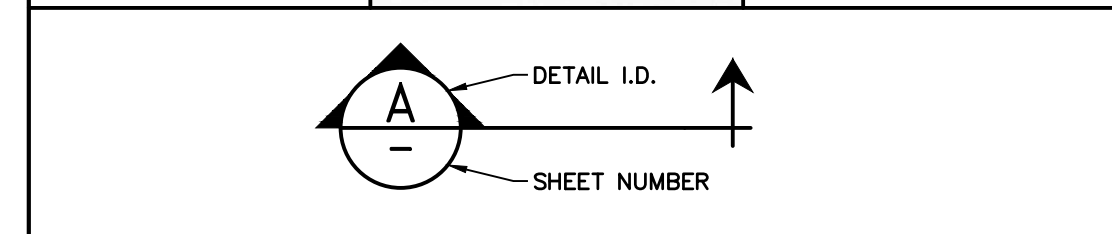
THE FOLLOWING NOTATION APPLY TO ALL LUMINAIRES IN THE SCHEDULE UNLESS NOTED OTHERWISE:

- ELECTRICAL CONTRACTOR IS RESPONSIBLE TO PROVIDE PHOTOCELLS AS REQUIRED. COORDINATE EXACT LOCATION AND REQUIREMENTS WITH LIGHT MANUFACTURER.

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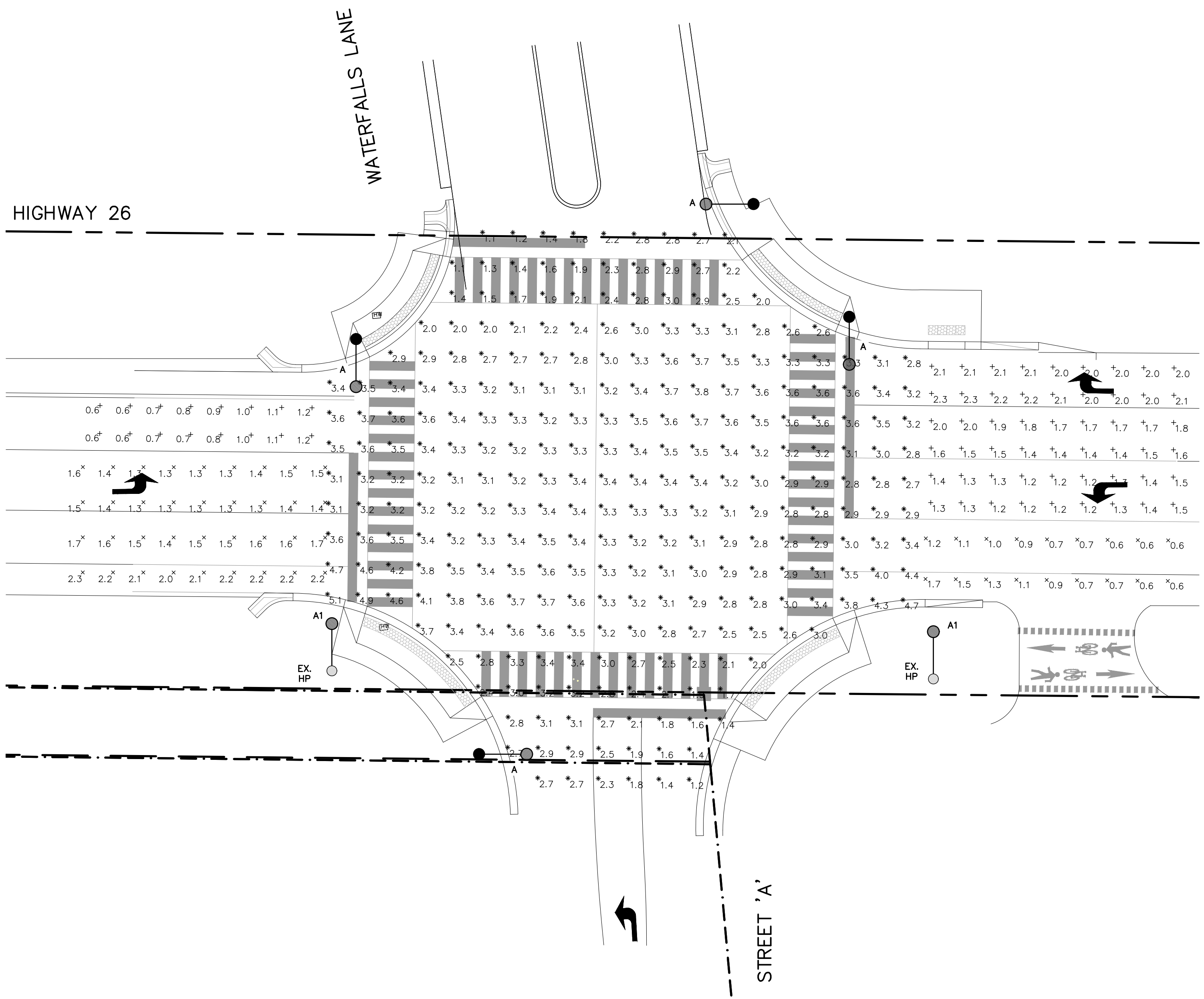
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- DO NOT SCALE THE DRAWINGS.
- ALL EXISTING UNDERGROUND UTILITIES TO BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

Project
HWY 26 & WATERFALLS LANE INTERSECTION

Drawing
TEMPORARY ELECTRICAL PHOTOMETRIC PLAN

THE HARBOUREDGE BUILDING,
40 HURON STREET, SUITE 301,
COLLINGWOOD, ON L9Y 4R3
705 446-3510 T
705 446-3520 F
WWW.CFCROZIER.CA
INFO@CFCROZIER.CA

| | | | | | |
|----------|---------------|----------|-------------|---------|-----------|
| Drawn By | T.S.D./J.R.B. | Check By | N.J.M./P.W. | Project | 1790-5382 |
| Scale | 1:200 | Date | 03/05/2021 | Drawing | E6 |



PERMANENT ELECTRICAL PHOTOMETRIC PLAN
SCALE: 1:200

| LUMINAIRE SCHEDULE | | | | | | |
|--------------------|-------|--------------|-----------------------------|-------------------|---------|---|
| SYMBOL | LABEL | MANUFACTURER | CATALOG NUMBER | LIGHT LOSS FACTOR | WATTAGE | DESCRIPTION |
| ● | A | CREE | BXSP2-HO-HT-3ME-165W-40K-UL | 0.85 | 165W | CREE XSP HO SERIES LED COBRAHEAD STYLE LUMINAIRE . 120W. WITH TYPE 3 MEDIUM (3ME) DISTRIBUTION, 4000K, C/W WITH EXTRA LONG LIFE PHOTOCELL. LUMINAIRE CATALOGUE NO: BXSP2-HO-HT-3ME-165W-40K-UL. MOUNTED ON A CONCRETE BASE TAPERED OCTAGONAL STEEL TRAFFIC POLE 10.7m (35') C/W 2.4m (8') ELIPICAL ARM. |
| ● | A1 | CREE | BXSP2-HO-HT-3ME-165W-40K-UL | 0.85 | 165W | CREE XSP HO SERIES LED COBRAHEAD STYLE LUMINAIRE . 120W. WITH TYPE 3 MEDIUM (3ME) DISTRIBUTION, 4000K, C/W WITH EXTRA LONG LIFE PHOTOCELL. LUMINAIRE CATALOGUE NO: BXSP2-HO-HT-3ME-165W-40K-UL. MOUNTED ON AN EXISTING HYDRO POLE (AS PER USF DWG-11-103, ATTACHEMENT HEIGHT) C/W 2.4m (8') ELIPICAL ARM. |

THE FOLLOWING NOTATION APPLY TO ALL LUMINAIRES IN THE SCHEDULE UNLESS NOTED OTHERWISE:

- ELECTRICAL CONTRACTOR IS RESPONSIBLE TO PROVIDE PHOTOCELLS AS REQUIRED. COORDINATE EXACT LOCATION AND REQUIREMENTS WITH LIGHT MANUFACTURER.

| LUMINAIRE STATISTICS | | | | | | | | | | TARGET VALUES | | | | |
|-------------------------------|--------|-------------------|---------|-----|-----|-----|---------|---------|---------|-----------------------------|-----|---------|---------|---------|
| LABEL | SYMBOL | CALC. TYPE | UNITS | AVG | MAX | MIN | AVG/MIN | MAX/MIN | LVRATIO | ROADWAY TYPE CLASSIFICATION | AVG | AVG/MIN | MAX/MIN | LVRATIO |
| INTERSECTION | * | ILLUMINANCE | FC | 3.0 | 5.1 | 1.1 | 2.8 | 4.6 | N/A | MAJOR/LOCAL | 2.0 | 3.0 | N/A | N/A |
| HIGHWAY 26 E-W TRAFFIC 1 LANE | X | LUMINANCE | CD/SQ.M | 0.9 | 1.2 | 0.6 | 1.4 | 2.0 | N/A | MAJOR/MEDIUM | 0.9 | 3.0 | 5.0 | N/A |
| HIGHWAY 26 E-W TRAFFIC 1 LANE | X | VEILING LUMINANCE | CD/SQ.M | 0.2 | 0.3 | 0.1 | 2.2 | 3.0 | 0.35 | MAJOR/MEDIUM | N/A | N/A | N/A | 0.3 |
| HIGHWAY 26 E-W TRAFFIC 3 LANE | + | ILLUMINANCE | CD/SQ.M | 1.7 | 2.3 | 1.2 | 1.4 | 1.9 | N/A | MAJOR/MEDIUM | 0.9 | 3.0 | 5.0 | N/A |
| HIGHWAY 26 E-W TRAFFIC 3 LANE | + | VEILING LUMINANCE | CD/SQ.M | 0.0 | 0.0 | 0.0 | N/A | N/A | 0.0 | MAJOR/MEDIUM | N/A | N/A | N/A | 0.3 |
| HIGHWAY 26 W-E TRAFFIC 1 LANE | + | LUMINANCE | CD/SQ.M | 0.9 | 1.7 | 0.6 | 1.5 | 2.8 | N/A | MAJOR/MEDIUM | 0.9 | 3.0 | 5.0 | N/A |
| HIGHWAY 26 W-E TRAFFIC 1 LANE | + | VEILING LUMINANCE | CD/SQ.M | 0.3 | 0.5 | 0.1 | 3.0 | 5.0 | 0.54 | MAJOR/MEDIUM | N/A | N/A | N/A | 0.3 |
| HIGHWAY 26 W-E TRAFFIC 2 LANE | X | LUMINANCE | CD/SQ.M | 1.6 | 2.3 | 1.3 | 1.3 | 1.8 | N/A | MAJOR/MEDIUM | 0.9 | 3.0 | 5.0 | N/A |
| HIGHWAY 26 W-E TRAFFIC 2 LANE | X | VEILING LUMINANCE | CD/SQ.M | 0.0 | 0.0 | 0.0 | N/A | N/A | 0.0 | MAJOR/MEDIUM | N/A | N/A | N/A | 0.3 |

NOTE:
1. LIGHTING CALCULATIONS ARE BASED ON IES RP-8, TABLE 8 - ILLUMINATION FOR INTERSECTION WITH A FUNCTIONAL ROADWAY CLASSIFICATION OF MAJOR/LOCAL AND A PEDESTRIAN AREA CLASSIFICATION OF MEDIUM.

