CITY OF WINDSOR
PUBLIC WORKS

ROLES & RESPONSIBILITIES FOR FIELD SERVICES CONSTRUCTION TECHNOLOGIST STAFF

INSPECTION

Updated 2023

CONSTRUCTION TECHNOLOGIST- ROLES & RESPONSIBILITIES - INSPECTION

The Construction Technologist holds a vital role in the construction process. The responsibility for monitoring and documenting progress on and ensuring the structural integrity of infrastructure projects is largely that of the site inspection team. The Construction Technologist forms the final element in the design / construction process and represents the City Engineer on the "front line" to ensure a quality product. A Construction Technologist must demonstrate ongoing knowledge, commitment and experience, be a person who has uprightness of character, honesty and must maintain a professional approach through out all aspects of the job. Having the knowledge and confidence to recognize and correct unsound practices or materials, resolve conflicts and continually ensure quality workmanship is received and paid for all serve to make an experienced Construction Technologist of paramount importance.

The role of an inspector cannot be under-rated or taken on lightly.

Role and Responsibilities

A Construction Technologist is the full time onsite City representative and will:

- Be competent and have a clear understanding of their role in the process.
- Develop and maintain a working and cooperative relationship with the Contractor.
- Be knowledgeable and familiar to the project and its specifications.
- Be responsible and ensure that the Contractor is carrying out the intent of the contractual plans and specifications.
- Be fair and subjective/objective & consistent.
- Provide comprehensive site inspection and documentation for the City of Windsor project files.
- Maintain quality day to day records and an open communication with the City of Windsor Project Engineer or Liaison and Supervisor.
- Be the representative of the City towards residents, act courteously and professionally and be available and attentive to concerns.
- Be aware of the safety of the public on the site.
- Know and ensure adherence to City of Windsor Standard Specifications, Standard Drawings, Procedures and Engineering Best Practices.
- Notify the Contractor and City supervision of problems or conflicts as they arise or when anticipated.
- Work within OHSA regulations – confined space, traffic control etc.
- In all manners act with integrity, ethics and in the best interest of the City of Windsor.

A Construction Technologist shall not:

- Manage the project for the Contractor.
- Agree to implement out of specification conditions without notifying via email immediately the Project Engineer, all Field Supervisory staff and the Coordinator at Field Services for comment and the documentation of the condition or direction provided by the Project Engineer or direction of Field Supervisory staff.
- Negotiate with the Contractor to pay tender items that are not quantified via actual measurements or documented time in the field book. If payment method is not certain the Construction Technologist is to notify their immediate Supervisor for direction.
- Direct a Contractor's employees.

- Change a design, plans or specifications without direction from a Supervisor or the Project Engineer. If a change to the design, plan or deviation from the Standard Specifications or Drawings is directed by the Project Engineer then see the above 2nd bullet and send an email immediately after receipt of direction.
- Behave unethically or misrepresent the City of Windsor's interests.

The Act of Inspection

A Construction Technologist uses their experience to assist in the pre-engineering work leading up to a construction project. By reviewing and commenting an experienced Construction Technologist can aid the Project Engineer with the aspects of design.
Some of the Construction Technologists pre- construction tasks include:

Plan & Contract Review

Look for:

- Any conflicts with the City of Windsor Standard Specifications, Standard AS Drawings and Engineering Best Practices
- Constructability issues including haul routes
- Any potential savings that may be available thru substitutions or deletions if possible of products that meet the Standard Specifications for consideration by the Project Engineer.
- Utility, Traffic, or other conflicts current or anticipated
- Check for mathematical error
- Check proposed road grades, driveway slopes, sewer slopes, etc.
- Confirm on site that the tie in MH inverts correlate with the drawing inverts
- Ensure all materials specified in the contract documents meet and adhere to the appropriate City of Windsor Specifications - materials such as pipes & fittings, reclaimed and quarried granular aggregates etc.

Benchmarks and Survey Layout

Prior to start of project:

- Review survey benchmarks and turn-points and amend where required
- Review all proposed grades and ensure required field layout and offset stakes are in good order
- Review location of layout with survey staff (cut cross or stake and required offset)

Pre-construction Video and Still Photography

- CCTV of existing Private Drain Connections that are plastic and have been fully replaced to property line prior to the start of or during the project to determine acceptance. Copies of all PDC videos are saved to the project network folder. To keep an existing plastic fully replaced connection in place must be justified, otherwise all Private Drain Connections should be replaced to property line.
- Still site photography and video should be taken immediately prior to Contractor mobilization to document the state of the work zone prior to any work being undertaken.
- Still site photos and videos are to be digital and are to be copied to the project network folder immediately as well as printed, a set of which will be carried in field.

Specific attention should be given to the pre construction condition and make up of:

- Private driveways, curb-cuts, lead walks, steps and porches
- Measurements of curb cuts, leadwalks or any other hard surfaced area in the right of way to be restored
- Fences, landscaping and existing property bars and markers
- Tree trunks and overhanging branches that may receive damage
- Buildings and utility poles and boxes
- Pavement, curbs and boulevards adjacent to and surrounding the construction site including haul routes when identified in tender documents or pre-construction meeting minutes
- Privately owned objects in the right of way as outlined the Engineering Best Practice 3.2.2. to ensure that the Project Engineer has addressed these prior to start of construction with the issuance of letters to the adjacent property owners

It is important to document any existing damage or flaws to private property before construction begins. The most minor details have a way of becoming issues after the fact. A complete and thorough video and photograph documentation of existing conditions will lessen or completely eliminate future disagreements.
It may be necessary to identify certain sensitive areas to the Contractor to ensure adequate precautions are taken.

Project File Set Up

The project folder is to constructed and labeled with the project name, project number and comprised of the following sub-folders:

1. Summary of Items and Commentary

   This paperwork is where the inspector closes the loop. Fill in all areas and always include the Diary # and Page # to show where the info came from. Show calculations here when required.

   The files shall be setup as digital files. The sections shall be printed and filled out by hand then scanned for the final copies in the file. Any and all calculations (theoretical or actual) shall be shown to justify how the quantities for final payment were quantified.