NVLAP Lab Code 500089-0

TYPE: A, A1

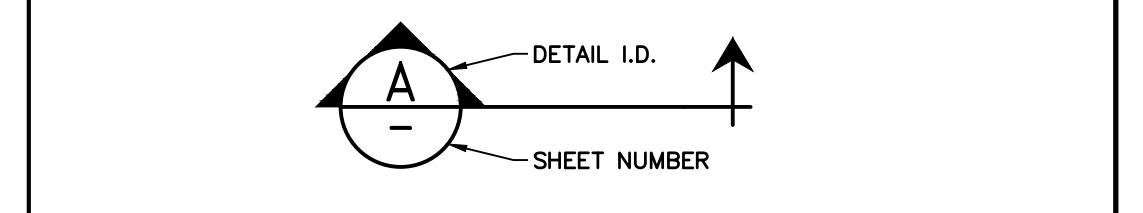
| | |
|--|-----------------------------|
| Product Information | |
| Manufacturer | Cree, Inc. |
| Model Number (SKU) | BXSP2-HO-HT-3ME-165W-40K-UL |
| Serial Number | PL10521-001 |
| LED Type | MDA |
| Product Description | |
| Cast Cobra Head, 2 sections of 5 polymeric optics; 1 covering each LED | |
| Driver Information (Where Applicable) | |
| Osram OT180W/UNV1250C/2DIMLT2/P6 | |

| | | |
|--------|-------|--------|
| Length | Width | Height |
| 27" | 15" | 4.5" |

Sample
The following sample was submitted for evaluation

Cree, Inc | 9201 Washington Avenue | Racine, WI 53406 | Page 2 of 15
Test Report Number: PL10521-001B | RESTL-R010 Rev G

| No. | ISSUE / REVISION | DATE: MM/DD/YYYY |
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Project
HWY 26 & WATERFALLS LANE INTERSECTION

Drawing
PERMANENT ELECTRICAL PHOTOMETRIC PLAN

CROZIER & ASSOCIATES
Consulting Engineers

THE HARBOUREdge BUILDING,
40 HURON STREET, SUITE 301,
COLLINGWOOD, ON L9Y 4R3
705 446-3510 T
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| Drawn By | T.S.D./J.R.B. | Check By | N.J.M./P.W. | Project | 1790-5382 |
| Scale | 1:200 | Date | 03/05/2021 | Drawing | E7 |

| POWER SUPPLY 'A', SW CORNER, 120/240V, 1Ø PHASE, 3 WIRE, 100 AMP MAIN CIRCUIT BREAKER, 12 CCTS. (PERMANENT) | | | | | | | | | | |
|---|-------------------------------|--------------|---------------|------|--------------------------|-----|------|--------------|-------------------------------|-----|
| CCT | DESCRIPTION | VOLT AMPERES | POLE | AMP | WIRE SIZE (REFER TO SLD) | AMP | POLE | VOLT AMPERES | DESCRIPTION | CCT |
| 1 | STREET LIGHTING (QTY 2, 165W) | 330 | 1 | 20 | A | 20 | 1 | 330 | STREET LIGHTING (QTY 2, 165W) | 2 |
| 3 | TRAFFIC SIGNAL CONTROLLER TC1 | 1275 | 1 | 20 | A | 20 | 1 | 0 | SPARE | 4 |
| 5 | SPACE | 0 | 1 | 20 | A | 20 | 1 | 0 | SPACE | 6 |
| 7 | SPACE | | | | A | 20 | 1 | | SPACE | 8 |
| 9 | SPACE | | | | A | 20 | 1 | | SPACE | 10 |
| 11 | SPACE | | | | A | 20 | 1 | | SPACE | 12 |
| SUB-TOTAL (kVA) | | 0.7 | | A | | B | | 1.3 | | |
| GRAND TOTAL (kVA) | | 1.9 | DEMAND FACTOR | 100% | ESTIMATED DEMAND LOAD | 1.9 | | 8.1 | | |

| POWER SUPPLY 'A', SW CORNER, 120/240V, 1Ø PHASE, 3 WIRE, 100 AMP MAIN CIRCUIT BREAKER, 12 CCTS. (TEMPORARY) | | | | | | | | | | |
|---|-------------------------------|--------------|---------------|------|--------------------------|-----|------|--------------|-------------------------------|-----|
| CCT | DESCRIPTION | VOLT AMPERES | POLE | AMP | WIRE SIZE (REFER TO SLD) | AMP | POLE | VOLT AMPERES | DESCRIPTION | CCT |
| 1 | STREET LIGHTING (QTY 2, 300W) | 600 | 1 | 20 | A | 20 | 1 | 600 | STREET LIGHTING (QTY 2, 300W) | 2 |
| 3 | TRAFFIC SIGNAL CONTROLLER TC1 | 1275 | 1 | 20 | A | 20 | 1 | 0 | SPARE | 4 |
| 5 | SPACE | 0 | 1 | 20 | A | 20 | 1 | 0 | SPACE | 6 |
| 7 | SPACE | | | | A | 20 | 1 | | SPACE | 8 |
| 9 | SPACE | | | | A | 20 | 1 | | SPACE | 10 |
| 11 | SPACE | | | | A | 20 | 1 | | SPACE | 12 |
| SUB-TOTAL (kVA) | | 1.2 | | A | | B | | 1.3 | | |
| GRAND TOTAL (kVA) | | 2.5 | DEMAND FACTOR | 100% | ESTIMATED DEMAND LOAD | 2.5 | | 10.3 | | |

| HANDHOLE SCHEDULE | | |
|-------------------|----------|--|
| EQUIP ID | LOCATION | NOTES |
| HH1 | SW | 675mm DIA. C/W GROUNDING ELECTRODE |
| HH2 | NW | 460mm DIA. C/W GROUNDING ELECTRODE |
| HH3 | NW | 460mm DIA. C/W GROUNDING ELECTRODE |
| HH4 | NE | 460mm DIA. C/W GROUNDING ELECTRODE |
| HH5 | NE | 460mm DIA. C/W GROUNDING ELECTRODE |
| HH6 | SE | 460mm DIA. C/W GROUNDING ELECTRODE |
| HH7 | SE | 460mm DIA. C/W GROUNDING ELECTRODE |
| HH8 | SW | 460mm DIA. C/W GROUNDING ELECTRODE |
| TC1 | SW | PAD MOUNTED TRAFFIC SIGNAL CABINET |
| PS'A | SW | PAD MOUNTED POWER SUPPLY PEDESTAL C/W QUANTITY 4 GROUND RODS |

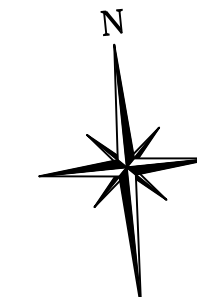
| POLE SCHEDULE | | | | | | |
|---------------|--|-----------|---------------------------|--|---|---|
| POLE ID | DESCRIPTION | LOCATION | POLE LENGTH | SIGNAL MAST ARM/BRACKET/NOTES | LUMINAIRE MAST ARM/BRACKET/NOTES | NOTES |
| P1 | WESTBOUND SECONDARY SW PEDESTRIAN (NORTH/SOUTHBOUND) | SW CORNER | 6.1m ON CONCRETE FOOTING | 1.2m ALUMINUM TAPERED ELLIPTICAL SIGNAL MAST ARM, MID-SECTION HANGER WITH WAVE TRONIX DETECTOR. PED HEAD MOUNTED ON 600mm DOUBLE ARM BRACKET PER OPSD 2524.01 c/w PUSH BUTTON | N/A | TRAFFIC POLE AND FOOTING PER OPSD 2200.01 AND 2232.010 |
| P2 | WESTBOUND PRIMARY NW PEDESTRIAN (NORTH/SOUTHBOUND) | NW CORNER | 10.7m ON CONCRETE FOOTING | 5.5m ALUMINUM TAPERED ELLIPTICAL SIGNAL MAST ARM, MID-SECTION HANGER WITH EMERGENCY VEHICLE PREEMPTION PED HEAD MOUNTED ON 600mm DOUBLE ARM BRACKET PER OPSD 2524.01 c/w PUSH BUTTON | 2.4m ALUMINUM TAPERED ELLIPTICAL ARM C/W LUMINAIRE HEIGHT 11.7m ABOVE ROADWAY | HEAVY CLASS POLE AND FOOTING PER OPSD 2200.090, 2435.010 AND 2200.050 |
| P3 | NW PEDESTRIAN (EAST/WESTBOUND) | NW CORNER | 3.7m ON CONCRETE FOOTING | PED HEAD MOUNTED ON 600mm DOUBLE ARM BRACKET PER OPSD 2524.01 c/w PUSH BUTTON | N/A | TRAFFIC POLE AND FOOTING PER OPSD 2200.01 AND 2232.010 |
| P4 | NORTHBOUND SECONDARY | NW CORNER | 6.1m ON CONCRETE FOOTING | 3.0m ALUMINUM TAPERED ELLIPTICAL SIGNAL MAST ARM, MID-SECTION HANGER WITH WAVE TRONIX DETECTOR | N/A | TRAFFIC POLE AND FOOTING PER OPSD 2200.01 AND 2232.010 |
| P5 | NORTHBOUND PRIMARY | NE CORNER | 10.7m ON CONCRETE FOOTING | 6.1m ALUMINUM TAPERED ELLIPTICAL SIGNAL MAST ARM, MID-SECTION HANGER WITH EMERGENCY VEHICLE PREEMPTION | 2.4m ALUMINUM TAPERED ELLIPTICAL ARM C/W LUMINAIRE HEIGHT 11.7m ABOVE ROADWAY | HEAVY CLASS POLE AND FOOTING PER OPSD 2200.090, 2435.010 AND 2200.050 |
| P6 | NE PEDESTRIAN (EAST/WESTBOUND) | NE CORNER | 3.7m ON CONCRETE FOOTING | PED HEAD MOUNTED ON 600mm DOUBLE ARM BRACKET PER OPSD 2524.01 c/w PUSH BUTTON | N/A | TRAFFIC POLE AND FOOTING PER OPSD 2200.01 AND 2232.010 |
| P7 | EASTBOUND SECONDARY NE PEDESTRIAN (NORTH/SOUTHBOUND) | NE CORNER | 10.7m ON CONCRETE FOOTING | 2.4m ALUMINUM TAPERED ELLIPTICAL SIGNAL MAST ARM, MID-SECTION HANGER WITH WAVE TRONIX DETECTOR | 2.4m ALUMINUM TAPERED ELLIPTICAL ARM C/W LUMINAIRE HEIGHT 11.7m ABOVE ROADWAY | TRAFFIC POLE AND FOOTING PER OPSD 2200.01 AND 2232.010 |
| P8 | EASTBOUND PRIMARY SE PEDESTRIAN (NORTH/SOUTHBOUND) | SE CORNER | 6.1m ON CONCRETE FOOTING | 6.1m ALUMINUM TAPERED ELLIPTICAL SIGNAL MAST ARM, MID-SECTION HANGER | N/A | HEAVY CLASS POLE AND FOOTING PER OPSD 2200.090, 2435.010 AND 2200.050 |
| P9 | SOUTHEAST PEDESTRIAN (EAST/WESTBOUND) | SE CORNER | 3.7m ON CONCRETE FOOTING | PED HEAD MOUNTED ON 600mm DOUBLE ARM BRACKET PER OPSD 2524.01 c/w PUSH BUTTON | N/A | TRAFFIC POLE AND FOOTING PER OPSD 2200.01 AND 2232.010 |
| P10 | SOUTHBOUND SECONDARY | SE CORNER | 6.1m ON CONCRETE FOOTING | 2.4m ALUMINUM TAPERED ELLIPTICAL SIGNAL MAST ARM, MID-SECTION HANGER WITH WAVE TRONIX DETECTOR | N/A | TRAFFIC POLE AND FOOTING PER OPSD 2200.01 AND 2232.010 |
| P11 | SOUTHBOUND PRIMARY | SW CORNER | 10.7m ON CONCRETE FOOTING | 5.5m ALUMINUM TAPERED ELLIPTICAL SIGNAL MAST ARM, MID-SECTION HANGER | 2.4m ALUMINUM TAPERED ELLIPTICAL ARM C/W LUMINAIRE HEIGHT 11.7m ABOVE ROADWAY | HEAVY CLASS POLE AND FOOTING PER OPSD 2200.090, 2435.010 AND 2200.050 |
| P12 | SW PEDESTRIAN (EAST/WESTBOUND) | SW CORNER | 3.7m ON CONCRETE FOOTING | PED HEAD MOUNTED ON 600mm DOUBLE ARM BRACKET PER OPSD 2524.01 c/w PUSH BUTTON | N/A | TRAFFIC POLE AND FOOTING PER OPSD 2200.01 AND 2232.010 |
| EX.HP 110-1 | EXISTING HYDRO POLE | SE CORNER | N/A | N/A | 2.4m ALUMINUM TAPERED ELLIPTICAL ARM C/W LUMINAIRE HEIGHT 8.9m ABOVE ROADWAY | LUMINAIRE ATTACHMENT HEIGHT 7.7m. PER USF STANDARD XXX |
| EX.HP 65x2 | EXISTING HYDRO POLE | SW CORNER | N/A | N/A | 2.4m ALUMINUM TAPERED ELLIPTICAL ARM C/W LUMINAIRE HEIGHT 8.9m ABOVE ROADWAY | LUMINAIRE ATTACHMENT HEIGHT 7.7m. PER USF STANDARD XXX |