2. Force Accounts and Claims

   If claims are not documented in the Technologists daily diary, then they did not happen. All claims to come to the Field Office for review of equipment, workers and hours worked and then to the Project Engineer for monetary review and then payment, if acceptable.

   If the Project Engineer works out a Change Order with the Contractor, the Project Engineer should notify the Construction Technologist and provide the Construction Technologist with a copy of the Change Order for review and comment prior to payment. The Project Engineer is to advise the Contractor to submit their proposed Change Order in a digital format for review and comment.

3. Final Payment Quantities

   File to contain copies of the Monthly Payment Certificates and the Final Payment Certificate. All certificates are to be signed by the Construction Technologist with a date and submitted at months end to their Field Supervisor.

   These certificates are then signed and dated by the Field Supervisor, provided to the Field Services Clerk to send to the Project Engineer. A signed digital copy is required in the project folder on the network.

4. Summary of Working Days

   Working Days shall be documented daily by the Construction Technologist in the project diary. The Construction Technologist shall advise the Project Engineer the total number of Working Days to date at the weekly or bi-weekly site meetings. The Project Engineer shall document the total number of Working Days to date in the minutes of the meetings. These minutes are distributed to all parties and if the Contractor disputes the number of Working Days then the Contractor shall dispute the distributed minutes and further discussions can take place.

   The Project Engineer shall provide a letter to the Contractor stating when the Working Days are to commence. The Project Engineer shall provide a copy of a letter to the Contractor stating the total Working Days with the Substantial Completion Form.

   The Contractor shall notify the City of Windsor a minimum of 24 hours in advance if the Contractor plans to schedule work on a project on a Saturday, Sunday or holiday. This should be noted in the pre-con meeting minutes by the Project Engineer.

5. Deficiencies / Incomplete Work

   This list to be separate items but done on the same sheet as you need to distinguish between deficiencies and incomplete work. This document is to be created as an Excel file using the Field Services template. (EXAMPLE BELOW) The file is then saved in the project folder and updated with dates as required.

FIELD SERVICES

TENDER #	DATE OF SUBSTANTIAL COMPLETION:
CONTRACTOR:	DEFICIENCY WALKTHROUGH DATE:
TECHNOLOGIST:	1 YEAR WALKTHROUGH DATE:
FIELD SUPERVISOR:	DOCUMENT LAST UPDATED:
PROJECT ENGINEER:	

DEFICIENCY LIST	TENDER #	PROJECT NAME

ITEM #	MUNICIPAL BUILDING / LOCATION	TYPE	DESCRIPTION OF DEFICIENT WORK	CONSTRUCTION TECHNOLOGIST	HYPERLINK TO PHOTOS/VIDEOS	ENTRY DATE	DATE OF COMPLETION
1							
FOLLOW-UP COMMENTS:							
2							
FOLLOW-UP COMMENTS:							
3							
FOLLOW-UP COMMENTS:							
4							
FOLLOW-UP COMMENTS:							
5							
FOLLOW-UP COMMENTS:							
6							
FOLLOW-UP COMMENTS:							
7							
FOLLOW-UP COMMENTS:							
8							
FOLLOW-UP COMMENTS:							
9							
FOLLOW-UP COMMENTS:							
10							
FOLLOW-UP COMMENTS:							
11							
FOLLOW-UP COMMENTS:							
12							
FOLLOW-UP COMMENTS:							
13							
FOLLOW-UP COMMENTS:							
14							
FOLLOW-UP COMMENTS:							

*This is a live document - additions / deletions will be administered and dated as required.

Updated: April 2023

The Project Engineer uses the deficiencies to determine Substantial Completion and to calculate the holdback if required.

6. Correspondence

File here such items as Letters to Residence, Directives to Contractor, and Design Changes from the Project Engineer, Minutes of Meetings, Grade Sheets, Copies of Emails and the final transmittals sent to Project Engineer.

When the project is completed, all correspondence is to be scanned, if not digital, and placed in the project folder on the network.

7. Weighed Material

Total material tickets from the jobsite. Check with the QA Field Supervisor for current Proctor Values when doing manual check calculations. This document is to be created as an Excel file using the Field Services Template.(EXAMPLE BELOW) This is to be completed and totaled as the construction processes move forward so that an on-going total can be kept and any discrepancies can be discussed prior to completion of the project. Note in the project diary. Ticket information in the Excel file can be completed monthly, the Construction Technologist is not expected to complete these daily. Notes in the book for Ticket quantities to help determine QA sampling purposes only.

FIELD SERVICES

MATERIAL SUMMARY SHEET

Material	Contractor	Tender #

Date	Daily Amount	
	0.00	Tonnes
	0.00	Tonnes
	0.00	Tonnes
	0.00	Tonnes
	0.00	Tonnes
	0.00	Tonnes
	0.00	Tonnes
	0.00	Tonnes
	0.00	Tonnes
	0.00	Tonnes
	0.00	Tonnes
	0.00	Tonnes
	0.00	Tonnes
	0.00	Tonnes
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	0.00	Tonnes
	0.00	Tonnes
	0.00	Tonnes
	0.00	Tonnes
	0.00	Tonnes
	0.00	Tonnes
	0.00	Tonnes
	0.00	Tonnes
	0.00	Tonnes
	0.00	Tonnes
	0.00	Tonnes
	0.00	Tonnes
	0.00	Tonnes

Total	
0.00	Tonnes

Updated: April 2023

FIELD SERVICES

DAILY MATERIAL SUMMARY SHEET

Date:	
Material:	
Contractor:	
Supplier:	
Tender #	

Notes:

LOAD NO.	TICKET NO.	WEIGHT
	Column Total:	0.00

LOAD NO.	TICKET NO.	WEIGHT
	Column Total:	0.00

Signature:

Total	0.00 Tonnes

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8. <u>Survey Information</u>

This should contain construction loop, excavation calculations and requested asbuilt info. Maintenance Hole Inventory Sheets (Storm & Sanitary) are to be completed using the Field Services Template. (EXAMPLE BELOW)

FIELD SERVICES

MAINTENANCE HOLE INVENTORY - SANITARY						
TENDER #			TECHNOLOGIST:			PROJECT LOCATION:
ENGINEER:			CHECKER:			FIELD SUPERVISOR:
MH #	TOP	INVERT	PROPOSED	ACTUAL	DIFFERENCE	NOTES
MH #	TOP	INVERT	PROPOSED	ACTUAL	DIFFERENCE	NOTES
MH #	TOP	INVERT	PROPOSED	ACTUAL	DIFFERENCE	NOTES
MH #	TOP	INVERT	PROPOSED	ACTUAL	DIFFERENCE	NOTES
MH #	TOP	INVERT	PROPOSED	ACTUAL	DIFFERENCE	NOTES
MH #	TOP	INVERT	PROPOSED	ACTUAL	DIFFERENCE	NOTES
MH #	TOP	INVERT	PROPOSED	ACTUAL	DIFFERENCE	NOTES
MH #	TOP	INVERT	PROPOSED	ACTUAL	DIFFERENCE	NOTES

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If any information is missing, see the Field Supervisor to discuss what is missing and if something needs to be re-shot, ask the Field Supervisor for a Construction Technician to assist with the work, if required.

9. <u>Testing</u>

The Construction Technologist is responsible for ensuring that all Q.A. Testing has been carried out. The Construction Technologist shall get all results from the QA staff, if the Construction Technologist did not undertake the Q.A. testing themselves, for concrete testing including break reports and field testing as well as asphalt testing, applicable mix designs, topsoil reports, compaction reports and recycled granular reports to determine if acceptable and advise Field Supervisor and Project Engineer of acceptance or rejection. Note in daily diary pipe review when pipe delivered to the site.

Project Engineer shall list all material suppliers and sub-contractors in the pre-con meeting and site meetings minutes. This list is so all involved know what is on the list.

10. Photos / Videos

Put all copies of all pre-con photos in this file. Label photos with address, material and measurements for restoration purposes. This shall be prepared as soon as the pre-construction photos are taken.

Having the photos on hand will greatly assist the Construction Technologist when reviewing drive approaches for re-instatement or if issues arise on site with property owners.

List all loose items not in a folder such as the diaries, PDC books and any other items.

Field Book Set Up

Daily Project Diary

The Project Diary will serve to record the day to day activities and progress of the contract. The diary will be kept in the care of the project Construction Technologist assigned to the given project.

The Project Diary will have a minimum content of:

- Project name and project number.
- A clear and prominent "if found please call…." Statement.
- Table of contents.
- Pages numbered and dated.
- A list of survey benchmarks, turn points and control points used on the site.
- Weather, site, and soil conditions recorded one or more times per day when required.
- Record of working days.
- Clear signature or initials identifying the attending Construction Technologist on the site each day (make note of any time absent)
- Description of any utilities or structures crossed, exposed or disturbed with chainage if exposed and crossed during the underground work
- Description of Contractor's operation, location, equipment and personnel.
- Make note of all materials delivered to site.
- List and times of other parties on site, City staff or other agencies or utilities.
- Identify any utility, layout or locate work, material testing or sampling on site
- List any relevant conversations agreements, directions or discussions
- List any complaints from residents and remedial actions taken
- Document any accident or incident that takes place within or adjacent to the construction zone and notify Field Supervisor and/or emergency responders when warranted.
- Contract contact info & Engineering contact info
- Note payment items & highlight them for final quantities

- Note all properties on Field Services Template (EXAMPLE BELOW) with existing driveway curb cuts and the existing widths of the curb cuts

FIELD SERVICES

DRIVEWAY AND LEADWALK DIMENSIONS

This form is to be used as a compiled documentation of the existing driveways and leadwalks prior to the start of a project to ensure that all items are accounted for and documented with measurements

All curb cuts are measured from top to top

DATE:	
TENDER #	
STREET :	BLOCK :
TECHNOLOGIST :	PROJECT ENG :

MB #					
	☐ Driveway	☐ Approach	**Cut Width**	☐ Leadwalk	**Leadwalk Width**
	Comments:				
	☐ Driveway	☐ Approach	**Cut Width**	☐ Leadwalk	**Leadwalk Width**
	Comments:				
	☐ Driveway	☐ Approach	**Cut Width**	☐ Leadwalk	**Leadwalk Width**
	Comments:				
	☐ Driveway	☐ Approach	**Cut Width**	☐ Leadwalk	**Leadwalk Width**
	Comments:				
	☐ Driveway	☐ Approach	**Cut Width**	☐ Leadwalk	**Leadwalk Width**
	Comments:				
	☐ Driveway	☐ Approach	**Cut Width**	☐ Leadwalk	**Leadwalk Width**
	Comments:				
	☐ Driveway	☐ Approach	**Cut Width**	☐ Leadwalk	**Leadwalk Width**
	Comments:				
	☐ Driveway	☐ Approach	**Cut Width**	☐ Leadwalk	**Leadwalk Width**
	Comments:				
	☐ Driveway	☐ Approach	**Cut Width**	☐ Leadwalk	**Leadwalk Width**
	Comments:				
	☐ Driveway	☐ Approach	**Cut Width**	☐ Leadwalk	**Leadwalk Width**
	Comments:				
	☐ Driveway	☐ Approach	**Cut Width**	☐ Leadwalk	**Leadwalk Width**
	Comments:				

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Remember that a diary may be used for engineering reference or in court dispute cases years after the projects completion. Information clearly recorded daily will serve better than anyone's memory. Always be neat, conscience and completely thorough. Use a pen not a pencil as ink can't be erased.
Confusion and disagreement can be avoided by taking critical measurements or documented observations with a resident, a Field Supervisor and/or representative of the Contractor present. Note when photos are taken.
The daily project diary is a very important collection of information and must be preserved.