| TEMPORARY POLE ASSEMBLIES | | | | | | |
|---------------------------|--------------------|-------------------------|--------------------------|--------------------|-----------|------------------------------------|
| POLE NO. | POLE DESCRIPTION | TRAFFIC SIGNAL MAST ARM | HANGER/PLUMBIZER/BRACKET | LUMINAIRE MAST ARM | LUMINAIRE | COMMENTS |
| TP1 | 36'(11.0m) CLASS 3 | N/A | 1 VERTICAL BRACKET | 2.4m | 250W HPS | DIRECT BURIED POLE, 2 BACK GUY |
| TP2 | 17'(5.2m) CLASS 3 | N/A | 1 VERTICAL BRACKET | N/A | N/A | DIRECT BURIED POLE, 2 PUSH BUTTONS |
| TP3 | 17'(5.2m) CLASS 3 | N/A | 1 VERTICAL BRACKET | N/A | N/A | DIRECT BURIED POLE, 2 PUSH BUTTONS |
| TP4 | 36'(11.0m) CLASS 3 | N/A | 1 VERTICAL BRACKET | 2.4m | 250W HPS | DIRECT BURIED POLE, 2 BACK GUY |
| TP5 | 36'(11.0m) CLASS 3 | N/A | 1 VERTICAL BRACKET | 2.4m | 250W HPS | DIRECT BURIED POLE, 2 BACK GUY |
| TP6 | 17'(5.3m) CLASS 3 | N/A | 1 VERTICAL BRACKET | N/A | N/A | DIRECT BURIED POLE, 2 PUSH BUTTONS |
| TP7 | 17'(5.3m) CLASS 3 | N/A | 1 VERTICAL BRACKET | N/A | N/A | DIRECT BURIED POLE, 2 PUSH BUTTONS |
| TP8 | 36'(11.0m) CLASS 3 | N/A | 1 VERTICAL BRACKET | 2.4m | 250W HPS | DIRECT BURIED POLE, 2 BACK GUY |


NOTE:
1. ALL TEMPORARY POLES HAVE BEEN ADJUSTED TO WOODEN POLES, BOTH IMPERIAL AND METRIC SIZES (FOR REFERENCE) HAVE BEEN SHOWN.

| No. | ISSUE / REVISION | DATE: MM/DD/YYYY |
|-----|-------------------------------|------------------|
| 0 | ISSUED FOR 60% DESIGN REVIEW | 07/17/2020 |
| 1 | ISSUED FOR 90% DESIGN REVIEW | 03/10/2021 |
| 2 | ISSUED FOR 100% DESIGN REVIEW | 09/03/2021 |