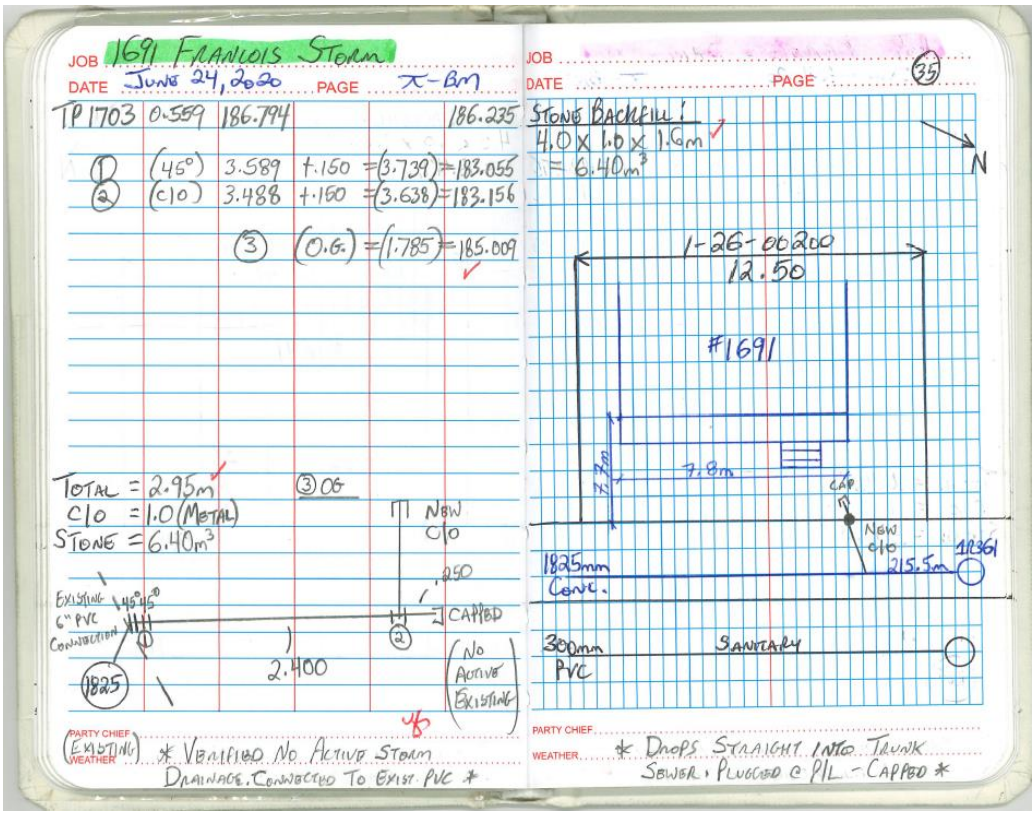
Private Drain Connection Diary

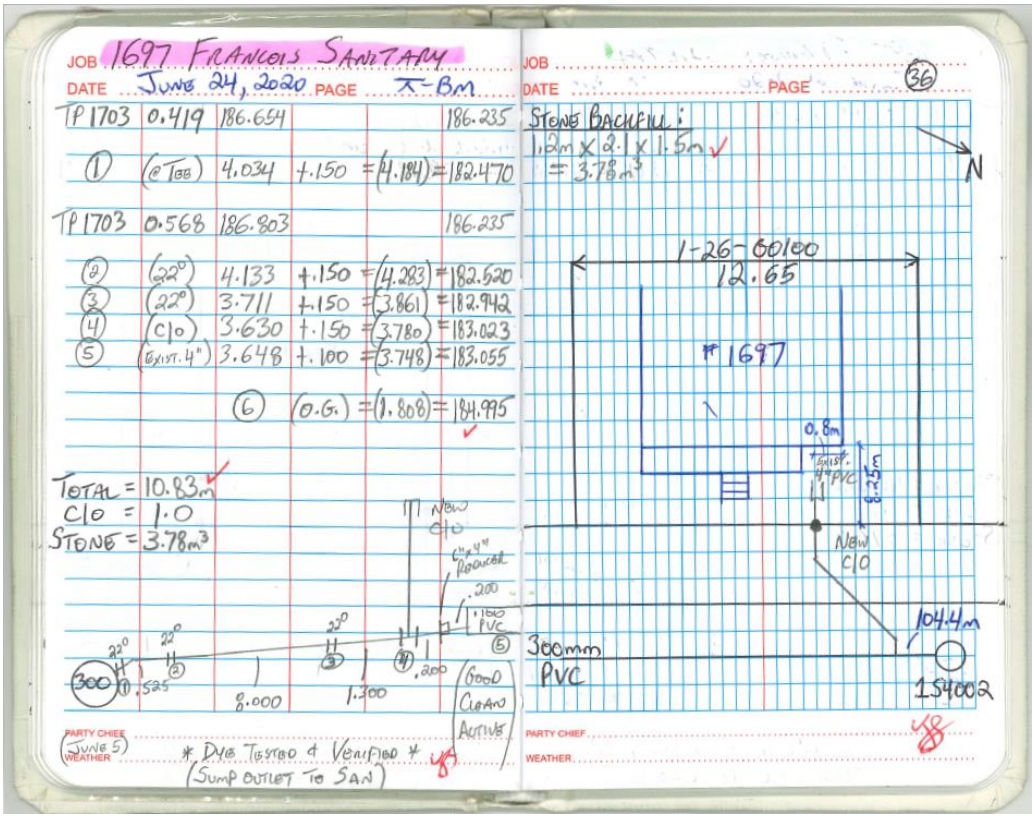
The PDC diary (EXAMPLE BELOW) is dedicated to any of the work surrounding private drain connections (storm and sanitary) and will require the form below "Condition Survey of Existing PDC Towards the House/Building" to be completed. (EXAMPLE BELOW)
PDC Connections cards will be created for every property within the project that has their PDC worked on. (EXAMPLE BELOW)

The PDC diary is to be completed at the time of the sewer installation, and include the following:

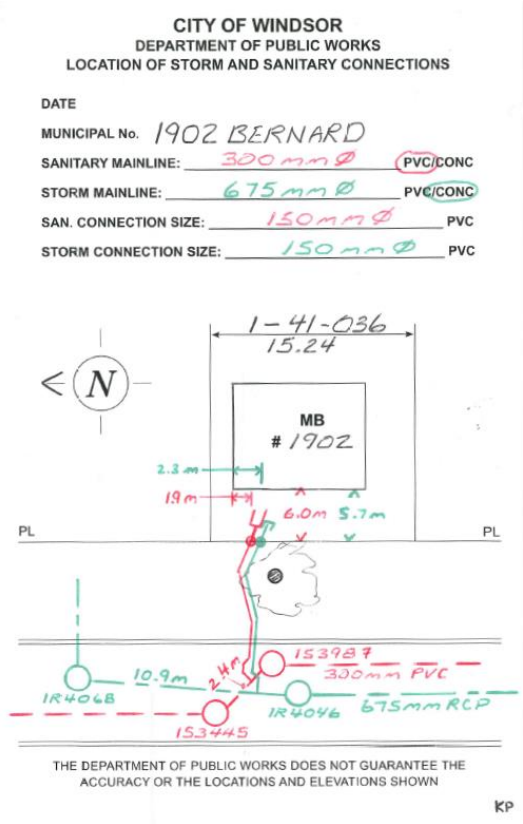
- Table of contents and page numbers.
- Confirmation of proper connections by dye, camera or visual inspection.
- Municipal building outline, and address with a north arrow and roll number.
- Invert elevations at clean out and at the main
- At least two horizontal measurements relative to municipal building faces and the clean out cap. This is for the City of Windsor Asset Management records for future cleanout location directions. This record is required for possible future eel service provided by the City of Windsor.
- Date and time of work at FINAL hookup.
- Description of the condition of sewer pipe material from the connection point with the existing PDC towards the municipal building the PDC services. Describe condition of the existing PDC on private property at the match (size, condition, obstructions in the pipe, etc). This is done with CCTV inspection. An additional summary document is to be created as an Excel file using the Field Services template and saved in the project folder on the network.
- Details on pipe lengths and elbows / fittings used.
- Describe location and condition of any utilities crossed or disturbed and make note of how the backfill around the existing utility was placed and what material used for backfill
- Index to as-built and connection card information.
- Information on backfill material, method of compaction and restoration.
- Note if a cast iron cap was used for the cleanout.
- Show both mainline sewers if sewers placed under the same contract even if no PDC's are placed to property line or back of curb

PDC Diary Examples





PDC Connection Card Examples



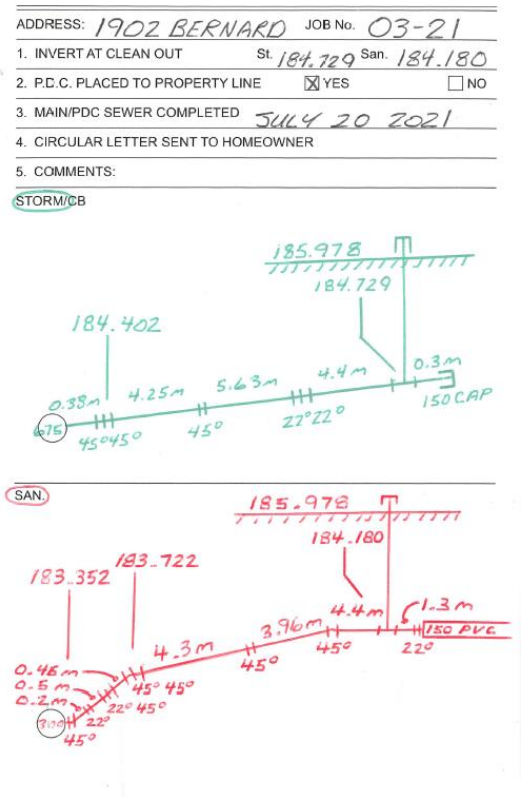
CITY OF WINDSOR
DEPARTMENT OF PUBLIC WORKS
LOCATION OF STORM AND SANITARY CONNECTIONS

DATE
MUNICIPAL No. 1902 BERNARD
SANITARY MAINLINE: 300 mm Ø PVC/CONC
STORM MAINLINE: 675 mm Ø PVC/CONC
SAN. CONNECTION SIZE: 150 mm Ø PVC
STORM CONNECTION SIZE: 150 mm Ø PVC

1-41-036
15.24
N
MB
1902
2.3 m
1.9 m
6.0m 5.7m
PL
PL
153987
300mm PVC
10.9m
2.4m
IR4068
IR4046
675mm RCP
153445

THE DEPARTMENT OF PUBLIC WORKS DOES NOT GUARANTEE THE ACCURACY OR THE LOCATIONS AND ELEVATIONS SHOWN

KP



ADDRESS: 1902 BERNARD JOB No. 03-21
1. INVERT AT CLEAN OUT St. 184.729 San. 184.180
2. P.D.C. PLACED TO PROPERTY LINE ☒ YES ☐ NO
3. MAIN/PDC SEWER COMPLETED JULY 20 2021
4. CIRCULAR LETTER SENT TO HOMEOWNER
5. COMMENTS:

STORM/CB

185.978
184.729
184.402
0.38m
4.25m
5.63m
4.4m
0.3m
150 CAP
675
45° 45°
45°
22° 22°

SAN.

185.978
184.180
183.722
183.352
4.4m
1.3m
150 PVC
3.96m
4.3m
0.45m
0.5m
0.2m
45° 45°
45°
22°
22° 45°
45°

FIELD SERVICES

CONDITIONS SURVEY OF EXISTING PDC TOWARDS THE HOUSE/BUILDING						
TENDER #			TECHNOLOGIST:			PROJECT LOCATION:
ENGINEER:			CHECKER:			FIELD SUPERVISOR:
MB #	STREET	SANITARY	STORM	EXISTING PIPE SIZE	EXISTING PIPE MATERIAL	CONDITION OF THE EXISTING PDC

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It is part of the Construction Technologist's job to reference and be familiar with the following City of Windsor documents listed below.

- ***Standard Specifications***
- ***Supplemental Specifications and Mandatory Procedures and Practices***
- ***AS Drawings***
- ***Engineering Best Practices***

The above documents are available on the City of Windsor website. It would be suggested that a copy of these are saved on all Construction Technologists phones for future reference and if cellular service is unavailable. The first place to check is always the website as the most current and up to date documents are located on the website.