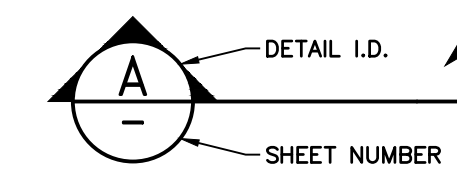
North



Engineer



Engineer


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Project

HWY 26 & WATERFALLS LANE INTERSECTION

Drawing

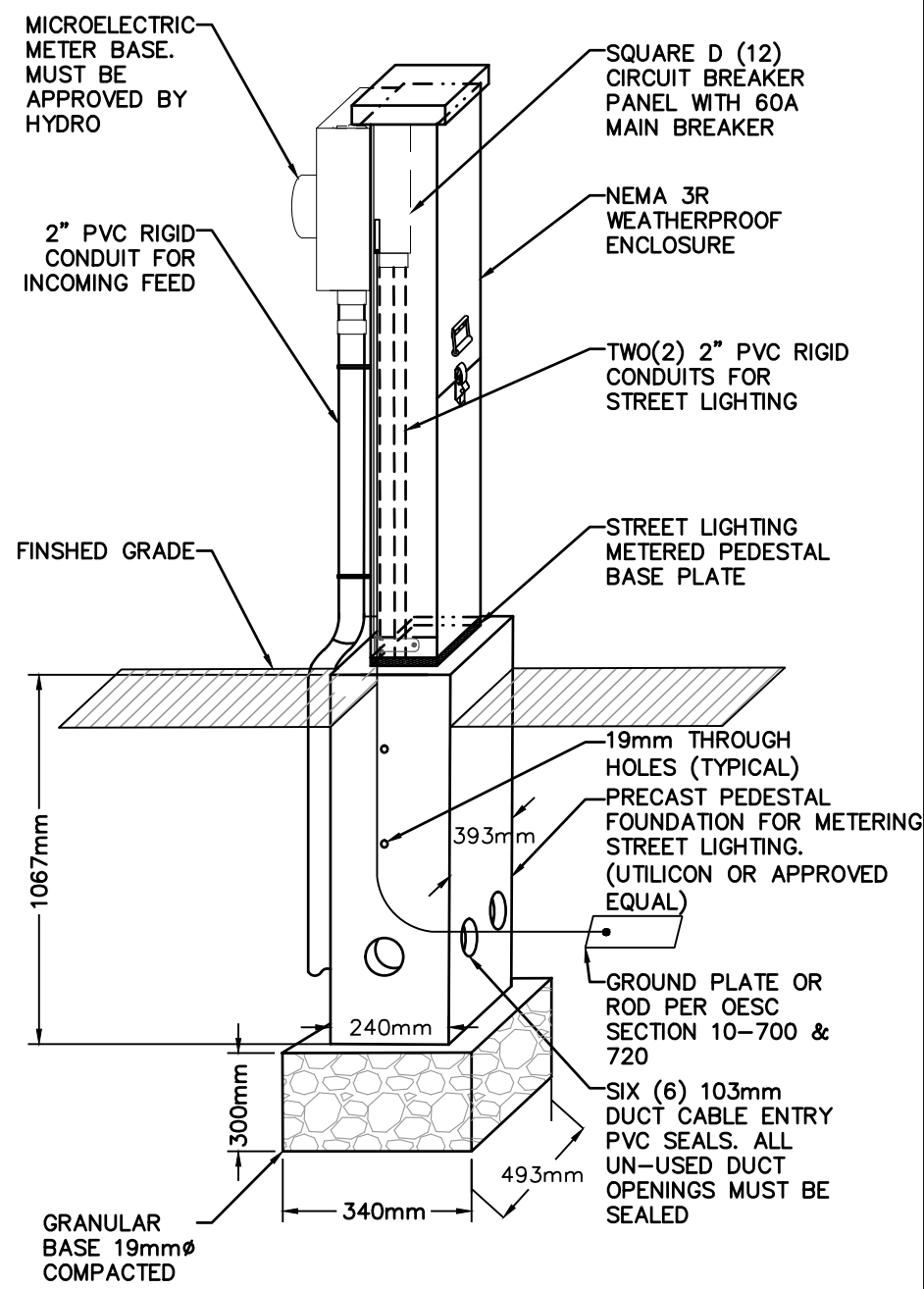
ELECTRICAL SCHEDULES



CROZIER & ASSOCIATES
Consulting Engineers

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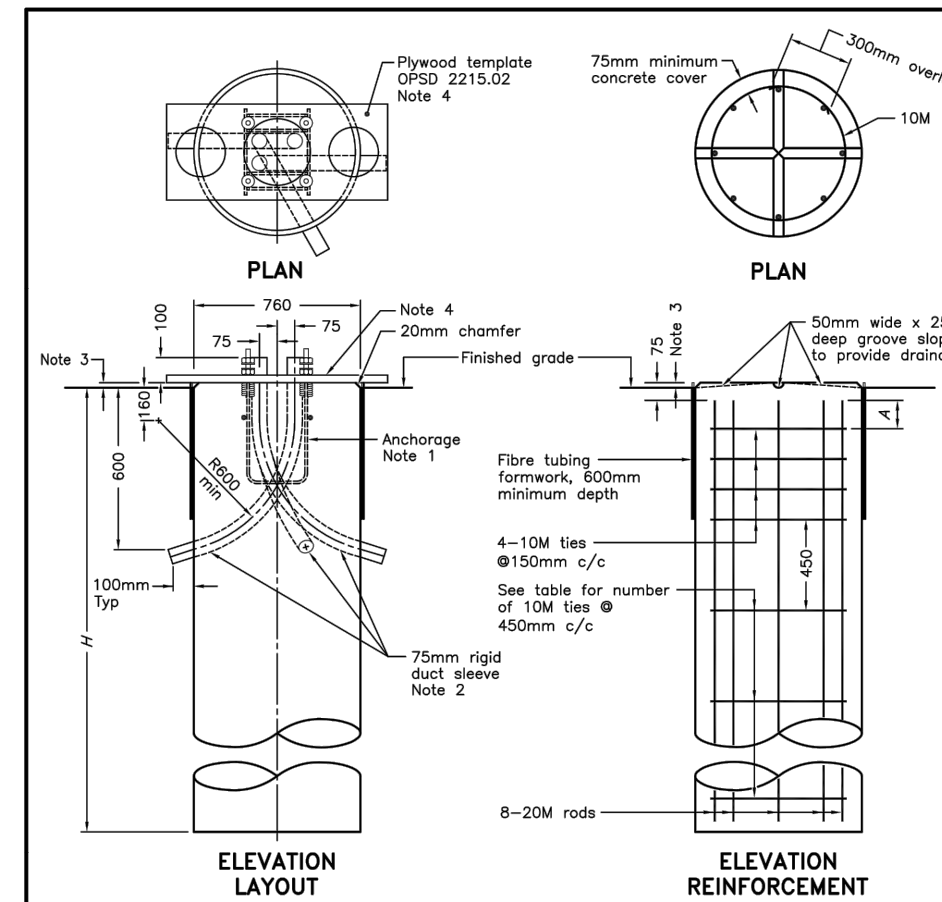
| | | | | | |
|----------|---------------|----------|-------------|---------|-----------|
| Drawn By | T.S.D./J.R.B. | Check By | N.J.M./P.W. | Project | 1790-5382 |
| Scale | N.T.S. | Date | 03/05/2021 | Drawing | EB |



- NOTES:**
1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN.
 2. BASIS DESIGN IS PEDESTAL SOLUTIONS INC. SLT2 ENCLOSURE WITH METER.

STREET LIGHTING PEDESTAL WITH METER SOCKET AND PANEL DETAIL

SCALE: N.T.S.

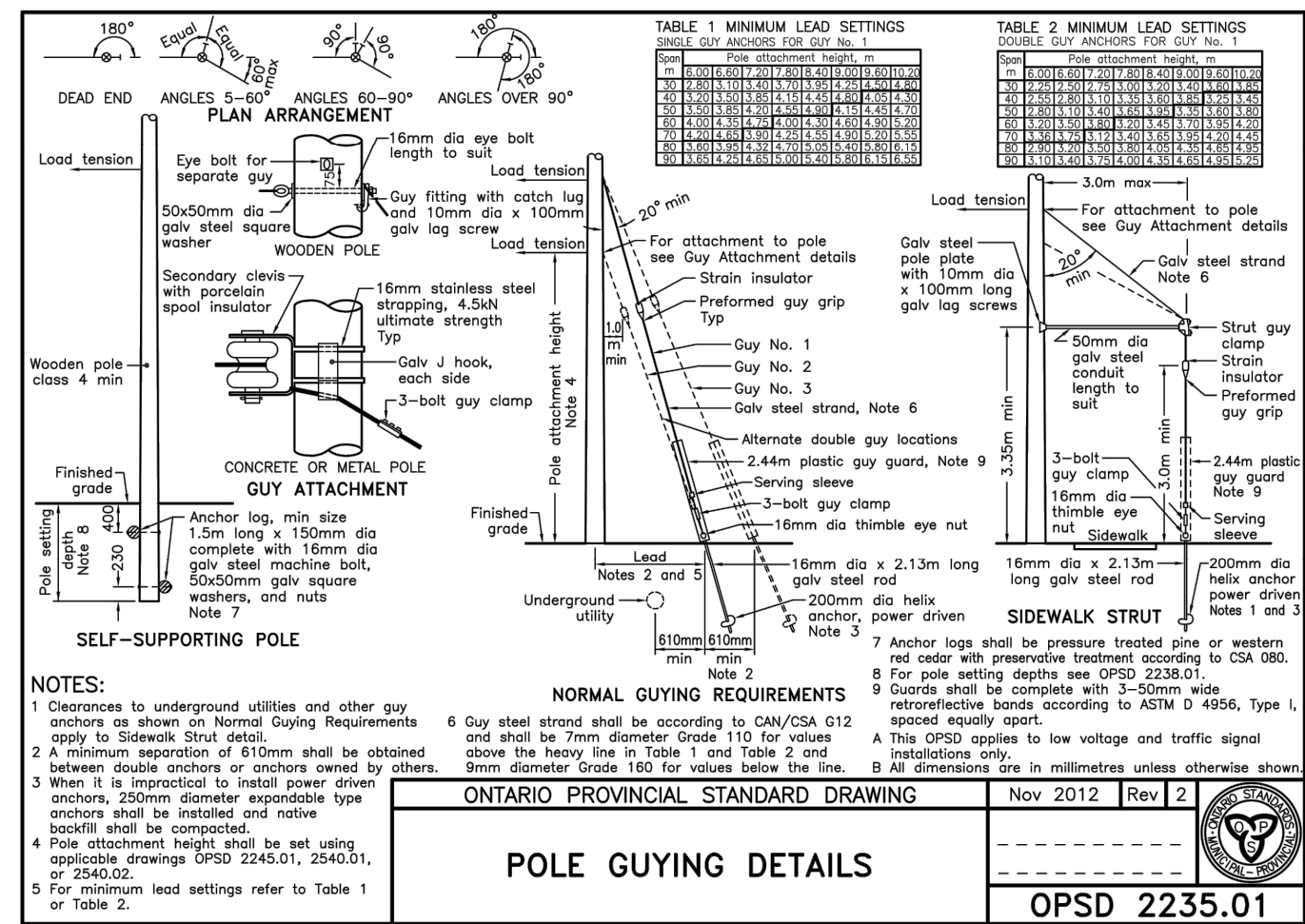


NOTES:

- 1 For anchorage assembly see OPSS 2215.02.
- 2 Minimum of two sleeves required for each concrete footing. Three sleeves as specified.
- 3 Top of footing shall be installed at 40mm above finished grade in earth or granular areas.
- 4 Plywood template set level. Remove to finish concrete after initial set.
- 5 For pole mounting details see OPSS 2215.03.
- 6 All dimensions are in millimetres unless otherwise shown.

| POLE LENGTH | BURIAL DEPTH | ROD LENGTH | NO. OF 10M TIES @ 450 | FOR METAL POLES | FOR CONCRETE |
|-------------|--------------|------------|-----------------------|-----------------|--------------|
| 5.6 | 2.15 | 2.00 | 100 | 3 | N/A |
| 7.0 | 2.15 | 2.00 | 100 | 3 | N/A |
| 7.5 | 2.15 | 2.00 | 100 | 3 | N/A |
| 8.7 | 2.40 | 2.30 | 250 | 3 | N/A |
| 9.0 | 2.45 | 2.30 | 0 | 4 | 406 |
| 10.5 | 2.60 | 2.45 | 100 | 4 | 406 |
| 12.0 | 2.70 | 2.60 | 150 | 4 | 406 |
| 13.6 | 2.90 | 2.75 | 0 | 5 | 406 |
| 15.1 | 3.05 | 2.90 | 100 | 5 | 406 |

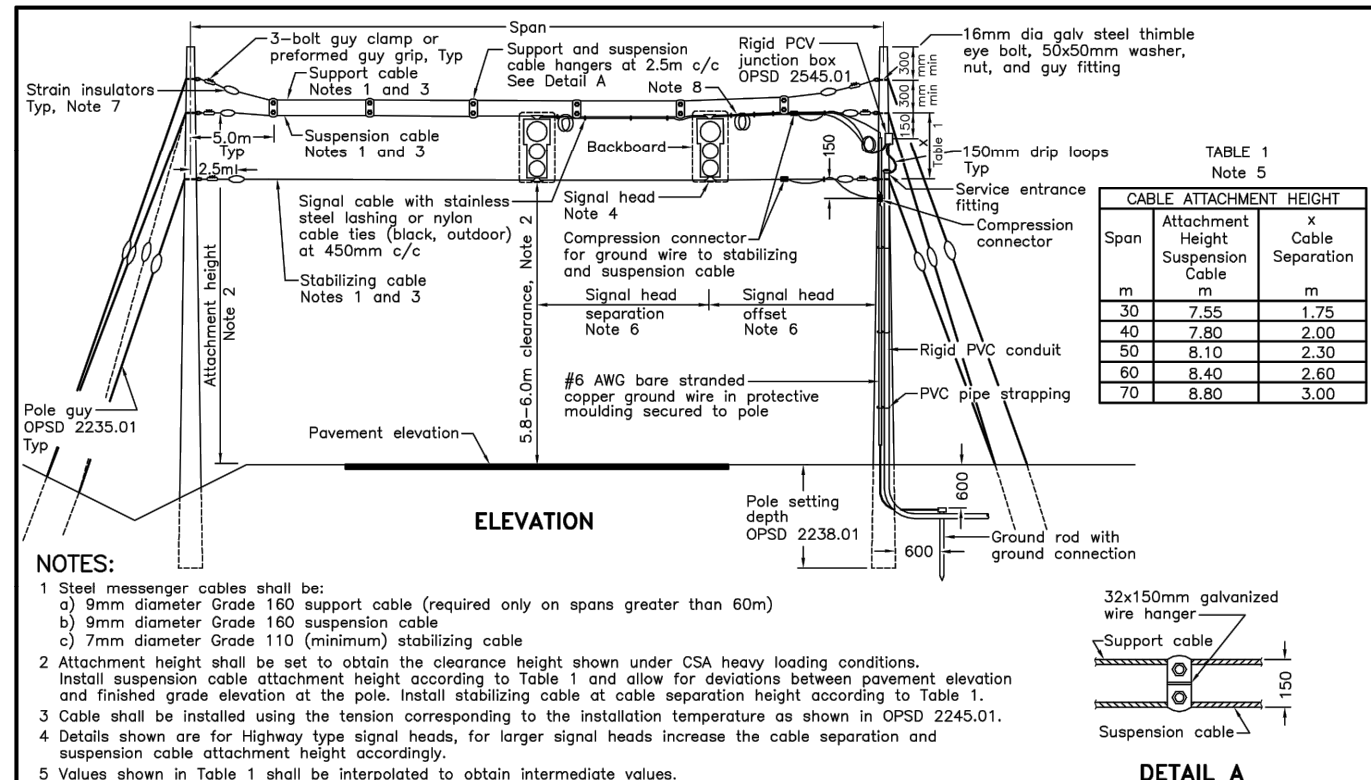
ONTARIO PROVINCIAL STANDARD DRAWING Nov 2012 Rev 2
CONCRETE FOOTING FOR BASE MOUNTED LIGHTING AND SIGNAL POLES
 OPSD 2200.01