- Contract tender documents and drawings that pertain to the assigned project
- General Conditions
- City of Windsor Recycled Aggregate Quality Control Program

It is also the Construction Technologist's responsibility to request for all Quality Assurance documents from internal or external sources. The documents are to then be reviewed to ensure

compliance to the applicable specification. If you don't have a copy or are missing any of the required documents from the pre-con meeting, then you must ask for them as it is your responsibility to review them. The Field Services Q.A. staff will carry out regular Standard Proctor testing for routine QA testing as well as site specific testing. CT can request the values from Q.A. Field Supervisor or check the Masterlist (Proctor Tab) which is accessible to everyone. Job specific Asphalt Mix Designs are requested at the Pre-Con meeting and are filed and accessible upon receipt.
If a submission does not meet the applicable City of Windsor's Specification for that material, the Project Engineer, your Field Supervisor and the Q.A. Field Supervisor immediately be notified.

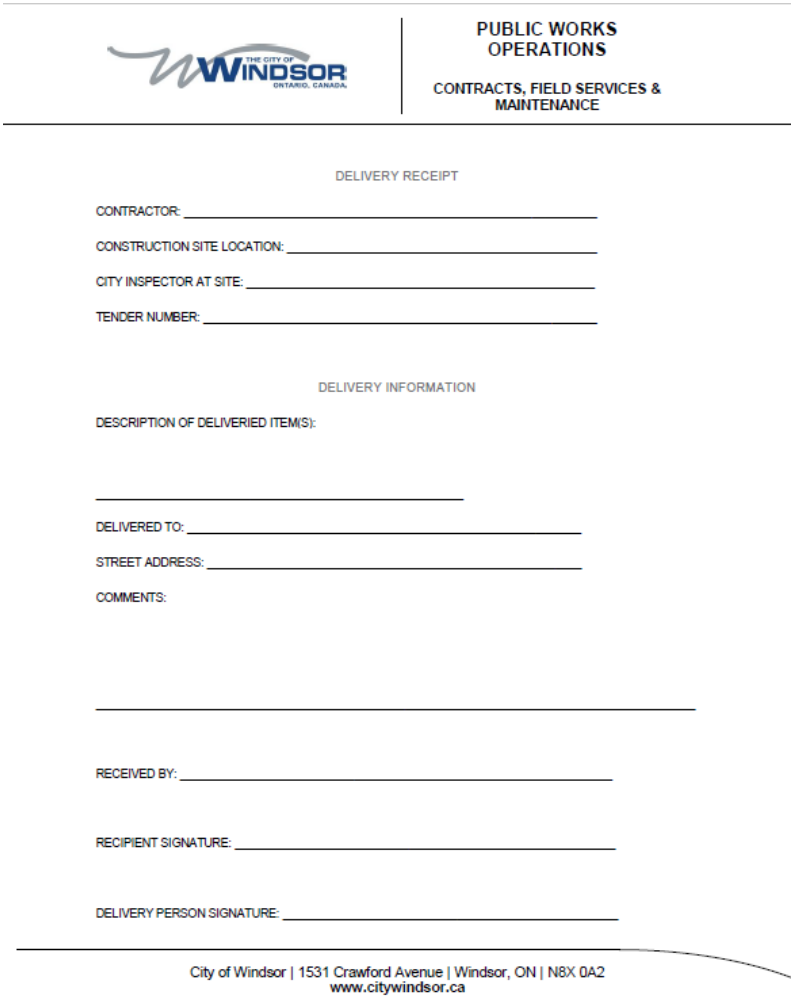
Measured contract items for final payment will be quantified in the unit accounted for in the tender document and will have the following precision as per the Book of Supplementary Specifications and Mandatory Procedures and Practices.

Sewer pipe (PVC or concrete)	0.00m
Culverts	0.00m
Maintenance hole (pre-cast)	EACH (LUMP SUM INCLUDING F&C)
Catchbasins (pre-cast)	EACH (LUMP SUM INCLUDING F&G)
Adjust existing MH or CB	EACH
Sawcutting	0.0 m
Milling	nearest square meter
Excavation	nearest cubic meter
All weighted material	0.00 tonne
Concrete pavement	0.00 sq.m
Concrete sidewalk or driveway	0.00 sq.m
Concrete curb and gutter	0.0 m
Fence or guard -rail	0.0m
Sod/ seeding or re-vegetation	nearest square meter
Application of calcium chloride	0.0 cubic meter
Equipment rental	0.5 hr
Top soil	nearest cubic meter
Clearing and brushing	nearest square meter
Removal of concrete pavement	nearest square meter
Removal of concrete sidewalk	nearest square meter
Removal of curb and gutter	0.0 m
Removal of sewer, culvert or water-main	0.0 m

<u>Payment Structure for Incomplete Work</u>
Payment for a maintenance hole or catchbasin that is not parged or benched shall be 0.8 EACH until work is completed. Castings being returned to the City of Windsor is a separate line item the Schedule of Unit Prices and has no bearing on payment for maintenance hole or catchbasin installations. Once the frame & cover/grate have been placed to final grade, the applicable structures parging and benching is completed and the base asphalt is placed, the remaining 0.2 EACH is paid on the applicable item.

Payment for the removal and replacement of existing maintenance hole or catchbasin frame and covers/grates shall be 0.8 EACH until the parging is completed and then the remaining 0.2 EACH is paid under that line item.

Payment for castings to be returned to the City of Windsor shall be made once the Contractor provides the signed document below that all the old castings have been returned to the City of Windsor's Operations Yard at 1531 Crawford Avenue. (EXAMPLE BELOW)



PUBLIC WORKS
OPERATIONS

CONTRACTS, FIELD SERVICES & MAINTENANCE

DELIVERY RECEIPT

CONTRACTOR: _____

CONSTRUCTION SITE LOCATION: _____

CITY INSPECTOR AT SITE: _____

TENDER NUMBER: _____

DELIVERY INFORMATION

DESCRIPTION OF DELIVERIED ITEM(S):

_____

DELIVERED TO: _____

STREET ADDRESS: _____

COMMENTS:

_____

RECEIVED BY: _____

RECIPIENT SIGNATURE: _____

DELIVERY PERSON SIGNATURE: _____

City of Windsor | 1531 Crawford Avenue | Windsor, ON | N8X 0A2
www.citywindsor.ca

Payment for project & construction signage is 0.5 EACH at the start of the project for the original placement of ALL the signs and then an additional 0.5 EACH is paid at the end of the project for the removal of ALL signs for a total of 1.0 EACH.