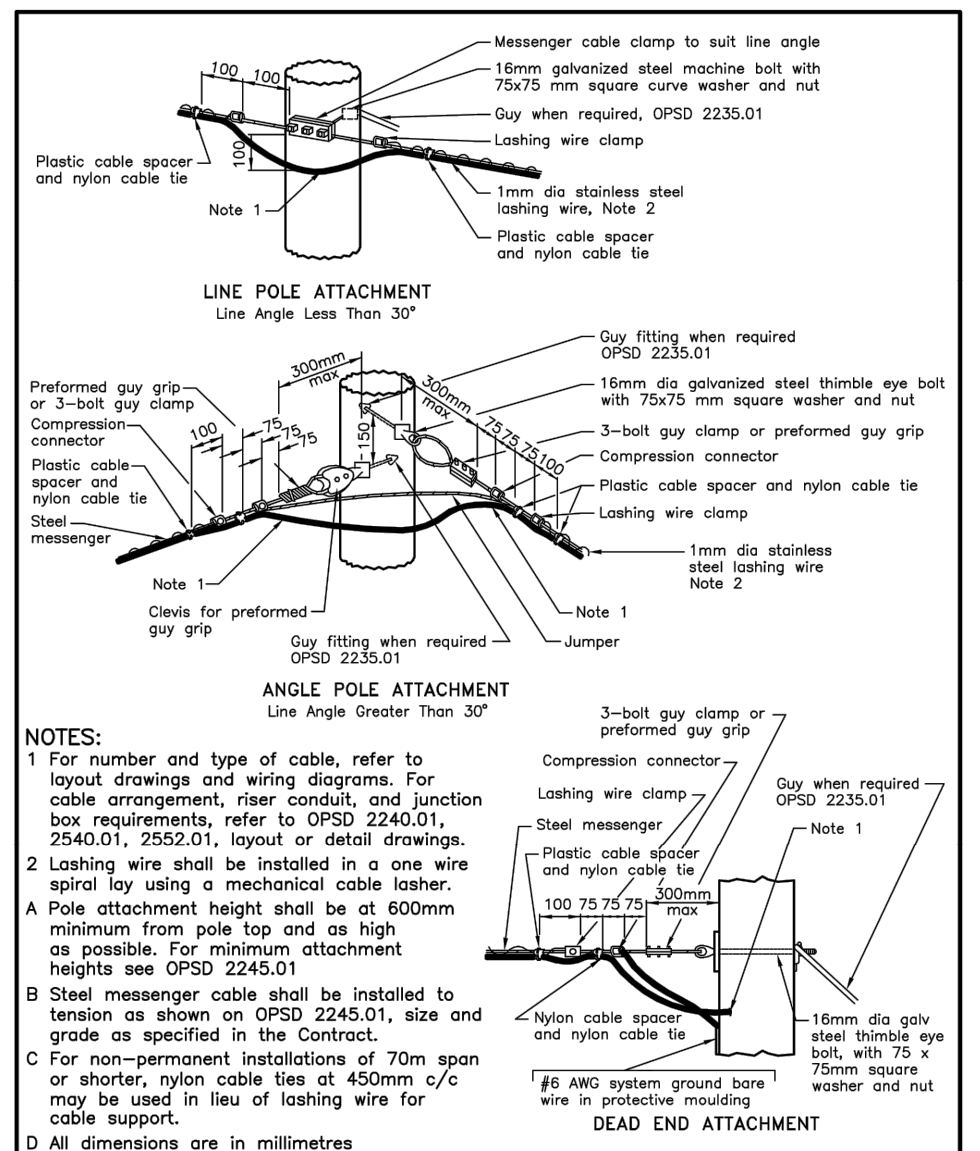
ONTARIO PROVINCIAL STANDARD DRAWING Nov 2012 Rev 2
POLE GUYING DETAILS
 OPSD 2235.01

| Class of pole | Approximate breaking strength N | Pole length m | Pole setting at top p | Minimum diameter at top c | Minimum outer diameter d | Minimum pole top diameter p |
|---------------|---------------------------------|---------------|-----------------------|---------------------------|--------------------------|-----------------------------|
| 1 | 20,200 | 8.0 | 1.50 | 310 | 610 | 215 |
| | | 9.5 | 1.65 | 330 | 685 | |
| | | 11.0 | 1.80 | 350 | 685 | |
| | | 12.5 | 1.95 | 370 | 685 | |
| | | 14.0 | 2.10 | 390 | 760 | |
| 2 | 16,800 | 8.0 | 1.50 | 290 | 610 | 200 |
| | | 9.5 | 1.65 | 310 | 610 | |
| | | 11.0 | 1.80 | 330 | 685 | |
| | | 12.5 | 1.95 | 350 | 685 | |
| | | 14.0 | 2.10 | 370 | 685 | |
| 3 | 13,500 | 8.0 | 1.50 | 245 | 560 | 185 |
| | | 9.5 | 1.65 | 265 | 610 | |
| | | 11.0 | 1.80 | 290 | 610 | |
| | | 12.5 | 1.95 | 310 | 685 | |
| | | 14.0 | 2.10 | 330 | 685 | |
| 4 | 10,700 | 8.0 | 1.50 | 230 | 560 | 170 |
| | | 9.5 | 1.65 | 250 | 610 | |
| | | 11.0 | 1.80 | 270 | 610 | |
| | | 12.5 | 1.95 | 290 | 610 | |
| | | 14.0 | 2.10 | 310 | 685 | |
| 5 | 8,500 | 8.0 | 1.50 | 230 | 560 | 155 |
| | | 9.5 | 1.65 | 250 | 610 | |
| | | 11.0 | 1.80 | 270 | 610 | |
| | | 12.5 | 1.95 | 290 | 610 | |
| | | 14.0 | 2.10 | 310 | 685 | |

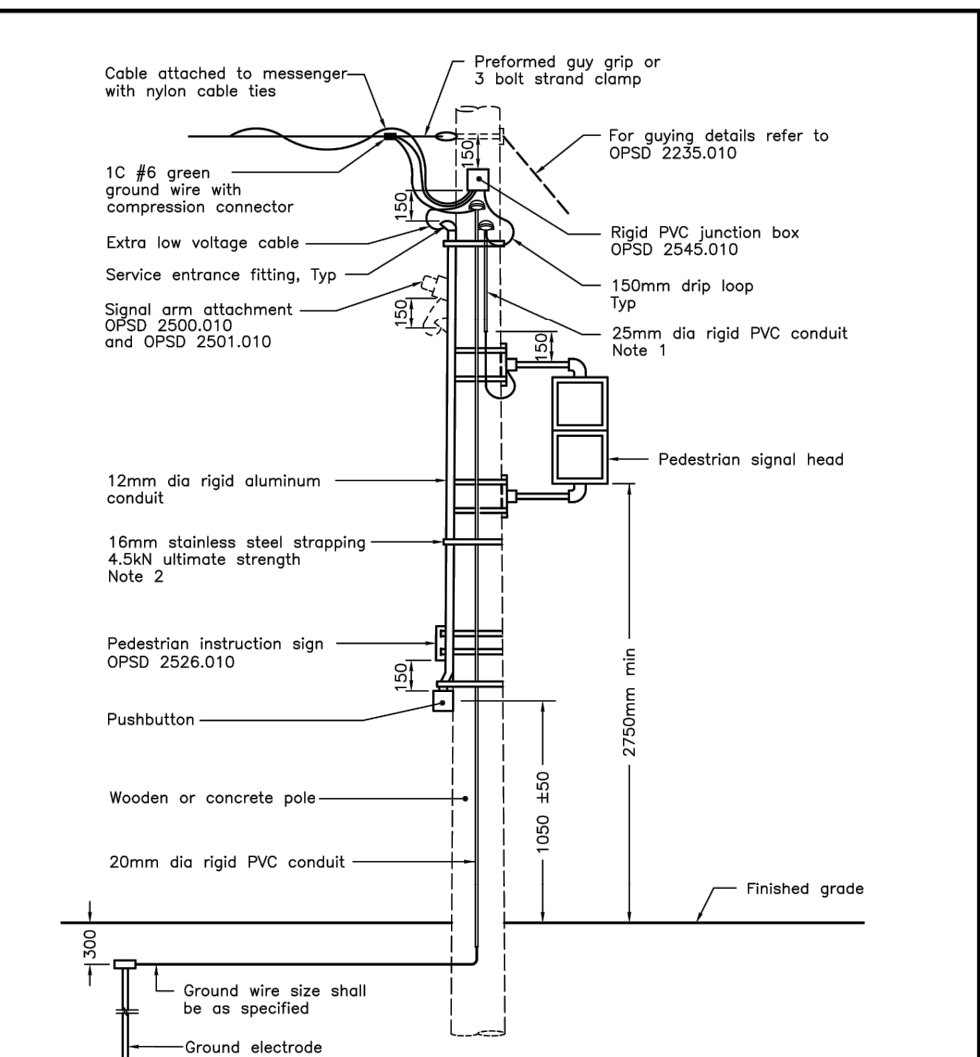
ONTARIO PROVINCIAL STANDARD DRAWING Nov 2010 Rev 1
WOODEN POLE IN EARTH
 OPSD 2238.01



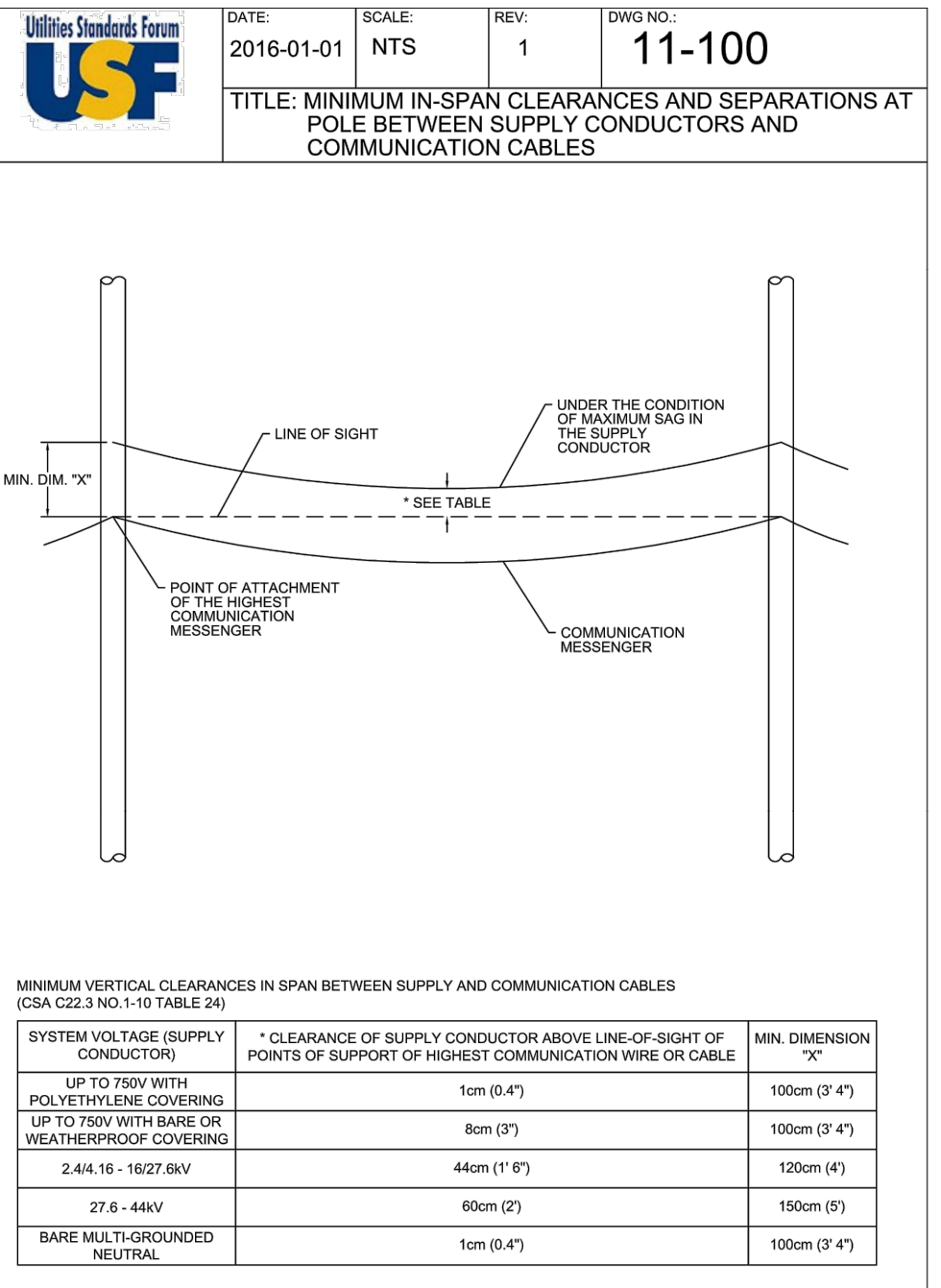
ONTARIO PROVINCIAL STANDARD DRAWING Nov 2013 Rev 4
AERIAL TRAFFIC SIGNAL INSTALLATION
 OPSD 2540.01



ONTARIO PROVINCIAL STANDARD DRAWING Nov 2013 Rev 2
WOODEN POLES WITH AERIAL CABLES LASHED ON MESSENGER
 OPSD 2242.02

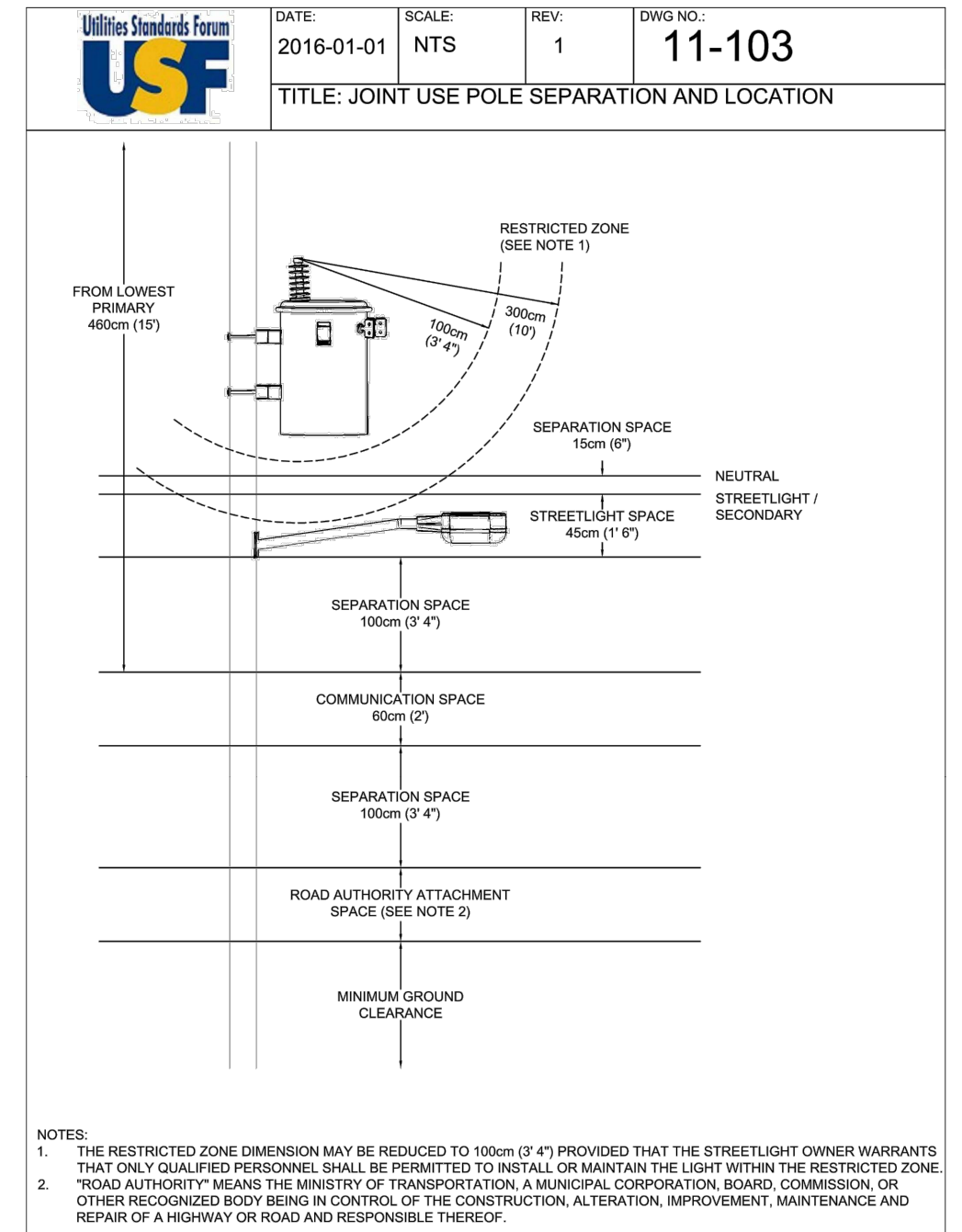


ONTARIO PROVINCIAL STANDARD DRAWING Nov 2019 Rev 3
TRAFFIC SIGNAL SYSTEM EQUIPMENT ON WOODEN OR CONCRETE POLES OVERHEAD WIRING INSTALLATION
 OPSD 2552.010



| SYSTEM VOLTAGE (SUPPLY CONDUCTOR) | CLEARANCE OF SUPPLY CONDUCTOR ABOVE LINE-OF-SIGHT OF POINTS OF SUPPORT OF HIGHEST COMMUNICATION WIRE OR CABLE | MIN. DIMENSION "X" |
|--|---|--------------------|
| UP TO 750V WITH POLYETHYLENE COVERING | 1m (0'4") | 100mm (3'4") |
| UP TO 750V WITH BARE OR WEATHER-PROOF COVERING | 80cm (3') | 100mm (3'4") |
| 2.4kV-16.16kV | 44cm (1'8") | 120mm (4") |
| 27.6-44kV | 60cm (2') | 150mm (5") |
| BARE MULTI-GROUNDED NEUTRAL | 1m (0'4") | 100mm (3'4") |

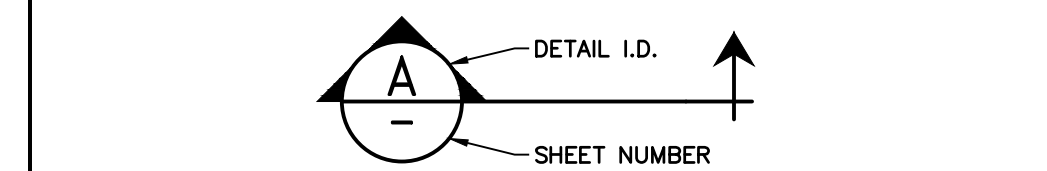
ONTARIO PROVINCIAL STANDARD DRAWING Nov 2013 Rev 2
JOINT USE POLE SEPARATION AND LOCATION
 OPSD 11-100



| SYSTEM VOLTAGE (SUPPLY CONDUCTOR) | CLEARANCE OF SUPPLY CONDUCTOR ABOVE LINE-OF-SIGHT OF POINTS OF SUPPORT OF HIGHEST COMMUNICATION WIRE OR CABLE | MIN. DIMENSION "X" |
|--|---|--------------------|
| UP TO 750V WITH POLYETHYLENE COVERING | 1m (0'4") | 100mm (3'4") |
| UP TO 750V WITH BARE OR WEATHER-PROOF COVERING | 80cm (3') | 100mm (3'4") |
| 2.4kV-16.16kV | 44cm (1'8") | 120mm (4") |
| 27.6-44kV | 60cm (2') | 150mm (5") |
| BARE MULTI-GROUNDED NEUTRAL | 1m (0'4") | 100mm (3'4") |

ONTARIO PROVINCIAL STANDARD DRAWING Nov 2013 Rev 2
JOINT USE POLE SEPARATION AND LOCATION
 OPSD 11-103

Professional Engineer stamps for N.J. Macdonald and P.B. Wozniak, Province of Ontario.