Payment for every PVC fitting is by the diameter of the fitting when doing PDC or catchbasin connection work.

Every PVC fitting (this includes a wye) is paid as 150mm when doing private drain connections except the TEE fitting at the cleanout as this is paid under the cleanout item in the Schedule of Unit Prices.

THE REDUCER FROM 150mm to 100mm IS NOT PAID AS A FITTING AND ALL 100mm IS PAID AS 150mm AS A LENGTH ONLY
Every PVC fitting is paid for either 200mm or 250mm when connecting catchbasins based on the size of the lead to the main. The catchbasin lead does not include half the mainline diameter when calculating the total length placed.
PDC lengths do include half the diameter of the mainline when calculating the total length placed.

NOTE: If a connection is capped at the property line, **the cap IS NOT to be paid for.**

MH to be paid from centre of cover to centre of cover not from outside of MH to outside of MH as this is only used to check and calculate grade of sewer run.

The catchbasin box out is paid under linear curb & gutter measurement and is NOT included in the unit item paid for catchbasin installation in the Schedule of Unit Prices. The sub-drain is also paid under the applicable item in the Schedule of Unit Prices and includes the distance through the catchbasin.

The total linear measurement for the curb & gutter and sub-drain should theoretically be the same unless sub-drain was not placed behind new curb & gutter at a certain location if called out in the tender documents to not placed.

As-Built Quantities and Post Construction Sod Video
It is the Construction Technologist's responsibility to produce the as-built records to use for quantities for payment of the work done under the contract.

The Construction Technologist is required to gather the required information for this record by any or a combination of total station, GPS drawings, hand measuring and quantifying.

Such a drawing could accurately depict:

- Pipe sizes, lengths, inverts and locations as installed
- Manhole locations. (MUST BE SHOT in real world coordinates with the GPS or the Total Station equipment
- Stubbed sewer locations and lengths
- Inverts and manufacturer of ALL concrete/PVC/HDPE pipe stubs
- Concrete curb & gutter lengths and limits
- Areas and locations of concrete pavement, driveways and sidewalks.
- Areas of sod
- Areas and notes of Contractor work that is paid for privately but is adjacent to city work and areas of Contractor restoration that is likewise not paid by the city

In general, all items paid by an area or a volume should be measured and included in the "As-Built" drawing.
Only item areas measured are to be used for quantities.
Items paid by lump sum, tonnage or by the unit may be shown on the drawing for reference information only but are not used for payment quantities.

Payment for such items are to be calculated from the appropriate source.

As-Built drawing protocols

Once the field total station or GPS work is completed and a frame-work drawing is composed, the frame-work drawing is to have:

- Street names, property lines and building outline with municipal address
- All field measured sidewalk, driveway sod/seed areas with an area number (but no quantity assigned)
- The Construction Technologist shall provide notes and hand measurements delineating any areas in part or entirety that are not to be included in the City's cost. Such areas are to be included in the drawing but hatched out and not be part of the payment area totals
- The center of the manholes shot and joined with a line representing the sewer run
  The Construction Technologist will label the MH i.d. numbers, provide invert or stub information and list the sewer run pipe size and material <u>as placed</u>
- To be drawn to scale with Title block and border
- The concrete curb lengths and limits
- PDC clean out caps

All amendments and notes are to be included and checked prior to final print and distribution. The Construction Technologist can complete the final payment certificated based on the quantities illustrated on the drawing or hand measured and tabulated on the item total sheets.

Below are some points to follow that may not be specifically outlined but bare mention.

<u>Contractor Mobilization</u>

Line Item for Signage is paid as 0.5 EACH for initial setup and remaining 0.5 EACH is paid upon removal at the completion of project. Signage is only checked during construction if complaints received.

<u>Utilities</u>

Contractor is responsible for all locates.

Any damage to any utility plant is noted and Contractor to advise appropriate utility. Construction Technologist is to mention in site meeting minutes that utility plant was damaged.

<u>SEWER CONSTRUCTION</u>

SAW CUTTING

Track cutting, if applicable, as may be a line item in the Schedule of Unit Prices and may be done prior to road removal so once road removal completed there will be no way to confirm measurements. Engineering to define how and when sawcutting required by adding it as a line item in the Schedule of Unit Prices.

MAINTENANCE HOLE TIE IN

Sand collar or rubber boot to be used as per City of Windsor Standard Specifications.

FLEXIBLE JOINT DISTANCE
Concrete pipe is class a bedding always to first pipe joint and PVC pipe the flexible joint has to be within 3 feet or 1 metre if not using a rubber boot.

OPEN CUT TRENCH
Minimum 1% fall on any open cut PDC – boring or pipe bursting to be 2%.
Document any utility crossings in trench.

PIPE CLASS AND MATERIAL
It should be listed on drawings and in tender documents.

DE-WATERING
Ensure that any de-watering done properly which means into a downstream manhole or pumper truck – not on the roadway. If the Construction Technologist observe this, they should immediately contact the Field Supervisor.

BEDDING MATERIAL
Granular material required.

PIPE INSTALLATION
Installed as per manufactures guidelines or accepted practice
Compaction of bedding material required as well as compaction required at springline.

MAINLINE TEE LOCATIONS FOR PDC & CATCHBASIN
They are to be close as possible to required location which is +/- 1 meter of property line unless otherwise shown in tender documents.

MAINTENANCE HOLE AND CHAMBER PLACEMENT
They are to be close as possible to required location as to not affect cost.

BACKFILL MATERIALS AND COMPACTION
Visual checks are required as well as the QA compaction testing.

CCTV FOR ACCEPTANCE
Flushing of the PDC's and catchbasin leads to be undertaken first by the Contractor 24 hours prior to inspection and then the PDC's and catchbasin leads to be reviewed by the Construction Technologist with CCTV with the Contractor providing assistance to access to the cleanouts or open the frame & grates.

BORING AND AUGURING
All sewer boring and auguring is to be done as per tender documents.

SEWER TESTING
CCTV review will be accepted unless issues are noted then after a discussion with the Project Engineer and Field Supervisory staff, additional testing such as air testing, infiltration/exfiltration testing or test cage passage may be requested of the Contractor for acceptance.