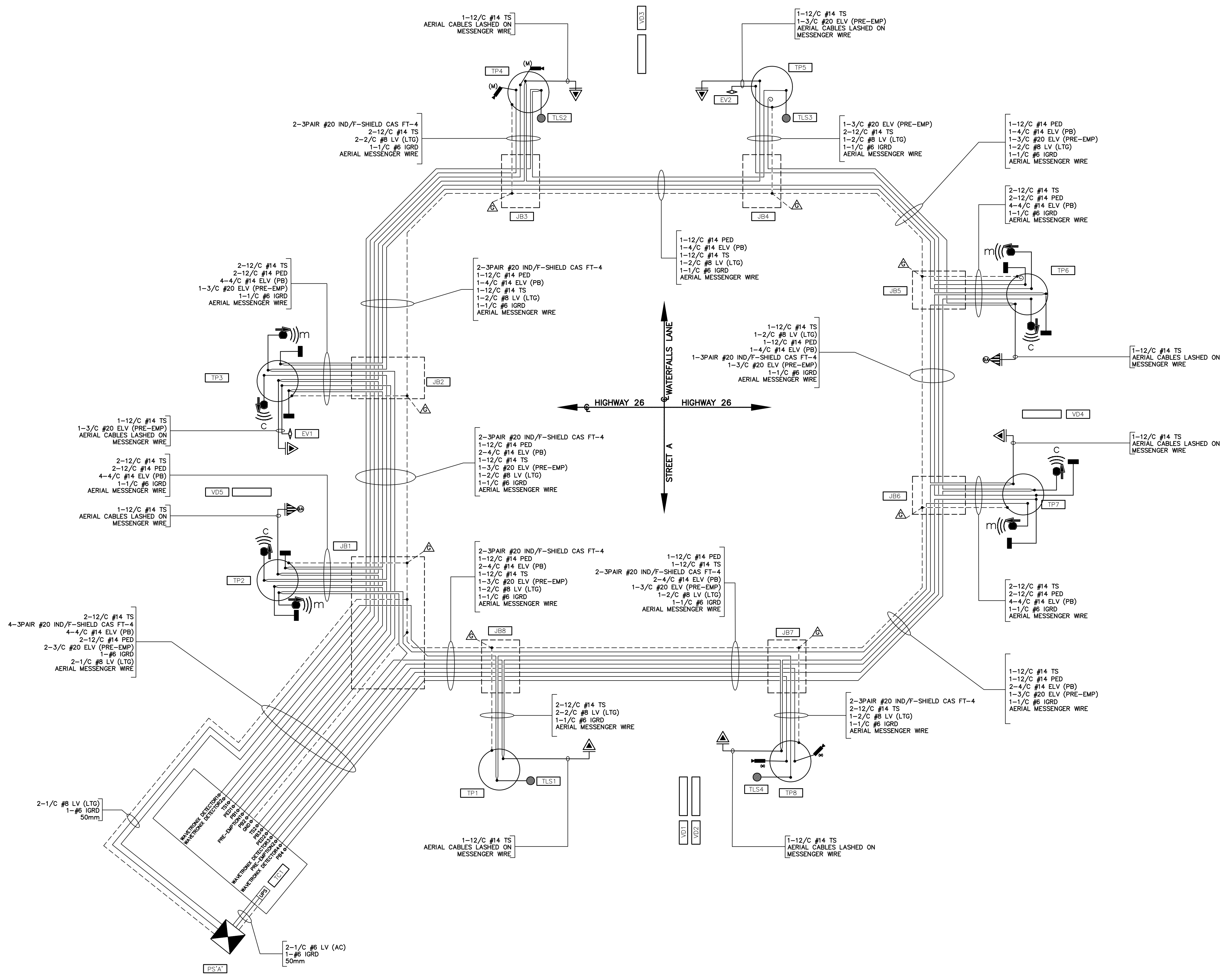


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HWY 26 & WATERFALLS LANE INTERSECTION
ELECTRICAL-DETAILS

CROZIER & ASSOCIATES Consulting Engineers
 THE HARBOUREDGE BUILDING, 40 HURON STREET, SUITE 301, COLLINGWOOD, ON L9Y 4R3
 705 446-3510 T, 705 446-3520 F, www.cfcrozier.ca

Drawn By T.S.D./J.R.B. Check By N.J.M./P.W. Project 1790-5382
 Scale N.T.S. Date 03/05/2021 Drawing E9



LEGEND:

| | |
|--|--|
| | POWER SUPPLY EQUIPMENT |
| | HIGHWAY SIGNAL HEAD, ALL 300mm LENSES, WITH BACKBOARD |
| | LUMINAIRE WITH BRACKET |
| | CONTROLLER CABINET, PAD AND/OR FOOTING MOUNTED |
| | DUCTS AND/OR CABLES, UNDERGROUND |
| | SPECIAL HEAD TYPE WITH ARROW INDICATION AND BACKBOARD (ALL 300mm LENSES) |
| | EXISTING HYDRO POLE TO REMAIN, HPLS HYDRO POLE WITH LIGHT STAND |
| | POLE WITH IDENTIFICATION CODE |
| | JUNCTION BOX |
| | TRAFFIC SIGNAL CABINET IDENTIFICATION CODE |
| | LUMINAIRE IDENTIFICATION CODE |
| | HYDRO POLE |
| | EXISTING HYDRO (OVERHEAD) |
| | NORTH/SOUTH AUDIBLE PED |
| | EAST/WEST AUDIBLE PED |
| | WAVETRONIX MATRIX ADVANCE SENSOR |
| | EMERGENCY VEHICLE DUAL CHANNEL PRE-EMPTION DETECTOR WITH IDENTIFICATION CODE |

| No. | ISSUE / REVISION | DATE: MM/DD/YYYY |
|-----|-------------------------------|------------------|
| 0 | ISSUED FOR 60% DESIGN REVIEW | 07/17/2020 |
| 1 | ISSUED FOR 90% DESIGN REVIEW | 03/10/2021 |
| 2 | ISSUED FOR 100% DESIGN REVIEW | 09/03/2021 |

North

Engineer

Engineer

A - DETAIL I.D. ↑

— SHEET NUMBER

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Project

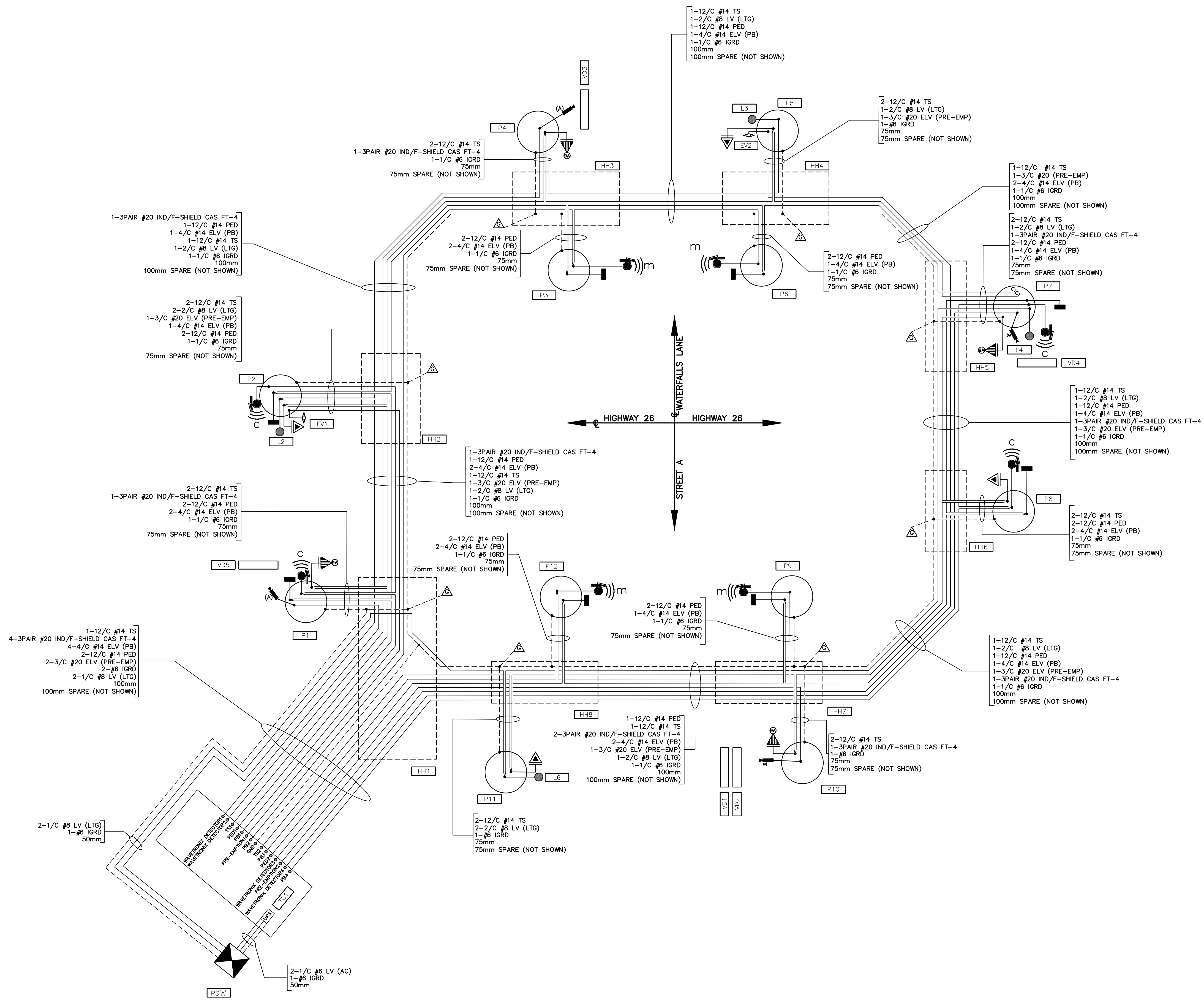
HWY 26 & WATERFALLS LANE INTERSECTION

Drawing

TEMPORARY ELECTRICAL SINGLE LINE DIAGRAM

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40 Huron Street, Suite 301,
Collingwood, ON L9Y 4R3
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705 446-3520 F
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info@cfcrozier.ca

| | | | | | |
|----------|---------------|----------|-------------|---------|------------------|
| Drawn By | T.S.D./J.R.B. | Check By | N.J.M./P.W. | Project | 1790-5382 |
| Scale | N.T.S. | Date | 03/05/2021 | Drawing | E10 |



LEGEND:

| | |
|--|--|
| | POWER SUPPLY EQUIPMENT |
| | HIGHWAY SIGNAL HEAD, ALL 300mm LENSES, WITH BACKBOARD |
| | LUMINAIRE WITH BRACKET |
| | CONTROLLER CABINET, PAD AND/OR FOOTING MOUNTED |
| | DUCTS AND/OR CABLES, UNDERGROUND |
| | SPECIAL HEAD TYPE WITH ARROW INDICATION AND BACKBOARD (ALL 30 cm LENSES) |
| | EXISTING HYDRO POLE TO REMAIN, HPLS HYDRO POLE WITH LIGHT STAND |
| | POLE WITH IDENTIFICATION CODE |
| | ELECTRICAL HANDHOLE, UNDERGROUND WITH IDENTIFICATION CODE |
| | TRAFFIC SIGNAL CABINET IDENTIFICATION CODE |
| | LUMINAIRE IDENTIFICATION CODE |
| | HYDRO POLE |
| | EXISTING HYDRO (OVERHEAD) |
| | NORTH/SOUTH AUDIBLE PED |
| | EAST/WEST AUDIBLE PED |
| | WAVECRONIX MATRIX ADVANCE SENSOR |
| | EMERGENCY VEHICLE DUAL CHANNEL PRE-EMPTION DETECTOR WITH IDENTIFICATION CODE |

| No. | ISSUE / REVISION | DATE: MM/DD/YYYY |
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| 0 | ISSUED FOR 60% DESIGN REVIEW | 07/17/2020 |
| 1 | ISSUED FOR 90% DESIGN REVIEW | 03/10/2021 |
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North

Engineer

Engineer

- DETAIL I.D.

- SHEET NUMBER

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Project

HWY 26 & WATERFALLS LANE INTERSECTION

Drawing

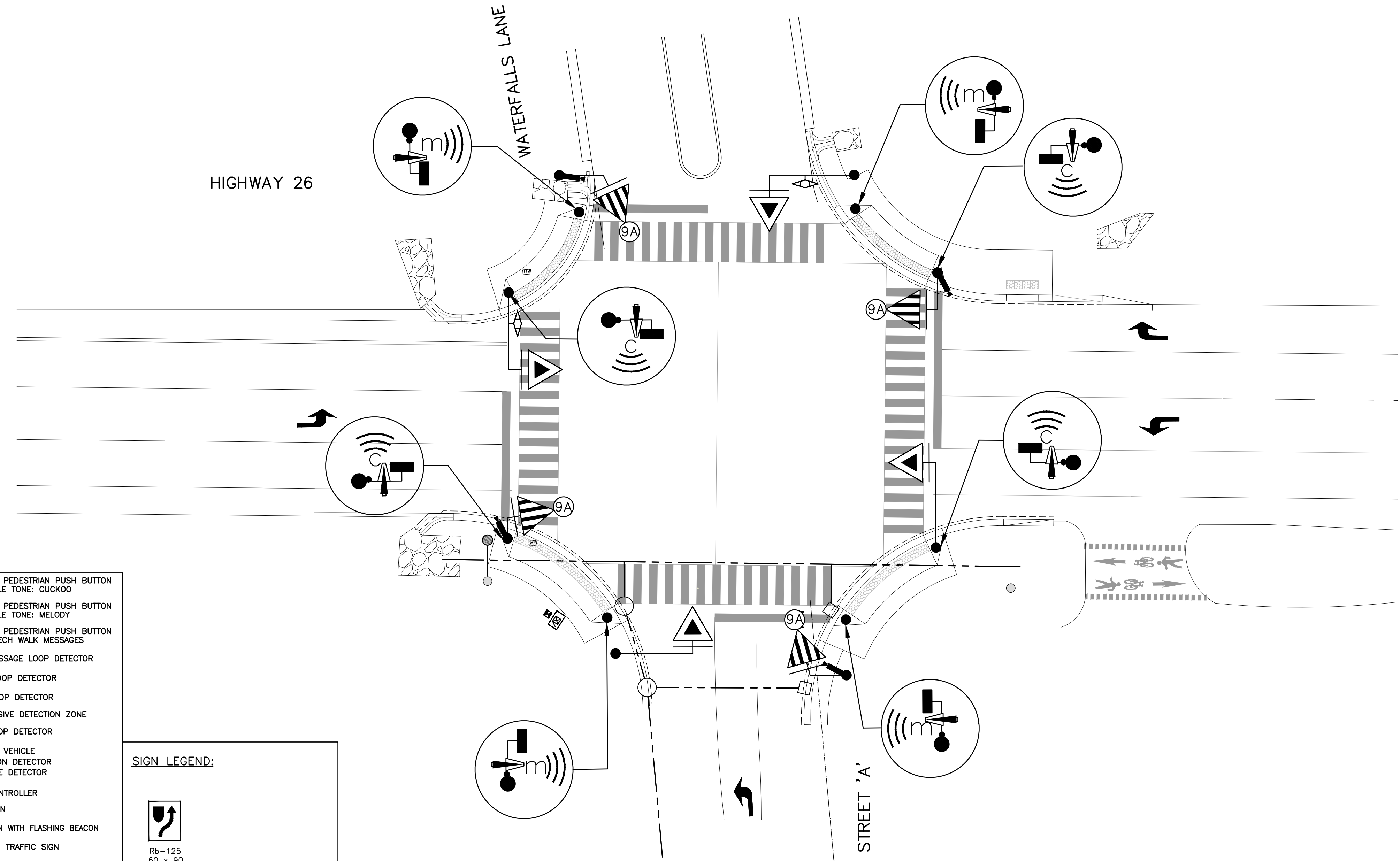
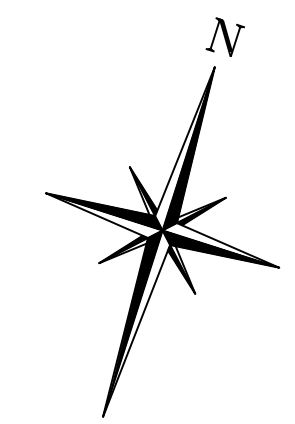
PERMANENT ELECTRICAL SINGLE LINE DIAGRAM

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| | | | | | |
|----------|---------------|----------|-------------|---------|-----------|
| Drawn By | T.S.D./J.R.B. | Check By | N.J.M./P.W. | Project | 1790-5382 |
| Scale | N.T.S. | Date | 03/05/2021 | Drawing | E11 |

| REVISIONS | DATE | ANALYST | DESCRIPTION OF REVISIONS | RECOMMENDED BY |
|-----------|------|-----------|--------------------------|-------------------------------|
| | | SEPT 2021 | | ISSUED FOR 100% DESIGN REVIEW |
| | | | | |
| | | | | |
| | | | | |



| LEGEND | |
|--------|---|
| | HIGHWAY SIGNAL HEAD (30 cm RED) WITH BACKBOARD AND MAST ARM |
| | HIGHWAY SIGNAL HEAD (30 cm RED) WITH BACKBOARD AND OVERHEAD CABLE |
| | OVERSIZE HIGHWAY SIGNAL HEAD WITH BACKBOARD AND MAST ARM (ALL 30 cm LENSES) |
| | SPECIAL HEAD WITH ARROW INDICATION AND BACKBOARD (EXAMPLE SHOWS TYPE 2 HEAD) |
| | SPECIAL HEAD WITH BACKBOARD AND ONE OR MORE PROGRAMMABLE LENSES (EXAMPLE SHOWS TYPE 2 HEAD) |
| | STANDARD SIGNAL HEAD WITH BACKBOARD AND MAST ARM (ALL 20 cm LENSES) |
| | STANDARD SIGNAL HEAD WITH MAST ARM, WITHOUT BACKBOARD |
| | BICYCLE SIGNAL HEAD (ALL 20 cm LENSES) |
| | PEDESTRIAN SIGNAL HEAD |
| | PEDESTRIAN SIGNAL HEAD WITH COUNT DOWN |
| | PEDESTRIAN PUSH BUTTON |
| | VIDEO DETECTION CAMERA |
| | NON-INTRUSIVE SENSOR |
| | ACCESSIBLE PEDESTRIAN PUSH BUTTON WITH AUDIBLE TONE: CUCKOO |
| | ACCESSIBLE PEDESTRIAN PUSH BUTTON WITH AUDIBLE TONE: MELODY |
| | ACCESSIBLE PEDESTRIAN PUSH BUTTON WITH S.SPEECH WALK MESSAGES |
| | VEHICLE PASSAGE LOOP DETECTOR |
| | DIAMOND LOOP DETECTOR |
| | VEHICLE LOOP DETECTOR |
| | NON-INTRUSIVE DETECTION ZONE |
| | DUPLEX LOOP DETECTOR |
| | EMERGENCY VEHICLE PRE-EMPTION DETECTOR |
| | MICRO-WAVE DETECTOR |
| | TRAFFIC CONTROLLER |
| | TRAFFIC SIGN |
| | TRAFFIC SIGN WITH FLASHING BEACON |
| | ILLUMINATED TRAFFIC SIGN |
| | ACCESSIBLE PEDESTRIAN SHORT POLE |
| | TRAFFIC SIGNAL POLE |
| | CURB RAMP (1.22 m WIDTH) PROVIDING ACCESS TO SINGLE CROSSWALK |

SIGN LEGEND:

| | |
|--|-------------------|
| | Rb-125 60 x 90 |
|--|-------------------|

TRAFFIC CONTROL SIGNAL HEADS
ALL 30 cm LENSES, EXCEPT AS NOTED

| Standard | Highway | Oversize Highway | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 8A | 9 | 9A | 10 | 10A | 11 | 11A | Transit | Bicycle |
|----------|---------|------------------|---|---|---|---|---|---|---|---|----|---|----|----|-----|----|-----|---------|---------|
| | | | | | | | | | | | | | | | | | | | |

⑧ ⑨ AMBER ARROW MUST BE USED IN A PROTECTED/PERMISSIVE SIMULTANEOUS LEFT TURN OPERATION.
NOTE: -FOR SPECIAL ARROW HEADS ⑧, ⑨, ⑩ AND ⑪, 20 cm AMBER BALL AND 20 cm GREEN BALL LENSES SHOULD BE USED
-BICYCLE SYMBOL IN ACCORDANCE TO O. REG. 626 H.T.A.

| CLASSIFICATION OF ROADWAY | TRAFFIC SIGNAL HEADS | | | LOCATION | | | |
|---|----------------------|-----------------------|-----------|--------------|------|------------------|-----------------------|
| | TYPE | SIZE | BACKBOARD | MOUNTING HT. | | OFFSET FROM POLE | |
| ROADWAY HIGHWAY 26 | PRIMARY | EB OS HWY / WB OS HWY | YES | YES | 5.0m | 5.0m | EB - 5.5m / WB - 5.5m |
| | SECONDARY | EB OS HWY / WB TYP 9A | YES | YES | 5.0m | 5.0m | EB - 0.6m / WB - 0.6m |
| | AUXILIARY | | | | | | |
| MULTILANE <input checked="" type="checkbox"/> | | | | | | | |
| TWO-LANE <input type="checkbox"/> | | | | | | | |
| ROADWAY WATERFALLS LANE / STREET 'A' | PRIMARY | NB OS HWY / SB OS HWY | YES | YES | 5.0m | 5.0m | NB - 6.1m / SB - 7.6m |
| | SECONDARY | NB OS HWY / SB OS HWY | YES | YES | 5.0m | 5.0m | NB - 3.7m / SB - 3.7m |
| | AUXILIARY | NB OS HWY | YES | | 5.0m | | NB - 0.6m |
| MULTILANE <input type="checkbox"/> | | | | | | | |
| TWO-LANE <input checked="" type="checkbox"/> | | | | | | | |

NOTE:
CONCRETE SIDEWALK RAMPS ACCORDING TO OPSD 310.030 AND OPSD 310.031

| | |
|---|--|
| MUNICIPALITY <u>TOWN OF COLLINGWOOD</u> | MINISTRY OF TRANSPORTATION, ONTARIO |
| INTERSECTION <u>HIGHWAY 26 & WATERFALLS LANE</u> | SIGNALS WARRANTED: |
| <u>INTERSECTION</u> | SIGNAL DESIGN RECOMMENDED FOR APPROVAL: |
| DATE <u>SEPTEMBER 3, 2020</u> SCALE <u>1:200</u> | SIGNAL INSTALLATION APPROVED AS PER SECTION 144 (31) H.T.A.: |
| RECOMMENDED BY <u>MUNICIPAL OFFICIAL (MUNICIPAL INSTALLATION)</u> | APPROVAL DATE: |
| <u>REGIONAL TRAFFIC REPRESENTATIVE (MINISTRY INSTALLATION)</u> | |