ROAD CUT

LAYOUT
Check the tender documents to see who is responsible for layout? If it is the Contractor, then remind the Project Engineer to document it in the pre-con meeting minutes.
Contractor gets one layout only if the City of Windsor is undertaking the road layout.

SUB-GRADE INSPECTION / EXCAVATION / SUB-DRAIN INSTALLATION
Shoot the excavation every 15 metres, no exceptions.
Check the proof rolling prior to shots and placement of granular material.
Removal of any deleterious materials and also track any over excavation.
If Geotechnical Consultant is required to attend the site the Project Engineer, Q.A. Field Supervisor and Field Supervisor need to be consulted first for comments and approval unless pre-approved.

PLACEMENT OF APPROVED GRANULAR MATERIAL
Visual checks and look at the water content for weight ticket issues/compaction issues.
Coordinate site sampling of granular materials with Contractor as per City of Windsor Standard Specification. Where the granular base thickness exceeds 300 mm placement and compaction to be carried out in lifts.

COMPACTION REQUIREMENTS
100% SPD at optimum water content unless otherwise noted in the contract documents

MAINTENANCE OF ROAD BASE DURING CONSTRUCTION
Contractor to provide 100mm of Granular ‘A’ for maintenance stone but refer to contract documents

TESTING
Compaction and grade
Construction Technologist may be responsible for all for QA testing

APPROVAL
Any issues to be discussed with the Field Supervisors and/or Project Engineer.

PAYMENT
Construction Technologist is to be responsible to recommend payment for items in the Schedule of Unit Prices and also for work done under Force Accounts.

ROAD PAVEMENT

CURB AND GUTTER

GRADE
Shoot the highs and lows of the string line prior to placement and discuss any issues with the Contractor.

CURB CUTS
Restore existing widths that were there and any new cuts are as per the permit for them.

PLACEMENT
Curing compound applied as per manufactures specifications to all exposed sides or plastic covering everything.

TESTING
Slump test / Air test / Temperature are the minimum testing required. Cast cylinders if required.
Confirm approved supplier and proper mix design are used.
Tools and equipment to be cleaned after every use. Equipment to be calibrated regularly.

RIGID PAVEMENT

PLACEMENT
Check the grade and the LTD (Load Transfer Devices) as well as the deformed bars.

TESTING
Slump test / Air test / Temperature are the minimum testing required. Cast cylinders for FIELD and LAB cures.

Confirm approved supplier of the ready mix and proper mix design are used.

Tools and equipment are to be cleaned after every use. Equipment to be calibrated regularly.

FLEXIBLE PAVEMENT

PLACEMENT
All debris (ex. leaves) must be removed from area to be paved.
Paving not allowed on frozen base.
Kolis applied as per manufactures specifications.

TESTING
Check asphalt ticket for proper material.
Check temperature and depth of material.
Samples taken –as per City of Windsor Standard Specification, split by quarter master and tools for sampling are to be cleaned after every use.

RESURFACING AND REPAIR WORK
Repair work to be done as per Standard Specification or Best Practice.

RESTORATION BEHIND THE CURB

SIDEWALKS

LOCATION
Sidewalk location as per the plan.

BASE
Granular base as per the plan.

FORM CHECK
Positive drainage always towards curb.

PLACEMENT
Concrete is never placed on frozen base.

TESTING
Slump test / Air test / Temperature are the minimum testing required. Cast cylinders for FIELD and LAB cures. Tools for testing and sampling are to be cleaned after every use
Equipment to be calibrated regularly

DRIVEWAYS AND LEAD WALKS

The minimum amount left of existing panels when doing removals is 1.3 metres length for sidewalk and 2 metres by 2 metres for driveways.

LOCATION
Full panel removals for concrete. Minimum width for proper compaction for asphalt.

BASE
Granular base as per the plan.
Slump/air/temperature and casting of cylinders is required.
Tools for testing and sampling are to be cleaned after every use.
Equipment to be calibrated regularly.
Form check
Positive drainage always.

PLACEMENT
Concrete is never placed on frozen base.

TESTING
Slump test / Air test / Temperature are the minimum testing required. Cast cylinders for FIELD and LAB cures. Tools for testing and sampling are to be cleaned after every use
Equipment to be calibrated regularly

TOPSOIL / SOD / SEED / RE-VEGETATION

PLACEMENT

Visual check before placement and refuse if looks to be out of specification and advise Field Supervisor and Project Engineer
Topsoil must be from approved supplier
Coordinate sampling of topsoil with Contractor

FORCE ACCOUNTS

Contactor must advise us on their intent to claim
Document when equipment arrived and vacated site if applicable
Document the hours of equipment and staff on site
Claims to be submitted to Field Engineering for review
Check the hours & rates with OPSS rates

ROAD CHECKLIST

Construction Technologist is to complete the Road Checklist form (EXAMPLE BELOW) and place it in the job file. This is to be filled out upon completion of the base asphalt or before the project is accepted onto maintenance.

FIELD SERVICES

ROAD CHECKLIST

This form is to be used as a checklist to ensure that when projects are left after completion of construction prior to start of maintenance that all items are accounted for and documented.

DATE:	
TENDER #	
STREET:	
FROM:	TO:
TECHNOLOGIST:	PROJECT ENG:

CHECKLIST:

☐ All Curb Repairs Completed	☐ Yes ☐ No	
☐ Wheelchair Ramps	☐ Temp Ramping	Painted: ☐ Yes ☐ No
☐ Maintenance Holes	☐ Flush ☐ Raised	Painted: ☐ Yes ☐ No
☐ Catchbasins	☐ Flush ☐ Raised	Painted: ☐ Yes ☐ No
☐ All Valves	☐ Flush ☐ Raised	Painted: ☐ Yes ☐ No
☐ Other:_____	☐ Flush ☐ Raised	Painted: ☐ Yes ☐ No
☐ Other:_____	☐ Flush ☐ Raised	Painted: ☐ Yes ☐ No

PROJECT STATUS:

☐	Accepted onto Maintenance (Start of one year maintenance)

Updated: April 2023